

Postural kyphosis.

Scoliosis and its treatment.



**University of Debrecen
Department of Orthopaedic Surgery**

Introduction

Normal/abnormal development of curves

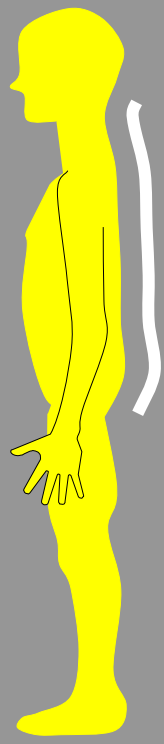
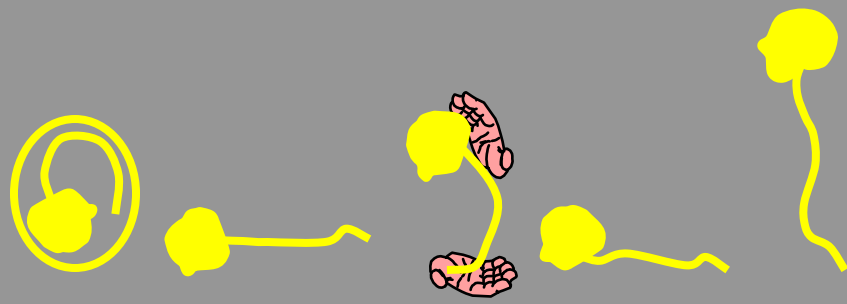
Definition and classification of scoliosis

Clinical signs and physical examination

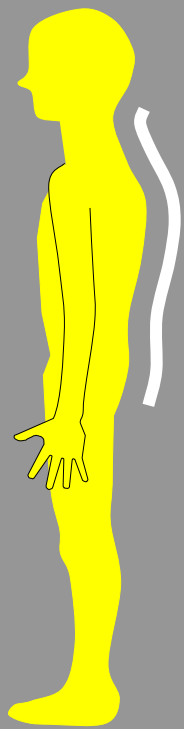
Imaging

Treatment

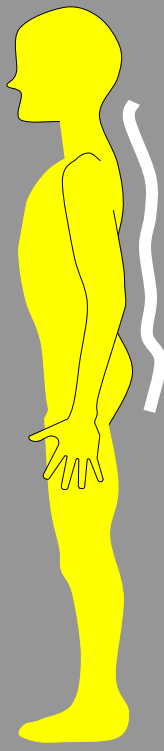
Sagittal curves of the spine



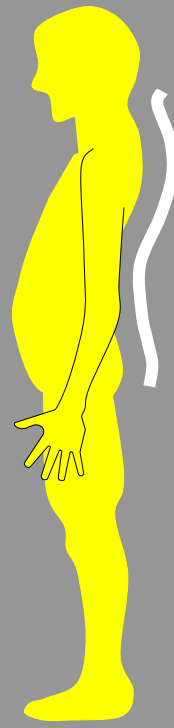
flat back



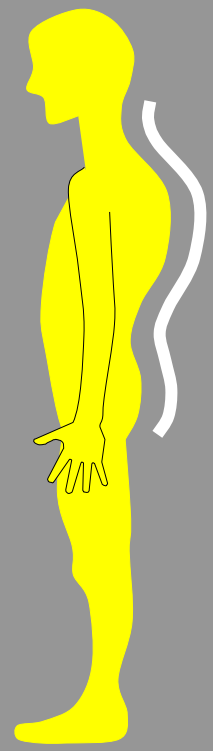
kyphotic back



normal back



saddle back

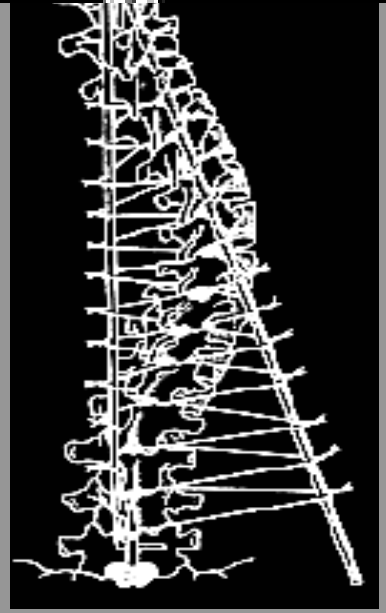
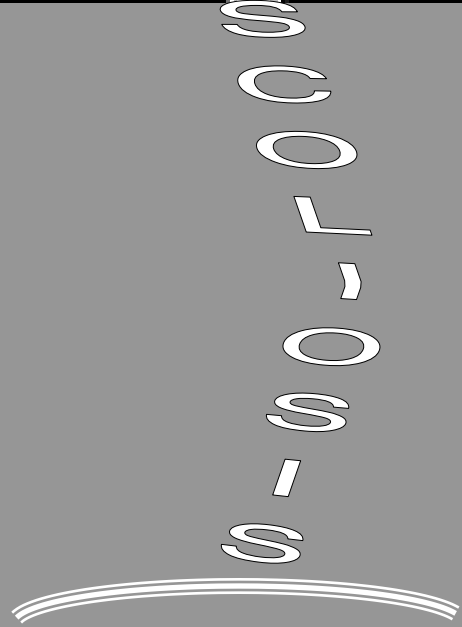
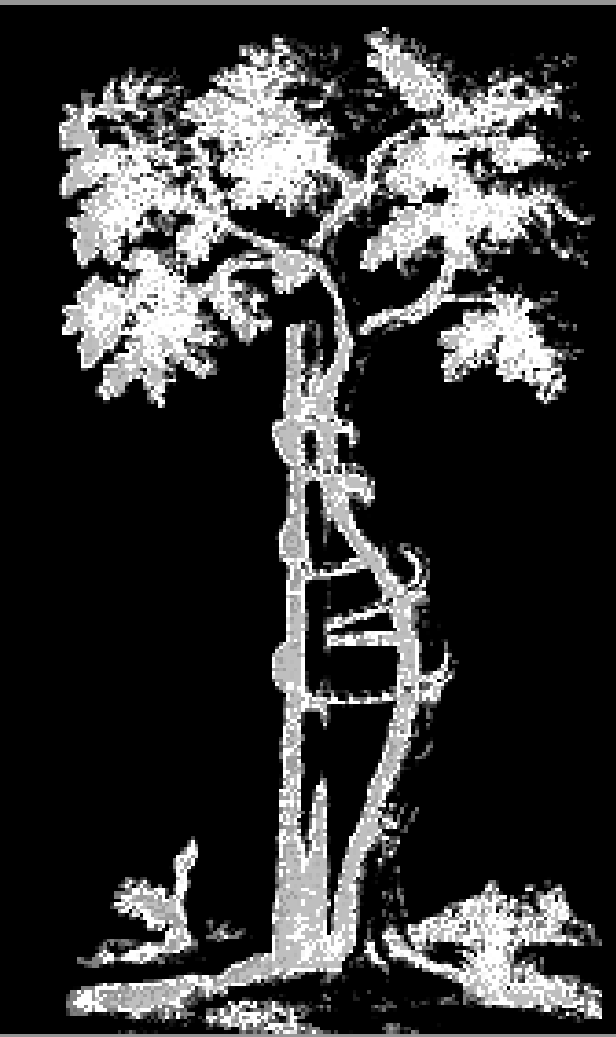


kypho-lordotic back



Sagittal curves of the spine





Σχολιος = crooked



3D deformity

Frontal bending – frontal plane

Exclusively lordosis – sagittal plane

Vertebral rotation – horizontal plane, gravitational axis

Classification of the scoliosis on the basis of the start

- infantile → under 3 years of age: rare**
convex to the left
spontaneous regression or
juvenile
- juvenile → 4-9 years of age: rare**
type of curvature is the
same as at the adolescent
type
- adolescent → over 10 years of age: 70% of all scoliosis**

