Emotions in

EXERCISE AS AN ANXIETY INTERVENTION

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Motion

Review the research on what types of exercise can mitigate symptoms of anxiety, so you can better understand this complex relationship and what it means for your clients (and you!).

In the gym, we expect to use our body's full range of *motion.* In life, we're entitled to a full range of *emotions,* too. Provided we're able to express and manage our emotions appropriately, this is healthy. But for some people, emotions can affect health, well-being and self-care, including eating and exercising adherence and habits. One of the most common among these emotions is anxiety.

At this very moment, nearly 1 in 5 Americans is living with an anxiety disorder, according to the Anxiety and Depression Association of America. In fact, anxiety disorders are the most common mental health issue in the United States, affecting 40 million U.S. adults (ADAA n.d.). Given that statistic, there's a good chance that fitness professionals will encounter clients, gym members and colleagues who are experiencing the effects of anxiety-related conditions.

Compassion and education are critical skills that can help fitness professionals be more accepting and understanding in working with these populations. It's important that we understand how exercise can be helpful to people with anxiety, but it is equally important to understand the unique barriers and challenges that accompany anxiety so we can appropriately support our clients. The research in this article is intended to provide a basic understanding of anxiety and anxiety-related disorders and how to put that information to use, illuminating the role of exercise in diminishing the symptoms associated with anxiety, worry and stress.

Spot the Symptoms of GAD

Women are twice as likely as men to be affected by generalized anxiety disorder, and GAD often occurs along with depression (ADAA n.d.). GAD affects the way we think and feel, but it can also lead to physical symptoms.

POSSIBLE SYMPTOMS OF GAD

- a sense of fear or dread that is ongoing and interferes with daily functioning
- worry that is exaggerated/excessive (disproportionate to the event or situation) and cannot be controlled
- restlessness or nervousness
- being irritable or feeling on edge
- lack of focus or difficulty concentrating
- being easily fatigued
- muscle tension that may also include headaches, sweating and nausea
- sleep disturbances, including difficulty falling or staying asleep, restlessness, or unsatisfying sleep

IMPORTANT ADDITIONAL CRITERIA

- Excessive anxiety and worry about a number of events or activities must occur more days than not for at least 6 months.
- At least three of the symptoms listed must be present for more days than not over the previous 6 months.

If these criteria and symptoms are present in a client or loved one, encourage the person to talk with a mental health professional or other healthcare professional right away.

Source: APA 2013; NIMH 2018.

EVERYDAY ANXIETY VERSUS ANXIETY DISORDERS

Knowing the difference between everyday anxiety and anxiety disorders can help fitness professionals understand what some of their clients are experiencing. According to the American Psychological Association (2019), anxiety is "characterized by feelings of tension, worried thoughts and physical changes." People with anxiety often struggle with intrusive, unwanted, distressing thoughts, worries and concerns, and they may experience physical symptoms that include sweating, dizziness, increased heart rate and trembling.

Anxiety is among the many emotions we experience as we navigate life. We may fear an impending move or be troubled about a family member facing a difficult situation. We might get anxious about an upcoming review at work or an important certification exam. At some point, many of us will worry about health concerns (our own or those of a loved one), parenting challenges, career changes and financial stressors.

While we all feel anxious from time to time, our level of anxiety is relative to our tolerance for distress—and our perception of how well we believe we can manage the situation at hand. For some people, however, anxiety doesn't feel manageable. It feels overwhelming. When worry, fear and uncomfortable thoughts and emotions don't go away, get worse over time, or interfere with daily activities, job performance or relationships, it could be the sign of an anxiety disorder.

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), published by the American Psychological Association (2013), categorizes anxiety into different types of anxiety-related disorders. (The DSM-5 is the diagnostic handbook used by healthcare professionals in the United States and much of the world to define mental health disorders, listing symptoms and criteria to standardize care and consistency in diagnosis.) One of the most common anxiety-related disorders listed in the DSM-5 is generalized anxiety disorder (GAD), which affects 6.8 million adults, or 3.1% of the U.S. population (ADAA n.d.). See "Spot the Symptoms of GAD," left, for more information.

ANXIETY DISORDERS: CAUSES AND TREATMENTS

According to the ADAA, anxiety disorders develop from a complex set of risk factors, including genetics, brain chemistry, personality and life events. Behavioral and lifestyle choices, serious medical conditions and chronic unrelenting stress can also increase a person's risk of developing an anxiety disorder (ADAA n.d.).

