One in seven US teens is vitamin D deficient

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One in seven American adolescents is vitamin D deficient, according to a new study by researchers in the Department of Public Health at Weill Cornell Medical College. The findings are published in the March issue of the journal *Pediatrics* and were presented at the Pediatric Academic Societies' Annual Meeting in May 2008.

In children, vitamin D deficiency can interfere with bone mineralization, leading to rickets. In adults, it is linked to cardiovascular disease, cancer, diabetes, immune dysfunction and hypertension.

The study employs a new definition of vitamin D deficiency recommended by a group of scientists attending the 13th Workshop Consensus for Vitamin D Nutritional Guidelines in 2007. These experts collectively proposed that the minimum acceptable serum vitamin D level be raised from 11 nanograms per milliliter (ng/mL) to at least 20 ng/mL.

Using the newer criteria, the study finds more than half of African-American teens are vitamin D deficient. Girls had more than twice the risk of deficiency compared with boys. And overweight teens had nearly double the risk of their normal-weight counterparts.

"These are alarming findings. We need to do a better job of educating the public on the importance of vitamin D, and the best ways to get it. To meet minimum nutritional requirements teens would need to consume at least four glasses of fortified milk daily or its dietary equivalent. Other foods rich in vitamin D include salmon, tuna, eggs and

fortified cereals. A vitamin supplement containing 400 IU of vitamin D is another alternative," says Dr. Sandy Saintonge, assistant professor of clinical pediatrics and assistant professor of clinical public health at Weill Cornell Medical College, and a pediatric emergency physician at New York Hospital Queens, a member of the NewYork-Presbyterian Hospital Healthcare System. "We should also consider a national fortification strategy, perhaps including routine supplementation and monitoring of serum levels, but more research is needed to determine optimal vitamin D levels."

Of the specific findings, the authors were particularly concerned about the role of weight in deficiency. "Because vitamin D is stored in body fat, simply increasing the dosage of vitamin D may not be effective in overweight adolescents," notes senior author Dr. Linda M. Gerber, professor of public health in the Division of Biostatistics and Epidemiology and professor of epidemiology in medicine at Weill Cornell Medical College. "As the prevalence of childhood obesity increases, vitamin D deficiency may increase as well. In this group, appropriate nutrition could solve both problems."

Another concern is the increased risk of deficiency in girls, some of whom may become pregnant during adolescence. The authors note that a lack of vitamin D may increase maternal risk of preeclampsia and gestational diabetes and may be associated with reduced bone mineralization in the offspring.

Data was obtained from National Health and Nutrition Examination Survey III, a cross-sectional survey administered to a nationally representative sample of persons aged 2 months and older. Analyses were restricted to 2,955 participants aged 12 to 19.

The study was co-authored by Dr. Heejung Bang, associate professor of biostatistics in public health at Weill Cornell Medical College.

Source: New York- Presbyterian Hospital