



Stabilität in der Praxis

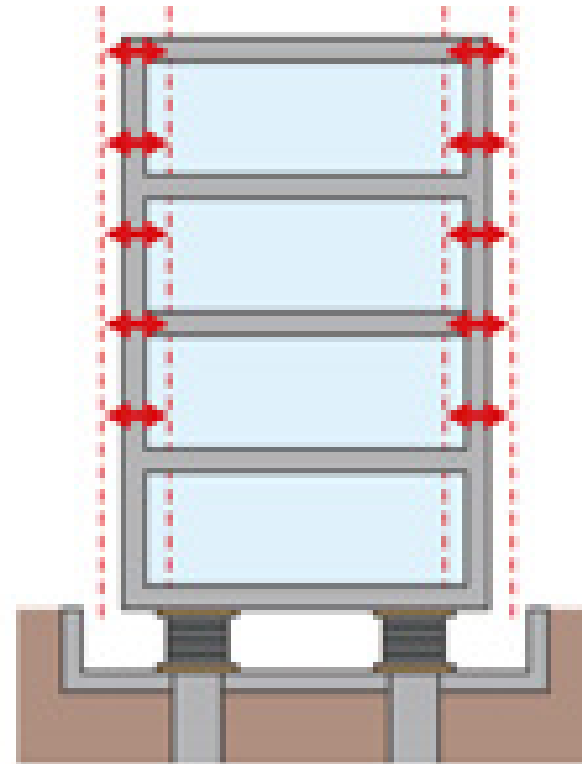
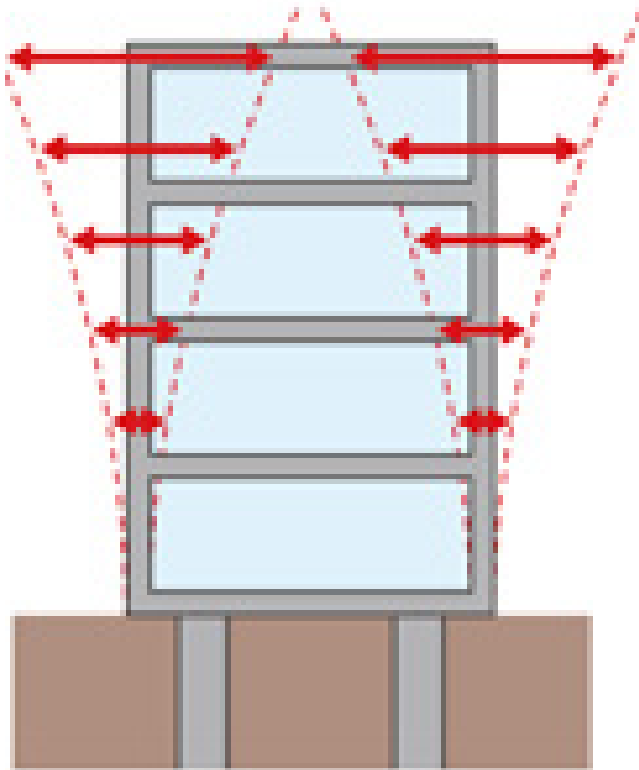
Stefan Lerch, SSMT-Symposium, 23.10.19

Stabil / robust sein, heisst für mich:

- Sich unbewusst,
- schmerzfrei bewegen,
- so wie man will,
- ohne sich dabei zu verletzen.



