e-ISSN 2798-3544

Sinar Sport Journal Vol: 5, No 2, 2025, Page: 1-10

The Relationship Between Certain Body Measurements and Passing The Asian Academy Futsal Referees' Exams

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DOI:
https://doi.org/10.53697/ssj.v5i2.3941
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Received: 17-12-2025
Accepted: 17-01-2026
Published: 17-02-2026

Abstract: The research aims to identify the relationship between body measurements and passing the Asian Academy tests for futsal referees. It also aims to identify the body measurements that contribute most to success in those tests. The researcher used the descriptive method with a correlational approach to suit the nature of the research. The research population consists of futsal referees nominated to enter the Asian Academy, and they were selected purposively, and their number reached (13 referees). The research tools consisted of anthropometric measurements (body height, body weight, leg length, hip circumference, chest width, abdominal circumference, and arm length) in addition to the results of the physical tests approved by the Asian Academy. For statistical data analysis, the researchers used the arithmetic mean, standard deviation, and Pearson's correlation coefficient. The results showed a statistically significant correlation between some anthropometric measurements and the results of the Asian Academy futsal referee test. The researchers concluded that there is a significant correlation between the Asian Academy test and body mass index, as well as between the Asian Academy test and hip circumference. The researchers recommend adopting anthropometric measurements when selecting new referees in futsal.

Keywords: Anthropometric Measurements, Asian Football Confederation Referees, Futsal Referees.

Introduction

Futsal is a modern team sport that has witnessed significant development at the physical, technical, and tactical levels. This directly impacts the requirements of refereeing performance, as the referee's role is no longer limited to officiating on the field and applying the rules. The referee has become an active element in managing the flow of the game through proper positioning, speed of movement, accuracy, and decision-making. This necessitates the availability of physical attributes that suit the nature of the game and its evolving pace. Physical measurements are important indicators that reflect an individual's physical efficiency and ability to adapt to the demands of athletic performance. They directly affect the level of physical fitness, endurance, and speed of motor response, which are essential factors for a referee's success in performing their duties on the field. Furthermore, the compatibility between body structure and the requirements of athletic activity is one of the scientific principles adopted in modern selection and preparation processes. In this regard, the Asian Football Confederation, through the Asian Football Referees Academy, seeks to prepare qualified referees according to precise standards that

include physical and physiological aspects. It sets special tests aimed at measuring the referee's readiness and ability to keep up with the requirements of official matches. However, the referee's success in passing these tests may be affected by several factors, most notably anthropometric measurements, which still need scientific study to clarify the nature of their relationship to the results of these tests. Through the researchers' review of scientific literature and field practices, and given that one of them is an Asian elite international referee and the other is a first-class referee, a disparity was observed in the results of passing the Asian Academy tests among the referees. This raises questions about the extent to which this disparity is related to the difference in their anthropometric measurements. Hence, the importance of this study emerges, which seeks to reveal the relationship between some anthropometric measurements and passing the Asian Football Referees Academy tests, in a way that contributes to strengthening the scientific foundations of selection processes in referee preparation and development.

Research problem

Despite the notable aspects of the futsal referee preparation and qualification programs, including physical tests and precise standards adopted by the Asian Futsal Referees Academy, the reality of passing these tests reveals a clear disparity in referee results. Some succeed in meeting the test requirements, while others fail, despite similar training levels and refereeing experience. This disparity is sometimes attributed to multiple physical factors, including body measurements, which are among the basic indicators of physical build that may directly affect the efficiency of physical performance and the ability to implement the requirements of the approved tests. However, the approved tests, but the referee selection and preparation processes often lack clear scientific standards that determine the body measurements most suitable for passing the academy's tests, and often rely on personal experience or general assessment without relying on precise scientific evidence. Through the researchers' observation of the field reality, and the fact that one of them is an international referee and among the elite referees of Asia, it became clear that there is a lack of studies that dealt with the relationship between body measurements and passing the Asian Academy's futsal referees' tests, which highlights the need for a scientific study that seeks to determine the nature of this relationship and to reveal the body measurements most associated with success in those tests.

Research objectives

1. To identify and determine the levels of certain anthropometric measurements for the research sample.
2. To determine the level of results from the Asian Football Confederation's Futsal Referees Academy test.
3. To determine the relationship between anthropometric measurements and the results of the Asian Football Confederation's Futsal Referees Academy test for the research sample.

Research hypotheses

There is a statistically significant relationship between certain anthropometric measurements and passing the Asian Football Confederation's Futsal Referees Academy exam.

