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### Perceptual and Affective Responses Relative to Maximal Fat Oxidation During Treadmill Walking Exercise.

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Identifying appropriate exercise intensities is critical for personal trainers and rehabilitation specialists working with certain populations. For individuals desiring weight loss, an intensity that elicits the point of maximal fat oxidation (FATox) may be appropriate. This intensity reflects the point of greatest fat utilization for energy cost and marks the beginning of a shift to carbohydrate utilization, but little is known about subjective responses approximate to this intensity. **PURPOSE:** To determine perceptual and affective responses across walking exercise intensities used to elicit FATox. **METHODS:** Eight apparently healthy college-aged female participants (Age: 21.14±1.07 yrs; BMI: 21.62±5.73 kg.m<sup>2</sup>; Height: 162.08±7.91 cm; Weight: 59.54±8.34 kg) performed the following treadmill walking exercise protocol: a 3-min warm-up at 58.96 m.min<sup>-1</sup> followed by six 3-min stages at 88.44 m.min<sup>-1</sup> with 3% gradient increases (0- 15%) each stage. FATox was measured via indirect calorimetry and calculated using expired VO<sub>2</sub> and VCO<sub>2</sub> values. Subjective measures of ratings of perceived exertion (RPE) and affect (Feeling Scale; FS) were assessed during the last 15 secs of each stage. A repeated measures ANOVA (Stage 1 [S1], point of FATox, End) with Bonferroni pairwise comparisons ( $p < 0.05$ ) was calculated on all dependent variables. **RESULTS:** FATox was calculated at .53±.11 g.min<sup>-1</sup> and evidenced a significant time effect ( $p < .001$ ). Significant time point comparisons were observed between FATox and End ( $M \pm SD = .25 \pm .18$ ;  $p < .001$ ) and S1 ( $M \pm SD = .49 \pm .08$ ) and End ( $p = .004$ ). RPE and FS both showed significant time effects (both  $ps < .001$ ). Significant time point comparisons were noted for RPE from S1 ( $M \pm SD = 9.38 \pm 1.77$ ) to End (14.63±1.77;  $p < .001$ ) and FATox ( $M \pm SD = 11.75 \pm 2.31$ ) to End ( $p = .025$ ). Although no pairwise comparisons reached significance for FS ( $p > .05$ ), Cohen's  $d$  calculations evidenced strong effect sizes from S1 ( $M \pm SD = 2.75 \pm 1.39$ ) to FATox ( $M \pm SD = 1.50 \pm 1.51$ ;  $d = .86$ ) and FATox to End ( $M \pm SD = 0.00 \pm 1.60$ ;  $d = .96$ ). **CONCLUSIONS:** Walking intensity past the point of FATox resulted in greater carbohydrate utilization which, in turn, appears to result in greater effort sense (11 = Fairly Light; 13 = Somewhat Hard; 15 = Hard). This range of exercise intensity appears to also reduce feelings of pleasure significantly (3 = Good; 1 = Fairly Good; 0 = Neutral). **SIGNIFICANCE/NOVELTY:** Fitness professionals may want to tailor walking exercise intensities that elicit perceptual responses between an RPE of 11 to 13 as these may correspond to positive feelings of pleasure and FATox.