Children's Wisconsin

Co-Management Guidelines

To support collaborative care, we have developed guidelines for our community providers to utilize when referring to, and managing patients with, the pediatric specialists at Children's Wisconsin. These guidelines provide protocols for jointly managing patient cases between community providers and our pediatric specialists.

Femoral Anteversion

The angular difference between the femoral neck axis and the transcondylar axis of the knee

Diagnosis/symptom	Referring provider's initial evaluation and management:	When to initiate referral/ consider refer to Orthopedic Clinic:	What can referring provider send to Orthopedic Clinic?	Specialist's workup will likely include:
Signs and symptoms • Parents report child is clumsy and trips frequently • Parents report children characteristically sit with their legs in the "W" position • Often familial • Typically bilateral • Affects females more than males • One in ten children "in-toe" between the ages of two and five years **Diagnosis:** • Differential Diagnosis a) Internal tibial torsion b) Cerebral palsy c) MTA	**Physical Exam Recommendations:** **Rotational Profile Exam** **The Quick Rotational Profile Exam Video** • Internal & external hip rotation • Thigh foot axis • Transmalleolar axis • Heel bisector angle • Foot progression angle with walking **Additional Resources** https://orthokids.org/conditions/in-toeing/ **Radiographs Indicated for:** • Short stature • Abnormal hip examination • Marked limb asymmetry • Pain	• Provider or parent concern • Patients with pain • Femoral anteversion / intoeing over 10 years old • Patients with underlying disorders or developmental delays • Second opinion, seen by outside Orthopedic Surgeon	**Internal Provider using Epic:** Place Ambulatory Referral to Orthopedics. **External Provider using EPIC:** Please complete the external referral order to CHW ORTHOPEDIC & SPORTS MEDICINE CLINICS - or - Fax to Central Scheduling at (414) 607-5288 - or - Online ambulatory referral form Patients will be evaluated in one of the following clinics: Well Child Lower Extremity Clinic: • Otherwise healthy • No history of motor delays, syndrome, underlying neurologic disorder, genetic disorder • Seen by an APP or non-operative Physician	• Birth & developmental milestone history • Family history • Neuromuscular exam including complete rotational profile • Gait evaluation • Possible radiographs

For questions concerning this work,
Contact mdconnect@childrenswi.org

Updated: 11/2023
Valid through: 11/2026
Allison Duey-Holtz CPNP & Christa Thalacker CPNP
*Approved 1/2024

d) Spina bifida
e) Rickets
f) DDH
	Treatment
	• Observation, as natural history points to spontaneous resolution
	• Surgical intervention may be indicated in the following groups if functional issues:
	  • older than 10 years with a marked deformity
	  • underlying neuromuscular condition
	• Education
	  • splinting, shoe modifications, exercises and braces has proved to be ineffective
	  • no association between increased femoral anteversion and DJD
			General Orthopedic Clinic
			• Patients with pain
			• Patients with underlying disorders or developmental delays
			• Second opinion, previously seen by outside Orthopedic Surgeon
			
			Please send
			• Pertinent images – either push to CHW PACS or send with family on disc
			• Radiologist reports if imaging obtained – send with family or fax to (414) 604-7509
			• Clinic notes with hip / lower extremity exam
			
			Contact Information
			• Call Physician Consultation Line at (414) 266-2460 if you would like to speak directly to Pediatric orthopedic surgeon prior to referral
			• Contact Orthopedics (414) 604-7500 for general concerns	

Causes

- Limb buds appear in the fifth week in utero - subsequent intrauterine molding causes rotation at the hip (proximal femur) and shin (tibia)
- At birth neonates have an average of 40 degrees of femoral anteversion. By age 8 years, average anteversion decreases to the typical adult value of 15 degrees
- Femoral anteversion typically increases until age 5 years and then resolves by age 8, after this point no significant change in anteversion occurred

Follow up Recommendations

- Follow up with PA/NP as needed for children with anteversion who are developmentally appropriate
- Follow up with surgeon:
  - Marked deformity
  - Functional issues
  - Abnormal neuromuscular exam
  - Second opinion

References

- In-toeing (no date) OrthoKids. Available at: https://orthokids.org/conditions/in-toeing/ (Accessed: 28 November 2023).
- Global Help Organization. **https://www.youtube.com/watch?app=desktop&v=x-4fPMfRwTQ**. (Accessed: 28 November 2023).
- Gonzales AS, Saber AY, Ampat G, et al. Intoeing. [Updated 2023, Jan 31]. In: StatPearls [Inernet]. Treasure Island (FL). Available from hhts://www.ncbi.nlm.nih.gov/books/NBK499993
- Heinrich, SD & Sharps, CH. Lower extremity torsional deformities in children. A prospective comparison of two treatment modalities. Orthopaedics. 14: 655-659.
- Mosca, V. Chapter 4 – Lower Limb in Practice of Pediatric Orthopedics, 2nd Edition. Staheli, LT (editor) Lippincott Williams & Wilkins, 2006: pp 77-104.
- Herring, JA. Chapter 4 – The Orthopaedic Examination: Clinical Examination in Tachdjian's Pediatric Orthopaedics, 4th edition. Saunders Elsevier, 2008: pp 67-78.
- Herring, JA. Chapter 4 – Disorders of the Femur in Tachdjian's Pediatric Orthopaedics, 4th edition. Saunders Elsevier, 2008: pp 913-918.

- *Approved by Specialty Medical Leader, CSG Clinical Integration, Primary Care Clinical Guidelines Core Team

Updated: 11/2023
Valid through: 11/2026
Allison Duey-Holtz CPNP & Christa Thalacker CPNP
*Approved 1/2024