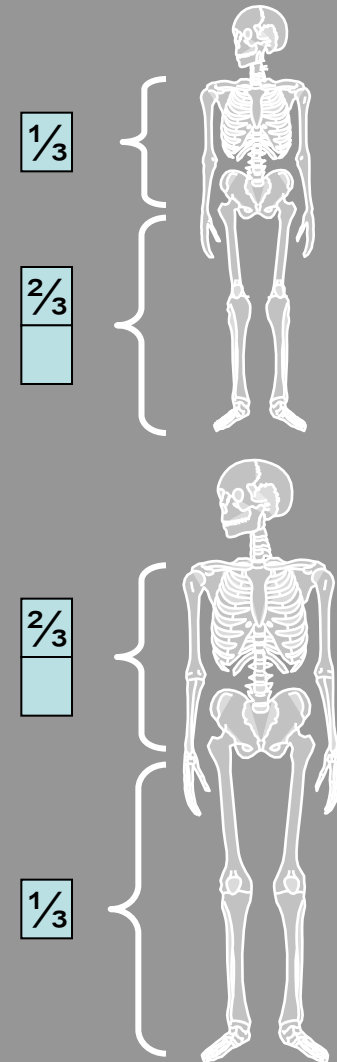


Prognosis of the progression

Growth rate

before puberty → $\frac{1}{2}$ cm / month

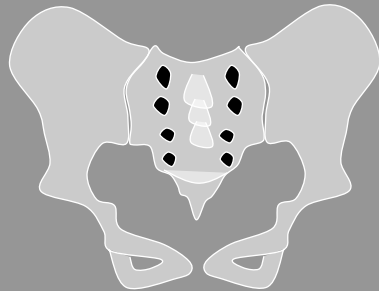
during puberty → 1 cm / month



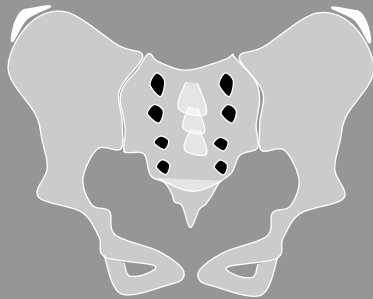
Prognosis of the progression

ossification of the apophysis → bone maturation → Risser sign

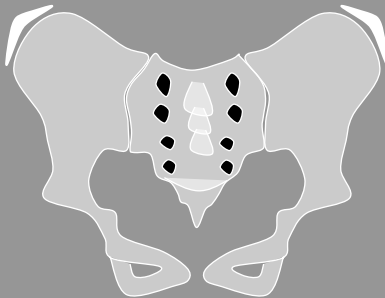
Risser 0



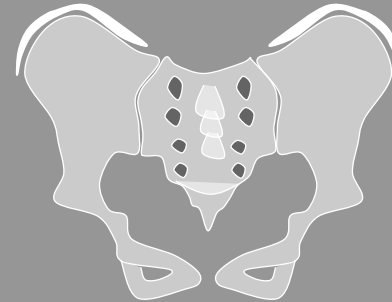
Risser 1



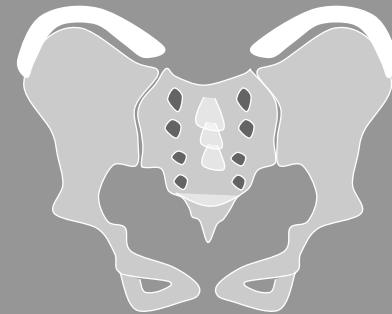
Risser 2



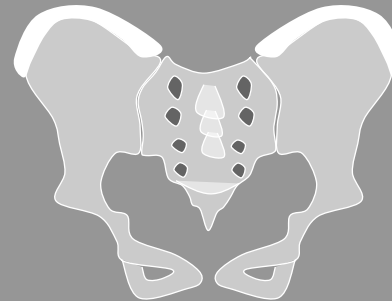
Risser 3



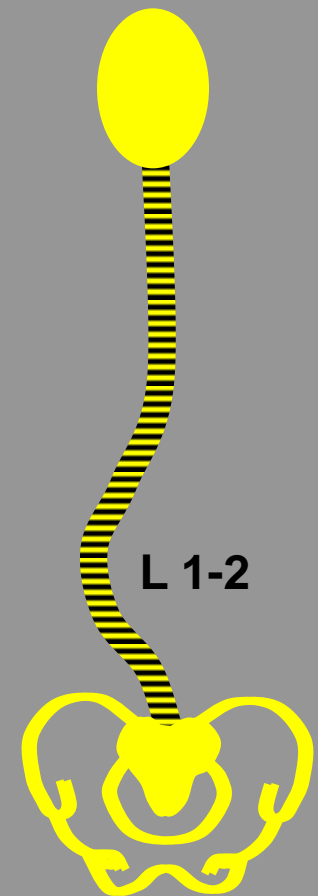
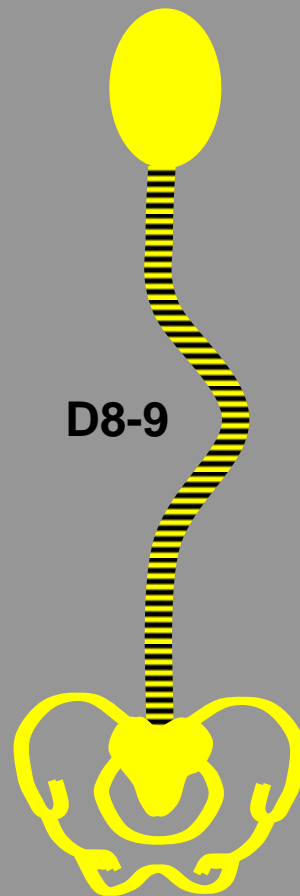
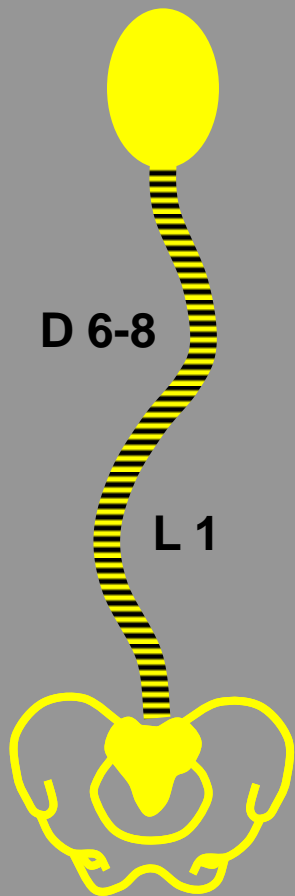
Risser 4



Risser 5



Classification of the scoliosis on the basis of the form



Classification of the scoliosis on the basis of the etiology

Postural

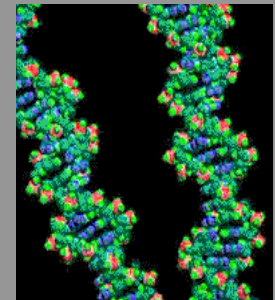
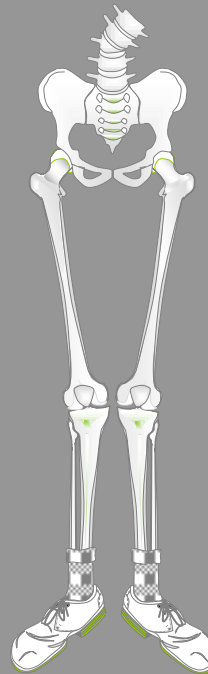
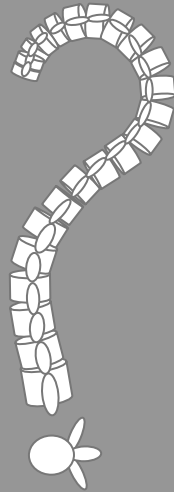
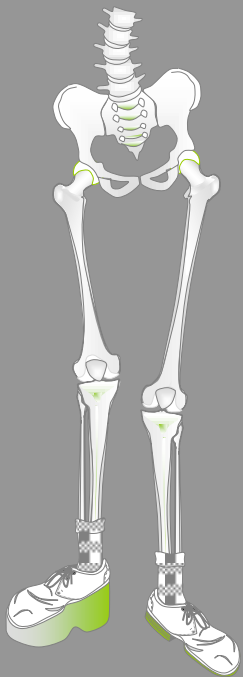
Structural

idiopathic

osteopathic

neuropathic

other



**secondary
or compensatoric
reason
outside the spine**

**unknown
etiology**

**bone
anomaly**

**insufficiency
of the trunk muscles**

trauma, infection



Clinical symptoms

Deformity

Restricted movement of spine (AP,lateral)

