

Puberty and Athletic Sports in Female Adolescents

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Abstract

The increasing involvement of young children in intense physical training over the past several decades has generated concerns as to its potential effects on children's growth and maturation. Puberty in humans is characterized by large hormonal changes resulting in both physical and sexual maturation.

Since intense training prior to puberty, together with the potential metabolic effects of dieting, can alter hypothalamic-pituitary function, the time at which athletic training is initiated has been implicated as a factor in delayed menarche and sexual maturation in female athletes.

On the other hand, some studies have suggested that delayed menarche is likely due to genetic factors. Girls who mature later often self-select or are recruited by coaches into sports that favor small or very lean bodies.

Body composition has also been used to explain both delayed menarche and menstrual irregularities observed among elite athletes. A higher prevalence of menstrual dysfunction has been reported for adolescent athletes participating in weight-dependent sports as compared to that observed in other sports.

However, as recently suggested, there is no direct cause-effect association between fatness and reproduction and, in actual fact, energy availability, and not body fat, regulates reproductive function in females.

More research is warranted to further investigate this interaction between short-term changes in fuel availability and athletic amenorrhea in female adolescents.

It is concluded that, given the many factors that have been shown to influence menarche and menstruation, the role played by physical training alone as a causative factor in the later onset of puberty and menstrual irregularities in active young females is still unclear.

Research involving longitudinally designed studies is required to identify whether the maturity differences observed between female athletes and non-athletes are the result of nature or nurture, and what the balance between the two factors is.

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