Erdbebensicher



Optimal motor control involves: Balance between movement & stiffness

STIFFNESS

- Maintain alignment
- Control translations

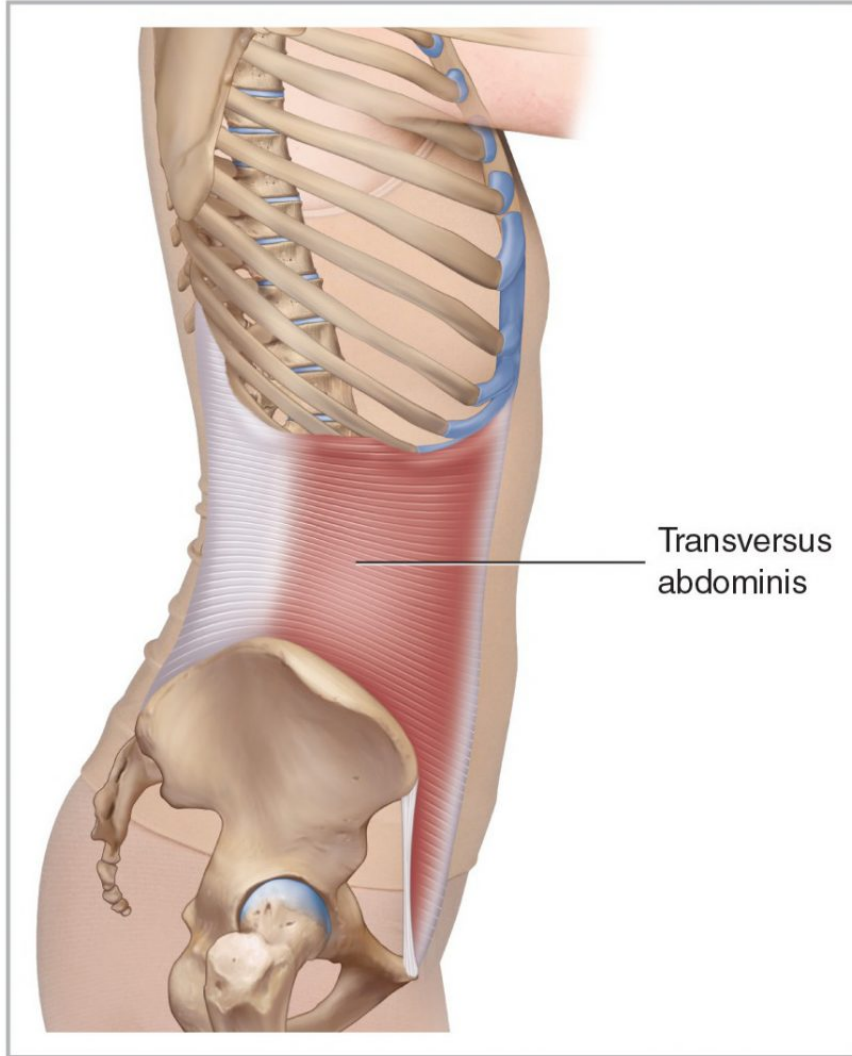
MOVEMENT

- Motion for function
- Motion for shock absorption/force damping
- Motion for load transfer
- Distribute load between adjacent segments (spine regions, limbs) for load sharing
- Variation - necessary for load sharing

Stabil $\neq$ steif, starr, fest, fix ...

