

Review of: "Magnesium and Longevity"

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The scientific text provides a comprehensive review of the role of magnesium (Mg) in various physiological functions and its potential impact on longevity. It explores the relationship between Mg and longevity agents, detailing its role as a cofactor in various enzymes and metabolic pathways. However, the text has some methodological limitations and notable innovations worth highlighting:

While the text mentions Mg's functions in metabolic processes, it does not present a direct quantitative correlation between Mg levels and clinical outcomes in humans. Thus, the study is limited to theoretical inferences, without offering direct empirical evidence.

The review is broad, but the methodology for selecting studies or reference data is unclear. There is no indication of inclusion criteria for the cited studies, which could compromise the validity and relevance of the findings presented.

The claim that Mg deficiency causes symptoms similar to aging is interesting, but there is a lack of robust clinical data to support it. Empirical studies that confirm this symptom similarity with clinical trial data would be necessary to give more credibility to this statement.

The proposed link between Mg deficiency and the severity of Covid-19 is intriguing, but the explanation provided is speculative and based on molecular and metabolic hypotheses, lacking direct support from epidemiological data or clinical trials.

The text emphasizes the importance of the Ca:Mg ratio, but there is insufficient clear evidence to support this dependency in the context of longevity. Existing literature on Ca and Mg combined with longevity is limited, and the review does not provide a detailed analysis of the interactions between these ions in long-term studies.

Many of the proposed effects depend on theoretical models and are not explored in controlled experimental models or randomized clinical trials, limiting practical applicability.

The text innovatively presents Mg as an essential cofactor in multiple metabolic pathways related to longevity, going beyond its role as an electrolyte. This interdisciplinary approach could open avenues for further research.

The review takes a comprehensive approach, considering the impact of Mg on various biological processes, including metabolism, the gut microbiome, oxidative stress, and DNA methylation. This broad approach is innovative compared to previous reviews focused on specific areas.

The introduction of the concept of “normomagnesemic Mg deficiency” offers a new research perspective by suggesting that even “normal” serum Mg levels may be insufficient for optimal health. This raises relevant questions about current reference values.

The text highlights the importance of Mg in DNA and protein methylation, suggesting a connection between Mg and epigenetic regulation, which is an innovative approach in longevity research.

The recommendation to combine Mg supplements with vitamin D, as well as adjustments to the Ca:Mg ratio, is a practical approach that could encourage research on preventive or therapeutic interventions.

The text provides a comprehensive and innovative view of the role of Mg in longevity and overall health. However, it lacks methodological rigor, relying heavily on theoretical inferences and studies without a robust methodology. To strengthen its scientific relevance, controlled studies and clinical trials that directly test the effects of Mg on longevity markers and specific diseases are necessary.