

# Orthopedic Manual Therapy, Kaltenborn- Evjenth Concept

## **2-nd Biennial Conference K-E OMT Ciechocinek Poland 2017**

Hypermobility/Instability of the cervical spine

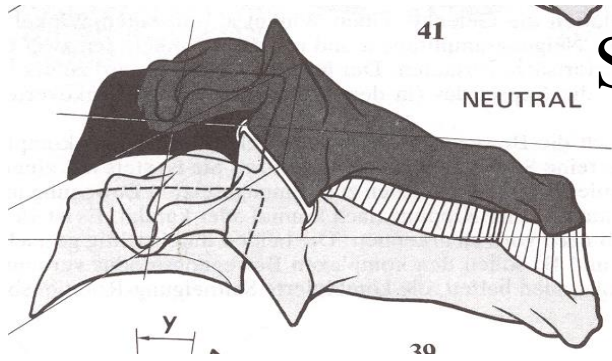
The scientific basis of the therapeutic exercises and motor control/kinetic control



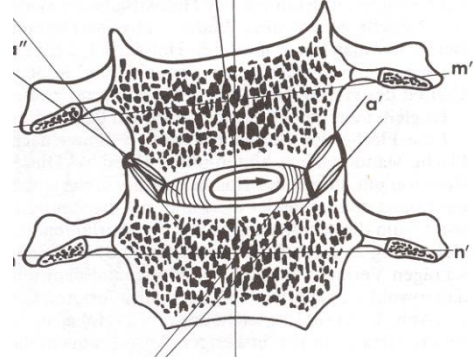


# OMT Kaltenborn-Evjenth Concept

## Stabilizing elements of the cervical spine



1. bone structures



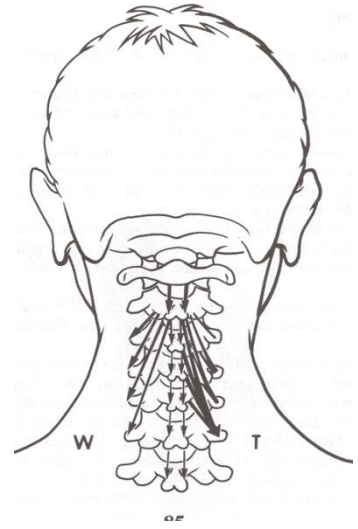
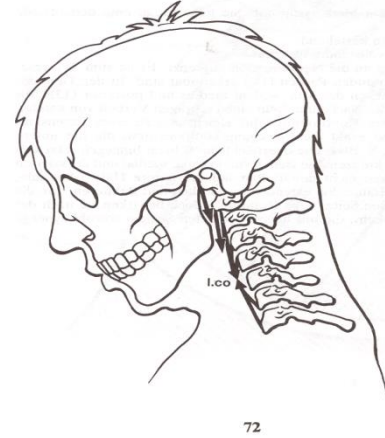
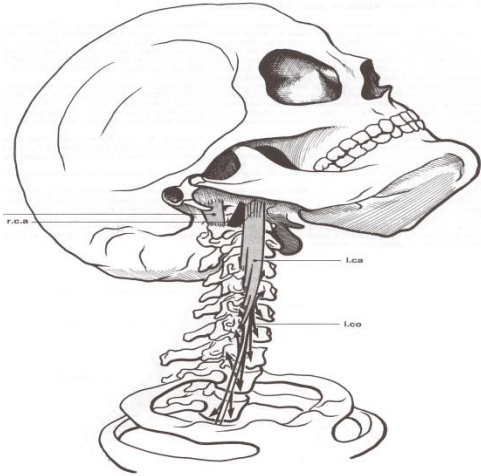
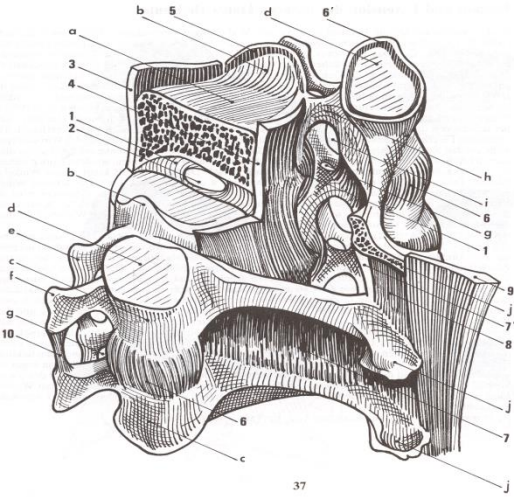
2. disc

