

OBESITY IN ADOLESCENT GIRLS: URINARY ANDROGENS
AND THE OVERGROWTH OF LEAN TISSUES

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Ten years ago it was shown that 9 out of 14 adolescent girls with obesity had increased muscle mass or cell mass as well as "excess fat" (Cheek *et al.*, 1970). In recent years argument has existed as to whether the urinary androgens are increased relative to the excessive tissue growth or commensurate with it.

The present study included 25 obese girls, 9-15 years. Bone age, maturational age, muscle mass (creatinine excretion), lean body mass and fat mass (total body water), cell mass (body water - extracellular volume), plasma testosterone, and 22 steroid metabolites in urine were assessed. The 24-hour urinary excretion of creatinine and androgens were measured in 22 school girl volunteers 12-17 years of age.

One-third of obese girls had increased androgen excretion relative to lean body mass but two-thirds had excessive soft tissue (cell mass) for height. Bone age was also advanced. Evidence from previous work cited above and from other investigators studying skeletal growth strongly suggests the tissue response to growth hormone is exaggerated in one type of obesity. It is postulated that growth hormone activity is enhanced by androgens irrespective of whether they are or are not excessive for tissue mass and such leads to increased replication of cells in lean (muscle) and adipose tissue.

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