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ORIGINAL ARTICLE

Identification of speed and agility in 13-14-year-old female soccer players in Tirana, Albania

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ABSTRACT

The purpose of this study was to identify the skill component in female soccer players aged 13-14 in Tirana of Albania before planning a training program. The purpose of this study was to identify the skill component in female soccer players aged 13-14 from the city of Tirana in Albania before planning a specific training program. Method: The subjects are N.82 female soccer players taken from four teams in Tirana. Age: 13.5 ± 0.4 years, Body Height: 161.1 ± 3.82 cm, Body Weight: 51.74 ± 4.35 kg, BMI-kg/m2: 19.54 ± 3.32 %. Soccer players were field tested: Lateral Change of Direction (LCD), T-Test (T-T), 10 x 5 m Shuttle Run Test (SHRT) and Hexagon Test (H-T). Results: The data collected from the test are presented as mean ± standard deviation (SD), maximum and minimum were calculated in Excel for each test developed. The results for tests are; H-T-16.7sec, SHRT 10x5m -19.6 sec, T-Test -14.8 sec and for LCD - 8.06sec. Conclusion: According to the results presented in low values, we think that there is a connection between the effect of age and biological maturation. But without overlooking the work of the trainers with these age groups during the training sessions.

Keywords: Performance analysis, Girls, Football, Speed, Agility.

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INTRODUCTION

UEFA statistics for women's football show that over 99,553 women play the sport of football. Even in Albania, women's football has started to develop rapidly these years. Football is the most popular collective game in the world, as evidenced by its long history (Hurych & Scholz 2020). From the official data of the Albanian Football Federation, it appears that 197 elite female soccer players are active in the National Championship and until now, we have identified over 800 girls of different age groups who today practice football. However, the number of women playing football in Albania is relatively small compared to the number of women playing in Europe or the world.

There are no scientifically based studies for female soccer players in Albania, to identify and measure the sports performance and physical skills that are essential for the sport of soccer. Like other sports, soccer is not a science, but science can help improve sports performance (Albert.M.,1983). About physical fitness and anthropometric characteristics of female soccer players have been extensively studied by several authors (Davis & Brewer, 1993; Haugen et al., 2014; Jensen & Larsson, 1992) in different teams in the world, where it is reported that aerobic capacity of strength, running ability, flexibility, muscle strength, body height, mass and body fat percentage vary significantly from one playing position to another in female players. A group of authors (Mohamed et al, 2020) have reported in a study, that in the first Tunisian football league for women, anthropometric profiles differ from one position to another. According to a study among Brazilian soccer players, it was reported by the authors (Paulo R. Santos-Silva, 2021) that different playing positions had significant differences in physical capacity and anthropometric parameters. Defender players have been shown to have a better aerobic capacity than goalkeepers from running speed to anaerobic threshold (Manson et al, 2014).

Jumping, accelerating, decelerating, different sprints with changes of direction and the ability to repeat these actions identically in competition are essential for success in team sports like soccer (Stankovic et al., 2023). Tests related to female soccer in the field should be developed to accurately evaluate specific models of physical activity to improve sports performance, according to some authors (Chamari et al., 2004; Stølen et al., 2004). Explosive strength of the lower extremities is one of the most important motor characteristics (Stankovic et al., 2023). Paradis et al. (2003) reported a program improved power, speed, and agility, but not strength in young soccer players.

The ability to reach high-intensity activity by developing maximum efforts, such as sprints, quick changes of direction, or jumps is very important (Stolen et al. 2005; Mathisen & Pettersen 2015). Speed and agility are exercises that cover the entire training intensity spectrum and it is a very small percentage that can be improved due to heredity (Szabo et al., 2020). What is more, acceleration and sprint performance is associated with maturity status (Murtagh et al., 2020). Two studies (Mathisen & Danielsen, 2014; Mathisen & Svein,2015) found that short sprint bouts at maximum effort had a significant effect on agility performance in adolescent female soccer players. On the other hand, Shalfawi et al. (2013), reported that agility and repeated sprint training had no significant effects in well-trained elite female soccer players. Some authors have analyzed the effects of speed and agility training on female soccer players. Despite the research mentioned above, there is currently little scientific evidence to show the effects of speed and agility training on female soccer players (Paradis, 2003; Upton, 2011; Shalfawi et al., 2013; Mathisen & Danielsen, 2014; Gunnar & Svein, 2015; Page et al., 2021).

