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**PRESENTATION TYPE:** Poster

**CURRENT TRACK:** Intervention and Clinical Studies

**CURRENT SUB-CATEGORY:** Intervention Studies - Other-Adult

**TITLE:** Lose Fat - Not Weight!

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**KEYWORDS:** body composition, exercise, diet.

**ABSTRACT BODY:**

**Background:** A medical program of intense exercise and moderate caloric restriction results in massive weight loss along with dramatic cardiovascular disease risk reduction (Ahmadi, Am J Med 2011). We report the dramatic changes in water, muscle and fat during the weight loss with three different technologies.

**Methods:** Seventeen sedentary morbidly obese Biggest Loser television contestants (BMI=49.3 Kg/m<sup>2</sup>) were evaluated at baseline, 2, 4 and 7-months. Fat mass (FM) and fat-free mass (FFM), i.e. weight minus FM, were determined by standards dual energy x-ray absorptiometry (DXA) and air displacement plethysmography (ADP). Bioimpedance spectroscopy (BIS) determined intra- and extracellular fluid volume (ICF and ECF), normally hydrated lean tissue (NH-LT), normally hydrated adipose tissue (NH-AT) and excess ECF (ExF). BIS FM was derived from NH-AT (Chamney AJCN 2007).

**Results:** At 7-months major reductions occurred in body weight (-37.8%) and FM (-46.5 kg). The percent body fat (%BF) ( $p = 0.988$  to  $0.095$ ) and its change at 7 mos ( $p=0.885$ ) predicted by the three methods were not different ( $p < 0.05$ ). Due to a large loss in adipose associated water (11.9 l), DXA indicated a significant decrease in FFM (-10.8 kg;  $p < 0.0001$ ) whereas BIS indicated a slight gain (1.4 kg) in NH-LT (i.e. muscle) ( $p = 0.441$ ).

**Conclusions:** Intense exercise with moderate caloric restriction induces dramatic loss of FM while maintaining or increasing skeletal muscle in morbidly obese subjects. Standards DXA and ADP, which cannot distinguish water from tissue, appear inferior to BIS for elucidating important body composition changes during weight loss.