# The Effect of Motor Sense Exercises for Developing Motor and Physiological Abilities of Backstroke and Forward Stroke Service Skill in Badminton

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***ABSTRACT***

*The aim of the research is to prepare motor sense exercises for developing motor and physiological abilities of backstroke and forward stroke service skill in badminton and investigated their effect. The research is adopted the experimental method with two groups design. The sample of the research is 8 players (13-15 years). The sample is divided into two groups of 4 players for each group. Both groups are exposed to pre and post tests, after the experimented were finished, the results are statically analyzed. The results have showed that there are positive developing abilities of motor and physiological of service skill in badminton. Finally, these prepared exercises are recommended for developing players' abilities in badminton.*

***Keywords****: Motor Sense Exercises, Motor Abilities, Physiological Abilities, Badminton*

## 1- Introduction

### 1.1 The Problem of the Research

The problem of the research lies in the training environment. Thus, the existence of the badminton player in the court is leaded to accustom the environment. Gradually the badminton player's brain would be neglected the stimulations which are needed for the competition. Also, the motor sense serve skill of badminton is needed for the place of landing the ball. So, increasing the abilities of the brain has required the training of the brain by using some exercises. Thus, the current study tries to prepare motor sense exercises for developing the player's skill of badminton.

## 2. Method of the Research

**2.1 Design of the Experimental** The design of the experimental is pre and post tests with two groups. The experimental group is 4 players also the control group is 4 players.

**2.2 Sample of the Research** The sample of the research is 8 players from the Al- Orthodoxy club in Baghdad. They have chosen purposely from 11 players. While 3 players are excluded from the research. It excludes them from the sample because their anthropometric variables which affect the results.

**2.3 Matching the Sample**The sample of the research has matched according the length, weight, training years and age). Table (1) is showed the sample variables.

Table (1) Mean, Main, Standard Division and Coefficient of torsion of the Sample

| Variables | X Mean | Main | Standard Division | Coefficient of torsion |
|-----------|--------|------|-------------------|------------------------|
| Length | 144,4 | 145 | 4,827 | 0,372- |

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| Weight | 40,6 | 40 | 5,393 | 0,333 |
| age | 10,8 | 11 | 0,836 | 0,717 - |
| training years | 7,4 | 7 | 1,516 | 0,791 |

The results of the table are showed that the coefficient of torsion between $(1\pm)$, this shows that the distribution is equinoctial. Thus, it is a normal distribution of the sample.

2.4 Tests of the Research

2.4.1 Eyes- Legs Correspondence Test   (Alawy & Naser-Al-Deen; 1986)

The player should stand on cycle number 1 when he is heard the start signal, he should jump on place number 2, then 3 and so on….until he has reached 8. The time from the beginning till the end of eight cycles has scored for each player. Figure (1) is showed the test
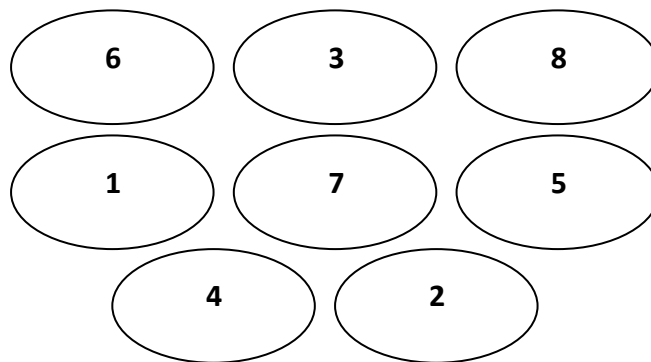


Figure (1) Eyes-Legs Correspondence Test

2.4.2 Eyes- Arm Correspondence Test (Salum; 2004)

The player should stand 5 Meters from the wall then he serves the ball by his right arm 5 times at the wall and he should receipt the ball by the same arm. After that, he should have changed the arms to the left on for the same 5 times. Finally, the player should serve the ball 5 times by the right arm and receipt the ball by the other arm. The test is scored from 15 degrees. Figure (2) is showed the test.
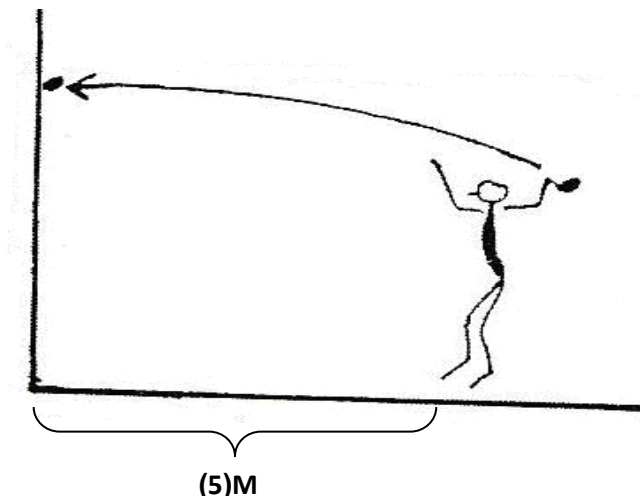


(5)M

Figure (2) Eyes- Arm Correspondence Test

**2.4.3 Heard Rate (Subhy; 1997)**

The player should use the Treadmills to measure his heard rating after tension. The benefits of the test are measuring the maximum of consumption Oxygen, which indicates the heard efficiency.   Forevermore, the test is showed the Lactic acid in the blood, after 5 minutes from the tension (Hazaa' 1992).

