



# HIP SURVEILLANCE PROGRAM

for Children with Cerebral Palsy

## What is Hip Surveillance and Why is It Important for My Child?

Information for Parents and Caregivers  
of Children with Cerebral Palsy

LEAD BENEFACTOR



The BC Consensus Statement on Hip Surveillance for Children with Cerebral Palsy that is summarized in this booklet was developed in 2011 and 2012 by parents of children with cerebral palsy, pediatric orthopaedic surgeons, physiotherapists, occupational therapists, developmental pediatricians, pediatricians, family physicians, nurses, a radiologist and radiographer, policy makers and health administrators from across BC.

For more information on the Child Health BC Hip Surveillance Program for Children with Cerebral Palsy, please visit our website at [www.childhealthbc.ca/hips](http://www.childhealthbc.ca/hips) or contact the Hip Surveillance Coordinator by calling 604-875-2345 or 1-888-300-3088, extension 4099, or emailing [hips@cw.bc.ca](mailto:hips@cw.bc.ca).

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## What is Hip Surveillance?

Hip surveillance is a plan for regular check-ups to watch for signs that your child's hip may be moving out of joint (this is called hip displacement). Hip displacement can lead to the hip coming completely out of the joint (hip dislocation). Hip displacement and dislocation can cause pain, difficulty moving the hip, and problems with sitting, standing, and walking.

Hip Surveillance includes clinical exams by your child's physiotherapist and hip x-rays at regularly scheduled times. Hip x-rays are done to view the hip joint because hip displacement can occur without any signs or symptoms. Taking part in Hip Surveillance allows your child's health care team to find hip displacement early and help your child before the hip becomes dislocated. If your child's health care team finds signs of hip displacement, they can refer your child to a pediatric orthopaedic surgeon (bone doctor for children) for treatment to prevent hip dislocation. The Child Health BC Hip Surveillance Program for Children with Cerebral Palsy is supported by an orthopaedic doctor and physiotherapist at BC Children's Hospital who work together with your local healthcare team.

## Who is Hip Surveillance important for and why does it happen?

Your child is at risk for hip displacement if your child has cerebral palsy. Cerebral palsy is a group of conditions with many causes. Children with a genetic anomaly, a chromosomal abnormality, or a metabolic condition can also be diagnosed with cerebral palsy.

Cerebral palsy affects a child's ability to move. When children are late to stand and walk or can only do so with help, the hip joint may not develop as expected. In addition, the muscles that pull the legs together and up are often tight or stiff and can pull the hip out of place. If you are not sure if your child is at risk for hip displacement, please consult with your child's physiotherapist, family doctor, or pediatrician.

## What is hip displacement and dislocation?

The hip is a ball and socket joint. The top of the thigh bone (also called the 'head of the femur') makes up the ball and part of the pelvis makes up the 'socket' (Figure 1). In a healthy hip, the ball is completely covered by the socket.

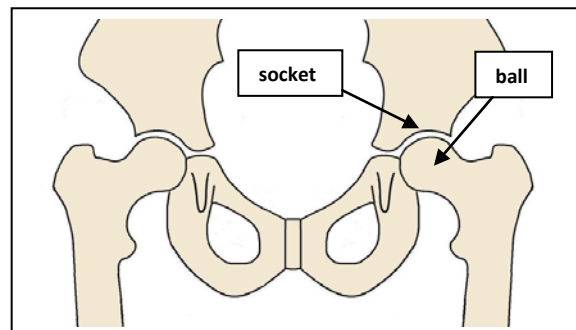


Figure 1: Normal Hip

**Hip displacement**, also called subluxation, is when the ball gradually moves out from under the socket (Figure 2). About 1 in 3 children with cerebral palsy will have hip displacement. An x-ray is needed to see this change.

