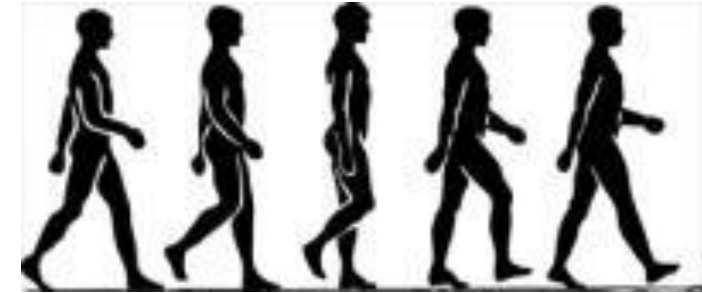


## LOCOMOTOR SYSTEM



### Muscles

*Atrophy* affecting both number and size of fibres conditioned by metabolic disorder and 'functional denervation'.

*Weakness* attributable to biochemical or hormonal deficiency

### Bones

By 60–70 years, skeletal mass may be reduced to half that at age 30.

Atrophy = osteoporosis and osteomalacia  
If dietary intake of vitamins and calcium is poor, this will increase the problem

A person is at higher risk of fracture as they age. **a specific injury** will have more immediate effects and limitations due to added pain and swelling, both of which will hinder range in the joint and mobility of the muscle.

### Joints

By age 65, 80% of the population has some articular disorder. Loss of resilience and elasticity in ligaments, cartilage and periarticular tissues. Degeneration occurs with erosion, and calcification of cartilage and capsule. There is a gradual reduction in collagen but not in the water content. Bunions, subluxation of small joints in hands and feet are common, as are painful feet and other chiropody problems. Proprioception and general sensation may be decreased if changes to muscle and joints are compounded by nerve damage.

Loss of muscle bulk, degenerative joint changes and a decline in physical strength cause limitation of range and speed of movement. Disability ensues as a combined effect of muscular weakness, joint stiffness and impaired central mechanism for sensorimotor performance, so there is:

1. Less precision in fine movements and in rapid alternating movements
2. Irregular timing of action, loss of smooth flow of one form of action into another
3. Slowing down to avoid outcome of one action before planning the next.

Confidence and reliability of action may be reduced.

The individual may experience difficulty with intricate tasks (worse if complicated by uncompensated visual defect).

Stooped posture, loss of height, other distortions owing to atrophy and effect of weakness in skeleton and major muscle groups become responsible for posture and antigravity support.

The result is a more flexed, tired posture with altered biomechanics, muscle imbalance, and slowly decreasing range in joints and overall decrease in safety. The therapist may have to provide walking aids and order a wheelchair for the person if necessary.

Many older adults respond well to treatments such as heat, ice or massage before you start on an exercise regime. Prolonged rest and periods of non-weight bearing will weaken bone and muscles so do not allow the person to lay idle in bed unless you are specifically told not to intervene. A similar problem can be seen in pathologies such as arthritis, osteoporosis and recurrent falls, where the problem is often compounded by the person's own fear of further injury if they do too much. Take time to educate individuals properly about their condition as it often ensures their participation in a session, as opposed to resistance