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Effect of Symmetrical Exercises on Some Physical Variables and Level of Performance in Running 4 x 400 Relay Effectiveness

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Abstract

One of sporting events that received great attention and in particular is track races and field. great progress in digital achievement of relay competitions, especially ran of short distances 4 x400 meters Effectiveness that activities have own physical and technical characteristics that must be enjoyed by two short distances, such as speed And distinctive strength of speed, as all physical capabilities of hostility are developing in a balanced manner with technical aspects of enhancing appropriate technique to reach good digital achievement. One of problems facing hostility in effectiveness of 4 X 400 meters is continuing is delivery of stick during performance of effectiveness in a full way and it is concern of all those interested in this Effectiveness, where delivery and receipt stage within box is one of important things that affect level of performance and digital achievement of team and thus achievement is determined by speed and accuracy of delivery and receipt stage, as well as lack of knowledge of coaches and athletes about practical benefit of symmetrical training by introducing m in training. study aims to Identify effect of use of symmetrical exercises on some special physical elements for purpose of developing acceleration during delivery and receipt at hostile effects 4 x 400 meters follow performance and researcher used experimental curriculum for research sample (19-20) year of (16) runners, represent 100% of original research community. Most important recommendations were: Considering rest periods in a way that suits physical effort, where it is between repetition groups within training. Use of symmetrical exercises to develop parts of technical stages of rest of athletics activities, as considered pillar of performance for each event and in a varied and interesting way, main part of training units.

Keywords: *symmetrical exercises, physical variables, 4 x 400 relay effectiveness.*

Introduction

symmetrical exercises are suitable for all sports collective or individual, because of interest in developing special physical fitness such as ability to change trends and move from acceleration to slow down in a streamlined manner, in addition to expectation, purity of mind and speed of reaction, all of which are major keys to achieving sports excellence in any sport. It is possible to use symmetrical exercises in physical warm -up part of its distinction in dynamism and flexibility, as a major part within training program or as an independent program to distinguish it with frequent run, acceleration, explosive movements and speed of direction change, and can be used in building and stringing muscles by adding resistance to training to simulate systems of explosive strength and

biometric training systems With focus on both safety of diet and recovery periods of recovery to get maximum benefit. Importance of research lies in increasing knowledge of sports coaches in diversity and innovation in implementation of exercises that contain multiple movement forms, are only concerned with linear movements in one direction, but also contain side movements and vertical movements in addition to opposite movements that are also suitable for positions and conditions of competition. .By following modest researcher for athletics training, especially activities of shortening, in particular, he noticed that sports coaches do not have sufficient knowledge of nature of exercises and may be attributed to lack of scientific sources or lack of studies that dealt with examination and audit, which resulted in lack of knowledge of athletes in how to include se supplementary exercises Inside training programs, with strict and loads, in line with strictness and loads of general training program for effectiveness of 4 x 400 meters Relay.

The moral effect of symmetrical training on specific physical variables and performance levels in the 4 x 400 meters relay has become a significant focal point in sports research. This study aims to investigate the impact of symmetrical training on selected physical variables and the subsequent performance of athletes participating in the 4 x 400 meters relay within the youth category in the Basrah Governorate. The study period spans from January 6, 2023, to April 10, 2023.

Symmetrical training, characterized by a balanced and systematic approach, is hypothesized to have a positive influence on various physical attributes critical to relay performance. These physical variables may include but are not limited to strength, endurance, speed, and agility. Understanding the moral aspect of training also becomes crucial, as it can contribute to the overall mental and emotional well-being of athletes.

The 4 x 400 meters relay is a demanding track and field event that requires a combination of individual capabilities and seamless teamwork. Athletes need to not only excel individually in terms of speed and endurance but also synchronize their efforts to optimize relay transitions. Symmetrical training, which emphasizes a holistic and balanced development of athletes, may positively impact their ability to work cohesively as a team.

The youth category, chosen for this study, is particularly interesting as it represents a stage in athletes' development where physical and moral aspects can significantly influence their future sports performance. Studying the moral effect of symmetrical training in this demographic provides insights into how training methodologies can contribute not only to immediate performance improvements but also to the long-term development of young athletes.

The time frame chosen for the study allows for a comprehensive analysis of the athletes' progression and adaptation to symmetrical training over a period of several months. By examining the effectiveness of symmetrical training on the 4 x 400 meters relay, the research aims to contribute valuable knowledge that can inform training practices and enhance the overall athletic development within the Basrah Governorate's youth sports community.

Method

Research terms

Symmetric exercises: "training aims to transfer effect of training between two parties to parties and improve level of performance to non -preferred party, which increases its distinction and diversifying strategy of sports performance." [1].

Researcher used experimental curriculum as one of research means to solve research problem, as experimental approach is a "deliberate and seized change with specific conditions of a specific incident and note resulting changes in same incident to interpret it" [2]. With design of one experimental group and pre and post -test.

Research sample

Research sample consisted of players of Basrah Governorate in effectiveness 4 x 400 youth category is followed by ages (19-20), who number (16) runners, and represent 100 % of original research community.

