The Relative Age Effect in Elite Dutch Track & Field

The Role of Performance Based Selection Systems

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Abstract

The occurrence of relative age effects (RAEs) has been documented in many domains. This study will show that it is also present in elite Dutch track & field. This will be done by using the official rankings of the KNAU (Koninklijke Nederlandse Atletiek Unie; in English: Royal Dutch Track & Field Federation) of the seasons 2000-2010. The RAE is generally found to exist for most of the disciplines and within all seasons. However, it tends to decline when athletes become older, indicating that physical development, combined with the cut-off date, is a factor that contributes to the occurrence of the RAE. Thus, the performance based selection system is not working properly. By using the objective performances that track & field provides, it will be shown that there are indeed performance differences between early and late born peers, which are not taken into account by the selection system. Especially at early ages these differences can become relatively large. The solution would be to improve the selection system by the incorporation of the estimated differences. In addition, this study will show that some clear differences exist between males and females, which become especially evident during adolescence.

1. Introduction

In a perfect world, we would expect the most skilled, talented or driven people to be the most successful ones. In an imperfect world, however, such as the one we live in, we observe that success is dependent on other factors as well. Malcom Gladwell wrote a bestselling book about this topic titled *'Outliers; the story of success'*. Amongst others, Gladwell discusses the role of opportunities, in which date of birth is a factor for success. At first this might seem a bit strange, since birthdates are exogenous to people and, therefore, unrelated to personal success. However, it has been shown that some people have a higher probability of being selected for, for example, sports teams, simply because they are born closely to a specific cut-off date that separates age categories. Within the literature a term commonly used in relation to this phenomenon, is the relative age effect (RAE).

The first to research this phenomenon within a sports context were Grondin, Deschaies & Nault (1984) and Barnsley, Thompson & Barnsley (1985). They looked at Canadian ice hockey and found a huge overrepresentation of players born closely after the cut-off date, which was the 1st of January. Following were a multitude of studies, covering a variety of areas varying from school performance and academic achievement (e.g., Angrist & Kruger, 1991; Plug, 2001), sports (e.g., Musch & Grondin; 2001) and, last but not least, suicide rates (Thompson, Barnsley & Dyck; 1999). The common feature in all these areas is that the cut-off date determines who is the youngest and who is the oldest within a group. A simple example makes clear that, especially at early ages, the differences can be pretty big. Suppose that the cut-off date for primary school is set on the 1st of January. Now take as an example, two girls. The first turns five years old on the 1st of January, the same grade, but exactly differ one year in age. At age four, this difference means that the second child is 25 per cent younger than the first child, a huge gap.

Of course, the relative age gap as used in the example above will decline over time, but the problem is that the younger girl might not get the same opportunities as the older one gets when growing up. The younger one might very well be more talented in a given discipline, but since she has less possibilities to develop, because she was not selected in the first place (e.g. for extra, more challenging math classes), her talent will be lost. In statistical terms this would be a type I error.¹ On the other hand, the older one will be seen as successful, but might in fact be only a second best

¹ Although it is in general hard to find 'type I' errors in selection systems, since the ones not selected will not be known afterwards, a anecdote by René van der Gijp during the television show of Voetbal International of 16 September 2009 might be seen as such an error. He explains that Boudewijn Zenden was not selected by PSV at an age of eleven years old. Eventually, PSV did ask him to play for their youth academy about five years later. Zenden has 54 caps for the Dutch national soccer team. We know this because PSV gave him a second chance, something people rarely get.

solution, which would be a type II error in statistical terms.² The RAE, therefore, has both an individual as well as a social implication. On a micro level, the lack of opportunities to develop might result in personal dissatisfaction (e.g., Thomson, Barnsley, & Battle; 2001 document lower self-esteem for late born children), while on a macro level, the second best solution is, by definition, not optimal and evidence exists that a good allocation of talent fosters economic growth (Murphy, Shleifer & Vishny; 1991).

Above it has been assumed that the older child is given more opportunities and will be selected, while the younger girl is given less opportunities, since she was not selected. However, no attention was paid to why exactly the older one was selected in the first place. This mainly has to do with the way selection systems are working. Time and budget constraints mean that not everyone can be offered exactly the same, so opportunities should be given by way of selection, e.g. for a better squad, extra training in sports or for extra and more challenging math classes in school³. Ideally, then, you want to select, say an athlete, who has the potential to win the Olympic Games and give this person extra attention already at an early age. However, the difficulty is to determine potential, especially over a long time span. Therefore, selection is often based on current performances. Since physical and mental development is rather equal between peers of the same gender and, thus, start around the same age, the current performances might simply reflect a gap in development (Vincent & Glamser; 2006).⁴ Being relatively older means being more developed than your younger peers, which means a physical advantage and a better ability to concentrate. If, then, more development results in better current performances, as is very likely in, for example, ice hockey (Sherar, Baxter-Jones, Faulkner & Russell; 2007), the RAE in relation to the selection of the age advantaged can be explained.

The focus on current performances during selection procedures thus results in an RAE. As already mentioned, selecting potential would be the best solution to overcome this problem. Although Williams & Reilly (2000) argue that the expertise of professional coaches should not be underestimated, it is a difficult task. Therefore, some researchers have proposed to measure the development of performances (e.g. Gagné; 2004). In this way, progress is leading in the selection procedure. The problem is, however, that it is costly to track the development of all individuals, especially in team sports, where the relatively younger athletes have to compete against relatively

² These examples are easier to find. It could be argued that author himself belongs to this group, since he was selected for the youth academy of the professional soccer club NAC Breda until his 18th birth date, but never played for the first team.

³ A difference between sports and school is that someone can easily decide to drop out of sports, but, at least in the Netherlands, it is mandatory to go to school until the age of 16. This distinction will be discussed in section 7.

⁴ The differences in development between genders are especially visible during puberty. The gender differences will be discussed in more detail further on in the text.

older ones in the same competition. Furthermore, it is often hard to objectively measure performances and thus progression. If this is possible, current performances can be compared between people, despite any relative age gap. In school achievements, standardized test scores could be used. Unfortunately in sport, such data is often not available. One of the exceptions, however, is track & field, which will be the subject of this study⁵.

Most previous studies of the RAE in sports have focused on team sports. By investigation of track & field, which is historically the most important sport of the Olympic Games, we will see that an RAE also exists in individual sports⁶. Furthermore, most studies only used male athletes, mainly because of limited data on female athletes. Since track & field is practiced by both males and females, and since data is available in more or less equal amounts, this study will be a valuable contribution in that respect as well. Finally, as already mentioned in the previous paragraph, track & field provides an objective measurement of performance. This will be used to determine if an RAE coincides with a performance difference between early and late born peers. The estimations of these differences can then be used in the comparison of performances those relative differently aged individuals. Again the differences between genders will be discussed.

This thesis will proceed as follows. Section two will provide insight into some literature on talent selection, identification and development; section three will review related literature on RAEs in sports; section four will provide some background information on track & field and in particular how the Dutch system is organized; section five will describe the data and methodology that will be used; section six will present the results, which will be split in two separate parts, the RAE and performance differences; section seven will present a discussion, in which multiple aspects will be reviewed; and finally section eight will conclude.

⁵ A detailed description of track & field, with some background information of the Dutch system, will be given in section 4.

⁶ The informed reader will note that there are some disciplines which have to be done by a team, like relay races. These disciplines are however, left out of the analysis, since it is not possible to link a performance to a specific date of birth.

2. Talent selection, identification and development

Since it is an essential element in the development of expertise, this section will briefly review some important studies that contributed to the debate about talent and its selection, identification and development. A central theme within this debate is the role played by nature and by nurture. An exhaustive overview would be beyond the scope of this thesis, therefore only some main conclusions will be reviewed. For a comprehensive discussion, I would like to refer to an academic review on talent identification and development, by Abbot, Collins, Martindale & Sowerby (2002).

More than a century ago, Francis Galton (1874) was one of the first to discuss the role of nature and nurture in relation to talent. He argued that a strong relation exists between achievement domains within families, which made him conclude that inherited factors are responsible for success (Galton; 1869). For this reason he, thus, advocates that nature is more important than nurture in explaining talent. The implication of this thought is that someone who is not identified as having innate talent in a particular domain, will never get the support to achieve expert performances (Howe, Davidson & Sloboda; 1998). If nurture only plays a minor role, this would not be much of a problem. The only thing that needs to be done is predicting innate talent at early ages, which could be done by looking at family members.

However, in their seminal paper, Ericsson, Krampe & Tesch-Römer (1993) document that environmental factors are far more important than was generally thought before. They introduced the concept of deliberate practice, which is effortful practice that is not inherently enjoyable, but improves results and is found to be relevant for becoming an expert within a particular domain. Ericsson *et al.* (1993) use violists and pianists to show that the best performers are the ones that conducted more deliberate practice compared to less performing peers. It takes about 10,000 hours of practice to become an expert, which someone typically reaches after 10 years (Ericsson *et al.*; 1993).⁷ Given the assumption of monotonic benefits and since the starting ages of peers did not differ much, the amount of deliberate practice is what separates 'good' from 'best' performances. It is important, in this respect, that parents, teachers and coaches give a child the opportunity to train and develop: i.e. the environment should be supportive. This will only be the case, however, if there are early signs that the child could become an expert. Early signs of expertise could, of course, be the result of innate talent. But Ericsson *et al.* (1993) reject this possibility, since most aspects that might indicate a promising star, are learned through early experiences (e.g., listening to a lot of music).

⁷ This coincides with the '10 year rule', that was introduced by Simon & Chase (1973) in chess and is found to exist in other domains as well, such as: middle distance running (Young & Salmela; 2002), wrestling (Hodges & Starkes; 1996), figure skating (Starkes, Deakin, Allard, Hodges & Hayes, 1996; and Helsen, Starkes & Hodges; 1998), field hockey (Helsen *et al.*; 1998), mathematics (Gustin; 1985), swimming (Kalinowski; 1985) and tennis (Monsaas, 1985).

Perceived innate talent is then in fact the result of environmental factors, which in turn are a precondition to accumulate the necessary amount of deliberate practice to become an expert performer (Ericsson *et al*; 1993).⁸

In their literature review, Howe *et al.* (1998) also questioned the role of innate talent and concluded that this is not a convincing explanation of expertise. 'It is important to keep in mind that early ability is not evidence of talent unless it emerges in the absence of opportunities to learn' (Howe *et al.*; 1998, p. 403). They furthermore state that innate talent is often inferred instead of observed and is a simple way of explaining differences in performances without the necessity to account for all individual differences (e.g., differences in motivation, strength and concentration). In line with the concept of deliberate practice from Ericsson *et al.* (1993), Howe *et al.* (1998) argue that most early signs of expertise are the result of experiences and opportunities to learn, while a large amount of practice is necessary to become an expert in adulthood.⁹

The theory of deliberate practice has also been used within sports contexts (e.g. Young & Salmela, 2002 in middle distance running; Starkes *et al.*, 1996 in sport in general; Hodges & Starkes, 1996 in wrestling; Helsen *et al.*, 1998 in soccer and field hockey; Helsen, Hodges, Van Winckel & Starkes, 2000 in soccer; Ward, Hodges, Starkes & Williams, 2007 in soccer). Although the results turned out to be more or less the same as found for musicians (Ericsson *et al.*; 1993), a difference was that the relevant practice for sport performances (in particular team practice) was enjoyed by the participants. Furthermore, Hodges & Starkes (1996) have also argued that a distinction should be made between physical and mental effort, since not all practice requires both or in equal amounts. It has been shown that a separate dimension measuring concentration is relevant within the framework of deliberate practice (Hodges & Starkes, 1996; Helsen *et al.*, 1998). Cumming & Hall (2002) used this 'mental' dimension, instead of physical effort, to study the effect of deliberate imagery practice within a wide range of different sports. However, their results did not comply with the original theory of deliberate practice, nor with the sports specific framework, since they found a positive relation between relevance and enjoyment, but not between concentration and enjoyment.¹⁰

⁸ Although it might seem that the deliberate practice view means that everyone can become a star in every domain, Ericsson *et al.* (1993) acknowledge the importance of some innate influences (e.g. height) and that not all people have the same maximum capabilities (e.g. in basketball).

⁹ Although a comprehensive discussion of how exactly this practice results in expertise would be beyond the scope of this text, Sitskoon (2006) provides an interesting explanation. In her book 'Het maakbare brein; Gebruik je hersenen en word wie je wilt zijn' [The makeable brain: Use your brain and become who you want to be] she describes that one's brain can evolve, within certain bounds, by one's behavior and his interaction with the environment. The capacity of the brain, thus, evolves, which means the person will change too. Sitskoon (2006), thus concludes that practice results in expertise by way of a changing brain.

¹⁰ Ericsson *et al.* (1993) predict a positive relation between 'relevance' and 'concentration', while a negative between 'relevance' and 'enjoyment' and 'concentration' and 'enjoyment'. The sports-specific framework as

Of particular interest to this study is an article by Helsen *et al.* (2000) which examines the validity of deliberate practice for British youth soccer in light of a relative age effect. Although their conclusion is that domain-specific knowledge and practice (i.e. deliberate practice) is important for elite performances, coaches should be more aware of the fact that they are working with a biased selection towards the physically advantaged children (i.e. the relative older ones). Providing equal opportunities would mean that no 'talents' (the ones that have a higher potential than others) are missing the necessary practice to reach expert levels (Helsen *et al.*; 2000), while at the same time prevents a bad investment of scarce resources (Abbott & Collins; 2004).

Until now, we saw evidence that the nurture-based concept of deliberate practice provides some appealing and useful insights. However, in the previous paragraph, some literature has been discussed that raised critiques concerning the equal opportunities for participants within a domain. Other doubts about the validity were raised by Simonton (1999). Although he states that 'it is extremely likely that environmental factors, including deliberate practice, account for far more variance in performance than does innate capacity in every salient talent domain' (Simonton; 1999, p. 454), he developed a model in which talent is multidimensional, multiplicative and dynamic (rather than unidimensional, additive and static) which gives talent a more prominent role in the development of expertise. The model consists of two stages. Stage one is the emergenic part, which considers the differences between individuals in their level of different components (e.g., speed and motivation). The components are not domain-specific (e.g., speed and motivation are useful in multiple sports) and by multiplying the relevant ones, where relevance is measured by some weight factor, an individual's potential talent within a particular domain can be inferred.¹¹ This way of modeling implies that talent is domain-specific, since a zero score on a relevant component makes someone 'untalented', which also implies that the distribution of talent is heavily skewed to the right (i.e. a lot of 'untalented' people). Given that the number of relevant components might differ, the complexity of talent domains will differ too. Furthermore, the model provides for the heterogeneity in component profiles within a specific domain, which makes the predictability of talent harder. Finally, since this part of the model is based on an emergenic¹² relation, it predicts low familial inheritability (Simonton; 1999). Part two of the model, the epigenetic¹³ part, describes how talent

proposed by Hodges & Starkes (1996) and Helsen et al. (1998) predicts a positive relation between all three dimensions.

¹¹ Formally this is: $P_i = \prod_{j=1}^k C_{ij}^{W_j}$ in which P_i is the potential talent for individual *i*, C_{ij} the *i*th individual's score on component *j* and w_{ij} is the weight given to the *j*th component for individual *i*, with $(w_{ij} > 0)$ (Simonton; 1999).

¹² Emergenic means that a trait stems from a specific combination of several interacting genes (not simply from adding independent genes).

¹³ Epigenetic means the development of traits as a result of a specific gene structure.

develops. It models talent as being time-dependent and is thus dynamic.¹⁴ The moment at which development takes place (and ends) is both person- and component-specific. An interesting feature of this type of development is that it allows for early bloomers and late bloomers. The model's prediction is that there will only be a few early bloomers, since those should have high scores on all relevant components, while many late bloomers will occur because of a lot of 'zero scores' early on in the development phase.¹⁵ The model also takes account of the fact that talent is not necessarily visible at early ages and it allows for the loss of talent, in relative terms (different development rates for individuals at a given moment in time) as well as absolute terms (e.g., an injury). Furthermore, since components are time dependent, an individual's optimal domain might change. An example might be someone who seems to be a talented baseball player, but at age 16 turns out to be better in American Football. Although Simonton's model (1999) does not provide practical policy implications, it gave new insight into the role of innate factors and made researchers think of talent in a multidimensional, multiplicative and dynamic way.

Williams & Reilly (2000) did this and reviewed the literature on talent identification and development in male soccer. Although they specifically look at soccer, their findings seem to hold for other sports as well. Nonetheless, they note that their conclusions cannot be generalized to females. Williams & Reilly (2000) start with setting out four stages of talent identification and development. The first stage is 'detection' (the discovery of potential performers, not yet actively involved in the given sport), which precedes 'identification' (recognizing potential elite performers). After identification, the potential talents enter the 'development' stage. Here they are placed in an environment which allows them to realize their potential. The final stage, 'selection', describes this as an ongoing process, in which less participants will enter further development at more demanding levels. Although this ongoing selection might seem to correspond with the dynamic nature of talent as proposed by (Simonton; 1999), Williams & Reilly (2000) state that, given the increased competition between clubs, talent should be identified as early as possible, so as to focus expenditures on the most promising stars and, thus, neglect the 'late bloomers'. However, in line with Simonton (1999), Williams & Reilly (2000) argue that multiple dimensions should be considered that might interact. Besides physical attributes, one should look at physiological, psychological and sociological aspects in talent identification and development. With respect to the physical aspects,

¹⁴ Formally the equation becomes: $P_i(t) = \prod_{j=1}^k C_{ij}(t)^{Wj}$, in which t represents time and the other characters are identical to those in footnote 11.

¹⁵ Note that someone is seen as untalented if he or she has a 'zero score' on any of the relevant components. Given the dynamic nature of the model, a 'zero score' might change into a positive score after some period of time. In the early stage of development, however, there will still be a lot of 'zero scores' on any of the relevant components, which implies the person is seen as untalented. When development starts for all relevant components, the person might become a late bloomer. However, he or she will stay untalented if development does not result in positive scores on all relevant components.

they note that this should not have an overwhelmingly large influence, since it might result in a skewed birth-date distribution and thus a loss of potential talent (Williams & Reilly; 2000).

The psychological aspect is more closely considered by Abbott & Collins (2004). Although they agree with, for example, Simonton (1999) that multiple determinants of performance exist and talent identification and development is a dynamic process, they argue that psychology is the only dimension that separates the ones that 'become' successful and the ones that 'maintain' to be so (Abbott & Collins; 2004). In their view (in line with Ericsson *et al.*; 1993), progression will occur if participants are motivated to invest in practice, while at the same time use strategies such as goal-setting and imagery (i.e. self-regulatory learning strategies) to optimize development given the opportunities that are provided by the environment. The path to excellence is complex and requires a constant adjustment, initiated by the self-regulatory strategies, of the optimal conditions (Abbott & Collins; 2004). In contrast to Williams & Reilly (2000), Abbott & Collins (2004) state that early identification (as happens with scouting in soccer) should only play a minor role. Instead, the provision of opportunities to develop is more important. Psychological factors such as motivation and self-regulatory learning strategies will then guide progression (Abbott & Collins; 2004).

The relation between self-regulation and motivation on the one hand and performance levels on the other hand was tested by Toering, Elferink-Gemser, Jordet & Visscher (2009). They used data of youth male soccer players aged 11-17 years from the Netherlands. The sample was split in elite players (playing in the youth academy of a professional soccer club) and non-elite players (playing for a non-professional soccer club) and the level self-regulatory strategies was measured by way of questionnaires. In line with theory, the result showed a positive relation between performance level and effort (i.e. motivation) and (self)reflection. This result, however, does not indicate that participants should have much self-regulation before being selected, since it might well be developed afterwards (Toering et al.; 2009). The only conclusion that can be based on this observation is that effort and (self)reflection are a prerequisite for expertise. Another study (Toering, Elferink-Gemser, Jordet, Pepping & Visscher; 2011) also looked at the role of self-regulation and performance levels, but controlled for any RAE as a potential moderator variable. This was done, since relative age might affect the relation between self-regulation and performance through its influence on maturation, experience and performance level. A sample of Dutch players of age 12-17 was used. Elite players are now those selected for the representative teams (national and district) of the KNVB^{16,17}. Non-elite players consist of those in a youth division of a professional football club, but not selected by the KNVB. For both groups a RAE was found, while stronger in the elite group. Also, again a positive

¹⁶ Koninklijke Nederlandse Voetbal Bond.

¹⁷ The KNVB divides the Netherlands into six districts, representing a more or less equal share of the population.

relation was found between self-regulation and performance level. Interestingly, this relation was not affected by relative age, which made the authors conclude that self-regulatory strategies might be a valuable measure in talent identification, instead of the often used discrete and physical measures (Toering *et al.*; 2011).

Vaeyens, Lenoir, Williams & Philippaerts (2008) lead us to conclude, however, that talent identification and development programs in sports are not yet able to incorporate all important elements and to overcome all identified problems. They start with an elaboration of the problems with the current (cross-sectional) designs. Four main issues are discussed. One of them is the maturity-related problems that cause a skewed birth-date distribution (i.e. a RAE). The others are the focus on current performances, the lack of acknowledging the dynamic nature of talent and its development and the focus on only a limited number variables (Vaeyens el al.; 2008). In conclusion, the authors state that: 'there is a need for a conceptual framework for TID [talent identification] and TDE [talent development] that rests on the distinction between potential and performance, while acknowledging all potential determinants of talent' (Vaeyens et al.; 2008, p. 706). In light of this statement, they continue with a discussion of the Differentiated Model of Giftedness and Talent (DMGT) as formulated by Gagné (2004). This model makes a distinction between 'gifts' (i.e. natural abilities)¹⁸ and 'talent' (i.e. expertise), with talent emerging through a talent development process.¹⁹ The ease and speed with which this takes place determines the level of giftedness, in which easier and faster signifies more giftedness (Gagné, 2004; Gagné 2009). Three types of catalysts influence the development process: intrapersonal, environmental and chance (Gangné; 2004). In an updated version, 'chance' was removed as a catalyst and entered as a background influence, mainly on the environmental factors. The influence of these environmental factors on the developmental process, in turn, changed from a direct influence to a mainly indirect way through intrapersonal aspects (Gagné; 2009). Despite these changes, in the DMGT the transformation of 'gifts' into 'talent' takes place by numerous causal interactions between all the elements of the model. Furthermore, since these elements differ for all individuals, the model does not predict a unique path towards excellence (Gangé; 2004).

Although the DMGT was initially developed in the domain of education (Gagné; 1993), it has been acknowledged as a useful developmental theory within a sports context (Gagné, 2004; Vaeyens *et al.*, 2008; Gagné 2009). The statement by Vaeyens *et al.* (2008, p.706) as cited above asked for a distinction between potential and performance. The DMGT provides such a distinction, since

¹⁸ It is important to note that these natural abilities are not necessarily innate, since they might develop over time.

¹⁹ In the model, someone is stemmed 'gifted' or 'talented' in a particular domain if she belongs to the top 10 percent. Gagné (2004) discusses in detail this threshold level. However, it would be beyond the scope of this text to reproduce that discussion over here.

potential is recognized by the rate of learning (Vaeyens *et al.*; 2008). Furthermore, the model is appealing since: 'It recognizes the potential respective influences of nature and nurture and takes into account the dynamic and multidimensional features of sport talent' (Vaeyens *et al.*; 2008, p. 707). In doing so, the DMGT might well overcome the problems that the other, cross-sectional designs of talent identification and development models face. However, the model might need to be refined given a specific question. Recently, Gagné (2010) did this when considering the role of motivation within the DMGT. As part of the intrapersonal catalyst, an in depth analysis of this part of the model showed that motivation plays a large role in the development process, as is also found by other researchers (e.g., Ericsson *et al.*, 1993; Abbott & Collins, 2004).

Summarizing this section, we saw that, historically talent was attributed to innate factors. However, more recently researchers started to question this explanation and looked for other underpinnings of expertise. The nurture-based view, in which (deliberate) practice plays a central role, gained support. In the present, most researchers agree that talent identification and development should be multidimensional and dynamic. Furthermore, they agree that selection should not be based on current performances, but on potential and the development of natural abilities. The DMGT, in which environmental and intrapersonal (e.g. self-regulatory strategies) guide development, provides a useful theoretical framework in this respect. It might resolve the problems of earlier talent identification and development models, of which a skewed birth-date distribution is one. Below we will see, however, that the RAE has been persistent over time.

3. Overview of related literature on the RAE

This section will give an overview of related studies that looked at the RAE. Although the RAE has been studied in many different domains, this section will focus on those studies that address the RAE in sports. In doing so, some potential 'causes' of the RAE and 'remedies' to the RAE that were proposed will be discussed.

As mentioned in the introduction, the first to document the existence of a RAE in sport were Grondin *et al.* (1984) and Barnsley *et al.* (1985). Grondin *et al.* (1984) looked at different competitive levels of Canadian ice hockey and volleyball for players from junior and senior ages and observed a significant overrepresentation of early born players²⁰ (for volleyball this was only found for the elite levels). Barnsley *et al.* (1985) only looked at elite adolescent and elite senior Canadian ice hockey and found similar results. A follow-up study by Barnsley & Thompson (1988) showed that a RAE was also present within the junior divisions of Canadian ice hockey. Furthermore, they found that this RAE was largest in the top tiers of the ice hockey system. Two conclusions were based on these observations, which may account for the results as found by Barnsley *et al.* (1985). First, given the overrepresentation of early born players, it can be concluded that these will stay active within the sport, while late born participants will drop out. Second, given that the RAE is mainly visible within the top tiers of junior ice hockey, it is likely that the RAE will proceed into senior elite levels, since those age-advantaged participants, playing at young ages for better teams, are provided with the opportunities (e.g. better training and coaching) to fully develop (Barnsley & Thompson; 1988).

Following the example of the studies mentioned above, many researchers have looked at the RAE, covering a wide range of different sports. An overview is presented by Musch & Grondin (2001) and by Cobley, Baker, Wattie & McKenna (2009), who conducted a meta-analysis. The sports that gained most attention are ice hockey (e.g., Grondin *et al.*, 1984; Barnsley *et al.*, 1985; Barnsley & Thompson, 1988; Sherar *et al.* 2007; Nolan & Howell, 2010; Addona & Yates, 2010) and soccer (e.g., Verhulst, 1992; Dudink, 1994; Helsen, Starkes & Van Winckel, 1998; Musch & Hay, 1999; Helsen *et al.*, 2000; Helsen, Starkes & Van Winckel, 2000; Simmons & Paull, 2001; Vaeyens, Philippaerts & Malina, 2005; Helsen, Van Winckel & Williams, 2005; Vincent & Glamser, 2006; Ashworth & Heyndels, 2007; Jiménez & Pain, 2008; Augste & Lames, 2011). Other sports in which a RAE was found are baseball (Thompson, Barnsley & Stebelsky; 1991), swimming (Baxter-Jones, Helms, Maffualli, Baines-Preece & Preece; 1995), tennis (Baxter-Jones; 1995 and Baxter-Jones *et al.*; 1995), with a slight overrepresentation of late born athletes.

²⁰ For convenience, and since cut-off dates might differ between domains, throughout this text, 'early born' means that someone is born just after the cut-off date, while 'late born' means that someone is born just before the cut-off date.

An often used argument for the occurrence of a RAE within sports is the physical advantage that early born players have over their peers (Musch & Grondin, 2001; Cobley et al., 2009). The reasoning is that a physical advantage results in better current performances, especially early in life, which form the basis for talent selection and identification procedures (see also the previous section for a discussion on talent selection and identification methods and models). Although this reasoning seems attractive, the amount of quantitative evidence is rather limited. One of the studies that provides such evidence is Sherar et al. (2007), by using maturational data of selected and nonselected participants at Canadian junior ice hockey selection camps. The ones that were selected showed more physical development than those not selected. Also, most of them belonged to the early-born group of players (Sherar et al.; 2007).²¹ Furthermore, the overrepresentation of late born participants found in sports where physical development is a disadvantage (e.g. Baxter-Jones et al.; 1995, who also document late maturation for successful gymnasts) provides evidence of the importance of physical development in relation to a RAE. Other, more indirect, evidence is found by Delorme & Raspaud (2009), who looked at the French shooting sport. Since physical development is of limited importance for shooting (concentration is probably far more important), they hypothesized that a RAE would not exist. This hypothesis was confirmed for all female participants and for male participants aged between 13-20 years, but not for male participants aged between 11-12 year old and adult male participants (adults being aged 20 years old or older). For the young group this might have to do with the fact that parents do not want their young children to be involved in an 'aggressive' sport such as shooting²², while for adults this might have to do with the fact that early born participants did not become successful in a physical sport (e.g. because they lost their advantage or did not develop as expected) and therefore switched to a non-physical sport (Delmore & Raspuad; 2009). In general, the results show that in a non-physical sport such as shooting, a RAE is absent, or has to be explained by other factors than physical development.

Although it, thus, seems to be the case that physical development plays a role in the occurrence of a RAE, it cannot be the only explanation (Musch & Grondin; 2001). This conclusion is based on the observation that conflicting evidence exists of the skewness of the distribution of birthdates between age cohorts. If physical development would be the only factor, we would expect a reduction of the intensity of skewness, because the relative age difference compared to actual age decreases over time (Musch & Grondin; 2001). Barnsley & Thompson (1988), Hoare (2000), Helsen *et al.* (2005) and Cobley *et al.* (2009), however, document an increase in intensity from early ages up to adolescence, while, Hoare (2000) and Cobley *et al.* (2009) also find a decrease in intensity for adult

²¹ The initial selection of participants was based on self-subscription, which resulted in a physically diversified group that covered the whole age range (14-15 years old).

²² If parents only allow their children to practice the shooting sport if they have passed their 12th anniversary, this will 'disadvantage' the late born kids.

ages²³. Cobley *et al.* (2009) discuss three possible explanations for this later finding. The first is the already mentioned diminishing of a physical advantage.²⁴ Another possibility is that players change their sport when entering adulthood, while a third possibility is that the early born athletes will resign from the sport earlier than their late born peers, e.g. because of an injury as a result of overtraining due to a talent program they have been active in (Cobley *et al.*; 2009).

Although it was not made explicit that the studies that were discussed in the former part focused on male participants, it is important to note that the findings cannot be generalized to females. We already saw that some gender differences exist in the French shooting sport (Delmore & Raspuad; 2009), in which all active members, participating in all different levels, were included. Vincent & Glamser (2006) specifically looked at the differences in RAE between genders for the Olympic youth soccer programs in the US. They did find a RAE for 17 year old male soccer players, but not for their female peers. The authors argue that physical development is not necessarily an advantage for females (in soccer), while early maturing females will probably have more struggles than males with settling their 'traditional feminine role' in sports. It makes them conclude that the difference between genders in RAE can be explained by: 'a complex and dynamic interaction of biological, maturational and socialization issues' (Vincent & Glamser; 2006, p. 412). Although with less focus on the gender differences, Helsen et al. (2005) also found smaller RAEs for European elite adolescent female soccer players than for male adolescent soccer players, while Hoare (2000) found similar results for Australian basketball. At younger ages, however, the RAE for females is as profound as for males (Baxter-Jones & Helms; 1994). By investigating the birth-date distribution of female elite British swimmers, gymnasts and tennis players aged 8-16 years old, Baxter-Jones & Helms (1994) found an overrepresentation of early born players in swimming and tennis, but not for gymnastics. Cobley et al. (2009) used gender as a moderator variable in their meta-analysis, where they used most of the above mentioned studies, but only found a weak influence of gender. A potential reason might be that only two percent of their sample consisted of females. This leads them to conclude, together with most other researchers, that more studies should look at the RAE in female sports (e.g., Cobley et al., 2009; Musch & Grondin, 2001).

Then, the role of competition can be monitored more closely. In general, two ways are used to proxy for the amount of competition. The first is to look at the playing level (elite vs. non-elite) the second is to look at the difference in popularity (i.e. total number of participants) between sports. The hypothesis that more competition will increase the severity of a RAE is confirmed by some previous research (e.g., Grondin *et al.* (1984) for playing level in Canadian ice-hockey and also the

²³ Barnsley & Thompson (1988) and Helsen *et al.* (2005) did not cover the adult age group.

²⁴ This explanation requires that late born players stay active until senior ages, which will not be the case for all sports (e.g., Helsen *et al.* (1998) document higher drop out rates in soccer for relative younger peers during junior and adolescent ages).

difference in popularity between ice-hockey and volleyball in Canada; Helsen *et al.* (1998) for elite playing in youth Belgium soccer; Cobley *et al.* (2009) by using both proxies as moderating variables). Musch & Grondin (2001), furthermore, state that competition is a necessary condition for a RAE to occur. A simple example by Musch & Grondin (2001) makes clear that if only 15 participants compete for 15 available places in a squad, there is no reason for an RAE to occur if the initial selection of participants is random. They also use the evidence of severe RAEs in soccer, combined with the large popularity of the sport, to validate the statement above. With respect to the differences between genders, researchers have argued that the smaller degree of competition in female sports might be an explanation (e.g. Baxter-Jones & Helms, 1994; Musch & Grondin, 2001; Vincent & Glamser, 2006).

Although it is widely assumed that the cut-off date is responsible for the existence of RAEs within sports, some studies have investigated other explanations. Musch & Grondin (2001) discuss the potential influence of the season in which someone is born, which might have consequences for development early in life. However, since December and January are very similar climatically etc., while ice-hockey and soccer use the 1st of January as cut-off date, this explanation is not very convincing. Another possibility that has been investigated is the role of cultural differences between countries that might influence RAEs. Musch & Hay (1999) used data from German, Australian, Brazilian and Japanese soccer to see if differences existed in birth-date distributions, which might then be culturally based, but found for all countries an overrepresentation of the ones born just after the cut-off date.²⁵ Although the cultural differences within Europe are less severe than between Germany, Australia, Brazil and Japan, Verhulst (1992) and Helsen *et al.* (2005) show that RAEs are alike across European soccer, which is also evidence against the culturally based explanation.

In addition to the fact that other explanations for the RAE to occur are not satisfactory, there exists evidence that the cut-off date is the responsible factor. This evidence is based on the change in cut-off date in soccer during 1997. To comply with the guidelines of the FIFA, national soccer federations changed their cut-off date to the 1st of January if they were not already using this date. Interestingly, after the change in the cut-off date, the RAE also shifted. Helsen *et al.* (2000) and Helsen *et al.* (2000) document, for Belgium youth soccer, a shift in the overrepresentation of players born in August to players born in January, after the Belgium soccer federation changed the cut-off date. Similar results were found by Simmons & Paull (2001) for English youth soccer players and Musch & Hay (1999) for Australian youth soccer.²⁶

²⁵ This finding might, of course, be influenced by the popularity of the sport within the given countries. However, since soccer is popular in all these countries this does not seem to be the case. The FIFA ranking of January 1999 is evidence of the popularity: Brazil was ranked 1, Germany 5, Japan 33 and Australia 50. Brazil, Japan and Australia were ranked highest of their home continent, while Germany was ranked on place 4).

²⁶ The initial cut-off date in Belgium and Australia was the 1st of August, while for English soccer it was the 1st of September.

The fact that the organizational structure of competitive sport systems (i.e. the cut-off date) is responsible for the occurrence of RAEs, with all its harmful consequences, made researchers think of remedies to the problem. One possibility that has been proposed is to base classification on biological age (Musch & Grondin; 2001). Although this works for sports like wrestling and boxing (e.g. classification based on weight) the absolute age differences, then, can become too large for proper psychological development, while accumulated practice hours might also differ too much (Musch & Grondin; 2001). Other solutions looked at ways to rotate the relative age advantage. For example, Grondin *et al.* (1984) proposed a 15-month or 21-month age category, while Bouchard & Halliwell (1991) preferred a 9-month age band. Both suggestions imply that the advantage of being the relatively oldest would shift to other participants per competitive season.

Although they might work, the solutions that were discussed in the previous paragraph are complex to implement properly, especially when only a low number of participants is active.²⁷ A solution that does not have such a problem has been proposed by Barnsely & Thompson (1988) and contains the implementation of 'age quotas', i.e. a quota for the number of participants born in a specific period of the year (e.g. quarter). This way of selecting means that, at least some late born players are given the opportunity to develop. Another solution to achieve this would be to use multiple squads based on multiple standards (Musch & Grondin; 2001). A technical superior player who did not yet physically develop, would then be placed in a team with similar peers. This prevents that a physical disadvantage will destroy potential. However, this is a costly method that needs strict supervision, since a lot of coordination and cooperation between clubs, coaches and organizers is needed. On a macro basis, i.e. a country or region in a whole, a solution might be to use different cut-off dates for different sports and other domains. Musch & Grondin (2001) came up with this idea, but also acknowledge that this might not positively contribute to a child's personal development, since the child will be 'forced' to practice a particular sport, perhaps without her close friends.

