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Soy Isoflavones have Influence on Cadmium Toxicity in Bone

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We examined the preventive ability of genistein, daidzein and 17β-estradiol to Cadmium(Cd)-induced bone loss for 8 weeks. Forty five, 4-week-old Wistar female rats were ovariectomized and divided into one ovariectomized(OVX) group and four 200ppm of Cd treated groups: OVX+Cd, OVX+Cd+genistein(G; 10㎍/g b.w.), OVX+Cd+daidzein(D; 10㎍/g b.w.), and OVX+Cd+17 β-estradiol(ES; 10㎍/kg b.w.). Body weight gain and femur weight were significantly decreased by Cd exposure but recovered by feeding genistein, daidzein and 17 β-estradiol. Femur breaking force, Ca and P contents were increased in OVX+Cd+G and D. Fecal Cd excretion was higher, whereas fecal Ca excretion was lower inversly in soy isoflavones treated groups than in other groups. Histopathology in femur stained by H&E staining showed that epiphyseal plate was thicker and its mineral density was more compact by feeding soy isoflavones. Therefore, soy isoflavones, especially daidzein may decrease bone loss in 200ppm of Cd-exposed ovariectomized growing rats.