Table 1. Sample measurements and achievement through values of coefficient of Twisting

variables	Measurement Unit	Average arithmetic	deviation standard	kurtosis
length	Cm	160.758	3.051	0.756
Wight	kg	61.325	5.017	0.675
Age	year	18.898	0.517	-0.454
Training age	year	2,11	0.007	0.278
Achievement	Sec	49.3	0.014	0.165

It is clear from Table (1) that extracted values fall within natural curve, "as values of coefficient of twisting are limited between (+3) and (-3)" [3]. Where " good distribution of sample can be known to amount of values and its proximity to each separated and separated from each or, and thus we have a measure of amount of homogeneity of statistical group" [4].

Research Tools

Chinese -made weight and length device (Restametr); Lap top Cori7; Casio quality calculator number 1; 2 whistle; Stick 4; 15 -length tape. And 24 training cones.

Field Research and Test

Tests used in research

[1] Ahmed Kamel Joudeh, "Effect of Symmetrical Exercises with Unilateral Muscle Work on Brain Control and Some Physical Variables," *Faculty of Physical Education, Helwan University*, 2023, 15.

[2] Ikhlas Mohamed Abdel-Hafeez and Mustafa Hussein Bahi, *Scientific Research and Statistical Research Methods in Educational, Psychological and Sports Fields*, 2nd editio (Al-Kitab Center for Publishing, Cairo, 2002).

[3] Fouad Al-Bahi, "Statistical Psychology," in *The Handbook of International Psychology* (Cairo, Dar Al-Fikr Al-Arabi, 1987), 5.

[4] Robert M Thorndike et al., *Measurement and Evaluation in Psychology and Education* (Macmillan Publishing Co, Inc, 1991).

Test ran by jumping in 10 seconds

Test Aim: measuring strength with speed [5]: Tools: Time Hour, Line drawn on Earth is a signal to start jumping, person.Test procedure: laboratory stands behind starting line with a distance determined by laboratory to carry out approximate cod Measuring distance later. Calendar: distance traveled by laboratory is recorded in 10 seconds.

Run Test (30) meters from start of flying

Test goal: measuring maximum speed [6]. Tools: Time Hour, three parallel lines drawn on ground distance between first lines. Second 10 meters and between second and third line 30 meters.

Test procedure: laboratory stands behind first line, and upon hearing starting signal, laboratory will be enemy until crosses third line, time is calculated from second line to third line.

Run Test (40) meters of low start:

Purpose of test: measuring transitional speed. Tools: Time Hour, Determination of Parallel Distance between m (40 m) first line represents starting line and or line represents finish line. Performance description- laboratory stands behind starting line from low starting position, and when hearing absolute whistle, laboratory begins with running and at highest possible speed until finish line is passed.

Method of Registration: laboratory is given only one attempt, and calculation of time that laboratory takes from starting line to finish line in second.

Pre-Test

Researcher took Pretest on 20/1/2023 at four o'clock in afternoon in field of stadiums of Faculty of Physical Education and Sports Sciences / Basrah University. Researcher was keen to fix all conditions of test.

Main Experience

After preparing training curriculum of symmetrical training by reviewing references and scientific literature specialized in this field, researcher presented it to experts for purpose of evaluating it in field of sports training science, n researcher applied vocabulary of this training approach to research sample through first training unit dated (22 /1/ 2023) until (11/4/2023), last training unit, as shown in training unit form, and duration of training curriculum was (12) weeks and by three training units a week for days (Saturday, Monday, Wednesday), that is, by (36) training units and time Training at beginning of main section of exercises for interactive speed and interactive grace) reached (27) minutes and in method of high severity training, and training curriculum aims to raise physical and consensual level of hostilities and thus development of performance level in general and as in following exercises.

[5] Allawi Muhammad Hassan, Muhammad Nasreddin Radwan, and Muhammad Nasr, "Measurement in Physical Education and Sports Psychology," *Dar Al-Afr Al-Arabi, Cairo*, 2000.

[6] Peter O'Donoghue, *Statistics for Sport and Exercise Studies: An Introduction* (Routledge, 2013).

First, description of exercise: standing is like arms for front and back, elbows are an angle of 90 degrees, movement of arm of shoulder joint, relaxation of hands, wounds of arms for level of shoulders, arms of arms in body of body without intersection with middle of body. Second, description of exercise: Progress with a focus on movement of ankle and start with short steps with speed of frequency in contact with feet in front part of ground. Third, description of exercise: progress and two men weighted on righteousness, start running with an exchanging two men, considering free foot straightness, increasing speed of steps, touching land in front part of foot.

Fourth, description of exercise: progress while touching seat with foot, starting jogging while touching seat with ankle, increasing speed of feet. Fifth, description of exercise: diverse speed exercises, started running at a variety of 20 meters between conjunctions, changing rate of speeds while passing between conjunctions. Six, description of exercise: diverse speed exercises, starting with a variety of 30 meters between conjunctions, changing rate of speeds while passing between conjunctions. Seventh, description of exercise: side jumping with wide steps on right and right sides. Eighth, description of exercise: run, standing / run towards right is 5 meters, run for left 9 meters, n returning to a 5-meter enemy until starting point. Ninth, description of exercise: varied enemy (square 40 meters) run from Point (1) to Point (2), side running to number (3) of rear running to number (4). Tenth, description of exercise: running back, running for development of kinetic speed of two legs.