It's important to note that, just as it's out of scope for fitness professionals to diagnose a physical medical problem, it's not safe or recommended to diagnose a mental health disorder. However, being aware of the signs and symptoms can help us know when it's time to recommend that a client seek guidance from a doctor or a licensed mental health professional, such as a counselor, psychologist or psychiatrist. This can be a tremendous help to clients because, though these mental health issues

are highly treatable, only 36.9% of people who have them are receiving treatment (ADAA n.d.). By referring clients out, fitness professionals may be able to help them seek treatment and, ultimately, find relief.

Currently, effective treatments for anxiety disorders include conventional treatment options, alternative therapies and holistic approaches (see "Typical Treatments for Anxiety," page 31). Among the holistic approaches, exercise has been suggested as a supplemental treatment for those with high anxiety sensitivity. For example, in a study conducted by Smits et al. (2008), participants with heightened levels of anxiety were randomly placed in a 2-week exercise intervention group, a 2-week exercise-plus-cognitive-restructuring intervention group or a control group. Both of the exercise groups showed significant anxiety reduction compared with the control group. (Interestingly, the addition of the cognitive component "did not facilitate the effects of the exercise intervention.") While research into exercise and mental health—including anxiety and anxiety-related disorders—is still in its infancy, what follows is an overview of the encouraging research to date.

RESEARCH ON EXERCISE AND MENTAL HEALTH

As far back as 1988, research has demonstrated a positive correlation between physical activity and mental health. In data analyzed from four surveys involving 56,000 participants over 10 years, it was concluded that "physical activity is positively associated with good mental health" when *mental health* is defined as "positive mood, general well-being, and relatively infrequent symptoms of anxiety and depression." Results were independent of socioeconomic status and involved both younger and older men and women (Stephens 1988).

Exercise may also have preventive benefits: The objective in a more recent study was to determine a link between regular physical activity and mental disorders, including anxiety, among adults in the United States. Regular physical activity was reportedly associated with a significant decrease in the occurrence of anxiety disorders (Goodwin 2003).

RESEARCH ON EXERCISE AND ANXIETY

A recent review of 49 studies evaluated exercise versus other treatment options as an intervention for treating symptoms of anxiety (Wipfli, Rethorst & Landers 2008). In these randomized controlled studies, results revealed greater reductions in anxiety among exercise groups than in groups receiving other forms of anxiety-reducing treatment. Reported benefits included

- anxiety reduction in male and female participants of all ages and fitness levels, including those with anxiety disorders;
- reduced anxiety in those who had both lower and heightened levels of anxiety; and
- diminished anxiety after exercise regardless of intensity, duration or type of exercise.

Anxiety disorders are the most common mental health issue in the United States, affecting 40 million U.S. adults.

Weinberg & Gould (2018) report that much of the research on exercise and anxiety is focused on reduction of state anxiety. **State anxiety** is a reflection of behavior or mood in response to a situation in the moment (acute or short-term anxiety), whereas **trait anxiety** is a reflection of personality, a disposition that influences behavior (a long-term or chronic condition). Results here revealed greater reductions of anxiety in exercise groups than in groups receiving other forms of anxiety-reducing treatment.

Some longer-term studies have also reported positive effects. For example, one review focused on the impact of physical activity in improving feelings of low energy and fatigue, noting that these feelings are associated with anxiety and other conditions. The study showed a positive correlation between exercise and symptom reduction; 10–20 weeks of physical activity was shown to improve energy and a sense of vitality and thus to reduce feelings associated with anxiety (O'Connor & Puetz 2005).

Weinberg & Gould caution that while a positive correlation exists between exercise and diminished symptoms of anxiety, there is not a direct cause-and-effect relationship. Rather, exercise appears to improve mood states, which in turn reduces symptoms of anxiety.

Ströhle (2009) reports that, though we don't know the underlying mechanisms responsible for the mediating effects of exercise on anxiety, it is likely to be a combination of psychological and neurobiological mechanisms. However, for exercise to be recommended in a clinical setting and applied among health and fitness practitioners, more research is needed on the clinical effects of exercise and how exercise interacts with other standard treatment approaches.