- **Kontrolle** von Kräfte





Bauch anspannen oder einziehen

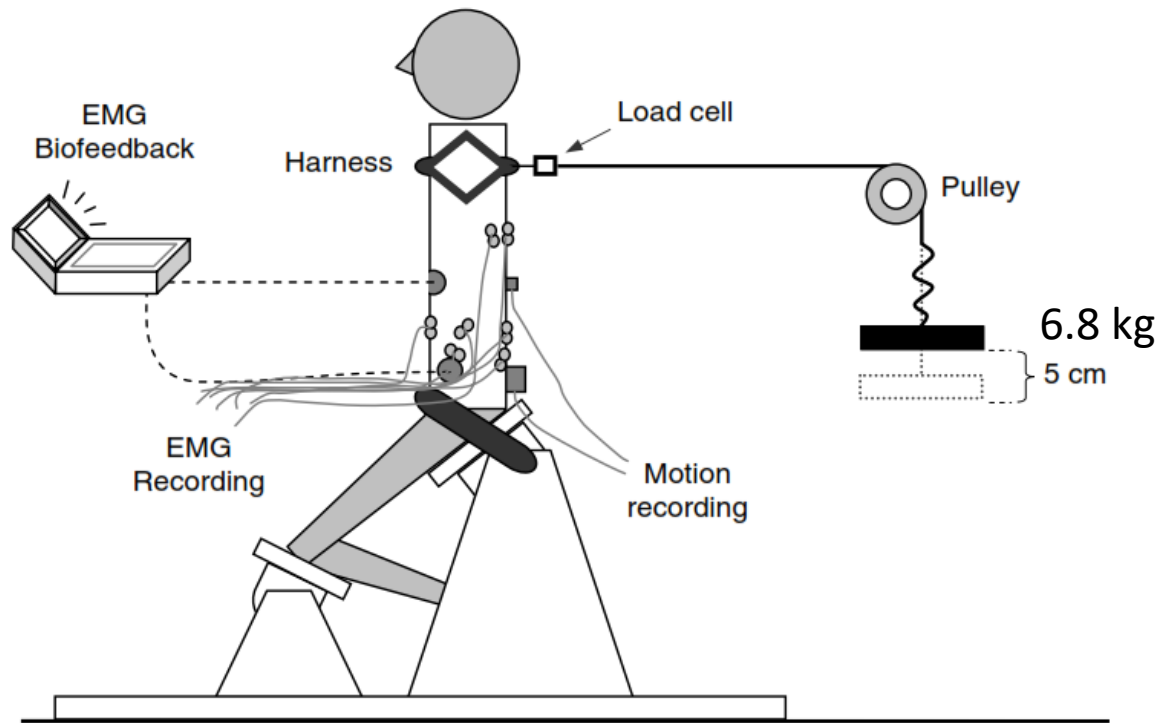
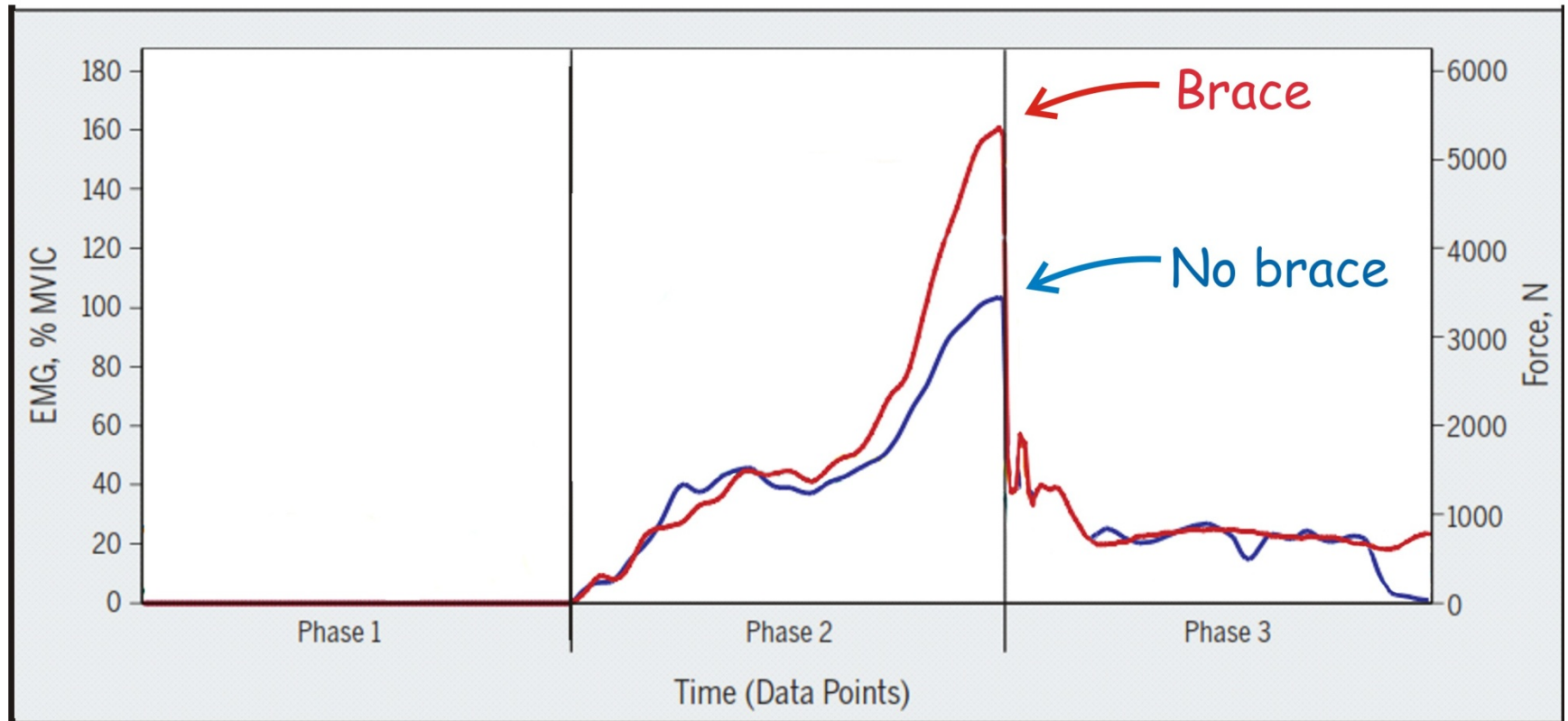


