

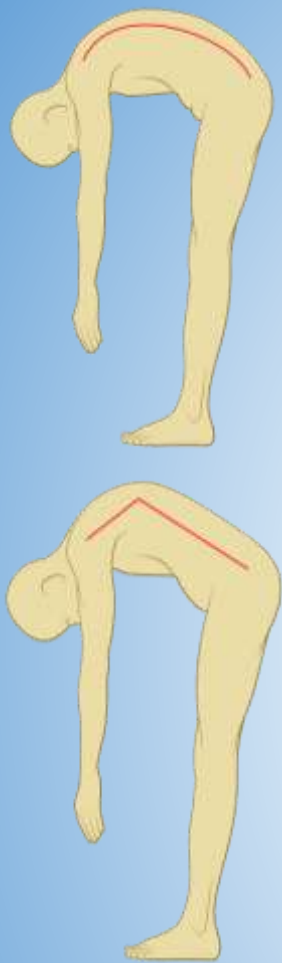
Anthropology and the physical presentation of Homo sapiens in the 21th century.

Modern man and his posture.

Piet JM van Loon

Andre Soeterbroek

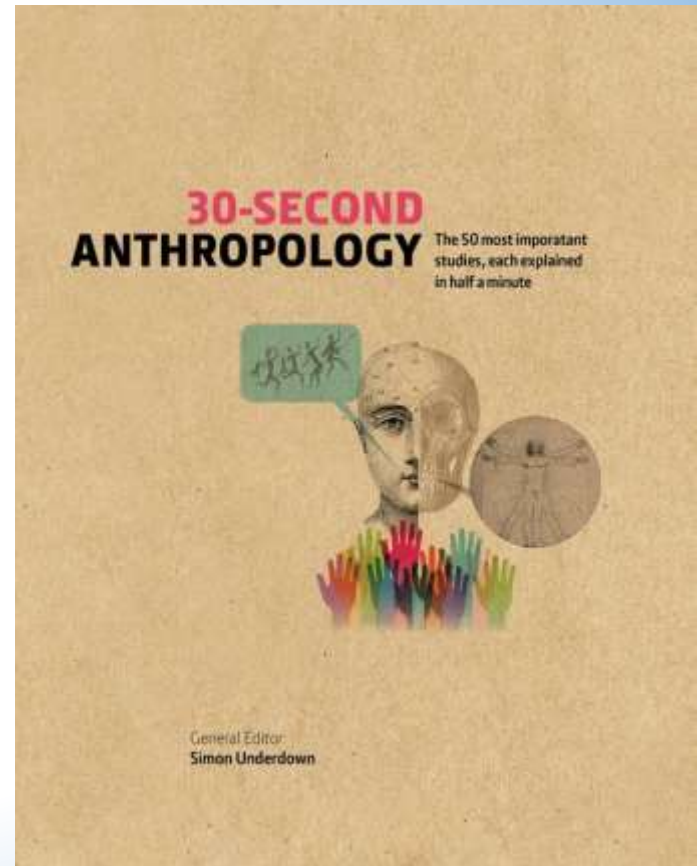
Andre J Grotenhuis



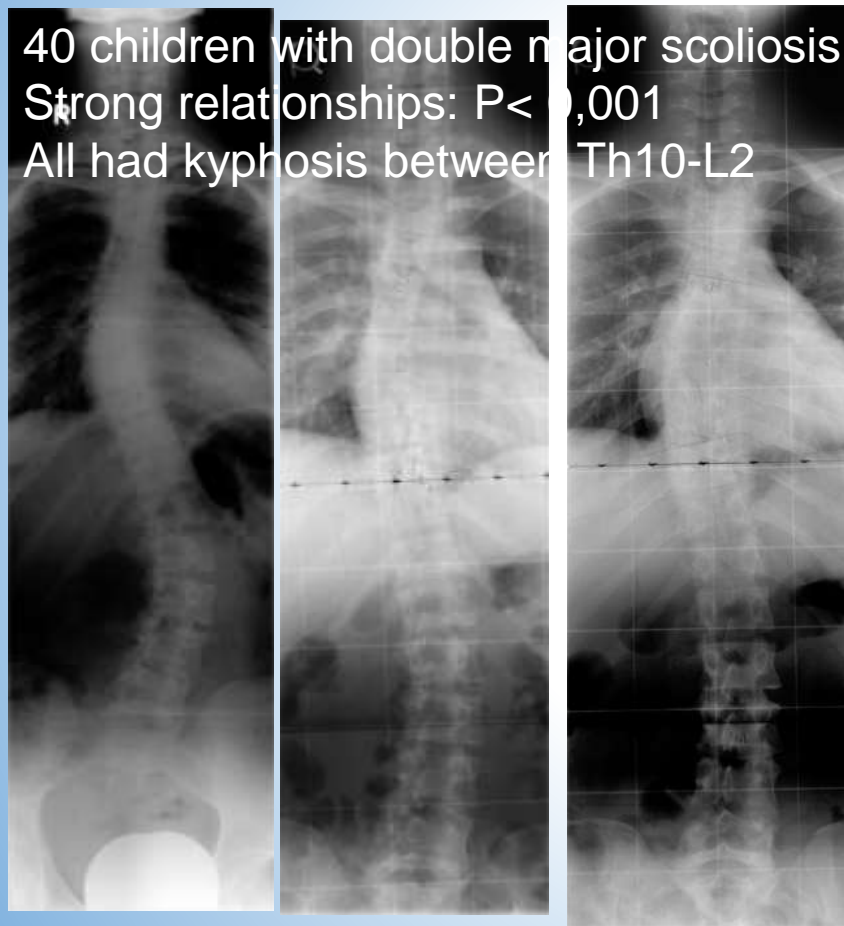
Orthopedic Anthropology.....??

