trunk again elongates. In newborn infants, the lower limbs are one third the total body length but only 15% of the total body weight; in adults, the lower limbs constitute half of the total body height and 30% or more of the total body weight. As growth proceeds, the midpoint in head-to-toe measurements gradually descends from a level even with the umbilicus at birth to the level of the symphysis pubis at maturity.

Biologic Determinants of Growth and Development

The most prominent feature of childhood and adolescence is physical growth (Fig. 3-3). Throughout development, various tissues in the body undergo changes in growth, composition, and structure. In some tissues, the changes are continuous (e.g., bone growth and dentition); in others, significant alterations occur at specific stages (e.g., appearance of secondary sex characteristics). When these measurements are compared with standardized norms, a child's developmental progress can be determined with a high degree of confidence (Table 3-1). Growth in children with Down syndrome differs from that in other children. They have slower growth velocity between 6 months and 3 years and then again in adolescence. Puberty occurs earlier, and they achieve shorter stature. This population of patients is frequent users of the health care system, often with multiple providers, and benefit from the use of the Down syndrome growth chart to monitor their growth (Cronk, Crocker, Pueschel, et al, 1988; Myrelid, Gustafsson, Ollars, et al, 2002).