



# MENTAL HEALTH

**ACSM 2021 Exercise Prescription for Anxiety &  
Depression**

## Exercise Prescription

### Anxiety

Exercise is effective for reducing anxious symptoms, and this applies to people with and without anxiety disorders, and those with and without other medical diagnoses (Knapen and Vancampfort, 2013; Gordon et al., 2017; Herring et al., 2010; Jayakody et al., 2014; Stonerock et al., 2015; Stubbs et al., 2017). The number of high-quality randomized controlled trials is limited, and many trials with clinically anxious participants have combined exercise with other treatments. Nevertheless, although limited, it is possible to make preliminary recommendations on how to prescribe exercise based on the available evidence.

In individuals with clinical anxiety disorders, exercise is effective for reducing symptoms both in combination with other treatments and in comparison, to nonactive control groups (Herring et al., 2010; Stubbs et al., 2017). Symptom severity does not alter these effects (89). For individuals with other medical problems, multimodal treatments do not appear to be more effective than exercise by itself (Herring et al., 2010).

In general, meeting the 2018 Physical Activity Guidelines for Americans recommendations is appropriate for reducing anxiety (2018 Physical Activity Guidelines Advisory Committee). These guidelines recommend that adults accumulate at least 150 min · wk<sup>-1</sup> of moderate intensity PA (e.g., walking) or 75 min · wk<sup>-1</sup> of vigorous intensity PA (e.g., running, fast cycling, or the equivalent combination thereof). They also recommend that adults engage in muscle-strengthening exercise (e.g., push-ups, yoga, weight training) for all major muscle groups at least two times per week. Beyond those general guidelines, systematic reviews of exercise effects on anxiety symptoms provide specific guidance to inform Ex Rx.

**Frequency.** In the general population, the effects of exercise appear to be greatest when sessions occur three to four times per week (Wipfl et al., 2008). In individuals with anxiety disorders, weekly exercise frequency was not associated with anxiety reduction, nor was an optimal frequency identified (Stubbs et al., 2017). In individuals

with primary diagnoses of other medical conditions (e.g., cardiovascular disease, fibromyalgia, multiple sclerosis, cancer), effects were greatest for programs held three or five times per week (Herring et al., 2010).

**Intensity.** In the general population, moderate and vigorous intensity PA (i.e., exercise) reduce anxiety (Wipfl et al., 2008). Comparative effectiveness trials in individuals with anxiety disorders are limited, but based on the available trials, moderate-to-vigorous intensity physical activity (MVPA) may be effective for reducing anxiety symptoms (Jayakody et al., 2014). In individuals with primary diagnoses of other medical conditions, light, moderate, and vigorous intensity exercise were all associated with reduced anxiety (Herring et al., 2010). There is some evidence that higher intensity aerobic exercise programs (e.g., treadmill running at 60%–90% maximum heart rate [HRmax] or 60% VO<sub>2</sub>max or greater) had greater effects for decreasing anxiety than lower intensity ones (e.g., walking below 60% HRmax or VO<sub>2</sub>max) (Aylett et al., 2018).

**Time.** In the general population, exercise has acute effects that reduce state anxiety following exercise sessions ((2018 Physical Activity Guidelines Advisory Committee), and there does not appear to be a minimum bout length for these effects. Anxiety reductions are evident following bouts lasting 1–30 min and may increase for bouts lasting 61–90 min (Wipfl et al., 2008). Effects are evident in programs lasting from 4 to 15+ wk; however, effects may taper over time. In individuals with anxiety disorders, longer exercise programs are associated with greater reductions in anxiety symptoms but little is known about bout duration requirements (Jayakody et al., 2014; Stubbs et al., 2017). In individuals with other medical conditions, program length and session duration both appear to influence the size of treatment responses. The largest responses have been found from sessions lasting 30+ min and programs lasting 3–12 wk. (Herring et al., 2010).

**Type.** Both aerobic and resistance exercise training appear to be effective for reducing symptoms of anxiety in healthy and clinical populations (Jayakody et al., 2014; Wipfl et al., 2008). Resistance training may reduce anxiety more in healthy populations than in populations with physical or mental illness (Gordon et al., 2017). It is not clear whether combining different types of activity leads to greater reductions in anxiety.

## Depression

Exercise is effective for both reducing depressive symptoms in people with and without clinical depression and for reducing the odds of a clinical diagnosis in those who started with a clinical diagnosis of depression. The effects of aerobic exercise are more profound among individuals who are clinically depressed (Cooney et al., 2013; Rethorst et al., 2009). In individuals with depression, aerobic exercise has proven to be as effective as psychotherapy or pharmacotherapy for reducing depressive symptoms (Cooney et al., 2013; Rethorst et al., 2009). Exercise is also more effective for reducing depression than bright light therapy and other controls (Cooney et al., 2013).

**Frequency.** The cumulative frequency of exercise matters more for individuals with depressive disorders than those without (Rethorst et al., 2009). Programs with 12 or fewer days of exercise have inconsistent effects; however, programs lasting 13 or more days consistently reduce depressive symptoms in individual samples.

**Intensity.** There is not enough evidence to indicate that one intensity is more effective than another for reducing depressive symptoms. PA at any intensity level appears to be effective for reducing depressive symptoms (Cooney et al., 2013; Rethorst et al., 2009). Even though more evidence has been collected on moderate-to-vigorous than light PA, it appears that exercise at all intensities is beneficial for reducing depressive symptoms.

**Time.** Exercise has acute or immediate effects on core affective states that can be useful for temporarily alleviating depressive symptoms after exercise (94,95). Bouts as brief as 20 min appear to be sufficient to reducing depressive symptoms in individuals without depressive disorders (Rethorst et al., 2009). For individuals with depressive disorders, 45 min is the recommended bout length (Rethorst et al., 2009).

**Type.** The effects of aerobic exercise on depressive symptoms have been characterized better than the effects of flexibility exercises (Cooney et al., 2013). In general, both aerobic and resistance training reduce depressive symptoms (Cooney et al., 2013; Rethorst et al., 2009; Gordon et al., 2018; Rethorst and Trivedi, 2013). Mixed

programs including both aerobic and resistance training components appear to be more effective than programs with only one form of training; however, this conclusion is based on limited evidence (Rethorst et al., 2009). For individuals with depressive disorders, both aerobic and resistance exercises reduce depressive symptoms (Cooney et al., 2013). Exercise produces similar effects on depressive mood to stretching, meditation, and relaxation (Cooney et al., 2013).

## References

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