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## Energy expenditure during walking and jogging.

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### Abstract

**BACKGROUND:** The aim of this investigation was to compare the physiological and subjective responses during treadmill walking and jogging at several corresponding speeds in physically active young women.

**METHODS:** Experimental design: Maximal oxygen uptake was determined during a continuous treadmill test to exhaustion. The walking protocol consisted of treadmill walking for five min at each of the following speeds: 4.0, 5.6, 7.2, 8.0, 8.8, 9.6 and 10.4 km.hr(-1). The jogging protocol consisted of treadmill walking for five min at 4.0, and 5.6 km.hr(-1) and treadmill jogging for five min at each of the following speeds: 7.2, 8.0, 8.8, 9.6 and 10.4 km.hr(-1). Setting: This research was performed at Washington University School of Medicine. Participants: Fifteen healthy women (mean+/-SE, age; 26.9+/-1.4 yrs, BMI; 22.5+/-0.70, VO2max; 41.9+/-1.9 ml.hr(-1).min(-1)) performed a maximal treadmill exercise test, a walking test and a jogging test.

**RESULTS:** The rate of oxygen consumption, calculated energy expenditure per distance (kJ.hr(-1).mile(-1)) and heart rates were significantly higher during walking compared to jogging at treadmill speeds > or =8.8 km.hr(-1). Plasma lactate concentration and respiratory exchange ratio were significantly higher at treadmill speeds > or =8.0 km.hr(-1) during walking as compared to jogging. Subjects subjectively rated their exertion during walking as being significantly greater when compared to jogging across the range of overlapping treadmill speeds.

**CONCLUSIONS:** These findings demonstrated that walking at speeds > or =8.0 km.hr(-1) resulted in rates of energy expenditure that were as high or higher than jogging at the same speeds. Also, the higher rates of energy expenditure during walking as compared to jogging at speeds greater than 8.0 km.hr(-1) were associated with higher heart rates, RER, RPE and plasma lactate response.

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