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COMPARATIVE STUDY OF BLOOD SUGAR AND CHOLESTEROL VARIABLES BETWEEN ACTIVE AND INACTIVE MALES

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ABSTRACT

The aim of this study was to find out the difference in blood sugar and cholesterol variables between active and inactive males. Forty male subjects (20 active + 20 inactive) were selected from Punjabi University Patiala for this study. The age of the subjects was ranged between 45-70 years. Selected variables: triglyceride and high-density lipoprotein were measured by 'Erba Chem- 5 V₂ Plus Analyzer' machine. Descriptive statistics and independent t-test was employed by 'SPSS Version-23'. The results showed that there was a significant difference in blood sugar and cholesterol variables between active and inactive males.

Keywords: Physical Activity, Active Males, Inactive Males, Random Blood Sugar, Total Cholesterol, Biochemical Variables, Metabolic Health.

INTRODUCTION

Biochemistry is the study of the chemistry of life process. Since the discovery that biological molecule such a urea could be synthesized from non-living components in 1828, scientists have explored the chemistry of life with great intensity. Through these investigations, many of the most fundamental mysteries of how living things function at a biochemical level have been solved. However, much remains to be investigated. As is often the case, each discovery raises at least as many new questions as is answers. Furthermore, we are now in age of unprecedented opportunity for the application of tremendous knowledge of biochemistry to problems in medicine, agriculture, anthropology, environment sciences and many others fields. We begin our journey into biochemistry

with one of the most startling discoveries of the past century: the great unity of all living things at the biochemical level (Jeremy et al., 2015).

The concentration of glucose in the blood is termed as blood glucose concentration. It is approximately 90 mg. in each 100 ml of blood. This level of concentration is regulated by the liver, insulin production by the pancreas, adrenal glands and secretion of glucagon by the pancreas and by the phenomenon called gluconeogenesis (Guyton, 1984).

Blood Cholesterol was discovered in the middle of the eighteenth century. Previously it was known as 'cholestereos' from two Greek words 'chole' meaning bile and 'stereos' meaning solid. In the early part of the twentieth century it was changed mainly in English speaking countries to cholesterol. Cholesterol is both our friend and foe - at normal levels, it is an important substance normal functioning for the bodies, but if levels in the blood get too much, it becomes a silent danger that puts us at risk of a heart attack. In most tissues, cholesterol exists mainly (90-95%) in the un esterified form; red cells and normal adult brain probably contain no esterified cholesterol at all, but in liver (35%), skin (55%), plasma (75%) and in the adrenal cortex (75%) an appreciable portion of the total cholesterol is esterified with fatty acids. Cholesterol is an essential of the myelin sheaths in the central nervous system and peripheral nerves (James et al., 1986).

AIM OF STUDY

The present study aimed to compare selected biochemical variables, namely random blood sugar and total cholesterol, between physically active and inactive males. The study was designed to examine whether regular participation in physical activity is associated with more favourable blood sugar and cholesterol levels among middle-aged and older men. Forty male participants, comprising twenty active and twenty inactive individuals between 45 and 70 years of age, were selected from Punjabi University, Patiala. By assessing and comparing these biochemical measures, the study sought to understand the possible relationship between an active lifestyle and metabolic health. The findings were intended to provide evidence regarding differences in blood glucose and cholesterol status between men who regularly engage in physical activity and those who remain physically inactive.

OBJECTIVES OF THE STUDY

The primary objective of the study was to investigate differences in selected biochemical variables between active and inactive males aged 45–70 years. Specifically, the study aimed to compare the random blood sugar levels of physically active males with those of inactive males and to determine whether the difference between the two groups was statistically significant. A second objective was to compare total cholesterol levels between active and inactive males and examine the extent to which physical activity status was associated with variations in cholesterol concentration. The study also sought to present the mean and standard deviation of both biochemical variables for each group and to assess group differences through an independent t-test at the 0.05 level of significance. Overall, the investigation intended to evaluate whether an active lifestyle was associated with comparatively favourable blood sugar and cholesterol profiles among the selected male participants.

