

An Educational program to improve Kinetic response speed and its impact on skillful performance level of Handball

Goalkeeper skills for teaching major female students

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Research problem and Introduction:

The success of Handball Goalkeeper's offensive and defensive performance requires his distinction with numerous merits such as reaction speed so as to defend opponent offence and at the same time make a fast break directly after controlling the ball in addition to correctly respond at the appearance of the stimulus (the ball), or directly after its appearance as the delay in recognizing the stimulus will lead to the increase of reaction time consequently affecting response speed. The right response helps in catching and controlling balls thus contribute to the success of making fast break or start an attack for his team. (1:221)

Research objective

Designing educational program to improve kinetic response speed and recognizing its impact on:

- 1- Improving the speed of kinetic response.
- 2- Improving performance level of Handball Goalkeeper defensive skills (Defense using feet and arm, Defense using the two arms, Defense using foot, Defense using an arm, Defense

using feet)of the research sample.

Research Hypotheses

3- There are significant differences between the means of pre-test and post-test measures of the experimental group in favor of post-test measures in improving (Kinetic response speed, performance level of Handball Goalkeeper defensive skills) of the research sample.

4- There are significant differences between the means of pre-test and post-test measures of the Control group in favor of post-test measures in improving (Kinetic response speed, performance level of Handball Goalkeeper defensive skills) of the research sample.

5- There are significant differences between the means of post-test measures of the Experimental group and post-test measures of the Control group in improving (Kinetic response speed, performance level of Handball Goalkeeper defensive skills) in favor of the Experimental group.

Research plan and Procedures:

Research Approach:

The researcher used the experimental approach via using experimental design for two groups: one is the experimental, and the other one is the control group and each group follows pre-test and post-test measures.

Research Sample:

The sample consists of (40) female students of faculty of physical education, Assiut University, Third Year, Teaching section, Handball major. The research was conducted on a random sample of 30 students divided into two equal groups; one is experimental and the other is the control group.

Table NO.(1)

Distribution of research sample concerning skilful and descriptive and Kinetic response speed variables of the research (S=40).

	Variables	Measurement Unit	Mean	Deviation	skewness
1	Age	year	17.21	0.47	0.65
2	Length	Cm	160.32	5.27	0.96
3	Weight	Kg	63.88	7.40	0.03
4	Defense using the Two Arms	Second	19.96	0.53	0.48-
5	Defense using Foot	Second	16.32	0.40	0.48
6	Defense using an Arm	Second	16.72	0.50	0.47
7	Defense using Feet	Number	2.00	0.60	0.76
8	Defense using Arm and Foot	Second	12.69	0.53	0.55
9	Nelson Test for Kinetic response	Second	4.35	0.29	0.413
10	Nelson Test for Measuring hand Return time	Second	1.67	1.00	1.08
11	Nelson Test for Measuring foot Return time	Second	2.00	2.00	1.00

Table No (1) pointed out that the values of Skewness coefficient were between (3±) indicating sample well

distribution concerning skilful and descriptive and Kinetic response speed variables of the research

Resemblance between research Sample

Table No (2)

Significant Differences between the Experimental and Control Group inskilful and descriptive and Kinetic response speed variables of the research(S=40).

Serial	Variables	Experimental Group (s=15)		Control Group (s=15)		T-value
1	Age	17.30	0.45	17.11	0.39	1.38*
2	Length	160.64	4.46	160	5.73	0.37*
3	Weight	63	9.77	60	6.54	0.24*
4	Defense using the Two Arms	19.10	1.53	19.32	.85	0.56*
5	Defense using Foot	16.50	1.43	17.36	1.11	0.35*
6	Defense using an Arm	17.45	1.45	17.89	1.27	0.22*
7	Defense using Feet	2.00	0.64	2.11	0.72	0.44*
8	Defense using Arm and Foot	12.69	0.63	13.00	1.00	0.89*
9	Nelson Test for Kinetic response	4.35	1039	4.35	0.143	0.004*
10	Nelson Test for Measuring hand Return time	1.67	0.77	1.12	0.70	1.96*
11	Nelson Test for Measuring foot Return time	1.45	0.71	2.00	0.85	2.01*

T value with the significance of 0.005=2.05

*Significant with a value of 0.05

Table No.(2) pointed out that there are no significant

differences between the two groups in skilful and descriptive and Kinetic response speed variables of the research , as calculated T value is less than T-test and this indicates the resemblance of

research groups concerning these variables.

