Answers to Questions Regarding Children, Strength Training and The Top 5 Reasons To Avoid Early Specialization

How can children or pre-adolescents benefit from a strength and conditioning program?

Recent research has shown evidence of strength gains ranging from **30-40%** on average. Separate study researchers found strength gains of up to 74% following only 8 weeks of training. Physicians and physical therapists agree the evidence proves that a **properly designed** strength training program can enhance the strength of preadolescents further than what is normally the result of growth and maturation.

Can weight training damage a young athlete's growth plates?

Fact - Current observations indicate **no evidence** of a decrease in stature in children and adolescents who participate in well-designed youth strength training programs. In all likelihood, if age – specific training guidelines are followed and if nutritional recommendations (e.g., calcium) are adhered to, physical activity (including strength training) will have a favorable influence on growth at any stage of development and will not influence genotypic maximum.

Fact – Data suggests that children (as early as 7) and adolescents involved in a supervised strength training program may actually **benefit** from an increase in bone mineralization compared to age matched control groups. Researchers suggest that this childhood age may be an appropriate time for the bone modeling and remodeling process to respond to increased resistance thus reducing the chance for future injury, and may be very important for young girls how carry risk factors of osteopenia or osteoporosis. *The American Academy of Pediatrics, the American Orthopaedic Society for Sports Medicine, and the National Strength and Conditioning Association* suggest that youth strength training can be safe and worth while activity for young weight trainers **provided that the program is appropriately designed and competently supervised.**

Can strength training at a young age improve sports performance?

Researchers have found that children who participated in supervised strength training programs had **significant improvements in sprint speed, agility time, vertical jump and long jump.** Data representing sport skills improvements resulting from strength training programs is not well documented. However, research (Pfeiffer and Francis) has reported children participating in **Olympic lifting (i.e., snatch and clean and jerk)** showed significant gains in isokenetic shoulder flexion after 8 weeks of training. Most data on this subject has come from coaches, parents and athletes. **Unfortunately, the "more is better" attitude is still common**. Clearly, Strength training should not simply be added onto a young athlete's training program but rather incorporated into a periodized

conditioning program that varies in volume and intensity throughout the year. Strength training during childhood and adolescence may provide not only a foundation for dramatic strength gains during adulthood, but, as children and adolescence gain self confidence in their physical abilities they may be more likely to experience success and less likely to drop out of sports.

Can strength training help reduce my chances for an injury?

It appears that the focus of most youth programs is on the development of sport-specific skills rather than on the development of fundamental fitness abilities. Instead of participating in a variety of sports, children and adolescents are participating in the same activity for longer periods. Some coaches and parents have argued that early sports-specialization was the key to success, but is now appears that broadly based participation in a variety of skills and activities is related more to later sports success than early sports specialization. Emphasizing sports skills over fundamental fitness abilities not only discriminates against children and adolescents whose motor skills are not as developed, but it also may lead to acute (macrotrauma) and repetitive microtrauma, or overuse injuries (e.g., stress fractures, tendonitis, and bursitis) According to the American College of Sports Medicine, an estimated **50%** of overuse injuries sustained by young athletes could be prevented if more emphasis were placed on the development of fundamental fitness skills, as opposed to sport specific training. Because youth athletes often are forced to train longer and harder to excel in their sports, encouraging them to participate in

conditioning programs that prepare them for the demands of their sport merits consideration. Encouraging children and adolescents to participate in preparatory conditioning (which includes strength, aerobic, and flexibility training) prior to sports-specific training seems to be a reasonable recommendation.

Should athletes strength train during the season?

YES! Detraining can be a permanent or temporary with drawl from strength training do to any number of factors such as injury, travel, *the start of a season* and motivation. Research has suggested that there can be significant decreases in strength after discontinuation in both preadolescent boys and girls by as much as 3% per week. .Children participating in sports such as football, soccer and basketball did not maintain their strength gains (they achieved during the training program) by just participating in their respected sports.

Researchers also suggest that sport activities alone will not maintain training-induced gains, and emphasize the significance of an in-season maintenance program. There is still a debate among researchers whether children should participate in maintenance program once or twice per week to maintain their strength or at least reduce the loss of strength. Scientists predict that similar findings would hold true for adolescents as well.

DON'T JUST PICK ONE? TOP 5 REASONS FOR MULTI-SPORT PARTICIPATION:

1. Better Overall Skills and Ability: Research shows that early participation in multiple sports leads to better overall gross motor skills, athletic development, longer playing careers, increased ability to transfer sports skills to other sports and increased motivation, ownership of the sports experience, and self confidence. Most College Athletes Come From a Multi-Sport Background: A 2013 American Medical Society for Sports Medicine survey found that 88% of college athletes surveyed participated in more than one sport as a child.

2. Smarter, More Creative Players: Multi-sport participation at the youngest ages yields better decision making and pattern recognition, as well as increased creativity. These are all qualities that coaches of high level teams look for.

3. 10,000 Hours is not a Rule: In his survey of the scientific literature regarding sport specific practice in The Sports Gene, author David Epstein finds that most elite competitors require far less than 10,000 hours of deliberate practice. Specifically, studies have shown that basketball (4000), field hockey (4000) and wrestling (6000) all require far less than 10,000 hours. Even Anders Ericsson, the researcher credited with discovering the 10,000 hour rule, says the misrepresentation of his work, popularized by Malcolm Gladwell in Outliers, ignores many of the elements that go into high-performance (genetics, coaching, opportunity, luck) and focuses on only one, deliberate practice. That, he says, is wrong.

4. Free Play Equals More Play: Early specialization ignores the importance of deliberate play/free play. Researches found that activities which are

intrinsically motivating, maximize fun and provide enjoyment are incredibly important. These are termed deliberate play (as opposed to deliberate practice, which are activities motivated by the goal of performance enhancement and not enjoyment). Deliberate play increases motor skills, emotional ability, and creativity. Children allowed deliberate play also tend spend more time engaged in a sport than athletes in structured training with a coach.

5. There are Many Paths to Mastery: A 2003 study on professional ice hockey players found that while most pros had spent 10,000 hours or more involved in sports prior to age 20, only 3000 of those hours were involved in hockey specific deliberate practice (and only 450 of those hours were prior to age 12).

Here's some more interesting research regarding the downfall of early specialization:

Children who specialize in a single sport account for 50% of overuse injuries in young athletes according to pediatric orthopedic specialists
A study by Ohio State University found that children who specialized early in a single sport led to higher rates of adult physical inactivity. Those who commit to one sport at a young age are often the first to quit, and suffer a lifetime of consequences.

In a study of 1200 youth athletes, Dr Neeru Jayanthi of Loyola University found that early specialization in a single sport is one of the strongest

predictors of injury. Athletes in the study who specialized were 70% to 93% more likely to be injured than children who played multiple sports!
Children who specialize early are at a far greater risk for burnout due to stress, decreased motivation and lack of enjoyment.
Early sport specialization in female adolescents is associated with increased risk of anterior knee pain disorders including PFP, Osgood Schlatter and Sinding Larsen-Johansson compared to multi-sport athletes, and may lead to higher rates of future ACL tears.

Some of this information was taken from Clinics in Sports Medicine volume 19, issue 4 October 2000, Strength Training for Children and Adolescents, Avery D. Faigenbaum, EdD.

For more information on youth athletic development please contact Steve Conca at Conca Sport and Fitness @ 413-304-2350 or info@concasportandfitness.com