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SPORTS PERFORMANCE

Effect of scaling basket height for young basketball players during the competition: seeking out positive sport experiences

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ABSTRACT

Proper scaling of sports equipment is necessary to ensure an optimal teaching-learning process . This study aimed to analyse the effect of reducing basket height on the technical-tactical actions, physical participation, self-efficacy, cooperation and enjoyment of young basketball players in the competition. 51 under-14 male basketball players from four teams were chosen as the sample. The data collection included 2,286 attack phases during 12 matches. All players competed in two tournaments using official basketball rules but different basket heights (official basket height, 3.05 metres, and modified basket height, 2.80 metres). The dependent variables were: a) types of shooting actions, shot efficacy, and shooting conditions; b) the duration, type, number of passes done, and efficacy of the attack phases; c) heart rate values; and d) perception of specific and physical self-efficacy, collective efficacy, cooperation, and enjoyment. The results show that the scaled basket promoted game styles that increased the occurrence of fast-breaks and long positional attack phase. Shot efficacy for all shot types improved (not-significantly) and brought change in players' specific self-efficacy and enjoyment. These findings show that scaling equipment can help the transition from mini-basket to regular basket (under-14 age group) by generating better conditions for players' development.

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KEYWORDS
Scaling sports equipment; competition; self-efficacy; cooperation; basket height

1. Introduction

The game of basketball is influenced by the height at which the shooting target is located. The basket height is adapted for young players under-10 years old, but players practice and play with the same height as the adult players after that age. The problem with using this equipment is that it may not provide an appropriate experience for all young players, as it is not adapted to their level of maturity and skills (Buszard et al., 2020; Ortega-Toro et al., 2020). Since the 1950s, several experts expressed the need to modify the rules and equipment to create an adequate junior sport context (American Sport Education Program, 2012; Araujo et al., 2006; Davids et al., 2012). From an ecological dynamics standpoint, it has been argued that scaling sports equipment in junior sport simplifies skills acquisition, besides improving well-being and performance (Buszard et al., 2020, 2016; Ortega-Toro et al., 2020). Hence, intelligent manipulation of basketball equipment to match the functional capabilities of young players can facilitate the acquisition and performance of motor skills that are not possible under adult conditions (Buszard et al., 2020, 2016; Ortega-Toro et al., 2020). The majority studies on this topic in young basketballers have focused on examining the effect of shooting distance (Cárdenas et al., 2001; Mayol et al., 2016; Milovanović et al., 2020; Piñar & Cárdenas, 2004; Piñar et al., 2009), game format and play rules (Cárdenas et al., 2001; Clemente et al., 2017, 2020; Mayol et al., 2016; Piñar & Cárdenas, 2004; Piñar et al., 2009), ball size and mass (Arias et al., 2016; Gorman et al., 2021), and basket height (Chase et al., 1994; Milovanović et al., 2020; Ortega-Toro et al., 2020). The main findings from studies are that reducing shooting distance increase the efficacy of shooting (Haywood, 1978; Husak et al., 1986; Isaacs & Karpman, 1981; Juhasz & Wilson, 1982), shooting mechanics (Button et al., 2003; Elliott & White, 1992; Ferreira & Abrantes, 2001; Kunz, 1974; Regimbal et al., 1992; Rojas, 1997; Sánchez, 1997), and improve psychological constructs such as satisfaction, self-efficacy, and self-esteem (Chase et al., 1994; Esper, 1998; Miller, 1971; Ortega et al., 2017). However, when the shooting distance is longer, the movement mechanics and efficacy deteriorate (Elliott & White, 1992; Garzón et al., 2014; Liu & Burton, 1999; McKay, 1997; Miller, 1971; Reid, 1963; Spear, 1951; Swander, 1969). Studies related to manipulation of game format and rules such as reducing the number of players, 3-point line distance or court size increased players participation (1-on-1, shooting, passing, etc.), performance scores (Cárdenas et al., 2001; Mayol et al., 2016; Piñar & Cárdenas, 2004; Piñar et al., 2009), and heart rate values (Clemente et al., 2017, 2020). Other research suggested that decreasing the ball mass and size increased the number of passes, dribbling, shot frequency and shot success (Arias, 2012; Arias et al., 2012, 2016). Regarding the basket height, in junior basketballers, a reduction in the height involves an improvement in the acquisition of the shooting mechanics and shooting success (Buszard et al., 2016; Chase et al., 1994; Ortega-Toro et al., 2020), self-efficacy (Chase et al., 1994; Ortega-Toro et al., 2020) and

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enjoyment (Ortega-Toro et al., 2020). Therefore, it is evident that an appropriate manipulation of the basketball equipment can have a positive effect on how the young basketballers play and develop their skills (Farias et al., 2019).

