

Impact of Visceral Adiposity on Blood Pressure in Normotensive People : A study Among Health Staff

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INTRODUCTION

Obesity is often complicated by cardiovascular and atherosclerotic disease. Central or visceral obesity is known to be associated with hypertension and cardiovascular disease. Even though Body Mass Index (BMI) is a good indicator of obesity in epidemiological studies, it does not differentiate between lean and fat mass. Furthermore waist circumference and visceral fat percentages are better indicators of visceral obesity.

Aim of this study was to investigate the correlation of blood pressure with different measures of obesity in normotensive people.

METHODS

A cross sectional study carried out among the health staff in a tertiary care setting. 452 were screened among all categories of health staff and 410 were enrolled for the study excluding the known hypertensive people.

Body fat and visceral fat percentages were estimated using bioelectrical impedance analysis (BIA) method.

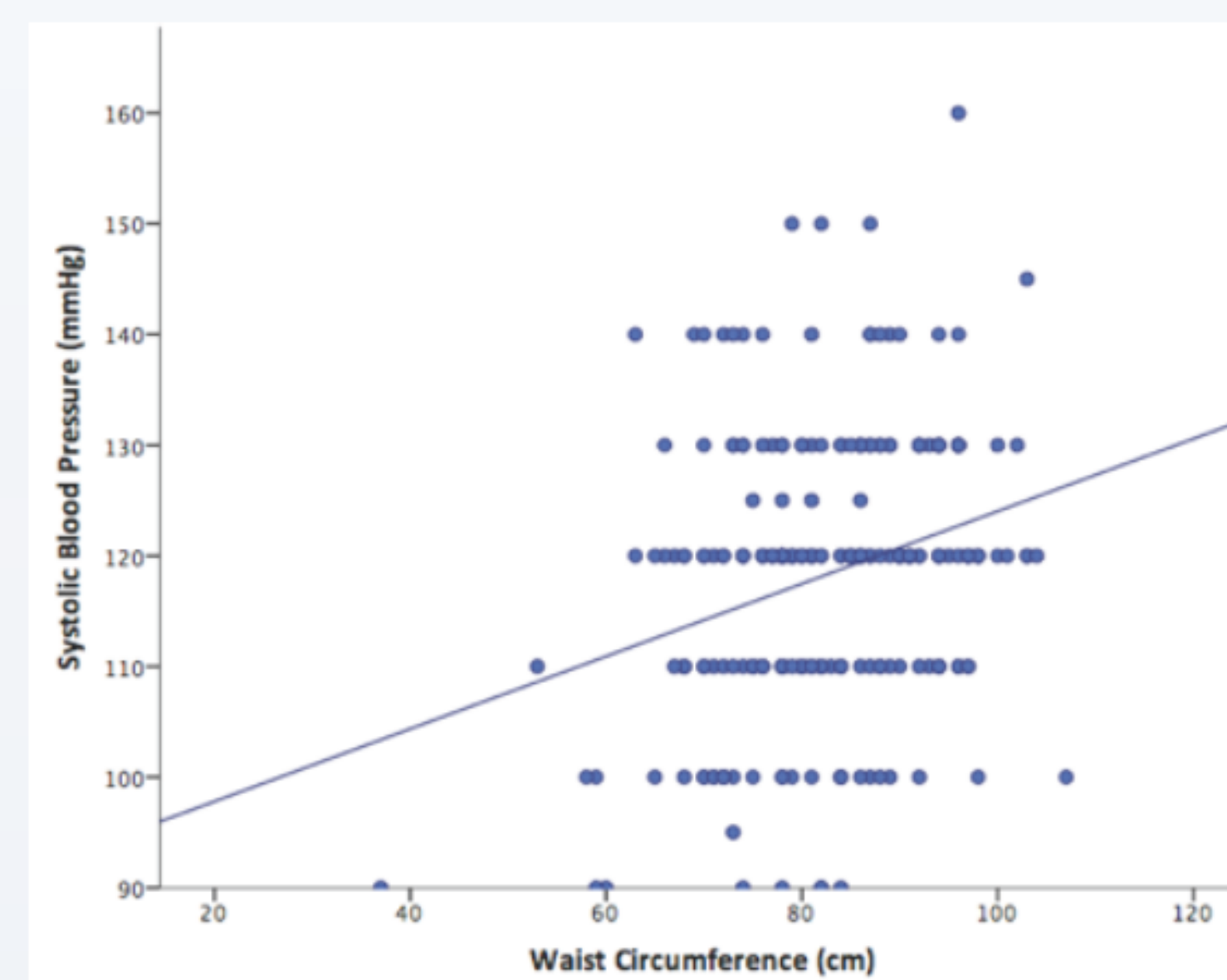
RESULTS

- Out of the 410 subjects 63% (n=258) were females and 37%(n=152) were males.
- Mean age of the study population was 41.7 ± 9.4 years.
- Mean systolic blood pressure (SBP) was 121 ± 13 mmHg among males and 118 ± 12.5 mmHg among females. Mean diastolic blood pressure (DBP) was 77.82 ± 8.9 mmHg and 75.3 ± 9.0 mmHg among males and females respectively.

