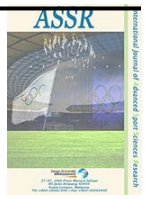

Speed of Movement Response and its Relationship with Accuracy of some Motor Skills Performance of Handball Players

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ABSTRACT
Handball is a very multipurpose game which is played very rarely and recently in Iraq. Present study aimed to know speed of movement response and its relationship with accuracy of some motor skills performance of handball players. The study was carried out in 20 male handball players aged between 20 to 25 years. Speed of movement response was assessed using Nelson speed of movement test; Pass using throw the ball to the wall test for 60 second; Shot using accuracy pivot shot test, and side movements using short defense movements test. Data was analyzed using coefficient of correlation (person). It was observed that speed of movement response was correlated significantly to pass, shot, and defense side movement skills So it was concluded that players with more speed of movement response is at advantage for handball.

***Keywords*:** Speed of movement response, accuracy of motor skills, handball players.

1. Introduction

The skill performance testing of handball players has always been a popular attempt. There are numerous factors, which are responsible for the skill performance of a player. To perform skill in handball depend on body composition, good physique, strength, endurance, and good response to any given situation and also requires sociological, physiological, psychological, and scientific training factors (Dya., 2010). Physical ability as a single element is the most important for high skill performance in handball. Physical ability testing offers a good reference and baseline for sports scientists, coaches, experts, physiotherapists as well as future researchers (Kerry., 2002).

Present valuation in physical ability focuses on mechanisms of skill related physical ability, which involves flexibility, body composition, agility, muscular strength and endurance and cardiovascular fitness in handball (Janck *et al*., 2011). Specificity of testing is necessary when performance is to be assessed (Chin *et al*., 1995). Handball specific valuations are worthwhile in providing information regarding an player's fitness to participate in training and championships and extra information can be gained on probable ways to develop skills performance and prevent injuries (Qassim *et al*., 2010). Valuations are also frequently used to enhance training and in the selection of handball teams for competition. The poor skill performance of Iraqi handball players has been of great anxiety especially to physical educationist, coaches, and sports scientists. Struggles have been made to increase the standards of our players since long.

However, little achievement has so far been realized in this respect. Handball is a very multipurpose game that makes giant technical, physical, and tactical requirements, but it is the physical ability factor that will directly define the level of request that can be put on the tactical and technical capacities of a player. Because handball is common in USA and European countries, the scientific research data is presented principally from USA and European handball players. Though good work has been done in east countries in this respect, still very limited studies are presented on Iraq handball players. Hence this study was undertaken.

Speed of movement response, as a measure of the speed of perceptual system, is the time necessary for assessment, perception, and commencing a response to the stimulus. In a speed of movement response task the player has to respond as soon and accurately as possible while there are different stimuli requiring different responses (Magil, 1999; Schmidt and Lee, 1999). Little studies are made to examine the speed of movement response and its relationship with accuracy of some motor skills performance of handball players. Research on academic athletes has showed that more experienced subjects show faster speed of movement response (Nakamoto and Mori, 2008).

2. Methodology

Experimental approach was used in current study. The present study was carried out in the Al Adel club in Baghdad on December 10, 2012 to January 8, 2013.

2.1 *Participants*:

The study was carried out in 20 male handball players aged between 20 to 25 years. Who were recruited from Police club that require speed of movement response, these players were state level or national level. Elite athletes had experience of competing at national level in their respected sport with at least 6 years passing from their beginning. All subjects had normal vision and were right handed. Subjects were in their off-season when this study was conducted. The subjects were practicing daily for 2-3 hours for 6 days a week. These players were included in our study group.

2.2 *Measurements*:

2.2.1 *Nelson speed of movement response test*:

- Purpose: To measure Speed of Movement Response figure (1) demonstrates the test.
- Tools: Court 20m length and 2m width, Electronic timer watch, and Measurement tap.
- Procedure: Three lines are drawn between each line 6.40m and length of every line 1m. The player stands on the middle of line in front of referee that stands up at the end of line and his body bends forward slightly, the referee moves his arm which holds the timer quickly either to the left or right at the same time running time. Then, participant responds to the hand signal and is trying to run as fast as possible in the specified direction to reach the side away from the halfway line distance (6.40 m), however, when player is across right side line, the referee off time. If the player is running in the wrong direction, the referee continues to run even change the time of the player and its direction up to the right side. Player is given 6 endeavors respectively between try and other 20 second and three endeavors for each side.
- Scoring: Account the time of each endeavor. Degree of player is middle of six endeavors (Hadi *et al*., 2010).

