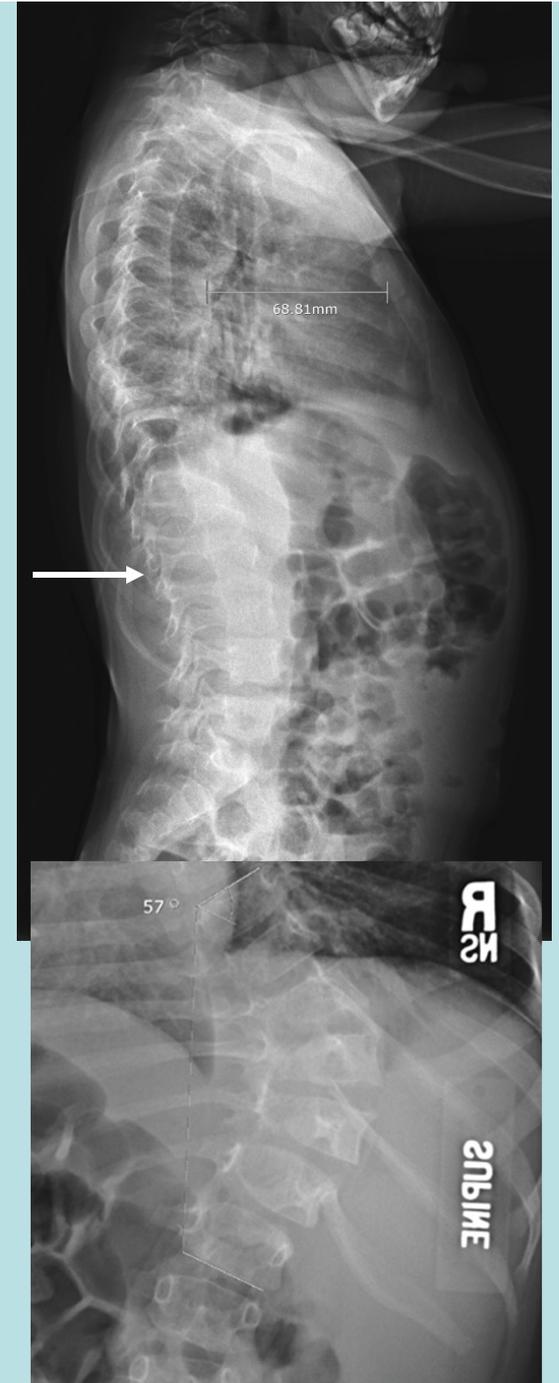
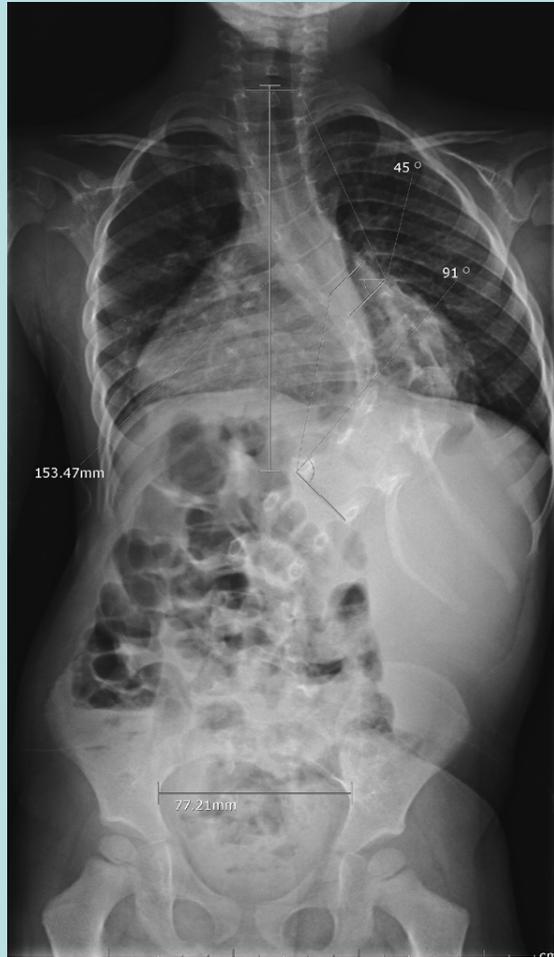


# JF 3+6 NF

91°, T1-12 15.3



# JF 3+6 NF



Rx Options ?

Cast?

Traction?

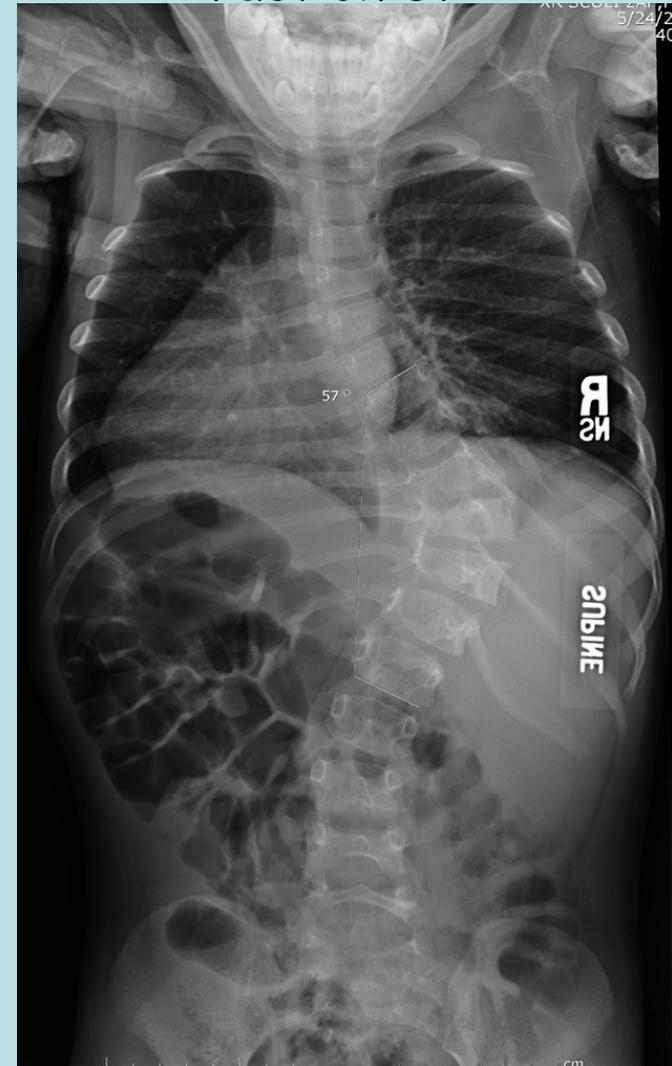
Surgery?

$\bar{p}$  txn?

a&p?

non-spine?