Fig. 1. Experimental set-up for generating sudden posterior loading.

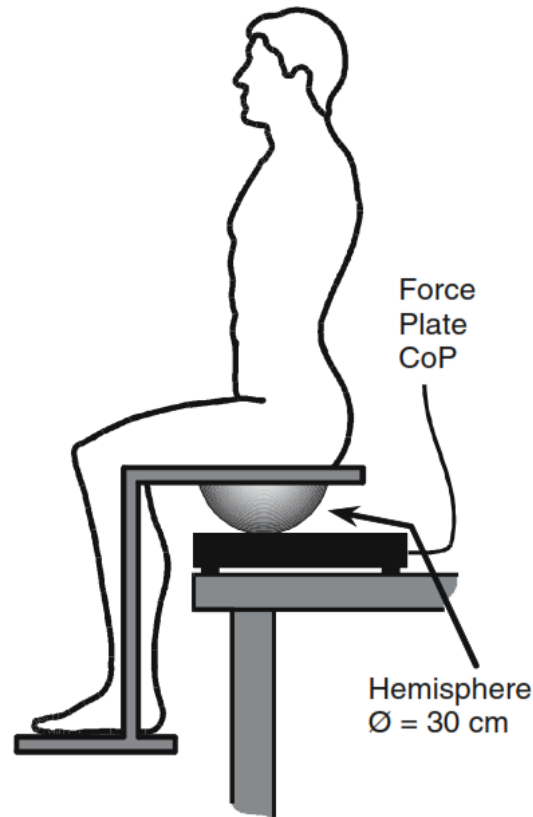
Francisco j. Vera-Garcia et al. **Effects of abdominal stabilization maneuvers on the control of spine motion and stability against sudden trunk perturbations.**
J of Electromyography and Kinesiology 2006

Anspannen?!



Amity Campbell et al., **Abdominal Bracing Increases Ground Reaction Forces and Reduces Knee and Hip Flexion During Landing**, JOSPT 2016

Anspannen verändert die Haltungskontrolle



Reeves NP et al., **The effects of trunk stiffness on postural control during unstable seated balance**, Exp Brain Res 2006

Robustheit heisst:

- Unbewusste
Körperkontrolle



Komplexes System Mensch

- Genetic
- Erkrankungen, Medikamente
- Fitness
- Lifestyle, Schlaf
- Alter
- Umwelt
- Psyche

