



PÉCSI TUDOMÁNYEGYETEM

ÁLTALÁNOS ORVOSTUDOMÁNYI KAR

Examination of posture, muscle strength and flexibility

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21/09/2023



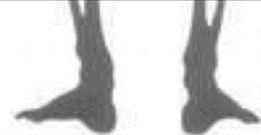
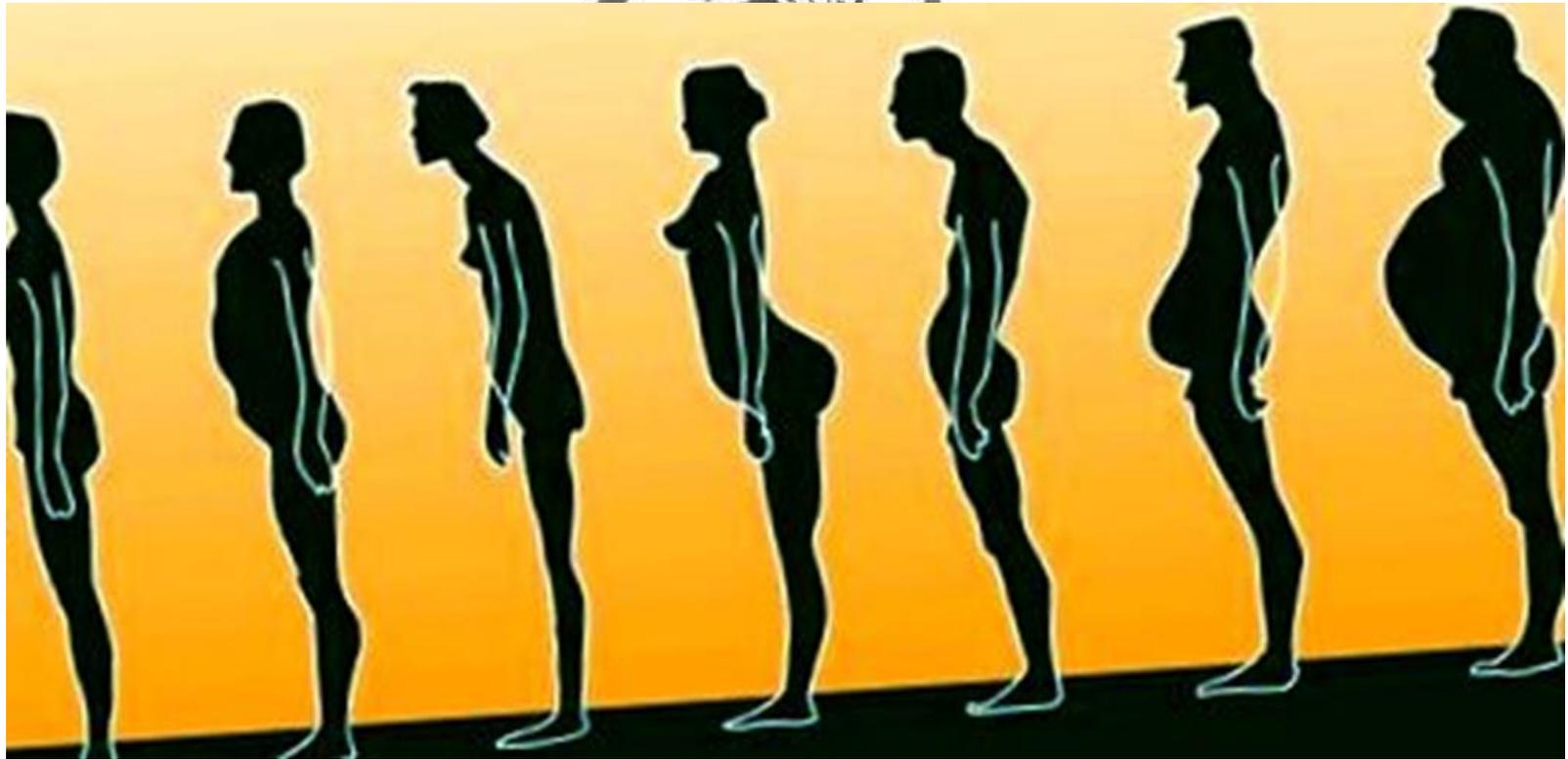
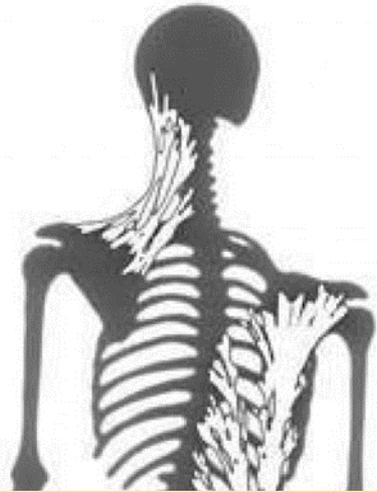
Examination of posture, muscle strength and flexibility