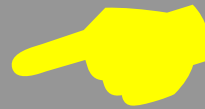
Pain (childhood- extremely rare, adults- more common, even lumbar curves)

Impairment in breathing function (severe cases- curves exceed 60 degrees)

Paresis/paralysis (congenital and NM scoliosis)



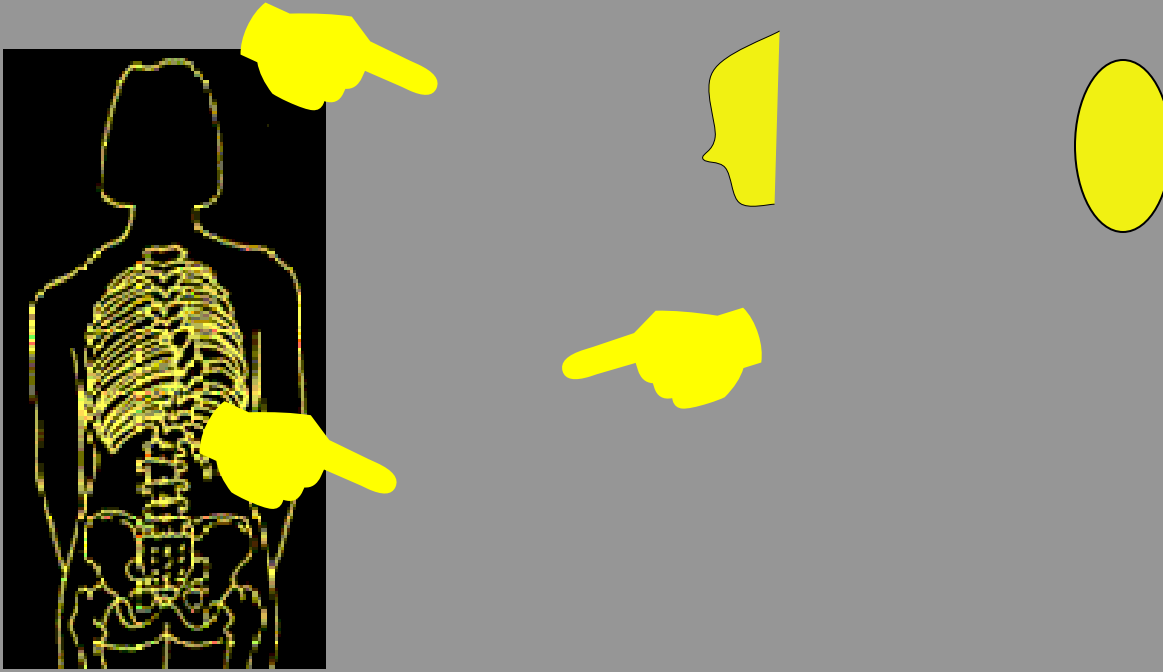
Physical examination of the spine



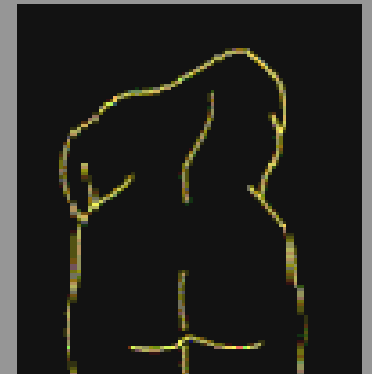
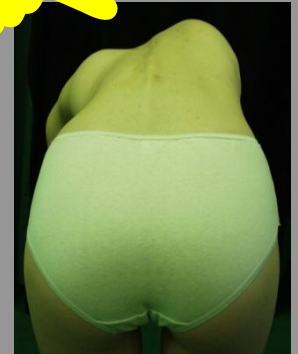
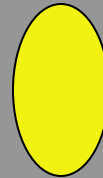
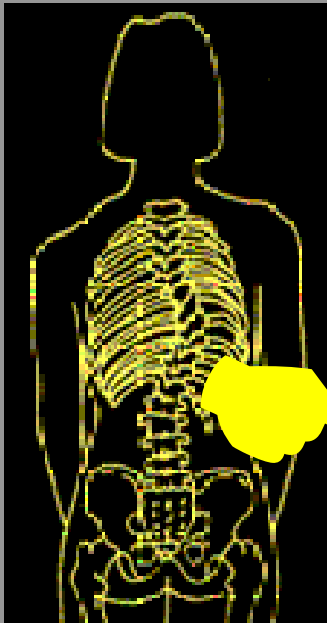
Physical examination of the spine