2.4.4 Serve Skill Test

The player should serve the ball (Salah, 2013).

2.5 Preparing the Sense Motor Exercises

The motor sense exercises are adopted and prepared in the current paper, they consider the individual differences of the players. Also, these exercises should stimulate the senses, the prepared exercises should exploit the player's senses. Furthermore, the exercises should be as similar as the competition's stimulations, which are a changeable environment. Finally, the exercises are prepared for special skills and preparation period of the Orthodoxy club. The following are the motor sense exercises:

1- The player is standing on the serve line; the coach sends two balls with red and green colour at the same time. The player should listen to coach's voice to hit the right ball.

2- Specifying two areas at the wall, green and red, the coach is passing the ball with specifying the colour area should the player hit the ball at.

3- The player is standing on the serve line; the coach is send two balls one is low and the other is high and give the order for the player to serve it by using forehead stroke and back head stroke

4- Specifying two areas at the wall, green and red, the coach is passing the ball with specifying the colour area the player should pass the clubs on the ground and  hit the ball on the right place.

5- The player is standing on the serve line, the coach is sent two balls with two colour red and green. The player should hit and pass the right ball according to the coach's voice.

6- The player is standing on the serve line, the coach is sending the ball. The player should pass the ball on the right panting area on the ground, red and green, the player should choose the right one from the voice of the coach also by using the right skill weather forehead stroke or back head stroke skill.

**3. Results and Findings**

**3.1 Pilot Study**

The pilot study is conducted at (4/11/2019 ) on the sample of 3 players who are excluded from the sample of the research and the same test is return on 11/11/2019). The aim of the test is to know the difficulties of applying the final test.

3.2 Pre-tests

The test is applied on 22-23 /11/2019 in the first day, the test of forehand and backhand serve is applied and in the second day the, the physiology and motor test are conducted.   All the tests are adopted in the same circumstances (i.e the time, the equipment….)  To insure the stability.

3.3 The Main Experimental

After the exercises are prepared, they were applied on the experimental sample from 24/11/ 2019 until 6/1/2020. The experiment lasted 18 units 3 times per week for 6 weeks. While the control group has trained according the traditional method and it has supervised by the coach.

**3.4 Post tests**

The post-tests were conducted after the 6 weeks of the experimental has finished on 9-10/ 1/ 2020. The badminton serve skill test was conducted on the first day, while the second day was applied to the philological and motor tests. The same circumstances were installed as time,equipment and the same team.

3.5 Analyzing the Results

To fulfill the hypotheses of the research weather there is the effect of the prepared exercises of the research or not. The results of the research are analyzed as table (2) is shown.

Table (2) The mean, standard division, and  Wilcoxon values   of the control group

| Variables | Measuremnent unit | Group | X - Mean | S.D. | Wilcoxon | Error Percentage | Significant |
|---|---|---|---|---|---|---|---|
| Correspondence of Eyes- legs | Minute | Control | 9.24 | 0.91 | 1.36 | 0,029 | Significant |
| | Degree | Experimental | 6.01 | 0.45 | | | |
| Correspondence of Eyes- Arms | Degree | Control | 10.12 | 0.48 | 1.45 | 0,042 | Significant |
| | Degree | Experimental | 6.51 | 0.97 | | | |
| Heart rate | Degree | Control | 193 | 1.67 | 3,1 | 0,042 | Significant |
| | Degree | Experimental | 184 | 2.38 | | | |
| Maximum of consumption Oxygen | Degree | Control | 64,5 | 1.48 | 2,5 | 0,029 | Significant |
| | Degree | Experimental | 67 | 1.34 | | | |
| Lactic acid in the blood | Degree | Control | 15.20 | 1.48 | 3 | 0,042 | Significant |
| | Degree | Experimental | 12.88 | 2.42 | | | |
| Forehead stoke serve skill | Degree | Control | 17 | 1,21 | 2،042 | 0،01 | Significant |
| | Degree | Experimental | 26,05 | 2،42 | | | |
| Backhand stoke serve skill | Degree | Control | 16،2 | 0،88 | 2،03 | 0،01 | Significant |
| | Degree | Experimental | 25،2 | 2،01 | | | |

 Also, to fulfill the second aim of the paper which it is the introduced the effectiveness of the prepared exercises. The results of post tests are analyzed for both the control and an experimental groups. Table (3) is showed   the results.