3. ligaments

4. local muscles

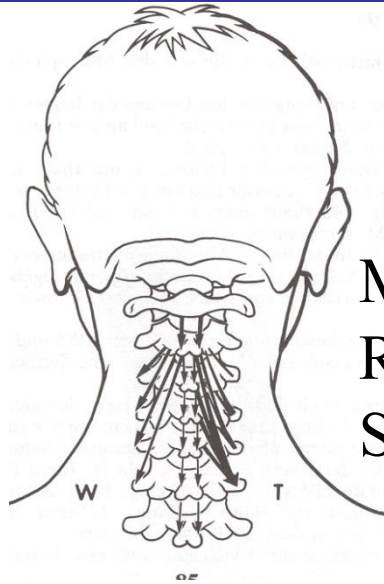
longus colli

multifidus

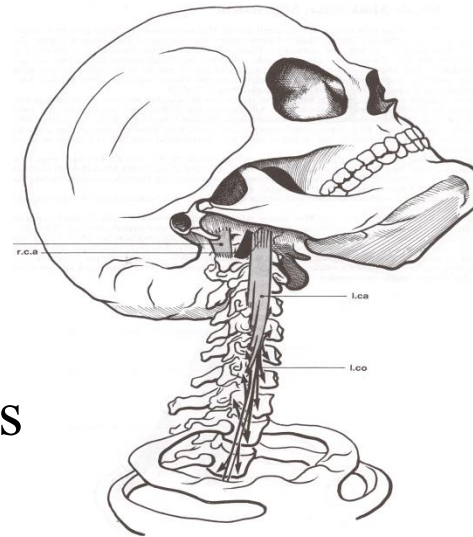




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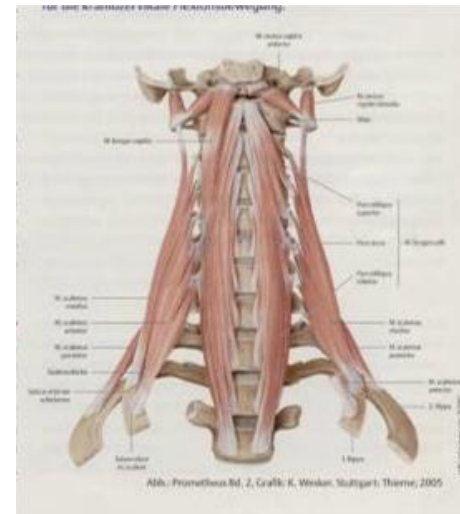
Multifidus  
Rotatores  
Semispinalis cervicis



longus colli  
rectus capitis anterior and lateralis

## the local system

- deep, small, weak, short
- attached directly to the cervical segment
- move the segment
- stabilize the segment
- contract by low intensity exercises

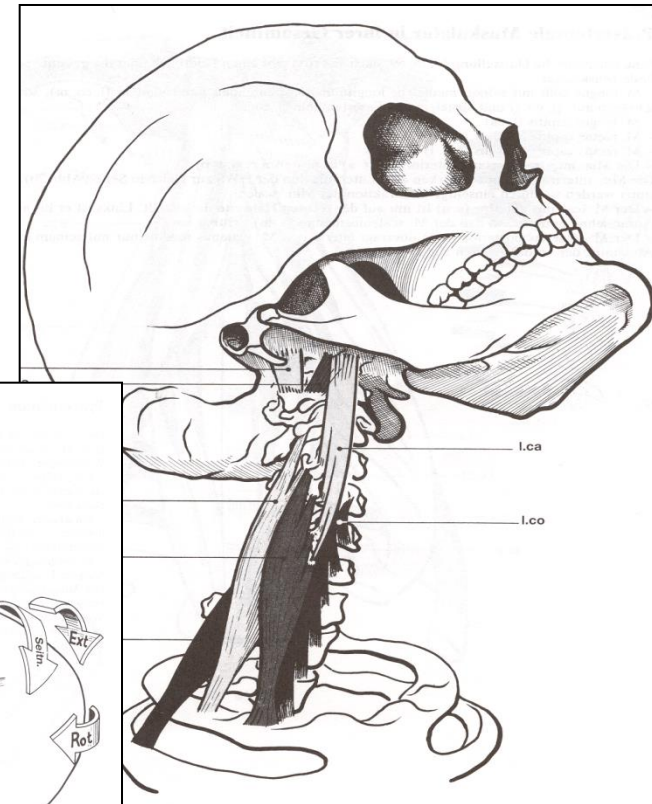
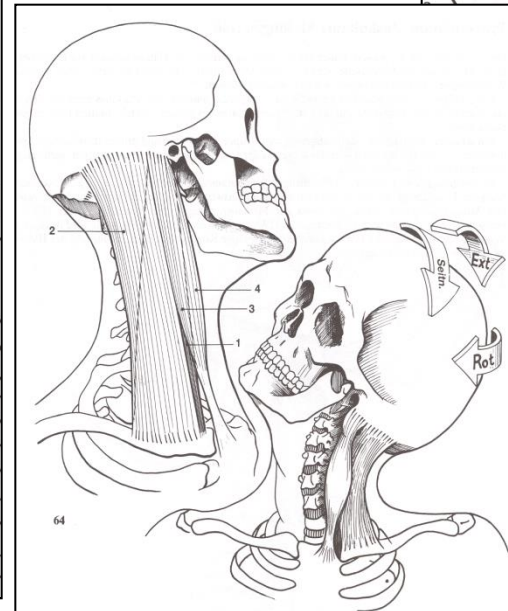
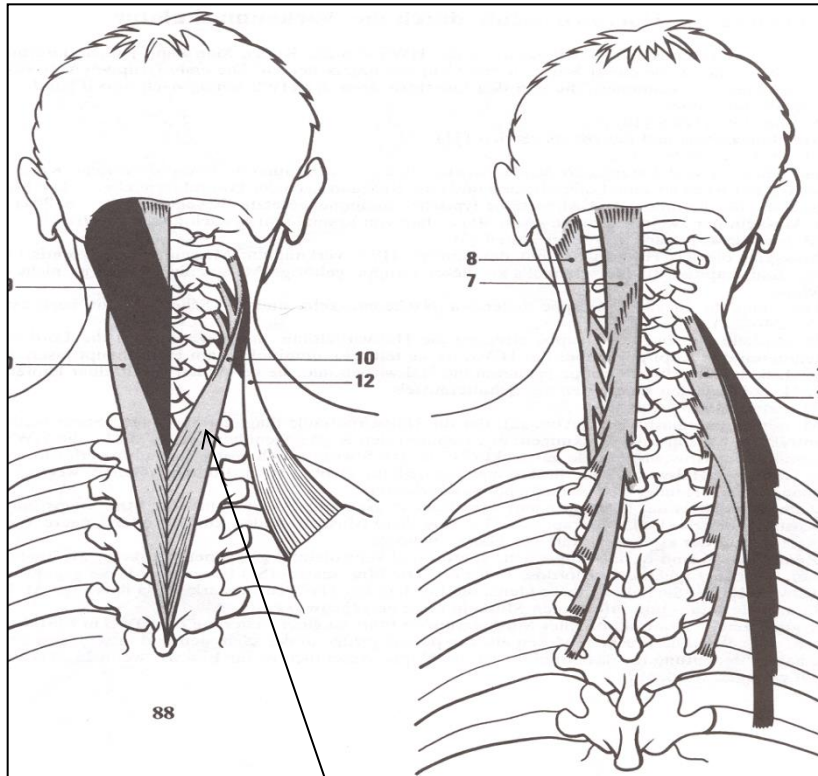




