

Scientists uphold claim that intermittent fasting and Ramadan may lower risk of Alzheimer's and Parkinson's

March 5 2024



Credit: Pixabay/CC0 Public Domain

People who fast intermittently and observe Ramadan, the Muslim month of fasting, may lower the risk of age-related neurodegenerative diseases

such as Alzheimer and Parkinson's, according to a study published in [the journal *Medicina*](#).

The literature dwells on the positive interaction between [intermittent fasting](#) and brain-derived neurotrophic factor (BDNF), which plays a vital role in the survival and growth of neurons—cells specialized in nerve impulses.

BDNF is an important factor in regulating glucose and energy metabolism. A drop in BDNF levels is associated with the loss of neurons which [studies](#) have found to be a sign of neurodegenerative diseases, such as Parkinson's, Alzheimer's, and Huntington's.

The authors map the literature by conducting a systematic review of experimental and observational human studies carried out from January 2000 to December 2023 and published in major databases.

They say the target of their study is to measure the impact intermittent fasting and [calorie restriction](#) may have on BDNF levels and cognitive functions on humans. The systematic review suggests that intermittent fasting "has varying effects on BDNF levels and cognitive functions in healthy, overweight/obese individuals and patients with metabolic conditions."

The authors find the association between intermittent fasting and BDNF to be of paramount importance with more and more people resorting to [fasting as a healthy practice](#). For more than [two billion Muslims worldwide](#), the study's publication comes at a time they are soon to observe Ramadan, a special model of a month-long intermittent fasting which obligates Muslims not to eat or drink during the hours of daylight.

Despite recommending fasting as a healthy practice, the authors highlight the controversial nature of the studies they examine. They

maintain only "few [human studies](#) have shown that IF (intermittent fasting) increases BDNF levels." In five studies, they note the results point to "a significant increase in BDNF after the intervention." Only five studies involving humans report "a significant decrease in BDNF levels" while six show "no significant changes in BDNF levels due to IF regimens."

However, the authors find BDNF to improve brain function by promoting both "neurogenesis and synaptic plasticity, particularly through long-term potentiation (LTP), a process involving persistent strengthening of synapses that leads to a long-lasting increase in signal transmission between neurons."

They point out that the literature advocates fasting "as one of the candidate therapies for neurological disorders. This comes by virtue of the fasting effect in improving cognition, slowing down neurodegeneration, reducing brain damage, enhancing functional recovery after stroke, and mitigating the pathological and clinical features of epilepsy and multiple sclerosis in animal models"

The study examines different intermittent fasting regimes, which involve alternate-day fasting, time-restricted eating, [and] Ramadan model of intermittent fasting. "The findings show that fasting has variable effects on the level of BDNF in healthy people and disease patients with obesity and metabolic syndrome. As for the studies on the impact of Ramadan fasting, the authors find two studies showing significant improvement in the level of BDNF, while three studies revealing a significant reduction."

University of Sharjah's Professor of Clinical Nutrition and the main and corresponding author, MoezAllIslam Faris, says the work underscores the significance of fasting in improving the level of one of the important protein factors that affect brain health.

"This protein factor is important for the maintenance of brain function and lowering the risk of age-related neurodegenerative diseases such as Alzheimer's' disease, and Parkinson's, as well as in preventing [mental health disorders](#) such as depression and anxiety."

Asked about the somewhat controversial results of the study, Prof. Faris says, "The significance of the work stems from the fact that it is the first [systematic review](#) that summarizes the effect of observing caloric restriction and different intermittent fasting regimens on the level of the BDNF and the consequent mental health and cognitive health parameters.

"The significance of the project relies on the fact that intermittent fasting could be applied as one of the prophylactic, preventive strategies, and even curative interventions for the prevention and treatment of mental health problems and aging-related brain and mental health problems among elderly people."

Prof. Faris believes the project could help "health care providers and health care teams in improving mental health and lowering the risk and severity of mental cognitive health problems such as mood disturbances by applying intermittent fasting and calorie restriction as one of the safe, costless dietary modifications to improve their patient's mental health and cognitive function."

"Encouraging people to follow intermittent fasting regimens as a suggested practice that helps in preventing mental health problems among healthy people and alleviating the severity of these problems among the patients, and the inclusion of intermittent fasting as an adjuvant therapy with medications for patients with mental health cognitive problems."

More information: Refat Alkurd et al, Effect of Calorie Restriction

and Intermittent Fasting Regimens on Brain-Derived Neurotrophic Factor Levels and Cognitive Function in Humans: A Systematic Review, *Medicina* (2024). [DOI: 10.3390/medicina60010191](https://doi.org/10.3390/medicina60010191)

Provided by University of Sharjah

Citation: Scientists uphold claim that intermittent fasting and Ramadan may lower risk of Alzheimer's and Parkinson's (2024, March 5) retrieved 29 April 2024 from <https://medicalxpress.com/news/2024-03-scientists-intermittent-fasting-ramadan-alzheimer.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.