

(Gardner and Shoback, 2011).

Accurately measuring intake and output, noting daily weight, and observing for signs of fluid overload are primary nursing functions, especially in children receiving IV fluids. Seizure precautions are implemented. Patients and families need education regarding the rationale for fluid restrictions. The rare child with chronic SIADH will be placed on long-term ADH-antagonizing medication, and the child and family will require instructions for its administration.

## Disorders of Thyroid Function

The thyroid gland secretes two types of hormones: **thyroid hormone (TH)**, which consists of the hormones **thyroxine ( $T_4$ )** and **triiodothyronine ( $T_3$ )**, and **calcitonin**. The secretion of THs is controlled by TSH from the anterior pituitary, which in turn is regulated by thyrotropin-releasing factor (TRF) from the hypothalamus as a negative feedback response. Consequently, hypothyroidism or hyperthyroidism may result from a defect in the target gland or from a disturbance in the secretion of TSH or TRF. Because the functions of  $T_3$  and  $T_4$  are qualitatively the same, the term *thyroid hormone* is used throughout the discussion.

The synthesis of TH depends on available sources of dietary iodine and tyrosine. The thyroid is the only endocrine gland capable of storing excess amounts of hormones for release as needed. During circulation in the bloodstream,  $T_4$  and  $T_3$  are bound to carrier proteins ( $T_4$ -binding globulin). They must be unbound before they are able to exert their metabolic effect.

The main physiologic action of TH is to regulate the basal metabolic rate and thereby control the processes of growth and tissue differentiation. Unlike GH, TH is involved in many more diverse activities that influence the growth and development of body tissues. Therefore, a deficiency of TH exerts a more profound effect on growth than that seen in GH deficiency.

Calcitonin helps maintain blood calcium levels by decreasing the calcium concentration. Its effect is the opposite of parathyroid hormone (PTH) in that it inhibits skeletal demineralization and