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BOOKS

At What Height, Happiness? A Medical Tale

By ABIGAIL ZUGER, M.D.

Teenagers with an interest in medicine are generally hustled into menial summer jobs in a hospital or lab to familiarize them with the territory. Here's a better idea: sit them down with a copy of "Normal at Any Cost." When they finish it (as they will: its overtones of both "[Gossip Girl](#)" and the Book of Ecclesiastes make it irresistible), they will have learned the territory.

And if they are still game for a medical career, then more power to them. It means they come at least partly prepared for the subtle shades of gray that define the medical landscape these days, as breathtaking scientific capabilities rub up against parts of human nature that haven't changed much since the Stone Age.

Susan Cohen and Christine Cosgrove, both experienced medical journalists, know how to tell a story, and they could not have picked a better allegorical case study of modern medicine than the story of children's height, one of the endless brushfires in the outer territories where health, beauty and wishful thinking intersect.

It was in the years after World War II that a handful of basic hormones, discovered decades earlier, were transformed into powerful drugs. First they were used to correct deficiencies in sick children. Then they were tried in healthy children. Then, in the words of the authors, it was suddenly "Glandward ho!" — a vast new horizon of entrepreneurial medicine.

Who was the most miserable kid in your seventh-grade class? Was it the tiny boy in his fourth-grade jeans? Was it the six-foot girl, a hunched-over stork in flat shoes and horizontal stripes? Perhaps neither of them was particularly miserable. But you can bet that in their pediatricians' offices a script was playing out.

How tall would the child grow, parents asked. Even now, nobody can answer that basic question with any precision. How unhappy would the child be? Many opinions, but no good data there either. What could be done? Ah. Finally, a question with answers.

For the girl, at least from the 1950s through the early '70s, the major option to avoid the presumed psychological catastrophe of excessive height was DES, a synthetic [estrogen](#) given to tall girls to hasten [puberty](#) and close the growth plates in the bones. Despite early safety concerns, the drug was used freely until a clear cancer link touched off a federal safety warning in 1971. Even then, some doctors continued to recommend it, and some turned to other forms of estrogen for the same purpose. In Australia an enthusiastic endocrinologist became a worldwide authority on "growth control" and treated more than 1,000 patients with DES.

We know enough about estrogens now to shudder at the idea of giving them for years to healthy prepubescent girls. But for all the dangers, what really ended the practice was not a reasoned medical cost-benefit analysis but a societal shift — think Title IX — that transformed tall girls from pariahs into supermodels and basketball stars.

No such luck for the tiny boy. He still battles stereotypes and a host of dire (if unproved) psychological predictions; tens of thousands of boys (and some girls) in this country receive injections of human [growth hormone](#), the pituitary secretion pivotal to the complex hormonal cascade that mediates height.

The story of growth hormone contains many of the most painful object lessons of modern health care. First it was painstakingly harvested from cadavers, and the tiny supply was reserved for children with pituitary failure. But as we know now, human tissues make perilous drugs, and the recipients of cadaver hormone grew up under the hanging sword of the neurological condition [Creutzfeldt-Jakob disease](#), transmitted by some of those shots.

Then, in 1985, new technology flooded the marketplace with synthetic human growth hormone, safe from infectious contaminants and made in quantities enough to treat not just the truly pituitary-deficient, but all small-comers.

The suddenly plentiful supply came with hard questions. The boundaries of “normal” height are hazy, and the drug’s performance is measured only in averages. Treated children grow, on average, one to two inches taller than predicted — but these predictions are inexact, and the growth for each individual child unknown. Psychologically, will children be helped more by the possibility of extra inches than they are hurt by the implication that they are defective, disappointments to their parents for failing to “perform biologically”? Is deciding against growth hormone for a child like deciding against a nose job, or is it like deciding against [eyeglasses](#)?

Meanwhile, the cost comes out to about \$50,000 per putative inch gained, with eager drug manufacturers delighted to battle insurers on behalf of parents who might have their own personal definitions of normal.

One exasperated pediatrician, musing on whether outcome justified cost, suggested a clinical trial to settle the question: one group of tiny boys would get growth hormone and each boy in the other group would each get \$100,000 cash. Who would be happier and healthier 20 years down the line?

That same experiment might well be wished for elsewhere in medicine, as we cast a critical eye over our spending habits in these days of budgetary introspection. “Normal at Any Cost” tells its own story with a pace and fluency sadly rare in medical journalism, and like the best in all literature, it illuminates the surrounding landscape as well.

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