

## **Regular Physical Activity Significantly Reduces Depression Risk**

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**November 5, 2010** — Participating in regular leisure-time physical activities of any intensity can lead to a decrease in depression, new research suggests. In a large population study of more than 40,000 Norwegian residents, investigators found that those who were not active during their time away from work were almost twice as likely to have symptoms of depression that those who were regularly active.

"Even relatively light activity was associated with significantly less depressive symptoms," lead study author Samuel B. Harvey, MRCPsych, MBBS, clinical lecturer in occupational and liaison psychiatry at the Institute of Psychiatry at King's College London, United Kingdom, told Medscape Medical News. "Therefore, encouraging our patients to do some physical activity in their leisure time, even if it is something very light, appears likely to be of benefit," said Dr. Harvey.

The investigators note that social benefits associated with exercise, such as increased number of friends and social support, may be more important contributors to this association than biological changes. However, there was no association found between workplace exertion (such as walking or heavy lifting) and decreased symptoms of depression.

"What was unexpected was just how important the context of any physical activity seemed to be. When people undertook exercise as part of their job, all of the psychological benefits we observed with leisure time activity were lost," said Dr. Harvey. "The other surprise was that the biological changes associated with exercise, which had been thought to be important in explaining any antidepressant effects, seemed to be less important than some of the social benefits of physical activity," he added. The study is published in the November issue of the British Journal of Psychiatry.

**Lifestyle Factors and Mental Health**

Although many past studies have found lower rates of depression for people who are more active, "almost all of the published research on this topic has focused exclusively on intense leisure-time activity such as organized sports, jogging, and fitness classes," write the study authors. They note that results have been mixed when studies have considered other types of activities.

"Recently, there has been a lot of interest in how lifestyle factors (like exercise, obesity, smoking, etc) and mental health are related," said Dr. Harvey. "We know that in most developed countries people are becoming more overweight and less active and that this will have an impact on their physical health. What has been less clear is what, if any, impact these changes will have on mental health."

For this trial, the investigators sought "to examine the bidirectional relationship between physical activity and common mental disorders and establish the importance of context, type, and intensity of activity undertaken." They evaluated data on 40,401 participants in the Health Study of Nord-Trondelag County (known as HUNT-2), a trial that was conducted between August 1995 and June 1997. These participants (50.9% female; mean age, 45.9 years) were asked how often they engaged in light or intense physical activity during their leisure time and how active they were in their workplace. Light activity was defined as any activity not leading to being sweaty or out of breath. They also underwent a physical examination and completed the Hospital Anxiety and Depression Scale questionnaire regarding symptoms of depression and anxiety. Social factors were also collected, including age, sex, marital status, education, social class, cigarette or alcohol use, any mental illnesses in immediate relatives, any somatic diseases, and level of social support.

### **Inverse Relationship for Depression**

Results showed that 4080 participants (10.1%) had case-level symptoms of depression, 6129 (15.2%) had symptoms of anxiety, and 2258 (5.6%) had comorbid depression and anxiety. Those who participated in both light and intense leisure-time activities had decreasing rates of both depression and comorbid depression and anxiety symptoms based on amount of time spent on the activities. In other words, "there was an inverse relationship between the amount of leisure-time physical activity and case-level symptoms of depression," investigators write.

"These associations remained even after accounting for the effects of age, gender, family history of mental illness, current social class, education, marriage status, cigarette use, alcohol problems, somatic diagnoses, and subjective impairment owing to physical illness," they add. The researchers write that factors such as social support and social engagement may partially explain the association between leisure activity and lower levels of depression. However, "we did not find any evidence that biological changes associated with exercise such as alterations to parasympathetic vagal tone and metabolic markers could account for the association." Although those who participated in light leisure activity had a slightly lower prevalence of anxiety, there was no association found with intense leisure-time activity. There were also no associations found between workplace activity and decreasing symptoms of any of the disorders studied.

The researchers note that limitations of the study included its reliance on self-reported activity levels, the cross-sectional nature of the data collection, and that the population was from a mostly rural area "where individuals may be more likely to be active and engaged in outdoor pursuits than those who live in more urban environments." However, the results "provide further strong evidence for an inverse association between physical activity and depression."

Dr. Harvey said that his team is now undertaking a number of additional studies. "We are following up these same individuals to see how their risk changes over time and are looking at how much exercise (in terms of how many hours per week) are needed to see benefit. We are also looking at whether different types of activities have different effects."

### **Recommend Activity**

"I thought one of the most attractive things about this study was its very big sample size," Madhukar Trivedi, MD, professor of psychiatry and the Betty Joe Hay Distinguished Chair in Mental Health at the University of Texas Southwestern Medical Center and director of the Mood Disorders Program and Clinic in Dallas, told Medscape Medical News.

"Others have looked at this topic but with much smaller samples," said Dr. Trivedi, who was not involved with this study. "It was also interesting that less than vigorous but still regular physical activity of some nature turned out to be effective for decreasing depressive symptoms. So something is better than nothing, although more vigorous is still better than less vigorous for this association." He noted that he wasn't surprised that no

benefits were found for workplace activity. "Unless somebody is dedicated to that kind of employment, of being clearly physically active throughout their work day — which is not likely in this large a sample size — the effect is going to be small."

However, "the anxiety part did surprise me. I would have expected a bigger impact from less than vigorous physical activity on anxiety than depression because there have been studies suggesting that." When asked if he had any concerns with this study, Dr. Trivedi said that a common issue in large-scale population trials is determining how many of the participants actually had a diagnosable major mood disorder. "That's often unclear. What this reflects for people who do have the disorders and what it reflects for those who do not is not always well defined and leaves us as clinicians wondering what to do."

However, he said the take-home message is that "we know from different sets of data that, at least for depression, some level of physical activity is helpful as opposed to not having activity." Dr. Trivedi noted that there is a large proportion of people who think exercise is too hard or that they do not have time for it. "For that population, and it's a very large population, clinicians should be thinking about recommending that they should at least be engaging in the amount of physical activity that they think they're capable of. So again, little is better than nothing — which is actually a very good message.

"This study suggests that you should at least try some activity. There's no loss and there may even be some benefit," he concluded.

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