Overall, the remedies that were put forward, although they have never really been tested, seem to lack practical applicability. Therefore, the most straightforward solution is to make coaches, parents, athletes and all other people involved in sports familiar with the phenomenon of a RAE. Delayed selection, with a focus on individual improvement over time, rather than current performances and winning, might then be acknowledged as useful (Musch & Grondin, 2001; Cobley *et al.*, 2009). Objectivity will be hard to achieve in many sports, but we will see later that for track & field this might be possible. However, before doing that, the next section will give some background information on track & field.

²⁷This will be less of a problem with age categories based on 15-months or 21-months, but it might be a problem for 9-month categories or categories based on weight, which, then, need to include a wide range.

4. Background information on track & field and the Dutch system

As mentioned in the introduction, track & field has been an essential part of the Olympic Games throughout history. During the 2012 edition held in London, about 2,000 athletes coming from all over the world will compete in 47 different disciplines, which makes it 'the largest single sport at the games'.²⁸ The amount of and diversity in disciplines makes it difficult for athletes to specialize in all of them. Therefore, they will only participate in one or two individual disciplines, depending on the similarity of necessary practice and skills (e.g. the 100m and 200m require more or less the same practice and skills).²⁹ In principal, all disciplines are practiced on an individual basis, with relay racing being an exception.

While the above is true for adult athletes, most of it also holds for junior and adolescent participants. In total, five different age categories exist; D (aged 12-13), C (aged 14-15), B (aged 16-17), A (aged 18-19) and Senior (ages > 19), with the 1st of January being the relevant cut-off date.³⁰ All categories consist of first year and second year athletes, except, of course, the adult one. Neo (aged 20-22) is a subcategory of the Senior group. Although this could be seen as a sixth age category, no single rankings are made up or championships are held for this group (in contrast to, e.g., Belgian track & field). Therefore, the athletes that belong to the Neo category will not be treated separately and will simply be grouped together with the Senior athletes throughout the text.

A difference between the younger and older age cohorts is that, at younger ages people are more likely to be involved in multiple disciplines, with specialization coming over time. If we assume that the principle goal of an individual athlete is winning, irrespective of the discipline³¹, then, within the top tiers of the sport this specialization can be inferred as a self-selection mechanism that results in an efficient allocation of talent over the different disciplines. Athletes will choose to specialize in the discipline in which they have the highest chance of winning, which means they will choose the discipline in which they have a comparative advantage.

Although athletes themselves decide in which disciplines they want to participate, the environment (especially clubs and coaches) have their own interests and may think differently. As said, track & field is an individual sport. However, in the Netherlands, athletes need to be a member of a club to be allowed to participate in competitions and regional, national and international championships. Already for junior athletes an interclub competition exists, consisting of multiple

²⁸ http://www.london2012.com/athletics.

²⁹ Of course, some athletes participate in decathlon (males) or heptathlon (females), but this is only a small number, while most of them will be specialized in a particular discipline as well.

³⁰ Track & field consists of both, an indoor and an outdoor season. Given that the indoor season starts on the 1st of November, most athletes already shift age category. However, relevant for the rankings (more on this in the next section) is the calendar year in which someone is born. The relevant cut-off date is thus January 1.

³¹ Thus, assuming that all disciplines are equally enjoyable.

rounds, in which clubs compete against each other within club teams. The athletes who are selected for the team are allowed to participate in only a limited number of disciplines and, thus, choices have to be made.³² The goal of the club is to earn as much points as possible. These points are earned by the performances of the athletes, in which each performance is converted into a specific amount of points. Without going into detail of how this rather complicated conversion takes place, it is important to note that the quantitative differences between performances are taken into account. An example would be the winner in a long jump competition, who jumps 25 cm further than number two. This quantitative difference in performance (i.e. 25 cm; in other disciplines it might well be some time indication) is more important than the qualitative difference in ranking. The clubs will therefore use a strategy for their team selection that is focused on the current performances. This strategy is, however, not necessarily in line with the interest of the individual athlete, since he might have to do something that does not stimulate his optimal development. We already saw that practice is an essential element for expertise. However, given the interest and influence of clubs, especially early in life, young performers might not practice the things they should.

This conflict of interest is less of a problem between individuals and the track and field federation. The KNAU (Koninklijke Nederlandse Atletiek Unie; in English: Royal Dutch Track & Field Federation) is responsible for track & field in the Netherlands. Although the KNAU has multiple aims, depending on the level of performance, with respect to elite athletes they aim to fully develop their potential. Support is given by the national federation through the provision of expert coaching and training facilities. Already at junior ages there are regional practice sessions organized by the KNAU, in which expert athletes are given such extra attention. At adolescent and senior ages, these regional sessions are replaced by national ones, which are only provided at a few places in the Netherlands.³³ This pyramid structure is used as a selection mechanism, which eventually should result in a situation in which the best athletes are given the attention they deserve. A problem with this selection system is, however, that current performances are the main indicator of who is allowed to participate (see appendix A5 for an example of a table that is used by the KNAU; in Dutch). We already saw for other sports that too much focus on current performances might result in a RAE, while in this situation of extra practice, it is also clear that the ones not selected are missing a relevant experience for development.³⁴

³² In general, athletes are allowed to participate in two individual disciplines and relay racing.

³³ E.g., Pole Vault can only be practiced at Amsterdam, Sittard and Zoetermeer.

³⁴ On some occasions, the coaches, based on their expertise, are the ones that select athletes. Although this might overcome the problem of too much focus on current performances, we saw in the previous section that coaches and scouts are not yet able to fully understand the RAE and, thus, do not take account of it properly in their selections.

Of course, it would be ideal if all athletes were given equal opportunities to develop. This not only means that the RAE should be dealt with correctly when making a selection for extra practice, but also that the national federation provides sufficient support for top athletes to let them focus on their sport. However, the KNAU is subject to a budget constraint. The consequence is that expert coaching and training facilities are limited, while, furthermore, the KNAU has only little financial means to support athletes. The result is that athletes who want to become and stay top performers need to make a lot of private investment, while the environment needs to be supportive and willing to make some investment as well.³⁵

This brief overview of Dutch track & field shows that, in principle, all parties (i.e. individuals, clubs and the national federation) aim for the development of expertise. However, we also saw that some conflicts of interest may arise between individual athletes and clubs. Furthermore, the national federation is not always supporting potential in a correct way. Underlying these problems is the focus on current performances.

Since the aim of this section was to provide background information, not all things related to Dutch track & field were discussed. One thing is, however, worthwhile to mention. Although athletes are a member of a club, they have the possibility to participate in contests outside of the competition and the regional, national and international championships.³⁶ These contests are of less importance for clubs, while they are only a reference of results for the national federation (although the adult championships are, of course, an important milestone, since these should be the end result of the development of potential). The next section will provide a description of the data that will be used. For that, it is important to keep in mind that, in general, athletes have enough opportunities to perform the best they can during a season.

³⁵The organizing body that is responsible for the financial support of top athletes in the Netherlands is the NOC-NSF. In general, one should belong to the best eight athletes of the world (A-status) or have a high probability to become one of them within a few years (HP-status; i.e. High Potential) to be eligible for such financial support. The maximum amount that one can get in 2011 was €1,085.01 gross per month (i.e. 70 percent of the minimum income of a 23 year old person). An extra compensation in costs is provided up to a maximum of €350.- per month. Athletes with a B-status, which generally means that they belong to the best 16 athletes of the world, are only eligible for a compensation in costs of €225.- per month, without any other financial support. If someone already earns more than €35,000.- gross per year, the NOC-NSF does not support any extra. In general this, thus, means that the financial support for athletes is rather small and someone aiming for a top sport career has to make a lot of investment herself. (http://www.nocnsf.nl/olympischedroom/topsportinformatie/voor-topsporters/voor-topsporters)

³⁶ They, however, still need to be a member of a club to participate in those contests.

5. Data and methodology

Every year the KNAU publishes a statistical yearbook for both, the indoor and the outdoor season. One part of this book consists of the rankings of the year, in which all best performances are grouped by gender, age category and discipline. Each record within those rankings documents the performance, name, birth date, club and the date and place of the match where the result was set. For disciplines in which this is considered relevant, the wind speed is also indicated, since tailwind is generally an advantage.³⁷ An extra indication is used for results set during an intra-club match, if the result was recorded without electronic device (for sprinting and hurdles) and for results obtained by foreigners (who are a member of a Dutch club). Finally, it is possible that younger athletes obtain a result that places them in the rankings of an older category, which is indicated as well. The rankings are made up in such a way that only someone's personal season best is taken into account.³⁸

These official rankings will be used in this study.³⁹ Another possibility would be to use the final rankings of important competitions, such as the national championship. However, the official rankings are preferred. First of all, these data allow for a larger sample size. Furthermore, the rankings consist of the performances of the whole season and are thus not confounded by, for example, a temporary injury during the championship. Finally, the rankings consist of the best performances throughout the season and are, thus, not confounded by the fact that athletes are focused on winning during a national championship and, therefore, not necessarily perform at their best. This final point might, however, be of little importance, since the championships are in general the matches in which athletes are trying to peak and need to perform as good as they can to win.

The sample consists of eleven seasons, from 2000 up to and including 2010. Only data on the outdoor season will be used, since this is more important than the indoor season for most athletes (the two most popular competitions are the Olympic Games and the Diamond League, which are both outdoor). Furthermore, a selection will be made of the disciplines that will be covered. An overview of these disciplines, with an indication of the relevant age categories, is presented in appendix A1. The sample sizes, specified per age category, can be found in table 1 below. Most of the data comes from the Senior age category. This mainly has to do with the fact that those rankings include more performances than the rankings for younger athletes.

³⁷ These disciplines are: 60m, 80m, 100m, 150m, 200m, hurdles short and long jump. Triple jump also belong to these disciplines, but is not considered in this text.

³⁸ An exception is made for the adult rankings, were at least the ten best performances are shown, despite that the athlete might already be ranked higher. Furthermore, the results with an extra indication (e.g. an intra-club match) are separated from the rest and may be obtained by someone already in the 'regular' ranking, which is possible for all age categories.

³⁹ The publications of the statistical yearbook are made available on the website of the KNAU: http://www.atletiekunie.nl/index.php?page=949. Most yearbooks have been updated recently. However, these updates are not incorporated in this study and, thus, insofar these updates caused changes in the official rankings, they are not taken into account.

Table 1: sample sizes, specified by gender and age categories

Males		Females	
Age category/Quarter	n	Age category/Quarter	n
Males-D	2,400	Females-D	2,650
Males-C	3,376	Females-C	3,018
Males-B	3,046	Females-B	2,421
Males-A	3,978	Females-A	2,498
Males-Senior	10,143	Females-Senior	4,333
Total	22,943	Total	14,920

As said in the beginning of the section, it is possible for younger athletes to obtain results that place them in a ranking of an older age category. In such cases the result will logically also occur in the ranking of the age category where the athlete belongs to. Using such data would mean that the same person with the same result would count multiple times. For this reason, the result is dropped from the older age category.⁴⁰ Furthermore, all results obtained without electronic time device and all results obtained during an intra-club match are dropped. In addition, all foreigners are dropped from the rankings, with the athletes coming from the former Netherlands Antilles being an exception, since they have a very strong connection with the Netherlands. Finally, after consultation of multiple sources, there were some athletes whose birth date was not available and, therefore, had to be dropped from the sample.⁴¹ Ideally, all results obtained without a wind speed indication or with too much tailwind (tailwind > 2) should be excluded. However, since leaving out all results without wind indication would decrease the sample size for the relevant disciplines significantly (see footnote 37 for the relevant disciplines), especially for the early seasons within the sample. Therefore, wind speed is not taken into account. Although this is not ideal, it should be noted that the composition of athletes will not change much, since the ones with a correct wind indication, are most likely also the fastest without wind indication. It does, however, favor the results with too much tailwind.

The empirical analysis will be split into two parts. Part 1 will investigate the RAE for Dutch track & field. This is done by looking whether the distribution of birth dates is different from what may be expected. Preferably this should be done by comparing the distribution as found in the data with actual birth dates in the Netherlands. However, since multiple seasons are grouped together, there is no single 'actual' birth date distribution for a given age category.⁴² Therefore, the expected

⁴⁰ As can be seen in appendix A1, the disciplines that use a specific weight (javelin, shot put and disc throw) and height (hurdles) tend to become similar to the senior rules at an earlier age for females than for males. This means that it is easier for females to achieve a result that places them in a higher ranking than for males. Therefore, more female than male results will be dropped for this reason.

⁴¹ Only 102 observations had to be dropped for males and 57 observations for females.

⁴² This would mean that for each junior and adolescent age category, 22 age distributions should be combined (eleven for the first year athletes and eleven for the second year athletes), while for adults the number of relevant distributions is much larger.

distribution is assumed to be a uniform distribution.⁴³ Then, insofar giftedness or talent is independent from someone's birth date, a difference between what is found in the data and what is expected, means that an RAE exists. A χ^2 goodness-of-fit test will be used to investigate this, while an Odds Ratio between the first half of the year and the second half of the year should indicate if the skewness of the distribution is in the right (expected) direction.

Part 2 will use the objective performances as dependent variable in a regression analysis. Interest will be in the performance differences between athletes that are born in different quarters. The independent variables will, therefore, consist of three dummies for quarter two, quarter three and quarter four. Furthermore, a ranking of clubs is included next to season fixed effects. More details will be explained in the next section, in which the results are shown.

 $^{^{43}}$ An investigation of actual birth dates in the Netherlands shows that, in general, there are more people born in the third quarter of the year than in the other quarters. Although this will not be taken into account, it means that, given that the cut-off date is the 1st of January, the results might underestimate the strength of the RAEs.

6. Results

In this section the results will be presented. As discussed above, this section consists of two parts. In part 1 the RAE in elite Dutch track & field will be investigated, for both males and females. Besides looking at the aggregate data per age category, we will also look at a subdivision per discipline, year indicator (first- and second-year athletes) and season. Part 2 will look at the performance differences between early and late born peers.

6.1 Part I: the RAE

In line with (most) other literature on a RAE in sport, the hypothesis for this study is to observe an overrepresentation of participants born close after the cut-off date. To investigate this, birth dates are group by quarter, in which the quarters correspond to the calendar year. Thus quarter one corresponds to January, February and March, while quarter 4 corresponds to October, November and December.

Columns 2 up to and including 5 of table 2 (for males) and table 3 (for females) present the distribution of birth dates per quarter for the five different age categories. For all male age categories, quarter one contains more participants than the other quarters. For females this only happens for the D- and C-categories. The other female groups contain slightly more participants born in the second quarter than in the first. With respect to the final quarter, the observed is consistent to what was expected, since for both males and females and for all age categories, the lowest number of participants are born in quarter four. Furthermore, it can be seen that the biggest differences between this last quarter and the first (or second) quarter are present in the youngest age categories (D and C).

A graphical representation is given in figures 1 and 2. Figure 1a and 2a show the distribution of birth dates for respectively the junior and adolescent male and female athletes. Figure 1b and 2b show the same for respectively the senior male and female athletes (note, however, the difference in axis between the figures a and b). The separation of the adult categories from the other age categories is mainly done because the adult groups may contain the same individuals multiple times, when subsequent seasons are combined. Although this might also occur within the younger age cohorts, which contain first and second year athletes, the influence on the data will be less severe, since an individual will occur no more than twice within an given age category throughout the sample period. A comparison of the data for adults and younger athletes, that covers all seasons, will not take this difference into account. Below it will be shown, however, that things do not change much if we separate the data by seasons and distinguish for the junior and adolescent age categories between first- and second-year athletes.



Figure 1a: total number of observations for male athletes per age category (except adults), split by quarter of birth



Figure 1b: total number of observations for male senior athletes, split by quarter of birth



Figure 1c: share of the number of male athletes born within a given quarter, per age category



Figure 2a: total number of observations for female athletes per age category (except adults), split by quarter of birth



Figure 2b: total number of observations for female senior athletes, split by quarter of birth



Figure 2c: share of the number of female athletes born within a given quarter, per age category

Furthermore, figures 1c and 2c show for respectively males and females the percentages of births per quarter and per age group. In both figures, when going from left to right, thus moving up the chronicle age cohorts, it can be seen that the share of early born participants decreases, while the share of late born athletes increases. To make this point clearly visible, all age categories are put together in one graph, with, however, in mind that the Senior categories might contain the same athletes multiple times.

Males	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age category/ Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
Males-D	1,071	748	348	233	2,400	736.56	0.00	9.80
Males-C	1,381	1,050	574	371	3,376	743.41	0.00	6.62
Males-B	1,094	926	608	418	3,046	366.61	0.00	3.88
Males-A	1,274	1,155	820	729	3,978	205.95	0.00	2.46
Males-Senior	3,163	2,700	2,267	2,013	10,143	302.05	0.00	1.88
Total	7,983	6,579	4,617	3,764	22,943	1,900.47	0.00	3.02

Table 2: distribution of birth dates per quarter for male athletes

Table 3: distribution of birth dates per quarter for female athletes

Females	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Age category/ Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
Females-D	1,007	840	516	287	2,650	471.92	0.00	5.29
Females-C	937	935	649	497	3,018	189.96	0.00	2.67
Females-B	659	683	590	489	2,421	37.47	0.00	1.55
Females-A	619	705	590	584	2,498	14.96	0.00	1.27
Females-Senior	1,143	1,324	967	899	4,333	100.62	0.00	1.75
Total	4,365	4,487	3,312	2,756	14,920	562.92	0.00	2.13

The above showed that it seems very likely to find a RAE as was hypothesized. Statistical inference indeed shows that this is the case. Column 7 of tables 2 and 3 provide the χ^2 goodness-of-fit statistic, with the p-value indicated in column 8. All statistics are highly significant, with all p-values smaller than 0.00 for both males and females, indicating that the distribution of birth dates is far from uniform. Furthermore, the Odds Ratios in column 9 between the first and second half of the year show that the skewness of the distribution is in favor of the early born athletes for all age categories, since all values are above 1.⁴⁴ Based on these combined results, we can conclude that a RAE exists in elite Dutch track & field, which is as expected. Furthermore, we observe that both the χ^2 statistic and the OR decline in value for older age groups, while they slightly increase again for adults (except the OR for male adults). This means that, at least for the junior and adolescent age groups, we may conclude that the strength of the RAE declines when athletes become older. This

⁴⁴ A value above 1 indicates an overrepresentation of early born athletes, while a value below 1 indicates an overrepresentation of late born athletes.

conclusion is evidence in favor of the hypothesis that a RAE arises due to a physical advantage of early born athletes. However, we will postpone this discussion to section 7, in which all results will be discussed.

As mentioned, the data as shown in the tables 2 and 3 and the figures 1 and 2 is grouped together over the different seasons, disciplines and year indicator. Separation was only based on age cohorts. However, such a broad classification may not uncover some potentially interesting trends. Therefore, a further division of the age categories was made. The results can be found in appendix 2. Tables A2a and A2b show the results per age category, subdivided into the different disciplines, for respectively males and females. Without going into too much detail, it becomes clear that the significance of the general results also holds for the single disciplines for male athletes, with the long distance being an exception.⁴⁵ In contrast, for female athletes we observe clear differences, especially for the B-, A- and Senior-category. Again the long distance disciplines (3,000m, 1,500m), but also the middle distance (800m), are deviating. Furthermore, some other disciplines are different from the general findings (e.g. 100m and pole vault). The results of the subdivision into seasons can be found in tables A2c (males) and A2d (females). Here we see again that for males, with the exception of 2008 and 2009 of the A-category, all classifications show a RAE in line with the hypothesis. For females, the results are, however, not that consistent over the years, with the deviations from the general findings mostly occurring in the older age categories (B, A and Senior). The final subdivision is to separate the first and second year athletes within each age cohort. Tables A2e (males) and A2f (females) show the results and, for a better comparison, also include the different disciplines. To be complete, the tables also include the Senior-category, which cannot simply be split into first and second year athletes, since adult athletes may be within the rankings for many more years. For males (table A2e) we see that the difference between the first- and secondyear athletes with respect to the RAE are rather small. Noteworthy is, however, the difference in the number of athletes, which is huge for the youngest group (D-1 year: 257 vs. D-2 year: 2,143), but reduces to only a marginal difference (A-1 year: 1,941 vs. A2-year: 2,037). For females (table A2f) the differences with respect to the RAE tend to be similar between the first and second year athletes. However, by splitting up the age categories the overall (total) significance of the female A-cohort decreases. Interesting is further that the differences in the number of first and second year athletes tend to be smaller than for males, with the A-category containing even more first year than second year athletes (D-1: 521 vs. D-2: 2,129; and A-1: 1,315 vs. A-2: 1,183).

⁴⁵The 5,000m for the A-category has a p-value of 0.54 and an OR of 0.85; the 5,000m for the Senior-category has a p-value of 0.03 and an OR of 0.77. The results for the A-category and adults for the 1,500m are rather similar as the 5,000m, but are, however, less severe.

To summarize part 1 of this section, we have found evidence for the existence of a RAE within elite Dutch track & field, for both males and females. Within all age categories significant results were obtained. Furthermore, after subdivision of the data, most of the results did not change much, which indicates consistency between disciplines and over years. We also found a diminishing persistence of the RAE when athletes become older, at least within the junior and adolescent age categories. This especially happened in the B and A groups for females. Potential reasons will be discussed in section 7, in which also more attention will be paid to the differences in results for males and females. Before doing so, the next part will look at the performance differences, which might result in a method to better compare the performances of early and late born peers.

6.2 Part II: performance differences

The previous part showed that a RAE is present within elite Dutch track & field. In this part, it will be investigated how this age effect relates to the performances of athletes. The primary hypothesis is that older athletes perform better. This difference in performance is expected to exist not only between age groups, but also between peers within the same group. It is, thus, expected that early born athletes perform better than their younger peers. While in many sports it is hard to test this, since no objective performances are available, track & field does provide such data. By performing a regression analysis on this data, it will be possible to test if significant differences exist. If so, this is evidence indicating that the selection system, in which selection is based on current performances, is, at least partly responsible for the RAE as found above. Furthermore, the estimation results can be used to better compare the results of early and late born participants, which might be a solution to the problem.

As said, the expectation is that older athletes perform better than younger ones. This expectation is based on the principle that athletes develop over time, by e.g. practice. However, it is reasonable to assume that this development will stagnate at some point, and will eventually turn negative. A logical consequence of the quadratic relation between age and performance is that the differences between early and late born peers are larger at younger ages. This because the relative age advantage (difference) is then larger. It can therefore be expected that any significant results are more profound for the junior age categories (i.e. D and C) than for the older ones (i.e. B and A). Results that indicate that this expectation is true are in line with the observation of a decreasing strength of the RAE, since this also indicates that the late born participants are closing the gap.

The sample that will be used in this part is similar to that used in part 1 of this section. However, not all data will be used in the analyses. First of all, the sample contains the disciplines 400m (for both genders), 5,000m (for males) and 3,000m (for females). The data for these disciplines only covers the adolescent and senior age categories (B, A and Senior) and these disciplines are therefore left out of the analyses. Secondly, and perhaps more important, a selection of athletes will be used in the analyses. Given the existence of a RAE, the sample contains more early born athletes than late born athletes. Using the performances of all these individuals would mean that an unequal number of observations per quarter would be used. Insofar these 'extra' early born athletes perform worse than their late born peers, the results are blurred. To correct for this, only the best performances per quarter are used.

The procedure is as follows. For each discipline, the sample is split into age categories and further divided by year indicator (except for the adult group). The seasons are, however, grouped together. Next, for each selection (i.e. for a given combination of discipline, age category and year indicator) and per quarter, a ranking is made of the performances. From all quarters, only a number of the best performances are kept, where the number is equal to the number of observations of the quarter with the least observations (which in many cases will be the fourth quarter). In this way an equal number of observations per quarter will arise. A deviation to this might occur, however, if results within a quarter are equal, but would not all be included by the procedure above. In such a situation, all these equal observations are included. An example would be if only 25 observations per quarter should be included, while observation 25 and 26 of the first quarter are both 1.80m for high jumping. This exception to the general procedure is important, since other variables are included as well, which not necessarily have the same value.

Related to the dropping of observations to obtain an equal number per quarter is that for some selections (discipline, age category and year indicator) only a small number of observations is left. In general, it was decided to drop the results of a selection if the number of observations was smaller than 50, which mostly happened for the first year categories.

The model that will be tested is as follows:

$Performance_{i} = \alpha + \beta_{1}Q2_{i} + \beta_{2}Q3_{i} + \beta_{3}Q4_{i} + \beta_{4}Clubranking_{i} + \beta_{5}Season_{t}$

In which *Performance_i* is the result obtained by an individual *i*, which can be a distance in meters or a time in seconds, depending on the discipline. Interest is in Q_{i}^{2} , Q_{i}^{3} and Q_{i}^{4} , which are dummies that have a value of one if the individual is born in respectively the second, third or fourth quarter (thus, the first quarter is used as base category). Furthermore, *Clubranking_i* is included as a proxy for the level of the club an individual is a member of (e.g. facilities, financial support).⁴⁶ Finally,

⁴⁶ The value is discipline specific and is based on the rankings of the adult athletes, which is then transmitted to the junior and adolescent groups. The club of the best performer was given a value of one, the second best a value of two and so forth up to ten. All other clubs were given a value of eleven. Since these rankings of the

season dummies were included ($Season_t$) with the year 2000 being the omitted dummy. Since only a sub selection of the sample will be used (see the selection procedure described above) not all seasons will occur in equal numbers. For this reason, they cannot directly be interpreted as representing a time trend. However, they do control for seasonal fixed effects, such as the general weather conditions during a particular season.

Summary statistics of the performances per discipline and split by age category can be found in appendix A3 in tables A3a (for males) and A3b (for females). Note that these statistics cover the whole sample, without taking into account any of the selections as described above. Furthermore, note that some disciplines are grouped together (e.g. long distance contains 1,000m as well as the 1,500m) to make a better comparison between age categories. The actual discipline that belongs to a particular age category is indicated between brackets in the top row of each sub-table. Here is also some extra information given of particular weights (for javelin, shot put and disc throw) or heights (for hurdles).

The regression results are presented in tables 4 (males) and 5 (females). For convenience, these tables only include the main results on the variables of interest and the number of observations. Appendix A4, tables A4a and A4b provide more detailed information on the results. In all these tables (4, 5, A4a and A4b) the character in the top row of a column represents the age category, while the figure following this character indicates if the results belong to first or second year athletes. Senior is an exception in this respect. When interpreting the results, it is important to remember the difference between performances expressed as a distance and as a time. For 'distance', a positive relation exists between distance and performance (i.e. further or higher is better). For 'time', a negative relation exists, since faster means a better performance. In line with the hypothesis as formulated in the beginning of this part, we expect negative coefficients for the 'distance-disciplines' and positive coefficients for the 'time-disciplines'.

When looking at table 4, two things require primary interest. First of all, almost all coefficients have the expected sign, and second, the coefficients are significant in many occasions. Some exceptions are visible for the second quarter, which might especially differ for the older age categories (e.g. Javelin and Shot Put). However, despite these exceptions the results indicate that, on average, late born athletes perform worse than their early born peers. Interesting is further, that significance is generally more profound and consistent when moving away from the first quarter

clubs were transmitted from the adult category to the younger age groups, it was possible that those younger athletes were a member of a club not represented in the adult rankings. These clubs were given a value of twelve. If a discipline of the junior age categories did not coincide with that of the adults, the most similar discipline of the adult rankings was used (appendix A3 shows, between brackets, which disciplines were grouped together). Furthermore, if a club already appeared higher in the rankings, it was given this higher ranking. The next value was given to the first new club in the rankings.

towards the end of the year, with higher estimation results in absolute value. This is in line with what was expected, based on the stagnation of development and the diminishing performance gap between peers.

The results, thus, indicate that significant differences exist between the performances of early and late born peers. However, significance does not necessarily mean that the estimations are of practical relevance. Let us formulate how a coefficient should be interpreted by using as an example the -0.433 for Q4 under Long Jump category C-2. This means that at an age of 15, on average, someone born in the fourth quarter will jump 43.3 cm less far than someone born in the first quarter.⁴⁷ Besides that it is a firm distance when visualizing it, it is also a substantial difference when evaluated on the summary statistics. Without checking all results this way, it seems fair to state that the differences as found for males are of practical relevance, especially for the younger age categories.

Table 5 presents the female results.⁴⁸ It can be seen that the signs of the coefficients are not consistently in line with what was expected. Especially for quarter two the sign tends to differ. However, these results are often not significant, indicating that the first and second quarter athletes are performing more or less equally well. With respect to quarter three and quarter four, we observe that the results as presented in table 5 seem to behave in the same way. Although some differences exist (mostly for Long Distance, Middle Distance and Hurdles Long) the signs and significance levels are rather similar. Furthermore, they tend to be in line with expectations for the junior age categories. For the older age categories, the results do not meet expectations. Combined, this implies that, given the number of insignificant results, the practical relevance is limited to the youngest athletes.

Summarizing then, we found significant performance differences between early and late born peers for both males and females. As expected, the results increased in strength when moving away from the first quarter towards the end of the year. Furthermore, also as expected, when moving up age cohorts, the effects on performances tend to decrease. This diminishing effect was more profound to female athletes than to male athletes. The practical relevance of the estimation results will therefore be larger for males than for females. A more comprehensive comparison between the genders will be postponed to the next section.

This section will end with two final remarks. First of all, no attention was paid yet to the 'clubranking' variable. In tables A4a and A4b of appendix A4 it can be seen that the signs of the

⁴⁷ The regressions were also done by using the natural logarithm of the performances, but results did not differ much. An advantage of the way they are presented now is, however, that the estimations can be interpreted as a real number (meters or seconds) and not as a percentage. Therefore, this method is chosen.

⁴⁸ Note that Pole Vault is not included, since C-2, B-2 and Senior were the only categories that contained enough observations.

coefficient is almost always as predicted (the prediction is a negative coefficient for 'distancedisciplines' and a positive coefficient for 'time-disciplines', since a lower value means a better club). However, it is only significant for the adolescent and adult groups. More on this variable will follow in the next section. Furthermore, no special attention was paid to the results of the senior age category. However, the remark that senior rankings may contain the same individual multiple times when grouping over seasons, which was made at the beginning of part 1, is also valid here. In light of this, one should be cautious when interpreting these results or when comparing them to other age groups.

Table 4: estimation results for male athletes

Laws Lunu (distance)	D 2	<u> </u>	D 2	A 1	A 2	Conton	
Long Jump (distance)	D-2	C-2	B-2	A-1	A-2	Senior	
Q2	-0.062	-0.172**	-0.061	-0.083	-0.048	-0.091**	
Q3	-0.371**	-0.260**	-0.104*	-0.160**	-0.144*	-0.162**	
04	-0.460**	-0 433**	-0 301**	-0 270**	-0 216**	-0 110**	
Q-	0.400 F 27C**	C 420**	0.301	C 000**	C 000**	7 411**	
Constant	5.370	0.438	0.079	0.889	0.999	7.411	
n	106	100	99	89	102	487	
High Jump (distance)	D-2	C-2	B-1	B-2	A-1	A-2	Senior
02	-0.006	-0 018*	-0.021	0.011	-0 004	-0.005	-0 045**
	0.000	0.010	0.021	0.024**	0.001	0.000	0.010
Q3	-0.032	-0.050	-0.025	-0.034	-0.029	-0.039	-0.078
Q4	-0.051**	-0.050**	-0.041**	-0.018	-0.022	-0.028	-0.061**
Constant	1.586**	1.840**	1.929**	1.939**	1.946**	2.003**	2.150**
n	227	205	93	135	87	84	358
Bolo Vault (distance)	<u> </u>	P 2	<u> </u>	100	Sonior	0.	000
Pole vault (distance)	C-2	D-2	A-1	A-2	Senior		
Q2	-0.196*	-0.046	-0.050	0.023	-0.150**		
Q3	-0.267**	-0.086	-0.082	-0.173	-0.302**		
04	-0.680**	-0.166	-0.324**	-0.337**	-0.410**		
Constant	2 521**	1 176**	/ /21**	1 609**	5 206**		
Constant	3.331	4.170	4.431	4.030	3.200		
n	81	109	107	79	488		
Javelin (distance)	D-2	C-2	B-2	A-1	A-2	Senior	
02	0.506	0.326	-0.370	0.109	0.630	0.436	
02	2 77/**	2 550**	1 606	1 022	2 201*	2 470**	
03	-3.774	-3.339	-1.000	-1.933	-2.391	-3.470	
Q4	-5.331**	-4.842**	-5.072**	-4.619**	-4.962**	-4.030**	
Constant	43.683**	50.499**	60.114**	59.907**	60.322**	68.374**	
n	100	104	73	88	128	476	
Shot But (distance)	<u> </u>	<u> </u>	P 2	A 1	A 2	Conior	
Shot Put (distance)	D-2	C-2	D-2	A-1	A-2	Sellion	
Q2	-0.120	-0.132	0.516	0.084	0.179	-0.477**	
Q3	-1.300**	-0.778**	-0.191	-0.861**	-0.658	-0.342**	
04	-1.318**	-1.397**	-1.301**	-1.100**	-0.929**	-1.317**	
Constant	12 520**	1/ /51**	16 296**	12 702**	15 201**	17 517**	
Constant	12.550	14.451	10.500	13.702	13.331	17.517	
n	96	92	69	84	116	685	
Disc Throw (distance)	D-2	C-2	B-2	A-1	A-2	Senior	
Q2	-1.826*	-2.438**	-1.777	-2.028	-1.435	-2.477**	
03	_/ 707**	_1 537**	-3 968**	_/ 317**	_1 226**	-1 1/6**	
		T.337	5.500	4.020**	7.220	2.040**	
Q4	-5.31/**	-5.748**	-5.247***	-4.933	-3.243*	-2.040***	
Constant	32.596**	48.227**	47.670**	43.440**	53.469**	54.736**	
n	100	92	72	77	84	789	
Hurdles Short (time)	D_2	C-2	B_2	۸_1	۸_2	Senior	
	0.001	0.477*	0.465	A-1	A-2	0.010	
Q2	0.001	0.177*	0.165	0.244	0.208	0.019	
Q3	0.487**	0.500**	0.338**	0.376**	0.577**	0.014	
Q4	0.747**	0.913**	0.950**	0.745**	0.801**	0.470**	
Constant	12.481**	13.833**	14.570**	14.667**	14.191**	14.204**	
n	96	0E	0E	116	112	E 09	
	00	65	65	110	112	508	
Sprint (time)	D-2	C-2	B-2	A-1	A-2	Senior	
Q2	0.099*	0.198**	0.234**	0.143**	0.100	0.015	
03	0.399**	0.290**	0.174**	0.171**	0.137**	-0.006	
	0.650**	0.402**	0.268**	0.276**	0.227**	0 157**	
Constant	10.000**	11 2504	11 122**	10.044**	10.025**	10 000**	
Constant	10.089**	11.356**	11.123**	10.841**	10.825**	10.620**	
n	88	84	88	110	119	686	
Hurdles Long (time)	C-2	B-2	A-1	A-2	Senior		
02	0 726**	0 300	1 464**	1 587**	0 315*		
	2 5 4 2 * *	2.010**	2.404	1.507	0.015		
Q3	2.542**	2.918**	3.557**	3.128**	0.925**		
Q4	3.548**	2.729**	2.213**	3.857**	1.902**		
Constant	40.746**	54.675**	52.860**	51.311**	51.129**		
n	105	84	92	84	438		
	<u>105</u>	67	52	8 1 A 1	130	Conton	
wilddie Distance (time)	D-2	L-2	B-2	A-1	A-Z	Senior	
Q2	-0.167	0.070	1.131**	1.149**	0.587	0.489**	
Q3	3.463**	4.077**	1.191*	2.761**	1.596**	1.306**	
04	5.941**	3.182**	1.826**	2.557**	1.673**	0.173	
Constant	02 76/**	175 0/0**	116 005**	112 050**	111 0/2**	100 500**	
CONSIGNI	93.704**	125.940***	110.982	112.950	111.042***	108.289	
n	40	132	112	137	148	701	
Long Distance (time)	D-2	C-2	B-2	B-1	A-1	A-2	Senior
02	2.093**	-0.918	0.971	-0.099	-2.508*	0.853	-1.221**
03	6 505**	1 162**	1 1 8 4	0.162	0.045	1 120	1 115**
(J)	0.535	4.402	1.104	0.105	0.045	1.130	1.113
Q4	8.476**	5.646**	3.994**	4.086**	1.190	2.457	-1.562**
Constant	174.796**	262.785**	247.517**	243.674**	240.546**	231.181**	225.902**
n	108	148	65	116	136	168	676

