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ORIGINAL RESEARCH COMMUNICATION

Visceral adipose tissue and the ratio of visceral to subcutaneous adipose tissue are greater in adults with than in those without spinal cord injury, despite matching waist circumferences^{1, 2, 3}

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Background: Abdominal obesity, particularly visceral adipose tissue (VAT), is associated with an increased risk of coronary heart disease (CHD). Despite an elevated risk of CHD mortality in persons with spinal cord injury (SCI), neither abdominal adipose tissue accumulation nor the validity of waist circumference (WC) has been determined in persons with SCI.

Objectives: The objectives of this study were to compare total adipose tissue (TAT), visceral adipose tissue (VAT), subcutaneous adipose tissue (SAT), and the ratio of VAT to SAT (VAT:SAT) between adults with SCI and age-, sex-, and WC-matched able-bodied (AB) controls and to determine the relation between WC and VAT in both groups.

Design: Thirty-one men and women (*n* = 15 SCI and 16 AB) with a mean (\pm SD) age of 38.9 \pm 7.9 y participated in this cross-sectional study. Abdominal adipose tissue was quantified by computed tomography at L₄-L₅. WC was measured at 3 sites: lowest rib, iliac crest, and the midpoint between the lowest rib and iliac crest.

Results: Persons with SCI had a 58% greater mean VAT (*P* = 0.003), 48% greater mean VAT:SAT (*P* = 0.034), and 26% greater mean TAT (*P* = 0.055) than did matched AB controls after differences in weight were accounted for. Mean SAT was not significantly different between groups. WC at all sites was correlated with VAT in both groups (SCI: 0.905 \leq *r* \leq 0.925; AB: 0.838 \leq *r* \leq 0.877; both *P* < 0.001).

Conclusions: High levels of VAT exist in young people with SCI who classify themselves as active and healthy. WC may be a valid surrogate measure of VAT in this population and serve as a tool for clinicians to identify those at risk of CHD.

Key Words: Visceral adipose tissue • waist circumference • spinal cord injury • computed tomography • coronary heart disease

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