



Effect of Non-Dominant Arm Exercises on Enhancing the Dynamic Program for Developing Accuracy of Basic Skills of Badminton Student

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ABSTRACT

The problem of the study revolves around the fact that most of badminton student at the Karbala University have poor basic skills in badminton despite that they have developed a dynamic program of some for properly studied skills. In this study, the researcher endeavors to activate a dynamic program for some basic skills in badminton through exercises of the non-dominant arm and make use of this phenomenon to transfer the effect of learning to the dominant arm to create the required responses to student badminton players. The goal of the study is to examine the effect of non-dominant arm exercises on enhancing the dynamic program for developing accuracy of basic skills of badminton student players. It is also designed to know how it is better to exercise using one arm or both arms to activate the dynamic program for developing accuracy of basic skills of badminton student players. The researcher used the experimental approach to design two pretest and post-test equivalent groups. This approach is more convenient to the nature of the problem and it helps achieve the goals of the study. The sample of the study represents all the study population, namely, all the 10 players of the Karbala University badminton Team for 2012- 2013. This means the researcher has used this approach for all the study population. By using lottery, the players were divided into two groups, the experimental group and control group. Each group was composed of 5 players. The teaching curriculum started on 10-12-2012 and ended on 25-1-2013. The Curriculum included different exercises in serve and spike using different directions, distances and speed for each exercise. Among the most important conclusions of the study are the following: 1. Exercising with the non-dominant helps in learning some basic skills of volleyball using the dominant arm. 2. Exercising with dominant and non-dominant arms helps to provide different dynamic programs which assist the learner to face all game variations of the game. The recommendation here is the importance of paying attention to the exercises with the non-dominant arm in training units for all skills of volleyball. 3. Using exercises with the dominant and non-dominant arms for one skill helps in activating the dynamic program of that skill. 4. Using exercises with the dominant and non-dominant arms for one skill helps the learner to provide responses similar to those in real playing.

Keywords: non-dominant arm exercises-enhancing the dynamic program-accuracy of basic skills- of badminton

1. Introduction

The dynamic learning is one of the most important sciences that have direct relation with the achievements in physical education. This led many experts and scientists paying increased attention to developing dynamic learning in all sport games. This type of learning plays a major role in improving sport skills of players. Conveying the effect of learning has positive impact on sport, therapeutic and health fields and many studies have tackled this issue. It is also shown in convey learning from one part of the body to another opposite to it (conveying between limbs) (Khayoon, 2002).

Badminton is a single game with every skill of it has a main dynamic program, which in turn has sub-dynamic programs which differ in their strength, speed, and direction). Consequently, there are many responses in each dynamic program related to each of the badminton skills. The dynamic program in is a main objective of the dynamic learning to develop athletics and make similar competitive situations of different speeds, times, and distances. This study shows the importance of non-dominant arm exercises in activating the dynamic program by increasing the dynamic incentives of the learner, and making use of conveying the effect of learning to develop the accuracy of basic the badminton skills of students.

The researchers, being teachers and trainers of badminton, found that most players of the University team lack some basic skills in badminton, though the dynamic program is well built. Thus, the researcher have tried to activate the dynamic program of some badminton basic skills by using exercises of non-dominant arm and making use of conveying the effect of learning to the dominant arm to create required responses. This study aims to:

- 1- To Be acquainted with the Effect of non-dominant arm exercises on enhancing the dynamic program for developing accuracy of basic skills of badminton student players
- 2- To understand the preference of using one or both arms in exercising to activate the dynamic program of improving accuracy of badminton skills.

2. Methodology

The researcher used the experimental approach to design two pretest and post-test equivalent groups. This approach is more convenient to the nature of the problem and it helps achieve the goals of the study

2.1 Population and sample

The sample of the study represents all the study population, namely, all the 12 players of the Karbala University Badminton Team for 2012- 2013. This means the researcher has used this approach for all the study population. By using lottery, the players were divided into two groups, the experimental group and control group. Each group was composed of 5 players. To be sure that both groups are equal, the researcher used Man Whitney test which should that there were no significant differences between the two groups, as shown in Table (1).

| statistical indicators research variables | Measure unit | Man Whitney Value | Evidence level | Type of evidence |
|--|--------------|-------------------|----------------|------------------|
| Forehand shot | degree | 12 | 0.39 | insignificant |
| Backhand shot | degree | 10 | 0.24 | insignificant |

(0.05) $N_1=5N_2=5$ level of evidence

2.2 Skills under consideration

The researcher studies the following badminton skills: the forehand shot and backhand shot .

