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Impact on Visceral Fat of Male Inactive and Active Older Adults from Punjab India

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This study aimed to investigate the impact on visceral fat of male inactive and active older adults. Participants (N=180) inactive group (N=90) and active group (N=90) older adults from Punjab were selected to act as subjects for the study. The study was delimited to the older male inactive and active older adults recruited at age group 60 - 70, 71 - 80 and 81 - 90 years respectively. For the purpose of data collection both the categories (Inactive and Active) of the subjects were divided into three categories i.e. category I (60-70 Years; N=30), category II (71-80 Years; N=30) and category III (81-90 Years; N=30) respectively. Body composition monitor OMRON (HBF-212) was used to measure the visceral fat. Statistical Package for Social Science (SPSS) version 23 was used to analyze the visceral fat of male inactive and active older adults, after collecting data One Way ANOVA (Analysis of Variance), Least Significant Difference (LSD) Post Hoc test was employed. The level of significance to test the hypotheses was 0.05, ($P<0.05$). Results of the study found that there was a statistically significant difference in both the variables with a p-value of the visceral fat 0.03 ($P<0.05$) of male inactive and active older adults. In conclusion, visceral fat changes with aging. The active age category 60-70 had demonstrated better on visceral fat than their inactive age category 60-70 insignificantly. The active age category71-80 had demonstrated better visceral fat than their inactive age category 71-80 significantly. The active 81-90 had demonstrated insignificantly better visceral fat than their inactive age category 81-90.

Keywords: Active, Inactive, Visceral Fat, Male, Older Adults.

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Introduction

Older adult's persons have a less level of physical activity (PA) and spend their time doing little, which limits their daily life exercises (Ice 2014). Obesity regulars to be one of our state's best serious wellbeing difficulties (Kuczmarski et al. 1994) with weightiness increase related with better risk of colon cancer (CC) (Thygesen et al. 2008) breast cancer diabetes and cardiovascular (heart and blood vessels) illness (Willett et al. 1995). Though, the supply of body fat may be extra essential to health than the grouping of fatness or the whole sum of body obese. Fat spread in the trunk and specially visceral adipose tissue is linked to the progress of diabetes, heart disease and some cancers, as well as humanity (Bjorntorp 1990) (Filipovsky et al. 1993). In difference, obese in the legs performs to execute slight or not at all risk (Hunter et al. 2000).

Visceral abdominal fat (VAF) (β = −0.006, 95%CI: −0.009; −0.003), and fat mass index (FFM) (β = −0.015, 95%CI: −0.021; −0.009), independent of inactive time. Inactive time was independently related only with greaterfat mass index (FFM) (β = 0.003, 95%CI: 0.001; 0.005). In longitudinal investigates, using self-reported quantity, adiposity was lesser between those who were constantly active or who developed active. Adiposity was same between the "developed inactive" and "consistently inactive" (Bruna et al. 2019).

This study aimed to assess the visceral fat changes with aging of different three age levels inactive and active older adults. The study was entitled the "Impact on visceral fat of male inactive and active older adults from Punjab, India".

Materials and Methods

Subjects: The study was conducted with the purpose to investigate the impact on visceral fat of male inactive and active older adults of Punjab, India. The study was conducted on male inactive and active older adults; the age level was divided into three categories of inactive and active older adults of Punjab, India i.e. male of 60-70, 71-80, and 81-90 years respectively. Participants (N=180) male inactive and active older adults from Punjab were selected to act as subjects for the current study.

Table 1 showing category, age group, and numbers of subjects selected for the study

Enclosed as Annexure 01

The following one modules of body composition a variable was selected for the current study visceral fat.

Self- Reported Questionnaire: A self-reported questionnaire as per WHO guidelines was constructed to identify the sedentary and active type of individuals. The questionnaire includes several types of questions related to types of activity performed i.e. moderate-intensity aerobic physical activity e.g. walking, brisk walking, and other activities of gardening 150 minutes/week or vigorous-intensity aerobic physical activity e.g. jogging, running, dancing, bicycle riding, aerobics exercise/gym, some yoga exercises, stretching exercises and callisthenic exercises 75 minutes/week or an equal combination of moderate- and vigorous-intensity activity throughout the week. Respondents were questioned to mark (yes or no). The overall responses were analyzed to classify the type of individuals as per their activity type performed and were classified accordingly.

Measures: Visceral fat of male inactive and active older adults of Punjab, India was assessed by body composition monitor OMRON (HBF -212). A body composition monitor is used to measure the visceral fat. This test has performed in the standing position. Participants should be barefooted while measuring the visceral fat. Participants should not wear shoes and socks. Position while measuring the visceral fat should be precise like heels should be on heel panel of body composition monitor.

