



SAMM
Jahreskongress 2016
Interlaken



Jugendliche Skoliose

Ursache und Management

Was ist eine Skoliose ?



8j, w 25°



11j 42°



12j 50°

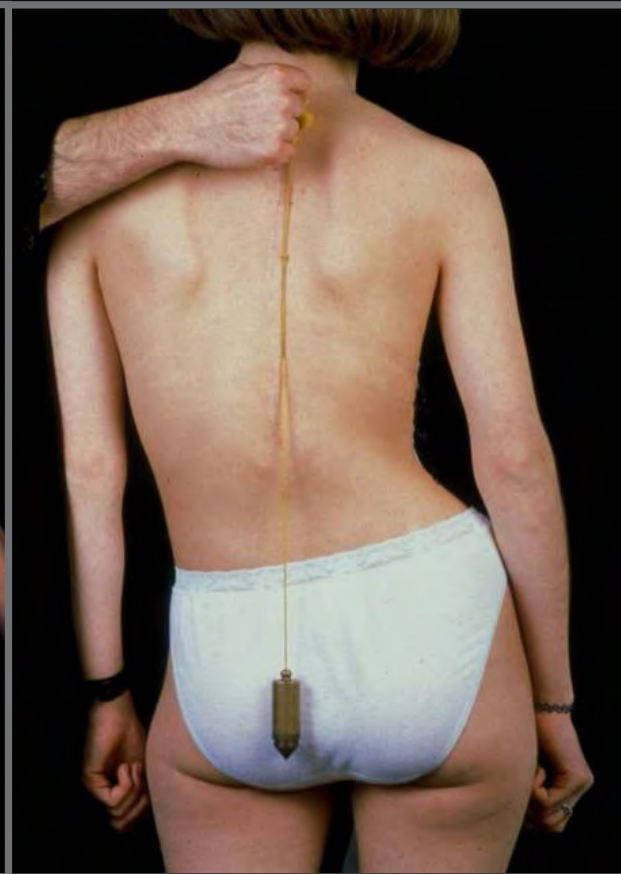
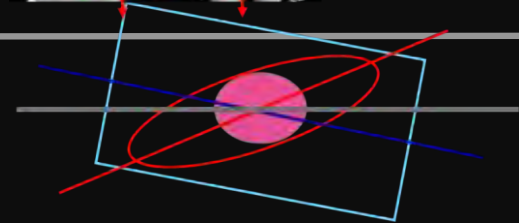


12.75j 70°

4 Jahre Korsett-Therapie

Op

3D - Deformity



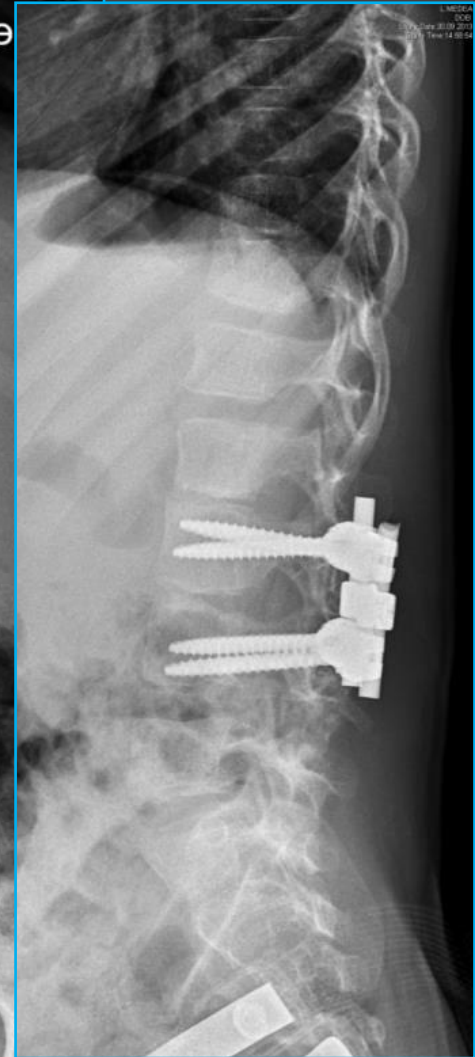
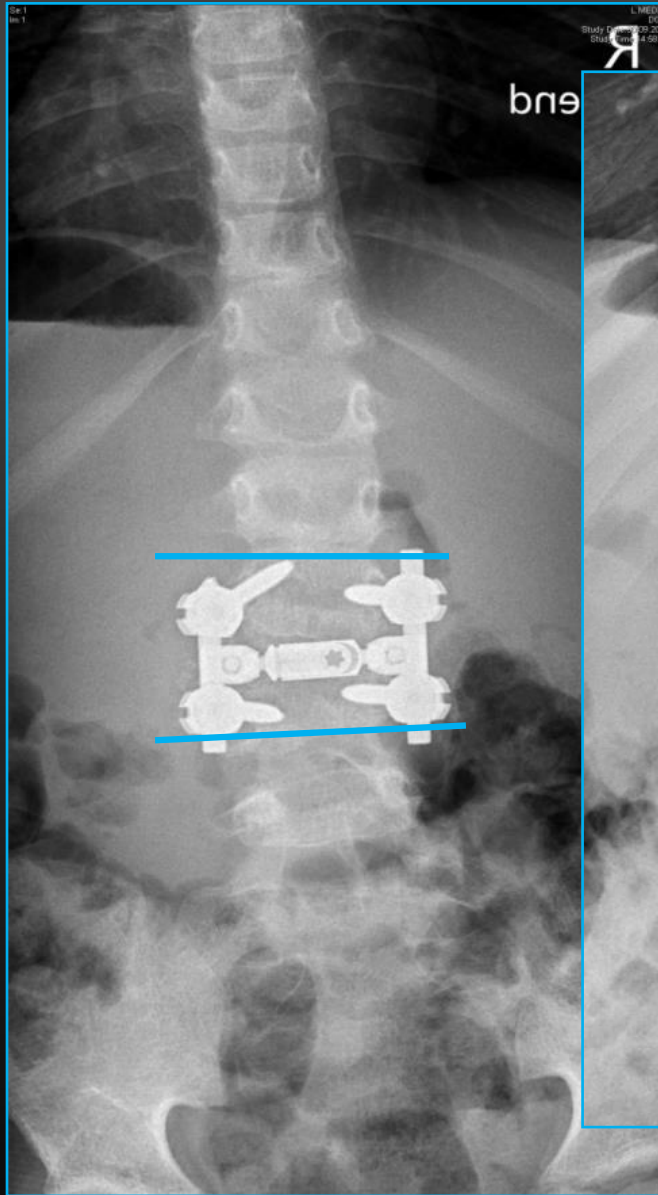
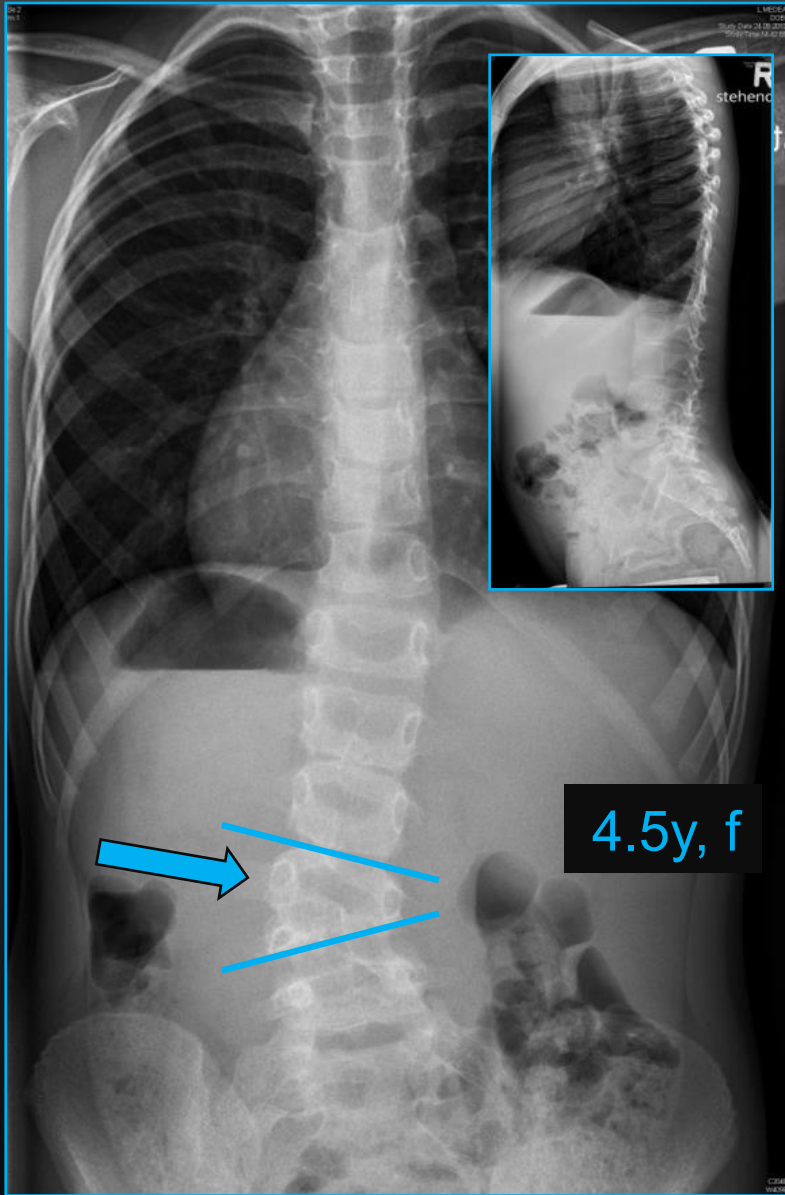
Gründe

Early onset (<10 Jahre)

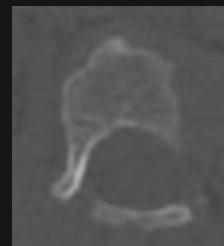
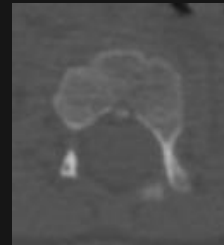
- **Kongenital (Wirbelfehlbildungen)**
- **Idiopathisch**
- **Syndromal**
- **Neurogen**

