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



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

Developmental dysplasia of the hip means that your baby is either born without a well-formed hip socket or as your child develops, the hip socket does not form well. The hip socket (acetabulum) is the cup-shaped part of the hip bone. The ball shaped top of the thigh bone (femur) fits into the hip socket. These two parts make up the hip joint.

## What are the signs and symptoms of DDH?

Every newborn has their hips checked when they are born. If your doctor is concerned they will refer you to the orthopaedic specialist and/or Nurse Practitioner. Usually you cannot see symptoms of DDH in your baby.

### *Signs that may show up*

- a “clunk” is heard during newborn exam, which is caused by a loose hip
- One leg is shorter than the other
- The knees are at different levels
- Limited movement of the hips / less movement on the affected side
- Limping in older children

## What are the risk factors of DDH?

It is important to remember that even if your child has been diagnosed with DDH it is not your fault. There is nothing that you could have done to make your child be born without DDH.

We are still unsure of the exact cause of DDH, but some of the risk factors are:

- Breech position or abnormal baby positioning
- First born

- Female
- Family history
- Caucasian

## How is DDH diagnosed?

Most newborns have their hips checked at birth. These tests do not hurt the baby in any way. This is done by gently pushing down on the legs. If the hip is loose, there is sometimes a “clunk” that is felt. If this exam shows an unstable hip, your baby may be referred to a pediatric Orthopedic specialist or Nurse Practitioner. Other tests that may be done to help diagnose DDH are:

**Ultrasound:** A newborn baby’s bones do not show up well in an x-ray as the bone is still developing. An ultrasound can be done to identify if the hip is loose and to check the development of the hip socket. Ultrasound is usually done at 6 weeks of age and can be done up until 3 months of age.

**X-ray:** After 5 months of age, baby’s bones are more visible on an x-ray. An x-ray can check the development of the hip socket and see if the thigh bone is well seated in the socket.

Even with careful examination, DDH may not be found, or may not be severe enough to detect, in the first few months. If the joint is not stable, the thigh bone can slip further out of the hip socket. DDH can then show up when the child starts to walk. Parents may notice a limp or difficulty in running or walking.



## How is DDH treated?

As an orthopedic team we want to treat DDH and try to correct it in the early stages in order to avoid orthopedic issues as your child get's older. I.e. Hip pain, arthritis, early hip replacement/reconstruction. At B.C. Children's hospital we use two different types of braces to treat DDH; the Pavlik harness and the Rhino cruiser brace. Each of these braces re painless for your baby to wear. These braces are applied by a nurse or an orthotist. It is important to know that none of these braces will slow your child's developmental milestones.

The Pavlik harness is a soft brace that helps to hold the babies hips in position. This is used most commonly for the newborn population and is put on in the orthopedic clinic.

The Rhino cruiser is a rigid brace used to hold the babies hips into place. Your child can learn to sit, crawl, stand and walk in the rhino cruiser. Typically the Rhino Cruiser is used for older children who do not fit into a Pavlik harness or as post-operative bracing following surgery. The Rhino cruiser is fitted by a nurse or an orthotist if the hospital does not have the correct size for your baby.

***Please note there is a charge for both the Pavlik and Rhino Cruiser braces.***

Surgery is only necessary in a small percentage of cases. Your orthopedic specialist will discuss with you if this is deemed necessary.

## Accepting the harness or brace

Be aware that your attitude towards wearing the harness will influence your child's acceptance. We strive for you to be calm and comfortable each and every time you apply, remove and reapply the brace or harness. Your child can do almost all the same activities in the brace as other kids can do not wearing it. If your child is wearing the Rhino Cruiser

brace you can help them to customize it to their personality by applying stickers.

## The Pavlik Harness

**Your Harness weighs \_\_\_\_\_**

The Pavlik harness is a way to treat Developmental Dysplasia of the Hip (DDH). It is a soft harness and can be used for babies up to the age of 6 months. The best time to start treatment for DDH is during the newborn period. The Pavlik harness works by holding the hip joints in the correct position, but still allowing the legs the move. It will hold the babies legs apart while having the knees bent, kind of like a frog. This position will help the hips to develop properly.

