

excessive enema administration. Although they hold their breath while swimming, some children apparently swallow a large amount of water during repeated submersion. Anticipatory guidance to parents should include a discussion of swimming instruction and advice to stop a lesson if the child swallows unusual amounts of water or exhibits any symptoms of hyponatremia (see [Table 22-2](#)).

Dehydration

Dehydration is a common body fluid disturbance in the nursing care of infants and children; it occurs whenever the total output of fluid exceeds the total intake, regardless of the underlying cause. Although dehydration can result from impaired oral intake, more often it is a result of abnormal losses, such as those that occur in vomiting or diarrhea, when oral intake only partially compensates for the abnormal losses. Other significant causes of dehydration include diabetic ketoacidosis and extensive burns.

Types of Dehydration

Because sodium is the primary osmotic force that controls fluid movement between the major fluid compartments, dehydration is often described according to plasma sodium concentrations (i.e., isonatremic, hyponatremic, or hypernatremic). Other osmotic forces, however, such as glucose in diabetic ketoacidosis and protein in nephrotic syndrome, may also play a dominant role.

Isotonic (isosmotic or isonatremic) dehydration occurs in conditions in which electrolyte and water deficits are present in approximately balanced proportions. This is the primary form of dehydration occurring in children. The observable fluid losses are not necessarily isotonic, but losses from other avenues make adjustments so that the sum of all losses, or the net loss, is isotonic. Because no osmotic force is present to cause a redistribution of water between the ICF and the ECF, the major loss is sustained from the ECF compartment. This significantly reduces the plasma volume and the circulating blood volume, which affects the skin, muscles, and kidneys. Shock is the greatest threat to life in isotonic dehydration, and the child with isotonic dehydration displays symptoms characteristic of hypovolemic shock. Plasma sodium remains within normal limits, between 130 and 150 mEq/L.