Note: all results are obtained by using robust standard errors. **p<0.05, *p<0.1

Table 5: estimation results for female athletes

	~ ~	~ ~				~ ·		
Long Jump (distance)	D-2	C-2	B-1	B-2	A-1	Senior		
Q2	-0.111**	0.038	-0.005	0.088	0.099	0.209**		
Q3	-0.184**	-0.063	-0.084	0.039	0.043	0.116**		
04	-0.236**	-0.080*	-0.041	0.035	-0.026	0.155**		
Constant	/ 990**	5 265**	5 456**	5 60/**	5 816**	5 812**		
constant	4.550	112	0.400	3.004	0.010	202		
n	89	113	80	76	84	282		
High Jump (distance)	D-2	C-1	C-2	B-1	B-2	A-2	Senior	
Q2	0.002	-0.009	-0.015**	0.002	0.030**	0.014	0.067**	
Q3	-0.045**	-0.041**	-0.010	-0.011	0.003	0.027	0.024**	
04	-0.057**	-0.039**	-0.011	-0.014	0.022	-0.023	0.032**	
Constant	1 5 20**	1 502**	1 6/1**	1 7/2**	1 704**	1 799**	1 7/0**	
constant	1.329	1.392	1.041	1.745	1.704	1.760	1.745	
n	221	82	238	80	82	/6	231	
Javelin (distance)	D-2	C-2	B-2	A-1	A-2	Senior		
Q2	-1.190	-0.271	0.700	0.556	0.921	1.003		
Q3	-4.127**	-3.772**	-1.384	-2.952**	-0.724	-0.380		
Q4	-4.262**	-4.020**	-1.630	-2.601**	-3.102**	-2.427**		
Constant	34 210**	38 298**	44 176**	50 344**	49 754**	51 746**		
	126	104	76	76	40.754 00	101		
	150	104	70	70	80	104		
Shot Put (distance)	D-2	C-2	B-2	A-1	A-2	Senior		
Q2	0.536	0.800*	0.742*	0.496	0.462	0.509**		
Q3	-0.999**	-0.580*	-1.016**	-0.552**	-0.481*	-0.354*		
04	-1.510**	-0.665*	-0.876**	-0.252	-0.141	0.228		
Constant	13 330**	12 580**	15 556**	11 873**	13 // 2**	1/ 818**		
constant	13.335	12.305	15.550	112	13.442	240		
	00	94	70	113	90	240		
Disc Throw (distance)	D-2	C-2	B-2	A-1	A-2	Senior		
Q2	3.337**	1.662	2.767**	2.320	2.959*	2.957**		
Q3	-1.929**	-2.539**	-4.255**	-4.085**	-3.337**	-0.397		
04	-2.321**	-4.191**	-3.548**	-3.215**	0.019	2.729**		
Constant	29 544**	35 441**	41 135**	44 940**	44 420**	50 908**		
	104	04	41.135	64 64	TC	104		
[]	104	84	60	64	50	184		
Hurdles Short (distance)	D-2	C-2	B-1	B-2	A-1	A-2	Senior	
Hurdles Short (distance) Q2	D-2 0.030	C-2 -0.072	B-1 -0.571**	B-2 -0.401**	A-1 -0.760**	A-2 -0.628**	Senior -0.395**	
Hurdles Short (distance) Q2 Q3	D-2 0.030 0.276**	C-2 -0.072 0.137**	B-1 -0.571** -0.145	B-2 -0.401** 0.003	A-1 -0.760** 0.060	A-2 -0.628** -0.169	Senior -0.395** 0.384**	
Hurdles Short (distance) Q2 Q3 Q4	D-2 0.030 0.276** 0.459**	C-2 -0.072 0.137** 0.186**	B-1 -0.571** -0.145 -0.036	B-2 -0.401** 0.003 0.001	A-1 -0.760** 0.060 0.058	A-2 -0.628** -0.169 0.005	Senior -0.395** 0.384** 0.170	
Hurdles Short (distance) Q2 Q3 Q4 Constant	D-2 0.030 0.276** 0.459** 9.525**	C-2 -0.072 0.137** 0.186** 12 311**	B-1 -0.571** -0.145 -0.036 15 217**	B-2 -0.401** 0.003 0.001 14 640**	A-1 -0.760** 0.060 0.058 15 382**	A-2 -0.628** -0.169 0.005 14 962**	Senior -0.395** 0.384** 0.170 13.862**	
Hurdles Short (distance) Q2 Q3 Q4 Constant	D-2 0.030 0.276** 0.459** 9.525**	C-2 -0.072 0.137** 0.186** 12.311**	B-1 -0.571** -0.145 -0.036 15.217**	B-2 -0.401** 0.003 0.001 14.640**	A-1 -0.760** 0.060 0.058 15.382**	A-2 -0.628** -0.169 0.005 14.962**	Senior -0.395** 0.384** 0.170 13.862** 107	
Hurdles Short (distance) Q2 Q3 Q4 Constant n	D-2 0.030 0.276** 0.459** 9.525** 84	C-2 -0.072 0.137** 0.186** 12.311** 129	B-1 -0.571** -0.145 -0.036 15.217** 85	B-2 -0.401** 0.003 0.001 14.640** 94	A-1 -0.760** 0.060 0.058 15.382** 92	A-2 -0.628** -0.169 0.005 14.962** 80	Senior -0.395** 0.384** 0.170 13.862** 197	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time)	D-2 0.030 0.276** 0.459** 9.525** 84 D-2	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1	B-2 -0.401** 0.003 0.001 14.640** 94 B-2	A-1 -0.760** 0.060 0.058 15.382** 92 A-1	A-2 -0.628** -0.169 0.005 14.962** 80 A-2	Senior -0.395** 0.384** 0.170 13.862** 197 Senior	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134*	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179**	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077*	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076*	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158**	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243**	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q3 Q4 Constant	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10 470**	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289**	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430**	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.158** 12.485**	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11 968**	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Q3 Q4 Constant p	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470**	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Cartic	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time)	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467**	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730*	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304**	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978*	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126**	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Costant Costant	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379**	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905**	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450**	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379** 68	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905** 100	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450**	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Middle Distance (time)	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641** 112	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379** 68	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905** 100	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407** 56	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450** 192	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241	
Hurdles Short (distance)Q2Q3Q4ConstantnSprint (time)Q2Q3Q4ConstantnHurdles Long (time)Q2Q3Q4ConstantnHurdles Long (time)Q2Q3Q4ConstantnHurdles Long (time)Q2Q3Q4Constantn20Q2Q3Q4ConstantnMiddle Distance (time)Q2	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641** 112 D-2	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379** 68 C-2	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905** 100 B-1	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407** 56 B-2	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450** 192 A-1	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241 Senior	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Middle Distance (time) Q2	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641** 112 D-2 1.355**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379** 68 C-2 -0.233	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905** 100 B-1 -1.025	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407** 56 B-2 0.815	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450** 192 A-1 -0.852	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108 A-2 1.354	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241 Senior 0.048	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant Q2 Q3 Q4 Constant n Middle Distance (time) Q2 Q3	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641** 112 D-2 1.355** 2.144**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379** 68 C-2 -0.233 0.499	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905** 100 B-1 -1.025 -2.824**	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407** 56 B-2 0.815 -0.563	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450** 192 A-1 -0.852 -0.772	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108 A-2 1.354 2.717*	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241 Senior 0.048 0.985**	
Hurdles Short (distance) Q2 Q3 Q4 Constant n Sprint (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Hurdles Long (time) Q2 Q3 Q4 Constant n Middle Distance (time) Q2 Q3 Q4 Constant n	D-2 0.030 0.276** 0.459** 9.525** 84 D-2 -0.024 0.062** 0.093** 8.246** 124 C-2 -0.307 0.954** 0.300 47.641** 112 D-2 1.355** 2.144** 3.322**	C-2 -0.072 0.137** 0.186** 12.311** 129 C-2 -0.033 0.077* 0.076* 10.470** 132 B-2 0.746 2.467** -0.149 59.379** 68 C-2 -0.233 0.499 0.688	B-1 -0.571** -0.145 -0.036 15.217** 85 B-1 -0.041 0.061 0.039 12.289** 93 A-1 1.370 1.730* 1.978* 62.905** 100 B-1 -1.025 -2.824** 2.057	B-2 -0.401** 0.003 0.001 14.640** 94 B-2 -0.004 0.168** 0.100 12.029** 104 A-2 -0.809 3.957** 2.562** 62.407** 56 B-2 0.815 -0.563 3.052**	A-1 -0.760** 0.060 0.058 15.382** 92 A-1 -0.090 0.101 0.010 12.430** 112 Senior -0.401 2.304** 1.126** 58.450** 192 A-1 -0.852 -0.772 1.449	A-2 -0.628** -0.169 0.005 14.962** 80 A-2 -0.134* 0.074 0.158** 12.485** 108 A-2 1.354 2.717* 3.237**	Senior -0.395** 0.384** 0.170 13.862** 197 Senior -0.179** -0.007 -0.243** 11.968** 241 Senior 0.048 0.985** 3.255**	
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Note: all results are obtained by using robust standard errors. **p<0.05, *p<0.1

7. Discussion

The previous six sections all covered a single element which helped to understand the concept of an RAE and in particular how this relates to elite Dutch track & field. In this section the content of the previous sections will be combined. This will be done by a discussion of multiple topics in separate subsections: the RAE revisited; selection systems; gender differences; limitations and further research; and other applications.

7.1 The RAE revisited

We saw that the concept of an RAE is a know and accepted phenomenon within many applications, such as school systems (Angrist & Kruger; 1991; Plug; 2001), sports (Musch & Grondin; 2001) and even suicide rates (Thompson *et al.*; 1999). Generally, the existence of an RAE is established by comparing the observed and actual or theoretical birth date distributions. However, this procedure only moderately reveals potential mechanisms that cause it to occur. Without the knowledge of these causes it is hard to solve the problem.

In section 3, where related literature on the RAE in sports was reviewed, it became clear that some elements, though in an interconnected way, are generally seen as being responsible for the RAEs that were found. One of them is the use of a strict cut-off date, which separates age groups and is part of the organizational structure of the sport in question (e.g., Helsen *et al.*, 2000; Simmons & Paull, 2001). Others are the level and amount of competition (e.g., Musch & Grondin; 2001) and the physical development of athletes (Sherar *et al.*, 2007), which both are less controlled by the governing body.⁴⁹

Relating this to elite Dutch track & field, we found in the first part of section 6 an overrepresentation of early born athletes, especially for the junior age categories, which is, thus, indicating that the cut-off date is an important element within this sport as well. With respect to the competitiveness of the sport, the evidence is less clear cut. Since only data on the elite level is used, the conclusions can only be based on this level. Furthermore, with a total of 133,057 members on 31 December 2009 (69349 males, 63708 females)⁵⁰, track & field was the eighth most popular sport in the Netherlands.⁵¹ This means we can only say that the amount of competition seems to be high enough for a RAE to occur.⁵² Finally, since early physical development can in general be seen as an

⁴⁹Although the role of performance based selection systems and the differences with respect to gender could also be mentioned here, it was decided to discuss them in separate subsections and, thus, to neglect them in this part.

⁵⁰ Source: official data published by the KNAU: http://www.atletiekunie.nl/index.php?page=475.

⁵¹ Source: http://www.nocnsf.nl/cms/showpage.aspx?id=5180.

⁵²Since the official rankings of the KNAU are used, and those represent the top performances within the Netherlands, this study is about elite track & field. However, good athletes that used to belong to the elite group and who still participate within track & field competitions, but decided not to practice as hard as they

advantage in track & field, this might also be an explanation of the overrepresentation of early born athletes. As Musch & Grondin (2001) note, a decline in the severity of the RAE when athletes become older also indicates that physical development is an important factor. This because the physical advantage of early born athletes might have disappeared at older ages, since late born peers have developed then as well. A precondition for this to hold is, of course, that the late born athletes do not drop out at early ages. Given that we found in section 6 such a decline as meant by Musch & Grondin (2001), it can be concluded that physical development is indeed a factor in the occurrence of the RAE in elite Dutch track & field.

The end of section 3 was used to discuss some solutions to the problem of an RAE that were proposed within the literature. These solutions were: a biological age classification, a rotating relative age advantage (9-, 15- or 21-month age categories), age quotas, multiple teams based on multiple standards and, on a macro scale, the use of different cut-off dates. The conclusion in section 3 was that most of them suffered from practical applicability. Without discussing them one by one, this also seems to hold for track & field. Age quotas seems to be the most appealing, since, then, the early and late born athletes are given equal opportunities, e.g. for professionalized training. However, this still is a bit arbitrary and not necessarily right, since it might well be that within a particular group of peers, more high potentials are born in the first part of the year, who might then be missed by the selection system. It is, therefore, better to use a performance based selection system that takes account of the performance difference between early and late born peers. This will be the topic of the next subsection.

7.2 Selection systems

Although the previous subsection discussed some of the potential reasons for a RAE to occur, it could be argued that the selection system is what ultimately determines the composition of athletes for a given subgroup (e.g. elite athletes) and, therefore, would be the most important element. This reasoning implicitly assumes that RAEs are the result of the incapability of selection systems to overcome or correctly incorporate the reasons discussed above. While this indeed seems to be the case, the literature that was discussed in section 2 showed that there are more fundamental problems with talent selection, identification and development. A core element within this debate is the discussion of what is responsible for expert performances.

used to do, might still be seen as elite, since their performances might still show up in the rankings. This is in contrast to, for example, soccer, in which a player can decide to play for a club which is playing in a lower division. Individuals within track & field, thus, have less options in their decision on which level they want to be active, compared to other sports, such as soccer. Although this difference might be important when comparing track & field to other sports, it is of minor importance within this thesis.

Historically, expertise was attributed to innate factors, which is the nature-based view (Galton; 1869, 1874). Nowadays, however, researchers more and more acknowledge the importance of (deliberate) practice (Ericsson *et al.*; 1993) and other environmental factors (Gagné; 2004, 2009). Furthermore, talent is currently seen as multidimensional and dynamic (Simonton, 1999; Abbott & Collins; 2004), instead of statically determined by genetics. The nurture-based view, thus, gained support and made researchers argue that the ease and speed of development is what matters in the prediction of expertise (Gagné; 2004, 2009).

With respect to selection systems in sports, including track & field, this means that the focus should be on an athlete's potential, instead of the current performance. In section 4, in which some background information on track & field within the Netherlands was provided, it was shown that the KNAU is selecting based on current performances already at early ages. Furthermore, the results of the second part of section 6 showed that significant performance differences exist between early and late born peers, which might well represent a physical advantage.⁵³ Combined, those findings mean that, if we assume that giftedness and talent are uniformly distributed over the year, the performance based selection system discriminates in favor of early born athletes. It also means that some late born high potentials will be lost, which is not only harmful for those individuals (e.g., declined self esteem (Thomson *et al.*; 2001), but is also in contrast to the aims of the KNAU and, thus, from a social point of view unwanted.

A potential solution would be to incorporate the performance differences into the selection system. The estimations of the coefficients could be used in a comparison between early and late born peers, in which the estimation values are added (or subtracted) from actual performances. In this way it is still possible to use the objective performance measures, but after acknowledging the relative age differences. It should be noted that the estimation results as found in this study might be too rough and, thus, should be seen as a starting point. Other ways to find better results will be discussed in the subsection that will cover some limitations and further research.

7.3 Gender differences

Although there has been done a lot of research into the RAE in sports, most of them focused on male participants. For this reason, many researchers have been arguing that more studies should investigate the existence of an RAE in female sports (Musch & Grondin, 2001; Cobley *et al.*, 2009). This will provide insight into the gender differences, which, can be used for gender specific policies for a given sport. However, if it is the aim to draw some general conclusions about the differences

⁵³ The results in the second part of section 6 also showed a diminishing effect on performance differences when athletes become older. Since this is rather similar to the declining RAE for older athletes, the same reasoning for physical development as formulated in section 7.1 might apply here.

between the genders, the sport under investigation should be rather similar with respect to both males and females. With this condition being satisfied, any difference that is found can be attributed to the fact that the comparison is between males and females, not to some sport specific effect. Such a sport specific effect might, for example, be the availability of sports clubs. In the Netherlands not all professional soccer clubs have a female soccer team, which means that it is not possible for all females to practice soccer without a lot of traveling. This might influence the start and drop out rates. For track & field these differences, in general, do not exist. Therefore, track & field is a sport that can be used for a comparison between genders, while providing insights into a more general perspective.

For both genders an RAE as well as significant performance differences were found. However, the effects were generally stronger for males than for females. Furthermore, the effects tend to diminish when moving up age cohorts for both genders, but this is strongest for females. While for males the effects are present for all age categories, for females the effects are almost completely gone for the adolescent and (though less clearly) senior age categories. Thus, there seems to be a turning point for females after the age of 15 years, which is not observed for males.

Without going into detail on the differences between males and females during puberty, it does seem to be a valid explanation given the moment of the turning point. The main difference is that males tend to develop in a way that is, in general, beneficial for sport performances, while female development is not necessarily better within sports (Malina, Bouchard & Bar-Or; 2004). An example might be that males become stronger, while females only gain some weight. This means that early born males generally keep their relative age advantage during puberty, while early born females might well lose it. Note that early born athletes will, in general, enter puberty earlier than their late born peers.

Although physical development is, of course, an important aspect during puberty, it should be noted that mental development might be as important for sports participation and performances (Vincent & Glamser; 2006). Furthermore, general mental differences between males and females may also account for the different results that were found in section 6. Interesting in this respect are the studies by Gneezy, Niederle & Rustichini (2003) and Gneezy & Rustichini (2004) who investigate the differences in the influence on competitiveness between genders within an experimental design. Gneezy *et al.* (2003) used students that had to solve mazes on a computer and found that, when competitiveness increased by way of a different payment scheme, the performances of males increased while the performances of females remained constant. Gneezy & Rustichini (2004) used 75 boys and 65 girls aged 9-10 years old, which had to run a short distance. The competitiveness was controlled, by using two rounds, in which in the second round competitors knew the other's first round performance. Their main finding was that 'competition improves performances relative to a non-competitive environment for boys, but not for girls' (Gneezy & Rustichini; 2004, p. 379). Their overall conclusion is that males are more competitive than females (Gneezy & Rustichini; 2004). Relating this to the track & field and the results as found before, we might have another explanation for the differences between males and females. Given that males are more competitive, they might drop out of the sport earlier relative to females if they cannot win. Since the late born participants are often the ones that do not win, relatively more late born females will still be active compared to males. More late born athletes will, after development is completed, mean that the distributions will be more uniform. This is what we observed above and is in line with previous literature, (e.g., Baxter-Jones & Helms, 1994; Musch & Grondin, 2001; Vincent & Glamser, 2006) who also argued that the smaller degree of competition in female sports might be an explanation for the differences between the genders that were found.

7.4 Limitations and further research

This thesis corroborates the notion that a RAE within elite Dutch track & field exists. Furthermore, significant performance differences between early and late born peers were found. These results clearly indicate that not all athletes are provided with equal opportunities, which implies that some potential talents are lost (a type I error). It would be interesting to know how large the implication of this imperfection of the system is. Given that only a small number of elite adults are needed within this individualistic sport, the ultimate effect of the imperfection might be small. Unfortunately, the data could not provide insight into this aspect. It should be noted, however, that it is generally difficult to provide evidence of potential talents that were missed by the selection system, since they might have dropped out of the sport at an early age.

Furthermore, the data could also not reveal which factors determine expert performances. We saw that two main contributors exist: innate talent (nature) and practice (nurture). The level of practice was proxied by the 'clubranking' variable. However, this variable was very rough and further research that focuses on the differences in performances should preferably use a different measure. Further research should, then, also use a different structure of the data. Although the sample that was used within this thesis was based on micro data, it would be better to have data on the same individual for multiple years. Such a longitudinal design would make it be possible to control for giftedness or innate factors, insofar they do not change over time (remember e.g. Simonton's (1999) model in which talent is seen as dynamic).⁵⁴ To obtain such data, someone should follow a well

⁵⁴ Note that there are, of course, individuals that occur in multiple years within the rankings that were used. From those persons it would be possible to obtain in-person developments. However, using this method would have meant that the number of observations would have decreased by even more. This because the same selection procedure as already used to obtain an equal number of athletes per quarter should be used, while not all individuals will be in the rankings for all those years.

balanced group of athletes for many years, which is a costly process. However, as mentioned in section 7.2 it will probably improve the estimation results.⁵⁵

Other improvements to the estimation results, for using them in a comparison between performances, might be achieved by using smaller intervals (e.g. months). It was chosen to use quarter-dummies. This, in fact, creates three extra cut-off dates and again some athletes will be early born (beginning of the quarter) and some athletes will be late born (late in the quarter). In principle, the same hypotheses and expectations (i.e. the same RAE) hold for these quarters as was formulated for the entire age categories. This means that the estimation results as presented in section 6 overestimate the performance difference for the early born athletes and underestimates the performance difference for the late born athletes. Smaller intervals would reduce these over- and underestimations, which subsequently would make it possible to better compare the performances between athletes. However, to be able to use the selection procedure to obtain an equal number of athletes per period, this requires a minimum number of athletes per period, which, given the existence of the RAE, is hard to achieve. Using months instead of quarters does not work when using this sample, especially at early age categories the number of observations will be problematic. A qualitative variable that can have a value for each day of the year might be another solution, but suffers from the fact that it does not allow for different estimations for different periods of the year (i.e. only one coefficient is estimated) which means development is assumed to be constant throughout the year. Based on the principle of a diminishing development of performances, this is incorrect as well.

Again, a different (larger) sample should provide a solution. For this reason the estimation results as presented within this thesis should only be used as a starting point in the comparison of performances. Given the significance and practical relevance of the results, however, other results that are obtained in a better way will probably point in the same direction.

7.5 Other applications

Although this study was based on track & field, this subsection will be used to briefly discuss how the methods and findings relate to other applications. Starting with other sports, two differences are noteworthy to mention. The first is that track & field provides objective performances. As best to the authors' knowledge, this study is the first one to link a RAE to the performance differences between early and late born peers. Furthermore, as mentioned, the estimations of the performance differences can be used in the comparison of the performances between those peers. This, of course, will be possible for all sports in which objective performances

⁵⁵ Within such a design it is also possible to monitor personal development, both physical (by measuring) and mental (by questionnaires). The influence of these elements can, then, also be investigated.

are available (which is more common for individualistic sports than for team sports) and, thus, might be a helpful tool to overcome the problems that the selection systems encounter. The second point, which was already extensively discussed in section 7.3, is that we found differences between genders. Track & field is not subject to sport specific factors, such as the availability of sporting clubs. Thus, it seems fair to state that gender differences are indeed caused by the differences between males and females. However, more research should be conducted in this direction. Interesting elements in this respect are the roles of personal development, especially during and after puberty, and competition and competitiveness.

One of the big differences between school systems and sports is that it is mandatory to maintain at school until a certain age, while one is free to drop out of sports whenever one wants. However, in both fields we observe RAEs. For sports this mainly results in a skewed birth date distribution, with an overrepresentation of participants born close after the cut-off date. For school systems, the RAE cannot become visible by an evaluation of birth date distributions, since it is compulsory. Therefore, output measures, such as school performances and wages, are often related to relative age. Some examples of studies that relate school systems to a RAE are Angrist & Krueger (1991), who document a wage premium in the United States for those who are obliged to attend school longer because of compulsory schooling laws; Plug (2001), who documents increased school performances and higher earnings for those born close after the cut-off date in the Netherlands; and Dhuey & Lipscomb (2008), who show that early born kids have a higher probability of becoming a high school leader, which positively affects the rest of their lives. Interestingly, schools use grades, which are objective measures of performance. In this respect, it does look similar to track & field, which would make it possible for potential performance differences to be estimated. These estimations, in turn, can be used to make a better comparison of the performance between early and late born peers. This might not directly lead to an equal wage, but it will give parents and teachers (the ones who have to make decisions for the child) a better picture of the relative performance of a child. This might lead to different decisions, such as to which secondary school someone should go or who should be the next high school leader. Given that some clear differences were found in this study for elite track & field between males and females, it should be recommended that that gender is taken into account when making these decisions.

The previous paragraph made the analogue between school systems and track & field clear. It should, however, be noted that they are also working in an interconnected way. Without going into detail of how this might work, a misinterpretation of the relative performance in track & field (or more general in sports) might have implications for personal wellbeing⁵⁶ which, in turn, might have implications for school achievements. Also, the reasoning might work the other way around, in which a misinterpretation of school performances influences the track & field achievements.⁵⁷ Although it will be positive for some individuals and negative for others, the allocation of opportunities will be inefficient from a social point of view. Related to track & field, this implies that talent might be lost. For this reason it is important that the performance based selection systems of other domains, such as school systems, also incorporate the performance differences that are the result of the relative age differences.

⁵⁶For example, Thomson *et al.* (2001) document that relative age differences might result in declined selfesteem.

⁵⁷ Note that the environment will play an important role in many occasions of these misinterpretations of performances.

8. Conclusion

This study revealed that within elite Dutch track & field, like in many other sports, an RAE exists. For both males and females this implies that not all athletes are given equal opportunities to participate and develop. Besides this being inequitable, it implies that some high potentials are overlooked by the selection system, which implies the system is inefficient and results in an inefficient allocation of athletes. The selection system is too much focused on performances and not able to overcome the problems that were discussed in the text. This incapability of the system might result in the investment of scarce resources in the wrong athletes. Since only a selected group of athletes will exhibit the necessary natural abilities to become an expert performer, it is important that those athletes are supported by their environment. However, the unfortunate ones who are born within the wrong period of the year might never get this support. This would mean a waste of talent, which is not only bad for the athlete in question, but also for the entire sport. It would, therefore, be good if all parents, coaches, athletes and all other people that are involved within the sport, are familiar with the concept of relative age differences and the resulting performance differences. With this knowledge, the selection system could be improved by the incorporation of these performance differences. Estimation results can be used to better compare the current performances, which is especially relevant at early ages. It might well result in a whole different ranking, with a better allocation of opportunities as a consequence. This does not mean it would be good to award the best relative performer with the national championship, since within such a match the best absolute performance should win. However, let us hope that there will be a moment at which everybody knows that the winner might not have been the most skilled, talented or driven athlete.

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Appendix A1

Table A1a: overview of the different disciplines with an indication of the age category

Males		Females	
Discipline	Age category	Discipline	Age category
1000m	C,D	1000m	C,D
100m	A,B,C,S	100m	A,B,S
100m Hurdles	С	100m Hurdles	A,B,S
110m Hurdles	A,B,S	1500m	A,B,C,S
1500m	A,B,C,S	3000m	A,B,S
300m Hurdles	С	300m Hurdles	С
400m	A,B,S	400m	A,B,S
400m Hurdles	A,B,S	400m Hurdles	A,B,S
5000m	A,S	600m	C,D
600m	D	60m	D
800m	A,B,C,S	60m Hurdles	D
80m	D	800m	A,B,S
80m Hurdles	D	80m	С
Discus Throw	A,B,C,D,S	80m Hurdles	С
High Jump	A,B,C,D,S	Discus Throw	A,B,C,D,S
Shot Put	A,B,C,D,S	High Jump	A,B,C,D,S
Pole Vault	A,B,C,S	Shot Put	A,B,C,D,S
Javelin	A,B,C,D,S	Pole Vault	A,B,C,S
Long Jump	A,B,C,D,S	Javelin	A,B,C,D,S
		Long Jump	A,B,C,D,S

The letters in column two and four correspond to the age categories and ages as explained in the text. Furthermore, it should be noted that some disciplines have different rules for different age categories. For the relevant disciplines, these differences can be found in the table below. Some distances logically also belong together, such as 80m and 100m, but these are separately included in table A1a. Finally, it should be noted that no data was available for the 600m males-D for the seasons 2005 and 2006.

Table A1b: overview of the discipline specific different weights or heights

Javelin	weight / height	Javelin	weight / height
Males-D	400 g	Females-D	400 g
Males-C	600 g	Females-C	600 g*
Males-B	700 g	Females-B	600 g
Males-A	800 g	Females-A	600 g
Males-Senior	800 g	Females-Senior	600 g
	•		•
Shot Put	weight / height	Shot Put	weight / height
Shot Put Males-D	weight / height 3 kg	Shot Put Females-D	weight / height 2 kg
Shot Put Males-D Males-C	weight / height 3 kg 4 kg	Shot Put Females-D Females-C	weight / height 2 kg 3 kg
Shot Put Males-D Males-C Males-B	weight / height 3 kg 4 kg 5 kg	Shot Put Females-D Females-C Females-B	weight / height 2 kg 3 kg 3 kg
Shot Put Males-D Males-C Males-B Males-A	weight / height 3 kg 4 kg 5 kg 6 kg	Shot Put Females-D Females-C Females-B Females-A	weight / height 2 kg 3 kg 3 kg 4 kg

Table A1b continued		1	
Discus Throw	weight / height	Discus Throw	weight / height
Males-D	1 kg	Females-D	750 g
Males-C	1 kg	Females-C	1 kg
Males-B	1.5 kg	Females-B	1 kg
Males-A	1.75 kg	Females-A	1 kg
Males-Senior	2 kg	Females-Senior	1 kg
Hurdles Short	weight / height	Hurdles Short	weight / height
Males-D	76.2 cm	Females-D	76.2 cm
Males-C	84 cm	Females-C	76.2 cm
Males-B	91.4 cm	Females-B	76.2 cm
Males-A	100 cm**	Females-A	84 cm
Males-Senior	106.7 cm	Females-Senior	84 cm
Hurdles Long	weight / height	Hurdles Long	weight / height
Males-D	х	Females-D	х
Males-C	76.2 cm	Females-C	76.2 cm
Males-B	84 cm	Females-B	76.2 cm
Males-A	91.4 cm	Females-A	76.2 cm
Males-Senior	91.4 cm	Females-Senior	76.2 cm

*From 2009 onwards this is 500g

**From 2008 onwards this is 99.1 cm

Appendix A2

Table A2a: distribution of birth dates per quarter for male athletes, distinguished by discipline

Males-D								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
1000m	130	70	20	20	276	02.78		0.72
1000m	130	79	39	28	276	92.78	0.00	9.73
600m	39	38	14	10	101	28.15	0.00	10.29
80m	141	93	40	22	296	117.70	0.00	14.24
80m Hurdles	129	89	40	22	280	100.66	0.00	12.36
Discus Throw	113	82	45	29	269	63.48	0.00	6.94
High Jump	151	101	54	41	347	86.42	0.00	7.04
Shot Put	126	90	42	26	284	88.06	0.00	10.09
Javelin	115	91	40	27	273	76.23	0.00	9.45
Long Jump	127	85	34	28	274	95.26	0.00	11.69
Total	1 071	748	348	233	2 400	736 56	0.00	9.80
Males-C	1,071	740	540	255	2,400	750.50	0.00	5.00
Discipline / Quarter	01	01	03	04	Total	2	n value	00.0102.0204
Discipline / Quarter	QI	ŲΖ	ųs	Q4	TOLUI	χ-	p-value	UK QIQZ VS. Q3Q4
1000m	110	75	39	28	252	65.94	0.00	7.62
100m	135	90	57	22	304	91.50	0.00	8.11
100m Hurdles	131	85	45	23	284	95.44	0.00	10.09
1500m	96	77	44	54	271	24.16	0.00	3.12
300m Hurdles	110	90	43	30	273	63.25	0.00	7.51
800m	112	82	47	35	276	53.01	0.00	5.60
Discus Throw	106	84	54	27	271	52 79	0.00	5 50
High Jump	137	121	60	42	360	70.82	0.00	6.40
Shot But	112	01	45	42	276	68.00	0.00	0.40
	115	31	43	27	270	00.99	0.00	8.05 2.77
Pole vault	95	74	61	26	256	39.28	0.00	3.77
Javelin	112	92	40	30	274	69.18	0.00	8.49
Long Jump	124	89	39	27	279	87.27	0.00	10.42
Total	1,381	1,050	574	371	3,376	743.41	0.00	6.62
Males-B								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
100m	110	84	66	30	290	46 72	0.00	4.08
110m Hurdlos	105	04	60	30	250	40.72	0.00	4.00
1500-	105	51	50	30	270	44.09	0.00	4.27
1500m	84	50	54	45	239	14.27	0.00	2.00
400m	98	88	48	29	263	48.68	0.00	5.84
400m Hurdles	76	73	32	38	219	28.91	0.00	4.53
800m	88	71	48	37	244	25.80	0.00	3.50
Discus Throw	86	80	47	30	243	35.27	0.00	4.65
High Jump	96	67	50	53	266	19.92	0.00	2.50
Shot Put	80	90	56	29	255	34.84	0.00	4.00
Pole Vault	79	76	58	35	248	19.84	0.00	2.78
Javelin	102	89	38	29	258	61.53	0.00	8.13
	90	71	51	33	245	29 79	0.00	3.67
Total	1 004	026	609	419	2.046	266 61	0.00	2.00
Maloc A	1,054	520	008	410	3,040	500.01	0.00	5.00
				~ ~ ~		2		
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ²	p-value	OR Q1Q2 vs. Q3Q4
100m	124	103	82	56	365	27.82	0.00	2.71
110m Hurdles	120	85	57	64	326	29.46	0.00	2.87
1500m	104	87	82	76	349	4.98	0.17	1.46
400m	129	119	75	62	385	33.40	0.00	3.28
400m Hurdles	87	76	52	50	265	14.98	0.00	2.55
5000m	51	65	61	65	242	2 17	0.54	0.85
800m	113	107	80	71	371	13.46	0.00	2 12
Discus Throw	7/	77	15	/1	371	19.40	0.00	2.12
		77	40	41	257	10.04	0.00	3.00
High Julip	90	75	39	40	252	20.57	0.00	3.00
Snot Put	90	82	59	50	281	15.16	0.00	2.49
Pole Vault	76	80	61	45	262	11.62	0.01	2.17
Javelin	108	103	66	54	331	26.04	0.00	3.09
Long Jump	108	96	61	47	312	31.72	0.00	3.57
Total	1,274	1,155	820	729	3,978	205.95	0.00	2.46
Males-Senior								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
100m	242	227	220	170	977	15.20	0.00	1 2 2
110m Hurdles	242	227	200	10	077	13.30	0.00	1.54
	258	230	100	127	//5	50.96	0.00	2.89
TOO	207	216	169	228	820	9.51	0.02	1.14
400m	230	227	207	162	826	14.30	0.00	1.53
400m Hurdles	241	183	159	109	692	52.12	0.00	2.50
5000m	138	183	188	178	687	9.13	0.03	0.77
800m	234	189	175	212	810	9.98	0.02	1.19
Discus Throw	321	218	243	197	979	36.01	0.00	1.50
High Jump	221	170	95	87	573	85.53	0.00	4.62
Shot Put	333	233	243	171	980	54.56	0.00	1.87
Pole Vault	227	208	126	111	672	60.08	0.00	3.37
Javelin	281	248	143	119	791	94.34	0.00	4,08
Long lump	230	168	121	142	661	40 54	0.00	2 29
BP	250	100		174	001	10.04	0.00	1.00
Total	2 1 6 2	2 700	7747	2 (112	10 1 1 2	2017.00	11	1 00