Proper body pos



Examination of posture, muscle st

Who are you?



Tests of posture, muscle strength and flexibility tests

- Posture is a dynamic state of equilibrium maintained by muscles and tendons (as dynamic structures), ligaments, fasciae, bones, joints (as passive elements) and the nervous system as a coordinator of the foregoing.
- If the posture deviates from the biomechanically correct posture, it is called a postural dysfunction.
- Posture can be assessed using functional tests and various tools.



Medical examination

- Past medical history, complaints
- Inspection (assymetry, swelling, movements)
- Palpation
- Imaging examination
- Diagnose
- Treatment recommendation



Examination of posture, muscle strength and flexibility

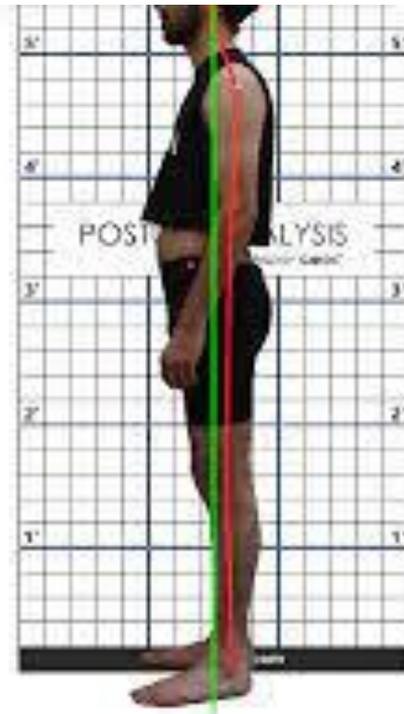
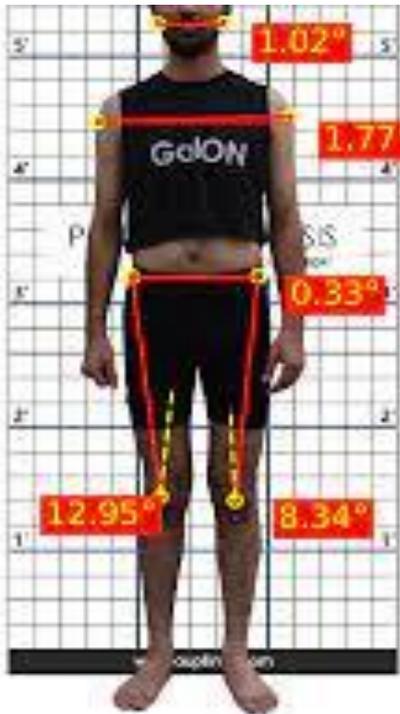
Inspection