Worte = Bilder

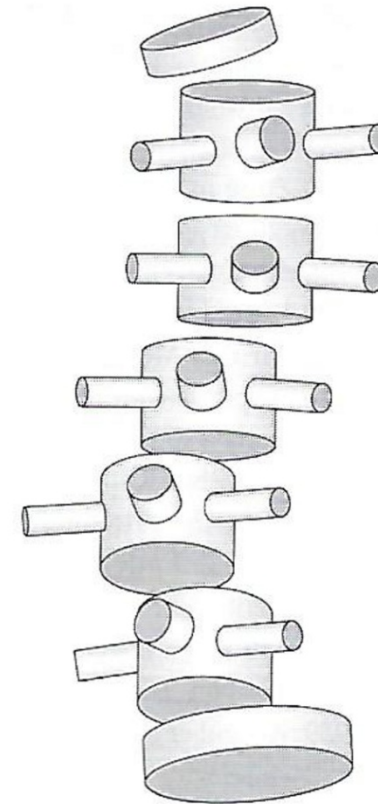
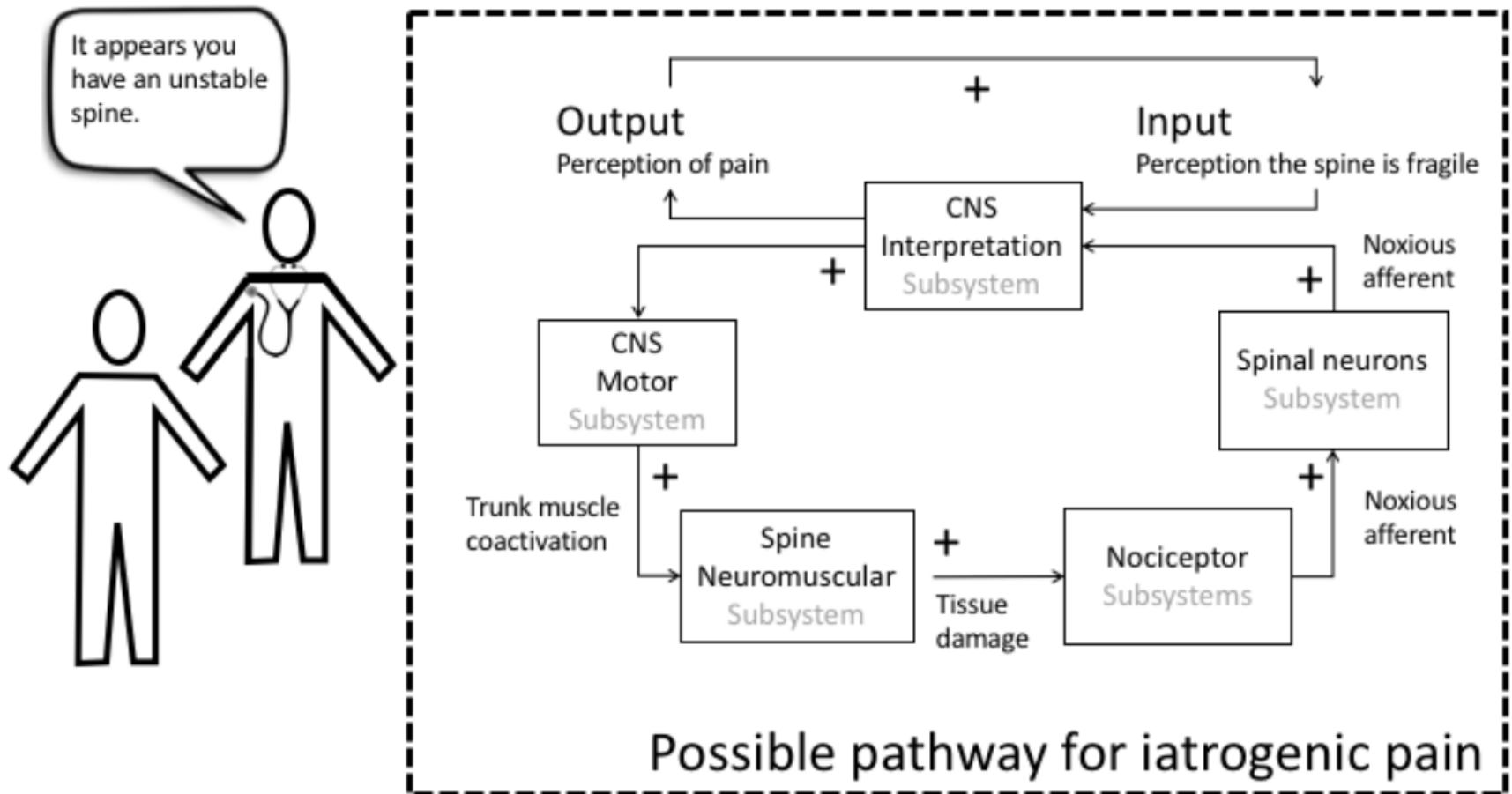


Abb. 2.12 Mangel an intersegmentaler Wirbelsäulenkontrolle (modifiziert nach Gardner-Morse et al. 1995).

