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Exercise Helps Fight Postpartum Depression

Analysis by Dr. Joseph Mercola | January 12, 2024

STORY AT-A-GLANCE

- A November 2023 meta-analysis demonstrated that aerobic exercise was effective in helping to prevent and treat postpartum depression (PPD), which affects at least 13 million women worldwide each year
- A 2023 study notes the prevalence of PPD rose dramatically from 9.4% in 2010 to 19.3% in 2021, which may also be an underestimate as some experts believe up to 90% of cases go untreated
- PPD shares many of the same symptoms of major depressive disorder. The key difference is that PPD is typically diagnosed within 12 months after a woman gives birth and is associated with a rapid decline in hormones
- Randomized controlled trials have demonstrated that exercise plays an important role in modulating depressive symptoms, facilitating recovery and preventing relapse. It also modulates tryptophan availability in the brain and how the brain uses tryptophan to form serotonin and other pathways that regulate mood and emotion
- As science has demonstrated in the past several decades, your body is a complex organism that responds to multiple stimuli. Other factors that affect depression include vitamin deficiencies and the health of your gut microbiome

A November 2023 meta-analysis[1] published in PLOS One found aerobic exercise was effective in helping to prevent and treat postpartum depression (PPD). Experts estimate that 13 million women worldwide are diagnosed with PPD each year.

The prevalence of PPD was examined in a 2023 study,[2] which recorded an estimated prevalence in 2010 at 9.4% that increased to 19.3% by 2021. This represented a relative increase of 105% in 11 years. The data showed racial and ethnic disparities in these rates were persistent, but the ranges were narrowing.

Postpartum depression is a debilitating mental health condition that is associated with several risk factors. Like "regular" depression, PPD shares many of the same symptoms. The difference is that PPD is typically diagnosed within 12 months after giving birth and is associated with a rapid decline in hormones that appear to contribute to the development of clinical symptoms.

In addition to the hormone drop, most new mothers are sleep-deprived, breastfeeding, focused on their new baby's health and safety, and struggling with the transition into motherhood. Dealing with symptoms of clinical depression with an infant and possibly other children can make the situation overwhelming.[3]

Postpartum depression is different from baby blues, which typically resolves within the first two weeks after birth. PPD is associated with more severe symptoms that persist for weeks and sometimes years after birth. PPD can be associated with a change in sleeping and eating patterns, difficulty concentrating, extreme anxiety and feelings of worthlessness or guilt. These are some of the same symptoms that are associated with major depressive disorder.

Exercise Could Help Prevent and Treat Postpartum Depression

The November 2023 meta-analysis[4] looked at 26 studies from 11 countries and regions, which included 2,867 women who had either recently given birth or were pregnant. The goal was to determine the type of exercise and how much exercise would be effective in combating PPD.

The researchers found that the optimal exercise pattern was approximately 35 to 45 minutes at moderate intensity, three to four times each week.[5] The results demonstrated

that the efficacy was significant compared to standard care, which typically consists of psychotherapy and antidepressant drugs.

When the researchers looked at the difference in effect on PPD, they found those who participated in a supervised exercise group had better performance than the unsupervised group and the group of women who exercised together slightly outperformed those who exercised alone.

There are current treatments available in the form of medication and therapy, but the diagnosis is often overlooked, which may indicate the prevalence of women with PPD is also an underestimate.[6] In addition to lower levels of depression and anxiety, the researchers noted[7] that exercise also helps reduce urinary stress incontinence, postpartum weight retention, and lactation-induced bone loss.

The researchers wrote, "The main results of the meta-analysis show that compared to the control group with standard care, the experimental group engaging in aerobic exercise is more beneficial for preventing and treating postpartum depression."[8] The challenge is that new mothers are already dealing with lack of time and lack of sleep.

Incorporating 35 minutes of exercise four times a week adds to that challenge if exercise was not a habit formed before pregnancy. The researchers noted[9] that when the data was analyzed, the efficacy in preventing PPD was significant compared to standard care.

As in nearly any other condition, prevention is easier, cheaper and often less emotionally and physically painful. Women should discuss their planned physical activity with their physicians before, during and after pregnancy to ensure it does not have a negative impact on any underlying medical condition. Additionally, speak with your health care provider if you are experiencing symptoms of depression to protect yourself and your child.

How Exercise Can Boost Your Mood

As Ronda Patrick, Ph.D., biomedical scientist and researcher with the Salk Institute for Biological Sciences, notes in her video,[10] there have been numerous randomized controlled trials demonstrating that exercise plays an important role in modulating depressive symptoms, facilitating recovery, and preventing relapse.

