

# Toe walking

## Causes and treatment

Toe walking can occur in children at any age, however, it is most commonly seen when a child first learns to walk (between 1 and 2 years old) and is most often quickly outgrown. By 3 years of age, a child should demonstrate a normal walking pattern, contacting the ground with their heel and then pushing off with their toes/forefoot. Toe walking occurs when the child bears weight only on the forefoot with each step. It is important to note that some children may still be able to place their heels on the ground when standing and/or walking.

### What causes toe walking?

There are 3 types of toe walking:

*Habitual/Idiopathic:* Idiopathic or habitual toe walking occurs when children start walking on their toes for no apparent reason. It is unclear why this develops, but is commonly seen in children who have difficulties with sensory processing.

*Tight muscles:* Tightness occurs when the calf and hamstring muscles do not demonstrate a full range of motion. Tightness can restrict ankle and knee joint motion, causing the child's toes/foot to point down and away from the ankle, which results in toe walking. Muscle tightness can affect a child's gait pattern, presenting as a shorter stride length or bouncy step with the heel never contacting the ground. Tightness can be congenital (present at birth) or developmental. Developmental toe walking occurs when the bones grow quicker than the muscles and tendons. This difference in growth causes restricted movement

*Neurological:* Toe walking may be present in children with cerebral palsy or hypertonia (high tone). Neurological toe walking is caused by the nervous system contracting the calf muscles, forcing a foot into a down (plantar flexed) position.

### Why do we treat toe walking?

If left untreated, toe walking has been associated with abnormal stress on bones and ligaments in the knees, hips and lower back. This can cause the bones to grow incorrectly, putting the child at risk for injuries and joint pain as they grow older. Also, a child uses a great deal of energy when toe walking; this can make long distance walking difficult. It can also lead to self-esteem problems due to clumsiness and an inability to keep up with peers.

### How can we treat toe walking?

Depending on the tightness of the muscles, a child would benefit from physical therapy to begin a stretching and strengthening program. In more severe cases, serial casting or orthotics are used to assist in the lengthening of the muscles.

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