Angst! Aufpassen! Vermeiden!





Reeves NP, Cholewicki J, van Dieen JH, Kawchuk G, Hodges PW, **Are stability and instability relevant concepts for back pain?** JOSPT (preprint) 2019

Worte = Bilder = Glauben = Verhalten

- Worte können Einfluss auf die Robustheit haben



- Welche Übungen und Konzepte

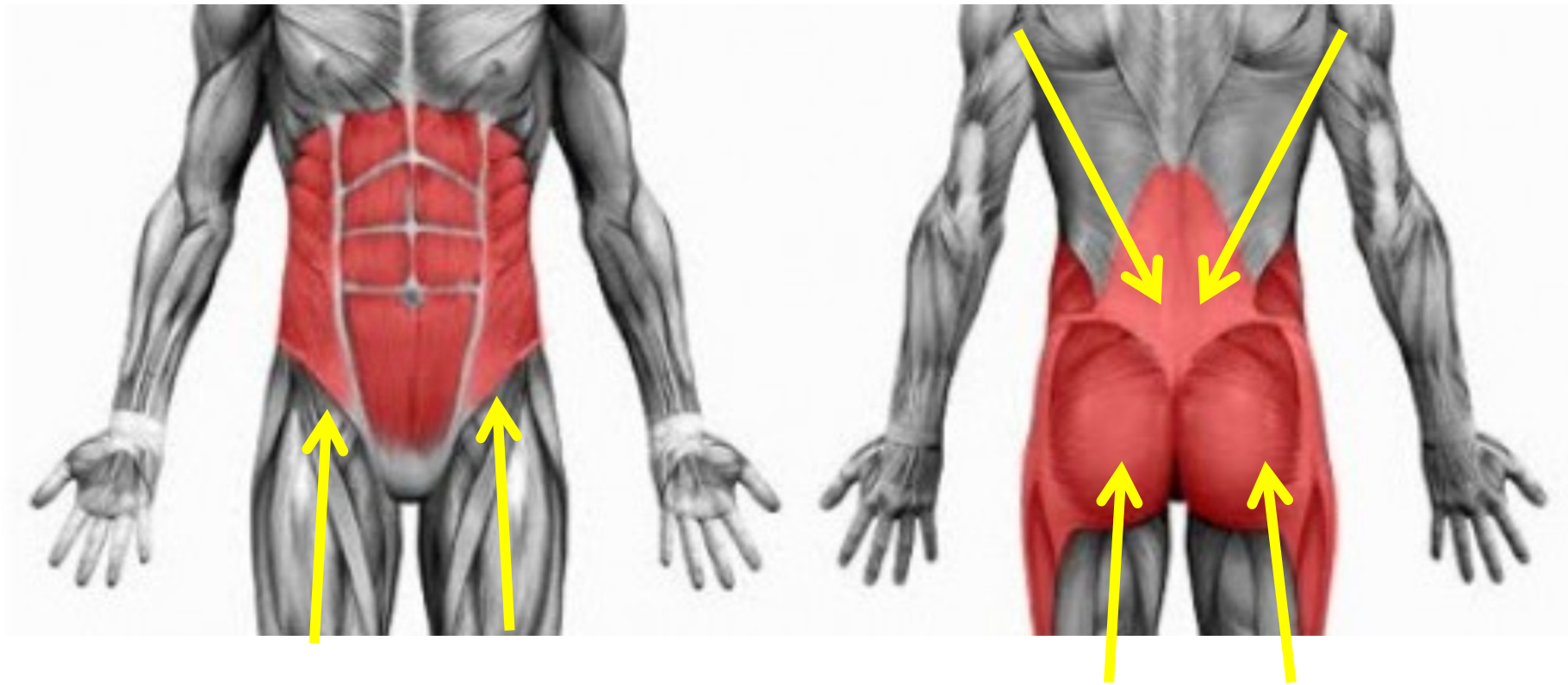


Keine überlegene Methode!

