

# Excessive salt consumption appears to be bad for your bones

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A high-salt diet raises a woman's risk of breaking a bone after menopause, no matter what her bone density is, according to a new study that will be presented Saturday at The Endocrine Society's 95th Annual Meeting in San Francisco.

The Japanese study found that older women who consumed the highest amount of sodium had more than four times the risk of a nonvertebral fracture, or fracture at any site other than the spine. That finding held true even after the researchers made adjustments for many other characteristics that could affect [fracture risk](#), said the study's lead author, Kiyoko Nawata, PhD.

"Excessive sodium intake appears to be a risk factor for bone fragility. It is therefore important to consider excessive sodium intake in dietary therapy for osteoporosis," said Nawata, a professor of health and nutrition at the University of Shimane in Matsue, Japan.

A nonvertebral fracture, particularly of the hip, can cause substantial disability and even death, many studies have found.

Past research shows a connection between excess sodium intake and increased [bone breakdown](#) and decreased [bone mineral density](#). Nawata and her colleagues conducted the study to learn whether too much sodium also is related to fracture risk. The researchers studied 213 [postmenopausal women](#), with an average age of 63, who had undergone osteoporosis screening.

The screening included [bone density](#) scanning, a food questionnaire and bloodwork to test markers of [bone metabolism](#) and rule out medical conditions that can raise fracture risk. In addition, a physician determined the presence or absence of an existing nonvertebral fracture. The women also had motor function tests of their balance, to determine their fall risk, and a test of handgrip strength. Low [grip strength](#) is a risk factor for osteoporosis-related fracture.

For all women, the average daily sodium intake was 5,211 milligrams (mg), the authors reported. The group with the highest sodium intake consumed an average of 7,561 mg per day, the sodium equivalent of more than seven McDonald's double cheeseburgers, according to Nawata. That group was 4.1 times likelier to have an existing nonvertebral fracture, compared with the groups who had lower sodium intakes. The increased risk was independent of the other risk factors assessed, including the woman's age, bone mineral density, body mass index, calcium and vitamin D intake, and blood level of vitamin D, as well as balance and muscle strength.

The groups with less sodium intake did not have an increased risk of fracture, Nawata said.

Japanese consume more sodium on average than Americans—3,972 mg versus about 3,400 mg per day—said study co-investigator Mika Yamauchi, MD, associate professor of internal medicine at Shimane University Faculty of Medicine in Izumo.

Americans, however, consume far more sodium than the daily recommended intake of 2,300 mg, which equals less than 1 teaspoon of table salt. The 2010 Dietary Guidelines for Americans further recommend that people 51 and older consume no more than 1,500 mg of sodium per day. However, the Institute of Medicine released a report in May stating that "evidence on direct health outcomes does not support

recommendations to lower [sodium intake](#) ... to, or even below, 1,500 mg per day."

Provided by The Endocrine Society

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