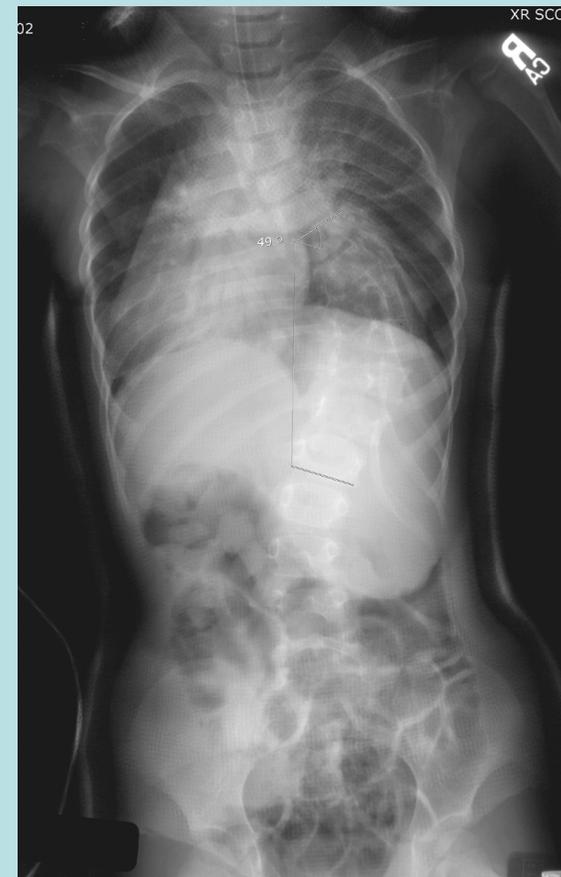
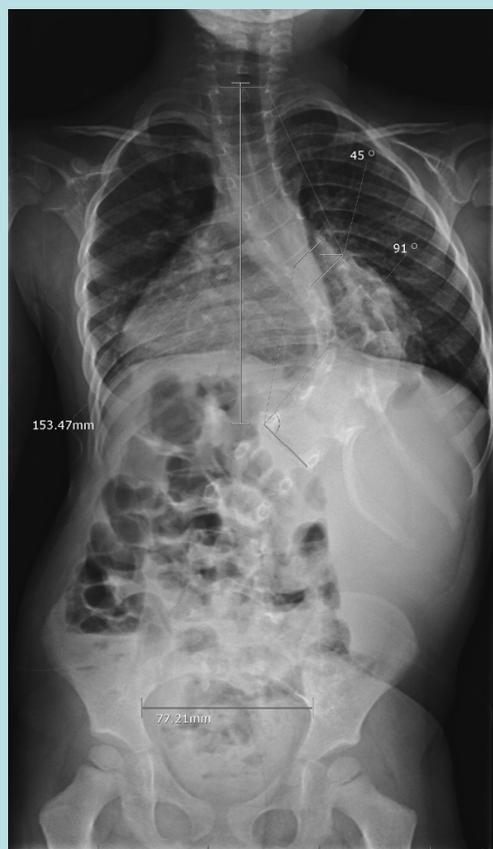
Traction 57°



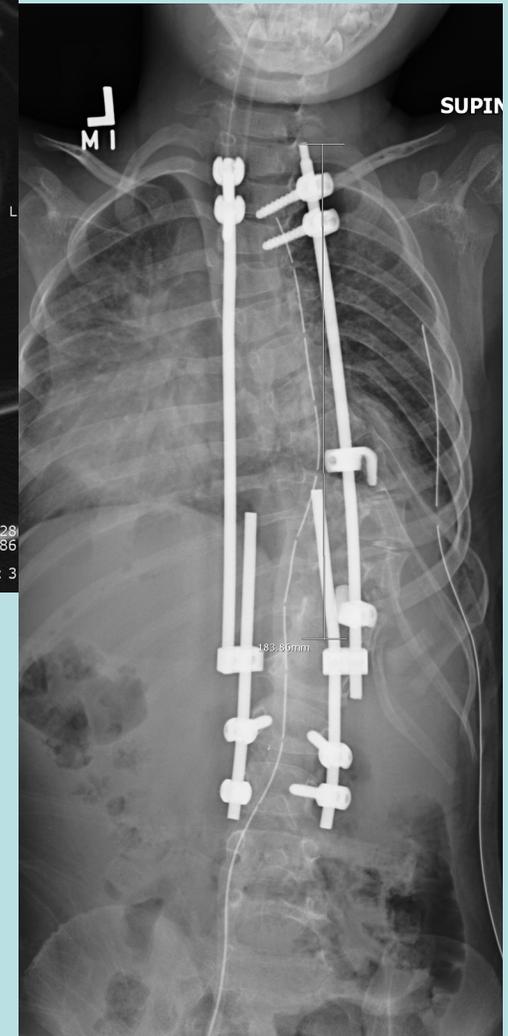
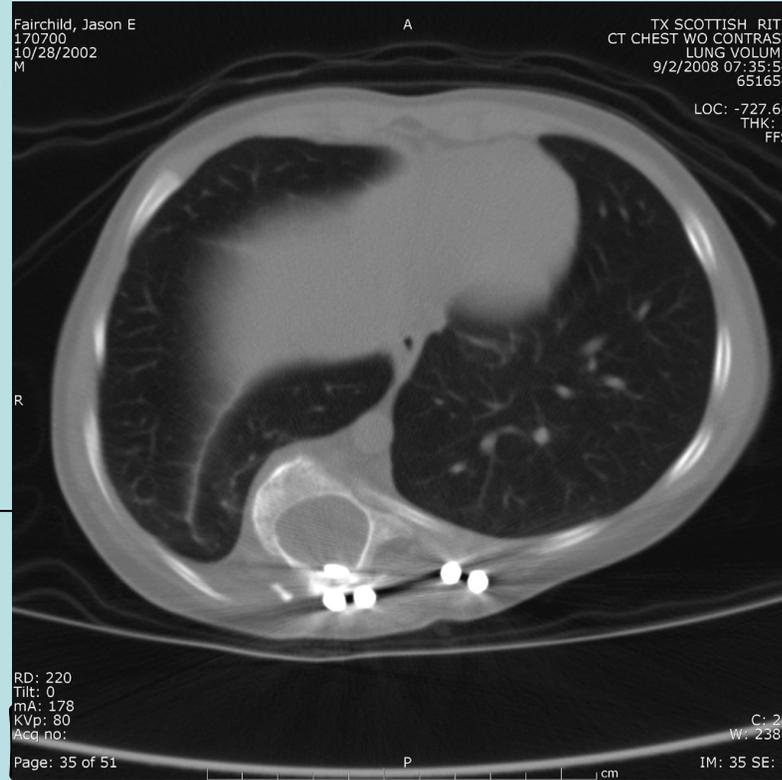
# Cast x 1 yr

