Effect of Exercises by Using Multi-Weights Racket in Developing the Force Recognized by Speed and Accurate Crushing Strike for Badminton Player

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ABSTRACT

The problem of the research was concentrated on most couches intend to give exercises to develop the force recognized by using training equipment are different from usual tool (metal bar, medical ball) or by using rackets (tennis, squash) which are different from typical equipment by weight and shape, although presence of these equipment, there are tools help in developing the force recognized by speed and by a better and faster method which are rackets of badminton but have heavier weights than the real weight of the racket used in the completion, therefore, the researchers decided to prepare exercises with rackets of weights (140 g, 160g) with standard dimensions similar to the game's tool to know its effect in developing the force recognized with speed and accurate crushing strike for the youth players of badminton, the research aimed to prepare exercises by using rackets with different weights to develop the force recognized with speed and precise strike for the youth players and knowing effect of exercises by using this method. The researchers used the experimental method by designing (The two equivalent groups of the two tests before and after) that due its compatibility to the problem of the research and achieving the goals of research. The sample of the research represented the whole research which are players of the Iraqi national team for youth 2010-2011 are (10) players. Most important conclusions were that exercises used the rackets with different weights had positive effects in developing the force recognized with speed and accurate crushing strike in badminton.

Keywords: effect of exercises, using multi-weights racket, speed and Accurate
1. Introduction

Badminton is one of the individual games that witnessed distinct development recently due to its entrance in Olympic games and that motivates countries to compete to invent best styles and scientific training tools to develop its players, plus variety of tournaments in badminton (individual, couples, mixed couples) for men and women all that motivated countries to depend principle of specialization in the game, that is because the skills of badminton featured with high degree of precision and difficulty because of the high speed of the feather and multi paths in one point as that requires a player has physical features and his ability to find appropriate solutions for the problems he face during the game.

Some of the skills of badminton depend on force and speed of his muscles during the professional performance to let the player to score highest levels, therefore the researcher concentrated on the speed-recognized force as it is a basic physical equipment that development of achievement relied on, using the formual rackets by weight and size for training is considered one of the most important tools for badminton.

During the presence of researcher in field of badminton, they found that most couches intend to offer exercises to develop the force recognized with speed, they decided to prepare exercises with rackets of weights (140 g, 160g) with standard dimensions similar to the game's tool, while the legal weight of the racket is (79-91)g to know its effect in developing the force recognized with speed and accurate crushing strike for the youth players of badminton, the research aimed to prepare exercises by using rackets with different weights to develop the force recognized with speed and precise strike for the youth players and knowing effect of exercises by using this method.

1. 2 Goals of the research:

1- Preparing exercises by using different-weight rackets to develop the force recognized with speed force and accurate crushing strike of badminton's players.

2- Knowing the effects of exercises by using different-weights rackets in developing the force recognized with speed force and accurate crushing strike of badminton's players.

1. 3 Task of the research:

1- For the suggested exercises using multi-weights rackets has moral effects in develop the force recognized with speed force and accurate crushing strike of badminton's players.

1.4 Theoretical studies:

1. 4.1 Concept of the force recognized with speed

The force that is recognized with speed is "ability of nervous-muscular system of the player to produce fast force to perform movements against resistances at the level before maximum (Abdulmaksood, 1997), also it is known as "the fast appearance of muscular force where both force and speed are merged in movement (Mofti, 1998).
1.4.2 Methods of training the force recognized with speed

Each activity done by a person doesn’t lack of the element of muscular force, the force is the basis of movement by which the human can move or resist something. Most important means to train the force that is recognized with speed are using exercises similar to the required performance in the formal competitions, that is doing exercises by using additional weights heavy rackets are effective means to force's training (Mukhalad,2010).

1- Special exercises: Are these exercises that included elements or parts of the frame of competition movements required in a specific sport activity. The function of the special exercises are :
   a- Developing the body and kinetic features in the performed activity.
   b- Adjusting the kinetic performance related with the specialized activity.

2- Competition's exercises: Are the exercises in which movements are implemented compatible with conditions and frame of competition's movements in the specialized activity.

3- Assistant exercises: Are exercises of developing the force in the internal work of the mono-muscular groups when it is connected with other body features as it fit with the internal composition of the movement when there is no preserving of external composition for reasons belong to method of training.

