THE RELATIVE AGE EFFECT IN INTERNATIONAL ALPINE SKIING

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ABSTRACT

Introduction

A relative age effect (RAE) exists, when the birth-month distribution of a selected group of sportspeople differs from the even distribution of the normal population in a way that there is an overrepresentation of sportspeople born in the first quarter after the corresponding cut-off date. This effect was especially found in sports where height, weight and strength are the most influential variables with regards to the level of performance. For Skiing, so far, the existence of this effect has only been marginally indicated in youth squads in Switzerland. In the underlying study it was observed whether there is generally such a phenomenon as the RAE in Alpine Skiing and if so, whether there are any differences concerning age, sex, region and discipline.

Methods

For this study, the birth months of 2,238 alpine ski racers from 62 different nations of the last five FIS World Cup seasons (2006/07-2010/11) and the last three FIS Junior World Ski Championships were taken into account. In order to assess the differences between the observed and the expected birth-quarter-distributions, assuming an even distribution, Chi^2-tests were applied.

Results

In the overall sample, a highly significant difference ($p = 0.000$) between the expected and the observed birth-date distributions was found. The study also represents a highly significant difference in the birth-date distribution when sex, the World Cup and Juniors groups, the disciplinary groups (Slalom, Giant Slalom, SuperG, Downhill and All-rounder) and the national groups (North America, Core Europe) are considered separately. Only in the group of female World Cup ski racers, no significant difference in the birth-quarter-distribution ($p=0.882$) was examined.

Discussion

Throughout this study it was shown that a RAE also exists in top-class alpine skiing. It was examined that also in Alpine skiing relatively older athletes are assumingly seen as more talented due to the fact that they are physically more developed and are therefore privileged.

As we should be aiming for an ideal preparation of the real talents for their high-performance age, the existence of a RAE points towards serious shortcomings in the talent detection and

identification process. Consequently, talent detection and promotion in Alpine Skiing should be generally reviewed.

So far, there is no ideal proposal for minimizing the RAE. The model established in Canadian Ice Hockey by Hurley et al. (2001), which suggests an almost yearly rotating cut-off date, seems to be an interesting concept also for Alpine Skiing. It was modified for this sport and evaluated by experts. This model is generally seen very positively, as it could contribute to more fairness in the promotion of young talents, to a lower drop-out rate, to weakening the RAE and to a more adequate selection. In the near future, it would be important to further analyse the impact the RAE has on the sport and to focus on the mechanisms that provoke the RAE in order to consider these criteria in the talent detection and identification process.

1. Problems and tasks

In many sports, children and young talents are divided into competition categories based on their chronological age. Generally, January 1st is the cut-off date of a selection year. The main goal of imposing this selection criterion is to ensure that children's development is age-related in order to ensure a fair competition in the sport (Helsen et al., 2005; Wattie et al., 2008).

In this context, the term “relative age effect” (RAE) already turned up in the 1980s, but has been increasingly discussed in recent years. This effect occurs, when the birth-month distribution of a selected group of athletes differs from the distribution of the normal population (Lames et al., 2007; www.statistik.at). Very often we can find an overrepresentation of sportspeople born in the first quarter of the corresponding selection year. Consequently, relatively older athletes, who were born in the first months of the selection year, are more present than relatively younger ones (Lames et al., 2008).

The RAE has already been demonstrated in various sports. Among other sports, the existence of a RAE was proven in Soccer (Carling et al., 2009; Cobley et al., 2008; Helsen et al., 2005; Vincent & Glamser, 2006; Williams, 2010), Ice Hockey (a.o. Côté et al., 2006), Tennis (a.o. Edgar & O'Donoghue, 2005), Handball (a.o. Schorer et al., 2009a; Schorer et al., 2009b), Basketball (a.o. Delorme & Raspaud, 2009a) and Rugby (a.o. Till et al., 2010).

Generally, it can be seen that this effect was especially found in sports in which height, weight and strength are the most influential variables for the level of performance (Delorme & Raspaud, 2009b). A strong RAE is therefore present in sports with a high level of demand in terms of height, strength and in sports with direct duels between opponents (Lames et al., 2008). The majority of compositional sports in which relatively younger athletes have an advantage, such as rhythmic gymnastics or gymnastics, do not or only show a minimal RAE, or have a reverse RAE (Baker et al., 2010; Lames et al., 2008; Delorme & Raspaud, 2009a).

Furthermore, a higher RAE can be found in more popular sports. The number of applicants for a place in a team or in a squad is higher in more popular sports and therefore relatively older athletes are more likely to be detected than their younger team-mates, due to their developmental advantages (a.o. Baker et al., 2010; Delorme et al., 2009; Musch & Grondin, 2001; Wattie et al., 2008). Therefore, popular sports in Canada, such as Ice Hockey, are more affected by the RAE (Delorme et al., 2009) than less popular sports, such as Volleyball (Grondin, 1984, quoted in Musch & Gondrin, 2001).

