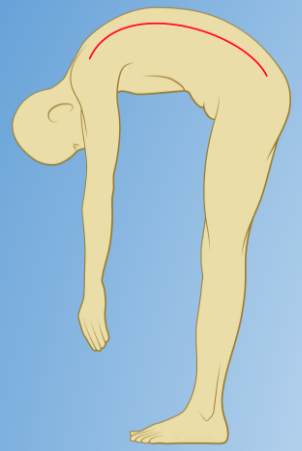
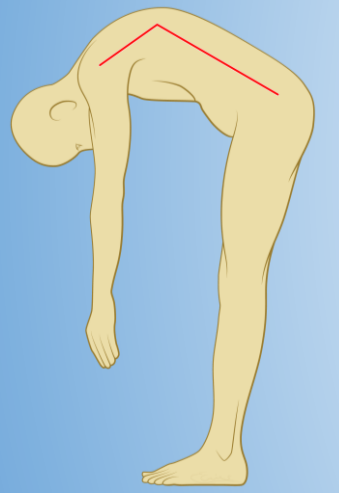




Unhealthy sagittal profiles (posture) and serious (neuro) -muscular thightness in Dutch youth

Piet JM van Loon
Ruud HGP van Erve
Andre Soeterbroek
Daniek Bakker

care to move
centrum voor bewegingsdiagnostiek en behandeling

ETTY HILLESUM LYCEUM

Houding Netwerk Nederland

Disclosure of speaker’s interests

(Potential) conflict of interest	**None**
Potentially relevant company relationships in connection with event	**None**

Childrens locomotor (and nervous) system at risk by sedentary lifestyle in childhood

Classic Orthopedics (Nicolas Andry):

Prevent deformities! Natural posture protects against (early) degeneration: avoid passive sitting

Classic physical education (Per Henrik Ling):

Prevent malalignement during growth by excersise to get a durable locomotor system with a healthy posture


L'ORTHOPÈDIE
OU
L'ART
DE PREVENIR ET DE CORRIGER
DANS LES ENFANS,
LES DIFFORMITÉS DU CORPS.
TOME PREMIER.
M. DCC. XLI.

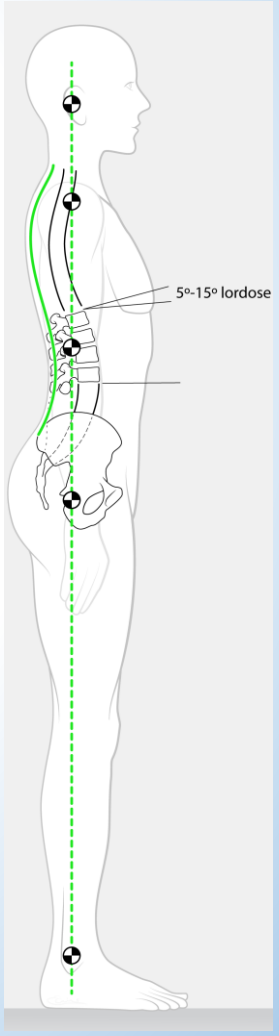
1741

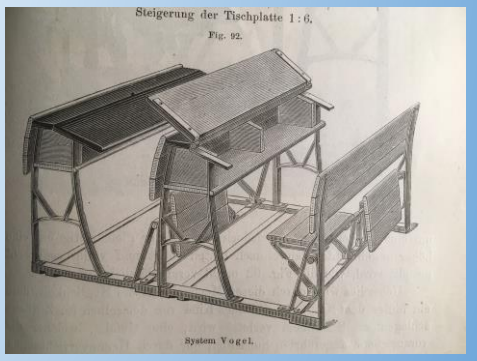
Highly actual!!!

How and why did knowledge disappear??

FORM follows FUNCTION and vice versa also indisputable in musculoskeletal conditions!