#1 46°

#4 50°

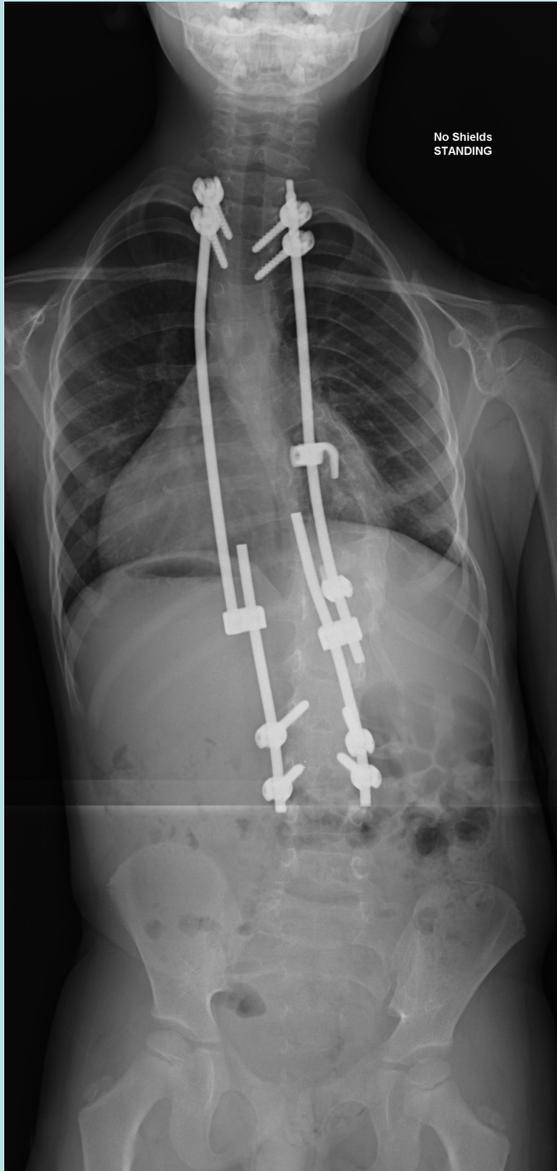


3 mo later  
(brace)



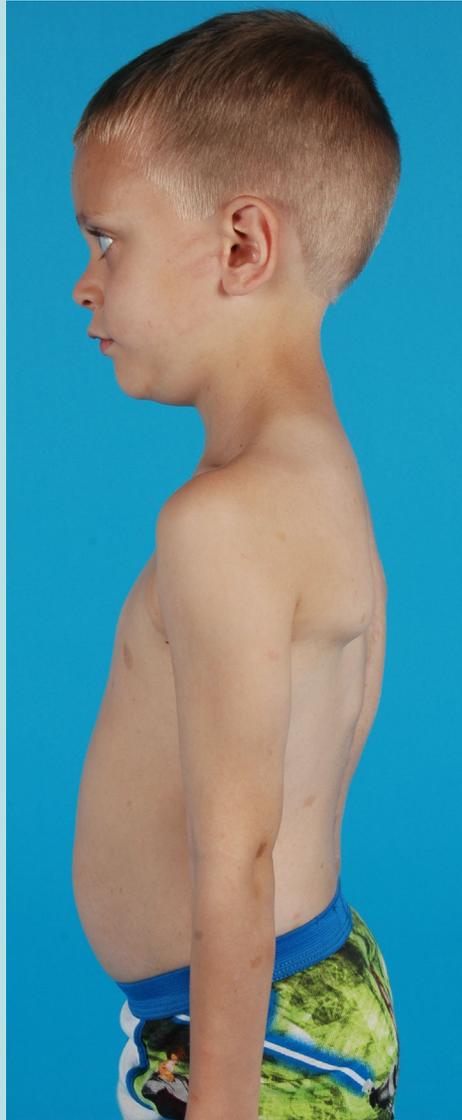
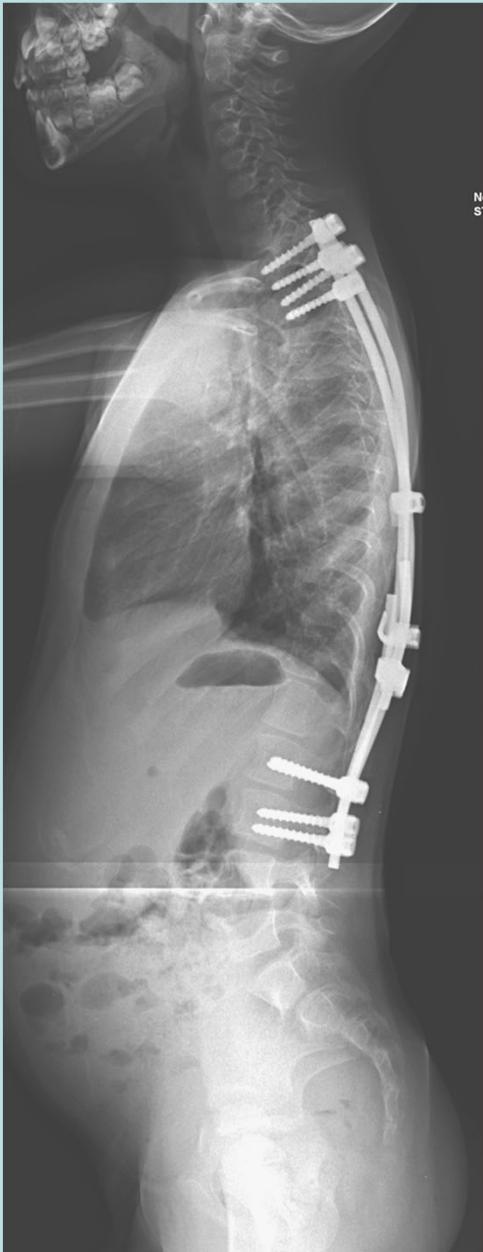
ant release  
apical fusion  
post apical  
control

# 1 year later... T1-12 20.3



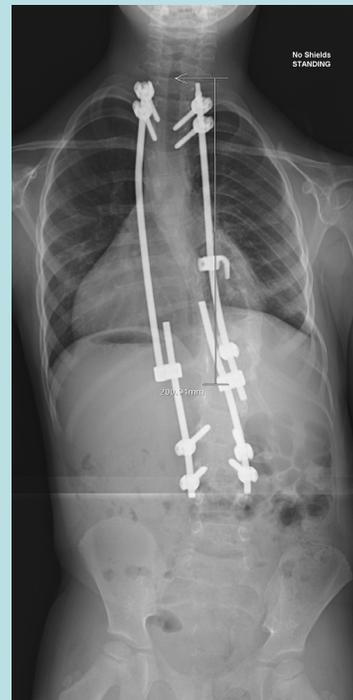
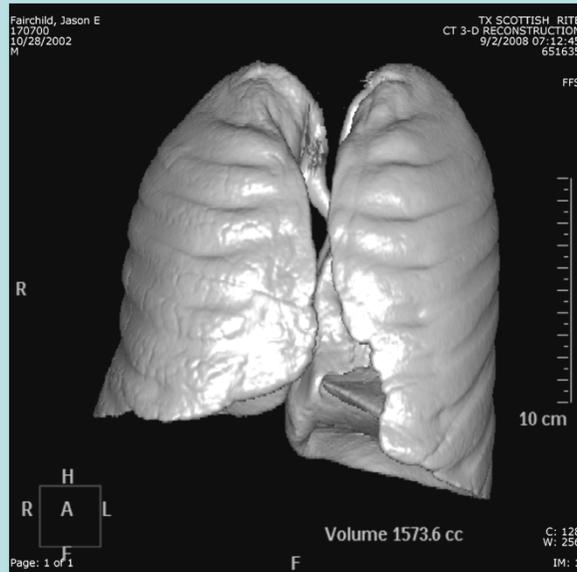
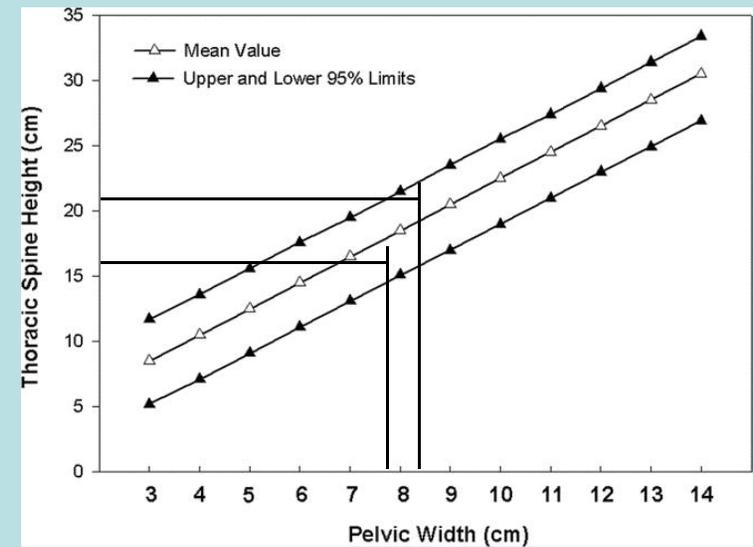
just re-lengthened with re-  
balance by distract L>R