A RAE exists for several reasons. A combination of physical, cognitive, emotional and motivational reasons might be responsible for it (Musch & Grondin, 2001). Helsen et al. (2005) and Lames et al. (2008) impressively show the complexity of the preference of relatively older athletes in talent diagnostics and the promotion of young talents. In this

context, Helsen et al. (2005) speak about a vicious circle. Lames et al. (2008) concentrate on that aspect and point towards two fundamental advantages of relatively older athletes. With one born in January and one in December, there can be a difference in age of up to one year in one and the same competition category. This developmental advantage leads to a much broader experience. An age difference of almost a year between two 10-year-olds could for example mean that the relatively older child has 10 per cent more life experience than the younger one. What might be even more important is that these children have one more year of experience in the corresponding sport and therefore have much more routine with regard to training and partly to competition (Helsen et al., 2005; Musch & Grondin, 2001). As a second advantage, Helsen et al. (2005) and Lames et al. (2008) mention the physical and mental advantage of the relatively older ones. Several studies point especially towards the physical advantages (a.o. Helsen et al., 2005; Sherar et al., 2007; Williams, 2010) as an age difference of almost a year in children and young adults can result in significant anthropometric differences (Helsen et al., 2005; Jiménez & Pain, 2008). The biggest differences appear during puberty and therefore, the RAE is most pronounced in this period of development (a.o. Delorme & Raspaud, 2009b; Musch & Grondin 2001). It is proven that physical development correlates with chronological age (Musch & Grondin, 2001) and that physical performance correlates with biological maturity (Philippaerts et al., 2006, quoted in Till et al., 2010). However, a RAE cannot merely be reduced to physical differences. Also psychological factors, such as intrinsic motivation and a better cognitive ability of the relatively older athlete might play a role (Musch & Grondin, 2001). A higher intensity of motivation can also influence that the potential capacities are better used (Helsen et al., 2005).

Being more experienced and physically and mentally more developed, a relatively older player might have a performance advantage. Additionally, several other enforcing mechanisms appear. When children perform better, they get positive feedback from parents, trainers and friends and their social appreciation increases. This leads to an increase in motivation and determination of the child, to fully engage in the sport. Furthermore, children and young adults who perform better than their peers are identified as talents and are therefore selected. They are more intensely promoted by for example getting additional training, better skilled trainers or are more likely to be accepted in schools with a focus on sports. As a consequence of these two enforcing mechanisms, the initial performance advantage due to a developmental advantage and a broader set of experience increases to a significant advantage (Helsen et al., 2005; Lames et al., 2008). For the younger peers, these advantages might be impossible to catch up with and they therefore very often drop out of the sport.

There is no reason to assume that talent in a sport depends on the birth-month. The existence of a RAE therefore shows that not all athletes have the same opportunities (Lames et al., 2008). This leads to a “waste of potential” (Jiménez & Pain, 2008). Sometimes less talented players are promoted, but talented (the relatively younger players) not (Lames et al., 2008). If one aim is being as effective as possible in selecting from a talent pool, pushing the young players in the long term and preparing them for their high-performance age, the RAE represents an error in the selection process. This can only be avoided, when not the current development status, but the developmental potential is considered in the talent selection process (Lames et al., 2008).

For Alpine Skiing, up until now, only Fuchslocher et al. (2011) has addressed the existence of a RAE in the sport with the example of Switzerland. In the Swiss youth squads U-10 to U-20, 35.2 per cent of the players were born in the first and only 19.5 per cent in the last quarter after the cut-off date. As Alpine Skiing is probably one of the most popular sports in Switzerland, this result is not very surprising. Also in other countries such as in the European Alpine regions of Austria, Germany and France and also in certain areas in the USA and Canada, this sport is very popular and practiced by many children and young adults, thus the pressure to get into the squad might be very high. However, the intensity of the RAE might differ between the individual nations and national groups. It can be assumed that the selection pressure in the Alpine core countries, where there are a lot of ski enthusiasts, such as in Switzerland, Austria, Italy and France, is more intense than for example in North America, where other winter sports such as Ice Hockey are more popular or more attractive to children and young adults.

Alpine Skiing is one of the sports that require a great level of physical fitness (Raschner et al., 2005; 2008). According to Neumayer et al. (2003), aerobe capacity and a good level of muscle strength of the lower limbs are the most important performance-determining factors in this sport, for Bosco (1997) these factors are springiness and endurance of springiness. Àlvarez-San Emeterio and González-Badillo (2010) successfully proved the correlation between ranking position and muscle mass, between jumping power and jumping power endurance and the maximal dynamic leg extension power in Spanish, male, adult ski racers. Furthermore, individual skiing technique and psychological factors, such as motivation and concentration, play a decisive role (Neumayr et al., 2003). Therefore, it can be assumed that an advantage of the relatively older ski racers in terms of technical training, tactics and strength of up to one year, is of great significance and that probably also in Alpine Skiing a RAE is to be found. However, it could also be the case that the intensity of a RAE in Alpine Skiing differs between the various disciplines. Even if fully-trained muscles are performance-determining in all the disciplines, the younger athletes could be less disadvantaged in the

more demanding disciplines in terms of coordination, namely the “technical” disciplines of Slalom and Giant Slalom than in the disciplines of SuperG and downhill, which are very demanding in terms of strength and anthropometric characteristics.
In many countries such as Austria, Switzerland and Germany a lot of money is being invested in the promotion of young Alpine Ski racers (Staudacher et al., 2008). In case there is a RAE in this sport and thus partly less talented youngsters enjoy these assistance measures, whereas perhaps very talented racers are not promoted, the money is not ideally invested. Furthermore, it would be unfair or even discriminating towards the children who do not have the same opportunities to optimally develop their talent. If this suggestion turns out to be true, the talent selection and identification process and the promotion model in Alpine Skiing have to be completely reviewed.

The goal of this study therefore is to find out whether

a) a RAE also exists in Alpine Skiing
   and if so, to investigate whether
   there are differences concerning
b) age
c) sex
d) region and
e) disciplines.

