UNIVERSITY
CHILDREN'S HOSPITAL
ZURICH

Swiss Children's Rehab

INFORMATION FOR PARENTS

Hip Reconstruction

The hospital of the Eleonore Foundation

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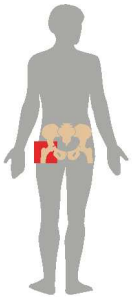
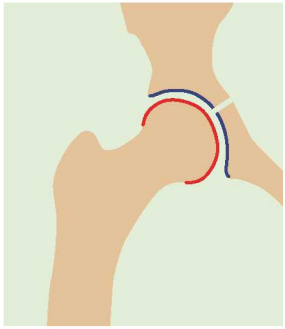
What is hip decentration, subluxation or luxation?



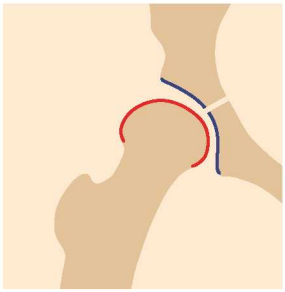
The hip joint plays an important role in walking, standing and sitting. In the context of and underlying condition or for genetic reasons, the hip joint can move into an increasingly decentralised position (dislocate) during child development. The risk of occurrence of hip decentration is higher if mobility is impaired by the underlying situation.

Normal

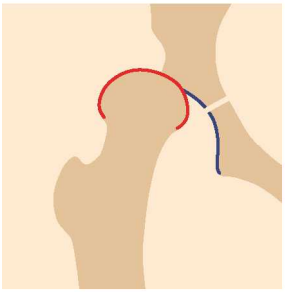


In general, a distinction is made between a **hip coverage deficiency** (the joint socket does not completely cover the femoral head), **hip subluxation** (the femoral head is positioned partly outside of the joint socket) and **hip dislocation** (the femoral head is positioned entirely outside of the socket). The latter two cases may require additional surgical opening of the hip joint capsule, which would then be associated with significantly more complex surgery and longer follow-up treatment.

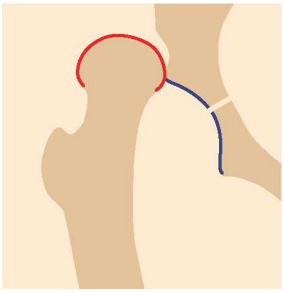
Hip coverage deficiency



Hip subluxation



Hip dislocation

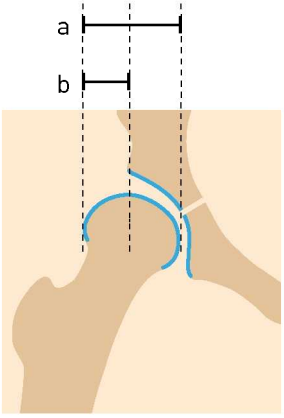


Femoral head Joint socket

Prevention is of central importance

Various programmes for hip screening show that regular check-ups of the hip joints with initial signs of increasing coverage deficiency can significantly reduce the number of dislocated hip joints. The frequency of the follow-up examinations depends on the underlying condition and the age of the patient as well as on the severity of the coverage deficit.
At University Children's Hospital Zurich, we also use a screening system (e.g. traffic light system). We regularly take radiographs of the pelvis and measure how much coverage the femoral head is lacking (Reimers index).
Using a colour traffic light system, we then provide different recommendations for therapy or monitoring depending on the extent of the coverage deficit.

Reimers index



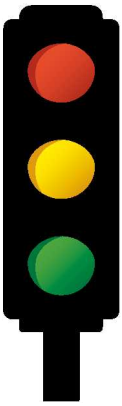
a = 100%

b = > 40%

b = 25 - 40%

b = < 25%

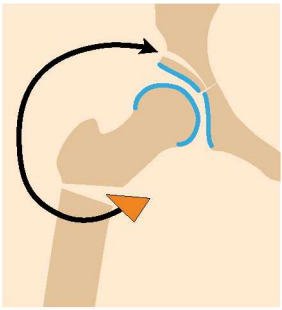
Traffic light system

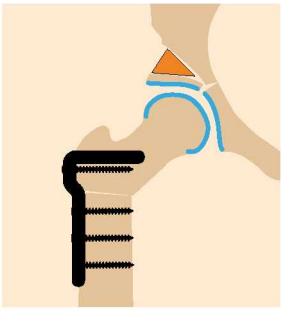


Indication for surgery
Individual assessment

Conservative therapy
Semi-annual check-up
Relative indication for surgery

Conservative therapy
Annual check-up





What is hip reconstruction?