Table A2b: distribution of birth dates per quarter for female athletes, distinguished by discipline

remaies-D								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
1000m	00	72	67	26	262	21.61	0.00	2.41
1000m	00	72	07	30	203	21.01	0.00	2.41
60011	89	87	08	29	273	34.03	0.00	3.29
60m	114	82	54	38	288	46.44	0.00	4.54
60m Hurdles	106	94	50	25	275	62.41	0.00	7.11
Discus Throw	104	87	53	30	274	48.54	0.00	5.30
High Jump	184	142	90	47	463	92.76	0.00	5.66
Shot Put	110	86	51	19	266	71.71	0.00	7.84
Javelin	107	88	40	36	271	55.04	0.00	6.58
Long Jump	105	102	43	27	277	69.67	0.00	8.74
Total	1.007	840	516	287	2.650	471.92	0.00	5.29
Females-C	_,				_,			
Discipline / Quarter	01	02	03	04	Total	x ²	n-value	OR 0102 vs 0304
Discipline / Quarter	Q1	ų٤	45	Q4	10101	λ	p-value	011 Q1 Q2 V3. Q3 Q4
1000m	57	53	56	36	202	5.72	0.13	1.43
1500m	62	39	58	40	199	8.62	0.03	1.06
300m Hurdles	86	86	48	42	262	25.94	0.00	3.65
600m	70	72	55	45	242	8.15	0.04	2.02
80m	93	97	50	58	298	23.10	0.00	3.09
80m Hurdles	77	94	65	42	278	20.62	0.00	2.55
Discus Throw	92	86	55	33	266	34.36	0.00	4.09
High lump	112	116	83	61	372	21.66	0.00	2 51
Shot Put	93	87	54	31	265	38.32	0.00	4.48
Bolo Vault	22	21	20	26	110	50.52 E 46	0.00	0.66
Pole vault	102	31	39	20	110	5.40	0.14	0.00
	103	90	5/	38	208	55.22	0.00	0.62
Long Jump	70	84	49	45	248	16.23	0.00	2.68
Total	937	935	649	497	3,018	189.96	0.00	2.67
Females-B								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
100m	54	66	53	50	223	2 67	0.45	1 36
100m Hurdles	53	73	70	44	240	9.57	0.45	1.30
100m	55	75	70	44	170	3.37	0.02	1.22
130011	55	44	41	39	179	3.41	0.55	1.55
3000m	43	19	32	31	125	9.24	0.03	0.97
400m	42	51	64	42	199	6.53	0.09	0.77
400m Hurdles	52	47	38	52	189	2.77	0.43	1.21
800m	49	46	54	41	190	1.87	0.60	1.00
Discus Throw	47	59	33	27	166	14.92	0.00	3.12
High Jump	48	80	48	35	211	20.91	0.00	2.38
Shot Put	63	58	42	30	193	14.19	0.00	2.82
Pole Vault	32	28	39	29	128	2.31	0.51	0.78
Javelin	67	53	30	30	180	22.18	0.00	4.00
long lump	54	59	46	39	198	4 71	0.19	1 77
Total	650	692	F00	480	2 4 2 1	27.47	0.00	1.00
Formalian A	055	085	550	485	2,421	57.47	0.00	1.55
Females-A				~ .		2		
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ²	p-value	OR Q1Q2 vs. Q3Q4
100m	56							
100m Hurdles		68	55	55	237	1.80	0.61	1.20
	45	68 80	55 56	55 43	237 224	1.80 15.46	0.61 0.00	1.20 1.59
1500m	45 53	68 80 38	55 56 41	55 43 60	237 224 192	1.80 15.46 6.63	0.61 0.00 0.08	1.20 1.59 0.81
1500m 3000m	45 53 40	68 80 38 26	55 56 41 40	55 43 60 41	237 224 192 147	1.80 15.46 6.63 4.21	0.61 0.00 0.08 0.24	1.20 1.59 0.81 0.66
1500m 3000m 400m	45 53 40 42	68 80 38 26 51	55 56 41 40 54	55 43 60 41 54	237 224 192 147 201	1.80 15.46 6.63 4.21 1.93	0.61 0.00 0.08 0.24 0.59	1.20 1.59 0.81 0.66 0.74
1500m 3000m 400m 400m Hurdles	45 53 40 42 45	68 80 38 26 51 51	55 56 41 40 54 43	55 43 60 41 54 42	237 224 192 147 201 181	1.80 15.46 6.63 4.21 1.93 1.08	0.61 0.00 0.08 0.24 0.59 0.78	1.20 1.59 0.81 0.66 0.74 1.28
1500m 3000m 400m 400m Hurdles 800m	45 53 40 42 45 54	68 80 38 26 51 51 47	55 56 41 40 54 43 54	55 43 60 41 54 42 49	237 224 192 147 201 181 204	1.80 15.46 6.63 4.21 1.93 1.08 0.75	0.61 0.00 0.08 0.24 0.59 0.78 0.86	1.20 1.59 0.81 0.66 0.74 1.28 0.96
1500m 3000m 400m 400m Hurdles 800m Diccus Throw	45 53 40 42 45 54	68 80 38 26 51 51 47 60	55 56 41 40 54 43 54 30	55 43 60 41 54 42 49 46	237 224 192 147 201 181 204 182	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91	0.61 0.00 0.24 0.59 0.78 0.86 0.02	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95
1500m 3000m 400m 400m Hurdles 800m Discus Throw Hick Jump	45 53 40 42 45 54 46 32	68 80 38 26 51 51 47 60	55 56 41 40 54 43 54 30 3°	55 43 60 41 54 42 49 46 26	237 224 192 147 201 181 204 182 161	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.59	0.61 0.00 0.24 0.59 0.78 0.86 0.02	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump	45 53 40 42 45 54 46 33 75	68 80 38 26 51 51 47 60 54	55 56 41 40 54 43 54 30 38	55 43 60 41 54 42 49 46 36	237 224 192 147 201 181 204 182 161	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58	0.61 0.00 0.24 0.59 0.78 0.86 0.02 0.09	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Data Juante	45 53 40 42 45 54 46 33 75	68 80 38 26 51 51 47 60 54 80 24	55 56 41 40 54 43 54 30 38 61	55 43 60 41 54 42 49 46 36 54	237 224 192 147 201 181 204 182 161 270	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.22	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault	45 53 40 42 45 54 46 33 75 35	68 80 38 26 51 51 47 60 54 80 21	55 56 41 40 54 43 54 30 38 61 21	55 43 60 41 54 42 49 46 36 54 21	237 224 192 147 201 181 204 182 161 270 98	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	45 53 40 42 45 54 46 33 75 35 57	68 80 38 26 51 51 47 60 54 80 21 73	55 56 41 54 43 54 30 38 61 21 40	55 43 60 41 54 42 49 46 36 54 21 45	237 224 192 147 201 181 204 182 161 270 98 215	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.11 0.01	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	45 53 40 42 45 54 46 33 75 35 57 38	68 80 38 26 51 51 47 60 54 80 21 73 56	55 56 41 40 54 43 54 30 38 61 21 40 54	55 43 60 41 54 42 49 46 36 54 21 45 38	237 224 192 147 201 181 204 182 161 270 98 215 186	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.10	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total	45 53 40 42 45 54 46 33 75 35 57 38 619	68 80 38 26 51 51 47 60 54 80 21 73 56 706	55 56 41 40 54 43 54 30 38 61 21 40 54 590	55 43 60 41 54 42 49 46 36 54 21 45 38 585	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.10 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior	45 53 40 42 45 54 46 33 75 35 57 38 619	68 80 38 26 51 51 47 60 54 80 21 73 56 706	55 56 41 40 54 43 54 30 38 61 21 40 54 590	55 43 60 41 54 42 49 46 36 54 21 45 38 585	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.10 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1	68 80 38 26 51 51 47 60 54 80 21 73 56 706	55 56 41 40 54 43 54 30 38 61 21 40 54 590 Q3	55 43 60 41 54 42 49 46 36 54 21 45 38 585 Q4	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 Total	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^2	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.11 0.01 0.10 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68	68 80 38 26 51 51 47 60 54 80 21 73 56 706 22 101	55 56 41 40 54 43 54 30 38 61 21 40 54 590 Q3 60	55 43 60 41 54 42 49 46 36 36 54 21 45 38 585 285	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 <i>Total</i>	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.01 0.10 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00
1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m Hurdles	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 9°	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 02 101	55 56 41 40 54 43 54 30 38 61 21 40 54 590 Q3 60 40	55 43 60 41 54 42 49 46 36 54 21 45 38 585 Q4 Q4	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 Total 338 232	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 20.05 20.10	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.11 0.01 0.00 0.00 p-value 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.70
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 98	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 02 101 122 02	55 56 41 40 54 43 54 30 38 61 21 40 54 590 Q3 60 49 40	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 61	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 70tal 338 333 25 5	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 19.22	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.01 0.01 0.01 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.20
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 98	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 02 101 122 99 99	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 24 60 49 102	55 43 60 41 54 42 49 46 36 54 21 45 38 585 024 109 64 64 64	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 7060 338 333 334 333	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^2 20.65 39.19 10.09 7.5	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.10 0.00 p-value 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 84	68 80 38 26 51 51 47 60 54 80 21 73 56 706 Q2 Q2 Q2 101 122 99 103	55 56 41 40 54 43 54 30 38 61 21 40 54 590 Q3 Q3 60 49 102 122	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 64 112	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 <i>Total</i> 338 333 354 421	$\begin{array}{c} 1.80\\ 15.46\\ 6.63\\ 4.21\\ 1.93\\ 1.08\\ 0.75\\ 9.91\\ 6.58\\ 6.47\\ 6.00\\ 12.03\\ 6.26\\ 14.96\\ \hline \chi^2\\ 20.65\\ 39.19\\ 10.09\\ 7.44\\ \end{array}$	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.11 0.01 0.10 0.00 0.00 <u>p-value</u> 0.00 0.00 0.02 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64
1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 84 81	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 21 40 54 590 0 23 60 49 102 122 74	55 43 60 41 54 42 49 46 36 54 21 45 38 585 Q4 109 64 64 64 112 70	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 Total 338 333 354 421 325	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 10.09 7.44 6.53	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 98 89 84 81 97	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 02 101 122 99 103 100 102	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 21 40 54 590 0 23 60 49 102 122 74 53	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 112 70 48	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 700 338 333 354 421 325 300	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 10.09 7.44 6.53 32.35	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.11 0.10 0.01 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 88 89 84 81 97 83	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100 102 96	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 21 22 60 49 102 122 74 53 96	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 64 112 70 48 61	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 700 338 333 354 421 325 300 336	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 10.09 7.44 6.53 32.35 9.74	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.01 0.01 0.10 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 0.90 3.79 1.28 0.64 1.58 3.88 1.30
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw	45 53 40 42 45 54 46 33 75 35 57 38 619 01 68 98 89 84 89 84 81 97 83 115	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100 102 96 118	55 56 41 40 54 43 54 30 38 61 21 40 54 590 Q3 Q3 Q3 Q3 60 49 102 122 74 53 96 46	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 64 112 70 48 61 84	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 700 338 333 354 421 325 300 336 363	$\begin{array}{c} 1.80\\ 15.46\\ 6.63\\ 4.21\\ 1.93\\ 1.08\\ 0.75\\ 9.91\\ 6.58\\ 6.47\\ 6.00\\ 12.03\\ 6.26\\ 14.96\\ \hline \\ \chi^2\\ 20.65\\ 39.19\\ 10.09\\ 7.44\\ 6.53\\ 32.35\\ 9.74\\ 37.23\\ \end{array}$	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.11 0.01 0.10 0.00 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 0.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21
1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m Hurdles 800m Discus Throw High Jump	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 84 89 84 81 97 83 115 64	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100 102 96 118 111	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 0 3 40 60 49 102 122 74 53 60 49 102 122 74 53 60 46 60	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 112 70 48 61 84 51	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 Total 338 333 354 421 325 300 336 363 286	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49
1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put	45 53 40 42 45 54 46 33 75 35 57 38 619 01 68 98 98 89 84 81 97 83 115 64 108	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100 102 96 118 111 122	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 3 40 590 0 3 40 102 122 74 53 96 46 60 60 60	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 112 70 48 61 112 70 48 61 84 51 93	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 Total 338 333 354 421 325 300 336 363 286 383	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.10 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Undles 800m Discus Throw High Jump Shot Put Pole Vault	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 89 84 89 89 84 81 97 83 115 64 108 114	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100 102 96 118 111 122 72	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 2 40 590 0 2 102 102 102 102 122 74 53 96 46 60 60 80	55 43 60 41 54 42 49 46 36 54 21 45 38 585 04 109 64 64 112 70 64 61 88 61 84 61 84 51 93 25	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 70tal 338 333 354 421 325 300 336 363 286 383 291	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^{2} 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.11 0.10 0.00 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26 3.14
1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 84 89 84 81 97 83 115 64 108 114 72	68 80 38 26 51 51 47 60 54 80 21 73 56 706 00 101 122 99 103 100 102 96 118 111 122 99	55 56 41 40 54 43 54 30 38 61 21 40 54 590 21 22 74 590 20 23 60 49 102 122 74 53 96 46 60 60 60 60 60 80 78	55 43 60 41 54 42 49 46 36 54 21 45 38 585 0 04 64 64 64 112 70 64 64 64 112 70 48 61 84 51 93 25 46	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 70tal 338 333 354 421 325 300 336 363 286 383 286 383 291 294	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46 18.76	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.11 0.01 0.00 0.00 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 0.00 3.79 1.28 0.64 1.58 3.88 1.80 3.21 2.49 2.26 3.14 1.88
1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	45 53 40 42 45 54 46 33 75 35 57 38 619 Q1 68 98 89 84 89 84 81 97 83 115 64 108 114 72 70	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 102 99 103 100 102 99 103 100 102 96 118 111 1122 72 98 80	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 3 61 21 40 54 590 0 21 22 74 40 54 590 23 60 49 102 122 74 53 96 46 60 60 80 80 80 87	55 43 60 41 54 42 49 46 36 54 21 45 38 585 Q4 109 64 64 64 112 70 48 61 84 51 93 25 46 72	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 70ta/ 338 333 354 421 325 300 336 363 286 363 286 383 291 294 309	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46 18.76 2.37	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26 3.14 1.88 0.89
1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m Urdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total	45 53 40 42 45 54 46 33 75 35 57 38 619 01 68 98 89 84 81 97 83 81 97 83 115 64 108 114 72 70	68 80 38 26 51 51 47 60 54 80 21 73 56 706 02 101 122 99 103 100 102 99 103 100 102 99 103 100 102 99 103 100 102 99 103 100 102 99 80	55 56 41 40 54 43 54 30 38 61 21 40 54 590 0 21 22 74 590 102 122 74 53 96 46 60 60 60 60 80 78 87	55 43 60 41 54 42 49 46 36 54 21 45 38 585 Q4 109 64 64 61 112 70 48 61 84 51 93 25 46 72	237 224 192 147 201 181 204 182 161 270 98 215 186 2,498 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1.80 15.46 6.63 4.21 1.93 1.08 0.75 9.91 6.58 6.47 6.00 12.03 6.26 14.96 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46 18.76 2.37 100 52	0.61 0.00 0.08 0.24 0.59 0.78 0.86 0.02 0.09 0.09 0.09 0.11 0.01 0.00 0.00 0.00	1.20 1.59 0.81 0.66 0.74 1.28 0.96 1.95 1.38 1.82 1.78 2.34 1.04 1.27 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26 3.14 1.88 0.89 1.75

Males-D Season / Quarter Q1 Q2 Q3 Q4 Total p-value OR Q1Q2 vs. Q3Q4 v^2 2000 110 76 24 16 226 105.12 0.00 21.62 2001 88 61 32 31 212 41.77 0.00 5.59 22 81.55 0.00 2002 95 76 20 213 16.58 2003 87 80 40 31 238 39.82 0.00 5.53 2004 105 17 225 115.25 0.00 33.85 87 16 109 17 202 0.00 2005 62 14 118.99 30.43 2006 100 29 13 0.00 14.69 61 203 87.27 35 0.00 2007 99 61 22 217 63.76 7.88 2008 95 45 21 0.00 5.95 66 227 52.24 0.00 2009 89 65 41 17 212 54.34 7.05 2010 94 53 46 32 225 37.84 0.00 3.55 Total 1,071 748 348 233 2,400 736.56 0.00 9.80 Males-C Season / Quarter Q1 Q2 Q3 Q4 Total χ^2 p-value OR Q1Q2 vs. Q3Q4 2000 146 66 57 38 307 88.64 0.00 4.98 2001 149 76 50 22 297 119.98 0.00 9.77 2002 139 99 53 28 319 91.22 0.00 8.63 2003 125 86 60 39 310 53.12 0.00 4.54 2004 113 99 48 48 308 44.96 0.00 4.88 2005 91 110 65 43 309 33.46 0.00 3.46 2006 121 125 30 27 303 118.06 0.00 18.63 2007 138 96 50 32 316 86.33 0.00 8.14 128 97 53 24 84.46 0.00 2008 302 8.54 2009 120 96 58 36 310 54.85 0.00 5.28 2010 100 111 50 34 57.23 0.00 6.31 295 1,381 574 371 Total 1,050 3,376 743.41 6.62 0.00 Males-B OR Q1Q2 vs. Q3Q4 Season / Quarter 01 02 03 04 Total p-value χ^2 2000 73 57 36 242 16.68 0.00 76 2.57 2001 98 59 49 37 243 34.45 0.00 3.33 265 0.00 2002 105 65 64 31 41.52 3.20 2003 68 21 66.19 0.00 116 91 296 5.41 57 0.00 2004 107 84 37 285 39.53 4.13 2005 65 41 0.00 88 88 282 21.46 2.76 2006 79 90 53 55 277 14.34 0.00 2.45 2007 96 95 56 41 288 32.25 0.00 3.88 2008 109 93 42 42 286 50.48 0.00 5.78 2009 119 90 40 41 290 62.30 0.00 6.66 2010 101 98 57 36 292 41.56 0.00 4.58 Total 1,094 926 608 418 3,046 366.61 0.00 3.88 Males-A Season / Quarter Q1 Q2 Q3 Q4 Total p-value OR Q1Q2 vs. Q3Q4 2000 157 115 54 46 372 89.35 0.00 7.40 97 66 55 332 26.87 0.00 2001 114 3.04 2002 97 93 69 69 328 8.34 0.04 1.90 111 82 79 343 10.67 0.01 2003 71 1.28 2004 138 83 76 68 365 33.17 0.00 2.36 129 76 50 379 46.26 0.00 2005 124 4.03 147 139 80 52 418 0.00 4.69 2006 60.79 2007 92 120 67 72 351 19.79 0.00 2.33 2008 85 99 89 70 343 5.07 0.17 1.34 2009 97 103 82 93 375 2.50 0.47 1.31 107 79 372 2010 75 11.18 0.01 2.00 111 Total 1.274 1,155 820 729 3.978 205.95 0.00 2.46 Males-Senior Season / Quarter Q1 Q2 Q3 Q4 Total χ^2 p-value OR Q1Q2 vs. Q3Q4 262 233 197 948 0.01 1.45 2000 256 10.98 2001 262 262 223 201 948 11.57 0.01 1.53 2002 286 259 238 170 953 30.93 0.00 1 78 2003 291 246 219 159 915 39.92 0.00 2.02 2004 274 220 224 173 891 22.94 0.00 1.55 2005 267 210 219 196 892 12.78 0.01 1.32 2006 285 190 210 187 872 28.89 0.00 1.43 2007 319 253 188 182 942 52.64 0.00 2.39 2008 325 268 173 174 940 71.29 0.00 2.92 2009 311 253 172 193 929 50.82 0.00 2.39

2010

Total

287

3,163

277

2,700

168

2,267

181

2,013

913

10,143

51.22

302.05

0.00

0.00

Table A2c: distribution of birth dates per quarter for male athletes, distinguished by season

2.61

1.88

Table A2d: distribution of birth dates per quarter for female athletes, distinguished by season

Females-D								
Season / Quarter	01	02	03	04	Total	γ^2	n-value	OB 0102 vs 0304
			4.5	<u>.</u>		λ	pvalae	
2000	72	73	53	32	230	19.50	0.00	2.91
2001	95	75	44	22	236	53.32	0.00	6.63
2002	86	86	49	20	241	51.00	0.00	6.21
2003	67	88	59	32	246	26.16	0.00	2.90
2004	78	85	31	34	228	42.63	0.00	6 29
2005	70	01	26	25	220	20.57	0.00	5.23
2005	75	91	50	35	255	39.57	0.00	5.34
2006	104	68	61	16	249	62.92	0.00	4.99
2007	118	69	46	20	253	82.19	0.00	8.03
2008	96	72	47	26	241	45.89	0.00	5.30
2009	119	62	40	22	243	87.68	0.00	8.52
2010	99	71	50	28	248	44.35	0.00	4.75
Tatal	1.007	040	50	20	240	474.00	0.00	5.00
	1,007	840	510	287	2,050	471.92	0.00	5.29
Females-C								
Season / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
2000	57	93	57	57	264	14.73	0.00	1.73
2001	75	80	58	53	266	7.65	0.05	1 95
2001	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	81	50	35	200	16.77	0.00	2,75
2002	64	61	55	45	205	10.77	0.00	2.72
2003	83	96	58	44	281	23.70	0.00	3.08
2004	77	112	62	45	296	32.95	0.00	3.12
2005	68	105	62	53	288	21.75	0.00	2.26
2006	77	79	56	49	261	10.37	0.02	2.21
2007	90	84	69	40	283	21.13	0.00	2.55
2008	102	75	61	22	261	/0 70	0.00	
2000	102	/5	01	25	201	45./9	0.00	4.44
2009	120	69	53	42	284	50.28	0.00	3.96
2010	104	61	58	46	269	28.65	0.00	2.52
Total	937	935	649	497	3,018	189.96	0.00	2.67
Females-B								
Season / Quarter	01	02	03	04	Total	γ^2	p-value	OB 0102 vs. 0304
	~-	~-				λ		
2000	63	45	33	33	174	13.86	0.00	2.68
2001	59	60	41	49	209	4.65	0.20	1.75
2002	51	76	53	59	239	6.47	0.09	1.29
2003	54	56	45	43	198	2.53	0.47	1.56
2004	63	63	49	35	210	10.27	0.02	2 25
2005	51	72	14	38	205	12.85	0.00	2 25
2005	51	72	44	50	205	12.05	0.00	2.25
2006	43	74	69	59	245	9.16	0.03	0.84
2007	45	63	67	57	232	4.76	0.19	0.76
2008	57	61	58	40	216	5.00	0.17	1.45
2009	70	61	66	45	242	5.97	0.11	1.39
2010	103	52	65	31	251	43.80	0.00	2.61
Total	659	683	590	480	2 / 21	37 / 7	0.00	1 55
Formalias A	055	085	330	405	2,421	37.47	0.00	1.55
Females-A								
Season / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
2000	66	47	46	67	226	7.10	0.07	1.00
2001	60	63	44	57	224	3 75	0.29	1 48
2002	64	63 F7	20	20	190	16.06	0.00	2.17
2002	04	57	50	50	105	10.00	0.00	5.17
2003	55	/9	40	58	232	13.34	0.00	1.8/
2004	49	80	51	60	240	10.03	0.02	1.35
2005	60	47	56	43	206	3.59	0.31	1.17
2006	63	66	53	44	226	5.33	0.15	1.77
2007	50	78	60	47	235	9.99	0.02	1.43
2008	53	68	75	60	256	4.28	0.23	0.80
2009	51	67	74	56	2/18	5.26	0.15	0.82
2000		57	/ *	50	240	1.50	0.13	0.52
2010	48	53	61	54	216	1.59	0.66	0.77
Total	619	705	590	584	2,498	14.96	0.00	1.27
Females-Senior								
Season / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
2000	120	177	00	70	100	26 12	0.00	3 63
2000	139	122	00	73	422	20.15	0.00	2.05
2001	122	121	91	/2	406	17.55	0.00	2.22
2002	118	122	91	82	413	11.34	0.01	1.92
2003	115	118	91	74	398	13.12	0.00	1.99
2004	106	105	79	86	376	5.89	0.12	1.64
2005	92	104	85	96	377	2,00	0.57	1.17
2006	90	121	86	85	302	14.96	0.00	1.67
2007	00	131	00	00	392	13.00	0.00	1.07
2007	92	130	89	86	397	12.88	0.00	1.61
2008	88	127	88	75	378	16.10	0.00	1.74
2009	93	121	90	80	384	9.65	0.02	1.58
2010	88	123	89	90	390	8.91	0.03	1.39
Total	1,143	1,324	967	899	4,333	100.62	0.00	1.75

Table A2e: distribution of birth dates per quarter for male athletes, distinguished by discipline and year indicator

Males-D 1st year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
1000m	24	14	7	1	46	25.48	0.00	22 56
600m	24	14	, 1	0	40	5.00	0.00	49.00
80	12	4	1	0	31	5.00	0.17	49.00
80111	12	/	2	0	21	10.52	0.00	90.25
80m Hurdles	1/	4	4	1	26	23.54	0.00	17.64
Discus Throw	13	7	3	4	27	9.00	0.03	8.16
High Jump	24	10	4	2	40	29.60	0.00	32.11
Shot Put	10	8	3	2	23	7.78	0.05	12.96
Javelin	15	8	3	2	28	15.14	0.00	21.16
Long Jump	22	10	4	2	38	25.58	0.00	28.44
Total	140	72	31	14	257	146.75	0.00	22.19
Males-D 2dn vear	•					•		
Discipline / Quarter	01	02	03	04	Total	v ²	n-value	OR 0102 vs 0304
biscipline / Quarter	41	42	45	4	10101	λ	p value	011 4142 13. 4344
1000m	106	65	32	27	230	69.37	0.00	8.40
600m	36	34	13	10	93	24.03	0.00	9.26
80m	129	86	38	22	275	102.67	0.00	12.84
80m Hurdles	112	85	36	21	254	84.68	0.00	11.94
Discus Throw	100	75	42	25	242	55.75	0.00	6.82
High Jump	127	91	50	39	307	63.44	0.00	6.00
Shot Put	116	82	39	24	261	80.41	0.00	9.88
lavelin	100	83	37	25	245	63.29	0.00	8 71
Long lump	105	75	20	25	245	72.02	0.00	10.22
	103	73	30	20	230	72.32	0.00	10.33
Total	931	676	317	219	2,143	604.90	0.00	8.99
Males-C 1st year	1							
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
1000m	29	14	8	5	56	24.43	0.00	10.94
100m	21	17	8	1	47	20.66	0.00	17.83
100m Hurdlos	20	20	5	2	-, EC	24.71	0.00	19.00
100m Hurdles	25	20	3	2	50	34.71	0.00	49.00
150011	26	15	/	14	62	11.94	0.01	5.61
300m Hurdles	36	28	10	4	78	34.62	0.00	20.90
800m	30	17	7	4	58	28.48	0.00	18.26
Discus Throw	25	13	6	4	48	22.50	0.00	14.44
High Jump	30	20	11	3	64	25.38	0.00	12.76
Shot Put	19	16	5	4	44	15.82	0.00	15.12
Pole Vault	25	24	15	8	72	10.78	0.01	4.54
Javelin	25	16	5	4	50	23.76	0.00	20.75
Long Jump	19	14	4	2	39	20.18	0.00	30.25
Total		214	. 01	EE	674	250.02	0.00	13.08
10101	217	/ / //	21	22	074	230.02	0.00	13.08
Males C 2nd year	314	214						
Males-C 2nd year	314	214		~ ~ ~	=	2		
Males-C 2nd year Discipline / Quarter	314 Q1	214 Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
Males-C 2nd year Discipline / Quarter 1000m	314 Q1 81	Q2 61	Q3 31	Q4 23	Total 196	χ ² 44.24	p-value 0.00	OR Q1Q2 vs. Q3Q4 6.91
Males-C 2nd year Discipline / Quarter 1000m 100m	Q1 81 114	Q2 61 73	Q3 31 49	Q4 23 21	<i>Total</i> 196 257	χ ² 44.24 72.45	p-value 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles	Q1 81 114 102	Q2 61 73 65	Q3 31 49 40	Q4 23 21 21	<i>Total</i> 196 257 228	χ ² 44.24 72.45 64.46	p-value 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m	Q1 81 114 102 70	214 Q2 61 73 65 62	Q3 31 49 40 37	Q4 23 21 21 40	<i>Total</i> 196 257 228 209	χ^2 44.24 72.45 64.46 15.17	p-value 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles	Q1 81 114 102 70 74	Q2 61 73 65 62 62	Q3 31 49 40 37 33	Q4 23 21 21 40 26	<i>Total</i> 196 257 228 209 195	χ^2 44.24 72.45 64.46 15.17 32.38	p-value 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m	Q1 81 114 102 70 74 82	Q2 61 73 65 62 62 62 65	Q3 31 49 40 37 33 40	Q4 23 21 21 40 26 31	Total 196 257 228 209 195 218	χ^2 44.24 72.45 64.46 15.17 32.38 29.89	p-value 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m	314 Q1 81 114 102 70 74 82 81	214 Q2 61 73 65 62 62 62 65 71	Q3 31 49 40 37 33 40 48	Q4 23 21 21 40 26 31 23	Total 196 257 228 209 195 218 223	χ ² 44.24 72.45 64.46 15.17 32.38 29.89 25.92	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump	Q1 Q1 114 102 70 74 82 81 107	214 Q2 61 73 65 62 62 62 62 65 71	Q3 31 49 40 37 33 40 48 40	Q4 23 21 21 40 26 31 23 20	Total 196 257 228 209 195 218 223 206	χ ² 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.50
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Kuch Da	Q1 Q1 81 114 102 70 74 82 81 107	Q2 61 73 65 62 62 62 65 71 101	Q3 31 49 40 37 33 40 48 49 99	Q4 23 21 21 40 26 31 23 39 22	Total 196 257 228 209 195 218 223 296 222	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 5.60	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put	01 01 81 114 102 70 74 82 81 107 94 72	Q2 61 73 65 62 62 65 71 101 75	Q3 31 49 40 37 33 40 48 49 40	Q4 23 21 21 40 26 31 23 39 23 23	Total 196 257 228 209 195 218 223 296 232 296	χ ² 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.51	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 2.52
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault	Q1 81 114 102 70 74 82 81 107 94 70	Q2 61 73 65 62 62 65 71 101 75 50	Q3 31 49 40 37 33 40 48 49 40 46	Q4 23 21 21 40 26 31 23 39 23 18	Total 196 257 228 209 195 218 223 296 232 232 184	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	Q1 81 114 102 70 74 82 81 107 94 70 87	Q2 61 73 65 62 62 65 71 101 75 50 76	Q3 31 49 40 37 33 40 48 49 40 46 35	Q4 23 21 40 26 31 23 39 23 18 26	Total 196 257 228 209 195 218 223 296 232 184 232 184 224	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	314 Q1 81 102 70 74 82 81 107 94 70 87 105	214 Q2 61 73 65 62 62 62 65 71 101 75 50 76 75	Q3 31 49 40 37 33 40 48 49 40 46 35 35	Q4 23 21 21 40 26 31 23 39 23 18 26 25	Total 196 257 228 209 195 218 223 296 232 284 224 224 240	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067	214 Q2 61 73 65 62 62 62 62 62 65 71 101 75 50 76 75 836	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316	Total 196 257 228 209 195 218 223 296 232 232 184 224 240 2,702	χ ² 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067	214 Q2 61 73 65 62 62 62 62 62 65 71 101 75 50 76 75 836	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316	Total 196 257 228 209 195 218 223 296 232 296 232 184 224 240 2,702	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22	p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter	Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483	Q4 23 21 40 26 31 23 39 23 18 26 25 316 Q4	Total 196 257 228 209 195 218 223 236 232 184 224 240 2,702 Total	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 χ^2	p-value 0.00 0.0	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067	Q2 61 73 65 62 62 62 65 71 101 75 50 76 75 836 Q2 25	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 25 316	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 χ^2 24.58	p-value 0.00 0.0	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44	214 Q2 61 73 65 62 62 62 62 62 65 71 101 75 50 76 75 836 Q2 Q2 25	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 23	Q4 23 21 21 40 26 31 23 39 23 39 23 18 26 25 316 25 316 25	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$	p-value 0.00 0.0	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.52
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year 100m 110m Hurdles	314 Q1 81 114 102 70 74 82 81 107 94 70 87 1005 1,067 Q1 44 44 44	214 Q2 61 73 65 62 62 62 62 62 65 71 101 75 50 76 75 836 Q2 25 35	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 23 26	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9	Total 196 257 228 209 195 218 223 296 232 184 240 2,702 Total 101 114	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47	p-value 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m 110m Hurdles 1500m	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 Q2 25 35 20	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 483 25 35 483 26 20	Q4 23 21 40 26 31 23 39 23 18 26 25 316 Q4 9 9 9 16	Total 196 257 228 209 195 218 223 236 232 184 224 240 2,702 Total 101 114 90	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31	p-value 0.00 0.0	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25
Males-C 2nd year Discipline / Quarter 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year 100m 110m Hurdles 1500m 400m	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36	Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30	Q3 31 49 40 37 33 40 48 49 40 46 35 35 35 483 Q3 Q3 23 26 20 20 12	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9 16 10	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91	p-value 0.00 0.0	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 36 36	214 Q2 61 73 65 62 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 26 20 12 11	Q4 23 21 21 40 26 31 23 39 23 39 23 39 23 39 23 39 23 316 25 316 25 316 9 9 9 9 16 10 10 14	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91 20.98	p-value 0.00 0.0	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year 100m 110m Hurdles 1500m 400m 400m Hurdles 800m	314 Q1 81 114 102 70 74 82 81 107 94 70 87 1005 1,067 Q1 44 34 36 36 32	214 Q2 61 73 65 62 62 62 62 62 63 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 Q3 Q3 23 26 20 12 11 12	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9 9 16 10 14 9	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94 75	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91 20.98 17.43	p-value 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year 100m 110m Hurdles 1500m 400m 400m Discus Throw	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 32 37	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33 32 22 32	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 Q3 Q3 26 20 12 11 12 14	Q4 23 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9 9 16 10 14 9 12	Total 196 257 228 209 195 218 223 236 232 184 224 240 2,702 Total 101 114 90 88 94 75 95	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91 20.98 17.43 20.07	p-value 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year 100m 110m Hurdles 1500m 400m 400m Hurdles 800m Discus Throw High Jump	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 32 37 35	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22 32 28	Q3 31 49 40 37 33 40 48 49 40 46 35 35 35 483 Q3 23 26 20 12 11 12 12 11 12 14 19	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9 16 10 14 9 12 21	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94 75 95 103	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91 20.98 17.43 20.07 6.17	p-value 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04 2.48
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 32 37 35 26	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22 33 22 32 28 37	Q3 31 49 40 37 33 40 48 49 40 48 49 40 46 35 35 483 Q3 23 26 20 12 11 12 14 19 21	Q4 23 21 21 40 26 31 23 39 23 39 23 39 23 39 23 39 23 318 26 25 316 0 4 9 9 16 10 10 14 9 22 11 22 12	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94 75 95 103 96	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91 20.98 17.43 20.07 6.17 13.58	p-value 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04 2.48 3.64
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 36 32 37 35 26 32	214 Q2 61 73 65 62 62 62 62 63 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22 32 28 37 31	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 23 26 20 12 11 12 14 19 21 17	Q4 23 21 21 40 26 31 23 39 23 39 23 39 23 39 23 39 23 316 25 316 04 9 9 9 16 100 14 9 12 21 14 9 12 21 21 21 21 21 21 23 23 23 23 23 23 23 23 23 23 23 23 23	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94 75 95 103 96 89	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 χ^2 24.58 23.47 8.31 22.91 20.98 17.43 20.07 6.17 13.58 16.84	p-value 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04 2.48 3.64 5.87
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault 100m 110m Hurdles 1500m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 32 37 35 26 32 40	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22 32 28 37 31 36	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 23 26 20 12 11 12 14 19 21 17 11	Q4 23 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9 9 16 10 14 9 9 12 21 12 9 11	Total 196 257 228 209 195 218 223 234 235 236 232 184 224 240 2,702 Total 101 114 90 88 94 75 95 103 96 89 98	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 χ^2 24.58 23.47 8.31 22.91 20.98 17.43 20.07 6.17 13.58 16.84 20.09	p-value 0.00	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04 2.48 3.64 5.87 11 03
Males-C 2nd year Discipline / Quarter 1000m 100m Hurdles 1500m 300m Hurdles 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year 100m 110m Hurdles 1500m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 34 36 32 37 35 26 32 40	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22 25 35 20 30 33 22 28 37 31 36 62 20	Q3 31 49 40 37 33 40 48 49 40 46 35 35 483 Q3 Q3 23 26 20 12 11 12 14 19 21 17 11 7	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 25 316 Q4 9 9 16 10 14 9 9 16 10 14 9 12 21 12 9 11	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94 75 95 103 96 89 98 88 94 85 89 98 88 94 89 98 88 98 88 98 88 98 89 98 88 98 88 98 88 98 88 98 88 98 88 98 88 98 88 98 88 98 88 98 88 95 103 96 88 98 98 98 98 95 103 96 88 98 98 98 98 98 98 98 98 98	$\frac{\chi^2}{44.24}$ 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 $\frac{\chi^2}{24.58}$ 23.47 8.31 22.91 20.98 17.43 20.07 6.17 13.58 16.84 30.08 25.54	p-value 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04 2.48 3.64 5.87 11.93 7.67
Males-C 2nd year Discipline / Quarter 1000m 100m 100m Hurdles 1500m 300m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-B 1st year Discipline / Quarter 100m 110m Hurdles 1500m 400m Joscus Throw High Jump Shot Put Pole Vault Javelin	314 Q1 81 114 102 70 74 82 81 107 94 70 87 105 1,067 Q1 44 36 36 32 37 35 26 32 40 42	214 Q2 61 73 65 62 62 65 71 101 75 50 76 75 836 Q2 25 35 20 30 33 22 32 28 37 31 36 30 25 37 31 36 30 25 37 31 36 37 31 36 30 37 37 31 36 30 37 37 37 37 37 37 37 37 37 37	Q3 31 49 40 37 33 40 48 49 40 48 49 40 46 35 35 483 Q3 23 26 20 12 11 12 14 19 21 17 11 17 7 7 7 7 7 7 7 7 7 7 7 7 7	Q4 23 21 21 40 26 31 23 39 23 18 26 25 316 Q4 9 9 16 10 10 14 9 12 21 12 9 11 9 11 9	Total 196 257 228 209 195 218 223 296 232 184 224 240 2,702 Total 101 114 90 88 94 75 95 103 96 89 98 98 98 98	χ^2 44.24 72.45 64.46 15.17 32.38 29.89 35.92 49.57 54.03 29.91 48.25 68.33 511.22 χ^2 24.58 23.47 8.31 22.91 20.98 17.43 20.07 6.17 13.58 16.84 30.08 25.84	p-value 0.00 0.	OR Q1Q2 vs. Q3Q4 6.91 7.14 7.50 2.94 5.31 4.29 4.58 5.59 7.20 3.52 7.14 9.00 5.67 OR Q1Q2 vs. Q3Q4 4.65 5.09 2.25 9.00 7.62 6.61 7.04 2.48 3.64 5.87 11.93 7.67