2. Methods

In the underlying study the birth-months of 2,238 male and female Alpine Ski racers from 62 nations were considered, in order to proof the existence of a possible RAE. The sample was made up by the data of athletes who have gained at least one World Cup point during the FIS World Cup Season of 2006/07 to 2010/11 and by all the participants of the three Junior World Ski Championships of 2009 to 2011 (birth cohorts 1989 to 1995). The absolute figures of the sample are to be found in table 1.

	female [n]	male [n]	total [n]
FIS World Cup [n]	621	742	1363
FIS Junior World Ski Championships [n]	378	497	875
Total [n]	999	1239	2238

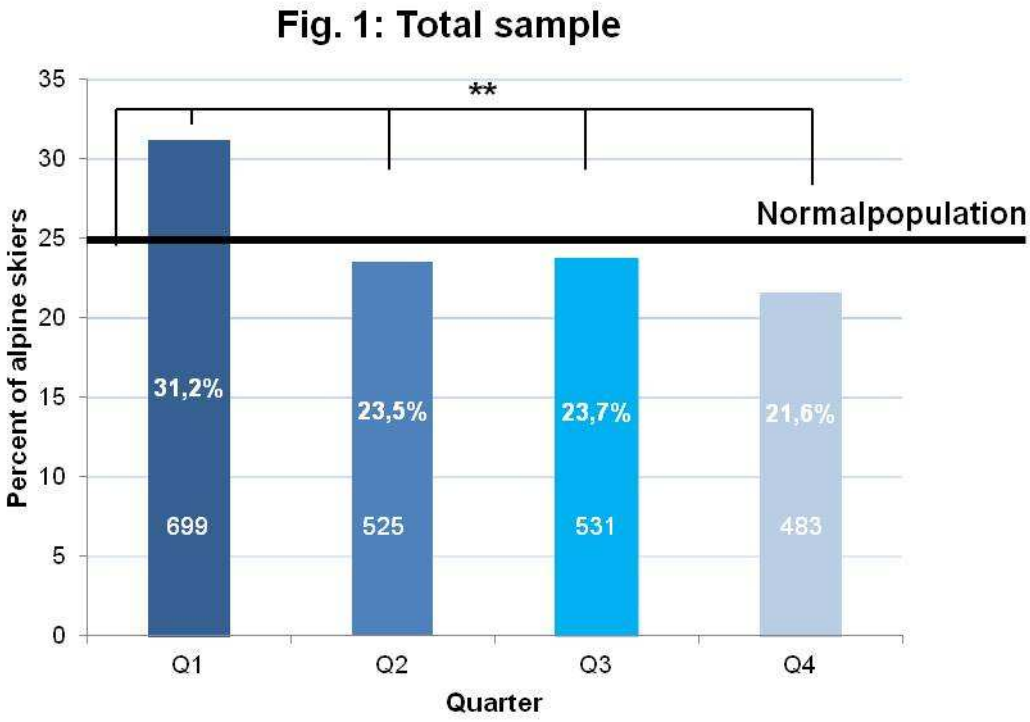
Table 1: Total sample

The birth months of the individual ski racers were taken from the FIS-Homepage (www.fis-ski.com). As the cut-off date for grouping the various competition categories in Alpine Skiing is the 1st of January, the birth months were split into quarters as follows: quarter 1 includes the months of January to March, quarter 2 the months of April to June, quarter 3 the months of July to September and quarter 4 the months of October to December. Furthermore, it was calculated how far the different birth-months of the individual athletes were away from the cut-off month of January. Additionally, the parameter sex, discipline and nationality were determined. The individual nations were divided into the three groups of North America (USA, Canada), Core Europe (Austria, France, Italy and Switzerland) and the rest (remaining 56 nations). With regard to the disciplines, the ski racers were divided into three groups. Experts in technique (Slalom and Giant Slalom), experts in speed (SuperG and Downhill) and all-rounders (athletes who have participated/or gained points both in technical and speed disciplines or in the combination).

The evaluation was carried out with the statistics program PASW Statistics 18.0. Frequencies were calculated and presented using descriptive statistics. To review the difference of the expected and the observed birth-quarter distribution, a Chi^2 test was used. For the expected distribution, a normal distribution of the individual quarters was assumed, as in comparable studies (Schorer et al., 2009b; Sherar et al., 2007; Baker & Logan, 2007). The Chi^2 Test was also used to review differences between two groups, (sex, World Cup Juniors) regarding the distance of the birth-month to the cut-off date. The applied significance level was $p \leq 0.05$ for all the calculations.

3. Results

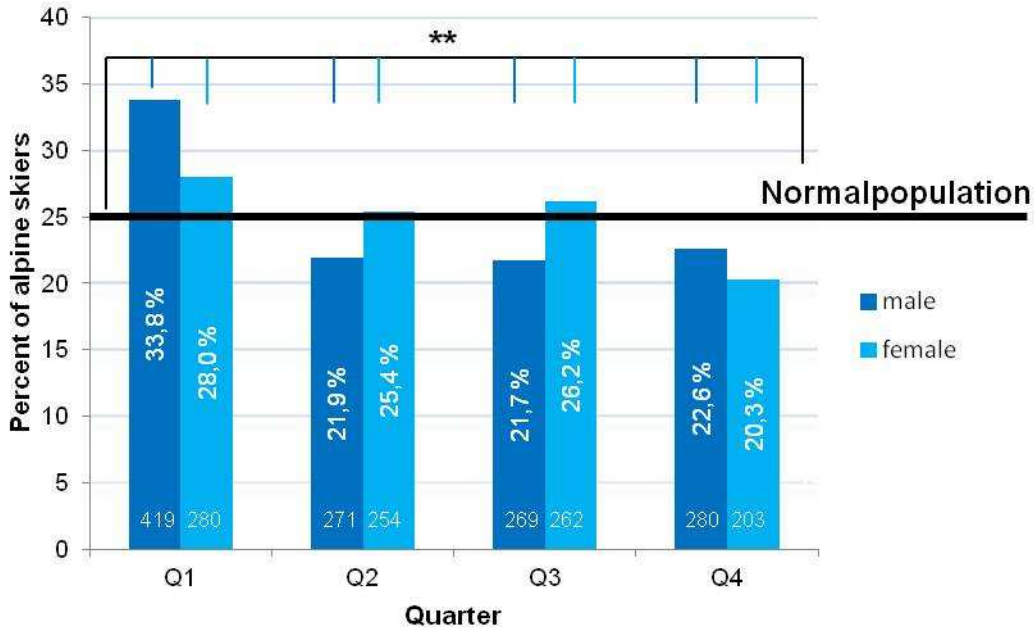
The percentage distribution of the birth-months that were grouped into quarters is presented together with the absolute figures in figure 1. Highly significant results were found concerning the difference to the expected distribution (p = 0.000**) There is an overrepresentation of ski racers born in quarter 1 and an under-representation of athletes born in quarter 4. This leads to the conclusion that according to the underlying sample, a RAE also exists in Alpine Skiing.



