# Put the Focus on Ability

**Strength-Training** *from page 1*

fered with academic performance or social relationships.

Upon enrollment, the women had moderately high scores on the Eating Disorder Inventory, especially in drive for thinness and body dissatisfaction. The mean score for drive for thinness was 11.2 (clinical diagnosis scores: 12-17); the mean score for body dissatisfaction was 15.4 (clinical diagnosis scores: 11-19). Their mean baseline weight was 147 pounds.

On a body Contour Drawing Rating Scale, with body types ranging from anorexic (1) to obese (9), the women on average identified themselves as being a 7, and chose 4 as the figure they would like to be.

All of the women entered an 8-week weight-training program of two sessions per week. Exercises included two-legged and bench presses, lateral pull downs and shoulder raises, triceps extensions, biceps curls, abdominal crunches, and back extensions.

The focus of the program was solely on "getting strong," Dr. Wetter told this newspaper. "I talked to them about the physiologic and health benefits of weight training but never said anything about weight management or losing body fat. I wanted them to focus purely on strength training … by telling them 'you're going to train hard, and you're going to get strong.' "

Only six women provided post-intervention data, but their results were surprisingly consistent, according to Dr. Wetter. Their upper- and lower-extremity strength increased significantly (bench press weight increased from 73.5 pounds to 96 pounds; leg press, from 267 pounds to 437 pounds; and grip strength, from 31 pounds to 33 pounds). Scores on the Rosenberg Self-Esteem Scale increased a mean of 3 points. Scores on the Self-Concept Clarity Scale increased a mean of 6 points.

On the Eating Disorder Inventory, drive for thinness scores decreased a mean of 5 points, and body dissatisfaction scores decreased a mean of 6 points. The 40% decrease in both subscale scores brought the subjects out of the clinical diagnostic range and below the scores seen in women with symptoms of subclinical disordered eating. There was also a significant change in interpersonal distrust scores, which decreased by about 1 point.

All of the women gained weight (a mean of 3 pounds). They reported that their clothing felt tighter over their legs and that they had developed larger muscles, especially in their arms. Although they knew they had gained weight and muscle mass, all women identified themselves as having a smaller silhouette on the body contour drawing rating scale. The subjects still chose silhouette 4 as the ideal body type but now identified themselves as a 6 rather than as a 7.

"Their perceived appearance more closely resembled their desired appearance, even though they had all gained weight and they all knew that they had gained weight," Dr. Wetter said. "They got bigger, but they felt smaller."

She hypothesized that the physical sensations of power and strength that accompany weight training improve self-esteem and self-concept clarity, both of which are related to eating patterns.

Low self-esteem has been shown to be one of the most important factors in developing ongoing eating problems, Dr. Wetter said. Low self-concept clarity can predispose women to negative perceptions that also increase the risk of disordered eating behaviors and attitudes.

"This approach to helping women with negative body esteem affords them the opportunity to have a positive body experience that can shape their self-evaluation," said Dr. Wetter. "Given the ease and speed with which weight training increases strength, especially in the uninitiated, weight training appears to be ideally suited to increasing physical self-efficacy, a sense of mastery in a physical endeavor, and physical well-being. All provide positive feedback for shifting perceptions of the body and self in weight-preoccupied women."

However, Dr. Wetter stressed that any weight-training program for women at risk of eating disorders should focus on gaining strength and ability, and should avoid sending any messages about burning fat or controlling weight. "This could help them focus on the positive physical and psychological sensations and effects of weight training—intrinsic motivators, rather than the expected appearance or weight results—extrinsic motivators," she said. "Intrinsic motivations for exercise have been shown to be associated with better psychological well-being." ■

# Practical Pumping Up: Advice for Children and Parents

BY HEIDI SPLETE
*Senior Writer*

ORLANDO, FLA. — "When will Suzie be old enough to lift weights?" Family physicians may have heard this question from eager parents.

It's important to remind parents that strength is only one aspect of a young athlete's performance, David Bernhardt, M.D., said at a meeting sponsored by the American Academy of Pediatrics.