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## global muscles

long, forceful, surface muscles



move the head

stabilize the head against forces from outside

(**Semispinalis cervicis**, Splenius capitis, Semispinalis capitis, +++)



# MRI neck extensor muscles

- **magnetic resonance imaging study of morphometry of cervical extensor muscles (chr. Tension-type headache)**

15 patients and 15 healthy

– showed **reduced cross-sectional area** of the extensor muscles on the 15 patients

- Fernandez-de-Penas C
- Cephalgia, 2007 April;27 (4):355-62



# MRI neck extensor muscles

- **fatty infiltration in the cervical extensor muscles in persistent whiplash-associated disorders: a MRI analysis.**
  - 113 patients and 34 healthy
  - Significantly **larger amount of fatty infiltrat** for all of the cervical extensors muscles, most at C3 by the patients
    - Elliot J, Jull G et al
    - Spine 2006 Oct 15;31 (22):E847-55

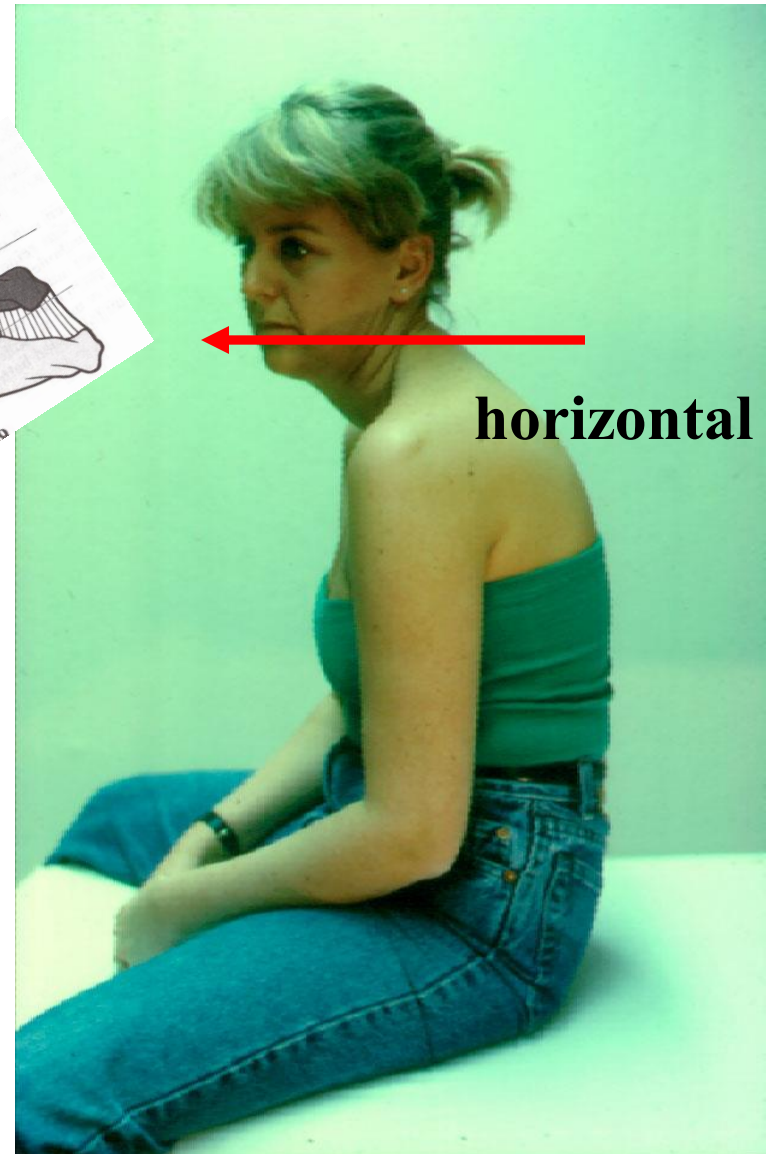
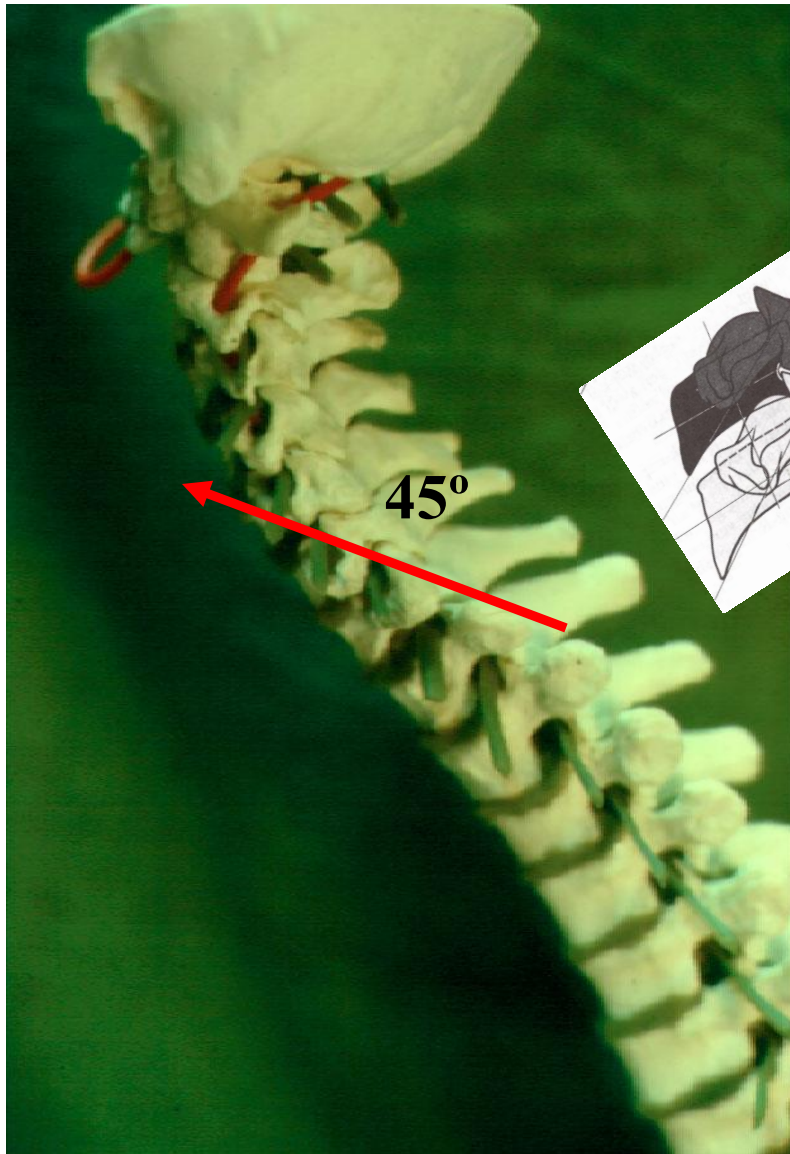


