



## RESISTANCE TRAINING FOR CHILDREN AND ADOLESCENCE – IS IT SAFE?

Are you afraid if your child lifts weights? Perhaps you are concerned that they will hurt their low back, knee or another joint in their body. Maybe you, like many, believe resistance training will stunt their growth.

In this article we will explore the benefits and resistance about resistance training for children and adolescence.

If you read nothing else, know resistance training by children and adolescents is safe, in fact it is safer than many other sport and recreational activities. It will not stunt growth (NSCA position statement on youth resistance training<sup>1</sup> – see reference below) and it will:

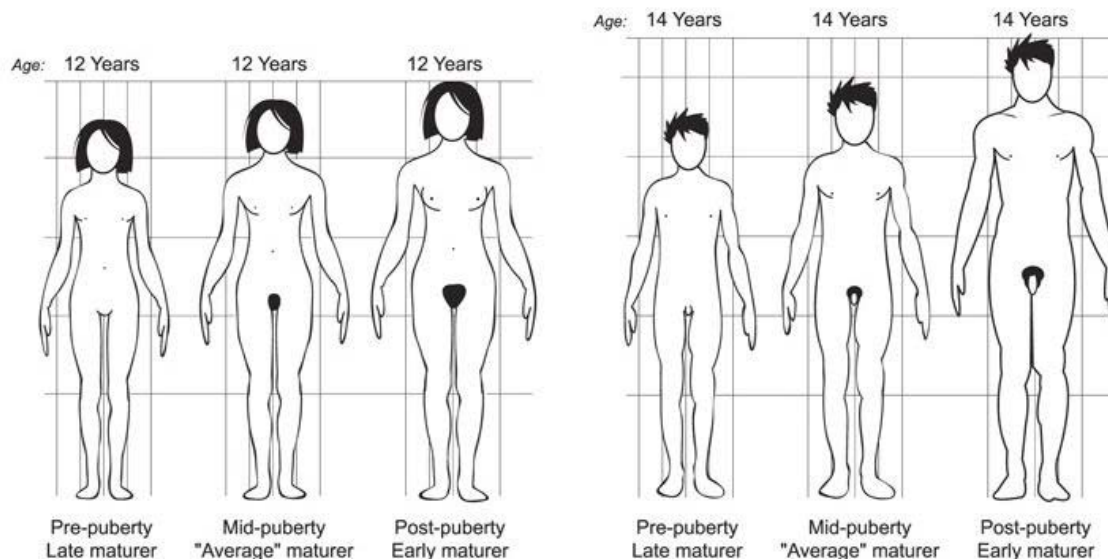
- Enhance the muscular strength and power of youth
- Improve the cardiovascular profile of youth
- Improve motor skill performance and may contribute to enhanced sports performance of youth
- Increase a young athlete's resistance to sport-related injuries
- Improve the psychosocial well being of youth
- Promote and develop exercise habits during childhood and adolescence.

### Timing – is there a good time?

First we need to define what is meant by a child and an adolescent. Children refers to boys and girls who have not yet developed secondary sex characteristics, approximately up to the age of 11 years in girls and 13 years in boys; (Tanner stages 1 and 2 of sexual maturation). This period of development is referred to as preadolescence. The term adolescence refers to a period between childhood and adulthood and includes girls aged 12-18 years and boys aged 14-18 years (Tanner stages 3 and 4 of sexual maturation). The terms youth and young athletes are broadly defined in this report to include both children and adolescents.



Figure 4 (Canadian Sport for Life) Maturation in Girls and Boys (Adapted from "Growing Up" by J.M. Tanner, Scientific American, 1973)

