Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIII, ISSUE 2 supplement, 2013, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Science, Movement and Health, Vol. XIII, ISSUE 2 supplement, 2013
September 2013, 13 (2), 343-346

EVALUATION OF AGILITY WITH REGARD TO DIFFERENT START POSITIONS

TASKIN ALI KEMAL[1], GEVAT CECILIA[2], KAYA METIN[3], PEKER ALPER TUNGA[4], TASKIN HALIL[5]

Abstract
*The aim of the research***.** The purposes of this study were to examine agility with regard to different start positions.
*Methods of research***.** A total of 21 girls and boys swimmers were examined. The mean (SD) age was 11,57±1,41 years, height was 1,46±0,10 m, and weight was 39,57±9,82 kg for the 9 girls swimmers; the mean (SD) age was 11,67±1,37 years, height was 1,47±0,11 m, and weight was 41,28±12,56 kg for the 12 boys swimmers. Agility evaluated with pro-agility test in three different start positions (the left side of the starting line**,** the right side of the starting line, and the backward of the starting line). Each test was applied three times, with a 3-minute interval, and the best result was recorded.
*Main results***.** We did not find any statistical differences with regard to first ten-meter start, second ten-meter start, and agility test values of girls swimmers in various start positions ($p>0.05$). Also, we did not find any statistical differences with regard to first ten-meter start, second ten-meter start, and agility test values of boys swimmers in various start positions ($p>0.05$).
*In conclusion***.** It was concluded that remarkable change did not occur from examining agility performances of different start positions. The agility in the girls and boys did not have a significant effect in different start positions.
Key words: Swimming, agility, children, sports

Introduction

To exhibit optimal Performance, the agility is an important ability in many sports. İt is indicate that the agility is a specific motor skill at current literatures. The agility Performance is can be increased through a well planned exercise program. Additionally, it is believed that transfer between speed and agility is limited (Holmberg 2009). Speed, agility, and power are important components of sport performance. On the basis of a periodized model of training, use of speed technique, agility, and low-level plyometrics is beneficial when they are performed in the preparation phase of a yearly training program (Robinson 2004). Today, there are a variety of players who enjoy this great sport, including seniors. Speed, quickness, and agility decline with age, and this skills are very important for the successful athletes. Many athletes are trainedspecifically by coaches for speed, quickness, and agility. Many advantages are gained from this type of training, including improved speed and quickness, less wasted movement and actions, and a greater improvement in agility (Miller et al 2001). The agility is an indispensable component of performance for succes in many sports, such as football, tennis, basketball, soccer. athletic performance coaches are liable out of the improvement of agility. The agility frequently includes sprints in a flat line and rapid deliberate changes of direction (Holmberg 2009). Many sports performed motions which require high-speed of the whole body on a court or on a field. This movements contain a response against the motion of a ball under a reaction of opposition players or teammates. This motor features may be described as agility. İt is between times categorized together with terms such as speed and quickness. The development of this skill is the responsibility of the strength and fitness coach. İt is difficult that the agility is developed when it is compared with other compenents of performance (Young ve Farrow 2006). The agility has been an important component of physical exercise programs but has not been well researched scientifically. This inadequacy of information seems odd, considered agility training were the topic of 2 separate symposia presented at an NSCA National Conference However, these symposia, like so many articles on the topic presented only training methods. So far, researchers have notfully explored why various training protocols work or why one is better than another (Craig 2004). Greater agility ability could be particularly benicifical for swimmers to allow efficient transfer of force between the trunk and the upper and lower extremities to propel the body and returns

[1]Bozok University, School of Physical Education and Sport, Yozgat, TURKEY
[2]Ovidius University of Constanta, Faculty of Physical Education and Sport, Constanta, ROMANIA
[3]Gazi University, School of Physical Education and Sport, Ankara, TURKEY
[4]Selcuk University, Institute of Health Sciences, School of Physical Education and Sport, Konya, TURKEY
[5]Selcuk University, School of Physical Education and Sport, Konya, TURKEY.
The corresponding author is Halil TASKIN: Selcuk University, School of Physical Education and Sport, Konya, TURKEY
E-mail: htaskin@selcuk.edu.tr

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIII, ISSUE 2 supplement, 2013, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST,
DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengage Learning, Cabell's Directories

through the water in pool. Therefore, the purposes of this study were to examine agility with regard to different start positions.