Clearly, these studies show the need to scale the basketball equipment to the young player's characteristics. However, most of these studies, however, focus their research on training scenarios and not in competition. Hence, there is a gap in the literature on the effect of switching from mini-basket to standard basket (full-size) for young competitors. In this line, the study conducted by Ortega et al. (2012), showed that more than 80% of Spanish coaches and experts consider that the official competition rules for this age group should be modified. Despite these considerations, most of the competitions, federations, or institutions do not modify the mini-basket rules for young players, and if they do it, usually the adaptations are related to the playing time (Ortega et al., 2012). That is why, the common proposals of scaling constraints in basketball competition reduce the basket height, ball size, 3-point line distance and do not allow zone defence (Cárdenas et al., 2001; Mayol et al., 2016; Piñar & Cárdenas, 2004; Piñar et al., 2009, 2014). Knowing the impact of modifying the equipment will enable different stakeholders to scale constraints appropriately for scaling constraints for young players (Buszard et al., 2020). The purpose of this study was to analyse the effect of reducing basket height (from 3.05-m to 2.80-m) on the technical and tactical actions, heart rate, self-efficacy, cooperation and enjoyment of under-14 (U-14) players in the competition. Given that scaled environments improve performance, motor skill acquisition, psychological well-being and physical participation, it can be hypothesised that reducing basket height in the junior competition will produce similar findings.

2. Materials and methods

2.1 Design

A quasi-experimental A-B design was applied to examine the effect of scaled basket height. The design conditions were official basket height (tournament 1 "3.05-m"), and a reduction of the official basket height (tournament 2 "2.80-m"). The University Ethics Committee of the principal authors approved the procedures and methods of this study (2260/2019).

2.2 Sample

The sample consisted of 51 intermediate young basketball players from four regional U-14 male teams in southeast of Spain. The players' characteristics were the following: average age (13.32 ± 0.41 years); training sessions per week (2.50 ± 0.57 sessions); session time (1.37 ± 0.44 hours); hours of training per week (3.27 ± 0.65 hours), and years of experience (2.93 ± 1.15 years). Guardians of the players were informed of the study and provided written consent.

2.3 Procedure and data collection

Players played two tournaments using official basketball rules but different basket height (standard basket height, 3.05 metres, and scaled basket height, 2.80 metres). The first tournament (tournament 1 "3.05-m"), the matches were played under the U-14 official basketball rules (basket height at 3.05 metres). The second tournament (tournament 2 "2.80-m"), each team played the same matches with the same rules as in tournament 1 "3.05-m", but the basket height was modified from 3.05-m to 2.80 -m. The tournaments were played in a period of two weeks (one week of break between tournaments). The tournaments were played after the end of the official regular season and on weekends. The same schedule and order of play was kept between tournaments with similar weather conditions. Coaches distributed the minutes played by each player equally in the two tournaments, with a system of substitutions pre-established among the players of the same team. During the tournaments, the same teams participated under a league system, in which they played in a single round.

The adapted basket height was halfway between mini-basketball (2.60-m) and basketball (3.05-m), as recommended by experts and coaches (Ortega et al., 2012), and a previous study with similar participants' anthropometrics characteristics in physical education (Ortega-Toro et al., 2020).

The subjects played 12 matches (six matches in each tournament) and 2,286 attack phases were analysed. The matches were recorded with a fixed camera from an elevated rear-view in one of the laterals. The technical-tactical actions were collected by two trained observers (Master in Sports Science with at least 5-years of experience in match analysis). Both observers were trained to use the observation tool before beginning the study following the protocol described by Losada and Manolov (2015). After the training period, inter- and intra-observer reliability were calculated. To calculate the intra-observer reliability, another researcher was used as a reference. The researcher held a sports science terminal degree and had more than ten years of experience in sports analytics. The reliability of the observers was measured before and after the observation (Kappa Index for the categorical variables and ICC for the time variables). The lowest level of inter-observer reliability was 0.80, and the lowest level of intra-observer reliability was 0.92.