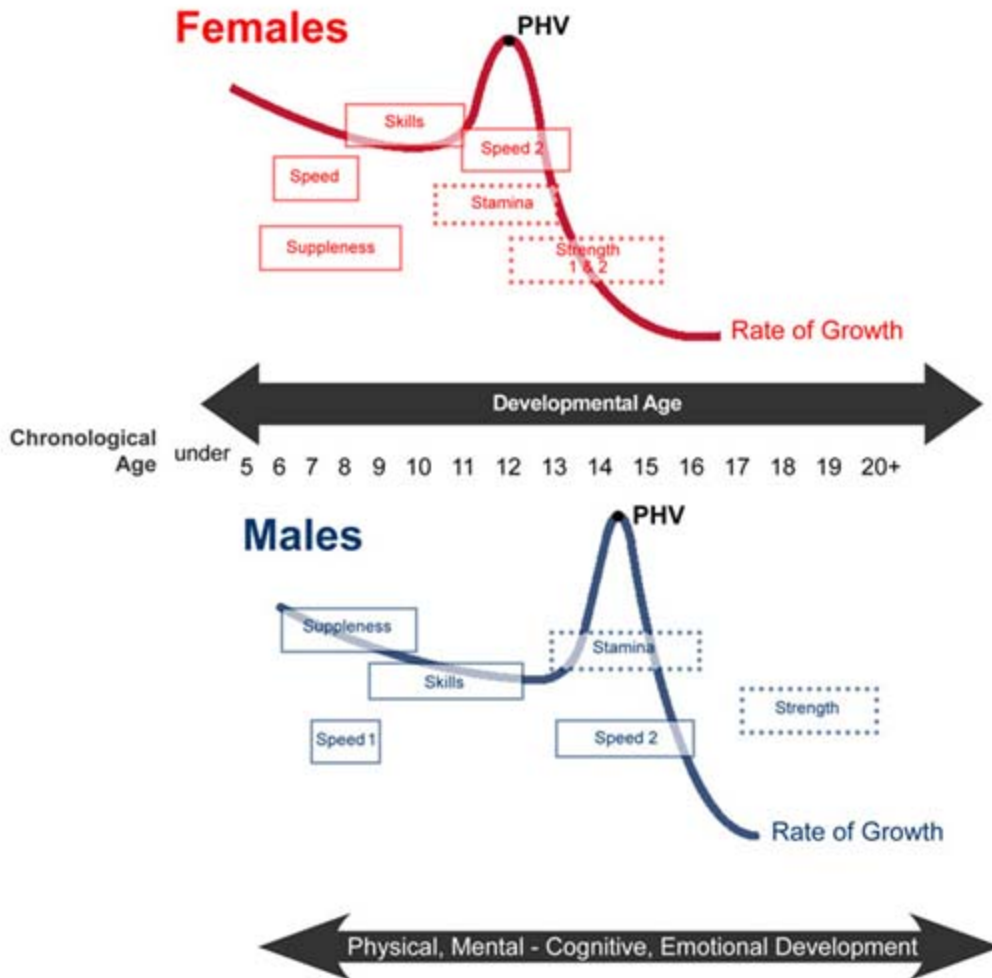


Adapted from "Growing Up" by J.M. Tanner. Scientific American 1973

*Now should a 15 or a 7 year old begin training – what does the evidence suggest?*

We are often asked when it is the best time to begin developing these qualities? Scientific studies indicate that the best time to develop speed and power is just prior to and during an individual's peak height velocity or their growth spurt. During this period the brain is forming neural connections and pruning unused connections. Amazingly our motor qualities develop at the same time as our language skills. In fact they are located right next to each other in the brain. Therefore, as it is much easier to learn a language when we are young, it is much easier to develop speed and power qualities when we are young. When we miss a window of opportunity and learn the same skills later, learning is more difficult; where the level of mastery will not match an athlete that started was exposed to the **deliberate practice** earlier.

Figure 8 (Canadian Sport for Life) Pacific Sport - Optimal Windows of Trainability (Balyi and Way, 2005)



**All Systems Are Always Trainable!**

*Resistance Training and Growth and Maturation*

Some people would argue that strength training will stunt growth – scientific evidence does not support this. To date this not been reported, because for this to occur the growth plate must become fractured, based on the data from Emergency Rooms at Hospitals in the US and Canada and the National Electronic Injury Surveillance System (NEISS) of the U.S. Consumer Product

Safety Commission. Furthermore, there is no evidence to suggest that resistance training will negatively impact growth and maturation<sup>2</sup>.

In addition, the forces that a young athlete would experience on the playground would exceed those found in a strength and conditioning facility. Imagine jumping off a 6 foot slide. The forces off the slide would be approximately 10 times the weight of the young athlete. Strength, power and speed training are very safe for the development of the young athlete. In fact, appropriate development of strength and speed at a young age, as described earlier will lay the foundation for future success. The motor coordination and ability to develop forces rapidly are primed during the peak height velocity period. An investment made early in life, will pay dividends later in life.

If you would like more information about this topic I encourage you to read the position paper by the NSCA ([click here](#)) and the policy statement on the safety and efficacy of strength training programs for children and adolescence by the American Academy of Paediatrics ([click here](#)).

1. Faigenbaum AD, Kraemer WJ, Blimkie CJ, et al. Youth resistance training: updated position statement paper from the national strength and conditioning association. *J Strength Cond Res.* Aug 2009;23(5 Suppl):S60-79.
2. Malina RM. Weight training in youth-growth, maturation, and safety: an evidence-based review. *Clin J Sport Med.* Nov 2006;16(6):478-487.