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BMI and Cardiovascular Efficiency between Combative and Non-Combative Sports persons

Dr. Saini Sonia* Devi Sunita**

*Assistant Professor, Department of Physical Education, Panjab University, Chandigarh.
**Research Scholar, Department of Physical Education, Panjab University, Chandigarh.
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Abstract

Background: To evaluate the BMI and cardiovascular efficiency between combative and non-combative sportspersons.

Methods: Total one hundred twenty (N=120) male subjects, which includes, Sixty (N=60) combative sports persons and Sixty (N=60) non-combative sports persons who had participated at inter-college competitions from various colleges of Panjab University, Chandigarh were selected randomly for this study. The age of the subjects was ranged between 19 to 25 years. Body mass index (BMI) was determined by dividing body weight in kilogram by the square of height in meters and the cardiovascular efficiency of the subjects was measured by Cooper's 9 minute run walk test. The Mean, SD, MD, SEDM and 't'-value were calculated to find out the significance of difference and direction of difference between combative and non-combative sportspersons. The level of significance was set at 0.05. The results revealed significant difference with regard to the variable BMI and cardiovascular efficiency between combative and non-combative sportspersons.

Results: While comparing the mean values of groups in question, it has been observed that combative sportspersons were found heavier and taller than their counterpart non-combative. Whereas, non-combative sportspersons have shown significantly better cardiovascular efficiency than their counterpart combative sportspersons.

KEY WORDS: Weight, Height and Cardiovascular Efficiency.

INTRODUCTION

The human body type differs in many ways and variation in physical characteristics is an interesting aspect. This assortment of human form plays a chief role to conquer healthier performance in the field of sports. Obesity has long been recognised as an important aspect of human health and the AAHPERD (1980) has included body composition assessment in its health oriented physical fitness test. Body mass index (BMI) is one way to screen for weight related health issues in both children and adults, because it provides an indication of body fatness. High BMI in children and adolescents are linked to hyperlipidemia, high blood pressure, and elevated insulin levels and other diseases in adulthood (Freedman et al., 1999).Other more invasive and expensive measures, such as underwater weighing and dual energy x-ray absorptiometry, are not feasible to use in many situations. Body mass index Measurements are widely used are less expensive and less invasive than other more direct measures, such as skin fold testing. Despite the overweight and obesity epidemic, as of 2006, less Health-enhancing physical fitness of young children is negatively affected by overweight and obesity, and intervention strategies are

recommended to improve the quality of life of such children but also to prevent early mortality during adulthood. Joshi et al. (2011) Recent research shows that the worldwide occurrence of obesity in children (an increase in body weight above that of skeletal and physical standards as a result of over accumulation of body fat is worryingly high. WHO has emphasized on urgent need of understanding the prevalence trend, factors contributing and developing strategies for effective intervention Deoke et al. (2012). Cardiovascular efficiency is also normally referred to aerobic exercises. The word "aerobic" means "with oxygen". Whenever an activity requires the utilization of oxygen to produce energy, it is considered an aerobic exercise. Cardiovascular efficiency is the capacity of lungs, heart and blood vessels to deliver adequate amounts of oxygen and nutrients to the cells to meet the demands of prolonged physical activity. Therefore, the purpose of the investigator to evaluate the BMI and cardiovascular efficiency between combative and non-combative sportspersons.

MATERIAL AND METHODS

Total one hundred twenty (N=120) male subjects, which includes, Sixty (N=60) combative sports persons and Sixty (N=60) non-combative sports persons who had participated at inter-college competitions from various colleges of Panjab University, Chandigarh were selected randomly for this study. The age of the subjects was ranged between 19 to 25 years. Body mass index (BMI) was determined by dividing body weight in kilogram by the square of height in meters and the cardiovascular efficiency of the subjects was measured by Cooper's 9 minute run walk test. The Mean, SD, MD, SEDM and 't'-value were calculated to find out the significance of difference and direction of difference between combative and non-combative sportspersons.

RESULTS

Descriptive statistics of cardiovascular efficiency and body mass index (BMI) between combative and non-combative sports persons in table 1 and 2.

