



POSNA

The Core Curriculum

Timing of secondary sexual characteristics

Objectives

1. Describe the relationship of Tanner staging to peak height velocity
2. Describe the accuracy of other parameters to peak height velocity

Discussion

For optimum treatment of conditions such as leg length discrepancy and scoliosis, accurate assessment of progress through the adolescent growth spurt is very helpful. The Risser sign was long used as a guide to remaining skeletal growth for adolescents with idiopathic scoliosis, but recent data from the Texas Scottish Rite Hospital, along with other studies, cast doubt on the accuracy of the Risser sign as a guide to determining remaining growth. Tanner and associates have developed a sexual maturation scale, which is a much better guide to timing of peak height velocity. For girls, menarche generally occurs after the time of peak height velocity. A relatively easy way to correlate Tanner stages to peak height velocity is by stage of pubic hair development. Stage 4 development in both sexes implies that there is an adult hair pattern, but not to the extent of the adult pattern. Stage 3 is characterized by sparse, pigmented hair about the base of the penis or labia, and stage 5 implies that a fully adult pattern is present. In boys, peak height velocity occurs between stages 3 and 4. In girls, peak height velocity is temporally very close to stage 3, and menarche is temporally very close to stage 4. Breast development in girls and genital development in males have also been staged. This information can be distilled into knowing that boys in the early stages of sexual development have not yet reached peak height velocity; in girls, peak height velocity is around the time of increase in diameter of the areola, and early elevation of the breast.

Based on the work from the Texas Scottish Rite Hospital, serial recording of height is the best parameter for determining peak height velocity.

References

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