

EVERYDAY VIGOROUS ACTIVITY INCREASES BONE STRENGTH IN CHILDREN



Young children who engage in 40 minutes of normal vigorous activity each day have significantly stronger bones than their less active peers, according to new research presented in the July issue of *Medicine & Science in Sports & Exercise*, the official scientific journal of the American College of Sports Medicine (ACSM). Researchers say the results indicate activity during childhood, when bone is most likely to adapt and adjust to the strains of physical activity, may have as much influence on osteoporosis prevention as adult interventions.

"It is important that children not miss this critical window of opportunity for building strong bones," said Kathleen F. Janz, Ed.D., FACS, the study's lead author. "The process of creating healthy bones begins early. We should encourage children to get outside and play and engage in vigorous, high-intensity, muscle-flexing activities."

using the same instrument used by doctors to diagnose osteoporosis in older adults.

At each bone measurement site, children who accumulated the most vigorous activity had significantly greater measurements of bone area and strength. These children performed an average of 42 minutes or more of high-intensity activities like hopping, running and jumping per day. On average, boys who accumulated the most vigorous daily activity had nine percent more bone area and 12 percent more bone strength than less active boys. The most active girls had seven percent more bone area than less active girls, and nine percent more bone strength.

Childhood play promotes bone health; may help prevent osteoporosis later in life

Because of the location of bone measurements taken around the hip, the research suggests that the increases in bone quality are due to bone's natural ability to adapt to physical activity. The hip is the part of the skeleton that most depends on physical activity to stay strong. It is also the site of osteoporotic fractures that are the most life-threatening and debilitating.

The researchers also found that boys and girls took part in similar amounts of moderate daily activity, but that boys accumulated about 10 minutes more daily vigorous activity than girls. The boys in the study had significantly stronger bones than their female peers.

"Many people, understandably, believe that all children at this age are active enough to get the exercise they need for healthy bone development," said Janz. "Our work suggests otherwise, especially in the case of young girls. Later in life, for a multitude of reasons, girls will have less bone to lose, and as older women will be much more likely to suffer from osteoporosis than men. The best way to promote activity is to let kids be kids by allowing them to play and enjoy activities that require jumping, tumbling, and running."

To study the relationship between childhood activity and bone health, Janz and her colleagues recruited more than 460 children averaging five years of age. They surveyed parents to ask about each child's daily activity level, then had each child wear a device that recorded the amount and intensity of activity, minute-by-minute. Each child wore the device for four days, including one weekend day. Activity levels found for each child were compared to clinical measurements of bone size and strength taken at three locations at and around the hip. The bone measurements were taken



FIGURE DRAWINGS COURTESY OF STEVE GREELEY

The American College of Sports Medicine is the largest sports medicine and exercise science organization in the world. More than 20,000 International, National, and Regional members are dedicated to advancing and integrating scientific research to provide educational and practical applications of exercise science and sports medicine.

NOTE: Medicine & Science in Sports & Exercise is the official journal of the American College of Sports Medicine, and is available from Lippincott Williams & Wilkins at 1-800-638-6423. For a complete copy of the research paper (Vol. 36, No. 7, pages 1124-1131) or to speak with a leading sports medicine expert on the topic, contact the Department of Communications and Public Information at 317-637-9200 ext. 127 or 117. Visit ACSM online at www.acsm.org.



Studies such as the one conducted by the American College of Sports Medicine, on the benefits of physical exercise in children is one reason why USA Gymnastics has introduced the Fitnastics Program.

Just as the study suggests, young children who engage in 40 minutes of normal vigorous activity each day have significantly stronger bones than their less active peers.

While those of us who are involved in gymnastics know that eating healthy and exercising are two important components of a healthy lifestyle, many children in America do not understand the importance of leading a healthy lifestyle. In fact, nearly 25 percent of children in America are overweight or obese. Furthermore, over 70 percent of girls and 40 percent of boys don't have enough muscle strength to do even one pull up!

USA Gymnastics asks you to join us in our fight against childhood obesity. The Fitnastics program was especially designed to teach all kids about the importance of nutrition and to show them just how fun exercise can be. The lessons can be modified to adapt to the skill level of each individual child, rewarding each child for their efforts while guiding them on the path to healthy habits.

One of the great benefits of the Fitnastics program is that it can be tailored to fit your club's needs and personality. USA Gymnastics will provide marketing materials and support, along with sample lesson plans for cardio warm ups, stretching ideas, and conditioning as well as apparatus ideas. In fact, USA Gymnastics is offering a video with samples of the following:

- Sample cardio ideas to music
- Sample stretching ideas
- Sample conditioning ideas
- Activities that make being in the gym FUN!
- Group performance routines for your special events or end of session programs

No one knows better than you how to make a program at your club a success. Use the sample program on the website as an idea bank where you can go to pick and choose what aspects fit your club the best or as a springboard to new ideas unique to your individual program. Be creative with your facility and your equipment, and then let us know how you've made your program unique.

You can purchase the Fitnastics Kit that has two promotional posters, a black and white ad slick, teachers' brochure on where to find the Fitnastics program on the web site and a sample of one of our "Fitnastics spots" to help keep the children in a safe place. To purchase a kit log onto www.usa-gymnastics.org/fitnasticsweb/ and download the order form.

USA Gymnastics would like to list the clubs that are featuring a Fitnastics program on our web site. We would also love to hear success stories and see great photos of your program in action.

Email us at club@usa-gymnastics.org so we can list your club on our site!