Table 1 describes the criteria used to establish the dependent variables. The variables related to technical tactical actions (shooting actions and attacking profile) are part of the observation instrument designed by Ortega and Gómez (2009).

Moreover, before and after each match, the researchers put the players the heart rate monitor (Polar Team Pro 2 – Frequency of data collection = second-by-second; Finland), to measure the players' internal load. The "*Questionnaire of specific self-efficacy and collective efficacy*" (see, supplementary material) was designed according Bandura's guide for specific sport environments (Bandura, 2006), *"Sports Cooperation questionnaire"* (García-Mas et al., 2006), and "*Player' perception of enjoyment and achievement in competition questionnaire*" was filled out individually by each player approximately 15–30 minutes after the last match played. The same researcher explained and applied the battery of questionnaires to ensure face validity in both tournaments. The "*Player's perception of enjoyment and achievement in competition questionnaire*" was validated by a five-expert panel (three rounds, Delphi method). Expert was defined as a Doctor of Science in Physical Activity and Sport with a minimum experience of ten years. The first round was

Table 1. Criteria to establish the dependent variables.

Criteria	Description
Technical tactical actions "Shooting"	
Type of shooting	Number of shots of 1, 2, and 3 points.
Shooting efficacy	Basket was made or not, and if a personal foul occurred.
Shooting conditions	Shot without advantage over the opponent, shot with position advantage (part of the opponent body is outside of the line of the player with the basket), shot without an opponent nearby (opponents were at least one arm of distance length from the shooter), shot with basket closeness advantage (player due to anthropometric, physical capacities or skills is able to shot from the paint), or maximal advantage (when players shoot with at least two or three type of advantages).
Technical tactical actions "Passing"	
Number of passes	Cero passes, one pass, two passes, three passes or more than three passes.
Technical tactical actions "Attacking profile"	
Duration of attack phases	Time in seconds of each attack phase.
Type of attack phase	Positional attack or fast-break.
Attack phase efficacy	Not success or success (team score or team received a personal fault).
Internal load	
Time heart rate zones	Time in seconds in very low intensity (≤ 57% of maximal heart rate, HR max), low intensity (≤58-64% of maximal heart rate, HR max), in moderate intensity (65–76% of HR max), in vigorous intensity (77–95% of HR max), and in very vigorous intensity (≥ 96 of HR max) (Ferguson, 2014).
Psychological constructs	
Self-efficacy	The student's perception of self-efficacy was assessed into the perception of general physical efficacy ("Physical self-efficacy scale") (Godoy, 1982), specific self-efficacy, and collective efficacy ("Basketball specific self-efficacy questionnaire") (Ortega, 2005).
Cooperation	Conditional cooperation, situational cooperation with the coach; disposition to unconditional cooperation, situational cooperation with teammates, and situational cooperation outside the field of play (an adaptation of the "Sports Cooperation questionnaire" (García-Mas et al., 2006).
Enjoyment and achievement perception	Likert scale 0–10 of the perception of enjoyment, satisfaction, and achievement (Player' perception of enjoyment and achievement in competition questionnaire).

a qualitative analysis. The second phase involved an evaluation of the accuracy, precision, and wording of each questionnaire item. The third phase, content validity was calculated using Aiken's V coefficient (the lowest value found was 0.96). For examining the reliability a pilot study with a similar sample (n = 31) was conducted. The lowest intraclass correlation coefficient for test-retest reliability was 0.92.

2.4 Statistical analyses

Descriptive and inferential statistics of the data were calculated to establish the differences between tournaments. A t-test with pairwise comparisons was used to explore the possible differences for the continuous variables between playing with the different basket heights. A table of contingency and a Chi-square Test was used to evaluate the possible differences for the nominal variables between each experimental condition analysed. The level of significance was set at $p < .05$. To measure the magnitude of the effect size for the continuous variables, the eta square ($\eta 2$) was used using the following classification (Field, 2018): no effect ($\eta 2 < 0.04$), minimum effect ($0.04 < \eta 2 < 0.25$), moderate effect ($0.25 < \eta 2 < 0.64$) and strong effect ($\eta 2 > 0.64$). To measure the magnitude of the effect size for the nominal variables, the Cramer's V was used using the following classification (Field, 2018): minimum effect (< 0.30), moderate effect (0.31–0.70), and strong effect (> 0.70). The statistical analysis was performed with the statistical package IBM SPSS Statistics 24.0 (IBM Corp., Armonk, NY, United States).