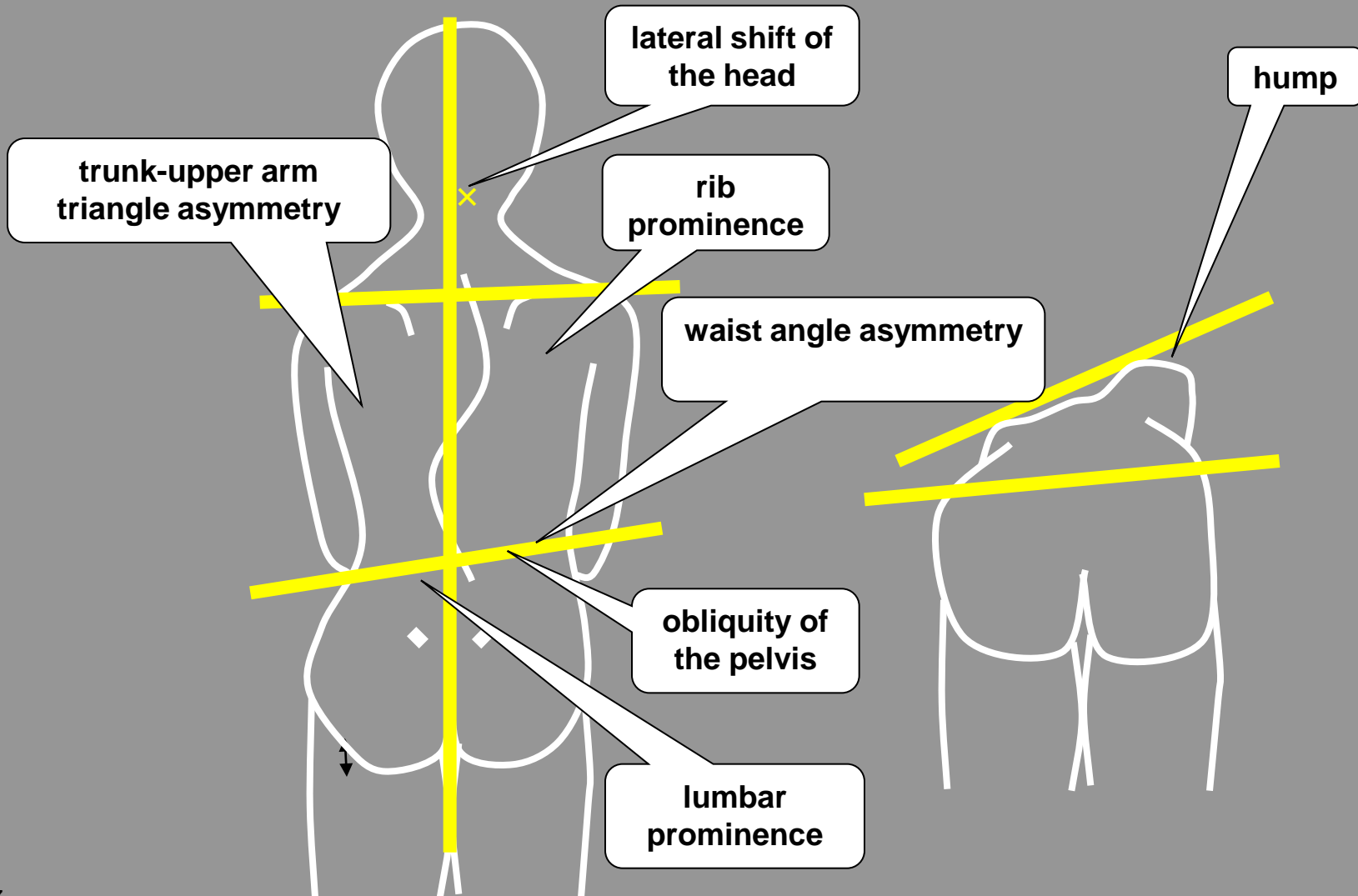
Physical examination of the spine



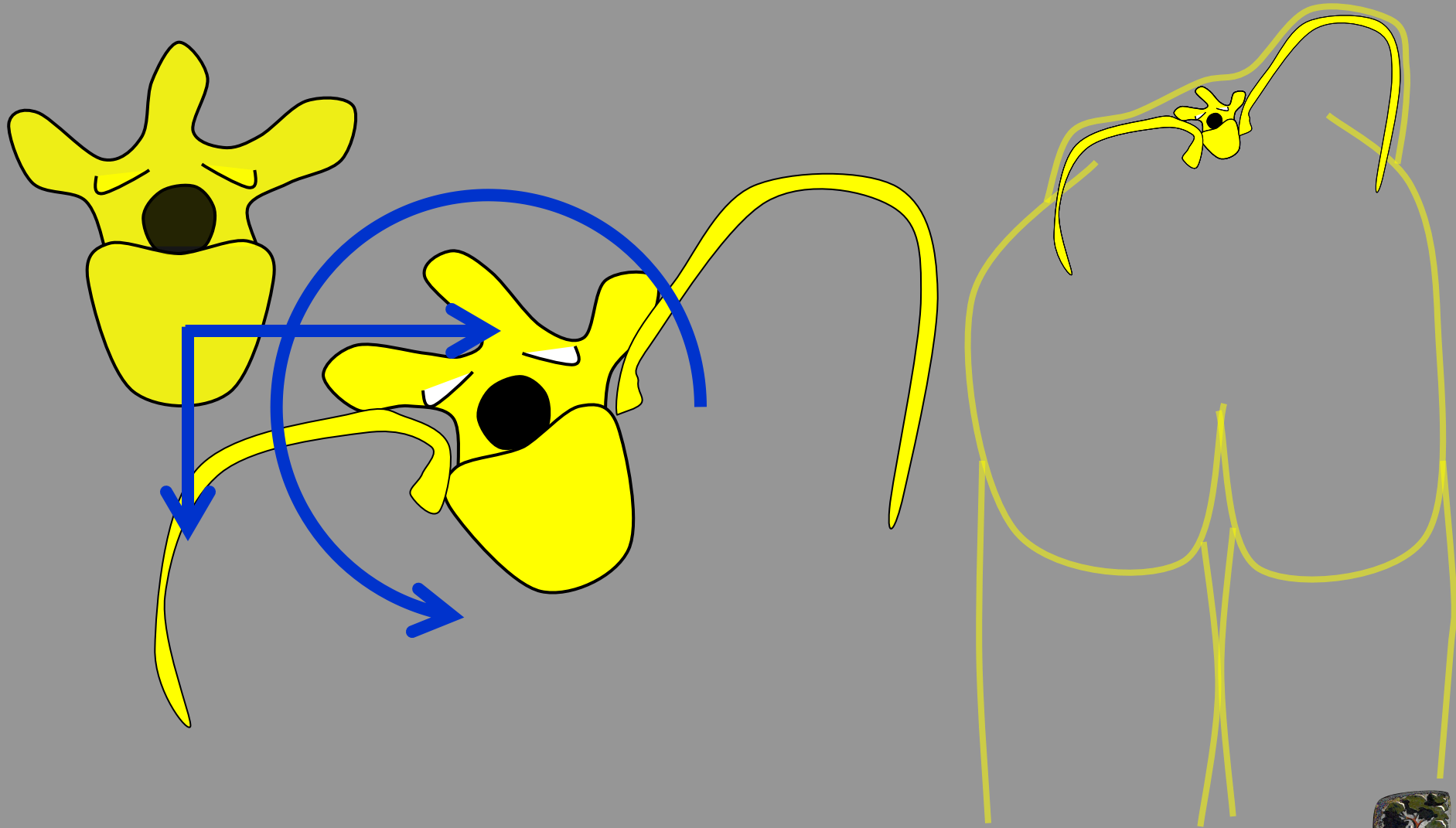
Physical examination of the spine



Physical examination of the spine



Development of the prominence

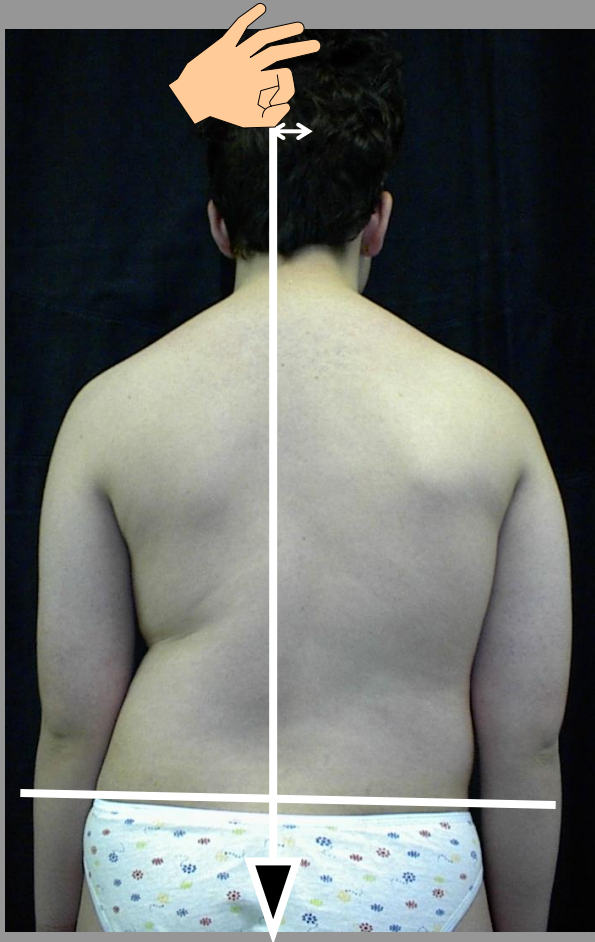