Neuromuskulär

Idiopathische Adoleszentenskoliose



Kniest Syndrom, Kleinwuchs



Marfan Syndrom, 12j, w



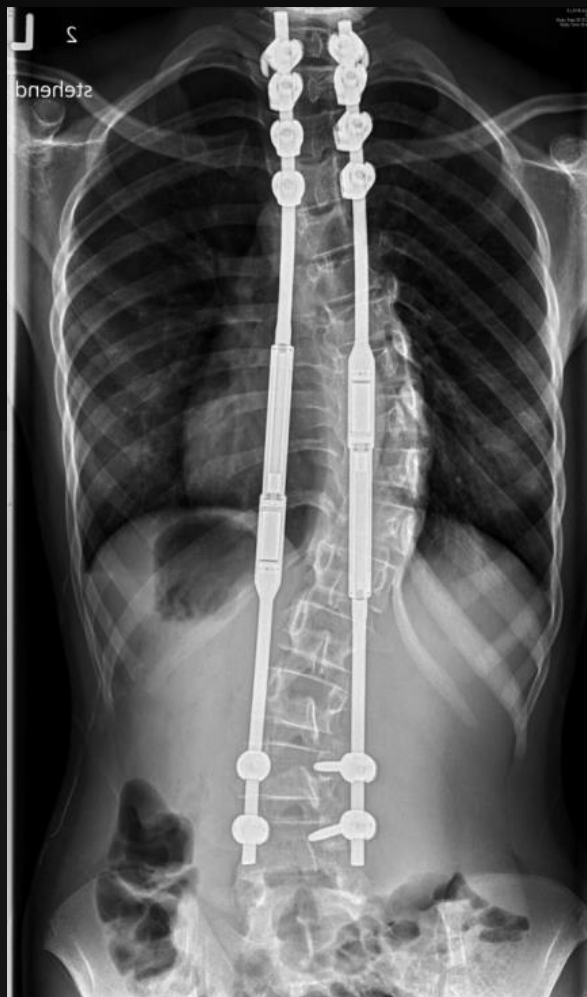
2 Wochen Halotraktion



Neuromuskuläre Deformität bei Cerebralparese



10j w *idiopathische* Early Onset Scoliosis



BB

Idiopathische *Adoleszenz*skoliose

Epidemiologie

Skoliose Inzidenz

16 Jahre alte Mädchen

2% Krümmungen $>10^\circ$

0.5% Krümmungen $>20^\circ$

Schweiz pro Jahrgang ca. 40000 Mädchen

dh ca. 800 mit Skoliosen bei den 16-jährigen

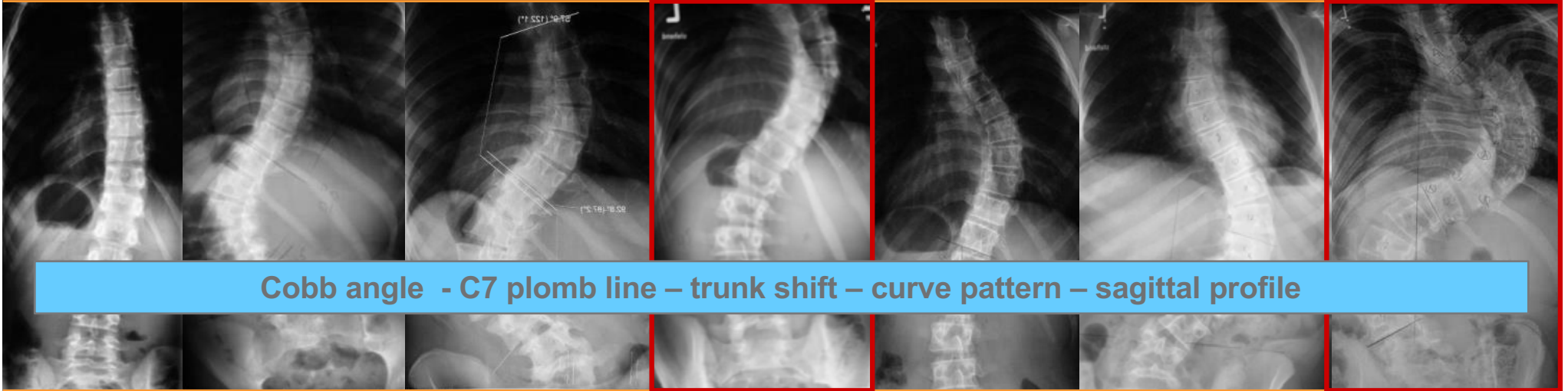
200 mit $>20^\circ$ (Korsett-Therapie ?)

Volkszählung 2000



Ca. 10000 Physios in der Schweiz, davon 400 Kinderphysios

Deformität und klinisches Bild

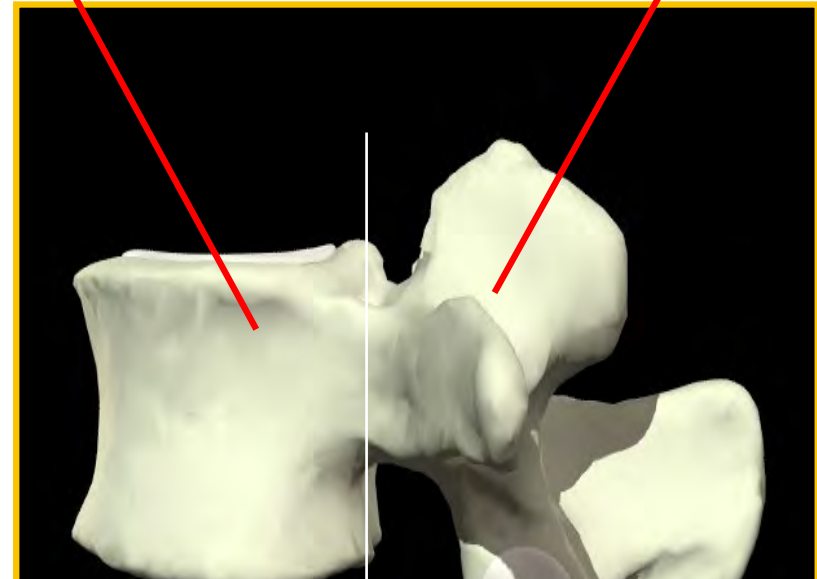


Pathogenesis



enchondral ossification

membr. ossific

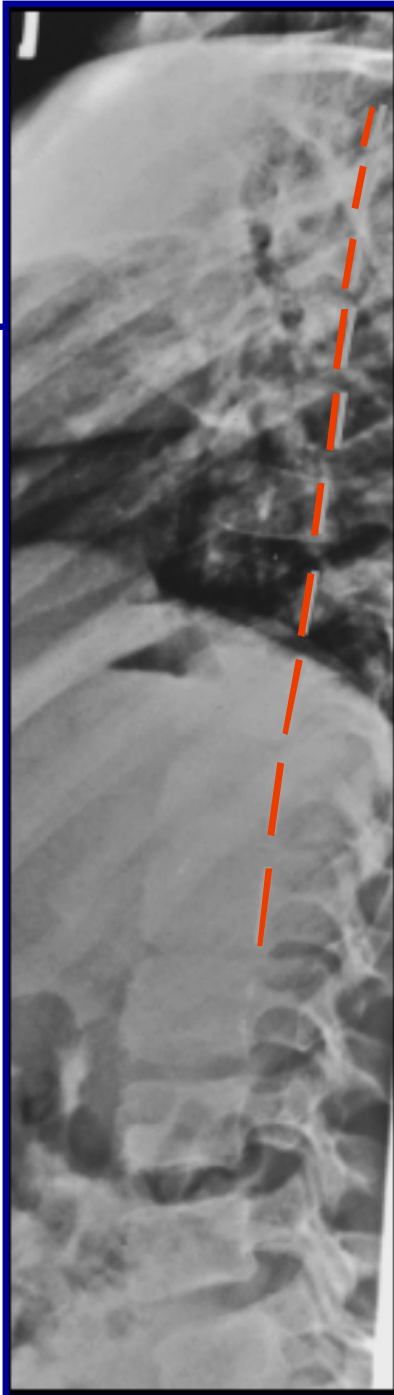
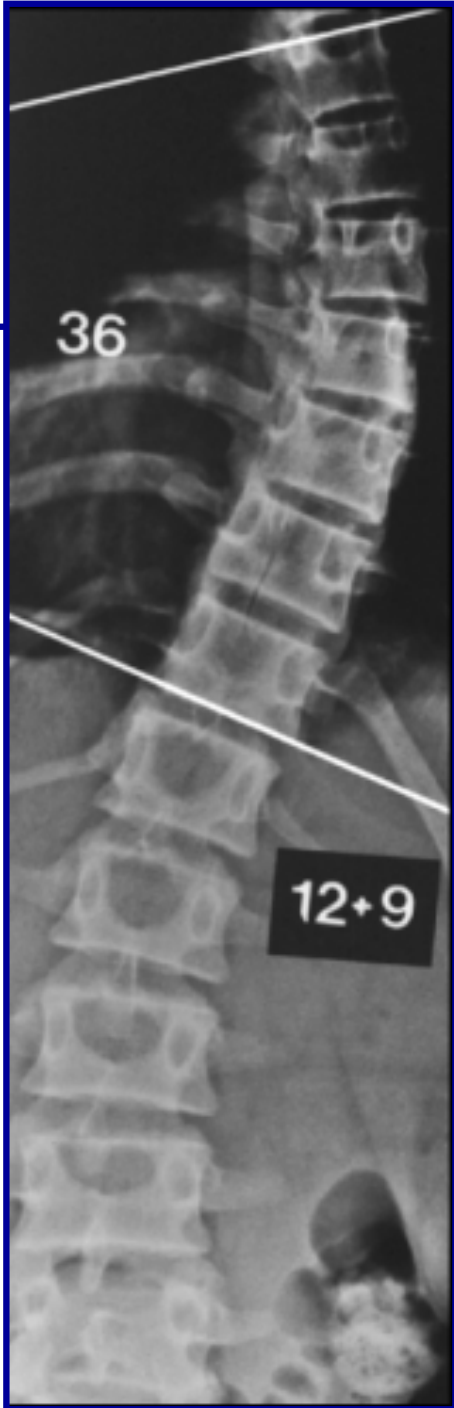