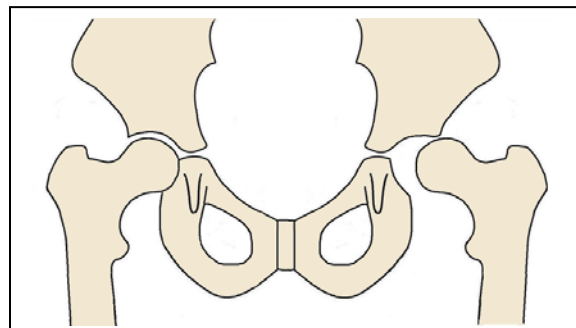


Figure 2: Hip Displacement

**Hip dislocation** is when the ball is completely out from under the socket (Figure 3).

With increasing hip displacement and dislocation, your child may have or develop:

- Pain
- Decreased ability to move the hip joint
- Difficulty with personal care or toileting
- Difficulty sitting comfortably
- Difficulty standing or walking
- Pressure sores

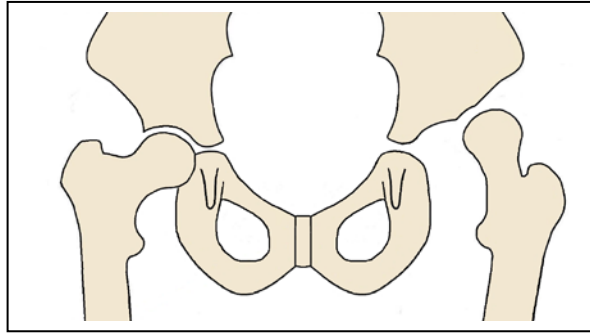


Figure 3: Hip Dislocation

Many children have none of these signs or symptoms until the hip has been dislocated for a long time. Once dislocated, the ball may be too damaged to put back in the socket. The aim of Hip Surveillance is to detect and treat hip displacement early when treatment is simpler and has fewer complications.

## When does Hip Surveillance start and how often will my child need a Clinical Exam and x-ray?

Your child should join the Hip Surveillance Program when they are diagnosed with cerebral palsy. Your child will have their first Clinical Exam when joining the program. How often your child requires Clinical Exams and x-rays after that depends on their ability to move. We use a scale called the Gross Motor Function Classification System (GMFCS) to help us with this.

The GMFCS is used to describe a child's ability to move and includes five levels from Roman numeral I (1) to V (5). Your child's physiotherapist, occupational therapist, family doctor, or pediatrician can help you determine your child's GMFCS level in just a few minutes.

- Risk for hip displacement is directly related to GMFCS level.
- Children whose ability to move is at GMFCS Level I have the lowest risk of hip displacement. They receive the fewest Clinical Exams and x-rays.
- Children whose ability to move is at GMFCS Level V have the highest risk of hip displacement (8 out of 10 children that are at GMFCS Level V will have hip displacement). Clinical Exams and x-rays are done most often for children that are at GMFCS Levels IV and V.
- In addition to GMFCS, children with hemiplegia (one side of the body affected) who walk with one hip turned and pulled inward (this is called a Group IV pattern of walking) are at higher risk for hip displacement.

**The table on the last page shows how often children need Clinical Exams and hip x-rays.**

## When does Hip Surveillance stop?

- Children at low risk (motor function at GMFCS Levels I and II) stop Hip Surveillance at age 5.
- Hip displacement can occur while children and youth are growing so children who are at higher risk (ability to move is at GMFCS Levels III, IV, and V or a Group IV pattern of walking) take part in Hip Surveillance until an x-ray determines that their bones have stopped growing.

## What happens at a Clinical Exam?

At each Clinical Exam, your child's physiotherapist (or another health care team member) will:

- Review your child's ability to move and select a GMFCS level.
- Measure the movement and muscle tone in your child's hips.
- Ask you and your child questions about your child's pain when changing positions, difficulty during your child's personal care, or a decrease in your child's ability to walk, sit, or stand.
- If appropriate, watch your child's walking.

*Note: This Clinical Exam is only for watching whether your child's hip is moving out of place. A full assessment of all joints and function is still recommended for all children with cerebral palsy.*

## How are the x-rays done?

- Your child will have one x-ray of his or her hips taken in your local community (at hospitals and designated clinics).
- The x-ray will be reviewed by the Hip Surveillance team at BC Children's Hospital.
- The amount of the ball that is outside the socket will be measured on the x-ray.
- You will be sent the results, in writing, by the Hip Surveillance team.

