

Gait Components

As described by Jacquelin Perry and Judith M. Burnfield in their 2nd edition of Gait Analysis, walking is described as a convenient means to travel short distances. In the absence of pathology, gait appears coordinated, efficient and effortless. A therapist cannot understand pathological gait without a solid foundation in the understanding of normal gait mechanics. This includes joint motions, movements and muscle activation patterns.

When walking, we use a repetitious sequence of limb motions to simultaneously move the body forward while also maintaining stance stability.

The phases of gait involve an ever-changing alignment between the body and the supporting foot during stance and selective advancement of the limb segments in swing. As a result of these reactions, there is a series of motion patterns being performed by the hip, knee and ankle. As the study of gait is ever evolving it is now evident that each stride in an individual's gait contains 8 functional patterns (phases). The Ranchos Los Amigos Gait Analysis Committee developed generic terminology for the functional phases of gait.

Diseases that impair a patient's ability to walk may be markedly different in their primary pathology. However, the abnormalities they impose on the mechanics of walking fall into 5 functional categories. The therapist's awareness of these characteristics assists us to better differentiate primary impairment from substitutive actions. These include:

1. Deformity – Example: contractures
2. Muscle Weakness – Example: Quadriceps Insufficiency with Poliomyelitis, abductor weakness or soleus and hip extensor weakness
3. Sensory Loss – Example: impaired proprioception
4. Pain – Example: Osteoarthritis or Rheumatoid Arthritis
5. Impaired Motor Control: Example: Stroke; Spastic Cerebral Palsy (spastic genu recurvatum)

Assessing Gait Deviations/Pathological Gait includes analysis of:

1. Ankle and Foot
2. Knee
3. Hip
4. Trunk and Pelvis

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Source: Gait Analysis, Normal and Pathological Function, 2nd Edition; Jacquelin Perry, Judith M. Burnfield; SLACK Incorporated