MATERIAL AND METHODS

Forty males (20 active + 20 inactive) were selected for this study by purposive sampling technique from Punjabi University, Patiala. Active males were those who were participating in physical activity and inactive males were those who were not participating in physical activity. The age of the subjects was ranged between 45-70 years.

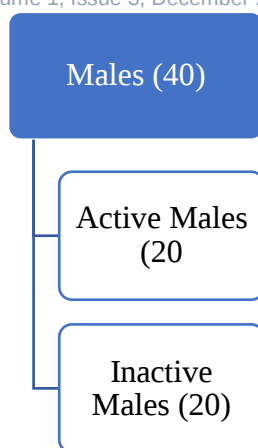


FIGURE-3.1
DESCRIPTION OF SAMPLING PLAN

CRITERION MEASURES

The following were the criterion measures for the study:

TABLE-1
CRITERION MEASURE

VARIABLE	TEST ANALYZER	UNIT OF MEASUREMENTS (Milligrams per decalitre)
Random Blood Sugar	Erba Chem- 5 V ₂ plus	mg/dl
Total Cholesterol	Erba Chem- 5 V ₂ plus	mg/dl

COLLECTION OF DATA

All subjects had been given an informed consent letter to sign to be a subject for the present study with their own will. After that the researcher took the blood sample of the subjects. These subjects were exposed to the selected biochemistry variables.

The necessary data was collected through the administration of standardized instruments for the measurement of chosen variables.

STATISTICAL TECHNIQUE

Descriptive statistics i.e., mean and standard deviation were calculated. As per objective of the study, independent 't-test' was applied to find out the difference between various groups. All tests were employed with the help of SPSS-software version 23. Level of significance was set at 0.05.

RESULTS

TABLE-2
DESCRIPTIVE STATISTICS AND T-VALUE FOR RANDOM BLOOD SUGAR VARIABLE

Group Name	Mean	SD	t-value	Sig.
Active Male	77.25	4.04	2.197	.034*
Inactive Male	124.05	95.19		

*Significant at 0.05 level, Tabulated value at DF 38 = 1.684

Table-2 shows the Mean and SD values with regard to active male group is 77.25 ± 4.04 whereas in the case of inactive male group is 124.05 ± 95.19 respectively. The calculated t-value (2.197) which is more than the tabulated t-value (1.684) at .05 level. So, it demonstrates that there is a significant difference between active and inactive male group for their random blood sugar variable.

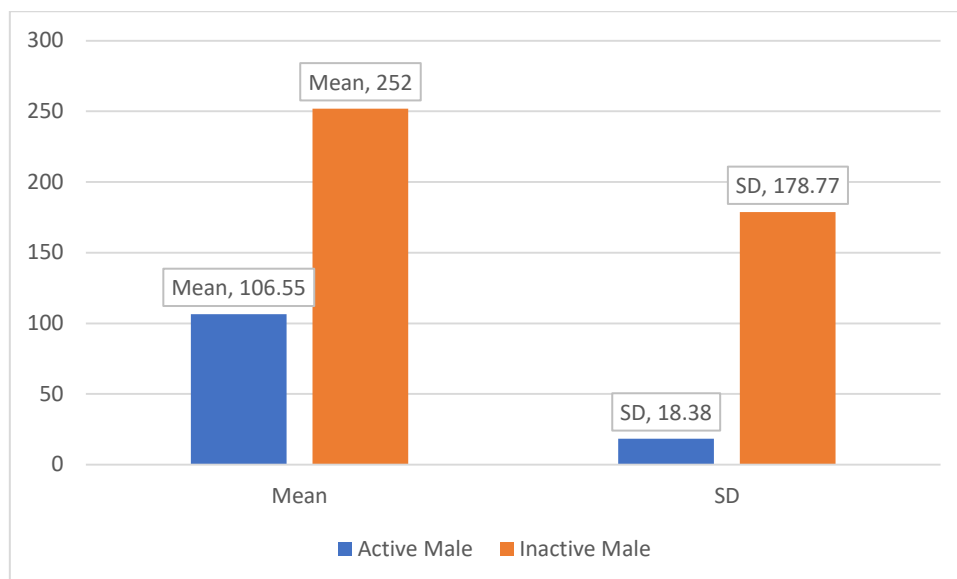


FIGURE-2 GRAPHICAL REPRESENTATION OF DESCRIPTIVE STATISTICS FOR RANDOM BLOOD SUGAR VARIABLE

TABLE-3

DESCRIPTIVE STATISTICS AND T-VALUE FOR TOTAL CHOLESTEROL VARIABLE

Group Name	Mean	SD	t-value	Sig.
Active Male	150.70	9.78	3.561	.001*
Inactive Male	179.55	34.88		

