

Osteoporosis - the Importance of Peak Bone Mass

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Women in Canada experience 30,000 hip fractures each year. One in three women and one in five men will suffer an osteoporotic fracture in a lifetime. One in three hip fracture patients will re-fracture within a year. One in two will suffer another fracture within five years. 28% of women and 37% of men who have a hip fracture die within the following year. 15-25% of hip fractures result in admission to a nursing home.

As you can imagine, this is very costly! The yearly cost to treat those fractures in 2010 was over \$2.3 billion. When you add in long term costs, the total rose to \$3.9 billion. Anything we can do to reduce this burden would be beneficial.

One of the things that sets us up for Osteoporosis is not building a high enough PEAK BONE MASS. We used to believe that we would continue to deposit calcium in our bones until 30-35 years of age, and after that there was a slow decline until menopause when it dropped dramatically. We now know that the peak bone mass is reached much earlier: ages 16-20 for females and 20-25 in males.

Bearing in mind that a 10% to 13% reduction in bone mineral density (BMD) increased fractures by 1.4 to 2.6 times, you can see that small percentages have big impact. A study by the National Institute of Child and Human Development in 2006 showed BMD was reduced at the hip by 7.7% and spine by 6.4% if Depo Provera was used more than four years. The majority of the loss was in the first year.

A study in 2008 compared 18-35 year olds and 34-45 year olds and found a 5% loss only in those who started Depo Provera for birth control before the age of twenty. If it was used for more than four years it could take up to seven years after discontinuation to recover. Since 90% of peak bone mass is achieved by 18, using it in 14-18 year olds is the most devastating because they never reach a good peak bone mass.

There is also concern about the **quality** of the bone. Looking at 17,527 fractures in 20-25 year olds, if they used Depo Provera for 1-2 prescriptions the odds they would fracture increased by 1.18 times; using 3-9 prescriptions increased fractures by 1.36 times. More than ten prescriptions increased fractures by 1.5 times. In other words, they had a fifty percent higher risk of fracture if they used it 10 years, with the fractures occurring in young women.

Message for the day:

Check with your granddaughters to see what they are using for contraception. They should **not** be using Depo Provera before the age of 20, (if ever in my opinion!). If they have other factors or conditions that increase the risk of Osteoporosis, such as a family history of fracture, diabetes, Crohn's disease, Ulcerative Colitis, or kidney disease, they should avoid it. If they have poor lifestyle that includes smoking, drinking alcohol or are malnourished, they should avoid it. Certain drugs like steroids or anticonvulsant medication also put you at greater risk of fracture, so choose another option for birth control.

It is also important to encourage our kids to get enough milk, avoid those pop slurpies that prevent calcium absorption and then get off the computer and exercise!