Annals of Phytomedicine 15(1): 213-220, 2026
DOI: http://dx.doi.org/10.54085/ap.2026.15.1.18
Annals of Phytomedicine: An International Journal
http://www.ukaazpublications.com/publications/index.php
Print ISSN : 2278-9839
Online ISSN : 2393-9885

Review Article : Open Access

A comprehensive review of intermittent fasting: Metabolic mechanisms, emerging health benefits and supportive role of phytonutrients

A.T. Nanthitha*, G. Sashidevi*◆, G. Gurumeenakshi*, R. Vijayalakshmi*** and M.L. Mini******

**Department of Food Science and Nutrition, Community Science College and Research Institute, Tamil Nadu Agricultural University, Madurai-625104, Tamil Nadu, India*

***Department of Textile Science and Design, Community Science College and Research Institute, Tamil Nadu Agricultural University, Madurai-625104, Tamil Nadu, India*

**** Department of Family Resource Management and Consumer Science, Community Science College and Research Institute, Tamil Nadu Agricultural University, Madurai-625104, Tamil Nadu, India*

***** Department of Biotechnology, Agricultural College and Research Institute, Tamil Nadu Agricultural University, Madurai-625104, Tamil Nadu, India*

Article Info

Article history
Received 7 April 2026
Revised 14 May 2026
Accepted 15 May 2026
Published Online 30 June 2026

Keywords
Intermittent fasting
Metabolic switching
Autophagy
Nutraceutical in IF
Insulin sensitivity

Abstract

The intermittent fasting (IF) is widely discussed as a dietary method for optimizing metabolic functions. Intermittent fasting promotes the "metabolic switch" in favor of fat catabolism, which is accompanied by the activation of AMPK, inhibition of mTOR and stimulation of autophagy. All of these factors lead to improved insulin sensitivity in combination with anti-inflammatory and antioxidative effects. The clinical results indicate the effectiveness of using IF to achieve weight loss (from 1.4 to 2.5 kg), reduce fat mass (by about 0.72 kg) and decrease the level of HbA1c (up to 1.9%). The inclusion of nutraceuticals rich in phytonutrients (berberine, curcumin, resveratrol, EGCG, corosolic acid and ellagitannins) into the diet in addition to IF further increases the effectiveness of the intervention in terms of its impact on metabolic functions. The use of phytonutrients is effective for lowering blood glucose and lipids as well as inhibiting inflammation. Clinical data suggests that the proposed intervention can lead to a significant decrease in the level of triglycerides (up to 34.7%) and fasting blood glucose concentration (from 110.6 to 94.6 mg/dl), as well as a decrease in insulin resistance by 25%. Combining intermittent fasting and phytonutrient based nutraceuticals is a viable strategy for enhancing metabolic health. In future, the study should be extended to investigate long term effectiveness and synergy involved in such interventions.

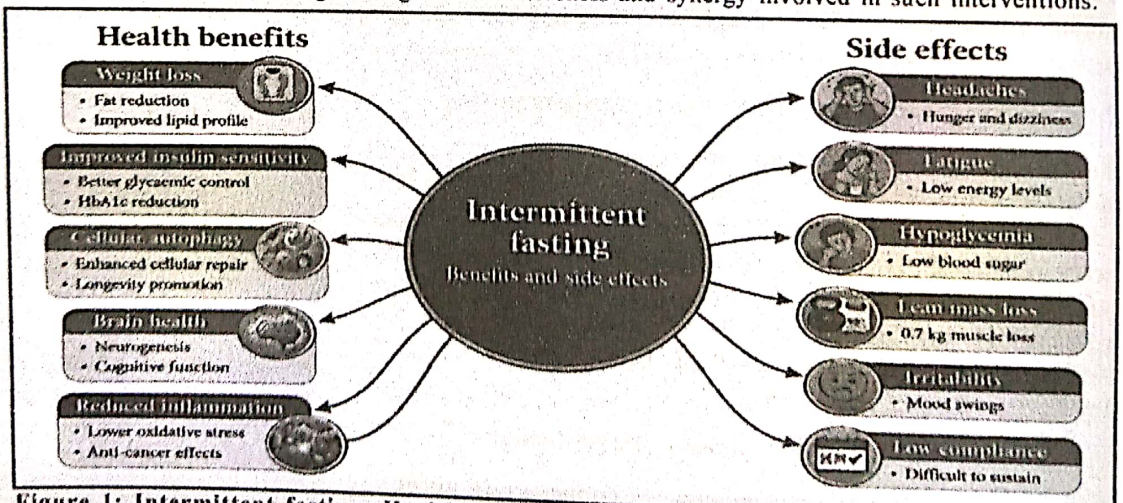


Figure 1: Intermittent fasting: Health benefits and potential side effects.

Scanned with OKEN Scanner