The goal of hip reconstruction is to place an incompletely (subluxation) or completely dislocated (luxation) femoral head correctly in the joint socket and re-establish the coverage of the femoral head. For this purpose, the femur is shortened and repositioned, a semi-spherical incision is made in the joint socket and the form of the latter is reconstructed.

When does a child need hip reconstruction?

- Pain
- Increasing decentration (dislocation)
- Limited mobility with impairment of activities of daily living
- Complicated positioning, complicated sitting and lying down
- Beginning scoliosis (spinal deformation)

What are the goals of hip reconstruction?

- Pain reduction, pain prophylaxis
- Improvement of mobility
- Reduction of the risk of early hip joint arthrosis (joint wear)
- In patients unable to walk: maintenance and improvement of the ability to sit and receive care
- In patients able to walk: improvement of ability to walk and stabilisation of the joints

At the hospital

Your child will stay at the acute surgical ward for at least one week. It is important to us to support you in this special situation. The carer assigned to your child will speak with you regularly and support you in caring for your child. You are free to stay with your child for as long as you like. If you want to stay with your child overnight, you can register for this at any time. The physiotherapy team will support your child from day one after surgery. The assigned nurse and the physiotherapy team will consult you on aids and further therapy and care upon discharge home or referral to Swiss Children's Rehab.

For further information about inpatient care,
please refer to the website of Children's Hospital Zurich:
www.kispi.uzh.ch/spitalaufenthalt

Before surgery

Admission to the Children's Hospital, surgery

- Admission and information consultation about the surgery with the orthopaedist and the anaesthetist
- Elicitation of physiotherapeutic findings
- Admission consultation with the responsible nurse
- Preparation for surgery

How can you, your child and your family prepare?

- Plan enough **time for admission**. The preparations can take up to one day.
- Pack comfortable, loose-fitting clothes for your child.
- If you keep a **care journal** for your child, please make it available to us. It is an important source of information for our team.
- If you have been given a **pain assessment document**, please fill it in and return it to us.
- If your child takes any **medication** or requires tube feed nutrition, please provide this for the first few days.
- After surgery, the appetite of your child will be reduced. Please tell us about **your child's favourite food** and ask for our facultative meal plan. You can also bring food. You can use the patient fridge and the microwave in the unit kitchen.
- **Personal and familiar objects**, such as a stuffed toy, will give your child a sense of safety and protection.
- The recumbent position and the pain medication may cause **constipation**. For intestinal regulation, your child will be given medication at regular intervals. You can support your child by ensuring regular bowel movements beforehand.

How can you, your child and your family prepare?

Your child will not be able to move much at first. Children usually accommodate quickly to the limited range of motion. You can support your child by **keeping** him/her **occupied with varied activities**. It can be helpful and stress-relieving to arrange **regular visits** by family members, but you also need to ensure that your child gets the rest he/she needs. If you or other persons the child relates to are unable to be with your child, we can provide a **volunteer** to keep your child occupied. Please inform the nurse specialist or the responsible nurse in advance.

On the day of surgery and the first days afterwards

Day of surgery

Sometime before the anaesthesia, your child will be given a sedative in the form of a tablet, a syrup or a suppository. Later your child will be brought to the surgery room. A parent is allowed to be present until the child falls asleep. The surgery usually takes about four hours. After about two hours in the recovery room, the child can return to the ward. Depending on the underlying condition, your child may be transferred to the intensive care unit after surgery. You will be informed about this in advance.

Course after surgery

In the first three days after surgery, your child will have, depending on the situation:

- a catheter on the back (pain medication),
- a bladder catheter (excretion of urine),
- and an infusion for the administration of additional pain medication and fluids.
- For recovery after the anaesthesia, your child may be given supportive breathing exercises.

Mobility after surgery

Generally, the hip of your child will be stable after surgery.
The surgeon will inform your and the treatment team about the details after surgery. Immediately after surgery, your child will be positioned in the individually adapted foam positioner. Flexion of the hip in the positioner is permitted. In case of open reconstruction, the child may only flex the hip by 40-50 degrees in the first week. As soon as the child can flex the hip by 90 degrees, sitting in the wheelchair is permitted. However, the legs must not bear the full weight yet. The surgeon will decide on the exact time of mobilisation in the sitting position and full weight-bearing. Generally, full weight-bearing is possible from week 7 after surgery after an X-ray has been made.
In order to prevent pressure sores, the position of your child will be changed at regular intervals.
The physiotherapy team will assist in initial positioning and as needed. Whenever you want, you will be instructed how to correctly position and mobilise your child.

