Relationship between anthropometry variables body mass index and fat percentage at different level of participation

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Abstract

The purpose of the study was to determent the anthropometry variables i.e. BMI body mass index and fat percentage of hockey players. The present study is confined to conduct only on 20 male subject age group 18-25 of Kurukshetra university players those who have played hockey game at different levels i.e inter-college and state. Twenty players of inter college and twenty of state level were selected for the study.

Keywords: Anthropometry, BMI, fat percentage

Introduction

Anthropometry, or anthropometrics, is the study of human body measurements. At its most basic, anthropometrics is used to help scientists and anthropologists understand physical variations among humans. Anthropometrics are useful for a wide array of applications, providing a kind of baseline for human measurement. The study of anthropometry has had some less-than-scientific applications throughout history. For instance, researchers in the 1800s used anthropometrics to analyze facial characteristics and head size to predict the likelihood that a person was predisposed to a life of crime when in reality, there was little scientific evidence to support this application. Anthropometry has also had other, more sinister applications; it was incorporated by proponents of eugenics, a practice that sought to control human reproduction by limiting it to people with "desirable" attributes. In the modern era, anthropometrics have had more practical applications, particularly in the areas of genetic research and workplace ergonomics. Anthropometrics also provide insight into the study of human fossils and can help paleontologists better understand evolutionary processes. The typical body measurements used in anthropometrics include height, weight, body mass index (or BMI), waist-to-hip ratio and body fat percentage. By studying the differences in these measurements among humans, researchers can assess risk factors for a host of diseases. Health practitioners universally agree that too much body fat is a serious health risk. Problems such as hypertension, elevated blood lipids (fats and cholesterol), diabetes mellitus, cardiovascular disease, respiratory dysfunction, gall bladder disease, and some joint diseases are all related to obesity. Also, some research suggests that excessive accumulation of fat at specific body sites may be an important health risk factor (Wilmore, Buskirk, DiGirolamo, & Lohman, 1986) [6]. For instance, it appears that extra fat around the abdomen and waist is associated with higher risk of diabetes, heart disease, and hyperlipidemia. Individuals who accumulate a lot of fat around the waist (apple-shaped) are worse off than those who tend to accumulate fat in the thighs and buttocks (pear-shaped). The apple-shaped pattern of fat deposition is more commonly seen in men; whereas women tend to be pear-shaped.

Now, more than ever before, people are preoccupied with how much they weigh. New clients walk into our classes on a daily basis hoping that exercise will be the panacea. In an effort to lose weight and excess fat, Americans spent in 1989 an excess of 30 billion dollars for 54 million diet books and for services and products at 1500 weight control clinics (McArdle, Katch, & Katch, 1991) [7]. Yet, efforts such as these to achieve thinness are often based on popular misconceptions about body weight and body composition. Being thin does not necessarily reduce one's health risk. In fact, obsession with becoming thin often leads to serious eating disorders such as anorexia and bulimia. Thinness simply refers to weighing less than the recommended values in age-height-weight tables. Leanness, on the other hand, refers to the muscle, bone, and fat composition of your body weight. Although some lean individuals may actually weigh more than their "tabled" ideal body weight, low body fat lessens the risk of health problems.

Method

For this study 20 hockey players were selected randomly from inter collegiate and 20 players were selected who participated in state level tournament, whose age was between 17-25 years were selected for the study. Comparison was done on Body Mass Index, and Fat percentage. Body Composition Analyzer was used to measure B.M.I. and Fat percentage, was done for the raw scores and Mean, Mean Difference and Standard Deviation was found by using "T" test.

Result

Table showing Mean, Mean Difference, Standard Deviation, Error and "T" Ratio of B.M.I. and Fat percentage between intercollegiate and state hockey players

Table 1: Table showing Mean, Mean Difference, Standard Deviation, Error and "T" Ratio of B.M.I. and Fat percentage between intercollegiate and state hockey players

No.	Particulars	Group	Mean	Mean Difference	Standard Deviation	Error	"T"
1	B.M.I.	Inter college	19.81	0.52	4.52	1.45	0.36
		State	19.29				
2	Fat percentage	Inter college	21.07	4.84	10.57	3.38	1.43
		State	16.23				

Significant Level – 0.05 (38) = 2.02

Mean of Inter collegiate and state hockey players in B.M.I. was 19.81 and 19.29 respectively. Mean Difference was 0.52, Standard Deviation was 4.52, Error was 1.45 and "T" Ratio was 0.36 which was not significant at 0.05 level. It indicates that there is no significant difference in B.M.I. of inter collegiate players and state level players. Result shows that intercollegiate player B.M.I. mean was high than state level player.

Mean of intercollegiate and state level players in Fat was 21.07 and 16.23 respectively. Mean Difference was 4.84, Standard Deviation was 10.57, Error was 3.38 and "T" Ratio was 1.43 which was not significant at 0.05 level. It indicates that there is no significant difference in Fat percentage between intercollegiate and state level players. Result shows that intercollegiate player Fat percentage mean was high than state level players

Conclusion

The findings of the study showed that there was no significant difference between the intercollegiate and state level players in relation to body mass index and fat percentage.

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