# **Hypermobility**

- Movement always start in the hyper segment
  - Hino et al. Spine 1999



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- The interaction between neck muscle activity and eye position during neck movement has implications for the coordination of neck movement and postural control
- **Catharina Bexander S et al. 2005**



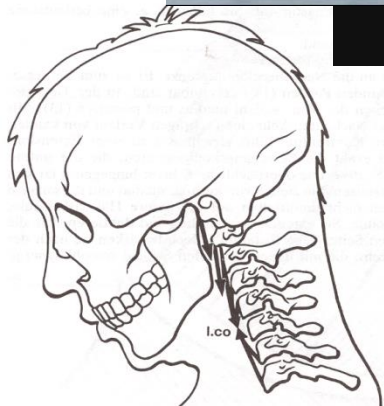
# OMT Kaltenborn-Evjenth Concept



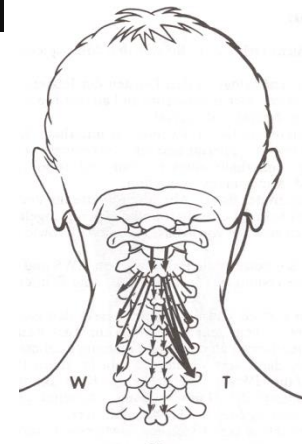
longus cervicis (collis)