The individually adapted foam mattress:

The positioner is equivalent to a foam mattress, in which the space for the legs of your child has been provided in extended and slightly abducted position. This device will be individually manufactured by Balgrist Tec on the basis of a scan. For the first 2 to 3 months, the child should be positioned in the positioner day and night, if possible, when he/she is not in the wheelchair. From the 3rd month and for at least 1 year after surgery, positioning will be done only at night. The positioner allows lying on the side. The prone position can be assumed without the positioner and with a pillow between the legs.

Referral to rehabilitation (Swiss Children's Rehab) or discharge home

Approximately 1-2 weeks after surgery, your child will be referred to paediatric rehabilitation or discharged home. Both will be discussed and planned together with you.

Discharge home

Discharge home is possible if treatment and care is ensured and outpatient physiotherapy is possible.

How can you, your child and your family prepare for discharge home?

In case of discharge home, you need to organise transport in the sitting position in advance. The nurse specialist or the responsible nurse will assist you in the process.

Clarify the following questions in advance:

- Are additional positioning aids needed? The physiotherapy team will discuss this with you. You can obtain the material at the ward against a deposit.
- Do you require paediatric home care services to support you? If yes, the responsible nurse or the care specialist will provide you with the necessary information.
- Are you comfortable with using the positioner? The responsible nurse will be happy to discuss this with you.
- Are you comfortable with positioning your child? Please discuss this in advance with the physiotherapy team. They will also provide information for your home therapists.

Referral to Swiss Children's Rehab in Affoltern am Albis

Usually it will be possible to transport your child in the sitting position by private car. There is also the option to transport your child in a wheelchair taxi.

How can you, your child and your family prepare for the referral?

Please arrange the appointment for the entry consultation with the treatment team. The goals for rehabilitation will then be discussed with you. Please plan enough time for this consultation. Your presence during the first day can make the start in a new environment easier for your child.
Please bring all aids such as wheelchair, therapy chair, verticaliser, orthoses, etc. with you.

Rehabilitation

Your child will stay at the Paediatric Rehabilitation Centre for several weeks. It is important to us to support you during this unusual time. The nurse responsible for your child will contact you regularly and will support you in all aspects of care and nursing. The nurses closely co-operate with the therapists in order to support the child in his/her activities of daily living. If possible, the child will participate in school and remedial education activities right from the start. In contrast to the stay at the acute treatment hospital, meals and leisure-time activities will take place in the respective children's or youth group.

Rehabilitation consists of two phases.
The duration of each phase will vary depending on the course of treatment and surgery.

How can you, your child and your family prepare?

- If you want to sleep in a bed in the same room with your child or in the parents' house, please apply for this in advance with the patient disposition department of Swiss Children's Rehab.
- Although your child will be in school, therapy or remedial education for hours at a time, the first time can be boring. You can support your child by organising visits or taking familiar toys with you.
- Your child's quality of sleep may temporarily deteriorate due to the limited mobility. In this context, it will also be helpful to stick to familiar rituals and ensure regular daily schedules.
- We do not expect you to be present at all times and take charge of caring for your child. However, you are free to be with your child for as long as you want to. Please discuss this with the responsible nurse.
- Generally, medical visits by the orthopaedist will take place twice a month, on Friday mornings. Discuss with the responsible nurse or the therapist in charge if you want to be present for this or have any questions.

Rehabilitation phases 1

Proper rehabilitation starts now. The legs should still not bear full weight. For this reason, the physiotherapy team will focus on active and passive mobilisation of the hip joints and strengthening the upper and lower body. If there is a need for clarification regarding aids or support with eating or swallowing, the occupational or speech therapy teams will be involved. The nurses will support the child in daily care and will apply wound care. They will also do their best to ensure that your child does not have any pressure sores or pain and does not suffer from obstipation. If needed, they will be happy to instruct you on the adapted care of your child. If needed, the kinaesthetics trainer will instruct you on the mobilisation and positioning of the child in everyday life (e.g. for the first weekend at home).

Which movements and positions of the child are permitted?

