

Influence of chronological age in the selection of players into the national basketball teams

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INFLUENCE OF CHRONOLOGICAL AGE IN THE SELECTION OF PLAYERS INTO THE NATIONAL BASKETBALL TEAMS

KEYWORDS: Basketball, Chronological age, Relative Age Effect

ABSTRACT: The Relative Age Effect (RAE) is "the difference in age and maturity, among people who have been grouped under the same age, for a specific purpose or function" (Lorenzo and Calleja, 2010). The aim of this study is to analyse the presence of the effect in the Spanish National Basketball Teams from U-16 category to the senior teams ($n = 110$), who competed over summer 2013. The study will address the possible relationship to gender and playing position. This analysis will show the variations in the percentage of births throughout the year calendar. A descriptive study set whose variables include month of birth, gender (male or female), category (U16, U18, U19, U20, Senior) and playing position (inside or outside player). Significant differences in the distribution of births grouped by periods ($p = .46$, $\chi^2(4) = 9.6$) were found. In men's youth teams there is a significant difference in the number of players who are selected from the first and second semester depending on whether they are inside or outside players ($\chi^2(1) = 5.42$; $p = .20$, $V = .34$). Likewise, in women's youth teams there is also a significant difference ($\chi^2(1) = 9.24$; $p = .002$, $V = .49$). In conclusion, the effect is present through the Spanish basketball teams, especially at non-senior levels. It begins at the first competitive age and disappears into the senior teams. Furthermore, youth categories are specifically affected according to the position of play. It seems necessary to revise the models of organizing competitions trying to achieve other more balanced and less exclusive. Also rethinking selection and detection of talent methods of male and female players in the Spanish basketball.

The Relative Age Effect (RAE) is the difference in age and maturity, among people who have been grouped under the same age, for a specific purpose or function (Lorenzo and Calleja, 2010).

During the last decade there have been numerous investigations that echo the need to pay greater attention to the processes of development of athletes, mainly long-term, as it might determine that the athlete reaches higher competitive levels (Abbott and Collins, 2004; Bailey and Morley, 2006; Balyi, 2002; Côté, Baker and Abernethy, 2003).

For a player in development, having been selected for the national team in its category (set by chronological age) or higher, will be an important milestone. Those who are chosen are likely to access expert coaches and trainers, better training conditions, increased competition in training, better level of competition, etc. (Calleja and Lorenzo, 2010). To Manonelles (2003), "one of the most challenging aspects of selecting basketball players in high level constitutes, in its early stages, detection of future athletes with talent and skills to the game."

The aim of this study is to analyze the RAE in the Spanish basketball teams from U-16 to the senior team ($n = 110$), who competed over summer 2013. It will address the possible relationship between gender and playing position.

Method

This is a descriptive study whose design is based on those previously performed in Spanish population (Manonelles, 2003; Santiago et al., 2006). The sample collected in this study was 110 basketball players. All individuals belonged to both male and female national basketball teams, who represented Spain in various European championships and the World championship, which took place between May and September 2013.

The variables in the study are: birth month, gender (male or female) and playing position (inside or perimeter player). Also taken into consideration the category of play according to the following divisions: U-16 (born on January 1, 1997 or later), U-18 (born on January 1, 1995 or later), U-19 (born on January 1, 1994 or later), U-20 (born on January 1, 1993 or later) and Senior.

After reviewing the major studies on the subject, it was decided to consider the birth month and to group them into quarters and semesters. Due to the variations observed previously, we decided to study the presence of possible variations in relation to gender. Players were categorized in outside players (point guards, shooting guards and small forwards) and inside players (power forwards and pivots).

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Data collection was conducted through the website of each of the championships where different teams participated. The data published correspond to those listed in the "FIBA Europe Identity Card", license that allows the athlete's participation in the championship indicating nationality, age and gender player.

All statistical analyses were performed using SPSS version 20.0.0. Absolute frequencies and percentages for reporting results were used. The inferential analysis was performed using Pearson's chi square test (χ^2), used for testing how well the distribution of the observed frequencies differs from the expected distribution. The variable moves from 0 to an upper limit dependent on sample size and the number of categories.

