INVESTIGATION OF THE RELATIONSHIP BETWEEN AGILITY AND BALANCE IN TRAINABLE MENTALLY DISABLED ATHLETES WHOSE AGES RANGING FROM 8 TO 14

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Abstract

The aim of this study is to find out the relationship between agility and balance in trainable mentally disabled athletes.

*Methods.*In this study, a group of 15 mentally retarded men that are studying in private educational institutions and doing sports was selected as the experimental group. Their ages range from 8 to 14. It is composed of male athletes with intellectual disabilities whose mean of age is 10.80 ± 2.14 years, average of body weight 48.06 ± 4.74 kg, mean of the length size $154,73 \pm 5,10$ cm. Agility and balance tests were administered to the experimental group. The data were evaluated in SPSS 22 statistical program by means of Correlation Analysis.

As a result of statistical analysis; positive significant relationship was found between age and weight parameters ($r=83,7$, $p< 0.001$), between age and height parameters ($r = 88.2$, $p <0.001$). There is a significant positive relationship between height and weight parameters ($r=93,9$, $p< 0.001$). It is seen that there is a significant negative relationship between height and agility parameters ($r=-62,4$, $p<0.05$). It is found that there is a significant negative relationship between balance and agility ($r=-.70,4$, $p< 0.01$).It is determined that there is a significant positive relationship between balance and weight parameters ($r=65,8$, $p< 0.01$).there is a significant positive relationship between balance and height parameters ($r=72,8$, $p< 0.01$).

Conclusions. Based on the advent of the ball, sudden change of direction and ensuring balance during the standstill in athletes with intellectual disabilities is very important. So, balance performances of athletes with intellectual disabilities are thought to be associated with the agility performance.

Keywords: Trainable Mental Disabled, Agility, Balance.

Introductıon

It is stated that children with mild mental disabilities who are on the verge of motor performances and physical suitability can compete with their peers having normal mental abilities.However, they are four years away from trainable children and generally males are superior with respect to performance (Krebs, 1995).It is widely known that girls with normal mental abilities are better at agility and balance than boys with normal mental abilities.On the other hand, mentally retarded boys are more agile and balanced than mentally retarded girls and ÖZE children are more agile than EZE children.Normal children generally become acquainted with parts of their own bodies and develop a better body image.Mentally retarded children have difficulty in distinguishing themselves, knowing parts of their bodies, picking sides, accepting their body parts that do not work properly, which causes deficiency in developing a healthy self perception of the body. (Sherill and Ruda 1998). Sports is an important factor that help societies stay healthy.Many researchers today are investigating the effects of sports on the agility of young individuals.Balance is defined as the ability to put the body into the desired position during the static and dynamic movements (Günaydın, 1993).Balance, a term describing the dynamic which prevents the body from falling into place can also be defined as maintaining the line of gravity of a body within the base of support with minimal postural sway under different conditions (Zenbilci, 1995).Balance is an ability to maintain the posture within the base of support (Magnusson, Enbom, Johansson, Pyykkö ,1990). Balance is the ability to control with minimal muscle activity in the static and dynamic positions.It is also described as maintaining the line of mass of the body within the base of support.Maintaining the balance under the effect of enviromental factors is one of the most basic motor skills.The ability of balance and postural stability is an integrated function of many movements to be

performed (Akman, Karataş, 2003).

Agility is regarded as a locomotor skill which enables the sportsmen to change their directions.These movement patterns are frequently observed in field sports like basketball, football, tennis and lacrosse (a similiar game to hockey).As a result, agility is commonly defined as the coordination of stopping short, changing direction and speeding in an effective way while keeping the horizontal and vertical motor control (Verstegen and MArcello, 2001). A sportsman with high agility is supposed to have some qualities like visual processing in addition to dynamic balance, spacial awareness and rhythm (Ellis, Gratin, Lawrence, Savage, Buckeridge, Stapff, Tumilty, Quinn, 2000).

Agility is basically essential for the performance of sportsmen because of three reasons.First of all, improving agility provides a great opportunity to have a control over the nerve-muscle system and motor skills.Second, agility lowers the probablity of injuries which are usually caused by the change of direction and enables individual motion mechanics to enhance in a suitable way.Finally, improvements on the ability of changing direction in a quick way increase the overall performance of attack and defence (Little and Williams, 2005),(Okudur., Sanioğlu;,

2012).This study is aimed at investigating the agility parameters of 15 volunteer mentally retarded male children who are actively engaged in sports in private educational institutions.IQ of the subjects of the experimental group is between 55-65 and their ages range from 8 to 14 years old.

