


# Kyphose der Halswirbelsäule

WIK

**Gabl MV, Koller M;**

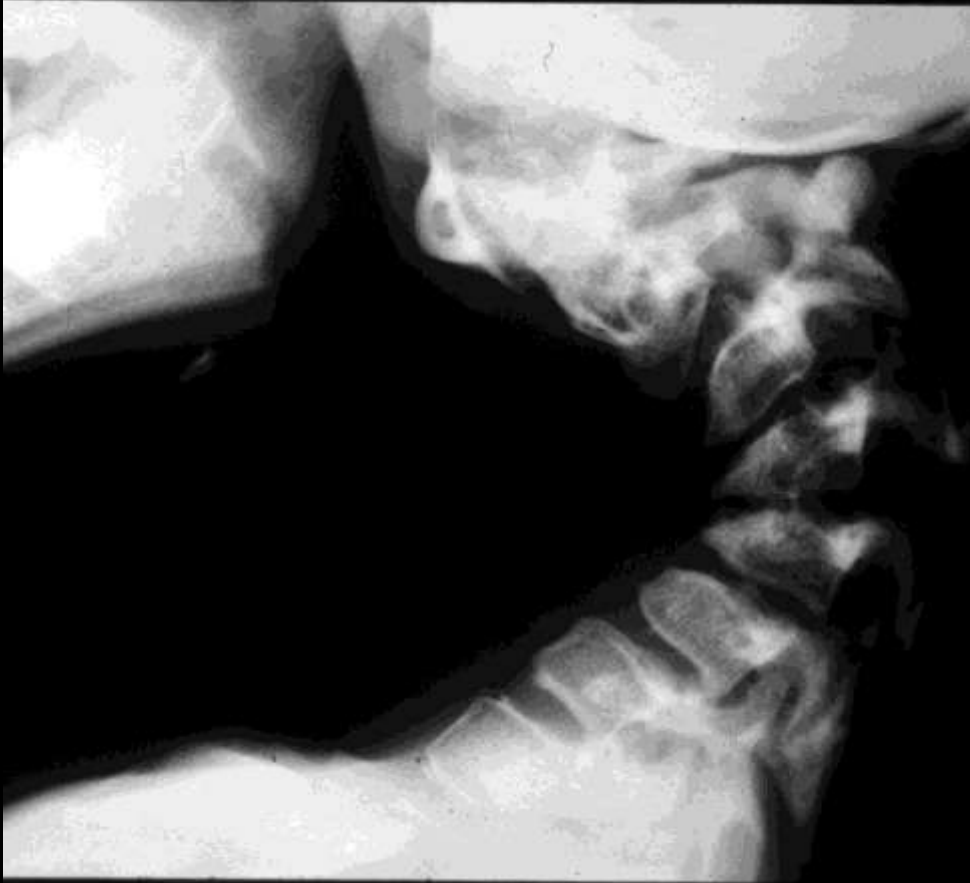
Consultant spine surgeon

Department of Orthopedic Surgery, Innsbruck Medical University



Wirbelsäulenzentrum  
Innsbruck Sanatorium  