- Never studied Anthropology, but in “30 seconds” learned that anthropologists look at postures too!

Has the mean physical posture in present times a message to physicians and antropologists??



Spine 2008: Scientific proof of action in TLI



standing

supine

on fulcrum



SPINE Volume 33, Number 7, pp 797-801

Forced lordosis on the thoracolumbar
junction can correct frontal plane
deformities

TLI gives an immediate optimisation of the posture



TLI bracing concept : it works in Arnhem, why not everywhere?!!

With knowledge of Milan Roth I understand why it works!

- Lengthening the canal (stretch the cord)
- Reducing tension in the system
- restoring mobility of facets (by backward opening)
- restore sagittal balance
- Activate muscle action



I extrapolated the troubles I saw local to society....”the Gameboyback”

- Increase of bad postures in my practice after introduction of the Gameboy (Nintendo)
- I (re-)found the relationship **sitting- bad postures- backpain** and stepped out of the orthopedic mainstream



Hughe resistance
out of the academical world,
but I knew this was a cultural
problem.....

“It’s not invented by me....!

Yes, our culture can be in decline.....

Oswald Spengler:

- The Decline of the West (1918, 1922)
- Man and his technique (1932, German)



Oswald Spengler

Yuval Noah Harari:

- Sapiens: A Brief History of Humankind (2014)
- Homo Deus: A Brief History of Tomorrow (2016)
- 21 Lessons for the 21st Century (2018)



Will technical innovations destroy our health and future??

Can phenotypes (all you are, all you can) change in an epidemic way? Yes, by culture itself!



1940

versus

2019



But it is not
just “the food”



Humpolec 2019

It is civilization in all its aspects that changes external factors on genotype



Thousands and thousand of years.....



Only 100 years !!



New technologies . They are great! But what do they do to our body?



We became Homo Sedens!

And sit mainly slumped and sloughed

My focus on sitting (and bracing)

- 2005 Thonet published at the 150 year anniversary (of chair- massproduction) a booklet on the History of Sitting from an anthropologic view (Hajo Eickhoff)
- 2006 search in older (German) textbooks on Orthopedics: it is the sitting that affects our health by creating bad body-postures



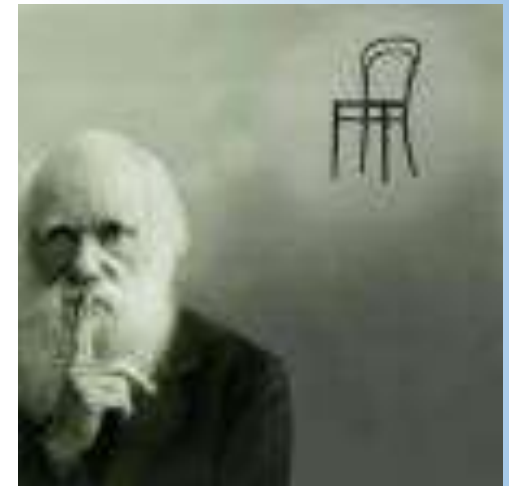
+/_ 1850 The invention of schoolfurniture: it was the first worldwide accepted product in "Ergonomics"

Sitting on chairs and our Health

The mismatch between Nature and Culture in the growing period!