- "Idiopathy" in skeletal deformation is very much about lifestyle dependant set of biomechanic external factors (epigenetics)!
- Growth is regulated by tension to achieve optimal propriocepsis/ balance
- Biomecanics: think in interconnected systems
- Odd: Definition of natural alignment given by da Vinci disappeared in daily practice



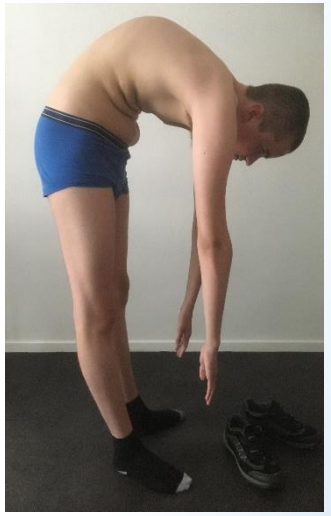


Orthopaedic design!!

FORM FOLLOWS FUNCTION!
Implicates: DEFORMATION FOLLOWS DISFUNCTION!

- Own praxis: All patients show the combination of deformation, inflexibility and pain in clinical examination
- Fact: Dutch youth is European champion in sitting

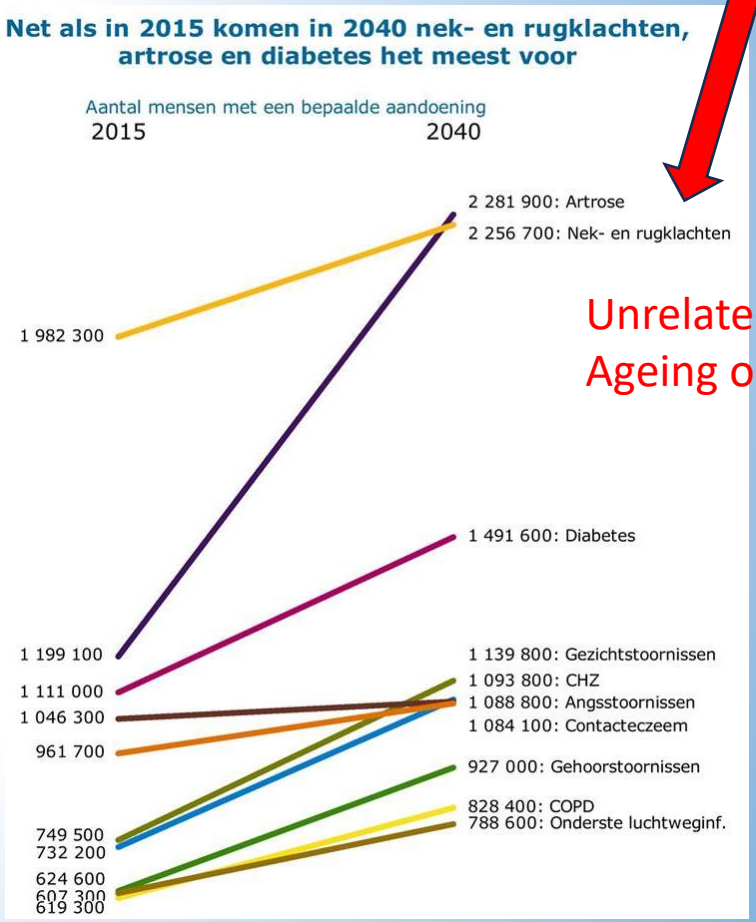
SO: there must a lot of deformation, inflexibility and pain in Dutch youth → own study



TENSION and PAIN

Is there a problem with growth and alignement in the Netherlands??

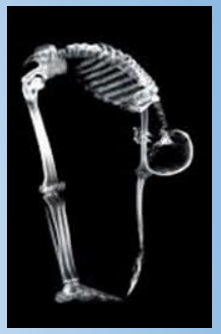
- Dutch Army: 60 % dropouts in training!
- Dramatic increase of “Pelvic floor problems”in Dutch pregnant women (>45%!)
- Dramatic rise in Dutch Registries of backpain and arthrosis (No1 in Socioeconomic Burden of Diseases)
- Dramatic rise in (sports)injuries in adolescents



Unrelated to Ageing only!

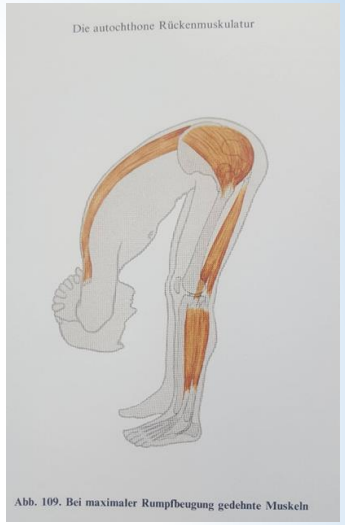
Own pilot in a schoolcohort 248 children 14-18 yr.