Kettenbruecke

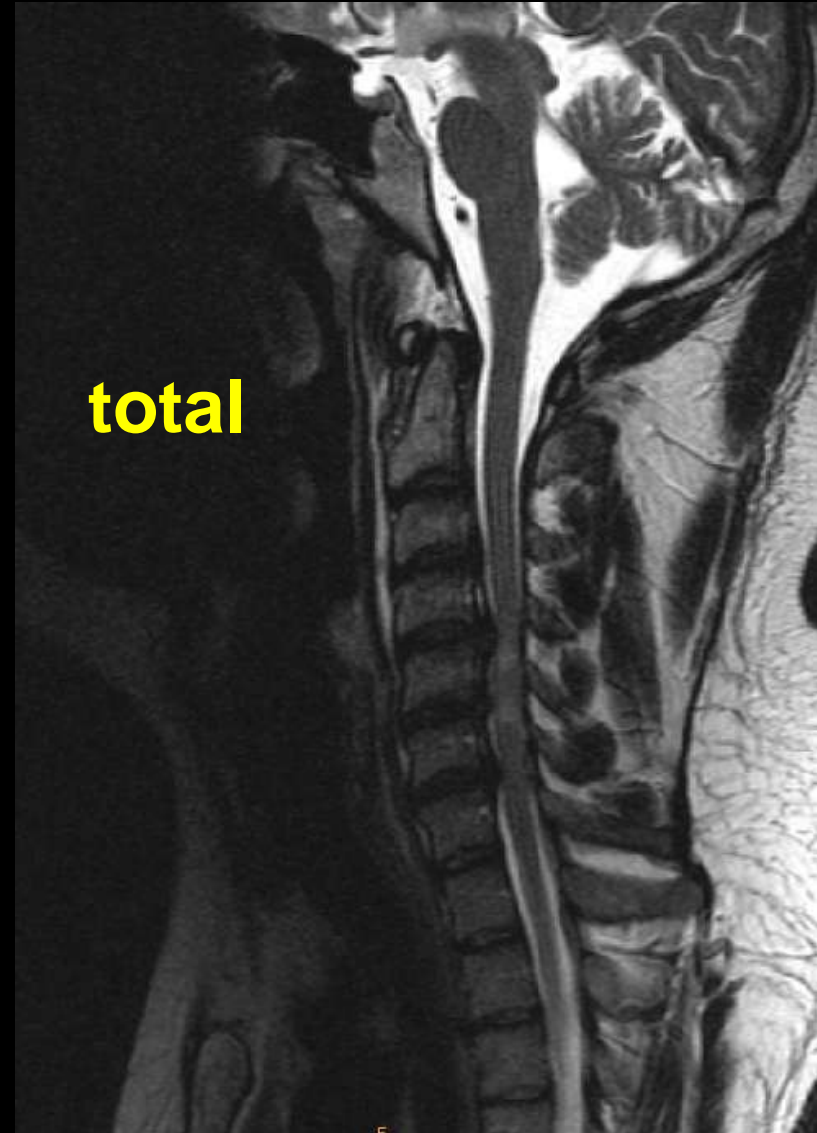
# Kongenital



# Posttraumatisch



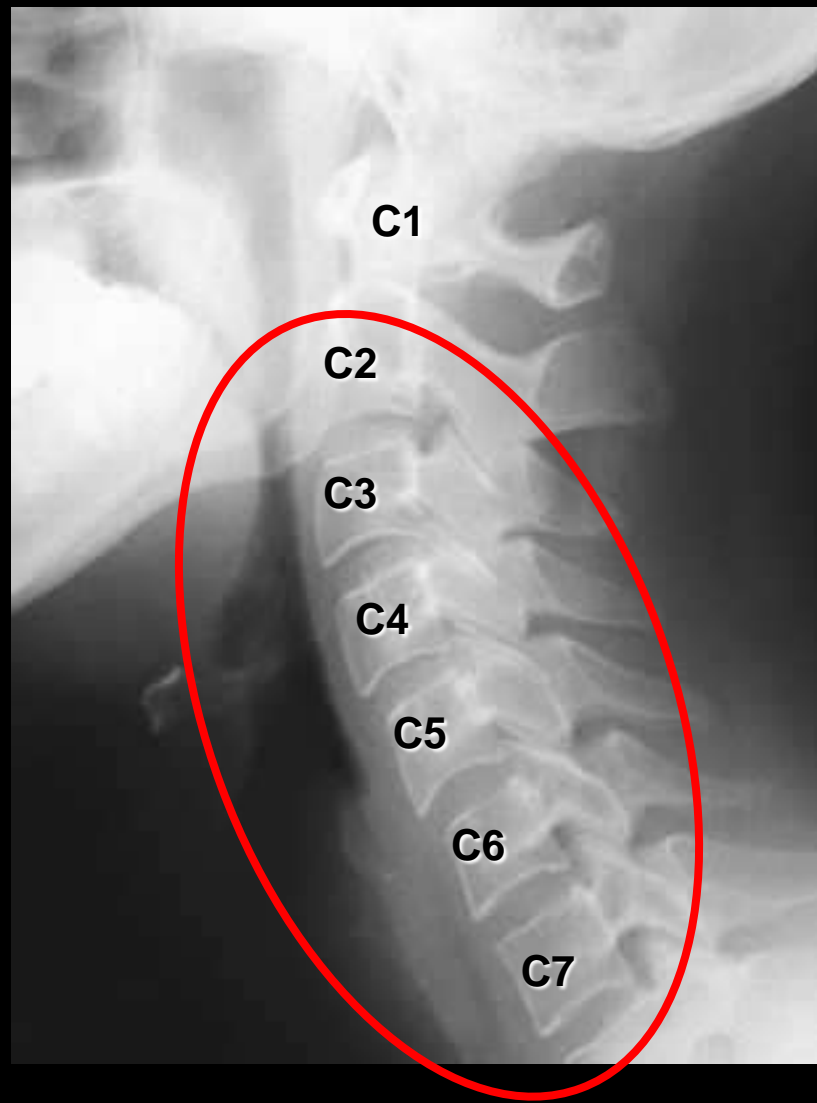
# Degenerative

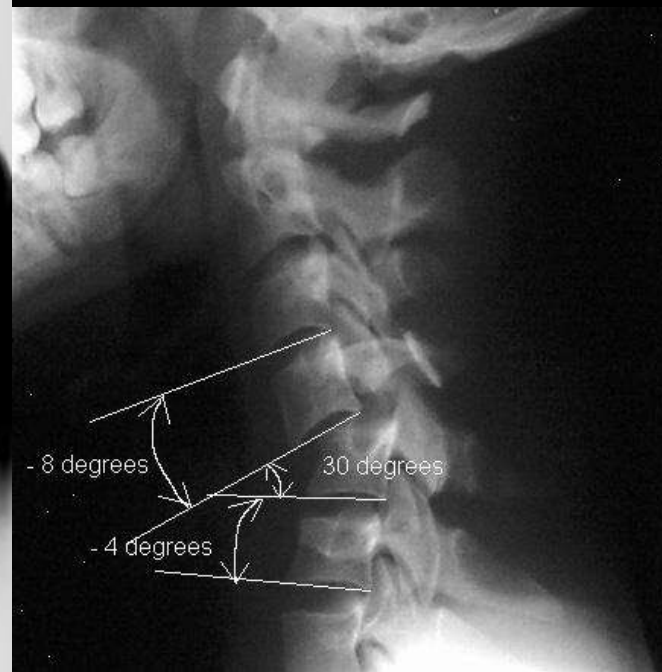
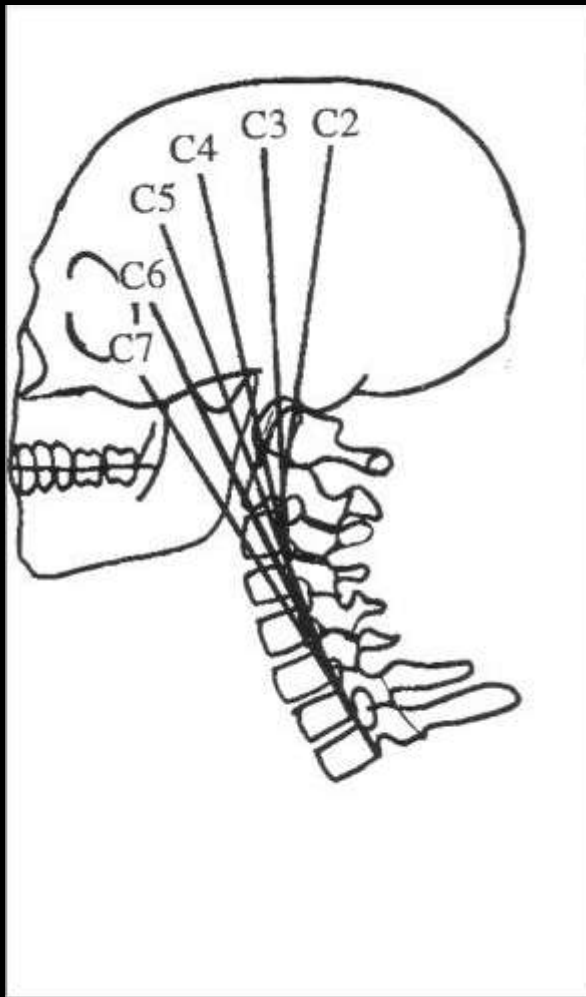