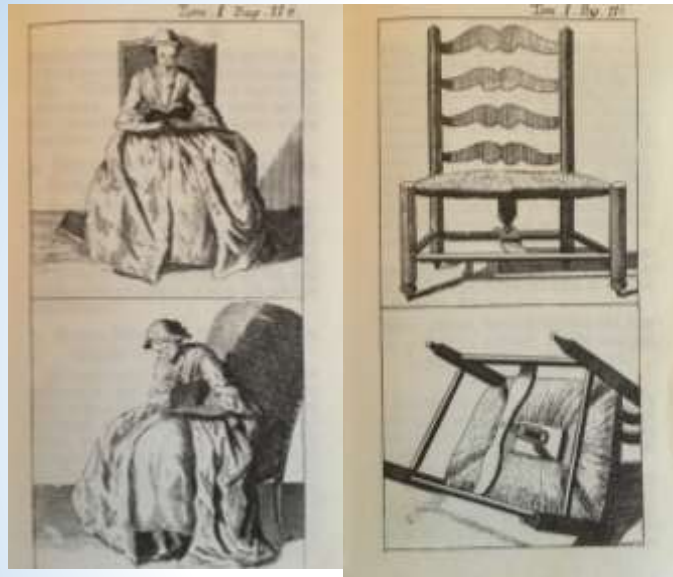
- Sitting on chairs is a modern time innovation for the masses (after 1900)
- Schoolobligation is new. They had to sit
- Sitting transport is new
- All electronic/digital innovations, you use sitting, are new

You get a discongruency in Roth's concepted osteoneural growth relations! Nerves aren't stretched enough !!



Evolution : Biology and chairs: an unhappy combination

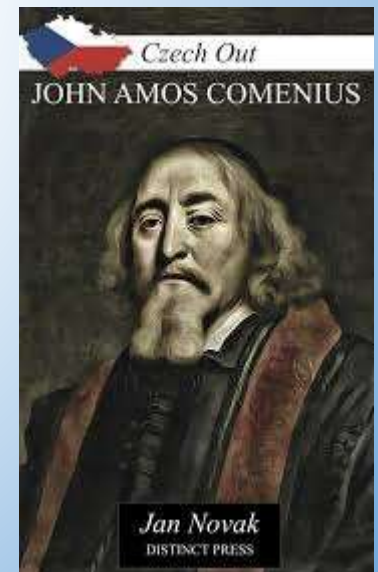
Orthopedics once started on this problem!



ANDRY (1741):

The young bone of the spine will deform by sitting on chairs

But already Jan Amos Komenský, buried in NL, warned for too long sitting of children!



Why did chairmakers not follow the anthropomorphological changes in time??

1864



Thonet
45cm



Mean height industrial chairs

Mean length male

+18
cm!

- 2
cm!



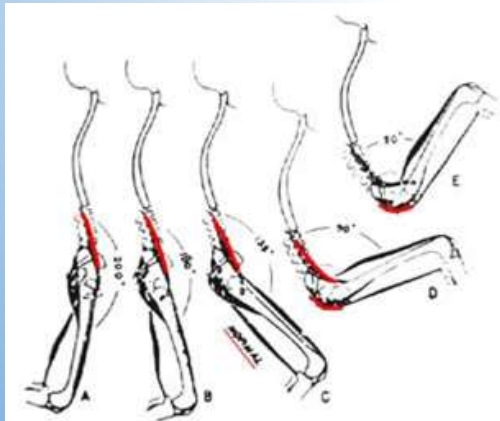
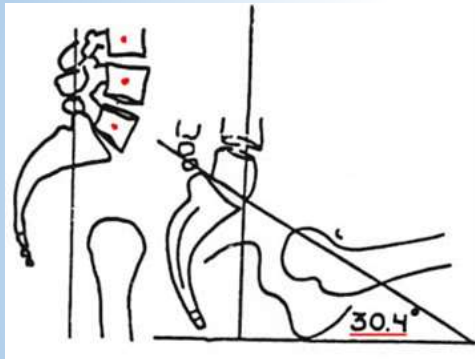
2018



IKEA 43
cm

“Posture” and “Sitting” had to come together again in “screentime era”

The human body cannot reach 90 degrees between torso and upperleg without cantilevering the pelvis and spine in unhealthy positions



Low back pain and slipped discs dependant on posture

Overloading and shearloading of discs in any “bad posture”



Effect of prolonged sitting (slumped and sloughed) on a growing spine

- Discs under **much too much compression** TL anterior, lumbosacral posterior: herniated discs
- Cartilage under **shear stresses**: early degeneration
- **Bone**/ vertebrae will **deform** gradually (Wolff's Law): kyphosis, scoliosis.
- Motion units spine will stiffen up (**contactures**, ankylosis)
- Ribs and diaphragm in unphysiologic position: **hindering ventilation**



