

Effects of Compound Exercises Based on Difficulty Level of Squash Players' Bio Motor Variable

**Asst. L. Rashad Abbas Fadhil¹, Prof. Dr. Maher Abdul Hamza Hardan²
Dr. Prof. Hudhaifa Ibrahim Khaleel Al-Harbi³**

¹ Ministry of Education - General Directorate of Education in Babylon, 51001 Hillah, Babil, Iraq

^{2,3}Physical Education and Sport Sciences College, Babylon University, 51001 Hillah, Babil, Iraq

Rashad_n2003@yahoo.com, phy.maher.abd@uobabylon.edu.iq, Phy.hudhaifa.a@uobabylon.edu.iq

q

Abstract

The research problem included the general weakness in the bio motor abilities of the squash player when implementing the basic skills of the game, so he is reluctant to implement it because of his fear of not gaining a point or even losing the exchange due to the weakness of the player's bio motor abilities that have an important impact on the performance of squash skills and which makes him embarrassed to perform the attack And resolve the point.

The aim of the research is to prepare complex exercises according to the level of difficulty to develop some bio motor variables for squash players and to identify their impact. The researchers hypothesized that compound exercises according to the level of difficulty had a positive effect on the development of some bio motor variables for squash players.

The researcher used the experimental method with the two experimental groups on the players of the Babylon governorate clubs participating in the Iraqi Squash League for the year (2020), which numbered (12) by (6) players for each group.

The complex exercises developed according to the level of difficulty were implemented throughout the duration of the training curriculum, and then information was obtained on which conclusions were built, the most important of which is that training in such environments helps in developing the athletic level from all sides, and then the researchers recommended the need to introduce such new environments in the operations Athletic training.

Introduction

The development of bio motor capabilities is a basis on which coaches, players, and all sports specialists rely in order to develop skill performance in order to reach the best results. Therefore, bio motor capabilities have become a vital and complementary part of the success of any sports or training program in order to raise the level of physical and skill performance of players, especially squash players. ; This is due to the specificity of this game in terms of performance as well as the diversity of its positions (offensive and defensive) and therefore requires coaches to take into account the obstacles faced by players during the training unit or match and one of its sources is the weakness in the bio motor capabilities and this is reflected through the physical and nervous fatigue of the players Which leads to a loss of focus and therefore unable to perform efficiently in the implementation of offensive and defensive duties accurately.

In recent decades, there has been undoubtedly a great development in the activities of racket games, especially squash, as it is a game that requires high physical effort and superior skill to play the ball, with coordinated movements, where the player can perform the motor duty with minimal effort and with high accuracy, and for this game Several skills distinguish it from the rest of the games, including serving, front and back kick, plane strikes, and that what is related to this study is the front and back volley with squash as one of the basic skills of the game because of its impact on settling points, as this leads to the fact that if the two players were of the same level of skill and linearity, then the player The person with a high physical level is the one who will be able to control the course of the match, so the physical side plays a big role in the game of squash.

Research problem

The problem of the research lies in the general weakness in the bio motor capabilities of the squash player when he implements the basic skills of the game, so he is reluctant to implement it because of his fear of not gaining a point or even losing the exchange due to the weak capabilities of the player's bio motor that have an important impact on the performance of squash skills and which makes him embarrassed to perform Attack and take the point.

Through the experience of the researchers, they worked on developing a scientific study to develop some bio motor abilities by preparing complex exercises according to the level of difficulty to develop some of the bio motor variables for squash players.

The goal of the research

- Preparing complex exercises according to the level of difficulty to develop some of the bio motor variables for squash players and to identify their impact.

Research hypotheses

- Complex exercises according to the level of difficulty have a positive effect on the development of some bio motor variables for squash players.

Research areas

- Human field: Babil squash club players aged 17-19 years for the 2020-2021 season.
- The temporal domain: 12/25/2020 - 05/25/2021.
- Spatial domain: Babylon squash court - Iraq.