Statistical Procedure

Statistical package for social science (SPSS) version 23 was used to analyze the visceral fat of male inactive and active older adults, after collecting data one way ANOVA (Analysis of Variance) was significant, least significant difference (LSD) post hoc analysis to determine individual group differences testwere employed. The level of significance to test the hypotheses was 0.05, ($P<0.05$).

Result

Table 2 Mean and standard deviation results with regard to visceral fat (VF) among different three age levels in male inactive and active older adults

Enclosed as Annexure 02

Table-2 revealed that the total number of subjects for the study was 180. The mean and standard deviation values of visceral fat of inactive and active senior citizen in 60-70 age, 70-80 age and 80-90 age were 12.0667 ± 8.06839, 12.9333 ± 8.03412, 10.9667 ± 6.69268, 14.6000 ± 7.68608, 10.0000 ± 6.48606 and 9.1000 ± 3.62320 respectively.

Table 3 Analysis of Variance (ANOVA) results with regard to visceral fatamong different three age levels in male inactive and active older adults

Enclosed as Annexure 03

It is evident from table 3 that the results of Analysis of Variance (ANOVA) among three different age levels of male sedentary and active senior citizen; 60-70, 71-80 and 81-90 on visceral fat were found to be statistically significant (P>0.05). Since the obtained "F" ratio 2.577* (0.03) was found statistically significant.

Table 4. Analysis of Least Significant Difference (LSD) post hoc test with regard visceral fat among different three age levels in male inactive and active older adults

Enclosed as Annexure 04

A glance at Table 4 showed that the mean value of visceral fat of inactive age category 60-70 were 12.0667 whereas the active age category 60-70 had a mean value of 12.9333 and the mean difference between both the groups was found -.86667. The p-value sig .629 shows that the active age category 60-70 had demonstrated better on visceral fat than their inactive age category 60-70 insignificantly.

The mean value of inactive age category 71-80 was 10.9667 whereas the active age category 71-80 had a mean value of 14.6000. The mean difference between these groups was found -3.63333*. The p-value sig .044 showed that the active age category70-80 had demonstrated better on visceral fat than their inactive age category 71-80 significantly.

The mean value of inactive age category 81-90 was 10.0000 whereas the active age category 81-90 had a mean value of 9.1000 and the mean difference between both groups was found .90000. The p-value sig .616 shows that the active 81-90 had demonstrated insignificantly better On visceral fat than their inactive age category 81-90. The graphical representation of responses has been exhibited in figure-1

Enclosed as Annexure 05

The results authenticated that, significant differences among three different age levels of male inactive and active senior citizens of Punjab: 60-70, 71-80, and 81-90 for their visceral fat. It is evident from table 3 that the results of Analysis of Variance (ANOVA) among three different age levels of male sedentary and active senior citizen; 60-70, 71-80 and 81-90 on visceral fat were found to be statistically significant (P>0.05). Since the obtained "F" ratio 2.577* (0.03) was found statistically significant. A glance at Table 4 showed that the active age category 60-70 had demonstrated better on visceral fat than their inactive age category 60-70 insignificantly. The active age category71-80 had demonstrated better on visceral fat than their inactive age category 71-80 significantly. The active 81-90 had demonstrated insignificantly better on visceral fat than their inactive age category 81-90.

Discussion of findings

The results of the study showed that among three different age levels of male inactive and active older adults; 60-70, 71-80 and 81-90 on visceral fat were found to be statistically significant. This study showed that the mean value of visceral fat of inactive age category 60-70 was 12.0667, 71-80 was 10.9667, 81-90 was 10.0000 and the mean value of visceral fat of active age category 60-70 was 12.9333, 71-80 was 14.6000, 81-90 was 9.1000.These results of the study confirmed the findings of(Coker et al. 2014) there was a significant reduction in visceral fat (VF), and no variation in abdominal internal fat with bed rest.(Abe et al. 1996) significant differences in visceral fat mass (VF) among sedentary or inactive and trained members were comparable for young or adolescence and middle aged females. Females who work out continue appear to collect a reduced amount of adipose tissue, as they get older adults, with visceral fat mass (VF) remaining lesser than in inactive persons.

Conclusion

In conclusion, the visceral fat changes with aging. The results authenticated that, significant differences among three different

Age level of male inactive and active older adults: 60-70, 71-80 for their visceral fat. The active age category 60-70 had demonstrated better on visceral fat than their inactive age category 60-70 insignificantly. The active age category71-80 had demonstrated better on visceral fat than their inactive age category 71-80 significantly. The active 80-90 had demonstrated insignificantly better on visceral fat than their inactive age category 81-90.

