

# Scheuermann's disease

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Last update: Monday, 13 Nov 2023 at 8:50 pm.

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Template:Infobox - genetic disease

**Morbus Scheuermann** ( *Scheuermann's disease*, *kyphosis dorsalis juvenilis*, *adolescent kyphosis*, *juvenile kyphosis*, *juvenile osteochondrosis* ) is a serious structural defect of multifactorial origin on a significant genetic basis. This is one of the most common causes of thoracic spine pain in children. The disease affects approximately **2.2% of the population** between the ages of 9 and 18, slightly more often in **boys**.

If not treated in time, it causes permanent and progressive pain in the thoracic (or lumbar and cervical) spine in most patients, which significantly reduces the quality of life and can even lead to disability. It is considered a "disease of myths". It is often mistaken among medical professionals as a benign disease that does not cause major problems. Widespread myths lead to difficulties at all stages of the diagnostic-treatment process, from clinical examination to interpretation of radiological results to subsequent treatment.

## Etiopatogeneze

The disease is of multifactorial origin on a significant genetic basis with a heritability of 0.74. Inheritance takes place in an autosomal dominant manner. It is a **disorder of enchondral Ossification** during the period of growth (9-18 years), when an individual grows rapidly by up to 5% of their height in the course of 3-6 months. During this period, the covering plates of the vertebral bodies are affected, the plates are uneven, so-called **Schmorl's nodes** (intraspongioscartilaginous Hernia from the intervertebral discs into the vertebral bodies) are formed. The intervertebral discs are narrowed and irregular.

**The wedge-shaped shape of the vertebral bodies** is typical , which is clearly visible on the lateral X-ray image of the spine). There is a reduction in the front part of the vertebrae, the result can even be the image of a round back. The cause is located in the area of the lower thoracic spine , less often it also affects the upper thoracic or lumbar region (from Th 3 to L 2 ).

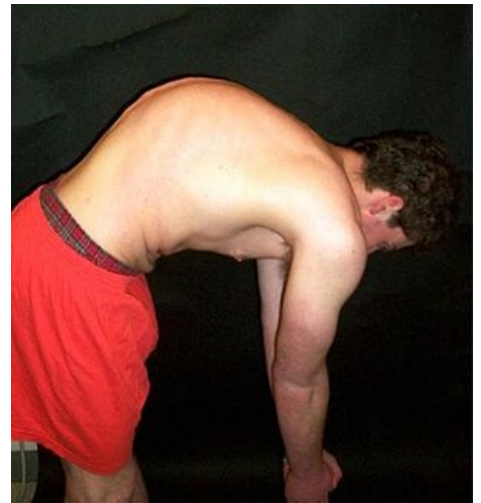
Overloading of the spine has a negative effect on the course of the disease, deformities with the development of Myelopathy have been described in case of significant load. After the age of 18, we are talking about *the **state after Scheuermann's disease*** .

## Clinical picture

The disease can be manifested by **increased thoracic kyphosis** above 40 degrees of the Cobb curve (kyphotic posture of the thoracic spine will later turn into structural kyphosis). However, it can also occur in atypical forms with no or slightly accentuated thoracic kyphosis or kyphosis with a peak in the thoracolumbar or lumbar spine. Roughly half of the children have difficulties and post-exercise Back pain The affected person has very shortened muscles, the kyphosis is smooth, without gibbous formation. Mobility and elasticity of the spine is limited. Serious, permanent and progressive pain appears only after 18 years of age as a result of degenerative changes in the spine, or degeneration of intervertebral discs.

The atypical type of Scheuermann's disease with peak kyphosis in the thoracolumbar or lumbar spine causes more pronounced pain. Distinction from Postural kyphosis is performed with a hyperextension test - the patient clasps his hands behind his head and makes maximum lordotization of the spine (exists) - if residual kyphosis is observed, it indicates a structural defect (ie Scheuermann's disease). Another clinical test can be, for example, the Adams test, which is also used to diagnose scoliosis.

