movements, and reflexes. Refer to Chapter 19 for age-
related considerations.

PHYSICAL HEALTH
Mobility is directly affected by any disorder of the muscu-
loskeletal or nervous systems, or by any vestibular (inner ear) 
disorders. Congenital anomalies, such as hip dysplasia and 
spina bifida, affect motor function. Musculoskeletal trauma 
limiting mobility includes strains, sprains, fractures, joint dis-
locations, amputations, and joint replacement. Nervous sys-
tem disorders such as cerebral palsy, Parkinson’s disease, 
multiple sclerosis, tumors, infections (e.g., meningitis), and 
injuries to the spinal cord or brain such as cerebral vascular 
accidents (strokes) may leave muscles weakened, paralyzed, 
spastic (with too much muscle tone), or flaccid (without mus-
cle tone). Disorders of the vestibular apparatus, such as ear 
infection or Ménière’s disease, cause vertigo, a strong sensation 
of spinning around in space, which impairs balance. Mobility 
is often an issue for the elderly, especially those with joint dis-
orders (see Chapter 32).

MENTAL HEALTH
Mental or affective (emotional) disorders affect personal moti-
vation. Anxiety may produce an increase in physical activity.
Chronic stress, however, depletes the body’s energy reserves, 
producing fatigue. Slumped posture may indicate lassitude or 
depression. A depressed client may lack the physical energy 
required for daily hygiene. Exercise is necessary to mental 
health. Movement energizes the client and facilitates coping.

NUTRITION
Undernutrition and overnutrition influence body alignment 
and mobility. Obesity distorts posture and balance, causing 
strain on muscles and joints. More energy is expended on 
movement, which produces fatigue.

Effects of Immobility
A sedentary lifestyle or history of inactivity due to injury or 
ilness increases the risk of major disease. The level of risk 
depends on the duration of inactivity, the client’s general 
health, and sensory awareness. Nurses must understand these 
risks and encourage client mobility. Early ambulation after ill-
ness or surgery is an essential preventive measure.

MUSCULOSKELETAL SYSTEM
Signs of prolonged immobility are most often manifested in 
the musculoskeletal system. Muscular strength decreases in 
the absence of physical activity. Common musculoskeletal 
problems resulting from prolonged immobility include:

- **Osteoporosis.** Without the stress of weight-bearing 
  activity, bones demineralize. Calcium, which gives bones

### TABLE 15-1

<table>
<thead>
<tr>
<th>MOVEMENT</th>
<th>ACTION</th>
<th>MOVEMENT</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexion</td>
<td>Decreasing the angle of the joint (e.g., bending the elbow)</td>
<td>Eversion</td>
<td>Turning the sole of the foot outward by moving the ankle joint</td>
</tr>
<tr>
<td>Extension</td>
<td>Increasing the angle of the joint (e.g., straightening the arm at the elbow)</td>
<td>Inversion</td>
<td>Turning the sole of the foot inward by moving the ankle joint</td>
</tr>
<tr>
<td>Hyperextension</td>
<td>Further extension or straightening of a joint (e.g., bending the head backward)</td>
<td>Pronation</td>
<td>Moving the bones of the forearm so that the palm of the hand faces downward when held in front of the body</td>
</tr>
<tr>
<td>Abduction</td>
<td>Movement of the bone away from the midline of the body</td>
<td>Supination</td>
<td>Moving the bones of the forearm so that the palm of the hand faces upward when held in front of the body</td>
</tr>
<tr>
<td>Adduction</td>
<td>Movement of the bone toward the midline of the body</td>
<td>Protraction</td>
<td>Moving a part of the body forward in the same plane parallel to the ground</td>
</tr>
<tr>
<td>Rotation</td>
<td>Movement of the bone around its central axis</td>
<td>Retraction</td>
<td>Moving a part of the body backward in the same plane parallel to the ground</td>
</tr>
<tr>
<td>Circumduction</td>
<td>Movement of the distal part of the bone in a circle while the proximal end remains fixed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>