1 year later... lengthen  
x 2

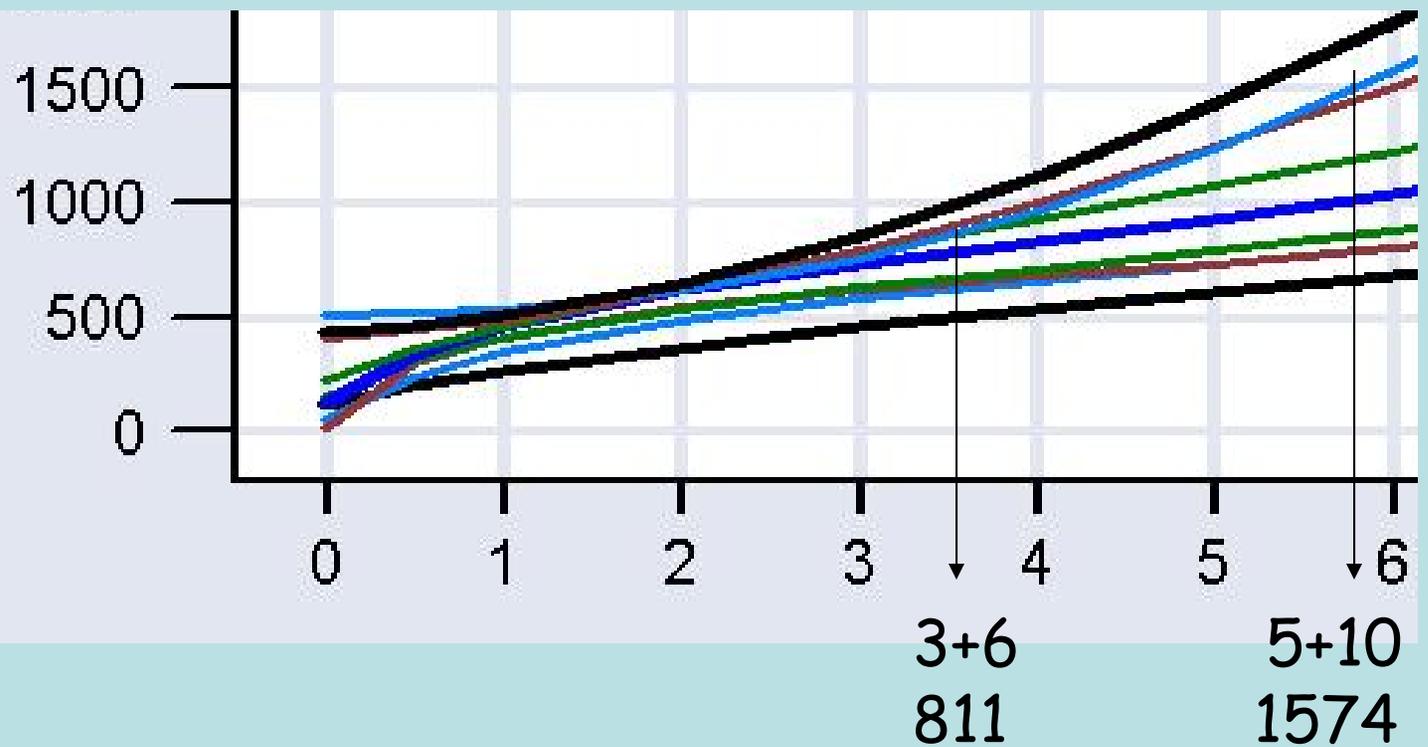


# Lung volume

	L	R	Tot	T1-12
5/06	337	473	811	15.3
9/08	845	729	1574	20.1

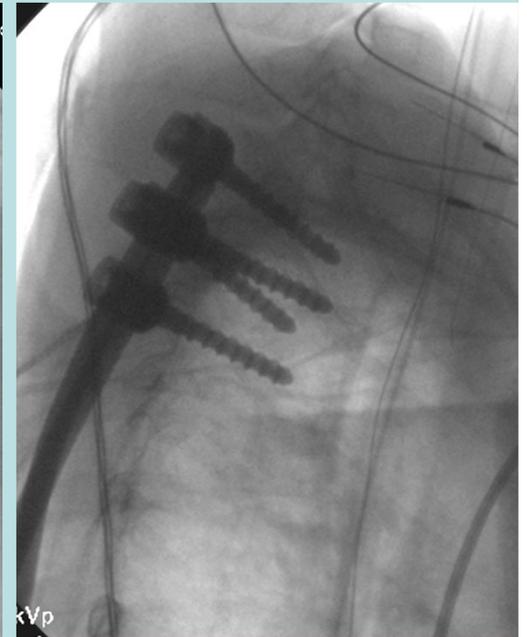
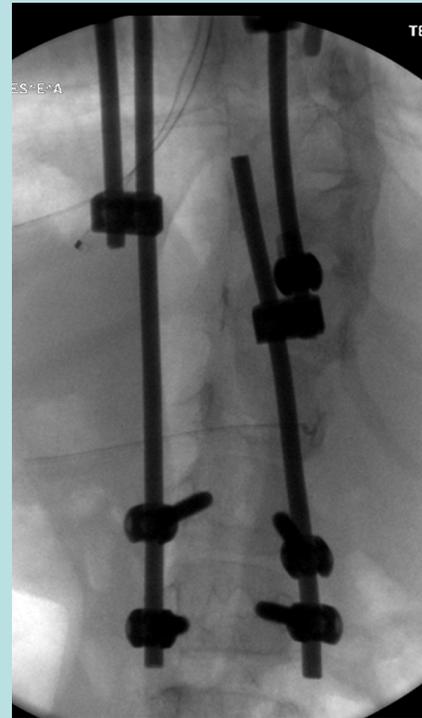
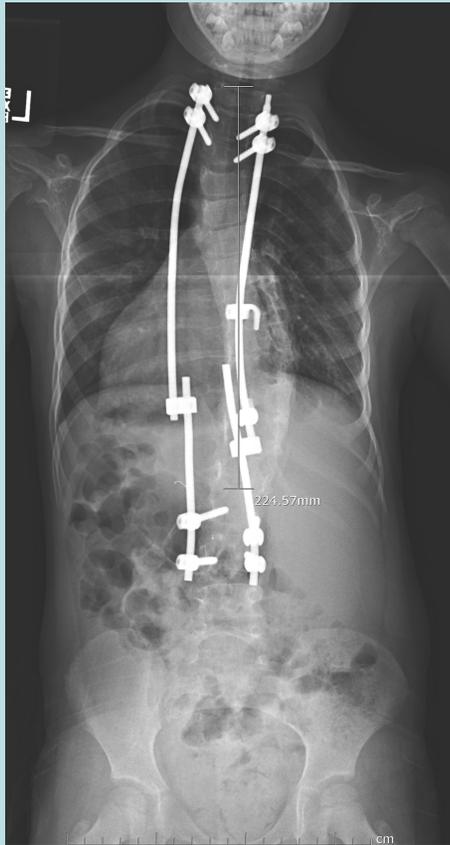


