



Homo Erectus and Backpain?

Becoming Homo Sedens from birth on is an unhealthy evolution

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Authors

- Orthopedic and spine surgeon since 1989
 - Founder Posture Network Netherlands
 - Inventor TLI bracing for scoliosis/ kyphosis
 - Inventor Zami chair for active sitting
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- Neurosurgeon , professor and scientist on osteoneural growthrelations
 - Expert malformations cord, liquorcirculation, endoscopic surgery ventricles.
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- Analyst. Translator medical science to common sense.
 - Chairman Posture Network Netherlands



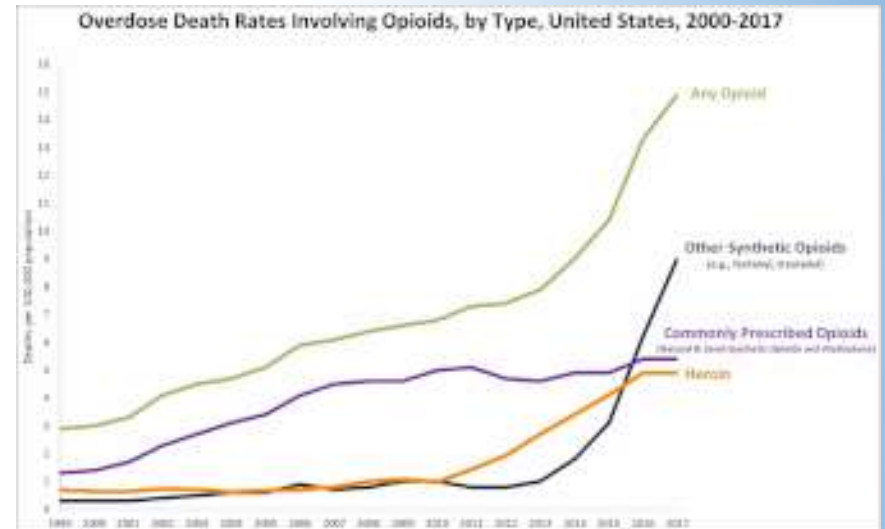
Evolution by itself responsible for backpain? No escape??

- Lifestyle disease
- Zivilisationskrankheiten
- Maladies de Civilisation



Only Homo Sapiens is capable to change all external conditions, he and others are fully dependant on for their health

Chronic pain: American people suffering most



Powell, director Federal Bank:
“Opioidcrisis is harming USA Economy”

The Socio-economic Burden of Musculoskeletal Conditions

- The Burden of Musculoskeletal Conditions

Stuart L. Weinstein, MD

J Bone Joint Surg Am, 2016 Aug
17; 98 (16): 1331 -1331



IOWA, Arthur Steindler

our species???



AngloAmerican Medicine lost knowledge
on orthopedic prevention

What happened? Were did “Medicine” lost its control on Hygiene and Prevention ?

Medical Science AND Hygiene

on:

- posture
- locomotion
- schoolsitting
- gymnastics
- optimalization process of growth of a child
- Called **ORTHOPEDICS** at zenith in Europa around 1900.

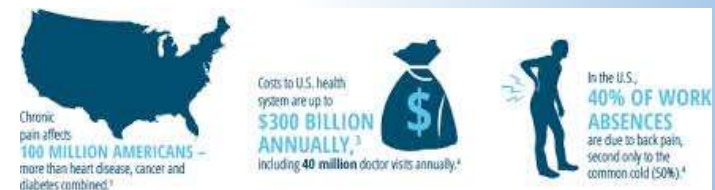
From 1914 on (WWI) German medical science and language almost erased in AngloAmerican Medicine

They survived:



Straight teeth, no straight spines!

- Billions spend on dental bracing
Not a fraction for guiding the spine!
- If you loose knowledge on orthopedic prevention in spinal care, costs will be billionfold

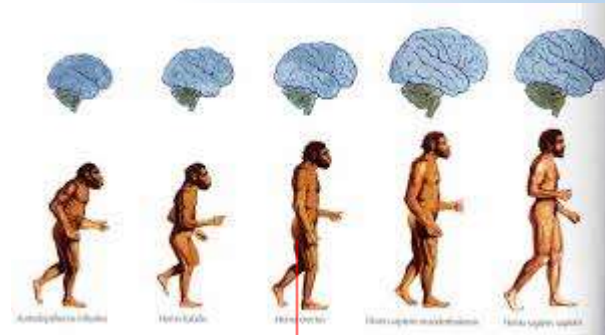


Who will brace
our children's
crooked spines?

The challenge of human posture: bipedality and a heavy skull

Keeping balance on a flexible spine needs an individual **learning process** to achieve:

- Full range of motion of all joints
- Flexibility in all directions
- Well trained muscles in all regions
- A free mobile **thoracolumbar joint** in lordosis



TL-joint : kyphosis lordosis

POSTURE:
Da Vinci!!