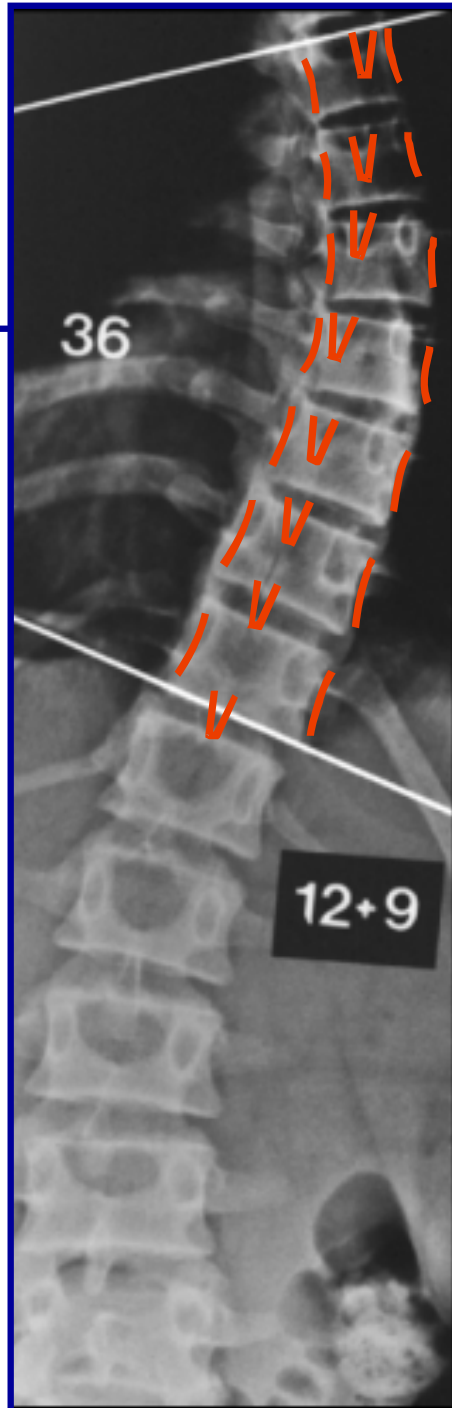
MRI stud<: disproportional growth

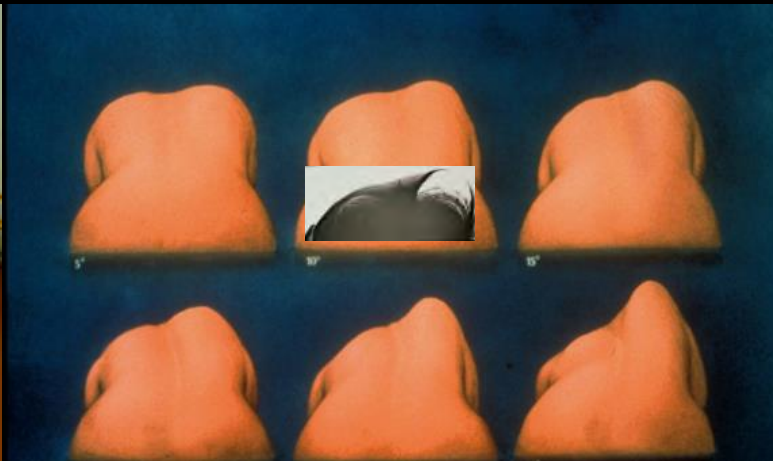
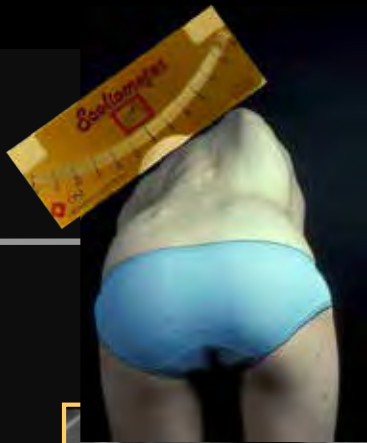
Guo X et al(2003)

Relative anterior spinal overgrowth in adolescent idiopathic scoliosis.

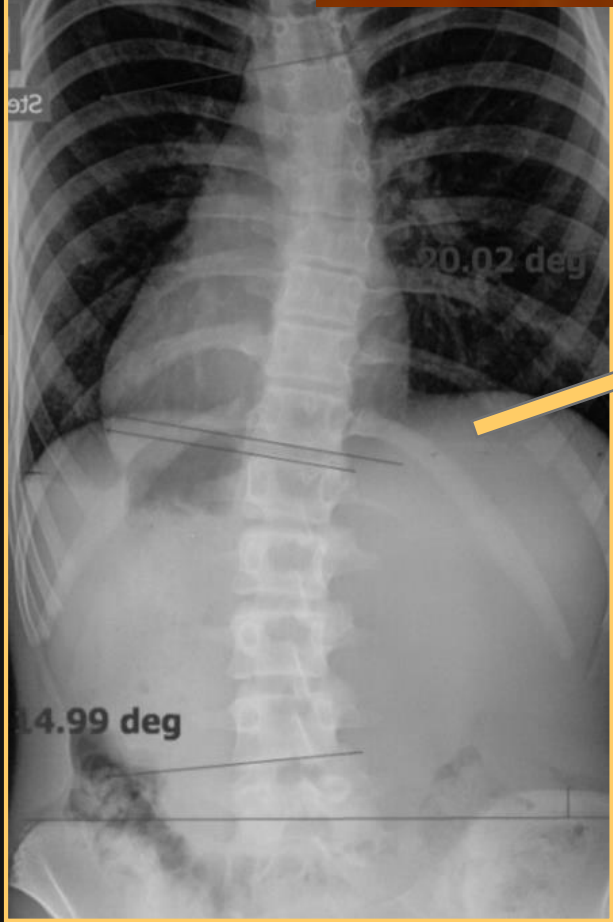
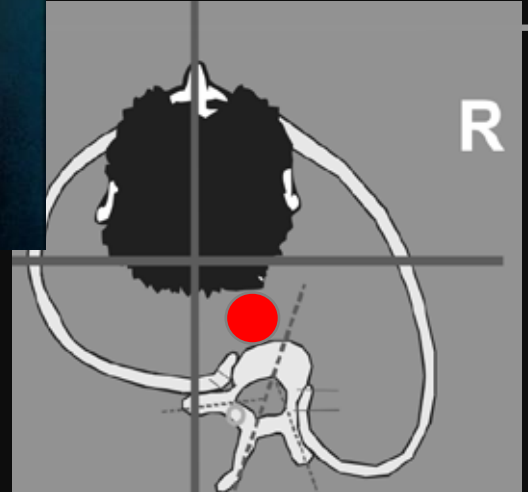
J Bone Joint Surg 85-B: 1026-31



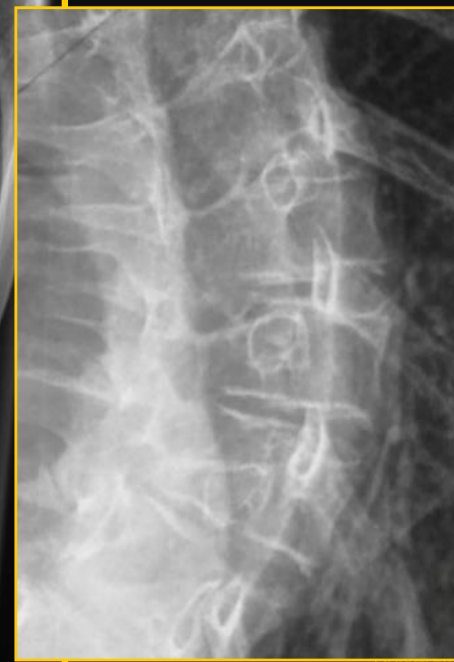
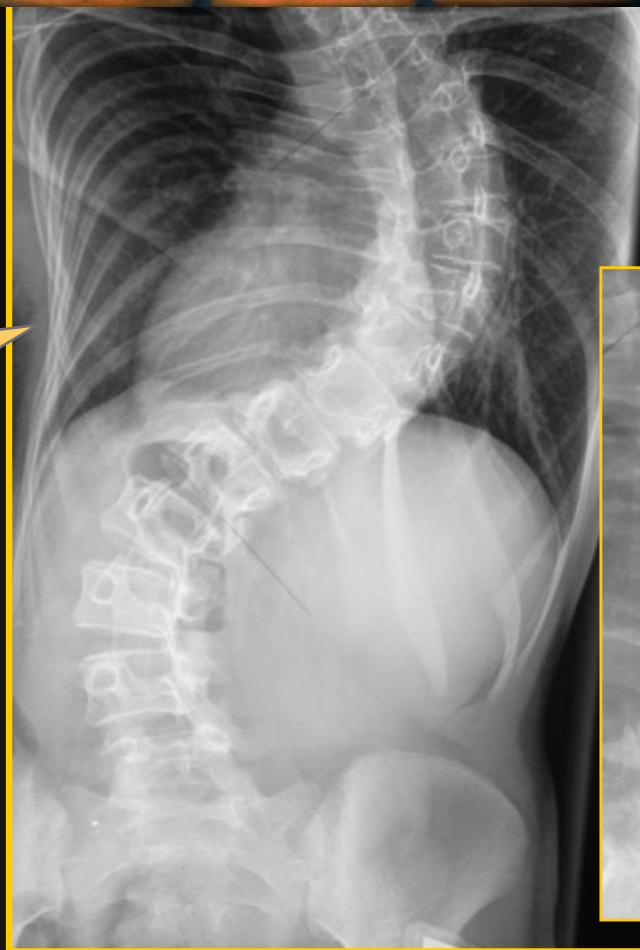




