TACSM Abstract

Positive Relationship Between VO_2max And Leg Strength in Healthy Older Adults Who Regularly Exercise, But Not in Those Who Do Not Exercise

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ABSTRACT

Individuals that are physically active have greater cardiorespiratory fitness and skeletal muscle strength than those that are physically inactive. Although VO_2max is commonly used to estimate cardiorespiratory fitness, in older adults, leg strength may also influence VO_2max. The **PURPOSE** of this study is to examine the relationship between VO_2max and leg strength in physically active vs. physically inactive older adults. **METHODS**: Twenty-four older adults (12 physically active (PA; 62.1±5.0 yrs), 12 physically inactive (PI; 63.9±5.1 yrs)) performed a two-stage treadmill test to estimate VO_2max. Leg strength was assessed by 8-repitition maximum (8RM) tests of leg curl, leg press, calf raise, and leg extension. Correlations between VO_2max and leg strength were assessed and reported significant if $p<0.05$. **RESULTS**: PA participants had a higher leg press 8RM ($p=0.02$), leg curl 8RM ($p=0.003$), calf raise (0.004), leg extension ($p=0.01$), than PI participants. In the PA participants, there was a correlation between estimated VO_2max and leg curl ($R^2=0.34$; $p=0.049$), calf raise ($R^2=0.41$; $p=0.03$), and leg extension ($R^2=0.40$; $p=0.03$). In the PI participants, there was no correlation between estimated VO_2max and all leg strength measure ($p\geq0.05$). **CONCLUSION:** These data show that there is a positive relationship in PA older adults between the estimated VO_2max and leg curl, leg extension and calf raise 8RM.