Evolution of our posture

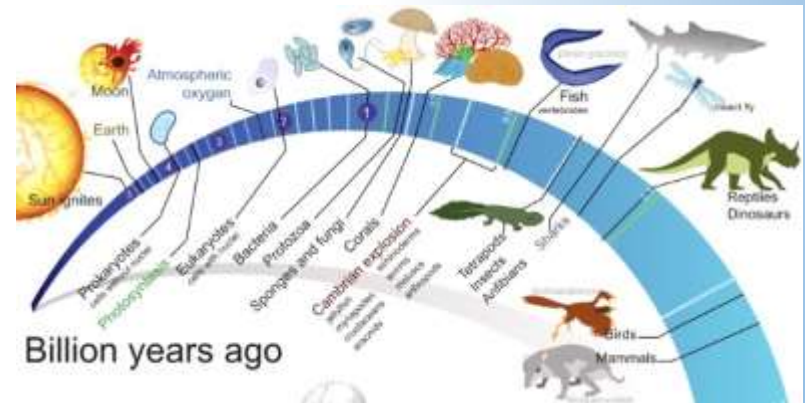
ONTOGENESIS

➤ Biomedical science



PHYLOGENESIS

- Anthropology



Conjunction in 19th century Medicine : Virchow's Celltheory

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

Classic Orthopedics:

Natural posture protects against (early) degeneration : avoid sitting

Classic physical education:

Prevent malalignment during growth to get a durable locomotor system by a healthy posture

ANDRY 1741



Modern (AngloAmerican) Orthopedics is only about surgery

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

- Hamstring tightness in both legs was present in 62.1%.
- Unilateral tightness in 18.2%.
- Achilles tendon tightness in both legs was present 59.3%.
- Unilateral short calf muscle-tendon tightness in 19, 4%.
- **The correlation of the Finger Floor Test with tight hamstring is 73.2%.**
- So there is a link between the hamstring and the lack of flexibility at bending



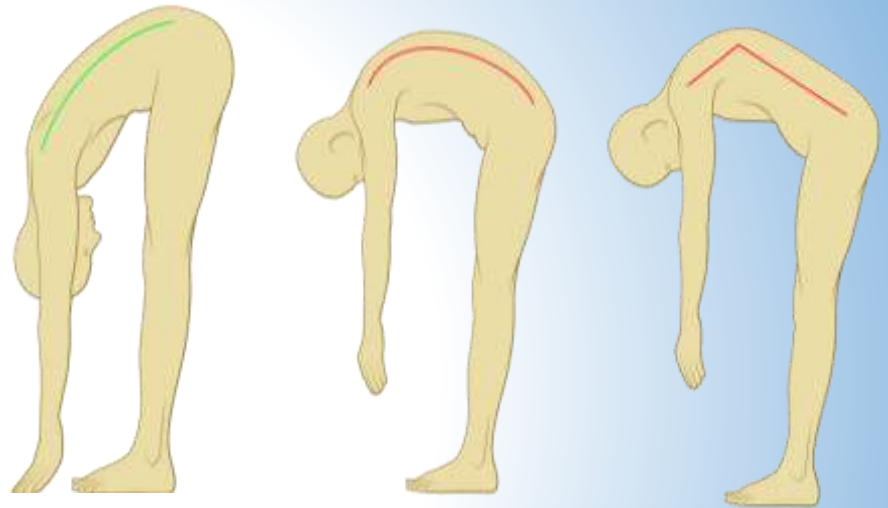
No classification (yet) of Posture /sagittal profile in bending test

Only:

- Angular (hyper) kyphosis
- Arcuate (hyper) kyphosis

This study:

- about 60 % unhealthy curves.
- In 32 % agreement on absolute pathological curves



Real prevention only possible in growing individuals

- Not easy to bring basics of **Orthopedics back in the center of education**: educate a child to a good posture and good locomotion patterns and you will have a physical and mental healthy adult (Montessori)
- If your youth is physical healthy you don't have so much costs in adulthood!



Humpolec 2019:

Basics for Orthopedic Anthropology laid by Roth



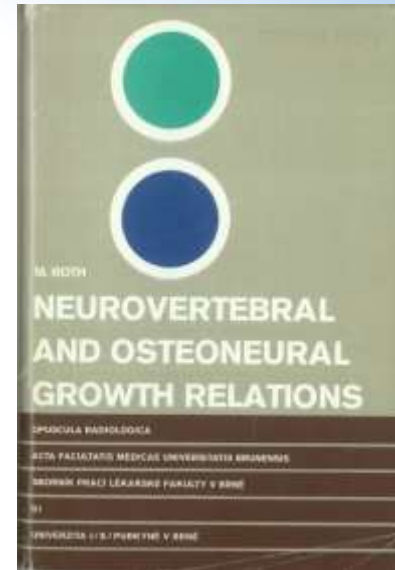
What William Harvey discovered about the Cardiovascular System did Roth for the growth and the function of the Nervous System