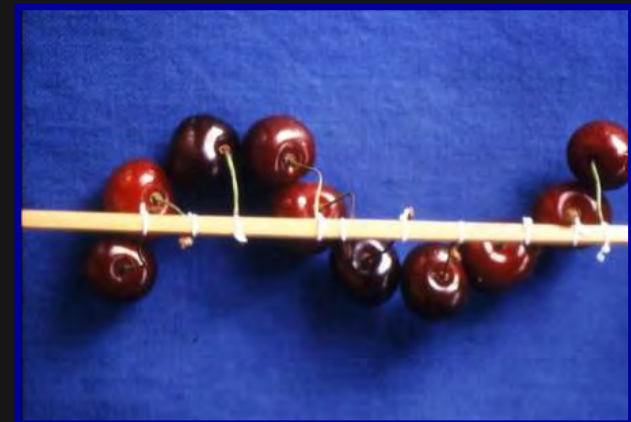
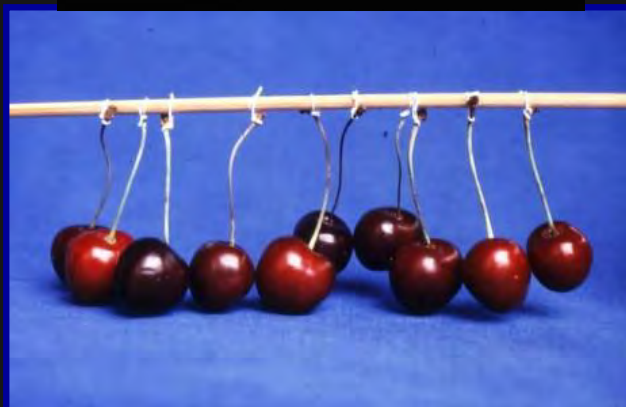
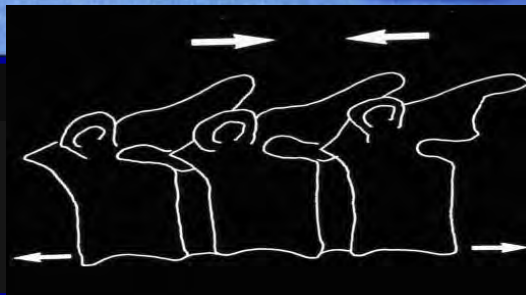
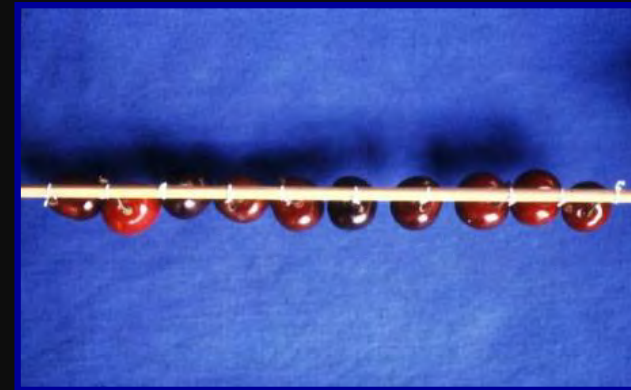
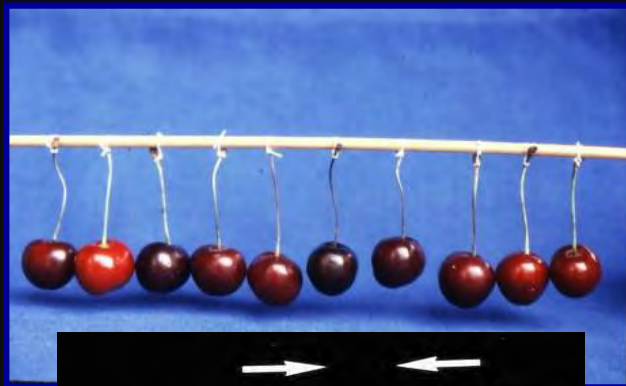
Intravertbral torsion
Intervertebral rotation
Intrinsic rib deformity



?

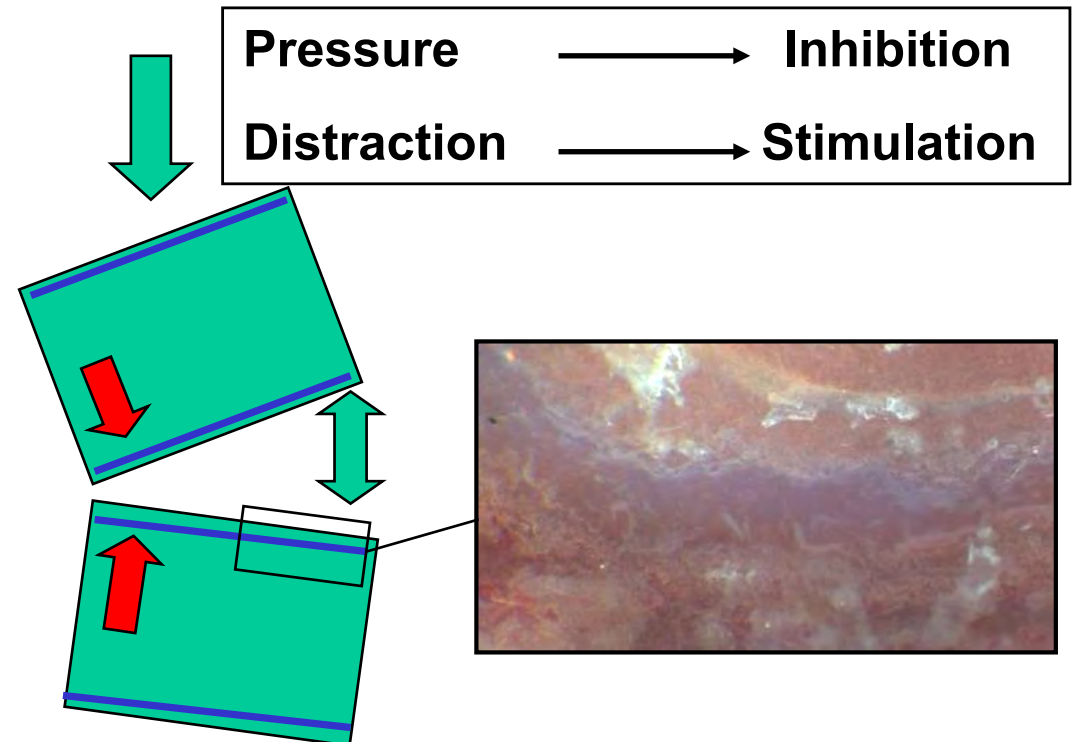
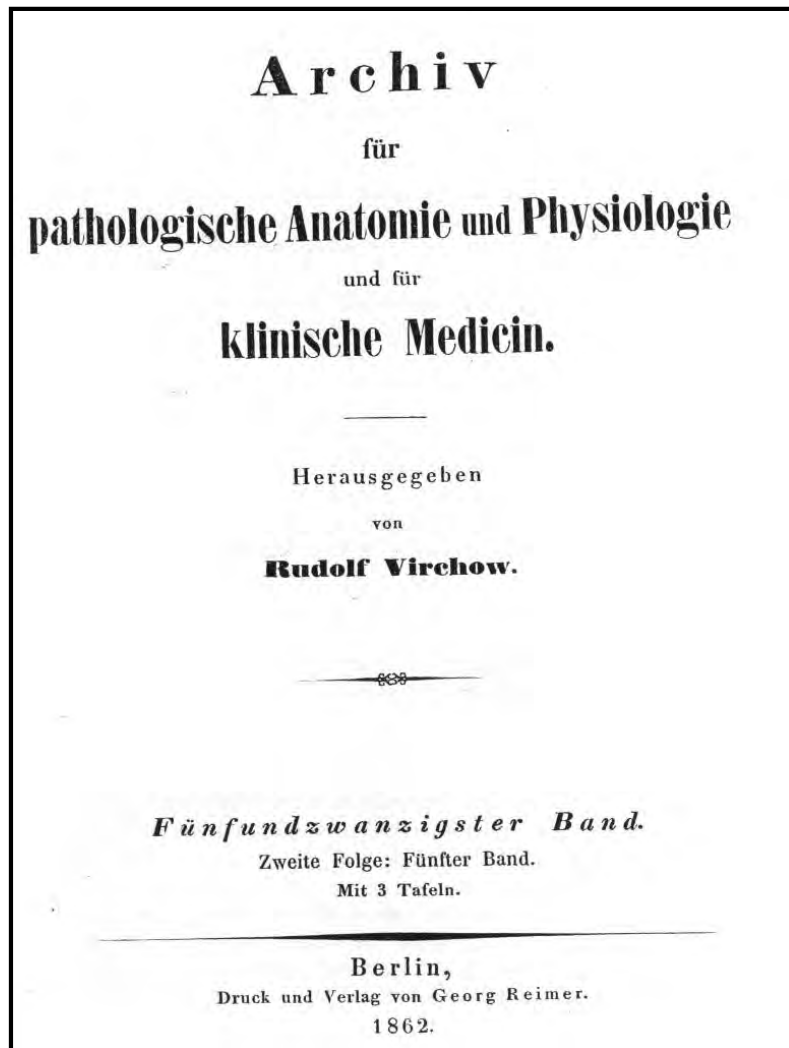


