

## DATA TRENDS

# EXERCISE TO TREAT DEPRESSION: HOW MUCH IS ENOUGH?

## SOURCE

Dunn, A. L., Trivedi, M. H., Kampert, J. B., Clark, C. G., & Chambliss, H. O. (2005). Exercise treatment for depression: Efficacy and dose response. *American Journal of Preventive Medicine*, 28, 1-8.

**E**xercise has been considered a viable option for treating depression or even preventing it. It is relatively inexpensive, has fewer side effects than medication, and is associated with many other health benefits. However, it is unclear how much exercise is needed in order for it to improve depressive symptoms. The purpose of this study was to assess how much exercise is needed in order to effectively reduce depression in adults.

### METHODS

Study participants were 80 men and women (75% women), aged 20 to 45 years (mean age = 36 years), who were diagnosed with mild to moderate depression according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). In order for participants to be eligible for the study, they could not have already been regular exercisers, and could not be more than 160% over ideal weight.

Participants were randomly assigned to one of five groups: four intervention exercise groups and a control group, in which participants engaged in stretching and flexibility exercises three days a week for 15 to 20 minutes per session. Exercisers used either a treadmill or stationary bicycle. Two intervention groups exercised three days a week, the other two exercised five days a week; two groups exercised at a rate of approximately 3 calories per pound of body weight per week (considered low dose: LD), while the other two groups exercised at a rate of 8 calories per pound of body weight per week; this latter dose is the amount of exercise recommended by the American College of Sports Medicine as the ideal "public health dose" (PHD).<sup>1</sup> Thus, one group of exercisers had a LD for 3 times/week, one a PHD at 3 times/week, another a LD 5 times/week and the fourth had a PHD 5 times/week. All participants were engaged in their groups for twelve weeks.

There were three outcome measures. The first was a change in the Hamilton Rating Scale for Depression (HRSD-17). The second was Response, defined as a 50% reduction in symptoms in a participant as measured by the HRSD-17. The third was Remission, defined as a participant scoring seven or lower on the HRSD-17.

*Participants who exercised at a "public health dose" level demonstrated significantly lower scores on a depression measure and higher rates of remission from depression after just twelve weeks.*

### RESULTS

Across all groups, there were no significant differences in body mass index (BMI) or HRSD-17 scores at baseline. Additionally, BMI was not significantly related to HRSD-17 scores. Average length of participation across all exercise groups was 9.2 of



a possible 12 weeks, showing that many participants stayed in the program for a significant amount of time. There were no differences in drop-out rate across the intervention groups, but those assigned to the control group had a higher drop-out rate (average of 6.8 weeks of participation).

After twelve weeks, all groups, including the control group, had significant reductions in HRSD-17 scores, indicating decreases in depression symptoms. Those in the PHD conditions had the largest decreases in symptoms (47% decrease in HRSD-17 scores); number of exercise days (3 or 5) did not make a difference; rather, it was the intensity of the exercise that seemed to predict the most improvement. The LD groups did not differ in symptom reduction when compared to the control group (30% vs. 29%, respectively). Regarding Response and Remission, the 5-day PHD group had the highest Response rate (44%) and the 3-day PHD group had the highest Remission Rate (41%). The smallest Response and Remission rates were found in the 5-day LD group (6% and 11%, respectively). The stretching control group experienced a 30% Response rate and a 25% Remission rate. Number of exercise days did not significantly predict Response or Remission in participants. As a comparison, according to a study conducted by the National Institute of Mental Health, rates of remission were 36% for cognitive behavioral therapy and 42% for anti-depressant medication.

### CONCLUSION

This study demonstrates that when it comes to exercise as a way to alleviate depression, it's not how many times per week but the intensity and duration of the workout that counts the most. This study showed that there were no differences in reducing depression symptoms between participants that exercised three vs. five days per week. However, those participants who exercised at a "public health dose" level demonstrated significantly lower scores on a depression measure and higher rates of remission from depression after just twelve weeks. That means persons exercising 30 minutes a day (this is a public health dose) just three days a week potentially can manage their depression as well as those who take medication or go to counseling. Given that exercise can be an easier and less stigmatizing treatment approach for some persons – especially young adults – this form of alleviating symptoms should be given careful consideration by mental health professionals.

### LIMITATIONS

Although the findings of this study are encouraging, there are some limitations to this research. First, the average age of participants was 36; future

research should focus more specifically on the mental health benefits of exercise in youth and young adult populations. Additionally, this study only looked at the benefits of exercise in alleviating depression. A recent review article<sup>2</sup> has found that exercise has therapeutic effects on persons with several mental health conditions including anxiety disorders, depression, bipolar disorder, and schizophrenia, but more research is needed to strengthen and replicate these findings. Finally, this study utilized a weak control group: having participants engage in stretching for 20 minutes per session. This activity could be considered an exercise intervention in and of itself, as opposed to a true control situation. In fact, those who participated in the control group did show signs of improvement in their depressive symptoms, although not to the same extent as those who engaged in PHD exercise regimens. More research should be conducted to investigate the benefits of all levels of physical activity on alleviating depression in young adults, and compare the effectiveness of exercise to treatments involving medication and/or counseling.

*Editor's Note: Although this study is older than those usually featured in Data Trends, the findings were deemed important and applicable enough to Focal Point readers to highlight this study as opposed to one published more recently.*

### REFERENCES

1. Pate, R. R., Pratt, M., Blair, S. N., et al. (1995). Physical activity and public health: A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *Journal of the American Medical Association*, 273, 402-407.
2. Wolff, E., Gaudlitz, K., von Lindenberger, B. L., Plag, J., Heinz, A., & Ströhle, A. (2011). Exercise and physical activity in mental disorders. *European Archives of Psychiatry and Clinical Neuroscience*, Suppl 2, S186-S191.

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