vertebra's lateral shift + rotation → torsion of the chest → hump



Screening

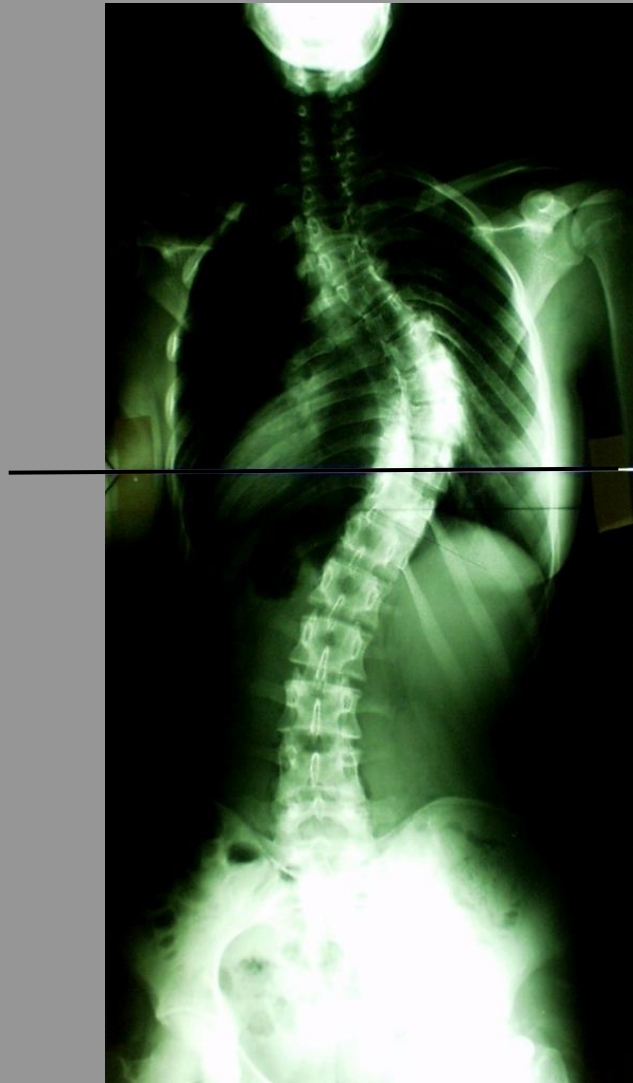
Physical examination



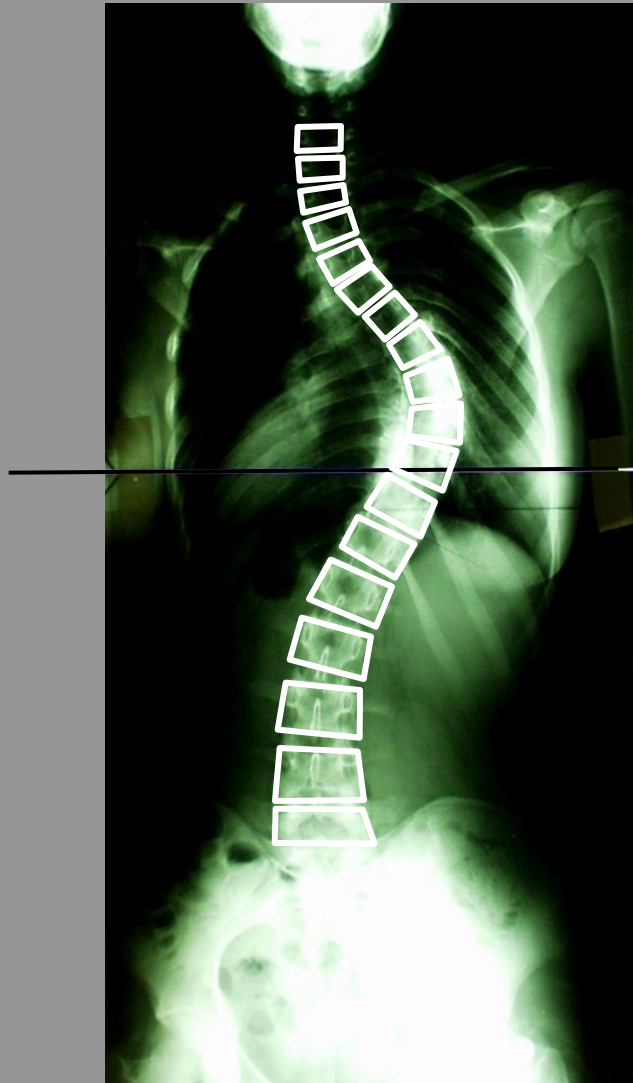
Hungary: 5-9‰
USA: 1 ‰



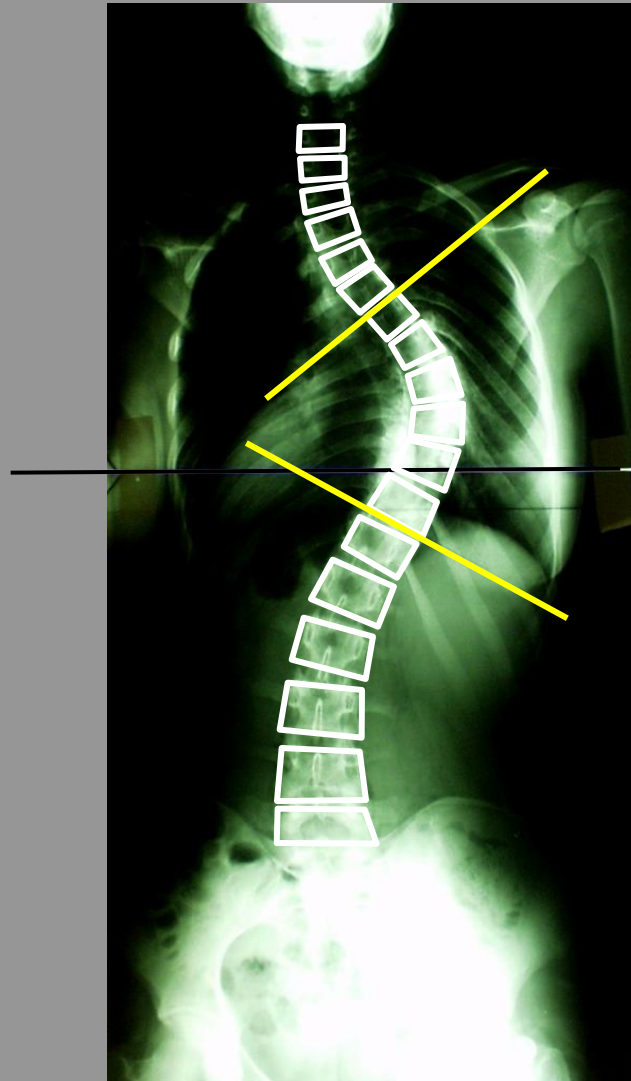
Radiological examination of the scoliosis