Database collecting tools and methods

1-Questionnaires

- A questionnaire on experts' opinion so as to determine the most effected defense skills on Handball Goalkeeper

performance.(Attachment no.1).

- A questionnaire on experts' opinion so as to determine the skillful tests measuring Handball Goalkeeper defense skills and the researcher accepted 75% and more for these tests as indicated in Attachment no.2.

- A questionnaire on experts' opinion so as to determine the most suitable tests to measure kinetic response speed related to Handball Goalkeeper defense skills.(Attachment no.3).

- A questionnaire on experts' opinion so as to determine the suitability of selected exercises to promote kinetic response speed related to skillful

performance.(Designed by the researcher, Attachment no.3).

Tests scientific coefficients:

1. Reliability

Reliability of Research tests were calculated via applying the test and reapply it after seven days from the first application and correlation was found between the two tests.

2. Validity

validity of Research tests were measured via content validity as these tests were evaluated by eight experts in the field of Handball and teaching methods and they approved the validity of these tests to measure what it were designed for.

Table No.(3)

Significant Differences between the pre-test and post-test measures of the Experimental Group in skillful and descriptive and Kinetic response speed variables of the research(S=15).

Serial	Variables	Pre-test measure		Post-test Measure		T-value
		Mean	Deviatic	Mean	Deviatio	
Defense Skills	Defense using Two Arms	19.10	1.53	16.89	1.5	3.68*
	Defense using Foot	16.50	1.43	14.41	1.45	3.83*
	Defense using Arm	17.45	1.45	15.36	2.16	3.00*

Follow Table No.(3)
Significant Differences between the pre-test and post-test
measures of the Experimental Group inskilful and descriptive and
Kinetic response speed variables of the research(S=15).

Serial	Variables	Pre-test measure		Post-test Measure		T-value
		Mean	Deviatic	Mean	Deviatio	
Kinetic response speed	Defense using Feet	2.00	0.64	3.64	1.33	4.15*
	Defense using Arm and Foot	12.69	0.63	10.00	1.00	8.51*
	Nelson Test for Kinetic response	4.35	1039	3.55	1.33	2.39*
Kinetic response speed	Nelson Test for Measuring hand Return time	1.67	1.77	0.88	1.25	3.00*
	Nelson Test for Measuring foot Return time	1.45	0.71	0.33	0.98	6.63*

T value with the significance of 0.005=2.05

*Significant with a value of 0.05

Table No.(3) pointed out that there are significant differences between the pre-test and post-test measures of the

Experimental Group in skilful and descriptive and Kinetic response speed variables of the research , in favor of the post-test measure.

Table No.(4)
Significant Differences between the pre-test and post-test
measures of the Control Group inskilful and descriptive and
Kinetic response speed variables of the research(S=15).

Serial	Variables	Pre-test measure		Post-test Measure		T-value
		Mean	Deviatio	Mean	Deviatio	
Defense Sk	Defense using Two Arms	19.32	0.85	18.00	1.5	2.86
	Defense using Foot	17.36	1.11	15.41	1.45	3.99
	Defense using Arm	17.89	1.27	16.36	0.66	3.99

Follow Table No.(4)
Significant Differences between the pre-test and post-test
measures of the Control Group inskilful and descriptive and
Kinetic response speed variables of the research(S=15).

Serial	Variables	Pre-test measure		Post-test Measure		T-value
		Mean	Deviatio	Mean	Deviatio	
	Defense using Feet	2.11	0.72	2.94	1.00	2.52
	Defense using Arm and Foot	13.00	0.66	12.00	1.00	3.12
Kinetic response speed	Nelson Test for Kinetic response	4.35	0.14	4.00	0.78	2.26
	Nelson Test for Measuring hand Return time	1.2	0.70	1.0	0.88	5.62
	Nelson Test for Measuring foot Return time	2.00	0.85	1.5	1.02	2.27

T value with the significance of 0.005=2.05

*Significant with a value of 0.05

Table No.(4) pointed out that there are significant differences between the pre-test and post-test measures of the control

Group in skilful and descriptive and Kinetic response speed variables of the research , in favor of the post-test measure.

