

U.S. study links berries, apples and citrus to higher well-being

A decade-long analysis involving more than 40,000 women has found that diets containing flavonoid-rich foods such as berries, apples, and citrus may be linked to sustained happiness and optimism. The findings come from research published in *Clinical Nutrition*, which examined the relationship between dietary flavonoid intake and psychological well-being.

Psychological well-being includes measures such as happiness, optimism, and a sense of purpose. Higher levels of psychological well-being have been associated with improved quality of life and lower risk of chronic diseases such as cardiovascular disease and diabetes. Researchers note that these outcomes are partly linked to lifestyle behaviors, including balanced nutrition and physical activity.

Previous research has shown that dietary patterns containing fruits, vegetables, and whole grains are associated with a lower risk of depression and other mental health conditions. These foods contain flavonoids, a class of bioactive compounds present in berries, citrus fruits, and onions.

Flavonoids may influence neurological pathways through several mechanisms, including modulation of neuroinflammatory responses, regulation of neurotransmitter activity, and interaction with the gut microbiome. These processes may influence brain signaling and mental health outcomes.

The study analyzed data from the Nurses' Health Study over a ten-year period. Participants completed food-frequency questionnaires at baseline and every four years. Researchers estimated flavonoid intake by combining reported food consumption with flavonoid content data from USDA databases and an NHS-specific flavonoid database.

The analysis included more than 44,000 women for the evaluation of happiness and 36,700 women for optimism. Psychological well-being was assessed using validated survey tools. Sustained well-being was defined as remaining in the

highest category of happiness or optimism across at least two of three repeated assessments.

Higher intake of flavonoid-rich foods was associated with a greater likelihood of sustained happiness and optimism compared with the lowest intake group. Among individual foods, strawberries, apples, oranges, and grapefruit were associated with increases in sustained happiness of approximately 3 to 8%. For optimism, strawberries, blueberries, apples, oranges, and grapefruit were associated with a 10 to 16% higher likelihood of sustained optimism.

The analysis also showed that individuals with higher levels of happiness or optimism were more likely to maintain higher flavonoid intake over time, suggesting a bidirectional relationship between diet and psychological well-being.

Tea and red wine, which contribute to total flavonoid intake, were not associated with sustained happiness or optimism after adjustments for other variables. The relationship between flavonoid intake and well-being was similar across body mass index categories.

Researchers note that the study population consisted primarily of White female health professionals, which may limit the applicability of the findings to other groups. Because the study is observational, the results identify associations rather than direct causal relationships.

The findings suggest that dietary patterns containing flavonoid-rich fruits may be associated with psychological well-being over time, while highlighting the relationship between dietary behavior and mental health.

Source: News Medical (<https://www.news-medical.net/news/20260305/Berries-apples-and-citrus-linked-to-greater-happiness-and-optimism.aspx>)

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