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Spinal follow-up in CPUP

Background

Children with cerebral palsy (CP) have an increased risk of developing scoliosis. The treatment strategy depends on:

- The magnitude of the curve.
- The type and location of the scoliosis.
- The degree of flexibility.
- The child's age and level of gross motor function.

Grading of scoliosis

Clinical examination

The spine is examined with the person in a sitting position. The degree of scoliosis is graded as:

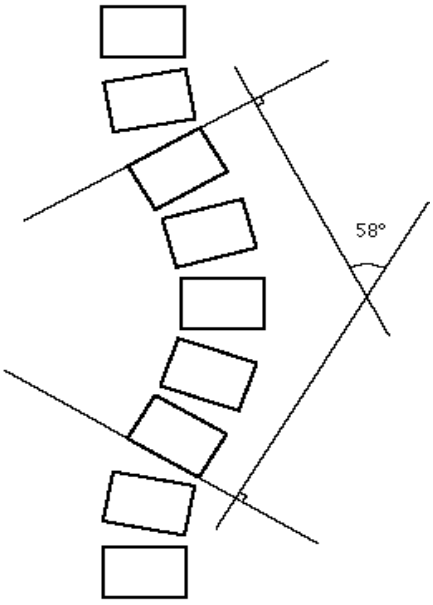
Mild:	discreet curve visible only on thorough examination in forward bending.
Moderate:	obvious curve in both upright and forward bending.
Severe:	pronounced curve preventing upright position without external support.

A scoliosis is further graded as flexible or not flexible.

Radiographic examination

The spine is examined in standing or sitting position.
If the examination is performed in a lying position, the degree of scoliosis cannot be reliably determined. In these cases, the Cobb angle must be related to the degree of scoliosis at the clinical examination.

The degree of scoliosis is measured according to the Cobb angle (Se Figure)



Follow-up program

The follow-up program includes yearly spinal examinations by the child's physiotherapist.

- Children < 8 years with a flexible scoliosis are followed with clinical examinations according to the follow-up program. Treatment (brace, seating support, positioning) depends on the clinical evaluation.

- Children < 8 years with a non-flexible scoliosis graded as moderate or severe are examined radiographically with anteroposterior and lateral views of the entire spine. The findings from the radiographic examination (the Cobb angle) and the clinical evaluation determine the course of treatment. For continued radiographic examinations only an anteroposterior view is needed.

- Children > 8 years with a moderate or severe scoliosis (whether it is flexible or not) are examined radiographically as described above. The continued follow-up and treatment is determined by the degree of scoliosis (Cobb angle) and the factors described previously.

Guidelines for follow-up based on Cobb angle

Cobb angle < 15 degrees: Stimulate positioning to the "other" side in sitting, lying and standing positions. Treatment with brace or seating support is determined by the child´s postural ability. If the scoliosis is flexible further clinical examinations are sufficient as long as the curve magnitude is not increasing. A non-flexible scoliosis is checked radiographically after one year.

Cobb angle < 30 degrees: Stimulate positioning to the "other" side in sitting, lying and standing position. Treatment with brace or seating support is determined by the child´s postural ability. Radiographic examinations after one year.

Cobb angle 30 – 60 degrees: Possibly brace treatment in young children. Radiographic examination every 6 months if the Cobb angle is increasing, if no increase annual radiographic examinations are recommended. In children with Cobb angle > 40 degrees surgery should be considered.

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Comments

A scoliosis with a Cobb angle > 40 degrees almost always progresses, even after completion of growth. This means that these children often need surgery, unless the child´s general condition makes surgery too risky. The surgery is technically easier to perform at a Cobb angle of 40-60 degrees than at larger curves. However, surgery at a young age could make the spine shorter due to the spinal fusion. Therefore, at times, it is recommended to treat with a brace and postpone the surgery until the child is older.