



## Frequency of Occurrence of Toe Walking in Children

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**Objective:** Toe walking in children is often a cause for seeing a pediatric or orthopedic practice. Classification of toe walking has been variable. However, one needs to differentiate the primarily pathologic toe walking, which is due to neuromuscular diseases or a congenital short tendo calcaneus (tendo Achilles), from the far more frequently occurring idiopathic toe walking (ITW). The objective of this study is to determine the frequency of toe walking and its correlation to associated developmental problems

**Methods:** We have performed a study of the gait pattern of 366 typically developing children and determined body height and passive ankle dorsiflexion. Independently, 448 questionnaires, asking for the details of case history and sociological data, have been filled in by the parents.

**Results:** The prevalence of toe walking was 5.2% (n=19), with a median of 62 months and 68% male participants. Toe walkers were as tall as plantigrade walkers (both with an average percentile range of 50.4), the maximum of 12.3° of passive ankle dorsiflexion was slightly lesser than the 16.2° of typically developing children. 13.9% (n=62) had been an anamnestic phase of toe walking. Plantigrade walkers acquired walking at an average age of 13.2 months, and speaking at an age of 16.0 months. With 15.7 months for the acquisition of walking and 18.2 months for speaking, it took toe walkers more time to develop similarly. Families of toe walkers are on average less educated than those of typically developing children.

**Summary:** Idiopathic toe walking is a frequently indicated variant of the infant's walking pattern. It has a prevalence of approximately 5%, and its anamnestic frequency is about three times higher. ITW correlates to (probably secondarily caused) limitations in passive ankle dorsiflexion, a delayed acquisition of developmental stages, and lower social status – however not to body height.