Males-B 2st year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
100m	66	59	43	21	189	25.33	0.00	3 81
110m Hurdles	61	46	34	21	162	21.55	0.00	3 78
1500m	50	40	24	21	140	6 52	0.00	1.96
100m	50	50	34	29	145	0.32	0.09	1.80
40011	02	38	30	19	173	27.03	0.00	4.76
400m Hurdles	40	40	21	24	125	9.94	0.02	3.16
800m	56	49	36	28	169	11.28	0.01	2.69
Discus Inrow	49	48	33	18	148	17.35	0.00	3.62
High Jump	61	39	31	32	163	14.35	0.00	2.52
Shot Put	54	53	35	17	159	23.11	0.00	4.23
Pole Vault	47	45	41	26	159	6.81	0.08	1.89
Javelin	62	53	27	18	160	32.65	0.00	6.53
Long Jump	48	41	34	24	147	8.56	0.04	2.35
Total	656	567	405	277	1,905	179.16	0.00	3.22
Males-A 1st year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
100m	59	47	40	27	173	12.41	0.01	2.50
110m Hurdles	65	43	29	34	173	17.80	0.00	2 94
1500m	54	44	37	34	169	5.60	0.13	1 91
400m	62	52	36	24	176	17.64	0.00	3 39
400m Hurdles	52 /F	JZ //1	20	20	120	17.04 0 10	0.00	3.30
5000m	45	41 21	23 27	20	114	5.15	0.05	2.74
200m	26	51	2/	5U 2.4	114	0.60	0.90	1.00
	59	49	38	34	180	8.49	0.04	2.25
Discus Throw	35	35	19	20	109	8.83	0.03	3.22
High Jump	48	35	21	24	128	14.06	0.00	3.40
Shot Put	44	38	25	21	128	10.94	0.01	3.18
Pole Vault	40	40	34	26	140	3.77	0.29	1.78
Javelin	50	54	33	22	159	16.82	0.00	3.58
Long Jump	49	54	31	22	156	17.38	0.00	3.78
Total	636	563	393	349	1,941	115.08	0.00	2.61
Males-A 2nd year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
Discipline / Quarter	Q1 65	Q2 56	Q3 42	Q4 29	Total 192	χ ² 15.63	p-value 0.00	OR Q1Q2 vs. Q3Q4 2.90
Discipline / Quarter 100m 110m Hurdles	Q1 65 55	Q2 56 42	Q3 42 28	Q4 29 30	Total 192 155	χ ² 15.63 12.05	p-value 0.00 0.01	OR Q1Q2 vs. Q3Q4 2.90 2.80
Discipline / Quarter 100m 110m Hurdles 1500m	Q1 65 55 50	Q2 56 42 43	Q3 42 28 45	Q4 29 30 42	Total 192 155 180	χ^2 15.63 12.05 0.84	p-value 0.00 0.01 0.84	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14
Discipline / Quarter 100m 110m Hurdles 1500m 400m	Q1 65 55 50 67	Q2 56 42 43 67	Q3 42 28 45 39	Q4 29 30 42 36	Total 192 155 180 209	χ^2 15.63 12.05 0.84 16.74	p-value 0.00 0.01 0.84 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m	Q1 65 55 50 67 42	Q2 56 42 43 67 35	Q3 42 28 45 39 29	Q4 29 30 42 36 21	Total 192 155 180 209 127	χ^2 15.63 12.05 0.84 16.74 7.52	p-value 0.00 0.01 0.84 0.00 0.06	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m	Q1 65 55 50 67 42 25	Q2 56 42 43 67 35	Q3 42 28 45 39 29 34	Q4 29 30 42 36 21 35	Total 192 155 180 209 127 128	χ^2 15.63 12.05 0.84 16.74 7.52 2.06	p-value 0.00 0.01 0.84 0.00 0.06 0.56	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m	Q1 65 55 50 67 42 25 54	Q2 56 42 43 67 35 34 58	Q3 42 28 45 39 29 34 42	Q4 29 30 42 36 21 35 37	<i>Total</i> 192 155 180 209 127 128 191	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throws	Q1 65 55 50 67 42 25 54 30	Q2 56 42 43 67 35 34 58 42	Q3 42 28 45 39 29 34 42 26	Q4 29 30 42 36 21 35 37 37	<i>Total</i> 192 155 180 209 127 128 191	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 0.55	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw Urb kore	Q1 65 55 50 67 42 25 54 39 42	Q2 56 42 43 67 35 34 58 42 42	Q3 42 28 45 39 29 34 42 26 10	Q4 29 30 42 36 21 35 37 21 24	Total 192 155 180 209 127 128 191 128	χ ² 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.02	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 2.01 2.97
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump High Jump	Q1 65 55 50 67 42 25 54 39 42	Q2 56 42 43 67 35 34 58 42 40	Q3 42 28 45 39 29 34 42 26 18	Q4 29 30 42 36 21 35 37 21 24	Total 192 155 180 209 127 128 191 128 124 124	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.97 3.81
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Dela Voult	Q1 65 55 50 67 42 25 54 39 42 42 6 6 25	Q2 56 42 43 67 35 34 58 42 40 44	Q3 42 28 45 39 29 34 42 26 18 34 34	Q4 29 30 42 36 21 35 37 21 24 29 20	Total 192 155 180 209 127 128 191 128 124 153 122	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.62	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.22	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.72
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Lucifie	Q1 65 55 50 67 42 25 54 39 42 46 36 50	Q2 56 42 43 67 35 34 58 42 40 44 40 44	Q3 42 28 45 39 29 34 42 26 18 34 27	Q4 29 30 42 36 21 35 37 21 24 29 19 22	Total 192 155 180 209 127 128 191 128 124 153 122 127	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69	p-value 0.00 0.01 0.84 0.00 0.56 0.11 0.02 0.00 0.16 0.03 0.05	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.04 2.73
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin	Q1 65 55 50 67 42 25 54 39 42 46 36 58	Q2 56 42 43 67 35 34 58 42 40 44 40 44 40 49	Q3 42 28 45 39 29 34 42 26 18 34 27 33	Q4 29 30 42 36 21 35 37 21 21 24 29 19 32	Total 192 155 180 209 127 128 191 128 124 153 122 172 172	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.01 0.02	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 2.71
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	Q1 65 55 50 67 42 25 54 39 42 46 36 58 58 59	Q2 56 42 43 67 35 34 58 42 40 40 44 40 49 42	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59	p-value 0.00 0.01 0.84 0.00 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total	Q1 65 55 50 67 42 25 54 39 42 46 36 58 58 59 638	Q2 56 42 43 67 35 34 58 42 40 40 44 40 49 42 592	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380	Total 192 155 180 209 127 128 191 128 124 153 122 172 156 2,037	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09	p-value 0.00 0.01 0.84 0.00 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638	Q2 56 42 43 67 35 34 58 42 40 44 40 44 40 49 42 592	Q3 42 28 45 39 29 34 42 26 18 34 26 18 34 27 33 30 427	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380	Total 192 155 180 209 127 128 191 128 124 153 122 172 156 2,037	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09	p-value 0.00 0.01 0.84 0.00 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump <i>Total</i> Males-Senior Discipline / Quarter	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1	Q2 56 42 43 67 35 34 58 42 40 44 40 44 40 49 42 592 592	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 27 33 20 427 Q3	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4	Total 192 155 180 209 127 128 191 128 124 153 122 172 156 2,037 Total	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 p-value	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242	Q2 56 42 43 67 35 34 58 42 40 44 40 44 40 49 42 592 592 Q2 Q2	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 33 30 427 238	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 25 380 Q4	Total 192 155 180 209 127 128 191 128 124 153 122 172 156 2,037 Total 877	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 9 20.09 $\frac{\chi^2}{15.30}$	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 p-value 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Tota/ Males-Senior Discipline / Quarter 100m 110m Hurdles	Q1 65 55 50 67 42 25 54 39 42 46 36 36 58 59 638 01 242 258	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 592 Q2 Q2 Q2 227 230	Q3 42 28 45 39 29 34 42 26 18 34 42 26 18 34 27 33 30 427 238 160	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127	Total 192 155 180 209 127 128 191 128 191 128 191 128 153 122 156 2,037 Total 877 775	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 p-value 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 9 638 207	Q2 56 42 43 67 35 34 58 42 40 40 44 40 49 42 592 592 Q2 227 230 226	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 238 238 160 169	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 $\frac{\chi^2}{15.30}$ 56.96 9.51	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 p-value 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242 258 207 230	Q2 56 42 43 67 35 34 58 42 40 44 40 44 40 49 42 592 Q2 227 230 216 227	Q3 42 28 45 39 29 34 42 26 18 34 42 26 18 34 42 7 33 30 427 Q3 238 160 169 207	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 $\frac{\chi^2}{15.30}$ 56.96 9.51 14.30	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.02 0.00 0.00 0.00 0.00 0.00 0.05 0.11 0.02 0.00 0.00 0.00 0.02 0.00 0.00 0.00 0.00 0.00 0.05 0.11 0.02 0.00 0.0	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242 258 207 230 241	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 Q2 227 230 216 227 183	Q3 42 28 45 39 29 34 42 26 18 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159	Q4 29 30 42 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109	Total 192 155 180 209 127 128 191 128 121 153 122 172 156 2,037 Total 877 775 820 826 692	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 $\frac{\chi^2}{15.30}$ 56.96 9.51 14.30 52.12	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.0	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 638 Q1 242 258 207 230 241 138	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 592 Q2 227 230 226 227 230 226 227 183 183	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 Q3 Q3 238 160 169 207 159 188	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178	Total 192 155 180 209 127 128 191 128 191 128 191 128 153 122 172 156 2,037 Total 877 775 820 826 692 687	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 $\frac{\chi^2}{15.30}$ 56.96 9.51 14.30 56.96 9.51 14.30 52.12 9.13	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 p-value 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m 400m B00m B00m B00m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Tota/ Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m B00m B00m B00m B00m B00m B00m B00	Q1 65 55 50 67 42 25 54 39 42 46 36 36 58 59 638 638 207 230 241 138 234	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 2592 Q2 227 230 216 227 230 216 227 183 189	Q3 42 28 45 39 29 34 42 26 18 34 42 26 18 34 27 33 30 427 Q3 Q3 238 160 169 207 159 188 175	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 222	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.11 0.00 0.00 0.11 0.00 0.00 0.00 0.00 0.00 0.16 0.00 0.0	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77 1.19
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Disclipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242 258 207 230 241 138 234 321	Q2 56 42 43 67 35 34 58 42 40 40 49 42 592 Q2 227 230 216 227 230 216 227 183 183 183 183 183	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 197	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810 979	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98 36.01	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 p-value 0.00 0.00 0.02 0.00 0.03 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.03 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.03 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.03 0.02 0.00 0.02 0.02 0.00 0.02 0.02 0.00 0.02	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77 1.19 1.50
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242 258 207 230 241 138 234 321 221	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 Q2 227 230 216 227 230 216 227 183 183 189 218 170	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243 95	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 109 178 212 197 87	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810 979 573	$\frac{\chi^2}{15.63}$ 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 $\frac{\chi^2}{15.30}$ 56.96 9.51 14.30 52.12 9.13 9.98 36.01 85 53	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77 1.19 1.50 4.62
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242 258 207 230 241 138 234 321 233	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 Q2 227 230 216 227 230 216 227 183 183 183 189 218 170 233	Q3 42 28 45 39 29 34 42 26 18 34 42 26 18 34 42 26 18 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243 95 243	Q4 29 30 42 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 197 87 171	Total 192 155 180 209 127 128 191 128 191 209 217 128 191 2037 Total 877 775 820 826 692 687 810 979 573 980	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98 36.01 85.53 54.56	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.0	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 0R Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77 1.19 1.50 4.62 1.87
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 638 01 242 258 207 230 241 138 234 321 221 333 227	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 592 Q2 227 230 216 227 230 216 227 183 183 189 218 170 238 208	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243 95 243 126	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 109 178 212 197 87 171	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810 979 573 980 672	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98 36.01 85.53 54.56 6.09 85.53 54.56 60.08	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 0.00 0.00 0.02 0.00 0.02 0.00 0.03 0.02 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77 1.19 1.50 4.62 1.87 3.37
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 1500m B00m Discus Throw High Jump Shot Put Pole Vault Javelin Ling Jump Shot Put Discipline / Quarter Disci	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 638 01 242 242 258 207 230 241 138 234 321 221 333 227 29	Q2 56 42 43 67 35 34 58 42 40 44 40 49 42 592 2592 Q2 227 230 216 227 230 216 227 183 183 183 183 183 28 278	Q3 42 28 45 39 29 34 42 26 18 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243 95 243 95 243 126	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 197 87 171 111	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810 979 573 980 672 701	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98 36.01 85.53 54.56 60.08 9.4.24	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.0	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 1.14 1.53 2.50 0.77 1.19 1.50 4.62 1.87 3.37
Discipline / Quarter 100m 110m Hurdles 1500m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 1500m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 207 230 241 138 234 321 221 333 227 281 220	Q2 56 42 43 67 35 34 58 42 40 40 49 42 592 Q2 227 230 216 227 230 216 227 183 183 183 183 189 218 170 233 208 248 16°	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243 95 243 126 143 123	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 197 87 171 111 119 142	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810 979 573 980 672 791 661	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98 36.01 85.53 54.56 60.08 94.34 40.54	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 0.00 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.02 0.00 0.00 0.02 0.00 0.0	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.32 0.73 2.71 3.37 2.32 0.73 2.71 3.37 2.32 0.73 2.32 0.74 1.32 2.89 0.77 1.19 1.53 2.50 0.77 1.19 1.50 4.62 1.87 3.37 4.08 2.20
Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Males-Senior Discipline / Quarter 100m 110m Hurdles 1500m 400m 400m 400m 100m Hurdles 5000m 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	Q1 65 55 50 67 42 25 54 39 42 46 36 58 59 638 Q1 242 258 207 230 241 138 234 321 233 227 281 233 227 281 230	Q2 56 42 43 67 35 34 58 42 40 40 44 40 49 42 592 Q2 227 230 216 227 230 216 227 183 183 189 218 170 233 208 248 168	Q3 42 28 45 39 29 34 42 26 18 34 27 33 30 427 Q3 238 160 169 207 159 188 175 243 95 243 126 143 121	Q4 29 30 42 36 21 35 37 21 24 29 19 32 25 380 Q4 170 127 228 162 109 178 212 197 87 171 111 119 142 205	Total 192 155 180 209 127 128 191 128 191 128 124 153 122 172 156 2,037 Total 877 775 820 826 692 687 810 979 573 980 672 791 661	χ^2 15.63 12.05 0.84 16.74 7.52 2.06 6.13 9.56 13.55 5.14 8.69 11.21 17.59 92.09 χ^2 15.30 56.96 9.51 14.30 52.12 9.13 9.98 36.01 85.53 54.56 60.08 94.34 40.54	p-value 0.00 0.01 0.84 0.00 0.06 0.56 0.11 0.02 0.00 0.16 0.03 0.01 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 2.90 2.80 1.14 3.19 2.37 0.73 2.01 2.97 3.81 2.04 2.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.71 3.37 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.32 OR Q1Q2 vs. Q3Q4 1.32 2.89 0.73 2.32 0.74 1.32 2.50 0.77 1.19 1.50 4.62 1.87 3.37 4.08 2.29

Table A2e continued

Table A2f: distribution of birth dates per quarter for male athletes, distinguished by discipline and year indicator

Females-D 1st year						-		
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
1000m	23	22	24	10	79	6.52	0.09	1 75
600m	10	24	12	7	62	10.32	0.03	1.73
6000	19	24	15	,	03	10.33	0.02	4.02
60m	21	15	8	8	52	9.08	0.03	5.06
60m Hurdles	15	18	5	4	42	14.19	0.00	13.44
Discus Throw	22	20	7	4	53	18.62	0.00	14.58
High Jump	47	32	19	7	105	33.78	0.00	9.23
Shot Put	12	17	5	2	36	15.33	0.00	17.16
Javelin	22	14	5	2	43	22.95	0.00	26.45
Long Jump	25	14	4	5	48	23.83	0.00	18.78
Total	206	176	90	49	521	123.25	0.00	7.55
Females-D 2nd year	•					-		
Discipline / Quarter	01	02	03	04	Total	γ^2	p-value	OB 0102 vs. 0304
						A	F	
1000m	65	50	43	26	184	17.09	0.00	2.78
600m	70	63	55	22	210	25.77	0.00	2.98
60m	93	67	46	30	236	37.80	0.00	4.43
60m Hurdles	91	76	45	21	233	50.66	0.00	6.40
Discus Throw	82	67	46	26	221	32.48	0.00	4.28
High Jump	137	110	71	40	358	61.11	0.00	4.95
Shot Put	98	69	46	17	230	61.65	0.00	7.03
Javelin	85	74	35	34	228	36.60	0.00	5.31
long lump	80	88	39	22	229	53.08	0.00	7 59
Total	801	664	426	729	2 1 20	352.20	0.00	4.87
Females-C 1st year	001	004	420	230	2,129	552.20	0.00	4.0/
Females-C 1st year				~ ~ ~		2		
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ2	p-value	OR Q1Q2 vs. Q3Q4
1000m	26	21	20	16	83	2.45	0.49	1.70
1500m	28	15	22	22	87	3.90	0.27	0.96
300m Hurdles	32	28	20	11	91	11.37	0.01	3.75
600m	33	31	20	15	99	9.08	0.03	3.34
80m	33	34	16	25	108	7.78	0.05	2.67
80m Hurdles	30	29	19	11	89	10.91	0.01	3.87
Discus Throw	36	33	22	12	103	14.01	0.00	4.12
Ligh lump	50	35	22	17	105	14.01	0.00	4.12
High Julip	52	37	28	1/	154	19.01	0.00	5.91
Shot Put	33	26	18	8	85	16.32	0.00	5.15
Pole Vault	8	15	18	8	49	6.27	0.10	0.78
Javelin	36	29	11	11	87	22.38	0.00	8.73
Long Jump	28	30	18	17	93	5.80	0.12	2.75
Total	375	328	232	173	1,108	90.42	0.00	3.01
Females-C 2nd year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
1000m	31	32	36	20	119	4 73	0.19	1 27
1500m	24	32	30	19	113	4.75	0.15	1.27
200m Hurdles	54	24	20	21	171	16.72	0.05	1.15
soon	54	56	28	51	1/1	10.72	0.00	3.60
600m	37	41	35	30	143	1.76	0.62	1.44
80m	60	63	34	33	190	16.61	0.00	3.37
80m Hurdles	47	65	46	31	189	12.29	0.01	2.12
Discus Throw	56	53	33	21	163	20.44	0.00	4.07
High Jump	60	79	55	44	238	10.77	0.01	1.97
Shot Put	60	61	36	23	180	23.24	0.00	4.21
Pole Vault	14	16	21	18	69	1.55	0.67	0.59
Javelin	67	61	26	27	181	31.49	0.00	5.83
Long Jump	42	54	31	28	155	10.81	0.01	2.65
Total	562	607	417	324	1,910	107.08	0.00	2.49
Females-B 1st year					,			
Discipline / Quarter	01	02	03	04	Total	γ^2	n-value	OR 0102 vs 0304
Discipline / Quarter	QI	QZ	ų,	Q4	10101	λ	p-value	011 01 02 13. 0304
100m	27	30	27	23	107	0.93	0.82	1.30
100m Hurdles	27	33	38	21	119	5.47	0.14	1.03
1500m	26	24	22	18	90	1.56	0.67	1.56
3000m	20	10	14	9	53	5.64	0.13	1.70
400m	18	24	28	22	92	2.26	0.52	0.71
400m Hurdles	26	18	21	28	93	2.70	0.44	0.81
800m	20	25	30	17	92	4.26	0.23	0.92
Discus Throw	22	29	16	8	75	12.73	0.01	4.52
High Jump	22	36	26	19	103	6,40	0.09	1.66
Shot Put	28	27	20		86	8 60	0.04	3 15
Pole Vault	12	15	20	10	£1	2.00	0.54	0.73
role vault	1.2	72	20	13	UL	2.10	0.54	0.72
lavolin	22	26	10	11	00	10.20	0.00	7 00
Javelin	33	26	10	11	80	19.30	0.00	7.89
Javelin Long Jump	33 28	26 31	10 22	11 20	80 101	19.30 3.12	0.00 0.37	7.89 1.97

Females-B 2nd year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
100	27	26	26	27	116	2.29	0.53	1 41
100111	27	30	26	27	116	2.28	0.52	1.41
100m Hurdles	26	40	32	23	121	5.58	0.13	1.44
1500m	29	20	19	21	89	2.82	0.42	1.50
3000m	23	9	18	22	72	6.78	0.08	0.64
400m	24	27	36	20	107	5.19	0.16	0.83
400m Hurdles	26	29	17	24	96	3.25	0.35	1.80
800m	29	21	24	24	98	1.35	0.72	1.09
Discus Throw	25	30	17	10	01	4.60	0.20	2 33
List have	25	30	17	15	100	4.00	0.20	2.33
High Jump	26	44	22	16	108	16.15	0.00	3.39
Shot Put	35	31	22	19	107	6.31	0.10	2.59
Pole Vault	19	13	19	16	67	1.48	0.69	0.84
Javelin	34	27	20	19	100	5.84	0.12	2.45
Long Jump	26	28	24	19	97	1.85	0.61	1.58
Total	349	355	296	269	1,269	16.43	0.00	1.55
Females-A 1st year								
Dissipling / Quester	01	03	03	04	Total	~ ²	n value	00.0103.02.0304
Discipline / Quarter	ŲI	Ų2	ųs	Q4	Totai	X	p-value	OR QIQ2 VS. Q3Q4
100m	29	32	28	28	117	0.37	0.95	1.19
100m Hurdles	24	42	26	23	115	8.30	0.04	1.81
1500m	26	22	20	34	102	4.51	0.21	0.79
3000m	23	12	20	21	76	3.68	0.30	0.73
400m	23	28	20	30	106	1 32	0.30	0.80
40011	22	20	20	30	100	1.32	0.72	0.80
400m Hurdles	25	26	29	27	107	0.33	0.95	0.83
800m	26	26	26	28	106	0.11	0.99	0.93
Discus Throw	24	28	16	19	87	3.90	0.27	2.21
High Jump	16	31	20	17	84	6.76	0.08	1.61
Shot Put	41	44	28	30	143	5.28	0.15	2.15
Pole Vault	21	10	12	12	55	5.29	0.15	1.67
lavelin	32	41	19	25	117	9 1 9	0.03	2 75
Long lump	32	20	15	23	100	1.60	0.05	1.17
	23	29	27	21	100	1.60	0.66	1.17
	332	371	297	315	1,315	9.10	0.03	1.32
Females-A 2nd year								
remaico / Ena year								
Discipline / Quarter	Q1	Q2	Q3	Q4	Total	χ^2	p-value	OR Q1Q2 vs. Q3Q4
Discipline / Quarter	Q1 27	Q2 36	Q3 30	Q4 27	Total 120	χ ² 1.80	p-value 0.61	OR Q1Q2 vs. Q3Q4 1.22
Discipline / Quarter 100m 100m Hurdles	Q1 27 21	Q2 36 38	Q3 30 30	Q4 27 20	<i>Total</i> 120 109	χ^2 1.80 7.88	p-value 0.61 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39
Discipline / Quarter 100m 100m Hurdles 1500m	Q1 27 21 27	Q2 36 38 16	Q3 30 30 21	Q4 27 20 26	<i>Total</i> 120 109 90	χ^2 1.80 7.88 3.42	p-value 0.61 0.05 0.33	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84
Discipline / Quarter 100m 100m Hurdles 1500m	Q1 27 21 27	Q2 36 38 16	Q3 30 30 21	Q4 27 20 26	Total 120 109 90	χ^2 1.80 7.88 3.42 1.20	p-value 0.61 0.05 0.33	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.50
Discipline / Quarter 100m 100m Hurdles 1500m 3000m	Q1 27 21 27 17	Q2 36 38 16 14	Q3 30 30 21 20	Q4 27 20 26 20	Total 120 109 90 71	χ^2 1.80 7.88 3.42 1.39	p-value 0.61 0.05 0.33 0.71	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m	Q1 27 21 27 17 20	Q2 36 38 16 14 23	Q3 30 30 21 20 28	Q4 27 20 26 20 24	<i>Total</i> 120 109 90 71 95	χ^2 1.80 7.88 3.42 1.39 1.38	p-value 0.61 0.05 0.33 0.71 0.71	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles	Q1 27 21 27 17 20 20	Q2 36 38 16 14 23 25	Q3 30 21 20 28 14	Q4 27 20 26 20 24 15	<i>Total</i> 120 109 90 71 95 74	χ^2 1.80 7.88 3.42 1.39 1.38 4.16	p-value 0.61 0.05 0.33 0.71 0.71 0.24	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m	Q1 27 21 27 17 20 20 28	Q2 36 38 16 14 23 25 21	Q3 30 21 20 28 14 28	Q4 27 20 26 20 24 15 21	<i>Total</i> 120 109 90 71 95 74 98	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.24 0.57	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw	Q1 27 21 27 17 20 20 28 22	Q2 36 38 16 14 23 25 21 32	Q3 30 21 20 28 14 28 14	Q4 27 20 26 20 24 15 21 27	Total 120 109 90 71 95 74 98 95	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump	Q1 27 21 27 17 20 20 28 22 17	Q2 36 38 16 14 23 25 21 32 23	Q3 30 21 20 28 14 28 14 18	Q4 27 20 26 20 24 15 21 27 19	Total 120 109 90 71 95 74 98 95 77	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.24 0.57 0.06 0.78	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put	Q1 27 21 27 17 20 20 28 22 17 34	Q2 36 38 16 14 23 25 21 32 23 36	Q3 30 21 20 28 14 28 14 18 33	Q4 27 20 26 20 24 15 21 27 19 24	Total 120 109 90 71 95 74 98 95 77 127	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault	Q1 27 21 27 17 20 20 28 22 17 34	Q2 36 38 16 14 23 25 21 32 23 36 11	Q3 30 21 20 28 14 28 14 18 33 9	Q4 27 20 26 20 24 15 21 27 19 24 9	Total 120 109 90 71 95 74 98 95 77 127 43	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	Q1 27 21 27 17 20 20 28 22 17 34 14 25	Q2 36 38 16 14 23 25 21 32 23 36 11 22	Q3 30 21 20 28 14 28 14 18 33 9 21	Q4 27 20 26 20 24 15 21 27 19 24 9 20	Total 120 109 90 71 95 74 98 95 77 127 43 98	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 2.62	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m Urdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Lump	Q1 27 21 27 17 20 20 20 28 22 17 34 14 25	Q2 36 38 16 14 23 25 21 32 23 36 11 32 23	Q3 30 21 20 28 14 28 14 18 33 9 21	Q4 27 20 26 20 24 15 21 27 19 24 9 20 0 17	Total 120 109 90 71 95 74 98 95 77 127 43 98	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.12	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 1.93
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	Q1 27 21 27 17 20 20 28 22 17 34 14 25 15	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27	Q3 30 21 20 28 14 28 14 18 33 9 21 27	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.57	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.57	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 2.20
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total	Q1 27 21 27 17 20 20 28 22 17 34 14 25 15 287	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior	Q1 27 21 27 17 20 20 28 22 17 34 14 25 15 287	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65	p-value 0.61 0.05 0.33 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter	Q1 27 21 27 17 20 20 20 20 20 28 22 17 34 14 25 15 287	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183	$\frac{\chi^2}{1.80}$ 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m Urdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m	Q1 27 21 27 17 20 20 20 20 28 22 17 34 14 25 15 287 Q1 68	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 20 17 269	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m	Q1 27 21 27 17 20 20 28 22 27 17 34 14 25 15 287 287 287	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 109 64	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m	Q1 27 21 27 17 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 90	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 109 64 64	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.00 0.02	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m 400m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 2000m	Q1 27 21 27 17 20 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 89 89	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 102	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 123	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 20 17 269 20 4 4 64	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354	$\frac{\chi^2}{1.80}$ 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 $\frac{\chi^2}{20.65}$ 39.19 10.09 7.44	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.00 0.02 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.51
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m Urdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m	Q1 27 21 27 17 20 20 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 89 84	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103	Q3 30 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 20 17 269 20 4 64 64 109 64 64	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.72 0.06	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m	Q1 27 21 27 17 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 81	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 109 64 64 4112 70	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 354 421 325	$\begin{array}{c} \chi^2 \\ 1.80 \\ 7.88 \\ 3.42 \\ 1.39 \\ 1.38 \\ 4.16 \\ 2.00 \\ 7.44 \\ 1.08 \\ 2.67 \\ 1.56 \\ 3.63 \\ 5.72 \\ \hline 7.65 \\ \hline \chi^2 \\ 20.65 \\ 39.19 \\ 10.09 \\ 7.44 \\ 6.53 \\ \end{array}$	p-value 0.61 0.05 0.33 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles	Q1 27 21 27 17 20 28 22 17 34 14 25 15 287 Q1 68 98 89 89 84 81 97	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 09 64 64 109 64 64 112 70 48	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300	$\begin{array}{c} \chi^2 \\ 1.80 \\ 7.88 \\ 3.42 \\ 1.39 \\ 1.38 \\ 4.16 \\ 2.00 \\ 7.44 \\ 1.08 \\ 2.67 \\ 1.56 \\ 3.63 \\ 5.72 \\ 7.65 \\ \hline \chi^2 \\ 20.65 \\ 39.19 \\ 10.09 \\ 7.44 \\ 6.53 \\ 32.35 \\ \end{array}$	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.02 0.06 0.09 0.00	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m 400m Urdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m	Q1 27 21 27 17 20 20 20 20 20 20 20 20 20 20 20 20 20	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 20 17 269 20 4 4 4 4 4 4 4 5 269 20 27 48 61	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 338 333 354 421 325 300 336	$\frac{\chi^2}{1.80}$ 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.02 0.06 0.09 0.00 0.02	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw	Q1 27 21 27 17 20 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 89 84 81 97 83 115	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118	Q3 30 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 20 17 269 20 4 109 64 64 112 70 48 61 84	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300 336 363	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.02 0.06 0.09 0.00 0.02 0.00	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump	Q1 27 21 27 17 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 81 97 83 115 64	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118 111	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46 60	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 109 64 64 64 112 70 48 61 84 51	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300 336 363 286	$\begin{array}{c} \chi^2 \\ 1.80 \\ 7.88 \\ 3.42 \\ 1.39 \\ 1.38 \\ 4.16 \\ 2.00 \\ 7.44 \\ 1.08 \\ 2.67 \\ 1.56 \\ 3.63 \\ 5.72 \\ 7.65 \\ \hline \chi^2 \\ 20.65 \\ 39.19 \\ 10.09 \\ 7.44 \\ 6.53 \\ 32.35 \\ 9.74 \\ 37.23 \\ 30.34 \\ \end{array}$	p-value 0.61 0.05 0.33 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49
Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 1500m So00m 400m Hurdles 1500m S000m 400m Hurdles 800m Discus Throw High Jump Shot Put	Q1 27 21 27 27 27 27 27 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 81 97 83 115 64 108	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118 111 122	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46 60 60 60	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 09 64 64 109 64 64 112 70 48 61 84 51 93	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300 336 363 286 383	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.06 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m 400m 400m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Uom Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Pole Vault Po	Q1 27 21 27 27 20 20 20 20 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 81 97 83 115 64 108 114	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118 111 122 72	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46 60 60 80	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 20 17 269 20 17 269 48 64 64 112 70 64 64 84 51 84 51 93 25	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 338 333 354 421 325 300 336 363 286 383	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	OR Q1Q2 vs. Q3Q4
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	Q1 27 21 27 17 20 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 89 84 81 97 83 115 64 108 112	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118 111 122 72 23	Q3 30 21 20 28 14 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46 60 60 80 80 80 80 80 80 80 80 80 8	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 109 64 64 64 112 70 48 61 84 51 93 25	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300 336 363 286 383 325 300 336 363 286 383 291 201	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46 19.75	p-value 0.61 0.05 0.33 0.71 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05 p-value 0.00 0.02 0.06 0.09 0.00 0.02 0.00	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.93 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26 3.14
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin	Q1 27 21 27 17 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 81 97 83 115 64 108 114 72 7	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118 111 122 72 98 82	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46 60 60 80 78	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 109 64 4 64 61 112 70 48 61 84 51 93 25 46	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300 336 363 286 383 291 294 200	χ^2 1.80 7.88 3.42 1.39 1.38 4.16 2.00 7.44 1.08 2.67 1.56 3.63 5.72 7.65 χ^2 20.65 39.19 10.09 7.44 6.53 32.35 9.74 37.23 30.34 22.19 55.46 18.76	p-value 0.61 0.05 0.33 0.71 0.24 0.57 0.06 0.78 0.45 0.67 0.30 0.13 0.05	OR Q1Q2 vs. Q3Q4 1.22 1.39 0.84 0.60 0.68 2.41 1.00 1.73 1.17 1.51 1.93 0.91 1.22 OR Q1Q2 vs. Q3Q4 1.00 3.79 1.28 0.64 1.58 3.88 1.30 3.21 2.49 2.26 3.14 1.88 0.90
Discipline / Quarter Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump Total Females-Senior Discipline / Quarter 100m 100m Hurdles 1500m 3000m 400m 400m Hurdles 800m Discus Throw High Jump Shot Put Pole Vault Javelin Long Jump	Q1 27 21 27 20 20 28 22 17 34 14 25 15 287 Q1 68 98 89 84 81 97 83 115 64 108 114 72 70	Q2 36 38 16 14 23 25 21 32 23 36 11 32 27 334 Q2 101 122 99 103 100 102 96 118 111 122 72 98 80	Q3 30 21 20 28 14 28 14 18 33 9 21 27 293 Q3 60 49 102 122 74 53 96 46 60 60 60 80 78 87	Q4 27 20 26 20 24 15 21 27 19 24 9 20 17 269 Q4 09 64 64 109 64 64 112 70 48 61 84 51 93 25 46 72	Total 120 109 90 71 95 74 98 95 77 127 43 98 86 1,183 Total 338 333 354 421 325 300 336 363 286 383 291 294 309	$\begin{array}{c} \chi^2 \\ 1.80 \\ 7.88 \\ 3.42 \\ 1.39 \\ 1.38 \\ 4.16 \\ 2.00 \\ 7.44 \\ 1.08 \\ 2.67 \\ 1.56 \\ 3.63 \\ 5.72 \\ 7.65 \\ \hline \chi^2 \\ 20.65 \\ 39.19 \\ 10.09 \\ 7.44 \\ 6.53 \\ 32.35 \\ 9.74 \\ 37.23 \\ 30.34 \\ 22.19 \\ 55.46 \\ 18.76 \\ 2.37 \\ \hline \end{array}$	p-value 0.61 0.05 0.33 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.71 0.06 0.00	OR Q1Q2 vs. Q3Q4