2.3 The tests used in the study

Test one: measure of accuracy of forehand and backhand shot (wisamsalah, 2013) The purpose of the test: A measure of the accuracy of the performance of the forehand and backhand shot. Tools: bats brushes, rope, lists of additional high (244 cm), information form, field test plan design. Description of performance: -

- After the test is explained to the two laboratories give testers a good time for warm-up and then gives each laboratory (5) attempts a trial. • Stands laboratory in the region specified by (x). • At the moment the coach sends his blade can move if this move is necessary for the success of the attempt. And it hit the badminton front strike away (from above the head) to send over the network and the rope at the area specified in degrees.

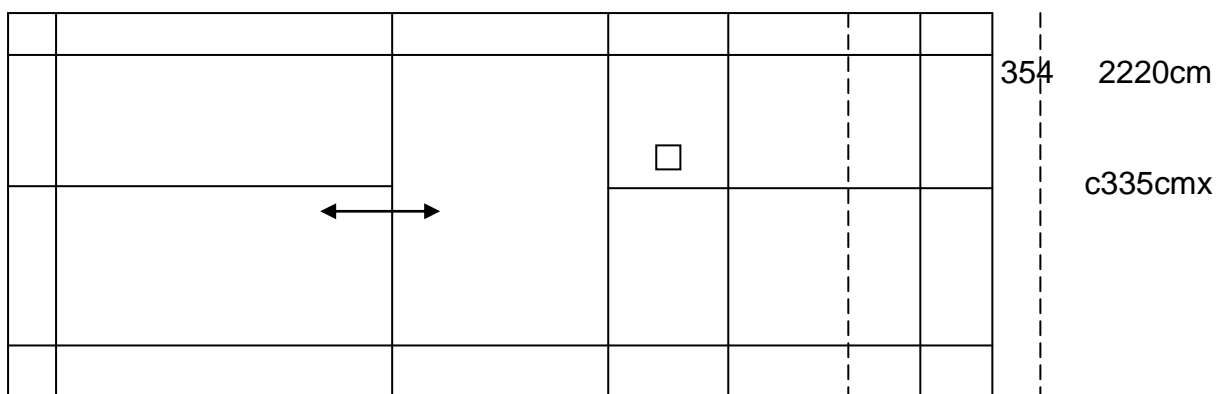
- Given the laboratory (12) has a calculated attempt to better (10) attempts only. Performance Evaluation:

- given the laboratory (3) points in the case of the fall of the shuttle in the region specific distance (50 cm) after the back of the yard.

- given the laboratory (5) points in the case of the fall of the shuttle in the region specific distance (76 cm) between the back yard and the beginning of the transmission line run doubles.

- given the laboratory (4) points in the case of the fall of the shuttle in the region specific distance (70 cm) after the transmission line run doubles. given two points in the laboratory case the fall of the shuttle in the region specific distance (124 cm) which starts from the end point (4) and ending with the extended imaginary line down the rope. • given a higher status in the fall of the shuttle on the line between two points is not given any point of the feather that falls outside the boundaries of the pitch or attached to the network. The maximum points that can best record in the laboratory (10) is the attempts (50) points.

50cm76cm70cm124cm



Form (1)

Shows the badminton stadium planning to test the strike front forehand

2.4 Exploratory Experiment:

Date of experiment 25-12-2012, morning.

Venue: the closed hall at the College of Physical Education, University of Karbala

Sample: 4 badminton players from the Karbala University team

Pre-tests:

The researcher conducted the pre-tests on 11-12-2012 on the playgrounds of Karbala University's College of Physical Education at 10:00 pm.

2.5 Didactic approach

The researcher applied a set of exercises by using the dominant and non-dominant arm on the experimental group, while the control group had exercises by using the dominant arm only. for (12) units, Two units in each week. The time for each teaching unit is 90 minutes. The time was divided as follows: 18 minutes for preparation section, the main section 60 minutes, and the final section 12 minutes. The approach started on 12-12-2012 and ended in 22 -1-2013. It involved various exercises in forehand shot and backhand shot, using different directions, distances, and speed for each exercise. The share of the dominant arm in the experimental group was 20 minutes of the main section in the teaching unit. The exercises depended on using dynamic program parameters by using different forms for one skill, as shown in Annex 1.

2.6 Post-tests

Post-tests (skill tests) for the study sample were conducted on 25-3-2013 on the playgrounds of the College of Physical Education, Karbala University .

2.7 Statistical methods

There was used in the analysis of the study data as following (*Mohammed Nasir.2003*) the mathematical mean, standard deviation, percentage, C2 test, Wilcoxon, Man Whitney Test, and Spearman Test.