Also the effect size of the distributions through statistical Cramer V, used to correct the value of χ^2 , was calculated.

Results

Table 1 shows the percent distribution of birth dates by quarters and semesters from all the players who were part of the studied teams. Each of the referred categories is compared.

In male categories, there are no significant differences in the

distribution of births grouped by semester according to competition category ($\chi^2(4) = 1.73, p = .78$). Conversely, female categories show significant differences in the distribution of births grouped by semester according to competition category ($\chi^2(4) = 10.44; p = .34$).

The results observed when analysing game positions according to the semester of birth and gender (Table 5) indicate that in male youth level there is a significant difference in the number of players who are selected from the first and second semester, depending on whether they are inside players or perimeter players ($\chi^2(1) = 5.42; p = .20, V = .34$).

Likewise, in female youth level there is also a significant difference in the number of players who are selected from the first and second semester depending on whether they are inside players or perimeter players ($\chi^2(1) = 9.24; p = .002, V = .49$).

The observed results when analysing game positions according to the birth's semester and gender (Table 4) indicate a tendency to equality when talking about inside players, both men and women. In Table 4 we are also able to observe RAE column in which the frequency of the number of births in the first half of the year is compared to the births of the second half.

Category	% 1st quarter	% 2nd quarter	% 3er quarter	% 4th quarter	% 1st semester	% 2nd semester
U16	41.7	37.5	20.8	0	79.2	20.8
U18	37.5	37.5	16.7	8.3	75	25
U19	15.8	47.4	26.3	10.5	63.2	36.8
U20	52.6	21.1	21.1	5.3	73.7	26.3
Senior	20.8	20.8	33.3	25	41.7	58.3
Total	33.6	32.7	23.6	10	66.4	33.6

Table 1. Percentage distribution of births by quarters and semesters in each category.

Category	% 1st quarter	% 2nd quarter	% 3er quarter	% 4th quarter	% 1st semester	% 2nd semester
U16	33.3	41.7	25	0	75	25
U18	25	41.7	16.7	16.7	66.7	33.3
U19	0	63.6	18.2	18.2	63.6	36.4
U20	41.7	25	33.3	0	66.7	33.3
Senior	25	25	25	25	50	50
Total	25.4	39	23.7	11.9	64.4	35.6

Table 2. Percentage distribution of births by quarters and semesters in male category.

Category	% 1st quarter	% 2nd quarter	% 3er quarter	% 4th quarter	% 1st semester	% 2nd semester
U16	50	33.3	16.7	0	83.3	16.7
U18	50	33.3	16.7	0	83.3	16.7
U19	37.5	25	37.5	0	62.5	37.5
U20	71.4	14.3	0.0	14.3	85.7	14.3
Senior	16.7	16.7	41.7	25	33.3	66.7
Total	43.1	25.5	23.5	7.8	68.6	31.4

Table 3. Percentage distribution of births by quarters and semesters in female category.

Gender	Position	% 1st semester	% 2nd semester	RAE
Male	Perimeter players	80	20	24-jun
	Inside Players	47.1	52.9	08-sep
	Total	68.1	31.9	32/15
Female	Perimeter players	92.6	7.4	25-feb
	Inside Players	50	50	06-jun
	Total	79.5	20.5	31-ago

Table 4. Percentage distribution by semester and RAE (comparison between births of the first and second semester) in youth teams (U16, U18, U19, U20), depending on gender and game position.

Discussion

The results show significant differences in the distribution of births grouped by semesters. We can say that in Spanish national basketball teams that competed in the summer of 2013 the RAE was present. The selected number of players whose birthdate was from the first half of the year was significantly higher compared to the second half.

The data show that those players born in the first part of the year are selected more frequently than those born in the second half of the year. Accordingly there is a situation of inequality when being selected, just by being born at one time or another. Given these results it is also clear that what previously found by Manonelles et al. (2003) and Santiago et al. (2006) is still present. Seems that the birthdate has an important role in the selection of players for the Spanish national basketball teams, at least in youth categories.

