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Building Strong Bones in Childhood through Physical Activity: New Studies Provide Guidance for Health Providers and Parents

Minneapolis, MN – New research released today provides guidance on building strong bones in children and adolescents, years that are critical for creating strong skeletons that can help prevent osteoporosis later in life. Bones with more mass are thought to offer a shield against osteoporosis, a disease that affects men and women alike, in which bones become porous and weak over time and start to fracture. The research was released at the American Society for Bone and Mineral Research (ASBMR) 2012 Annual Meeting, the largest scientific meeting in the world on bone and mineral metabolism. The findings include:

Games, Exercises in Early Childhood School PE Programs Can be Designed to Boost Bones

Specialized physical education (PE) classes in elementary school can help improve bone strength in young children, if trained educators combine “bone-loading” and vigorous exercises such as walking, dancing, yoga, or resistance training. Australian researchers compared regular PE classes for 8-year-olds with classes that emphasized more vigorous and muscle-building exercise and games to determine the effects on bones over a four-year period. Follow-up bone density tests found that while the regular classes had some positive effects, they did not provide significant improvements in bone strength, leading them to conclude that the average PE class has room for improvement in order to significantly affect bone strength.

Early Childhood Physical Activity Boosts Bone Health in Children – Particularly Boys

Even moderate physical activity in early childhood has benefits for bones that extends into adolescence, particularly for boys, new data shows. Researchers at University of Iowa assessed children at age 5 and later at ages 13 and 15 and found that boys who had moderate or vigorous physical activity maintained greater bone strength, leading them to conclude that physical activity programs should begin early in childhood.

Exploring Links between Exercise, Calcium, Puberty and Bone Development

Exercise builds stronger bones in children, regardless of their stage of puberty or sexual maturation, according to an extensive study of children aged 5 to 19 from Creighton University. They also found that calcium intake appears to be very important for bone growth with differences by gender and race. Specifically, calcium intake has significant impact on bone development among non-black boys and girls regardless of the stage of puberty, the researchers found. They also found links between calcium intake and bone mass among black males in later stages of puberty (typically ages 12-14) and among non-black males in mid-late

stages of puberty (typically ages 11-4) and among non-black females in the late stages of development.

QUICK FACTS ABOUT BONE HEALTH AND OSTEOPOROSIS

- Bone mass is at its peak around age 30 and then typically starts to decline.
- According to the Institute of Medicine, adults 19 years of age and older require about 600-800 International Units of vitamin D daily and 1000-1200 mg. of calcium daily through food and with supplements, if needed, with somewhat different amounts of these nutrients recommended for growing children (ranges depending on age and gender).
- Experts recommend bone density testing for women who have experienced any bone fracture at age 45 or older and at age 50 for women with a family history of hip fractures or other bone-related disease.
- All women over age 65 should receive a baseline bone density screening test, however these are under-utilized; Medicare covers bone density testing as a preventive benefit, yet only 13 percent of Medicare-eligible women receive this screening test.
- Osteoporosis is a devastating and costly disease affecting 10 million Americans; another 34 million have low bone mass, making them more susceptible to osteoporosis.
- Without intervention, one in two women and one in four men age 50 and above will experience a fracture due to osteoporosis. Many individuals – men and women – don't even know they are at risk for the disease.
- In 2005, osteoporosis was responsible for an estimated two million fractures and \$19 billion in costs.
- By 2025, experts predict that osteoporosis will be responsible for approximately three million fractures and \$25.3 billion in costs each year.

For more information, please go to <http://www.asbmr.org> and see "Media" under the ASBMR 2012 Annual Meeting or contact Amy Goetz, ASBMR Marketing & Communications, agoetz@asbmr.org. NOTE: ASBMR will update its online press room throughout the meeting with new releases, meeting highlights and images. For access, contact agoetz@asbmr.org.

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The American Society for Bone and Mineral Research (ASBMR) is the leading professional, scientific and medical society established to bring together clinical and experimental scientists involved in the study of bone and mineral metabolism. ASBMR encourages and promotes the study of this expanding field through annual scientific meetings, an official journal (*Journal of Bone and Mineral Research*), the Primer on Metabolic Bone Diseases and Disorders of Mineral Metabolism, advocacy and interaction with government agencies and related societies. To learn more about upcoming meetings and publications, please visit www.asbmr.org.