Birth quarter distribution of the whole sample

Looking at the birth-quarter distribution for male and female athletes individually, there is a highly significant difference between the observed and the expected distribution for females (p = 0,004**) and males (p = 0,000**) (see figure 2).

Fig. 2: Gender

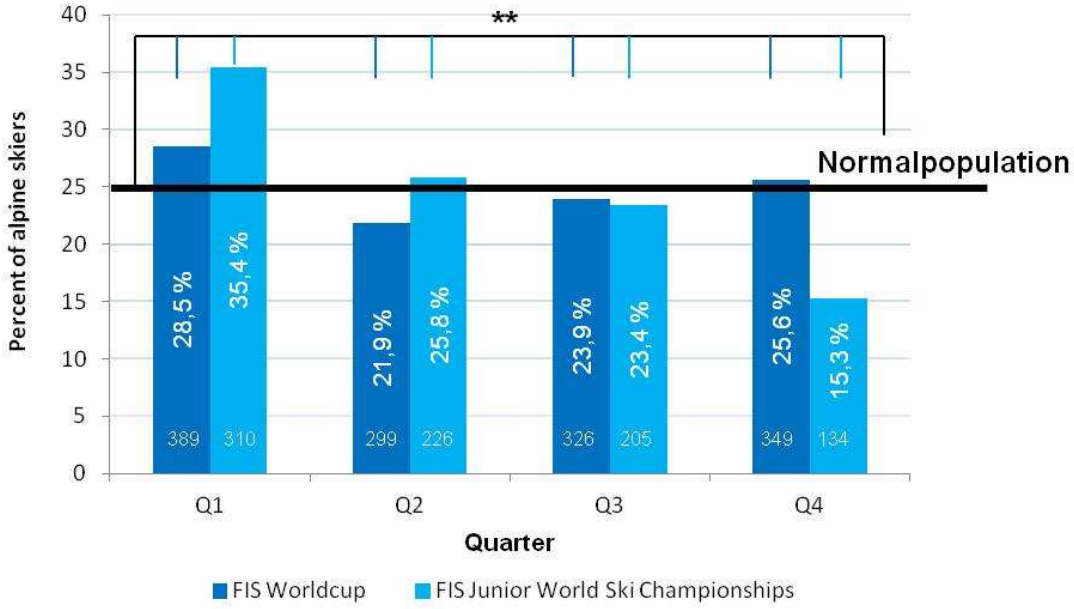


Birth quarter distribution for gender

Looking at the results for male ski racers, we can see a clear overrepresentation (approximately 9 per cent above the normal population) of racers born in the first quarter and almost identical percentages in the other quarters. With regard to the female racers, a more balanced distribution between the quarters can be seen. Furthermore, a highly significant difference between the both sexes concerning the distance of the birth-month to the cut-off date was demonstrated ($p = 0.000^{**}$).

In figure 3, the birth-quarter distribution is presented for both the groups World Cup and Juniors separately. For both the groups of World Cup athletes ($p = 0.005^{**}$) and Juniors ($p= 0.000^{**}$) a highly significant difference between the expected and the observed birth-quarter distribution was demonstrated. The percentage of junior athletes decreases steadily from quarter 1 to quarter 4. In comparison, the distribution of World Cup athletes does not differ as strong, however there is still an overrepresentation in the first quarter. Also a highly significant difference between these two groups was found concerning the distance of the birth month to the cut-off date ($p = 0.000^{**}$). A higher RAE is to be seen in junior athletes.