**Postoperativ**



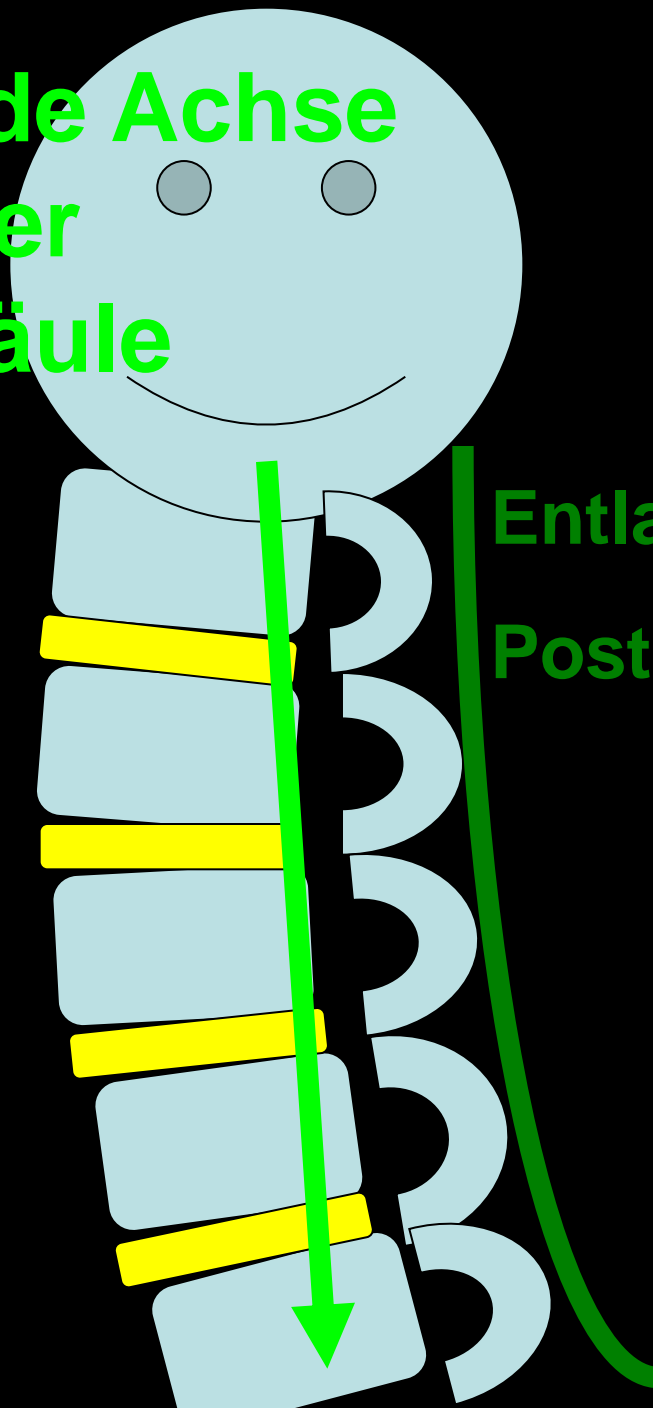
# Lower cervical spine



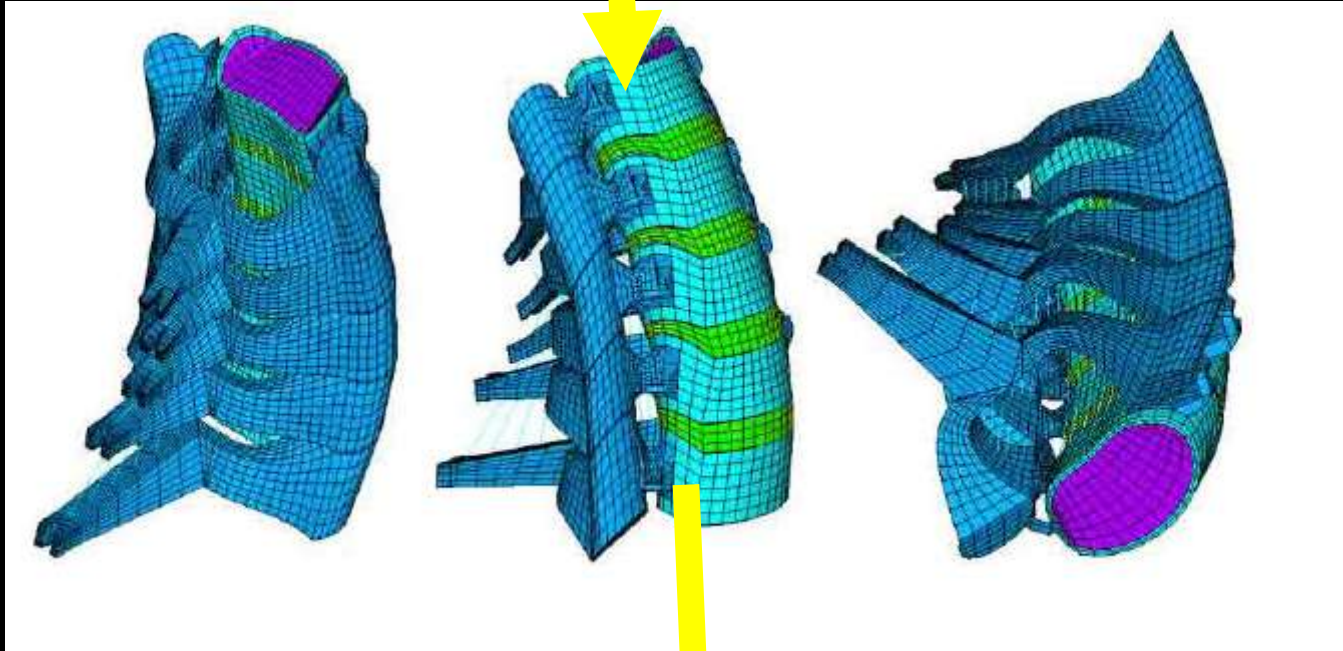


23. Harrison DE, Harrison DD, Cailliet R, Troyanovich SJ, Janik TJ, Holland B (2000) Cobb method or Harrison posterior tangent method: which to choose for lateral cervical radiographic analysis. Spine 25(16):2072–2078 [\[PubMed\]](#)

