# Developmental dysplasia of the hip (DDH)



Index

[impairment]: content

## Introduction:

- ❑ Introduction
- ❑ What is Developmental Dysplasia of the Hip (DDH)?
- ❑ Etiology of DDH

## DDH / CP

- ❑ Is there a relationship with cerebral Palsy ?
- ❑ To distinguish DDH from developmental dysplasia related to Cerebral palsy
- ❑ Incidence of DDH
- ❑ Incidence of Hip Dysplasia related to Cerebral Palsy.

## DDH

- ❑ What are the risk factors?
- ❑ What is the sequel of DDH?

## Actions to take

### Screening

- ❑ Barlow manoeuvre
- ❑ Ortolani manoeuvre

## Management:

- ❑ Abduction orthosis
- ❑ Pavlik harness

## Literature

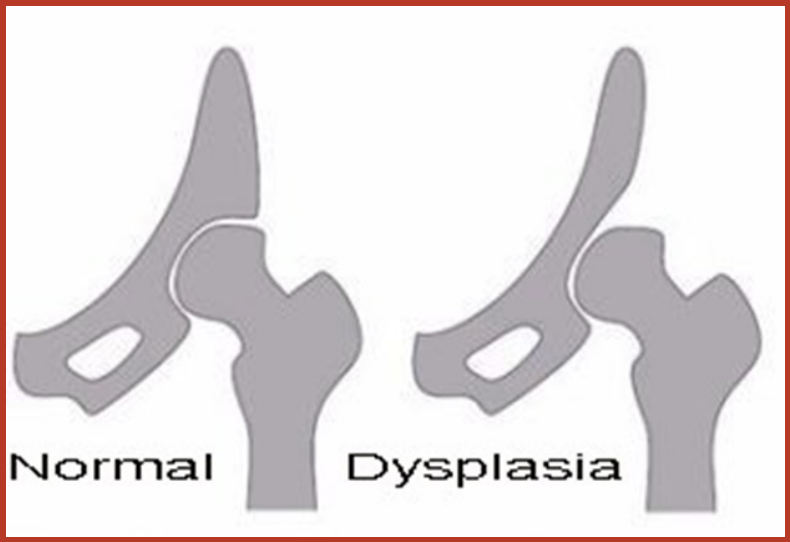
Card 1

Introduction

## Introduction

### What is Developmental Dysplasia of the Hip (DDH)?

In hip dysplasia the femur head is insufficiently covered by the acetabulum. The acetabulum remains underdeveloped. There are different degrees of DDH. In serious cases the femur head is dislocated from the acetabulum.




### Etiology of DDH.

The etiology of DDH is unclear. Hereditary and familiar factors are involved. Gender plays an important role: 80% of the children is a girl. The left hip is affected 1.5 times more than the right one. DDH occurs 2.5 to 5.7 times frequently in children born in breech.

Card 2

DDH / CP

## Is there a relationship with cerebral Palsy ?

DDH can be present from birth on. In cerebral palsy, hips are normal at birth, but dysplasia can develop in the first years of live due to muscle dysbalance around the hip.

## To distinguish DDH from developmental dysplasia related to Cerebral palsy

Screening can distinguish DDH from developmental dysplasia related to Cerebral Palsy DDH is a relatively frequent phenomenon compared to dysplasia related to CP.

## Incidence of DDH[1]

DDH is a rather frequent disorder. The incidence varies with race and continent. In western countries of every 1000 babies born, 20 have DDH. In about 20% of these children both hips have dysplasia. In 1 of 1000 newborn a dislocation is diagnosed. They need urgent surgery.

## Incidence of Hip Dysplasia related to Cerebral Palsy.

Population-based studies from around the world report prevalence estimates of CP ranging from 1 to nearly 4 per 1,000 live births or per 1,000 children[2].
From this group, hip dysplasia is related to the higher GMFCS levels (IV-V)[3]. Hip dysplasia develops in the first four years of age. Children who can not walk can have a progression of 12% migration per year[4].

Card 3

DDH

## What are the risk factors?

Screening is necessary when risk factors are involved.
These are:

- DDH in a family member;
- Born in breech
- Suspicion of DDH in screening

Breech



## What is the sequel of DDH?

Nontreated DDH can cause early waist of the cartilage (arthrosis of the hip joint in (young) adulthood.
The symptoms can have a major impact on daily life. Treatment is less easy than in babies.
DDH if not treated properly leads to impairment in standing and walking. The child stands in swayback. If walking is possible, the gait is swiveling. This in itself can lead to complaints in other joints.

