مجلة جامعة ذي قار لعلوم التربية البدنية

المجلد (2) العدد (1) 2024

Some abilities related to motor and skill performance and their relationship to anaerobic fitness for football players with sarcopenia for ages 50-60

M.M. Safa Abdul Sattar Ali

University of Baghdad/Physical Education and Sports Sciences

Safa.a@cope.uobaghdad.edu.iq

Dr. Hussein Obaid Majhool

Department of Theoretical sciences, College of Physical Education and Sports Sciences , University of Thi-Qar , 64001, Iraq

hussein.majhool@utq.edu.iq

Abstract

With aging, muscle mass declines and muscle function and strength decline, which is associated with loss of independence, hospitalization, and mortality. The aim of this research was to find out the relationship between muscular aging and the physical abilities of pioneer football players aged 50-60 years in Dhi Qar Governorate. Intervention with some physical abilities led to improved health status and increased space in some muscle groups, and muscle flexibility decreased in the elderly. Of men while lifelong endurance training is associated with some advantageous morphological traits even at very advanced ages. There is also a decrease in the muscular adaptive response to physical activity in older men. These changes are at least partly unrelated to physical function.

The research sample consisted of (10) players, representing some of the pioneer players of the Nasiriyah Football Club / Dhi Qar Governorate, where the response rate was (66%) from the research community, which

was (15) individuals. The survey method was applied because it is appropriate for the objectives of the study.

It was concluded from the study that coordination abilities are an important factor and an effective factor in preserving the body's muscles. The study concluded that it is necessary to pay attention to a study of other abilities affecting muscle aging for the elderly.

Keywords: Sarcopenia, Anaerobic Fitness for Football Players.

1.Introduction to the research

1.1 Introduction and the importance of the research

The elderly population is steadily increasing worldwide, and as we age, we lose muscle strength and physical function as well as muscle mass. This loss is part of the aging process and when pronounced is called sarcopenia. It is associated with functional impairment (Mousa, A. M., & Kadhim, 2023).

The increased number of falls, hospitalizations, and deaths and the underlying mechanism of sarcopenia are multifactorial. With an imbalance between muscle protein synthesis and breakdown and includes extracellular components such as changes in hormone levels, increased inflammation, decreased physical activity, nutritional status, neurological factors and effects on components within muscle cells such as a reduction in the size of muscle fibers and physical capabilities of individuals, a decrease in the number of fluid cells and dysfunction.SC and Mitochondrial Dysfunction It is believed that some age-related changes or their consequences in muscle can be reduced or, to some extent, compensated for by physical activity (Kadhim, 2024).

Muscle Function Increased Physical Activity and Based on a Simplified Schematic of Muscle Function in Relation to Age and Physical Activity The

blue shading represents when muscle function is too weak to cope with activities of daily living and the arrow indicates initiation of a regular physical activity program. The decline in muscle mass can begin as early as the third to fifth decade of life and accelerates with age. Loss of muscle mass has also been observed, although the decline appears to be different. Different muscle groups respond differently to aging and inactivity as well as to exercise, suggesting Some muscles are more susceptible to aging. (Taha & Khalif, 2022).

1.2 Research problem

The simplified description states that aging is the accumulation of waste and non-degrading damage with decreased cellular ATP production and depletion of reproductive capacity (Jawad Kadhim & Mousa, 2024).

Which results in a state of unresponsiveness, called senescence Whether the origin of sarcopenia is primarily neurogenic or myogenic is under debate and in advanced stages there are a variety of changes in the peripheral innervation as well as in the muscles, making the determination of cause and effect very difficult. In addition, weak physical abilities and lack of exercise and regular nutrition may reduce some phenotypic changes during muscle aging (Easa et al., 2022).

There is also evidence that genes are responsible for physical function and performance in adults, although this may be less at older ages where environmental factors can have a greater influence. Muscle strength can be measured using dynamometers that measure isotonic force and force of movement. Measurements may include a single joint (single joint) or more than one joint (multiple joints) and this can affect the extent of muscle activation during exercise (Kzar & Kadhim, 2020).