# CT volumes - Gallogly



2 S.D. > mean

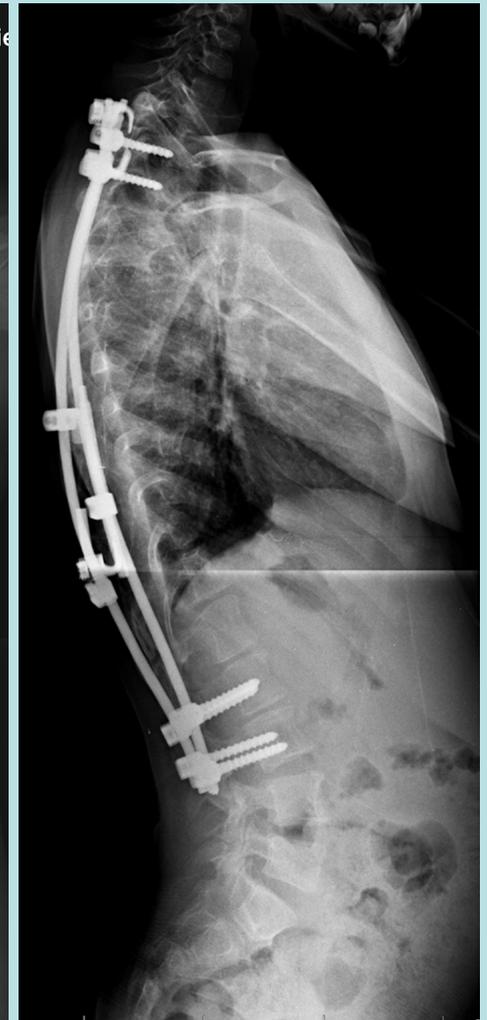
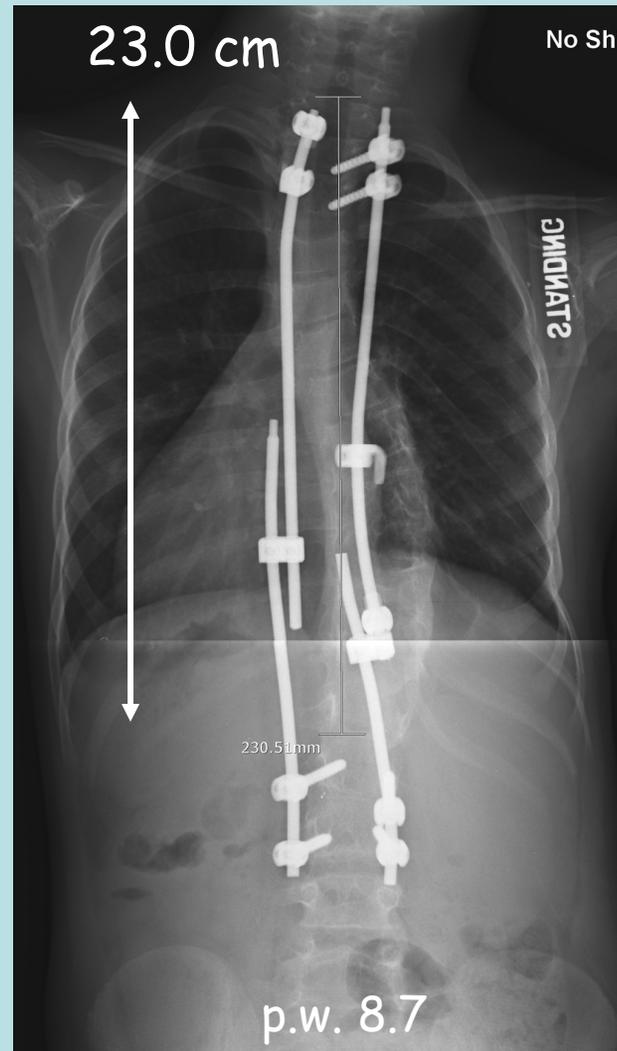
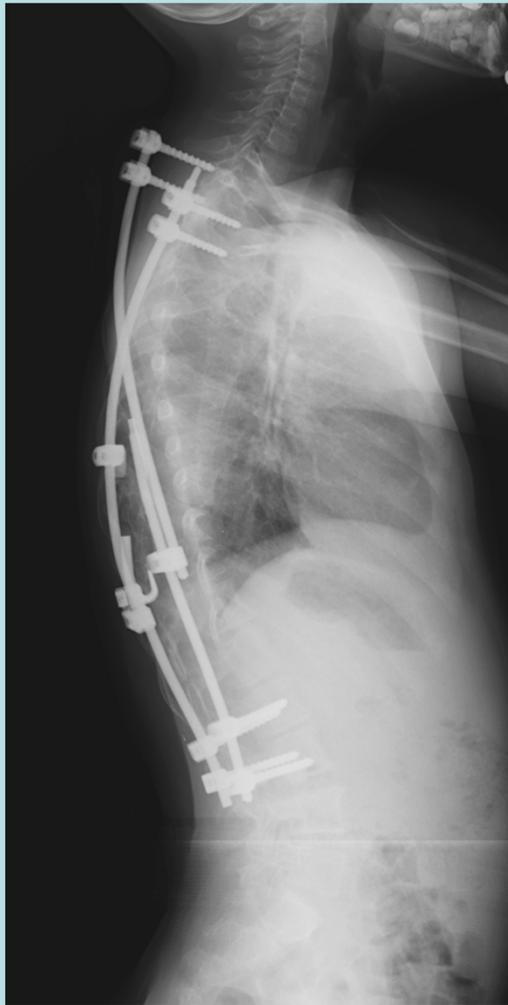
3/09 time for new Lt rod



