

# PHYSICAL EXERCISE AS TREATMENT FOR DEPRESSION IN GERIATRIC PSYCHIATRIC PATIENTS

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*ABSTRACT: This paper examines the relationship between physical exercise and depressive symptoms in geriatric psychiatric patients, and how physical exercise can be used to treat depression in these patients. Studies were conducted that led to the conclusion that physical exercise is successful in treating depressive symptoms most effectively in the elderly demographic. This paper includes research from Carneiro et al, Carter et al, Heinzl et al, the New York State Office of Mental Health (OMH), Rapp, and Rosenbaum et al. These reports demonstrate the ways in which physical exercise is beneficial in combatting depressive symptoms and disorders in patients over the age of 60.*

Many methods of treatment have been developed with the purpose of treating depressive symptoms in patients of differing demographics. Included among them are medication, psychotherapy, and homeopathic and natural remedies. Another proven treatment is physical exercise, which can be combined with other treatments to further reduce depressive symptoms. According to Heinzl, Lawrence, Kallies, Rapp, and Heissel (2015), physical exercise is associated with increased levels of oxygen and lower cortisol levels in the brain, which results in higher cognitive functioning and fewer depressive symptoms, primarily in patients over the age of 60.

## Literature Review

While physical exercise has been known to alleviate depressive symptoms, it has been determined that this decrease in symptoms is dependent not only on the type of exercise performed, but also on duration and intensity of the exercise. Carter et al. (2015, pp. 2-12) explores the correlation between physical exercise and depressive symptoms in children age 7 to 17. It was found that the effects of exercise on depressive symptoms were insignificant in children.

While general physical exercise in adults results in an increase in self-esteem and self-worth, a decrease in anxiety and depressive symptoms, and an overall improved mood. The same study discovered that this is not the case in adolescents and adults under age 60, unless exercise is performed in a specific manner. Some participants were prescribed a level of intensity for physical exercise, and others could choose the intensity level that they preferred. This study concluded that the types of exercise performed impacts the effects on depressed mood. The participants that exercised at their preferred intensity level yielded a greater reduction in depressive symptoms than those exercising at the prescribed intensity level. Furthermore, the effects of physical exercise in this demographic were not evident until at least six months after the intervention began (2015, pp. 2-12). This could be evidence of changes occurring in the brain as people age, suggesting that those under the age of 60 are less susceptible to depressive symptoms, have lower cortisol levels, and have higher cognitive functioning than those over the age of 60. The ability to perform the desired exercise at a preferred intensity level is something that is more likely to be a possibility at a younger age. As the body ages, participating in high intensity exercises for

extended periods of time becomes more physically challenging or harmful due to frail bones, loss of endurance and flexibility, resulting in more injuries. By having a prescribed exercise and intensity level, those over the age of 60 can benefit from relatively intense physical exercise, without the risk of injury or discomfort associated with higher exertion.

Depression is the most common mental health condition in geriatric patients for a multitude of reasons including the physical and mental challenges of aging. Compared to younger patients (those under the age of 60), there is a vast difference in level of independence, socialization, mobility, memory, cognitive functioning, and physical capabilities, which together lead to a depressive state. It is evident that while exercise based treatments for depressive symptoms can be moderately successfully implemented in adolescents and young adults, they are significantly more successful in older patients, over the age of 60. According to Heinzel et al., depression is the most common psychiatric condition among patients over the age of 60, and is best treated, in terms of exercise-based interventions, with specific types of activities performed in regulated circumstances (2015). It could be that this increased prevalence of depression with age is correlated to a loss of ability and physical functioning. Younger generations are less depressed because they are able to be more active and fit, and mood changes can result with a decreased activity level. By reintroducing physical exercise, these mood changes can be reversed by implementing a previously lost sense of ability, independence, strength, and overall well-being.

In the study detailed in Heinzel et al.'s report, various types of exercise plans were tested in geriatric patients over the age of 60. These included aerobic exercise, resistance training, and other alternative exercises, specifically tai chi and qi gong (2015). While each of these did have a positive effect on depressive symptoms, it was reported that the most effective cases included a combination of alternative exercises. Heinzel et al. commented that this is likely due to the

meditative nature of these exercises, which is also said to improve mental health and reduce depressive symptoms (2015). It is widely accepted that meditation is an effective means by which to treat and combat depressive symptoms and disorders, so in combining it with a physical exercise, the benefits the individual may experience increase. Another aspect of this study was the setting in which the exercise-based intervention took place. Some participants were given a home-based exercise plan and others were in a supervised group exercise plan. It was found that the group exercise participants had more success in decreasing depressive symptoms because socialization is a "natural antidepressant" (Heinzel et al., 2015). Isolation has shown to increase or even feed depressive symptoms, thereby worsening its negative effects. By adding socialization to the practice of meditative exercise, there can be even more benefits in combatting depressive symptoms because it is being targeted from every angle. In conclusion, Heinzel et al. reported that alternative group exercise under supervision had the greatest impact on the mental health and reduction of depression in geriatric psychiatric patients for this very reason (2015).

