Comparison Of Anthropometric Profile Between Elite And Non-Elite Soccer Players

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ABSTRACT

In the current study, a sample of 40 soccer players elite and non-elite was chosen. There are 20 elite and 20 non-elite soccer players in the sample. Players of were chosen at random to serve as subjects. On average, elite and non-elite players ranged from 18 to 25. Data will be gathered using a tools like skinfold calliper, bone calliper weigh machine, measuring tape. It also demonstrates that there is a substantial difference between elite and non-elite soccer players with elite players displaying a marginally greater anthropometric profile than non- elite players.

Consequently, there is a considerable difference in endomorphic, mesomorphic and ectomorphic in elite and non-elite soccer players. The elite players have slightly better profile then non-elite soccer players. The difference occurs might be the reason is the elite players are training on the regular basis and the non-elite are irregular in there training.

Keywords: Elite, Non-elite, Football, Soccer, Anthropometric, Somatotype.

INTRODUCTION

Anthropometry is the scientific study focused on measuring the dimensions and proportions of the human body. This field involves a systematic assessment of different physical characteristics, such as height, weight, body mass index (BMI), limb lengths, and the circumferences of various body areas. Through the analysis of these measurements, researchers can better understand human growth, health, and physical diversity.

Anthropometric data is essential across multiple fields, including health research, ergonomic design, clothing design, and product development. For example, in health studies, these measurements can be utilized to evaluate the prevalence

of malnutrition or obesity in a given population. In the realm of ergonomic design, anthropometric information helps in creating products—such as chairs and computer monitors—that enhance user comfort and safety.
Anthropometry serves as a crucial method for examining human variation and diversity among different populations, as well as tracking trends and changes over time. This field is significant within human biology and is applied across various disciplines, including anthropology, biology, medicine, and engineering.

Football,
commonly known as soccer, is a highly popular sport that involves teams of eleven players each. It ranks among the most watched and played sports globally, boasting millions of fans and participants across various continents.

Football is a game where two teams of eleven players try to move a ball into the opposing team's goal using any part of their bodies except their hands and arms. Only the goalkeeper is permitted to handle the ball, and this is only allowed within the penalty area surrounding the goal. The team that scores the most goals wins the match.

Football is the most popular ball game in the world, with the largest number of participants and spectators. Its simple rules and minimal equipment allow it to be played almost anywhere—on official pitches, in gymnasiums, on streets, in school playgrounds, parks, or beaches. The sport's governing body, the Fédération Internationale de Football Association (FIFA), estimated that by the early 21st century, there were around 250 million football players and over 1.3 billion people interested in the sport. In 2010, more than 26 billion viewers watched the World Cup finals, the premier football tournament held every four years.

Professionalism Football
The development of modern football was closely tied to the processes of industrialization and urbanization in Victorian Britain. As working-class residents in industrial towns and cities moved away from traditional pastimes like badger-baiting, they sought new forms of collective leisure. Beginning in the 1850s, many industrial workers started enjoying Saturday afternoons off, which encouraged them to participate in or watch the rapidly growing game of football.

Key urban institutions, such as churches, trade unions, and schools, organized recreational football teams for working-class boys and men. Increasing literacy rates led to more press coverage of organized sports, while improvements in

transportation—like railways and urban trams—made it easier for players and spectators to attend matches.

Indian Football

The India National Football Team represents the country in international competitions and is governed by the All India Football Federation (AIFF). It operates under FIFA's global jurisdiction and is affiliated with the Asian Football Confederation (AFC) and the South Asian Football Federation (SAFF). The AIFF was instrumental in co-founding both the AFC and SAFF, showcasing its commitment to advancing football in India and the surrounding region. The team participates in various international tournaments, including the AFC Asian Cup and the SAFF Championship, with the goal of improving its status in global football.

(b) Statement of problem

Comparative analysis of the anthropometric profile of elite and non-elite soccer player

Objective of the Study

To analyze the anthropometric profile of Elite and Non-Elite soccer players.

(d)**Delimitations**

1. **Age Group**: The study will include subjects aged between 18 to 27 years. This age range is chosen to ensure that participants are in a developmental stage where physical characteristics and athletic performance can be effectively assessed.
2. The study will be delimited to only 20 elite and 20 non elite soccer players as a subject from Lovely Professional University.
3. The study will be delimited to subjects who have represented Inter University competition.

(e)Limitations

- There may be influence of psychological, physiological and social conditions on performance of the player while delivering service which can't be controlled and of course it can influence the result.
- Possible influence of climatic conditions like air, temperature, atmospheric pressure and humidity during testing period can't be ignored.
- Performance of the players can also be influenced by their life style, daily routine and their food habits and these factors can't be controlled.
- The equipment errors during the period of data collection may also influence on the result of the study.