**Lasttragende Achse  
zentral in der  
mittleren Säule**

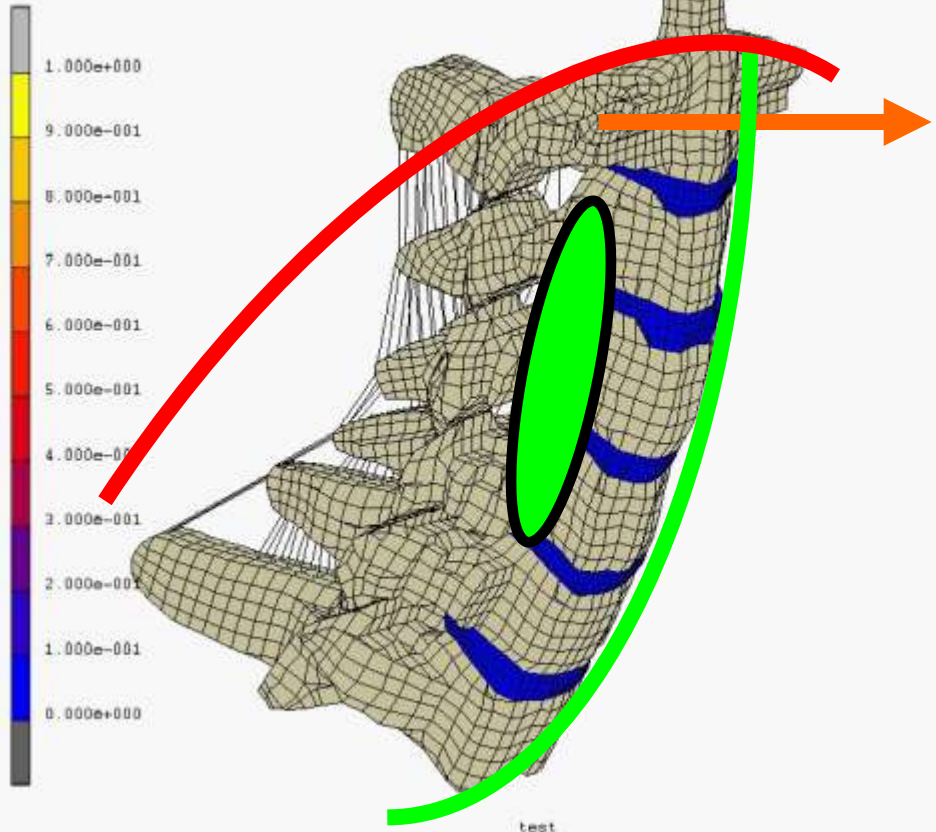


**Entlastung der  
Posterioren Elemente**



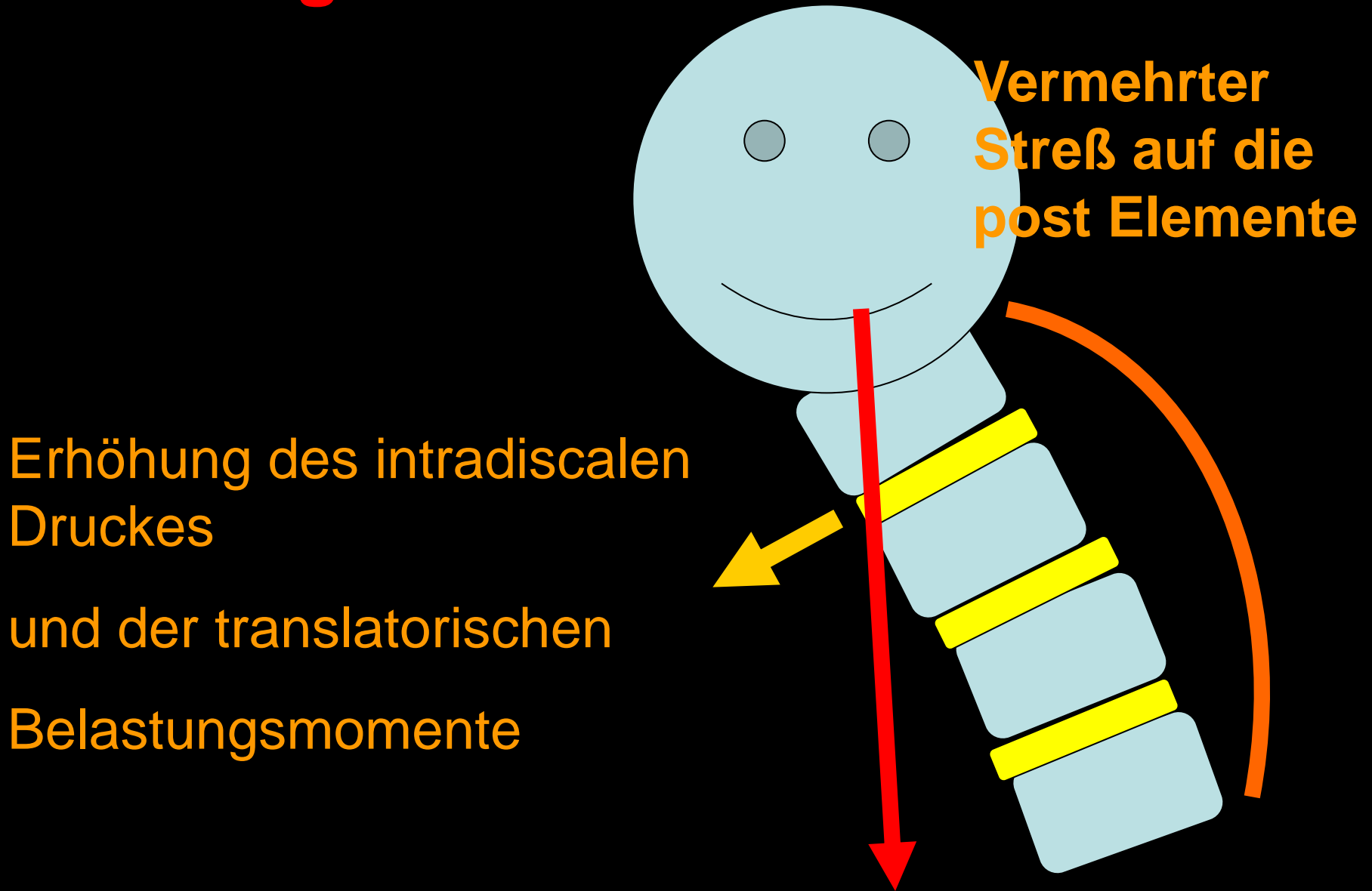
**Ideale Verteilung der Kraftmomente  
und der Lastübertragung**

