



# Boston Children's Cerebral Palsy Hip Surveillance Screening Guide

The incidence of hip displacement is approximately 35 percent in children with cerebral palsy. This hip surveillance screening guide can help detect which patients may be at risk for spastic hip displacement or dislocation.

This hip surveillance guide provides direction on gathering medical history, conducting a physical examination and using the comprehensive screening schedule (*see reverse*).

## GATHER MEDICAL HISTORY AND CONDUCT PHYSICAL EXAMINATION

1. Does the child experience pain related to the hip? If yes, is there pain or discomfort with diaper changes, seating and positional changes or during other activities of daily living?
2. Does stiffness or pain around the child's hips limit the parent's ability to provide regular care for the child, such as perineal care, dressing, bathing and seating?
3. Has there been a recent deterioration in the child's lower extremity function, such as decreased sitting or standing tolerance?

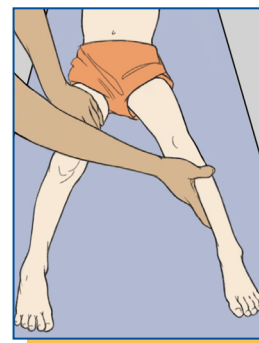
If yes to the questions above, is there an orthopedic surgeon, physiatrist or pediatrician who is managing the child's hips?

## CONDUCT A PHYSICAL EXAMINATION

### Tardieu Scale

Measure hip abduction range of motion with hips at 0° and 90° flexion, according to the Modified Tardieu Scale (R1-dynamic and R2-static values)

The Tardieu Scale is a clinical measure of muscle spasticity for patients with neuromuscular conditions. This scale attempts to differentiate between muscle contracture (fixed muscle length) and muscle spasm (velocity-dependent muscle contraction).



### Thomas Test

Assess for presence of hip flexion contracture via Thomas Test

The patient lies flat (supine) on the examination table and brings one knee to the chest to flex the hip, while the other leg remains extended (straight).

The test is positive if the opposite (extended leg):

- hip flexes = tight iliopsoas
- hip abducts = tight tensor fascia lata
- knee extension = tight rectus femoris muscle



### Galeazzi Test

Assess for leg length discrepancy via Galeazzi test

The patient lies flat on the examination table with knees flexed so that the feet are flat on the examination table; if the knees are not level then the test is positive, indicating potential hip instability or dislocation.

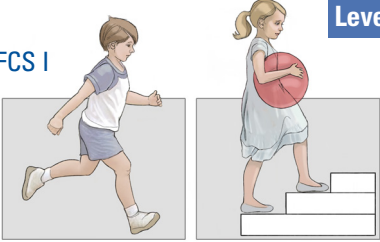
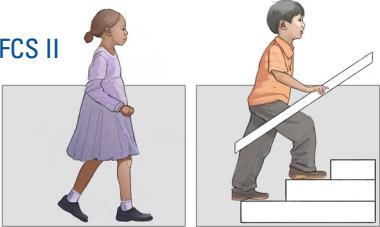
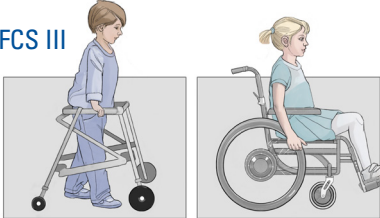
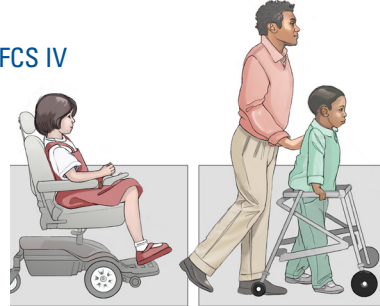
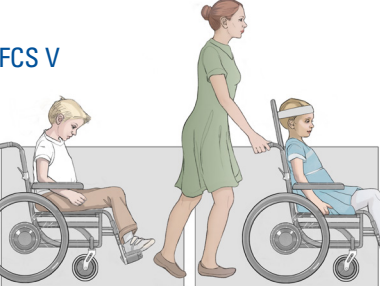
## CRITERIA FOR REFERRING TO AN ORTHOPEDIC SURGEON

1. If the migration percentage is greater than 30 percent on x-ray.
2. If the hip abduction end range (R2) is less than 30 degrees.
3. If the Thomas Test or Hip Abduction Test shows deterioration or asymmetry.
4. If the patient/family answers yes to the three clinical questions described in medical history.



