BODY COMPOSITION BY CT VS. DXA: LONG-TERM PREDICTION OF MORTALITY IN THE HEALTH HEALTH ABC COHORT

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Background: Early work in the Health ABC cohort found that strength, but not muscle size predicted mortality. Recent literature suggests that body composition by computerized tomography (CT) and magnetic resonance imaging (MRI) predicts adverse health outcomes in diverse populations, but has not been directly compared to dual-energy X-ray absorptiometry (DXA) for predicting mortality. Objective: With long term follow-up, we reexamined body composition and mortality in Health ABC, comparing DXA and CT measures of muscle and fat. Methods: The Health ABC study assessed body composition in 2911 older adults (age 73.6±2.9 years) in 1996-97. Mid-thigh CTs were read for muscle area, intermuscular, subcutaneous-fat areas and muscle density (HU). DXAs were read for whole body fat mass and appendicular lean mass (ALM). Mortality was assessed every 6-months through 2014 (maximum 17.4 years). Cox proportional hazards models, adjusting for age, sex, race, height, weight, physical activity, smoking and comorbidities were used to assess mortality risk. Results: Strong correlations were observed between mid-thigh muscle and subcutaneous fat areas by CT and leg lean and fat mass by DXA (P<0.05). Lower mortality rates, per SD, were associated with higher CT muscle area (HR-men=0.76 [95%CI: 0.68-0.86]; HR-women=0.84 [0.75-0.94]), muscle density (HR-men=0.86 [0.79-0.93]; HR-women=0.89 [0.81-0.97]) and higher subcutaneous-fat (HR-men=0.90 [0.81-0.99]; HR-women=0.87 [0.77-0.98]), adjusting for covariates. Similarly for DXA, greater ALM (HR-men=0.56 [0.44-0.71]; HR-women=0.77 [0.59-1.01]) and higher total fat mass (HR-men=0.53 [0.40-0.72]; HR-women=0.58 [0.37-0.90]) were associated with lower risk of death. Conclusion: With long term follow-up, both CT and DXA assessments of body composition predicted all-cause mortality risk.

DIETARY DIVERSITY AND DIETARY QUALITY: ASSOCIATIONS WITH BODY MASS INDEX CHANGE IN DIVERSE ADULTS WITH AGE

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Dietary Diversity (DD), a variety element of a healthful diet, can be measured by count, evenness and dissimilarity scores. This study explored the associations of DD, and dietary quality measured by Dietary Approaches to Stop Hypertension (DASH) score, with annualized Body Mass Index (BMI) change in a diverse sample. Participants, 1,104 African American (57.9%) and White (42.1%) adults, were from the longitudinal Healthy Aging in Neighborhoods of Diversity across the Life Span study. Mean±SE age at baseline was 48.3±0.20 years. The DD and DASH scores were calculated using four 24-hr recalls from baseline (2004-2009) and 1st follow-up wave (2009-2013). Count was based on consumption of ≥50% of an equivalent from 21 food groups. Evenness was derived using the Berry-Index adjusted by the food's health value; dissimilarity, by Mahalanobis Distance. The DASH score was computed using the Mellen formula. BMI was calculated from measured weight and height; change in BMI from 1st to 2nd follow-up waves (2009-2017). Linear regression results are expressed as β-coefficients □ standard error of means (β□SE). After adjusting for energy, age, sex, race, poverty status, education, and smoking, of the three DD measures, only mean count was associated with annualized change in BMI (8.166±3.575, p=0.023). Mean DASH score was inversely associated with BMI change (-6.599±2.690, p=0.014). Age and smoking were the only other significant predictors (-1.137±2.938, p<0.001), (-1.169±5.472, p=0.033), respectively. These findings provide evidence that high quality is associated with a decrease in BMI with age while high count scores are associated with a rise in BMI.

DIETARY PROTEIN AND TRANSITIONS BETWEEN FRAILTY STATES AND TO DEATH IN ADVANCED AGE: LILACS NZ

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Modifiable factors delaying frailty progression are important in demographic ageing; health disparities for indigenous people require specific strategies. Does dietary protein intake impact transitions in frailty in Maori (indigenous) and non-Maori aged 80+ in New Zealand? LiLACS NZ is population based longitudinal cohorts of Maori aged 80-90 years and non-Maori aged 85 years, followed yearly to 5 years follow up. At 12 months follow up 459 participants contributed nutrient intakes from 24hr multiple pass recall dietary intake. Frailty states were derived from Fried frailty criteria. Mortality was established through National Health Index matching. Multistate modelling investigated the contribution of protein intake to transitions in frailty states and death using models of increasing complexity: 1)age, ethnicity; 2)sex; 3)disease counts; and 4)energy intake. Over 60% of the sample were prefrail throughout the study; disease burden differentiated frailty state. Of a total of 1269 transitions, 692 remained the same; the models used 549 transitions; 44% from robust to pre-frail or pre-frail to frail. Those recovering from pre-frail to robust had lower disease burden and higher nutritional intake. Those with higher protein intake were less likely to transition from robust to prefrail (model 4: per 1g/kg bodyweight/d: HR: 0.28, 95%CI: 0.08-0.91) and from pre-frail to robust (0.24 0.06-0.93). Increased protein intake was associated with increased transition from frailty to mortality but was moderated by energy intake. Greater protein intake in octogenarians in NZ was associated with both better and worse outcomes. Total energy intake tended to moderate negative outcomes.