

■ DMPA and bone mineral density loss

THE QUESTION: Does depot medroxyprogesterone acetate decrease bone mineral density?

PAST STUDIES A substantial number of studies, largely cross-sectional, have suggested that loss of bone mineral density (BMD) occurs in current users of the progestin-only injectable contraceptive depot medroxyprogesterone acetate (DMPA). This loss likely indicates that ovarian estradiol production is lowered during use of this contraceptive.

THIS STUDY In this prospective cohort evaluation, researchers assessed BMD in 183 DMPA users and 274 non-users over a 3-year period. Bone density in women ages 18 to 39 was measured via dual-energy x-ray absorptiometry every 6 months. The results indicated marked BMD loss among DMPA users when compared with those women who did not take DMPA. Specifically, women on DMPA experienced a loss of 1.12% femoral bone density per year and non-users lost an annual 0.05%. Further, spine bone density loss among DMPA users was 0.87% per year, while non-users experienced a 0.40% gain.

However, the 110 women who discontinued DMPA during the study showed significant increases

in BMD. Mean annualized gains were 1.41% and 1.03% at the spine and hip, respectively. Moreover, women who stopped DMPA injections for 30 months had bone density values similar to those of non-users.

The researchers concluded that DMPA use is strongly linked to BMD loss. However, if DMPA is discontinued, bone loss is reversible.

FIND THIS STUDY Scholes D, LaCroix AZ, Ichikawa LE, et al. September 2002 issue of *Epidemiology*; abstract online at <http://www.nichd.nih.gov/CPR/crh/crh.htm>.

WHO MAY BE AFFECTED BY THESE FINDINGS? Women taking DMPA.

EXPERT COMMENTARY The results of this important longitudinal study remind us that the skeleton is a dynamic organ and that cross-sectional observations may not adequately assess long-term clinical impact.

Premenopausal women whose endogenous estrogen levels decline, including DMPA users and lactating women, do experience short-term declines in BMD. However, this study (consistent with others assessing BMD following DMPA discontinuation) clarifies that bone loss is reversible following discontinuation of progestin-only injectable contraception. In fact, Orr-Walker's study of postmenopausal



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women in New Zealand demonstrated that DMPA use in reproductive-aged women is not associated with postmenopausal osteopenia or osteoporosis.¹

It is important to note that DMPA users—and all women for that matter—should be encouraged to avoid smoking, consume adequate amounts of calcium, and engage in consistent weight-bearing exercises.

No study has found any long-term impact of DMPA use on bone mineral density or fracture risk. BMD concerns should not prevent clinicians from prescribing DMPA to appropriate candidates.

THE BOTTOM LINE Clinicians providing contraceptive services should recognize that the use of the highly effective and convenient DMPA does not appear to cause a lasting negative impact on BMD. In fact, no study has found evidence of any long-term impact of DMPA use on BMD or fracture risk. High-priority areas for future research include assessment of BMD in adolescents following use of DMPA, in women who have used DMPA for extended periods of time, and in higher-risk DMPA users, including smokers and those with a positive family history of osteoporosis. Based on the current evidence, however—including the reassuring findings reported in this study—BMD concerns should not prevent clinicians from prescribing DMPA to appropriate candidates.

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REFERENCE

1. Orr-Walker BJ, Evans MC, Ames RW, Clearwater JM, Cundy T, Reid IR. The effect of past use of the injectable contraceptive depot medroxyprogesterone acetate on bone mineral density in normal post-menopausal women. *Clin Endocrinol (Oxf)*. 1998;49(5):615-618.