Research areas

1. Human Resources: A sample of (13) first-class referees nominated for the Asian Futsal Academy.
2. Venue: The Ministry of Youth and Sports Stadium, named after the late player Ali Hussein.
3. Timeframe: From January 17, 2025 to March 17, 2025.

Methodology

Methodology is one of the important things in carrying out research procedures, as the research problem determines the type of methodology used to reach a solution and address the problem. It means the way in which a person arrives, in a scientific, logical and consistent manner with reality, at the realization of a fact that he was ignorant of, and it is the way to acquire certain knowledge. In light of this, the two researchers used the descriptive method with the survey method.

Research community and sample

The research population consisted of first-class referees nominated for the Asian Futsal Referees Academy for the 2024-2025 season. The research sample is a fundamental aspect requiring careful attention from the researcher, as it is defined as "a number of individuals or things selected according to a specific rule or method from the original population that it represents." Therefore, to achieve their objectives, the researchers deliberately selected the research population and sample. The sample consisted of (13) individuals out of a total of (14), representing (92.86%) of the original population.

Tools and methods used in the research

The researchers used research tools, defined as "the means or method by which a researcher can solve a problem, regardless of what those tools are, whether data or equipment."

The researchers used the following tools:

1. **Information gathering methods**
   - Arabic and foreign references and sources.
   - List of experts (appendix).
   - Survey form for experts regarding the identification of the most important body measurements for futsal referees.
   - Supporting work.
2. **Devices and tools:**
   - The following tools were required for the research:
   - Measuring tape

- Adhesive tape
- Track and field equipment
- Paper and pen
- Calculator
- Markers
- Stopwatch
- Whistle
- Medical scale

Search procedures:

1. **Body measurement form for the research sample:**

   The researchers designed a special form to determine the appropriate body measurements for first-class futsal referees.

2. **Body measurements:**
   - Body Height Measurement: Height was measured by marking a measurement point on a wall while the participants stood upright.
   - Weight Measurement: The weight of the research sample was measured using a medical scale, ensuring the participants stood in the center of the scale's base to avoid measurement errors.
   - Leg Length Measurement: Leg length was measured using a measuring tape from the midpoint of the femoral head to the point where the foot touches the ground.
   - Hip Circumference Measurement: Hip circumference was measured using a tissue measuring tape after wrapping it around the hip.
   - Chest Width Measurement: Chest width was measured using a tissue measuring tape from the right shoulder joint to the left shoulder joint.
   - Abdominal Circumference Measurement: Abdominal circumference was measured using a tissue measuring tape after wrapping it around the midline of the abdomen (navel).
   - Arm Length Measurement: Arm length was measured using a tissue measuring tape from the lateral apex of the scapula to the lower end of the first phalanx of the middle finger.

Defining the research variables:

1. **(AFC Academy Test) AFC,2024**
   - Purpose of the test: To measure individual endurance.
   - Equipment used: Football field, recording form, loudspeaker, cones, laptop containing the test tone.
   - Performance description: The cones must be marked as shown in the test diagram below. The distance between the starting and finishing cones is exactly 20 meters, and the rest zone is 5 meters. The judges start from the marked starting cone and run to the marked finishing cone, covering a distance of 20 meters. They then turn around and continue to the marked finishing cone. Each run includes a recovery period. The judges must adhere to the test tone for both the performance and rest zones. The

audio file will determine the tempo of the runs and the length of each recovery period. The judges must follow the audio file to achieve the required level.

- Recording: The judges' running process is monitored by the test supervisor, who records the number of repetitions for each judge. If a judge fails to place his foot on the finish cone in time, he must receive a clear warning from the test leader. If a judge fails to arrive in time a second time, he must be withdrawn from the test by the test leader, as the test format is shown in Figure (1).

Figure 1. Shows the Asian Academy of Referees test

Exploratory experiment

The pilot study is considered "practical training for the researcher to personally identify the difficulties encountered during the testing process in order to avoid them in the future" (Rahim, 15). Therefore, the researcher conducted a pilot study on February 2, 2025, with a sample of five (5) judges. Through this study, the researcher was able to:

1. Determine the validity of the tests used in the research.
2. Identify the problems and obstacles that the sample might face during the application of the tests.
3. Assess the suitability of the equipment and tools used in the testing.
4. Determine the time required to perform each test.

Main experiment

After completing all the preparations, the two researchers conducted the body measurements and physical tests on the research sample with the help of the support team on Sunday, March 16, 2025, at ten o'clock in the morning, and it lasted for two hours.

Statistical methods

The researcher used the Statistical Package for the Social Sciences (SPSS):

- Arithmetic mean.
- Standard deviation.
- Skewness coefficient.
- Simple correlation coefficient (Pearson's).

