TACSM Abstract

DEXA Body Composition and Cardiovascular Risk Factors Weakly Related in Police Officers

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ABSTRACT

There is currently little research on whether fat mass and distribution is a predictive factor of cardiovascular risk. **PURPOSE:** To determine if obesity measures, such as fat mass and distribution (android vs gynoid), could be used to predict cardiovascular risk, particularly lipid levels, systolic blood pressure (SBP) and blood glucose. Our hypothesis was that fat mass is not an accurate predictor of these cardiovascular risk factors. **METHODS:** 182 police officers (166 males, 16 females; age 37.6±8.1 yrs; ht 1.7±0.1 m; wt 92.2±17.8 kg; BMI 28.9±4.8) were part of an annual cardiovascular risk profile testing group. We measured resting heart rate and blood pressure, and body composition via DEXA scan (SBP 127.16±10.33 mmHg; fat mass 26.85±9.99 kg; lean mass 62.01±9.90 kg; percent android fat 35.54±10.07; percent gynoid fat 29.65±6.91). Fasting blood samples were drawn and analyzed by a clinically certified lab to determine total blood cholesterol (TC) (191.79±37.31 mg/dL), LDL (119.23±34.74 mg/dL), HDL (46.39±10.48 mg/dL), triglycerides (128.94±99.25 mg/dL), and glucose (86.67±18.65 mg/dL). Correlations were determined by using a bivariate Pearson correlation matrix, significance was set at and p<0.01**. **RESULTS:** As fat mass increased, total cholesterol and LDL increased and HDL decreased. Triglycerides, glucose, and SBP also increased as fat mass increased. There were also significant increases in total cholesterol, LDL, triglycerides, glucose and SBP as android fat percentage increased. HDL decreased significantly as android fat percentage increased.

		Lean Tissue Mass	Fat Tissue Mass	Android Fat %	Gynoid Fat %	BMI
Cholesterol	Pearson	-.068	.193**	.242**	.196**	.211**
	R^2	.005	.037	.059	.038	.045
HDL	Pearson	-.258**	-.252**	-.262**	-.030	-.233**
	R^2	.067	.064	.069	.001	.054
LDL	Pearson	-.017	.169*	.178*	.154*	.168*
	R^2	.000	.029	.032	.024	.028
Triglycerides	Pearson	.075	.240**	.302**	.134	.215**
	R^2	.006	.058	.091	.018	.046
Glucose	Pearson	.152*	.150*	.153*	.024	.215**
	R^2	.023	.023	.023	.001	.046
Resting SBP	Pearson	.246**	.258**	.196**	.073	.299**
	R^2	.061	.067	.038	.005	.089

CONCLUSION: Fat mass weakly correlates with blood cholesterol levels. We suggest that factors other than fat mass affect cholesterol, such as genetics and lifestyle. More research is needed to see if this correlation holds or is stronger in similar and different populations.