

The Effect of Cross- Training on some Specific Physical Variables and the Level of Skills Performance for Fencing Players

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Abstract:

this research aims to identify the effect of using cross-training on some specific physical variables such as (motor speed– explosive power– endurance speed-accuracy), and the skillful variables such as (move backward 4 m speed– the speed of moving forward 4 m- the speed and accuracy of stretching movement), the researcher used the experimental method as it appropriate the study nature, research community included on (13 player) of University fencing team, sports season 2013/2014 and the sample was chosen intentionally from fencing players listed in University team, they were divided (7) as basic sample and (5) as a scoping sample. the duration of the proposed training program was (36) training unit for (12) week by three units per week, the most important results was the clear

improvement in the presence of statistically significant differences between the pre- and post- measurement for the benefit of post-measurement and in all specific physical and skillful variables.

Key words: cross- training

The cross-training aims to improve physical and physiological abilities of the activity through the use of various activities, sports, multiple means and employing instruments and techniques related to the major activity, this is may give the players the fun and excitement to improve his mental state, which increases the motivation when performing the training tasks and reduces the injuries which in turn reflected on the level of competition performance, cross-training serves to get rid of performance stereotyped, which may have a negative effect on the rise of the components of the training situation and causing in the

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reluctance of some players from join training , also working to avoid the two passive effects of training " the Over Training and Sports Burnout " (2: 14 - 22)

Essam Abdul Khaliq (2003) indicates that physical preparation is one of the most important elements for success of performance in sports activity , it is the beginning step to achieve the high sports levels, in addition to considering physical preparation as one of the most important supports to reach to the optimize performance of physical activity and aims to develop the necessary physical attributes that characterized the type of the specialized physical activity ,trying to develop to the maximum extent to reach the highest possible level of performance. (4: 78.81)

Lamp (1984) indicated that sports levels progression depends on many factors, including upgrading the functional level of the body organ this occurs through the development of training methods and techniques which aims to improve the outcomes and reached to the highest levels of achievement, training methods play an important

role towards achieving this goal, this reflecting the importance of designing standardized training programs, which aims to improve the training components of the situation with the player by following the scientific method (8 : 160-162).

fencing is one of the individual sports that evolved rapidly if compared to other individual games .this development appear in legal terms, which added to the fencing more excitement, thrill and fun and modern Fencing characterized by fast performance and moves and the rhythm of the game, as well as the attack and preparation skills, because of its great importance for the fencing player.

On the other hand the International Federation of Fencing amendment the time of the first round games (preliminary) game time was (4 min) and was modify to (3 min) with (5) touches . As for the knockout times, it became (9 min) divided into (3) rounds and the time of each round (3 min) and between each round (1 min) rest with making 15 touch

The researcher noted that many players do not have the ability to finish the match with the same efficiency as at the beginning in the preliminary rounds in (3min) or (4min) in the case of a tie with the ending time of the original game and the knockout rounds (9 min) .

On the other hand the inability of the players to continue to perform the offensive skills effectively with the same efficiency if compared to the beginning of the game where the players seems to be tired and the inability to focus on performance, which has a negative effect in controlling the distance and set the tempo for the game and the timing of the performance and thus leads to failure touches , failure to win the match and the high proportion of touches from competitors, which leads to a low achievement level by the players .

Therefore, the researcher believes that the development of the specific physical abilities of fencing players using cross-training may be the cause of improving the kinetic tracks of the offensive skills, which in turn achieves the desired goal

which is to win the specified points in time.

This prompted the researcher to design a training program using cross- training and identify its effect on some specific physical capacities and the skillful level of performance with fencing players.

Research objective:

The research aims to identify the effect of using cross- training on some specific physical variables (velocity – explosive strength - speed endurance – strength endurance), and the skill variables (backward speed – forward speed- stretching movement speed),

Research hypotheses:

1- There are statistical significant differences between pre- and post- measurement in some special physical variables (speed explosive-strength - accuracy – speed endurance – strength speed) in favor of post-measurement.

2- There were statistically significant differences between pre- and post- measurement in some skills variables (speed of retreat – the speed of moving forward - the speed of stretching movement) for the benefit of post-measurement).

Research procedures:**First: Research Methodology:**

The researcher uses the experimental method due to its relevance to the nature of the study using pre and post-measurement for one group.

Second: the community and the research sample:

research community Included on 12 players of University fencing team - sports season 2013/2014 , the sample was chosen intentionally from fencing players , and were distributed as follows (7) were the basic sample and (5) were scoping sample.

Third: the sample consistency:

To ensure that the sample in question is distributed moderately , the researcher used the torsion coefficient to ensure the consistency of the sample in terms of research variables ,torsion coefficient values were between (-3 , +3) indicating sample moderation (under discussion).

Fourth - research organizing and administrative procedures:

• **Preparation of the registration form :**
The researcher has designed a

data registration, measurements and tests form.

