



The Problem with Hips for Children with Cerebral Palsy

A summary of how Postural Management & Surgery can help

How Hips Grow

You may like to know a little more about how hips usually develop first, to understand why good positioning and movement needs to start very early.

The top of the thigh bone (known as the head of femur) is a bit like a ball, it needs good alignment to engage in the socket part of the pelvis in order to grow into a mature hip joint, this normally happens by 8 years of age.

The top of the thigh bone is very upright until children start to move and put weight through their legs during the first year. They usually do this by moving from one position to another. So children who can't move are at a great disadvantage from the effects of gravity, and altered muscle activity, or spasticity, which stops the joint from forming correctly.

Gradually as children pull up to stand and learn to walk, the muscles stimulate a change in the angle of the thigh bone, meaning the head of femur (the ball) is securely located into the hip socket, movement and load bearing (standing and walking especially) stimulates this change. The more contact the head of femur makes with the socket, the more it knows what shape it needs to be to keep the head of femur secure and make a good strong hip joint.

It is really important to ensure good postural management and a good alignment of the hip joint with a young child to ensure the correct development of the hips as the child is growing. Hopefully this will prevent the need for surgery, although all is not lost if surgery is required.

How we identify hips at risk

Therapists and doctors classify the severity of Cerebral Palsy, which helps to identify the degree of risk of developing secondary bony deformities. We know children with more severe limitations will have a high risk of developing hip migration (when the head of femur or ball is not locating in the socket completely) very early, before the hip reaches its mature shape. Hip migration can cause pain and limit function, and can lead to dislocation.

Postural management equipment is important at this early stage, because it reminds joints and muscles to work in alignment giving joints a chance to move and grow correctly.

If a child is not able to sit unaided or walk at the usual time, their hip development will normally be monitored with X rays, and any migration will be carefully managed.

It's really important that your child has hip x rays if you know they have an increased risk of hip dislocation. This will enable you to know whether the hip is becoming more stable as it grows, and



whether the postural management program your child is using is effective enough to prevent hip dislocation. There is more information about ways to use postural management on our website www.actedesign.co.uk

Hip Surgery

Even with good postural management the muscles around the hip can sometimes become very tight, which restricts movement of the hip joint and can lead to the hip joint not forming correctly. This may mean some surgery is required, although this is not always the case, especially if there is no pain. We have provided a summary of some of the common procedures below, however there are lots of factors your consultant will consider before any operation.

If you want to know more about hip surgery, we would recommend reading '*The guidebook for hip surgery in children with Cerebral Palsy*', it's written for parents and is published by the Boston Children's Hospital (available on the internet as a free download).

Botox can be used to help 'switch' off the tight muscles for a few months, allowing the muscles to be stretched and a better posture to be achieved, it can also help with hip pain if muscle spasms are a problem.

Sometimes tight muscles are 'lengthened' in an operation typically known as an **adductor tenotomy**, to allow more movement to occur around the hip joint.

If despite great care hips continue to cause a problem and dislocate, an operation to relocate the hip joint may be required. This will usually include cutting the tight ligaments and muscles, the top of thigh bone is then cut through and turned so that the head of femur (the ball) can be relocated within the hip joint socket. It is then pinned and plated to secure it in place. This procedure is usually called a **femoral osteotomy**. This will make the thigh bone slightly shorter on the leg which is operated on.

Sometimes it is also necessary to make the 'socket' part of the hip a better shape to contain the head of femur, and this is done with a wedge incision above the socket, and bone is then implanted to wedge it into a more secure shape, known as a **pelvic osteotomy**.

Occasionally the hip joint is too badly damaged for the above procedures to be successful, however surgery can still be helpful, especially if the hip is painful, to make the hip joint more comfortable. Either the head of the femur may be cut free of its ligaments and muscle tendons, but left in place, or it may be completely removed in an operation known as a **Girdlestone**.

Different hospitals and especially different countries will refer to these procedures by different names, so it's best to get your surgeon to describe what he intends to do and why.

Further Reading

If you want more advice regarding any aspect of postural management please get in touch with us.

Places to look for more information:

<http://www.childrenshospital.org/centers-and-services/programs/a--e/cerebral-palsy-program/cp-glossary>



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