Result and Discussion

The researchers used Pearson's simple correlation coefficient test. The results showed differences and variations in some anthropometric measurements among the research sample. The results also showed statistically significant correlations between some anthropometric measurements and the results of the academy tests for futsal referees. The correlation coefficient results showed a significant relationship between height, weight, body mass index, and the results of the physical tests approved by the Asian Academy. It became clear that referees with suitable anthropometric measurements achieved better results in passing these tests compared to others. The results also showed that some anthropometric measurements contributed more than others in predicting the level of passing the tests. The results also showed that the anthropometric measurements collectively explain a significant percentage of the variation in the results of passing the Asian Academy tests, indicating the importance of these measurements in the physical evaluation process for referees.

Table 1. Presentation and analysis of the results of the selected variables

Torsion coefficient	Standard error	Standard deviation	Arithmetic mean	Measurement intensity	Variables	No.
2.474	0.053	0.191	3.430	mint	Asian Academy Test	1
0.436	**1.656**	**5.972**	174.00	cm	Body Height	2
0.008	2.740	9.879	74.38	km	Body Mass	3
0.585	1.485	5.354	90.00	cm	Leg Height	4
_0.019	1.688	6.085	95.77	cm	Hip Circumference	5
_0.512	0.655	2.362	41.08	cm	Chest Width	6
_0.141	2.630	9.481	84.31	cm	Abdominal Circumference	7
_1.041	0.796	2.869	75.69	cm	Arm Length	8

Presentation and analysis of the results of the simple correlation coefficient (Pearson's)

Table 2. Presentation and analysis of the results of the simple correlation coefficient between the Asian Academy test and selected anthropometric measurements

Meaning	Significance value	Degrees of freedom	Correlation coefficient	Variables	No.
Non-material	0.21	12	0.37	Asian Academy Test – Body Height	1
Matter	0.005	12	0.72	Asian Academy Test – Body Mass	2
Non-material	0.96	12	0.12	Asian Academy Test – Leg Length	3

Meaning	Significance value	Degrees of freedom	Correlation coefficient	Variables	No.
Matter	0.01	12	0.64	Asian Academy Test – Hip Circumference	4
Non-material	0.6	12	0.48	Asian Academy Test – Chest Width	5
Non-material	0.14	12	0.42	Asian Academy Test – Waist Circumference	6
Non-material	0.42	12	0.24	Asian Academy Test – Arm Length	7

From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and body height is 0.37, with a significance level of 0.05 and 12 degrees of freedom. The significance level was 0.21, and the result was not significant. From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and body mass index is 0.72, with a significance level of 0.05 and 12 degrees of freedom. The significance level was 0.005, and the result was significant. From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and leg length is 0.12, with a significance level of 0.05 and 12 degrees of freedom. The significance level was 0.96, and the result was not significant. From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and hip circumference is not significant. The Pearson correlation coefficient between the Asian Academy test and chest circumference was (0.48) below the significance level of (0.05) with 12 degrees of freedom, a significance value of (0.01), and a non-significant result. From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and chest circumference was (0.48) below the significance level of (0.05) with 12 degrees of freedom, a significance value of (0.6), and a non-significant result. From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and abdominal circumference was (0.42) below the significance level of (0.05) with 12 degrees of freedom, a significance value of (0.14), and a non-significant result. From the table above, we observe that the Pearson correlation coefficient between the Asian Academy test and arm length was (0.24) below the significance level of (0.05) with 12 degrees of freedom, a significance value of (0.42), and a non-significant result. (Meaningful)

Conclusion

Based on their analysis of the results of the studied tests, the researchers concluded the following:

1. There is a significant correlation between the Asian Academy test and body mass index (BMI), as well as between the Asian Academy test and hip circumference.
2. No significant correlation was found between the Asian Academy test and the other studied anthropometric measurements.
3. The research sample demonstrated a strong desire and enthusiasm to take the tests.

Recommendations:

1. Use anthropometric measurements when selecting new referees for futsal.
2. Emphasize daily and weekly training sessions and develop scientific training programs.
3. Conduct tests for other anthropometric measurements for Iraqi referees.
4. Compare the test results with those of neighboring countries.

