

Curvature of the spine

The spine belongs together with the skull to the axial skeleton. It has physiological curvatures that change during ontogeny. The curvatures in the sagittal plane are:

- **Lordosa** – *forward* convex curvature. Lordosa is strengthened by the action of certain muscle groups. The lordosis is not completely fixed until the age of six.
- **Kyphosis** – antagonistic curvature of the lordosis (convex *backward*). Unlike lordosis, it is not actively formed by muscles, but is a remnant of the original kyphotic curvature of the entire spine.

Physiological curvatures

Lordosis and kyphosis alternate on the spine in this sequence:

- **Cervical lordosis** – its peak is at the level of 4.-5. cervical vertebra ; it develops in the child when he raises his head from the position on his stomach.
- **Thoracic kyphosis** – has a peak at the 6th-7th. thoracic vertebra.
- **Lumbar lordosis** – with a peak at the level of 3.-4. lumbar vertebra. It develops especially when the child is learning to stand and walk.
- **Promontorium** – or kyphotic bend of the spine between the last lumbar vertebra and the basis ossis sacri .

Scoliosis

🔍 For more information see *Scoliosis*.

Scoliosis is curvature in the frontal plane (to the sides). The human spine usually has a slight physiological curvature, especially in the area between the 3rd and 5th thoracic vertebrae. The increase of this deflection above a certain value is a negative phenomenon that must be addressed. Scoliosis is usually accompanied by rotation of the vertebrae.

Scoliosis can also be a temporary phenomenon, for example when a person stands on one leg or carries a heavy load in one hand.

Incorrect curvatures of the spine

Pathological curvatures are mainly caused by weak muscles. We recognize several types:

- **Flat back** – the spine has reduced physiological kyphosis and lordosis (especially thoracic and lumbar). They occur when the muscles are weak.
- **Arched back** – they have a more pronounced curve. They are formed as a reaction to the long-term pull of powerfully developed back muscles.
- **Round back** – thoracic kyphosis increases. A round back arises from several causes: as a result of weak neck muscles with simultaneous faulty posture of the spine while standing or sitting. Furthermore, they can be caused by one-sided permanent load, e.g. during work. This curvature often arises even in old age due to the reduction of the intervertebral discs.

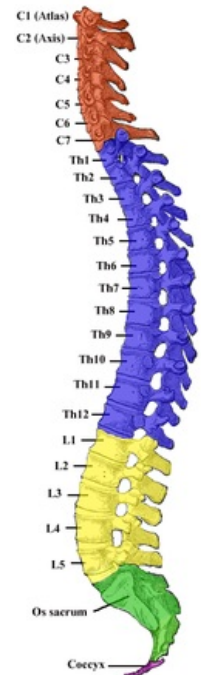
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References

- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie*. 3. edition. Grada, 2011-. ISBN 978-80-247-3817-8.



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X-ray of the scoliotic spine.