



August 13, 2011 – Grand Rapids, MI

Girls and Their Bones

Strong bones are important and the stronger they are earlier in life, the better off we are. It's especially important for teenagers and young women, because the bone mineral content they have by the time they're in their early 20s is generally as much as they will ever have. Then it's a matter of hanging on to as much as possible throughout the rest of their lives. Exercise is good for bones in order to keep and add bone mineral content, but it's just not that simple as a recent study illustrated. This research is important, especially if you have daughters who are active in sports.

The Study

Researchers recruited subjects from a prior study on the relationship between bone mineral content, menses, body fat, and body mass index (BMI). This was a follow-up study done to examine what changes occur in the bone mineral content of cross-country runners over three years. The reason for the follow-up was due to the low bone mineral content in these female athletes in the original study; it didn't mean they had osteopenia, but their bone mineral content was lower than it should have been for girls 15 and 16.

The Subjects

The 39 subjects were an average of 19 years old during the follow-up. They had continued to run cross country, averaging over 25 miles per week, and all had at least one competitive season in the three years. Compared to when the study began, all the girls were taller, weighed more, and had higher body fat and BMI.

Almost 90% of the girls who had a lower bone mineral content earlier still had a lower bone mineral content three years later. When the researchers compared those who increased their bone mineral content with those who did not, those who didn't improve tended to have irregular menses and a lower BMI, an average of less than 20.

Risk of Osteoporosis

The concern for these athletes is that the lack of bone mineral now will put them at risk for osteoporosis much earlier in their life, long after they stop competing or even running at all. The pattern that the runners exhibit is similar to what happens with women who have anorexia nervosa; they maintain such low body fat that they upset their hormone levels and stop menstruating, which interferes with the body's ability to build bone.

The one issue with the study is that the researchers did not monitor the dietary intake to see what influence dairy intake or calcium supplements might have on the bones. It may be that with adequate nutrition, the effect on bones may be minimized. However, I can tell you having studied anorexia years ago, the real problem is the low body fat.

The Bottom Line

I think this study is important for parents as well as teenage girls. More girls are competing in athletics than ever before, and that's a great thing, but they have to maintain adequate body fat levels and maintain menses in order to continue to build bones. In a competitive athletic world—not only traditional athletics, but also dance, beauty pageants, and so on—there's an emphasis on lowering body fat because the thinking is that it will enhance performance. That's true up to a point—but where's that point? I'd say it's when what you do today negatively affects your health later.

Parents should have frank discussions with their girls about menstruation. Teens sometimes have irregular menses anyway, but if a girl misses more than three periods, it might be a good idea to have a bone mineral content test done to establish a baseline. We have the technology, so we might as well use it. I would also recommend a vitamin D test to determine her vitamin D status; if it's less than 30 ng/l, vitamin D supplementation should be considered.

Teens often think today is all that matters, and who cares about what happens when I'm 50 or 60? Talk to kids about how what they do today affects their bodies in the future. Most girls hope to become mothers eventually and to have the good health to succeed in a career; making their bodies as healthy as possible in their teens is a necessary prelude to doing well in those other phases of life. It's also important that your kids see you enjoying life and caring about your health and your appearance. You must demonstrate for them that living a healthy lifestyle is an important investment in their future, and that life will continue to be worth living past 30!

And grandparents, it's part of your job to show the grandkids that what happens when you're 50, 60, 70, and 80 does matter and is worth preparing for during the younger years; being fit and active is a big step in that direction. The whole family must pitch in and help your young athletes take care of their bodies now and for the future. As we adults know all too well, it's the only one we have and it has to last a long time.

What are you prepared to do today?

Dr. Chet

Reference: MSSE. 2011; (43)6:959-66.

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