

There is little information available in man regarding gonadal vs. hypothalamic-pituitary contributions to malnutrition-related delayed puberty. To investigate this question, a cross-sectional study was made of 342 rural (R) and 358 urban (U) Kenyan (Bantu) children, ages 10-17. Comparative data in early pubertal girls revealed the following mean differences ($p < .01$) in anthropometry:

FSH and LH excretion (mIU/hr) was determined by radioimmunoassay of timed urine specimens. Mean gonadotropin values for individuals in middle and late pubertal stages were similar between the 2 nutritional groups. In early pubertal childhood, however, LH secretion (but not FSH) was lower in malnourished boys (50 ± 7.0 vs. 76 ± 5.5 mIU/hr, $p < .05$) and girls (55 ± 8.8 vs. 99 ± 12 mIU/hr, $p < .01$), equivalent to levels in the prepubertal, urban group. On the basis of age urinary gonadotropins were consistently lower in rural children 10-13 yr old. Conclusions: 1) The onset of puberty in man is not determined by size. 2) Gonadotropin relationships to age and pubertal stage in the 2 nutritional categories suggest pituitary rather than gonadal factors mediate the delayed onset of puberty associated with malnutrition.