Material and method

A total of 21 girls and boys swimmers were examined. The mean (SD) age was 11,57±1,41 years, height was 1,46±0,10 m, and weight was 39,57±9,82 kg for the 9 girls swimmers; the mean (SD) age was 11,67±1,37 years, height was 1,47±0,11 m, and weight was 41,28±12,56 kg for the 12 boys swimmers. Before conducting the investigation, all subjects were informed of the risks of the study and gave informed consent. The study was approved by an ethics board and met the conditions of the Helsinki Declaration. Each test was applied three times, with a 3-minute interval, and the best result was recorded. At the beginning of each session, subjects completed a 10 minute dynamic warm-up consisting of jogging and dynamic stretching. Automated timers, cone, and tape measure for distance were used. Timing of all repetitions was measured by an electronic timing system. The beam was set at a height of 0.5 meters above the start/finish line. Subjects' height is measured with an instrument sensitive to 1 mm. Their body weight is measured with a weigh-bridge sensitive up to 20 g while they are dressed in only shorts (and no shoes). Height variable is in terms of meters, and body weight variable is in terms of kilograms.

Pro-agility test

The left side of the starting line: The subjects started on a centerline facing the researcher. The subjects sprinted 4.57 m to the left, then 9.14 m to the right, and finally 4.57 m back to finish as they crossed the centerline. Test was applied three times, with a 3-minute interval, and the best result was recorded for statistical analysis.

The right side of the starting line: The subjects started on a centerline facing the researcher. The subjects sprinted 4.57 m to the right, then 9.14 m to the left, and finally 4.57 m back to finish as they crossed the centerline. Test was applied three times, with a 3-minute interval, and the best result was recorded for statistical analysis.

The backward of the starting line: The subjects started on a centerline. The subjects sprinted 4.57 m to the left, then 9.14 m to the right, and finally 4.57 m back to finish as they crossed the centerline. Test was applied three times, with a 3-minute interval, and the best result was recorded for statistical analysis.

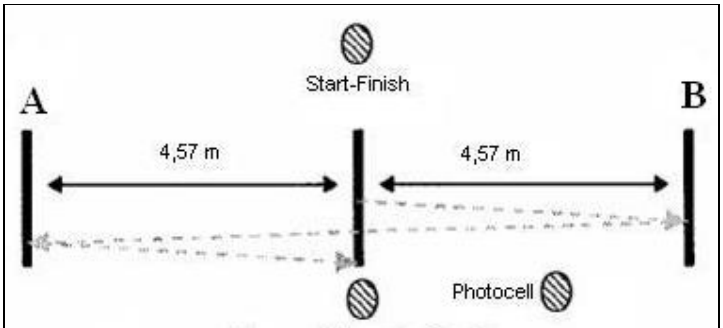

Figure 1. Pro-Agility Test

Statistical Analysis

SPSS 16.0 statistical program was used for evaluation and calculation of the data.We summarized the data and evaluated the means and standard deviations. To explain differences between measurements, one-way analysis of variance was used according to the results of the test of normality. The significance level was taken as 0.05.

Results

Table 1. Data summary for swimmers by their gender.

Variables	Girls (N=9)		Boys (N=12)	
	Mean	Std. deviation	Mean	Std. Deviation
Age (years)	11,57	1,51	11,67	1,37
Height (m)	1,46	0,10	1,47	0,11
Weihgt (kg)	39,57	9,82	41,28	12,56

The mean (SD) age was 11,57±1,51 years, high was 1,46±0,10 m, and weight was 39,57±9,82 for the 9 girls; the mean (SD) age was 11,67±1,37 years, high was 1,47±0,11 m, and weight was 41,28±12,56 for the 12 boys.

Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH
Vol. XIII, ISSUE 2 supplement, 2013, Romania
The journal is indexed in: Ebsco, SPORTDiscus, INDEX COPERNICUS JOURNAL MASTER LIST, DOAJ DIRECTORY OF OPEN ACCES JOURNALS, Caby, Gale Cengace Learning, Cabell's Directories

Table 2. Agility values of boys and girls by their different starting positions

Variables		Girls (N=9)		Boys (N=12)	
		Mean (sn)	Std. deviation	Mean (sn)	Std. deviation
The left side of the starting line	The first ten meters	3,24	0,11	3,09	0,34
	The second ten meters	3,11	0,20	2,99	0,30
	Agility	6,35	0,25	6,08	0,63
The right side of the starting line	The first ten meters	3,30	0,11	3,08	0,32
	The second ten meters	3,13	0,14	2,94	0,33
	Agility	6,43	0,22	6,02	0,63
The backward of the starting line	The first ten meters	3,22	0,13	3,16	0,25
	The second ten meters	2,92	0,27	2,91	0,31
	Agility	6,14	0,35	6,07	0,49

The mean (SD) the first ten meters in pro-agility test was 3,24±0,11 seconds, the mean (SD) the second ten meters in pro-agility test was 3,11±0,20 seconds, and the mean (SD) pro-agility test was 6,35±0,25 seconds for the left side of the starting line; the mean (SD) the first ten meters in pro-agility test was 3,30±0,11 seconds, the mean (SD) the second ten meters in pro-agility test was 3,13±0,14 seconds, and the mean (SD) pro-agility test was 6,43±0,22 seconds for the right side of the starting line; the mean (SD) the first ten meters in pro-agility test was 3,22±0,13 seconds, the mean (SD) the second ten meters in pro-agility test was 2,92±0,27 seconds, and the mean (SD) pro-agility test was 6,14±0,35 seconds for the backward of the starting line in girls. The mean (SD) the first ten meters in pro-agility test was 3,09±0,34 seconds, the mean (SD) the second ten meters in pro-agility test was 2,99±0,30 seconds, and the mean (SD) pro-agility test was 6,08±0,63 seconds for the left side of the starting line; the mean (SD) the first ten meters in pro-agility test was 3,08±0,32 seconds, the mean (SD) the second ten meters in pro-agility test was 2,94±0,33 seconds, and the mean (SD) pro-agility test was 6,02±0,63 seconds for the right side of the starting line; the mean (SD) the first ten meters in pro-agility test was 3,16±0,25 seconds, the mean (SD) the second ten meters in pro-agility test was 2,91±0,31 seconds, and the mean (SD) pro-agility test was 6,07±0,49 seconds for the backward of the starting line in boys.

Table 3. Comparison of the data extracted from various start positions in terms of gender

Variables	**Boys**				**Girls**			
	Sum of squares	Mean square	F	P	Sum of squares	Mean square	F	P
The first ten meters	0,047	0,023	0,248	0,782	0,028	0,014	1,054	0,369
The second ten meters	0,035	0,017	0,178	0,837	0,188	0,094	2,130	0,148
Agility	0,028	0,014	0,041	0,960	0,333	0,166	2,165	0,144

As shown, we did not find any statistical differences with regard to first ten-meter start, second ten-meter start, and agility test values of girls swimmers ($p>0.05$). Also, we did not find any statistical differences with regard to first ten-meter start, second ten-meter start, and agility test values of boys swimmers ($p>0.05$)