Therefore, dynamic strength can be measured as a single repetition maximum of exercise in older people. There is evidence of a decrease in explosive force. The force developed in relation to the speed of contraction, which can be measured, for example, by rate of force development (RFD). These force measurements determine the torque at which It is produced by a muscle/muscle group, while functional measurements are more complex and involve coordination/balance. The problem of the research lies in knowing the relationship between some compatibility abilities and their relationship to muscular aging (sarcopenia), the pioneer players of the Nasiriyah Football Club, ages 50-60.

1.3 Research objectives:

1.Identifying some compatibility abilities and their relationship to anaerobic fitness for pioneering players with sarcopenia, Nasiriyah Football Club, for ages 50-60.

1.4 Research hypotheses:

There is a statistical correlation between some compatibility abilities (agility, flexibility, coordination) and their relationship to the anaerobic fitness of people with sarcopenia for the pioneer players of the Nasiriyah Football Club for ages 50-60.

1.5 areas of research:

1.5.1 Human domain: The study was conducted on some of the pioneer players in the Nasiriyah Football Club for ages 50-60.

1.5.2 Time frame: The tests were conducted for the period from 4/10/2023 AD until 5/15/2023

1.5.3 Spatial area: Local administration stadium / Dhi Qar Governorate.

1.6 Terminology: Sarcopenia:- is the loss of skeletal muscle mass and strength as a result of aging.

2.Research methodology and field procedures:

2.1 Research methodology:

The researchers used the descriptive approach in the form of correlational relationships because it suits the nature of the problem, as it aims to "collect data from individuals and society to try to determine the current state of society regarding a specific variable or variables.

2.2 Research population and sample:

The sample included (10) players from the research community of (15) players from the pioneers of the Nasiriyah Club who represent football players. Their ages ranged from (50 - 60) years. (5) players were excluded for health reasons, and (4) players were excluded for the exploratory experiment. The number became (6) players out of (10), constituting the entire original community in an intentional manner.

Samples	research community	Total sample	experiment exploratory	main experiment
Pioneers Nasiriyah Football Club	15	10	4	6
Percentagecommunity	100%	66.06	26.66	40

2.3 Means and tools used

2.3.1 Means of collecting information

Arabic and foreign references.

Tests and measurement.

International Internet Information Network.

Assistant work team. [1]

2.3.2 Tools used in the research

- Signs number 6
- tennis balls 2
- Numbered ruler
- Length measuring tape
- Electronic stopwatch

2.4 Tests used in the research:

After presenting a set of tests in a questionnaire[2] form to a group of experts and specialists in the field of testing and measurement and specialists in the field of training/football physiology, the following tests were agreed upon to measure the combinatorial abilities represented by (agility, coordination, flexibility, accuracy).

2.4.1 Agility test (BARO).

Purpose of the test: A valid test for measuring agility (Barrow called this test zigzag running).

Tools: Five posts or five chairs, a stop watch, a rectangle (10*16) feet long. Four posts are fixed vertically on the ground in the four corners of the rectangle, and the fifth post is fixed in the middle of the rectangle.

Performance specifications: From the starting place (next to one of the four legs designated for the rectangle), the tester runs the zigzag in the form of the number (8) in English.

2-4-2 Flexibility test:- (shoulder lift test)

Test purpose: - Measure flexibility.

[1]* Names of the assistant work team
- Ahmed Muhammad / Iraqi Ministry of Education.
- Ihsan Barzan / Ministry of Youth and Sports.

Appendix No. (1)

Tools: - A post divided into units, each of which is (1) cm, and fixed vertically on the ground, taking into account the beginning of the numbering at the bottom of the post. A small crossbar is attached to the post, parallel to the ground and easy to move up and down.

Method of performance: - The tester assumes a prone position on the ground with the arms extended shoulder-width apart. The tester grips the post and raises it upward as much as possible while keeping the chin in contact with the ground and the elbows and wrists extended.

Calculating the score: The distance is measured from the ground directly to the bottom of the stick, and the best numbers are recorded for three attempts, with a minute of rest between each. It is multiplied by 100 and divided by the result by the length of the arm.

2.4.3 Compatibility measurement test(Rasan Kharibat 1989)

Test name: Ball throwing and receiving test.

Test objective: Test eye-hand coordination.

Tools used: tennis ball, wall, draw a line five meters from the wall.

Conducting the test: The tester stands in front of the wall and behind the line drawn on the floor, where the test is carried out according to **the following sequence**:

1.Throwing the ball five times in a row with the right hand, with the tester receiving the ball after it bounces the wall with the same hand.