Inc: 0  
Time: 0.000e+000



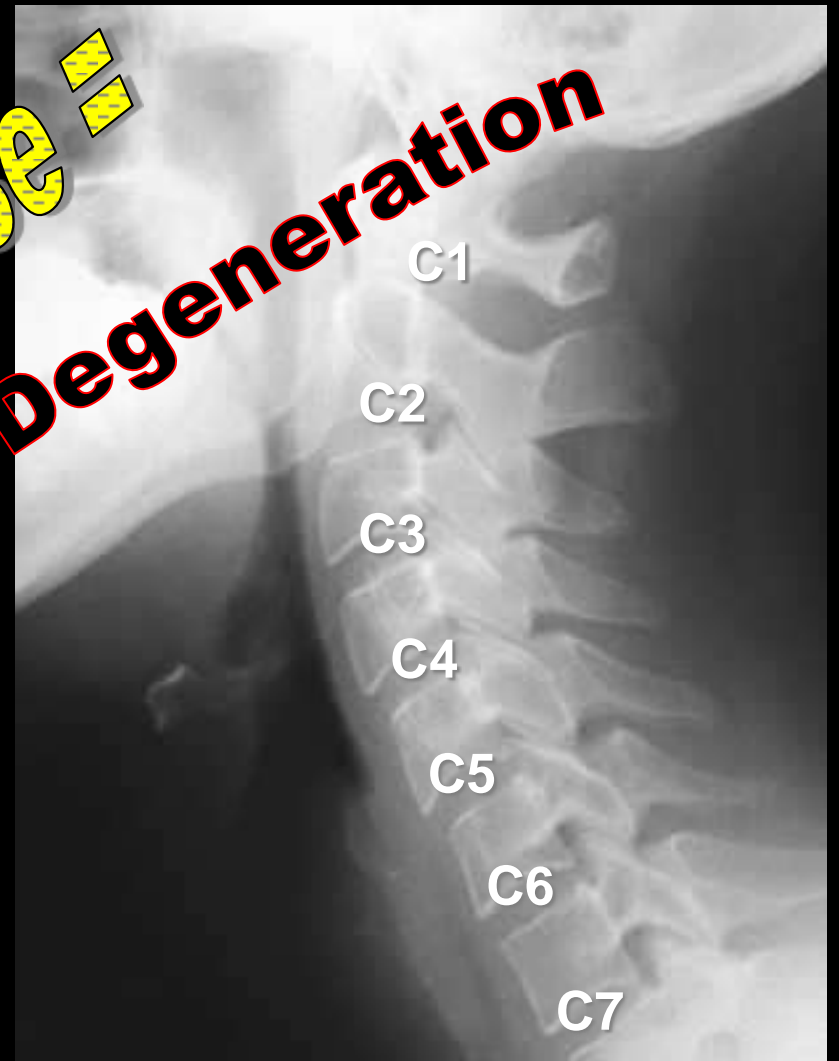
test  
Equivalent Von Mises Stress

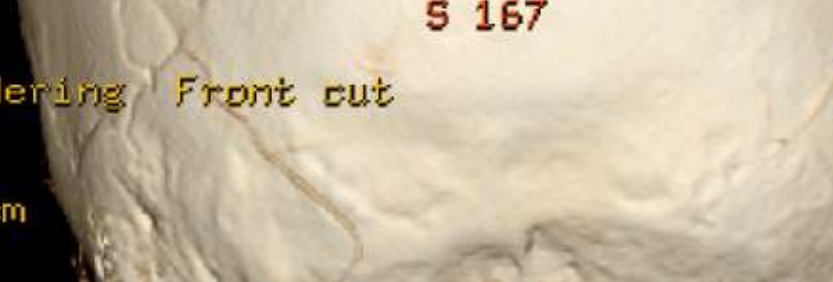
# Lasttragende Achse





**Acceleration der Degeneration**

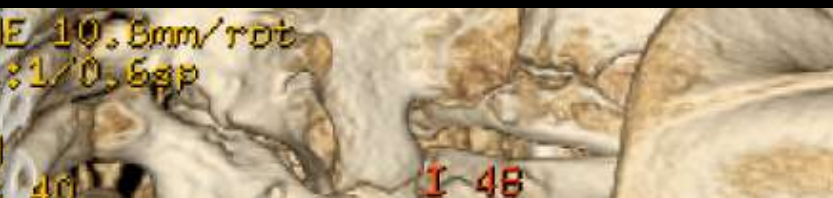




## Selten

- congenitale Cervicothoracal kyphoscolioses = dystroph form
- neuromuscular kyphoscolioses (NF1)

- Instabile Pathologien
- Hohes Risiko Progression der Fehlstellung
- Hohes Risiko Myelopathie

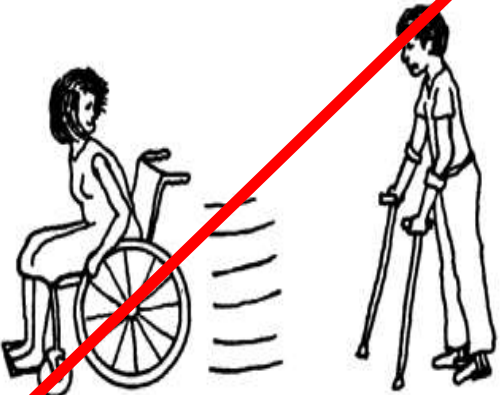
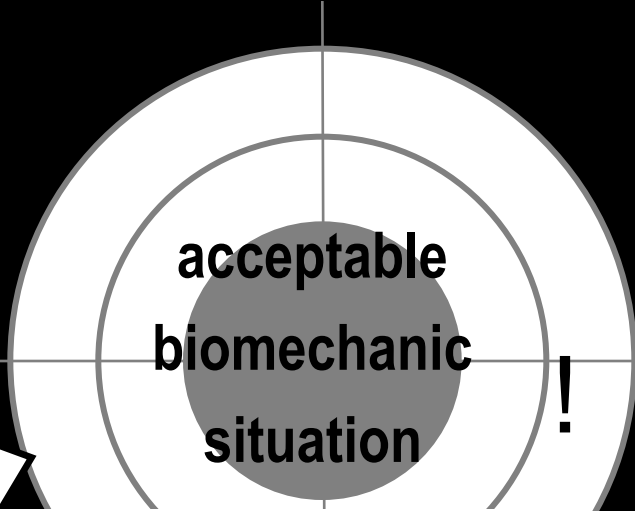


# Early and aggressive treatment recommended

Halo extension?