Uneventful exchange +  
lengthen

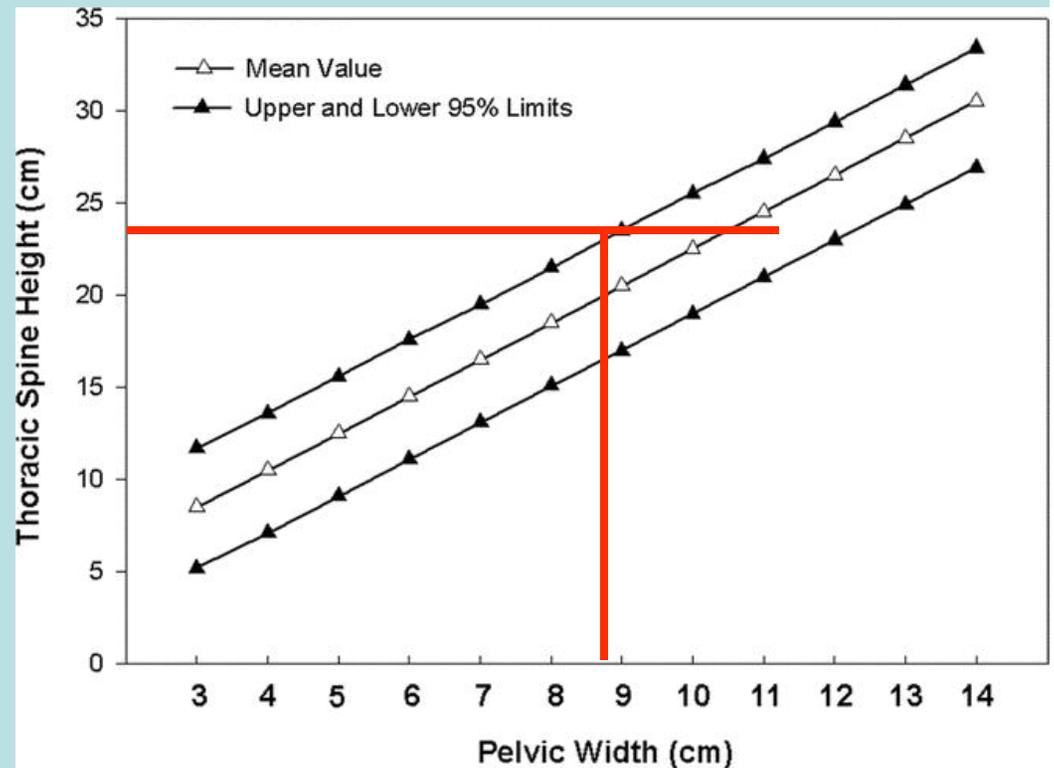
Routine 6 mo later -  
no sx

Revision - 7+0



# Proximal anchor t.p.s. failure

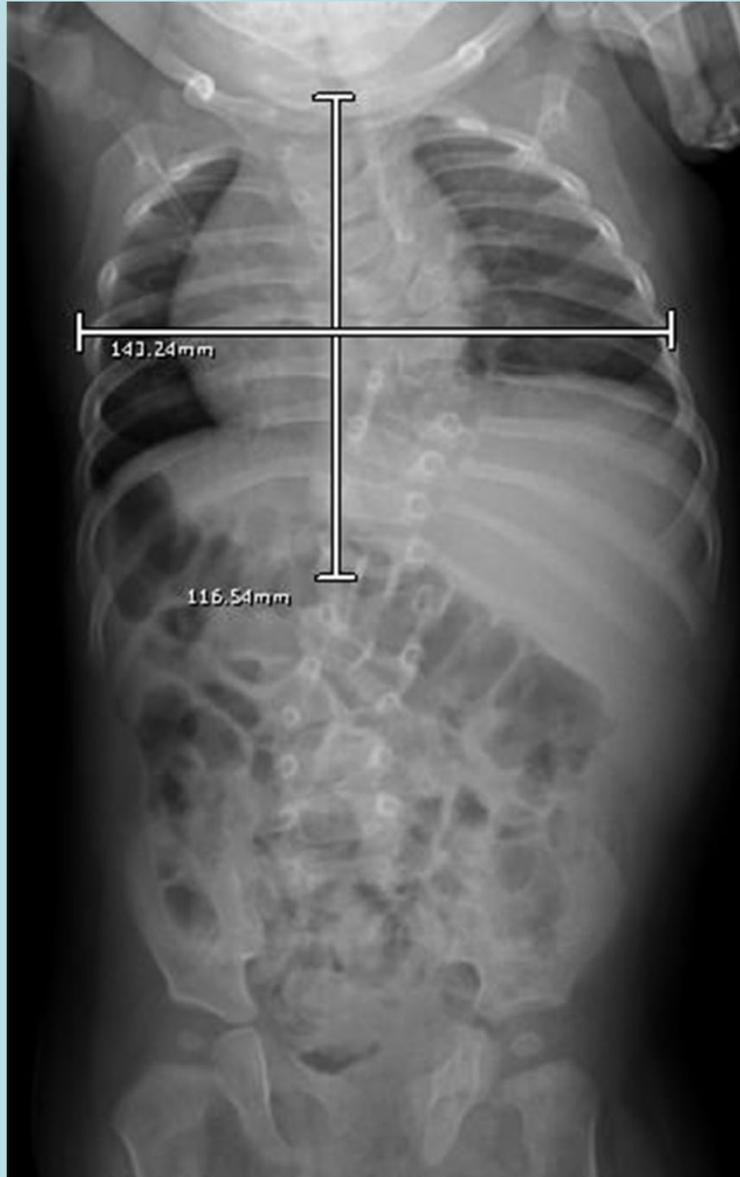
- Currently 7+0 yr
- T1-12 length 95%ile
- 4 planned lengthening, incl 1 rod change & 1 anchor revise
- Future plans ?
  - Less frequent lengthening



# Apical control for windswept thorax

Case 1 - HJ

# H.J. age 8 mos.



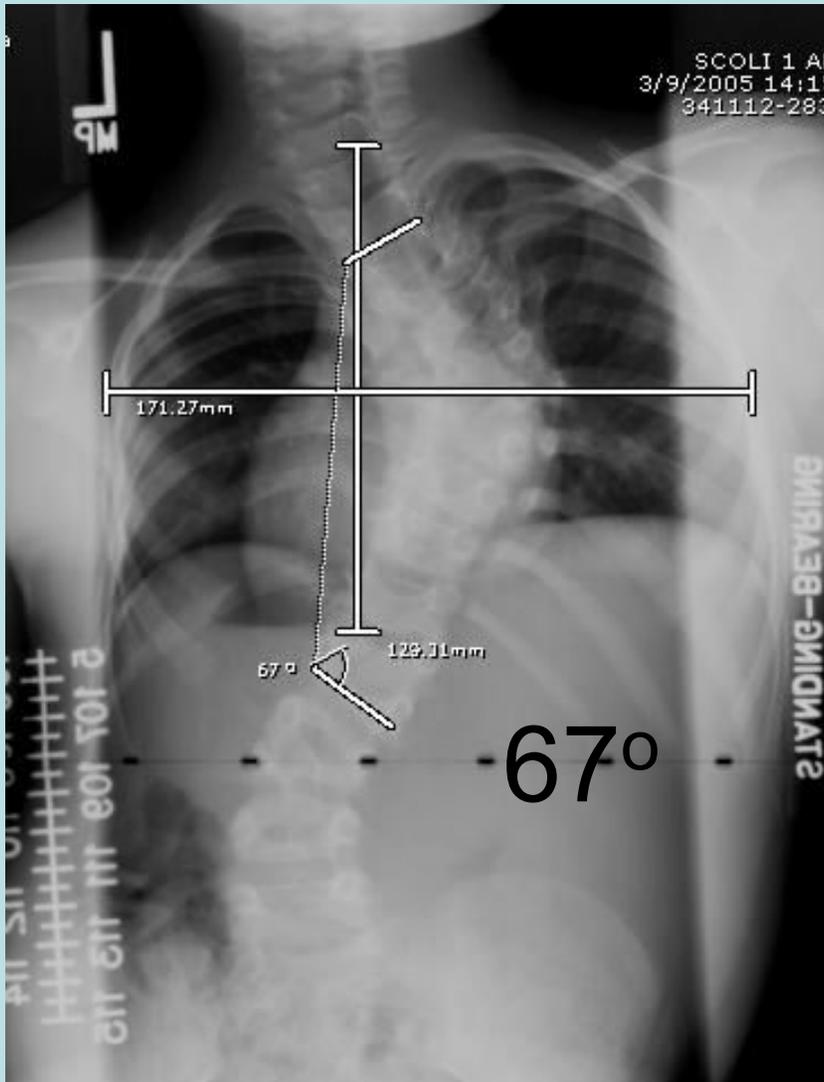
T6  
width  
14.3 cm  
T1-12 =  
11.6 cm  
(nl =12)





