

RISK FACTORS

SODIUM INTAKE AND HEALTH OUTCOMES

Most people around the world consume more sodium than is generally recommended by current guidelines. In three articles published in the *New England Journal of Medicine*, researchers sought to evaluate the relationship between sodium intake and health outcomes.

Investigators from the NUTRICODE study quantified the intake of sodium according to age, sex, and country using survey data from 66 countries. The mean level of sodium intake worldwide in 2010 was found to be 3.9 g per day, and regional mean levels ranged from 2.18 to 5.51 g per day. The investigators estimated that “a total of 1.65 million deaths from cardiovascular causes were attributable to consumption of more than 2.0 g of sodium per day”. Importantly, 84.3% of these deaths occurred in low-income or middle-income countries, and 40.4% in participants who were <70 years of age.

In a separate study, researchers from the PURE trial (a large, prospective, epidemiological study) measured urinary sodium levels in 101,945 individuals from 17 countries to determine the optimal range of sodium consumption for cardiovascular health. The mean estimated sodium excretion in these study participants was 4.93 g per day. The lowest risk of cardiovascular events and death was observed in individuals in the PURE trial with a sodium excretion level of 3–6 g per day. Notably, sodium excretion levels higher or lower than this range were linked to greater cardiovascular risk, depicting a J-shaped association curve.

In a second paper, the PURE study researchers also examined the interaction between sodium and potassium excretion, and blood pressure. High sodium excretion was strongly linked with increased blood pressure in patients with low potassium excretion. This observation was most pronounced in individuals who consumed a high-sodium diet, were hypertensive, or were aged >55 years. In an accompanying editorial, Suzanne Oparil reiterates that “taken together, these three articles highlight the need to collect high-quality evidence on both the risks and benefits of low-sodium diets”.

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Original articles Mozaffarian, D. *et al.* Global sodium consumption and death from cardiovascular causes. *N. Engl. J. Med.* 371, 624–634 (2014) | O'Donnell, M. *et al.* Urinary sodium and potassium excretion, mortality, and cardiovascular events. *N. Engl. J. Med.* 371, 612–623 (2014) | Mente, A. *et al.* Association of urinary sodium and potassium excretion with blood pressure. *N. Engl. J. Med.* 371, 601–611 (2014)