

Introduction

The practice of RIF, which involves abstaining from food and liquids during the day, has drawn attention due to its effects on the brain function. Research has shown that intermittent fasting may impact on certain cognitive domains, and BDNF has been hypothesised to play an important role in these changes. Whether RIF has similar impact on cognition and through which mechanism are yet to be determined. This systematic review aimed to ascertain the changes in neurocognitive function associated with Ramadan Intermittent Fasting (RIF) and whether these effects are correlated with alterations in brain-derived neurotrophic factor (BDNF).

Methods and Materials

Between 2000 and December 2023, relevant articles published in four main databases were identified by a comprehensive search. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) standards, studies that used RIF treatments on both healthy and people with medical conditions were included.

Results

Five articles investigating RIF fulfilled the inclusion criteria. While the findings on BDNF levels were equivocal, with both increases and declines reported, cognitive performance data painted a more intriguing picture. Three studies showed that during Ramadan, there were observable improvements in particular cognitive areas, such as memory and attention. These improvements were not, however, consistently connected to BDNF alterations, indicating the involvement of additional complex processes..

Conclusions

While RIF's effect on BDNF remains undetermined, its ability to improve cognitive function, notably memory and attention, appears promising. However, available research provides an inadequate picture. Large-scale, extensively organized research are required to fully understand the complex interaction between RIF, BDNF, and cognitive performance. Future studies should explore deeper into the underlying processes that explain the reported cognitive improvements.

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