

Issues in Training Youth That Impact High School Athlete Preparation

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SUMMARY

THIS COLUMN INVESTIGATES WHETHER YOUTH COACHES AND PHYSICAL EDUCATION TEACHERS UNDERSTAND THE FUNDAMENTAL PRINCIPLES OF PEDIATRIC EXERCISE PHYSIOLOGY AND GENUINELY APPRECIATE THE PHYSICAL AND PSYCHOSOCIAL UNIQUENESS OF CHILDHOOD AND ADOLESCENCE TO PREPARE STUDENTS FOR SPORTS PARTICIPATION AND A LIFETIME OF PHYSICAL ACTIVITY.

Anecdotal stories regarding the lack of general physical preparation of high school athletes are commonplace among physical education (PE) teachers and youth coaches. The blame is typically placed on early sport specialization. The student has spent too much time playing 1 sport, developing 1 or 2 fitness components to the detriment of other fitness components or lack of

proper preparation whereby the student has not devoted enough time to prepare for the rigors of sports practice and competition. The attention being garnered on the epidemic of childhood obesity, physical inactivity among youth, decreased time spent in PE classes, and increased screen time in front of televisions or computers seems to validate why many of our students are not prepared for the rigors of high school athletics.

The underlying question, however, is grounded in the knowledge and ability of youth coaches and PE teachers to design, implement, and sensibly progress developmentally appropriate fitness programs, which enhance the general physical preparation of our elementary, middle, and high school students. In short, do youth coaches and PE teachers understand the fundamental principles of pediatric exercise physiology and genuinely appreciate the physical and psychosocial uniqueness of childhood and adolescence to prepare students for sports participation and a lifetime of physical activity? In our view, we need to revisit standards and procedures for preparing PE teachers and youth coaches for the demands and challenges associated with their chosen profession.

PHYSICAL EDUCATION

In 2005, the National Association for Sport and Physical Education (NASPE) released a document entitled *Guidelines for Undergraduate Exercise Physiology in a Physical Education*

Teacher Education Program (6). Among the guidelines suggested were that undergraduate PE majors should be taught exercise physiology concepts specific to the population they will serve, that is children and adolescents. Because undergraduate exercise physiology courses typically focus on adult exercise physiology—not pediatric exercise physiology—some PE teachers may not have an adequate understanding of how ontogenic factors (related to growth and development) and phylogenetic differences (related to one's genetic endowment) can influence the design and implementation of youth fitness programs.

For example, many high schools use a “health club” model for PE classes and purchase expensive equipment such as treadmills, weight machines, and electronic “exergaming” devices for their fitness centers. However, PE teachers need to consider that school-age youth are active like adults, but they are active in different ways and for different reasons. Hence, the adult exercise prescription model is not always appropriate for younger populations who want to have fun, make friends, and learn something new. Watching youth play pick-up games or engage in recreational activities supports the premise that the physical activity pattern of youth is typically characterized by social interactions and short bursts of physical activity with brief periods of rest as needed. Moreover, PE teachers need to

consider age-related differences in limb length, body size, and maturity when prescribing fitness training programs on equipment and machines.

The current model for PE instruction, which is based on the National Standards for Physical Education, mirrors the adult fitness model of focusing on the so-called health-related fitness components, namely cardiorespiratory fitness, muscular endurance, and strength, flexibility, and body composition (7). The idea is to promote physical activities such as jogging, yoga, and strength training that are believed to carry over into adulthood. However, the focus on health-related physical fitness has caused some observers to question the value or significance of skill-related fitness components such as speed, balance, agility, power, and coordination, which are critical to success in sports.

It has become one of those downward spirals whereby students are ill-prepared for the demands of sports participation and they eventually drop-out or suffer a sports-related injury, which in turn may preclude or discourage a student from a “lifetime” of physical activity. If students enhanced both health- and skill-related components of physical fitness, they would be better prepared to make their own choices whether to participate in sports activities such as baseball, basketball, and rugby; fitness activities such as rollerblading, rowing, and swimming; or a combination of sport and fitness activities.

COACHING

NASPE also released *The National Coaching Report* to establish whether youth sport programs and interscholastic sports had consistent coaching education requirements (4). Among the findings of this report was that educational requirements for coaches are, in general, not as clear as they are for PE teachers. Although many states require high school interscholastic coaches to be certified teachers, no evidence of coursework on topics related to pediatric exercise science

exists and not all coaches are physical educators. Youth sports programs have even fewer educational criteria than interscholastic programs. During the critical period of childhood and adolescence when youth are still growing, developing, and maturing, we need to ensure that coaches working with aspiring young athletes understand the physical and psychosocial uniqueness of student athletes. All children and adolescents deserve the opportunity to experience different physical activities and a variety of sports so they can decide which sports or activities are most consistent with their individual needs, goals, abilities, and interests.

To address the shortcomings of coaching education, NASPE has developed the National Council for the Accreditation of Coaching Education (NCACE). NCACE has developed national standards for sport coaches in 8 domains with 40 standards (5). The National Strength and Conditioning Association (NSCA) is a partner in this endeavor for the strength and conditioning domain. Most state athletic associations recommend some type of coaching education, and the NSCA is primed to be a major participant in this worthwhile program.

HOW CAN HIGH SCHOOL COACHES IMPROVE THE GENERAL PHYSICAL PREPARATION OF STUDENT ATHLETES?

High school coaches need to be advocates for students in their feeder schools and in their community by providing them with age-appropriate activities that develop both health- and skill-related fitness components in a safe and fun environment. Of note, students in the elementary grades need to participate in a variety of developmentally appropriate activities so they can enhance fundamental movement skills, improve physical fitness, and experience the mere enjoyment of physical activity. The American Academy of Pediatrics recognizes the concerns associated with sports specialization in young athletes and

discourages specialization in a single sport before adolescence (1). Long-term models and recommendations for developing physical fitness in children and adolescents are available (2,3).

High school coaches should attend and/or lead clinics that explain the physiological and psychosocial differences between preadolescent, early adolescent, and adolescent students. Professionals who instruct students in the feeder schools and in the community should also be encouraged to attend so that an appropriate and consistent message is delivered to the students and their parents. High school coaches are encouraged to share this information with colleagues on the NSCA High School Special Interest Group Forum as well as with other professional groups.

It is also important to communicate the aforementioned concerns with undergraduate PE program coordinators and college professors who teach exercise physiology. Of note, high school PE teachers and coaches should recommend that pediatric exercise physiology should be a primary focus in exercise physiology courses for undergraduate PE majors. Evidence-based information and new perspectives on pediatric exercise physiology are now available (8). With current trends in childhood obesity and physical inactivity among children and adolescents, there has never been a time when the dissemination of this information has been more critical to creating and reinforcing lifelong healthy habits in children and adolescents.

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