Radiological examination of the scoliosis

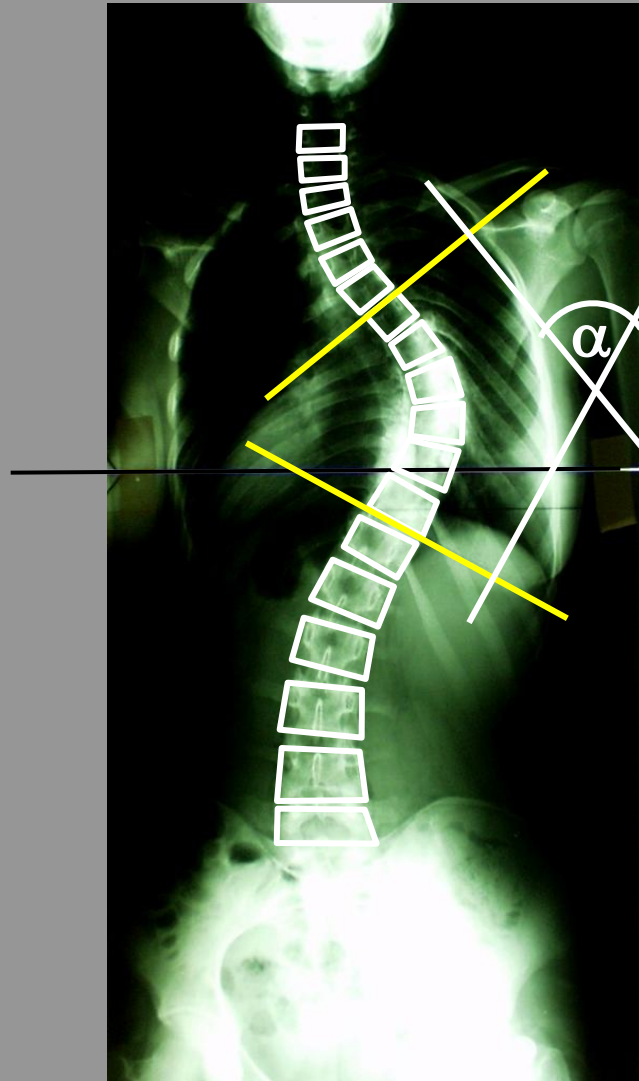


Radiological examination of the scoliosis



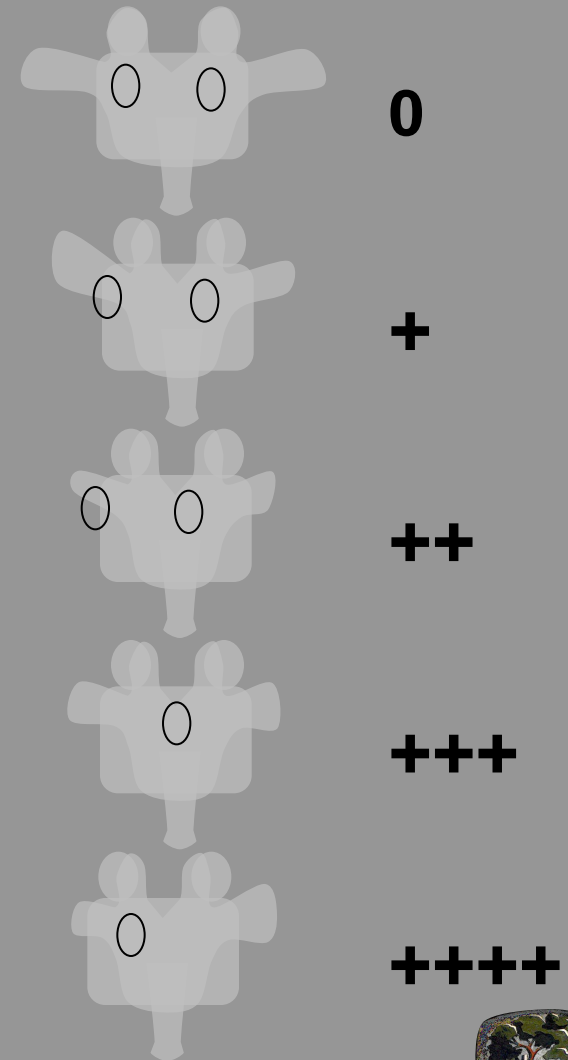
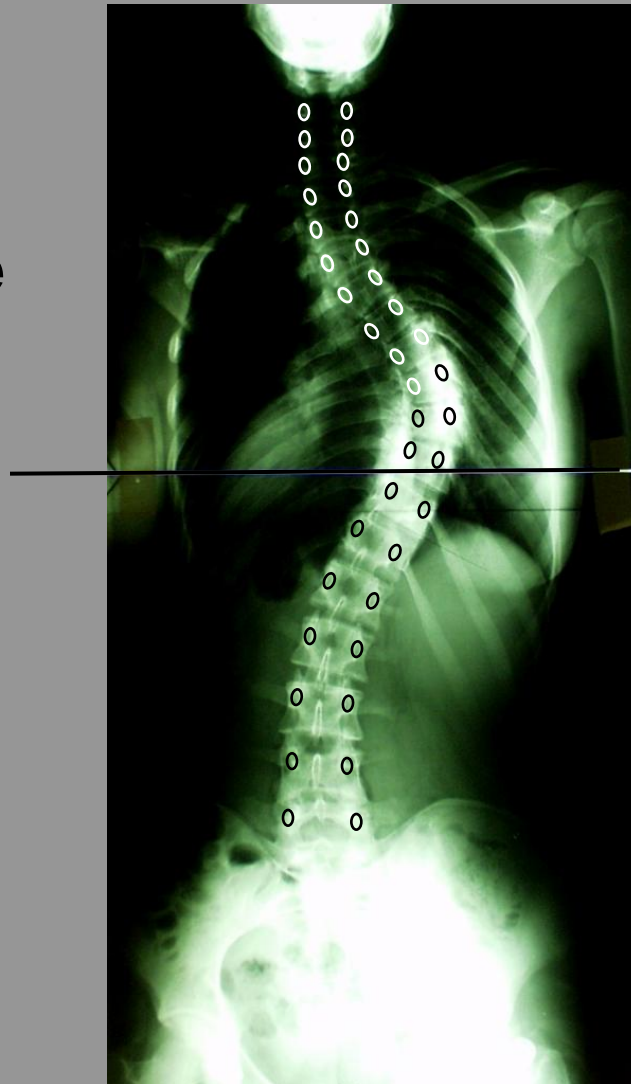
Radiological examination of the scoliosis

α = Cobb angle

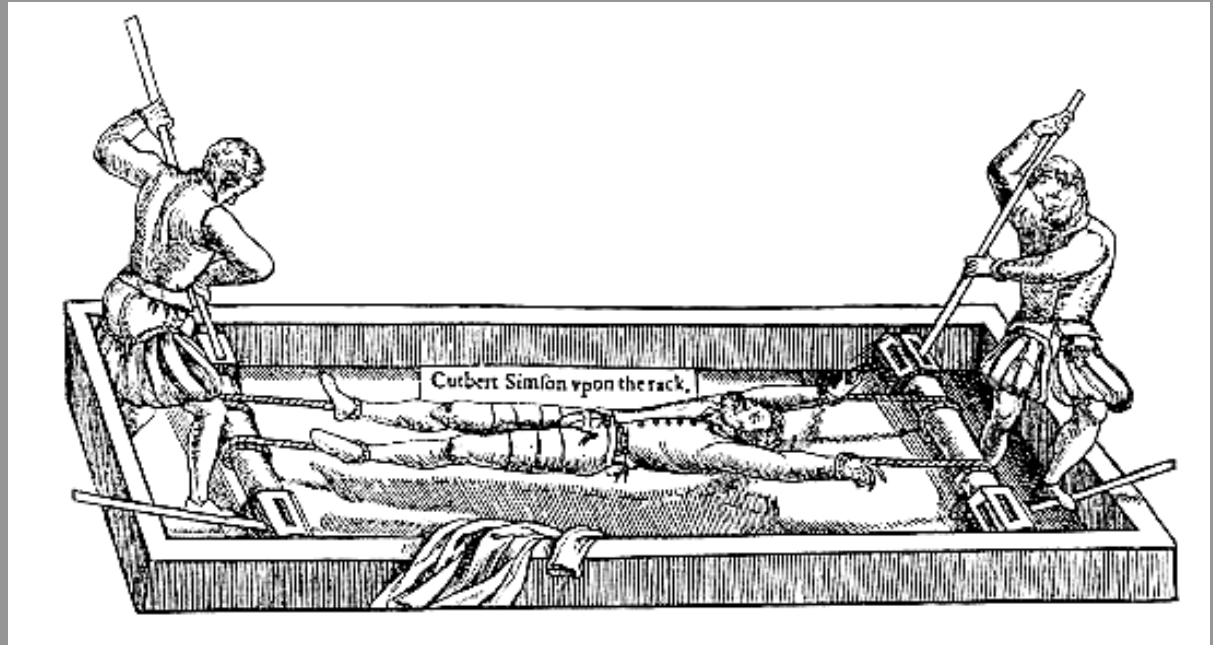
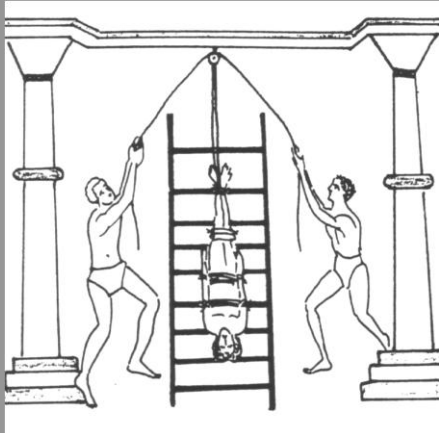
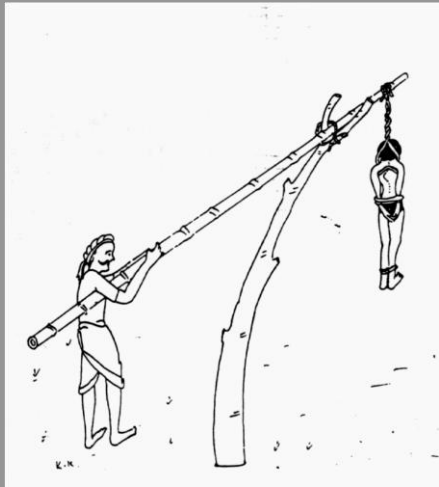
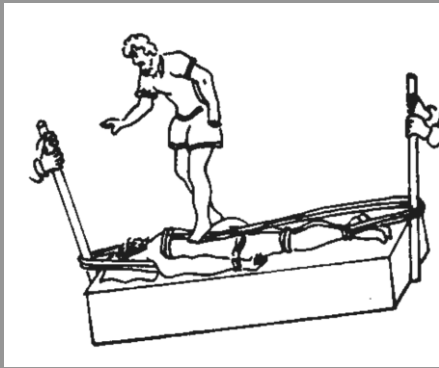


