Fuel utilization of Supported Treadmill Running

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Supported treadmill running is used in clinical and athletic settings for rehabilitation and overcoming movement disabilities. Prescription for exercise intensity is difficult due to the added support during treadmill exercise. **PURPOSE:** To measure fuel utilization of supported treadmill running. **METHODS:** College age volunteers were fitted into a full-body support harness for all trials that allowed volunteers to be partially supported during treadmill running. Oxygen consumption (VO_2) was measured using an open flow system during body weight (control) and supported (experimental) running. Respiratory Exchange Ratio (RER) was calculated as VCO_2/VO_2. Volunteers completed control and experimental trials at treadmill speeds of 2.24 $m \cdot s^{-1}$, 2.46 $m \cdot s^{-1}$, 2.68 $m \cdot s^{-1}$, and 3.13 $m \cdot s^{-1}$. Experimental trials were classified as running at either 90% (n = 10) or 85% (n = 9) of bodyweight. Data for VO_2, heart rate and RER were collected at rest and during all trials. **RESULTS:** Average (± SD) RER under control conditions were 0.93 (±0.07), 0.98 (±0.11), 0.98 (±0.06), and 1.07 (±0.11) for treadmill speeds of 2.24, 2.46, 2.68, and 3.13 $m \cdot s^{-1}$, respectively. Average (±SD) RER experimental conditions at 90% of body weight were 0.97 (±0.07), 0.98 (±0.06), 1.01 (±0.08), and 1.04 (±0.07) for treadmill speeds above. At 85% of bodyweight, average RER was 0.96 (±0.09), 1.00 (±0.08), 0.98 (±0.07), and 1.04 (±0.09) for same speeds as above. Across all speeds, average RER values were 0.99, 1.00, and 0.99 for control, 90%, and 85% of body weight. **CONCLUSION**: We conclude that volunteers were doing less external work during supported running yet fuel utilization was similar.