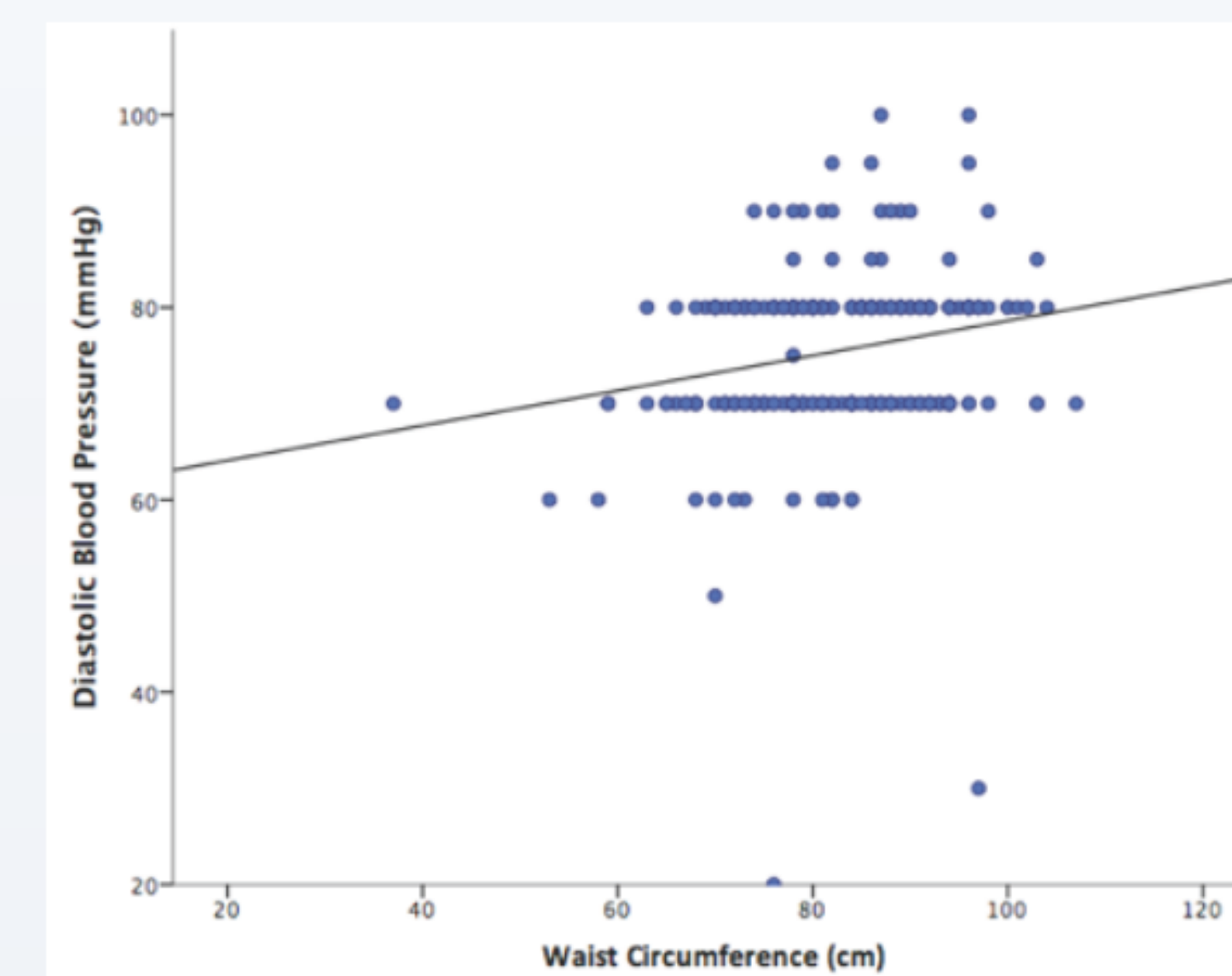
	Male Mean \pm SD	Female Mean \pm SD
Age	40.8 \pm 9.9	42.3 \pm 9.0
BMI	26.4 \pm 23.4	25.5 \pm 4.0
SBP (mmHg)	121 \pm 13.0	118 \pm 12.5
DBP (mmHg)	77 \pm 9.0	75 \pm 9.0
WC (cm)	83.3 \pm 11.7	82.2 \pm 10.3
Body fat %	25.8 \pm 5.8	35.8 \pm 5.1
Visceral fat%	9.7 \pm 7.5	8.2 \pm 4.7

Table 1 Baseline characteristics of the study population

- In females both SBP($r=0.268, p<0.001$) and DBP($r=0.209, p=0.001$) showed strongest correlation with waist circumference (WC) compared to visceral fat percentage, total fat percentage and BMI.