Physical exercise influences other bodily systems, such as brain functioning, which may serve as a preventative measure against other previously mentioned ailments due to aging that can result in depression. The condition of the body can affect the state of the brain, and vice versa. Detailed in a 2016 report by Rosenbaum et al., is a study on the link between physical exercise and cardiometabolic disease, which increases a person's risk of diabetes, heart disease, or stroke. According to the New York State Office of Mental Health (OMH), some lifestyle changes that reduce this risk include weight loss, healthy diet, and regular exercise (2009). While some antipsychotic medications, such as Olanzapine, Quetiapine, Chlorpromazine, and Thioridazine, have been effective in treating depression, they also put geriatric patients at higher risk for cardiometabolic disease

(OMH, 2009). Cardiometabolic disease is more likely to occur in older adults, making it challenging to treat these psychological conditions with medication. This makes physical exercise a safer alternative than medication for depression. Physical exercise is sufficient in treating not only depression, but also other mental disorders, such as schizophrenia, anxiety, and PTSD (Rosenbaum et al., 2016). This validates OMH's statement that there is a risk associated with the use of antipsychotic medications and physical health. A sedentary lifestyle not only puts people at risk for physical health conditions, such as cardiometabolic disorder and its comorbidities, but also depression, which the treatment of is complicated by the risks of medication. This leaves physical exercise as a safe treatment option that can improve both physical and mental health. It increases socialization and physical fitness, and decreases depressive symptoms and cardiometabolic risk factors.

Neurotransmitter levels are another cause of depressive symptoms, and these can be altered through physical exercise and increased oxygenation that comes with exercise. A study done by Carneiro et al. (2015, pp. 117-122) reported that low neurotransmitter levels, such as epinephrine, dopamine, and norepinephrine, have been linked to depressive symptoms. The report also states that participation in physical exercise can increase neurotransmitter levels, resulting in a reduction of depressive symptoms. Carneiro et al. (2015) found that the most effective way to alter the levels of these neurotransmitters and reduce depressive symptoms was to perform 40-50 minutes of exercise three times a week, for at least sixteen weeks. Because these neurotransmitters are present and can be altered in patients of all ages, physical exercise can aid in lessening depressive symptoms even in geriatric patients. In addition to decreasing depressive symptoms, implementing exercise plans in geriatric psychiatric patients has an array of other benefits which further promote mental health. Physical exercise can alleviate the fear and risk of falling as physical strength and balance are gained, and

can also encourage the older adult patients to be more independent as they age, rather than losing their independence, which can also lead to depression (Rapp, 2015).

## Discussion

While implementing physical exercise interventions in the geriatric psychiatric setting can be cost-effective, relatively risk-free, and highly successful in treating depression, it does come with challenges. According to Rapp in a 2015 report, these challenges can include: the presence of disability in patients, access to equipment and resources in facilities, multi-morbidity of conditions in patients which complicates the possibility of exercise-based treatment, a lack of awareness that physical exercise can be effective in treating a variety of conditions, the lack of acceptance society has for mental disorders, and the possible bias of therapists on the effectiveness of the physical exercise-based treatment in geriatrics (p.147).

If a patient has a disability or a comorbid condition, it physically becomes more challenging and dangerous, if not impossible, for them to participate in a physical exercise program. That said, there are other ways for a disabled patient to be active through modifying exercises. For example, they may still be capable of exercising in a seated position or even lying down. Also, many facilities do not have the equipment needed, such as exercise mats, cardio machines, or resources, such as a certified fitness trainer. These amenities would add an expense to the facility that could potentially be helpful for the patients, but detrimental from a business and finance standpoint. However, it is a possibility that by implementing a fitness program into the facility, they may save money in other areas, such as mental health care. Another key way that this treatment for depression is challenging is that many practitioners are unaware of just how beneficial physical exercise can be for elderly patients. They are often regarded as frail, but that does not need to be the case. They can

be both physically and mentally strong, as well as healthy through exercise if they are given the opportunity.

These challenges are things that can be overcome once it is recognized that physical exercise is a highly beneficial, and relatively risk-free activity to those of all ages, including those over the age of 60, in treating and preventing mental disorders and depressive symptoms. The first step in implementing such a helpful program is to get healthcare providers on board through education. By teaching them exactly how supervised group physical exercise combined with socialization can help their patients maintain their health and youth longer, there would be much support of exercise programs for geriatric patients.

### Conclusion

Physical exercise can be highly beneficial to both physical and mental health in psychiatric patients of all ages, yet the success rate in treating depression with exercise is higher in geriatrics than it is in adolescents and younger adults. The most effective exercise-based treatment program in geriatrics would be participating in meditative and moderately aerobic exercises three to five times per week, for at least sixteen weeks. According to these studies, implementing alternative exercises into geriatric psychiatry can result in less depressive symptoms in patients with comparatively few risks and more cost-effectiveness than typical treatments. Participating in physical exercise enhances both the physical and mental health state of depressed patients in a natural way, by altering brain chemistry and providing socialization, and is effective in treating depressive symptoms, either in addition to or in place of medication and other psychotherapy interventions.

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