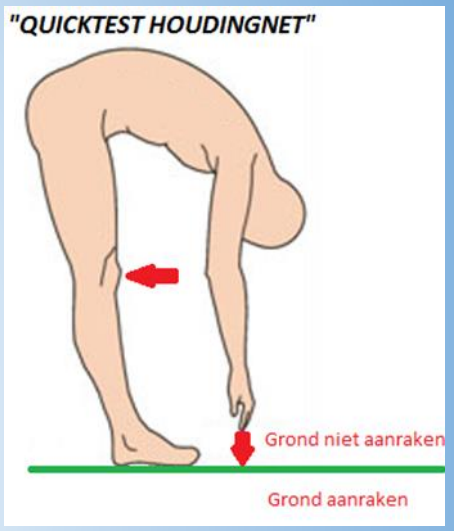
- Femoral tibial angle: hamstring tightness measurement
- Ankle dorsoflexion (2 positions of knee): Calf/Achilles tendon tightness measurement
- Finger Floor test (at bending test); YES / NO (historic data comparison USA vs Germany 1954)
- Photo sagittal profile at FFT/ bending
- Questionnaire on sport-activity

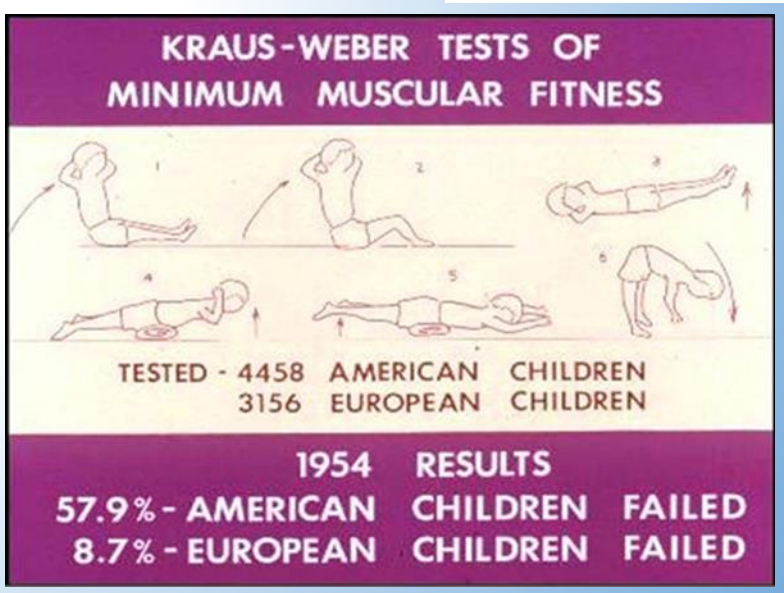


Finger Floortest (knock-out test) highly dependant on length musclefascia complex

- 59,7% failed to reach the floor!
- Bilateral hamstring tightness was present in 62.1%.
- Added: unilateral tightness in 18.2%.
- Achilles tendon tightness in both legs was present 59.3%.
- Unilateral short calf muscle-tendon thightness in 19, 4%.
- The correlation of the Finger Floor Test with tight hamstrings is 73.2%.