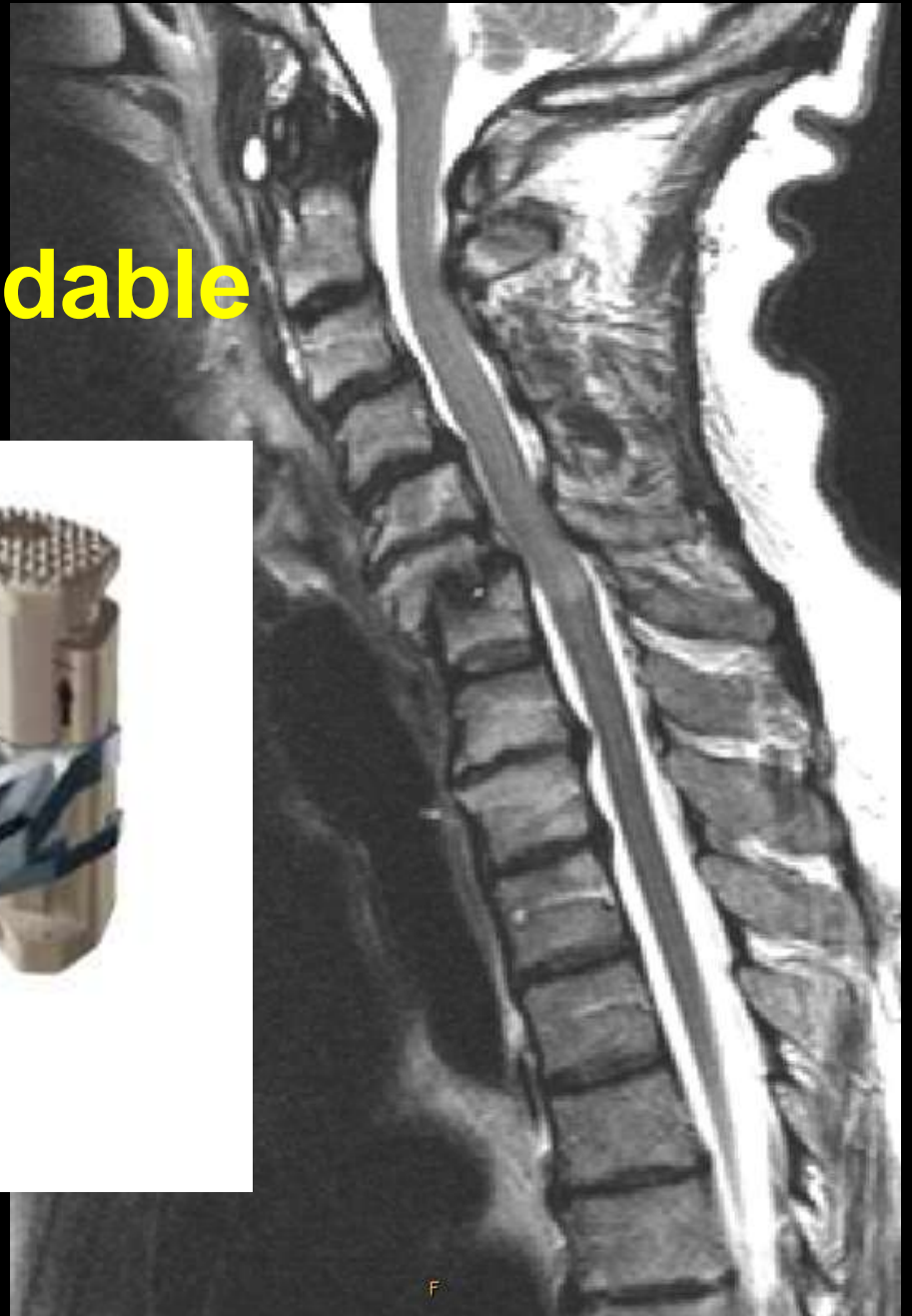
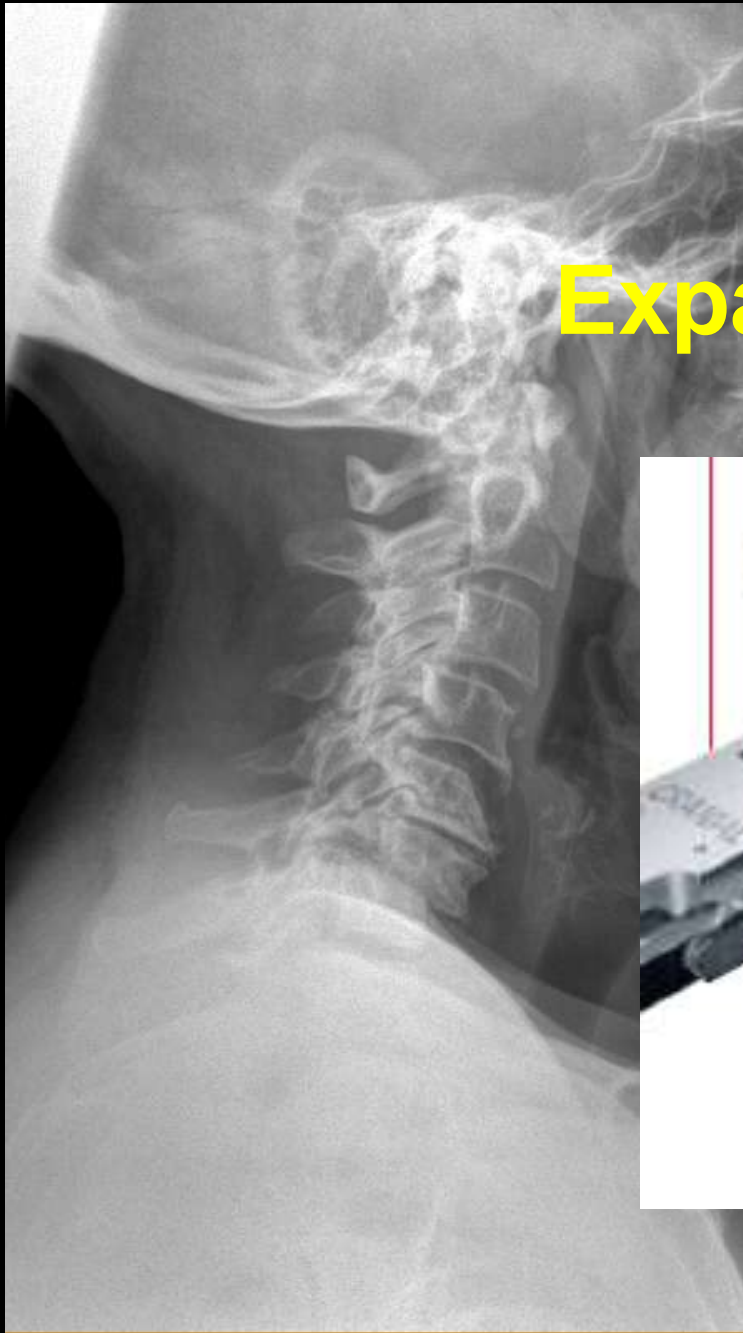
partial correction?

in situ fixation?





