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Update on extra-skeletal health effects of vitamin D - implications for recommendations

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There is accumulating evidence that vitamin D may beneficially affect several extra-skeletal diseases, including respiratory tract, autoimmune, neurodegenerative, and mental diseases. We identified systematic reviews (SRs) of cohort studies and randomized controlled trials (RCTs) as well as single Mendelian randomization studies and summarized the results in an umbrella review. Observational data on primary prevention suggest an inverse association between vitamin D status and the risk for acute respiratory tract infections (ARI) and depression, whereas data for asthma, multiple sclerosis (MS), and type-1 diabetes mellitus (T1DM) are still scarce. SRs of RCTs support the observational findings in the case of ARI. Further, SRs of RCTs indicate beneficial therapeutic vitamin D effects in patients with asthma and COPD. In addition, we also reviewed the literature on the specific association between vitamin D status and COVID-19 disease risk and severity of the disease. The implications for recommendations to the general public or for specific high-risk groups are being discussed.

Keywords: vitamin D status, diseases, review, COVID-19

Further Collaborators: Working groups on vitamin D at the German Nutrition Society