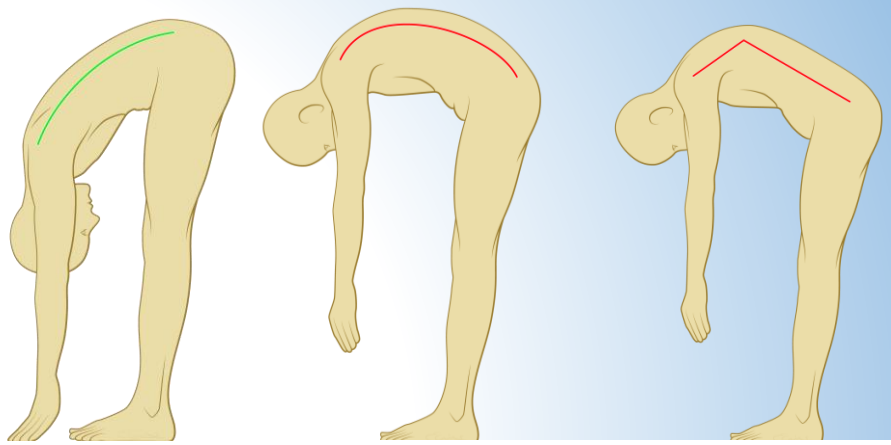


NOV NOF 2024

No classification (yet) of Posture /sagittal profile in bending

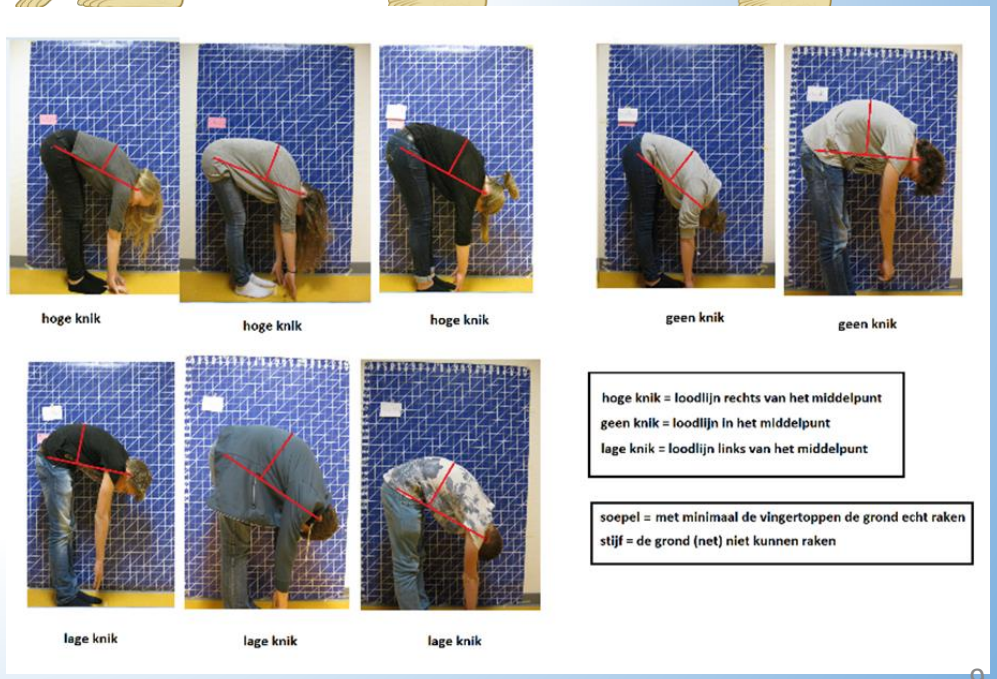
Except in textbooks(acc. to Moe):

- Angular Kyphosis
- Arcuate (hyper)Kyphosis



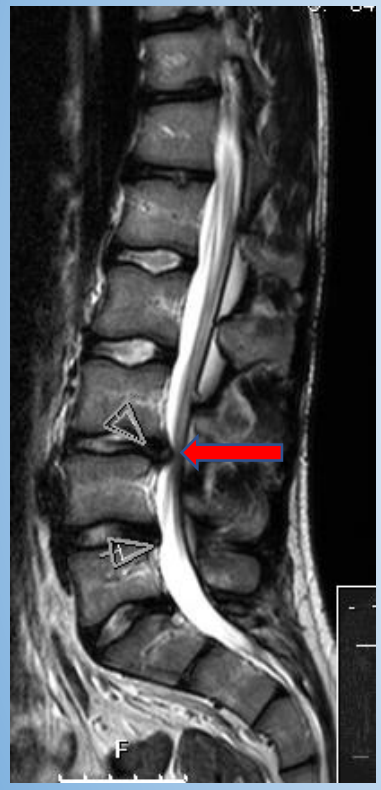
This study:

- In general : about 60 % unhealthy curves, but **in 32 % agreement on absolute pathological curves**

