

Flaxseed oil and osteoporosis

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Animal studies suggest that adding flaxseed oil to the diet could reduce the risk of osteoporosis in post-menopausal women and women with diabetes, according to a report to be published in the *International Journal of Food Safety, Nutrition and Public Health*.

Mer Harvi and colleagues at the National Research Center, in Cairo, Egypt, have studied the effect of diabetes on bone health and evaluated how flaxseed oil in the diet might delay the onset of [osteoporosis](#). The researchers studied 70 female albino rats of which 30 had their ovaries removed (ovx) to simulate the post-menopausal state and experimental diabetes was present in one group of rodents.

The researchers then classified the rats as control, sham, diabetic, diabetic received flaxseed oil in the diet, ovx, ovx-diabetic and ovx-diabetic received flaxseed oil in the diet.

After two months, the team collected urine and blood samples from the rats and measured serum insulin-like growth factor 1 (IGF-1) and the bone-creating protein osteocalcin. They found that these two compounds were present at higher levels in the ovx and the diabetic ovx groups, but much lower in the non-ovx diabetic group. The concentrations of IGF-1 and osteocalcin could be raised to normal levels by adding flaxseed oil to the diet.

The team also found that the levels of deoxypyridinoline in the urine were raised in the diabetic group. Deoxypyridinoline is normally present in healthy bone and its presence in urine is a specific marker for bone

resorption associated with osteoporosis. Levels of this marker compound fell when the rats were given flaxseed oil.

The team concludes that diabetes has a more pronounced effect on bone health than ovariectomy and so may suggest that diabetes in post-menopausal women may also be a greater risk factor for osteoporosis than the decline in [sex hormones](#) associated with the menopause. However, their results suggest that flaxseed oil has a beneficial effect on [bone mineral density](#) and reduces markers associated with osteoporosis, suggesting that this dietary supplement could be beneficial to women with diabetes in reducing their risk of osteoporosis.

The team explains that the presence of so-called "n-3 fatty acids" in flaxseed oil may play a role in protecting the processes of matrix formation and bone mineralization, which are apparently compromised by [diabetes](#) and the menopause. "We recommend further investigations using animals and humans to confirm the effect of using dietary flaxseed oil to improve bone health and to prevent osteoporosis," Harvi and colleagues conclude.

More information: "Impact of feeding flaxseed oil on delaying the development of osteoporosis in ovariectomized diabetic rats" in Int. J. Food Safety, Nutrition and Public Health, 2009, 2, 189-201.

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