Radiological examination of the scoliosis

Classification of the rotation by Moe



History of the treatment



Treatment strategy



Conservative treatment

If no surgery is needed or wanted

- ☛ Cobb 10-40 degrees
- ☛ Risser's stage 0-3
- ☛ Surgery is contra-indicated up to skeletal maturity

Surgical treatment

- ☛ cardio-respiratory pb.
- ☛ pain
- ☛ paresis/paralysis
- ☛ cosmetic problem
- ☛ psychological problem

3/5 + Cobb angle $> 40^\circ$ = surgery



Treatment of the scoliosis



Conservative treatment

physiotherapy
remedial gymnastics
swimming

corset

Surgical treatment

release

and/or

instrumentation

and/or

arthrodesis

dorsal

and/or

ventral exploration



Corset therapy



Stop or decrease the worsening of curve
Enhance the compensation of entire spine



Corset therapy - Cheneau



Brace – SpineCor



Value of Physiotherapy



Value of Physiotherapy

Breathing exercises

Upper trunk correction (autocorrection and remedial gymnastics)

Elimination of disadvantages of corset (general muscle training)

Psychological support for the child

Swimming

DO NOT :Exemption from school excercises



Treatment of the scoliosis



Conservative treatment

physiotherapy
remedial gymnastics
swimming

corset

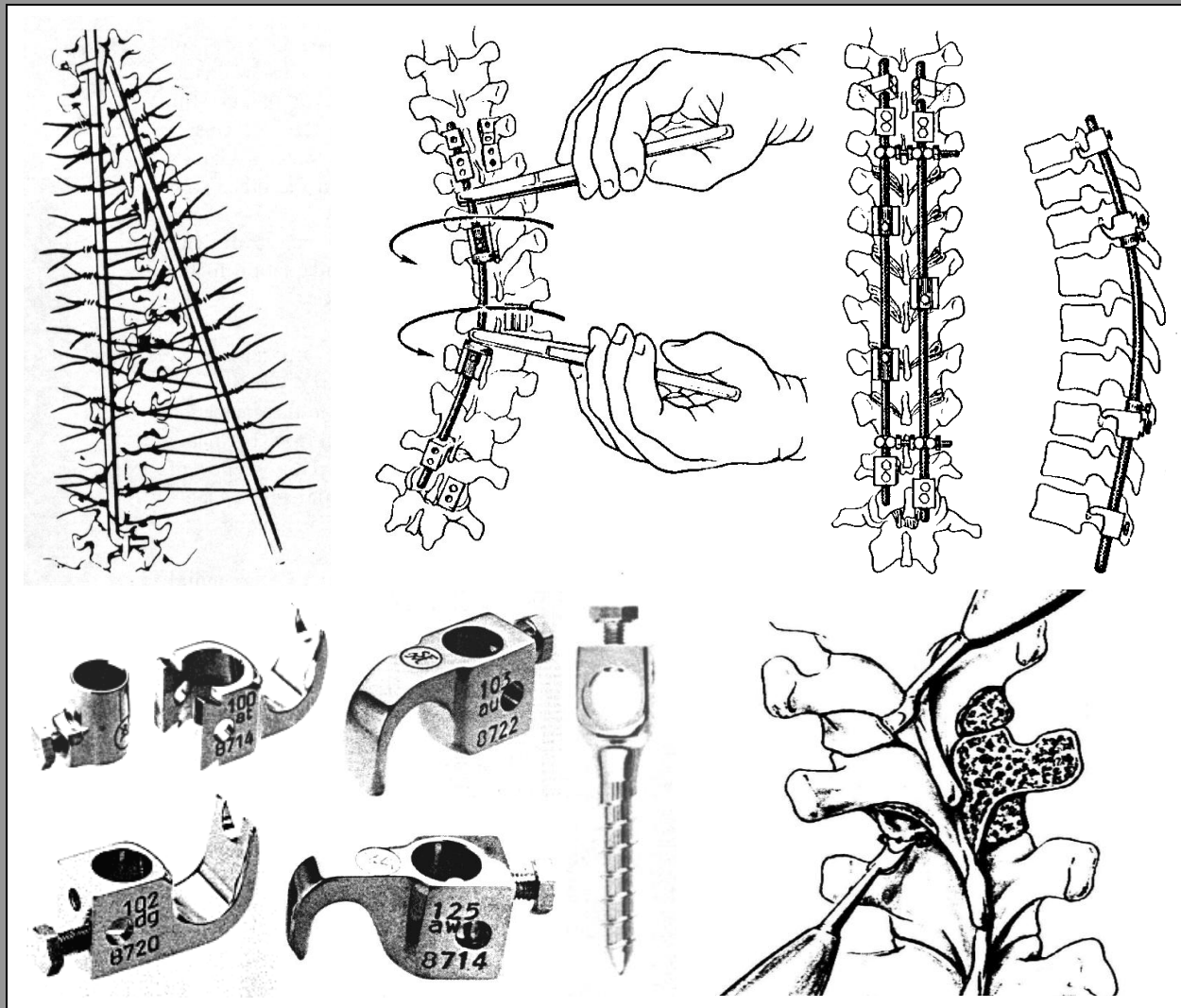
Surgical treatment

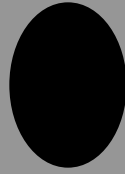
release
and/or
instrumentation
and/or
arthrodesis

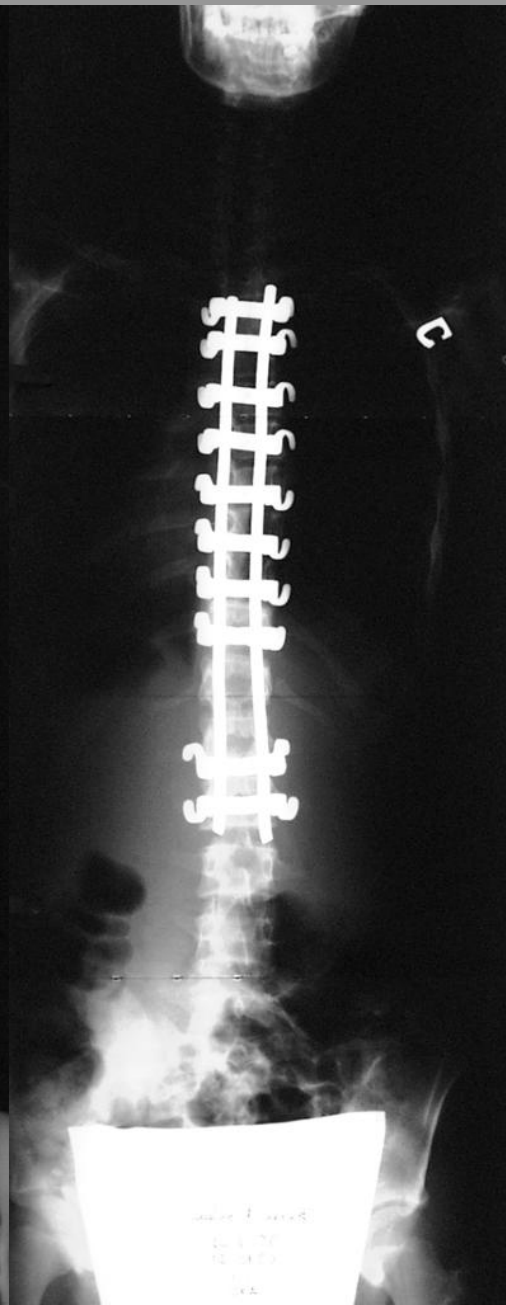
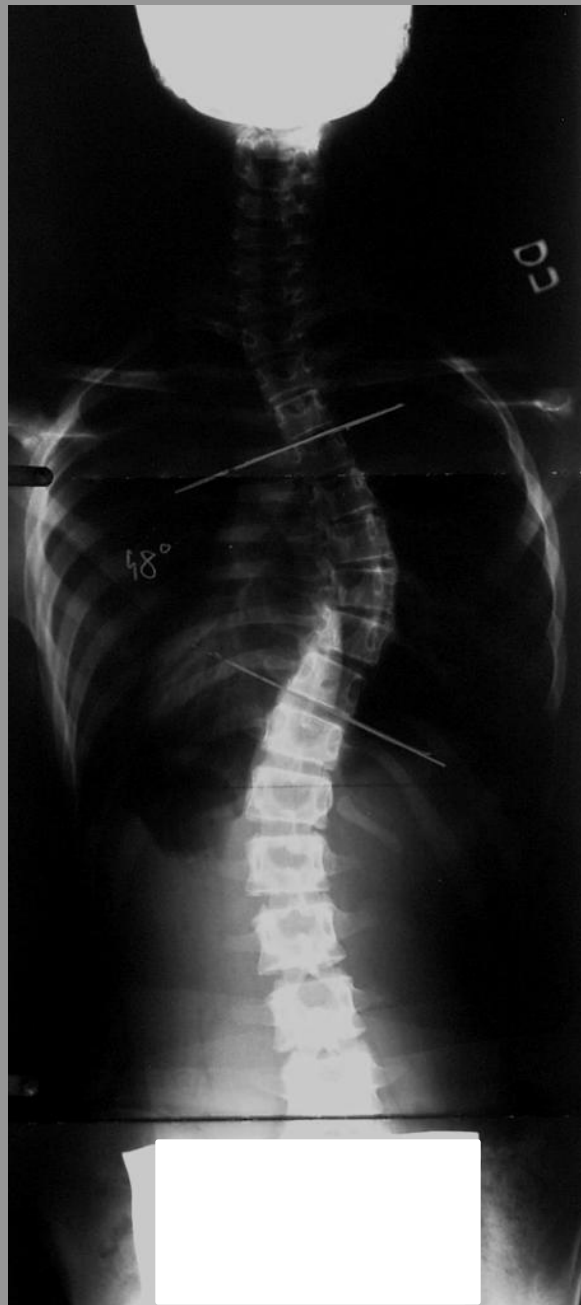
dorsal
and/or
ventral exploration

