

Peer Review

Review of: "From Carbohydrates to Ketones: Mitochondrial Reprogramming via β -Hydroxybutyrate Signaling for Non-Pharmacological Treatment of Metabolic Syndrome"

Kibur Hunie Tesfa¹

1. Biochemistry, University of Gondar, Gondar, Ethiopia

Reviewer Comments

The review paper titled *"From Carbohydrates to Ketones: Mitochondrial Reprogramming via β -Hydroxybutyrate Signaling for Non-Pharmacological Treatment of Metabolic Syndrome"* addresses an important and timely topic with significant clinical relevance. The manuscript provides a clear, step-by-step explanation of the key issues associated with metabolic syndrome and discusses the therapeutic potential of ketogenic diet-induced metabolic reprogramming as a viable non-pharmacological intervention.

The authors successfully integrate both clinical and preclinical findings, offering a comprehensive overview of how ketogenic dietary strategies may modulate various aspects of metabolic syndrome. The overall quality and scientific importance of the paper are commendable. However, some redundancies were noted—for example, the subsections **"Safety and Tolerability"** and **"Safety and Clinical Supervision"** contain overlapping content and may benefit from consolidation to improve clarity and reduce repetition.

The manuscript appropriately highlights inconsistencies in study designs and intervention durations among the reviewed literature. In particular, the subsection **"Heterogeneity and Study Design Limitations"** effectively outlines the methodological weaknesses and limitations of the included studies. This critical assessment is valuable and helps contextualize the strength of the current evidence base studies.

Additionally, the authors propose well-defined directions for future research, which will be useful for advancing work in this area.

Before publication, the authors should review the reference list carefully, as some entries appear out of alphabetical order or contain sequencing inconsistencies.

Declarations

Potential competing interests: No potential competing interests to declare.