For children aged 11 - 14 years, it is recommended that the training intensity be increased to improve athletic performance. At this stage of their development, some players are likely to show a growth spurt (14-year-old

playing a sport can show large changes in physical potential similar to that of a 16-year-old), according to (Bompa & Carrera et al. 2015) and as a result manifest a lack of coordination during training. At this stage, the emphasis must fall on improving the qualities and skills of athletes and not on physical performance or winning during competitions/matches. As a result of the researched literature, the purpose of this study is to identify the component of speed-agility among female soccer players in the city of Tirana in Albania, where, based on the results after the tests that we will conduct, we can schedule a specific training in the development performance for female soccer players for the 13-14 age group.

METHODS

Participants

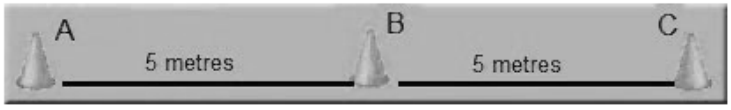
Four "*Women's Football Sports Associations*" in Tirana, Albania, were selected for our study N.82 girls football players 13-14 years old. Subjects who play football, have at least 2 years of experience and train 3 (three) times a week for 90 minutes. The procedure of implementing the study was explained to all football players and they expressed their agreement. This study was approved by the Ethics Council of the Sports University of Tirana, Albania, and all participants and their parents/coaches (in case they were below 18 years old) signed the written informed consent, which meets the ethical standards of the Declaration of Helsinki. The study started in June 2024. All subjects included in the study were subjected to anthropometric measurements: age 13.5 ± 0.4 years, Body Height (BH) 161.1 ± 3.82 cm, Body Weight (BW) 51.74 ± 4.35 kg and BMI-kg/m 19.54 ± 3.32%.

Test protocol

To collect data, we used the protocol tests that were to evaluate the purpose of our study. The data collection consisted of three (2) components; speed test and agility test. The subjects performed a warm-up of 10 min before the beginning of the tests. The tests were repeated 3 times and the best result was obtained.

Lateral Change of Direction (LCD)

Monitors the development of speed with the change of direction of the athlete (Mackenzie, 2015). This test requires the athlete to run and touch 3 cones as fast as possible. 3 cones are placed, 5 meters apart in a straight line. The athlete moves and touches the cones left and right (Figure 1).

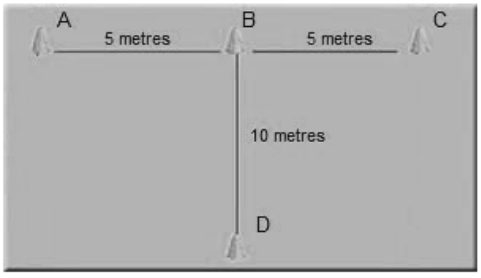


Source: https://www.brianmac.co.uk/latchang.htm

Figure 1. Test Lateral Change of Direction (LCD).

T -Test (T-T)

*M*onitors the development of the athlete's speed with the change of direction. The T-Test is a simple running test of agility, including forward, lateral, and backward running, suitable for a wide range of sports (Mackenzie, 2015). This test requires the athlete to touch a series of cones arranged in a "*T*" shape while running as fast as possible (Figure 2).

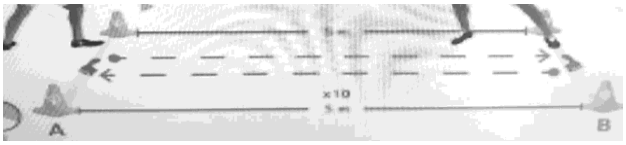


Source: https://www.brianmac.co.uk/tdrill.htm

Figure 2. Test T-Test.

Shuttle Run Test 10 x 5 m (SHRT)

This test aims to evaluate the speed and agility of the athlete. The athlete sprints as fast as possible from one line to another for 10 times 5m, covering 50m in total (Figure 3).

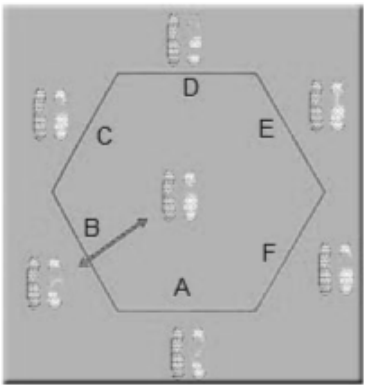


Source: https://www.topendsports.com/testing/tests/shuttle-10x5m.htm

Figure 3. Test Shuttle Run Test 10x5m.

