Curbside Consult

At what age should a child begin regular continuous exercise at moderate or high intensity?

The question of when youth competition and training should start is not new and is much debated. Unfortunately, there cannot be a straightforward answer, because between members of the same sex, given the same chronologic age, there is considerable variation in growth and development. Early maturing children are biologically advanced for their chronologic age. Therefore, the use of chronologic age to ascertain physical potential may cause significant problems by not taking into account biologic age. This situation is particularly true during puberty, when differences that are related to maturity in strength, flexibility, speed, endurance, and power become more evident among children of the same chronologic age.

We encountered children who were already training between 14 and 18 hours per week at age 14 to compete at high levels

Sports competition and training often begin as early as age 6. The number of children taking part in organized competitive sport increases linearly from this age, with a maximum between 11 and 13 years of age. Although efforts should be made to concentrate on encouraging children to participate instead of competing, most parents encourage the competitive aspects of the sport being played. With this focus comes the emphasis on training. It is not clear what constitutes intensive training. In our study, the Training of Young Athletes, we encountered children who were already training between 14 and 18 hours per week at age 14 to compete at high levels in gymnastics, football, running, and tennis. Anecdotal reports from the former Eastern block countries would suggest, however, that children of that age were training at least 50% more than the children recruited in our study. Findings from more recent studies in the United States suggest that an average of 18 hours of intensive training per week is the norm in this age group.

The dangers of high level training and competition at a young age are twofold. Children and adolescents are not miniature adults. At any given chronologic age, children differ not only in their biologic age and physical maturity but also in their psychological attitude. Psychological factors are important when determining children's readiness for sport, their degree of sports involvement, and their enjoyment. Also, by taking part in high level sport at a young age, it has been argued that children may fail to develop necessary everyday social skills.

Natural multiactivity propensity of all children for games and play is channeled too early to a single sport

The dangers of intensive training in young athletes are represented by the musculoskeletal injuries from which these athletes may suffer. There is no doubt that acute and overuse injuries can be a serious problem in this age group. We have found that young athletes who were able to compete and train at a high level are a naturally gifted group whose musculoskeletal system is intrinsically well endowed. These athletes had a low rate of injury. Young athletes at the subelite level, however, who train intensively to reach the elite standard, may not be so fortunate. These children may suffer serious injuries that cause them to abandon their sport and experience significant problems in everyday life.

Regular physical activity should be part of everyday life for all children. Unfortunately, natural multiactivity propensity of all children for games and play is channeled too early to a single sport. To safeguard young athletes and to avoid burnout, children should start and practice several sports at an early age. They may then focus, possibly starting to train intensively, on one or two sports in which they especially excel only in the more advanced phases of puberty (Tanner stages 4 and 5).

Acute and overuse injuries can be a serious problem

Nicola Maffulli

Department of Orthopedic Surgery
University of Aberdeen Medical School
Aberdeen AB24 2ZD
Scotland

Correspondence to:
Dr Maffulli
ort047@abdn.ac.uk

Competing interests: None declared

This article was previously published in *Br J Sports Med* 1998;32:298

capsule

High fat diet may reduce seizure rate The ketogenic diet, popular between World War I and World War II as a treatment for refractory epilepsy in children, has come back into vogue over the past decade. There's plenty of anecdotal evidence that a diet made up of 90% fat reduces seizure rates; it is reviewed by 2 doctors from Chicago, who conclude that the ketogenic diet probably works (www.pediatrics.org/cgi/content/full/105/4/e46). It's hard to say whether it works better than established alternatives, however—controlled trials were never done.