# Hip Surveillance Screening Schedule

Using the **Gross Motor Function Classification System (GMFCS)**, a five-level ordinal classification system based on activities like walking and standing, Boston Children's Cerebral Palsy team are following a comprehensive screening schedule for hip surveillance, according to the severity of gross motor involvement.

	Level	Time period	Frequency of surveillance
<b>GMFCS I</b> 	Younger than 2		All patients should have a clinical examination and assessment of GMFCS level
	3 years old		Repeat clinical examination and reassessment of GMFCS level and repeat AP pelvic x-ray
	6 years old		Repeat clinical examination, reassessment of GMFCS level, and repeat AP pelvic x-ray; may discharge from hip surveillance if asymptomatic without other significant signs of symptoms
<b>GMFCS II</b> 	Younger than 2		All patients should have a clinical examination with AP pelvic x-ray at initial examination
	Annually		Repeat yearly clinical examination and AP pelvic x-ray if initial x-ray is normal, or clinical examination changes significantly
	6 years old		Repeat clinical examination, reassessment of GMFCS level, and repeat AP pelvic x-ray
	8 to 10 years old		If stable, review with clinical examination and AP pelvic x-ray; if unremarkable discharge, if abnormal continue yearly surveillance
<b>GMFCS III</b> 	Younger than 2		All patients should have a clinical examination with AP pelvic x-ray at initial examination
	Every 6 months		If the MP is abnormal or unstable, repeat clinical examination and AP pelvic x-ray every 6 months until the MP stabilizes
	6 years old		Verify GMFCS level, and at each visit thereafter, if GMFCS level changes, modify surveillance accordingly
	Annually		Once MP stabilizes, reduce to annual clinical examination and AP pelvic x-ray; continue yearly surveillance until skeletal maturity
<b>GMFCS IV</b> 	Younger than 2		All patients should have a clinical examination with AP pelvic x-ray at initial examination
	Every 6 months		If the MP is abnormal or unstable, repeat clinical examination and AP pelvic x-ray every 6 months until 6 years of age
	6 years old		Verify GMFCS level, and at each visit thereafter, if GMFCS level changes, modify surveillance accordingly
	Every 6 months		Until MP stabilizes, continue with repeat clinical examination and AP pelvic x-ray every 6 months until MP stabilizes
	Annually		Once MP stabilizes, reduce to annual clinical examination and AP pelvic x-ray and continue surveillance until skeletal maturity
<b>GMFCS V</b> 	Younger than 2		All patients should have a clinical examination with AP pelvic x-ray at initial examination
	Every 6 months		If the MP is abnormal or unstable, repeat clinical examination and AP pelvic x-ray every 6 months until 6 years of age
	6 years old		Verify GMFCS level, and at each visit thereafter, if GMFCS level changes, modify surveillance accordingly
	Every 6 months		If MP remains unstable, continue with repeat clinical examination and AP pelvic x-ray every 6 months until MP stabilizes
	Annually		Once MP stabilizes, reduce to annual clinical examination and AP pelvic x-ray and continue surveillance until skeletal maturity
<b>Hemiplegia</b> <b>(Winters and Gage)</b>	Younger than 2		Surveillance as per the guidelines for GMFCS II
	6 years old		Repeat clinical examination, reassessment of the GMFCS level, repeat AP pelvic x-ray and continue yearly surveillance until skeletal maturity