

# Examination of spinal mobility

The spine is part of the axial skeleton of vertebrates, it consists of individual vertebrae, which are firmly but movably connected to each other.

## Joints of the spine [ [modify](#) | [edit source](#) ]

We distinguish three types of connections on the spine:

- cartilaginous joints - synchondroses columnae vertebralis - intervertebral discs;
- fibrous joints - syndesmoses columnae vertebralis - long and short ligaments;
- joints - articulationes columnae vertebralis - joints between the processic articulares of neighboring vertebrae, craniovertebral joints - joints and ligaments connecting the occipital bone with the atlas and axis.

## Spinal mobility [ [modify](#) | [edit source](#) ]

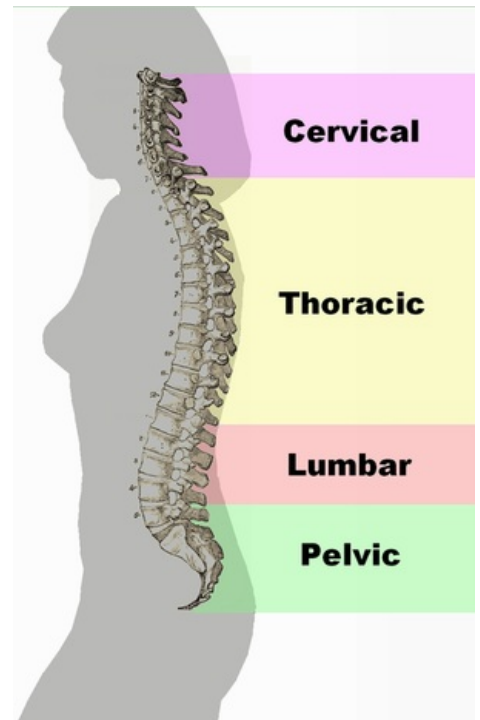
Mobility in the presacral region is given by the sum of mobility between the individual vertebrae. Its extent is affected by the height of the intervertebral discs (direct ratio), the shape and inclination of the vertebral mandrels and the shape of the articular surfaces.

We rank the spine movements

1. anteflexi (forward bend) and retroflexi (bend)
2. lateroflexion (bows)
3. rotation torque (rotation)
4. circular movements - combination of flexion, extension and lateroflexion

The individual sections of the spine differ in mobility:

Spine section	FL	EXT	LATFL	ROT
C p.	30 ° -35 °	80 ° -90 °	35 ° -40 °	45 ° -50 °
Th p.	35 ° -40 °	20 ° -25 °	20 ° -25 °	25 ° -35 °
L p.	55 ° -60 °	30 ° -35 °	20 ° -30 °	5 °



Spinal column curvature

## The orientation of the spine [ [modify](#) | [edit source](#) ]

During retroflexion of the cervical spine, we place 2 fingers on the adjacent thorns of the C-Th transition area: during this maneuver, the C6 mandrel moves forward so that it escapes under the palpating finger, while the C7 mandrel remains in place. C7 vertebra may not always be the most prominent! The palpation of the L5 vertebra is used to delimit the presacral part of the spine - the last mandrel that moves during the forward and tilt. We also find it by connecting the two spinae iliacae posteriores superiores - where the line intersects the spine, lies the thorn L5.

## Self examination of spinal mobility [ [modify](#) | [edit source](#) ]

For most tests, we assume a starting position in an upright position bad, if otherwise, this is noted for testing.

### Schober's distance [ [modify](#) | [edit source](#) ]

Shober's test The distance that shows the development of the lumbar spine. From mandrel L5 we measure 10 cm cranially in adults and 5 cm cranially in children, both points can be marked with a dermograph. After the measurement, the examinee leans forward, with a healthy spine, the distance between the two points should be extended to 14 cm for adults and 7.5 cm for children. Some authors report measurements from the S1 vertebra mandrel along with an extension of the distance from 10 to 15 cm.