Post-Test

Researcher Perform Post Test on 11/4/2023 at Exactly Three Thirty in Afternoon in Field Stadiums of Physical Education and Sports Science /Basrah University.

Statistical Means

For Purpose of Processing Data Obtained by Researcher, Statistical Bag Spss Used Version 19.

Result and Discussion

3-1 Presentation of results of mimetically medium, standard deviations and achievement in Pre and post- tests of research sample, analysis and discussion:

Table 2. Shows value of mimetically medium, standard deviation, and value of (T) calculated results of tests.

Tests	M /Unite	Pre- Test		Post-test		T Value collected	T table	indication
		M	S	M	S			
Running 10 -Sec jumping test	meter	56.2	0.021	54.1	0.033	3.11	2.57	MORAL

running test 30 m from start flying	Sec	4.867	0.046	3.512	0.087	2.03	2.57	MORAL
Test 40 m from low start	Sec	6.99	0.033	5.49	0.012	2.26	2.57	MORAL

Through results shown in Table (2), it became clear that re are differences between mimetically averages and standard deviations of tribal and post tests for three tests, and since calculated value is greater than its schedule, difference between averages is a moral difference and in favor of post -test, which is an indication of a noticeable development on time of performance level. researcher believes that improvement in level of achievement in a hostile came as a result of use of gradual rest periods between repetitions and groups, which helped to better restore stability for internal physiological operations of working motor parties and job devices in an organized manner, which was confirmed by [7] who indicated that "that" Sports training is an organized repetition of performance of motor paths and making changes in building se paths and building organs and internal devices on which training is carried out with aim of upgrading level of completion. With nature of performance, which is confirmed by [8] that "in fact essence of training planning is a planning to achieve physiological reactions for body towards any physical pregnancy that falls on it and through body's response to achieving physiological adaptation and level of sporting performance increases" This confirms [9], who indicated that "developing training curricula for basic goals, choosing exercises that suit nature of event in each training unit and in time term of units is one of most important criteria for success of training curriculum." [10] agrees with him that "use of exercises that are consistent with nature of performance with general form of performing specialized skills lead to better results in acquisition of strength."

Table 3. Values of mimetically medium, standard deviation, and calculated (T) value of achievement test in effectiveness of 4 x 400

Tests	M /Unite	Pre- Test		Post-test		T Value collected	T table	indication
		M	S	M	S			

[7] Kimberly M Wood et al., "Dissimilar Physiological and Perceptual Responses between Sprint Interval Training and High-Intensity Interval Training," *The Journal of Strength & Conditioning Research* 30, no. 1 (2016): 244–50.
[8] Raysan Khouribet and Abu-Al-Elah Abdel-Fattah, *Sports Training* (Cairo, Al-Kitab Center for Publishing, 2016).
[9] H Talha, "The Kinetic and Functional Foundations of Sports Training: Cairo," *Arab Thought House*, 1994.
[10] Abo AlalaAhmad Abd Al-Fatah& and Ahmad Nasrdein Saied, "Fitness Physiology," *Dar Al-Fekr AlArabi, 1st Edition, Cairo*, 1993.

Experimental group	Sec	49.57	0.034	47.96	0.040	2.64	2.57	MORAL

Through results shown in Table (3), it became clear that re are differences between mimetically averages and normative deviations of tribal and post -tests to test completion of running of 4 x 400 sequences, and since calculated value is greater than its scheduled counterpart, difference between Mediterranean is a moral difference and in favor of remote test. researcher attributes remarkable improvement to role of symmetrical exercises that have contributed effectively to developing distinctive force with speed and improving digital level of performance, which was confirmed by [11], as "it is necessary to use unconventional training methods that contribute to developing functional capabilities of athle Anyone forcing athlete to adapt toger physically and psychologically to overcome contradiction between requirements of pregnancy and achievement of achievement. " researcher also attributes to quality of selected exercises and its prominent role in improving performance during delivery and delivery stage within box with a high smooth flow to effective effect of consensual switching of motor parties working in program proposal for symmetrical training, which was confirmed by [12]. "Training on continuous and intensive exercise helps to improve compatibility between movement of arms and two men and helps to improve strength in muscular groups operating in a manner that serves its performance properly" and thus improves performance And achievement in general.

Conclusions

this research found presence of moral differences with statistically between pre and post tests for research sample tests through use of symmetrical exercises. And sing quality y of symmetrical exercises has a great role in improving level of performance and in a way that suits nature of performance through development of motor groups operating in developed and useful ways.

of this research recommends taking into account rest periods in a way that suits physical effort, where it is between repetition or groups within training. And use of symmetrical exercises to develop parts of technical stages of rest of athletics activities, considered pillar of performance for each event and in a varied and interesting way, main part of training units.

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