The Effects of Lower Body Positive Pressure Treadmill Walking on Fat Oxidation in Overweight/Obese Males

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PURPOSE: To determine if a reduction of body weight from 100% to 75% while walking on a lower body positive pressure treadmill (LBPP) effects peak oxygen consumption, peak fat oxidation, respiratory exchange ratio (RER), heart rate (HR) and rate of perceived exertion (RPE) in overweight/obese men. **METHODS:** Fourteen, overweight and obese men (mean age 23.2 ± 2.4 years, BMI 36.5 ± 3.8 kg/m^2 and Body Fat % 38.6 ± 7.0%) were randomly assigned to walking on the LBPP treadmill at 100% and 75% of their body weight. The protocol consisted 3-minute stages at a constant speed of 3.3 mph for the duration of the test. Percent grade increased three minutes following the warm up from 3% to a maximum of 15%. Fat oxidation, RER and VO_2 were measured using indirect calorimetry. Fat oxidation rates were calculated using stoichiometric equations. **RESULTS:** Significant differences in VO_{2peak} ($t(13)= 3.97$, $p <.05$), fat oxidation rates ($t(13)= -3.56$, $p <.05$), HR ($t(13)= 3.0$, $p <.05$), RER ($t(13)= 2.18$, $p <.05$), and RPE ($t(13)= 2.54$, $p <.05$) between the treadmill conditions (100% BW vs. 75% BW) were identified using a paired samples *t* test. VO_{2peak}, and HR were higher at 100% BW compared to 75% BW (23 ± 4 vs. 17 ± 3 ml/kg/min, and 157 ± 23 vs. 141 ± 20, respectively). Additionally fat oxidation rates were higher at 100% BW compared to 75% BW (-1.9 vs. .04 g/min) and finally, perceived exertion was lower at 75% BW compared to 100% body weight (12 vs. 14, respectively). **CONCLUSION:** Reducing body weight on a LBPP device can increase fat oxidation, improve one's tolerance to treadmill walking, and experience the pleasure of moving in a safe and pain-free environment. Although metabolic demand (VO_{2peak} and HR) was lower at 75% BW, this suggests that walking on the LBPP is a low intensity exercise. Low intensity exercise programs are recommended protocols that allow obese individuals to sustain physical activity over a period of time to increase fat oxidation, expend more calories resulting in an improved quality of life.