

ON THE SUBJECT OF **ADOLESCENT STRENGTH TRAINING**

STRENGTH TRAINING FOR the pre-teenage and early-teenage athlete is steeped in the kind of ambiguity and misconceptions that have achieved mythological status.

Though our early youth groups inculcate various physical and maturity considerations that require prudence and precaution, all of these concerns can be put to rest with intelligent screening, planning, instruction, and supervision.

Allow us to shed a little light on a few of the most frequently asked questions and/or several of our own personal perspectives.

IS ADOLESCENT STRENGTH TRAINING SAFE?

Enough scientific research is available to answer with a resounding, yes!

A vast majority of our exercise physiologists and pediatricians recommend some form of resistance training for medically fit adolescents.



In the prepubescent and usually pre-teen years, this may involve the use of bodyweight exercises such as push-ups, chin/pull-ups, parallel dips, sit-ups/crunches, etc.

All of these very productive exer-

cises offer an excellent introduction to the more advanced strength-training modes of future years.

The physician must first determine whether the student is physically up to the task and then test the student's readiness through a tool known as the Tanner Staging System, which evaluates secondary sexual characteristics and physical maturity.

Boys normally make a growth spurt between ages 10-12, while girls make theirs as early as age 8 or as old as 14, and especially between ages 11-12 years.

The bottom line is that most healthy youngsters—both boys and girls—are physically mature enough to begin a resistance program between ages 12-14.

As a matter of fact, the American Academy of Pediatrics (AAP) Position Paper (1) supports the implementation of strength training so long as it is monitored by a trained adult and all of the medical considerations have been taken into account.

The only major exception made by the AAP is to avoid repetitive maximal lifts (i.e., one-rep maximum lifts or lifts within 2-3 reps of a one-rep max).

BY KEN MANNIE

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(Exercises performed by Alaina Mannie)

IS ADOLESCENT STRENGTH TRAINING BENEFICIAL?

A common safety question concerns the epiphyseal junctures ("growth plates") at the ends of the bones. For many years, it was speculated that strength training could damage the composition of this bony matter, from which healthy bone continues to emanate until full skeletal growth is completed. This is where the "growth stunting" myth surfaced.

There is absolutely no scientific evidence that a sound, supervised strength training program can have an adverse effect on these body structures. On the contrary, strength training can not only strengthen the bones and make them more resilient to injuries, but can enhance the muscular strength and endurance of the youngsters, just as it does with adults.

These increases in strength appear to be the result of heightened neuromuscular activation—the nervous system learns to adapt more efficiently to the new stimulus. This is especially true with prepubescents, who do not yet possess enough circulating androgens (growth enhancing hormones) for large increases in muscle mass. In other words, they can get stronger without necessarily getting bigger.

Strength training also plays a major role in enhancing the durability of connective tissue (ligaments and tendons), minimizing the injury potential of your athlete.

From a psychological standpoint, strength training can provide a great boost in the individual's confidence



and self-esteem—a component of special significance to emotionally fragile age groups.

WHAT SHOULD AND SHOULD NOT BE DONE?

In keeping with several recommendations of the AAP and from our own experience, we would like to offer the following recommendations:

Seek medical evaluation and clearance from the child's physician. Make it clear that the youngster plans to engage in strength training and that you are interested in securing a comprehensive examination and any helpful recommendations before starting.

Once cleared, make the child aware that the strength-training program will focus on proper techniques and gradual progression. It will not be a competitive endeavor to see how much weight can be lifted.

Place the child under the supervision and guidance of a qualified

instructor. Educational background and experience are, in our opinion, the most decisive factors in this determination. Certification(s) with nationally recognized and well-respected organizations can be considered.

As recommended by the AAP, preadolescents and adolescents should avoid competitive weightlifting, power lifting, bodybuilding, and maximum lifts until they reach the appropriately determined physical and skeletal maturity.

Exercises and sets per training session: Choose 10-12 exercises and perform one set of 10-15 quality reps of each or choose fewer exercises (e.g. 5-6) and perform 2-3 sets of each. However, we would still keep the total volume to about 10-12 total sets.

Select basic exercises, initially machine-based ones for teaching purposes, that stimulate the leg/hip/low back regions, chest, shoulders, upper back, abdominals, and arms. Many of these exercises and modalities we've

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gradual weight increments—no more than 1-2.5 lbs. once 15 reps are achieved.

Recommendations on lifting frequency will vary from as few as one day per week to as many as four days per week, depending on who you ask. We recommend 1-3 days per week on a non-consecutive basis. Don't wear the kid out; instead make it a fun and informative period in his life.

A primary goal of the parent/coach should be to educate the child on a good lifestyle habit that will provide health benefits for many years to come. And, remember; just as with adults, more is not necessarily better when it comes

to strength training. In fact, too much of it can only induce a mental tedium that will result in diminishing returns and injuries.

described in past articles will suffice, though the set and rep schemes must be tailored to this age group.

The youngster should make slow,

ADOLESCENT STRENGTH TRAINING

Alaina Mannie, 14, has been strength training 1-3 days per week since she was 12. A sample of one of her workouts:

- Warm-up: Jump Rope (100 skips).
- Nautilus Leg Curl: 10-15 reps.
- Nautilus Leg Extension: 10-15 reps.
- Med-X Leg Press: 10-15 reps.
- PowerLift Glute/Ham/Low Back Extensions: 10-15 reps.
- Gravitrone Chin-ups: 10-15 reps.
- Gravitrone Parallel Dips: 10-15 reps.
- Hammer Seated Row: 10-15 reps.
- Nautilus Pullover: 10-15 reps.
- Hammer Seated Bench Press: 10-15 reps.
- Nautilus Pulldown: 10-15 reps.
- Nautilus Overhead Shoulder Press: 10-15 reps.
- Abdominal Crunch Variations: 15-25 reps.

SPECIAL NOTE FOR YOUNG GIRLS

As we mentioned in a special feature we did on young female strength training a while back, all of the benefits we've discussed apply to the young ladies, as well. We all know that strength training can be especially important for girls in increasing their bone mass, which can help stave off the risk of osteoporosis (a degenerative bone disease) as they get older. Girls can make substantial gains in bone density at an early age with the help of strength training.

My daughter, Alaina, (photos) has been on resistance training in volleyball since age 12, with very good results. Her daddy, is, of course, with her every step of the way to ensure safety and proper execution.

SEND YOUR QUESTIONS TO:

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REFERENCES

- American Academy of Pediatrics, *Policy Statement: Strength Training by Children and Adolescents*, Pediatrics, June 2001.
- A. Faigenbaum, W. Westcott, R. LaRosa Loud, and C. Long: *The Effects of Different Resistance Training Protocols on Muscular Strength and Endurance Development in Children*, Pediatrics, 1999.

NOTE: Hammer, Nautilus, Med-X, Gravitrone, and PowerLift are trademark equipment names.