multifidi

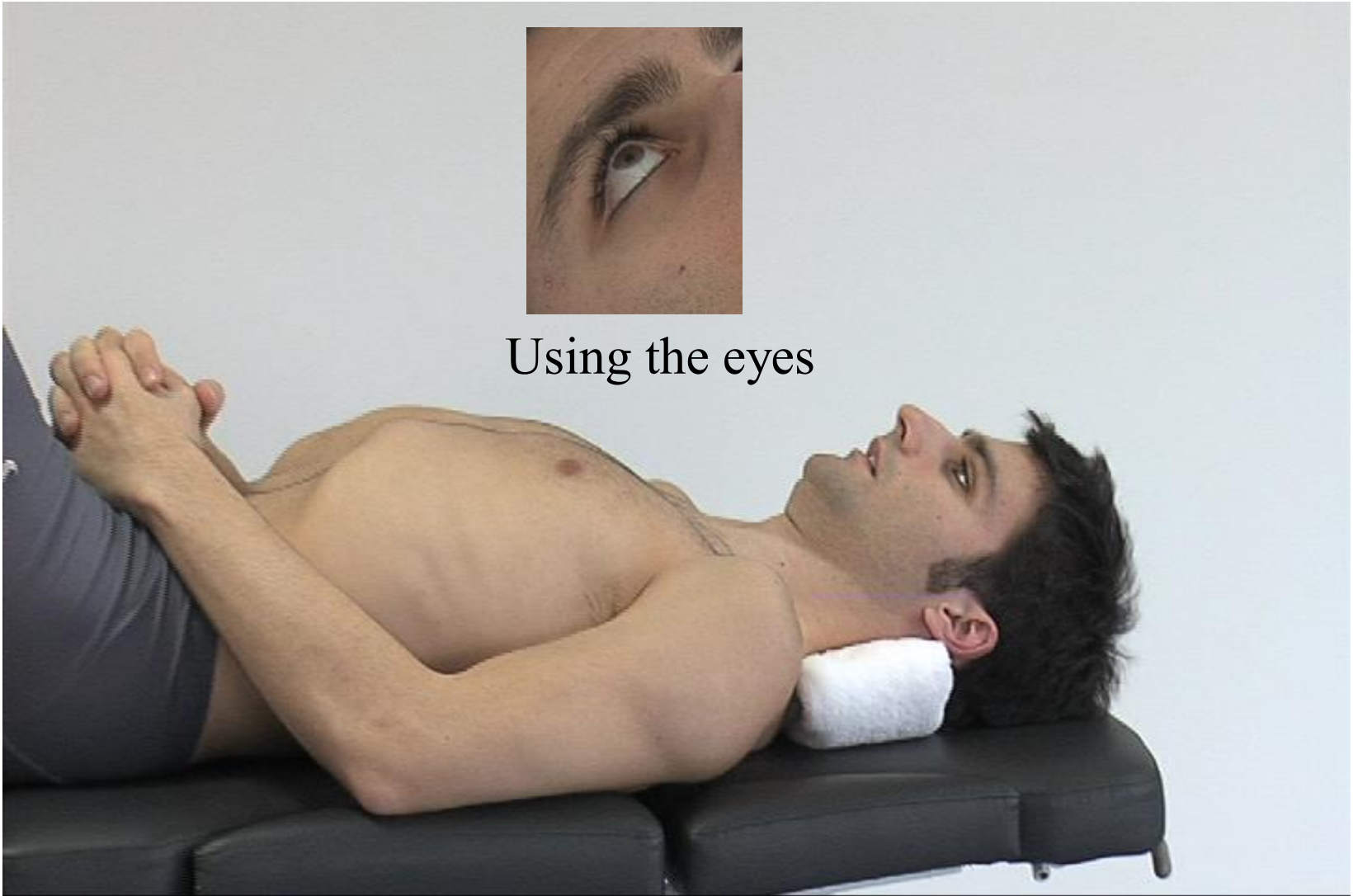


1-32



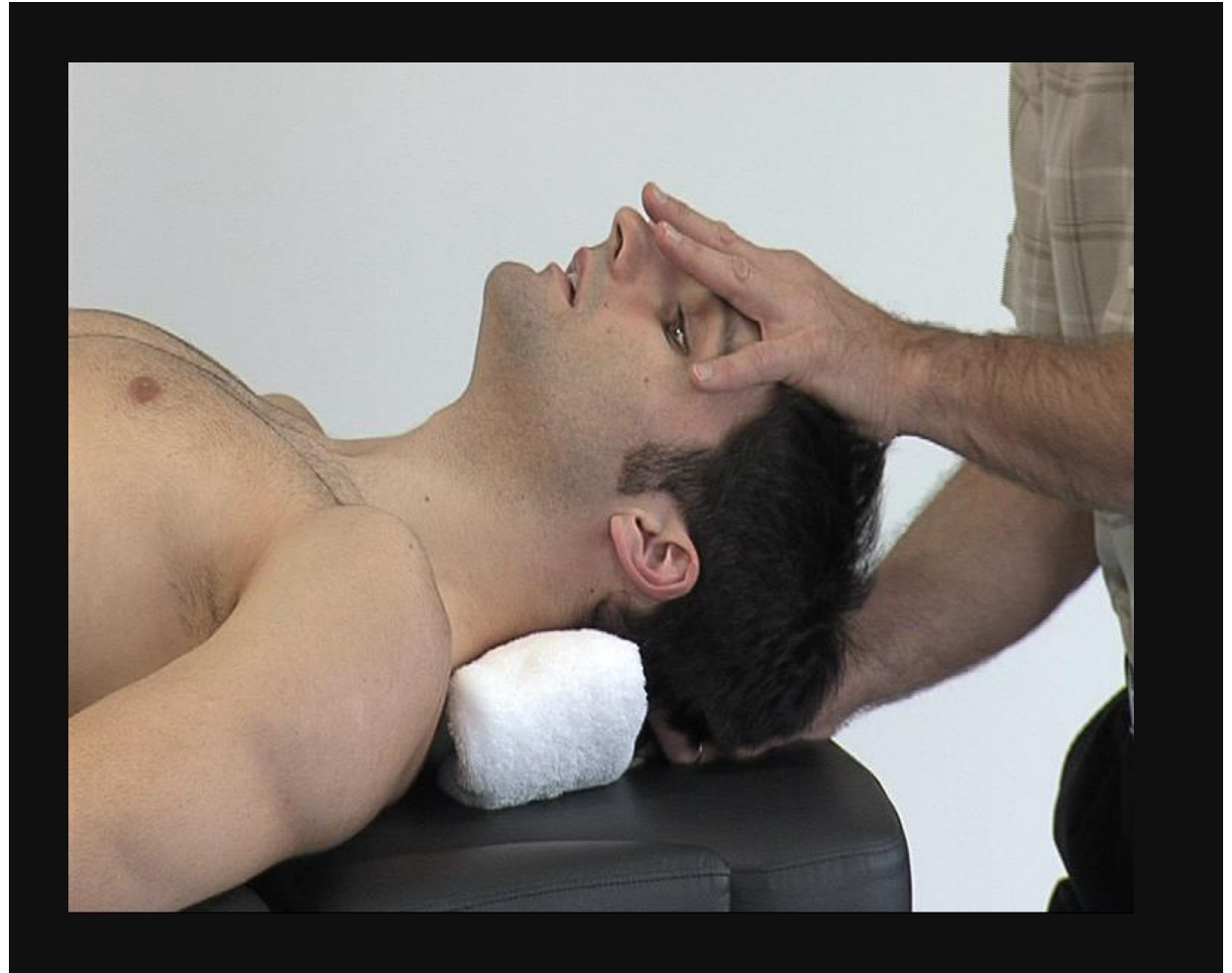
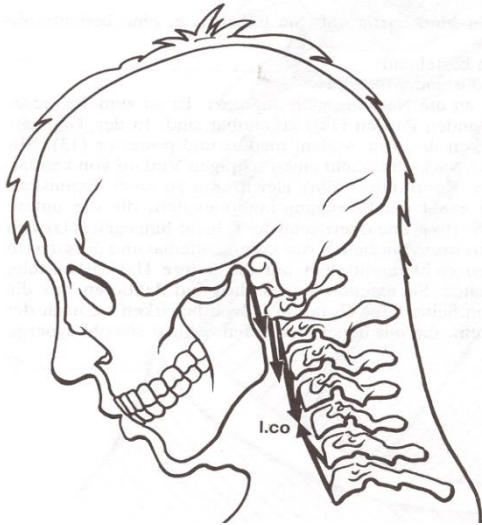


