


**E-TABLE 68-2 CLINICAL MANIFESTATIONS OF SPECIFIC NUTRIENT DEFICIENCIES**

SIGN OR SYMPTOM OF NUTRIENT DEPLETION*	SPECIFIC NUTRIENTS DEPLETED
Muscle and fat wasting, weakness	Calories, protein, combined calories + protein
Anorexia	Calories, protein
Glossitis (discolored, smooth, painful tongue)	Folate, vitamin B <sub>12</sub> , niacin, riboflavin, thiamine, iron
Cheliosis, angular stomatitis	Riboflavin, niacin, folate, vitamin B <sub>12</sub>
Symmetrical motor/sensory dysfunction, ataxia, nystagmus, heart failure, mental status changes or confusion	Thiamine (beriberi)
Peripheral edema	Thiamine (heart failure), protein (low oncotic pressure)
Loss of vibratory or position sense, fatigue	Vitamin B <sub>12</sub>
Dermatitis (sun-exposed skin), diarrhea, dementia	Niacin (pellagra)
Bleeding gums, petechiae, ecchymosis	Vitamins C and K
Poor wound healing	Calories, protein, calories + protein, vitamin C, vitamin A, zinc, others
Bone pain	Vitamin D (osteomalacia)
Follicular hyperkeratosis, night blindness, Bitot's spots	Vitamin A
Flaky, whitish dermatitis	Essential fatty acid (linoleic, $\alpha$ -linolenic)
Hair sparse or easily pluckable	Zinc, protein
Pale skin, nail spooning (koilonychia)	Iron
Loss of taste; reddish dermatitis around nose, mouth, groin; hair loss	Zinc
Peripheral neuropathies, gait abnormalities, weakness, fatigue	Copper
Muscle pain, heart failure, Paresthesias, carpal pedal spasm	Selenium Calcium, magnesium, phosphorus, or potassium

\*Typically, severe deficiency of specific nutrients (with depletion initially in tissue and later in blood) has occurred before physical manifestations of deficiency are evident.

**E-TABLE 68-3 ESTIMATION OF PROTEIN OR AMINO ACID REQUIREMENTS IN ADULT PATIENTS**

CLINICAL CONDITION	PROTEIN OR AMINO ACID DOSE (g/kg/day)*
Well-nourished with acute illness	1.2-1.5
Malnourished and/or severe catabolic stress	1.5-1.8
Postoperative	1.2-1.5
Hepatic failure	0.6-1.2
Encephalopathy	0-0.6
Acute renal failure, not on renal replacement therapy	0.6-0.8
Renal failure, on renal replacement therapy	1.2-2.5

\*Oral/enteral nutrient supplements and tube feedings contain either intact or partially hydrolyzed high-quality protein (typically casein, soy, and/or whey). Parenteral nutrition solutions for peripheral or central vein administration provide known essential L-amino acids combined with several nonessential amino acids. These may be limiting in certain conditionally essential amino acids (e.g., cysteine, taurine) in some clinical conditions.