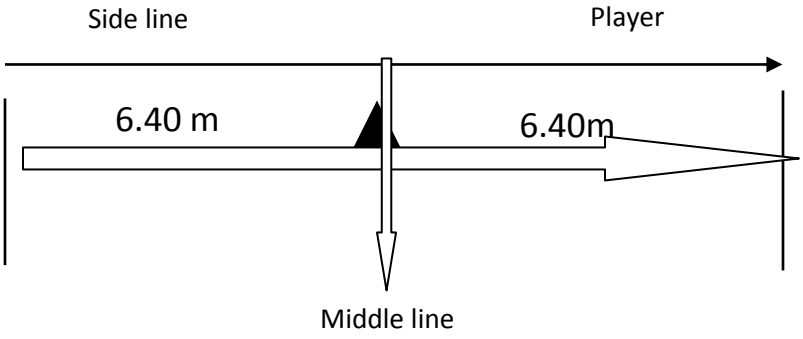

Figure 1. Demonstrates the test

2.2.2 *Ball shot test to the wall for 60 second*:

- Purpose: Measure of pass's skill.
- Tools: Wall, 3 balls, time watch, and tab.
- Procedure: Player stands in front of a line drawn on the ground away (4m) from the wall, when participate hears the word (Start) the player shot the ball from level of the head to the wall and receives it for many times during the (60 seconds) figure (2) shows style of test performance.
- Scoring: Counted the number of correct attempts of the ball shot to the wall and receives it only (Dia., 2001).

Figure 2. Shows style of test performance

2.2.3 ***Accuracy pivot shot test from a level of the head*:**

- Purpose: Measure of accuracy of shot skill.
- Tools: Handball court, squares of accuracy of shot (50 x 50) handles in the corners of goal, and 6 balls.
- Procedure: Player performs two or three steps and then pivot on the line (7) meters and shot to squares of shot accuracy of the level of the head, three balls send to each square alternately.
- Scoring: Record number of correct endeavors (Samer., 2004) figure (3) shows handball goal.

Figure 3. Shows handball goal

2.2.4 *Short defense movements test*:

- Purpose: Measure of side, backward and forward defense movements, figure (4) shows defense movements
- Tools: 2 Stop watches, 3 medical balls, circle is radius (20 cm), from previous circle center drawn radius (4m).
- Procedure: Player stands entire small circle and when he hears a visual signal, he moves from circle to medical balls as followed:
  - From small circle to ball numbered (1) and come back by used side movements.
  - From small circle to ball numbered (2) and come back by used backward and forward movements.
  - From small circle to ball numbered (3) and come back by used side movements.

Player has to touch the ball each time during his movements from small circle to any ball before come back.

- Scoring: Record how long it takes the player from the moment of giving visual signal until the moment of his arrival at the circuit after rebounding from touching the ball (3) (Dia., 2001).

Figure 4. Shows defense movements

2.3 *Main experiment*:

Participants were educated to avoid from maximal exercise for 24 hours and drinking of caffeine or eating heavy meals 3–4 hours before testing (ACSM, 2006). A series of tests were given following a five-minute warm up and a three minutes rest time was given to the participants between the tests. Experiment was conducted on December 20, 2012.

2.4 *Statistical analysis*:

All data were analyzed using a statistical analysis software package (SPSS v. 16.0). Statistical analysis of the data was performed using mean, standard deviation, correlation coefficient, and percentage.

3. Results and Discussion

Speed of movement response, pass, shot, and defense movements means and standard deviations in players were 3.96, 55, 4.75, and 17. 0.306, 9.221, 0.632, and 2.02 respectively. Means values and standard deviations are shown in table (1).

(Table 1)
Shows means and standard deviations of study variables

N	Variables	Means	SD
1	Speed of movement response	3,96	0,306
2	Pass	55	9,221
3	Shot	4,75	0.632
4	Defense movements	17	2,02

Analysis of speed of movement response, pass, shot, and defense movements using correlation coefficient in all participants revealed significant correlation [R=0.610, 0.687, and 0.721, Tabulate R (0.387)] indicating that players show high correlation between speed of movement response and accuracy of skills in handball as shown in table (2).

(Table 2)
Shows correlation between speed of movement response and accuracy of skills in handball

Variables	Calculate R	Tabulate R
Pass skill	0.610	0.387
Shot skill	0.687	
Defense movement skills	0.721	

P< 0.05 and freedom degree (18).

Researcher have suggested that speed of movement response has been effected by previous information of the player which results in an enhancement of response and helps player to choose a suitable situation to perform pass skill, as well as shot and defense skills performance (Samal, 2003). Therefore, the expertise level plays and fast and line ball an important role in determining how fast a player can send the ball to his colleague. This study aimed to know speed of movement response and its relationship with accuracy of some motor skills performance of handball players.According to our findings, a significant correlation was found between means and standard deviation of group.

These findings are in line with Dia (2001), also Samer (2004) who observed higher correlation in male students. Suitable speed of movement response is play an important role on handball due to the performance of handball is fast and requires high quick response either in defense tactic or attack tactic, as well as makes a decision during dynamic performance (Essam., 2002). Speed of movement response is a key factor in the movement of player and a chive the aim. Particularly, student excels at quick response tasks involving pass and shot. Therefore, a

good defense move helps an athlete's ability to cases analysis are expected to occur and selection of appropriate defensive response with the most quickly (Qassim *et al*., 2010). On the other hand, Moaeen (2010) suggested that sport training results in improve basic skills in handball when include and connect specific physical abilities to nature of performance and he concluded that quick response practice influences on the learning of motor activities. So, the more of the skills enjoy speed of response factors.

Thus, it seems that these results are affected mostly by speed of movement response, which in turn are influential in information processing strategies that player employ.

4. Conclusion

Researcher was observed that speed of movement response was correlated significantly to pass, shot, and defense side movement skills. So he was concluded that players with more speed of movement response are at advantage for handball.

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