### Stibor's distance [ [modify](#) | [edit source](#) ]

Stibor's distance shows us the development of the thoracic and lumbar spine. The starting point is again the mandrel of the vertebra L5 (S1), the second point is the mandrel of the vertebra C7 - we measure the distance between them and monitor its change when the forward bend is released. For a healthy spine, there should be an

elongation of 7-10 cm.

### **Forestier fleche [ [modify](#) | [edit source](#) ]**

Forestier's fleche or the perpendicular distance of the protuberantia occipitalis externa from the wall. It can be measured while standing or lying down and is detected by "advanced head posture" and increased thoracic kyphosis. In a position with knees bent and the head touching the back of the wall should be equal to 0.

### **Chepoyev (Čepojova) distance [ [edit](#) | [edit source](#) ]**

Čepoj's distance evaluates the range of motion in the cervical spine into flexion. We will find the mandrel of the C7 vertebra and measure 8 cm cranially from it, at the maximum forward inclination the measured distance will increase by at least 2.5–3 cm.

### **Otto inclination distance [ [modify](#) | [edit source](#) ]**

Otto's inclination distance measures the mobility of the thoracic spine in a forward bend. The starting point is again the mandrel of the C7 vertebra, from which we measure 30 cm caudally. The distance of the points shown increases with the forward inclination by at least 3.5 cm.

### **Otto reklination distance [ [modify](#) | [edit source](#) ]**

Otto's reclining distance measures the mobility of the thoracic spine at an incline. The second point is again 30 cm from the starting mandrel of the C7 vertebra, the distance decreases by 2.5 cm when tilted. The sum of both Otto distances gives the index of sagittal mobility of the thoracic spine.

### **Thomayer's distance [ [modify](#) | [edit source](#) ]**

The Thomayer distance, sometimes referred to as the simple forward bend test, displays and evaluates the non-specific mobility of the entire spine. It consists in a forward bend made from a standing position, where the distance of the third finger from the pad is measured in the most extreme position. We consider the touch of fingers to be a normal result, we still tolerate a distance of up to 10 cm, above 30 cm it is already a clear pathology. During the test, we must pay attention to certain distortions - the movement can be compensated by movement in the hips or, conversely, limited due to the shortening of the knee flexors (the patient shrinks his knees and feels pain in the hamstring). In addition to hypomobility, the test can also examine significant hypermobility, when the patient touches the pad with the whole palm or forearm (this is already considered a very significant ligament disorder). Increased laxity and therefore positive hypermobility tests are more common in women.

### **Lateroflex [ [edit](#) ] [edit source](#) ]**

The bow test is for guidance only and provides information on the symmetry and range of the bows. In a stand with your back against the wall, there are arms along the body with the palms facing the body. The examinee bows and marks the distance he reached with the longest finger.

### **References [ [modify](#) | [edit source](#) ]**

1. ↑ LEWIT, Karel. *Manipulation treatment in myoskeletal medicine*. 5th edition. Sdělovací technika, 2015. 418 pp. ISBN 9788086645049 .

### **References [ [modify](#) | [edit source](#) ]**

- KOLAR, Pavel, et al. *Rehabilitation in clinical practice*. 1st edition. Prague: Galén, 2010. 713 pp. ISBN 978-80-7262-657-1 .
- HALADOVÁ, Eva and Ludmila NECHVÁTALOVÁ. *Investigation methods of the locomotor system*. 3rd edition. Brno: National Center for Nursing and Non-Medical Fields, 2010. ISBN 978-80-7013-516-7 .
- ČIHÁK, Radomír and Miloš GRIM. *Anatomy 1st* 3rd edition. Prague: Grada, 2011. 534 pp. ISBN 978-80-247-3817-8 .

### **Použitá literatura**

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Kategorie:Fyzioterapie Kategorie:Ergoterapie

Kategorie:Interní propedeutika

This article has been translated from WikiSkripta; ready for the **editor's review**.