3. Results

Overall, the score between tournaments was similar total points scored. Overall, the score between tournaments was similar (tournament 1 "3.05-m" = 589 and tournament 2 "2.80-m" = 559). However, the tournament 2 "2.80-m" more points were scored in two of three types of scoring (free throws = 52 pts, two-point = 428 pts, and three-points = 66 pts) than in tournament 1 (3.05) (free throws = 49 pts, two-point = 487 pts, and three-points = 54 pts).

3.1 Technical-tactical actions

Regarding the technical-tactical actions (Table 2), a statistically significant increase in the number of fast breaks was found in tournament 2 "2.80-m" ($p < .047$; $\eta 2 = .18$). There was a significant increase in the duration of the attack phases and the duration of positional attack phases in tournament 2 "2.80-m" ($p < .012$ and $p < .002$, respectively). These increases did not have a practical effect size. There was a significant trend to a higher efficacy in the fast break in tournament 2 "2.80-m" ($p < .059$; $\eta 2 = .56$). This trend had a moderate effect size. Tournament 1 "3.05-m" had a significantly higher pass in the positional attack ($p < .001$; $\eta 2 = .29$). This increase had a small effect size. A significant higher occurrence of rallies with four or more passes was found in tournament 2 "2.80-m" ($p < .001$, Figure 1). A significant higher occurrence of shots with no advantage was found in tournament 1 "3.05" ($p < .001$, Figure 2). Finally, a significant higher occurrence of shots without an opponent nearby was found in tournament 2 "2.80-m" ($p < .001$, Figure 2).

3.2 Internal load

Figure 3 displays that the players in tournament 1 "3.05" played significantly more time with a moderate heart rate ($p < .018$) than in tournament 2 "2.80", and players in tournament 2 "2.80" played significantly more time with an intense heart rate ($p < .012$) than in tournament 1 "3.05".

3.3 Psychological constructs

Related to the psychological variables (Table 3), a statistically significant reduction in specific self-efficacy ($p < .003$) was observed in the tournament 2 "2.80-m". The effect size of this decrease was small ($\eta 2 = .18$). No significant differences were found in the cooperation variables between tournaments.

Table 2. Offensive technical-tactical actions (shooting, passing and attacking profile) in both tournaments (3.05-m vs 2.80-m).

Variable	Tournament 1 (3.05-m)		Tournament 2 (2.80-m)			
	Av	SD	Av	SD	p	Effect Size
Shooting						
Total shots (n per match)	129.00	9.19	120	20.00	.513	0.45
Total shots (Av % per match)	34.58	9.75	37.15	8.92	.458	0.26
Shots fast break (n per match)	28.67	14.78	29.33	14.15	.123	0.04
Shots positional attack (n per match)	98.50	15.74	90.33	31.43	.519	0.26
Free throws (n per match)	33.7	10.6	36.2	11.7	.715	0.21
Free throws efficacy (%)	36.20	11.18	39.22	3.60	.715	0.34
2 points shots (n per match)	178.00	34.44	163.2	10.50	.273	0.43
2 points shots (%)	41.85	6.40	43.2	12.90	.465	0.16
3 points shots (n per match)	26.2	6.10	26.70	5.10	.854	0.08
3 points shots (%)	17.93	6.13	23.20	14.10	.465	0.40
Passing						
Total passes (n per match)	191	20.15	187	26.62	.316	0.15
Passes fast break (n per match)	39.90	23.47	42.83	25.24	.236	0.12
Passes positional attack (n per match)	145.17	37.22	134.50	36.39	**.001***	0.29
Attacking profile						
Total attack phases (n per match)	191.67	19.31	187.33	25.23	.179	0.17
Fast break (n per match)	40.33	23.73	45.33	27.51	**.047***	0.18
Positional attack (n per match)	151.33	37.50	142.00	35.11	.469	0.25
Duration attack phases (sec)	9.31	5.92	9.96	6.12	**.012***	0.11
Duration fast break (sec)	7.03	2.63	6.85	2.81	.451	0.06
Duration positional attack (sec)	9.98	6.39	10.98	6.55	**.002***	0.15
Efficacy attack phases (%)	33.20	6.48	35.1	7.84	.424	0.24
Efficacy fast break (%)	36.10	11.17	43.8	13.65	.059	0.56
Efficacy positional attack (%)	32.30	5.77	32.5	9.12	.695	0.02