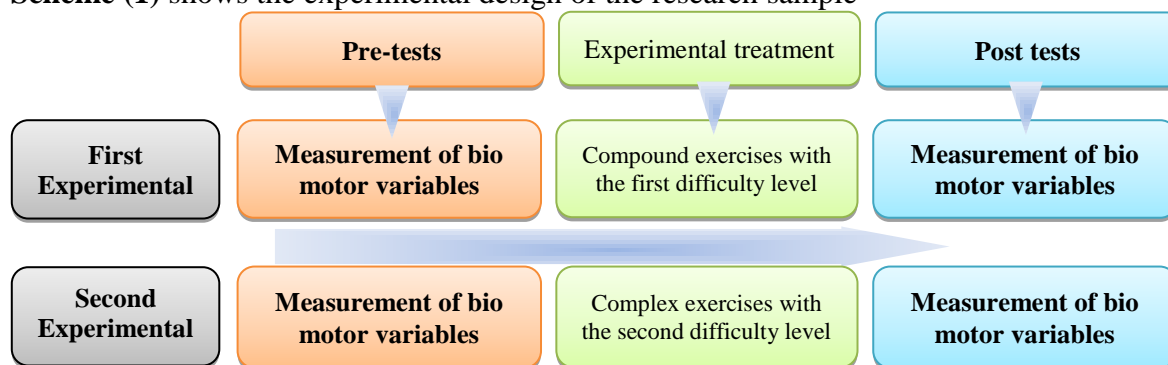
Research methodology and field procedures

Research Methodology

The researchers used the experimental method for its relevance to the nature of the research phenomenon by designing the two experimental groups with a pre and post test.

The first group worked with compound exercises with the first level (easy), and the second group worked with compound exercises with the second level (hard), as shown in Scheme(1).

Scheme (1) shows the experimental design of the research sample



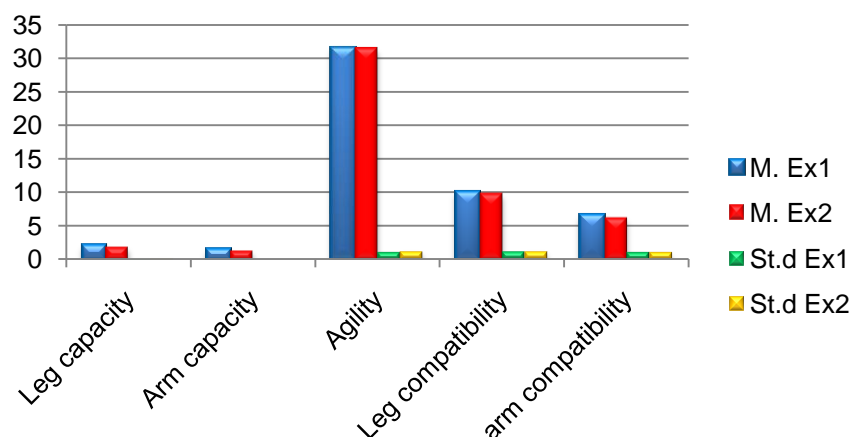
Community and sample research

The research community determines the 12-player club players of Babil Governorate - Iraq for the 2020-2021season.

Homogeneity of the two search groups

The researchers used Levin's law to find out the homogeneity of the two research groups.

Chart (1) shows a comparison of arithmetic means and standard deviations to find out the homogeneity of the two research groups



Scientific research tools

- Scientific sources.
- Observation and experimentation.
- Test and measurement.
- The questionnaire.
- Personal interviews.

Means and devices used in the research

- legal squash court
- Colored tapes, two measuring tape, and a red tape of 2.5 cm width.
- Dell computer (5040).
- Digital camera, type (Nikon), of Japanese origin.
- A digital display device (Data show) of Chinese origin.
- Medical scale of Chinese origin.
- A digital stopwatch of Chinese origin.
- -colored poles and cones (red, blue, yellow, green).
- Training ladder (4m)
- Collars with a diameter of (1m).
- Rubber cords of different resistors.

