

# Exercise as an intervention for anorexia nervosa



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## **Exercise as an Effective Intervention for Symptoms of Anorexia Nervosa**

### **Introduction**

Eating disorders (ED) are serious and dilapidating psychiatric conditions that affect individuals through adverse physiological, behavioral, and cognitive manifestations. Anorexia Nervosa (AN), characterized by an obsessive desire to lose weight through self-starvation, is the most common ED and the deadliest mental health disorder (Fisher et al., 2008). An estimated 1%-4.2% of all women have experienced AN in their lifetime, with the disorder having the highest standardized mortality ratio of 5.86 among mental health disorders (Noetel et al., 2016). Individuals with AN experience pathologies of extreme food restriction and excessive exercise, which cause symptoms that include extreme weight loss, low blood pressure, heart arrhythmias, muscle wasting and weakness, myopathy, and cycles of bingeing and purging.

Current treatment options for AN patients include a mixture of medical treatment, nutritional counseling, and behavioral and psychotherapy that emphasize weight gain through re-feeding and behavioral modifications away from self-starvation. The positive physiological and psychological benefits that exercise and physical activity has can provide a treatment method for symptoms of AN to reinforce or even replace current treatment options. In terms of physiological benefits, exercise provides positive influences on muscle composition, muscle strength, and body mass index (BMI), while allowing for reductions in obesity and chronic pain.

Psychologically, exercise can positively influence self-esteem, depression, anxiety, and body image (Hausenblas et al., 2008). Based on these frameworks, improving physical fitness through healthy exercise can theoretically show improvements in the many detrimental factors of AN. So, <https://assignbuster.com/exercise-as-an-intervention-for-anorexia-nervosa/>

can a controlled, dosed exercise program be an effective intervention against the physiological and behavioral symptoms of Anorexia Nervosa?

Studies conducted by Touyz et al. and Thien et al. provide data that suggest exercise can be implemented alongside weight restoration and re-feeding programs without compromising further weight reductions. Chantler et al. and Vancamfort et al., through their research, show the effects resistance training has on improving functional abilities and the management of myopathy symptoms. Furthermore, experimentation done by Calogero et al. and Sauchelli et al. suggests that exercise interventions can positively affect both behavioral and depressive effects of AN. Overall, when paired with re-feeding programs, exercise interventions can be effective in improving functional abilities and can provide improved psychological states for individuals suffering from Anorexia Nervosa.

## **Is Exercise Counterproductive to Treatment?**

The implementation of exercise interventions may seem counterintuitive to the treatment of AN that emphasizes weight gain; however, literature suggests there are no statistically significant adverse effects. Due to the clinical feature of extreme weight loss in AN patients, re-feeding and weight restoration is an important component to treatment programs. To combat the restrictive food intake behavior and excessive exercise, current treatment plans follow strict re-feeding guidelines that enable patients to alleviate the effects of malnutrition. Physical activity and exercise are minimized in order to decrease the likelihood of further weight reduction. This limitation of exercise and physical activity has contributed to the current lack of any established exercise treatments for ED (Zunker et al., 2011). A study <https://assignbuster.com/exercise-as-an-intervention-for-anorexia-nervosa/>

conducted by Touyz et al. entitled, " Anaerobic Exercise as an Adjunct to Refeeding Patients with Anorexia Nervosa: Does it Compromise Weight Gain", aimed to explore the effects exercise had with weight regain during re-feeding treatment of AN patients. The researchers followed 39 AN patients, divided into two exercise and non-exercise groups, during a six week treatment program. There was no significant difference in the rate of weight gain found between the two groups during their re-feeding period, with patients participating in the exercise program gaining .94 kg per week compared to the 1.01 kg gained in patients not participating. These findings introduce the idea that implemented exercise does not compromise the main goal of re-establishing a healthy weight, but rather has the same effects as no exercise at all.