CHALLENGES IN EXERCISE PROGRAMMING

While we know that exercise can reduce symptoms of anxiety, lower stress and improve mood states, the research is not conclusive, nor is it comprehensive enough for us as health and fitness professionals to effectively design exercise programs for people with anxiety disorders. So far, "no general concept for a therapeutic application of physical activity has been developed," say Meyer & Broocks (2000). Ströhle agrees: "Although the evidence for positive effects of exercise and exercise training on depression and anxiety is growing, the clinical use, at least as an adjunct to established treatment approaches like psychotherapy or pharmacotherapy, is still at the beginning."

Studies are not conclusive in terms of optimal intensity, frequency, duration and mode of exercise needed to mediate symptoms of anxiety. And with the wide range of anxiety disorders and the various clinical implications of each one, the challenge of exercise prescription becomes even more pronounced (Ströhle 2009). "Future research will require robust experimental designs and greater attention to critical methodological details including . . . well-validated instruments to assess anxiety before and following treatment," according to Stonerock et al. (2015).

That said, knowing the *existing* study results may be helpful in the creation of individualized workout programs.

MODALITY

One study focused on differences in modes of exercise and emotional changes pre- and postexercise. Participants in this study engaged in aerobic exercise, circuit training and tai chi. All three types of exercise "produced significant reductions in anxiety" and helped improve feelings of anger, sullenness, resentment and tension from stress. It was also noted that each of the modalities resulted in the same positive effect on emotional state and lowered stress (Frith, Kerr, & Wilson 2011). Also, in a review by Paluska & Schwenk (2000), it was reported that regular physical activity may play a pivotal role in helping to relieve anxiety symptoms. Both publications reported that all modes—aerobic, strength and flexibility training—appear to be equally effective.

INTENSITY AND DURATION

In the previously mentioned review of 49 studies, all durations of exercise reduced anxiety, though greater effects were noted when exercise was performed at moderate intensity for periods up to 30 minutes. State anxiety was reportedly reduced after aerobic exercise with intensities as low as 30%–70% of maximal heart rate (Wipfli, Rethorst & Landers 2008).

For anaerobic activities such as weightlifting, state anxiety was reduced at intensities as low as 30%–50% of maximal heart rate. A different study examined improvements in affect (positive changes in feelings and emotions) as a result of resistance training. Findings supported that moderate-intensity resistance training was responsible for the greatest improvement in affect and positive affective responses (Arent et al. 2005). Further, Strickland and Smith (2014) reported this: "Resistance training at low-to-moderate intensity (<70% 1 repetition maximum) produces the most reliable and robust decreases in anxiety."

ROUTINE AND REGULARITY

Making exercise a regular part of a person's lifestyle is also vital. In the review of 49 studies, pre-exercise levels of state anxiety returned within 24 hours of exercise and sometimes as soon as 4–6 hours afterward. Not surprisingly, longer training periods conducted over weeks (versus hours or days) were shown to have a greater impact on positive mood change and, thus, lead to a greater reduction in anxiety levels.

It is vital that clients realize exercise is not a panacea or a quick fix. One way of describing it to them: Exercise is analogous to cartilage. Cartilage offers a buffer between our bones, just as exercise can buffer feelings of worry and fear. However, like cartilage, exercise must remain in place consistently to mitigate symptoms of anxiety. While it won't magically erase all anxiety, research shows it will soften the effects and offer some relief, but it will only have lasting benefits if done routinely.

RESEARCH ON MOTIVATION

A study by Gill et al. (2013) determined that physical activity positively contributes to all aspects of quality of life, including physical, social, emotional, spiritual and cognitive well-being.

Typical Treatments for Anxiety

For people with anxiety and anxiety disorders, one or more of these (and other) treatment options can be used to offer relief and improve overall quality of life. Type and duration of treatment will depend on the symptom severity, the type of anxiety or anxiety-related disorder, and how the person responds to each treatment option. Some approaches, particularly the holistic ones, may be used for prevention or for coping.