## X-ray image



A patient with Scheuermann's disease

The main imaging examination is an X-ray of the entire spine in anteroposterior and lateral projection. If kyphosis in the thoracic spine is greater than 40 degrees, Scheuermann's disease is suspected and treatment is initiated. In the case of low degrees of kyphosis, it is advisable to supplement the imaging examination with magnetic resonance imaging, which can reveal minor structural changes significantly earlier than an X-ray examination.

On the X-ray image, it is possible to see irregularities of the covering plates, up to the formation of Schmorl's nodes in about 40% of patients. **The so-called The Edgren-Vain sign** is a phenomenon where, in larger Schmorl's nodes, there is compensatory increased circumscribed bony growth on the opposite covering plate, which is located exactly opposite them. A narrowing of the intervertebral spaces occurs. There are wedge-shaped deformities of the bodies above 5° in at least 3 vertebrae (however, this is not a condition), kyphosis is above 40°.

The measurement is made according to **Cobb** on the lateral image from the highest visible vertebra, the construction of the angle is similar to that of Scoliosis.

## Treatment

Early treatment is **key for every patient** . Mere observation is the wrong treatment.

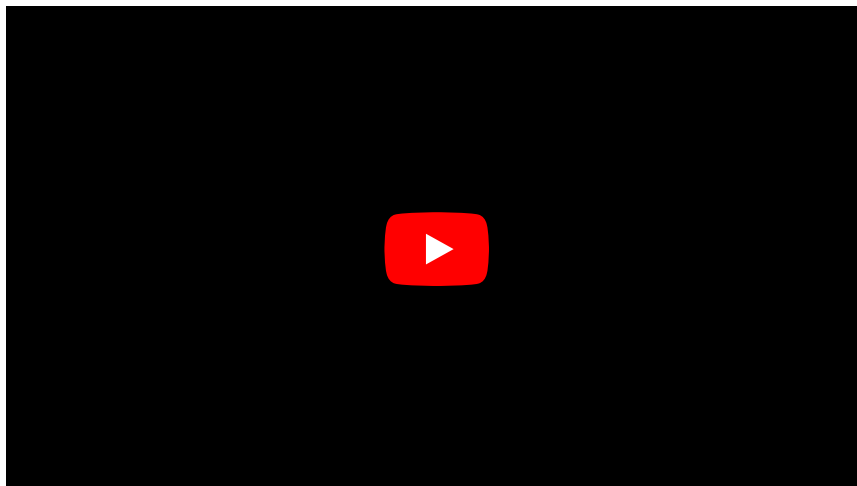
**Daily specialized rehabilitation** ( method according to Schroth , Brunkow, Klapp, FED, FITS, Pilates/Pilates Reformer, etc.) is indicated until the growth of the spine ends. It is recommended to reduce excessive load on the spine. Constant pressure to reduce the kyphosis curve leads to compensation of degenerative changes in the spine and, in the case of early diagnosis, to a full cure of the disease.

For higher kyphosis curves, it is recommended to wear a corset, which is put on only for the duration of the exercise.

For curves above 70°, or lower, at the discretion of the spondylo-surgeon, surgical correction can be performed using a posterior approach, and in complicated cases, exceptionally, using an anteroposterior approach. This operation may be indicated not only for deformity, but also for pain or a cosmetic defect, if the curve has a significant effect on the patient's mental health. It may be indicated for lower curves if the deformity manifests itself atypically - in a thoracolumbar or lumbar manner. In these cases, the main task of the operation is to move the apex of the kyphosis to a standard location in the thoracic spine.

A specialized center for the treatment of Scheuermann's disease in the Czech Republic is the **Orthopedic Clinic of the Brno University Hospital** .

## Case report



Scheuermann's disease on X-ray



Schmorl's nodes on X-ray

## Links

### Related Articles

- Curvature of the spine
- Wrong body posture
- Scoliosis

## External links

- Vznik a možnosti léčby Scheuermannovy nemoci (<https://radiozurnal.rozhlas.cz/vznik-a-moznosti-lecby-scheuermannovy-nemoci-6346527>)

## References

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