Weil der **Beweis fehlt**, dass eine **bestimme Form von** Übungen besser ist als die andere, empfehlen Richtlinien die **individuellen Bedürfnisse, Vorlieben und Möglichkeiten** in die Entscheidung einzubeziehen.



Lumbo-Pelvic-Hip Complex / Core / Rumpf

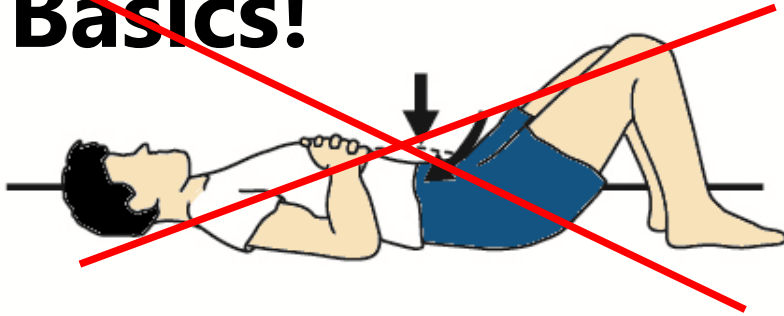


= Rumpfstabiübungen



„Core Stability Training“ macht kein Sinn

**Ganzkörperprogr
mm
in allen Ebenen!
Basics!**



Wirth K et al., **Core Stability in Athletes: A critical Analysis of Current Guidelines**, Sports Med 2017

Prieske O et al., **The role of trunk muscle strength for physical fitness and athletic performance in trained individuals: a systematic...**, Sports Med 2016

Google



Plank?!?!



- Junge Athleten 2- 4 Min Plank
- Aber keine Kniebeuge, Lunge, Stossen usw.

Der „Rumpf“ – ein Glied in der Kette



Die CorpoSana Trainingsphilosophie

Das Ziel ist die:



Die Geschichte von Peter

- Jg. 2004, Tennis 10 Std/Wo
- Atypischer Morbus Scheuermann L5-S1
- Deckplatteneinbruch S1
- Korsett
- Therapie: Caius Schmid, Jochen Ganzmann
- Training: 3 TrPläne – 6 Trainingseinheiten

Basics – isometrisch, lokal



Von Beginn an alle Ebenen, stehend





CableWalk_X @

copyright by Stefan Lerch

Die Geschichte von Heidi

- Jg. 2005, intensiv Tennis
- milde Form Morbus Osgood Schlatter
- on/off Knie Schmerzen li / re
vor allem im Match, selten im Training
- Therapie: Caius Schmid
- Training: 2 TrPläne – 4 Trainingseinheiten

Basics - lokal



Wissenschaft



Literatur

Reeves NP, Narendra KS, Cholewicki J, **Spine stability: the six blind men and the elephant**, Clin Biomech (Bristol, Avon) 2007

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Mew Rosie, **Comparison of changes in abdominal muscle thickness between standing and crook lying during active abdominal hollowing using ultrasound imaging**, Manual Therapy 2009

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Lee BCY, McGill SM **Effect of long-term isometric training on core/torso stiffness,** J Strength Cond Res 2015

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Renshaw I, Davids K, et al., **Evaluating Weaknesses of „Perceptual-Cognitive Training“ and „Brain Training“ Methods in Sport: An Ecological Dynamics Critique,** Front. Psychol. 2019

Kevin J. McQuade et al. **Critical and Theoretical Perspective on Scapular Stabilization: What Does It Really Mean, and Are We on the Right Track?,** Phys Ther 2016