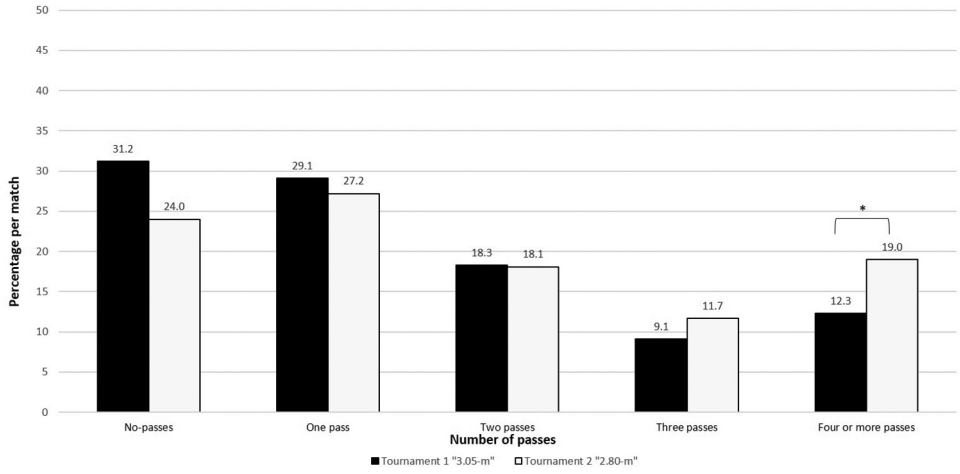

Figure 1. Percentage of passes per match in both basketball tournaments (3.05-m vs. 2.80-m). The asterisk (*) indicates statistically significant differences between tournaments.

Regarding the players' perception of enjoyment, satisfaction, and achievement (Table 4), a significantly higher perception of enjoyment, improvement, and goals achievement was found in tournament 2 "2.80-m" ($p < .030$). The effect size was moderate ($\eta 2 = .25$-$.31$) in almost all items, except for the players' perception of their coach's perspective, which obtained a low effect size ($\eta 2 = .19$).

4. Discussion

This study aims to analyse the short-term effect of modifying the basket height on offensive technical-tactical skills, internal load, and desirable psychological constructs in the competition. Two tournaments were played with similar conditions to assess the effect of reducing the basket height in U-14 male basketball players. Overall, similar findings were found in both tournaments. However, some changes in the offensive game dynamics were found to affect the players' experiences during competition.

Theoretically, the manipulation of the basket height would allow players to shot from farther positions. These may encourage defenders to have to be closer to their players and allow defences more openly. This aspect is confirmed by the significant increase of shots without an opponent nearby in tournament 2 "2.80-m" (9%). Previous studies have shown how a reduction of the basket height allows players to shoot with lower force levels and maintain the ideal shot pattern (Carvalho et al., 2019; Garzón et al., 2014; Ramos et al., 2019). In principle, this manipulation should also increase shooting efficacy, as other studies have shown by reducing the ball mass (Arias,