Idiopathische Adoleszentenskoliose



R. Volkmann und C. Hueter 1862

Chirurgische Erfahrungen über Knochenverbiegungen und Knochenwachstum

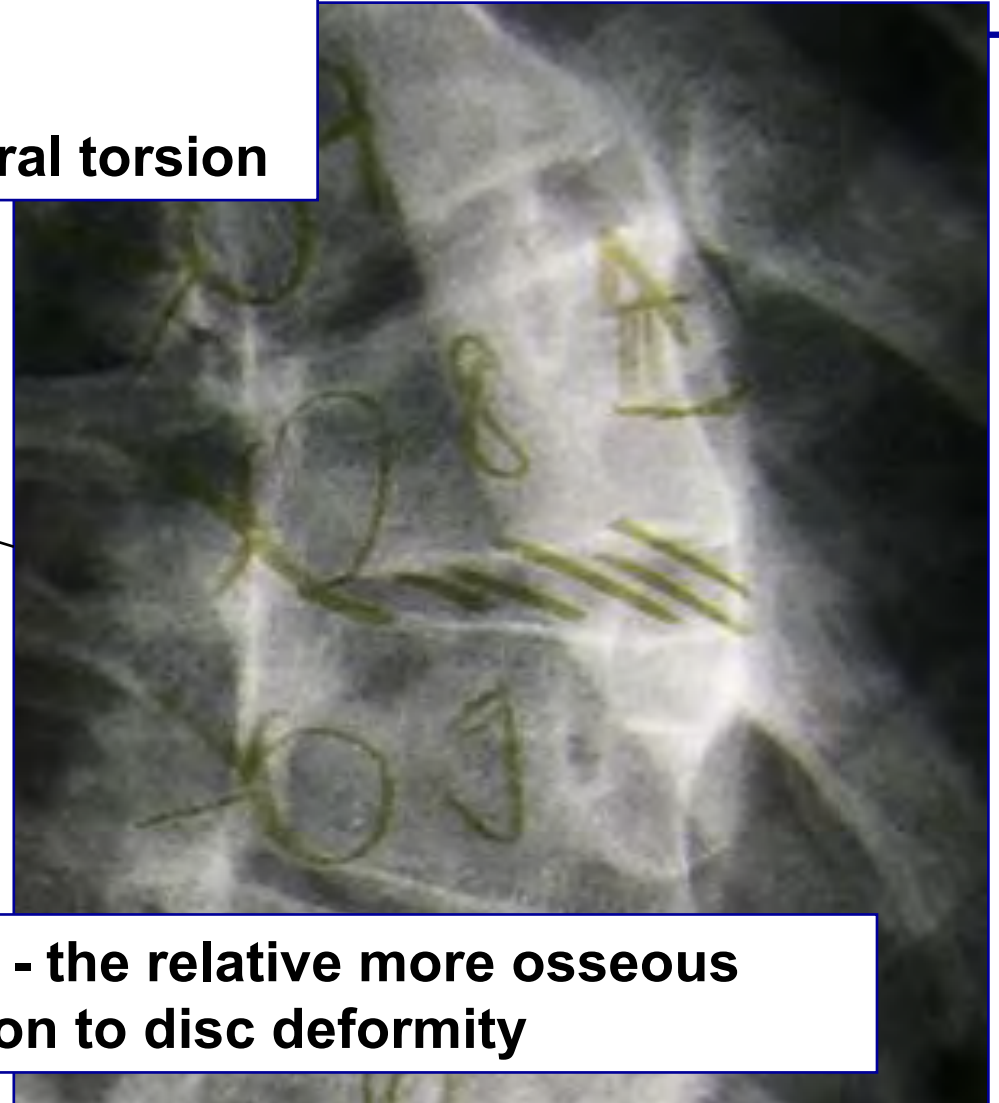
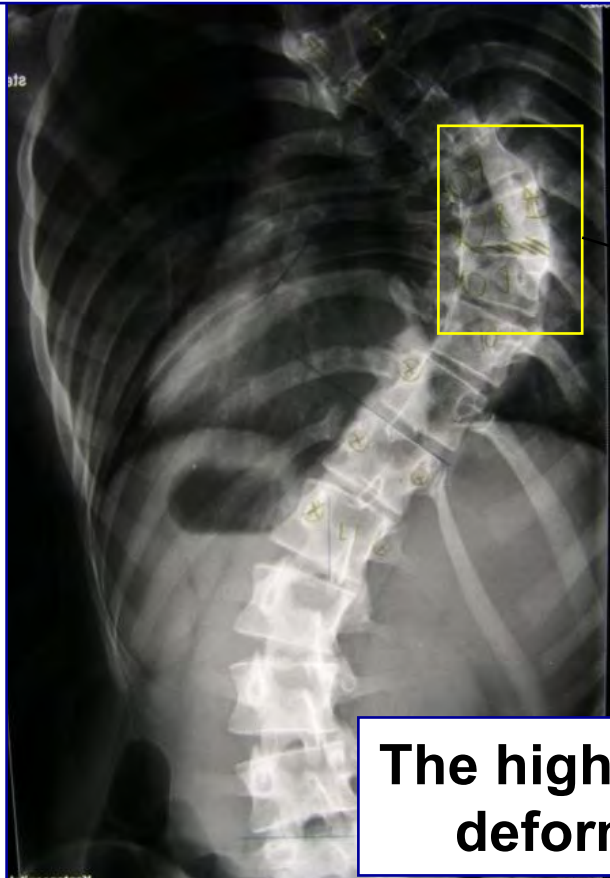


3D Vertebral deformity

Sagittal plane: reversed wedge

Coronal plane: wedge

Transverse plane: 5-10° intravertebral torsion

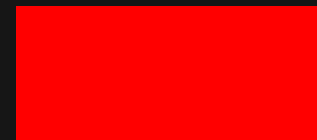
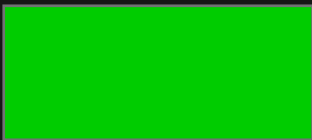


The higher the curve - the relative more osseous deformity in relation to disc deformity

?

?

?



Unbemerkt stark progredient



Erstkonsultation 17j,
w, 82°L, 58°Th

Schnelles Wachstum

Veränderte
Selbstwahrnehmung

Identitätskrise

Ablösung von Eltern

Gesund, keine Schmerzen

Seltene Arztbesuche

Wahrscheinlichkeitsrechnung und Bauchgefühl

Variablen Skoliose=multifaktorielle chronische Erkrankung

Je grösser Krümmung und je unreifer der Patient
desto höher das Risiko der Zunahme

Knochen-, Muskelstatus, koordinative Faktoren

Genetik prädiktive Tests "scoliscore"

Epigenetik

Wirbelsäulenwachstum

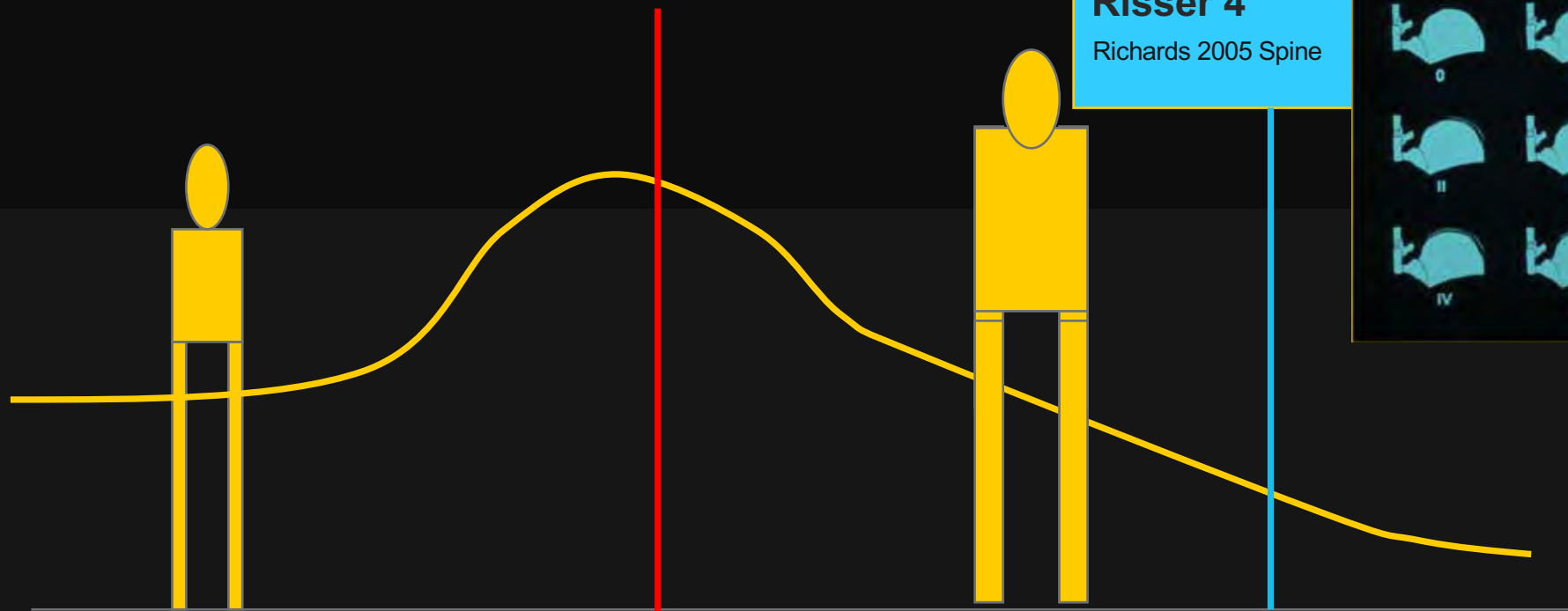
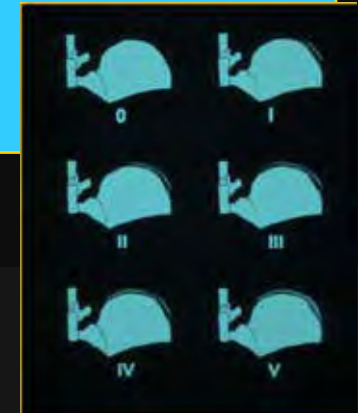
Skelettreife

