

Proper Positioning to Prevent Hip Dysplasia

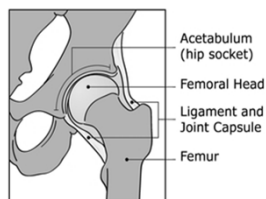
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What is Hip Dysplasia?

- Developmental Dysplasia of the Hip (DDH)
- Congenital Dislocation of the Hip (CDH)
- Developmental Dislocation of the Hip (DDH)
- Acetabular Dysplasia
- Hip Dislocation
- Hip Subluxation
- Loose hips

Where the femoral head has an abnormal relationship to the acetabulum and is the most common cause of arthritis in the hip

Anatomy



Hip dislocation



Facts concerning the Hip Anatomy

- Develops from a single mass of mesodermal tissue in the blastema (primary limb bud)
- By the 10th week, joint space appears with movement possible
- Stability is affected by
 - The shape of the bony/cartilagenous surfaces
 - The action of the muscles
 - The integrity of the capsule and ligamentum teres

Causes of hip dysplasia

- Acetabulum is shallow and under developed
- The femoral head is out of socket
 - Superior and anterior most common
- Laxity of the Ligamentum Teres
 - Most likely cause when lax
 - Cause not known- ? Maternal hormones
- Acetabulum faces more forward and lateral than adults
- Recent study in Japan, Kyushu University, found greater internal rotation of the innominate in DDH patients
 - Increased acetabular anteversion and inclination angle therefore decreased anterior and superior coverage of the femoral head

Common facts

- Approximately 1 out of 20 full term babies have some instability
- 2-3 out of 1,000 will require treatment
- Most escape detection until 13/14 years old when pain/limp occurs due to early arthritis
- Unless treated early, it can lead to degenerative arthritis in the adult
- 4x more common in girls
- At risk:
 - family history
 - foot deformity
 - breech birth

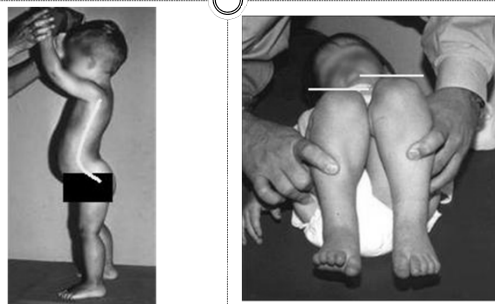
Potential Signs

- Hip clicks or pops
- Limited ROM
- Sway back
- Shorter leg on that side
- Uneven folds in the buttocks or thigh
- Legs turned out
- Wide space between legs
- Pain (not common until 13/14 years old)

Asymmetry

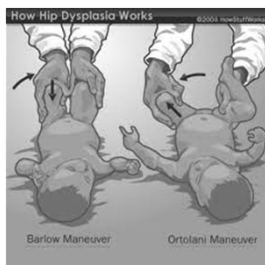


Asymmetry



Barlow-Ortolini

- Barlow test
 - Begin with legs in abduction, adduct thighs with posterior pressure
 - Feel for click when it subluxes/dislocates
- Ortolini test
 - Begin with knees adducted/flexed
 - Apply traction as you abduct



Treatment methods

- Pavlik Harness
- Hip abduction brace
- Traction
- Spica Cast
- Closed reduction
- Open reduction
- Osteotomy

Incidence varies by region

- Studies of Native American Indians prior to 1950's found very high incidence of hip dysplasia when cradle board used (10x higher)
 - Decrease dramatically after cloth diapers introduced



Research

- Increased incidence in cultures where hips of newborns were commonly held in extension/adduction
 - Northern Italy, North American Indians, West Germany, Turkey, Japan
 - Forced passive extension/adduction (suspending by feet) can lead to initial dislocation



Research

- Barlow found 1 in 60 had instability in 1 or both hips
 - 68% became stable within 1 week
 - 88% became stable by 2 months

Study of newborn pigs with hips extended for 6 weeks resulted in dysplasia of acetabulum, whereas maintained flexion led to normal acetabular development (was reversible when legs released for 10 weeks)

Incidence in Japan was 1.5-3.5% before 1965.

Decreased to .2% after eliminating swaddling with hips and knees extended (Yamamuro T., Ishida K.)

Research (cont'd)

- Swaddling is a greater risk factor than breech, family history or gender (Dogruel)
- A 2008 study from Norway showed that more than 90% of young adult cases cannot be diagnosed in childhood by current methods of screening

Carrying method

- Decreased incidence in Africa where they carry babies on back with legs flexed/abducted (Salter, RB)



Swaddling benefits

- Calming effects
- Facilitated flexion
- Soothing pain
- Thermal regulation
- Improved sleep patterns

IHDI Position Statement

- Swaddling infants with the hips and knees in an extended position increased the risk of hip dysplasia and dislocation. It is the recommendation of the International Hip Dysplasia Institute that infant hips should be positioned in slight flexion and abduction during swaddling.

Continued

- The knees should also be maintained in slight flexion. Additional free movement in the direction of hip flexion and abduction may have some benefit. Avoidance of forced or sustained passive hip extension and adduction in the first few months of life is essential for proper hip development

Swaddle methods

- Square
 - Place baby supine with head along top edge of blanket. Bend elbows up with hands toward face. Bring one side across chest and tuck under, then other side. Bring bottom of blanket up and tuck sides behind the trunk.



Square method



Swaddle methods

- Diamond
 - Place blanket in diamond shape with top corner folded down. Put baby supine with head above top edge of blanket. Bend elbows up with hands toward face. Bring one side across chest, then bottom up, then other side.
 - Can also twist bottom of blanket and tuck under legs after bringing both side across.

Make sure hips can come up and out and allow room for movement



Diamond method



Diamond twist



Commercial Products

- Should have loose pouch or sack, but not tight or confining
- Should allow legs to flex /slightly abduct
- Halo Sleep Sack Swaddle
- Dandle-Lion Wrap
- Kiddopatamus Swaddle Me
- Follow the safe sleep standards

Commercial Products

- Halo Sleep Sack Swaddle
 - Place baby supine inside device , zipped up. Flex elbows to bring hands toward face. Bring one side across and tuck under, then other side.
 - Allows for movement but does not facilitate flexion for preemies

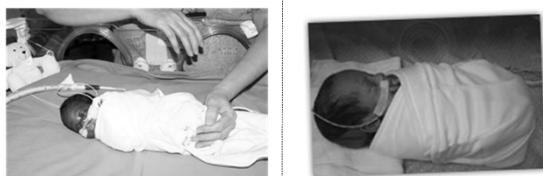


Dandle-Lion Wrap

- Place baby supine with head above top edge. Flex elbows to bring hands toward face. Bring short wing across then longer wing and attach velcro to back. Flex legs upward loosely and bring lower pouch up, attaching velcro tabs to back
- Stretchy fabric allows for movement yet helps facilitate flexion for preemies



Dandle-Wrap



Kiddopatamus

- Swaddle Me
 - Place baby in pouch
 - Brings hands toward mouth
 - Bring one flap across then other to velcro
 - Has small piece of velcro to bring pouch up slightly



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THANK YOU