Prof. Milan Roth, 1923-2019
Pyrkynje, now Masaryk University

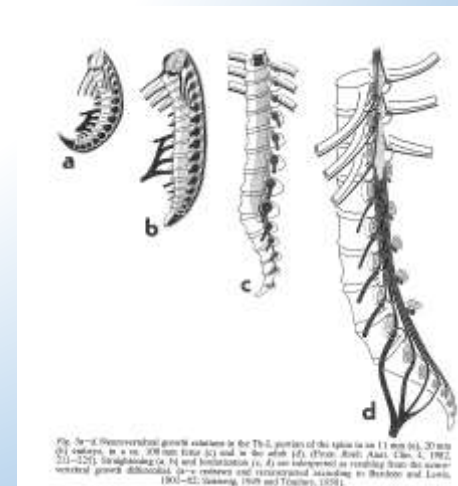
The skeleton tells you everything about your growth and lifestyle, also in death

Quintessence of Roth's work : 4 topics

1. The existence of two different types of growth in Nature
2. The leading role of the nervous tissue in morphogenesis of vertebrates
3. Knowledge of the intrinsic characteristics of the stem-cord-rootscomplex in the bipedal man
4. Discongruent Growth as basic pathogenesis of spinal and skeletal deformities: scoliosis, Scheuermann, spondylolisthesis etc



1985,
found in 2008!



Leading role of the CNS in Morphogenesis

- **Holzer's Neuroprotective Mechanism:** along bigger neural structures a certain distance is kept while in the periphery tight attachment of all cells with neural dendrites exists

Moulding with a buffer (created by movement or a chemotaxic substance)

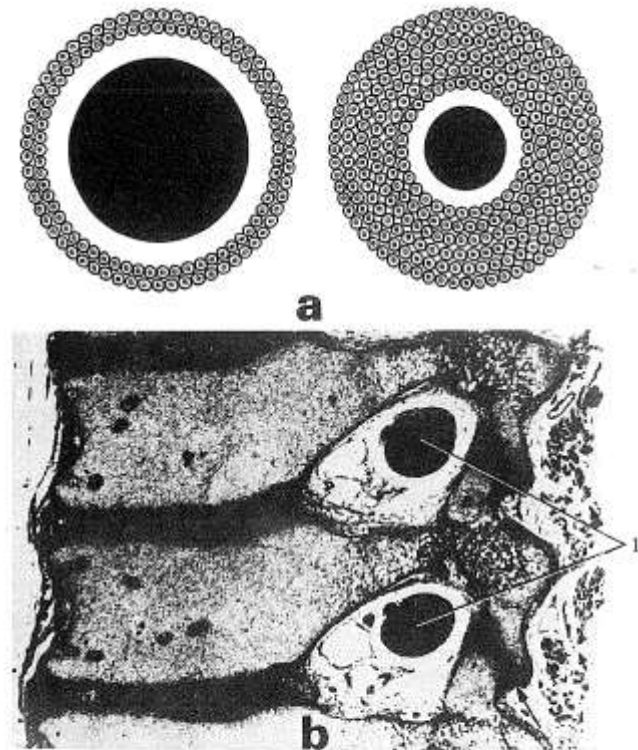


Fig. 5a, b. Holzer's (1952) neuroprotective mechanism in a schematic drawing (a) and in a parasagittal section of two thoracic vertebrae from a 75 mm human fetus (b) with moulding of the caudal vertebral incisura by the cranial eccentricity of the spinal ganglion. (a—from Roth *et al.*: *Neuroradiology* 10, 1976, 277–286. b—from Töndury G.: *Entwicklungsgeschichte und Fehlbildungen der Wirbelsäule*. Hippokrates-Verlag, Stuttgart 1958).

3. Knowledge of the intrinsic characteristics of the stem-cord-rootscomplex

- Cord and roots relaxed at the end of growth
- Free movement cord 1-2 cm
- Cord and roots : no bony contact : Holzer's Neuroprotective Mechanism
- It is a learning machine!
- In Nature: Electricity first
- "Old" CNS is our CPU and our locomotion system the car .We only always will need fuel and bloodcirculation



The significance of his work in living “Tensegrity”: Growth and tensile forces : the missing links

Growth in nature is an ongoing high-energy demanding process in which living material evolves in volume by cell proliferation, and by form and functionality under all kind of intrinsic and external forces from one threedimensional feature to another with **time as a fourth** and forces like intrinsic **tension as a fifth dimension**.



Prof. Milan Roth 1923-2006

Solution of Global Burden of Backpain is in Prevention during childhood

- Who is responsible for the healthy development of children?
- Joined knowledge gives joined efforts by all “stakeholders”



NO PUER SEDENS!

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)



Our posture, a lifestyle dependant,
tension based biomechanical and
neurodynamic outcome of growth.

Keep it healthy until the end!

Thank you!



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