

The Effect of Speed, Agility, Quickness Exercises on Developing some Skill Abilities and Physical in Youth Handball Player

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Abstract:

The study aims at:

- Preparing exercises using (Speed, Agility, Quickness) method and its impact on developing some physical fitness and skills abilities for youth handball players.
- Identifying the effect of (Speed, Agility, Quickness) exercises in developing some physical fitness abilities for youth handball players.

It is hypothesized that:

- There are statistically significant differences between the two groups (experimental and control) for the pre and posttests in the development of some physical fitness and skill abilities for youth handball players.
- There are statistically significant differences between the two groups (experimental and control) for the post-test in the development of some physical fitness and skill abilities for youth handball players.
- The researchers have used the experimental method by designing the experimental and control groups with pre and post tests for its suitability and the nature of the current research problem.
- The research community is represented by the youth players of Salah El-Din Handball Club for the sports season 2020/2021 numbering to (22) players. A number of (4) players are excluded as follows (2) goalkeepers and (2) players, due to their participation in the pilot experiment. So, the number of sample members is (18) players constituting (81.8%) of the research community.

Conclusions:

- The (Speed, Agility, Quickness) exercises have brought about a development in the studied fitness variables of quickness and agility.
- The exercises used have led to a development in the level of the offensive side, especially the skill of shooting, whether from the remote areas or those close to the goal.

Keywords: (Agility, Youth Players, Speed, Handball, Effect)

Introduction:

The development in the fields of sports training have come through the trainers' interest in using updated modern-style exercises that depend on different training methods. Since these methods are one of the important parts of modern sports training, as (Gina Harney) [1] asserts that physical exercise has achieved impressive results, and its effectiveness and great impact have spread in most countries that keep pace with sports development and have achieved new and impressive results. Accordingly, the recent trends in the use of physical exercises and the development of physical fitness are the first goals in training.

Modern handball play has requirements in that the player must reach a high level in all aspects of training as well as in the physical and skill sides. In addition, there is the good use of these two aspects through compatibility and consistency to reach good levels, as it is necessary to choose exercises that achieve the goal for which they are set. According to (Velmurgan & Palanisamy) [2], this method of applying exercises results in integrated effects for many physical abilities and their reflection on the skill side when implemented in training units.

It is found that the requirements of handball require multiple exercises, and the development of the physical and skill abilities is affected by the quality of the training loads applied in the program prepared by the coach. This can be achieved through the use of speed and quickness exercises that the player needs in various playing situations which require moving according to what the offensive or defensive side needs at that moment. As well as the agility in movement, which has a distinctive role in getting rid of the adherence by the defenders during the implementation of the tactical duty or deception in the implementation of individual duties of all types. This is provided by Speed, Agility, Quickness exercises, which Azmi & Kusnanik define as exercises of transitional speed, agility and quickness. It is a method of implementation through exercises aiming at developing basic motor skills to improve the player's ability to apply duties skillfully, quickly and accurately, as well as improving strength or ability in effective practice [3].

The researchers have found that (Speed, Agility, Quickness) exercises are implemented in the training units, but there is a difference in their application by the trainer as the method is very important if it fits with the members of the research sample. The problem is not in using the exercises, but in applying the exercises correctly, which leads to giving these methods a special means through which they can be developed for the purpose they are found for. These exercises can develop the physical and skill aspects to the highest levels the coach wishes to develop if the training loads are regulated according to the type of the sample being trained. This, in turn, leads to the achievement of the required research aims.

Mahfodadha Soliman confirms that the recently used speed, agility and quickness exercises are a new method for improving the physical fitness abilities as well as using it to develop the skill abilities as it seeks to achieve the variables it aims at [4]. This is consistent with the study by (Samia Ismail and Ahmed Mahran) [5] and the study of (Emeish, Mohamed Kamal) [6].

The study aims at:

- Preparing exercises using (Speed, Agility, Quickness) method and its impact on developing some physical fitness and skills abilities for youth handball players.
- Identifying the effect of (Speed, Agility, Quickness) exercises in developing some physical fitness abilities for youth handball players.
- Identifying the effect of (Speed, Agility, Quickness) exercises in developing some skill variables for youth handball players.

It is hypothesized that:

- There are statistically significant differences between the two groups (experimental and control) for the pre and posttests in the development of some physical fitness and skill abilities for youth handball players.
- There are statistically significant differences between the two groups (experimental and control) for the post-test in the development of some physical fitness and skill abilities for youth handball players.

Method and Tools:

The researchers have used the experimental method by designing the experimental and control groups with pre and post tests for its suitability and the nature of the current research problem.

