

Youth Training Considerations II
James Smith
Director of Sports Programming Juggernaut Training Systems
www.powerdevelopmentinc.com

The problems have been identified as:

- Inadequate Coaching Qualification and Instruction of Youth Movement Skill Development
- Lack of Collegiate Sports Physiology Curricula
- Inadequate Collegiate Physical Education Curricula

The immediate solution demands that existing coaches and educators assume the responsibility of overcoming the lack of education they were exposed to en route to their current professional status.

This process begins with developing an understanding of the physiological implications surrounding motor skill development, the cardiac system and the plasticity of the central nervous system in pre-adolescents, and the biodynamic and bioenergetic structure of sports.

The reader will have to accept such generalizations due to the fact that thorough explanations of this subject matter will not be addressed here as they are to be found in a multitude of translated in clinical publications.

Practically speaking, the focus of those in a position to instruct pre-adolescents in their movement (coaches, physical educators, parents/guardians) must acknowledge the following:

- Development must be viewed in a long term context
- The developing central nervous system generally yields a behavioral disposition of high excitability and, as a result, training sessions must be kept shorter than in post-adolescents and adults
- Most young pre-adolescents, and ironically many athletes and non-athletes in general, are in the unconscious incompetent and conscious incompetent stages of motor skill development which requires that the training load consist of repetitive sub-maximal intensity movements and sensory feedback is critical
- Training loads should be limited to activities that require elasticity and speed of limb movement and locomotion (alactic sprints, jumps, throws), hand-eye coordination, balance and sense of the body in space, strength of the midsection and proximally located musculature via calisthenic and gymnastic exercise
- The bioenergetic character of training should be restricted to the alactic and low intensive aerobic regimes.
- Transitional muscle fiber may, through training adaptation in pre-adolescents, assume permanent characteristics of white or red fiber. Due to the fact that the oxidative potential of type II muscle fiber may be increased in mature athletes, yet the shift from I to II is far less influential, it is logical that all pre-adolescents, regardless of genetic muscle fiber type proportionality, are optimally served by stressing alactic and aerobic training activities and reserving anaerobic-lactic loads for the proper biological stage of maturation when they can effectively tolerate them.
- Drabik (in his book Children and Sports Training) states that: children have a low economy of work in anaerobic [lactic] efforts and, because of this; children have a low tolerance for anaerobic work.
- Drabik states that: "The magnitude of the load, its volume and intensity, is of secondary importance so long as the magnitude does not drop below the threshold of effectiveness. The threshold of effectiveness of training loads is lower for children and beginners of any age. In both cases training loads are already effective at 50% of their maximal potential, whereas for advanced athletes with many years of training the loads must exceed 80-90% of their potential."
- Sulmitsev (in Kurz's Science of Sport Training) found that children in the age ranges of:
 - o 11-12 may safely lift weights up to 30% of their bodyweight
 - o 13-14 may safely lift weights up to 50% of their bodyweight
 - o 15-16 may safely lift weights up to 100% of their bodyweight
- Prof. Vladimir Koprivica (in his journal article Speed of Young Players) stats that: "Speed of reaction and frequency of movements are abilities that are initially developed very early on, generally at the pre-school age, and very dynamically between 7 to 11 or 12 years of age. The basic reason for this is the fact that the parts of the nervous system concerned with speed and reactions are most formed during puberty. After this optimal growth period, the central nervous system is changed very little, and so the possibilities to influence speed of reaction and frequency of movement are very small."

The content of the final bullet point cannot be over emphasized. There is a sensitive window for speed-power related development that exists prior to and during the pubescent stage. The activities and training loads that youths are exposed to during those early years of biological development are fundamental, and strongly correlated, to their attainable ceiling for human performance later in life. An athlete who was misguided during the pre-pubescent years cannot make up for lost time. So the saying goes “you cannot teach an old dog new tricks”. For this reason, the fastest and most explosive athletes have a life long history of speed related physical activity; regardless if it was structured in the scholastic environment.

Take note parents/guardians, your young ones are not entirely slave to their scholastic environment. It is up to you to ensure that they are exposed to the proper physical activities that they may not be the recipients of during the school hours. It is critical that the entire training load is accounted for and properly managed, however. Stress is cumulative. Different episodes of activity will occur at different times of the day, under the supervision of different individuals; however, they all add up within the same athlete.

The programming and organization of training loads must account, first and foremost, for all physical loads incurred by the athlete. This includes sport practice (technical-tactical) as well as physical preparatory, and any non-programmed training (i.e., after school/pick up games). This is especially important in youth training as excessive training loads pose far greater physiological risk to children. Thus, all physical education, sports technical-tactical, and any other extra-curricular physical activity must be accounted for in the grand scheme. It follows that the logical solution exists as program management of all physical loads by one qualified individual or department; however, this position has yet to exist in most sport training and scholastic environments.

At present, it is the responsibility of educators and coaches to further their understanding of sport physiological subject matter in order that a greater output of intellectual property may find its way into the job market. Physical and technical-tactical training loads may then be logically and harmoniously assigned relative to the athletes’ biological, physical, and technical-tactical development.