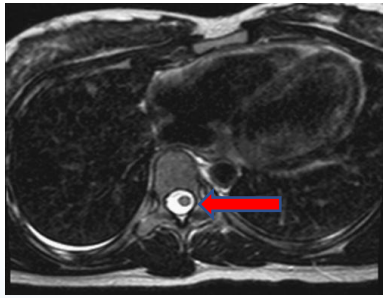


Osteoneural Growth Relations scientific base of growth

(prof. Milan Roth, neuroradiologist; Brno; 1923-2006)



Boy 15 year, "bad posture"



Girl 17 year, scoliosis

Springmodel scoliosis

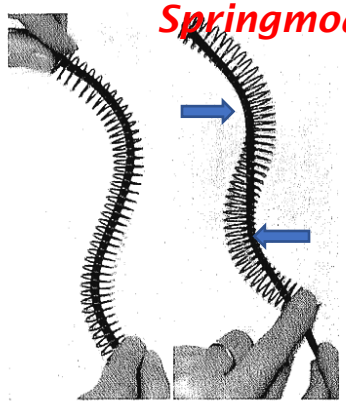


Abb. 9 a Abb. 9 b

Abb. 9. Schwungfeder als „Spinalkanal" („Wirbelbogenreihe") mit einer Schnur als „Rückenmark" im Innern. Eine skoliotische Deformation der Schwungfeder kann entweder durch eine äußere Gewalteinwirkung (a) oder durch Zug am „Rückenmark" (d. h. durch seine relative Verkürzung gegenüber dem „Spinalkanal") hervorgerufen werden (b). Das unterschiedliche Verhalten des Rückenmarkes im Spinalkanal in (a) und (b) ist besonders zu beachten (vgl. mit Abb. 8 b und 5 b)

Springmodel kyphosis

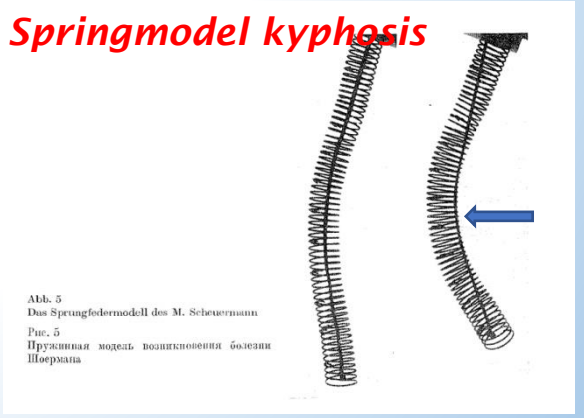


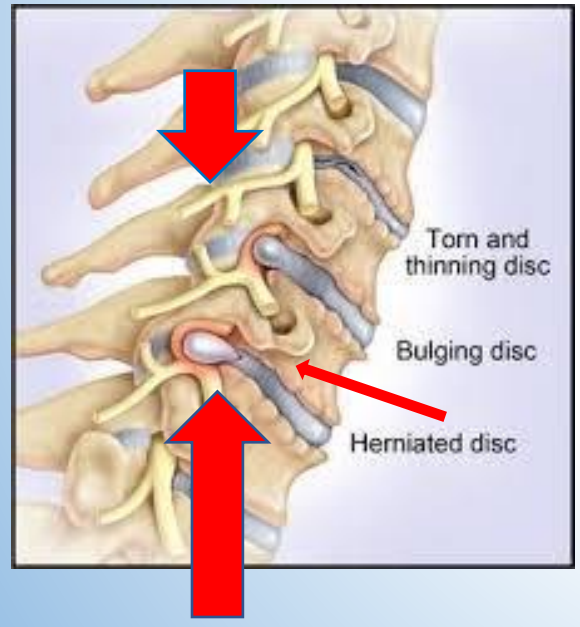
Abb. 5
Das Springfedermodell des M. Scheuermann

Рис. 5
Пружинная модель возникновения болезни Шеермана

His work on **my** ResearchGate profile

Presence of (most) musculoskeletal conditions dependant of the posture you reach in childhood

Overload and shearloads on discs in postural deviations (malalignment)



Herniated disc

CONCLUSIONS

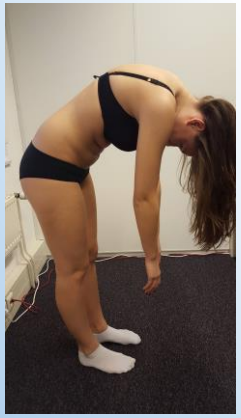
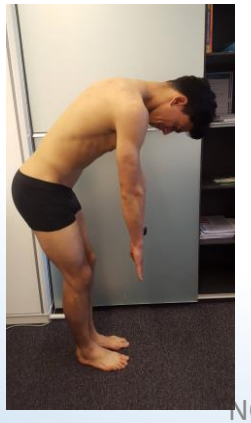
A cohort of 248 schoolchildren 14-18 yr with a sedentary lifestyle shows about 60% neuromuscular thightness and spinal deformation at bending.