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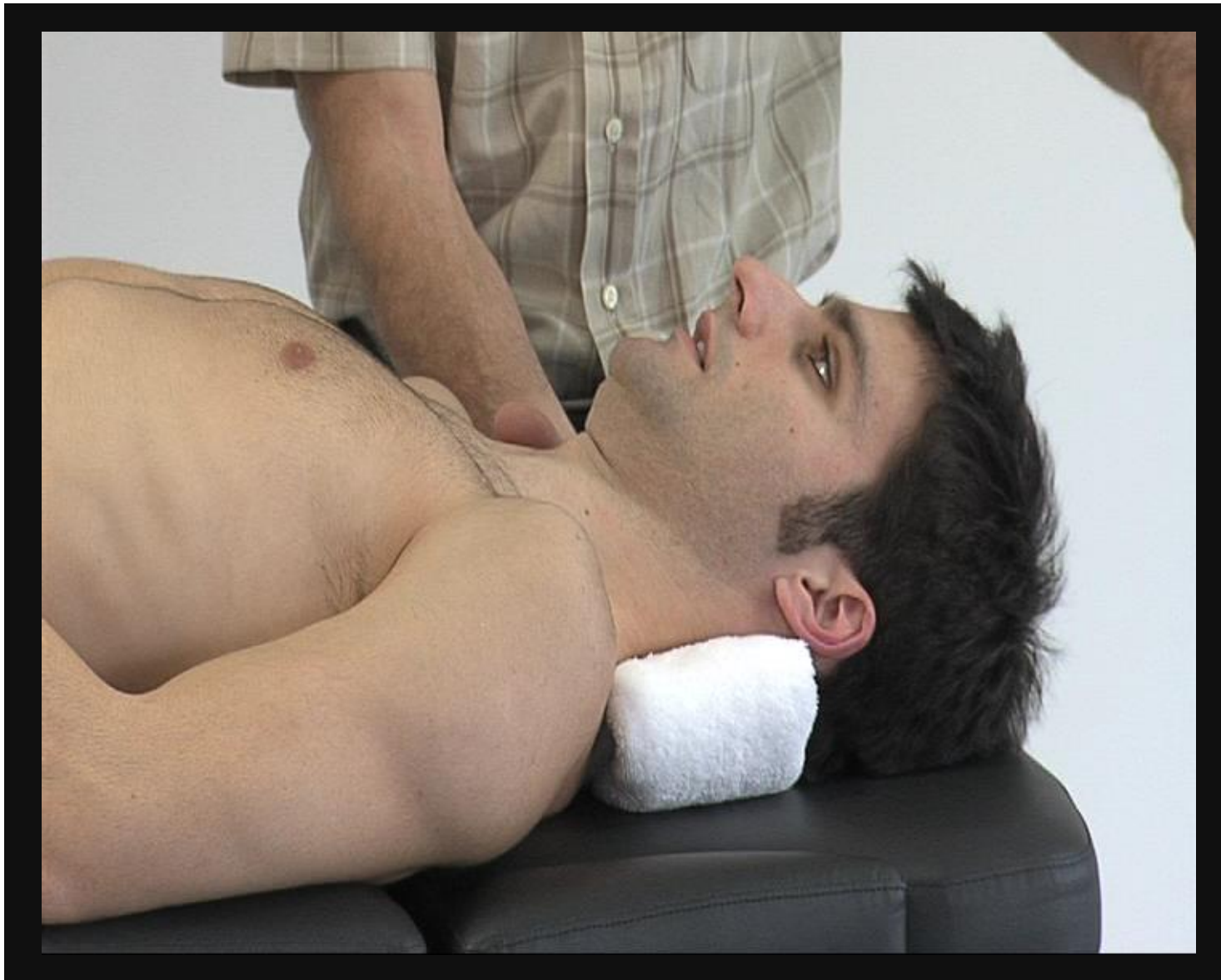
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3-24