Methods

Subjects. The aim of this study was to investigate the agility parameters of mentally retarded children who attend private educational institutions and get engaged in sports actively.The intelligence levels(IQ) of the 15 volunteer subjects range from 55-65 and their ages are between 8 and 15 years old.The male members of the experimental group perform 2-hour-regular exercises three times a week in the school team with different branches.

Testing Methods

The methods applied are as follows;

The measurement Of Agility

The T test was applied to measure the agility.This test was used to determine the speeds of covering the distance while changing directions in side shuttle, sprint forward and running backward.
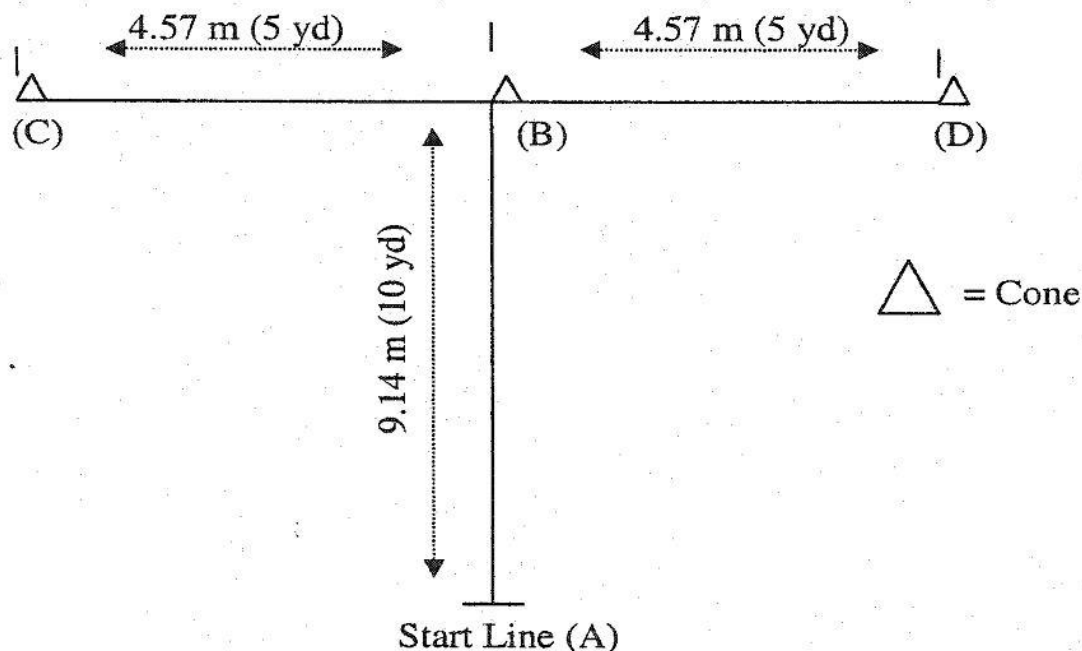
Three cones were placed on the same line with an interval of 4.57 m.The cone A was placed 9.14 meters away from the cone B which is in the middle of the three cones.First of all, the subjects

were asked to touch the cone B with right hand starting from the point A.Then, they were asked to shuffle from the cone B to the cone C and to touch with left hand.After that, they were asked to shuffle

from the cone C to the cone D and to touch with right hand.Then again, they were asked to shuffle to the cone B and to touch with left hand,running back to the point A.The duration of the test was measured with a chronometer.Every subject was made to perform the test twice and their best time was recorded as seconds(Pauole, Madole, Garhammer , Lacourse, Rozenek , 2000).

Measurement Of Balance. Balance Board. It is composed of a round wooden part with 30 cm diameter, 10 cm height and four oval legs in the middle underneath.The user tries to stand on the board with both feet and the user's body must stay balanced enough to keep the board's edges from touching the ground and to keep from falling off the board.The highest duration of keeping balanced is recorded as seconds (Kaya,M 2003).