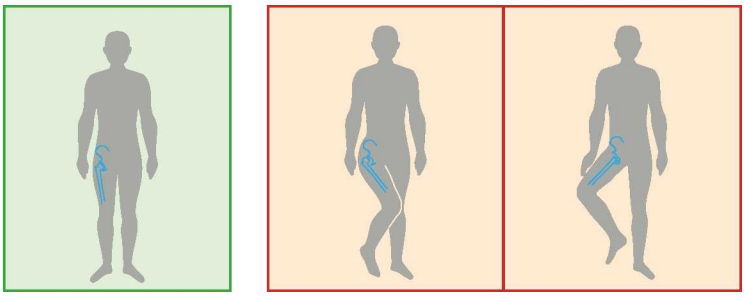
- In recumbent position in the positioner
- Mobilisation into sitting position (with 90° hip flexion)
- Active and passive movement of the joints, preventing adduction across the midline for up to 4 or 5 weeks after surgery.
- No hip adduction with simultaneous inward rotation and no hip adduction with simultaneous outward rotation for 4 to 5 weeks after surgery. (see figure)

A follow-up X-ray image is usually taken after 5-6 weeks. After assessment of the X-ray image, the surgeon will allow load-bearing. The follow-up X-ray will be taken in District Hospital Affoltern am Albis or in Children's Hospital Zürich.

Permitted position

Positions not permitted

Avoid marked inward and outward rotation of the hip



Zero position | Inward rotation of hip | Outward rotation of hip

Rehabilitation phase 2

The physiotherapy team starts with active mobilisation and strengthening of the legs. Definitive adaptation of the aids, such as the lower log orthoses, is carried out. The nurses continue to support the child in daily care and integrate mobilisation into the everyday activities of the children's or youth groups.

Which movements and positions of the child are permitted?
Generally, the child may move freely unless positioned in the individually adapted positioner.

Start of discharge planning
Mobilisation marks the start of the proper discharge phase. Depending on the state of the scars, this will also include strengthening the legs in the therapeutic bath. The exact discharge date depends on the desired goal and will be scheduled upon consultation with the surgeon, the rehabilitation team and the parents. A discharge consultation will take place with the parents, the physician, the nurses and the therapy team. Follow-up treatment and aid supply will be discussed and you will receive instructions on permitted movements.

How can you, your child and your family prepare for discharge and the time immediately afterwards?

- The therapeutic professionals will also organise outpatient therapy sessions in addition to the aids. If you have any questions, feel free to discuss them with the therapists in charge.
- The follow-up examination after three and six months by the surgeon is organised by the physician in charge. You will receive the appointment in advance.
- Before discharge, you can discuss any unanswered questions during the consultation with the treatment team.
- Please ensure that all aids have been properly adapted before discharge.
- The adapted positioner should ideally be used at night for one year after surgery. In case of difficulties or questions, the physiotherapy team in charge or the responsible nurse will be happy to assist you.
- The metal parts will usually be removed 1 year later and require an inpatient stay of two to three days.
- Your child has undergone major surgery. It will take patience and time for him/her to fully recover. If you have any questions, please do not hesitate to speak with the care specialist for neurorehabilitation.

Notes and questions

Overview of hip reconstruction

(Neuro-) Orthopaedic consultation
with the surgeon and, if possible the nurse specialist for orthopaedics

Hospital stay

1 day before surgery

Admission to Orthopaedic Department, University Children's Hospital
- Admission and information consultation concerning the surgery
- Admission consultation with the responsible nurse
- Preparation for surgery and follow-up X-ray

Surgery

Day 1 to 10 after surgery

Acute phase following the operation
- Pain treatment, food intake build-up, removal of installations (e.g. infusion)
- Getting used to positioning with customised foam mattress
- Passive and active flexion (knee) in positioner mattress permitted. From 90° flexion (knee) sitting is possible.
- No weight-bearing
- Organisation of transfer to Paediatric Rehabilitation Switzerland or discharge

Rehabilitation stay

Approx. 1-4 weeks after surgery

Admission to Swiss Children's Rehab
- Admission consultation with patient, parents, interdisciplinary treatment team
- Medical, nursing-related and therapeutic findings on admission

Rehabilitation phase 1
- No full weight-bearing, positioning with customised foam mattress
  Focus: mobilisation of hip joints and strengthening of upper body
- Clarifications: aids
- Adaptation of foam mattress, if necessary
- Instruction of parents on positioning and care of child

Follow-up X-ray

Rehabilitation phase 2
- After positive X-ray assessment, approval of full weight-bearing from week 4 after surgery in children and from 5 weeks after surgery in adolescents
- Start of strengthening of legs
- Increase of weight-bearing
- Mobilisation in standing position
- Mobilisation in exercise pool, walking

Discharge planning with parents
- Organisation of outpatient therapy setting
- Discharge consultation with patient, parents, interdisciplinary treatment team

Follow-up appointments (3 and 6 months) with surgeon

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