

News For

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Weight Training for Age Group Swimmers

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Generally, youngsters adapt well to the same type of training routine used by the mature athlete. One area of concern, though, is the use of weight training to develop muscular strength and muscular endurance. For many years, young boys and girls were discouraged from using weights for fear that they might injure themselves and prematurely stop their growth processes.

Results of animal studies suggest that heavy resistance exercise leads to stronger, broader, and more compact bone. However, since it is nearly impossible to load these animals to the same extent as youngsters, it has not been practical to design an experiment that accurately defines the risks associated; therefore the potential for injury and structural damage from heavy resistance appears to be extremely low. Still, since the future of the youngsters is at stake, it is appropriated to take a conservative approach until additional studies can be conducted.

Thus, to strength-train a young athlete, a program using low weights and high repetitions would be preferred to one using high weights and low repetitions. One of the safest techniques for strength training in youngsters would be to use the isokinetic concept of matching resistance to the force applied, so that the youngster does not have to contend with actual weights, such as barbells and dumbbells. Cybex, Orthoton, Mini-Gym, and Hydra-Gym are examples of isokinetic equipment.

It has been suggested that since young prepubescent boys have relatively low

circulating androgen levels, there is no reason to expect them to benefit from strength training prior to adolescence. Several recent studies have demonstrated that prepubescent boys can only participate in this form of activity but also can gain substantial increases in strength.

In a study conducted by Sewall and Micheli, prepubescent boys and girls who took part in a nine-week progressive resistance strength training program, 25-30 minutes a day, three days a week (*J Pediatr Orthop* 1986;6:1234-6). They experienced a mean strength increase of 42.9%, compared with a 9.5% increase in a non-training control group.

Weltman and his colleagues followed 16 prepubescent boys (mean age 8.2 years) through a 14-week strength program using isokinetic techniques with hydraulic resistance (*Med Sci Sports Exerc* 1986;18:S55). Isokinetic strength increased 18-37% in these young boys. Only one injury was recorded causing the boy to miss three training sessions. In the control group of 10 boys six injuries were recorded as the result of activities of daily living. None of the boys had any evidence of damage to bone, or the muscle structure as a result of strength training. From the results of these studies, one can conclude that young, prepubescent boys and girls can increase strength from using resistance exercise, and that few risks of injury are associated with such exercise. However, it should be noted that in both of these studies, free weights were not used. The resistance was provided by pneumatic (CAM-II), hydraulic (e.g., Hydra-Fitness and Orthotron), or fixed stacked weights (e.g., Universal Gym or Nautilus). The use of free weights provides a much greater potential for serious injury.