**DO NOT ADJUST** the harness straps unless you have been instructed by your nurse or doctor.

***How long will my baby wear the harness?*** Your baby will need to stay in the harness for 6-12 weeks depending on the exam and your child's ultrasound results. Every child is different and it depends on the child's age as well as the condition of the hip. You can discuss this with your doctor.

Your baby will likely have to wear the harness for 23-24 hours a day. This decision is made by your doctor based on your child's hip examination.

***What about when my baby gets bigger?*** The nurse and doctor in the clinic will adjust your Pavlik harness to ensure it is fitting properly. If you feel that the harness is getting too small, please call the nurse and arrange an appointment to come in for an adjustment.

***When can I take the harness off?*** When the doctor determines that the hip is stable, the nurse will show you how to remove the harness for bathing. This means that for one hour of the day, your baby can have their Pavlik harness off. During this time we encourage you to give the

baby a bath, take photographs, have skin to skin time and let the baby stretch. This is also a good time to check the baby's skin for any marks or redness that may appear.

***How do I give my baby a bath?*** While your baby is in the harness 24 hours a day you may sponge bath any exposed skin. Try to keep the harness dry as you clean your baby. You can wash your baby's hair over the sink; remember to keep a firm grip on them.

***How do I care for my baby's skin?*** You want to check your baby's skin everyday for redness and any breakdown. If you notice that the harness is leaving redness or irritation you can tuck a piece of soft fabric underneath. (Cut up a baby wash cloth or piece of flannel). You can moisturize your baby's skin daily, use a lotion that is free of alcohol and perfume. As your baby grows you may need to pay special attention to the creases of skin in the groin area as these can become difficult to wash.

***What can my baby wear underneath the harness?***

When the doctor states that your baby is allowed to come out of the harness for one hour a day you may put one layer of clothing underneath it. The best thing to put underneath it is a snap button diaper shirt or onesie so that it is easy to change the diaper. You can then dress over top the harness as long as the clothing is not tight and pulling the legs together.

***How do I change the diaper?*** You can change the diaper easily without taking the Pavlik harness off. It is important to remember to lift the baby by the bum rather than pulling on the legs to change the diaper. Try leaving the diaper tabs closed until you have fed them through the straps of the Pavlik, this will help as they often stick to the fabric of Pavlik harness. You can use disposable or cloth diapers. When using cloth diapers it is easier to use the plastic pants that snap on the side rather than pull-up.

***How do I breast feed?*** You will still be able to breast feed. You may have to change the position that is favored by you and your baby. Many mothers find that it is easier to use the football hold while their baby is in the Pavlik harness. You may also want to try lying down to feed your baby. Try different positions with your baby and see what both of you prefer. It may take a little bit longer for your baby to burp as the strap of the harness is quite thick.

***How do I clean the harness?*** During the time that your baby is in the harness 24 hours a day, you can spot clean the harness using a damp cloth or wet wipe. If you are able to take the baby out for bathing you can wash the harness in cold water on a delicate cycle in the washing machine or you can wash it by hand. You do not want to put the harness in a hot dryer as it can shrink. You may hang it to dry or dry it on a low heat setting. You can also use a hair dryer to assist in a faster dry time. The straps are marked for you by the nurse, for ease in the washer and dryer you may want to fasten the Velcro so that it doesn't stick to other parts of the harness. You may also want to launder it by itself to reduce the amount of lint pick up.

***Can my baby go in a car seat?*** Yes, your baby will fit and be safe to travel in a regular car seat.

***Can my baby go in a carrier?*** Yes you can use a carrier for your baby. It is preferred that you do not use a "sling" type carrier, as it can pull the hips inward.

***Will this hurt my baby?*** All babies are different, but some parents have noticed that their baby is fussier during the first 24 to 48 hours of having the brace put on. This is quite normal and will go away.

***Can my baby still do tummy time?*** Yes, at first you may want to lie down with your baby on your chest and progress from there. We want you to play with your baby and help

encourage their growth and development. The Pavlik harness will not stand in the way of your child reaching their milestones.

***Can my baby sleep in the harness?*** Yes, your baby will get used to the harness. It is always best that your baby sleeps on their back.

***It is difficult to swaddle my baby with the harness on. What should I do?*** It is **NOT** recommended that babies be swaddled tightly as this pulls their hips inwards.

***What is the risks of wearing a Pavlik harness?*** You want to make sure that your baby is kicking both legs. Make sure that your baby is attempting to straighten their legs at the knees and hips with equal movement. You also want to check that the harness is not blocking the circulation to your baby's feet. You want your baby's feet to feel warm and be pink in color.



