Risks of Sports Participation in Children: The Peoria Experience

Peoria is the third largest city in Illinois, and according to the *World Book Encyclopedia* it is well recognized for its production of beer and whiskey. The Illinois River is there, International Harvester is there, and in December of 1990 I was there, along with 23 other exercise scientists, sequestered in a downtown hotel adjoining a topless nightclub, trying to agree on the risks and benefits of sports participation in children. (This may not sound like the beginning of a book review, but it is, made all the more unusual since it is being written by one of the book’s authors.)

For 4 grueling days the group debated the psychological, sociological, and physiological issues behind a question of growing immediacy: How much is too much for child athletes? The result is *Intensive Participation in Children’s Sports*, an informative, thought-stimulating book from Human Kinetics Publishers which, as they say, belongs on everyone’s bookshelf. And now, 3 years later, I can honestly say to Dr. Bernie Cahill, organizer and taskmaster of the “Peoria Experience,” that all is forgiven, for the end result was well worth the strain. It’s a book that for many makes just plain fascinating reading, and for others is a valuable compilation of resource material.

In the first category, for instance, is Peter Donnelly’s sometimes chilling account of life at the top for child athletes. He relates reports from athletes of “unhealthy and overly dependent relationships” between coaches and child athletes, “bingeing” on drinking, food, and violent behavior, pathologic obsession with body size and shape, and the virtual “disappearance of childhood” for many of these young athletes. The discussion is balanced by many of the positives reported by these competitors (enjoyment of the sport, travel, friendships). Indeed, it is reported that less than 10% of elite child athletes say they would not repeat their sports experience.

In the second category, Joe Blimkie’s review of the benefits and risks of resistance training in children represents a major tour de force that will serve as a key resource. Other insightful chapters examine the effects of early sports participation on stress, self-esteem, musculoskeletal growth, and physiological function.

At the end of this workshop, which was sponsored by the American Orthopaedic Society for Sports Medicine, I finally emerged into the sunlight with what seemed to be at least two reasonable observations. The first was that this issue of the risks of high doses of exercise—intensive athletic training and competition—in children is a truly important one, and one which, despite a good deal of concern, has attracted little research support. The feeling was compounded later while watching the 1992 Olympic Games: One could not help but be stunned by the graphic personal vignettes of young competitors whose commitment to
their sport from an early age had come at the high expense of repeated injuries, family sacrifice, and disruption of normal childhood and adolescent life.

The other personal observation from the presentations at the workshop came as somewhat of a surprise, since I was there to represent the physiological vantage point: Based on our current data, the major adverse effects on long-term health from children's elite-level athletic participation appear to be more related to psychological rather than physiological risks. Certainly there are an abundance suggested of the latter, and they're not new. Until even contemporary times, scientists had warned that overexertion could cause undue stress on a child's heart. Children and adolescents have been banned from participation in marathon running because of potential risks of growth-plate damage from excessive micro-trauma. There has been concern that children might be particularly prone to heat injury, menstrual irregularities, delayed sexual maturation, musculoskeletal injury, eating disorders, and nutritional deficiencies.

The available information is scant, and much more research is needed, but so far most of these seem to be largely false alarms. Child athletes grow and develop normally. Their hearts demonstrate superior function compared to nonathletes. Instead of sports participation causing eating disorders, these individuals more often use exercise as part of their aberrant behavior. Epiphyseal overuse injuries are very rare in child athletes, are essentially unheard of in runners, and are limited to the wrists of highly trained gymnasts. There are no reports of an increased incidence of heat injury in child athletes. Oligoamenorrhea in young athletes probably has no impact on future fertility. Overuse injuries in young athletes are a new and increasing problem, but these are not unique to this age group and are generally treatable and reversible.

The psyche of the highly trained athlete, on the other hand, may be more susceptible to injury than the epiphysis. Dan Gould's discussion at the Peoria meeting of burnout in child competitors (chapter 1) highlighted an issue of growing concern: the intensely training athlete who turns stale, with a falloff in performance and more global difficulties with fatigue, insomnia, depression, and anorexia. It's a problem that may mean the end of participation in sports; it is difficult to reverse and is best prevented. Once considered limited to college and older athletes, burnout is probably becoming increasingly common at the high school level.

Gould reviews burnout from psychological and sociological perspectives, but it may have a physiological basis, a signal from the body that enough is enough. This would follow Selye's concepts that the body has its limitations in regard to desirable adaptations to stress, reviewed by Cahill in the introduction to this book. Again, it's an area in critical need of more extensive scientific investigation.

So, congratulations to Dr. Cahill and to AOSSM for their efforts in putting this workshop together, and to Human Kinetics Publishers for constructing the published version. One can hope that these efforts will highlight a growing problem, one with an obvious need of a firmer research base and clearer understanding of risks and benefits of early training and competition. Only with this knowledge will we be able to wisely counsel the growing number of young athletes into both emotionally and physically safe sports participation.

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