Table No.(5)
Significant Differences between the post-test measures of the
Experimental and Control Groups inskilful and descriptive and
Kinetic response speed variables of the research.

Serial	Variables	Experimental group Post-test Measure		Control group Post-test Measure		T-value
		Mean	Deviatio	Mean	Deviatio	
Defense Skills	Defense using the Two Arms	19.32	0.85	18.00	1.5	2.86
	Defense using Foot	17.36	1.11	15.41	1.45	3.99
	Defense using an Arm	17.89	1.27	16.36	0.66	3.99

Follow Table No.(5)
Significant Differences between the post-test measures of the
Experimental and Control Groups in skilful and descriptive and
Kinetic response speed variables of the research.

Serial	Variables	Experimental group Post-test Measure		Control group Post-test Measure		T-value
		Mean	Deviation	Mean	Deviation	
	Defense using Feet	2.11	0.72	2.94	1.00	2.52
	Defense using Arm and Foot	13.00	0.66	12.00	1.00	3.12
Kinetic response speed	Nelson Test for Kinetic response	4.35	0.14	4.00	0.78	2.26
	Nelson Test for Measuring hand Return time	1.2	0.70	1.0	0.88	5.62
	Nelson Test for Measuring foot Return time	2.00	0.85	1.5	1.02	2.27

T value with the significance of 0.005=2.14

*Significant with a value of 0.05

Table No.(5) pointed out that there are significant differences with a significance of 0.05 between the post-test measures of the experimental and control Group in skilful and descriptive and Kinetic response speed variables of the research, in favor of the Experimental group.

Results Discussion

Table No.(3) reveals that there are significant differences between the pre-test measures and the post-test measures of the experimental group in skilful and descriptive and Kinetic response speed variables of the research, in favor of the post-test measure. The researcher attributed the effects upon the experimental group to the impact of the suggested program that was

designed to fit handball goalkeeper skilful performance as the kinetic response speed is very important in Handball game especially Goalkeeper and this design was reflected on the actual performance of research sample by gaining deep conscious and sense recognition, in addition to the consistency between the eye and the hand and this enable them to learn to expect and rapidly respond because Goalkeeper skills differs from other players of the team consequently goalkeeper physical requirements differ from other players so as to enable him to efficiently perform all skilful and planned duties (2:209). In the light of what was mentioned above, it is clear that the first hypothesis has proved to be true and it states that there are significant differences between the pre-test and post-test measures of the experimental group in Handball goalkeeper skills and kinetic response speed variables in favor of the post-test measures.

Table No.(4) reveals that there are significant differences between the pre-test measures and the post-test measures of the control group in skilful and

descriptive and Kinetic response speed variables of the research, in favor of the post-test measure. The researcher attributed the existence of significant differences between the pre-test and post-test measures in the control group to the traditional program including skills explanation and performing a model in addition to the frequency of the performance and the diversity of the applied exercises for six weeks as the students failed to gain the skills and achieve the suitable compatibility, this means that they did not pass the course of handball. Consequently the second hypothesis has proved to be true and it states that there are significant differences between the pre-test and post-test measures of the control group in Handball goalkeeper skills and kinetic response speed variables in favor of the post-test measures.

Table No.(5) pointed out that there are significant differences between the post-test measures of the experimental and control Groups in skilful and descriptive and Kinetic response speed variables of the research, in favor of the Experimental group. The

researcher attributed the distinction of the experimental group in comparison with the control group to the specific educational program leading to improve reaction time as a result of warming up process that plays a vital role in stimulating body muscles to increase its kinetic efficiency and muscles preparation the matter that rapidly requires the contraction and diastole of muscles resulting in improvement of compound reaction time in addition to the accurate standard training on the compound movement reduces the compound reaction time as response time cannot be less than the time required for performing the physiological processes (3:135-138). There are significant differences between the post-test means of the experimental and the controller group in

improving the Handball goalkeeper skills and kinetic response speed in favor of the experimental group.

Citations

Arab References:

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3-Kamal Darweesh, Qadry Morsy, Emade Idin Abbas: Evaluation and analysis of handball matches, Theories-applications, Publishing Book center, Cairo, 2002.