

Calcium and vitamin D may not be the only protection against bone loss

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Diets that are high in protein and cereal grains produce an excess of acid in the body which may increase calcium excretion and weaken bones, according to a new study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism (JCEM)*. The study found that increasing the alkali content of the diet, with a pill or through a diet rich in fruits and vegetables has the opposite effect and strengthens skeletal health.

"Heredity, diet, and other lifestyle factors contribute to the problem of bone loss and fractures," said Bess Dawson-Hughes, M.D., of Tufts University in Boston, Mass. and lead author of the study. "When it comes to dietary concerns regarding bone health, calcium and vitamin D have received the most attention, but there is increasing evidence that the acid/base balance of the diet is also important."

Average older adults consume diets that, when metabolized, add acid to the body, said Dr. Dawson-Hughes. With aging, we become less able to excrete the acid. One way the body may counteract the acid from our diets is through bone resorption, a process by which bones are broken down to release minerals such as calcium, phosphates, and alkaline (basic) salts into the blood. Unfortunately, increased bone resorption leads to declines in bone mass and increases in fracture risk.

"When fruits and vegetables are metabolized they add bicarbonate, an alkaline compound, to the body," said Dr. Dawson Hughes. "Our study found that bicarbonate had a favorable effect on bone resorption and

calcium excretion. This suggests that increasing the alkali content of the diet may attenuate bone loss in healthy older adults."

In this study, 171 men and women aged 50 and older were randomized to receive placebo or doses of either: potassium bicarbonate, sodium bicarbonate, or potassium chloride for three months. Researchers found that subjects taking bicarbonate had significant reductions in calcium excretion, signaling a decrease in bone resorption.

"In this study, we demonstrated that adding alkali in pill form reduced bone resorption and reduced the losses of calcium in the urine over a three month period," said Dr. Dawson-Hughes. "This intervention warrants further investigation as a safe and well tolerated supplement to reduce bone loss and fracture risk in older men and women."

Source: The Endocrine Society

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