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Beyond its Psychiatric Use: The Benefits of Low-dose Lithium Supplementation

[Sophie I Hamstra](#)^{1 2}, [Brian D Roy](#)^{1 2}, [Peter Tiidus](#)¹, [Adam J MacNeil](#)³, [Panagiota Klentrou](#)^{1 2},
[Rebecca E K MacPherson](#)^{3 4}, [Val A Fajardo](#)^{1 2 4}

Affiliations

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Abstract

Lithium is most well-known for its mood-stabilizing effects in the treatment of bipolar disorder. Due to its narrow therapeutic window (0.5-1.2 mM serum concentration), there is a stigma associated with lithium treatment and the adverse effects that can occur at therapeutic doses. However, several studies have indicated that doses of lithium under the predetermined therapeutic dose used in bipolar disorder treatment may have beneficial effects not only in the brain but across the body. Currently, literature shows that low-dose lithium (≤ 0.5 mM) may be beneficial for cardiovascular, musculoskeletal, metabolic, and cognitive function, as well as inflammatory and antioxidant processes of the aging body. There is also some evidence of low-dose lithium exerting a similar and sometimes synergistic effect on these systems. This review summarizes these findings with a focus on low-dose lithium's potential benefits on the aging process and age-related diseases of these systems, such as cardiovascular disease, osteoporosis, sarcopenia, obesity and type 2 diabetes, Alzheimer's disease, and the chronic low-grade inflammatory state known as inflammaging. Although lithium's actions have been widely studied in the brain, the study of the potential benefits of lithium, particularly at a low dose, is still relatively novel. Therefore, this review aims to provide possible mechanistic insights for future research in this field.

Keywords: Alzheimer's disease; Cardiovascular disease; diabetes; inflammaging; obesity; osteoporosis; oxidative stress; sarcopenia.

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Figures



Fig. (1) Low-dose lithium affects myocardial and...

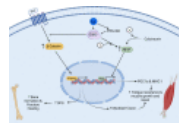


Fig. (2) Potential benefits of low-dose lithium...

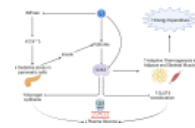


Fig. (3) Effects of low-dose lithium on...



Fig. (4) Neuroprotective effects of low-dose lithium...



Fig. (5) Anti-inflammatory and antioxidant effects of...

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