



Mid Atlantic Regional Chapter of the American College of Sports Medicine

45th Annual Scientific Meeting, November 4th- 5th, 2022
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 11



A Comparison of the Energy Demands of Quadrupedal Movement Training to Walking

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Identifying alternative types of physical activity that meet exercise guidelines for achieving health and wellness may enhance public compliance to these current recommendations. Quadrupedal movement training (QMT) is a novel alternative form of exercise which has recently been shown to improve several fitness characteristics including, flexibility, movement quality, and dynamic balance. However, the specific energy demands of this style of training remain unknown. **PURPOSE:** To identify and compare the energy expenditure (EE) of a beginner-level QMT class to walking, and to compare EE between each of the segments of the QMT class. **METHODS:** In a randomized-crossover design 30 participants (15 male, 15 female; age 20.1 ± 1.5 , 19.1 ± 1.2 yrs., height 178.3 ± 8.3 , 168.8 ± 7.9 cm, mass 82.0 ± 11.1 , 62.7 ± 10.1 kg, respectively) completed 1) a 60-minute session of QMT, 2) treadmill walking at a self-selected brisk pace (SPTM) and 3) treadmill walking at a pace that matched the heart rate of the QMT session (HRTM). Indirect calorimetry was used to estimate energy expenditure. **RESULTS:** QMT resulted in an EE of 6.7 ± 1.8 kcal/min, 5.4 ± 1.0 METs, and HR of 127.1 ± 16.1 bpm ($63.4 \pm 8.1\%$ of the subjects' age-predicted maximum HR). Overall, EE, METs, HR and respiratory data for QMT was greater than SPTM (p 's < 0.001) and either similar to or slightly less than HRTM. The "flow" segment of the QMT showed the highest EE (8.7 ± 2.7 kcal/min), METs (7.0 ± 1.7) and HR (153.2 ± 15.7 bpm). Aside from HR, males demonstrated greater EE, METs, and respiratory values across all sessions and segments of QMT. **CONCLUSIONS:** QMT meets the criteria for "moderate-intensity physical activity" and should be considered a viable alternative to help meet physical activity guidelines.

Supported by Grove City College Swezey Fund