OPINION

Bone thin

BY **APOORVA MANDAVILLI**

30 JANUARY 2008

f39e5360-b454-f564-d910-6af3c8b15fc8.jpg

Boys with autism have thinner, significantly less dense bones than boys the same age without autism, perhaps because of a deficiency in calcium and vitamin D, says a new study.

Boys with autism are heavier than average and would be expected to have thicker bones. But there are many things that could be to blame for this difference.

Because playing outside requires a lot of supervision for children with autism, they often stay indoors, limiting both their exposure to sunlight ? which is essential for vitamin D ? and to exercise. Children with autism also often have digestive problems and have aversions to certain foods.

Last, and perhaps more important, many children with autism are given controversial diets that exclude casein, a protein found in milk and milk products. Without dairy in their diet, these children may not get enough calcium and vitamin D.

In the study, the nine boys on a casein-free diet had bones that were 20 percent thinner than normal. Bones of the boys with autism who were not on a casein-free diet were only 10 percent thinner than normal.

During normal bone development, material from inside the bone is transferred to the outside of the bone, adding to the bone's thickness. The bones are also growing longer at the same time.

In boys with autism, the bones grow longer normally, but don't get thicker at the normal rate, the

researchers found. They published their results in the ***Journal of Autism and Developmental Disorders***.

The observations may be equally applicable to girls, but because autism is **less common in girls**, the researchers weren't able to enroll enough girls in their study to make any claims. Even for boys, the results are preliminary, based on a small number of boys, and need to be validated.

The study isn't without other limitations. For example, to measure bone thickness, the researchers relied on X-rays of the hands of 75 boys with autism between the ages of 4 and 8 years old, and measured the bone located between the knuckle of the index finger and the wrist.

They found that the differences were significant in boys of 5 or 6 years of age, and became even more apparent at ages 7 and 8, putting boys with autism at much greater risk of bone fractures.

Hand X-rays offer only an approximation of bone density, however. The better way to measure bone density is with a bone scan, but the boys didn't stay still long enough for the researchers to use that technique.