guide to sexual maturity, *Patient Care* 13:122-124, 1979.)

Physical Growth During Puberty

Along with increases in reproductive hormones and sexual maturation, a dramatic increase in growth occurs. The final 20% to 25% of linear growth is achieved during puberty, and up to 50% of ideal adult body weight is gained during this time as well. Most of this growth of skeletal muscles and internal organs occurs during a 24- to 36-month period—the adolescent **growth spurt**. This accelerated growth occurs in all children but, as in other areas of development, is highly variable in age of onset, duration, and extent. The growth spurt begins earlier in girls, usually between $9\frac{1}{2}$ and $14\frac{1}{2}$ years old; on average it begins between $10\frac{1}{2}$ and 16 years old in boys. During this period, the average boy gains 10 to 30 cm (4 to 12 inches) in height and 7 to 30 kg (15.5 to 66 pounds) in weight. The average girl, in whom the growth spurt is slower and less extensive, gains 5 to 20 cm (2 to 8 inches) in height and 7 to 25 kg (15.5 to 55 pounds) in weight. Growth in height typically ceases 2 to $2\frac{1}{2}$ years after menarche in girls and at 18 to 20 years old in boys.

This increase in size is acquired in a characteristic sequence. Growth in length of the extremities and neck precedes growth in other areas, and because these parts are the first to reach adult length, the hands and feet appear larger than normal during adolescence. Increases in hip and chest breadth take place in a few months followed several months later by an increase in shoulder width. These changes are followed by increases in length of the trunk and depth of the chest. This sequence of changes is responsible for the characteristic long-legged, gawky appearance of early adolescent children.

Sex Differences in General Growth Patterns

Sex differences in general growth and distribution patterns are apparent in skeletal growth, muscle mass, adipose tissue, and skin. **Skeletal growth** differences between boys and girls are apparently a function of hormonal effects at puberty. The earlier cessation of growth in girls is caused by epiphyseal unity under the potent effect of estrogen secretion, and the hormonal effect on female bone