

Muscular System		
Decreased muscle strength, tone, and endurance	Decreased venous return and decreased cardiac output	Use antiembolism stockings or intermittent compression devices to promote venous return (monitor circulatory and neurovascular status of extremities when such devices are used).
	Decreased metabolism and need for oxygen	
	Decreased exercise tolerance	Plan play activities to use uninvolved extremities.
	Bone demineralization	Place in upright posture when possible.
Disuse atrophy and loss of muscle mass	Catabolism Loss of strength	Have patient perform range-of-motion, active, passive, and stretching exercises.
Loss of joint mobility	Contractures, ankylosis of joints	Maintain correct body alignment. Use joint splints as indicated to prevent further deformity. Maintain range of motion.
Weak back muscles	Secondary spinal deformities	Maintain body alignment.
Weak abdominal muscles	Impaired respiration	See nursing considerations for respiratory system.
Skeletal System		
Bone demineralization — osteoporosis, hypercalcemia	Negative bone calcium uptake Pathologic fractures Calcium deposits Extraosseous bone formation, especially at hip, knee, elbow, and shoulder Renal calculi	With paralysis, use upright posture on tilt table. Handle extremities carefully when turning and positioning. Administer calcium-mobilizing drugs (diphosphonates) and normal saline infusions if ordered. Ensure adequate intake of fluid; monitor output. Acidify urine. Promptly treat urinary tract infections.
Negative bone calcium uptake	Life-threatening electrolyte imbalance	Monitor serum calcium levels. Provide electrolyte replacement as indicated.
Metabolism		
Decreased metabolic rate	Slowing of all systems Decreased food intake	Mobilize as soon as possible. Have patient perform active and passive resistance exercises and deep-breathing exercises. Ensure adequate food intake. Provide a high-protein, high-fiber diet.
Negative nitrogen balance	Decline in nutritional state	Encourage small, frequent feedings with protein and preferred foods.
	Impaired healing	Prevent pressure areas.
Hypercalcemia	Electrolyte imbalance	See nursing consideration for skeletal system.
Decreased production of stress hormones	Decreased physical and emotional coping capacity	Identify causes of stress. Implement appropriate interventions to lower physical and psychosocial stresses.
Cardiovascular System		
Decreased efficiency of orthostatic neurovascular reflexes	Inability to adapt readily to upright position (orthostatic intolerance) Pooling of blood in extremities in upright posture	Monitor peripheral pulses and skin temperature changes. Use antiembolism stockings or intermittent compression devices to decrease pooling when upright.
Diminished vasopressor mechanism	Orthostatic intolerance with syncope, hypertension, decreased cerebral blood flow,	Provide abdominal support. In severe cases, use anti-gravitational pants. Position horizontally.