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Review Article

The impact of exercise on mental health: a narrative review

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ABSTRACT

It has become increasingly clear that exercise not only improves physical health but also significantly affects mental well-being, presenting a non-pharmaceutical approach to manage various psychological conditions. This narrative review summarizes studies from the literature to understand the effects of exercise on mental health, particularly in depression, anxiety, and global psychological well-being. Results indicate that regular physical activity, including aerobic and resistance exercises, reduces depression and anxiety symptoms, improves mood, and enhances cognitive abilities. Theoretical models, such as the endorphin hypothesis and neurogenesis hypothesis, explain these benefits through mechanisms including endorphin release, reduced stress hormones, improved sleep, and neurogenesis. Evidence suggests that structured exercise programs can match the effectiveness of psychotherapy or medication with fewer adverse effects. The benefits of regular exercise have garnered attention from professionals, physicians, and policymakers, highlighting the necessity of incorporating exercise plans into mental health clinical practice. Additionally, this review advocates for more specific and personalized exercise interventions tailored to individual characteristics and preferences. It also aims to inform health and research agendas by specifying the optimal exercise type and intensity for eliciting desired benefits, and evaluating the potential for exercise interventions to sustain long-term psychological well-being.

Keywords: Exercise, Mental health, Depression, Anxiety, Physical activity

INTRODUCTION

Exercise has become a popular alternative to traditional and conventional drug interventions for depression and anxiety. People want to explore other ways to feel better than taking a pill. Exercise is a great way to feel good. It is fun and easy way to manage mild to moderate mental health disorders. People with a mental health disorder are less active than normal and increasing aerobic exercise reduces symptoms. The purpose of this review is to describe the study of how exercise may be beneficial for protection and recovery from mental health disorders through both physiological and clinical responses. In particular, we will discuss how aerobic exercise can be utilized to help manage depression, anxiety and mood swings as part of mental health therapy.

EXERCISE'S EFFECT ON MENTAL HEALTH

Aside from its physical health benefits, regular physical activity can enhance mental health through improved emotional well-being, reduced levels of anxiety and depression, increased self-confidence and improvement of cognitive functioning. These benefits are explained by the increased production of neurotransmitters (e.g., endorphins that act as natural painkillers) induced by regular physical activity.[1] No one type or intensity of exercise is necessary for these benefits; walking, swimming and yoga have all been shown to boost mental health, and the effects of exercise are the same across the lifespan-from the young to the old.

Physical activity, according to the American college of sports medicine, involves any voluntary physical

movement performed by the various muscle groups and characterized by energy expenditure that exceeds resting rates (the basal metabolic rate). This broad definition encompasses a wide variety of activities that can lead to better psychological wellbeing and overall health. Used in the right way and with proper diagnosis, exercise can be a powerful clinical tool for psychologists and psychiatrists.

THE IMPACT OF PHYSICAL ACTIVITY ON DEPRESSIVE DISORDER

Depression is a common mental health problem that's often treated with pharmaceutical and psychological therapies, but these do not help everybody, and there are difficulties with the long-term use of psychiatric medication. If antidepressants and psychotherapy are not effective, a growing body of research suggests that exercise can be an alternative first-line therapy for mild to moderate depression.[2] Overall, there is an abundance of data showing that those with higher levels of physical activity have less depression, and even well-controlled studies in diverse cultures that support the link between physical activity and reduced depression. High-intensity weight-training appears to have a greater impact on depressive symptoms than low-intensity training. Low-intensity weight-training also has the same effect on depression as the attention provided by a family physician.

When antidepressant medication was also given, older adults with depression experienced significantly greater symptom improvement than when they had either exercise or antidepressant medication alone.[3] Another study on college students found greater decreases in depression scores as the exercise dose increased. Those who exercised at moderate to vigorous levels for 30 minutes per day, three or more times a week experienced greater decreases in depressive symptoms compared with those in the lower dose group or a no-exercise control group. In a study of people with depression, reported that supervised exercise programmes reduced depressive symptoms to the same extent as antidepressants. Similarly, home exercise programmes provided similar benefit as antidepressants for individuals with depression.

But whether you need to achieve a certain intensity or perform a certain type of exercise remains to be seen. So far, the message from the evidence seems to be not so much 'walk before you run', but 'walk before you drown'.

THE IMPACT OF PHYSICAL ACTIVITY ON THE ANXIETY

While a number of studies have investigated the benefits of exercise on depression, fewer have been conducted on the effects of exercise on anxiety.[4] Exercise has been found to reduce anxiety sensitivity, providing a non-pharmacological intervention for anxiety disorders. Aerobic exercise is one of the best simple and affordable means of resolving anxiety. The national health service in England has published studies showing that exercising three times a week for 20 minutes at 70-90 per cent of the maximum pulse can reduce anxiety.[4] Cox et al reported significant reductions in anxiety with both aerobic exercise and resistance training. Smits et al also reported significant reductions in anxiety sensitivity following exercise interventions. At their best, however, exercise interventions have not reduced anxiety as much as psychopharmaceuticals. For example, in one study the only pharmaceutical that was superior to exercise for reducing symptoms of anxiety in people with panic disorder was clomipramine.[5] To sum up, exercise can improve feelings of anxiety but may not be as effective as medications for severe conditions-however, it remains a valuable treatment for anxiety alongside medications.