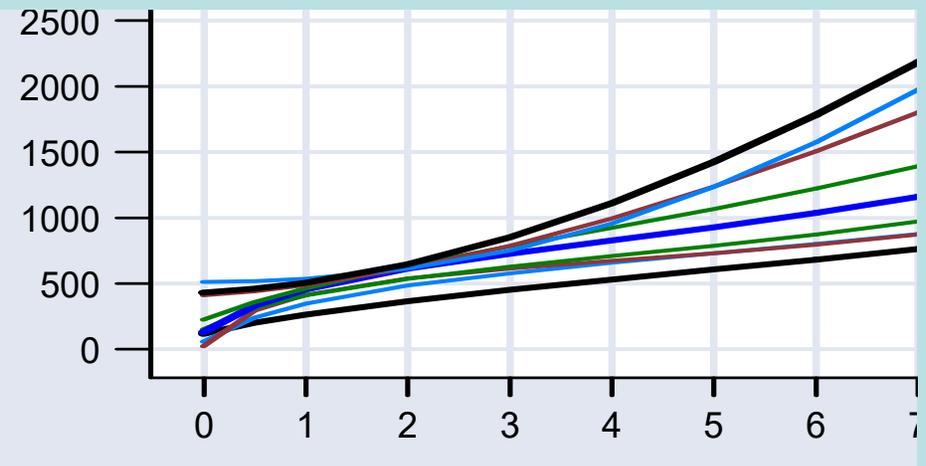
18 mo  
normal  
G&D,  
healthy

Age 4 T1-12 = 12.9 cm  
T6 width = 17.1 cm.

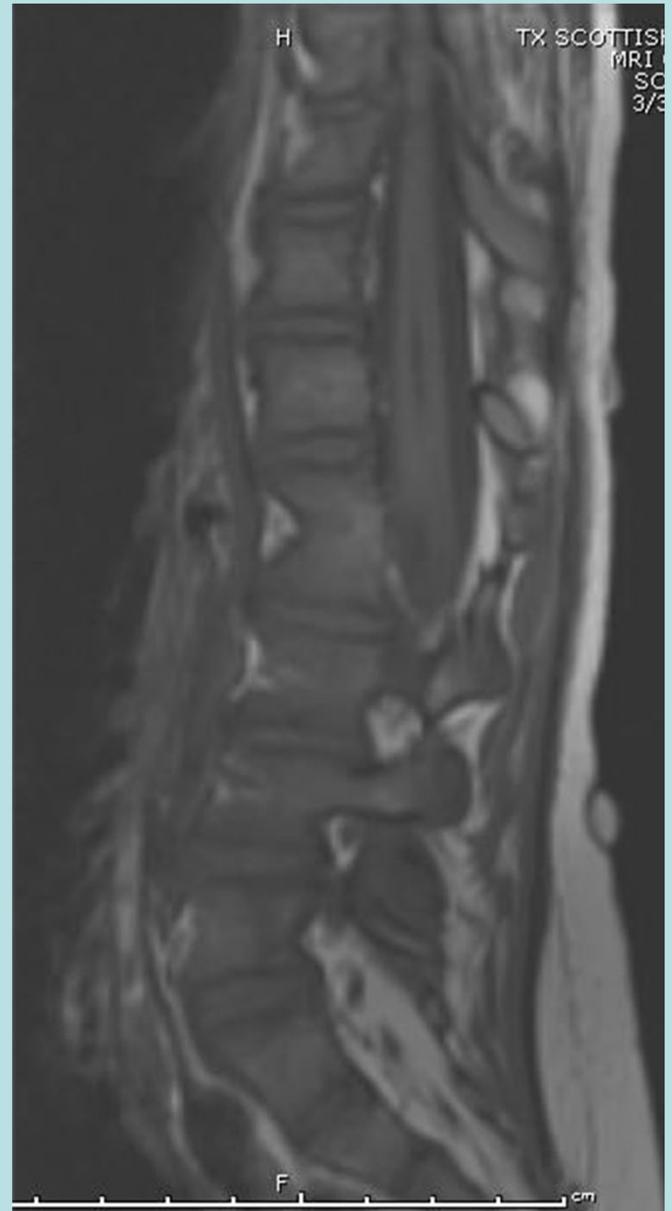
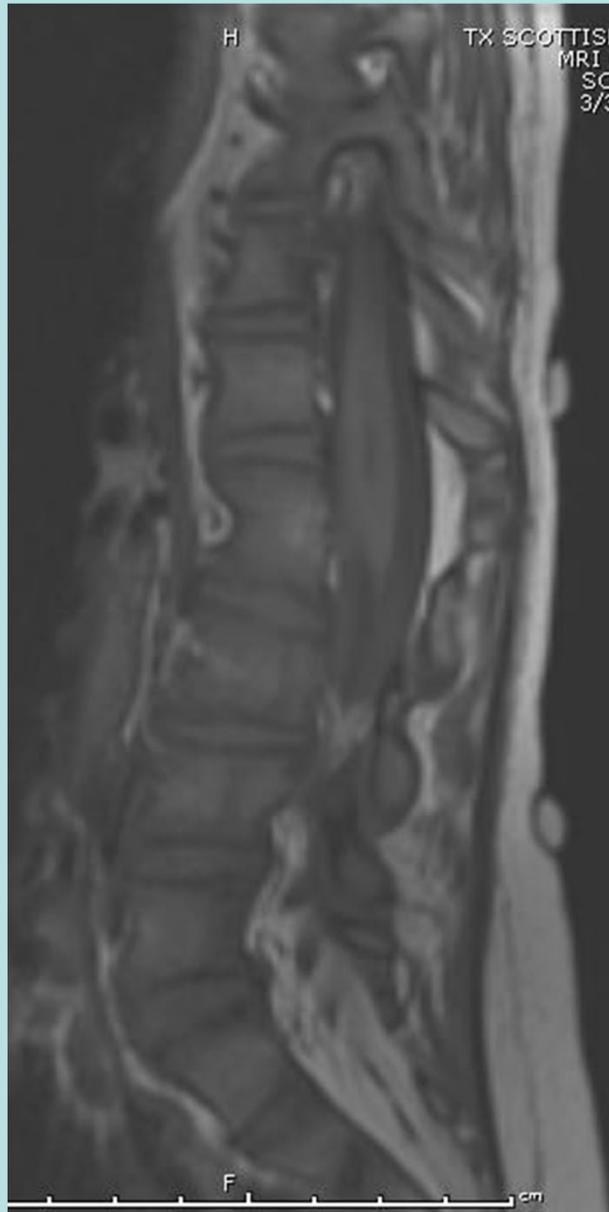


