Idiopathic toe walking (ITW) is a common condition in which children ambulate with a bilateral toe-toe pattern, decreased heel strike or early heel rise.

ITW is a diagnosis of exclusion and is provided when medical and neuropsychiatric diagnoses that cause toe walking are ruled out. Diagnoses that should be ruled out include autism spectrum disorder, cerebral palsy, club foot, hereditary spastic paraparesis, muscular dystrophy, peripheral neuropathies (Charcot-Marie-Tooth disease) and spinal dysraphism (spina bifida, tethered cord syndrome).

Referral of children who toe walk to physical therapy is indicated to provide guidance regarding referrals to specialists for further assessment, to identify appropriate conservative management and prevent need for more invasive procedures.

**ASSESSMENT**

Obtain birth, developmental, toe walking and medical history. Ask probing questions regarding onset of independent walking, onset and frequency of toe walking, pain and tripping/falling.

Perform standard physical examination. Examine ankle dorsiflexion passive range of motion with the knee extended. Assess gait (best to do when child is unaware); ask caregiver if child’s gait pattern in clinic is typical. Children with ITW may demonstrate:

- Ankle dorsiflexion limitations (<10 degrees)
- Calluses on sole of forefoot, wide forefoot
- Normal muscle tone, normal deep tendon reflexes and negative Gower’s sign
- Pain in ankle/foot, leg or low back

**HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS**

To consider a diagnosis of ITW, look for the following HPE red flags:

- Able to walk heel-toe or foot flat by request or if aware they are being observed
- Bilateral toe walking
- Difficulty keeping up with peers
- Independent ambulation before 20 months of age
- Increased tripping and/or falling for age
- Limited ankle dorsiflexion with knee extended
- Pain, especially with increased activity or distance/time of walking
- Toe walking has stayed the same or worsened
- Toe walking that began within six months of independent ambulation

**WHEN TO REFER**

Refer to the Division of Occupational Therapy and Physical Therapy for evaluation and treatment if:

- Negative history/exam for medical or neuropsychiatric etiologies of the child’s toe walking and ITW inclusion criteria met, with or without ankle dorsiflexion limitations
- Unclear history/exam for medical or neuropsychiatric etiologies of the child’s toe walking

If HPE reveals possible medical or neuropsychiatric etiology for toe walking, refer to appropriate medical specialist. Consider referral to PT for evaluation and treatment while awaiting results and note plan for work-up in PT referral.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children’s.

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**FAST FACTS**

- 5% Percentage of children who have idiopathic toe walking
- 2 years Age by which a heel strike is present in typical gait development

Common comorbidities in children with ITW include ADHD, anxiety, sensory processing impairments, and speech-language impairments or delays.

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# Idiopathic Toe Walking

## Assessment

- Perform standard physical examination and birth, developmental (especially walking/toe walking) and medical history and physical.
- Children with ITW demonstrate normal muscle tone, normal deep tendon reflexes and negative Gower’s sign.

## HPE (HISTORY AND PHYSICAL EXAM) RED FLAGS

<table>
<thead>
<tr>
<th>Developmental History</th>
<th>Toe Walking History</th>
<th>Medical History</th>
<th>Physical Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent ambulation before 20 months of age</td>
<td>Toe walking started within 6 months of independent ambulation</td>
<td>Absence of concerns for medical or neuropsychiatric diagnosis that cause toe walking in children</td>
<td>May demonstrate:</td>
</tr>
<tr>
<td>Difficulty keeping up with peers</td>
<td>Bilateral toe walking</td>
<td>Pain, especially with increased activity or duration of walking</td>
<td>• Ankle dorsiflexion limitations (&lt;10 degrees ankle dorsiflexion with the knee extended)</td>
</tr>
<tr>
<td>Increased tripping and/or falling for age</td>
<td>May be able to walk heel-toe or foot-flat when asked or when aware they are being observed</td>
<td></td>
<td>• Calluses on sole of forefoot and wide forefoot</td>
</tr>
<tr>
<td></td>
<td>May have family history of toe walking</td>
<td></td>
<td>• Pain in ankle/foot, leg or low back</td>
</tr>
<tr>
<td></td>
<td>Toe walking has stayed the same or gotten worse</td>
<td></td>
<td>• Limitations in activity</td>
</tr>
</tbody>
</table>

## Positive history/exam for possible medical or neuropsychiatric etiology for child’s toe walking?

- **Yes**
  - Refer to medical specialist for further work-up. Consider referral to PT for evaluation and treatment while awaiting results and note plan for work-up in PT referral.

- **No**

- **Unclear**
  - **Refer to PT**