

Resistance Training Contribution to the Aerobic Component of the International Physical Activity Guidelines in Adults

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Abstract : Mostly attributed to lack of time, only 15% of adults currently reach the International Physical Activity Guidelines, which state that every adult should achieve minimum of 150 minutes of aerobic exercise per week at moderate to vigorous intensity in minimum bouts of 10 minutes each, in addition to two days of resistance training. Recent studies have suggested that any bout of aerobic exercise reaching moderate intensity has potential to improve health. If one could reach moderate intensity while doing resistance training, this could reduce the total weekly time involvement to reach the International Physical Activity Guidelines. Objectives: 1) To determine whether overweight and older adults can reach a minimum of moderate intensity while doing resistance training compared with young non-overweight adults, 2) To identify if the proportion of time spent at moderate to vigorous intensity is different in overweight adults and older adults when compared with young non-overweight adults when lifting 70% or 80% of maximal load, 3) To determine variables associated with proportion of time spent at moderate to vigorous intensity while doing resistance training. Methods: Sixty participants already doing resistance training were recruited (20 young non-overweight adults, 20 overweight adults, and 20 older adults). Participants visited fitness facility three times, separated by at least 48 hours, and performed eight resistance exercises each time. First visit was to collect baseline measurements and to measure maximal load for each of the eight exercises. Second and third visits were performed wearing a heart rate monitor to record heart rate and to measure exercise intensity. The two exercise sessions were performed at 70% and 80% of maximal capacity. Moderate intensity was defined as 40% of heart rate reserve. Results: The proportion of time spent at moderate to vigorous intensity ranged from 51% to 93% among the three groups. No difference was observed between the young group and the overweight adults group in the proportion of time spent at moderate to vigorous intensity, 82.6% (69.2-94.6) vs 92.5% (73.3-99.1). However, older adults spent lower proportion of time at moderate to vigorous intensity for both sessions 51.5% (22.0-86.6); $P < .01$. When doing resistance training at 70% and 80% of maximal capacity, the proportion of time spent at moderate to vigorous intensity was 82.3% (56.1-94.7) and 82.0% (59.2-98.0) with no significant difference ($P=.83$). Conclusion: This study suggests that overweight adults and older adults can reach moderate intensity for at least 51% of the time spent doing resistance training. However, time spent at moderate to vigorous intensity was lower for older adults compared to young non-overweight adults. For adults aged 60 or less, three resistance training sessions of 60 minutes weekly could be enough to reach both aerobic and resistance training components of the International Physical Activity Guidelines. Further research is needed to test if resistance training at moderate to vigorous intensity can have the same health benefits compared with adults completing the International Physical Activity Guidelines as currently suggested.

Keywords : aerobic exercise, international physical activity guidelines, moderate to vigorous intensity, resistance training

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