Examination of posture, muscle strength and flexibility

Tests for postural assessment

- Photo analysis



Examination of posture, muscle strength and flexibility

Tests for postural assessment

- Adam's test
- Scoliometer

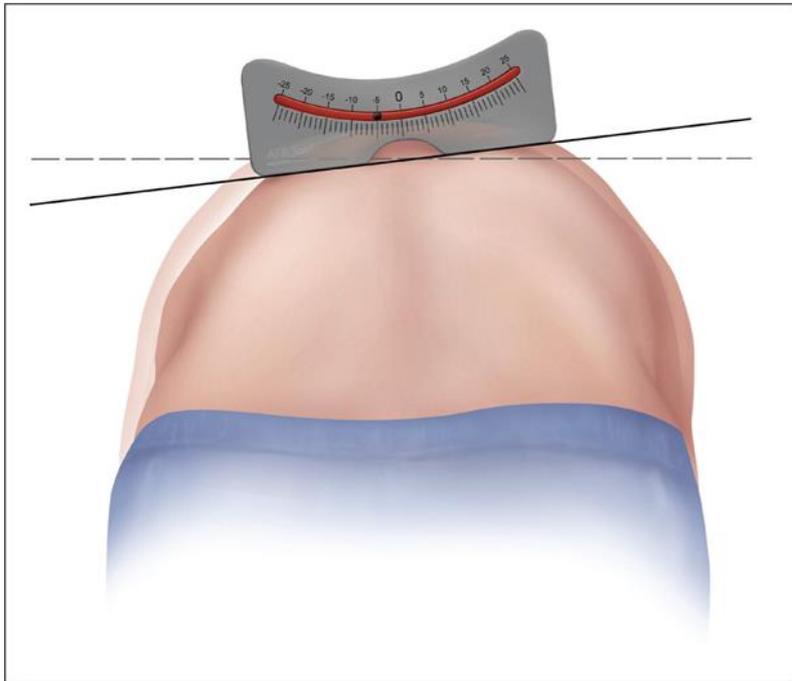


ILLUSTRATION BY RENEE L. CANNON



Tests for postural assessment

- Plumb line

- **Plumb line** - On posterior aspect, line drawn from occiput should normally align with gluteal cleft

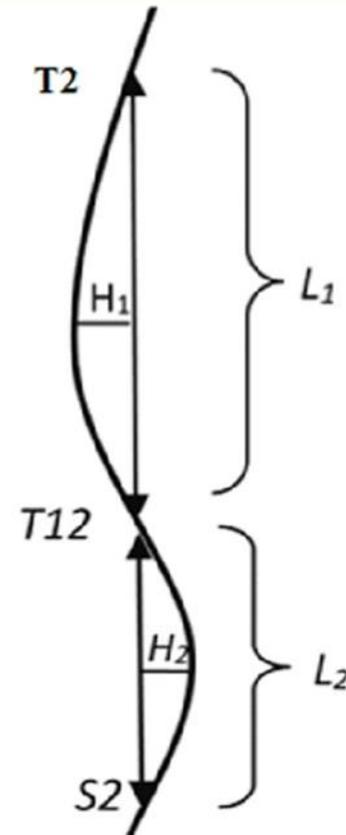
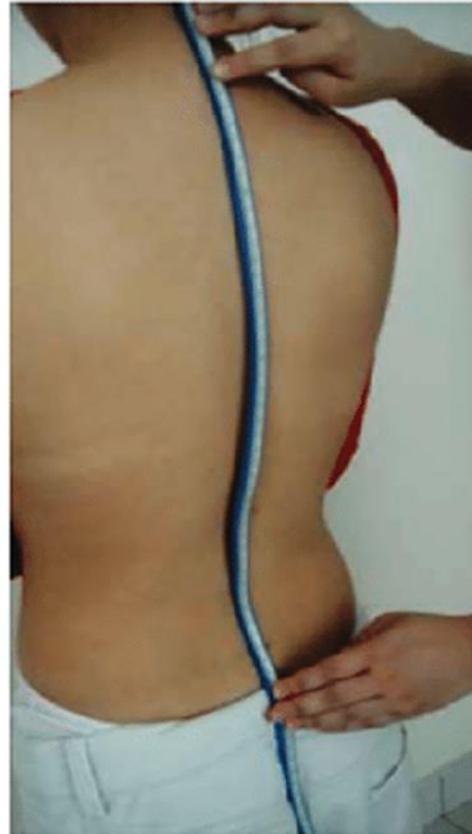
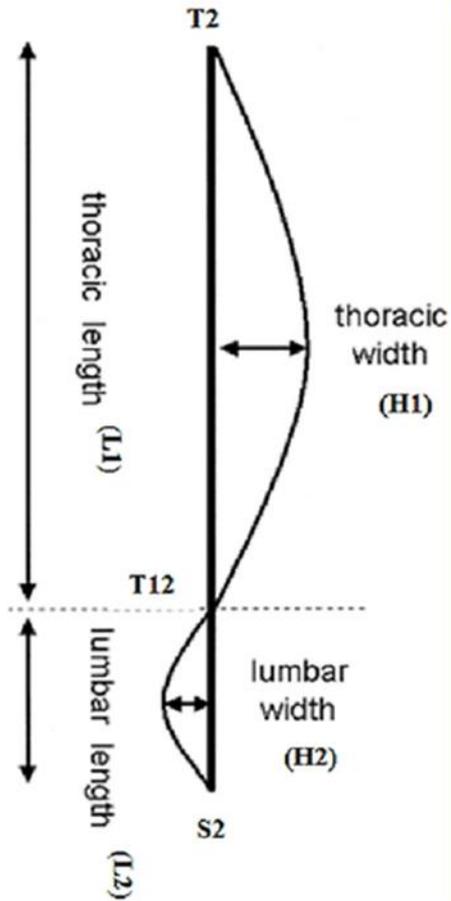