The research community is represented by the youth players of Salah El-Din Handball Club for the sports season 2020/2021 numbering to (22) players. A number of (4) players are excluded as follows (2) goalkeepers and (2) players, due to their participation in the pilot experiment. So, the number of sample members is (18) players constituting (81.8%) of the research community. They are divided into two groups, each group including (9) players. The (S.A.Q) exercises prepared by the researchers are applied to the first group (experimental) , and the exercises followed by the coach are applied to the second group, as in Table (1).

Table (1)
Distribution of the Two Groups

Percentage	No. of female players	Research Sample
% 40.9	9	Experimental group
% 40.9	9	Control group
% 9.09	2	The excluded / goalkeepers
% 9.09	2	Players participating in the pilot experiment
% 100	22	Total

The Pre-Test:

The researchers conducted the pre-test on the two groups (experimental and control) on Wednesday 15/09/2021 in the indoor hall of the College of Physical Education and Sports Sciences / Tikrit University with the presence of the assisting work team. The pre-test conditions are fixed in terms of place, time and method according to which the pre-tests are carried out. In addition, the results of the players are recorded in a special form for data collection, which is prepared for this purpose to be processed statistically and scientifically after the completion of the experiment.

The Exercises Used:

A set of exercises have been prepared regarding speed, agility quickness, which aim to develop some physical fitness and skill abilities. These training exercises are divided into two medium sessions of (8) weeks, and each week consisting of (3) training units, therefore, the total number of training units becomes (24). Exercises designed by the researchers are used, with (4) exercises in the training unit, and are applied on (Sunday, Tuesday and Thursday) of every week.

The exercises are applied in the main section of the training unit with the used load ripple (3:1), starting from Sunday 19/09/2021. Table (2) shows a model for the first week of the used training units.

seconds between each group and the other

Table (2)

Model of (Speed, Agility, Quikness) exercises used in training units, their repetitions, rest times, totals and intensity

target % intensity	Work time + rest time per second	Total rests per second	Total work per second	Group rest per time	No. of groups	Rest between repetitions	Repetition	Target exercise in time	Purpose of the exercise
90	729	594	135	90	3	27	5	9	Quickness of the arms
90	621	504	117	90	3	39	3	13	Quickness of the legs + shooting speed
90	738	594	144	90	3	36	4	12	agility + shooting
90	729	594	135	90	3	27	5	9	Total
90	2817								Total in minutes
	46.95								

If the work-to-rest ratio is 1:3, and rest period between the groups is fixed by (90)

Post-Test:

The researchers have conducted the post test on the two groups (experimental and control) on Saturday 11/11/2021. The researchers are interested in providing the same conditions as well as the sequence of tests that have been applied in the pre-test.

Results:

Table (3): Arithmetic means, standard deviations, calculated (t) value, (sig) value and significance level for the pre and posttests of the physical and skill variables of the control group