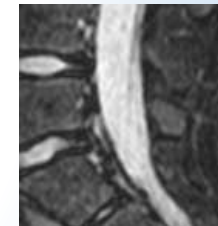
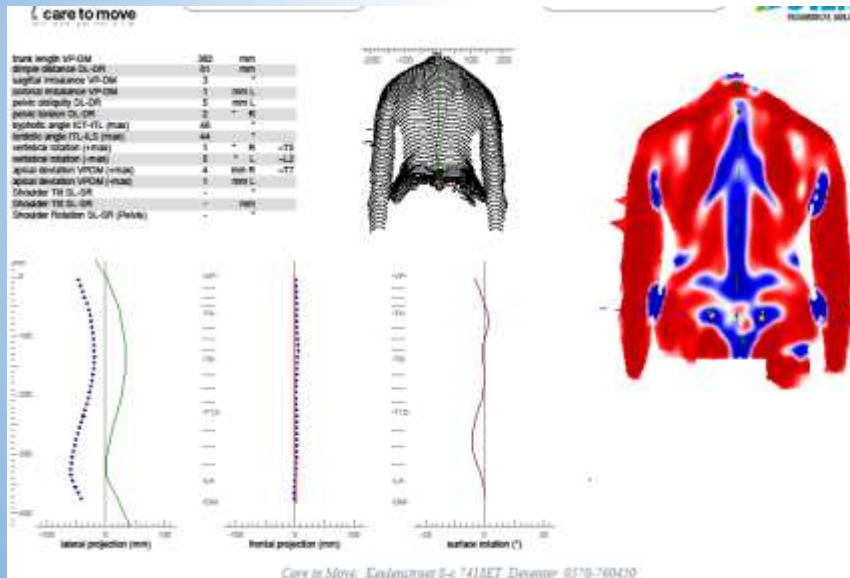
Posture and CNS in a reciprocal way connected by Roth's osteoneural growth relations

11 yr. Pain hipregio in horseriding



Posture and CNS in a reciprocal way connected by Roth's osteoneural growth relations

11 yr. Pain hipregio in horseriding



21th century: will we be able to walk by ourselves at the end??

In accordance with Roth:

- Every deviation of our natural posture during growth means that all nervous tissue will be jeopardised internally inside the bony housing

Still fast increasing incidence of:

- Back and neckpain
- Disc herniations
- Muscoloskeletal injuries
- Osteoporosis
- Stenosis
- Neuropathias
- ALS
- Parkinson
- Alzheimer etc. etc. etc.

What will anthropologists find about us in future excavations??

- Crooked spines, deformed knees
- A lot of screws in vertebrae
- A lot of metal artificial joints



**BUT NO DISCS OR
CARTILAGE, THE PRIMARY
VICTIMS OF SEDENTARY
LIFESTYLE**



Focus on our youth!

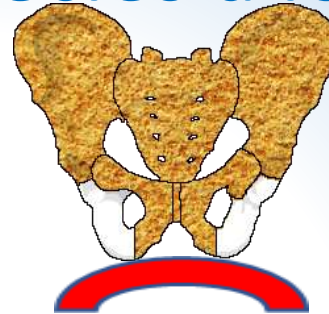
RIVM 2016:

- Dutch people are European “Champion in sitting”
 - mean 8,6 hours a day
 - Youth 12-20 yr: mean 10,4 hours
 - Sedentary lifestyle youth responsible for chronic morbidity (Diabetes, cardiac problems, cancer)

The medical world lost its grip on global deterioration of primary health

A fundamental other approach to “sitting” can save the human species a lot of trouble

- Sit as less as possible: stand up, walk, lay down
- Sit as less as possible in 90° with both legs
- Facilitate good posture of the torso
- Variation in all positions of hips, knees and ankles
- Go for active sitting
- Facilitates the torso into the same postures the standing person has (as Leonarda da Vinci draw)



Leonardo: one leg bowed!

We have to change habits and help our spines!! To save our future?!!

- Awareness young people/ parents: It is the way we use the new technologies!
- Awareness and knowledge in recognising by schoolworkers of bad posture and stiffness
- Restoration classic schoolgymnastics (3D stretching...Roth!)
- Knowledge on posture and effective excersises by all physiotherapists
- Active sit- solutions



The solution: **prevention** targeted on causes

- Awareness nationwide
- Education parents
- Education - children
 - teachers
 - physicians
 - physiotherapist
- Less sitting hours
- Active sitting
- Active sitting solutions
- Extension+++
- Gymnastics / dancing
- Active bracing protocols (TLI)



Let's save our children's discs and cartilage: provide them with healthy postures (the mission of Orthopedics) and future anthropologists will be surprised by the resilience of our species!



Thank you!

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