

## Don't Resist Resistance and Strength Training in Children

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The AAP's stance on strength training in children and adolescents continues to evolve. Thirty years ago, the AAP released its first policy statement on strength training in children and adolescents which stated: "... children and adolescents should avoid the practice of weight lifting, power lifting, and body building, as well as the repetitive use of maximal amounts of weight in strength training programs, until they have reached Tanner stage 5 level of developmental maturity."<sup>1</sup> But, what a difference 30 years can make! Since that original statement, a mountain of data has accumulated regarding the importance of appropriate strength, or resistance, training in children and adolescents, and the AAP's Council on Sports Medicine and Fitness just released an updated clinical report that turns these previous recommendations upside down ([2020-1011](#)).

For those of us in our middle years (or beyond), thoughts of fitness and exercise typically conjure up images of some type of cardiovascular conditioning. Running, or other aerobic activity (remember Jazzercise? Step aerobics?) tend to be first to come to mind. For years, the emphasis has been on the benefits of cardiovascular conditioning for both children and adults, but there is a growing realization that this repetitive, endurance training is of relatively little benefit in children before the onset of the adolescent growth spurt. Pre-pubertal physiology is best suited to intermittent stop-and-go activity that includes higher intensity bursts and a wide variety of motor outputs. This is the activity that best suits their physiology and, therefore, is usually the most fun.

Resistance training isn't just about building muscle. In pre-adolescents, marked gains in strength are made by enhancing neuromuscular signaling without any appreciable effect on muscle size. When I talk to patients and families about strength training, I explain that "nerves are the boss of the muscles." And in prepubescent children, most gains in strength happen due to enhanced efficiency of neuromuscular signaling. Neurologic "country roads" turn into efficient axonal "super highways," and this often results in rapid, and significant, strength increases even in very young children.

The best form of resistance training for young children occurs during vigorous, active free play, with activities such as climbing, jumping, pushing, or pulling. Older children and adolescents may benefit from a more structured program, and Stricker et al includes a practical "resistance training roadmap" for getting them started. It is worth noting that overweight or obese children are far more likely to enjoy and experience success with resistance training than with aerobic-based activity, and resistance training is often the best starting point for enhancing physical activity in this group.

There is good evidence that pediatricians who role model healthy levels of physical activity are more effective at counseling their patients on physical activity, and the AAP's clinical report on physician well-being emphasizes the importance of activity and fitness for the maintenance of physical and mental health, and the prevention of burnout.<sup>2</sup> If you are of "a certain age," check out these [American Heart Association recommendations](#) regarding strength training in adults. If you take good care of yourself, you can take better care of your patients.

### References

1. Strength Training, Weight and Power Lifting, and Body Building by Children and Adolescents. *Pediatrics*. 1990;86(5):801-803.
2. McClafferty H, Brown OW. Physician Health and Wellness. *Pediatrics*. 2014;134(4):830-835.

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