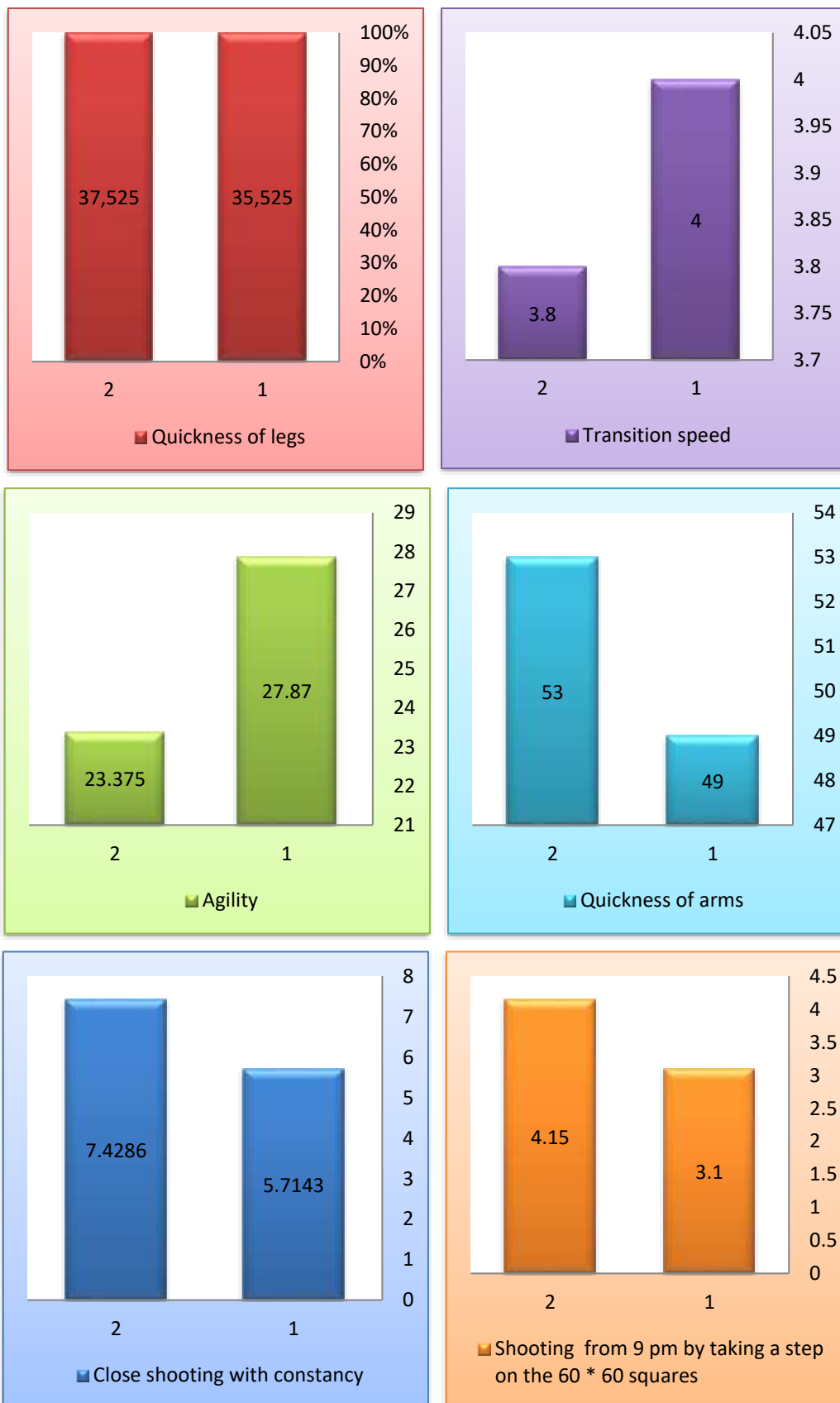
Significance	Significance level (sig)	T-value	Post		Pre		Unit of Measurement	Test	ت
			B	A	B	A			
Significant	0,04	3,015	0,165	4.00	0,219	4.10	Second	Transition speed	1
Significant	0,02	-6,918	2,430	35,525	1,907	28.360	Repetition	Quickness of the legs	2
Significant	0,04	3,890	4.854	49.000	5.132	41.235	repetition	Quickness of the arms	3
Significant	0.048	4.895	1.985	27.870	1.630	29.300	Second	Agility	4
Significant	0.03	3.11	0.72	3.10	0.45	2.41	Number	Shooting from 9 pm by taking a step on the 60 * 60 squares	5
Significant	0.000	12.728	0.7559	5.7143	0.9759	3.4286	Number	Close shooting with constancy	6

Table (4): Arithmetic means, standard deviations, calculated (t) value, (sig) value and significance level for the pre and posttests of the physical and skill variables of the experimental group

Significance	Significance level (sig)	T-value	Post		pre		Unit of Measurement	Test	ت
			B	A	B	A			
Significant	0,015	3,292	0,135	3.800	0,221	4.15	Second	Transition speed	1
Significant	0,001	-7,017	2,330	37,525	1,908	28.350	Repetition	Quickness of legs	2
Significant	0,003	3,464	5.545	53.000	5.132	41.333	Repetition	Quickness of arms	3
Significant	.024	5.138	1.043	23.375	1.658	29.450	second	Agility	4
Significant	0.002	3.455	1.21	4.15	0.56	2.26	Number	Shooting from 9 pm by taking a step on the 60 * 60 squares	5
Significant	0.00	16.971	1.1338	7.4286	1.2909	4.000	number	Close shooting with constancy	6

Table (5) Arithmetic means, standard deviations, calculated (t) value, (sig) value and significance level for the post tests of physical and skill variables between the control and experimental groups

Significance	Significance level (sig)	T-value	Experimental		control		Unit of Measurement	Test	ت
			B	A	B	A			
Significant	0.029	2.477	0,135	3.800	0,165	4.00	second	Transition speed	1
Significant	0.005	3.479	2,330	37,525	2,430	35,525	repetition	Quickness of legs	2
Significant	0.003	2.066	5.545	53.000	4.854	49.000	repetition	Quickness of arms	3
Significant	0.01	3.200	1.043	23.375	1.985	27.870	second	Agility	4
Significant	0.002	3.934	1.21	4.15	0.72	3.10	number	Shooting from 9 pm by taking a step on the 60 * 60 squares	5
Significant	0.006	3.328	1.1338	7.4286	0.7559	5.7143	number	Close shooting with constancy	6



The figures show the development of the experimental research sample members in the variables investigated

Discussion:

Observing Tables (3), (4), and (5) for the control and experimental groups, we find that all the physical and skill variables have acquired the degree of significance and this is a good thing. After comparing the results of the two groups regarding the research variables in the post tests, we have found that the experimental group which used (Speed, Agility, Quickness) exercises has had the advantage in the significance of the tests. As the use of these exercises in a regulated manner according to the level of the sample, as well as employing these exercises in a way that simulates the methods of playing that occur in matches, can lead in the long run to creating responses that improve the physical aspect, especially speed, quickness and agility. This is consistent with (Polman) when training handball players using (Speed, Agility, Quickness) exercises, as they can become more able to respond to stimuli, improve acceleration, move more effectively in multiple directions, play faster and change direction to ensure the achievement of the desired goals [7].