Figure 18.7. Diagram of a left thoracic scoliosis with a plumb dropped from the C7 apophyseal process. Slight shift can be noted by the plumb line striking the left buttock.



Tests for postural assessment

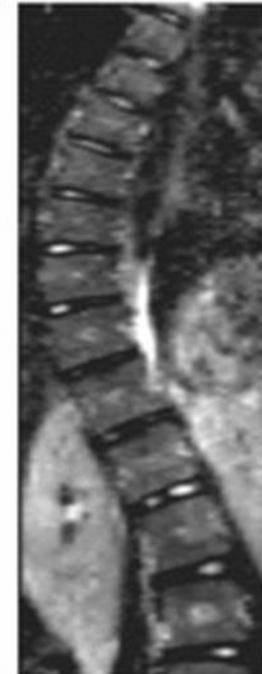
- Flexiruler (Delmas index: 94-96%)



Examination of posture, muscle strength and flexibility

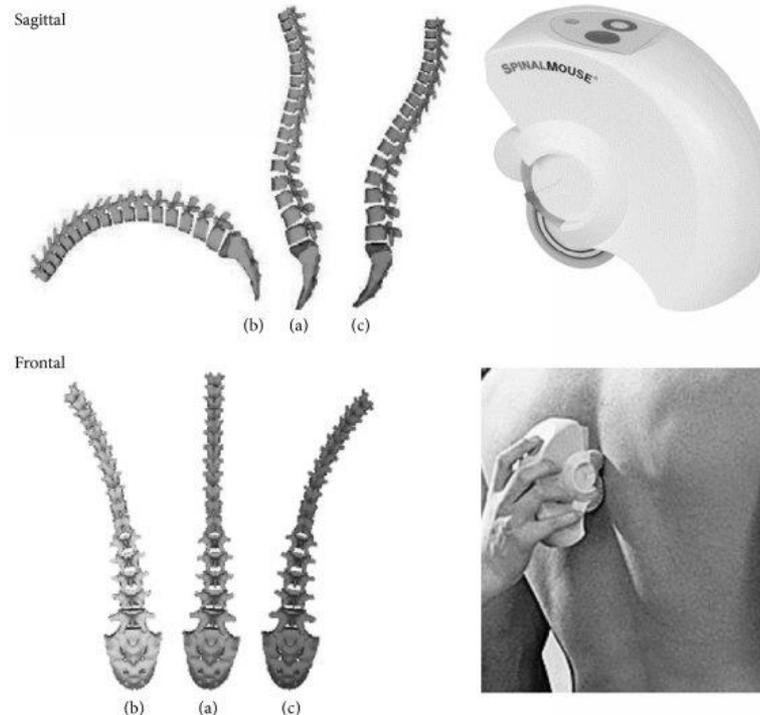
Tests for postural assessment

- X-ray
 - CT
 - MRI
- (radiation exposure)