Table A2f continued

Appendix A3

l ang lumn	lable	Asa: summary	statistics for the selected discipli	ines for mai	eathetes
		maan	50	min	may
Age category	n	meun	30	mm	mux
Males-D	274	5.03	0.25	4.71	6.92
Males-C	279	5.88	0.23	5.55	6.94
Males-B	245	6.39	0.24	6.08	7.28
Males-A	312	6.53	0.28	6.15	7.38
Males-Senior	661	6.83	0.30	6.40	7.90
Javelin	(D=400g; C=6	500g; B=700g; A, Senior	=800g)		
Age category	n	mean	SD	min	max
Males-D	273	3.78	3.33	33.73	50.47
Males-C	274	4.58	3.88	40.72	64.25
Males-B	258	5.15	4.67	45.76	70.94
Males-A	331	5.03	5.60	44.00	79.59
Males-Senior	791	5.51	6.01	48.00	78.22
Pole Vault					
Age category	n	mean	SD	min	max
Males-C	256	2.76	0.41	2.20	4.00
Males-B	248	3.65	0.34	3.10	5.03
Males-A	262	3.82	0.42	3.20	5.21
Males-Senior	672	4.20	0.50	3.50	5.81
Shot Put	(D=3kg; C=4k	g; B=5kg; A=6kg; Senio	r=7.25kg)		
Age category	n	mean	SD	min	max
Males-D	284	11.46	0.92	10.24	15.69
Males-C	276	13.32	0.99	12.05	16.96
Males-B	255	13.85	1.11	12.42	18.88
Males-A	281	13.27	1.44	11.80	20.85
Males-Senior	980	13.64	1.57	12.00	21.62
High Jump					
Age category	n	mean	SD	min	max
Males-D	354	1.55	0.05	1.50	1.75
Males-C	360	1.75	0.06	1.70	2.00
Males-B	266	1.86	0.06	1.80	2.06
Males-A	252	1.90	0.06	1.81	2.15
Males-Senior	573	1.96	0.08	1.86	2.29
Discus Throw	(D=1kg; C=1k	(g; B=1,5kg; A=1.75kg; S	enior=2kg)		
Age category	n	mean	SD	min	max
Males-D	269	28.72	3.29	24.36	42.49
Males-C	271	41.85	3.73	34.71	57.10
Males-B	243	41.08	4.10	36.00	58.54
Males-A	237	39.88	4.89	33.86	62.37
Males-Senior	979	42.00	5.45	36.03	67.63
Hurdles Short	(D=80m & 76	5.2cm height; C=100m 8	& 84cm height; B=110m & 91.4cm height; A=110m	& 100cm height; S	Senior= 110m & 106.7cm height)*
Age category	n	mean	SD	min	max
Males-D	280	13.04	0.44	11.68	13.79
Males-C	284	14.60	0.42	13.22	15.27
Males-B	276	15.39	0.54	13.98	16.38
Males-A	326	15.77	0.74	13.77	16.94
Males-Senior	775	15.60	0.78	13.25	16.83
Sprint	(D=80m; C, B	s, A, Senior=100m)			
Age category	n	mean	SD	min	max
Males-D	296	10.52	0.26	9.13	10.89
Males-C	304	11.89	0.22	11.06	12.27
Males-B	290	11.39	0.22	10.55	11.72
Males-A	365	11.24	0.27	10.26	11.61
Males-Senior	877	10.97	0.28	9.76	11.33
Middle Distance	(D=600m; C,	B, A, Senior=800m)			
Age category	n	mean	SD	min	max
Males-D	101	100.69	3.31	89.86	104.90
Males-C	285	125.68	6.14	90.70	133.58
Males-B	244	119.40	2.43	112.18	123.57
Males-A	371	116.77	2.79	105.64	121.34
Males-Senior	810	113.58	2.78	103.45	117.91
Hurdles Long	(C=300m & 7	6.2cm height; B=400m	& 84cm height; A, Senior=400m & 91.4cm height)		
Age category	n	mean	SD	min	max
Males-C	273	44.30	1.94	38.92	48.97
Males-B	219	59.95	2.75	52.41	65.44
Males-A	265	59.58	3.34	51.08	65.85
Males-Senior	692	56.88	2.68	48.95	61.16
Long Distance	(D, C= 1000m	n; B, A, Senior= 1500m)			
Age category	n	mean	SD	min	max
Males-D	278	181.92	4.57	163.27	189.60
Males-C	523	220.90	50.43	156.53	284.29
Males-B	307	230.73	38.94	147.88	263.46
Males-A	437	227.69	37.19	140.38	257.98
Males-Senior	942	224.00	30.29	137.01	244.73

Table A3a: summary statistics for the selected disciplines for male athletes

Table A3a continued						
400m						
Age category	n	mean	SD	min	max	
Males-B	263	51.70	1.10	48.29	53.78	
Males-A	385	50.68	1.16	47.09	52.51	
Males-Senior	826	49.45	1.12	46.02	51.03	
5000m						
Age category	n	mean	SD	min	max	
Males-A	242	954.593	36.866	830.430	1016.700	
Males-Senior	687	886 527	25 016	793.060	919 790	

 Males-Senior
 687
 886.527
 25.916
 793.060
 919.790

 *From 2008 onwards the height for Males-A changed to 99.1 cm. Although this makes it easier to perform better, separate summary statistics per season did not reveal any differences and, therefore, this change is not taken into account any further.

Law a luman	1	•			
Long Jump	2	maan	۶D	min	may
Age cutegory	270	nieun A 35	30	niiii 1.50	5.26
Females-D Females C	278	4.75	0.17	4.50	5.26
Females-C Females-B	108	5.10	0.10	4.95	5.79
Females-A	186	5.42	0.24	5.09	6.35
Females-Senior	309	5.63	0.29	5.26	6.64
Javelin	(D=400g; C, B, A, Senior=600g)	*			
Age category	n	mean	SD	min	max
Females-D	271	30.41	3.10	26.19	48.82
Females-C	268	33.14	3.19	28.49	45.50
Females-B	180	36.37	3.52	32.27	51.38
Females-A	215	36.70	4.65	30.97	53.80
Females-Senior	294	40.99	4.94	34.44	59.27
Pole Vault	-		(D)		
Age category	n	mean	SD	min	max
Females-C	118	2.44	0.40	1.90	3.50
Females-B Females-A	128	2.67	0.45	2.00	4.00
Females-Senior	291	3.02	0.50	2.20	4.31
Shot Put	(D=2kg; C, B=3kg; A, Senior=4k	g)			
Age category	n	mean	SD	min	тах
Eemales-D	271	11 95	1 01	10 70	18 56
Females-C	265	11.69	1.07	10.37	17.48
Females-B	193	13.09	1.28	11.69	19.12
Females-A	270	11.23	1.22	9.99	17.30
Females-Senior	383	12.72	1.29	11.10	18.17
High Jump			<u></u>		
Age category	n	mean	SD	min	тах
Females-D	470	1.48	0.04	1.45	1.66
Females-C	372	1.58	0.04	1.55	1.73
Females-B	211	1.64	0.05	1.60	1.86
Females-A Females-Senior	161	1.65	0.06	1.57	1.82
Discus Throw	(D=750g: C. B. A. Senior=1kg)	1.07	0.07	1.00	1.07
Age category	n	mean	SD	min	max
Eemales-D	274	26 64	3 31	22.61	46.18
Females-C	266	30.06	3.69	25.53	48.36
Females-B	166	35.04	4.37	29.43	53.09
Females-A	182	35.19	5.08	29.15	54.01
Females-Senior	363	40.70	5.28	34.59	61.05
Hurdles Short	(D=60m & 76.2cm height; C=80	0m & 76.2cm height; B=100m & 7	6.2cm height; A, Senior=100m &	84cm height)	
· ·					
Age category	n	mean	SD	min	тах
Age category Females-D	n 275	<i>mean</i> 10.22	<i>SD</i> 0.30	min 9.35	max 10.79
Age category Females-D Females-C	n 275 278	mean 10.22 12.51	SD 0.30 0.31	min 9.35 11.41	max 10.79 13.11
Age category Females-D Females-C Females-B	n 275 278 240	mean 10.22 12.51 15.19	SD 0.30 0.31 0.49	min 9.35 11.41 13.79	max 10.79 13.11 16.24
Age category Females-D Females-C Females-B Females-A Females-Senior	n 275 278 240 224 233	mean 10.22 12.51 15.19 15.61 14.92	SD 0.30 0.31 0.49 0.75 0.84	min 9.35 11.41 13.79 13.82 12.05	max 10.79 13.11 16.24 16.95
Age category Females-D Females-C Females-B Females-A Females-Senior Sprint	n 275 278 240 224 333 (D=60m: C=80m: B. A. Senior=	mean 10.22 12.51 15.19 15.61 14.92 100m)	SD 0.30 0.31 0.49 0.75 0.84	min 9.35 11.41 13.79 13.82 13.05	max 10.79 13.11 16.24 16.95 16.55
Age category Females-D Females-C Females-B Females-A Females-Senior Sprint Age category	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n	mean 10.22 12.51 15.19 15.61 14.92 100m) mean	SD 0.30 0.31 0.49 0.75 0.84 SD	min 9.35 11.41 13.79 13.82 13.05 min	max 10.79 13.11 16.24 16.95 16.55 max
Age category Females-D Females-C Females-B Females-A Females-A Females-Senior Sprint Age category Females-D	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292	mean 10.22 12.51 15.59 15.61 14.92 100m) mean 8.37	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14	min 9.35 11.41 13.79 13.82 13.05 min 7.80	max 10.79 13.11 16.24 16.95 16.55 max 8.56
Age category Females-D Females-C Females-B Females-A Females-A Females-Senior <u>Sprint</u> <u>Age category</u> Females-D Females-C	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82
Age category Females-D Females-C Females-B Females-A Females-A Females-Senior Sprint Age category Females-D Females-B	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223	mean 10.22 12.51 15.19 15.61 14.92 100m) mean 8.37 10.47 12.63	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79	max 10.79 13.11 16.24 16.95 16.55
Age category Females-D Females-C Females-B Females-A Females-A Females-Senior Sprint Age category Females-D Females-B Females-A	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56	max 10.79 13.11 16.24 16.55 max 8.56 10.82 13.24
Age category Females-D Females-C Females-B Females-A Females-A Females-Senior Sprint Age category Females-D Females-B Females-A Females-A Females-Senior	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.63 12.62 12.27	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.29 0.32 0.31	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 12.82
Age category Females-D Females-C Females-A Females-A Females-A Females-Senior Sprint Age category Females-D Females-C Females-A Females-A Females-A Females-Senior Middle Distance	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27	SD 0.30 0.31 0.49 0.75 0.84	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.55 11.34	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24
Age category Females-D Females-C Females-B Females-A Females-Senior Sprint Age category Females-D Females-D Females-C Females-A Females-Senior Middle Distance Age category	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 1) mean	SD 0.30 0.31 0.49 0.75 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD SD	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34	max 10.79 13.11 16.24 16.95 16.55 max 8.56 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24
Age category Females-D Females-C Females-A Females-A Females-Senior Sprint Age category Females-D Females-C Females-C Females-C Females-A Females-Senior Middle Distance Age category Females-D	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273	mean 10.22 12.51 15.9 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 n) mean 105.55	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24
Age category Females-D Females-C Females-A Females-Senior Sprint Age category Females-C Females-D Females-C Females-C Females-A Females-Senior Middle Distance Age category Females-D Females-D Females-C Females-C Females-C Females-C Females-C Females-C Females-C	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=3 n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 1) mean 105.55 100.33	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 2.65	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 92.37	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 12.82 max 109.46 103.40
Age category Females-D Females-C Females-A Females-A Females-A Females-C Females-C Females-D Females-C Females-C Females-A Females-A Females-Senior Middle Distance Age category Females-D Females-D Females-C	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.65 100.33 137.77 12.57	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 12.76	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 109.46 103.40 143.60 145.23
Age category Females-D Females-C Females-A Females-A Females-C Females-Senior Age category Females-C Females-C Females-C Females-C Females-C Females-Senior Middle Distance Age category Females-D Females-Senior Middle Distance Age category Females-C Females-D Females-D Females-D Females-C	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=3 n 292 298 223 237 338 (D, C=600m; B, A, Senior=800n n 273 242 190 204 336	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 10 105.55 100.33 137.77 131.43	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21	min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.60 145.33 138.65
Age category Females-D Females-C Females-B Females-A Females-Senior Age category Females-D Females-C Females-C Females-C Females-C Females-Senior Middle Distance Age category Females-D Females-Senior Middle Distance Age category Females-C Females-D Females-C	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=2 n 292 298 223 237 338 (D, C=600m; B, A, Senior=800n n 273 242 190 204 336 (C=300m & 76.2cm height; B, A	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 mean 105.55 100.33 137.77 137.57 131.43 Senior=400m & 76.2cm height)	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21	min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 109.46 103.40 143.60 145.33 138.65
Age category Females-D Females-C Females-B Females-A Females-Senior Sprint Age category Females-D Females-C Females-B Females-C Females-Senior Middle Distance Age category Females-C Females-Senior Middle Distance Age category Females-C Females-C <td< td=""><td>n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n</td><td>mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 mean 105.55 100.33 137.77 137.57 131.43 A, Senior=400m & 76.2cm height)</td><td>SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD</td><td>min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min</td><td>max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 109.46 103.40 143.60 145.33 138.65</td></td<>	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 mean 105.55 100.33 137.77 137.57 131.43 A, Senior=400m & 76.2cm height)	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD	min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 109.46 103.40 143.60 145.33 138.65
Age category Females-D Females-C Females-B Females-Senior Sprint Age category Females-D Females-D Females-D Females-C Females-A Females-Senior Middle Distance Age category Females-C Females-B Females-C Females-B Females-A Females-A Females-A Females-A Females-A Females-C Females-B Females-A Females-C Females-B Females-C Fema	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27)) mean 105.55 100.33 137.77 137.57 131.43 x, Senior=400m & 76.2cm height) mean	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 12.82 max 109.46 103.40 143.60 145.33 138.65 max 53.16
Age category Females-D Females-C Females-B Females-A Females-Senior Sprint Age category Females-D Females-C Females-C Females-Senior Middle Distance Age category Females-A Females-D Females-C Females-D Females-C Females-A Females-A Females-A Females-C Females-A Females-C Females-C Females-C Females-C Females-C Females-Senior Hurdles Long Age category Females-C Females-C Females-C Females-Senior Hurdles Long Age category Females-B	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189	mean 10.22 12.51 15.19 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 n) mean 105.55 100.33 137.77 131.43 y. Senior=400m & 76.2cm height) mean 49.22 68.97	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 12.82 max 109.46 103.40 143.60 145.33 138.65 max 53.16 79.94
Age category Females-D Females-C Females-B Females-A Females-C Sprint Age category Females-D Females-C Females-C Females-C Females-B Females-A Females-C Females-D Females-C Females-C Females-C Females-A Females-A Females-A Females-C Females-C Females-C Females-C Females-C Females-C Females-C Females-Senior Hurdles Long Age category Females-B Females-B Females-B Females-B Females-B Females-B Females-C Females-B Females-C Females-B Females-B Females-C Females-B Females-C </td <td>n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181</td> <td>mean 10.22 12.51 15.19 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27)) mean 105.55 100.33 137.77 131.43 xy. Senior=400m & 76.2cm height) mean 49.22 68.97 69.76</td> <td>SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32</td> <td>min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26</td> <td>max 10.79 13.11 16.24 16.95 16.55 max 10.82 13.24 13.24 13.24 13.24 13.24 12.82 max 109.46 103.40 145.33 138.65 max 53.16 79.94 79.21</td>	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181	mean 10.22 12.51 15.19 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27)) mean 105.55 100.33 137.77 131.43 xy. Senior=400m & 76.2cm height) mean 49.22 68.97 69.76	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26	max 10.79 13.11 16.24 16.95 16.55 max 10.82 13.24 13.24 13.24 13.24 13.24 12.82 max 109.46 103.40 145.33 138.65 max 53.16 79.94 79.21
Age category Females-D Females-C Females-B Females-A Females-Senior Sprint Age category Females-D Females-D Females-C Females-B Females-Senior Middle Distance Age category Females-C Females-C Females-C Females-A Females-A Females-A Females-A Females-C Females-C Females-C Females-A Females-B Females-C Females-C Females-C Females-C Females-B Females-C Females-C Females-C Females-B Females-A Females-A Females-A Females-A Females-A Females-A Females-A Females-A Females-A Females-A <td>n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=3 n 292 298 223 237 238 223 237 238 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300</td> <td>mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 1) mean 105.55 100.33 137.57 131.43 A, Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06</td> <td>SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45</td> <td>min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64</td> <td>max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.25 max 53.16 79.94 79.21 72.17</td>	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=3 n 292 298 223 237 238 223 237 238 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.27 1) mean 105.55 100.33 137.57 131.43 A, Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.25 max 53.16 79.94 79.21 72.17
Age category Females-D Females-C Females-A Females-Senior Sprint Age category Females-D Females-D Females-C Females-C Females-B Females-C Females-Senior Middle Distance Age category Females-C Females-C Females-Senior Middle Distance Age category Females-C Females-Senior Hurdles Long Age category Females-Senior Hurdles Long Age category Females-Senior Hurdles Long Age category Females-A Females-B Females-A Females-B Females-A Females-A Females-A Females-A Females-A Females-A Females-A Females-Senior Long Distance	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C= 1000m; B, A, Senior= 15	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.7 1) mean 105.55 100.33 137.77 131.43 X, Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m)	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 .21 SD 1.78 3.78 4.32 3.45	min 9.35 11.41 13.82 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.25 max 109.46 103.40 143.60 145.33 138.65 max 53.16 79.21 72.17
Age category Females-D Females-C Females-B Females-A Females-Construction Age category Females-D Females-Construction Females-Construction Females-Construction Females-Construction Middle Distance Age category Females-Construction Females-Construction Females-Construction Females-Construction Females-Senior Hurdles Long Age category Females-Construction Females-A Females-Senior Hurdles Long Age category Females-A Females-Construction Age category Females-A Females-Construction Age category Females-A Females-Construction Age category Females-A Females-Construction Age category Females-Construction Age category Females-Construction	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=2 n 292 298 223 237 338 (D, C=600m; B, A, Senior=800n n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C= 1000m; B, A, Senior= 15 n	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 10 mean 105.55 100.33 137.77 131.43 Ay Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45	min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.25 max 109.46 103.40 143.60 145.33 138.65 max 53.16 79.94 79.21 72.17
Age category Females-D Females-C Females-B Females-A Females-C Females-Senior Age category Females-C Females-C Females-C Females-C Females-Senior Middle Distance Age category Females-C Females-C Females-Senior Middle Distance Age category Females-C Females-C Females-Senior Hurdles Long Age category Females-C Females-Senior Hurdles Long Age category Females-C Females-Senior Hurdles Long Age category Females-C Females-Senior Long Distance Age category Females-Senior Long Distance Age category Females-D	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior= n 292 298 223 237 338 (D, C=600m; B, A, Senior=800n n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C= 1000m; B, A, Senior= 15 n 268	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 10.33 137.77 137.57 131.43 0.5enior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean 193.74	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45 SD 8.78	min 9.35 11.41 13.79 13.82 13.05 min 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64 min 175.18	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.24 13.86 max 109.46 103.40 143.60 145.33 138.65 max 53.16 79.94 79.21 72.17 max 315.17
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Age category Females-D Females-C Females-B Females-A Females-C Sprint Age category Females-D Females-C Females-D Females-C Females-B Females-A Females-C Females-D Females-C Females-C Females-C Females-C Females-C Females-C Females-C Females-C Females-C Females-A Females-Senior Hurdles Long Age category Females-A Females-A Females-C Females-A Females-C Females-C </td <td>n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=3 n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C= 1000m; B, A, Senior= 15 n 268 401 200 211 424</td> <td>mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 13.55 100.33 137.57 131.43 Aspenior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean 193.74 245.55 278.78 280.15 257.70</td> <td>SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45 SD 8.78 61.54 37.08 35.82 39.12</td> <td>min 9.35 11.41 13.82 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64 min 175.18 171.90 170.62 166.98 162.34</td> <td>max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 138.65 max 53.16 79.94 79.21 72.17 max 315.17 330.95 320.47 318.65 294.36</td>	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=3 n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C= 1000m; B, A, Senior= 15 n 268 401 200 211 424	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 13.55 100.33 137.57 131.43 Aspenior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean 193.74 245.55 278.78 280.15 257.70	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45 SD 8.78 61.54 37.08 35.82 39.12	min 9.35 11.41 13.82 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64 min 175.18 171.90 170.62 166.98 162.34	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 138.65 max 53.16 79.94 79.21 72.17 max 315.17 330.95 320.47 318.65 294.36
Age category Females-D Females-C Females-B Females-Senior Sprint Age category Females-D Females-D Females-C Females-D Females-C Females-Senior Middle Distance Age category Females-C Females-C Females-C Females-A Females-A Females-A Females-A Females-A Females-B Females-A Females-C Females-A Females-A Females-A Females-A Females-A Females-B Females-A Females-C Females-D Females-D Females-C Females-D Females-C Females-C Females-B Females-C Females-C Females-B Females-C Females-S <td>n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C=1000m; B, A, Senior=15 n 268 401 200 211 424 n</td> <td>mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 10.33 137.77 131.43 Ay Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean 19.74 245.55 278.78 280.15 257.70</td> <td>SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45 SD 8.78 61.54 37.08 35.82 39.12 SD</td> <td>min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64 min 175.18 171.90 170.62 166.98 162.34</td> <td>max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.65 max 315.17 330.95 320.47 318.65 294.36</td>	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior=: n 292 298 223 237 338 (D, C=600m; B, A, Senior=800m n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C=1000m; B, A, Senior=15 n 268 401 200 211 424 n	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 10.33 137.77 131.43 Ay Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean 19.74 245.55 278.78 280.15 257.70	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 4.32 3.45 SD 8.78 61.54 37.08 35.82 39.12 SD	min 9.35 11.41 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64 min 175.18 171.90 170.62 166.98 162.34	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.65 max 315.17 330.95 320.47 318.65 294.36
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Age category Females-D Females-C Females-A Females-Senior Sprint Age category Females-D Females-D Females-C Females-C Females-B Females-C Females-A Females-C Age category Females-C Females-C Females-Senior Hurdles Long Age category Females-A Females-Senior Hurdles Long Age category Females-A Females-Senior Long Distance Age category Females-D Females-Senior Long Distance Age category Females-D Females-D Females-Senior Long Distance Age category Females-D Females-A Females-Senior Age category Females-B Females-A Fe	n 275 278 240 224 333 (D=60m; C=80m; B, A, Senior= n 292 298 223 237 338 (D, C=600m; B, A, Senior=800n n 273 242 190 204 336 (C=300m & 76.2cm height; B, A n 262 189 181 300 (D, C= 1000m; B, A, Senior= 15 n 268 401 200 211 424 n 199 201	mean 10.22 12.51 15.61 14.92 100m) mean 8.37 10.47 12.63 12.62 12.77 10 mean 105.55 100.33 137.77 137.57 131.43 Ay Senior=400m & 76.2cm height) mean 49.22 68.97 69.76 65.06 00m) mean 193.74 280.15 257.70 mean 59.19 58.91	SD 0.30 0.31 0.49 0.75 0.84 SD 0.14 0.19 0.29 0.32 0.31 SD 2.22 1.96 3.65 4.64 4.21 SD 1.78 3.78 3.45 SD 8.78 61.54 37.08 35.82 39.12 SD 1.59 1.77	min 9.35 11.41 13.79 13.82 13.05 min 7.80 9.84 11.79 11.56 11.34 min 95.51 92.37 126.66 121.76 118.85 min 44.56 59.44 56.26 55.64 min 175.18 171.90 170.62 166.98 162.34 min 54.96 53.67	max 10.79 13.11 16.24 16.95 16.55 max 8.56 10.82 13.24 13.40 145.33 138.65 29.4 315.17 330.95 320.47 318.65 294.36 max 61.77 61.73

Table A3b continued						
3000m						
Age category	n	mean	SD	min	max	
Females-B	125	654.34	38.59	558.24	719.65	
Females-A	147	646.06	40.54	555.88	719.22	
Females-Senior	421	606.13	25.29	537.84	651.34	

*From 2009 onwards the weight for Females-C changed to 500 g. Although this makes it easier to perform better, separate summary statistics per season did not reveal any differences and, therefore, this change is not taken into account any further.

