Pediatric Orthopedics
Consult and referral guidelines

Helen DeVos Children's Hospital
Outpatient Center
35 Michigan Street NE

Outreach locations:
Lansing, St. Joseph, Traverse City

About Pediatric Orthopedics

We treat all orthopedic ailments in children and teens from birth to age 18.

Most common referrals

- Ankle injury: chronic and acute
- Back pain: chronic and acute
- Knee pain
- Knee injury
- Shoulder pain
- Shoulder injury
- Developmental dysplasia of the hip (DDH)
- Idiopathic toewalking
- Genu varum/valgum
- In-toeing
- Limping child
- Scoliosis
- Fractures and acute injuries
- Metatarsus adductus
- Flatfoot
- Clubfoot

Pediatric Orthopedics Appointment Priority Guide

Immediate	Contact HDVCH Direct at 616.391.2345 and ask to speak to the on-call orthopedic surgeon and/or send to the closest emergency department.
Urgent	Likely to receive an appointment within 2 days. Call HDVCH Direct and ask to speak to the on-call orthopedic surgeon regarding an urgent referral.
Routine	Likely to receive an appointment within 10 days. Send referral via Epic Care Link, fax completed referral form to 616.267.2601, or send referral through Great Lakes Health Connect.

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Chronic Ankle Injury	History and exam: assess for joint effusion, areas of tenderness and mechanical symptoms Obtain standing AP, lateral, Mortise views Physical therapy evaluation and treatment Lace-up ankle brace for activities Rest, ice, compression, elevation, NSAIDs for acute symptoms/exacerbation	• No improvement in symptoms after completion of physical therapy • Abnormal imaging findings	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Acute Ankle Injury	History and exam: assess for joint effusion and areas of tenderness including foot Order AP, lateral and Mortise view if: • Bony tenderness OR • Inability to bear weight If skeletally mature with no abnormality on X-ray or skeletally immature with no tenderness over growth plate, begin physical therapy and offer ankle stirrup brace Physical therapy evaluation and treatment Rest, ice, compression, elevation, NSAIDs	• Tenderness over growth plate in skeletally immature patient (non-displaced physeal [growth plate] fracture) • Bony injury on X-ray • No improvement in symptoms and/or continued pain after physical therapy	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Chronic Back Pain	PA and lateral spine radiographs Weight loss for obese patients Physical therapy evaluation and treatment CBC with differential, if associated with constitutional symptoms concerning for malignancy	• Abnormal radiographs • Children less than 10 years with chronic back pain • If symptoms persist despite physical therapy • With associated radiculopathy or other lower extremity symptoms. • Consider referral to Physical Medicine and Rehabilitation if normal imaging and no neurologic symptoms.	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Acute Back Pain	Neurological exam: assess for radicular symptoms Days of rest, if necessary Gradual increase in activities over 1-2 weeks AP and lateral spine radiographs, if symptoms persist beyond 2 weeks or if severe pain after trauma Physical therapy for residual symptoms	• Abnormal X-rays • Neurological deficits • Bowel/bladder dysfunction: refer directly to ER • If symptoms persist, despite physical therapy. • Consider referral to Physical Medicine and Rehabilitation if normal imaging and no neurologic symptoms.	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Chronic Knee Pain	History and exam: assess for joint effusion, areas of tenderness, mechanical symptoms, leg rotation profile X-rays of knee, include AP, lateral, sunrise patella Physical therapy evaluation and treatment Neoprene knee sleeve with activities Consider MRI if mechanical symptoms, or if continued pain after physical therapy is completed. Consider evaluation for inflammatory condition in patients with recurrent effusions. Hip X-rays, especially in obese adolescents (evaluation for slipped capital femoral epiphysis [SCFE])	• Mechanical symptoms of knee • Continued pain after physical therapy completed • Abnormal findings on X-rays or MRI • For atraumatic recurrent effusions and pain in young children with normal X-rays, consider referral to Pediatric Rheumatology	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Acute Knee Injury	History and exam: assess hip and knee range of motion and stability Three views of knee-standing PA/AP, lateral and sunrise patellar view If knee effusion within first 1-2 hours after injury, obtain MRI to rule out ACL/osteochondral injury If knee effusion develops overnight – and patient has no mechanical symptoms – begin with physical therapy Use crutches only as needed Physical therapy may focus on joint motion, gait training, wean from crutches (if needed) and modalities as needed if adolescent Rest, ice, compression, elevation, NSAIDs	• Large knee effusion after injury • Intra-articular injury on MRI • No improvement after completion of physical therapy • Mechanical symptoms • Persistent effusion, beyond 2-3 weeks	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Chronic Shoulder Pain	History and exam: assess major joints for effusion and generalized joint laxity, focused shoulder examination to localize primary areas of tenderness: anterior shoulder (biceps and acromio-clavicular joint), posterior shoulder and scapula, and/or lateral shoulder (rotator cuff), assess for instability of the bilateral shoulder joints, assess for voluntary shoulder subluxation/dislocation MRI (with athrogram) if older than 12 years and history of unilateral dislocation(s) requiring formal reduction and/or unilateral shoulder instability noted on examination	• Significant instability or history of dislocation • Intra-articular abnormalities on MRI (labral tear, large rotator cuff tear, chondral lesions)	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Acute Shoulder Injury	History and exam: asses for shoulder or elbow joint effusion, localized areas of tenderness (clavicle, shoulder and elbow), instability of the shoulder joint X-ray AP of the humerus and axillary view of the shoulder if concern for fracture or dislocation MRI (with arthrogram) if >12 years if history of unilateral dislocation requiring formal reduction and/or unilateral shoulder instability noted on exam Rest, ice, NSAIDs as needed If no acute injury or abnormality on imaging studies and symptoms persist for >3 weeks, may begin physical therapy Physical therapy evaluation and treatment	• Fracture • Dislocation or history of instability • Intra-articular abnormalities on MRI (labral tear, large rotator cuff tear, chondral lesions) • No improvement in symptoms after completion of physical therapy	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Developmental Dysplasia of the Hip (DDH)	History and exam: assess for asymmetric hip range of motion, hip abduction, leg length, instability of hips Indications for imaging include abnormal exam, breech delivery, family history of DDH (obtain ultrasound at 6 weeks if exam normal) Ultrasound if less than 6 months old, X-ray after 6 months.	• Abnormal imaging • Abnormal exam	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health *Note: We may order an ultrasound to be scheduled at HDVCH prior to the patient's appointment*