References

AFC, PDF File, 2024, p23

Ahmed Khamis Rateb and Jamal Qasim Muhammad; World Handball Encyclopedia, 1st ed. (Baghdad: Arab Book House)

Amer Fakher Shaghati; The Science of Sports Training - Training Systems for Juniors at the Higher Levels, 1st ed.: (Baghdad, Al-Nour Office, 2011)

Amr Allah Ahmad Bastawisi; Foundations and Principles of Sports Training and its Applications, n.d. (Alexandria: Al-Maaref Establishment, 1998)

Azzam Sabri; Fundamentals of the Comprehensive Statistical System SPSS, 1st ed.: (Amman, Jadara for World Books and World of Books)

Bastawisi Ahmad; Foundations and Theories of Sports Training, 1st ed. (Cairo: Arab Thought House, 1999)

Chen, L.K. (2014). Sarcopenia in Asia: Consensus report of the Asian working group for sarcopenia. *Journal of the American Medical Directors Association*, *15*(2), 95-101, ISSN 1525-8610, https://doi.org/10.1016/j.jamda.2013.11.025

Dhafer Hashem Al-Kazemi (2012). Practical Applications of Writing Educational and Psychological Theses and Dissertations: Baghdad.

Essam Abdel-Khaleq; Sports Training (Theories and Applications), 1st ed.: (Cairo, Dar Al-Fikr Al-Arabi, 1999)

Essam Helmy and Mohamed Gaber; Sports Training: Foundations - Concepts - Trends, 1st ed.: (Alexandria, Al-Maaref Establishment, 1997)

Kotloff, K.L. (2013). Burden and aetiology of diarrhoeal disease in infants and young children in developing countries (the Global Enteric Multicenter Study, GEMS): A prospective, case-control study. *Lancet*, *382*(9888), 209-222, ISSN 0140-6736, https://doi.org/10.1016/S0140-6736(13)60844-2

Krakauer, N.Y. (2012). A new body shape index predicts mortality hazard independently of body mass index. *Plos One*, *7*(7), ISSN 1932-6203, https://doi.org/10.1371/journal.pone.0039504

Li, Y. (2020). Prevalence of diabetes recorded in mainland China using 2018 diagnostic criteria from the American Diabetes Association: National cross sectional study. *BMJ*, *369*, ISSN 0959-8146, https://doi.org/10.1136/bmj.m997

Papageorghiou, A.T. (2014). International standards for fetal growth based on serial ultrasound measurements: The Fetal Growth Longitudinal Study of the INTERGROWTH-21st Project. *Lancet*, *384*(9946), 869-879, ISSN 0140-6736, https://doi.org/10.1016/S0140-6736(14)61490-2

Park, C.C. (2017). Magnetic Resonance Elastography vs Transient Elastography in Detection of Fibrosis and Noninvasive Measurement of Steatosis in Patients With Biopsy-Proven Nonalcoholic Fatty Liver Disease. *Gastroenterology*, *152*(3), 598-607, ISSN 0016-5085, https://doi.org/10.1053/j.gastro.2016.10.026

Pereira-Santos, M. (2015). Obesity and vitamin D deficiency: A systematic review and meta-analysis. *Obesity Reviews*, *16*(4), 341-349, ISSN 1467-7881, https://doi.org/10.1111/obr.12239

Rothschild, D. (2018). Environment dominates over host genetics in shaping human gut microbiota. *Nature*, *555*(7695), 210-215, ISSN 0028-0836, https://doi.org/10.1038/nature25973

Ruyter, J.C. De (2012). A trial of sugar-free or sugar-sweetened beverages and body weight in children. *New England Journal of Medicine*, *367*(15), 1397-1406, ISSN 0028-4793, https://doi.org/10.1056/NEJMoa1203034

Saad Muhammad Qutb and Luay Ghanem; Volleyball: Between Theory and Practice (Mosul: University of Mosul, 1985)

Saleh Arshad Al-Aqili and Samer Muhammad Al-Shaib; Statistical Analysis Using SPSS, 1st ed. (Amman, Jordan) Dar Al-Shorouk for Publishing and Distribution, 1988)

Sami Muhammad Malham; Measurement and Evaluation in Education and Psychology, 4th ed. (Amman: Dar Al-Masirah for Publishing and Distribution, 2009)

Samir Musallat Al-Hashemi; Biomechanics, 1st ed. (Mosul: Dar Al-Hikma for Printing and Publishing, 1999)

Segars, W.P. (2010). 4D XCAT phantom for multimodality imaging research. *Medical Physics*, *37*(9), 4902-4915, ISSN 0094-2405, https://doi.org/10.1118/1.3480985

Subramanian, S. (2014). Persistent gut microbiota immaturity in malnourished Bangladeshi children. *Nature*, *510*(7505), 417-421, ISSN 0028-0836, https://doi.org/10.1038/nature13421

Winter, J.E. (2014). BMI and all-cause mortality in older adults: A meta-analysis. *American Journal of Clinical Nutrition*, *99*(4), 875-890, ISSN 0002-9165, https://doi.org/10.3945/ajcn.113.068122