

promotes calcium deposition in the bone.

Juvenile Hypothyroidism

Hypothyroidism is one of the most common endocrine problems of childhood. It may be either congenital (see [Chapter 8](#)) or acquired and represents a deficiency in secretion of TH ([Parks and Felner, 2016](#)).

Beyond infancy, primary hypothyroidism may be caused by a number of defects. For example, a congenital hypoplastic thyroid gland may provide sufficient amounts of TH during the first year or two but be inadequate when rapid body growth increases demands on the gland. A partial or complete thyroidectomy for cancer or thyrotoxicosis can leave insufficient thyroid tissue to furnish hormones for body requirements. Radiotherapy for Hodgkin disease or other malignancies may lead to hypothyroidism ([Pizzo and Poplack, 2016](#)). Infectious processes may cause hypothyroidism. It can also occur when dietary iodine is deficient, although it is now rare in the United States because iodized salt is a readily available source of the nutrient.

Clinical manifestations depend on the extent of dysfunction and the child's age at onset. Primary congenital hypothyroidism is characterized by low levels of circulating THs and raised levels of TSH at birth ([Rastogi and LaFranchi, 2010](#)). If left untreated, congenital hypothyroidism causes decreased mental capacity. Improvements in newborn screening have led to earlier detection and prevention of complications ([American Academy of Pediatrics, Rose, Section on Endocrinology and Committee on Genetics of the American Thyroid Association, et al, 2006](#)). The GnRH test and baseline measurement of gonadotropin and sex hormone serum concentrations at 3 months old are promising options for assessment of hypothalamic–pituitary–gonadal function in infants with congenital hypothyroidism ([van Tijn, Schroor, Delemarre-van de Waal, et al, 2007](#)). The presenting symptoms are decelerated growth from chronic deprivation of TH or thyromegaly. Impaired growth and development are less severe when hypothyroidism is acquired at a later age, and because brain growth is nearly complete by 2 to 3 years old, intellectual disability and neurologic sequelae are not associated with juvenile hypothyroidism. Other