## What happens if my child has signs of hip displacement?

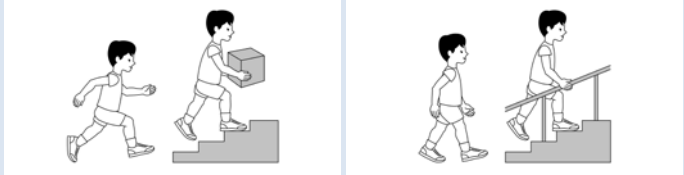






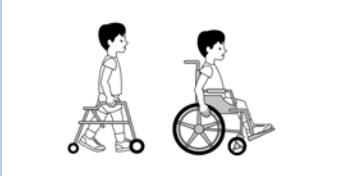













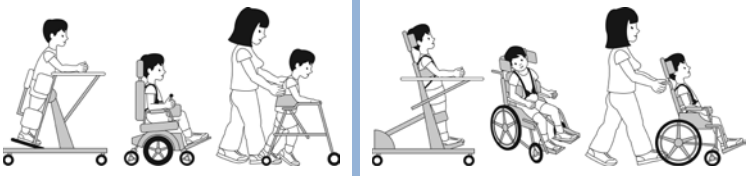





















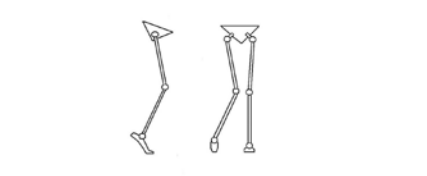










Your child will be referred to a pediatric orthopaedic surgeon who is experienced in treating hip displacement if:

- Your child's Clinical Exam finds that your child has:
  - Pain when changing positions or difficulty with personal care
  - Decrease in function (sitting, standing, or walking)
  - Less hip movement than expected (e.g. able to bring leg out to the side less than 30 degrees).
  - A decrease in the amount of movement of your child's hip(s) compared to earlier exams.
  - A difference between the right and left sides in the amount of movement of your child's hips.
- Your child's x-ray shows a specific amount of hip displacement (e.g. the ball has moved outside the socket by more than 30%).

The treatment options will depend on the needs of your child. The goal of treatment will be to keep your child's hip in place, ensure the hip moves easily, and prevent pain as your child gets older. Children who have surgery to treat their hip displacement should return to Hip Surveillance after the surgery until they have stopped growing.

# British Columbia Consensus on Hip Surveillance for Children with Cerebral Palsy<sup>1</sup>

## QUICK GUIDE

Classification	Age in Years										
	ID	2	2.5	3	3.5	4	4.5	5	5.5	6	Continue Until Bones Stop Growing (on X-ray)
 GMFCS I <sup>2,3</sup> GMFCS II <sup>2,3</sup>								 			
 GMFCS III <sup>2,3</sup>		 		 		 		 		 	  Every year Every 2 years
 GMFCS IV <sup>2,3</sup> GMFCS V <sup>2,3</sup>		 	 	 	 	 	 	 	 	 	  Every year Every year
 Group IV Hemiplegic Gait <sup>4,5</sup>								 		 	  Every year Every year

**Legend:** GMFCS: Gross Motor Function Classification System<sup>2</sup>

ID: Identification/Diagnosis of cerebral palsy

Group IV Hemiplegic Gait: Child walks with one hip turned and pulled inward<sup>4</sup>



Clinical Exam



X-Ray

### References:

1. BC Hip Surveillance Planning Committee. British Columbia Consensus Statement on Hip Surveillance for Children with Cerebral Palsy. Child Health BC, Vancouver, BC, Canada. 2012.
2. Palisano R et al. Content validity of the expanded and revised Gross Motor Function Classification System. *Dev Med Child Neurol.* 2008;50:744-50.
3. Illustrations Version 2. Reid B, Willoughby K, Harvey A, Graham HK. The Royal Children's Hospital, Melbourne, Australia.
4. Winters TF, Gage JR, Hicks R. Gait patterns in spastic hemiplegia in children and young adults. *J Bone Joint Surg (Am).* 1987;69:437-441.
5. Illustrations printed with permission of IOS Press and The Royal Children's Hospital, Melbourne, Australia.



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