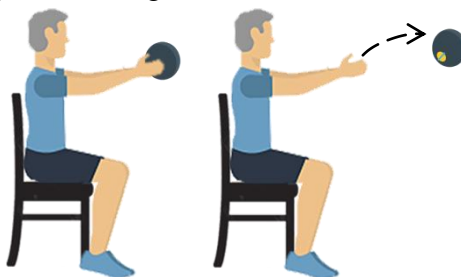
First: the test of the explosive ability of the legs: the long jump from stability [\(1: 400\)](#)

Figure (1) shows the long jump test of stability



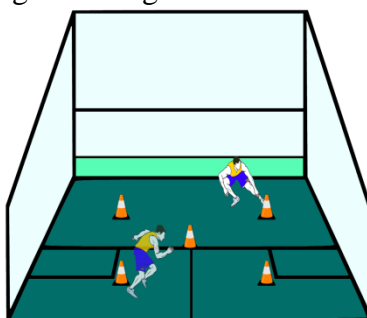
Second: Test the explosive ability of the arms: Throwing a 3kg medicine ball with two hands while sitting [\(2:53\)](#)

Figure (2) shows the throwing test of a 3kg medicine ball with two hands while sitting



Third: The test of agility: Zig - Zag Test [\(3:53\)](#)

Figure (3) shows the zigzag running test using the Barrow method



Fourth: The test of motor compatibility between the eye and the arm: throwing and receiving balls at the wall [\(3:52\)](#)

Figure (4) shows the test of throwing and receiving balls on the wall



Fifth: The motor compatibility test between the eye and the leg: The numbered circuits test [\(3:52\)](#)

Figure (5) shows the numbered circuit test



Exploratory Experience

The researchers conducted the exploratory experiment on (4) players from the research community at 32/1/2021.

The scientific basis for the tests test validity

The researchers used the content validity to extract the validity of the tests and to verify the validity factor in the research.

Stability test

The researchers used the test method and return it to extract the stability parameter, the first test was 23/1/2021, and after seven days the test was repeated 30/1/2021, and the researchers found that there is a high correlation.

Objectivity of the test

The objectivity of the test of explosive ability of the legs and arms, agility, and movement compatibility between the eye and the leg was calculated by finding the simple correlation coefficient (Pearson) between the scores of two arbitrators.

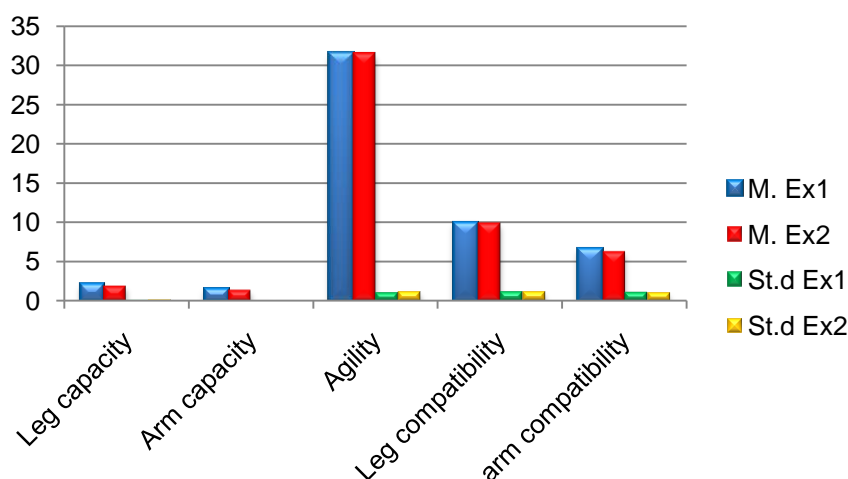
Pre-tests

Pre-tests were performed for both experimental groups on 3/2/2021.

The equivalence of the two search groups

In order to find out the equivalence of two groups, the researchers used the law (t). This gives researchers the green light to start with a single starting line and apply complex exercises according to difficulty level.

Chart (2) shows the comparison of arithmetic means and standard deviations to find out the equivalence of the two research groups



Compound exercises according to the level of difficulty

The implementation of the complex exercises according to the level of difficulty took (8) weeks, and the number of training units in one week was (3) units with a total of (24) educational units for each group, and the time of one educational unit was (90) minutes, as the compound exercises were applied according to the level of difficulty in the section The main only, and his time was (60) minutes, and the complex exercises were applied according to the level of difficulty in a high-intensity and repetitive interval training method.

posttests

The researchers conducted the posttests for both experimental groups on 31/3/2021.