Table (3) The Mean, Standard Division and Man-Witny Score for Control and Experimental Groups in the Post Tests

| Variables | Group | X – Mean | S.D. | Wilcoxon | Error Percentage | Significant |
|---|---|---|---|---|---|---|
| Correspondence od Eyes- legs | Control | 7.68 | 0.68 | 1.52 | 0٬02 | Significant |
| | Experimental | 9.56 | 0.84 | | | |
| Correspondence od Eyes- Arms | Control | 8.47 | 0.56 | 1.59 | 0٬01 | Significant |
| | Experimental | 6.22 | 1.03 | | | |
| Heart Rate | Control | 192 | 1.14 | 1,2 | 0,011 | Significant |
| | Experimental | 180 | 2.94 | | | |
| Maximum of consumption Oxygen | Control | 64 | 0.89 | 2,5 | 0,029 | Significant |
| | Experimental | 69 | 1.51 | | | |
| Lactic acid in the blood | Control | 15.10 | 0.16 | 2,9 | 0,032 | Significant |
| | Experimental | 13.98 | 2.54 | | | |
| Forehead stoke serve skill | Control | 17.04 | 0.67 | 2٬04 | 0٬03 | Significant |
| | Experimental | 20 | 71٬0 | | | |
| Backhand stoke serve skill | Control | 15.05 | 0.84 | 2٬03 | 0٬04 | Significant |
| | Experimental | 19 | 0٬44 | | | |

Table (4) The Mean, Standard Division for Experimental and Control Groups in the Post Tests

| Variables | Group | X - Mean | S.D. | Wilcoxon | Error Percentage | Significant |
|---|---|---|---|---|---|---|
| Correspondence od Eyes- legs | Control | 7.68 | 0.68 | 2 | 0٬029 | Significant |
| | Experimental | 6.01 | 0.45 | | | |
| Correspondence od Eyes- Arms | Control | 8.47 | 0.56 | 1٬5 | 0٬01 | Significant |
| | Experimental | 10.12 | 0.48 | | | |
| Heart Rate | Control | 180 | 2.94 | 1 | zero | Significant |
| | Experimental | 184 | 2.38 | | | |
| Maximum of consumption Oxygen | Control | 69 | 1.51 | 2 | 0,039 | Significant |
| | Experimental | 65 | 1.34 | | | |
| Lactic acid in the blood | Control | 16.98 | 2.54 | 1.5 | 0,01 | Significant |
| | Experimental | 16.05 | 3.83 | | | |
| Forehead stoke serve skill | Control | 26٬05 | 2٬42 | 0٬00 | 0٬00 | Significant |
| | Experimental | 20 | 0٬71 | | | |
| Backhand stoke | Control | 25٬2 | 2٬01 | 0٬00 | 0٬00 | Significant |

| serve skill | | | | | | |
|---|---|---|---|---|---|---|
| | Experimental | 19 | 0،44 | | | |

### 3.6 Discussion of the Results

According the results of table 2,3 and 4, the results are showed statistical significant differences between the control and experimental groups favour to experimental group in the post tests. This indicates that the prepared exercises which has applied to the experimental group have a positive effect on the sample of the paper. It has shown the positive development of the front head stroke and back head stroke of serve badminton skill.

This improvement is matched with other studies Sabry (2012) which is focused on variation of the training could improve the performance of badminton skills.

Also, the results have showed that there is the improvement of a control group which it could assess to the continuous of the players' training. Forevermore, the control group training is consisted of repeating; they have made these statistical significant differences. These results are agreed with Fagher ( 2011) which is stated that the training tension , break  and repeating are the importance of scientific training.

Finally, the current paper is agreed with Abdul-Fatah (1995) that the motor sense exercises are changed the body physiology especially of a muscular organ. Thus, the badminton performance requires this adaption for the effort and power in the match. The player needs the Oxygen from the beginning till the end in the competition specially the last minutes. Because the competition is an emotional situation, it is need more Oxygen which could make physiological changing in the body.

3.7 Conclusions

The following are the conclusions of the paper;They are:

1- The motor sense exercises showed positive effectiveness for the experimental group.

2- Motor sense exercises develop the physiology and motor abilities of the sample.

3-  Using the motor sense exercises has a positive effect of developing the forehead stoke and back head stroke of serve badminton skill.

3.8 Recommendations

Accordingly, it has recommended the following:

1- Adopting the motor sense exercises in training the joiner badminton players.

2- Generalization of the motor sense exercises in training.

3-  Making other studies to other field of sport by using the motor sense exercises.

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