CONVENTIONAL TREATMENTS

- medication
- psychotherapy (aka talk therapy)

ALTERNATIVE THERAPIES

- acupuncture
- biofeedback
- neurostimulation

HOLISTIC APPROACHES

- breathing exercises
- exercise—including yoga, aerobic exercise and strength training
- guided imagery
- healthy diet
- mindfulness and meditation
- progressive muscle relaxation
- stress management techniques

Their findings suggest that enhanced quality of life might serve as better motivation for physical activity than traditional outcome-based fitness goals. Further, if we do subscribe to outcome-based fitness goals, we should tailor them to hold meaning and value for each individual. It was noted that participants in this study rarely mentioned the significance of traditional fitness measures—such as frequency, duration and intensity—though we as fitness professionals often focus on these measures versus the emotional and social benefits of exercise. Here are a few other takeaways from anxiety-related research:

REFOCUS CLIENTS' FITNESS GOALS

Segar, Eccles & Richardson (2011) suggested that we "rebrand" exercise and focus on quality of life when motivating individuals to engage in and sustain physical activity. In this yearlong study, participants (women ages 40–60) initially placed equal value on goals related to healthy aging, current health and quality of life, but quality-of-life goals translated to higher levels of exercise participation. The study suggested that disease prevention and longevity may not have the immediate impact that other daily priorities have. Thus, we should shift our focus "from medicine to marketing" and consider that "immediate payoffs motivate behavior better than distant goals."

PARTNER WITH HEALTHCARE PROS

In a study of physical activity as a self-management strategy for anxiety sufferers, the purpose was to differentiate between anxiety sufferers who managed their disorder with exercise and those who did not, as well as what facilitated engagement and what impeded it. Findings revealed that a recommendation from a physician or other healthcare professional had the greatest positive impact on facilitating exercise, thus noting the critical role of healthcare professionals in recommending and supporting engagement in exercise as a supplement to treatment (Pelletier et al. 2017).

AVOID PAIN AND NEGATIVITY

As mentioned earlier, resistance exercise at low intensities has been found to foster positive results in diminishing the symptoms of anxiety. Bibeau et al. (2010) also found that resistance exercise at higher intensities can have the *opposite* effect. The study suggested that the goal for most individuals, especially novice exercisers, is to maximize pleasure and avoid pain—therefore to shy away from activities that generate negative feelings, including exercise. So it would make sense that, as health and fitness professionals, we offer programming to mitigate negative feelings about exercise and promote positive effects. Simply put, we must ensure that no anxiety is being generated by the workout itself or by anything related to it.

BE AWARE OF UNSEEN BARRIERS

It's important to acknowledge that exercise requires motivation and energy, both of which are often hijacked by anxiety. One study noted that while physical activity has been shown to reduce

Some Questions That Remain

Before we can dictate exercise programming aimed at reducing symptoms of anxiety, research must delve into and answer these concerns:

- Is there an optimal frequency, intensity, duration and/or mode of exercise for mediating symptoms of anxiety and anxiety-related disorders?
- Can we tailor physical activity recommendations to address each of the different anxiety-related disorders?
- How can exercise be incorporated into a therapeutic treatment plan that includes medication and/or psychotherapy for a more comprehensive, integrated treatment approach?
- What are the economic benefits to health care if providers (medical doctors, mental health practitioners and fitness professionals) work collaboratively in treatment, with exercise becoming part of an integrative model to treat anxiety?

anxiety and other disorders, physical activity was challenging for 50% of those affected (Pelletier et al. 2017). Further, knowledge is still lacking on the best way to address depression- and anxiety-related symptoms that prevent people from participating in and benefiting from exercise (Ströhle 2009). As health and fitness professionals, it's important that we understand this dilemma and that we know in theory what exercise can do, but also that we respect in practice the challenges sufferers face.

DOING WHAT WE CAN WITH WHAT WE KNOW

In summary, exercise can supplement other treatment approaches to alleviate symptoms of anxiety. Exercise is affordable and accessible, and it's available to everyone. While we can't yet design exercise programs specifically targeted to treat anxiety disorders, we can promote exercise as an intervention that treats the mind as much as the body. We can further shift the focus from outcome-based fitness goals, such as weight loss and fat loss (visible on the outside), to improved quality of life. From here, we can educate our clients, friends and family, and we can change the narrative from focusing solely on how exercise makes us *look* to include how it makes us *feel*.

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References for this article available online at magazine.nasm.org.

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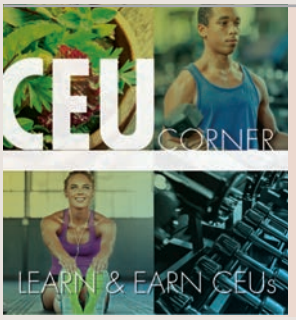

CEU QUIZ: Emotions in Motion: Exercise as an Anxiety Intervention

LEARNING OBJECTIVES: After reading the article, you should be able to:

1. Explain the difference between everyday anxiety and an anxiety disorder.
2. Identify and list the symptoms of an anxiety disorder that may warrant treatment.
3. Summarize the current research on exercise as an intervention for anxiety.
4. Discuss the unique exercise challenges faced by people with an anxiety disorder.
5. Adapt exercise programming to help prevent or relieve some anxiety symptoms.

