



von Rosen®-splint

art no VR10101 - VR10107

Hip abduction orthosis

von Rosen®-splint

Parent information - general about hip dislocation

Hip dislocation in children means that the child is born with an unstable hip joint, which means that the ball of the hip joint is not stable against the socket in the pelvis, and can thus slip out of the socket. This leads to the femur resting against the outside of the pelvic bone and gradually gliding up towards the hip bone. In Sweden, 500-1000 children are born annually with unstable hip joints

The hereditary factors are strong- children of parents who have had a hip joint dislocation run a increased risk of being affected. Birth in breech position also increases the risk of hip joint dislocation, and accounts for approximately one third of cases. Another reason why the hip joints in children can be unstable.

Is that during late pregnancy, the mother overproduces female sex hormones such as Estrogen and Relaxin to facilitate birth. Because the baby is exposed to the same hormones as the mother, this puts girls at a greater risk of being born with unstable hip joints

Bones in infants are soft and malleable but harden over time, making treatment difficult. In most children who are born with unstable hip joints, the instability disappears by itself without treatment during the first month of life, and the hip joints then usually develop completely normally without treatment. However, this does not happen with 100 - 200 children per year in Sweden.

Currently, there is no diagnostic method that can reliably distinguish those children whose problems will go away on their own, from those whose problems will worsen over time. To ensure good treatment results, children are therefore treated where there are strong indications of dislocation, even though it is not certain that all of them would have developed problems in adulthood.

If children are not treated for their hip joint instability in the newborn period, there is a great risk that the joint ball will slip out of the socket and stay in this incorrect position. If the hip dislocation is first discovered when the child is older than 1 year, the condition is difficult to treat and can lead to permanent hip joint problems. A luxated hip in adulthood results in leg shortening, restriction of movement, less strength in the leg and risk of premature osteoarthritis, with pain and eventually the need for hip replacement surgery.

Treatment with von Rosen®-splint

The von Rosen® splint has been used in Swedish healthcare for more than 60 years, with over 95% proven clinical efficacy.* Scientific studies have shown that the hip joints will develop normally in almost all children born with unstable hip joints if treatment is started early.* Studies have also shown that the von Rosen® splint does not interfere with your child's general motor development, which means that the time when the child learns to turn or walk is not delayed compared to other children. *

The treatment method that Swedish hospitals generally follow is early screening and treatment. The treatment period varies in most cases between 6-12 weeks, depending on the degree of instability in the hip joint and the type of treatment program. During the treatment, the child may only be removed from the splint by trained healthcare personnel. This is done once a week at the orthopedic clinic, and in connection with this visit the child is also bathed. May vary between clinics.

It is important to check the child's skin at least once a day. Pay particular attention to the following areas; shoulders, back and back of legs. In order to achieve successful treatment results, it is important that the following routines are practiced:

- 1.** The splint must be applied correctly, which means:
 - 1A.** The legs on the splint must be firmly attached around the shoulders and femurs. The child's hip joints must be bent at least 90 degrees and moved outwards laterally 60-70 degrees.
 - 1B.** The splint legs around the child's thighs must be shaped so that the child has the opportunity to move the hip joints.
- 2.** The parents must not take the splint off and on themselves
- 3.** The child must lie in the supine position, and may only lie in the prone position for short periods under supervision.
- 4.** In case of problems with the splint, the orthopedic clinic must be contacted.
- 5.** Early control with ultrasound or X-ray ensure that the hip joints are developing normally.
- 6.** The child must visit the nurse at the orthopedic clinic regularly for a bath and to check that the splint is holding the legs in the correct position

Research has shown that after a short period of adaptation, the child experiences the position the splint maintains as natural. Should your child struggle against the splint for a long time, it should of course be checked by your clinic.

Problems that may arise in connection with treatment

Treatment in the von Rosen® splint generally gives good treatment results with few complications. However pay attention to the following possible problems.

