

NAPCRG 52nd Annual Meeting — Abstracts of Completed Research 2024.

Submission Id: 6079

Title

Body Mass Index versus Percent Body Fat as a Predictor of Mortality in Men Aged 20-49

Priority 1 (Research Category)

Cardiovascular disease

Presenters

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Abstract

Context: Body mass index (BMI) is commonly used as a risk marker for mortality and cardiometabolic disease, but its predictive ability has come into question. Other body composition measures may have more utility in practice.

Objective: To examine the predictive ability of accepted thresholds of BMI versus body fat percentage for 15-year mortality risk in young men and further characterize the BMI ≥ 25 and BF% $\geq 28\%$ cohorts by comparing their respective prevalence of markers of cardiometabolic syndrome, diet, and exercise.

Study Design & Analysis: In this retrospective cohort analysis, Cox proportional hazards regression was computed for 15-year mortality risk. Healthy BMI was defined as 18.5-24.9 and unhealthy BMI as ≥ 25 . After a sensitivity analysis in men aged 20-49, healthy BF% was defined as < 28 and unhealthy BF% as ≥ 28 . 15-year mortality risk for the predictors of BMI and BF% was computed. Results were adjusted for age, poverty, and race.

Dataset: NHANES 1999-2004 linked to the National Death Index which provides population estimates of the US population.

Population Studied: Men aged 20-49

Instrument: Cox proportional hazards for 15-year mortality

Outcome Measures: 15 year all-cause, heart disease, and/or cancer mortality

Results: BF% is a strong significant predictor of 15-year, all-cause mortality [unadjusted hazard ratio (HR) 2.16, 95% confidence interval (CI) 1.44-3.25, $P<0.001$; adjusted HR 1.93, CI 1.27-2.94, $P=0.002$] and heart disease mortality (unadjusted HR 5.55, 95% CI 1.53-20.14, $P=0.009$; adjusted HR 5.099, 95% CI 1.32-19.62, $P=0.02$). BMI was not significant as a predictor in young adult men using healthy weight BMI versus overweight/obese. Significantly more subjects had a waist circumference >40 inches, hypertension, and hyperlipidemia in the BF% $\geq 28\%$ group than the BMI ≥ 25 group, but there was no difference in diabetes, calorie intake, or nutrient intake. While cardiovascular fitness was the same between these groups, the BF% $\geq 28\%$ group performed significantly more moderate and vigorous activity over the past 30 days.

Conclusions: BF% is a much better predictor of downstream mortality in young adult men than BMI. This could ultimately lead to a change in how we measure body composition for risk stratification. BF% is a better predictor of certain markers of cardiometabolic syndrome, and these patients may be more likely to increase their exercise if appropriately counseled to improve their health.

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