>2y postmenarchal,

<1cm/6Monate Wachstum

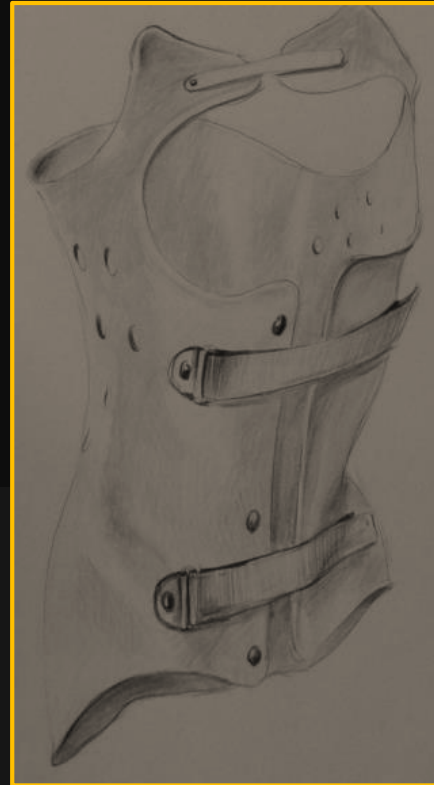
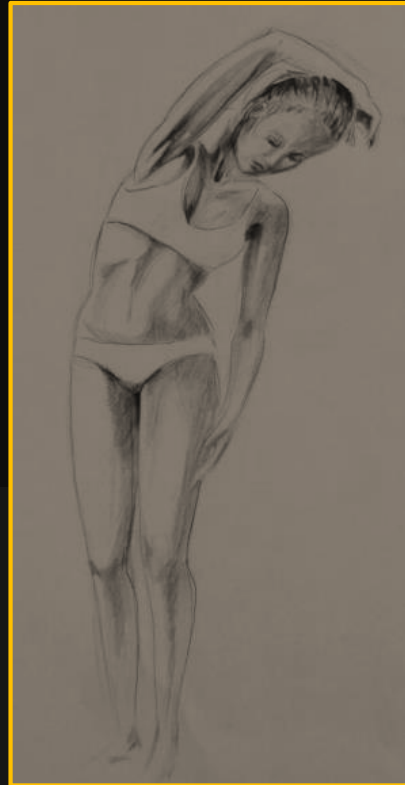
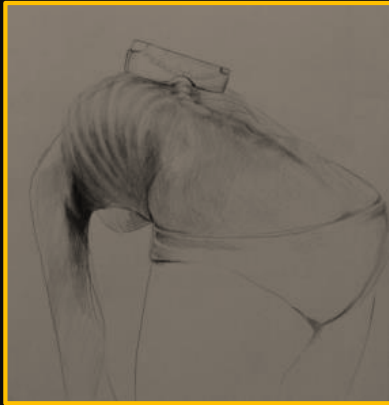
Risser 4

Richards 2005 Spine



Menarche

Therapieoptionen

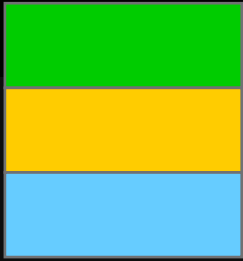


Observation

Physiotherapy

Brace

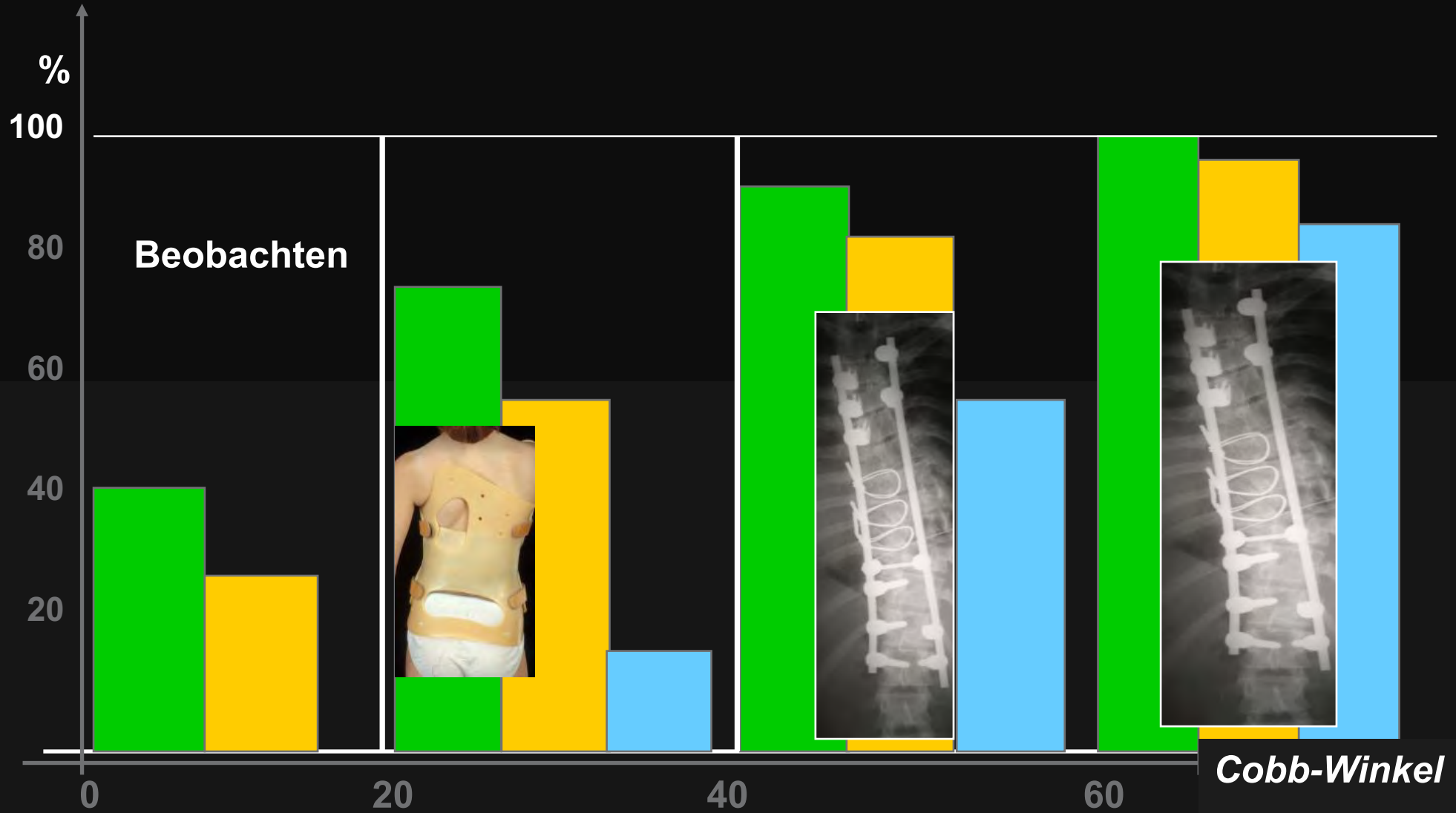
Surgery



Prämenarchal

0-2 Jahre postmenarchal

>2 Jahre postmenarchal



Beobachten

Cobb-Winkel

Rolle der Therapeutin

Komplexe Deformität

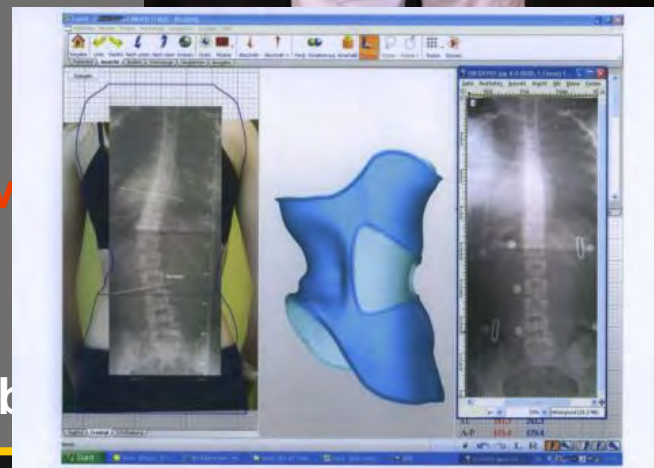
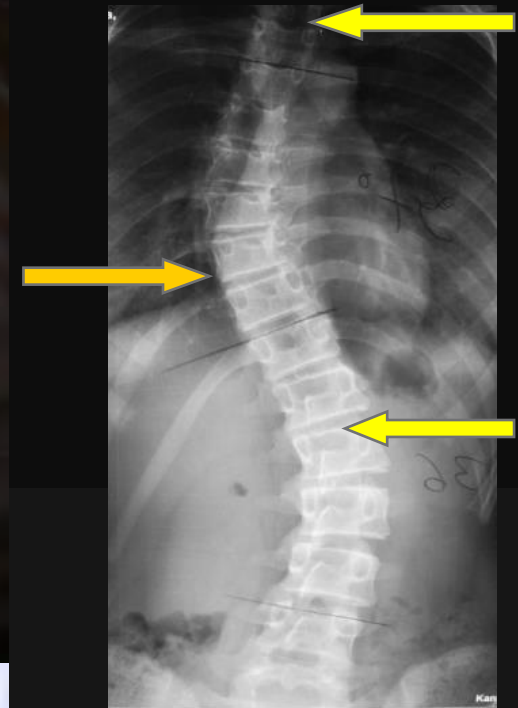
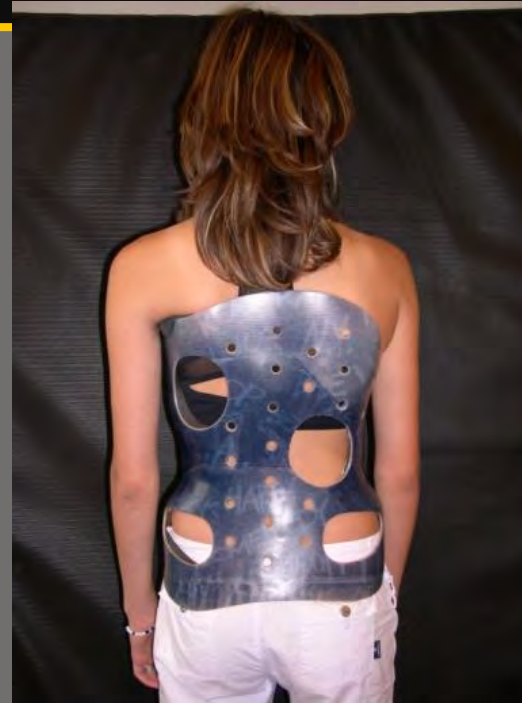
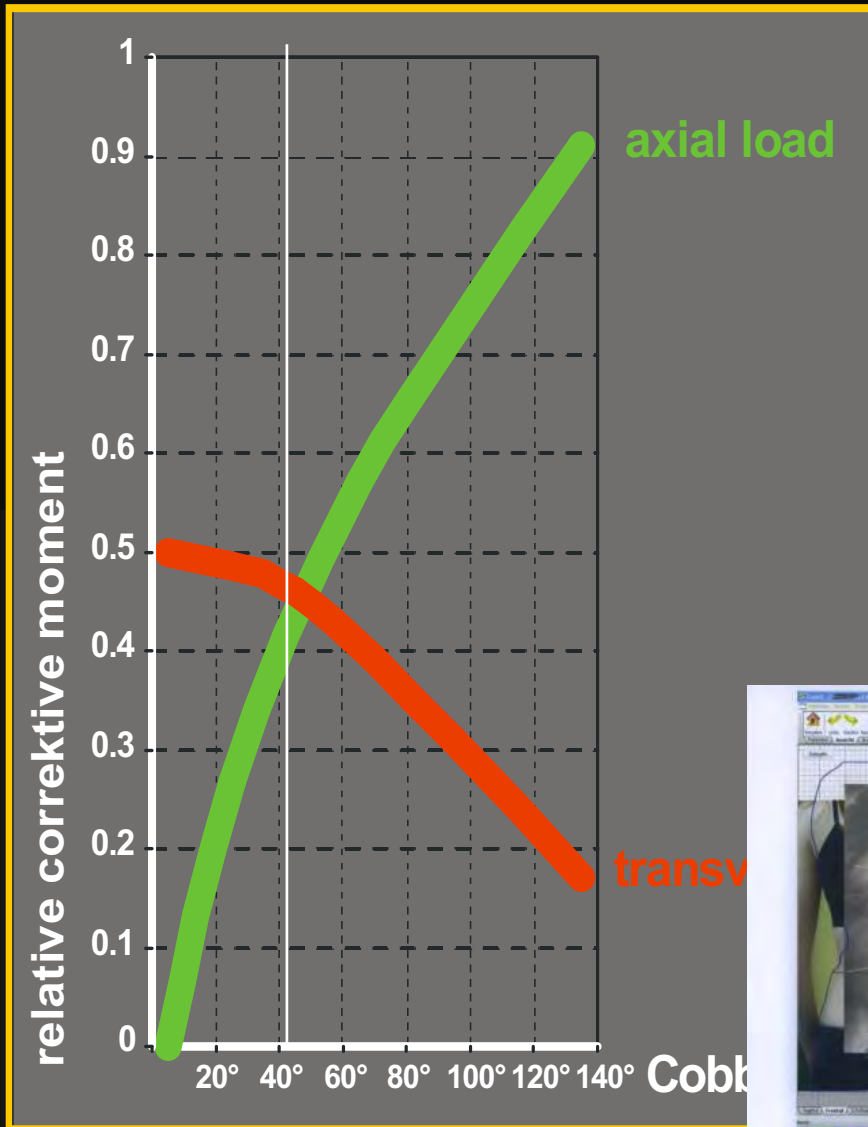
Wirbelsäule, Thorax, Becken, Schultergürtel