Fifth:**1: data collection tools:**

- He used the following tools, equipments and stadiums:
- (10) jump-Boxes with multiple heights.
- E- precision measuring device.
- (6) Swedish seats
- Stopwatch.
- Restameter to measure height (cm) - medical balance to measure weight (kgm) -
- a fitness facility equipped with (treadmill - a stationary bike - weightlifting Jacket - weights training equipment - basketball court and its tools - football stadium with tools - volleyball court with tools - Swimming pool - Legal jump hole - cones - sandbanks - jumped hoops ladders - bounce ropes – spongy mat - rubber rope - Medical balls - barriers to training - Step Boxes - chalk and lime - sandy land .

2 –the Forms:

A – Questionnaire form to determine the basic physical and skills attributes of fencing and the appropriate tests.

B - Questionnaire form of the proposed training program determinants.

3 - Tests:

-Measurements and tests used in the research:

Through theoretical readings and previous studies and the research objectives a number of measurements and tests are determined as follows:

•Morphological measurements:

1. Height (cm).
2. Weight (kg).

• Physical Tests:

- 1- Speed (30 m running test from the locomotive start)
- 2- Explosive strength (wide jump of stability test)
- 3- Speed endurance (speed endurance test for the movement of progress and jabbing the largest number of 30 s)
- 4- Strength endurance (jabbing test for as long as possible)
- 5- Accuracy (testing the accuracy and speed of touch making from arm stretching distance and jabbing)

• Skill Tests:

- 1- The speed of progress (progress speed test 4 m)
- 2 - Retreat Speed (retreat speed test 4m)
- 3- Stretching motor speed (stretching motor speed test for 10 times (s))

Sixth: Survey Study:

Scoping study was conducted on a sample consisting of (5) members from

outside the basic sample of the study and the research community in order to ensure the safety of the devices , tools, and training assistants and appropriate of training places and conducting scientific coefficients of tests under discussion.

Seventh: scientific coefficients of tests:

1 - Validity:

The researcher used valid distinction by applying tests on distinct sample of (6) players from outside the basic sample and the other is indistinct of (6) from students of the second academic year 2013/ 2014 as juniors in fencing game from 15/16/7/2013. Results of the study revealed statistical significant differences between the two groups for all physical variables, the calculated value of "t" varied from (2.89:5.25) and the skilful ranged between (-2.85: -9.26) which is statistically significant at the level (0.05)

Reliability:

In order to measure reliability of tests, the researchers used test and re-test for a period from 15, 07/16/2013 then applied these tests for the second time on the same sample and in the time

period 22 , 23.7.2013 with time interval (one week) between the first application and the second application. Results revealed the statistical insignificant correlation between the mean degrees of first and second application for all tests as the correlation coefficient varied from (0.89: 0.92) for physical and (0.82: 0.90) for skillful tests proves tests are reliable.

Eighth: The proposed program:

Program Objective:

The program aims to use cross-training to improve some specific physical variables, (speed – explosive power - accuracy – speed endurance – strength endurance), and the skill (retreat speed - the forward speed - the speed of stretching movement)

2- The period of proposed program application:

The program has been applied in the preparation period of the training season.

- Schedule for the program:

The researcher used the studies and previous researches that addressed the design of programs in the fencing in general and cross- training particularly ,a program has been developed using a cross-

training, according to some studies (2) (3) (5) (6) (7) also the researcher ask for experts and specialists opinions in the field of (training- fencing) they were (10) experts in the development of the proposed program to achieve the objective of this research also the researcher has accepted by 75 % or more of the views of experts and total time for the program has been determined based on the number of weeks , they were, (12 week) three units per week, and the time unit (120 min) According to this the total time of the program was (4320) minutes.

• The distribution of the total time for the main part of the program on the various aspects of the preparation according to the following percentages:

- General Physical preparation, 25% = 810 minutes
- Specific physical preparation 45% = 1958 minutes
- Competitive preparation (skillful) 30% = 972 minutes

- Ninth: the application of the program: -

- 1 – pre- measurement:

The researcher conducts pre-measurements of research variables on 24.07.2013 to 07/25/2013.

2 – Post- measurement:

- The researcher conducting the post- measurements of the sample in the period 19.10.2013 until 10.20.2013 and he has taken into account the measurement to be measure as in the pre- measurement and in the same tests order

3- **Statistical processing:** in order to achieve objectives of the study, the researchers have used statistical methods as (arithmetic mean- standard deviation- inflection coefficient- T-test- significance of differences- correlation coefficient- improvement rate).

Results and Discussion:

Table (1)

Significance of differences between the averages of pre and post measurements for physical tests under discussion (n = 7)

	Variables	Unit of measurement	Pre		Post		Calculated value of "t"	Improvement rate
			M	D	m	D		
1	velocity	s	3.73	0.37	3.21	0.14	16.29	3.34
2	explosive power	m.	1.84	0.17	2.09	0.13	13.17	-4.60
3	speed endurance for the movement of progress and jabbing the largest number of 30 s)	Repeated * s	12.14	0.90	18.57	1.51	52.94	-17.43
4	Strength endurance(jabbing test for as long as possible)	min	2.24	0.37	2.91	0.30	29.91	- 4.09
5	Accuracy (touch making from arm stretching distance and jabbing)	Largest number* s	4.71	0.67	7.42	0.97	57.54	90.50 -

The value (T) was significance at the level of $(0.05) = 2.57$ Is clear from the results of Table (1) the statistically significant differences at the level of (0.05) between the mean degrees of the two per- and post- measurements of the

control group for the benefit of the average of post- measurement in physical tests under discussion , calculated "T" value between (3.34 : - 17.43) , the improvement ratios ranged between (13.17 % : 57.54 %).

