



Mid Atlantic Regional Chapter of the American College of Sports Medicine

Annual Scientific Meeting, November 4th- 5th, 2017
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 6



Comparison of Energy Expenditure Between Hacky Sack and Elliptical Cross Trainer

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PURPOSE: More than 60% of adult Americans do not engage in the minimum recommended amount of daily exercise. Even younger adults struggle, with 43% of 18-24 year olds not engaging in the minimum amount of exercise (McCracken et al., 2007). Fischer et al. (2004) showed that adults can successfully achieve recommended physical activity levels and substantial energy expenditure by playing children's games with their kids. However, it remains unclear how metabolic responses from game activities compare with traditional aerobic exercise. Therefore, we compared energy expenditure between Hacky Sack and Elliptical Cross Training. **METHODS:** 11 apparently healthy, college-aged men (21.3 ± 1.3 yrs) performed a maximal graded exercise test on an elliptical trainer to determine VO_2 max. Subjects then performed three exercise protocols, once per week, randomly assigned in a counterbalanced order including 30 min of aerobic exercise performed at 35% of VO_2 max on an elliptical cross trainer (AEROBIC), hacky sack play (HACKY), and a no-exercise control trial (CTRL). Expired air was collected continuously before (15 min), during (30 min), and for 30min after each exercise protocol using a Parvo TrueOne 2400 Metabolic cart. Data were analyzed using a two-way repeated measures ANOVA with Fisher's Least Significant Difference (LSD) post hoc analyses wherever appropriate. **RESULTS:** Significant differences ($p < 0.05$) among the average rates of energy expenditure ($kcal \cdot min^{-1}$) included AEROBIC and HACKY $>$ CTRL from 0-10, 11-20, and 21-30min of activity, as well as +5min after exercise. No significant differences in the rates of energy expenditure among groups were observed at rest, nor after +10, +15 and +30min of recovery. Total energy expenditure (kcal) was significantly greater ($p < 0.05$) during AEROBIC (195.8 ± 42.7) and HACKY (199.9 ± 34.8) compared to CTRL (40.0 ± 3.7). Total energy expenditure was not significantly different between AEROBIC and HACKY. **CONCLUSIONS:** Energy expenditure was similar between AEROBIC and HACKY, suggesting that game activities can elicit similar metabolic challenges compared to popular aerobic exercise modes in young adults. Therefore, game activities could be considered in addition to regularly planned aerobic exercise to help meet minimum activity recommendations.