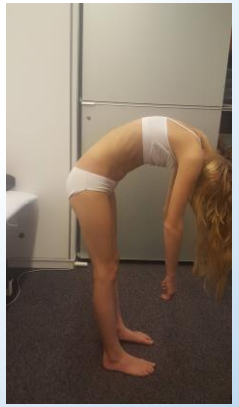
TAKE HOME MESSAGES

- Form follows Function axioma still true: lifestyle factors are key

- No deformation without increased neuromuscular tension

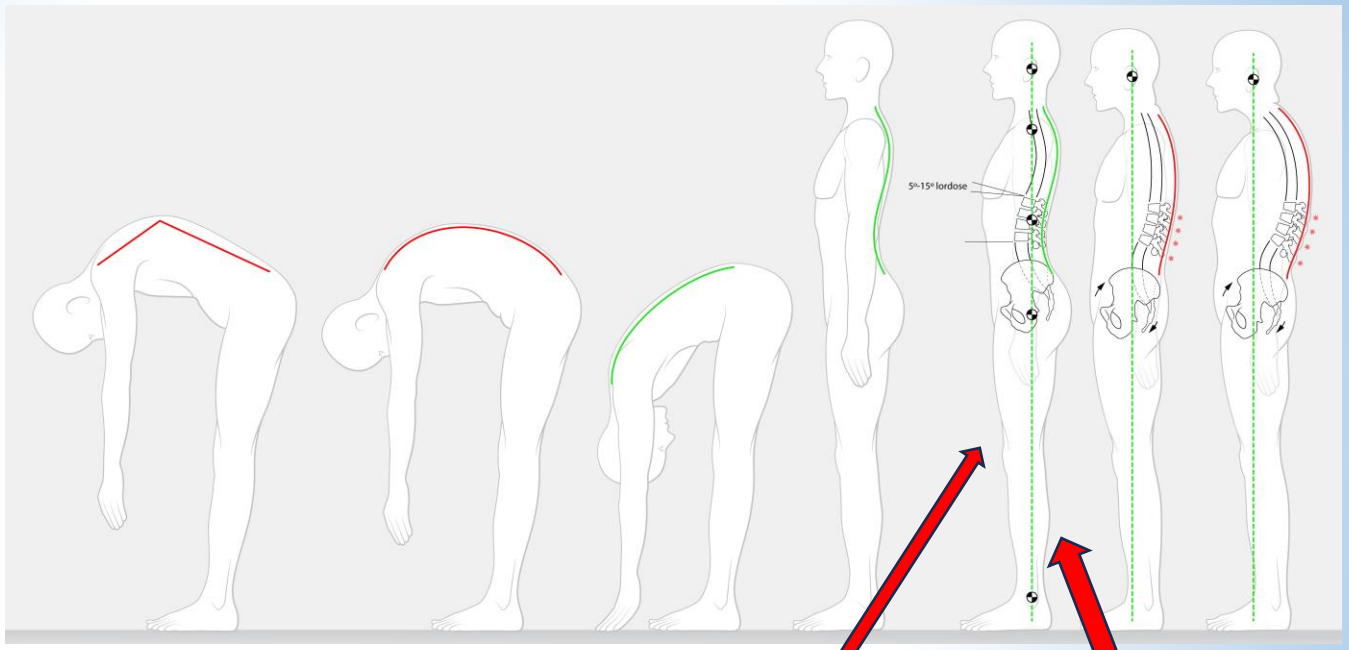
- Knowledge on prevention of postural deviations and (neuro)muscular tightness scarcely available



Your posture, make and keep it healthy from birth on!

Thank you!



Houding Netwerk Nederland

pvanloon@planet.nl