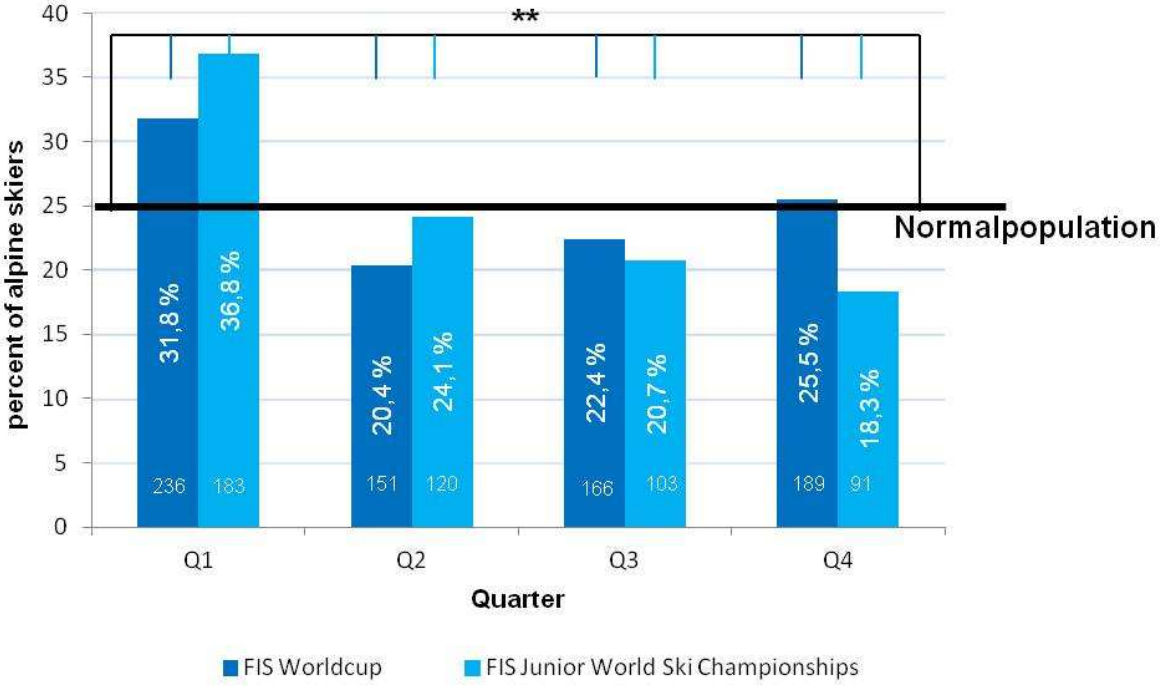
Fig. 3: Categories



Birth quarter distribution for categories

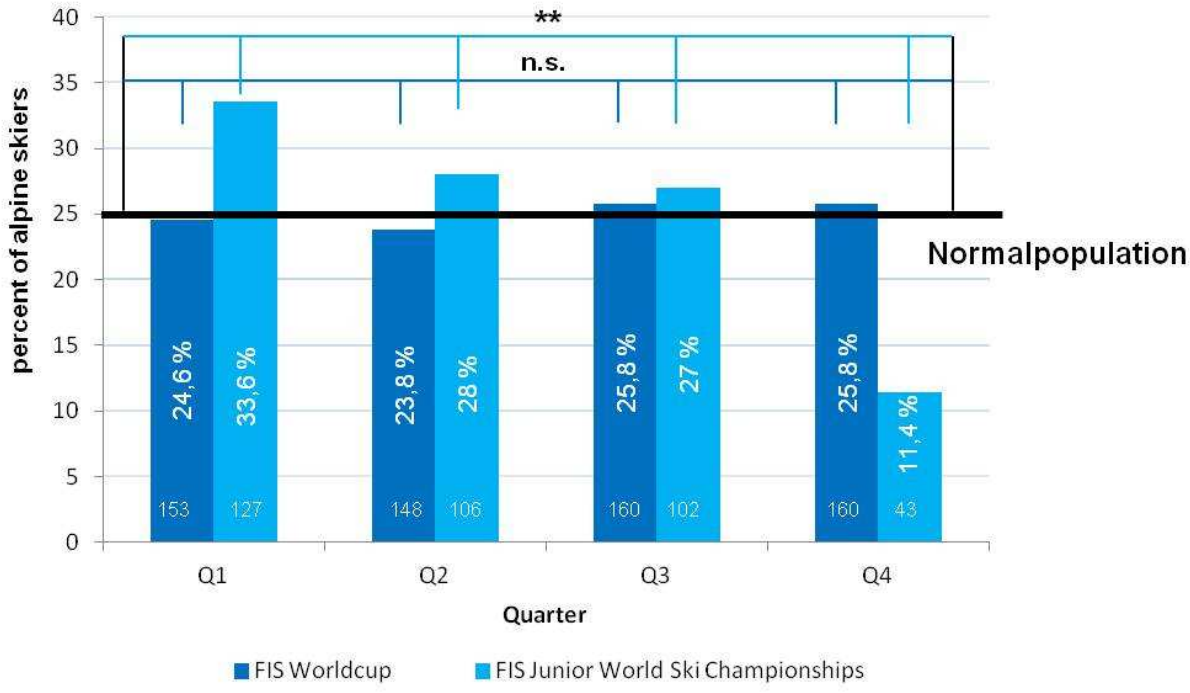
With regard to the aspect of sex, this comparison of the two groups shows an overrepresentation of the athletes born in the first quarter even more significantly (see figure 4 and 5). Looking at the male athletes, 36.8 per cent were born in the first quarter and only 18.3 per cent in the fourth quarter. Regarding the female athletes, the result was even more significant with 33.6 per cent born in the first and only 11.4 per cent in the fourth quarter. A RAE is hereby obviously given. Reviewing the differences between the observed and the expected birth-quarter distribution, a significant difference for the group of male World Cup athletes ($p = 0.000^{**}$), the group of male juniors ($p = 0.000^{**}$) and the group of female juniors ($p = 0.000^{**}$) was demonstrated. There was no significant difference proven for female World Cup athletes ($p = 0.882$).

