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Original scientific paper

A STUDY ABOUT THE RELATIONSHIP BETWEEN ANTHROPOMETRIC PARAMETERS WITH FLEXIBILITY AND SPEED IN YOUNG BASKETBALL PLAYERS

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Abstract

The aim of this study was to find out any relationship between anthropometric parameters with flexibility and speed in youth basketball players. The participants were youth basketball players U16 in 5 teams that were participated regularly in basketball championship in Albania (N= 49). Body height and body weight where measured to assess anthropometric parameters in youth basketball players. To assess flexibility were used sit and reach test while to assess speed were used 10m sprint test.

Result from this study found there was a positive correlation between body height and sit and reach test (r=0.02, Sig= 0.8910) and with sprint 10m test (r=0.263, sig= 0.081). Data results from body weight with sit and reach test showed a negative correlation (r= -0.034, sig= 0.817) and a positive correlation with sprint 10m test (r=0.0368, sig= 0.013).

Keywords: basketball, flexibility, speed, sprint

1. Introduction

Basketball is a sport discipline globally populated which improved performance depends of training a combination of skills. Stretching exercises are mostly used during warm up to prepare athletes for the other part of the training session without causing pain and decreasing the risk of injuries (Bacurau et al., 2009). Before performing strength and speed exercises coaches recommend stretching exercise (Shellock & Prentice, 1985). Basketball is an incredibly popular team sport enjoyed worldwide, particularly among youth. It involves a dynamic and diverse range of movements, demanding a combination of individual skills, team plays, tactical awareness, and motivational elements (Trninic & Dizdar, 2000). During basketball games, players engage in various actions such as running, dribbling, shuffling, and jumping, which are characterized by their directional nature, multi-directionality, intensity, and brief duration (Crisafuli et al., 2002). The frequency of sprints and jumps is generally high, with McInnes et al. (1995) reporting an average of 997 ± 183 actions per game, while Ben Abdelkrim et al. (2007) found 1050 ± 51 actions per game. The speed and acceleration of a player are crucial assets, as the ability to quickly move down the court provides a significant tactical advantage (Harley, 2008). This holds true for senior basketball, where we witness the presence of fast, agile, powerful, and versatile players. Naturally, speed and agility also play important roles in youth basketball. Strength and motor performance typically improve as children progress through middle childhood and adolescence, although the rate of improvement varies

across different tasks (Malina, 2004). In boys, running speed improves between the ages of 5 and 18, with evidence suggesting a notable acceleration during adolescence after the age of 13 (Malina, Bouchard, & Bar-Or, 2004). Optimal periods for developing speed have been identified as an accelerated run between 12 and 14 years of age, a slalom run at 13 years of age, and interval training focused on speed at 15 years of age (Holm, 1987). The period between 11 and 14 years of age represents the second phase in youth sports training (Bompa, 2000), with goals including athlete development, talent identification, the acquisition of fundamental technical and tactical skills, and competition. Speed-focused activities play a significant role in the athletic development of young basketball players during this phase. Anthropometric characteristics and speed abilities play a crucial role in the selection process for basketball players. While speed is highly valued, the significance of height is widely acknowledged in team sports such as basketball. Height positively affects various body segment lengths, thus enhancing athletic performance. Achieving success in sports is often linked to specific anthropometric features, body composition, and somatotype (Classens et al., 1991). For instance, tall stature is frequently considered a primary criterion when selecting young players for basketball, given its association with the sport's preference for above-average height individuals. The anthropometric dimensions of basketball players have been correlated with playing positions, individual player success. However, limited information is available on basketball players for this topic below the junior level. The aim of this study was to find out any relationship between anthropometric parameters with flexibility and speed in youth basketball players.

2. Body of Manuscript

2.1 Methods

The participants were youth basketball players U16 in 5 teams that were participated regularly in basketball championship in Albania (N= 49). Body height and body weight where measured to assess anthropometric parameters in youth basketball players. To assess flexibility were used sit and reach test while to assess speed were used 10m sprint test.

2.2 Statistics analysis

To analyses the results of the study are used descriptive statistic such as mean, SD, maximum, minimum and Pearson correlation.

2.3 Results

Table 1 Descriptive statistics for the variables measured

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Body Height	49	1.6	2.0	1.772	.0869
Body Weight	49	43.5	98.5	68.308	11.7254
Sit Reach	49	9.50	43.00	23.6038	7.70574
Sprint_10m	49	1.79	2.50	2.0296	.15796
Sprint_20m	49	3.07	4.48	3.4453	.25446
Valid N (listwise)	49				

The table above show the mean, SD, maximum and minimum of body-height, body - weight, sit and reach test, sprint_10m, sprint_20m. The mean of body-height was 1.77 cm while the mean of body - weight was 68 kg. Sit and reach test has the mean 23.6 cm while sprint 10 m has the mean 2.0 sec and sprint 20 m has the mean 3.4 sec.

Table 2 Correlation coefficient for body height and weight with sit and reach, sprint 10m, 20m tests

		Sit_Reach	Sprint_10m	Sprint_20m
Body Height	Pearson Correlation	.020	.263	.033
	Sig. (2-tailed)	.891	.081	.828
	N	49	49	49
Body Weight	Pearson Correlation	-.034	.368*	.097
	Sig. (2-tailed)	.817	.013	.525
	N	49	49	49

The table above indicated a positive correlation between body height and sit and reach test (r=0.02, Sig= 0.8910) and with sprint 10m test (r=0.263, sig= 0.081). Data results from body weight with sit and reach test showed a negative correlation (r= -0.034, sig= 0.817) and a positive correlation with sprint 10m test (r=0.0368, sig= 0.013).

4. Discussion

The purpose of the study was to find out any relationship between anthropometric parameters with flexibility and speed in youth basketball players. The finding of our study show a positive correlation between body height and sit and reach test (r=0.02, Sig= 0.8910) and with sprint 10m test (r=0.263, sig= 0.081). Data results from body weight with sit and reach test showed a negative correlation (r= -0.034, sig= 0.817) and a positive correlation with sprint 10m test (r=0.0368, sig= 0.013). According to Hedrick, A. 2000 Static Stretching technique are the most used today to improve flexibility and the most popular amongst male and female athletes because it is carried out very easily. Statistic stretching provide an improvement in 20 m sprint, while there was no significant difference between stretching and statistic stretching in vertical jump height, agility, 10 m sprinting.

5. Conclusions

Result from this study found there was a positive correlation between body height and sit and reach test (r=0.02, Sig= 0.8910) and with sprint 10m test (r=0.263, sig= 0.081). Data results from body weight with sit and reach test showed a negative correlation (r= -0.034, sig= 0.817) and a positive correlation with sprint 10m test (r=0.0368, sig= 0.01

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