3. Results and discussions

3.1 Results of pre-test and post-test of the study groups of skill tests

| Tests | Pre-test | | Post-test | | Calculated wilconsin value | Evidence level | Type of evidence |
|-------|----------|----|-----------|----|----------------------------|----------------|------------------|
| | m | st | m | st | | | |

After collecting pre-test and post-test of the study groups of skill tests, and to describe the results of sample individuals, the researcher addressed the statistical data by using central measurements and dispersion measurements. And to be acquainted with the significance of differences between the pre-test and post-test for the both groups, the researcher used Wilconsin test as shown in Table 2 and 3

Table 2: *shows the mathematical mean, standard deviation, and wilconsin values for pre and post-tests for the experimental groups*

| Tests | Pre-test | | Post-test | | Calculated wilconsin value | Evidence level | Type of evidence |
|---------------|----------|------|-----------|------|----------------------------|----------------|------------------|
| | m | st | m | st | | | |
| Forehand shot | 24 | 4.53 | 31 | 4.51 | 2,32 | 0.03 | significant t |
| Backhand shot | 24 | 4.13 | 30 | 4.99 | 2.21 | 0.02 | Significant t |

sample=5 level of evidence(0.05)

Table 3: *shows the mathematical mean, standard deviation, and wilconsin values for pre and post-tests for the control group*

| | | | | | | | |
|---------------|----|------|------|------|------|------|-------------|
| Forehand shot | 23 | 4.33 | 27 | 3.22 | 2,12 | 0.03 | significant |
| Backhand shot | 24 | 4.13 | 27,3 | 3.99 | 2.51 | 0.04 | Significant |

sample=5 level of evidence(0.05)

The researcher attributes the difference in significance between the pre-tests and post-tests of the group to the exercises using the dominant and non-dominant arm. Variety of forms of one skill was applied by using learning methods that are proportional with the type of the volleyball skills. The players used repetitions of skill forms by prompting both arms in the learning unit. the variety in using different forms with different strength, speed, and distance helped in performing the response in the right manner. Schhmid indicated that those who exercise different forms of exercises will have the ability to realize the stimulants they face hence activate the learning process (*Richard A. Schmidt.2000*).

3.2 Table4 : shows the mathematical mean, standard deviation, and wilconsin values for pre and post-tests for the control group

| Tests | <i>experimental groups</i> | | Post -test | | Min witny | Evidence | Type of evidence |
|---------------|----------------------------|------|------------|------|-------------|-------------|--------------------|
| | m | st | m | st | | | |
| Forehand shot | 31 | 4.51 | 27 | 3.22 | 0,00 | 0,00 | Significant |
| Backhand shot | 30 | 4.99 | 27,3 | 3.99 | 0,00 | 0,00 | Significant |

N1=5N2=5(level of evidence)0.05

4.3 Discussion of post-test of the study groups in the skill tests

The presentation and analysis of skill examinations of the post-test shown in table 4 , indicates that there are significant differences between the pre-test and post test of the group and for the favor of the experimental first group . The researcher attributes the difference in the development to :-

The focus in using various training methods suiting the existed development by using recent training methods have change the nature of the stimulants and the application of exercises by both arms helps the trainee to become familiar with different situations of the application of this exercise and make them interacting in performing this skill effectively in addition to that it provide the learners with knowledge and physical experience of the play environment and competition and teaching them performance modification in a manner suiting the play environment , changes and course (Ahmed Atshan.2010).

The researcher sees that training with both arms have helped the learner to provide different dynamic programs for the one skill by both arms . The investment of the learning transfer principle has helped the learner to convey the information from the non-dominant arm to the dominant arm ,thus it contributed in building a dynamic program for a large number of stimulants .Training by non-dominant arm will increase the efficiency of the dominant arm and there is a general concept that training part of the body and teaching it a specific dynamic performance will increase the performance capacity of the body other parts⁽²⁾ (Wajeeh Mahjoob.2001).

4.1 Conclusions

- 1- Exercising by using non-dominant arm enable to the dominant arm learn some basic skills in volleyball
- 2- Learning with both dominant and non-dominant arms helps provide many and various dynamic programs that can assist learners to face all variations in the game.
- 3- Learning with both dominant and non-dominant arms helps activate the dynamic program of skills under consideration.
- 4- The training with dominant and non-dominant arm has greater effect on improving some basic skills in volleyball.

4.2 Recommendations

- 1- There is a necessity to exercise with the non-dominant arm in training units regarding all skills of volleyball
- 2- Using both dominant and non-dominant arms for one skill helps activate the dynamic learning for that skill
- 3- Using exercises with dominant and non-dominant arm for one skill helps the learner to provide responses similar to those of real playing
- 4- Providing similar studies on different samples.

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