**Expandable**

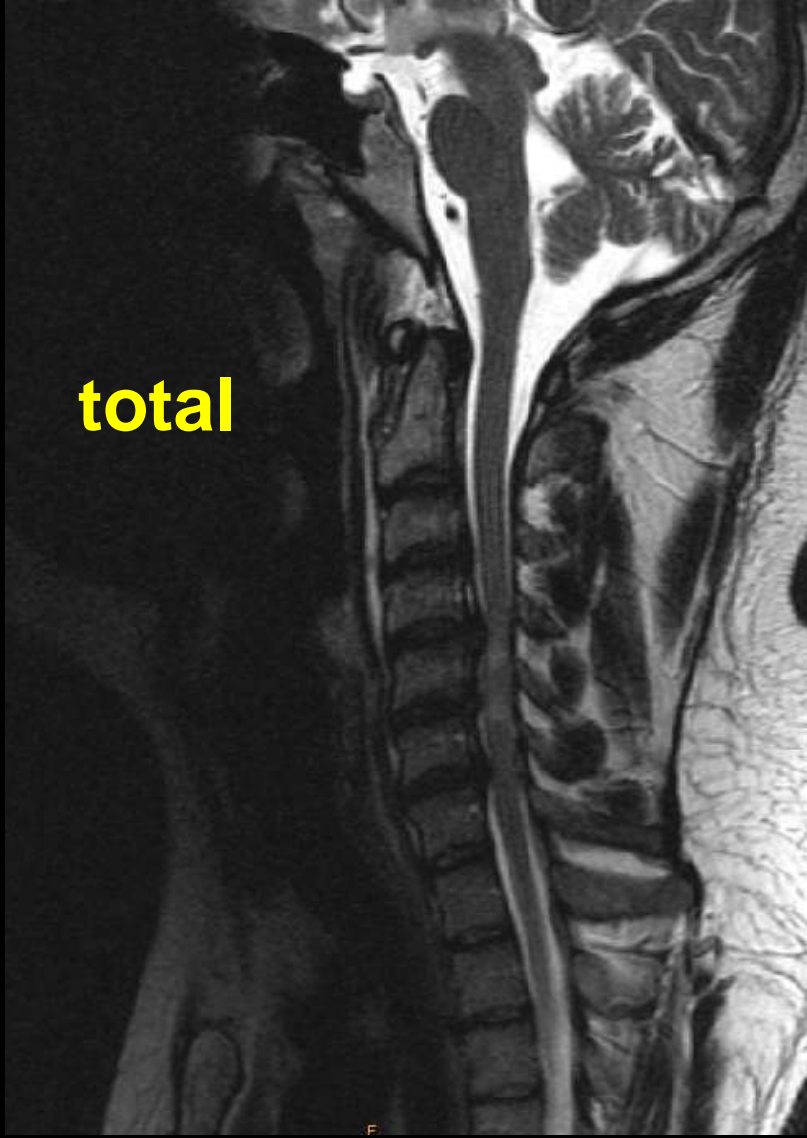


**Lordosis**





**segmental**



**total**

# Degenerative conditions

- 1. Kyphotic malalignment after anterior **cervical** fusion is one of the factors promoting the degenerative process in adjacent intervertebral levels.

Katsuura A. Hukuda S. Saruhashi Y. Mori K.

*European Spine Journal.* 10(4):320-4, 2001 Aug.

[Journal Article]

UI: 11563618

**We see the same effect in patients after cervical TDR**

**Neck disability index in patients with postsurgical kyphoses is worse**

**Postlaminectomy Kyphoses strongly correlated with bad long term outcome**



**Singel level**

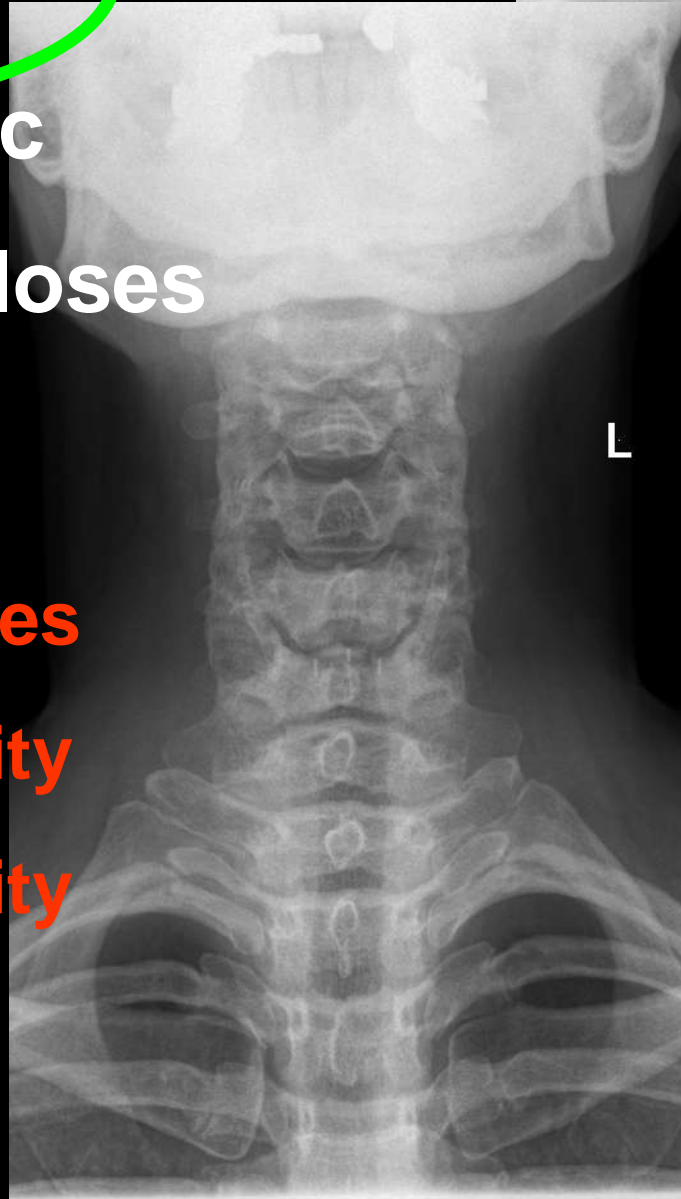
**Soft Disc**

**Spondyloses**

**No Kyphoses**

**No Deformity**

**No Instability**



## Factors affecting sagittal malalignment due to cage subsidence in standalone cage assisted anterior cervical fusion

Pavel Barsa<sup>✉</sup> and Petr Suchomel

Eur Spine J. 2007 September; 16(9): 1395–1400.

Published online 2007 January 13. doi: 10.1007/s00586-006-0284-8.