Accuracy of Equipment: The precision of the instruments used for measuring anthropometric variables (such as height, weight, body fat percentage, etc.) may affect the reliability of the data collected. Calibration and maintenance of equipment are crucial for ensuring accuracy.

(f) Hypothesis

It is hypothesized that there will be significant differences in the anthropometric profiles between national and non-national football players.

(g)Purpose & Significance of Study

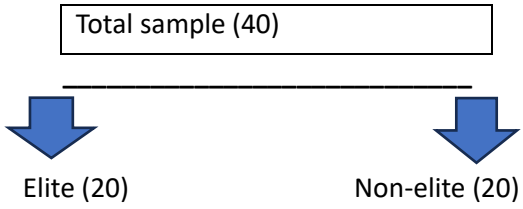
- This study can provide guidance to coaches/physical educators as well as soccer players to achieve efficiency during the play.
- The study will also provide anthropometrical to coaches/physical educators or to soccer players to assess the performance of any soccer player.
- The study will help the players to understand their body mass, strength.
- the study will also help identify and address the weaknesses of non-elite soccer players, providing them with actionable insights to improve their physical attributes and overall game performance.
- The study will decrease the distance between theoretical knowledge and practical application in soccer training and athlete development, ultimately contributing to the growth and improvement of players at all levels.

METHODOLOGY

Sample

In this study, a total of 40 soccer players were selected from Lovely Professional University. The sample comprised 20 elite players and 20 non-elite players. The participants were aged between 17 and 26 years.

Sample design



Research Tools

Data will be collected using various tools designed to measure the anthropometric profiles of individuals. The specific instruments include:

1. **Skinfold Caliper**: Used to assess subcutaneous fat thickness at various body sites, helping estimate body fat percentage.
2. **Measuring Tape**: A roll measuring tape will be employed to measure various body dimensions, such as height, waist circumference, and limb lengths.
3. **Bone Caliper**: This tool will be utilized to measure bone breadth and width, aiding in the evaluation of body composition and somatotype.

These tools will provide accurate measurements necessary for analyzing the anthropometric profiles of the soccer players in the study.

Skinfold Caliper Measurements for Estimating Body Fat

A skinfold caliper is a valuable tool for assessing skinfold thickness, which is instrumental in estimating total body fat. This technique is based on the understanding that body fat is relatively evenly distributed across various regions of the body, and that skinfold thickness can serve as an indicator of subcutaneous fat.

Measurement Sites

To estimate total body fat, skinfold measurements are typically taken at four specific sites:

Reliability

Among all skinfold measurements, the triceps skinfold is considered the most reliable indicator, as edema is rarely present in the upper arm. However, reliability can decrease in older adults due to the fragility of their skin and muscles, which may lead to muscle tissue being included in the skinfold measurement. Similarly, individuals with chronic muscle conditions, dehydration, or edema may yield inconsistent results.

To ensure accuracy, it is crucial that measurements are conducted by a trained professional, as the precision of the readings largely depends on the technique employed.

Roll Measuring Tape

A roll measuring tape, often referred to as a tape measure, is a versatile and flexible tool designed for measuring length or distance. This practical instrument is widely used in various fields, including construction, tailoring, and fitness assessments. This versatile tool is easy to carry, making it convenient for use in various settings, including pockets or toolkits. Its flexibility allows for accurate measurements around curves or corners.

Bone Callipers:

Bone callipers are specialized anthropometric tools specifically designed to measure the straight-line distance between two anatomical landmarks with precision. These instruments are essential in various fields, including sports science, physical therapy, and medical assessments.

Group Statistics					
	elite and nonelite	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
endo	**elite**	20	2.9500	.66689	.14912
	nonelite	20	3.7750	.78598	.17575
meso	**elite**	20	3.3500	85993	19229
	nonelite	20	3.7750	1.21287	27121
ecto	**elite**	20	3.1750	74824	16731
	nonelite	20	2.9250	1.16161	25974

CHAPTER Ⅳ

DATA ANALYSIS

RESULTS:

Table 1: Mean and Standard Deviation of Anthropometric Profile of elite and non-elite soccer player.