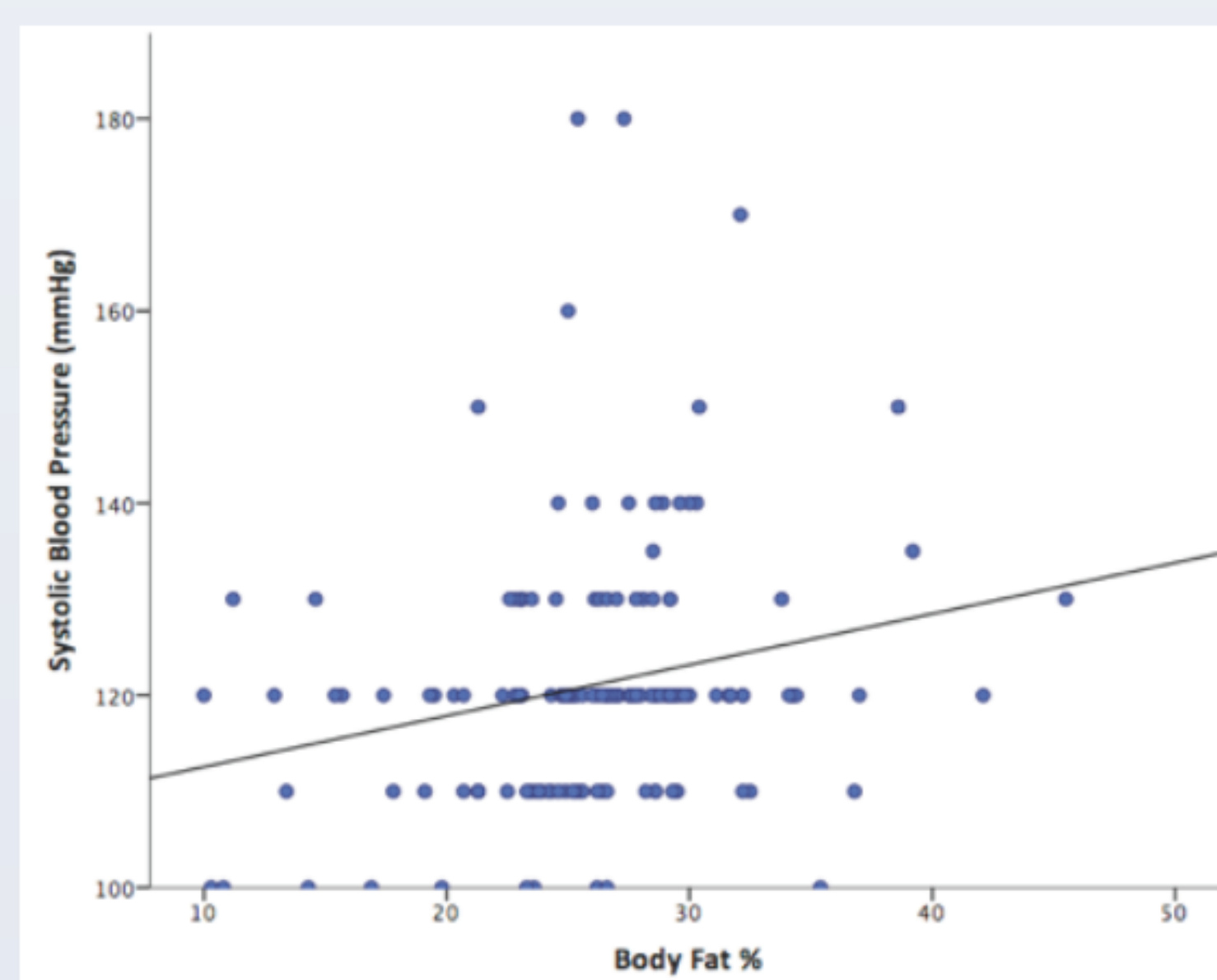


Graph 1 Correlation between Waist circumference and SBP in females

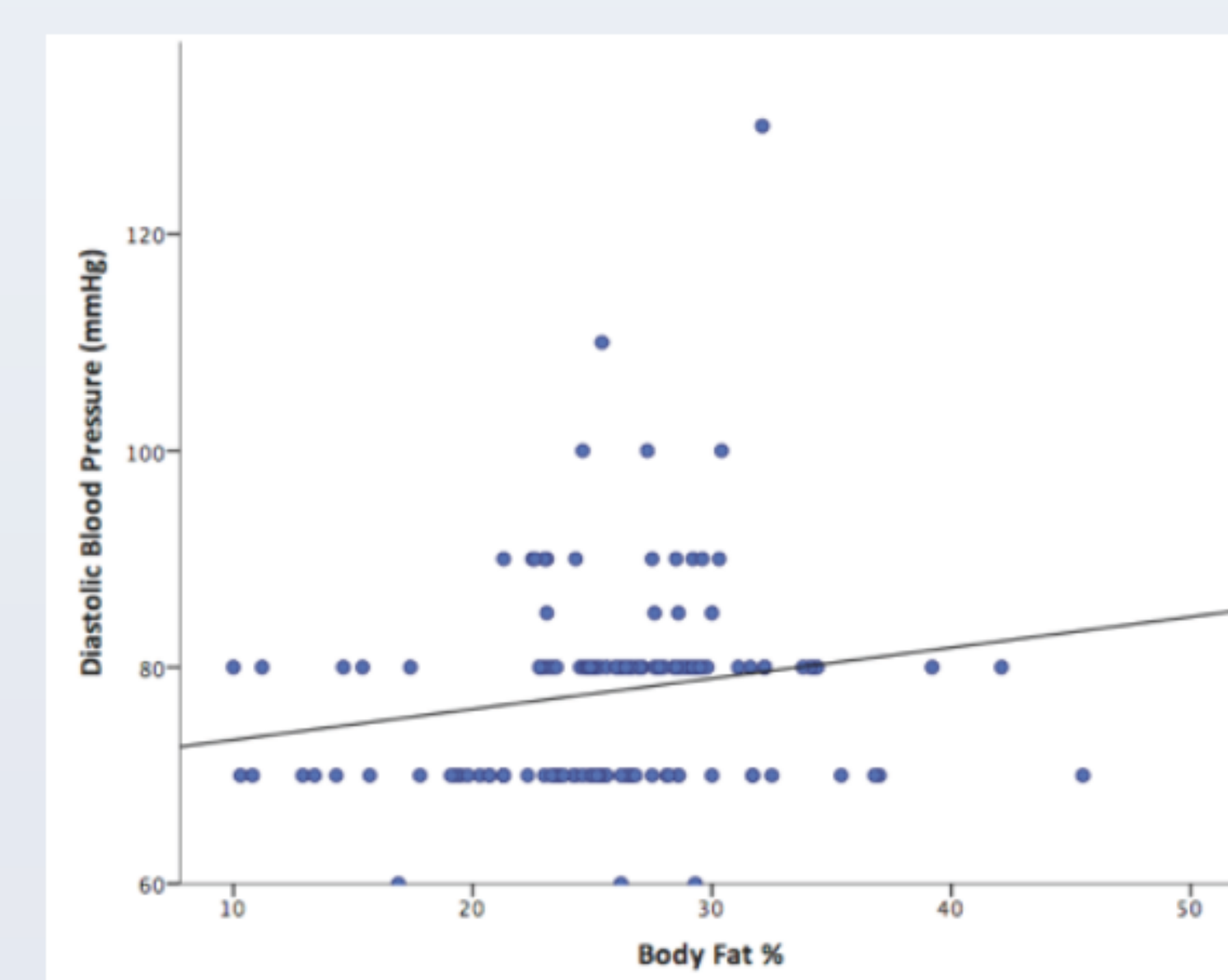


Graph 2 Correlation between Waist circumference and DBP in females

- In females there was a good but less strong correlation with visceral fat percentage as well (SBP $p=0.001$, DBP $p=0.017$).
- In males both SBP ($r=0.225, p=0.006$) and DBP ($r=0.180, p=0.029$) showed strongest correlation with total body fat percentage compared to the other measures of obesity.



Graph 3 Correlation between total body fat percentage and SBP in males



Graph 4 Correlation between total body fat percentage and DBP in males

CONCLUSIONS

- Among females both systolic and diastolic blood pressures are significantly affected by increased visceral adiposity as reflected by correlation with waist circumference and visceral fat percentage.
- However, among males blood pressure is not significantly affected by the visceral adiposity.

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