*Significant at 0.05 level, Tabulated value at DF 38 = 1.684

Table-3 shows the Mean and SD values with regard to active male group is 150.70 ± 9.78 whereas in the case of inactive male group is 179.55 ± 34.88 respectively. The calculated t-value (3.56) which is more than the tabulated t-value (1.684) at .05 level. So, it demonstrates that there is a significant difference between active and inactive male group for their total cholesterol variable.

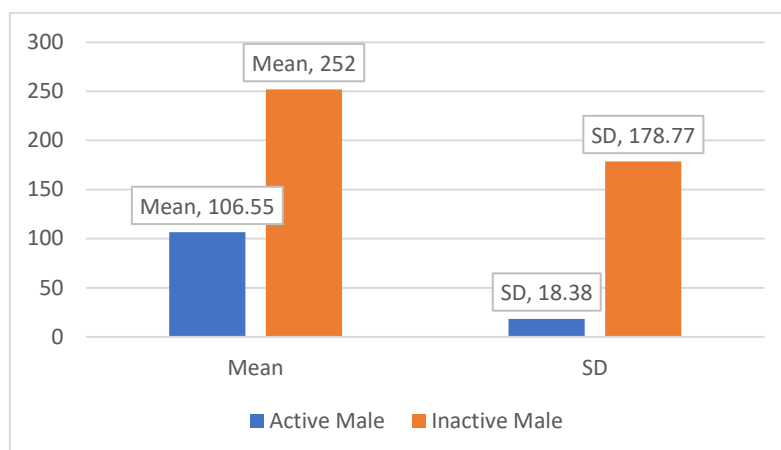


FIGURE-3 GRAPHICAL REPRESENTATION OF DESCRIPTIVE STATISTICS FOR TOTAL CHOLESTEROL VARIABLE

DISCUSSION

The aim of this study was to find out the difference in blood sugar and cholesterol variables between active and inactive males. The results showed that there was a significant difference in random blood sugar variable between active and inactive males. Inactive males had higher level of random blood sugar. These results of the study confirmed the findings of Pandey et al. (2017) who also reported that insignificant reduction in blood urea and serum creatinine in yoga group as compared to control group.

The results showed that there was a significant difference in total cholesterol variable between active and inactive males. Inactive males had higher level of total cholesterol. The results of the present study are supported by the study conducted by Farooque et al. (2014) who found significant difference in total cholesterol variable between distance runners as compared to football players and basketball players.

CONCLUSION

The findings of the present study indicate that physically active and inactive males differ significantly in the selected biochemical variables of random blood sugar and total cholesterol. The active male group recorded a lower mean random blood sugar level of 77.25 mg/dl, whereas the inactive group showed a considerably higher mean value of 124.05 mg/dl. The calculated t-value of 2.197 demonstrated a statistically significant difference between the two groups at the 0.05 level.

A similar pattern was observed for total cholesterol. Active males had a mean total cholesterol level of 150.70 mg/dl, while inactive males recorded a higher mean value of 179.55 mg/dl. The obtained t-value of 3.561 was also statistically significant, indicating a meaningful difference in cholesterol levels between the active and inactive groups.

These results suggest that participation in regular physical activity may be associated with comparatively favourable blood sugar and cholesterol profiles among middle-aged and older males. The study therefore reinforces the importance of maintaining an active lifestyle as part of health-oriented behaviour. However, the findings should be interpreted within the limits of the study because only forty participants were included and purposive sampling was used. Consequently, the results cannot be generalized to the entire population. Further studies with larger and more diverse samples may provide broader evidence regarding the relationship between physical activity and biochemical health indicators.

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