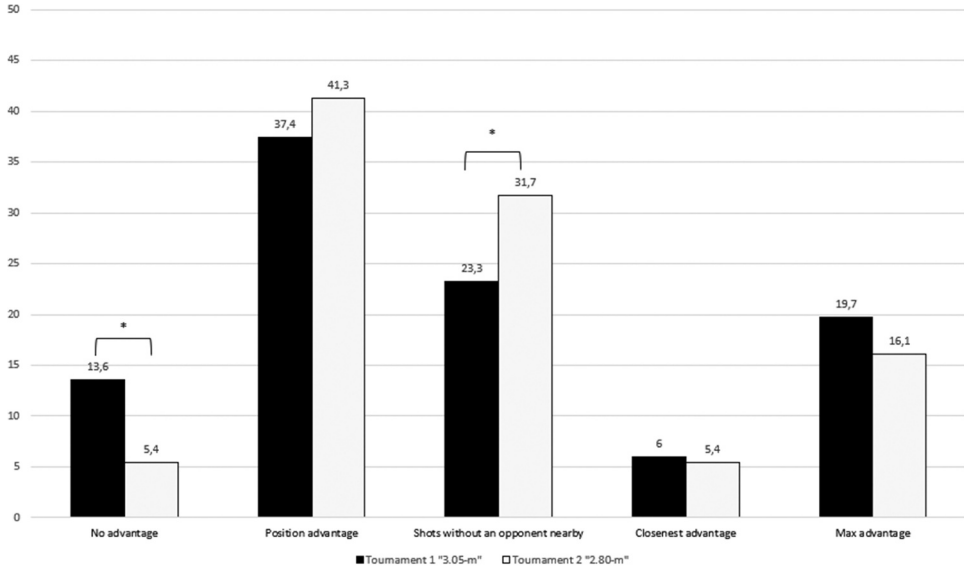

Figure 2. Percentage per match of shooting conditions in which the players execute their shots in both tournaments (3.05-m vs. 2.80-m). The asterisk (*) indicates statistically significant differences between tournaments.

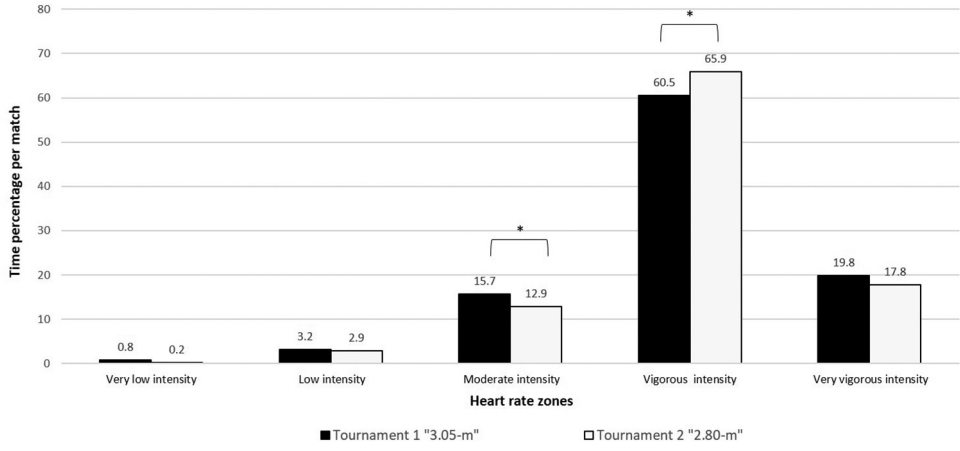

Figure 3. Differences between tournaments in the average time spent by players in heart rate zones. The asterisk (*) indicates statistically significant differences between tournaments.

Table 3. Players' self-efficacy and cooperation in both tournaments (3.05-m vs 2.80-m) (values expressed on a scale 0–100).

	Tournament 1 (3.05-m)		Tournament 2 (2.80-m)			
Variable	Av	SD	Av	SD	p	Effect Size
Physical Self-efficacy	83.55	9.44	82.31	23.70	0.777	0.03
Specific Self-efficacy	78.44	10.24	74.51	11.35	**0.025***	0.18
Collective efficacy	78.13	8.38	75.00	13.77	0.090	0.15
Conditional cooperation	70.58	27.35	75.65	25.03	0.265	0.10
Situational cooperation with the coach	83.90	23.43	83.93	19.43	0.946	0.00
Disposition of unconditional cooperation	84.77	22.43	87.30	17.00	0.584	0.06
Situational cooperation with teammates	86.95	22.30	88.65	16.50	0.707	0.04
Situational cooperation outside the field of play	86.20	23.60	86.30	18.05	0.978	0.00

2012) or 3-point line distance (Mayol et al., 2016), as other studies have shown. However, the current results showed a no-significant increase in shooting efficacy (2–3%). These findings match are consistent with the results founded by Ortega-Toro et al. (2020) when reducing the basket height (3.05 to 2.80) during a basketball unit for 13 to 14 year-old students. Likewise, Milovanović et al. (2020), by modifying basket height and ball size in static and dynamic trials, also found no statistically significant differences. While it is true that no statistically significant differences were found in shooting efficacy, it is notable that more free throw and two-point shots were scored in tournament 2 "2.80-m" than in tournament 1 "3.05-m". The cause behind these results is the efficacy of the field shots presented a higher variability in tournament 2 "2.80-m" than

Table 4. Players' perception of enjoyment, satisfaction and achievement in both tournaments (3.05-m vs 2.80-m) (values expressed on a scale 0–10).