1. State anxiety is _____.

a. a reflection of personality, a disposition that influences behavior
b. an outcome resulting from moderate-intensity exercise
c. a type of anxiety that we are born with
d. a reflection of behavior or mood in response to a situation in the moment

2. Which statement is true about generalized anxiety disorder (GAD)?

a. GAD often occurs along with depression.
b. GAD affects 40 million adults.
c. GAD affects twice as many men as women.
d. GAD does not typically affect day-to-day life and relationships.

3. Which statement is true about the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5)?

a. It is published by the American Mental Health Association.
b. It specifies criteria that mental health and medical providers refer to before they diagnose individuals with anxiety or other types of disorders.
c. It is a diagnostic handbook designed for fitness professionals to use in assessments.
d. It categorizes all anxiety disorders under the umbrella of generalized anxiety disorder.

4. Anxiety disorders develop from a complex set of risk factors, including _____.

a. genetics and brain chemistry
b. life events
c. personality
d. all of the above

5. Which of the following is *not* a likely indication of an anxiety disorder?

a. worry about a specific event—such as job loss or a certification exam—for up to 6 months
b. worry that is exaggerated/excessive (disproportionate to the event or situation) and cannot be controlled
c. excessive anxiety and worry about a number of events or activities that occur on more days than not for at least 6 months
d. at least three symptoms of anxiety listed in the DSM-5 that occurred on more days than not over the previous 6 months

6. In a review of 49 studies on treating anxiety symptoms, the effect of exercise versus other treatment options revealed that _____.

a. training periods of greater than 30 minutes have the greatest impact on positive mood change
b. exercise was effective in reducing symptoms in people with all levels of anxiety (low to high)
c. all durations of exercise reduced anxiety, though greater effects were noted with high-intensity exercise
d. pre-exercise levels of state anxiety typically returned within 1 hour following exercise

7. With respect to anxiety disorders, fitness professionals can safely _____.

a. make a preliminary diagnosis and then refer clients to a mental health professional
b. self-diagnose their own mental health disorder but not that of a client
c. be aware of symptoms and refer clients to a mental health professional for diagnosis
d. give clients a prescribed nutrition and exercise program based on anxiety research

8. In a study by Segar, Eccles & Richardson (2011), which of the following types of goals translated to higher levels of exercise participation?

a. weight loss
b. current health or disease status
c. quality of life
d. physical appearance

9. Anxiety affects _____ million U.S. adults.

a. 30
b. 40
c. 60
d. 80

10. In a study by Pelletier et al. (2017), a recommendation from a _____ had the greatest positive impact on facilitating exercise.

a. personal trainer
b. group exercise instructor
c. healthcare professional
d. close friend or family member

11. There is a _____ relationship between exercise and reduced symptoms of anxiety.

a. direct cause-and-effect
b. complicated and as-yet-undefined
c. dose-specific
d. placebo-effect

12. The study by Bibeau et al. (2010) on resistance training and anxiety found that _____.

a. low- to moderate-intensity training can lower anxiety, while high-intensity training can increase it
b. high-intensity training reduces anxiety by distracting clients from their emotions
c. all intensities of training have similar positive effects on anxiety
d. all intensities of training will cause a slight increase in anxiety

13. Pelletier et al. (2017) found that _____ of people with anxiety find exercise to be challenging, likely due to an anxiety-related lack of motivation and energy.

a. 5%
b. 25%
c. 40%
d. 50%

14. Anxiety can be characterized by _____.

a. trembling and decreased heart rate
b. sweating, trembling and decreased heart rate
c. sweating, trembling and increased heart rate
d. No physical symptoms are attributed to anxiety.

15. In terms of exercise modalities' effect on emotional state and lowered stress, which of the following is true?

a. Aerobic exercise, circuit training and tai chi all resulted in the same positive effect.
b. Aerobic exercise was more effective than circuit training or tai chi.
c. Circuit training was more effective than aerobic exercise or tai chi.
d. Tai chi was more effective than circuit training or aerobic exercise.

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