Patrick also notes that exercise increases the availability of tryptophan in the brain where it is used to form serotonin to regulate mood and cognition. However, under chronic stress conditions, tryptophan can also be used to produce kynurenine, which then produces quinolinic acid, a neurotoxin.[11]

When the enzyme that converts tryptophan to kynurenine increases with stress, it increases the potential for depression. Data also showed that when the enzyme that converts tryptophan to serotonin is blocked, it has devastating effects.

Under chronic stress, tryptophan becomes quinolinic acid in the brain and not serotonin. Patrick describes how exercise not only increases the production of serotonin in the brain from tryptophan but also affects how the body uses kynurenine, shunting more of it to produce kynurenic acid, which is neuroprotective.[12]

Therefore, overall, exercise helps drive more tryptophan into the brain where it produces serotonin to regulate mood and cognition and decreases the production of quinolinic acid. There are several more pathways through which exercise plays a unique and important role in improving mood and cognition.

These pathways include producing transient inflammation that has a beneficial impact on the brain and the release of intrinsic cannabinoids and beta endorphins which I describe in "**The Science Behind Exercise's Mood-Lifting Effects**."

Low Levels of Vitamins Linked to Depression

As science has demonstrated in the past several decades, your body is a complex organism that responds to multiple stimuli, and one of those stimuli is vitamins. Research published in 2023[13] showed those with a vitamin B12 deficiency had an increased risk of symptoms of depression.

The researchers looked at the relationship between vitamin B12, folate and the incidence of depression in older individuals who lived in the community. They found a link with vitamin B12 deficiency but not with folate deficiency. Other nutrients have also had a significant effect on mental health, such as Vitamin D.

This fat-soluble vitamin that is technically a type of hormone our bodies make can be absorbed from a few foods but is primarily produced endogenously when your skin is exposed to sunlight. Scientists have believed that vitamin D deficiency is a vastly overlooked global health problem that is at epidemic proportions.[14]

Studies in 2014[15] and 2018[16] demonstrated that low levels of vitamin D are associated with depression. The important factor to remember is that it's highly unlikely supplementation in people whose serum levels are optimal will influence mood disorders. Instead, the effect is more likely found in those whose serum levels are low.

Magnesium is essential to survival. Data[17] have shown magnesium is vital for learning, concentration and memory, and supports the brain's plasticity, which is the ability to adapt to challenges.

Magnesium has such a powerful effect on depression and anxiety that Psychology Today[18] characterizes it as the "original chill pill." Research has also demonstrated magnesium has a beneficial effect on a person's subjective perception of anxiety and was effective in the treatment of mild to moderate depression in adults, which you will find more about in "**Can This Dynamic Duo Curb Your Anxiety and Depression?**"

Care for Your Gut to Protect Your Mental Health

Research has uncovered the importance of your gut microbiome in relation to developing health conditions such as obesity, diabetes, Parkinson's disease and depression. Your diet plays a crucial role in supporting beneficial bacteria in the gut. Aside from the bacteria, another factor that plays an important role in health is the condition of your intestinal mucosa.

Intercellular tight junctions modulate intestinal permeability[19] and play a role in chronic inflammatory diseases, such as depression.[20] One way to take care of your gut is to eliminate the nutrition that harmful bacteria thrive on and increase probiotics and prebiotics. In one four-week study,[21] 21 people with depression received probiotics alongside their antidepressants and 26 received a placebo along with their antidepressant.

The researchers measured stool samples, brain imaging and depression assessments to evaluate the effects before, during and after intervention. The researchers noted that those in the probiotic group had significantly greater improvements along with an increased abundance of beneficial Lactobacillus in the gut.

The study demonstrated several mechanisms by which beneficial bacteria may impact depression, including by altering the gut microbiome with a favorable increase in Lactobacillus. Certain Lactobacillus strains produce short-chain fatty acids, including acetate, butyrate and propionate, which benefit health and play a role in building the gut barrier.[22] This makes it less permeable to disease-causing microorganisms and can help lower the inflammatory response in the body.

The researchers suggested that probiotics "modify the negativity bias in emotional face processing and meet the main requirement of a successful treatment in depression defined by altering negative affective biases."[23]

The primary information highway between your gut and your brain is your vagus nerve, which connects the two organs. Your gut also communicates with your brain via the endocrine system in the stress pathway (the hypothalamus, pituitary and adrenal axis) and by producing mood-boosting neurotransmitters like serotonin, dopamine and GABA,[24] helping to explain why your gut health has such a significant impact on your mental health.

The PLOS One study[25] demonstrated that exercise had a positive effect on postpartum depression, especially in preventing it. As other research has also demonstrated, depression is influenced by multiple factors, some of which are affected by the foods you eat, the supplements you take, and the health of your gut microbiome.

Exercise, good nutrition and gut health are foundational to optimal health and the prevention of mood disorders. With the right information, you can take control of your health.

Sources and References

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