Similar findings to Touyz et al. were seen in Thien et al.'s research, " Pilot study of a graded exercise program for the treatment of Anorexia Nervosa," that exhibited the lack of deleterious effects of exercise during AN re-feeding. These researchers conducted a randomized control trial of 16 AN patients and divided them up into an exercise prescribed group and a non-exercise prescribed control. After being followed every 2-3 weeks for 3 months, results showed that there was no significant difference in body fat or BMI change between the control and the experimental group, with significant improvements in quality adjusted life year (QUALY) scores favoring the experimental group. As with Touyz et al.'s data, the lack of significant difference in the level of change of weight gain suggests that exercise does not promote adverse effects during re-feeding programs. These results challenge the notion that AN patients should not experience exercise or an

increase in physical activity when recovering, which is founded through the belief that exercise is solely used for weight reduction. Clinical implications of this positive exercise data can allow for the implementation of exercise interventions that can introduce other physiological and psychological benefits for patients. Exercise and physical activity, rather than being counterproductive to treatment, can thus have important roles in the reduction of AN symptoms.

## **Physiological Effects of Exercise Interventions**

As a role within treatment programs, exercise interventions can provide improvements in both functional abilities and biomarkers of exercise performance. Aside from weight restoration, AN treatment programs should also work to allow affected individuals to regain functional abilities that may have been lost during stages of severe starvation and malnourishment. Type 2 muscle fiber atrophy and slowed motor nerve conduction velocities cause neuromuscular deficits in starved and muscle depleted AN patients- including proximal limb weakness, decreased maximal force generation, and an increased rate of muscular fatigue (Fisher et al., 2012). These symptoms can be addressed through resistance exercise interventions to improve overall muscle composition and the resulting improvements in functional abilities. Chantler et al. explored these potential benefits of resistance training on AN patients in their study entitled, " Muscular strength changes in hospitalized anorexia patients after an eight week resistance training program." These researchers followed fourteen female AN in-patients, randomized into 2 groups (one exercise, one non-exercise), through 8 weeks of treatment. The non-exercise group experienced a normal re-feeding

treatment without an exercise intervention, while the exercise group experienced a twice a week, hour-long resistance training program that incorporated both upper and lower body exercises. At the end of the study, researchers found statistical improvements in the peak torque of knee extensors, knee flexors, and elbow flexors of the exercise group, compared to no improvements in the non-exercisers. Additionally, the exercise group had statistically improved body composition as a result of the increased proximal limb strength. This data suggests that an added resistance training intervention can provide the necessary physiological benefits to aid in the recovery of AN patients. With proximal limb strength improvements, both body composition and functional abilities can be altered towards more healthy levels. These improvements can resolve the neuromuscular deficits that disable AN patients from properly functioning on a muscular level and from completing activities of daily living.

The study conducted by Vancampfort et al. entitled, “ A systematic review of physical therapy interventions for patients with anorexia and bulimia nervosa,” echoes similar findings to Chantler et al.’s research on positive effects of resistance exercise interventions. 8 randomized control trials were reviewed that met selection criteria of utilizing a comparison between physical therapy and a placebo condition and having a control intervention of standard care for AN. The methodological qualities of each trial were also assessed, with 3 of the studies exhibiting strong methodological qualities. Analysis of these studies concluded that both resistance and aerobic training interventions had statistical improvements on body mass index, muscle strength, and body fat percentages. In addition, aerobic exercise was found

to significantly decrease depressive symptoms and lower scores of eating pathology in individuals with AN. These physiological improvements of resistance training on AN patients, without any adverse effects on weight gain, suggest that this type of intervention has utilization within current therapy and recovery programs. The incorporation of a resistance-exercise component to re-feeding programs can inhibit the myopathy symptoms seen in AN by strengthening the coordination and activation of muscle synergists and the performance of motor skills. Targeting improvements in muscular strength can induce increased functional abilities and allow AN patients to return to the levels of functioning before their pathology. The results of this study also present evidence that exercise intervention can positively affect the emotional well being and behavior of individuals with AN.

