Contribution Percentage of physical and motor skills in scoring in indoor soccer (futsal)

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ABSTRACT

Indoor soccer or called (futsal) has different requirements than normal soccer. Agility plays an essential role in futsal. Agility is the ability to change directions without losing speed or accuracy. Thus agility is the key of moving properly with or without the ball. The aim of this study is to find the contribution of both physical and motor abilities in shooting accuracy. Twelve indoor soccer players were used in the study. They represent Baghdad university team .They were tested in their physical, motor, and targeting skill tests. Results showed that strait speed is not a crucial issue in targeting rather is the reaction and agility.

Keywords: **Physical abilities, motor abilities, agility, random shot**

1. Introduction

All athletes' accomplishments come through intensive training. Training drills begin with physical conditioning which includes speed, power, and endurance followed by motor training that includes agility, coordination, and dynamic balance. These two kinds of drills prepare the athlete for skill learning. Yaroub k. (2010) differentiated between physical abilities and motor abilities. He stated that both abilities developed through repetition but the goal was different. The goal of physical abilities is to develop physiological aspects like muscles' diameter and cardiovascular system. On the other hand, motor abilities aims at using physical abilities in a proper way. For example, agility requires power, speed, and endurance all in the same time.

After these two phases of preparations, the athlete receives skill practice. In soccer, fore instants, skills include, receiving, passing, dribbling, and shooting. Scoring is a result of all these intensive training for these three aspects in an ordinary way.

Physical abilities are genetically predetermined characteristics that affect movement performance such as agility, coordination, strength and flexibility. There are differences between abilities and skills. Skills are learned, whereas abilities are the product of both learning and genetics factors (Fleshman 1955). This notion leads us to think that not every individual can be skillful unless he has the physical potentials which are part of his individual traits. So the best way is to select a person with proper physical abilities that are suitable for the sport.

In soccer and futsal, agility plays an important role in creating effective skills. Craig, (B.W.92004) defines agility as "the ability to change direction without losing speed, balance, and body control. Gamble, (2012) made a survey on the latest studies in the field of power, coordination, biomechanics, sport psychology, and sport medicine. He found that agility depends on different components like

1) Strength training to improve speed.
2) Plyometric training.
3) Cardiovascular conditioning.
4) Motor and joints flexibility.
5) Develop timing for the right movement.

Most studies found weak correlations between straight speeds and speed of changing direction (Sheppard, 2006), thus straight speed is not sufficient for better agility. So we can conclude that agility is a key for skillful performance. Michael, G.M.(2006) study the effect of six weeks of plyometric training on agility test. He found that polymeric training develop agility.

Soccer and futsal depends on physical and motor abilities to enhance effective skills. Effective skills in soccer are; dribbling, passing accuracy, ball control, and scoring goals. Tom Sauder (2011) in his book suggested "systems of play" which is 21 modern soccer formations. He designed drills for full and small soccer field. Sauder in his other soccer practice book, (Sauder 2012) suggested practice drills for indoor soccer. The drills contained three parts; Fitness drills which include sprint, shuttle run, endurance, and relay interval sprints. The second part was tactical drills which included attacking, press & retreat, reaction pass, quick decision goal scoring, and changing angle of attack. Finally Third part was scrimmages which include attacking, defending, transition play, two teams vs. one team.

Players spend most of their time practice with the intention to improve technical skills. Coaching practice based on tradition, intuition, and emulation rather than empirical evidence (Williams & hodges, 2005). The most effective practice for efficient results is when the coach combines variable and random practice. Random practice means using different skills in one drill, while variable practice means using different phases of the same skill in one drill .This kind of practice gives a soccer player a variety of options during play. A free approach based on discovering new ways of play may offer several advantages in developing smarter players. Hence, coaches with sport science background in skill acquisition can play an effective role in developing elite players

This study aimed to fined the role of physical and motor abilities in scoring achieving in indoor soccer (futsal).

2. Methodology

Sample, subjects were 12 indoor soccer players aged 18- 24 year old. They represented Baghdad university team which participated in 2012-2013 universities championships for indoor soccer (futsal).

All subjects were tested in three batteries of tests

2-1   Physical abilities tests which include:

   2-1-1 30 m run.

   2-1-2 Broad jump

   2-1-3 Hops foreword for 10 sec. to measure the distance.

2-2 Motor abilities tests which include:

   2-2-1. Nelson reaction test (right and left shuttle run).

   2-2-2. Zigzag run between 10 cones (round run). Measuring time.

   2-2-3 Right and left leg circles. Number of circles during 10 sec.(Wemed, 2011)

   2-2-4 Random shot test. Measure the right numbers during 30 sec. (see references).