Discussion

We did not find any statistical differences with regard to first ten-meter start, second ten-meter start, and agility test values of girls swimmers ($p>0.05$). Also, we did not find any statistical differences with regard to first ten-meter start, second ten-meter start, and agility test values of boys swimmers ($p>0.05$). Agility is the ability to maintain and control correct body position while quickly changing direction through a series of movements (Twist and Benicky 1995). There are many field agility tests including the pro agility, T-Test, and hexagon test (Harman and Garhammer 2008). The agility in 11-

year-old girls and boys have not been well measured for swimming until now. First of all, we can find no published literature on different starting positions in agilty in sport branches. The agility has been an important component of physical exercise programs. The most of the sports which are ranked highest for agility require changes of direction in response to a stimulus. The most of the agility measurement tests are rather complex and require a coordinated expression of the force of various lower limb muscles, which is often accompanied by synergistic muscular function of the torso and upper limbs (Colby et al. 2000). The relationship between balance and agility measures was higher in men than in women (Sekulic et al.2013). Highly related values among the applied agility tests show that 14-year-old players achieved the specific ''universal'' qualities in performances requiring directional changes. A high correlation between results in agility tests was achieved (Jakovljevic et al.2012). In contrast, 12-year-old players have not yet achieved these qualities, because at this age, the level of neuromuscular coordination is lower (Barber-Weastin et al. 2005). Oxyzoglou et al. (2009) reported significantly better agility test results in preadolescent boys engaged in 6-months, 3 hours-week 21, specific handball training compared with a mainstream physical education program. Swimmers have to whole body motions requiring quick movement such as a quick turn for turns back in pool. In this study, it was concluded that remarkable change did not occur from examining agility performances of different start positions.

Conclusions.The agility in the girls and boys did not have a significant effect in different start positions. So coaches can practice agility every position.

Acknowledgements

We would like to thank the participants for their excellent cooperation during the conduction of this study.

References

Barber-Weastin, Sd., Galloway, M., Noyes, Fr., Et Al., 2005, Assessment of lower limb neuromuscular control in prepubescent athletes. Am J Sports Med 33: 1853–1860.

Colby, S., Francisco A., Kirkendall, D., **et al**., **2000,** Electromyographic and kinematic analysis of cutting maneuvers. Implications for anterior cruciate ligament injury. Am J Sports Med 28: 234–240.

Craig, Bw., 2004**,** What İs The Scientific Basis Of Speed And Agility National Strength and Conditioning Association;26(3):13-14.

Harman, E., Garhammer, J., 2008, Administration, scoring and interpretation of selected tests. In: Essentials of Strength Training and Conditioning. Baechle TR and Earle RW, eds. Champaign, IL: Human Kinetics, 2008. pp. xiii, 658.

Holmberg, Pm., 2009**,** Agility Training for Experienced Athletes: A Dynamical Systems Approach National Strength and Conditioning Association 2009;31(5):73-78.

Jakovljevic, St., Karalejic, Ms., Pajic ,Zb., Et Al., 2012, Speed and agility of 12- and 14-year-old elite male basketball players. J Strength Cond Res 26(9): 2453–2459**.**

Miller, Jm., Hilbert, Sc., Brown, Le., 2001, Speed, Quickness, and Agility Training for Senior Tennis PlayersNational Strength & Conditioning Association;23(5):62–66.

Oxyzoglou, N., Kanioglou, A., Ore, G., 2009, Velocity, agility, and flexibility performance after handball training versus physical education program for preadolescent children. Percept Mot Skills 108: 873–877.

Robinson, Bm., Five-Week Program to Increase Agility, Speed, and Power in the Preparation Phase of a Yearly Training PlanNational Strength and Conditioning Association 2004;26(5):30–35

Sekulic, D, Spasic, M, Mirkov, D., Et Al., 2013**,** Gender-specific influences of balance, speed, and power on agility performance. J Strength Cond Res 27(3): 802–811.

Young W., Farrow, D., 2006**,** A Review of Agility: Practical Applications for Strength and Conditioning National Strength and Conditioning Association;28(5):24–29.

Twist, P.W., And D. Benicky., 1995, Conditioning lateral movements for multisport athletes: Practical strength and quickness drills. *Strength and Cond.* 17(6):43–51.