

## Growth of African Pygmies in Early Childhood

Growth curves are given for the height of Efe pygmy children from 6 months to 5 years of age. The data are mixed longitudinal; all dates of birth were known. At 6 months of age, the mean height standard deviation score, relative to National Center for Health Statistics (NCHS) standards, was -2.7, declining to -4.2 at 5 years of age. The mean score for adults, sexes pooled, was -4.8 SD. Thus, most of the pygmy height deficit is accrued by 5 years of age.

Bailey RC. Letter to the editor. *N Engl J Med* 1990;323:1146.

**Editor's Comment:** *This letter to the editor is of importance because Merimee, et al (N Engl J Med 1987;316:906-911) suggested that the short stature of adult pygmies is due primarily to a deficient growth spurt during puberty. In the article by Merimee, et al curves for cross-sectional height increment were given for pygmies that appear to show that male pygmies have no pubertal growth spurt, while female pygmies appeared to have a very reduced pubertal growth spurt. Merimee, et al reported that the testosterone values were normal at all ages, while IGF-I levels failed to rise to the same extent in pygmies at adolescence (250 U/mL) vs 500 U/mL in American adolescents.*

*As stated in the abstract of the article by Bailey, most of the pygmy height deficit is determined to accrue by 5 years of age when he studied pygmy infants and children. The question now is why did Merimee, et al conclude that there is little adolescent growth spurt in pygmies. No other human group has such a lack of pubertal growth spurt (see Eveleth and Tanner<sup>1</sup>). The answer to the question probably is that very few adolescents were measured*

*by Merimee, et al and their conclusion was actually derived from the report of J.M.H. van de Koppel and B.S. Hewlett in a 1986 book called African Pygmies.<sup>2</sup> Between 1975 and 1980, the authors of this report measured the heights of 307 Akan pygmies whose ages had been estimated by means of an event calendar — a standard, though imperfect technique, listing major events concerning the tribe back into the past, utilizing the mother's input regarding when a child was born (eg, before or after each of those events). The report contains no tables of value: however, by using the graphs it is possible to estimate that about 50 persons of each sex were probably measured during the pubertal age range. It is quite likely, therefore, that had puberty stages been determined for each, the pattern of mean height increments between those in stages 2 and 3, 3 and 4, and 4 and 5 would have revealed, at least in the boys, whether or not a pubertal growth spurt occurred. Unfortunately, this was not done.*

*Instead, an exponential curve was fitted to all the data from birth to adulthood. Though the authors suggest the curves explain "more than 99% of the variance," I believe they have confused "within-age variation" with "between-age variation." In fact, there is a great excess of males above the curve at ages 10 to 16 years. The authors also provide plots of approximately year-to-year mean increments calculated cross-sectionally, and these curves permit a reasonable judgment. Female pygmies appear to have a maximum mean increment of about 9.5 cm/yr, which is above the cross-sectional population mean increment for American girls at puberty. Male pygmies*

*seem to have a maximum growth increment of about 6.5 cm/yr, which is slightly below the Western mean increment value of approximately 7.2 cm/yr. Both values are well within the usual sampling limits, given the small numbers.*

*The plots of annual mean increments in the New England Journal of Medicine article give a very inaccurate impression. The authors have taken the British longitudinal, tempo-conditional mean velocities with their big peaks, and plotted cross-sectional population values (grossly smoothed) upon them, evidently unaware of the differences (see Tanner<sup>3</sup>). The authors' contention regarding the lack of a pubertal growth spurt remains unproven, and, sad to say, this article is yet another example of biochemical expertise combined with auxologic innocence.*

*Bailey's article, in contrast, is a very clear and unexceptionable statement regarding the early growth of the Efe pygmies. He continues his longitudinal studies there, and the results through puberty will be awaited with interest.*

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### References

1. Eveleth FB, Tanner JM. *Worldwide Variation in Human Growth*. 2nd ed. Cambridge, England: Cambridge University Press; 1990.
2. van de Koppel JMH, Hewlett BS. Growth of Akan pygmies and Bagandus of the Central African Republic. In: Cavalli-Storza LL, ed. *African Pygmies*. New York, NY: Academic Press; 1987: 95-102.
3. Tanner JM. The use and abuse of growth standards. In: Falkner F, Tanner JM, eds. 2nd ed. *Human Growth* New York, NY: Plenum; 1986;3:280-285.