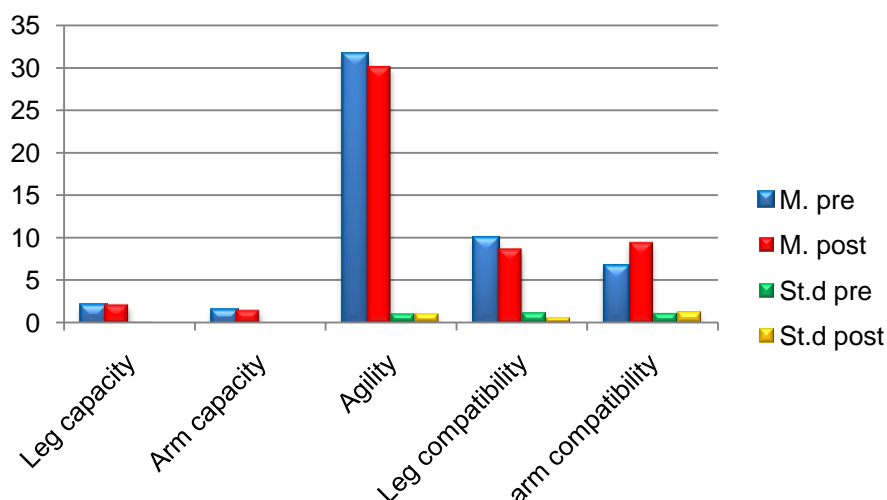
Statistical means

The researcher used the statistical package (SPSS) version (26) to process the data reached by the researcher during the research period.

Presentation and analysis of the results of the bio motor variables of the two experimental groups

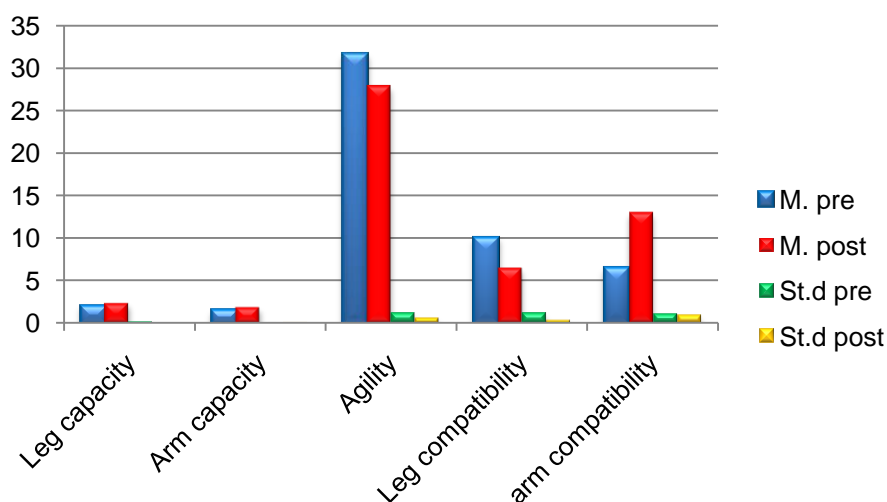
Presentation and analysis of the results of the bio motor variables for the first experimental group of easy level in the pre-post measurement

Chart (3) shows the comparison of arithmetic means and standard deviations to see the development of the results of the biomechanical variables for the first experimental group with an easy level in the pre-post measurement



Presentation and analysis of the results of the bio motor variables for the second experimental group, which has a difficult level in the pre-post measurement

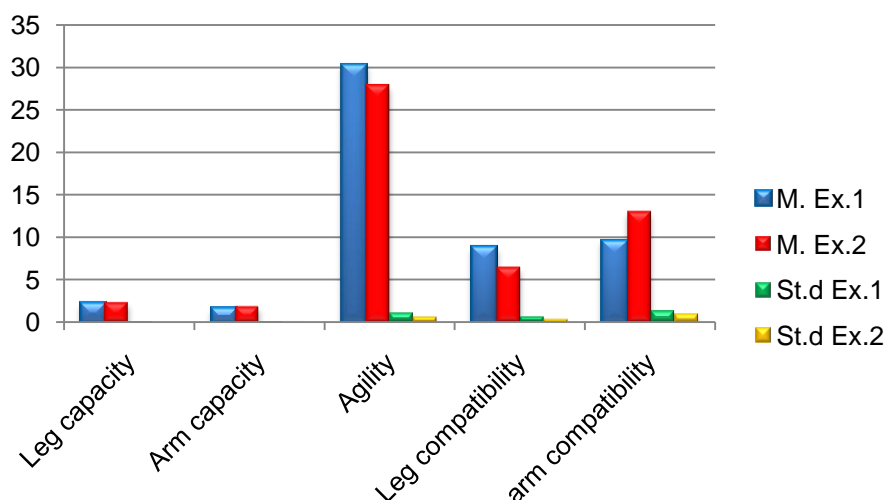
Chart (4) shows the comparison of arithmetic means and standard deviations to see the development of the results of the biomechanical variables of the second experimental group, which has a difficult level in the pre-post measurement



