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MANAGEMENT OF STRESS THROUGH EXERCISE

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ABSTRACT
Exercise can be an effective component of a stress management program, and all types of exercise can be beneficial for stress management. Exercise programs consistent with the current recommendations to improve health can be prescribed to manage stress. Fitness professionals should recognize that it might be necessary to refer a client to a psychologist or other health care provider to help develop strategies for managing stressors that produce chronic and acute episodic stress.

Keywords
Stress; Stimulus; Reduction; Physical Activity; Mind-Body Exercise; Yoga; Chronic Stress; Aerobic Exercise.

1. MEANING OF STRESS

Physiological or biological **stress** is an organism's response to a stressor such as an environmental condition or a stimulus. Stress is body's response to a negative stimulus. The body's way to respond to stress is by sympathetic nervous system , which results in the fight-or-flight response. Because the body can not remain in this state for long periods of time, the parasympathetic system returns the body's physiological conditions to normal (homeostasis). In humans, stress typically describes a negative condition or a positive condition that can have an impact on a person's mental and physical well-being.

"Stress" is a commonly used term, and it is often used with different meanings. The standard definition for stress that will be used in this article is the disruption of the body's homeostasis or a state of disharmony in response to a real or perceived threat or challenge. The threatening or challenging situation is referred to as a "stressor." When a person encounters a stressor, the body prepares to respond to the challenge or threat. Some initial changes take place to prepare the body to react and prepare for a challenge by releasing certain hormones like cortisol. These responses include increases in heart and respiration rates, blood pressure, perspiration, and energy production. There also is a suppression of immune function, production of β-endorphin (the body's natural pain killer), and increased acuity of the senses. These changes make up the fight-or-flight response, which prepares the body to cope with the stressor. If the stressor is perceived as negative or more as a threat than as a challenge, cortisol production is increased. Cortisol is involved in energy production but also suppresses immune function.

Although there is a general stress response pattern, there can be variations in the response according to the characteristics of the stressor Individuals tend to respond differently based on the familiarity of the stressor. For example, the perceived level of stress and physiological response when giving a presentation to a group of work colleagues will likely be less than when presenting to an unfamiliar group. The stress response also varies depending on the level of perceived control one has over the stressor If there is a way for one to actively cope with the stressor that is reasonable, then the individual usually perceives more control over the situation. Consider an individual who has to take a certification examination for work and has 6 months to prepare. He can adjust his schedule to accommodate study time. However, waiting for medical test results that

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show whether one has a serious illness does not allow a sense of control over the stressor, and the individual passively endures the stressor or may try to avoid the stressor. With this uncontrollable type of stressor, there is a more negative reaction with greater productions of cortisol, which can have damaging health effects because of the suppression of immune function

It is important to note that not all stress is bad. Everyone experiences a certain amount of stress on an almost daily basis, and it cannot be completely eliminated. Stress becomes a problem when too much is experienced, and it has a negative impact on behaviors, relationships, and health. The term "eustress" refers to positive stress that is associated with improved performance and productivity. "Distress" is negative stress that is associated with performance decrement and negative health consequences. The individual's perception of the stressor and coping resources determine whether a situation is eustress or distress. College graduation is a stressor for most. The student who has a job or who has been accepted to a graduate program likely perceives the stress of graduation as eustress, whereas the student who has student loans and no immediate plans of a job or further education perceives distress.

Another consideration of stress is whether it is acute or chronic. "Acute stress" is what an individual experiences at the time the stressor is encountered. The stress response is activated, and the body returns to homeostasis once the challenge of the stressor is removed or the person successfully manages the situation. For example, an individual on the way to an important meeting gets into a traffic jam and realizes she is going to be late; the stress response starts. When she calls her boss and learns that she can conference into the meeting while on the road, the stress response subsides with the resolution of the situation. When an individual experiences acute stress on a consistent basis, such as with over committing at work or constant worrying, it is referred to as "acute episodic stress". Individuals who experience acute episodic stress often show signs and symptoms of stress that can negatively impact physical and psychological health. These individuals can learn how to change behaviors and manage their stress to prevent these consequences.

"Chronic stress," however, is not so easily resolved. This type of stress is associated more commonly with negative health concerns. Chronic stress results when there are constant multiple stressors or major life stressors present. Money, work, and the economy were the most commonly reported factors contributing to chronic stress. Additional significant stressors include relationships, family responsibilities, family and personal health problems, job stability, and personal safety. Major events, such as the death of a loved one, divorce, and moving also can produce chronic stress.

2. **HEALTH AND STRESS**

Just as stress can increase the risk for chronic diseases and other health problems, dealing with chronic conditions and poor health can increase the amount of stress one experiences. Stress also influences behaviors that affect health. Diet choices, sleep habits, and drug use are behaviors that are often negatively affected by stress .

3. MANAGEMENT OF STRESS

There are general recommendations for stress management that can be applied in most situations. However, keep in mind that there are individual differences and preferences. A comprehensive stress management program will include specific techniques prescribed on an individual basis.

4. STRESS AND EXERCISE

Exercise and stress research has typically focused on aerobic exercise. There have been consistent findings that people report feeling calmer after a 20- to 30-minute spell of aerobic exercise and the calming effect can last for several hours after exercise. Recently, there has been an increased amount of research on the role of mind-body types of exercise such as yoga or Tai Chi. Unfortunately there is somewhat limited research on the role of resistance exercise in stress management.