Appendix A4

Table A4a: estimation results for male athletes, complete table

$ \begin{array}{ c c c c c c } \begin{tabular}{ c c c c c } \hline P_2 C_2 P_2 A_1 A_2 $Senior $Distance $Distan$	Senior Distance -0.091** (-3.201) -0.162** (-5.243) -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	A-2 Distance -0.048 (-0.747) -0.144* (-1.800) -0.216** (-3.121) -0.031** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.992)	A-1 Distance -0.083 (-1.062) -0.160** (-2.110) -0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046 -0.41	B-2 Distance -0.061 (-1.150) -0.104* (-1.795) -0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	C-2 Distance -0.172** (-3.202) -0.260** (-5.417) -0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	D-2 Distance -0.062 (-0.691) -0.371** (-6.445) -0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Long Jump Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Perob 2 5
Q2 Distance Distance <thdistance< th=""> Distance D</thdistance<>	Distance -0.091** (-3.201) -0.162** (-5.243) -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	Distance -0.048 (-0.747) -0.144* (-1.800) -0.216** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (-0.92)	Distance -0.083 (-1.062) -0.160** (-2.110) -0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046 0.41	Distance -0.061 (-1.150) -0.104* (-1.795) -0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	Distance -0.172** (-3.202) -0.260** (-5.417) -0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	Distance -0.062 (-0.691) -0.371** (-6.445) -0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob 2 5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	-0.091** (-3.201) -0.162** (-5.243) -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.355) -0.078** (-8.506) -0.061**	-0.048 (-0.747) -0.144* (-1.800) -0.216** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.922)	-0.083 (-1.062) -0.160** (-2.110) -0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	-0.061 (-1.150) -0.104* (-1.795) -0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	-0.172** (-3.202) -0.260** (-5.417) -0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	-0.062 (-0.691) -0.371** (-6.445) -0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Brob ~ 5
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	(-3.201) -0.162** (-5.243) -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	(-0.747) -0.144* (-1.800) -0.216** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.922)	(-1.062) -0.160** (-2.110) -0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046 0.41	(-1.150) -0.104* (-1.795) -0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	(-3.202) -0.260** (-5.417) -0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	(-0.691) -0.371** (-6.445) -0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Q3 Q4 clubranking Constant Observations Adj. R ² Season FE F-test Brob 2 5
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	-0.162** (-5.243) -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	-0.144* (-1.800) -0.216** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.922)	-0.160** (-2.110) -0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	-0.104* (-1.795) -0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	-0.260** (-5.417) -0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	-0.371** (-6.445) -0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob. 5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	(-5.243) -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	(-1.800) -0.216** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.920)	(-2.110) -0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	(1.795) -0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	(-5.417) -0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	(-6.445) -0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Brob 2 5
Q4 $(0.16)^{*}$ $(0.433^{**}$ $(-0.31)^{**}$ $(-0.216^{**}$ $(-0.216^{**}$ $(-0.110^{**}$ clubranking $(-0.460^{**}$ $(-0.433^{**}$ (-0.313^{**}) (-3.133) (-3.121) (-4.314) clubranking -0.001 -0.015^{**} -0.002 -0.016 -0.031^{**} -0.049^{**} (-0.179) (-2.100) (-2.129) (-1.501) (-3.282) (-1.0427) Constant 5.376^{**} 6.438^{**} 6.679^{**} 6.889^{**} 6.999^{**} 7.411^{**} Cobservations 106 100 99 89 102 487 Adj. R^2 0.424 0.416 0.188 0.076 0.196 0.348 Season FEYESYESYESYESYESYESF-test 14.156 12.024 4.320 1.858 5.436 14.639 Prob > F 0.000 0.000 0.000 0.000 0.000 0.000 Q2 -0.006 -0.018^{*} -0.021 0.011 -0.004 -0.005 -0.045^{**} Q3 -0.032^{**} -0.025 -0.034^{**} -0.029^{*} -0.039^{*} -0.039^{*} -0.039^{*} Q4 -0.051^{**} -0.050^{**} -0.041^{**} -0.018 -0.022 -0.028 -0.061^{**} Q4 -0.051^{**} -0.050^{**} -0.041^{**} -0.018 -0.022 -0.039^{*} -0.039^{*} Q4 -0.051^{**} -0.050^{**} -0.041^{**} -0.018	-0.110** -0.110** (-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.355) -0.078** (-8.506) -0.061**	-0.216** (-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.302)	-0.270** (-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	-0.301** (-4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	-0.433** (-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	-0.460** (-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob. 5
C* 0.430 0.433 0.410 0.410 0.410 0.410 clubranking -0.001 -0.015** -0.002 -0.016 -0.031** -0.049** Constant 5.376** 6.438** -0.002 -0.016 -0.031** -0.049** Constant 5.376** 6.438** 6.679** 6.889** 6.999** 7.411** Constant 5.376** 6.438** 6.679** 6.889** 6.999** 7.411** Constant 106 100 99 89 102 487 Adj. R^2 0.424 0.416 0.188 0.076 0.196 0.348 Season FE YES	(-4.314) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	(-3.121) -0.031** (-3.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.302)	(-3.133) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	(4.337) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4.320	(-9.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	(-10.006) -0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		clubranking Constant Observations Adj. R^2 Season FE F-test Prob. 5
clubranking(10,000)(9,502)(14,537)(14,513)(14,117)(14,114)clubranking-0.001-0.015**-0.002-0.016-0.031**-0.049**(-0.179)(-2.100)(-0.289)(-1.501)(-3.282)(-10.427)Constant5.376**6.438**6.679**6.889**6.999**7.411**(52.256)(68.151)(65.259)(49.357)(61.156)(132.890)Observations1061009989102487Adj, R^20.4240.4160.1880.0760.1960.348Season FEYESYESYESYESYESYESF-test14.15612.0244.3201.8585.43614.639Prob > F0.0000.0000.0040.0000.0000.000High JumpD-2C-2B-1B-2A-1A-2Q2-0.006-0.018*-0.0210.011-0.004-0.005-0.045**(-0.670)(-1.713)(-1.222)(0.825)(-0.361)(-0.293)(-5.353)Q3-0.032**-0.050**-0.025-0.034*-0.022*-0.028-0.078**(-0.670)(-1.713)(-1.222)(0.825)(-1.691)(-1.864)(-8.506)Q4-0.051**-0.050**-0.044**-0.018-0.022*-0.028-0.078**(-0.164)(-2.571)(-0.292)(-2.022)(-1.128)(-1.723)(-8.888)Constant1.586*	(*4.5147) -0.049** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061*	(-5.121) -0.031** (-3.282) (6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.922)	(5.153) -0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	(4.33) -0.002 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	(-3.362) -0.015** (-2.100) 6.438** (68.151) 100 0.416 YES	-0.001 (-0.179) 5.376** (52.256) 106 0.424 YES		clubranking Constant Observations Adj. R^2 Season FE F-test Prob. 5
$\begin{array}{c clubraticity} \begin{array}{c clubraticity} & -0.001 & -0.015^{-1} & -0.002 & -0.016 & -0.031^{-1} & -0.003^{-1} & -0.042^{-1} \\ & -0.001 & -0.015^{-1} & -0.002 & -0.016 & -0.031^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.002 & -0.016 & -0.031^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} \\ & -0.042^{-1} & -0.042^{-1} & -0.042^{-1} & -0.048^{-1} & -0.048^{-1} \\ & -0.042^{-1} & -0.016^{-1} & -0.042^{-1} & -0.016^{-1} & -0.048^{-1} & -0.048^{-1} \\ & -0.02^{-1} & -0.000^{-1} & -0.021^{-1} & -0.011^{-1} & -0.004^{-1} & -0.005^{-1} & -0.045^{++} \\ & -0.02^{-1} & -0.021^{-1} & -0.011^{-1} & -0.004^{-1} & -0.028^{-1} & -0.078^{++} \\ & -0.051^{-1} & -0.050^{+1} & -0.025^{-1} & -0.034^{+1} & -0.022^{-1} & -0.038^{+1} & -0.028^{-1} \\ & -0.051^{-1} & -0.050^{+1} & -0.025^{-1} & -0.043^{+1} & -0.022^{-1} & -0.038^{+1} & -0.028^{-1} \\ & -0.051^{-1} & -0.050^{+1} & -0.025^{-1} & -0.043^{+1} & -0.028^{-1} & -0.028^{-1} & -0.078^{+1} \\ & -0.051^{-1} & -0.050^{+1} & -0.025^{-1} & -0.044^{+1} & -0.028^{-1} & -0.028^{-1} & -0.078^{+1} \\ & -0.051^{+1} & -0.050^{+1} & -0.025^{-1} & -0.044^{+1} & -0.028^{-1} & -0.028^{-1} & -0.028^{-1} & -0.078^{+1} \\ & -0.051^{+1} & -0.050^{+1} & -0.025^{-1} & -0.018^{-1} & -0.022^{-1} & -0.028^{-1} & -0.012^{+1} \\ & -0.051^{+1} & -0.050^{+1} & -0.021^{-1} & -0.004^{-1} & -0.028^{-1} & -0.012^{+1} \\ & -0.051^{+1} & -0.050^{+1} & -0.002^{-1} & -0.004^{-1} & -0.028^{-1} & -0.012^{+1} \\ & -0.051^{+1} & -0.050^{+1} & -0.002^{-1} & -0.002^{-1} & -0.004^{-1} & -0.012^{+1} \\ & -0.012^{+1} & -0.002^{-1} & -0.002^{-1} & -0.002^{-1} & -0.002^{-1} & -0.012^{+1} \\ & -0.012^{+1} & -0.002^{-1} & -0.002^{-1} & -0.002^{-1} & -0.012^{+1} \\ & -0.012^{+1} & -0.002^{-1} & -0.002^{-1} & -0.002^{-1} $	-0.043 ** (-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	-0.031 (-3.22) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005	-0.016 (-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046 0.41	-0.02 (-0.289) 6.679** (65.259) 99 0.188 YES 4 320	(-2.100) 6.438** (68.151) 100 0.416 YES	-0.0179) 5.376** (52.256) 106 0.424 YES		Constant Observations Adj. R^2 Season FE F-test Prob. 5
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(-10.427) 7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	(-5.282) 6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.302)	(-1.501) 6.889** (49.357) 89 0.076 YES 1.858 0.046	(-0.289) 6.679** (65.259) 99 0.188 YES 4.320	(-2.100) 6.438** (68.151) 100 0.416 YES	(-0.179) 5.376** (52.256) 106 0.424 YES		Constant Observations Adj. R^2 Season FE F-test Brob 2 5
Constant 5.376^{**} 6.438^{**} 6.679^{**} 6.899^{**} 6.999^{**} 7.411^{**} (52.256) (68.151) (65.259) (49.357) (61.156) (132.890) Observations 106 100 99 89 102 487 Adj. R^2 0.424 0.416 0.188 0.076 0.196 0.348 Season FE YES YES YES YES YES YES YES Prob > F 0.000 0.000 0.000 0.046 0.000 0.000 High Jump D-2 C-2 B-1 B-2 A-1 A-2 Senior Q2 -0.006 -0.018* -0.021 0.011 -0.004 -0.005 -0.045** (-0.670) (-1.713) (-1.222) (0.825) (-0.361) (-0.293) (-5.535) Q3 -0.051** -0.025 -0.034** -0.022* -0.028 -0.061** (-6.158) (-4.274) (-1.497) (-2.322) (-1.691) (-1.864) (-8.506) Q4 -0.051** -	7.411** (132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.064*	6.999** (61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.922)	6.889** (49.357) 89 0.076 YES 1.858 0.046	6.679** (65.259) 99 0.188 YES 4 320	6.438** (68.151) 100 0.416 YES	5.376** (52.256) 106 0.424 YES		Constant Observations Adj. R^2 Season FE F-test Prob > 5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	(132.890) 487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061** (-6.157)	(61.156) 102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.302)	(49.357) 89 0.076 YES 1.858 0.046 0.1	(65.259) 99 0.188 YES 4 320	(68.151) 100 0.416 YES	(52.256) 106 0.424 YES		Observations Adj. R^2 Season FE F-test Prob > 5
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	102 0.196 YES 5.436 0.000 A-2 Distance -0.005 (0.022)	89 0.076 YES 1.858 0.046	99 0.188 YES 4 320	100 0.416 YES	106 0.424 YES		Observations Adj. R^2 Season FE F-test Prob > 5
Observations 10b 100 99 89 102 487 Adj, R^2 0.424 0.416 0.188 0.076 0.196 0.348 Season FE YES Y	487 0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.335) -0.078** (-8.506) -0.061**	102 0.196 YES 5.436 0.000 A-2 Distance -0.005	0.076 YES 1.858 0.046	99 0.188 YES 4 320	0.416 YES	0.424 YES		Adj. R^2 Season FE F-test
Adj. K*2 0.424 0.415 0.188 0.076 0.196 0.348 Season FE YES YES YES YES YES YES YES YES YES F-test 14.156 12.024 4.320 1.858 5.436 14.639 Prob > F 0.000 0.000 0.000 0.046 0.000 0.000 High Jump D-2 C-2 B-1 B-2 A-1 A-2 Senior Distance Distance Distance Distance Distance Distance Distance Distance Distance O.025 -0.045** Q3 -0.051** -0.025 -0.034** -0.022* -0.039* -0.078** Q4 -0.051** -0.025 -0.034** -0.022* -0.028 -0.028* -0.028* Q4 -0.051** -0.025** -0.041** -0.018 -0.022 -0.028 -0.028* Q4 -0.051** -0.002** -0.004 -0.028 -0.028 -0.028* -0.012** Q4 -0.051** -0.002	0.348 YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	0.196 YES 5.436 0.000 A-2 Distance -0.005 (.0.302)	0.076 YES 1.858 0.046	0.188 YES 4 320	0.416 YES	0.424 YES		Adj. R^2 Season FE F-test Prob > 5
Season FE YES	YES 14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061* -0.064**	YES 5.436 0.000 A-2 Distance -0.005 (0.005)	YES 1.858 0.046	YES 4 320	YES	YES		Season FE F-test Brob > F
F-test 14.156 12.024 4.320 1.858 5.436 14.639 Prob > F 0.000 0.000 0.000 0.006 0.000 0.000 0.000 High Jump D-2 C-2 B-1 B-2 A-1 A-2 Senior Q2 -0.006 -0.018* -0.021 0.011 -0.004 -0.005 -0.045** Q3 -0.6701 (-1.713) (-1.222) (0.825) (-0.361) (-0.293) (-5.535) Q3 -0.052** -0.050** -0.025 -0.034** -0.029* -0.039* -0.078** Q4 -0.051** -0.050** -0.041** -0.018 -0.022 -0.028 -0.021** Q4 -0.051** -0.050** -0.041** -0.018 -0.022 -0.028 -0.061** Q4 -0.051** -0.050** -0.041** -0.018 -0.022 -0.028 -0.012** (c1branking -0.000 -0.002 -0.005** -0.012 (-1.572) (-1.602) (-1.513) (-6.166) clubranking -0.000 <th< td=""><td>14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**</td><td>5.436 0.000 A-2 Distance -0.005 (0.202)</td><td>1.858 0.046</td><td>4 320</td><td></td><td></td><td></td><td>F-test Prob > F</td></th<>	14.639 0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	5.436 0.000 A-2 Distance -0.005 (0.202)	1.858 0.046	4 320				F-test Prob > F
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	0.000 Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	0.000 A-2 Distance -0.005 (0.002)	0.046	HOED	12.024	14.156		Prob > F
High JumpD-2C-2B-1B-2A-1A-2SeniorDistanceDistanceDistanceDistanceDistanceDistanceDistanceDistanceQ.2-0.006-0.018*-0.0210.011-0.004-0.005-0.045** (-6.70) (-1.713) (-1.222) (0.825) (-0.361) (-0.293) -0.078**Q.3-0.032**-0.050**-0.025-0.034**-0.029*-0.039*-0.078**Q.4-0.051** $(-0.50*)$ (-1.479) (-1.479) (-2.322) (-1.691) (-1.864) (-8.506) Q.4-0.051**-0.051**-0.041**-0.018-0.022-0.028-0.061**(-6.158) (-4.274) (-2.491) (-1.572) (-1.602) (-1.554) (-6.166) clubranking-0.000-0.004**-0.002-0.005**-0.004-0.005*-0.012**(-0.164) (-2.571) (-9.222) (-2.022) (-1.128) (-1.723) (-8.988) Constant (-3.624) (-3.64) (-3.612) (5.866) (54.904) (53.787) (138.890)	Senior Distance -0.045** (-5.535) -0.078** (-8.506) -0.061**	A-2 Distance -0.005	۸_1	0.000	0.000	0.000		r100 / F
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Distance -0.045** (-5.535) -0.078** (-8.506) -0.061* -0.065*	Distance -0.005	A-1	B-2	B-1	C-2	D-2	High Jump
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	-0.045** (-5.535) -0.078** (-8.506) -0.061**	-0.005	Distance	Distance	Distance	Distance	Distance	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(-5.535) -0.078** (-8.506) -0.061**	(0.202)	-0.004	0.011	-0.021	-0.018*	-0.006	Q2
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	-0.078** (-8.506) -0.061**	(-0.293)	(-0.361)	(0.825)	(-1.222)	(-1.713)	(-0.670)	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	(-8.506) -0.061**	-0.039*	-0.029*	-0.034**	-0.025	-0.050**	-0.032**	Q3
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	-0.061**	(-1.864)	(-1.691)	(-2.322)	(-1.497)	(-4.795)	(-3.287)	
(-6.158) (-4.274) (-2.491) (-1.572) (-1.602) (-1.554) (-6.166) clubranking -0.000 -0.004** -0.002 -0.005** -0.004 -0.005* -0.012** (-0.164) (-2.571) (-0.222) (-2.022) (-1.128) (-1.723) (-8.988) Constant 1.586** 1.840** 1.929** 1.939** 1.946** 2.003** 2.150** (33.261) (93.496) (36.123) (55.886) (54.904) (53.787) (138.890)	10,000	-0.028	-0.022	-0.018	-0.041**	-0.050**	-0.051**	Q4
clubranking -0.000 -0.004** -0.002 -0.005** -0.004 -0.012** (-0.164) (-2.571) (-0.929) (-2.022) (-1.128) (-1.723) (-8.988) Constant 1.586** 1.840** 1.929** 1.939** 1.946** 2.003** 2.150** (33.261) (93.496) (36.123) (55.886) (54.904) (53.787) (138.890)	(-6.166)	(-1.554)	(-1.602)	(-1.572)	(-2.491)	(-4.274)	(-6.158)	
Constant 1.586** 1.840** 1.929** 1.939** 1.946** 2.003* 2.150** (83.261) (93.496) (36.123) (65.886) (54.904) (53.787) (138.890)	-0.012**	-0.005*	-0.004	-0.005**	-0.002	-0.004**	-0.000	clubranking
Constant 1.586** 1.840** 1.929** 1.939** 1.946** 2.03** 2.150** (83.261) (93.496) (36.123) (65.886) (54.904) (53.787) (138.890)	(-8 988)	(-1 723)	(-1 128)	(-2 022)	(-0 922)	(-2 571)	(-0.164)	
(83,261) (93,496) (36,123) (55,886) (54,904) (53,787) (138,890)	2 150**	2.003**	1.946**	1.939**	1 979**	1 840**	1 586**	Constant
(03.201) (33.430) (30.123) (03.000) (34.904) (35.767) (138.890)	/120 2001	(52 797)	(54 004)	(65 886)	(26 172)	(02 /06)	(22 261)	Sonstant
	(130.090)	(33.767)	(34.504)	(03.860)	(30.123)	(33.490)	(03.201)	
Observations 227 205 93 135 87 84 259	358	84	87	135	93	205	227	Observations
Adi R/2 0.2010 0.100 0.102 0.400 0.070 0.022 0.400	0 /07	0.032	0.079	0.180	0.128	0 120	0 210	Adi RA2
royon 2 0.210 0.120 0.120 0.100 0.100 0.079 0.032 0.497 Concent EL VEC VEC VEC VEC VEC VEC VEC VEC	0.457 VEC	0.03Z	0.075 VEC	0.100	U.120	0.120 VEC	0.210 VEC	Socon EF
Decount 15 15 15 15 15 15 15 15 15 15 15 15 15	110	1 262	7 257	2 774	2 440	2 240	1 E J E 07E	E-tost
Press 5.0/3 5.249 2.449 5.724 2.557 1.502 1.7375	17.975	1.302	2.357	5.724	2.449	5.249	5.075	F-LESL
Prob > F 0.000 0.000 0.000 0.009 0.196 0.000	0.000	0.196	0.009	0.000	0.006	0.000	0.000	Prob > F
Pole Vault C-Z B-Z A-1 A-Z Senior	Senior	A-2	A-1	B-2	C-2			Pole Vault
Distance Distance Distance Distance Distance Distance	Distance	Distance	Distance	Distance	Distance			
Q2 -0.196* -0.046 -0.050 0.023 -0.150**	-0.150**	0.023	-0.050	-0.046	-0.196*			Q2
(-1.811) (-0.515) (-0.515) (0.202) (-3.483)	(-3.483)	(0.202)	(-0.515)	(-0.515)	(-1.811)			
Q3 -0.267** -0.086 -0.082 -0.173 -0.302**	-0.302**	-0.173	-0.082	-0.086	-0.267**			Q3
(-2.452) (-0.798) (-0.705) (-1.617) (-7.303)	(-7.303)	(-1.617)	(-0.705)	(-0.798)	(-2.452)			
Q4 -0.680** -0.166 -0.324** -0.337** -0.410**	-0.410**	-0.337**	-0.324**	-0.166	-0.680**			Q4
(-5.941) (-1.541) (-2.899) (-2.666) (-9.326)	(-9.326)	(-2.666)	(-2.899)	(-1.541)	(-5.941)			
clubranking -0.024 -0.028** -0.044** -0.073** -0.083**	-0.083**	-0.073**	-0.044**	-0.028**	-0.024			clubranking
(-1.599) (-3.022) (-3.711) (-5.205) (-13.546)	(-13.546)	(-5.205)	(-3.711)	(-3.022)	(-1.599)			_
Constant 3.531** 4.176** 4.431** 4.698** 5.206**	5.206**	4.698**	4.431**	4.176**				-
(17,912) (25,513) (32,519) (28,778) (61,163)	(61,163)	(28,778)	(32,519)		3.531**			- Constant
	()	(<i>y</i>	()	(25.513)	3.531** (17.912)			Constant
Observations 81 109 107 79 488	488			(25.513)	3.531** (17.912)			Constant
Adi, R^2 0.363 0.117 0.240 0.446 0.527	0 5 2 7	79	107	(25.513) 109	3.531** (17.912) 81			- Constant Observations
VES VES VES VES VES	0.527	79 0.446	107 0.240	(25.513) 109 0.117	3.531** (17.912) 81 0.363			- Constant Observations Adj. R^2
	VES	79 0.446 YES	107 0.240 YES	(25.513) 109 0.117 YES	3.531** (17.912) 81 0.363 YES			- Constant Observations Adj. R^2 Season FE
E-test 5,737 2,093 3,698 5,826 25,850	V.527 YES 25.850	79 0.446 YES 5.826	107 0.240 YES 3.698	(25.513) 109 0.117 YES 2.093	3.531** (17.912) 81 0.363 YES 5.737			- Constant Observations Adj. R^2 Season FE F-test
F-test 5.737 2.093 3.698 5.826 25.850 Prob F 0.000 0.019 0.000 0.000	YES 25.850 0.000	79 0.446 YES 5.826 0.000	107 0.240 YES 3.698 0.000	(25.513) 109 0.117 YES 2.093 0.019	3.531** (17.912) 81 0.363 YES 5.737 0.000			Constant Observations Adj. R^2 Season FE F-test Prob > F
F-test 5.737 2.093 3.698 5.826 25.850 Prob > F 0.000 0.019 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Segior	V.527 YES 25.850 0.000	79 0.446 YES 5.826 0.000	107 0.240 YES 3.698 0.000	(25.513) 109 0.117 YES 2.093 0.019 B-2	3.531** (17.912) 81 0.363 YES 5.737 0.000	D-2		Constant Observations Adj. R^2 Season FE F-test Prob > F
F-test 5.737 2.093 3.698 5.826 25.850 Prob > F 0.000 0.019 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior	V.527 YES 25.850 0.000 Senior	79 0.446 YES 5.826 0.000 A-2 Distance	107 0.240 YES 3.698 0.000 A-1 Dictance	(25.513) 109 0.117 YES 2.093 0.019 B-2 Dictorso	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance	D-2 Dictance		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin
F-test 5.737 2.093 3.698 5.826 25.850 Prob > F 0.000 0.019 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior Distance <	0.327 YES 25.850 0.000 Senior Distance 0.436	79 0.446 YES 5.826 0.000 A-2 Distance 0.620	107 0.240 YES 3.698 0.000 A-1 Distance 0.100	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance 0.270	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326	D-2 Distance		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin
F-test 5.737 2.093 3.698 5.826 25.850 Prob > F 0.000 0.019 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior Distance <	VES 25.850 0.000 Senior Distance 0.436	79 0.446 YES 5.826 0.000 A-2 Distance 0.630	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.000)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (0.952)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (2.200)	D-2 Distance 0.506		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2
F-test 5.737 2.093 3.698 5.826 25.850 Prob > F 0.000 0.019 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior Distance <	VES 25.850 0.000 Senior Distance 0.436 (0.831)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) 0.25	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) 1.002	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) 1.600	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) 0.255**	D-2 Distance 0.506 (0.551)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2
F-test 5.737 2.093 3.698 5.826 25.850 Prob > F 0.000 0.019 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior Distance Distance Distance Distance Distance Distance Distance Distance 0.436 0.436 0.435 0.435 0.8311 0.4351 0.4351 0.630 0.436 Q3 -3.774** -3.559** -1.606 -1.933 -2.391* -3.470**	0.327 YES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (4.75)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (1.957)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (4.022)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (2.302)	D-2 Distance 0.506 (0.551) -3.774**		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3
B-control Icontrol <	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.725)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) A (-6.255)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) - 0.372*	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) (-3.220)	D-2 Distance 0.506 (0.551) -3.774** (-4.123)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3
B-control Icb	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962**	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-0.021)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-0.271)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-5.120)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.331**		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4
B-control Icontrol <	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) (-3.685)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4
Best of L2 L3 L3 <thl3< th=""> L3 <thl3< th=""> <thl3< th=""> <thl3< th=""> L4</thl3<></thl3<></thl3<></thl3<>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906**	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638**	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking
B-contributionFibFi	V527 YES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322**	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907**	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114**	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499**	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683**		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant
B-contribution Instruction Instruction </td <td>0.527 YES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858)</td> <td>79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119)</td> <td>107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489)</td> <td>(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835)</td> <td>3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845)</td> <td>D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333)</td> <td></td> <td>Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant</td>	0.527 YES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant
Description Instructure	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant
Description 113	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.905	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 88	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 -3.455	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations
Description Instructure	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118	3.531** (17.912) 81 0.363 YES 5.737 0.000 C2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2
Description First	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test
Description Instructure Instructure <thinstructure< th=""></thinstructure<>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F
Description Instructure	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put
DecompositionInstructI	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477**	79 0.446 VES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 VES 5.028 0.000 A-2 Distance 0.179	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861**	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778**	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300**		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3
Description 1/23 1/25 1/25 1/25 1/25 1/25 1/25 Prob > F 0.000 0.001 0.000 0.000 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior Q2 0.506 0.326 -0.370 0.109 0.630 0.436 Q3 -3.774** -1.606 1.933 -2.391* -3.470** Q4 (-4.123) (-3.120) (-1.029) (-1.255) (-1.725) (-5.513) Q4 -5.331** -4.842** -5.072** -4.619** -4.962** -4.030** (-4.123) (-3.120) (-1.029) (-1.255) (-1.725) (-5.513) Q4 -5.331** -4.842** -5.072** -4.619*** -4.962** -4.030** (-bbranking -0.235 -0.150 -0.288 -0.638** -0.906** -1.017** (-0.stant (3.683** 5.0409** 60.114** 59.907** 60.322** 68.374** Constant (2.333) (28.45) (18.835)	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 VES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300** (-5.566)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3
Description 11.5 <td>VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317**</td> <td>79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929**</td> <td>107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.49) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100**</td> <td>(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301**</td> <td>3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397**</td> <td>D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300** (-5.566) -1.318**</td> <td></td> <td>Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4</td>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929**	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.49) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100**	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301**	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397**	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300** (-5.566) -1.318**		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4
Decision L 1.25 <td>VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655)</td> <td>79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.000</td> <td>107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796)</td> <td>(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717)</td> <td>3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606)</td> <td>D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.310** (-5.566) -1.318** (-4.980)</td> <td></td> <td>Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4</td>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.000	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.310** (-5.566) -1.318** (-4.980)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142*	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096*	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300** (-5.566) -1.318** (-4.980) 0.022		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking
Decompt 1.63 1.62 1.65	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300** (-11.396)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142* (-5.65)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.493) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.318** (-4.980) 0.022 (0.554)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking
Decomplexity 1.23 1.24 1.25 1.25 1.25 1.25 Prides F 0.000 0.019 0.000 0.000 0.000 0.000 Javelin D-2 C-2 B-2 A-1 A-2 Senior Q2 0.506 0.326 -0.370 0.109 0.630 0.436 Q3 -3.774** -3.559** -1.606 -1.933 -2.391* -3.470** Q4 -5.331** -4.842** -5.072** -4.619** -4.962** -4.030** Cubranking -0.235 -0.150 -0.288 -0.638* -0.908** -1.017* Cubranking -0.235 -0.150 -0.288 -0.638* -0.908** -1.017* Constant 4.368** 50.499** 60.114** 59.907** 60.322** 68.374** Constant 100 104 73 88 128 476 Adj. R^2 0.337 0.279 0.118 0.193 0.301 0.429 Season FE YES YES YES YES YES S0.2	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-11.655) -0.300** (-11.396) 17.517**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702**	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386**	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017) 14.451**	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.310** (-5.566) -1.318** (-4.980) 0.022 (0.554) 12.530**		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant
Predext 1.03 1.01 1.03 1.01 1.03 1.01 1.03 1.01 1.03 1.01 1.03 1.01 1.03 1.01 1.03 1.03 1.03 1.03	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300** (-11.396) 17.517**	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142* (-1.665) 15.391** (11.380)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702** (33.343)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386** (27.61)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017) 14.451** (-273)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.318** (-4.980) 0.022 (0.554) 12.530** (24.312)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Q2 Q3 Q4 clubranking
Predet 1.03 1.04 1.03 1.03 1.04 1.03 1.03 1.04 1.03 1.03 1.04 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.03 <th1.03< th=""> 1.03 1.03</th1.03<>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300** (-11.396) 17.517** (61.624)	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142* (-565) 15.391** (11.382)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.409) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702** (33.343)	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386** (22.061)	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017) 14.451** (27.132)	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300** (-5.566) -1.318** (-4.980) 0.022 (0.554) 12.530** (24.312)		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking C03 constant
Decomposition First First <thfirst< th=""> First <thfirst< th=""></thfirst<></thfirst<>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-1.3798) -0.342** (-2.571) -1.317** (-1.1396) 17.517** (61.624) 685	79 0.446 VES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 VES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142* (-1.655) 15.391** (-1.652) 15.391** (-1.652)	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702** (33.343) 84	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386** (22.061) 69	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017) 14.4551** (27.132) 92	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.310** (-5.566) -1.318** (-4.980) 0.022 (0.554) 12.530** (24.312) 96		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Q2 Season FE F-test Prob > F
Decomposition 100	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300** (-11.396) 17.517** (61.624) 685 0.440	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142* (-1.665) 15.391** (11.382) 116 0,120	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702** (33.343) 84 0.174	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386** (22.061) 69 0.162	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.891) -1.397** (-2.7132) 92 0.278	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.300** (-5.566) -1.318** (-4.980) 0.022 (0.554) 12.530** (24.312) 96 0.306		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2
Line 100 100 100 100 100 100 100 100 100 100 100 1000	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300** (-11.396) 17.517** (61.624) 685 0.440 YES	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.000 A-2 Distance 0.179 (0.422) -0.658 (-1.404) -0.929** (-2.012) -0.142* (-1.655) 15.391** (11.382) 116 0.120 YES	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702** (33.343) 84 0.174 YES	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (-1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386** (22.061) 69 0.162 YFS	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017) 14.451** (27.132) 92 0.228 YES	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.318** (-4.980) 0.022 (0.554) 12.530** (24.312) 96 0.306 YES		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant
Description 1.2.5 1.2.6 <th1.2.6< th=""></th1.2.6<>	VES 25.850 0.000 Senior Distance 0.436 (0.831) -3.470** (-5.513) -4.030** (-5.513) -4.030** (-6.864) -1.017** (-10.196) 68.374** (53.858) 476 0.429 YES 23.066 0.000 Senior Distance -0.477** (-3.798) -0.342** (-2.571) -1.317** (-10.655) -0.300** (-11.396) 17.517** (61.624) 685 0.440 YES 24.667	79 0.446 YES 5.826 0.000 A-2 Distance 0.630 (0.495) -2.391* (-1.725) -4.962** (-4.402) -0.906** (-3.280) 60.322** (20.119) 128 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 0.301 YES 5.028 (-1.404) -0.929** (-2.012) -0.142* (-1.665) 15.391** (11.382) 116 0.120 YES 3.829	107 0.240 YES 3.698 0.000 A-1 Distance 0.109 (0.090) -1.933 (-1.255) -4.619** (-4.084) -0.638** (-2.249) 59.907** (18.489) 88 0.193 YES 3.455 0.000 A-1 Distance 0.084 (0.215) -0.861** (-2.465) -1.100** (-2.796) -0.032 (-0.922) 13.702** (33.343) 84 0.174 YES 5.248	(25.513) 109 0.117 YES 2.093 0.019 B-2 Distance -0.370 (-0.264) -1.606 (1.029) -5.072** (-3.685) -0.288 (-1.325) 60.114** (18.835) 73 0.118 YES 3.276 0.001 B-2 Distance 0.516 (1.439) -0.191 (-0.442) -1.301** (-2.717) -0.096* (-1.917) 16.386** (22.061) 69 0.162 YES 2.539	3.531** (17.912) 81 0.363 YES 5.737 0.000 C-2 Distance 0.326 (0.286) -3.559** (-3.120) -4.842** (-4.073) -0.150 (-0.871) 50.499** (28.845) 104 0.279 YES 7.153 0.000 C-2 Distance -0.132 (-0.494) -0.778** (-2.891) -1.397** (-4.606) 0.001 (0.017) 14.451** (27.132) 92 0.228 YES 3.909	D-2 Distance 0.506 (0.551) -3.774** (-4.123) -5.331** (-5.275) -0.235 (-1.580) 43.683** (22.333) 100 0.337 YES 7.027 0.000 D-2 Distance -0.120 (-0.430) -1.310** (-5.566) -1.318** (-4.980) 0.022 (0.554) 12.530** (24.312) 96 0.306 YES 5.482		Constant Observations Adj. R^2 Season FE F-test Prob > F Javelin Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F

Disc Throw						
	n_7	C-2	B-2	Δ-1	Δ-2	Senior
	D-2	C-2	D-2	A-1	A-Z	Senior
	Distance	Distance	Distance	Distance	Distance	Distance
Q2	-1.826*	-2.438**	-1.777	-2.028	-1.435	-2.477**
	(-1.907)	(-2.571)	(-1.291)	(-1.369)	(-0.906)	(-5.741)
03	4 707**	4 527**	2 069**	4 217**	4 226**	1 1/6**
43	-4.757	-4.557	-3.508	-4.317	-4.220	-1.140
	(-6.983)	(-5.014)	(-2.637)	(-2.318)	(-2.379)	(-2.328)
Q4	-5.317**	-5.748**	-5.247**	-4.933**	-3.243*	-2.040**
	(-6.575)	(-5.905)	(-3.247)	(-3.037)	(-1.762)	(-4,480)
clubranking	0 122	0.050	0.072	0.204	1 004**	1 025**
CIUDIAIIKIIIg	0.133	0.030	0.073	-0.204	-1.094	-1.025
	(0.997)	(0.510)	(0.381)	(-1.067)	(-2.881)	(-10.804)
Constant	32.596**	48.227**	47.670**	43.440**	53.469**	54.736**
	(17.746)	(30.696)	(16.766)	(18.746)	(10.105)	(53.042)
Observations	100	92	72	77	84	789
Adi BA2	0 336	0 345	0 131	0.080	0.247	0 364
Season FF	0.550 VEC	0.545 VEC	VEC	VES	VEC	VFC
Season FE	YES	YES	YES	YES	YES	YES
F-test	8.610	6.453	2.636	4.249	4.003	14.531
Prob > F	0.000	0.000	0.005	0.000	0.000	0.000
Hurdles Short	D-2	C-2	B-2	A-1	A-2	Senior
	Time	Time	Time	Time	Time	Time
	111116	111110	11116	Time	11116	0.010
Q2	0.001	0.177*	0.165	0.244	0.208	0.019
	(0.008)	(1.756)	(1.347)	(1.477)	(1.393)	(0.385)
03	0.487**	0.500**	0.338**	0.376**	0.577**	0.014
	(6 12E)	(E 228)	(2,612)	(2,420)	(2,006)	(0.254)
	(0.125)	(3.220)	(2.015)	(2.439)	(2.330)	(0.254)
Q4	0.747**	0.913**	0.950**	0.745**	0.801**	0.470**
	(6.797)	(10.658)	(6.453)	(5.467)	(5.457)	(7.162)
clubranking	-0.001	0.002	0.029*	0.073**	0.070**	0.120**
	(_0.000)	(0.247)	(1 782)	(2 955)	(2 500)	(1/ 2/2)
Constant	(-0.090)	(0.247)	(1./03)	(2.333)	(2.330)	(14.348)
Constant	12.481**	13.833**	14.570**	14.66/**	14.191**	14.204**
	(67.460)	(93.313)	(60.395)	(52.071)	(40.065)	(135.070)
Observations	86	85	85	116	112	508
Adi, R^2	0 560	0.586	0 394	0 181	0 154	0 504
Conson FF	0.500	0.000	0.334 VEC	0.101	0.1J4	0.504
SeaSON FE	YES	TES	YES	TES	YES	YES
F-test	15.289	13.576	6.637	4.814	3.876	30.174
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000
Enrint	D 2	63	P 2	A 1	A 2	Conior
Sprint	D-2	C-2	B-2	A-1	A-2	Senior
	Time	Time	Time	Time	Time	Time
Q2	0.099*	0.198**	0.234**	0.143**	0.100	0.015
	(1.699)	(3.552)	(3,463)	(2.581)	(1.655)	(0.650)
02	0.200**	0.200**	0.174**	0 171**	0.127**	0.006
43	0.399	0.290	0.174	0.171	0.137	-0.006
	(6.614)	(4.500)	(3.115)	(2.868)	(2.212)	(-0.215)
Q4	0.650**	0.402**	0.368**	0.276**	0.337**	0.157**
	(12.028)	(6.614)	(6.647)	(4.414)	(5.723)	(6.747)
clubranking	0.002	0.004	0.005	0.022**	0.025**	0.022**
Ciubranking	-0.003	0.004	0.003	0.023	0.023	0.032
	1113031	(0.387)	(0.458)	(2.984)	(3.729)	(12.171)
	(=0.282)	(0.000)				
Constant	10.089**	11.356**	11.123**	10.841**	10.825**	10.620**
Constant	(-0.282) 10.089** (74.216)	11.356** (101.639)	11.123** (87.427)	10.841** (113.794)	10.825** (113.594)	10.620** (276.424)
Constant	(~0.282) 10.089** (74.216)	11.356** (101.639)	11.123** (87.427)	10.841** (113.794)	10.825** (113.594)	10.620** (276.424)
Constant	(~0.202) 10.089** (74.216) 88	(10007) 11.356** (101.639) 84	11.123** (87.427) 88	10.841** (113.794) 110	10.825** (113.594) 119	10.620** (276.424) 686
Constant Observations	(*0.252) 10.089** (74.216) 88	11.356** (101.639) 84	11.123** (87.427) 88	10.841** (113.794) 110 0.264	10.825** (113.594) 119 0.202	10.620** (276.424) 686 0.218
Constant Observations Adj. R^2	(*0.222) 10.089** (74.216) 88 0.612	11.356** (101.639) 84 0.443	11.123** (87.427) 88 0.305	10.841** (113.794) 110 0.264	10.825** (113.594) 119 0.393	10.620** (276.424) 686 0.318
Constant Observations Adj. R^2 Season FE	(*0.282) 10.089** (74.216) 88 0.612 YES	11.356** (101.639) 84 0.443 YES	11.123** (87.427) 88 0.305 YES	10.841** (113.794) 110 0.264 YES	10.825** (113.594) 119 0.393 YES	10.620** (276.424) 686 0.318 YES
Constant Observations Adj. R^2 Season FE F-test	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252	11.356** (101.639) 84 0.443 YES 7.414	11.123** (87.427) 88 0.305 YES 6.690	10.841** (113.794) 110 0.264 YES 4.325	10.825** (113.594) 119 0.393 YES 7.845	10.620** (276.424) 686 0.318 YES 21.034
Constant Observations Adj. R^2 Season FE F-test Prob > F	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000	11.123** (87.427) 88 0.305 YES 6.690 0.000	10.841** (113.794) 110 0.264 YES 4.325 0.000	10.825** (113.594) 119 0.393 YES 7.845 0.000	10.620** (276.424) 686 0.318 YES 21.034 0.000
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Loop	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000	11.123** (87.427) 88 0.305 YES 6.690 0.000 8-2	10.841** (113.794) 110 0.264 YES 4.325 0.000	10.825** (113.594) 119 0.393 YES 7.845 0.000	10.620** (276.424) 686 0.318 YES 21.034 0.000
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315*
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2 01***	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.12**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.02***
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.002)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (2.212)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (2.201)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (f. 600)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729**	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.67	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.936) 0.331**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.40**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.952)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.66 a)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.292)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.023)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.335) 0.409** (1.372)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (7.356) 0.409** (13.373)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675**	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (3.5.173)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.5215)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (3.1008)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 5.1.129** (13.151)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.5.215)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.566	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.16°	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.212	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.784	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.5.215) 92 0.210 YES 2.780 0.002	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (13.151) 438 0.460 YES 23.752 0.000
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.3346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A.1	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 0.000	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000 D-2 T	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.5.215) 92 0.210 YES 2.780 0.002 A-1	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000 D-2 Time	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.219) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000 D-2 Time -0.167	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131**	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.52.15) 92 0.210 YES 2.780 0.002 A-1 Time 1.149**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2	(*0.262) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1995)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q2	(-0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000 D-2 Time -0.167 (-0.129) 0.023**	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.43**	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1 core**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.20**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3	(*0.262) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191*	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.5215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3	(-0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4	(*0.262) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.18***	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826**	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.5.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.73
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.726 VES 10.841 0.000 C-2 Time 0.77** (4.093) 3.182** (2.215)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.921)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (13.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.704)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.700 (0.061) 4.077** (4.093) 3.182** (2.315)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.5.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking C03 Q4 Clubranking	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.411) 0.082	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452**
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 clubranking	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.962)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125 040**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116 09***	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112 sec**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.664) 0.297** (2.962) 110 402**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (13.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295) 109 cose*
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant	(0.282)* 10.089** (74.216) 88 0.612 YES 15.252 0.000 Time -0.167 (-0.129) 3.463** (2.502) 5.941** (4.117) 0.197 (0.783) 93.764**	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940**	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (2.897)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950**	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.226) 1.673** (2.664) 0.297** (2.662) 1.11.042**	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295) 108.589**
Constant Observations Adj. R^2 Season FE F-test Prob > F Uurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.540** (34.739)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.5215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950** (85.881)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (3.1008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.664) 0.297** (2.664) 0.297** (2.664) 0.297** (2.662) 111.042** (84.100)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.95) 108.589** (193.613)
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant	(-0.282)* 10.089** (74.216) 88 0.612 YES 15.252 0.000 Time -0.167 (-0.129) 3.463** (2.502) 5.941** (4.117) 0.197 (0.783) 93.764** (34.446)	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940** (34.739)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950** (85.881)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.962) 111.042** (84.100)	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295) 108.589** (193.613)
Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant Observations	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940** (34.739)	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996)	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.5.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950** (85.881)	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.962) 111.042** (84.100) 148	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295) 108.589** (193.613)
Constant Observations Adj. R^2 Season FE F-test Furdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 clubranking Constant Observations Adj. R^2	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940** (34.739) 132 0.235	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996) 112 0.012	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950** (85.881) 137 0.241	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.926) 1.673** (2.964) 0.297** (2.962) 111.042** (84.100) 148 0.212	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (131.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.95) 108.589** (193.613) 701 0.339
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.056 YES 10.841 0.000 C-2 Time 0.070 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940** (34.739) 132 0.235 VEC	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996) 112 0.012 VEC	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.5215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950** (85.881) 137 0.241 Vycc	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.962) 11.042** (84.100) 148 0.212 VEC	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (13.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.25) 108.589** (193.613) 701 0.339 VEC
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F	(*0.282) 10.089** (74.216) 88 0.612 YES 15.252 0.000	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.777* (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940** (34.739) 132 0.235 YES	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996) 112 0.012 YES	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.932) 0.405** (2.282) 52.860** (25.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.411) 0.082 (0.904) 112.950** (85.881) 137 0.241 YES	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (2.221) 3.128** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.664) 0.297** (2.664) 0.297** (2.664) 0.297** (2.664) 0.297** (2.962) 111.042** (84.100) 148 0.212 YES	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (5.003) 1.902** (13.373) 51.129** (13.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295) 108.589** (193.613) 701 0.339 YES
Constant Observations Adj. R^2 Season FE F-test Prob > F Hurdles Long Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Middel Distance Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F	(0.282)** 10.089** (74.216) 88 0.612 YES 15.252 0.000 Time -0.167 (-0.129) 3.463** (2.502) 5.941** (4.117) 0.197 (0.783) 93.764** (34.446) 40 0.379 YES 7.541	11.356** (101.639) 84 0.443 YES 7.414 0.000 C-2 Time 0.726** (2.426) 2.542** (7.063) 3.548** (9.350) 0.056 (0.852) 40.746** (50.517) 105 0.506 YES 10.841 0.000 C-2 Time 0.770 (0.061) 4.077** (4.093) 3.182** (2.315) -0.317 (-1.344) 125.940** (34.739) 132 0.235 YES 3.136	11.123** (87.427) 88 0.305 YES 6.690 0.000 B-2 Time 0.300 (0.420) 2.918** (3.346) 2.729** (3.338) 0.067 (0.684) 54.675** (35.173) 84 0.168 YES 2.414 0.008 B-2 Time 1.131** (2.067) 1.191* (1.840) 1.826** (2.897) 0.026 (0.341) 116.985** (119.996) 112 0.012 YES 1.174	10.841** (113.794) 110 0.264 YES 4.325 0.000 A-1 Time 1.464** (2.196) 3.557** (4.281) 2.213** (2.932) 0.405** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.282) 52.860** (2.215) 92 0.210 YES 2.780 0.002 A-1 Time 1.149** (1.995) 2.761** (5.142) 2.557** (4.441) 0.082 (0.904) 112.950** (85.881) 137 0.241 YES 4.372	10.825** (113.594) 119 0.393 YES 7.845 0.000 A-2 Time 1.587** (3.946) 3.857** (3.946) 3.857** (3.930) 0.391** (2.013) 51.311** (31.008) 84 0.284 YES 4.714 0.000 A-2 Time 0.587 (1.080) 1.596** (2.926) 1.673** (2.664) 0.297** (2.962) 111.042** (84.100) 148 0.212 YES 2.844	10.620** (276.424) 686 0.318 YES 21.034 0.000 Senior Time 0.315* (1.835) 0.925** (5.003) 1.902** (7.356) 0.409** (13.373) 51.129** (13.151) 438 0.460 YES 23.752 0.000 Senior Time 0.489** (2.113) 1.306** (5.271) 0.173 (0.794) 0.452** (12.295) 108.589** (193.613) 701 0.339 YES 16.060

Long Distance	D-2	C-2	B-2	B-1	A-1	A-2	Senior
	Time						
Q2	2.093**	-0.918	0.971	-0.099	-2.508*	0.853	-1.221**
	(2.305)	(-0.549)	(0.624)	(-0.070)	(-1.758)	(0.571)	(-2.327)
Q3	6.595**	4.462**	1.184	0.163	0.045	1.130	1.115**
	(6.177)	(2.610)	(0.802)	(0.102)	(0.035)	(0.785)	(1.999)
Q4	8.476**	5.646**	3.994**	4.086**	1.190	2.457	-1.562**
	(8.303)	(3.540)	(2.028)	(2.687)	(0.796)	(1.523)	(-3.095)
clubranking	-0.173	0.001	0.267	0.524**	0.502**	0.934**	1.012**
	(-1.012)	(0.005)	(1.209)	(2.930)	(2.266)	(3.766)	(12.996)
Constant	174.796**	262.785**	247.517**	243.674**	240.546**	231.181**	225.902**
	(78.505)	(92.561)	(84.426)	(103.885)	(78.129)	(66.180)	(205.037)
Observations	108	148	65	116	136	168	676
Adj. R^2	0.518	0.116	0.121	0.090	0.106	0.129	0.346
Season FE	YES						
F-test	12.353	2.761	5.818	2.245	2.148	2.145	18.223
Prob > F	0.000	0.001	0.000	0.011	0.014	0.012	0.000

Note: Robust t-statistics are indicated between brackets. **p<0.05, *p<0.1. Each top row of the sub tables consists of the discipline followed by the age category, in which the number is a year indicator (i.e. 1 means first year athletes, 2 means second year athletes).

