

Inorganic nitrate: a major player in the cardiovascular health benefits of vegetables?

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Source

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Abstract

Epidemiological evidence suggests a higher consumption of vegetables confers a protective effect against the risk of cardiovascular disease. Impaired bioavailability of nitric oxide (NO), which is a critical regulator of vascular homeostasis, in the vasculature is thought to be a major problem in cardiovascular disease. Classically, vascular endothelium is suggested to be the sole source of bioactive NO in the vasculature. Emerging literature, however, associates the nitrate-nitrite-NO pathway, in which endogenous nitrate undergoes reduction to nitrite and then to NO in various tissues, including blood, with the production of bioactive NO. Indeed, NO generated from the nitrate-nitrite-NO pathway has recently been associated with the maintenance of NO homeostasis in the body. Endogenous nitrate originates mostly from NO oxidation in the biological milieu and from exposure to dietary nitrate. Consumption of vegetables accounts for approximately 80-85% of daily nitrate exposure in humans, thereby establishing inorganic nitrate as a promising factor in the cardiovascular health benefits of vegetables. At this point in time, however, the benefit : hazard ratio of inorganic nitrate and its active metabolite nitrite remains less clear and must be studied in prospective controlled studies. This brief review discusses the potential role of inorganic dietary nitrate in the cardiovascular health benefits of vegetables.

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