	Tournament 1 (3.05-m)		Tournament 2 (2.80-m)			
Variable	Av	SD	Av	SD	p	Effect Size
Have you enjoyed the match?	8.18	1.99	9.07	0.87	**.005***	0.28
Have you enjoyed playing with your teammates?	8.18	2.06	9.17	0.85	**.003***	0.31
Are you satisfy with your performance in match(es) today?	7.14	2.54	8.18	1.17	**.013***	0.25
Have you playing enough during the game that the match was enjoyment?	7.39	2.26	8.6	1.19	**.001***	0.38
Has the match(es) helped you to improve your skills playing basketball?	7.05	2.43	8.27	1.63	**.006***	0.28
Do you think your teams have helped to achieve the goals established by the coach?	7.9	1.95	8.84	0.99	**.008***	0.30
Has you achieved the goals established by the coach?	6.94	2.56	8.06	1.2	**.013***	0.27
Do you think that your teammates have achieved the goals established by the coach?	6.94	2.5	8.25	1.32	**.025***	0.31
Do you think that your teammates value your ability to play basketball?	7.4	2.32	8.02	1.79	.125	0.15
Do you feel that your coach is happy with your performance during the match?	7.19	2.28	8.07	2.25	**.030***	0.19
Do you feel that your coach is happy with the team performance during the match?	7.35	2.12	8.05	1.51	.072	0.19
Has the match(es) encourage you to continue training basketball?	7.97	2.07	8.56	2.05	.119	0.14

tournament 1 "3.05-m". In part, these results could be caused by the fact that players in tournament 2 "2.80-m" did not have the opportunity to practice with a basket height of 2.80 metres, considering this as a limitation of the study.

The players in tournament 2 "2.80-m" did more plays with significantly higher passes. This involved an increase in players' participation, generating more unbalanced situations between offence and defence, and more teamwork to increase the landscape affordances from the ecological dynamics viewpoint (Buszard et al., 2020, 2016). This aspect is confirmed indirectly by the significant increase in the duration of the positional attack phases in the tournament with the adapted basket height. The changes in the game dynamic match experts' recommendations for proper player development and increase performance: the uses of passes to create opponent team unbalance (Sautu et al., 2009), the increase of ball passes to develop patience and decision-making (Iglesias & Sanz, 2005), and an increase of active players and team participation (Cañadas et al., 2018; DiFiori et al., 2018; Ortega et al., 2006). In addition, fewer shots were performed from a position of no advantage and more shots were made without an opponent nearby. This behaviour could be due to the players perceiving the throwing lines (those linking the shooter to the basket) better, promoting shots further away from the defenders, thus increasing their exploratory capability (Correia et al., 2019). Another effect observed in the game dynamics was a significant increase in the fast breaks and their duration in the tournament with scaled baskets. This increase could be related to the teams playing with defence more openly, which allows them to start the fast break easier. The manipulation of the basket height may have contributed to the increase in fast-break efficacy. Because of the increase in the fast-break occurrence and its efficacy, the values found in the tournament 2 "2.80-m" are closer to the proportion found in elite male teams: 25% of occurrence and with at least a 50% of efficacy (Cárdenas et al., 2015; Marín et al., 2013; Ortega, 2006; Ortega & Victoria, 2016; Piñar et al., 2014).

The occurrence of more fast breaks, more active player participation and open plays could be the causes that players in tournament 2 "2.80-m" spent more time playing at a vigorous intensity (HR) and less in moderate intensity (HR). By contrast, the internal load decrease in the tournament 1 "3.05-m" could be the cause behind the teams playing with fewer open spaces and performing a significantly lower number of fast breaks. The larger occurrence of the positional attack phases with more passes led to more time playing at a moderate intensity (HR) in tournament 1 "3.05-m". Therefore, tournament 2 "2.80-m" is more in line with ACSM recommendations for young people by improving the time of vigorous physical activity and, as a result, their physical well-being. Other researches also support that proper handling of task constraints raises young players' internal load (Clemente et al., 2017).