2-3 - Skill tests which include:

   2-3-1Shooting to a 3 division's goal from 10 m distance

   2-3-2 Shooting to the goal after passing a 10 m cone.

   2-3-3 Shooting to the goal after rebound ball from a bench (Wisam, 2011).

All tests took three days and were executed in the college of physical education/ Baghdad University indoor gym in April 1- 5-2013.

2. 4 Data analysis

The study used SPSS for statistic analysis. The study used mean, slandered deviation, correlation coefficient, and percentage of contribution.

3. Results & Discussion

Table 1 showed the means and SD of the three physical tests which reflect the subject's abilities. Their abilities are normal for soccer players. Table 2 showed the subjects motor abilities.. The study used five tests, nelson reaction test, zigzag test, speed of right and left leg making circles, and a random shot test for agility.   The last test was proposed by the researchers (GetRandomshot.com) (Fig 1). It contains a folded cone and a sound speaker attached on its top. Once the player passed it the speaker gives a random number 1 to 4 so the player has to run to that number and touch it and returns back and so on. Every player was gavin 30 sec. to touch as more numbers as he can. The researchers used a concurrent validity. The test was match with zigzag test. T- Test between two tests was (0.22) which shows no differences between the tests. To decide the consistency of this test, the study used test-retest with one week a part between the tests. Correlation coefficient was (0.89) which reflect high correlations. This apparatus measure the time automatically which is more accurate than the manual timing.

Table (1)
Means and Standard deviations of physical tests

No.	The test	Measurement unit	Mean	Standard deviation
1	20 m. run	Second	4.72	0.299
2	Hopping foreword for 10 sec.	Meter	44.11	1.58
3	Broad jump	Meter	2.34	0.22

Table (2)
Means and Standard deviations of motor tests

No.	The test	Measurement unit	Mean	Standard deviation
1	Nelson reaction time test	Seconds	1.52	0.09
3	Zigzag for 10 m. between cones	=	4.79	0.31
4	Write leg circle speed	No.	23.75	2.53
5	Left leg circle speed	=	22.67	1.97
6	Random shot run during 30se	Touches	11.67	1.92

Figure 1. Random shot

Table 3 showed M and SD. of shooting on the goal. Shooting to a goal divided in three areas from 10 m distance showed % 20 accuracy. This result is not sufficient to an elite soccer players especially it was without any distractions as in the real game.

The second test (shooting after passing a cone 10m) showed a weak percentage of scoring (%18). This result revealed that the more difficult the test, the less score executed. The rebound test showed a(%22) which is a weak result.

Table (3)

Means and Standard deviations of Scoring

No.	Test	Measurement unit	Mean	Standard deviation	Scoring percentage
1	Scoring on a divided goal from 10 m.	Accuracy out 9 points	1.82	0.50	%20
2	Scoring after passing a cone	=	1.48	0.44	%18
3	Scoring after rebounding from a bench	=	1.93	0.56	%22

Table (4)

Represent contribution percentage of all physical and skill tests with scoring tests

No.	Scoring / skill and physical tests	10m scoring	Scoring after passing a cone	Bench rebound scoring
1	20m running	0.20	0.17	0.18
2	10sec hoping	0.36	0.25	0.38
3	broad jump	0.39	0.37	0.13
4	Zigzag between cones	0.46	0.48[+]	0.12
5	Write leg circle speed	0.59[+]	0.47	0.15
6	Left leg circle speed	0.16	0.27	0.48[+]
7	Random shot test	0.01	0.48[+]	0.28
8	Nelson reaction test	0.36	0.33	0.72[+]

Percentage of contributions shown in Table 4 has interesting results. Scoring from 10m.has only one significant correlation with write leg circling (0.59). This result is normal if we know that all players have write leg as a dominant leg because both tests have Sinnamon abilities. On the other hand, scoring after passing a cone has weak correlations with most other physical and motor tests except with agility tests. Zigzag test and random shot test have significant correlations with scoring (0.48). This result leads us to identify two interpretations. First it means that scoring depend highly on agility as (B.W.2004) stated previously.

Secondly this correlation confirms the validity of a random shot test. We can see that both tests have same correlations with scoring .Rebound and scoring test showed high correlations with only nelson test and left circle test (0.72, 0.48).Nelson test used a change in direction as the signal appears which is the same when receiving a rebound ball. This finding leads us to think about rebounding exercises as an effective way to enhance scoring.

4. Conclusion

This study came up with some conclusions. One is that strait run is not a crucial issue in indoor soccer scoring but agility which required changing directions without losing speed has appositive effect on scoring. Besides, a high control on both legs movement contributes highly in aiming and scoring accuracy. The study recommended using compound exercise to enhance accuracy of scoring. The other recommendation is using the proposed random shot test for agility because it is more consistent.

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