A. The splint glides and does not fit properly.

Can usually be prevented by considering the following:

- A1.** Keep your hand under the bottom when lifting the child
- A2.** Do not pull the child by the feet and legs
- A3.** Do not use "tight pants" that press the legs together, and prevent the legs' freedom of movement
- A4.** Do not use a pillow that is higher than 2 cm
- A5.** Contact your treating unit - it may be time to switch to a larger model

B. The splint causes local skin irritation and chafing.

Can usually be prevented by considering the following:

- B1.** Wash the child in the splint with water and unscented soap
- B2.** Without removing the child from the splint, lift the splints legs above the shoulder area and wash the back
- B3.** After washing, dry the skin, especially where the splint is in contact with the skin
- B4.** Change diapers often
- B5.** "Air the back" by turning the child from the back to the stomach position for short moments under supervision
- B6.** Try to prevent the child from sweating - for example by avoiding excessively warm clothes
- B7.** In case of skin irritation on the back, put cotton compresses on the splint so that the child does not lie directly against the rubber on the splint, and change these often
- B8.** Carefully powder child's skin and the splint with a thin layer of unscented powder
- B9.** Avoid using ointment or cream that is not expressly compatible with the natural rubber coating. If in doubt use water-based agents. Grease and oils accelerate the aging process in natural rubber.

Advice and information

Sometimes skin irritation can occur where the splint is in contact with the skin, especially if the skin is moist or if layers of powder or dirt have accumulated between the splint and the skin. Fever or diarrheal disease also increases the risk of skin irritation. It is important that the area where the splint meets the skin is kept dry, and sometimes it can help to wrap parts of the splint in gauze, or alternatively put a cut cotton sock over the splints legs. These can then be replaced and washed when they get dirty or wet.

The child should be dressed in cool, loose and preferably stretchy clothes - it is important that the clothes do not risk overheating the child and do not hinder the movement of the legs.

When choosing a car seat or stroller, it is important that the product you choose is an extra wide model that does not cause the child's legs to be squeezed together. When using a car seat, it can be easier to use a double-folded blanket or a pillow under the bottom, so that both shoulder straps and head are in the right position.

The child is weighed during routine checks at the childcare center with the splint on, the splint's weight is indicated on the back to facilitate calculation against the child's weight.

The cover for the von Rosen® splint is made of 100% natural rubber, which undergoes a thorough washing process to minimize the presence of latex proteins. As the von Rosen® splint is a product that comes into direct contact with babies' skin, it contains no dyes - the product is also free of Phthalates, Bisphenol A and PVC.

If you are interested in knowing more about the background to the treatment method, underlying causes of hip dislocation or clinical evidence, you are welcome to contact us to order a copy of:

"Screening for Hip Instability in Newborn Infants - Review of the first 50-years experience in Sweden." – Göran Hansson (2013)

List of words that you may come across in connection with treatment

- Abduction – Movement away from the midline of the body
- Adduction – Movement towards the midline of the body
- Osteoarthritis – Cartilage disease in the joints
- Barlows test – diagnostic test to detect hip dislocation in newborns
- CDH – Congenital Dislocation of the Hip
- DDH – Developmental Dysplasia of the Hip
- Genetic factors – Children of parents who have had a hip joint dislocation as a child run a significantly greater risk of being affected themselves
- Frog-leg position – Favorable for hip joint development, similar to the position babies have in the womb and maintained by the von Rosen® Splint
- Hormonal factors – During late pregnancy, the mother overproduces female sex hormones such as Estrogen and Relaxin to facilitate birth. Because the baby is exposed to the same hormones as the mother, this puts girls at a greater risk of being born with unstable hip joints
- Hip Dysplasia – The hip joint is not fully developed, means that the hip socket is not as deep as it should be
- Hip joint instability – The hip joint has the correct position but can be provoked out of position during examination
- Hip dislocation – the ball joint of the hip comes out of its socket.
- Congenital – Hereditary
- Mechanical factors – There is an increased risk of hip joint instability among first-borns, as well as children born in the breech position. Mechanical factors can also affect the occurrence of hip joint instability after birth. For example, in cultures where children are carried in the frog-leg position, the incidence of hip dislocation is lower
- NIH – Neonatal instability of the Hip
- Ortolanis test – Part of the standard infant examination for developmental dysplasia of the hip.
- Orthosis – Product used to support limbs or torso in case of misalignment and weakness
- Subluxation – The ball of the hip joint has partial contact with the joint surface
- Breech position – A baby is in breech positioning when bottom or feet first in the uterus



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