1.4.3 Assistant tools in training of force that is recognized with speed:

Variety of skillful aspects in badminton makes most specialists of the game to design assistant training tools aimed to developing special body abilities and main skills in badminton, and lead to granting the player sense of responsibility and feeling movement skill through using training tools (heavy rackets) similar to the real rackets of the game, the sense of the player of being able to perform the skill means sense of movement which play a big role in movement compatibility (Wajeeh Mahjoob:2000), there are many kinds of training tools used in training of muscular force, choosing the kind of training depends on tools and devices available and according to the goal required to be achieved, some of these tools are:

   1- Medical balls.
   2- Increasing of weights in the competition tools.
   3- Instruments of weighs.

2. Methodology

The researchers used the experimental method by designing (two equivalent groups of the after and before test) due to its compatibility with the nature of the problem and achieving goals of the research.
2.1 The society of the research and its sample

Triangle of the research's sample are players of Iraqi national team for 2011-2012 of ten players according to the classification of national Iraqi team of badminton and that means that the researcher used method of comprehensive exclusion for all members of the sample of society, they were divided by performing the lottery into two groups, first one is experimental and the second is controlling group, to make sure of the equivalence of the two groups, the researcher used test of Man Witny that showed the results with no differences between the two groups as in Table 1.

<table>
<thead>
<tr>
<th>Research changes</th>
<th>Statistical indications</th>
<th>Scale unit</th>
<th>Value of Man Witny</th>
<th>Level of evidence</th>
<th>Type of the evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front standing within (15sec)</td>
<td>No.</td>
<td>4.5</td>
<td>0.34</td>
<td>Insignificant</td>
<td></td>
</tr>
<tr>
<td>Flipping on one leg (10sec)</td>
<td>M</td>
<td>8</td>
<td>1</td>
<td>Insignificant</td>
<td></td>
</tr>
<tr>
<td>Laying and raise and down the body</td>
<td>No.</td>
<td>5.5</td>
<td>0.46</td>
<td>Insignificant</td>
<td></td>
</tr>
<tr>
<td>Crushing front strike</td>
<td>Degree</td>
<td>16</td>
<td>0.81</td>
<td>Insignificant</td>
<td></td>
</tr>
</tbody>
</table>

2.2 Used tests in the research

A. Physical tests:
1. Frontal leaning (folding and extend the arms for 15 sec) (Ibrahim, 2000). Aim of the test: Measuring the force recognized with speed for arms muscles. Descriptions of the performance: from the status of front leaning, arms should be beside the chest and hand fingers ahead, legs are stuck together, body is extending straight without any arch, the tester start to fold the two arms until the chest will touch the ground and then back to the first status as shown in fig (1). Method of recording: Counting the number of recurrences of the player within (10) sec.

![Figure (1) Show the frontal test](image)
1- Flipping on one leg for farthest period for (10) sec for the both legs. (Mohamad, 2000). Aim of the test: Measuring the force recognized with speed for each leg. Description of the performance: The player stops behind the line of start with preparing status, when hear the signal to start, he start flipping on one leg the right or the left, then stopped as soon as he hears the stop signal from the tester after end of (10) sec.

2- From the status of laying and face opposite to ground to raise and down the body in (10) sec. Aim of the test: Measuring the force recognized with speed of the back muscles. Descriptions of the performance: the player is on laying and face opposite to ground with engaging hands over the head, then raising and lowering the upper part of body with fixing the legs by the help of a friend as shown in fig (2). Method of recording: Counting the number of recurrences done by the player within (10) sec.

![Figure (2) Shows the test of force recognized with speed of the back muscles.](image)

**B. Skill tests:**
Frontal test of the crushing strike (Wisam, 2013). Aim of the test: Measuring precision of the skill of crushing strike. Required tools: rackets, normal feather, extra stands of (213) cm, nylon rope, form of recording data, badminton lined with the test plan, as shown in fig (6). Description of the performance: The player stand at the position (x) and hit back the feather sent to him from opposite area by a strong crushing strike to fall it in the reign of highest degree provided that feather passed over the net and below the rope fixed behind the net with (60cm) distance and height of (213) cm, the player tried to do (10) attempts with paying attention on the force of crushing strike.