Accordingly, and from the above, the researcher finds that both groups have developed in the post test compared to the pre test. The researchers must make a comparison in the development of both groups and whether the compound exercises according to the level of difficulty applied to the players of the two experimental groups have a significant effect and difference.

Presentation and analysis of the results of the bio motor variables of the two experimental groups in the post-measurement

Chart (5) shows a comparison of arithmetic means and standard deviations to see the development of the results of the biomechanical variables of the two experimental groups in the post-measurement



Discussing the results of the bio motor variables for squash players

By presenting the results of the post-test in the previous graphs of the bio motor tribal tests under study, who showed that there is a significant difference in all the variables between the first experimental group and the second experimental group and in favor of the second experimental group,

As compound exercises with two levels of difficulty were used, and these exercises proved their effectiveness effectively and clearly on the first and second experimental groups, but the group of exercises with a difficult level had a moral effect on the second group, and here the complex exercises according to the level of difficulty had a role that kept the players away from boredom. The desire to perform more and more because it represents an exciting and interesting factor, and that the high physical level of an athlete depends on competition and special exercises associated with the type of activity of the specialized athlete. [\(4: 518\)](#)

Conclusions

- 1 The complex exercises according to the level of difficulty had an effective role in developing the bio motor abilities (explosive ability of the legs and arms, agility, motor coordination between the eye and the arm, and motor coordination between the eye and the leg) for both experimental groups and significantly on the second experimental group that worked at the highest level of difficulty (hard).
- 2 The complex exercises according to the level of difficulty contributed to the promotion and development of the motor program, as well as saving time for the coach and the player in developing the bio motor capabilities (explosive ability of the legs and arms, agility, motor coordination between the eye and the arm, and motor coordination between the eye and the leg) well and is suitable for training this category of players.
- 3 Compound exercises according to the level of difficulty have a positive effect on the players' commitment and attendance in the training unit and interaction among them and the desire to repeat a larger number of training duties.

Recommendations

- 1 It is preferable for the development of biomechanical capabilities, especially what has been studied (explosive ability of the legs and arms, agility, kinematic compatibility between the eye and the arm, and the kinematic compatibility between the eye and the leg) to take into account the level of difficulty in exercises, especially the complex ones for squash players.
- 2 It is preferable to use complex exercises during the training process to ensure the diversity of environments for the player and at any period within the training plan periods and in any part of the training unit.

- 3 It is preferable that the training methods and methods are in line with the player's needs and his physical, motor and psychological abilities, especially since there are various levels of difficulty for the exercises that the coach uses.

Sources

- 1 Muhammad SubhiHassanein: Measurement and Evaluation in Physical Education and Sports, 3rd Edition, Cairo, Arab Thought House, 1995.
- 2 Rashad Abbas Fadhil and others: Effect of exercises in popular games on the speed characteristic of badminton players, Journal of Sports Culture, V.11, No.2, 2020.
- 3 Rashad Abbas Fadhil: Impact of Complex Exercises Using Musical Rhythm in the Development of Some Kinetic Abilities and Volley Strike Performance for Squash Junior, Master Thesis, College of Physical Education and Sports Sciences, University of Babylon, 2015.
- 4 Rashad Abbas Fadhil and MazinHadiKazar: Effect of qualitative exercises using multimedia on kinetic balance and ground stroke for squash players, ASSR Journal of Sports Sciences, V.7, No.3, 2020.