

Soy diets might increase women's bone strength

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Pamela Hinton, professor of nutrition and exercise physiology, says women might improve bone strength by adding some soy-based foods to their diet. Credit: MU

Osteoporosis, decreased physical activity and weight gain are serious health concerns for postmenopausal women. Researchers from the University of Missouri now have discovered through a new animal study that soy protein found in food might counter the negative effects of menopause on bone and metabolic health. Moreover, the researchers believe that soy protein might also have positive impacts on bone strength for women who have not yet reached menopause.

"The findings suggest that all women might see improved [bone strength](#) by adding some soy-based whole foods, such as tofu and soy milk, to their diet," said Pamela Hinton, professor of nutrition and [exercise physiology](#). "We also believe that soy-based diets can improve metabolic function for [postmenopausal women](#)."

Hinton and Victoria Vieira-Potter, co-author and associate professor of nutrition and exercise physiology, studied the effects of soy versus corn-based diets on [rats](#) selectively bred to have low

fitness levels. Rats were again divided between those with and without ovaries to mimic effects of menopause. Prior research has found that these rats are good models for menopausal women. They compared the impact of the soy diet on bone strength and metabolic function to rats fed a corn-based, soy-free diet.

"Prior research has shown that these rats are good models, as average American women are relatively inactive both before, and especially after, menopause," Vieira-Potter said. "As such, understanding how dietary protein sources, such as soy, can impact metabolism and bone health in these rats can help us better understand how such diets might impact women's health across the lifespan."

The researchers found that the tibia bones of the rats that were fed soy were stronger compared to the rats who were fed the corn-based diet, regardless of ovarian hormone status. Moreover, they found that the soy-based diet also improved [metabolic function](#) of the rats both with and without ovaries.

"Bottom line, this study showed that women might improve bone strength by adding some soy-based whole foods to their diet," Hinton said. "Our findings suggest that women don't even need to eat as much soy as is found in typical Asian diets, but adding some tofu or other soy, for example foods found in vegetarian diets, could help strengthen bones."

More information: Pamela S. Hinton et al, Soy protein improves tibial whole-bone and tissue-level biomechanical properties in ovariectomized and ovary-intact, low-fit female rats, *Bone Reports* (2018). [DOI: 10.1016/j.bonr.2018.05.002](https://doi.org/10.1016/j.bonr.2018.05.002)

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