Probiotics protect mice from estrogen deficiency-related bone loss

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After menopause, a decline in estrogen levels is linked to increases in inflammation that can cause osteoporosis. Intestinal bacteria have been shown to influence inflammation by modulating immune responses, and a new study suggests that differences in gut microbial populations may determine the extent of post-menopausal bone loss.

In this month's issue of the *JCI*, a research team led by Roberto Pacifici at Emory University demonstrates a link between gut bacteria and the bone loss induced by estrogen deficiency. Mice lacking gut bacteria were protected against the estrogen deficiency-induced inflammation, gut permeability, and bone loss that occurred in mice with normal gut bacteria.

Further, treatment of normal mice with probiotics attenuated inflammation and bone loss induced by estrogen deficiency. Treatment with non-probiotic strains of bacteria did not prevent estrogen deficiency-induced bone loss.

These results indicate that gut bacteria drive responses to inflammation and point to therapeutic potential for probiotics in osteoporosis.

More information: Jameel Iqbal et al, From the gut to the strut: where inflammation reigns, bone abstains, *Journal of Clinical Investigation* (2016). DOI: 10.1172/JCI87430

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