Effect of increased physical activity on visceral fat and associated inflammation in Emirati citizens

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Background & aims: The growing prevalence of obesity and related type 2 diabetes is reaching epidemic proportions in the UAE. Physical inactivity is one of the possible mechanisms linking obesity to diabetes and other related complications including cardiovascular diseases (CVD). Despite increasing prevalence of physical inactivity in the UAE population the molecular mechanisms through which physical inactivity is contributing to increased obesity and related pathologies are not clear. The aim of this study was to measure the effects of increased physical activity on both general and abdominal obesity and related metabolic risk factors.

Methods: We investigated the effects of physical activity on body weight, waist circumference (WC) and metabolic risk factors in 963 community free-living Emirati subjects. Physical activity, dietary intake, antioxidants enzymes and markers of oxidative damage and inflammation were measured at baseline and follow up. A validated questionnaire was used to assess occupation and leisure-related physical activity. Data were obtained on frequency and duration of daily or weekly physical activity sessions for at least 20 minutes or more in which subjects became breathless or sweating.

Results: A total 963 community free-living subjects [497 (51%) females, mean (SD) age 39±12 years] were recruited and followed up for a period of 427±223 days. Using WHO cut-of-points for body mass index (BMI) 284 (30%) subjects were overweight and 584 (62%) subjects obese compared to 69 (8%) at normal body weight. We found women more physically active than men (22% vs 12% respectively) with physical inactivity more common in men compared to women (38% vs 18%). Although HDL levels higher in female subjects, body weight, BMI, inflammatory markers (us CRP, TNF) and glycemic control markers (HbA1c, glucose) were significantly higher in male subjects compared to female subjects. Hypertension and diabetes were more common in male subjects who were less physically active compared to female subjects. Increased physical

activity both at baseline and follow up was associated with decreased BMI, WC and inflammatory markers including usCRP and TNF. Multiple logistic regression analysis revealed that increased baseline physical activity was associated with significantly lower body weight, BMI and WC after adjusting for age, marital status and level of education. Similar results seen at follow up.

Conclusions: Our finding suggests that increased physical activity may decrease visceral fat and consequently mitigate inflammatory response in obese Emirati subjects.

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