Both of these babies are in Pavlik harnesses. One very smart mom attached finger puppets to the Velcro. This encouraged the baby to kick and look at her toys!

Has your nurse discussed:

- Risks
- Clothing
- Bathing
- Taking the harness off
- Skin care
- Length of treatment
- Diapering
- Tummy time
- Feeding
- Cleaning of the harness
- Carseat

\_\_\_\_\_ **Hours of wear per day**

## What is a Rhino Cruiser?

A Rhino Cruiser is a rigid brace. It is another way to non-surgically treat Developmental Dysplasia of the Hip (DDH). The brace is made of plastic and foam and is fit to hold the hip joint in the correct position, much like the Pavlik harness. It keeps the legs out to the sides (in abduction) and allows the knees to bend freely. In this position the hip sockets can be encouraged to develop properly.

The Rhino Cruiser is used for hips that are stable and not dislocating, or what we would call shallow or dysplastic hips.

Typically this brace is used for children ages six weeks and up.

### ***Why does my child need to wear a Rhino cruiser?***

Your child needs to wear the Rhino cruiser brace to encourage the hips to develop and improve the dysplasia.

### ***How do I apply the brace?***

Always have one layer of clothing between your child's skin and the Rhino Cruiser's foam lining.

The foam lining does not allow the skin to breathe, it can cause your child to sweat and leave a rash on your child's skin if not protected.

- 1.** Lay your child on his/her back and lift the bum to place the Rhino cruiser underneath.
- 2.** Wrap the foam around the thighs, so that the brace may overlap it.
- 3.** Secure the Velcro around the thigh straps first. Try fit one finger around the leg ensuring that the Velcro is not too tight.
- 4.** Secure the Velcro waistband, this can be done up loosely.

### ***My child just finished wearing a hip spica for 3 months, why do they now need a brace?***

Your child's hip and muscles are likely weak, stiff and sore from being in the cast for a long period of time. The brace may help your child to feel more comfortable when they come out of the hip spica cast.

### ***Can I take this brace off?***

Yes. Your orthopaedic specialist will discuss with you how long they want your child to wear the brace. If the recommended wear time is 24 hours a day, you can remove the brace for diaper changes and bathing. Sometimes the brace is only used for nighttime and naps and then you only need to put it on when your child is sleeping.

### ***How do I wash it?***

You do not want to soak the brace in water. You can wipe the brace down with wet wipes, or a non- harsh soap and a damp cloth. Be sure the brace is completely dry before reapplying. We recommend you do this at least twice a week but more frequently if needed.

### ***How do I know that my baby has outgrown it?***

If you feel that your child has grown out of the brace or it is starting to fit differently, we would encourage you to call the nurse and make an appointment so that they can check the fit.

### ***Will wearing this brace stop my baby from achieving their developmental milestones? (ie. Rolling over, Crawling, walking, climbing stairs)***

No, the Rhino cruiser will not cause any delays in your child's gross motor delay. If your child remains in the brace full time they will learn to sit, roll over, crawl and walk. Your child may look different doing it, as they will have a wide stance, but this brace will not slow them down at all. Sometimes children who are in this brace long term develop their fine motor skills sooner than their gross motor skills.

### ***Can my child go into a car seat with this brace on?***

Ideally we want the brace on as much as possible. Your child must be restrained in a car seat at all times while in a vehicle. DO NOT make any modifications to the car seat or brace.

We suggest you buy a car seat that will fit your child safely in the brace as well as keep them safe.

Speak to your Orthopaedic specialist if you have concerns that your child will not fit in their car seat while wearing the brace.



**Please call the nurse or orthotist to book an appointment if you notice...**

- You are having concerns over the fit or size of the harness and feel that your child may no longer be fitting in it properly.
- You require repair of the Velcro straps.
- Your child refuses to wear the brace because of discomfort and redness occurring.



*Crawling in a Rhino Cruiser*



*Walking in a Rhino Cruiser*

## We are here to help



If you have any questions or concerns regarding this please contact the Clinic nurse @ 604-875-2345 ext 7273.

Developed by the health professionals of the Department of Pediatric Orthopaedic Surgery with assistance from the Learning & Development Department

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