International Journal of Advanced Scientific Research
ISSN: 2456-0421; Impact Factor: RJIF 5.32
www.allscientificjournal.com
Volume 1; Issue 6; September 2016; Page No. 28-29

An analysis of cellular level body composition among different genders of sportsperson

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Abstract
The study was aimed to see the cellular level body composition difference among the two groups of gender. For the purpose of this study the data was collected on the selected cellular level body composition variables body fat, protein, mineral and glycogen percentage. The data was collected on the sportspersons of the LNIPE Gwalior. The non-probability and probability sampling method was applied for female and male respectively to choose out the thirteen samples separately for both the groups from the population of sportspersons. The age of the subjects is ranges between 17-25years. The data was analysed with the help of SPSS22 version by applying statistical technique independent sample t-test. After analysing the raw data it was concluded that the fat percentage is varies between both the groups. The fat percentage for female sportsperson is significantly higher than the male sportsperson at the 0.05 level of significant. Whereas no difference is found among all other variables protein, mineral and glycogen because the statistical p value for these variables is greater than 0.05 which signifies the amount of these cellular level variables are same for both the groups of sportsperson.

Keywords: Body fat, protein, mineral, glycogen and sportsperson

1. Introduction
Body fat in females is always higher than body fat in males with the same BMI and age. Recent studies have shown that the relationship between BMI and body fat percentage also differs among ethnic groups. The bio data also show the differences in body build, which is at least part of the reason for the paradox (Michael J.G *et al.*). Changes in body composition with age have been well documented, particularly in men. A gain in body weight has been commonly observed after the age of 20 and until the age of 50, which has been attributed primarily to gains in adipose tissue. During ageing, the increase in adipose tissue is distributed in a typical pattern, with a large part of the increase occurring in the central abdominal sites, while subcutaneous fat tends to be lost from the limbs (Kuczmarsk RJ, Chien S *et al.*) [2]. Body composition is not only influenced by genetic and environmental factors, but also by physical activity and nutritional factors (Wackerhage H *et al.*). However, there are conflicting reports in the literature (Mason C *et al.* Ryu M *et al.*) [3]. Mechanical stress related to physical activity is sensed by osteocytes and stimulates accrual of bone mineral content (Rochefort GY *et al.*) [5]. Both muscle and fat tissues contribute to this mechanism, by applying stress and load on bones. The absolute mass of both muscle and fat are beneficial for loading on bones (Bijlsma AY). Sports activity influences the body shape and size hence it likely to effect the body composition. So that's why researcher was trying to see the amount of body composition variables among both the genders.

1.1 Objective of the study
The objective is to fine out body fat, protein, minerals and glycogen percentage of female sportspersons.
The objective is to find out the body fat, protein, minerals and glycogen percentage of male sportspersons.
The objective is to compare the body fat, protein, minerals and glycogen percentage among sportspersons.

1.2 Hypothesis
The hypothesis of the study was "there will be significant difference between body fat, protein, minerals, and glycogen percentage among sportspersons".

1.3 Significance of the study
The study will be helpful to know the body fat, protein, minerals and glycogen percentage of between male and female sportsperson.

2. Methodology
For the purpose to achieve the objectives of the study, for female samples the non-probability sampling method was used by the researcher under which he used the purposive sampling technique and selects the 13 samples from the concern population. Whereas probability sampling method was use to select the male subject form the population with the help of simple random sampling technique. A total of 13 subjects were drawn for separate group of male and female. The age of the subjects is ranges from 17-25 years. The study was delimited for sportspersons only. The data was analysed with the help of SPSS by applying statistical technique independent sample t-test.

2.1 Findings and Interpretations

Table 1: The below table is devoted to the descriptive analysis along with statistical analysis of the raw daw data.

Gender		N	Mean	Std. Deviation	Std. Error Mean	F	Sig.	t	Sig. value
fat	female	13	20.0500	3.50448	.97197	.630	.435	3.658	.001
	male	13	12.5300	6.53137	1.81148			3.658	.002
protein	female	13	15.2505	3.06039	.84880	.003	.956	-1.329	.196
	male	13	17.1058	3.99622	1.10835			-1.329	.197
mineral	female	13	6.2234	1.24958	.34657	.138	.713	.421	.678
	male	13	6.0039	1.40619	.39001			.421	.678
glycogen	female	13	684.3173	134.27527	37.24126	5.363	.029	-.131	.897
	male	13	689.9118	75.92697	21.05835			-.131	.897

2.2 Level of significance 0.05

After data was collected from the samples the raw data was analysed through spss22 version new version software of statistical package. After analysing the data above table was found this shows the mean std. deviation along with Levene's Test for Equality of Variances and p value foe see the difference. In the above table it was found that, except body fat percentage there is no significant difference was found between the variables. The average value of body fat for female and male is 20.53 and 12.53 which shows the women have higher level of body fat as comparison to Male the associated p vale for the body fat is 0.01which signifies that that there is significant difference of fat among both the gender because the significant p value 0.01 is less than 0.05 level of significant. Whereas the average for the variables protein, mineral and glycogen is almost the same and the associated p value is also greater than 0.05 which signifies no difference in these variables. The graphical presentation of the fat percentage is given below.

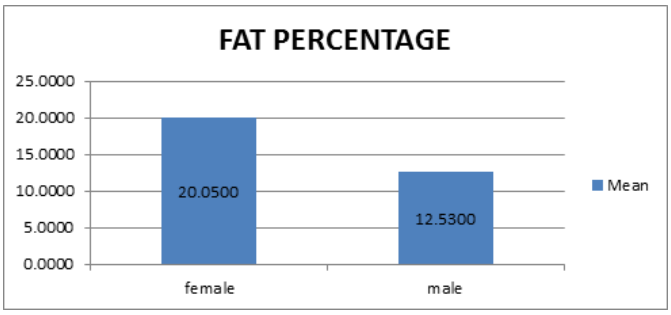

Fig 1

3. Conclusion

This study was designed to analyse the cellular level body composition among different gender (female and male) of sportsperson. The mean of fat and mineral percentage in female is greater than male groups and associated p value for fat percentage is also less than 0.05. Thus is can be concluded that the fat percentage in women sportsperson is greater than that of men whereas the p value for mineral is greater than 0.05 which signifies no difference at all between groups. The mean of protein and glycogen percentage is greater in male sportsperson but statistically it was not significant, hence it is concluded that the amount of protein and glycogen is same in both the groups.

4. Acknowledgments

This study was completed with the blessing of my elder brother Mr. Dinesh Kumar research scholar in L.P.U Punjab, who always motivated me to give the concrete shape to your ideas.

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