Tests for postural assessment

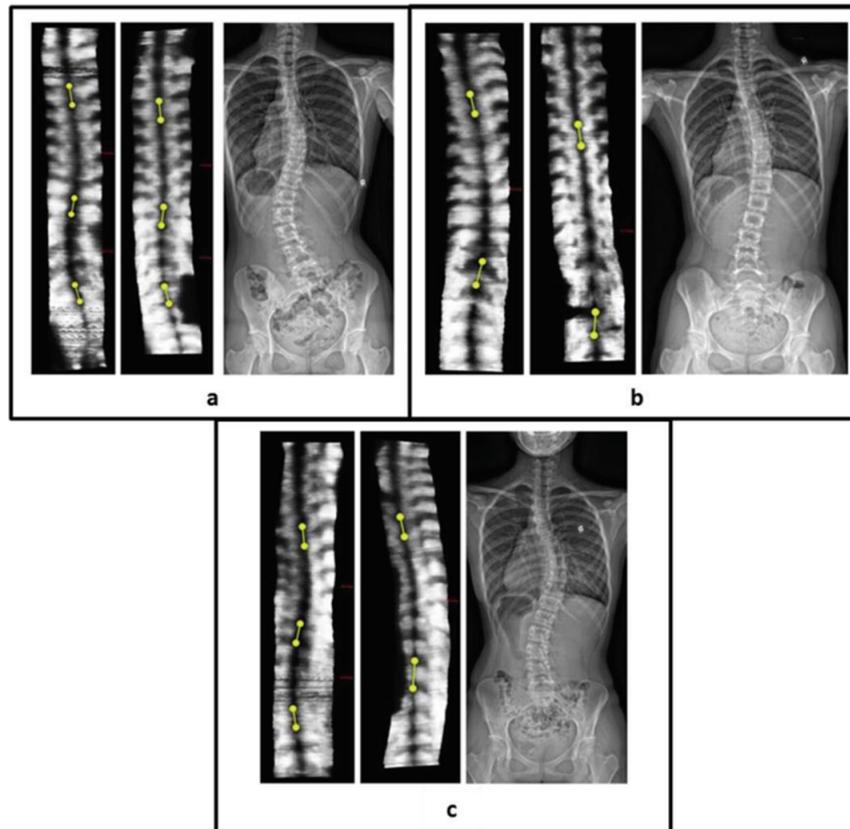
- Spinal Mouse (electromagnetic pulse changes)
- <https://www.youtube.com/watch?v=7En8WEaU4Dw>



Examination of posture, muscle strength and flexibility

Tests for postural assessment

- 3D Ultrasound
- <https://www.youtube.com/watch?v=wWunRwJuTgA>



Examination of posture, muscle strength and flexibility

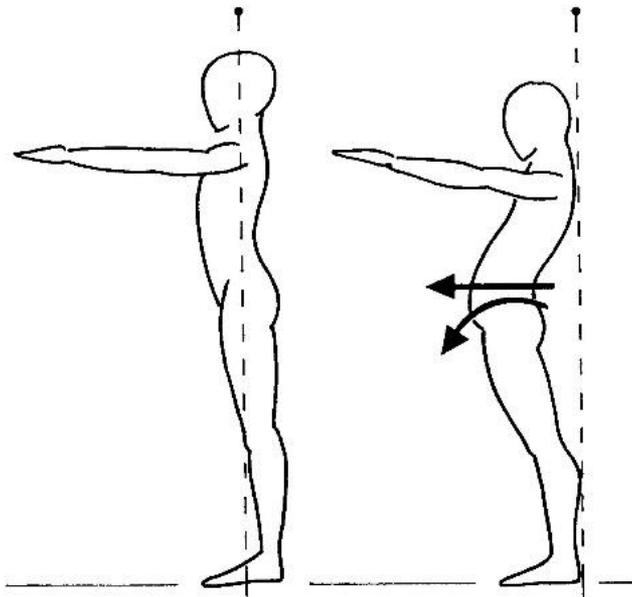
Tests for postural assessment

- Zebris CMS-HS – Spine examination system



Tests for postural assessment

- Matthias test



Evaluation:

