

What criteria can be used to assess the stability of a vertebral fracture?

The assessment of the stability of a vertebral fracture is an important criterion when determining therapeutic measures to be taken (surgical stabilization or conservative therapy). A stable fracture must fulfill the following criteria:

- Spinal cord and spinal nerves must not be at risk
- The physiological loads must be supported without the vertebral fracture resulting in a deformity of the spinal column.

Denis introduced the three-column method for stability assessment. He differentiates between the anterior column (A), consisting of the vertebral bodies, the middle column (B), consisting of the vertebral arches and articular processes, and the posterior column (C), consisting of the spinous processes and dorsal ligamentous apparatus.

Denis defines stability based on the following criteria:

- Involvement of all three columns leads to instability
- Injury of two columns with rotation of the damaged column portions about the intact column leads to instability
- Isolated injury of one column does not lead to instability

• The Denis three-column model

