

Hormonal Contraception and Bone Health

Hormonal contraceptives, which include birth control pills, injections, implants, the patch and the vaginal ring, all use hormones to keep a woman from getting pregnant. These hormones can have other health effects for women, many of them beneficial, besides just preventing pregnancy. However, some questions have been raised about how particular hormonal contraceptives, DMPA (depot medroxyprogesterone acetate with trade names of *Depo-Provera*, *Depo-Clinovir* and others) and NET-EN (norethisterone enantate or *Noristerat*, *Norigest*, *Doryxas* and others), may affect the health of women's bone.

Bone health

Bones begin forming before birth, and continue to grow and become stronger until about the age of 30. Most bone growth occurs in the first 20 years. Adolescence is one of the most important periods for bone growth, as this is when bone density reaches its peak. Bone density is measured by using a type of x-ray to determine how strong the bone is.

Leaving adolescence with strong bones may be important for later bone health, as after age 30, the loss of bone density begins. Women experience the greatest loss after menopause, around age 50. In general, the stronger the bones are as a young person, the stronger they will stay as the person ages.

Bone density varies continuously throughout life. It may be affected by many aspects of a woman's life that impact her health, such as breastfeeding and pregnancy. The hormone estrogen plays an important role in developing and maintaining strong bones. This means that hormonal birth control may also affect bone density. Hormonal contraception that contains an estrogen may help keep the bones of some women strong, but

for most healthy women it probably does not make a big difference.

Testing the density of bone gives a good indication about how strong it is, but it does not predict whether a bone will break or not, especially in young women. Older women, after they have gone through menopause, are the most likely to fracture their bones as a result of low bone density. However, other factors than bone density play a role in the risk that a woman may have a fracture, such as physical activity, age, diet, and some medical problems.

Combined hormonal contraception

Combined hormonal contraception includes all methods of birth control that use more than one type of hormone (both estrogen and a progestin) to prevent pregnancy. In regards to bone health, these contraceptives do not affect bone density much, and any effect that they do have is not likely to increase a woman's chance of bone fracture. Some research studies have found that adolescents who use this type of contraception have slightly lower bone density while using it, and others have found that women who are entering menopause may have slightly higher bone densities. How-

ever, all of these changes are much smaller than what would be needed to increase a woman's chance of fracturing her bones.

The combined hormonal contraceptives such as the vaginal ring, the patch and the injectables that contain two types of hormones have not been well researched for their effect on bone health.

Progestin-only contraception

The birth control methods that use only one hormone, a type of progesterone (or progestin), to prevent pregnancies include some pills, implants, some injectables and one type of IUD. Of these methods, none seems to affect bone health significantly except for the progestin-only injection, DMPA.

Women using DMPA lose some bone density while they are using it. This happens to both adults and teenagers. The amount of bone lost is somewhere between 5-7% in the hip and spine. This change happens quite rapidly at first. The loss then becomes much slower over the course of 2 years. The good news is that when the DMPA is stopped, both adults and teenagers regain bone density over a short time period. In 2 years, their bone density is about the same as other women their age who did not use DMPA.

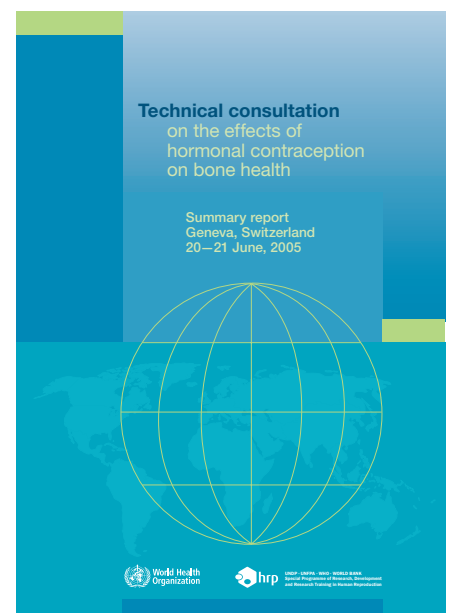
Another type of progestin-only contraception that is given by injection is called NET-EN. The studies that have been done to study the effect of DMPA on women's bones have not all been replicated in women who use NET-EN. However, since these two types of medications are very similar, the risks with their use is also thought to be similar. Therefore, the recommendations that are given here also apply to women using NET-EN.

Although the bone recovers its density after stopping the progestin-only injectable, two groups of women may need special attention: those women who enter menopause while using it, and those who are teenagers while they are using it. The reason is that

women who are teenagers are still making bone in a way that adult women do not. Therefore, researchers wonder whether this will affect the maximum level of bone density they will reach normally. If there is a negative effect, this may lead to weaker bones and an increased risk of fracture later in life, as an elderly person. We will not know the answer to this question until women using these contraceptives age. But since we know that the bone density almost completely 'recovers' after stopping the progestin-only injectable, the chance is small that this will increase the risk of fracture much later on in life.

With regard to bone density and hormonal contraception, the World Health Organization recommends:

- Women aged 18-45 should be able to use DMPA (and other progestin-only injectables) without any limits
- A teenager or a woman over 45 may use DMPA (and other progestin-only injectables) if she and her health care provider decide that it is the best method for her, even if it may decrease her bone density
- None of the other progestin-only forms of birth control have restrictions on use because of issues of bone health
- With regard to bone health, none of the combined hormonal contraceptive methods (which contain both and estrogen and a progestin) should be withheld from women who otherwise are eligible to use the method.



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