Proceeding

Supplementary Issue: Summer Conferences of Sports Science. Costa Blanca Sports Science Events, 25-26 September 2020. Alicante, Spain.

Finding tennis talents in Greece

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ABSTRACT

The aim of the present study is to investigate motor skills in children ages 6-11 in Greece with the focus on tennis. Motor abilities in tennis is the main condition for future high performance. A series of tests of AST (Allgemeiner Sportmotorischer Test 1990) were used for the purposes of the present study. Participants included 124 primary school students. These tests included six tasks: running (20 meters, hurdles and 6' running) and throwing (tennis ball throwing to a target, ball throwing on the wall and medicine ball throwing). Results did not show significant differences between boys and girls. Differences found between boys and girls focused mainly on motor coordination and ball handling. The explanation for such differences is based on the fact that boys are more used to play with balls in relation to girls.
Keywords: Test; Tennis; Talent; Greece.

Cite this article as:
Athanailidis, I. (2020). Finding tennis talents in Greece. *Journal of Human Sport and Exercise, 15*(4proc), S1030-S1034. doi:https://doi.org/10.14198/jhse.2020.15.Proc4.05

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Abstract submitted to: Spring Conferences of Sports Science. Costa Blanca Sports Science Events, 19-20 June 2020. Alicante, Spain.
JOURNAL OF HUMAN SPORT & EXERCISE ISSN 1988-5202

doi:10.14198/jhse.2020.15.Proc4.05

INTRODUCTION

The basic criteria for the selection of children in tennis are those characteristics related to anatomy (height, weight) as well as motor skills of children in primary school.

Motor skills are the individual characteristics that are included in the genetic code and are characterized by endurance and stability. They play and important role in the development and performance of motor skills (the individual ability to reach a result with the best possible efficiency). Motor skills are divided to gross and fine motor skills. Gross motor skills are related to muscle and circulatory system while fine motor skills relate to the level of assembling and coordinating movement and depend on learning processes and adjustments based on the higher brain centres of the central nervous system Doloma (2019).

The development of fine motor skills is not an independent process from this of learning motor skills. On the contrary, their level determines the rhythm and way of accessing new motor skills as well as the efficiency level of their use (Kambas 2003).Many scientists report a different number of basic fine motor skills for children ages 5-11.Hirtz (1985), referring to primary school children, included the following in his list:

- The complex skill of reaction.
- Rhythmic ability.
- Balance.
- The ability of kinaesthetic variation.
- Orientation.

Blume (1981) added the ability to combine motors and adaptability. Starosta (1995) included motor coordination and the expression of feelings. In 1998 he also included movement harmony keeping always considering whether all the above-mentioned fine motor skills are basic or not. According to other studies the most important differences were found between kindergarten and 1st grade students. In their study, Barnett van Beurden, et al (2008), supported that the development of motor skills during childhood is vital for a healthy life, considering that it will allow children to successfully participate in various leisure and/or sports activities (individual or team) throughout their lives. In general, the level of development of skills determines the differences between individuals on learning and performance (Gallahue & Ozmun, 1995).Abilities are relatively continuous characteristics that are mostly genetically determined, vary according to exercise or experience and affect the performance of motor skills (Schmidt& Lee, 1999). Cognitive skills relate to memory processes, perception skills relate to problem solution and the speed of information processing (Magill, 1998).

METHODOLOGY

The AST(Allgemeiner Sportmotoricher Test, 1990) was used:20meters sprint, throwing of tennis ball to target, ball throwing to the wall and under the feet, turning and catching the ball, hurdles, medicine ball throwing, 6 minutes running around a volleyball court. Participants included 124 children (61 boys and 61 girls) in primary school, ages 6-11. Each age was separately assessed. For running tests (20 meters, hurdles, 6 minute running) participants had two tries and the best one was assessed. The same procedure was followed for the throwing tests.

Table 1. Exercise included by the test and the pursued target.

Exercises	Pursued ability
20 Meters sprint	Speed-anaerobic non –lactic
Ball throwing with target	Coordination abilities with precision exercise (partial Precision)
Ball-feet-wall	Skilful with ball, total body coordination ability in exercise with precision
Exercise with hurdles	Quickness, skilfulness, total coordination in complex exercise under time pressure
Throwing medicine ball	Quick- strength in hands and thoracic muscles
6 Minutes running	General aerobic strength

Procedure of test

1. Two efforts, the best is valid.
2. Three squares, small square 3 points, medium square 2 points, big square 1 point.
3. There are two rows with five efforts and at the end we have the addition of all points.
4. Two efforts with best score (time).
5. Throwing the medicine ball (I1 kg.) two efforts.
6. 6 minutes strength, in volleyball court/ one round is 54 meters.