Table A4b: estimation results for female athletes, complete table

		D-2	C-2	B-1	B.2	Δ-1	Senior
Long Jump		Distance	Distance	Distance	Distance	Distance	Distance
02		Distance	Distance	Distance	Distance	Distance	Distance
Q2		-0.111**	0.038	-0.005	0.088	0.099	0.209**
		(-2.569)	(0.786)	(-0.082)	(1.337)	(1.616)	(6.545)
Q3		-0.184**	-0.063	-0.084	0.039	0.043	0.116**
		(-4.235)	(-1.354)	(-1.423)	(0.676)	(0.861)	(3.309)
Q4		-0.236**	-0.080*	-0.041	0.035	-0.026	0.155**
		(-3.819)	(-1 743)	(-0.589)	(0 533)	(-0.411)	(3 764)
clubranking		0.002	0.006	0.000	0.019*	0.025**	0.042**
Clubratiking		0.005	-0.006	-0.009	-0.018	-0.035	-0.042
		(0.552)	(-1.138)	(-1.103)	(-1.949)	(-3.987)	(-8.388)
Constant		4.990**	5.265**	5.456**	5.604**	5.816**	5.812**
		(71.255)	(75.217)	(51.113)	(37.784)	(44.767)	(82.426)
Observations		89	113	80	76	84	282
Adj. R^2		0.172	0.078	-0.030	0.059	0.314	0.395
Season FF		YES	YES	YES	YES	YES	YES
E-test		3 054	1 700	0.0/1	0.051	3 406	12 0/2
Brob > E		0.001	0.051	0.541	0.551	0.000	0.000
FIDD > F		0.001	0.031	0.321	0.312	0.000	0.000
High Jump	D-2	C-1	C-2	B-1	B-2	A-2	Senior
	Distance	Distance	Distance	Distance	Distance	Distance	Distance
Q2	0.002	-0.009	-0.015**	0.002	0.030**	0.014	0.067**
	(0.241)	(-0.714)	(-1.979)	(0.142)	(2.274)	(0.804)	(7.152)
03	-0.045**	-0.041**	-0.010	-0.011	0.003	0.027	0.024**
45	(6 207)	(1 110)	(1172)	(0.059)	(0.221)	(1 627)	(2 772)
	(-0.207)	(-4.110)	(-1.1/2)	(-0.558)	(0.231)	(1.037)	(2.773)
Q4	-0.057**	-0.039**	-0.011	-0.014	0.022	-0.023	0.032***
	(-6.971)	(-3.188)	(-1.203)	(-0.956)	(1.228)	(-1.419)	(3.077)
clubranking	-0.000	0.001	-0.003**	-0.011*	-0.005	-0.014**	-0.011**
	(-0.215)	(0.563)	(-2.175)	(-1.726)	(-1.473)	(-5.880)	(-8.813)
Constant	1.529**	1.592**	1.641**	1.743**	1.704**	1.788**	1.749**
	(92 981)	(82 100)	(86 202)	(24 724)	(39 910)	(63 034)	(78 787)
	(22.301)	(02.100)	(00.202)	(24./24)	(33.310)	(03.054)	(10.101)
Observations	221	07	220	96	07	76	221
	221	02	230	00	02	/0	231
Adj. R^2	0.263	0.286	0.084	0.196	0.166	0.489	0.602
Season FE	YES	YES	YES	YES	YES	YES	YES
F-test	8.285	4.308	4.175	10.175	4.721	8.105	35.960
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000
lavalin	0.000	0.000	<u> </u>	B 2	A 1	A 2	Sonior
Javenn		D-2	C-2	B-2	A-1	A-2	Sellion
		Distance	Distance	Distance	Distance	Distance	Distance
Q2		-1.190	-0.271	0.700	0.556	0.921	1.003
		(-1.372)	(-0.320)	(0.555)	(0.499)	(0.805)	(1.481)
Q3		-4.127**	-3.772**	-1.384	-2.952**	-0.724	-0.380
		(-7.055)	(-3 736)	(-1 127)	(-2.420)	(-0.627)	(-0.536)
01		(-7.033)	4.020**	(-1.127)	(-2.420)	2 102**	2 427**
Q4		-4.202	-4.020	-1.050	-2.001	-5.102	-2.427
		(-7.520)	(-4.895)	(-1.228)	(-2.606)	(-2.467)	(-3.169)
clubranking		-0 117	0 102	0 40 4**	1 046**	-1 133**	-0 952**
8		0.117	=0.192	-0.494	-1.046	1.155	0.552
		(-0.998)	(-1.620)	(-2.638)	(-5.895)	(-4.325)	(-9.569)
Constant		(-0.998) 34.210**	-0.152 (-1.620) 38 298**	-0.494** (-2.638) 44.176**	-1.046 (-5.895) 50 344**	(-4.325)	(-9.569) 51 746**
Constant		(-0.998) 34.210** (22.090)	-0.192 (-1.620) 38.298** (19.153)	-0.494** (-2.638) 44.176** (13.953)	(-5.895) 50.344** (21.148)	(-4.325) 49.754** (11.351)	(-9.569) 51.746**
Constant		(-0.998) 34.210** (22.090)	-0.192 (-1.620) 38.298** (19.153)	-0.494** (-2.638) 44.176** (13.953)	(-5.895) 50.344** (21.148)	(-4.325) 49.754** (11.351)	(-9.569) 51.746** (44.293)
Constant		(-0.998) 34.210** (22.090)	-0.132 (-1.620) 38.298** (19.153)	-0.494*** (-2.638) 44.176** (13.953)	-1.046** (-5.895) 50.344** (21.148)	(-4.325) 49.754** (11.351)	(-9.569) 51.746** (44.293)
Constant Observations		(-0.998) 34.210** (22.090) 136	-0.192 (-1.620) 38.298** (19.153) 104	-0.494*** (-2.638) 44.176** (13.953) 76	-1.046** (-5.895) 50.344** (21.148) 76	(-4.325) 49.754** (11.351) 80	(-9.569) 51.746** (44.293) 184
Observations Adj. R^2		(-0.998) 34.210** (22.090) 136 0.341	-0.192 (-1.620) 38.298** (19.153) 104 0.267	-0.494** (-2.638) 44.176** (13.953) 76 0.259	-1.046 (-5.895) 50.344** (21.148) 76 0.482	(-4.325) 49.754** (11.351) 80 0.466	(-9.569) 51.746** (44.293) 184 0.596
Constant Observations Adj. R^2 Season FE		(-0.998) 34.210** (22.090) 136 0.341 YES	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES	-0.494** (-2.638) 44.176** (13.953) 76 0.259 YES	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES	(-4.325) 49.754** (11.351) 80 0.466 YES	(-9.569) 51.746** (44.293) 184 0.596 YES
Constant Observations Adj. R^2 Season FE F-test		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256	-0.494*** (-2.638) 44.176** (13.953) 76 0.259 YES 3.397	-1.046 (-5.895) 50.344** (21.148) 76 0.482 YES 6.558	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558
Constant Observations Adj. R^2 Season FE F-test Prob > F		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000	-0.494** (-2.638) 44.176** (13.953) 76 0.259 YES 3.397 0.000	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2	-0,494** (-2.638) 44.176** (13.953) 76 0.259 YES 3.397 0.000 B-2	-1.046 (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance	-1.046 (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800*	-0,494** (-2.638) 44.176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742*	(-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.500**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.402)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.04C)	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (13,71)	-1.048 (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (-5.69)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (4.651)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.830)
Constant Observations Adj. Rv2 Season FE F-test Prob > F Shot Put Q2		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) 0.535	(1.52) (1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) (1.946)	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751)	-1.048 (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) 0.467	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) 2.819
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999**	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580*	-0,494** (-2.638) 44.176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016**	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552**	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481*	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354*
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377)	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975)	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1,016** (-2,922)	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510**	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665*	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876**	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928)	-0,494** (-2.638) 44.176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528)	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.59	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158**	-1.048* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A -1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089*	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184**	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311)	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.922)	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.230**	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.590**	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1.016** (-2,922) -0.876** (-2,528) -0.158** (-2,902) 15 555**	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252* (-0.970) -0.089* (-1.824) 11.8272**	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.44**	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.819**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.223) -0.031 (-0.654) 13.339** (22.090)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.632)	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.902) 15.556** (-2.902)	-1.048* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (8.200)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (-1.472)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.252)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421)	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.528) -0.158** (-2.902) 15.556** (19.285)	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.902) 15.556** (19.285) 76	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288)	(-4.325) 49,754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.415	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.559 (-1.311) 12.589** (25.421) 94 0.252	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.528) 76 (-2.528)	-1.048* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.450	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.528) -0.158** (-2.902) 15.556** (19.285) 76 0.363	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.889* (-1.824) 11.873** (18.288) 113 0.138	(-4.325) 49,754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES	-0,494** (-2,638) 44,176** (13.953) 76 0.259 YES 3.397 0.000 B-2 Distance 0.742* (1.751) -1.016** (-2.922) -0.876** (-2.528) -0.158** (-2.528) -0.158** (-2.902) 15.556** (19.285) 76 0.363 YES	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999* (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.928) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1,016** (-2,922) -0,876** (-2,922) -0,876** (-2,902) 15,556** (19,285) 76 0,363 YES 3,639 0,000	-1.046" (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024	(-4.325) 49,754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.599 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1,016** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2	-1.046" (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.928) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.281) -0.354* (1.281) -0.228 (1.291) -0.224* (45.254) 240 0.370 YES 6.930 0.000 Senior Distance
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q2 Q3 Q4		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337**	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (-1.975) -0.665* (-1.975) -0.665* (-1.978) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1,016** (-2,922) -0,876** (-2,902) 15,556** (-2,902) 15,556** (19,285) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767**	-1.046" (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320	(-4.325) 49,754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.954*	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (2000) 2.2000 2.200 2.200 2.200 2.200 2	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.59 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.450)	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1,016** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (-2,50)	-1,048* (-5,895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A 1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A 1 Distance 2.320 (1.525)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.97c)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.281) -0.354* (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.120)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -0.531 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) 4.052*	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.928) -0.665* (-1.928) -0.659 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) 2.504*	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (2,269) 4,077** (2,269) 4,077**	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) 4.07**	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) 2.972*2	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (*8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) 0.27
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.37** (3.055) -1.929**	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539**	-0,494*** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.922) -0.876** (-2.902) 15.556** (-2.902) (-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085**	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337**	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228* (-1.894) 1.4.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397* (4.129) -0.397** (-1.894) 0.200 (-1.894) (-1.894) 0.278* (-1.894) (-2.278*) (-2.91) (-3.70) YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397** (-1.894) 0.200 (-2.91) (-2.91) (-3.70) YES (-3.930 0.000 (-3.970) (-3.97) (-3.9
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771)	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.922) -0.876** (-2.528) -0.158** (-2.902) 15.556** (19.285) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (2.269) -4.255** (-3.047)	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 Q4		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321**	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (-1.975) -0.665* (-1.975) -0.665* (-1.978) (-1.978) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191**	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1,016** (-2,922) -0,876** (-2,922) -0,876** (-2,902) 15,556** (19,285) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (2,269) -4,255** (-3,047) -3,548**	-1,046" (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215**	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q2 Q3 Q4 Q4 Q3 Q4 Q4 Q2 Q3 Q4 Q4 Q2 Q3 Q4 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q2 Q3 Q4 Q2 Q3 Q4 Q4 Q2 Q2 Q3 Q4 Q4 Q2 Q2 Q3 Q4 Q4 Q2 Q3 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4 Q4		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.792)	-0.132 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.598 (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855)	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1,016** (-2,922) -0.876** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (2,269) -4,255** (-3,047) -3,548** (-2,514)	-1,046** (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215** (-2,675)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050	-0.132 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.928) -0.665* (-1.928) -0.659 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2,922) -0.876** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (-2,269) -4,255** (-3,047) -3,548** (-2,514) -0,403**	-1.046* (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542) -3.215** (-2.675) -0.834**	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740**	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (*8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.377) -0.534 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481)	-0.132 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (-1.975) -0.665* (-1.928) -0.598(-1.111) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101)	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.922) -0.876** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 15.556** (-2.902) 76 0.363 YES 3.639 0.000 B-2 Distance 2.767** (2.269) -4.255** (-3.047) -3.548** (-2.514) -0.403** (-2.514) -0.403**	-1.046*** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542) -3.215** (-2.675) -0.834** (-3.801)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.37)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking Cosstant		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) 20.55 (-0.481) (-0.55 (-0.481) (-0.56) (-0.481) (-0.481) (-0.55) (-0.481) (-0.481) (-0.481) (-0.55) (-0.481)	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.928) -0.665* (-1.928) -0.659 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 25.50 (-1.101) 25.51 (-1.55) (-1.55) (-1.55) (-1.55) (-1.55) (-1.55) (-1.55) (-1.101) (-1.55) (-1.55) (-1.55) (-1.55) (-1.55) (-1.55) (-1.55) (-1.101) (-1.55) (-1.5	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.922) -0.876** (-2.528) -0.158** (-2.902) 15.556** (19.285) 76 0.363 YES 3,639 0,000 B-2 Distance 2,767** (2,269) -4.255** (-3.047) -3.548** (-2.514) -0.403** (-2.282) (-2.282) -0.403** (-2.282) -0.403** (-2.282) -0.403** (-2.282) -0.403** (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282) (-2.282	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542) -3.215** (-2.675) -0.834** (-3.801) 4.62***	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.013) -0.740** (-3.337) (-3.	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463) F0 Core**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 Clubranking Constant		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 29.544**	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (-1.975) -0.665* (-1.975) -0.665* (-1.978) (-1.978) -0.599 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (-2.751) -0.259 (-1.101) 35.441**	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1,016** (-2,922) -0,876** (-2,922) -0,876** (-2,922) -0,876** (-2,902) 15,556** (19,285) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (2,269) -4,255** (-3,047) -3,548** (-2,514) -0,403** (-2,524) 41,135** (-2,822) 41,135**	-1,040 ⁶ (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215** (-2,675) -0,834** (-3,801) 44,940** (-3,801)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420**	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-1.463) 50.908** (-1.463) 50.908**
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking Constant Constan		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.792) -0.050 (-0.481) 29.544** (24.323)	-0.132 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887)	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1,016** (-2,922) -0.876** (-2,922) 15.556** (-2,902) (-2,902) (-	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542) -3.215** (-2.675) -0.834** (-3.801) 44.940** (18.083)	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420** (11.939)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463) 50.908** (35.696)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 Clubranking Constant Q1 Clubranking Constant Q2 Q3 Q4 Clubranking Constant Q2 Q3 Q4 Clubranking Constant C		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 29.544** (24.323) 100	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887) C-2	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.922) -0.876** (-2.922) -0.876** (-2.922) 15.556** (19.285) 76 0.363 YES 3,639 0,000 B-2 Distance 2,767** (-2.902) 15.556** (19.285) 76 0.363 YES 3,639 0,000 B-2 Distance 2,767** (-2.528) -4.255** (-3.047) -3.548** (-2.514) -0.403** (-2.822) 41.135** (13.785) C0	-1.046** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542) -3.215** (-2.675) -0.834** (-3.801) 44.940** (18.083) C	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420** (11.939)	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463) 50.908** (35.696)
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking Constant Observations		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 29.544** (24.323) 104	-0.192 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887) 84	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (-2,922) -0,876** (-2,922) -0,876** (-2,922) 15,556** (-2,902) 15,556* (-2,902) (-2,902) (-1.040** (-5.895) 50.344** (21.148) 76 0.482 YES 6.558 0.000 A-1 Distance 0.496 (1.618) -0.552** (-2.239) -0.252 (-0.970) -0.089* (-1.824) 11.873** (18.288) 113 0.138 YES 2.010 0.024 A-1 Distance 2.320 (1.526) -4.085** (-3.542) -3.215** (-3.542) -3.215** (-3.542) -3.215** (-3.542) -3.215** (-3.542) -3.215** (-3.542) -3.215** (-3.601) 44.940** (18.083) 64	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.37) 44.420** (11.939) 56	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463) 50.908** (35.696) 184
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking Constant Observations Adj. R^2		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.792) -2.321** (-2.792) -0.050 (-0.481) 29.544** (24.323) 104 0.374	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887) 84 0.296	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1,016** (-2,922) -0.876** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (-2,69) -4,255** (-3,047) -3,548** (-2,524) -0,403** (-2,282) 41,135** (13,785) 68 0,438	-1,046** (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,542) -3,215** (-3,801) 44,940** (18,083) 64 0,446	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420** (1.939) 56 0.479	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463) 50.908** (3.596) 184 0.625
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 Clubranking Constant Observations		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 29.544** (24.323) 104 0.374 YES	0.152 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887) 84 0.296 YES	-0,494** (-2,638) 44,176** (13,953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1,751) -1,016** (-2,922) -0,876** (-2,922) -0,876** (-2,922) -0,876** (-2,902) 15,556** (19,285) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (2,269) -4,255** (-2,514) -3,548** (-2,514) -3,548** (-2,514) -3,548** (-2,514) -3,548** (-2,514) -3,548** (-2,514) -3,548** (-2,528) 41,135** (13,785) 68 0,438 YES	-1,040** (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215** (-2,675) -0,834** (-3,642) -4,083 64 0,446 YES	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420** (11.939) 56 0.479 YES	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-1.1.463) 50.908** (35.696) 184 0.625 YES
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F F-test Prob Prob Prob Prob Prob Prob Prob Prob		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 29.544** (24.323) 104 0.374 YES 6.516	-0.132 (-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887) 84 0.296 YES 4.732	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1,016** (-2,922) -0.876** (-2,922) -0.876** (-2,528) -0.158** (-2,528) -0.158** (-2,528) 76 0,363 YES 3,639 0,000 B-2 Distance 2,767** (-2,528) -0,363 YES 3,639 0,000 B-2 Distance 2,767** (-2,528) -4,255** (-3,047) -3,548** (-2,282) 41,135** (13,785) 68 0,438 YES 5,082	-1,040** (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215** (-2,675) -0,834** (-3,801) 44,940** (18,083) 64 0,446 YES 6,756	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420** (11.939) 56 0.479 YES 15.128	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (-1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (3.392) -1.056** (-11.463) 50.908** (35.696) 184 0.625 YES 19.363
Constant Observations Adj. R^2 Season FE F-test Prob > F Shot Put Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Disc Throw Q2 Q3 Q4 Clubranking Constant Observations Adj. R^2 Season FE F-test Prob > F Prob		(-0.998) 34.210** (22.090) 136 0.341 YES 9.138 0.000 D-2 Distance 0.536 (1.198) -0.999** (-4.377) -1.510** (-4.377) -1.510** (-4.377) -1.510** (-4.293) -0.031 (-0.654) 13.339** (22.238) 68 0.446 YES 6.477 0.000 D-2 Distance 3.337** (3.055) -1.929** (-2.792) -2.321** (-2.929) -0.050 (-0.481) 29.544** (24.323) 104 0.374 YES 6.516 0.000	(-1.620) 38.298** (19.153) 104 0.267 YES 4.256 0.000 C-2 Distance 0.800* (1.946) -0.580* (-1.975) -0.665* (-1.928) -0.059 (-1.311) 12.589** (25.421) 94 0.208 YES 2.931 0.001 C-2 Distance 1.662 (1.459) -2.539** (-2.771) -4.191** (-3.855) -0.259 (-1.101) 35.441** (12.887) 84 0.296 YES 4.732 0.000	-0,494** (-2,638) 44,176** (13.953) 76 0,259 YES 3,397 0,000 B-2 Distance 0,742* (1.751) -1.016** (-2.922) -0.876** (-2.922) -0.876** (-2.922) -0.876** (-2.922) -0.876** (-2.922) -0.158** (-2.922) -0.158** (-2.922) -0.158** (-2.922) -0.158** (-2.922) -0.363 YES 3,639 0,000 B-2 Distance 2,767** (-2.69) -4.255** (-3.047) -3.548** (-2.514) -0.403** (-2.5214) -0.403** (-2.282) 41.135** (-2.825) 68 0,438 YES 5,082 0,000	-1,046** (-5,895) 50,344** (21,148) 76 0,482 YES 6,558 0,000 A-1 Distance 0,496 (1,618) -0,552** (-2,239) -0,252 (-0,970) -0,089* (-1,824) 11,873** (18,288) 113 0,138 YES 2,010 0,024 A-1 Distance 2,320 (1,526) -4,085** (-3,542) -3,215** (-2,675) -0,685** (-3,542) -3,215** (-2,675) -0,685** (-3,542) -3,215** (-2,675) -0,834** (-3,801) 44,940** (18,083) 64 0,446 YES 6,756 0,000	(-4.325) 49.754** (11.351) 80 0.466 YES 5.509 0.000 A-2 Distance 0.462 (1.631) -0.481* (-1.872) -0.141 (-0.497) -0.184** (-3.720) 13.442** (21.121) 96 0.310 YES 2.126 0.018 A-2 Distance 2.959* (1.876) -3.337** (-2.208) 0.019 (0.013) -0.740** (-3.337) 44.420** (11.939) 56 0.479 YES 15.128 0.000	(-9.569) 51.746** (44.293) 184 0.596 YES 23.558 0.000 Senior Distance 0.509** (2.819) -0.354* (1.884) 0.228 (1.291) -0.202** (-8.094) 14.818** (45.254) 240 0.370 YES 6.930 0.000 Senior Distance 2.957** (4.129) -0.397 (-0.503) 2.729** (4.129) -0.397 (-0.503) 2.729** (3.596) 184 0.625 YES 19.363 0.000

Table A4b continued								
Hurdles Short		D-2	C-2	B-1	B-2	A-1	A-2	Senior
		Time	Time	Time	Time	Time	Time	Time
		111110	i iiiie	111110	nine 	111110	111110	111110
Q2		0.030	-0.072	-0.571**	-0.401**	-0.760**	-0.628**	-0.395**
		(0.475)	(-1.086)	(-4.894)	(-3,131)	(-4.361)	(-2.737)	(-3.937)
03		0.076**	0 1 2 7 * *	0.145	0.002	0.000	0.100	0.204**
Q3		0.276**	0.137**	-0.145	0.003	0.060	-0.169	0.384**
		(3.840)	(2.006)	(-1.422)	(0.028)	(0.332)	(-0.781)	(3.041)
04		0.459**	0.186**	-0.036	0.001	0.058	0.005	0.170
-		(E 611)	(2 225)	(0.262)	(0.000)	(0.214)	(0.024)	(1 E 9 2)
		(5.011)	(2.335)	(-0.203)	(0.009)	(0.514)	(0.024)	(1.565)
clubranking		-0.000	0.008	0.004	0.029	0.031	0.070*	0.101**
		(-0.061)	(0.637)	(0.226)	(1.479)	(1.190)	(1.909)	(7.297)
Constant		0 525**	10 011**	1 017**	14 640**	1 - 202**	14.062**	12 002**
Constant		9.525**	12.311++	15.217**	14.640**	15.382**	14.962**	13.862**
		(60.546)	(67.536)	(58.154)	(41.270)	(38.600)	(36.702)	(80.629)
Observations		84	129	85	94	92	80	197
		0.0.40	125	0.007	<u> </u>	52	0.0	1.57
Adj. R^2		0.343	0.150	0.207	0.141	0.296	0.151	0.513
Season FE		YES	YES	YES	YES	YES	YES	YES
E-test		1 331	6 303	3 106	2 454	4 027	2 778	30 470
F-lest		4.554	0.393	3.100	2.434	4.557	2.778	30.470
Prob > F		0.000	0.000	0.001	0.006	0.000	0.003	0.000
Sprint		D-2	C-2	B-1	B-2	A-1	A-2	Senior
		Timo	Timo	Timo	Timo	Timo	Timo	Timo
		Time	nine	mile	Time	Time	Time	Time
Q2		-0.024	-0.033	-0.041	-0.004	-0.090	-0.134*	-0.179**
		(-0.742)	(-0.798)	(-0.605)	(-0.053)	(-1.275)	(-1.951)	(-5.068)
03		0.062**	0.077*	0.061	0 169**	0 101	0.074	0.007
Q3		0.002	0.077	0.001	0.108	0.101	0.074	-0.007
		(1.997)	(1.832)	(0.982)	(2.560)	(1.400)	(1.209)	(-0.157)
Q4		0.093**	0.076*	0.039	0.100	0.010	0.158**	-0.243**
		(2,000)	(1 674)	(0.641)	(1 E04)	(0.120)	(2 146)	(= = 22)
		(2.055)	(1.0/4)	(0.041)	(1.334)	(0.130)	(2.140)	(-3.322)
сирганкіпд		-0.004	0.008	0.015	0.041**	0.037**	0.036**	0.039**
		(-0.945)	(1.243)	(1.336)	(3.635)	(3.337)	(3.915)	(7.970)
Constant		8 246**	10 470**	12 289**	12 029**	12 430**	12 485**	11 968**
constant		0.240	10.470	12.207	12.023	12.400	12.403	11.300
		(155.786)	(142.899)	(79.477)	(80.109)	(76.928)	(81.622)	(158.399)
Observations		124	132	93	104	112	108	241
Adi BA2		0.092	0 192	0 279	0.221	0 222	0.419	0 492
Auj. K''Z		0.065	0.102	0.276	0.331	0.333	0.410	0.462
Season FE		YES	YES	YES	YES	YES	YES	YES
F-test		2.019	6.305	4.618	3.363	6.368	6.416	18.228
Deale a F		0.022	0.000	0.000	0.000	0.000	0.000	0.000
Prob > F		0.022	0.000	0.000	0.000	0.000	0.000	0.000
Hurdles Long				C-2	B-2	A-1	A-2	Senior
				Time	Time	Time	Time	Time
				1111e				
Q2				-0.307	0.746	1.370	-0.809	-0.401
				(-0.888)	(0.864)	(1.240)	(-0.807)	(-1.295)
03				0.05/**	2 167**	1 720*	2 057**	2 20/**
Q3				0.954	2.467	1.730	3.957	2.304
				(2.168)	(2.508)	(1.801)	(2.496)	(5.559)
04				0 300	-0 149	1 978*	2 562**	1 126**
q .				(0.701)	(0.170)	(1.070)	(2,491)	(2.027)
				(0.701)	(-0.170)	(1.978)	(2.481)	(2.937)
clubranking				0.051	0.792**	0.555**	0.573**	0.543**
-				(0.856)	(4 973)	(3 546)	(2 244)	(10.149)
a				(0.050)	(4.575)	(3.340)	(2.2++)	(10.145)
Constant				47.641**	59.379**	62.905**	62.407**	58.450**
				(55.634)	(32.228)	(27.304)	(14.128)	(70.926)
Observations				112	68	100	56	102
Observations				112	08	100	30	192
Adj. R^2				0.050	0.411	0.118	0.299	0.615
Season FE				YES	YES	YES	YES	YES
E tost				1 476	2 016	2 240	4 560	10 100
r-test				1.420	3.910	2.240	4.300	23.135
Prob > F				0.156	0.000	0.012	0.000	0.000
Middle Distance		D-2	C-2	B-1	B-2	A-1	A-2	Senior
		Time	Time	Time	Time	Time	Time	Time
		nine	Time	Time	nne	nine	nine	nine
Q2		1.355**	-0.233	-1.025	0.815	-0.852	1.354	0.048
		(2.808)	(-0.472)	(-1.203)	(0.705)	(-0.599)	(0.887)	(0.124)
03		2.1.1.1**	0.400	2.024**	0.503	0.333)	0.007	0.005**
43		2.144 ⁺⁺	0.499	-2.824	-0.503	-0.//2	2./1/*	0.985
		(3.762)	(0.902)	(-2.613)	(-0.553)	(-0.608)	(1.778)	(2.207)
04		3.322**	0.688	2.057	3.052**	1.449	3.237**	3.255**
		(E 607)	(1 220)	(1 517)	(2 956)	(1 012)	(2 217)	(6 201)
		(3.062)	(1.220)	(1.51/)	(2.000)	(1.013)	(2.31/)	(0.201)
clubranking		0.527**	-0.017	0.211*	0.372	0.219	0.532**	0.702**
		(5.911)	(-0.258)	(1.692)	(1.410)	(1.187)	(2.336)	(10.898)
Countrat		00.240**	00.21.4**	(1002)	122 000**	125 025**	120 245**	(10.050)
Constant		90.248	99.314**	133.811**	133.000**	132.832.1	128.345**	123./50**
		(76.959)	(122.869)	(66.850)	(40.390)	(60.906)	(32.291)	(165.375)
Observations		88	120	68	84	104	84	244
Adi BA2		0.406	0.072	0 227	0.154	0.114	0.175	0 542
Auj. K''Z		0.400	0.075	0.227	0.154	0.114	0.175	0.545
Season FE		YES	YES	YES	YES	YES	YES	YES
F-test		6.421	2.008	4.894	3.393	3.119	2.143	19.182
Droh > F		0.000	0.024	0.000	0.000	0.001	0.010	0.000
P100 > F		0.000	0.024	0.000	0.000	0.001	0.019	0.000
Long Distance	D-2	C-1	C-2	B-1	B-2	A-1	A-2	Senior
	Time	Time	Time	Time	Time	Time	Time	Time
03	1 010	22.027	2 1 4 0	17 340	2.970	10 00488	4 050	E 042
ųz	1.019	22.02/	2.140	-17.240	2.870	10.554**	4.858	-5.842
	(0.871)	(1.561)	(0.221)	(-1.244)	(0.298)	(2.122)	(0.461)	(-0.919)
03	1 945*	22 210	-8 967	-31 367**	1 780	4 257	2 455	-7 737
ų.,	1.343	22.210	0.507	J1.JU/	1.700	237	2.400	1.1.51
	(1.695)	(1.541)	(-1.318)	(-2.776)	(0.166)	(0.458)	(0.209)	(-1.144)
Q4	5.228**	41.397**	45.731**	16.913*	6.950	3.904	3.514	9.798
	(4 136)	(2 870)	(3.867)	(1 981)	(0.713)	(0.351)	(0 320)	(1 632)
	(4.130)	(2.0/3)	(3.00/)	(1.301)	(0.713)	(0.331)	(0.323)	(1.032)
clubranking	0.343	-1.319	-1.844	1.684	6.205**	6.767**	5.612**	3.957**
	(1.574)	(-0.567)	(-1.115)	(1.208)	(3.387)	(3,793)	(3.010)	(6.089)
Constant	194 090**	10.007	1.113/	140 1 1 1 **	(3.307) 222.012**	107 1 47**	10.0±0/ 227.027**	(0.000) 216 796**
Constant	184.089**	222.786**	209.358**	248.141**	223.912**	197.147**	237.037**	216.786**
	(53.833)	(6.902)	(9.343)	(9.286)	(9.901)	(7.494)	(11.749)	(21.427)
	()/	,,			, <i>,</i>	, ·· ·,	,,	, ·-· · · · /
Observations	104	144	152	72	84	88	72	300
	104	144	1.12	/ 4	0.996	00	, <u>,</u>	500
Adj. R^2	0.258	-0.027	0.136	0.213	0.326	0.327	0.174	0.193
Season FE	YES	YES	YES	YES	YES	YES	YES	YES
		0.022	2 017	2 2 2 2	2 702	2 5 6 7	1 607	0 EU0
1 1001		11 8 4 4	7017	/ 117	/ /U5	3.50/	1.00/	0.000
F-test	4.120	0.855	2.017	2.000	21705			
F-test Prob > F	4.120 0.000	0.633	0.021	0.013	0.003	0.000	0.084	0.000

Note: Robust t-statistics are indicated between brackets. **p<0.05, *p<0.1. Each top row of the sub tables consists of the discipline followed by the age category, in which the number is a year indicator (i.e. 1 means first year athletes, 2 means second year athletes).

Appendix A5

The table below is an example of the performance based selection system as used by the KNAU (In Dutch). 58

	vrouwen	2ejr D 1999 13jr	1e C 1998 14 jaar	2e C 1997 15 jaar	1e B 1996 16 jaar	2e B 1995 17 jaar	1e A 1994 18 jaar	2e A 1993 19 jaar	1e <23 1992 20 jaar	2e <23 1991 21 jaar	3e <23 1990 22 jaar
100	nationale selectie		12,60	12,50	12,30	12,20	12,10	11,95	11,85	11,75	11,60
	regionale selectie		12,90	12,70	12,50	12,30					
60 / 80m	nationale selectie		10,35	10,15							
	regionale selectie	8,45	10,80	10,55							
200	nationale selectie			25,50	25,20	24,90	24,60	24,30	24,10	23,95	23,85
	regionale selectie			25,85	25,60	25,40					
400	nationale selectie				57,00	56,00	55,30	54,70	54,20	53,80	53,50
	regionale selectie				58	57,2					

TALENTENMATRIX	SPRINT	seizoen 2011-2012

	mannen	2e jr D 1999 13jr	1e C 1998 14 jaar	2e C 1997 15 jaar	1e B 1996 16 jaar	2e B 1995 17 jaar	1e A 1994 18 jaar	2e A 1993 19 jaar	1e <23 1992 20 jaar	2e <23 1991 21 jaar	3e <23 1990 22 jaar
100	nationale selectie		11,35	11,25	11,15	11,05	10,95	10,80	10,70	10,60	10,50
	regionale selectie		11,75	11,60	11,45	11,30					
80m	nationale selectie										
	regionale selectie	10,50									
200	nationale selectie			23,10	22,70	22,30	22,00	21,80	21,55	21,35	21,15
	regionale selectie			23,70	23,30	22,90					
400	nationale selectie				50,00	49,00	48,50	47,90	47,50	47,10	46,70
	regionale selectie				50,9	49,9					

kijkwijzer:

rij in oranje is de richtlijn om opgenomen te worden in de nationale selectie rij in blauw is de richtlijn op opgenomen te worden in de regionale selectie

selectie wordt gebaseerd op prestatie van het afgelopen seizoen

regio: richt zich op D2, C en B junioren

nationale selectie: richt zich voornamelijk op B en A junioren

⁵⁸Source:http://www.atletiekunie.nl/upload/File/Dutch%20Athletics%20Team/talentmatrix%20sprint%202012. pdf.