The findings related to psychological constructs show players' perceived lower specific self-efficacy in tournament 2 "2.80-m". These results differ from previous studies (Chase et al., 1994; Ortega-Toro et al., 2020). In isolated conditions, young players (9–12 years old) who shot with a lower basket height had higher shooting performance and more self-efficacy (Chase et al., 1994). In physical education during a basketball unit, similar results were found in 14-years-old students (Ortega-Toro et al., 2020). Chase et al. (1994) pointed out in their study that the efficacy is connected with the number of shots scored. However, this higher variability of actions in tournament 2 "2.80-m" could negatively affect their specific self-efficacy by enhancing their exploratory problem-solving skills. The lack of prior experiences with scaled baskets and the variability in 2-point and 3-point shot efficacy appear to influence their perception and imply a decrease in their specific self-efficacy in tournament 2 "2.80-m". These findings are also explained by the fact that shooting is the basketball action that players perceive as the most important in the game (Ortega & Gómez, 2009; Ortega et al., 2009; Sansone et al., 2019) and changes in its execution and efficacy can influence their perception. No differences in players' physical self-efficacy, collective efficacy, and cooperation were found. These results can be considered normal since the study analysed the short-term effect of reducing basket height. The players presented similar or higher values in tournament 2 "2.80-m".

Players' perception of enjoyment, satisfaction, and achievement significantly increased in tournament 2 "2.80-m" with scaled baskets. Players indicated that they had a higher enjoyment, higher satisfaction with the experience and the time played, that the matches helped them to improve their skills, and they achieved the goals established by the coaches. These perceptions about their experience could be the results of the change in the game dynamics: more intensity, more fast breaks, more passes, more active participation, and a slight increase in

shooting efficacy. Young players want to participate and have the ball during the game (Dishman et al., 2005). Prior studies have shown that when players can do more fast-breaks and shoot more effectively, their enjoyment increases (Ortega et al., 2009).

The results confirm expert and coaches' opinions about the need to scale task constraints in this age group to facilitate the players' transition and development between mini-basket and regular basket (Cañadas et al., 2018; Cárdenas et al., 2015; Marín et al., 2013; Ortega & Victoria, 2016). Specifically, the effect of scaling task constraints according to players' characteristics after mini-basket shows benefits in terms of technique, game dynamics and psychological variables, such as those found in mini-basket (Marín et al., 2013; Piñar et al., 2014). As aforementioned, this type of modification has been recommended by experts and coaches previously (Ortega et al., 2012).

Tournament 2 "2.80-m" involved an increase of the proposed solutions recommended by experts: a) an increase of the fast breaks to avoid the organisation of the defence, and b) the use of long positional attack phases to generate specific unbalance in the opponent defence (Courel-Ibáñez et al., 2017; Santana et al., 2019). The change in basket height increased players' perception of enjoyment, satisfaction, and achievement, and it did not change the physical self-efficacy, collective efficacy, and cooperation. The changes in the basket height reduced the players' specific efficacy. These results confirm that scaling basket height in the transition from mini-basket to standard basket (under-14 age group) could generate better conditions for players' development.

The findings of the current study must be interpreted with caution. The study only analysed the short-term effect of the basket height in competition levels of the players' force, which could affect the realisation of shots for longer distance, or if the manipulation studies involved changes in the players' shot technique. Future studies should analyse the long-term effects of this manipulation on players' progression, even introducing these changes before playing with adult regulation (Gorman et al., 2021). It is also necessary to increase the sample size from different levels and sexes.

The use of scale equipment can contribute to more progressive and variable development, and positive experiences for young players (Garzón et al., 2014; Mayol et al., 2016; Montgomery & Maloney, 2018). The different stakeholders involved in the purchase of equipment and the establishment of rules should consider the benefits of these modifications to allow players, teams, and coaches to create appropriate environments for their development (Giménez-Egido et al., 2019; Vicente-Aroca & Salado-Tarodo, 2019).

5. Conclusions

The use of an adapted basket height in the competition promoted a game style that increased the occurrence of fast-breaks and the execution of long positional attack phases. These results indicate that scaling the equipment can aid in the transition from mini-basket to standard basket rules in the under-14 age group by creating better conditions for players' development. The results showed how the changes affected the enjoyment of players and their specific self-efficacy. This information about players' perceptions can help coaches implement rules and manipulate equipment. The availability of equipment that allows adaptation of the basket height to the players' characteristics could increase coaches' toolkit to achieve the desired development of players during the transition from mini-sport to regular sport.

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