

Effects of Resistance Training Status on Exercise Patterns and Body Composition Among Younger and Older Adults

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ABSTRACT

As individuals age, percent body fat tends to increase and lean muscle mass decreases, which may limit the ability to engage in higher intensity exercise. Moderate to vigorous physical activity has been shown to improve body composition, but it is unclear whether exercise patterns, such as amount of moderate and high intensity exercise performed, are impacted by resistance training status in younger and older adults.

PURPOSE: To examine whether resistance trained and untrained younger and older adults differ on duration of high, moderate, and low intensity exercise and percent body fat (%BF). **METHODS:** Younger (23.8 ± 0.4 years) and older (68.5 ± 1.2 years) healthy adults were categorized into 4 groups based on resistance training status: young resistance trained (YT: $n = 22$), young not resistance trained (YNT: $n = 16$), old resistance trained (OT: $n = 17$), and old not resistance trained (ONT: $n = 20$). Resistance trained participants had been training $\geq 2X$ per week, for the past ≥ 6 months. Participants completed a survey to assess the intensity and duration of exercise, and a dual x-ray absorptiometry (DEXA) scan was used to determine %BF. The survey asked how many minutes/hours per week participants engaged in high intensity exercise (e.g., jogging, hiking), moderate intensity exercise (e.g., light bicycling, walking briskly), and low intensity exercise (e.g., slow walking, easy yoga). Responses were coded as 1 = none, 2 = 30-60 minutes, 3 = 1-2 hours, 4 = 2-3 hours, 5 = 3-5 hours, and 6 = more than 5 hours. ANOVAs were used to determine group differences for each variable, $p \leq 0.05$. Data are reported as mean \pm SE. **RESULTS:** Group differences emerged for high and moderate intensity exercise ($p < 0.05$), but not for low intensity ($p > 0.05$). For high intensity, YT (3.64 ± 0.31) was significantly higher than YNT and ONT (YNT: 1.63 ± 0.37 , $p < 0.001$; ONT: 1.55 ± 0.33 , $p < 0.001$), and OT (2.82 ± 0.36) was significantly higher than YNT and ONT (YNT: $p = 0.022$; ONT: $p = 0.010$). For moderate intensity, YT (4.91 ± 0.31) was significantly higher than YNT and ONT (YNT: 2.40 ± 0.38 , $p < 0.001$; ONT: 3.52 ± 0.32 , $p = 0.003$), and OT (4.77 ± 0.35) was significantly greater than YNT and ONT (YNT: $p < 0.001$; ONT: $p = 0.011$). Also for moderate intensity, ONT was significantly greater than YNT ($p = 0.025$). For %BF, YT ($25.06 \pm 2.1\%$) was significantly lower than YNT and ONT (YNT: $33.55 \pm 1.87\%$, $p = 0.001$; ONT: $36.47 \pm 1.28\%$, $p < 0.001$), and OT ($29.37 \pm 1.11\%$) was significantly lower than ONT ($p = 0.003$). All other group comparisons were not different ($p > 0.05$).

CONCLUSION: The older resistance trained individuals did not differ from the younger trained participants on exercise patterns or percent body fat, suggesting the enduring positive effects of resistance training as individuals age. These resistance trained individuals also performed more moderate and high intensity exercise than non-resistance trained groups, likely contributing to their favorable body composition. Funded by Texas American College of Sports Medicine Student Research Development Award to H. Kendall, J. Mettler, and L. Kipp, and Thesis Fellowship Award to H. Kendall.