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The exact physiological mechanisms to explain how exercise improves stress have not been delineated. Human and animal research indicates that being physically active improves the way the body handles stress because of changes in the hormone responses, and that exercise affects neurotransmitters in the brain such as dopamine and serotonin that affect mood and behaviors. In addition to the possible physiological mechanisms, there also is the possibility that exercise serves as a time-out or break from one's stressors. A study that tested the time-out hypothesis used a protocol that had participants exercise but did not allow a break from stress during the exercise session.

Summaries from recent reviews on yoga or Tai Chi clinical trial interventions indicate that these mind-body types of exercise can be effective in reducing stress. The authors of these reviews suggest that the results should be viewed with caution because study quality was varied. However, it should be noted that reductions in stress reported in one review were similar to or greater than reductions from other types of commonly used stress management techniques. In addition to understanding how exercise can help manage stress and the types of exercise to recommend for stress management, it is important to understand common barriers that might affect exercise participation in high-stress individuals. Lack of time is the most commonly reported exercise barrier for individuals in general. A lack of motivation, fatigue, poor sleep habits, and poor dietary habits are factors associated with stress that can negatively impact exercise compliance and adherence. Common exercise barriers and stress-related health problems should be taken into consideration when developing an exercise prescription for high-stress individuals.

5. NEED BASED QUANTUM OF EXERCISE TO MANAGE STRESS

Fortunately, the recommendations for exercise in the role of stress management fit with the current health recommendations. The proposed physiological adaptations thought to improve the way the body handles stress and recovers from stress can occur with a regular moderate to vigorous aerobic exercise program, such as the recommendations of 150 minutes of moderate-intensity aerobic exercise per week or 75 minutes of vigorous-intensity aerobic exercise per week. If an individual is using exercise as a time-out from stressors, shorter duration activity can serve the purpose, especially when lack of time or fatigue is a concern. Consider an individual who reports significant work-related stress. Breaking the exercise into two 10- to 15-minute sessions, one before work and one at lunch time when possible, can help combat stress throughout the day. Although there is not a lot of research with resistance exercise and stress management, resistance exercise can be used to provide a time-out from one's stressors. Because resistance training produces different exercise adaptations compared with aerobic exercise, it might not affect the way the body physiologically reacts to stress as aerobic exercise does. However, the acute effect of a time-out to reduce stress can be beneficial. In addition, individuals can receive the numerous health benefits associated with resistance training. The resistance exercise prescription for general health benefits of 2 to 3 days of exercise to target all of the major muscle groups performed at a moderate intensity of 8 to 12 repetitions can be recommended.The studies included in the recent reviews of Tai Chi and yoga indicate that sessions between 60 and 90 minutes performed 2 to 3 days per week were effective in reducing stress and improving feelings of well-being. A study conducted in a worksite environment showed that 15 minutes of chair-based yoga postures was effective in reducing acute stress when assessed by self-report and with physiological measures (e.g., respiration rate and heart rate variability parameters). This finding indicates that shorter duration sessions can be effective in reducing acute stress with this type of exercise.

In addition to the exercise prescription, other characteristics of the exercise session (e.g., group vs. individual) and the individual also are important considerations. Because of health consequences associated with stress, high-stress individuals are likely to be at increased risk for cardiovascular disease and cardiovascular events during exercise. Monitoring exercise intensity for those looking to "blow off steam" to

reduce stress might be a concern when the individual has high blood pressure or other cardiovascular risk factors that further the risk increase for cardiovascular events.

Group exercise or encouraging stressed individuals to find a workout partner is an excellent idea because it can provide a support network and accountability. However, there might be individuals who find a group setting intimidating or competitive, which could be counterproductive in managing stress. In addition, those who report stress because of work or family obligations might enjoy the solitude of exercising alone. Using a variety of exercises or nontraditional exercises (e.g.,exergaming, dance classes, yard work, or rock climbing) is a way to plan activities that are enjoyable to maximize adherence. Knowing individuals` exercise barriers and stressors will help with planning an exercise program that can address these variables to maximize the benefits for health and stress management.

6. CONCLUSION

Exercise can be an effective component of a stress management program for many individuals and should be recommended to help those who are dealing with acute, acute episodic, or chronic stress. An advantage of incorporating exercise into a stress management program compared with other stress management techniques is the well-documented physical and psychological health benefits of exercise. However, it is important to remember that exercise is only one component of a stress management program, and there might be situations that require assistance beyond the expertise of a fitness professional, especially in working with individuals who are experiencing acute episodic or chronic stress. Although exercise might be effective in helping an individual feel calmer who is dealing with these types of stress, it will not solve the problem of major chronic or regular stressors. It may be necessary to refer these individuals to resources who can help them to address their stressors, such as a psychologist or other health care providers. Everyone experiences stress, and not all stress is bad. Individuals who experience acute episodic or chronic stress are at increased risk for developing stress-related health problems. Research supports the idea that exercise can improve the way the body handles stress, and it can provide a time-out from stressors. Exercise programs meeting the current recommendations for health included within a stress management program can be effective in stress reduction. However, it is important to consider the individual`s stressors and physical activity barriers, activities the individual will enjoy, and the exercise setting. Prescribing exercise for individuals seeking stress management is recommended, but fitness professionals should recognize that some individuals will need additional assistance for managing stress and major life stressors.

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