# traction

3-28





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3-30

ventralflexion, rotation left and lateralflexion left



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3-34



3-36

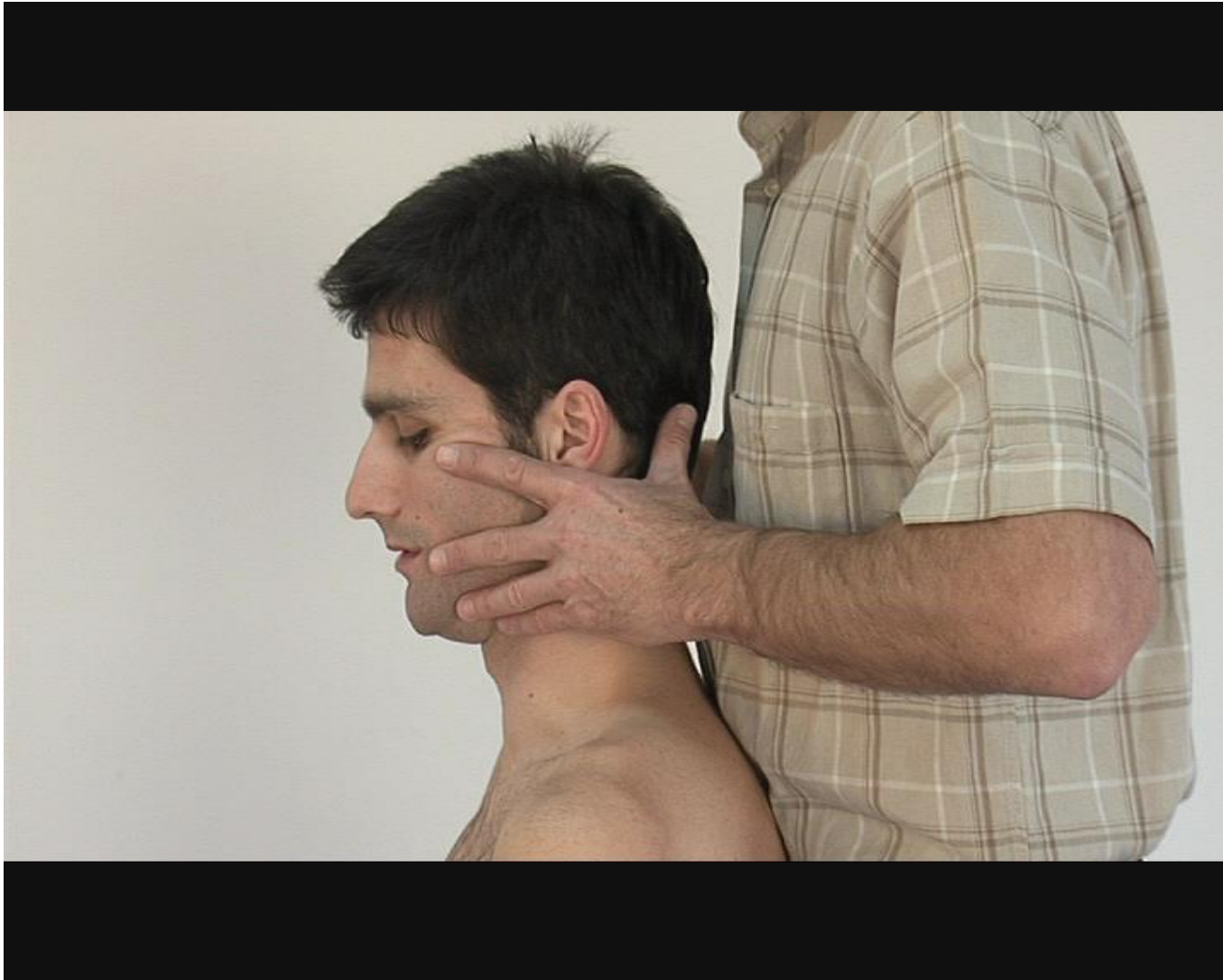


3-35





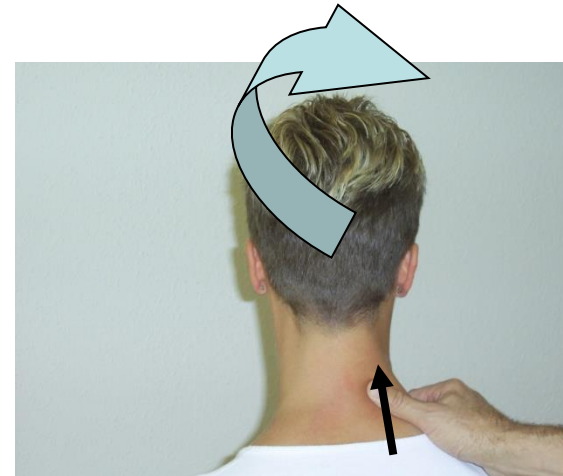
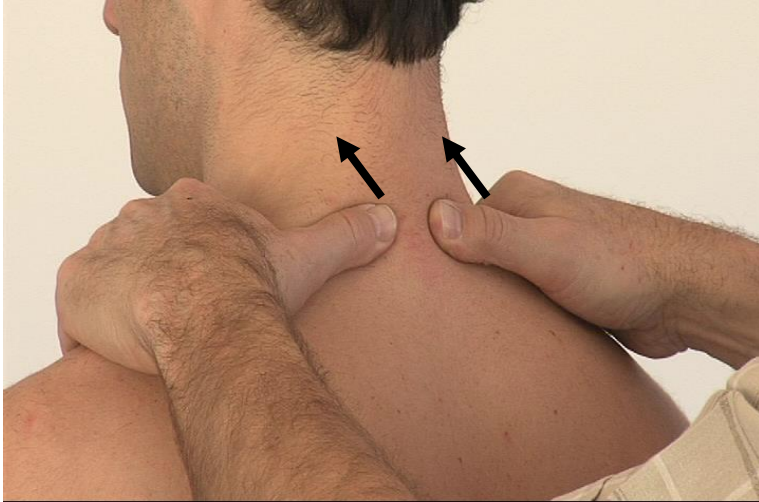
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6-6



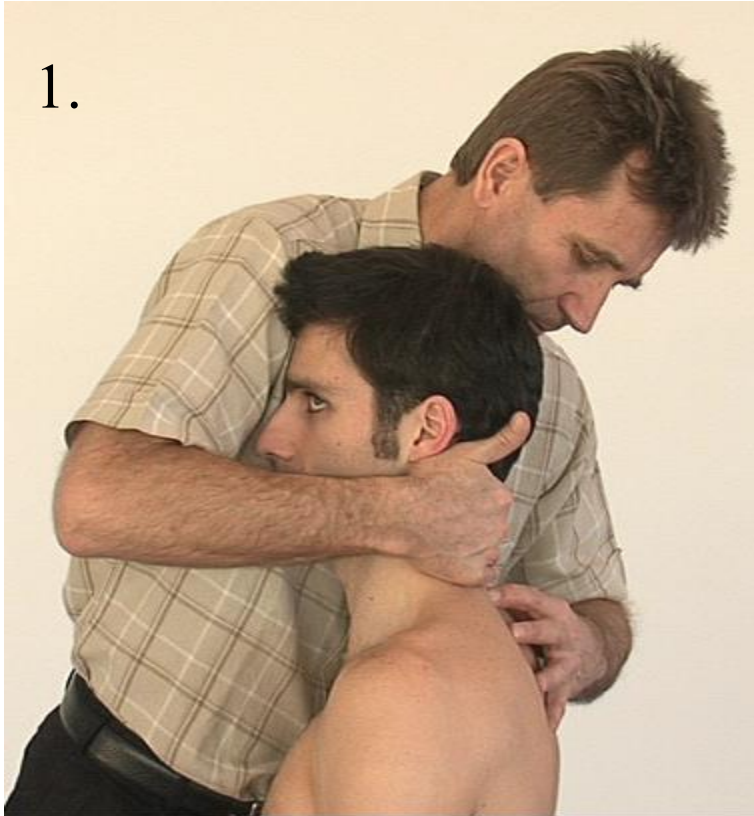
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1.



2.



3.





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# facet traction thoracic spine