Fig. 4: Categories for male athletes



Birth quarter distribution divided in categories for male athletes

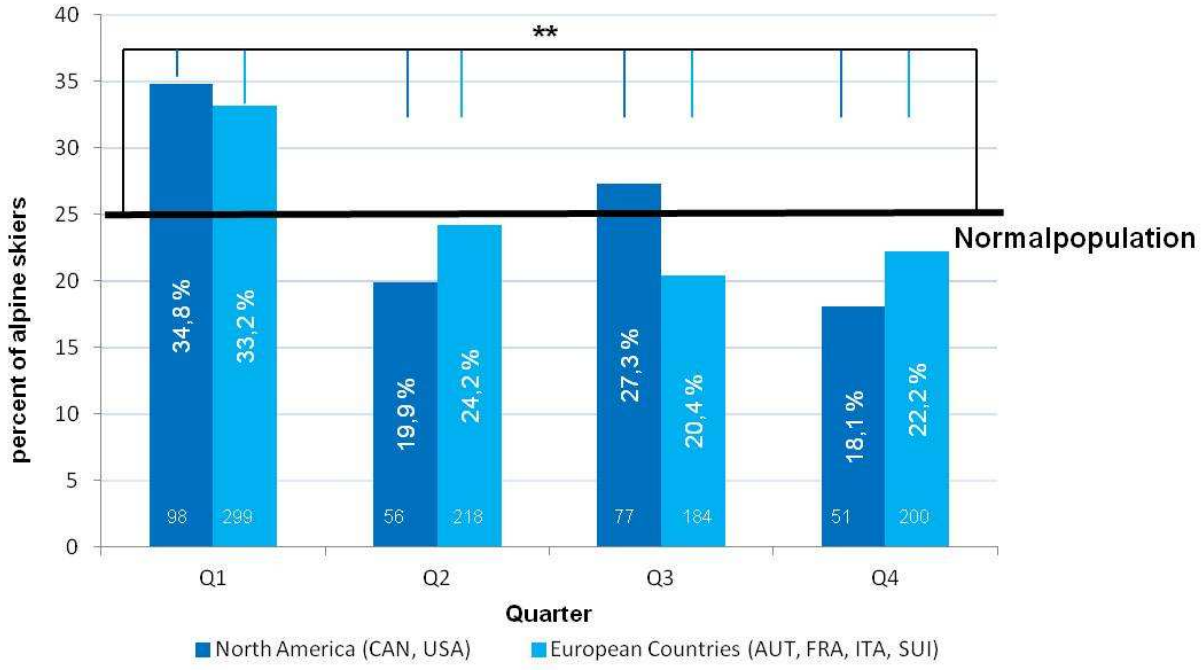
Fig. 5: Categories for female athletes



Birth quarter distribution divided in categories for female athletes

A highly significant difference between the expected and the observed birth-quarter distribution was also found for each of the both national groups (North American countries, European countries) (p = 0.000**). In the national groups, much more athletes were born in the first quarter than in the other three quarters (figure 6).

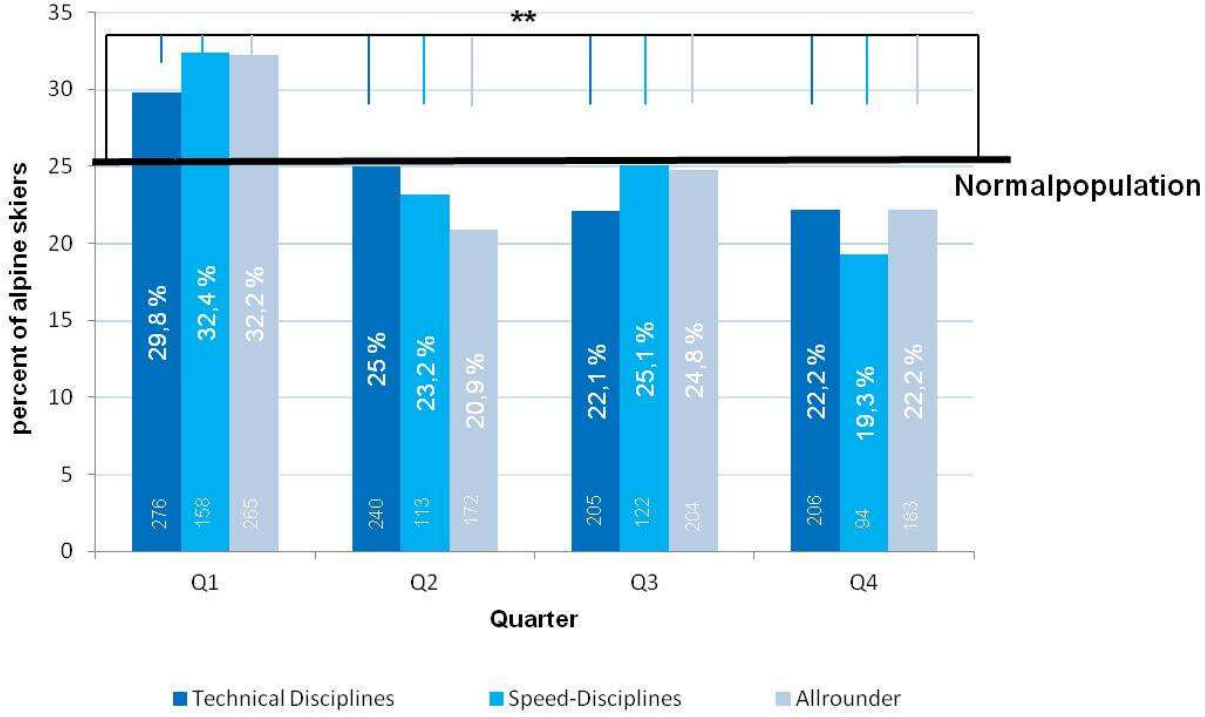
Fig. 6: Nations



Birth quarter distribution for nations

Figure 7 presents the birth-quarter distribution of the individual disciplinary groups. Both the technical (p = 0.002**) and the speed experts (p = 0.000**) as well as the racers who started and won in the technical and speed competitions (p = 0.000**), a highly significant difference between the birth-quarter distribution, compared with the distribution of the normal population was proven. A significant overrepresentation of athletes born in the first quarter is clearly to be seen. The percentages for the other quarters are just, or below the percentage of the normal population.