0 = normal

1 = moderately abnormal

2 = severely abnormal

Examination of posture, muscle strength and flexibility

Additional tests to assess the strength of muscles involved in posture

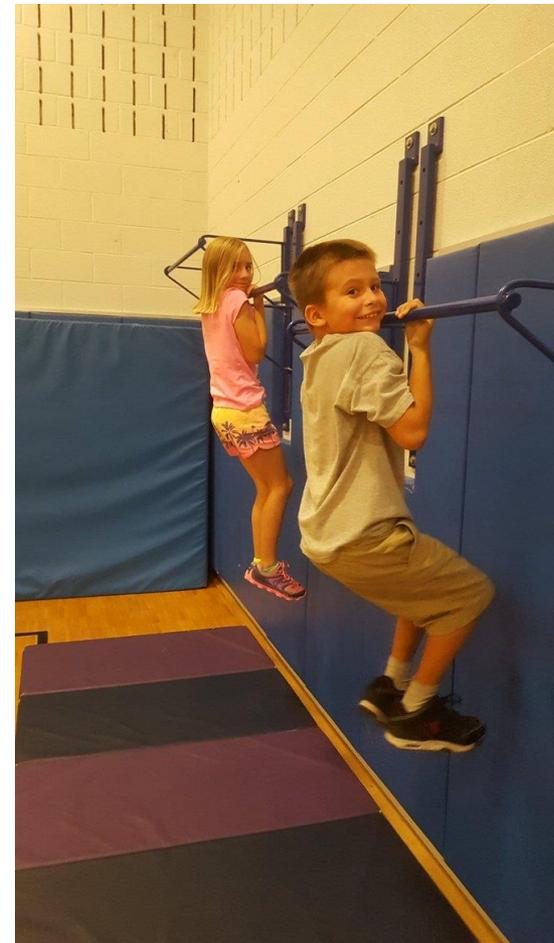
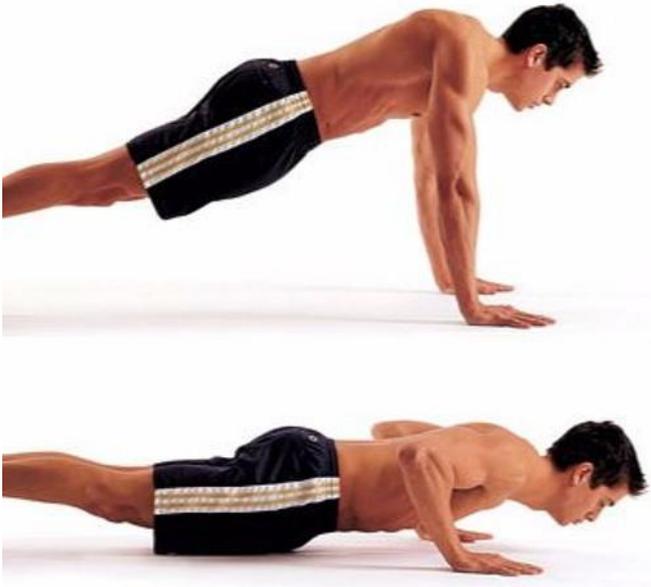
- Trunk lift test
- Isometric leg strength test (Groeningen)
- Static muscle strength tests (according to Kempf)



Examination of posture, muscle strength and flexibility

Tests of upper body strength and endurance

- Stretching test
- Timed push-up test
- Flexed arm hanging test



Examination of posture, muscle strength and flexibility

Tests of lower body strength and endurance

- Squat test
- One leg squat test
- 30 second jump test
- Chair stand test



Muscle tests of the trunk

- Abdominal muscle endurance test
- 30 second sit-up test
- Muscular strength test of the trunk, shoulder girdle and pelvic girdle (Core test)
- Stretch tests (Kempf tests)



Posture examination in sport

1. Sport improves posture compared to non-athletes

- For general muscular development

2. Relationship between athletes' posture and injury incidence

- In swimmers, poor posture as aetiology of swimmers shoulder
- Table tennis athletes kyphotic posture behind chronic back pain
- In football players, trunk asymmetries and sagittal plane deviations in the background of muscle strains

3. 'Sport-specific' posture

- Hyperkyphotic posture in swimmers
- Dancers hyperlordosis
- Basketball and handball frontal asymmetry





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Thank you for your attention!



SPORTMED

PTE ÁOK SPORTMEDICINA TANSZÉK

Egy csapatban

27/10/2022