

Summer Meeting, 15–18 July 2013, Nutrition and healthy ageing

## Association of the body adiposity index with metabolic risk factors in young and older overweight and obese women

M. Siervo<sup>1</sup>, J. Lara<sup>1</sup>, C. M. Prado<sup>2</sup>, B. C. M. Stephan<sup>3</sup> and A. Colantuoni<sup>4</sup>

<sup>1</sup>Human Nutrition Research Centre, Institute for Ageing and Health, Newcastle University, Campus of Ageing and Vitality, Newcastle, NE4 5PL, UK, <sup>2</sup>Department of Nutrition, Food and Exercise Sciences, The Florida State University, College of Human Sciences, 436 Sandels Building, Tallahassee, FL 32306–1493, USA, <sup>3</sup>Institute for Health and Society, Newcastle University, Framlington Place, Newcastle, NE2 4HH, UK and <sup>4</sup>Human Nutrition and Physiology, Department of Neuroscience, University of Naples, via Pansini 5, 80134, Naples, Italy

Body mass index (BMI) is an imperfect measure of adiposity. A novel index has been validated (Body Adiposity Index, BAI)<sup>(1)</sup> for the assessment of fat mass percent (FM%). We tested whether the BAI showed a stronger association with metabolic outcomes than BMI and waist circumference (WC) in a clinical population of overweight and obese women of different ages.

This is a cross-sectional analysis of a representative clinical sample in Southern Italy.

Participants: Body composition and metabolic risk were assessed in 260 young women aged 24.7 (SD = 5.3) years, with a mean BMI of 31.0 (SD = 5.0) kg/m<sup>2</sup> and 328 older women aged 66.9 (SD = 4.6) years, with a BMI of 34.8 (SD = 4.7) kg/m<sup>2</sup> attending a weight loss clinic. Body weight, height, waist and hip circumferences were measured. BMI and BAI were computed. Bioimpedance analysis was used to measure FM. Metabolic risk was assessed using a composite z-score integrating standardized measurements of glucose, total cholesterol, liver enzymes and triglycerides.

The association of BAI with FM% was poor in both young ( $r = 0.56, p < 0.001$ ) and older ( $r = 0.49, p < 0.001$ ) groups. BAI was directly associated with metabolic risk in young women ( $r = 0.29, p < 0.001$ ) whereas it showed a weak, inverse association in the older group ( $r = -0.14, p = 0.01$ ). In a multiple regression model, metabolic risk was significantly associated with WC in young women ( $B = 0.04$  (SE = 0.02) ( $p = 0.03$ )) and BAI in older women ( $B = -0.16$  (SE = 0.03) ( $p < 0.001$ )).

In conclusion, a paradoxical association of BAI with a composite metabolic risk score in older overweight and obese women was observed. This suggests that the validity of this novel adiposity index needs to be re-assessed in older individuals in order to be utilised in clinical practice.

1. Bergman RN, Stefanovski D, Buchanan TA, Sumner AE, Reynolds JC, Sebring NG *et al.* (2011) A better index of body adiposity. *Obesity (Silver Spring)* **19**, 1083–1089.