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Research article

Effects of Acute Aerobic Exercise on Executive Function in Older Women

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ABSTRACT

Acute aerobic exercise may increase cognitive processing speed among tasks demanding a substantial degree of executive function. Few studies have investigated executive function after acute exercise in older adults across various exercise intensities. Healthy females 60–75 years of age ($n = 11$) who were not on medications completed 20-min exercise sessions at a moderate ($50\%V_{O_2max}$) exercise intensity and a vigorous ($75\%V_{O_2max}$) exercise intensity. Modified flanker tasks (reaction times) and d2 tests of sustained and selective attention (components of executive function) were completed before, immediately after, and 30-min post-exercise. Results indicated that older adult females had improved scores on the modified flanker task reaction times (RT_T , RT_I , RT_C) and d2 tests immediately after both moderate and vigorous intensity aerobic exercise. Some of these effects were maintained 30 min post-exercise. These findings suggest that an acute bout of exercise, regardless of intensity, can improve performance on tests of executive function in older women.

Key words: Executive function, aerobic exercise, reaction time

Key Points

- Few studies have investigated the effects of the intensity of exercise on executive function in older women
- Executive function improved after 20-min of aerobic exercise regardless of exercise intensity in older women
- Findings from the study were not confounded by prescribed medications; all participants who were older women were not taking any medications

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