**Evaluating the performance:**
1- The mark is given up to position the feather fall.
2- Giving zero for not passing over the net and under the rope or fall outside the specific areas.
3- Giving highest mark to the feather fall on the line between two areas.
4- Marks are dividing into (1-2-3-4-5) up to the areas.
5- Final mark are the collection of marks of all (10) attempts which is (50).
2.3 Before tests
The researcher proceeded the before tests on 11-12/8/2012 in the Iraqi central training center for badminton in the Athorian Club at 10:00 am, the test of the body feature of the crushing strike in badminton which was subject of our study.

2.4 Exercises used in the research
Through the practical knowledge of the researcher in the field of badminton and relying on Arabian and foreign resources, they prepare diverse exercises (appendix no1) by using rackets with different weights to develop the force recognized with speed and accuracy of crushing strike for the youth players of badminton, these exercise were organized to be adapted with the members of the sample and the training level and by coordinating with the depended couch who is the supervisor of the team.

2.5 Main experiment
Main experiment have been applied on 15/8/2012 in the hall of the training center of the national team of the Athouri club, it’s been giving the exercises done by the researcher to the experimental group based on (25) minutes of the main part of the training unit for three days in a week for (30) days, while the controlling group continued in its training according to the curriculum done by the couch by using rackets (tennis and squash) which were used as rackets heavier than formal rackets that were aimed to develop the force recognized with speed.
2.6 After Tests

It’s been applied the after tests for the sample of the research (experimental and controlling) in 17/9/2012 on the hall of training center of the national team in Athouri Club at 10:00 a.m, and applying the physical tests (tests of force recognized with speed) and skill tests of badminton to know the effect of exercises on developing variables of the research.

2.7 Statistical means

We used the statistical suit (SPSS) in analyzing data of the research as follow: Mean value criteria deviation -percentage Ka2 test -Man Witny test -Walkups test -Spearman test.

3. Results & Discussion

Analyzing results of before and after tests for the two groups of research (experimental and controlling) in the skill and physical tests. After collecting the results of before and after tests for two groups and in order to describe the results of individuals of sample, the researcher review and retreat the data statistically by using central flair's scales and disperse scales, to know the meaning of differences between after and before tests for the two groups of research, the researcher used Wilkoks'n's text as shown in the two Tables bellow (2), (3).

<table>
<thead>
<tr>
<th>Tests</th>
<th>Before Test</th>
<th>After test</th>
<th>Wilkokson values</th>
<th>Level of indication</th>
<th>Type of indication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S'</td>
<td>A'</td>
<td>S'</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Frontal leaning within (15) sec recurrence</td>
<td>10.4</td>
<td>0.54</td>
<td>18.8</td>
<td>0.83</td>
<td>2.07</td>
</tr>
<tr>
<td>Laying and face on ground ,raise down the back recurrence</td>
<td>14.2</td>
<td>1.30</td>
<td>19.8</td>
<td>1.22</td>
<td>2.03</td>
</tr>
<tr>
<td>Flipping (10)sec on one leg and for both legs (distance)</td>
<td>37</td>
<td>1.22</td>
<td>45.2</td>
<td>1.09</td>
<td>2.03</td>
</tr>
<tr>
<td>Crushing frontal strike (degree)</td>
<td>23.6</td>
<td>3.61</td>
<td>43.3</td>
<td>1.31</td>
<td>2.232</td>
</tr>
</tbody>
</table>

N=5, level of guide (0.05)
Table (3) Values of mean value and criteria deviation and Wilkokson values for the after and before tests for controlling group.

<table>
<thead>
<tr>
<th>Tests</th>
<th>Before Test</th>
<th>After test</th>
<th>Wilkokson values</th>
<th>Level of indication</th>
<th>Type of indication</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S'</td>
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<td>A</td>
<td></td>
</tr>
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<td>0.83</td>
<td>15.8</td>
<td>1.30</td>
<td>2.06</td>
</tr>
<tr>
<td>Laying and face on ground ,raise down the back recurrence</td>
<td>13.2</td>
<td>1.30</td>
<td>16.4</td>
<td>1.14</td>
<td>2.04</td>
</tr>
<tr>
<td>Flipping (10)sec on one leg and for both legs (distance)</td>
<td>34</td>
<td>1.58</td>
<td>37.2</td>
<td>2.48</td>
<td>2.03</td>
</tr>
<tr>
<td>Crushing frontal strike (degree)</td>
<td>26.33</td>
<td>9.3</td>
<td>33.1</td>
<td>3.89</td>
<td>2.203</td>
</tr>
</tbody>
</table>

