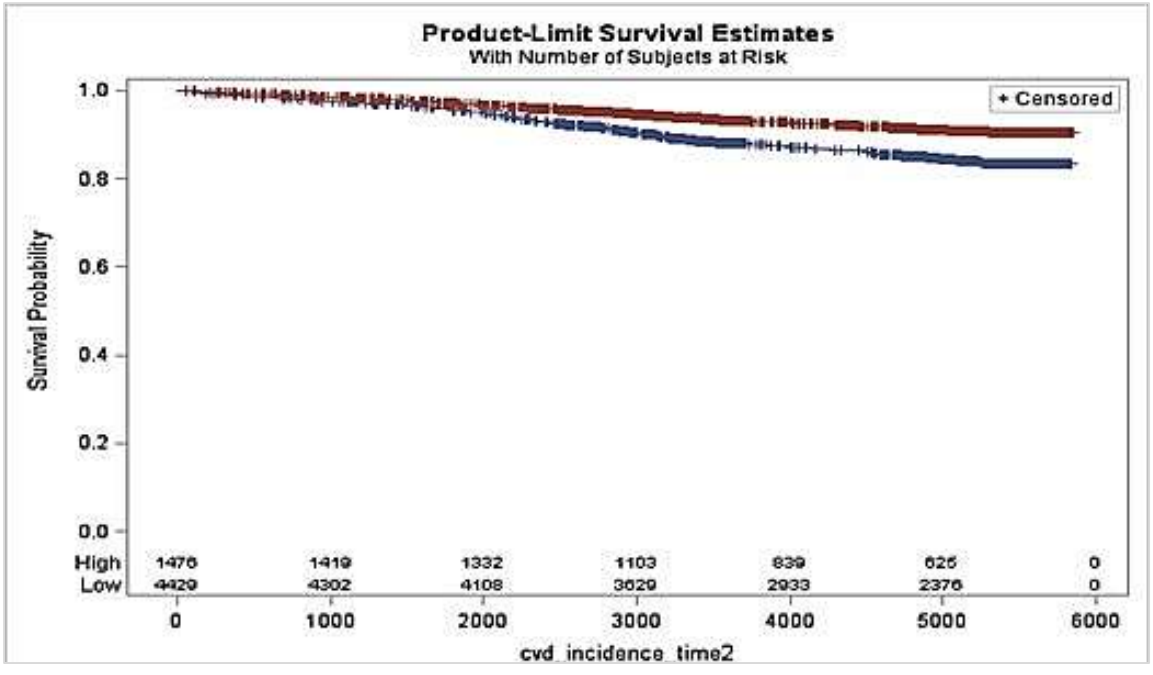
Title: Trunk Fat as a Predictor of Cardiovascular Outcomes in postmenopausal women: The Women's Health Initiative DXA Cohort

Laddu DR, Stanford Prevention Research Center (SPRC), Stanford University, Stanford, CA; Assimes T, Department of Medicine, Stanford University, Stanford, CA; Zaslavsky O, School of Nursing, University of Washington, Seattle, WA; Qin, FF; Hedlin H, Quantitative Science Unit, Stanford University, Stanford, CA; Stefanick ML, SPRC, Stanford University, Stanford, CA

Background/Objectives: Regional fat distribution, especially excessive abdominal fat, is an important determinant of cardiovascular disease (CVD) risk in post-menopausal women. Clinically measured weight changes, whole-body fat and lean mass have shown to differ among younger-menopausal versus older postmenopausal women, but it is unclear how these changes influence the relationships of regional fat distribution to CVD incidence and CVD risk factors in younger versus older women. Thus, a better understanding of age-related differences in the relationship of abdominal fat distribution to CVD and CHD risk is needed. We examined whether baseline trunk fat, a validated surrogate of visceral adiposity, predicts major CVD outcomes and mortality, *prospectively*, in postmenopausal women aged 50-79 at baseline in the Women's Health Initiative (WHI) clinical trial and observational study (1993-2005) and WHI Extension Study (2005-2010), by age groups (50-59, 60-69 and 70-79 years). **Methods**: Data from 5,905 WHI participants who had baseline measures of trunk fat, measured by Dual-Energy X-ray Absorptiometry (DXA), and CVD outcome data were examined. Percent (%) trunk fat was defined as the proportion of truncal fat relative to total body fat mass. Participants with baseline history of CHD or CVD were excluded. Primary CVD outcomes were identified using hospitalization records and self-report. Multivariable Cox hazards regression models, adjusted for lifestyle, demographic and clinical factors, were used to examine the association between baseline trunk fat and time to CVD incidence, in the total sample and across three age groups: 50-59, 60-69, and 70-79 years. Cumulative survival of the outcome events (CVD incidence, CVD death, and all-cause death) predicted by trunk fat will be graphed with Kaplan Meier plots. Baseline CVD biomarker data were available for a subset of the DXA cohort (n=1475). **Results**: Over 17yr follow-up, baseline %trunk fat was associated with a 3% increased CVD-incidence risk (95% CI (1.01, 1.04), p=0.001; C-index: 0.612), and CVD-death risk (95% CI (0.99, 1.04), p=0.28; C-index: 0.557). Baseline %trunk fat was not significantly associated with ischemic stroke, heart failure, or all-cause mortality**.** No differences in the associations were observed across age groups. In adjusted multivariable regression models, each additional percentage of trunk fat at baseline was associated with greater odds (OR, 95% CI) of baseline CVD risk factors: metabolic syndrome, 1.17 (1.14, 1.20); Diabetes, 1.13 (1.09, 1.18); Triglycerides, 1.12 (1.09, 1.15); Total Cholesterol, 1.03 (1.01, 1.05) HDL, 1.11 (1.08, 1.13), p<0.001 for all; and, LDL 1.02 (1.00, 1.04), p=0.02). **Interpretation:** Higher baseline %trunk fat predicted higher CVD-incidence over 17yrs, and was strongly associated to CVD risk factors at baseline. Additional evidence is needed to examine whether (and how strongly) trunk fat compares with clinical obesity measures to predict CVD risk in post-menopausal women.

Figure: Kaplan Meier Survival Analysis based on %Trunk Fat (cut point based on 75th percentile)



Blue= High % trunk fat
Red= Low % trunk fat

Contact Information: Presenter

Deepika Laddu, Ph.D.

Post-Doctoral Researcher
Stanford Prevention Research Center
Stanford University School of Medicine

dladdu@stanford.edu

WHI writing group: Tim **Assimes**, MD, PhD, Oleg **Zaslavsky**, PhD, FeiFei **Qin**, Haley **Hedlin**, PhD, Marcia L. **Stefanick**, PhD