Copyright © Springer-Verlag 2007

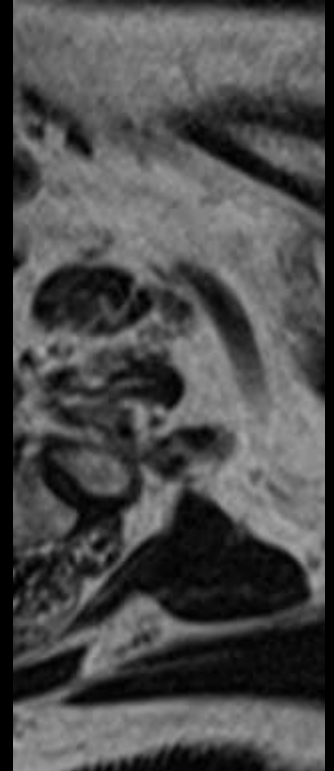
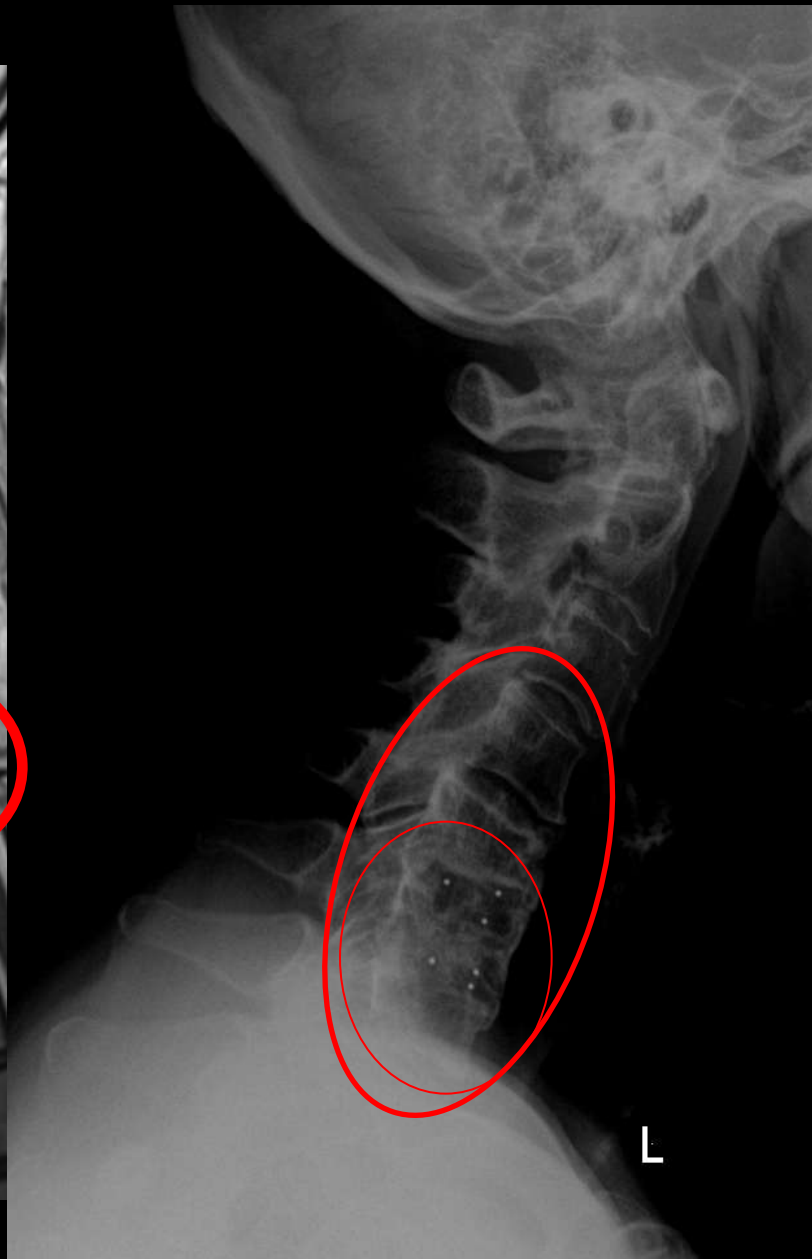
Fusion of cervical spine in kyphotic alignment has been proven to produce an acceleration of degenerative changes at adjacent levels. Stand-alone cages are reported to have a relatively high incidence of implant subsidence with secondary kyphotic deformity. This malalignment may theoretically lead to adjacent segment disease in the long term. The prospective study analysed possible risk factors

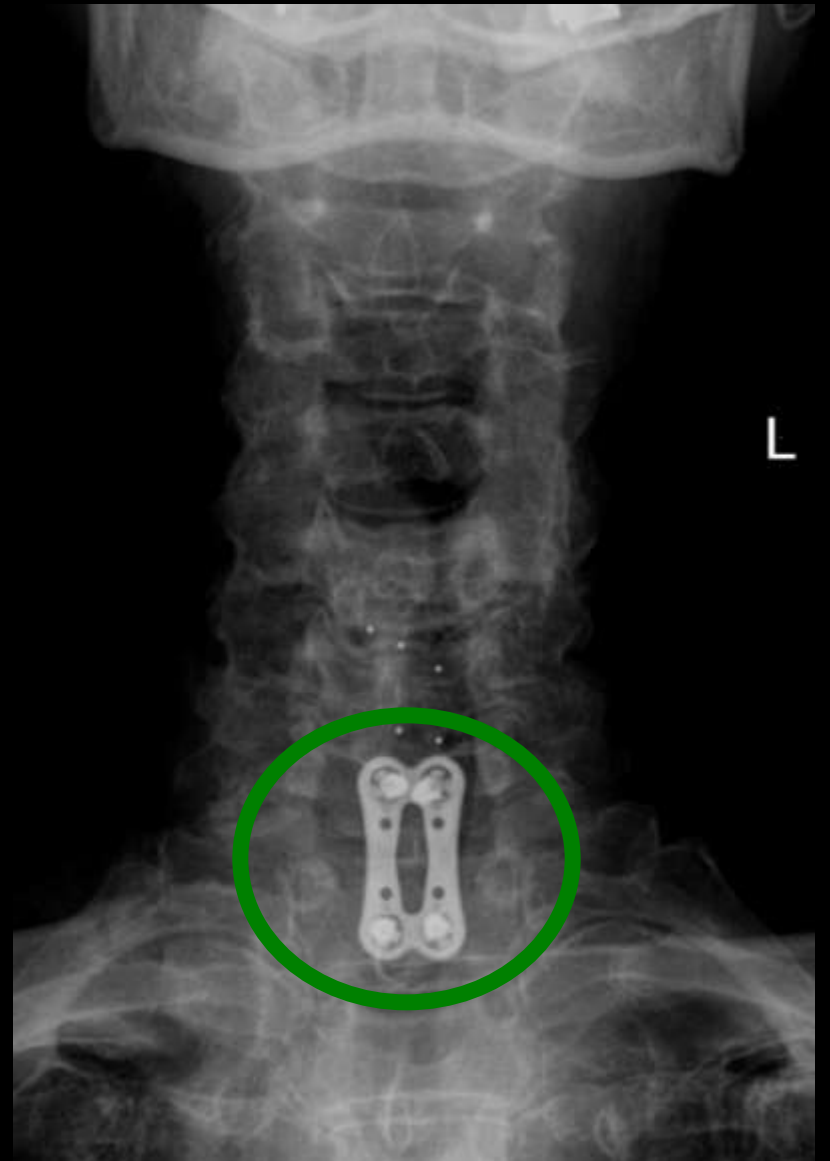
significant difference. Appropriate implant selection and placement appear to be the key factors influencing cage subsidence and secondary kyphotisation of box-shaped, stand-alone cages in anterior cervical discectomy and fusion. Mechanical support of the implant by cortical bone of the anterior osteophyte and maximal cage to end-plate surface ratio seem to be crucial in the prevention of postoperative loss of lordosis. Our results were not able to reflect the importance of end-plate integrity maintenance; the authors would, however, caution against mechanical end-plate damage. Intraoperative overdistraktion was not shown to be a significant risk factor

**Kyphoses**  
**Deformity**  
**Instability**  
**Adjacent Segment to Fusion**  
**Multilevel Disease**



**Cage + Plate**





Cervical spine surgery =



Restore Lordoses





**Danke**

**M. Gabl**

# The association between cervical spine curvature and neck pain

D. Grob, H. Frauenfelder, and A. F. Mannion<sup>✉</sup>

Spine Unit, Schulthess Klinik, Lengghalde 2, 8008 Zurich, Switzerland

A. F. Mannion, Phone: +41-44-3857584, Fax: +41-44-3857590, ; Email: [anne.mannion@kws.ch](mailto:anne.mannion@kws.ch).

<sup>✉</sup>Corresponding author.

Eur Spine J. 2007 May; 16(5): 669–678.

Published online 2006 November 18. doi: 10.1007/s00586-006-0254-1.

[Copyright](#) © Springer-Verlag 2006

# Myelopathy / Stenoses

Degenerative  
Instability



© 2000