1. Grundlagen vermitteln
2. Befunderhebung, Dokumentation
3. 3D Rumpfkorrektur
4. Rumpfbalance frontal, sagittal
5. Statisch, dynamisch
6. Körperwahrnehmung
7. Haltung und Verhalten
8. Übungsvariation



1. Selbstwahrnehmung, 3D Selbstkorrektur
2. Haltungsverbesserung
3. Sagittales Profil
4. Kräftigung, Dehnung
5. Kardiopulmonale Funktion
6. Selbstachtung, Vertrauen, Motivation
7. Supervision, Heimprogramm
8. Tägliche Verrichtungen, Sitzen etc
9. Schmerzbehandlung
10. Persönliche Beziehung „PsychologIn“
11. Korsettkontrolle

Korsett-Therapie 25-40°



Korsett Therapie 20 – 40° Cobb Winkel

Risser 0-2

Bis < 1 Jahr postmenarchal

20 Std/Tag + Physiotherapie

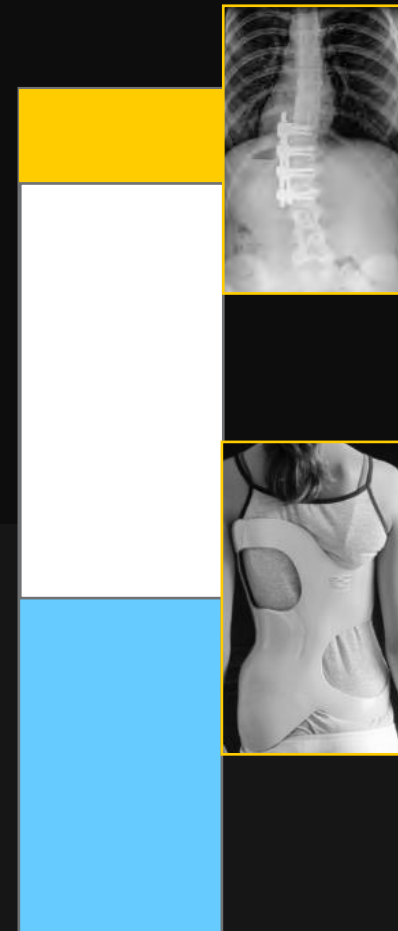
Keine 3D Korrektur

Übertherapierte, 10-20% werden operiert

Ziel: 30-50% „in brace“ Korrektur

Nicht nachhaltig, Compliance

Keine echten Alternativen



Abschulung weaning, 6 Monate noch nachts

Bei Skelettreife

>2Jahre postmenarcheal

<1cm/6 Mte Wachstum

Risser 4 Skeletalter w 14, m 16J



2 Jahre nach Abgewöhnung des Korsetts im Erfolgsfall wieder Ausgangswinkel erreicht

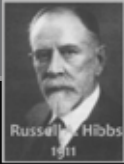
Cobb Winkel $>50^\circ$ bei Wachstumsabschluss

0.5 bis 1° Krümmungszunahme pro Jahr

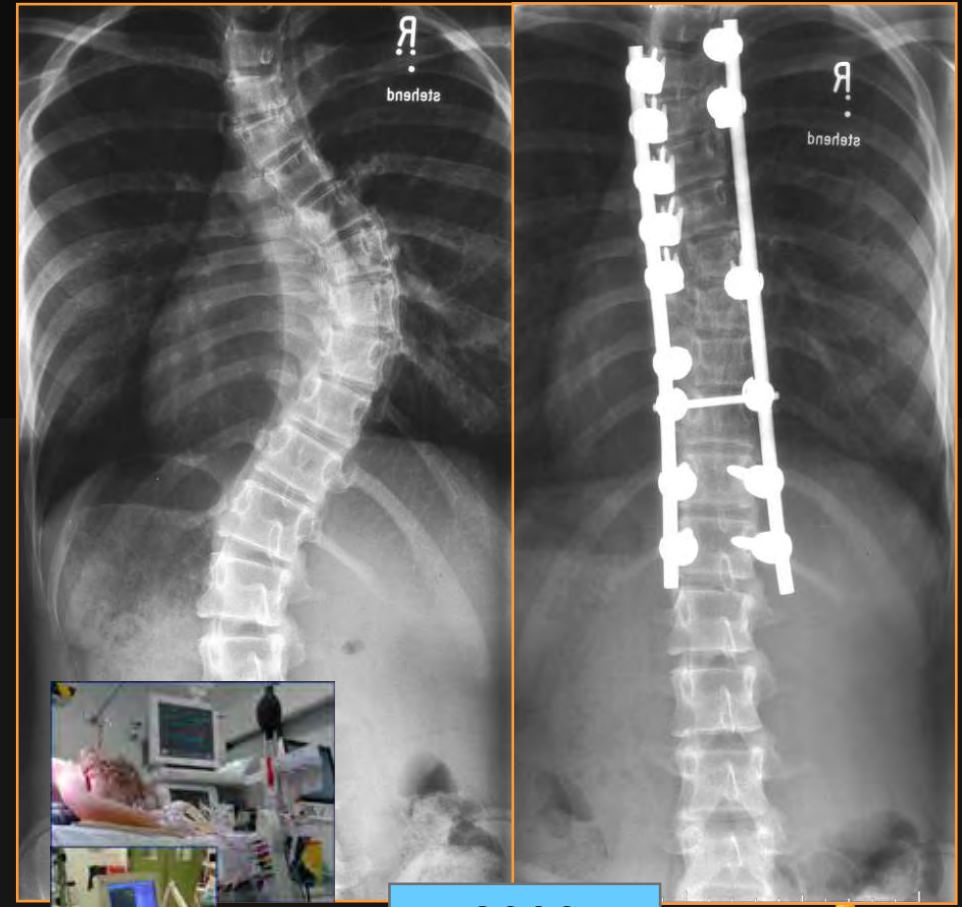


Change of paradigm from

«Happy to survive» to «QoL»