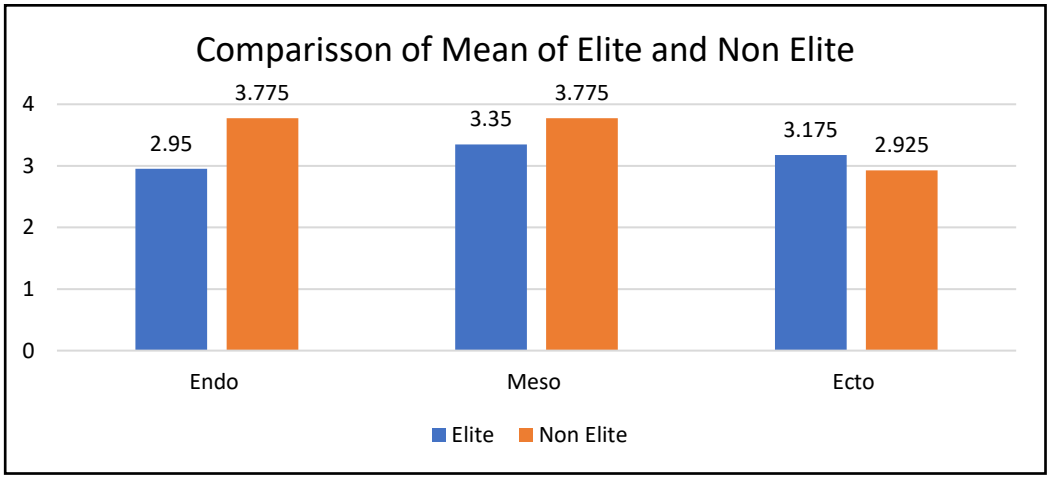
Error! Reference source not found.: reports are given as the n umber of elte players who portray as endomorph Elite player N=20 their mean is 2.9500 the standard deviation is .66689. and the standard deviation error mean is .14912 The number of non-elite level players who portray as endomorph N=20, their mean is 3.7750 and their standard deviation is reported as 78598. And their standard deviation mean error is .17575 The number of Elite level players who show as mesomorph N=20, the mean is 3.3500 and their standard deviation is .85993.and the standard deviation error mean.19229 The number of non-elite level players who show as mesomorph N=20, the mean is 3.9500 and their standard deviation is 1.21287. and their standard deviation error mean is.27121 The number of Elite level players who show as ectomorph, the mean is 3.1750 their standard deviation is .74824. and their standard deviation mean error is .16731. The number of non-elite level players who show as ectomorph, the mean is 2.9250 and their standard deviation is 1.16161 and the standard deviation error is .25974.

Table 2: Independent Samples Test for Equality of

Independent Samples Test						
		t-test Equality Mean				
		t	df	Significant .(2tailed)	M Diff.	Stnd.Error Difference
endo	**elite**	-3.579	38	.001	-.82500	.23049
	nonelite	-3.579	37.018	.001	-.82500	.23049
meso	**elite**	-1.805	38	.079	-.60000	.33245
	nonelite	-1.805	34.249	.080	-.60000	.33245
ecto	**elite**	.809	38	.423	.25000	.30897
	nonelite	.809	32.451	.424	25000	.30897

Anthropometric Profile of Elite and Non-Elite Soccer Players

Table 2: reports are given as the number of independent sample tests for equality using a t-test. The number of elite players shown as endomorphs is t -3.579 and the degree of freedom is 38 the significant 2-tailed is .001 and the mean standard deviation error difference is .23049. the number of non-elite soccer players is t -3.579. and the degree of freedom is 37.018. and the significant 2-tailed is 0.01 and the mean difference is -82500. And the standard error difference is .23049. the number of elite players shows as mesomorph is -1.805. and the degree of freedom is 38. and the significant 2-tailed is .079 and the mean difference is -60000 and the standard error difference is .33245. the number of non-elite players shows as mesomorph is t -1.805. degree of freedom is 34.249. and the significant 2-tailed is .080 and the mean difference is -60000 and the standard error difference is .33245. the number of elite players show as ectomorph is t .809 and the degree of freedom is 38, and the significant 2-tailed is .423 and the mean difference is .25000 and the standard error difference is .30897. the number of players show as ectomorph is t .809 and the degree of freedom is 32.451 and the significant 2-tailed is .424 and the mean difference is .25000 and the standard error difference is .30897.



The above table is a graphical representation of the Comparison Anthropometric mean Elite and non-elite soccer player. Endomorphic graphical representation elite 2.95 and non-elite is 3.775. the mesomorphic graphical representation of elite is 3.35 and the non-elite is 3.775. the ectomorphic graphical representation of elite is 3.175 and the non-elite is 2.925.

CONCLUSION

Results and Findings

The study's findings provide valuable insights into the anthropometric profiles of elite versus non-elite soccer players. Here are the key conclusions drawn from the comparison:

Significant Differences in Physical Attributes: The analysis revealed notable disparities in the anthropometric profiles of elite and non-elite soccer players. Elite players demonstrated superior physical attributes, likely due to their access to rigorous and specialized training regimens.

Conclusion

The comparison of anthropometric profiles between elite and non-elite soccer players underscores the significant role that physical attributes play in athletic performance. The favorable traits exhibited by elite players can be attributed to their specialized training and development programs. By focusing on enhancing these physical characteristics, non-elite players can work towards improving their performance on the field. Additionally, ongoing research in this area will help refine training strategies and contribute to the overall understanding of athlete development.

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