Hexagonal Test (H-T)

The objective of the test is to monitor the athlete's agility. The Hexagon is a coordination test for the lower extremities (Mackenzie, 2015). To perform this test, you need a 66 cm- sided hexagon marked on the floor and a timer. This test requires the athlete to perform a series of two-footed outside-inside jumps over the sides of a hexagon (Figure 4).



Source: https://www.brianmac.co.uk/hexagonal.htm

Figure 4. Test Hexagon.

Statistical analysis

The data collected from the test are presented as mean ± standard deviation (SD), maximum and minimum were calculated in Excel for each test developed.

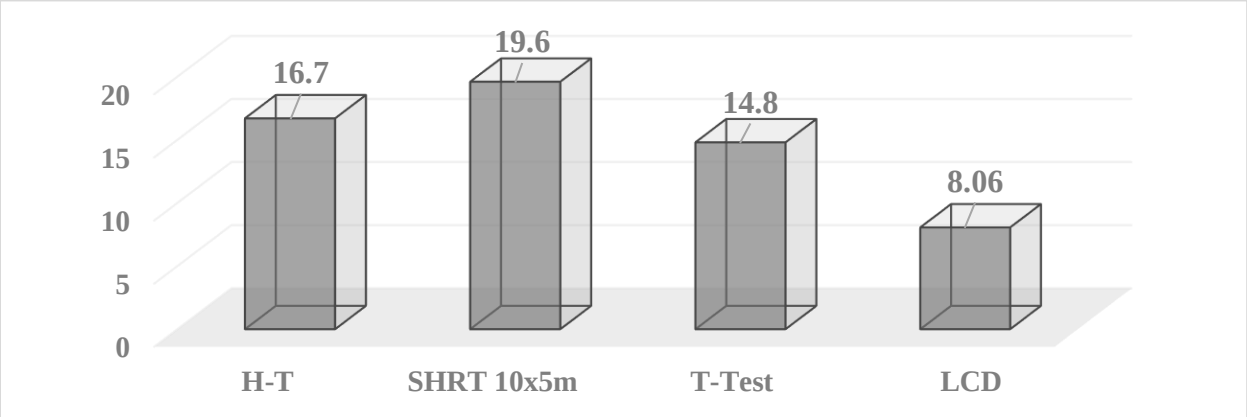
RESULTS

Table 1 shows the descriptive data of field tests conducted on female soccer players aged 13-14 years in the city of Tirana in Albania.

Table 1. The data of the speed and agility tests of soccer girls.

	Average	Max	Min	*SD*
H-T	16.7	18.4	1.24	± 1.24
SHRT 10x5m	19.6	21.93	18.09	± 0.9
T-Test	14.8	16.3	13.7	± 0.65
LCD	8.06	8.9	7.13	± 0.54

*Note. *H-T (Hexagon test), SHRT- (Shuttle Run Test), LCD- (Lateral Change Direction).*



*Note. *H-T (Hexagon test), SHRT- (Shuttle Run Test), LCD- (Lateral Change Direction).*

Figure 5. Graphical layout of speed and agility tests.

DISCUSSION

The purpose of this study is to identify components of speed and agility among female soccer players in the city of Tirana in Albania, where, based on the results after the tests that we will conduct, we can schedule specific training in the development performance for female soccer players for the 13-14 age group. Some studies have reported that demonstrated that BMI and body mass were significantly correlated with sprint, respectively. A great number of studies have focused on the evaluation conditional performance of soccer players, most of them were focused only on changes of speed and agility performance after a training program applied during the season (Sporiš, G. 2007; Milanović et al., 2013). According to the results (tab 1) obtained from the tests, it was evident that female soccer players aged 13-14 years who exercise 3 times a week, had low values compared to various literature studies. These results can be used as an incentive to research the impact of soccer training and other characteristics of the anthropologic status. Hughes et al. (2012) reported enhanced sprint performance in males aged 12 and 15 years, but not in 13 or 14 years, combining speed training and plyometric drills. There is not much literature in the area of talent identification of the female youth soccer player.

We think that the use of exercise protocols consisting of sport-specific drills shows a positive effect on sprint and agility performance. Results show that 13-14 years old are the most sensitive period to develop speed

and agility. We recommend investigating the specificity of different age groups and application of special session for the purpose of further improvement of speed and agility.

CONCLUSIONS

According to the results presented in low values, we think that there is a connection between the effect of age and biological maturation. But without overlooking the work of the trainers with these age groups during the training sessions.

AUTHOR CONTRIBUTIONS

B. Mema has a contribution to the development and monitoring of tests for female soccer players. B. Mema and E. Lleshi contributed to the collection of data and the preparation of the article.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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