## **Psychological Effects of Exercise Interventions**

Exercise interventions can also provide positive psychological effects on the behaviors and emotional well being of individuals with AN. With AN being the deadliest mental health disorder in the world, the emotional well-being of affected individuals is a crucial component to the behavioral eating pathology that leads to self-starvation and malnutrition. AN treatment programs can offer both psycho and behavioral therapy alongside medical re-feeding techniques to normalize eating patterns and support feelings of weight gain (Zunker et al., 2011). An exercise program can have similar effects to these contemporary therapy approaches and can introduce added behavioral and psychological benefits. The study conducted by Calogero et al. entitled, “ The Practice and Process of Healthy Exercise: An Investigation of the Treatment of Exercise Abuse in Women with Eating Disorders,”

investigated the behavioral and emotional states of ED patients after exercise interventions and its relationship to decreased pathology and weight restoration. Researchers followed 254 women with ED, with the two groups divided into an experimental group exposed to an exercise intervention and a control group that was not exposed, over the course of 6 months. The exercise intervention group followed an hour long, 4-day a week exercise program that incorporated both aerobic and strength training, with both groups receiving several self-report assessments on a weekly basis. The results of the study showed that women with AN who participated in the exercise program actually gained 40% more weight than their non-exercise exposed counterparts. Findings from the questionnaires also showed that the exercise intervention group statistically decreased their involvement, rigidity, and emotional commitment towards exercise, while the control group had no statistically significant difference in these dimensions. This exercise intervention data supports the idea that general re-feeding alone can not resolve some of the emotional and behavioral manifestations that causes self-starvation and excessive exercise. Exercise can provide outlets for AN patients to alleviate anxiety and increase their comfort levels and feelings towards gaining weight. By experiencing a strict exercise program, patients can be exposed to the same types of fundamental approaches and principles of healthy exercise on a regular basis. This level of repetition can help to internalize the benefits of healthy exercise and change attitudes and behaviors away from excessive exercise.

In addition to the effects of an exercise intervention on the mental and behavioral attitudes towards excessive exercise, the study conducted by

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Sauchelli et al. entitled, “ Physical activity in anorexia nervosa: How relevant is it to therapy response,” explores how exercise affects the psychological well-being of AN patients. Sauchelli et al. followed 88 AN patients exposed to an exercise intervention as part of their treatment plan and 116 healthy-weight controls through a 12 week period. Measures in time spent in physical activity, BMI and body composition changes, depressive symptoms, and eating disorder psychopathology were recorded. This study found that there was no difference between the healthy control or exercise group in the time spent in moderate to vigorous physical activity (MVPA). The increased level of eating disorder severity and low levels of MVPA showed associations with poor treatment outcomes, while low MVPA and depressive symptoms also showed significant associations. The similar time spent in physical activity between the healthy control and exercise group shows the ability of AN patients to respond well towards exercise. By implementing, rather than restricting, exercise and physical activity within treatment programs, treatment outcomes can see improvements. The comorbidity between depression and AN can also be addressed through exercise as less time in MVPA is linked to depressive symptoms. This relationship also suggests that exercise can present a mood-regulatory effect on AN patients along side its ability to improve functional strength. Exercise can thus provide AN patients with psychological benefits in terms of emotional well being when integrated within a treatment plan.

## **Conclusion**

Exercise, as an intervention for AN, can provide the necessary physiological and psychological benefits to manage the self-restriction and excessive

exercisepathologies when incorporated with re-feeding plans. The studies conducted by Toyuz et al. and Thien et al. showed the ability of exercise to provide improvements without jeopardizing any re-feeding and weight restoration efforts. This idea allows for more clinical implications of exercise interventions, in terms of its physiological and psychological benefits, to be addressed. The studies done by Chantler et al. and Vancampfort et al. provide evidence that shows exercise interventions improve muscular strength, BMI, and body composition - effects that positively influence the functional abilities of patients. Additionally, the research conducted by Calogero et al. and Sauchelli et al. demonstrated that exercise positively affected the attitudes and behaviors against excessive exercise and had an association with decreased depressive symptoms. A limitation of such studies includes their cross-sectional nature, which makes it difficult to draw causal conclusions regarding exercise and its effects. However, all these studies implemented exercise along side of re-feeding and weight restoration programs and all concluded that exercise does not have detrimental effects on weight regain. For future studies, it is necessary to explore the mechanistic features of exercise as it relates to AN to determine causal effects. Furthermore, it is important to provide exact specifications of experimental exercise interventions. Not only will this specification provide a standard to which future studies can utilize, but it also allows for mechanistic research to be focused. No standardized exercise intervention is currently used to help treat the symptoms of AN, but these promising research data on the beneficial effects of exercise on physiology and behavior can perhaps change this fact.

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