Energy Expenditure of Fast Walking and Slow Running at the Same Speed Compared with Normal Walking

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Abstract

The purpose of the study was to assess and compare the oxygen consumption and energy expenditure of normal subjects during walking and running at the same speed. Fifteen volunteers participated in the study. Their body height ranging from 175-185cm with a mean value of 179.5cm (±3.4) and mean weight of 80.47kg (±3.24). Each subject walked on a treadmill at two speeds 4.5km/h (comfortable walking speed, 42% of the Froude velocity) and 8.6km/h (fast walking 80% of the Froude velocity) and run on the treadmill at speed 8.6km/h (slow running 80% of the Froude velocity) for three minutes with resting period of twenty minutes between the three tests. Before each test there was 3 minute warm up at 1.5km/h, and after each test there was 3 minute recovery at 1.5km/h. The oxygen consumption, and energy expenditure, at the three speeds are measured by using ZAN 100 flow handy П medical device with a PC-connected to open spirometry system. Results revealed that there was significant difference in energy expenditure and oxygen consumption between normal (comfortable) walking speed (4.5km/h), fast walking speed (8.6km/h) and slow running (8.6km/h). The energy expenditure and oxygen consumption of fast walking was higher than slow running and both of them are higher than normal walking. So, fast treadmill walking is capable of eliciting high metabolic responses comparable to normal treadmill walking and slow treadmill running. This study suggested that normal walking and slow running are more economic for effort and not exhaustive for the cardiovascular system.