Statistical Analysis. Statistical level of significance for the data obtained in the study is $p<0,05$.

Results. The values obtained fort his study is given in the table below.

Table 1 the relationship between agility and age, weight, height parameters.

		n	Age	Weight	Height
Weight	r		,837***		
	p	15	,000		
Height	r		,882***	,939***	
	p	15	,000	,000	
Agility	r		-,410	-,520*	-,624*
	p	15	,129	,047	,013

* $p<0.05$ ** $p<0.01$ ***$p<0.001$

In table 1, the relationship between agility and the parameters of age, weight and height of the mentally retarded children who are engaged in sports actively at a private school in Kayseri was discussed. As a result of the analysis, a positive and significant relevance between age and weight parameters(r= 83,7 p<0.001) and between age and height parameters (r=88,2 p< 0.001) was detected.

No significant relevance between age and agility parameters(r=-41, p>0,05) was detected .However, a positive relationship between weight and height (r=93,9 p<0.001) was detected. Moreover, a negative relationship between height and agility (r=-62,4 p<0.05) was determined. No remarkable relevance between weight and agility (r=-52,0 p>0,05) was detected.

Table 2 The relationship between Balance and the parameters age, weight, height and agility.

		n	Age	Weight	Height	Agility
Balance	r	15	,503	,658**	,728**	-,704**
	p		,056	,008	,002	,003

* $p<0.05$, ** $p<0.01$, ***$p<0,001$

In table 2, the relationship between the agility and the parameters of balance, age, weight and height of the mentally retarded children who are actively engaged in sports at a private school in Kayseri was indicated (corelation-sperman).As a result of the analysis, a negative and significant relationship between the balance and agility parameters(r=-70,4 p<0.01) of the mentally retarded children actively engaged in sports was determined.
A positive and remarkable relationship between the balance and weight (r=65,8 p<0.01) parameters and the balance and height (r=72,8 p>0,05)

parameters.However, no significant relationship between the balance and age (r=50,3 p>0,05) parameters was detected.

Discussıon

In this study, the agility and balance parameters of the mentally retarded children who are actively engaged in sports at private schools were taken into consideration.Accordingly, 15 subjects who are mentally retarded and actively engaged in sports were included in the study.

In their research, Auxter and Pyeer (1985) stated that the participation of the mentally retarded individuals in sports activities contribute to their psychologic, social and motor developments and in this way, sports have a remedial effect on the mentally retarded and performance-increasing influence on the motor skills.

Hamilton et al and Arslanoğlu et al determined no relevance between balance and physical performance in their researches.On the other hand, it was found that a relationship between balance and agility exists in contrast to these results(Hamilton, Shultz, Schmitz, Perrin, 2008).

Erkmen et all compared the balance performances of sportsmen in different branches.The study indicated that the gymnasts have the best performance and the basketball players have the worst performance and the football players are better than the basketball players and worse than the gymnasts.The balance abilities of the gymnasts are more developed than those of the footballers and the basketballers and footballers have approximate balance abilities (Erkmen, Suveren, Göktepe, Yazıcıoğlu, Şenel, 2010).

Arslanoğlu et al investigated the relationship between reaction time and balance of elite badminton players and detected no relevance between the reaction times and the dynamic balance scores(Arslanoğlu, Aydoğmuş, Arslanoğlu, Şenel, 2010).

Okudur and Sanioğlu concluded that there exists a positive and significant relationship between the agility performances and balance performances measured with DHPS of the male tennis players who are 12 years old.

Some positive influences of both low and high intensity sports on the physiological and sensory motor skills playing some roles in balance control were observed (Gauchard, Jeandel, Perrin,2001).

Thanks to 6-week- balance exercises, some improvements were observed in the balance after the change of direction and the stabilities of the footballers (Gauffin, Tropp, Odenrick, 1998).Therefore, it is obvious that the tennis players should do balance exercises.

Agility is generally defined as the effective combination of stopping short, changing direction and speeding while keeping the motor contol both in horizontal and vertical direction (Verstegen and Marcello 2001).

In conclusion, it is essential for the mentally retarded sportsmen to be able to keep the balance as changing direction and stopping in accordance with the direction the ball moves. As a result, it is assumed that the balance performances of the mentally retarded sportsmen are closely related with their agility performances.

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