Table-1: Significance of the Mean Difference in Scores of Weight, Height and Body Mass Index (BMI) between Combative and Non-Combative Sports Persons

Variable	Combative Sportspersons		Non-Combative sports persons					
	Mean	SD	Mean	SD	Mean Difference	SEDM	t-value	Sig.
Weight	52.600	6.009	47.900	8.880	4.700	1.384	3.395*	.001
Height	1.572	4.624	1.535	7.909	3.700	1.182	3.128*	.002
BMI	21.2743	2.351	20.228	3.094	1.046	.5017	2.085*	.039

***Significant at 0.05 level (df=118)**

It may be observed from table 1 that combative sportspersons were having greater weight (M=52.600 and SD=6.009) than their non-combative sportsperson counterparts (M=47.900 and SD=8.880).The Mean Difference and Standard Error Difference of Mean were 4.700 and 1.38431 respectively. The 't'-value 3.395 as shown in the table above was found statistically

significant as the p-value (sig) .001 was found lesser than 0.05 level of significance with (df=118).

Similarly, combative sportspersons were found taller (M=1.572 and SD=4.624) than their non-combative sportsperson counterparts (M=1.535 and SD=7.909).Whereas the Mean Difference and Standard Error Difference of Mean were 3.700 and 1.182 respectively. The 't'-value 3.128 as shown in the table above was found statistically significant as the p-value (sig) .002 was found lesser than 0.05 level of significance with (df=118).

With regard to the variable **BMI** combative sportspersons were found heavier and taller as compared to their counterpart non-combative sportspersons. The descriptive statistics shows the Mean and S.D. values of combative sportspersons as 21.2743 and 2.351 respectively. However, Non-combative sportspersons had Mean and S.D. values as 20.228 and 3.094 respectively. The Mean Difference and Standard Error Difference of Mean were 1.046 and 0.5017 respectively. The 't'-value 2.085 as shown in the table above was found statistically significant as the p-value (sig) .039 was found lesser than 0.05 level of significance with (df=118).

Figure: 1Graphical representation of mean scores with regard to the variable BMI between combative sports persons and non-combative sportspersons

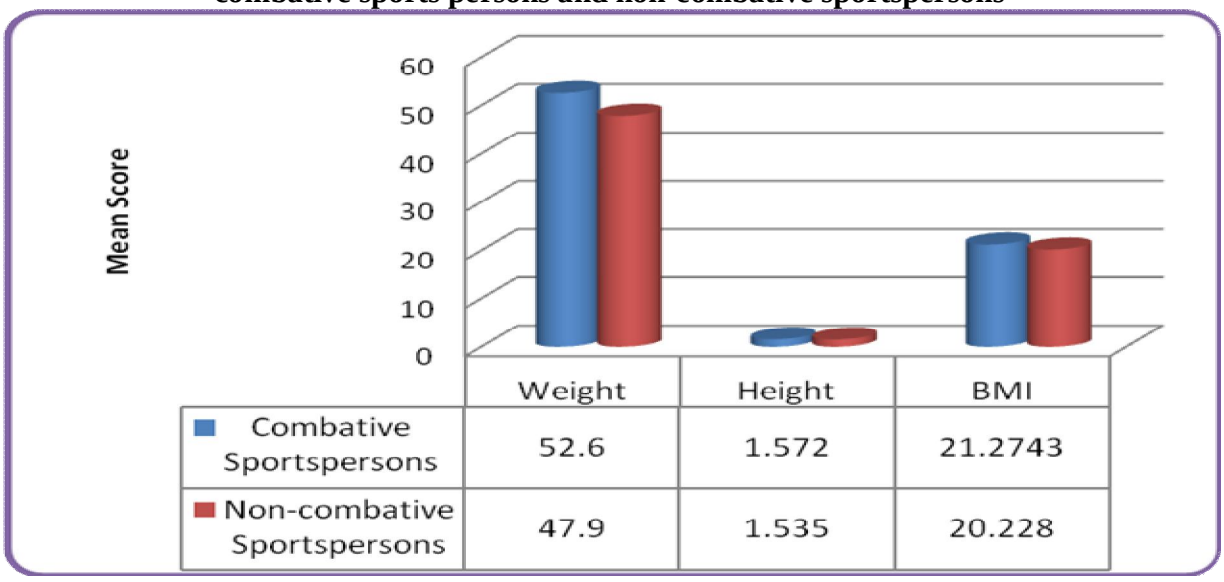


Table-2: Significance of the mean difference in Scores of Cardiovascular efficiency between Combative and Non-Combative Sports Persons

