Adolescent BMI and Obesity Related Diseases in Adults (*N Engl J Med 2011;364:1315-25*)

In this prospective study, authors recruited 37,674 apparently healthy young men of the Israeli Army Medical Corps. The height and weight of participants were measured at regular intervals starting from 17 years of age. During 650,000 person years of follow-up (mean follow up 17.4 yrs), they documented 1173 cases of type 2 diabetes and 327 cases of coronary heart disease (CHD). Age, family history, blood pressure, lifestyle factors, and elevated adolescent BMI were significant predictors of both diabetes and angiography-proven CHD. After adjustment of the BMI values as continuous variables in multivariate models, only elevated BMI in adulthood was significantly associated with diabetes while elevated BMI in both adolescence and adulthood were independently associated with angiography-proven CHD.

COMMENTS Although the risk of diabetes is mainly associated with increased BMI close to the time of diagnosis, the risk of coronary heart disease is associated with an elevated BMI both in adolescence and in adulthood.

Childhood Estrogen for Turner's Syndrome (*N Engl J Med 2011;364:1230-42.*)

Short stature and ovarian failure are characteristic features of Turner's syndrome. It is not known whether early estrogen replacement provides additional benefit over growth hormone therapy in the treatment of associated short stature. This double blind placebo controlled trial examined the independent and combined effects of growth hormone and early, ultra-low-dose estrogen on adult height in girls with Turner's syndrome. Authors randomly assigned 149 girls (age 5-12.5 yrs) to four groups: double placebo, estrogen alone, growth hormone alone, and growth hormone-estrogen (growth hormone injection plus oral low-dose estrogen). The dose of growth hormone was 0.1 mg per kilogram of body weight three times per week. The doses of ethinyl estradiol (or placebo) were adjusted for chronologic age and pubertal status. At the first visit after the age of 12 years, patients in all treatment groups received escalating doses of ethinyl estradiol. Growth hormone injections were terminated when adult height was reached. Adult height was greatest in the growth hormone-estrogen group than in the growth hormone-alone group, suggesting a modest synergy between childhood low-dose ethinyl estradiol and growth hormone.

COMMENTS This study shows that providing early replacement with estrogen along with growth hormone treatment has a good potential of normalizing adult height in patients with Turner's syndrome.

Does Growth Hormone Work in Idiopathic Short Stature? (*BMJ 2011;342:c7157*)

In this systematic review, randomized and non-randomized controlled trials with height measurements for adults were included. Inclusion criteria were initial short stature (height <2 SD), peak growth hormone responses >10 μg/L, prepubertal stage, no previous growth hormone therapy, and no comorbid conditions that would impair growth. Adult height was considered achieved when growth rate was <1.5 cm/year or bone age of 15 years in females, and 16 years in males. In three randomized controlled trials (115 children), the adult height of the growth hormone treated children exceeded that of the controls by 0.65 SD score (about 4 cm). In the seven non-randomized controlled trials, the adult height of the growth hormone treated group exceeded that of the controls by 0.45 SD score (about 3 cm). Authors concluded that growth hormone therapy in children with idiopathic short stature is effective in partially reducing the adult height deficit but the magnitude of effectiveness is less than that achieved in other conditions, and the response is highly variable.

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