In response to competition categories, it seems that the data are more pronounced in the youngest category (U-16) with a birth rate of 79.2% in the first analysed period compared to the 20.8% of the second one. Although increasing in U-20, these differences are reduced slightly through the following categories (U-18 and U-19).

What we can clearly observe is that this percentage is reversed at senior level, presenting a 41.7% of the players born in the first half of the year compared to the 58.3% recorded in the second half.

It is considered as the best possible explanation that at youth level the most physically developed players are selected (early maturing). Those are normally the ones early born in the year, to the detriment of late-maturing players who are disadvantaged by the selection system. This argument seems to strengthen when checking how in the senior teams the percentages are reversed. By that time, the level of development is balanced so

it no longer will be a selection criterion. Other criteria, more related to the game itself will be taken into consideration (technical, tactical or strategic factors).

When analysing only the data evolution in women's basketball (see Table 3), it is showed that in female teams the effect seems to be bigger in the first semester, with percentages above 80% (83.3% in U- 16, 83.3% and 85.7% at U18 in U20). It is quite striking to observe the U-16, U-18 and U-19 teams, the youngest ones, where none player was born in the last quarter.

The results observed when analysing game positions in relation with the birth's semester and category (Table 2), indicate that male and female non-senior teams show significant differences in the number of players who are selected from the first and second semester depending on whether they are perimeter or inside players.

The perimeter players, both men and women, which were born in the first half of the year, are more likely to belong to the Spanish youth teams. The data are compelling, 57 players out of 49 perimeter players (point guard, shooting guard or small forward) were born in the first half of the year.

Despite the recommendations previously made by several authors (Baxter-Jones, 1995; Helsen et al., 2005), we must insist on the need to revise the models of organization of competitions trying to achieve other more balanced and less exclusive. We believe it is necessary to review and analyse the methods of selection and detection of male and female players in the Spanish basketball.

Finally, a more thorough review of Spanish basketball seems to be necessary, from grassroots to the elite, with the aim to increase the knowledge of the extent of this effect. Conducting a research as the one developed in France by Delorme and Raspud (2009) in which the entire basketball population was analysed seems to be the correct starting point.

INFLUENCIA DE LA EDAD CRONOLÓGICA EN LA SELECCIÓN DE JUGADORES Y JUGADORAS EN LOS EQUIPOS NACIONALES DE BALONCESTO

PALABRAS CLAVES: Baloncesto, Edad, Efecto de la Edad Relativa.

RESUMEN : El Efecto de la Edad Relativa (RAE) es "la diferencia, en edad y maduración, entre personas que han sido agrupadas bajo la misma categoría de edad, para un propósito concreto o función" (Lorenzo y Calleja, 2010). Se pretende analizar la presencia de dicho efecto en las selecciones españolas de baloncesto, desde la U-16 hasta la selección absoluta (n = 110), que competirán a lo largo del verano de 2013. Se atenderá a las posibles relaciones con el género y la posición de juego. Dicho análisis mostrará las variaciones en el porcentaje del número de nacimientos a lo largo del año natural. Se planteó un estudio descriptivo cuyas variables son: mes de nacimiento, género (masculino o femenino), categoría (U16, U18, U19, U20,

Sénior) y posición de juego (interior o exterior). Se encontraron diferencias significativas en la distribución de nacimientos agrupados por semestres ($\chi^2(4) = 9.6; p = .46$) En categorías inferiores masculinas existe una diferencia significativa en el número de jugadores que son seleccionados del primer y segundo semestre en función de si son interiores o exteriores ($\chi^2(1) = 5.42; p = .20, V = .34$). Así mismo, en las categorías inferiores femeninas también existe una diferencia significativa ($\chi^2(1) = 9.24; p = .002, V = .49$). En conclusión, el efecto se encuentra presente en las selecciones españolas de baloncesto, principalmente en categorías inferiores. Se inicia en las primeras edades competitivas y desaparece en la selección absoluta. Además, en categorías de formación, incide de forma específica según la posición de juego. Parece necesario revisar los modelos de organización de las competiciones tratando de alcanzar otros más equilibrados y menos excluyentes. Replanteando también los métodos de selección y detección de jugadores y jugadoras dentro del baloncesto español.

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