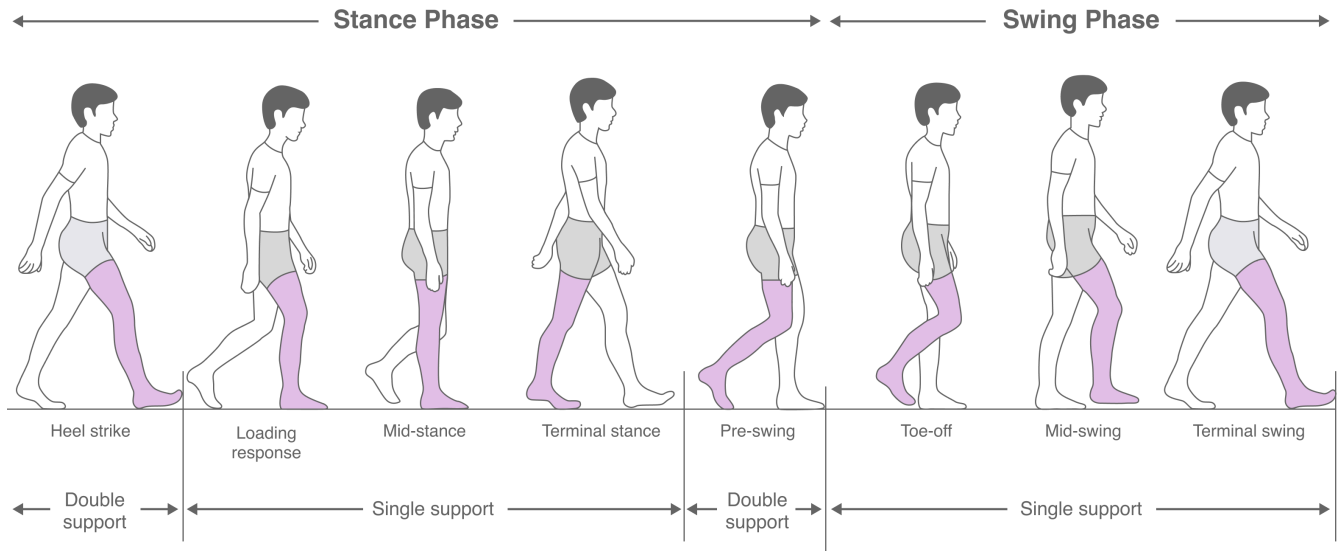


# Gait Cycle Chart

Gait refers to the manner or pattern of walking. Analyzing gait helps healthcare professionals understand an individual's walking mechanics, identify abnormalities, and develop treatment plans to improve mobility and prevent injuries.



## Phases of the gait cycle

### 1. Stance phase:

- **Initial contact:** The moment the foot first touches the ground.
- **Loading response:** The period where the foot absorbs the body weight.
- **Midstance:** The body weight is directly over the supporting limb.
- **Terminal stance:** The heel of the supporting foot begins to lift off the ground.
- **Pre-swing:** The toes of the supporting foot are in contact with the ground, and the opposite foot is in the initial contact phase.

### 2. Swing phase:

- **Initial swing:** The foot is lifted off the ground, and the leg begins to move forward.
- **Midswing:** The leg is moving forward, and the foot is clearing the ground.
- **Terminal swing:** The leg extends forward in preparation for the next initial contact.

## Key terms and definitions

- **Gait cycle:** The complete sequence of motions that occur from the initial contact of one foot to the next initial contact of the same foot.
- **Step:** The movement from initial contact of one foot to initial contact of the opposite foot.

## Key terms and definitions

- **Stride:** The movement from initial contact of one foot to the next initial contact of the same foot, encompassing two steps.
- **Step time:** The duration it takes to complete one step.
- **Step width:** The lateral distance between the midpoints of the heel of one foot and the heel of the other foot during walking.
- **Walking:** A form of gait where at least one foot is in contact with the ground at all times. Double support periods occur during the stance phase when both feet are on the ground.
- **Running:** A form of gait where there are moments when both feet are off the ground simultaneously. Double float periods occur during the swing phase when neither foot is on the ground.

## Gait descriptions

- **Hemiplegic:** Characterized by unilateral weakness. The affected arm is often held close to the body in a flexed position, while the leg is extended and foot is plantar-flexed. Patients typically swing the affected leg in a semicircle when walking. This gait often results from stroke.
- **Diplegic (spastic):** Involves spasticity on both sides, with the lower extremities more affected than the upper ones. Patients have a narrow base of support, dragging both legs and often crossing them due to tight hip adductors, creating a scissoring effect. This gait is common in cerebral palsy.
- **Neuropathic (steppage, equine):** Seen in patients with foot drop, who lift their legs higher than normal to prevent the toes from dragging. Causes include peroneal nerve palsy, L5 radiculopathy, amyotrophic lateral sclerosis, and peripheral neuropathies.
- **Myopathic (waddling):** Results from hip girdle muscle weakness, leading to pelvis dropping on the side opposite to the weakness (Trendelenburg sign). Bilateral weakness causes a waddling gait. This gait is typical in muscular dystrophy and other myopathies.
- **Choreiform (hyperkinetic):** Marked by irregular, jerky, involuntary movements affecting the extremities. Common in disorders like Huntington's disease and other choreas. Walking can exaggerate these involuntary movements.
- **Ataxic (cerebellar):** Characterized by clumsy, staggering movements and a wide base of support. Patients often sway side to side and struggle with straight-line walking. This gait resembles that of acute alcohol intoxication and is associated with cerebellar disease.
- **Parkinsonian (festinating, propulsive):** Features rigidity and slow movements. Patients have a stooped posture, flexed knees, and small shuffling steps. They may also experience difficulty initiating movements and an involuntary forward-leaning walk. Common in Parkinson's disease.
- **Sensory (stomping):** Occurs when there is a loss of proprioception. Patients compensate by slamming their feet onto the ground to sense their location. This gait worsens without visual cues and is seen in conditions like B12 deficiency, tabes dorsalis, and severe peripheral neuropathies.