Exploring the science behind nutrition's role in mental wellness: Omega-3 fatty acids and brain health.

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Introduction

Micronutrients are required for the synthesis of neurotransmitters, which are chemical messengers in the brain. The four primary neurotransmitters that regulate mood are serotonin, dopamine, -aminobutyric acid (GABA), and noradrenaline, which are together known as 'happy hormones. 'These chemical messengers are required to keep the strength of impulses between brain neurons and the rest of the body in check. Serotonin deficiency has been linked to neurological diseases, anxiety, and depression in particular [1].

Vitamins are necessary cofactors for neurotransmitter production. Choline is a special nutrient in that it is neither a vitamin nor a mineral. It is, nevertheless, necessary for the creation of the neurotransmitter acetylcholine, which affects mood and memory. Folate, zinc, magnesium, iron, selenium, and vitamin D may be protective against anxiety, mood swings, and irritability, according to some data. Patients with depression are commonly lacking in one or more of these micronutrients, according to numerous studies.

Glucose is the brain's primary source of energy. In reality, the brain consumes 20% of the glucose consumed by the body, implying that we need carbs throughout the day in order for our brain to work properly. The rate at which carbohydrates (glucose) are released into the blood is measured by the Glycaemic Index of a food. Processed meals, sugar-sweetened beverages, confectionary, and cakes, all of which have a high GI, can induce severe spikes and decreases in blood glucose. The irritation, lack of concentration, feeling weak, and mood swings that accompany this fluctuation in blood glucose are commonly referred to as the "sugar crash". Sharp spikes in blood glucose can also cause the stress hormone cortisol to be released [2]

Low GI foods are advised because they allow blood glucose levels to increase and fall slowly. Whole grains, oats, fruits, and vegetables are typical high-fibre foods. Furthermore, because fat and protein decrease carbohydrate absorption, eating regular, well-balanced meals with a combination of carbohydrate, protein, and healthy fats maintains stable blood glucose levels throughout the day. Combining a baked potato (high GI) with mixed beans (protein & fibre) can assist to prevent rapid drops in blood glucose in the brain, which can lead to mood swings [3].

Fatty acids, which include omega-3 fats, make up around 60% of the brain. Oily fish, seeds like chia, flax, and hemp, nuts, fortified meals, and supplements are all good sources of omega-3. Depression is less likely in nations where individuals eat a lot of oily fish, according to epidemiological studies.

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Moreover, omega-3 fats have anti-inflammatory properties in the body due to the release of molecules known as eicosanoids. Increased inflammation in the brain is linked to a variety of neurological diseases, including depression and Alzheimer's disease.

As a result, omega-3 fatty acids may help to reduce inflammation linked to these illnesses, easing some neurological symptoms. Omega-3 supplementation in persons with depression has been studied in more than 30 clinical trials. Current evidence suggests that consuming 1 gram of omega-3 per day (containing at least 60% eicosapentaenoic acid EPA) can help patients with depression feel better. This is about the same as eating three salmon fillets per week [4].

An omega-3 deficiency in your diet might cause not only poor brain function but also disease. Several neurological diseases, including depression, bipolar disorder, anxiety, ADHD, Alzheimer's disease, and dementia, have been found to be prevented and improved by these important fatty acids.

While several factors may play a role in depression, an imbalance in the neurotransmitters serotonin and dopamine has been related to the condition. Increasing omega-3 diet could help with depression treatment since it has the ability to improve serotonin and dopamine transmission modulation. Omega-3s can also help to reduce inflammation in the brain, which is a major component in depression [5].

References

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