2.Throwing the ball five times in a row with the left hand, with the tester receiving the ball after it bounces the wall with the same hand.

3- Throwing the ball five times in a row with the right hand, with the laboratory receiving the ball after it bounces with the left hand.

Scoring: For each correct attempt, the laboratory is credited with a score, meaning the final score is (15) points

2.4.4 Anaerobic fitness test) Dawson, B., Ackland, & Lawrence, (1991).

Test name: Anaerobic fitness test for players

Objective of the test: – The ability to recover between sprints and produce the same level of force repeatedly. The test involves seven sprints, each lasting seven seconds, with a 23–second recovery.

Test layout: Marking cones are placed 2 meters apart for the first 20 metres. Forty meters from the first cone, the cones will be placed again two meters apart at a distance of 60 metres. Procedure: Subjects position themselves at the first cone (start 1). On the "go" command, each subject outputs "all" for seven seconds. At seven seconds, "time" is called and the observer notes in the cone that the subject has just passed. The subject had a 23 s passive recovery period (walk/jog) before the next race. For the second sprint, people position themselves at the last cone (start 2), facing back along the cones. 30 seconds after starting their first sprint, they would run again for seven seconds in the direction they came. Again, the "time" is called at 7 seconds, and the running distance is recorded. This is repeated for a total of 5 sprints. Scoring: Calculated by subtracting the distance covered in the last race with the distance covered by the athlete in the first race. The final sprint is expected to cover less distance than other sprints due to fatigue.

Purpose of the test: This is a test of anaerobic capacity, the ability to recover between sprints and produce the same level of forcerepeatedly.

Tools required: stopwatch, tape measure, marking cones, track of at least 60 metres. Pretest: Explain the testing procedures to the topic. Conduct health risk screening and obtain informed consent. Prepare forms and record basic information such as age, height, body weight, gender, and testing conditions. Measure and mark the course. Perform a standard warm–up.

2.5 The exploratory experience

The researchers intended to conduct a reconnaissance experiment on a sample of (4) players outside the research sample, to prepare the assistant work teamon how to

conduct measurements and tests accurately. The exploratory experiment was conducted on 4/13/2023 at the local administration stadium / Dhi Qar Governorate.

The researchers aimed to conduct the exploratory experiment as follows:

1. Verifying the validity of the tools used in measurements and tests.
2. Verify the suitability of the place.
3. Determine the time needed for tests.
4. Verifying the efficiency of the work team.

2.6 Main experience

To reach a solution to the research problem and achieve its objectives, the researchers carried out field tests on the local football administration stadium on 4/17-20/2023, where the researchers conducted the tests in the presence of the assistant team and explained how to perform the tests in front of the players. Then the pioneer players conducted the warm-up process collectively after This means conducting tests according to the conditions of each test and arriving at a solution to the problem. An anaerobic fitness test was conducted and how to perform the test was explained to the players. Then the players performed the warm-up process collectively. After that, the application was done by the players, and the work team recorded the result according to the conditions of the test and the attempts of each player.

2.7 Statistical methods

1. Arithmetic mean.
2. standard deviation.
3. Pearson correlation coefficient.

3. Presentation, analysis and discussion of the results

3.1 Presentation and analysis of the results of the research tests

To answer this question, arithmetic means and standard deviations were calculated for all areas of the study and the tool as a whole, and Table (1) shows this.

Table (1) shows the arithmetic means and standard deviations

T	Test name	characteristic measures	Arithmetic mean	Standard Deviation
1	Barrow test	Agility	22.77	1.66
2	Throwing and receiving ball test	Compatibility	11.14	2.22
3	Shoulder lift test	Flexibility	53.40	6.60
4	Measuring the anaerobic fitness players	Anaerobic fitness	33.47	4.01

From Table (1), it is clear that the arithmetic mean value for the agility characteristic is (22.77), while the standard deviation is (1.66). While the arithmetic mean of agreement is (11.14) with a standard deviation of (2.22). As for flexibility, the arithmetic mean was (53.40) and a standard deviation of (6.60). As for the accuracy test for scoring, it came with a mean of (33.47) and a standard deviation of (4.01).

3.2 Presenting, analyzing and discussing the results of the correlation of some abilities related to motor and skill performance and their relationship to those suffering from sarcopenia for the Pioneer players of the Nasiriyah Club.