1970

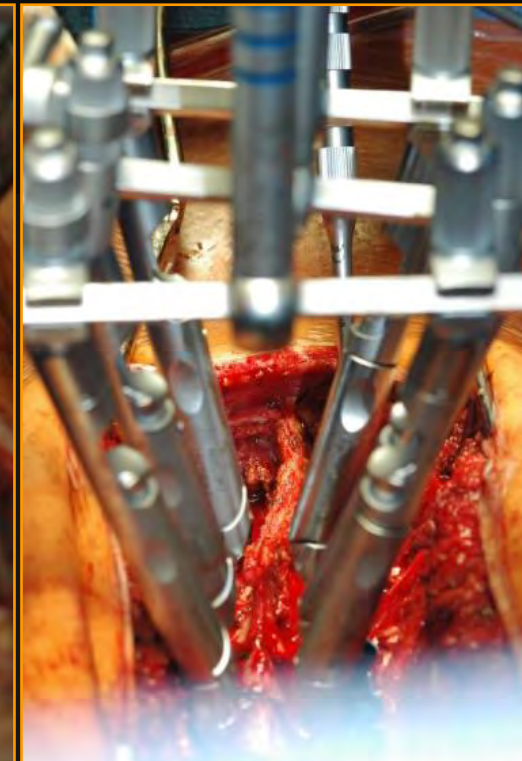
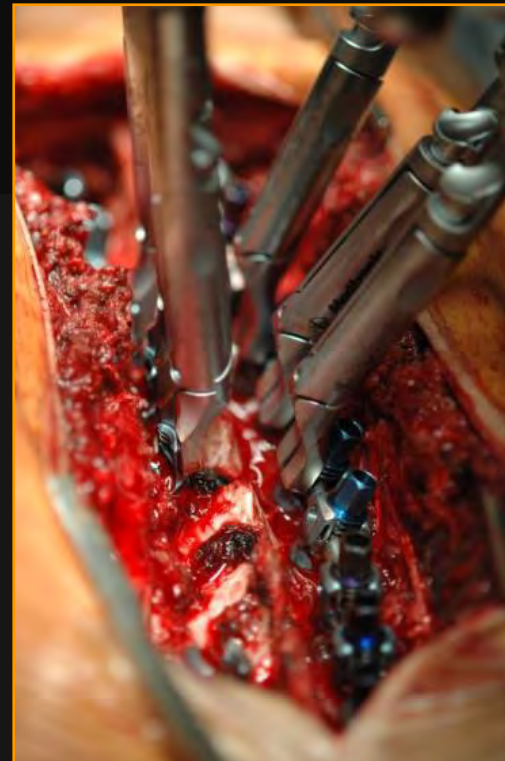
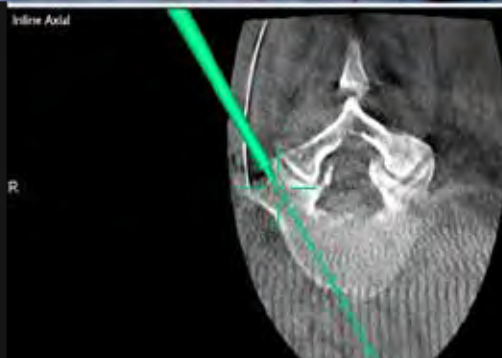
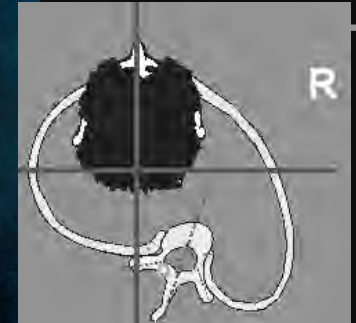
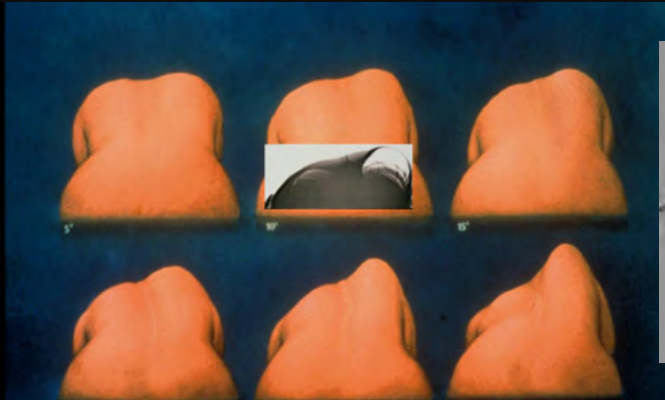


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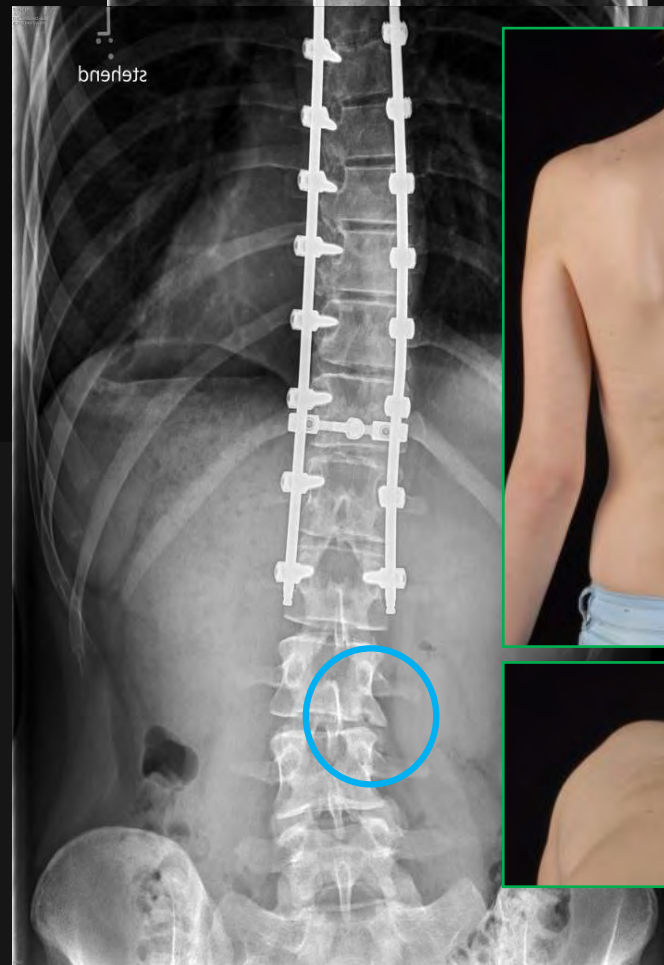
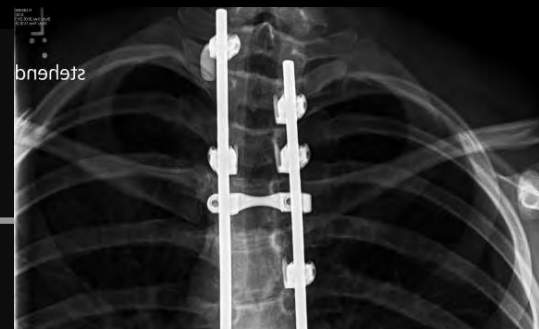
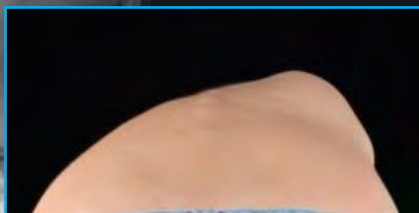
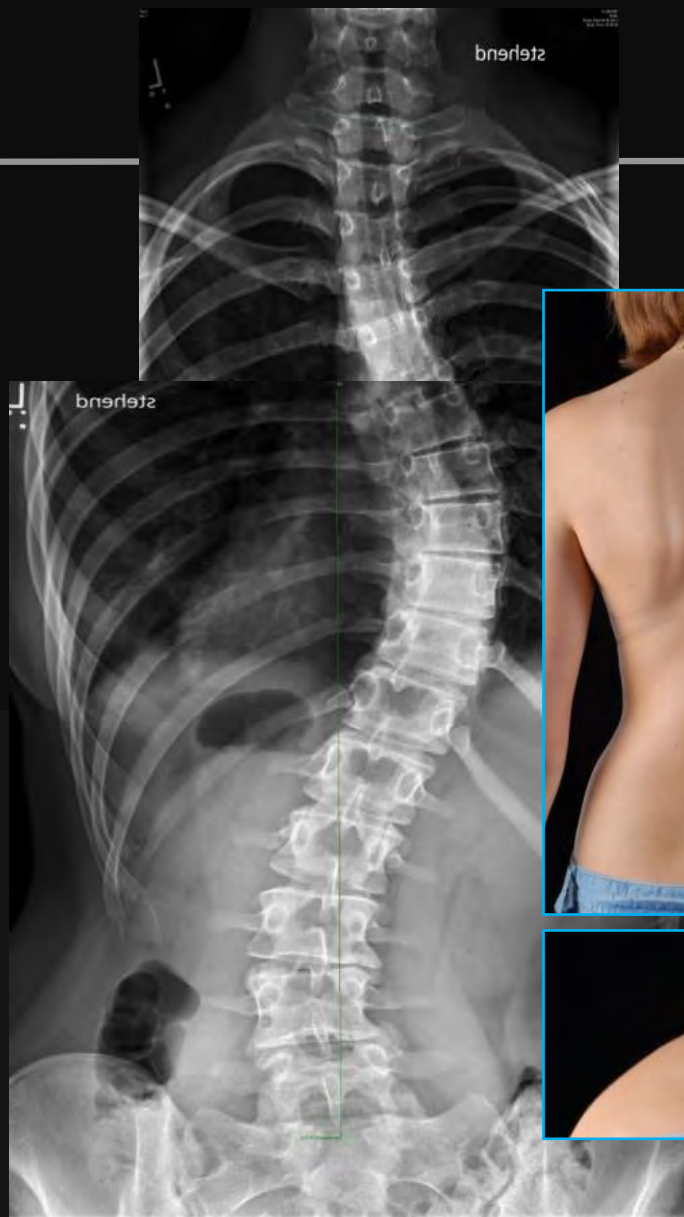




Vertebral column manipulation

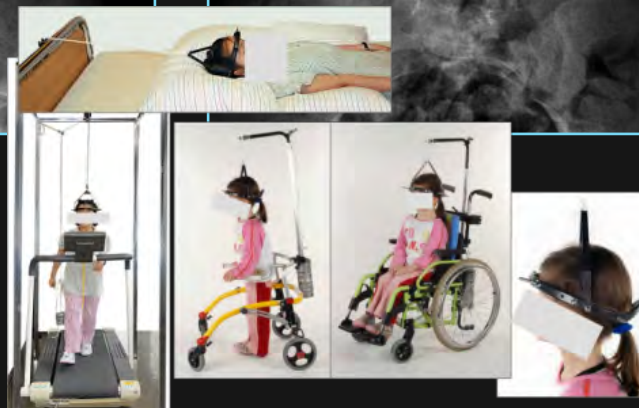


T2-L2, Hybrid, VCM, cc CoCr, cx titanium



12j Mädchen, 130° AIS

Bei schweren Krümmungen: Vorbehandlung



*If it were not for the great variability among individuals
Medicine might as well be a science and not an art*

Sir William Osler 1892