THE IMPACT OF PHYSICAL ACTIVITY ON THE STATE OF MIND

However, moderate amounts of exercise either maintain or raise a positive mood state, while relying on intense exercise can begin to diminish moods. Brain production of endorphins from exercise is tied in with feelings of elation and certain health benefits such as decreased anxiety and stress levels, thus promoting a 'runner's high' and good mood state.[6] Besides endorphins, exercise stimulates the release of the neurotransmitter's serotonin and dopamine, which are connected to mood and also happiness. Studies have found that exercise is strongly correlated with a reduction in anxiety, depression, and enhanced mood.[6] We need to conduct more research to establish the linkage between our physical activity and our mental health like how physical activity affects our emotional health. We need to conduct more research on how physical movement impact our emotional health.[7]

EXERCISE'S POTENTIAL DRAWBACKS AND RISKS

At the same time, although we are particularly sensitive to the mental health benefits of exercise, we should not ignore the physical harms and costs that could arise, whether through improper or excessive exercise. The overweight and those exercising vigorously are more prone to musculoskeletal injury. Mental health can be affected by physical limitations in movement as well as frustration, anxiety and depression.[8] Furthermore, vigorous exercise significantly increases the risk of acute heart attack in people with pre-existing heart disease. Overtraining can cause somatic and mental overexertion, that causes irritability, internal conflicts and diminished motivation. In some extreme cases, it can even result in exercise addiction that can be used as a way to cope with stress, often resulting in negative mental health outcomes. Hyper motivation toward appearance during exercise may also promote lower self-esteem and body dissatisfaction. Not meeting one's performance-driven goals may result in introduction or exacerbation of eating-disordered symptoms and illness. It also might not be realistic to shun exercise entirely, despite these risks, and should generally be enjoyed in reasonable amounts, without pushing self or

others too hard, and with professional help as needed, to maximize exercise for mental health with only a small upshot in monitored risk.[9]

STRATEGIES FOR INTEGRATING PHYSICAL ACTIVITY INTO MENTAL HEALTH TREATMENT PLANS

Mental health providers can partner with other healthcare professionals who are trained in exercise to develop individualized fitness plans for patients, which would involve assessing each patient's readiness for, and their commitment to, exercise, and teach participants about the links between exercise and mental health, including providing them with resources, such as fitness apps and workout plans, to help them initiate and sustain exercise.[10]

For example, physicians can encourage patients to allocate 30 minutes to moderate-level of exercise every day (for example, walking/jogging at a faster pace). The five A's model (Assess, advise, agree, assist and arrange) could be utilized depending upon the individual patient needs.

Try to make group exercise sessions available as these can foster support and a feeling that the patient is 'sticking with it'; second, monitor changes in exercise intensity and mood over time to create a greater sense of understanding of how the mental health benefits of exercise can be realized and the positive reinforcement that can accompany these benefits. This can give a sense of how well the intervention is working and how exercise is having beneficial effects.

Exercise can be worked into mental health treatment plans, and public-health professionals can work more collaboratively with healthcare professionals to help patients improve the management of their overall well-being. In order to do that, public-health professionals should encourage the creation of group exercises, patient education tools, archives of resources and tracking of progress.[11]

DISCUSSION

This narrative review highlights the compelling evidence supporting the role of exercise in improving mental health, specifically in reducing symptoms of depression and anxiety. The findings from the present review are consistent with earlier studies, which have shown that regular physical activity can be an effective intervention for mental health issues.

A study by Mikkelsen et al underscores that exercise has been linked to reduced symptoms of depression and anxiety across different populations, including individuals with chronic health conditions and those without clinical diagnoses. This suggests that exercise can serve as both a preventive measure and a treatment modality for mental health disorders.[13] Additionally, the review by Rebar et al supports the idea that even low to moderate-intensity physical activity can lead to significant improvements in mental well-being, thereby emphasizing the accessibility of exercise as a mental health intervention.[14]

Moreover, the mechanisms underlying the mental health benefits of exercise have been well-documented. For example, Meyer et al discuss how exercise can lead to the release of endorphins and other neurotransmitters that play a crucial role in mood regulation. This is consistent with the findings from the current review, which also suggests that these biochemical changes may contribute to the reduction in symptoms of depression and anxiety.[15]

Interestingly, the current review also aligns with findings from earlier research regarding the intensity and type of exercise. For instance, a meta-analysis by Schuch et al found that high-intensity aerobic exercise had a more substantial effect on reducing depressive symptoms compared to low-intensity activities, which supports the notion that exercise intensity may be an important factor in optimizing mental health outcomes by Schuch et al.[16]

However, it is important to note that exercise is not without its risks. Overtraining and excessive exercise have been associated with negative mental health outcomes, such as increased anxiety and depression, particularly when the activity is driven by obsessive motivations (Lichtenstein et al).[5] This underscores the importance of moderation and professional guidance in implementing exercise programs, especially for individuals with pre-existing mental health conditions.

In comparing the present review with previous studies, there is a clear consensus on the benefits of exercise for mental health. However, this review also highlights the need for more personalized exercise interventions tailored to individual preferences and capabilities. This is echoed in the work of Stubbs et al who emphasize the importance of patient-centered approaches in integrating exercise into mental health treatment plans.

CONCLUSION

There was growing evidence that exercise can help with mild to moderate mental health problems too, not to mention its well-known benefits for physical health. Regular exercise can reduce anxiety and depression, and help to increase positive feelings of wellbeing. It does this by releasing highly addictive neurotransmitters, such as endorphins, serotonin and dopamine, which are reported to reduce stress or anxiety, create feelings of euphoria, calm moods and increase the sense of happiness. The presence of exercise in a mental health treatment programme can help to improve overall wellbeing, relieve symptoms of anxiety and depression, and contribute to good physical health. In conclusion, although exercise has positive effects for mental health, it must be used with caution because excess can provoke negative implications. It should be moderated and led by a professional who has an

adequate background. Only then, can it provide its numerous benefits and reduce side-effects.

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