Table (2) shows the correlation between motor abilities and 50-meter swimming **achievement.**

T	Motor ability tests	characteristic test measures	Correlation coefficient value (R)	Statistical Significance
1	Barrow test	Agility	* 0.25	Insignificant
2	Throwing receiving ball test	Compatibility	*0.83	Moral
3	Shoulder lift test	Flexibility	*0.8	Moral

(*)Tabulated “R” value at significance level (0.05) and degree of freedom 4 = 0.729

Table 2 shows that there is a non-significant correlation between agility and anaerobic fitness achievement for people with sarcopenia. It is also clear from the table above that there is a significant correlation between motor coordination and the achievement of anaerobic fitness for people with sarcopenia. As for the relationship of flexibility of the shoulder area to fitness achievemen Anaerobic anaerobic activity of people with sarcopenia also had a statistically significant relationship. Note that the error level is 0.05 and the degree of freedom is 4.

From the table above, it is clear to us that agility is weakly linked to the achievement of anaerobic fitness for people with sarcopenia, football players from the Nasiriyah Club, ages 50-60. The researchers attribute the reason to the fact that agility, as mentioned by is the speed of changing body positions, and it is also the ability to change The direction of the body or some of its parts quickly. (Abdulhussein et al., 2024),

The researchers also indicated the significance of the relationship between motor compatibility and the achievement of anaerobic fitness for people with sarcopenia, football players of the Nasiriyah Club, ages 50-60, indicating that fitness requires neuromuscular compatibility, and this must be developed for the elderly to avoid muscle aging. As Muhammad Sobhi mentioned, compatibility is an individual’s ability to integrate movements of different types into one framework .Also, flexibility came with a significant correlation with the achievement of anaerobic fitness for people with sarcopenia, football players at the Nasiriyah Club, ages 50-60. This is what the researchers indicated that flexibility in the arm area is important to give a wide range of movement of the arms to people with sarcopenia, as flexibility is the individual’s ability to move his body or parts of his body within Wide range of motion without stressful strain, or injury to the muscle or joint.Therefore, it is necessary to pay attention to all physical, functional, and anatomical aspects in order to achieve the best achievements, as this aspect in this event is considered the main goal in reaching the highest level for the athlete, in the best

condition, and with the least possible effort in competitions. (Khaleel, S. N., Ali, S. A., & Salloom. (2022)

confirmed that practicing muscle exercises on a regular basis helps improve the motor units that help preserve cells in voluntary muscles during aging. Regularity in exercises increases muscle size and reduces fatty tissue in the muscles, thus increasing muscle mass and strength .(Hammood et al., 2024).

confirmed that some exercises increase coordination and increase the mobilization of motor units, which is a neurological factor that participates in the muscle strength of people, a factor that has greatly contributed to increasing and improving people's muscle strength outputs and improving the quality of healthy life.Here, the player's ability to control the motor sense, the sense of distance and time, and how to use and employ the central nervous system to achieve the optimal result in shooting becomes clear. (Kzar & Kadhim, 2020).

In addition, aerobic exercise is of great importance in preventing sarcopenia because it affects the nervous and muscular system, improves strength, reduces fatty tissue in the muscles, and thus increases muscle mass. (Mohsen et al., 2024).

4. Conclusions, recommendations and proposals:

4.1Conclusions

1. There are statistically significant relationships between estimation of time and some and the achievement of anaerobic fitness for people with sarcopenia, players of the Pioneers Football Club of Nasiriyah, ages 50-60, with the exception of the second skill, so the relationship was not statistically significant.

2.There are statistically significant relationships between the assessment of anaerobic fitness and the basic skills investigated.

3.There are statistically significant relationships between the total dimensions of skill and motor abilities and anaerobic fitness, with the exception of the second skill, which was not statistically significant.

4.2 Recommendations

1.Paying attention to mental training and developing mental abilities, especially sensory-motor perception, with approved training programs.

2.Developing muscular motor sensation through exercise contributes to improving the reality of some motor skills, especially those that require a certain amount of muscular strength.

3. Providing an environment rich in stimuli specific to the type of sports practice that contributes to the development of sensory analysis and raises the level of kinesthetic perception.