RESULTS

Variation Analysis MANOVA was used. Age and gender means are shown in Table 2. Interactions of gender-age are shown, in Table 3. Frequencies show that 67,3% of the children do sports, 22,4 % are members of a club and 23,4 % of the children have parents that are members of clubs. Finally, the correlation between tests is shown in Table 4. There were two groups in running tests (20 meters, hurdles, 6' running) and throwing tests (ball throwing to target, ball throwing to wall and medicine ball throwing). Running tests show an intercorrelation (anaerobic alactic, aerobic ability) and throwing tests (coordinating ability and power).

Table 2. Means by age and gender.

Age	20 M Sprint	Ball throwing with target	Ball-Feet-Wall
6	4.9900	9.6667	4.0000
7	4.6135	8.8000	5.0500
8	4.5053	8.8667	5.3125
9	4.4314	11.7273	8.9048
10	4.0670	12.6957	11.6250
11	4.0739	14.4211	22.5789
Gender			
Boy	4.3086	12.2745	12.2500
Girl	4.4111	10.3571	9.2778
Age	**Exercise with hurdles**	**Throwing medicine ball**	**6 min running**
6	27.5350	2.3000	756.0000
7	25.7844	3.1940	647.8148
8	23.9350	3.5281	737.3333
9	22.0209	4.3714	847.1739
10	22.8148	5.3152	936.9048

11	23.0300	5.5316	857.1579
Gender			
Boy	22.4538	4.4071	776.5882
Girl	24.6210	4.2825	818.5789

Table 3. Gender and age interaction in all tests as shown by the multiple variation analysis (MANOVA).

Interactive age-gender	**20 m sprint**	**Ball throwing with target**	**Ball-feet-wall**	**Exercise with hurdles**	**Throwing medicine ball**	**6 min running**
	p = .539	p = .075	p = .033	p = .071	p = .972	p = .000

Table 4. Correlations between tests.

	20 m sprint	**Ball throwing with target**	**Ball-feet-wall**
20 m sprint	1.0000	-.3945 p = .000	-.5237 p = .000
Ball throwing with target	-.3945 p = .000	1.000	.4846 p = .000
Ball-feet-wall	-.5237 p = .000	.4846 p = .000	1.0000
Exercise with hurdles	.4751 p = .000	-.2811 p = .008	-.3676 p = .000
Throwing medicine ball	-.5187 p = .000	.4374 p = .000	.6084 p = .000
6 min running	-.3257 p = .002	.3696 p = .000	.2821 p = .008
	Exercise with hurdles	**Throwing medicine ball**	**6 min running**
20 m sprint	.4751 p = .000	-.5187 p = .000	-.3257 p = .002
Ball throwing with target	-.2811 p = .008	.4374 p = .000	.3696 p = .000
Ball-feet-wall	-.3676 p = .000	.6084 p = .000	.2821 p = .008
Exercise with hurdles	1.0000	-.2728 p = .011	-.3485 p = .001
Throwing medicine ball	-.2728 p = .011	1.0000	.3627 p = .001
6 min running	-.3485 p = .001	.3627 p = .001	1.0000

DISCUSSION AND CONCLUSIONS

Results did not show significant differences between boys and girls regarding their age. In order to better understand the results tests were divided in running (20 meters, 6' running, hurdles) and throwing (ball throwing to target, ball throwing with catching and medicine ball throwing). Regarding running tests, no significant differences were found regarding age and gender. Significant differences related to age and gender were found in throwing tests (power, coordination ability and accuracy and accuracy with the ball). Boys showed better performance on ball related tests since they were used to play with a ball from a very

young age. In conclusion and especially in tennis since it is a rather mental game (focus, observation and accuracy), there is a need for training on fine tasks with the use of a ball. According to Causgrove - Dunn and Watkinson (1996), it is possible that some of the skills in assessment processes, such as ball skills, may be favoured by boys over girls due to the more frequent involvement of the former in such skills. Again, other skills, such as fine hand skills, favour girls, because by nature their toys, at this age, provide the opportunity for more practice. Also, for the adaptive abilities of children aged 4-8 years, according to age and gender, there is linearity in their performance (Kampas, 2003). Especially in tennis, the boys performed better in the tests that contained ball and coordination, because they had performances and experiences from their involvement with ball games, from the young age. In addition, to the above distinctions - differences between boys and girls aged 6-11 years, we had also discrimination between children, in relation to the social environment of children. Those children who had parents who were members of sports clubs differed from other children their age.

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