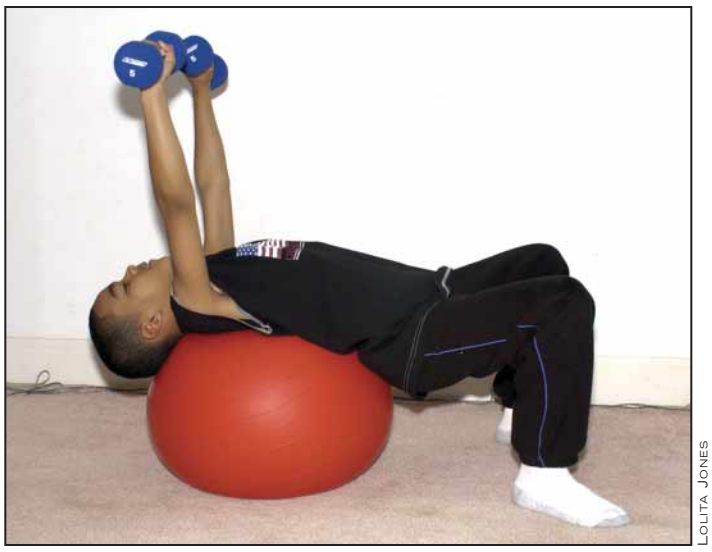
"Our job is to keep kids active, but excessive weight lifting does not necessarily equal athletic success," said Dr. Bernhardt, a pediatrics and sports medicine specialist at the University of Wisconsin, Madison. That said, there is no need to discourage children from sensible, moderate strength training, but children should be discouraged from power weight lifting and aesthetic body building, which are not appropriate activities for skeletally immature athletes.

Strength-training exercises using one's own body weight, such as push-ups and sit-ups, and free weights (including small dumbbells, stretching bands, and fitness balls), are better than using weight machines, which are not sized for children, Dr. Bernhardt said.

Safe and effective strength training starts with the proper technique. Children need to learn the techniques of a strength exercise with little or no resistance before adding weight gradually, and they should be able to complete 8-15 repetitions easily, using proper form, before increasing the weight.

Remind them to work all the muscle groups, not just the muscles they see in the mirror.

The question of whether strength training will truly improve performance is difficult to prove, he added. Gains between 30% and 40% have been observed in previous studies, and a 1996 metaanalysis showed that the percentage gains are similar to those in skeletally mature athletes (Sports Med. 1996;22:176-86).



LOLITA JONES

**Appropriate strength training for children involves small free weights, stretching bands, and fitness balls, not machines.**

"But, you are looking at smaller quantitative amounts," Dr. Bernhardt cautioned. In addition, a child's strength naturally increases as he or she grows, which may mask any effects from a specific strength-training program.

"There's a myth out there that strength gains aren't possible without pubertal hormones, and therefore kids who are prepubertal shouldn't be participating in a strength-training program," Dr. Bernhardt said.

However, short study durations, small numbers, mixed pubertal stages, and lack of controls can confound research in this area.

"The reality is that children can gain significant strength with little risk of injury, but they do need appropriate supervision and technique," Dr. Bernhardt said.

For example, he cited one study of nine boys and nine girls aged 10-11 years who participated in a 30-minute resistance-training program, three times per week for 9 weeks. The program consisted of three sets of 10 repetitions of various exercises, including thigh presses, chest presses, and back rows. The children demonstrated a mean 30% increase in strength compared with controls. Other equally important outcomes were that the children maintained their baseline flexibility, and no injuries were reported during the 9-week period, Dr. Bernhardt noted.

When a child expresses an interest in strength training, consider the child's motivation, goals, maturity, and whether the strength training would be supervised, he added. The most common reasons for injuries include inadequate coaching, weight training at home, use of free weights without spotters, and inexperience.

The most often-reported strength-training injuries in children are lower back strains. Remind children and parents that although the effect of strength training on body size and composition is difficult to measure while children are growing, there is no evidence that weight training has any detrimental effect on linear growth.

When children and teens ask about strength training, "you should use this as a jumping off point for anticipatory guidance," Dr. Bernhardt said. Ask what else they are doing to improve their strength. Ask them about nutritional supplements, and talk to them about steroids. Question them about their reasons for wanting to do strength training. Serious overuse injuries to the arms and shoulders due to strength training are more common in older adolescents than in young children. If a child or teenager is lifting enough weight to rupture a biceps or pectoralis muscle, investigate the possibility of steroid use.

Strength training likely has some benefit on overall sports performance, simply because someone who is stronger may be faster or more agile on the athletic field, but such benefits are difficult to prove, and whether increased strength will directly improve flexibility or stamina remains impossible to say, Dr. Bernhardt noted.

However, consider introducing children and parents to the concept of "functional fitness," which means training the body to move three-dimensionally, as it does in sports, rather than the two-dimensional motions of traditional weight lifting.

For example, suggest that a child do lunges forward, backward, and to the side, rather than forward only. Such triplanar activity, which young children engage in naturally while climbing on monkey bars, for example, can be lost when children become narrowly focused on one sport. Also, consider the sport. If you put a cross-country runner on a heavy muscle-building program, you may not do him or her any favors.

"The goal of keeping children active and participating in their sports until their bodies mature is a message we should deliver to parents," Dr. Bernhardt said.

The bottom line is to keep kids motivated and active, and if they want to do some strength training and understand the correct way to go about it, it should not be the doctor's job to discourage them, he added. ■