References

1.Abdulhussein Encyclopedias of measurements and tests in physical education and sports: Basra, Higher Education Press, 1989.

2.Dawson, B., Ackland, T., Roberts, C., & Lawrence, S Repeated stress testing: the phosphate recovery test revisited. Athletic Coach 1991.

3.Taha&khalaf: Physical fitness and its components - factors affecting it - its tests, Qatar, Dar Al-Mutanabbi, 1985, p. 39.

4. Musa Abdul Karim Mustafa: Some physical and physiological characteristics and their impact on the level of shooting with an air pistol, unpublished master's thesis, University of Baghdad, College of Physical Education, 1983.

5.-Kzar Khayoun: Motor learning between principle and application, University of Baghdad, College of Physical Education, Al-Sakhra Printing, 2002.

6.Mohsen, B., Ackland, T., Roberts, C., & Lawrence, S Repeated stress testing: the phosphate recovery test revisited. Athletic Coach 1991.

7..Abdulhussein, A. A., Dheyab, A. S., Abdulkareem, O. W., Mutar Albadri, E. H., Hammood, A. H., Musa, M. F. A. H., Kadhim, M. J., & AbdulMageed, T. S. (2024)..AN ELECTRONIC SYSTEM ACCORDING TO THE COOPERATIVE METHOD AND

IMPACT ON DEFENSIVE MOVEMENTS IN YOUTH BASKETBALL. International Development Planning Review, 23(1), 1253–1266.

8.Easa, F. A. W., Shihab, G. M., & Kadhim, M. J. (2022). The Effect of Training Network Training in Two Ways, High Interval Training and Repetition To Develop Speed Endurance Adapt Heart Rate and Achieve 5000 Meters Youth. Revista Iberoamericana de Psicologia Del Ejercicio y El Deporte, 17(4), 239–241.

9..Hammood, A. H., Qasim, K. J., Atiyah, H., Abdulhussein, A. A., FARAJ, L. F., SALAH, A., Munshed, A. H., AbdulMageed, T. S., Hasib, N. R., & Fadhil, A. H. (2024). STUDYING THE REALITY OF ADMINISTRATIVE PROBLEMS FOR MEMBERS OF THE ADMINISTRATIVE BODIES OF FIRST-CLASS FOOTBALL CLUBS FROM THE PLAYERS'POINT OF VIEW. Proximus Journal of Sports Science and Physical Education, 1(5), 23–34.

10..Jawad Kadhim, M., & Mousa, A. (2024). The use of an innovative device to improve the efficiency of the posterior quadriceps muscle of the man after the anterior cruciate ligament injury of advanced soccer players. Journal of Physical Education, 36(1), 214–239.

11.Kadhim, M. J. (2024). Social Networks' Place in Contemporary Political Movements. International Journal of Social Trends, 2(2), 51–59.

12.Kzar, F. H., & Kadhim, M. J. (2020). The Effect of Increasing Rehabilitation Program Using Electric Stimulation On Rehabilitating Knee Joint Working Muscles Due to ACL Tear In Athletes. Journal of Physical Education, 32(3), 14–18. https://doi.org/10.37359/jope.v32(3)2020.1012Futsal Players. Journal of Physical Education, 34(3).

13. Khaleel, S. N., Ali, S. A., & Salloom, M. M. (2022). THE RELATIONSHIP OF AGILITY WITH MY DRIBBLING AND SCORING SKILLS IN FOOTBALL.

Appendix (1)

Names of the experts and specialists with whom the interview was conducted.

T	Names	Scientific	Jurisdiction	Workplace
1	Ghosoon Fadel	Phd	Training Methodology	College of Physical Education – Al-Mustansiriya University
2	Adnan Ghaithar	Phd	Training Methodology	College of Physical Education – Dhi Qar University
3	Mazen Hashem	Phd	Methods teaching footbal	College of Physical Education – Dhi Qar University
4	Ahmed Hassan	Phd	Injuries-football	College of Physical Education – Al-Mustansiriya University
5	Sondos Farouk	Phd	Injuries-football	Iraqi Ministry of Education
6	Ahmed Kamel	Phd	Injuries-football	Iraqi Ministry of Education
7	Bassem Obaid	Phd	Injuries-football	Iraqi Ministry of Education
8	Wathiq Jamal	Phd	Sports training	Ministry of Youth and Sports