Fig. 7: Disciplines



Birth quarter distribution for disciplines

4. Discussion

In many sports children and young adults are divided into competition categories according to their chronological age to ensure equal opportunities. Within these categories, which are divided by birth cohorts, the age difference between two children or young adults respectively can be up to one year. This age gap can be an advantage for the relatively older athletes, namely those who are born shortly after the cut-off date, which is used for the categorization. These can be physical, cognitive, social and emotional developmental advantages, a broader set of experience and psychological advantages (a.o. Baker et al., 2010; Delorme et al., 2009; Delorme et al., 2010). In this context the RAE, which has been identified in many sports, has been widely discussed in the last years. Fuchslocher et al. (2011) is the only person who mentions that this effect exists in Alpine skiing in Switzerland.

Through our study we could prove that the RAE generally exists in top Alpine skiing. The observed birth-quarter division significantly differed from the expected even distribution. This is in accordance with other studies from other sports requiring a lot of strength, such as for example with those from Hurley et al. (2001) in Ice Hockey or with those from Helsen et al. (2005) respectively in Football. Alpine skiing is a sport which on the one hand is very popular in many nations and in which on the other hand well-trained strength skills are part of the performance-determining variables (a.o. Bosco, 1997; Neumayr et al., 2003; Raschner et al., 2005; 2008) and therefore this result is not really surprising.

The RAE has been proven among world cup athletes and also among juniors. The analysis of the difference between these both groups in terms of the distance of the birth month to the cut-off date, showed a highly significant stronger RAE among juniors. An overrepresentation of skiers born in the first quarter with 35.4 per cent and an under-representation of athletes born in the fourth quarter with 15.3 per cent was shown. The clearer RAE among juniors can probably be ascribed to the fact that the four best racers from each nation have a start authorization in the different categories in the junior world cup and therefore there is an additional selection within the already selected squads. These results coincide with the studies of other sports, which showed that the RAE is less pronounced, the older the athletes are (a.o. Baker et al., 2010; Delorme et al., 2010; Lames et al., 2008; Schorer et al., 2009b; Till et al., 2010). However, it has to be taken into consideration that the evaluated random sample was taken from juniors between 16 and 20 years. According to references, the highest RAE occurs during puberty (a.o. Delorme & Raspaud, 2009b; Lames et al., 2008). Consequently one could expect that the RAE is even higher among even younger racers who are in or before this stage. This however has to be proven through further studies.

A RAE has been shown for both the female and male sex. However, looking separately at the birth-quarter-distribution of the two groups of female athletes of World Cup and Juniors, no significant difference between the observed and the expected distribution according to the

birth quarter and therefore no RAE for the group of female World Cup athletes can be found. The birth-quarter-distribution is quite balanced and lies just over or just under the distribution of the total population. This is in accordance with studies in sports such as Soccer, Handball and Basketball, where no RAE among female athletes could be proven (Baker et al., 2010; Delorme et al., 2009). Whereas with 33.6 per cent, a clear overrepresentation of female athletes born in the first quarter can be observed among the group of Juniors. At the same time merely 11.4 per cent of the female athletes were born in the last quarter and therefore they are clearly underrepresented. Lames et al. (2008) and Helsen et al. (2005) explain that the absent RAE among female athletes in many sports exists because of the early puberty of girls, as their puberty often already is over before the selection, and the assumption that the female practice of many sports does not require as much strength as the male. At least the latter does probably not apply to Alpine skiing. It can be assumed that in a few years there will be a RAE among the female sex at World Cup level.

The RAE was demonstrated for the nations “North America” and ”Core Europe”. According to other studies, a RAE occurs in popular sports in which there is a high number of applicants for a place in the team or squad respectively (a.o. Baker et al., 2010; Côté et al., 2006; Delorme et al., 2009; Lames et al., 2008). Therefore, it was assumed that in the group of the European countries a RAE could indeed exist, because this sport is very popular in these countries. In the North American countries other sports, such as Ice Hockey in Canada or American Football or Basketball in the United States, are probably more popular. Hence, it was expected that the RAE in these countries would not be as strong or would not exist at all. However, this was not proven. The training systems of the four considered European countries probably look the same in this sport and are probably based on the cooperation of clubs and schools with the focus on skiing. In this system the point of time of the first selection is usually before or during puberty. In the North American countries, the training of young athletes is probably more intensively organized through clubs and private initiatives. However, the assumption that the smaller number of ambitious junior racers and the connected reduced selection pressure could prevent a RAE was not proven. Côté et al. (2006) for example could not prove a RAE for American Basketball players, which can among other things be ascribed to the High School system of the United States.

However, Côté et al. (2006) did not ascribe the absent RAE among American Basketball players only to the High School system, but also to the fact that it is a sport with many specific positions and therefore allows players with less well-built physical attributes but with other strengths, e.g. tactical-technical skills, to shine at a sport. Based on this, it was considered whether there was a difference according to disciplines in terms of the RAE in Alpine skiing. Indeed well-established strength skills are a large influence in terms of

performance in all disciplines of this sport (a.o. Bosco, 1997; Neumayr et al., 2003; Raschner et al. 2005; 2008), but still the RAE could be insignificant in the technical disciplines Slalom and Giant Slalom, because the relative younger athletes can compensate the age specific disadvantage through their technical skills and therewith manage to “survive” the selection battle. In the fast disciplines of Downhill and SuperG, which require a higher level of strength, however, the relatively older athletes probably have a greater advantage because of their physical development. The underlying results of the study, however, cannot confirm this assumption, because the RAE was detected for both the technical and speed experts as well as for the all-rounders.

