Physical Changes During Puberty

Puberty is made up of a clear sequence of stages, affecting the skeletal, muscular, reproductive, and nearly all other bodily systems. Physical changes during puberty tend to be more gradual and steady. This is comforting to many parents who feel childhood passes much too quickly.

Changes in Body Composition & Height

Most children have a slimmer appearance during middle childhood than they did during the preschool years. This is due to shifts in the accumulation and location of body fat. As a child's entire body size increases, the amount of body fat stays relatively stable, giving her a thinner look. Also during this stage of life, a child's legs are longer in proportion to the body than they were before. On average, the steady growth of middle childhood results in an increase in height of a little over 2 inches a year in both boys and girls. Weight gain averages about 6.5 pounds a year.

A number of factors, including how close the child is to puberty, will determine when and how much a child grows. In general, there tends to be a period of a slightly increased growth rate between ages 6 and 8. This may be accompanied with the appearance of a small amount of pubic hair, armpit hair, mild acne, and/or body odor.

The Influence of Heredity

Perhaps more than any other factor, your child's growth and ultimate height will be influenced by heredity. While there are exceptions, tall parents usually have tall children, and short parents usually have short children. Those are the realities of genetics.

Concerns About Growth

If your child seems unusually short or tall relative to his friends the same age, talk with your pediatrician. A true growth disorder can sometimes be treated by administering growth hormones; however, this therapy is reserved for young children whose own glands cannot produce this hormone. Doctors do not recommend this treatment for healthy boys and girls who may want to grow to be 6 feet tall instead of 5 feet 8. See When a Child is Unusually Short or Tall.

Growth Spurts

Just as height can vary from child to child, so can the timing of a child's growth. Despite the averages mentioned above, children have a tendency to grow in spurts. Thus, they may grow faster at times and slower at others. Some children grow as much as three times faster during a particular season of the year, compared with their "slow" seasons. These individual variations in timing—and with hereditary factors—are largely responsible for the wide variations in size among children the same age. Height differences among children in a typical elementary school classroom can range from 4 to 5 inches.

Although boys and girls are generally of similar height during middle childhood, that changes with the beginning of puberty. Particularly in junior high school, girls are often taller than their male classmates, but within a year or two, boys catch up and usually surpass their female classmates. About 25 percent of human growth in height occurs during puberty.

Nutrition's Influence on Physical Development

https://www.healthychildren.org/English/ages-stages/gradeschool/puberty/Pages/When-a-Child-is-Unusually-Short-or-Tall.aspx
A number of other factors—so-called environmental influences—can affect physical development as well. Nutrition is important to normal growth processes. Parents should make an effort to ensure their child consumes a well-balanced diet. A child's need for calories rises during times of rapid growth, gradually increasing as she moves through middle childhood into puberty. However, if the calories consumed exceed those expended, a child may develop a weight problem. See Energy In: Recommended Food & Drink Amounts for Children (http://www.healthychildren.org/English/healthy-living/nutrition/Pages/Energy-In-Recommended-Food-Drink-Amounts-for-Children.aspx).

A Word about Picky Eaters
Some parents worry that their child is not eating enough. Even with what seems to be relatively low food intake, however, children can grow at normal rates.

If your school-age child is a picky eater (http://www.healthychildren.org/English/healthy-living/nutrition/Pages/How-To-Please-Fussy-Eaters.aspx), do not worry that this frustrating behavior is impairing her growth. These fluctuating eating habits may be due to normal, slow-growth periods or simply uniquely personal, unpredictable preferences or distastes for certain foods.

In general, children outgrow these food preferences without any harm to their physical well-being. As long as a child is gaining weight appropriately (4 to 7 pounds per year) and is eating a healthy variety of foods, his nutritional needs are being met.

The Importance of Regular Exercise
Children also need to exercise regularly to ensure normal physical development. Those who spend their free time watching TV, playing video games, or engaging in other stationary activities rather than playing outdoors may have impaired bone growth. When physical activity is increased, bones are denser and stronger. However, there is no evidence that a very strenuous exercise program will help your child grow faster or bigger. Running marathons, for example, will not stimulate physical growth. See Energy Out: Daily Physical Activity Recommendations (http://www.healthychildren.org/English/healthy-living/fitness/Pages/Energy-Out-Daily-Physical-Activity-Recommendations.aspx).

Pre-Puberty Changes
A number of other changes occur during middle childhood:

- Children become stronger as their muscle mass increases.
- Motor skills—in both strength and coordination—improve.
- A school-age child's hair may become a little darker.
- The texture and appearance of a child's skin gradually changes, becoming more like that of an adult.

First Signs of Puberty
Puberty often begins earlier than parents think:

Girls
- Breast budding in girls starts around age ten, with some girls starting as early as eight and others not starting until thirteen.
- Girls should be checked by their pediatrician if they begin puberty before age eight.
- The peak growth period (in height, weight, muscle mass, and the like) in girls occurs about one year after puberty has begun.
- Menstruation usually starts about 18 months to two years after the onset of puberty. On average, the first menses occur just before girls turn thirteen.
- If a girl shows no signs of puberty by age 13, consult with your pediatrician.

Boys
- Boys enter puberty about one year later than girls. The first sign is enlargement of the testes and a thinning and reddening of the scrotum, which happens at an average age of eleven but may occur anytime between nine to fourteen years.
- Boys should be checked by their pediatrician if they begin puberty before age nine.
- For boys, the peak growth period occurs about two years after the beginning of puberty.
- If a boy shows no signs of puberty by age 14, consult with your pediatrician.
How to Discuss These Changes with Your Child

Your child needs to understand the physical changes that will occur in her body during puberty. There are many opportunities during this time of life for you to talk to your child about what she's experiencing. You should emphasize that these changes are part of the natural process of growing into adulthood, stimulated by hormones (chemicals that are produced within the body).

Keep track of your child's bodily changes, while fully respecting privacy. As the age ranges above indicate, there are wide variations of “normal” in the time when puberty begins. Remind your child that while her friends will grow at different rates, they will eventually catch up with one another.

Additional Information:

- Physical Development in Boys: What to Expect (http://www.healthychildren.org/English/ages-stages/gradeschool/puberty/Pages/Physical-Development-Boys-What-to-Expect.aspx)
- Physical Development in Girls: What to Expect (http://www.healthychildren.org/English/ages-stages/gradeschool/puberty/Pages/Physical-Development-Girls-What-to-Expect.aspx)
- When a Child is Unusually Short or Tall (http://www.healthychildren.org/English/ages-stages/gradeschool/puberty/Pages/When-a-Child-is-Unusually-Short-or-Tall.aspx)
- When Puberty Starts Early (http://www.healthychildren.org/English/ages-stages/gradeschool/puberty/Pages/When-Puberty-Starts-Early.aspx)

Last Updated 12/19/2014

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