Card 4

Actions to take

## Screening of DDH[5].

Every newborn should undergo a clinical examination of the hip after birth and no later than 1 month of age. During the examination: Perform Barlow and Ortolani manoeuvres. Inspect for symmetry of the buttocks and legs: when the dysplasia is unilateral, one limb appears shorter: there is limited abduction when the hip is flxed, and the skin crease at the back of the hip appears asymmetrical.

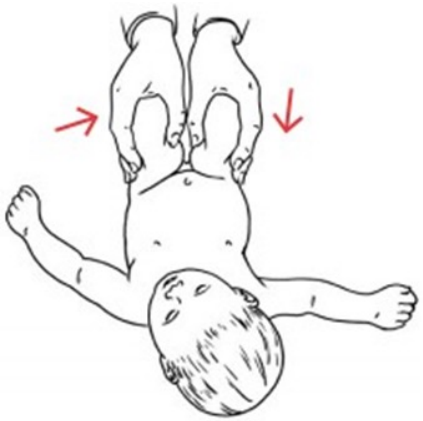
After the age of 6 weeks, this sensation is rarely detectable and should not be confused with snapping which is common and can occur in stable hips when ligaments in and around the hip create clicking noises.



Card 5

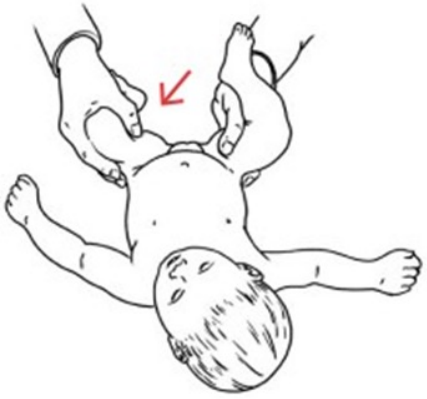
Screening

**Barlow manoeuvre**: hold the baby's thigh near the hip and attempt – with gentle pressure towards the back and side – to dislocate the femoral head from the socket of the joint (acetabulum). Normally, there is no motion in this direction. If the hip is dislocatable, a distinct "clunk" may be felt as the femoral head pops out of joint. The hip joint is said to be "Barlow positive", loose (unstable) or dislocatable.



*Barlow manoeuvre*

**Ortolani manoeuvre**: hold the upper thigh and apply gentle pressure on the abducted hip to attempt to relocate an already dislocated femoral head. back into the acetabulum. If the hip is dislocated, a palpable "clunk" can be noticed as the head of the femur slides back into place (positive Ortolani sign).



*Ortolani manoeuvre*

Card 6

Management

## Management

Refer infants with risk factors or clinical findings during examination (e.g. positive Barlow and Ortolani manoeuvres, instability of the hips) without delay to a doctor for further evaluation and diagnosis, if possible by hip ultrasound.

Developmental dysplasia of the hip can be treated with a brace or a Pavlik harness to help keep the hips and knees bent and the thighs spread apart for 2–3 months to allow normal hip growth.

Surgery may be needed if the diagnosis is made after 6 months of age or if treatment with the Pavlik harness is unsuccessful.



Pavlik harness



Card 7

Literature

## Literature


1. Loder RT, Skopelja EN. The epidemiology and demographics of hip dysplasia. *ISRN Orthop*. 2011;2011:238607. Published 2011 Oct 10. doi:10.5402/2011/238607

2. McIntyre S, Goldsmith S, Webb A, et al. Global prevalence of cerebral palsy: A systematic analysis. Dev Med Child Neurol. 2022;64(12):1494–1506.

3. Soo B, Howard JJ, Boyd RN, Reid SM, Lanigan A, Wolfe R, Reddihough D, Graham HK. Hip displacement in cerebral palsy. J Bone Joint Surg Am 2006;88-1:121-9.

4. Terjesen T. Development of the hip joints in unoperated children with cerebral palsy. Acta Orthop 2006 77;125-131.

5. Pocketbook of primary health care for children and adolescents. WHO 2023 ISBN: 978-92-890-5784-4 (PDF); ISBN: 978-92-890-5762-2 (Print).