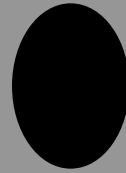
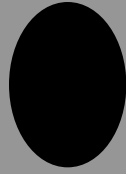


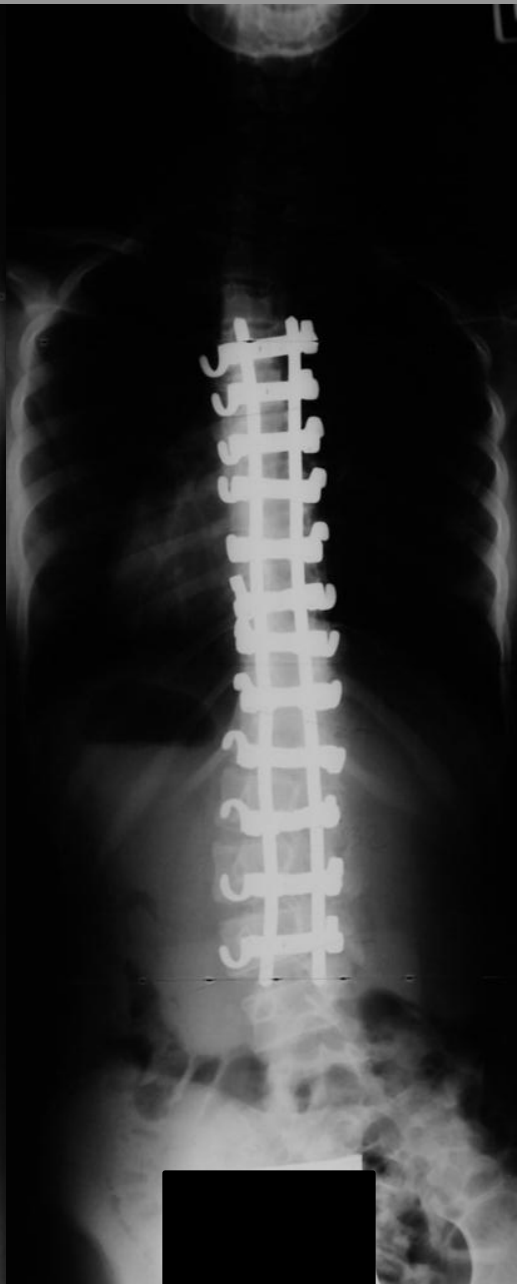
Surgical treatment

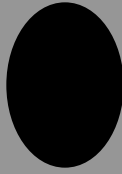


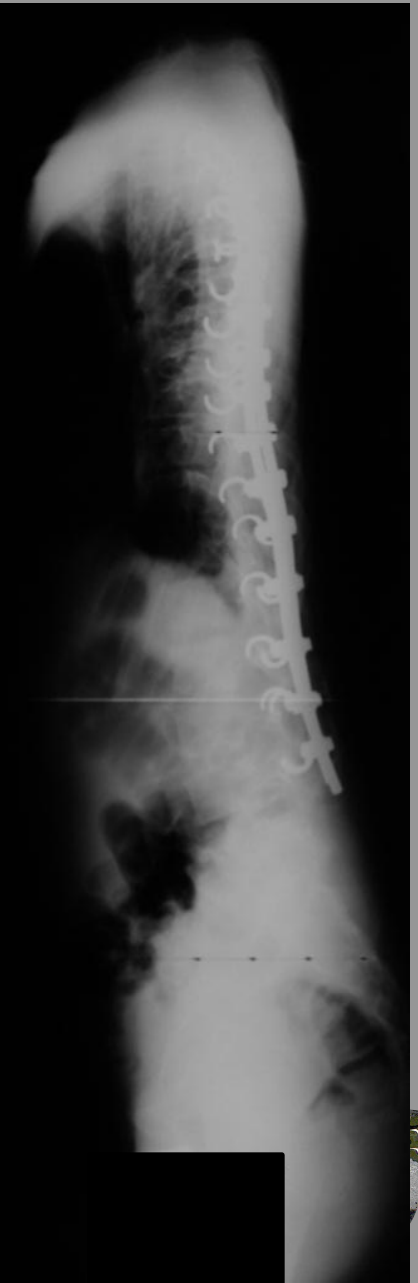
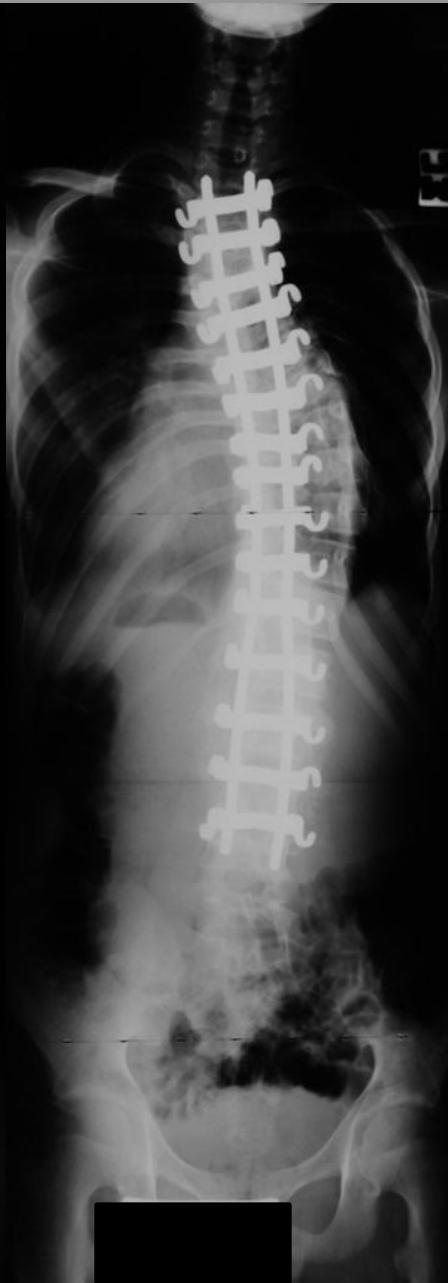












Surgical treatment



Conclusion

- Screen - Examine the patient correctly
- Request standing X ray
- Send to orthopaedic
- Start physio
- Think brace and surgery



Thank you for the attention!!!!