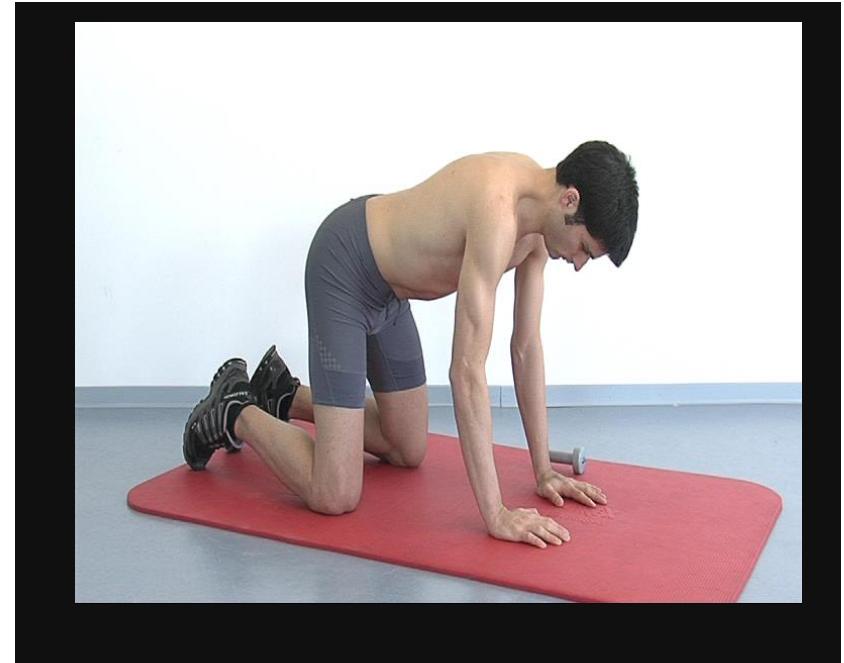
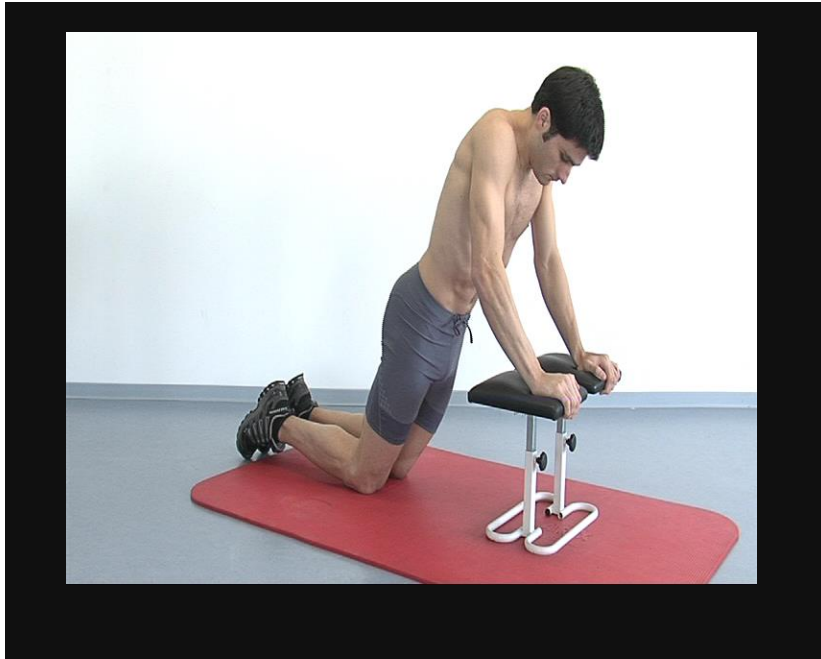


# Kräftigung der oberen BWS





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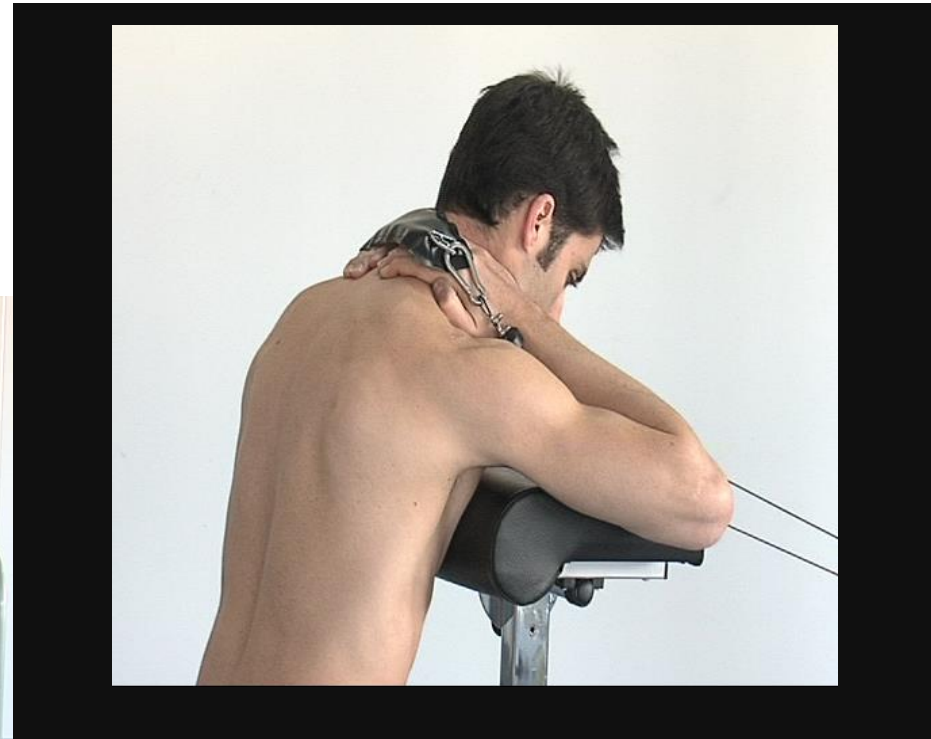




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5-27





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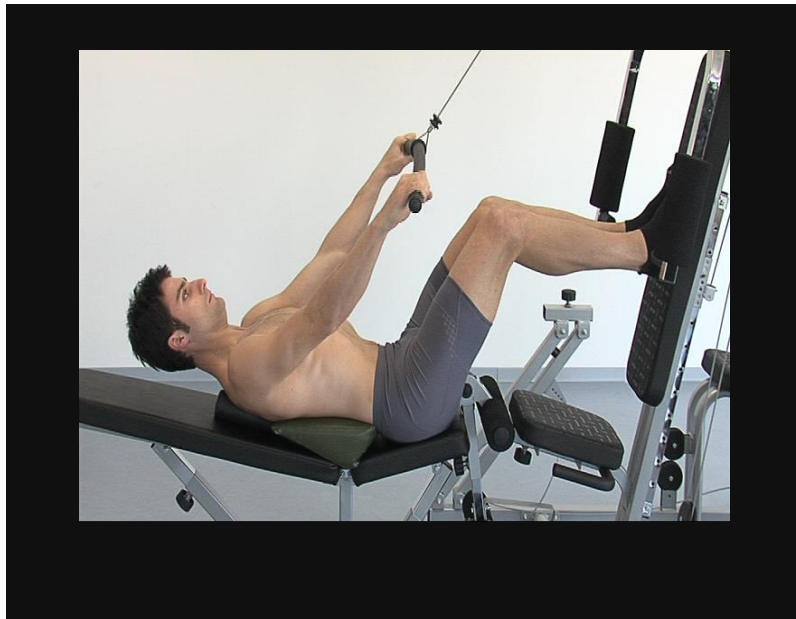




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3-58



3-56



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thank you for listening

