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EDITORIAL

Moderate Exercise Improves Depressive Symptoms and Pain in Elderly People

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Editorial related to the article: Moderate-Intensity Walking Training Improves Depressive Symptoms and Pain in Older Adults with Good Quality of Life: A Controlled Randomized Trial

By the year of 2050, it is estimated that approximately two billion people in the world will be older than 60 years.[1] Aging directly affects individuals' quality of life (QoL) due to reduced autonomy in daily life activities. In this context, psychological and physical aspects, such as depression and pain, impair the QoL of elderly individuals. Antidepressant medication is commonly used to treat depression, and physical exercise has been increasingly prescribed as therapeutic alternative to depression symptoms.[2] In addition, this non-pharmacological measure may have an analgesic effect as it attenuates the physical pain caused by the pathological process of aging.[3] In this regard, aerobic exercise, such as moderate-intensity walking seems to have a positive impact on anxiety/depression and on physical pain and has the potential to improve the QoL of elderly people according to an observational study conducted in South Korea.[4]

In the present issue of the International Journal of Cardiovascular Sciences, Alabarse et al.,[5] compare the effects of moderate-intensity walking on QoL, depressive symptoms, and physical pain in Brazilian elderly individuals. In this study, 69 individuals were recruited and allocated in two groups – training group (TG, n = 40) and CG, n = 29. The sample was composed of physically active individuals (> 150 minutes of physical activity per week), with a mean age of 68.2 ± 5.2 years and 65.3 ± 3.8 in the TG and in the CT, respectively (p = 0.57). Participants included in the TG performed moderate-intensity walking three times a week for 12 weeks. The CG was instructed to maintain their usual activities during the study period and were followed by telephone interview every 15 days. Exercise training protocol followed the American College of Sports and Medicine (ACSM) and the American Heart Association (AHA) guidelines and consisted of a five-minute warm-up using body movements, and 30 minutes of continuous, moderate-intensity walking. This was defined as 50-70% of the maximum heart rate (HRmax), established by the cardiopulmonary exercise testing (CPET). In the last five minutes, subjects performed low-intensity breathing and stretching exercises.

The authors found that both depressive symptoms and physical pain, measured by the Geriatric Depression Scale (GDS) and a Visual Analogue Scale (VAS), respectively, significantly decreased in the TG. For assessment of QoL, the authors used the World Health Organization Quality of Life (WHOQOL) BREF and OLD, and no difference was observed between the groups. Peak oxygen consumption (VO2peak), defined as a secondary outcome in the study, was not different after 12 weeks of intervention. There was a positive correlation between depressive symptoms and physical pain (r = 0.30).

In our opinion, the study presents interesting, clinically relevant results on the effects of moderate-intensity aerobic exercise in the fastest growing population in the world. However, the study has important limitations that should be addressed: 1) the exercise was prescribed based on the percent of HRmax (50-70%). If the HRmax were calculated using the equation proposed by Tanaka et al.,[6] in the TG, HRmax would be 160 beats per minute (bpm). This is to illustrate how training loads may be underestimated by an HRmax-based prescription (in this case, 50% = 80 bpm; 70% = 112 bpm). Thus, even in elderly subjects, 80 bpm would be close to the resting

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Aged; Antidepressive Agents/adverse effects; Comorbidity; Depressive Disorder/therapy; Frail Elderly; Physical, Activity.

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heart rate, and 112 bpm would possibly be within a subaerobic zone; 2) since a CPET was available, the exercise training could have be planned based on the velocities and heart rates of respective VO_2peak for both aerobic and anaerobic zones, or on the heart rates in the threshold and the interthreshold zone; 3) even if VO_2peak was not a primary outcome, in this type of experiment, it is always important to discuss the prescription of exercise, since the TG showed an increase in VO_2peak of 0.79 $mL.kg^{-1}.min^{-1}$ ($p = 0.06$), i.e., a small, non-significant increment, which may have been a mere consequence of an error in the prescription of exercise load based on the percentage of HRmax. We believe that the percentage of the heart rate reserve could have been used for the monitoring of the exercise training load, which would have considered the resting heart rate.[7] Besides, an alternative method to control exercise level is the "old" and useful Borg scale of perceived exertion, which was not used by the authors; finally, 4) the authors reported a moderate positive correlation ($r = 0.30$) between depressive symptoms and physical pain. In fact, a correlation of 0.30 is considered weak or meaningless.

However, despite the limitations mentioned above, the study has strengths that support its publication. One of the strengths is the authors' proposal to investigate the effects of exercise in a high-prevalence population, in terms of QoL, depressive symptoms and physical pain. Elderly individuals experience limitations in their daily activities, and this fact is generally associated with a reduction in QoL and worsening of depressive symptoms and pain. The study showed that an intervention consisted of 12-week aerobic exercise training improved these outcomes, which, in our understanding, is worthy of credit. Also, the initiative to develop an investigative study aimed at better understanding the mechanisms involved in health promotion should be applauded.

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