N=5, level of guide (0.05)

By showing the body and skill results, then analyze them in the before and after test for both groups (experimental and controlling) explained in tab (2) and (3), it turns up that there are "moral" difference between the two tests for the behalf of after test and that is clear on both groups of research on which exercises were applied, researcher tribute this deference to The optimum use of the exercises by the researcher with how apply them and convenience to the individuals of the sample, also exercises of force recognized with speed have to be similar with body's movements during performing athletic skill, it should practicing force exercises for muscles that produce movements of striking the feather with high accuracy and flexibility (Mohamad, 2010).

Using modern exercises and fit with the level of the players and giving appropriate recurrences with the kind of exercises that is the recurrence of kinetic is essential need for the player to reach a higher level of technical performance, special exercises that its kinetic forms related with the kind of the game and featured with the resistance is higher than competence (using different weights rackets) aims to developing the force recognized with speed and increase accuracy of basic skill in the game, because the exercises of weights training (rackets with different weights) work on increasing muscular ability, that is because of increasing the force in body muscles by using rackets with different weights lead to increase the movement speed of the body.

After collecting the results of before and after tests for two groups and in order to describe the results of individuals of sample, the researcher review and retreat the data statistically by using central flair's scales and disperse scales, to know the meaning of differences between after and before tests for the two groups of research in the after test, the researcher used Man Withy’s text as shown in the tab (4) bellow.
Table (4) Values of mean value and criteria deviation and Man Withy’s values for the after test for the two groups (experimental &controlling)

<table>
<thead>
<tr>
<th>Tests</th>
<th>Before Test</th>
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<th>Wil kokson values</th>
<th>Level of indication</th>
<th>Type of indication</th>
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<td>0.83</td>
<td>15.8</td>
<td>1.3</td>
<td>0.00</td>
</tr>
<tr>
<td>Laying by face on ground ,raise down the back recurrence</td>
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<td>1.22</td>
<td>16.4</td>
<td>1.14</td>
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<td>45.2</td>
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<td>2.48</td>
<td>0.00</td>
</tr>
<tr>
<td>Crushing frontal strike (degree)</td>
<td>43.3</td>
<td>1.31</td>
<td>33.1</td>
<td>3.89</td>
<td>0.00</td>
</tr>
</tbody>
</table>

N=5, level of guide (0.05)

From showing and analyzing results of the skill and physical tests in the after test that are explained in the tab (6) it shows that there are moral differences between the two groups of research for the behalf of experimental group, the researcher attributed these differences of this development to the following: The development occurred in the force recognized with speed come from exercises using the rackets of different weights by the researcher were affective on these results, the training by increasing the weights of the tool is considered one of the important and modern means in developing types of muscular force (Esam, 1994).

The force recognized by speed get developed by using heavy weights in the tool used in the game specially when the kinetic path get similar with basic skills, also increasing the weights lead to developing the body features that contributes in creating the kinetic movement (Ya'ra, 2010). The development and difference in accuracy of the crushing strike in badminton occurred for the experimental group tremendously from the other controlling group refer to the exercises prepared by the researcher based on scientific basis through organizing exercises with what appropriate with method of training and tense used to make the tense of the exercises similar to competition and that develop level of skill performance for the main skills , from the other side, the continuous correction for the technical faults and doing practices that aim to decreasing these faults and give feed- back with its two kinds (information about performance and about the results). Depending principle of variety in doing basis skills in badminton through using rackets with different weights and different speeds, directions and distances and increasing excitement in training and that makes the player do automatic movements with high level of readiness and ability of doing skills with different scales and different shapes, the exercise lead to develop the achievement certainly , if it is based on scientific basis in organizing process of training and programming , also using ideal recurrences and effective break times.
4. Conclusion

Exercise used with different weights rackets has positive effect in developing the force recognized with speed for young players in Badminton. Exercise used with different weights rackets has positive effect in developing accuracy of performance of crushing striking for young players in Badminton. Necessity of using rackets with different weights in training units for Iraqi national team of Badminton. Necessity of designing new exercises depends on using rackets with different weights to develop defensive skills for players in Badminton. Necessity of using similar researches on nascent and senior players of badminton. Necessity of proceeding similar researches for all kinds of racket games.

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