Annexure

Annexure 01

Table 1 showing category, age group, and numbers of subjects selected for the study

INACTIVE GROUP	(Age group level)	(N=90)	ACTIVE GROUP	(Age group level)	(N=90)
	60-70 Years	(N=30)		60-70 Years	(N=30)
	71-80 Years	(N=30)		71-80 Years	(N=30)
	81-90 Years	(N=30)		81-90 Years	(N=30)

Annexure 02

Table 2 Mean and standard deviation results with regard to visceral fat (VF) among different three age levels in male inactive and active older adults

Visceral Fat	N	Mean	Std. Deviation	Std. Error
Inactive (60-70 age)	30	12.0667	8.06839	1.47308
Active (60-70 age)	30	12.9333	8.03412	1.46682
Inactive (71-80 age)	30	10.9667	6.69268	1.22191
Active (71-80 age)	30	14.6000	7.68608	1.40328
Inactive (81-90 age)	30	10.0000	6.48606	1.18419
Active (81-90 age)	30	9.1000	3.62320	.66150
Total	180	11.6111	7.08243	.52789

Annexure 03

Table 3 Analysis of Variance (ANOVA) results with regard to visceral fatamong different three age levels in male inactive and active older adults

Source of variance	Sum of Squares	df	Mean Square	F-ratio	Sig.
Between Groups	606.178	5	121.236	2.520*	0.03
Within Groups	8372.600	174	48.118		
Total	8978.778	179			

**Sign indicated significant difference at 0.05 level (The table values required for significance at 0.05 level with df (5, 174) = 2.21 respectively).*

Annexure 04

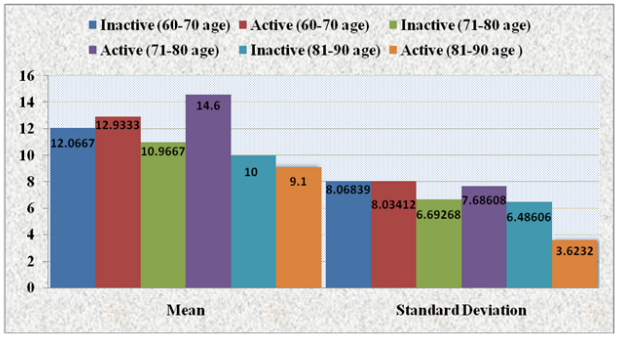
Table 4. Analysis of Least Significant Difference (LSD) post hoc test with regard visceral fat among different three age levels in male inactive and active older adults

Group (A)	Group (B)	Mean Difference (A-B)	Sig.
Inactive (60-70 age) (Mean= 12.0667)	Active (60-70 age)	-.86667	0.62
	Inactive (71-80 age)	1.10000	0.54
	Active (71-80 age)	-2.53333	0.15
	Inactive (81-90 age)	2.06667	0.25
	Active (81-90 age)	2.96667	0.09
Active (60-70 age) (Mean= 12.9333)	Inactive (60-70 age)	.86667	0.62
	Inactive (71-80 age)	1.96667	0.27
	Active (71-80 age)	-1.66667	0.35
	Inactive (81-90 age)	2.93333	0.10
	Active (81-90 age)	**3.83333***	**0.03**
Inactive (71-80 age) (Mean=-10.9667)	Inactive (60-70 age)	-1.10000	0.54
	Active (60-70 age)	-1.96667	0.27
	Active (71-80 age)	**-3.63333***	**0.04**
	Inactive (81-90 age)	.96667	0.59
	Active (81-90 age)	1.86667	0.29
Active (71-80 age) (Mean=14.6000)	Inactive(60-70 age)	2.53333	0.15
	Active (60-70 age)	1.66667	0.35
	Inactive (70-80 age)	**3.63333***	**0.04**
	Inactive (80-90 age)	**4.60000***	**0.01**
	Active (80-90 age)	**5.50000***	**0.00**
Inactive (81-90 age) (Mean= 10.0000)	Inactive (60-70 age)	-2.06667	0.25
	Active (60-70 age)	-2.93333	0.10
	Inactive (71-80 age)	-.96667	0.59
	Active (71-80 age)	**-4.60000***	**0.01**
	Active (81-90 age)	.90000	0.61
Active (81-90 age) (Mean= 9.1000)	Inactive(60-70 age)	-2.96667	0.09
	Active (60-70 age)	**-3.83333***	**0.03**
	Inactive (71-80 age)	-1.86667	0.29
	Active (71-80 age)	**-5.50000***	**0.00**
	Inactive (81-90 age)	-.90000	0.61

**Significant at $F_{0.05} = 2.21$*

Annexure 05

Figure 1 The graphical representation of responses



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