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Idiopathic Toe Walking	History and exam: assess for abnormal muscle tone or spasticity, hip/knee/ankle range of motion Family education; most will resolve spontaneously Assess for decreasing range of motion or contracture Assess Gower's sign	• Achilles tendon contracture • Consider a Pediatric Neurology evaluation if abnormal neuro exam including abnormal muscle tone, spasticity, proximal muscle weakness or decreasing functional level	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Genu Varum/Valgum	History and exam: observe genu varum if patient <24 months Observe if genu valgum <7-8 years If genu varum persists past 24 months of age, obtain standing limb alignment X-ray with patellae pointed forward If severe genu valgum persists past 7-8 years of age, obtain standing limb alignment X-ray with patellae pointed forward	• Unilateral or asymmetric genu varum or valgum • Pain affiliated with genu varum or valgum • Genu varum persistent after age 24 months • Severe genu valgum persistent after >7-8 years • Progressive severe genu varum or genu valgum	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
In-Toeing	History and exam: assess alignment of legs for increased femoral anteversion, tibial torsion, genu valgum, and forefoot abduction, leg length discrepancy, increased muscle tone or spasticity Family reassurance Observation Activity as tolerated	• Unilateral in-toeing or significant asymmetry on exam • Progressive malrotation • Spasticity or increased muscle tone (consider Pediatric Neurology evaluation) • Increased tibial torsion persisting >5 years • Increased femoral anteversion persisting after age 10 • Leg length discrepancy >1 cm in a skeletally immature patient	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Limping Child	History and exam: obtain information regarding any preceding illness or trauma, assess chronicity of symptoms, examine spine, abdomen, hips and knees to help localize symptoms X-rays of site of localized pain If recent history of fever, CBC with manual differential, CRP, ESR If hip or other joint is irritable, suspected joint infection or inflammatory labs are acutely elevated, refer to emergency department for evaluation	• Abnormal findings on imaging studies • Fever, or atraumatic limp persistent for more than 48 hours	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Scoliosis	History and exam: neurological exam Scoliometer measurement PA and lateral scoliosis films for scoliometer reading over 7 degrees Request evaluation of Risser scoring with X-ray order	• Abnormal neurologic findings • Unusual pain or symptoms • Curves >10 degrees in children younger than 10 years • Skeletally immature children (Risser 0-3): - Scoliometer reading ≥7 degrees in skeletally immature children - Curves >20 degrees on X-ray • Skeletally mature children (Risser 4-5): - Curves 0-20 degrees on X-ray – no referral or monitoring necessary - Curves greater than 20 degrees may require periodic monitoring, suggest referral.	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health

Diagnosis/Symptom	Suggested Workup/Initial Management	When to Refer	Information Needed
Fractures and Acute Injuries	Assess for focal tenderness or deformity, neurovascular function of the injured extremity X-rays if bony tenderness or deformity Consider removable brace or splint for comfort if X-rays normal. Rest, ice, elevation, OTC pain meds	• Abnormal X-rays • Consider referral to the emergency department if deformity present • Large joint effusion on exam • Failure of symptoms to improve with conservative treatment	• History of injury • Therapies attempted • Imaging and reports if outside of Spectrum Health
Metatarsus Adductus	Assess flexibility of foot If flexible, family stretching and observation	• Rigid deformity • Severe deformity after age 2	
Flatfoot	Assess flexibility of foot: when standing on toes, does the patient create an arch and the heel invert? Assess ankle and foot range of motion Pain or focal tenderness No treatment needed if painless OTC arch support if painful	• Rigid flatfoot (does not create an arch when on toes) • Rigid heel valgus • Activity limiting pain after OTC arch supports	
Clubfoot	Assess flexibility of foot Clubfoot: • Cavus (high arch) • Adductus of the forefoot • Varus of the heel • Equinus of the ankle	• Any clubfoot	