Following up on recent studies regarding the use of exercises used by the researchers, it is found that these exercises work precisely to raise the physical aspect and raise the physical fitness abilities for sporting events, including handball. Zoran confirms, through the analysis of studies, that the use of training methods according to (Speed, Agility, Quickness) exercises is a useful element in training physical fitness in handball [8].

In terms of skill, the use of (Speed, Agility, Quickness) exercises has shown superiority of the experimental group over the control group in aiming from multiple areas. It works to save the player's time and effort and release him/her of obstructive and random movements, and thus plays an important role in the advancement of the player's physical and skill levels. This is indicated by (Jeffreys) that the used (Speed, Agility, Quickness) exercises work to increase the muscular adaptation and thus get rid of the various extra and random movements and in turn work on the gradual progress in the levels of speed, ability and agility, which results in advanced skill performance [9].

Also, the use of these exercises is superior to the speed exercises and other exercises, which are performed routinely away from the use of talking in training. The exercises used by the researchers have worked to develop the physical fitness abilities targeted precisely by the researchers. Both (Mario Jovanovic) and (Arjunan) agree that (Speed, Agility, Quickness) exercises significantly develop physical abilities as in transitional speed, response speed, agility and muscular ability when compared with routine exercises for such abilities [10], [11].

The researchers have found that handball is one of the games that needs special requirements in speed and its abilities regarding what players need in different playing situations, whether it is in defense or in attack. If speed is not invested in directing the player to use it in the skill, it does not achieve what it aims at in terms of training. Therefore, exercises have focused on investing speed to employ different playing skills that lead to better development. It is noticed by (Dick Bate, Jan Jeffreys) that some activities, including the game of handball, differ in speed and requirements from other games because the player begins to move in different directions when preparing for the attack, and thus the distance and direction differ from one attack to another. Moreover, the transitional speed must be associated with the skill used by the player for all players, as these players represent the team defensively and offensively [12].

As for the applied agility exercises, they have led to a high development, especially if we know that these exercises do not work in isolation from speed exercises and other exercises. It works on developing the physical aspects in addition to the attacking skill aspects as it is closely related to deception movements, especially when the solutions are individual and the opposing team's defense needs to be penetrated. This is consistent with what is stated by (Naktal) in that agility exercises have a great and influential role in the development of the physical aspect and the performance of basic skills in attacking opponent's goals and is complementary with its peers in speed and quickness to be used in developing the player's attacking skills [13].

Conclusions:

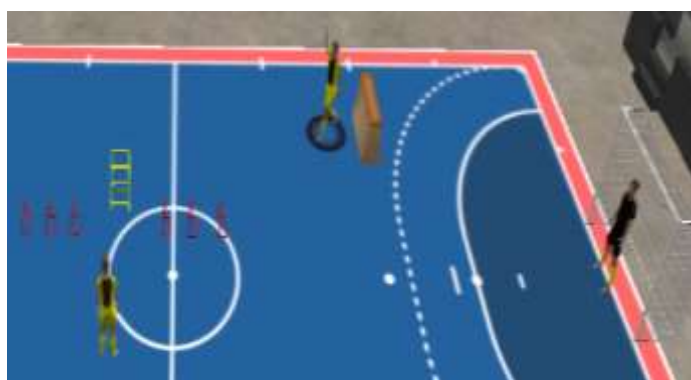
- The (Speed, Agility, Quickness) exercises made a development in the studied fitness variables of speed, agility and quickness.

- The use of exercises in a regulated way works to develop the various physical fitness exercises abilities according to the level of the sample.
- The use of (Speed, Agility, Quickness) exercises leads to the reduction of excessive and obstructive movements, whether in the physical aspect or in the skill aspect.
- The used exercises have led to a development in the level of the offensive side, especially the skill of shooting, whether from the remote areas or the areas close to the goal.

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Examples of exercises used in the study



A sample of agility exercises with tools and then the shooting performance after performing the deception movement. The maximum exercise time is approximately 10 seconds

A sample of the quickness exercise for the arms with the tools. The maximum exercise time is approximately 10 seconds





A sample of the quickness exercise for the legs with the tools and the shooting performance by jumping up. The maximum exercise time is approximately 15 seconds