Table (2)
Significance of differences between the averages of the pre and post- measurements of skill pre and post under study (n = 7)

	Variables	Unit of measurement	Pre		Post		Calculated value of 't'	Improvement rate
			M	D	m	D		
1	The speed of progress (4 m)	S	2.45	0.36	1.54	0.18	59.33	8.06*
2	Retreat Speed (4m)	S	2.35	0.16	1.96	0.21	19.78	7.36*
3	Stretching motor speed and accuracy (10 times (s)	S	13.34	1.56	9.52	0.84	40.03	10.13*

- The value (T) at the level of significance (0.05) = 2.57.

Is clear from the results of Table (2) the of statistically significant differences at the level (0.05) between the mean degrees of the two per- and post- measurements for the benefit of the average of post-measurement in tests of skill under discussion value of calculated "T" ranging between (7.36: 10.13) and the improvement ranged between (19.78 % : 59.33 %) .

Second: results discuss:

In the light of the results of statistical analysis, in the limits of measurements, the research objectives, the researcher discuss the results.

To validate the first hypothesis, "there are statistically significant differences between pre and post measurement in some specific physical variables (speed – explosive

power - accuracy - speed endurance– strength endurance) in favor of post measurement"

Table (1) indicates the statistically significant differences between the pre and post measurements for the benefit of post- measurement in physical variables (under study), where the value of Tabulated (T) in all tests at the level of significance (0.05)

This means that the training program using cross- training has a significant impact on the development of the capacity of motor performance and that is represented at the increase the rate of improvement for all tests (under study) for the physical variables .

Table (1) shown the statistically significant differences between the averages of pre and post measurements for the benefit

of post- measurement and increase the rate of growth in all tests of special abilities in speed was improved by (16.29%), explosive strength was improved by (13.17 %), in accuracy was (57.54 %) in speed endurance was (52.94 %) in power endurance was improved by (29.91%)

This improvement in the physical variables fulfill the hypothesizes that the training program using cross training working on the development of physical abilities ,the results of this study consistent with the results of both Mohammed Hassan (2002) (5) Kassey, Kevin Michael (2003) (7), Hamdi Ibrahim Yahya (2006) (1), which indicates that the training program led to significant progress in the variable of maximum speed, through the diversity in the used training speed in the training program .

2 - Discuss the results of the skill variables (under discussion):

The results of Table (14) indicated the statistically significant differences at the 0.05 level for the benefit of post- measurement in the skill level of performance where the mean levels of pre-

measurement (2.45, 2.35 , 13.34), while the mean levels of post- measurements (1.54 , 1.96, 9.52 the value of calculated "T" ranged between the (7.36: 10.13), and improvement ratios ranged between (19.78 % : 59.33 %) .

This is because this progress in post- measurement than the pre-measurement back to the effectiveness of using the training program using cross training which included varied and interesting exercises that helps to improve the physical elements and thus led to a clear improvement in the level of skills performance. Since the cross training program adopted on the foundations and principles of upgrading the level of sport achievement and taken into account when designing the training program (the proper relationship between load and rest- the relationship between endurance and adapt " Privacy , overload" - continuity in training - progress of load degree- the individually in the training - the unity between periods of training and preparation - individual training- assessment and supervision) .

This is agree with what indicated by the study of each

of the Maha Mohamed Alhjursa 2007 (6) , the study of Shirin Hassan 2010 (3) , which demonstrated the effectiveness of the cross training effect at the level of skills performance as a result of its effective role in the development of physical abilities which reflected positively on the level of skills performance.

Conclusions:

Through the search results and within the sample the following conclusions could be reached:

1- cross- training effect positively on the physical abilities of the fencing players (speed – explosive power– speed endurance _ strength endurance) and this was reflected in the level of performance skills.

2- the training program which applied to a sample of the research showed that the organizational form of the training unit of different activities, devices, tools and exercises are different from the main activity (fencing) that leads to the creation of a kind of fun and gives an incentive for continued training with high efficiency which is reflected in the development of physical sufficiently of fencing

Recommendations:

Based on the reference frame adopted by the researcher and in the light of the information that could be obtained and the results of this study, the researcher recommends the following:

1. Urged junior teams' coaches in the sport of fencing to use of cross- training in the training programs because of their effect on the physical and skillful variables.

2. Conducting similar research aims to design training programs using standardized cross- training, in different organizational forms in the fencing.

3. The application of this study on the different samples in terms of age, gender and physical activity.

4. popularization the concept and the importance of cross- training as it is a recent trend in sports training and taking into account the integration of cross- training in the training program for its effective role in the development of the components of the physical and skills condition training and raise the level of performance while keeping on a fun and pleasure factors.

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