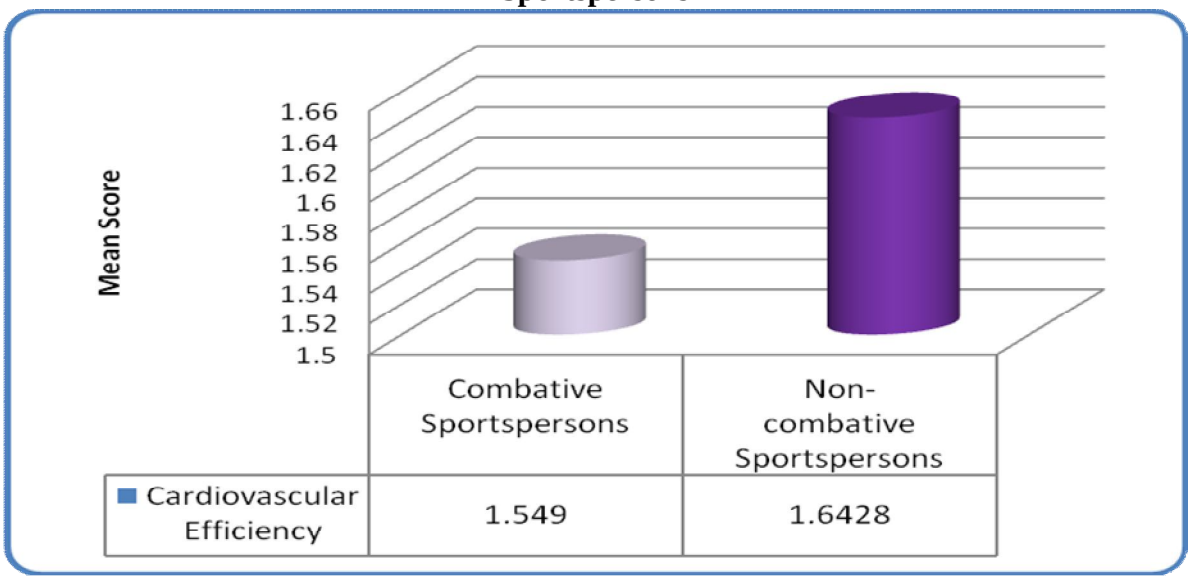
Variable	Combative Sportspersons		Non-Combative sports persons					
	Mean	SD	Mean	SD	Mean Difference	SEDM	t-value	Sig.
Cardiovascular Endurance	1.5490	122.747	1.6428	199.330	-93.833	30.221	3.105*	.002

***Significant at 0.05 level (df=118)**

It may be evident from table 2 that combative sportspersons were had shown lower cardiovascular efficiency (M=1.5490 and SD=122.747) than their non-combative sportsperson

counterparts (M=1.6428 and SD=199.330).The Mean Difference and Standard Error Difference of Mean were -93.833 and 30.221 respectively. The 't'-value 3.105 as shown in the table above was found statistically significant as the p-value (sig) .002 was found lesser than 0.05 level of significance with (df=118).

Figure: 2 Graphical Representations of Mean Scores with Regard to the Variable Cardiovascular Efficiency between Combative Sports Persons and Non-Combative Sportspersons



Discussion

It is notices from the above findings that significant differences have been observed on the variable BMI and cardiovascular efficiency between combative and non-combative sportspersons. When comparing the mean values of both the groups, it has been found that combative sportspersons were found heavier and taller as compared to their counterpart non-combative sportspersons with regard to the variable BMI. Whereas, non-combative sportspersons have found better on the variable cardiovascular efficiency as compared to their counterpart combative sportspersons. The outcome of above result might be due to their training environment and demand of their sports field as combative sports are engrossed physical contact and hence require proper development of physique. However, non-combative sports demands quick reflexes, agility and endurance for better performance. The findings of the study are in line with study conducted by Matthew (2006) who corroborated that combat and non-combative sports contain unique characteristics in comparison to other sports: such as non-combative sports require (in the physical realm) a mix of technique, strength, aerobic fitness, power, and speed. This, usually no one performance characteristic dominates in combat sports, like in (for instance) the shot put, where size, strength and power dominate, or marathon running, where ability to maintain continuous aerobic output dominates. Similarly, Devi et al. (2010) also revealed significant difference among runners, jumpers and throwers. Hence it is concluded in the light of results that combative sportspersons were found heavier and taller on the variable BMI whereas non-combative sportspersons had found better on the variable cardiovascular efficiency.

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