All in all, the results of this study impressively show that the RAE presents a great problem in Alpine skiing. It seems that also in this sport relatively older athletes are classified as allegedly more talented in comparison to the relatively younger athletes due to the age-related developmental advantages and therefore are given preference in the talent selection. However, the existence of the RAE points out serious shortcomings in the selection procedure, because the goal in Alpine skiing has to be to ideally prepare the actually talented athletes from the talent pool for their top performance age (Lames et al., 2008). It can be assumed that talents in a sport are evenly distributed over the selection period and that this is not related to the birth month and therefore often less talented athletes are promoted and other, highly talented athletes, who are disadvantaged because of their relatively younger age at the time of selection, are not selected (Lames et al., 2008). Hence, many talents do not have access to professional training and therewith the opportunity to fruition their potential is taken away from them (Helsen et al., 2005). Thus, the talent selection and talent promotion system in Alpine skiing should be generally reviewed.

5. Outlook

Up until now there is no ideal solution, meaning that there is no generally effective recipe to minimize the RAE (Lames et al., 2008). Different studies propose various solutions. A possible solution could be to modify the range of age groups and to postpone the talent selection to the period after puberty (a.o. Baker et al., 2010).

Another, very interesting seeming concept was presented by Hurley et al. (2001) in Ice Hockey in Canada, the “Relative Age Fair Cycle System”. This concept is based on the rotation of the cut-off date of the respective competition group; this date shifts to three months earlier or later almost each year. Thereby, during his eight-year training, a young Ice Hockey player passes through each quarter according to the birth month twice and therewith all the athletes will have a chance to be among the relatively older athletes. This concept

seems like an interesting approach to minimize the RAE also in Alpine skiing, because the birth date is still a criterion for the competition group classification.

If this concept of the rotating cut-off date was applied in Alpine skiing, the previous system of the five children and three school classes, which is currently often applied in National Ski Federations, could be merged into eight categories. The cut-off date for the respective classification would then rotate almost every year. Therewith, younger racers would run through each quarter position twice during their eight-year training. The concept modified by Hurley et al. (2001) is a possible solution for the eight seasons beginning in winter 2011/12 and is illustrated in figure 8.

Fig. 8: Relative Age Fair Cycle System in Alpine Skiing

Quarter	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
2004 (1)	1	2	3	4	5	6	7	8
2004 (2)	1	2	3	3	4	6	7	8
2004 (3)	1	2	2	3	4	5	7	8
2004 (4)	1	1	2	3	4	5	6	8
2005 (1)		1	2	3	4	5	6	7
2005 (2)		1	2	2	3	5	6	7
2005 (3)		1	1	2	3	4	6	7
2005 (4)			1	2	3	4	5	7
2006 (1)			1	2	3	4	5	6
2006 (2)			1	1	2	4	5	6
2006 (3)				1	2	3	5	6
2006 (4)				1	2	3	4	6
2007 (1)				1	2	3	4	5
2007 (2)					1	3	4	5
2007 (3)					1	2	4	5
2007 (4)					1	2	3	5
2008 (1)					1	2	3	4
2008 (2)						2	3	4
2008 (3)						1	3	4
2008 (4)						1	2	4
2009 (1)						1	2	3
2009 (2)						1	2	3
2009 (3)							2	3
2009 (4)							1	3
2010 (1)							1	2
2010 (2)							1	2
2010 (3)							1	2
2010 (4)								2
2011 (1)								1
2011 (2)								1
2011 (3)								1
2011 (4)								1

Concept of a rotating cut-off date in Alpine Skiing
(taken from Hurley et al., 2001 and modified)

In the column which reads “quarter” states the respective birth year and in brackets the quarter number is shown (1 = January to March, 2 = April to June, 3 = July to September, 4 = October to December). The figures 1 to 8 indicate the class number the racers were allocated to in the respective season, according to their birth quarter. In some cases, one birth-quarter group remains in the same class for two years and skips another class. However, as the classes are rearranged and each birth-quarter group runs through each quarter twice during their eight-year training, fairness should be given according to Hurley et al. (2001). This system was evaluated by 36 experts in children and young adult skiing (coaches, heads of schools with a focus on skiing, officials) in terms of its meaningfulness and feasibility in Alpine skiing. Generally, it can be said that the experts positively evaluated this concept, because it contributes to more fairness in talent promotion. A balanced classification might lead to more moments of success, which then would increase motivation and consequently result in a lower drop-out rate, especially during puberty. The RAE would be less intense and due to the almost yearly rotation of competitors in the respective age group, variety would be ensured. Generally, this system could contribute to an adequate selection and to more equal opportunities in terms of talent selection.

For almost more than half of the questioned people, this concept would be feasible; however, it would have to be internationally supported by the FIS. The experts are concerned that the system is quite complicated, hardly understandable and difficult to organize or administrate. It should be transparent and simplified for everyone, in order for small clubs to be able to implement it. A suggestion in this context was to apply the system in the first place for children, because there are no international races in this age group and therefore an implementation would be easier.

By all means, it seems important to further analyse the problem of the RAE in Alpine skiing in order to capture the exact dimension of this effect. Further studies should dedicate themselves more to the mechanisms responsible for the RAE in order to be able to take this into account in the criteria for talent selection. The analysis of the biological age could be of particular importance, because the developmental advantaged athletes could strongly influence the RAE. By all means, all the persons involved in talent selection and promotion process in this sport should be aware of this problem and its consequences.

6. Literature

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