Lung vol 531 R + 444 L = 975

Convex > Concave



# MRI



## H.J. – surgical rx

- Suitable for growing rods?
- Tether release alter plan?
  - instrument below laminectomy?
- Experience with lengthening congenital curves?
- Other approaches? Excision?  
Shilla? Local fusion

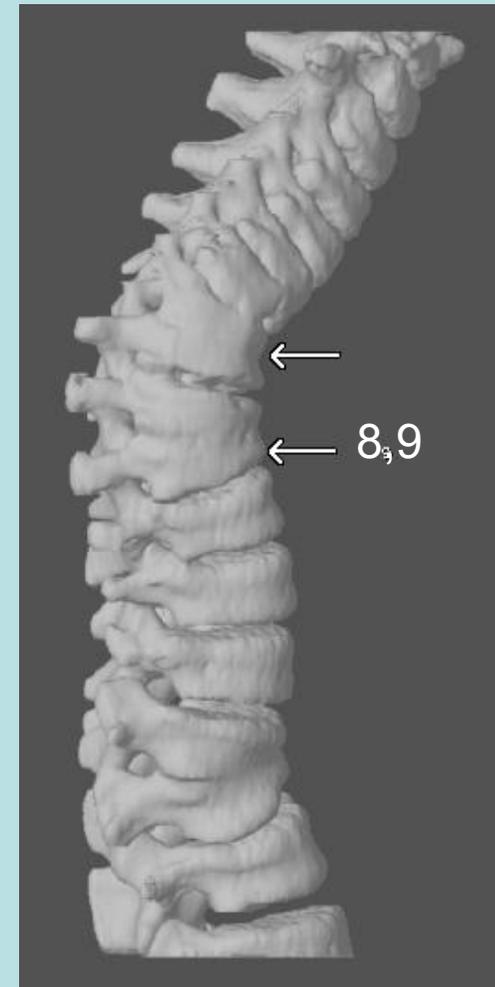
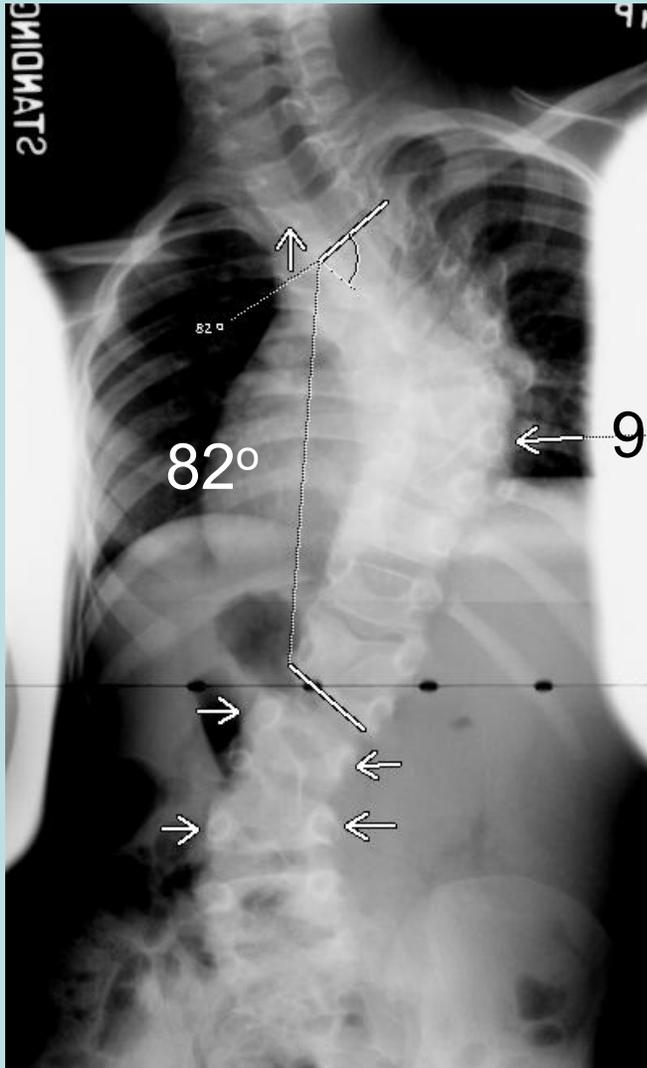
# Other options

- Hemi-epiphyseodesis (A/P) with long or short non-fusion instrumentation
- Vertebral resection with short segment corrective instrumentation (“Shilla”) to control apex
- Casting (Mehta)? Followed by bracing?

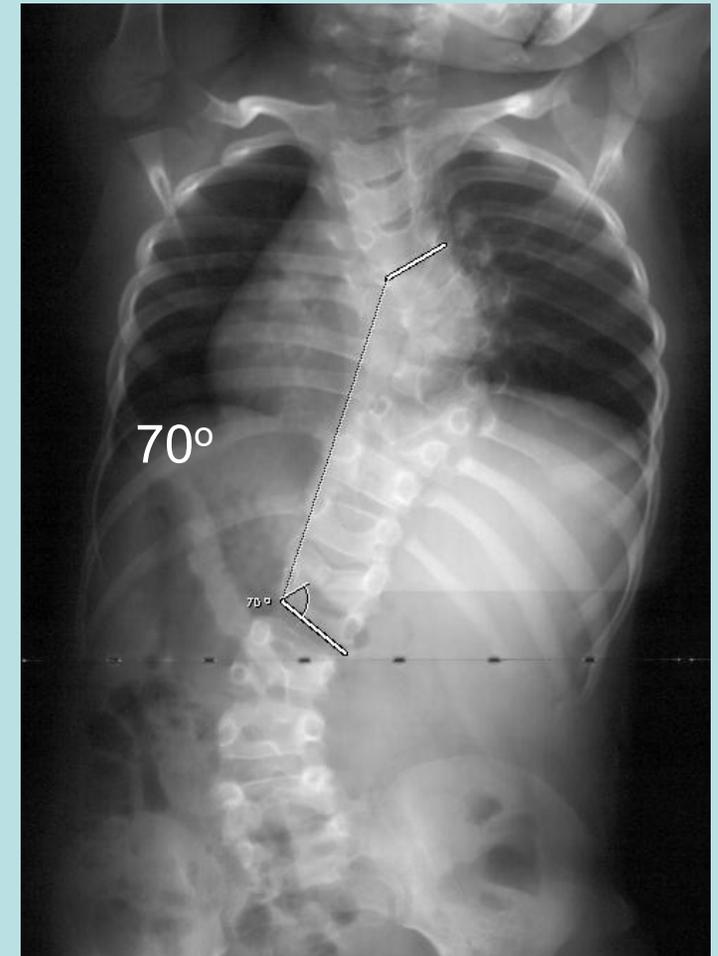
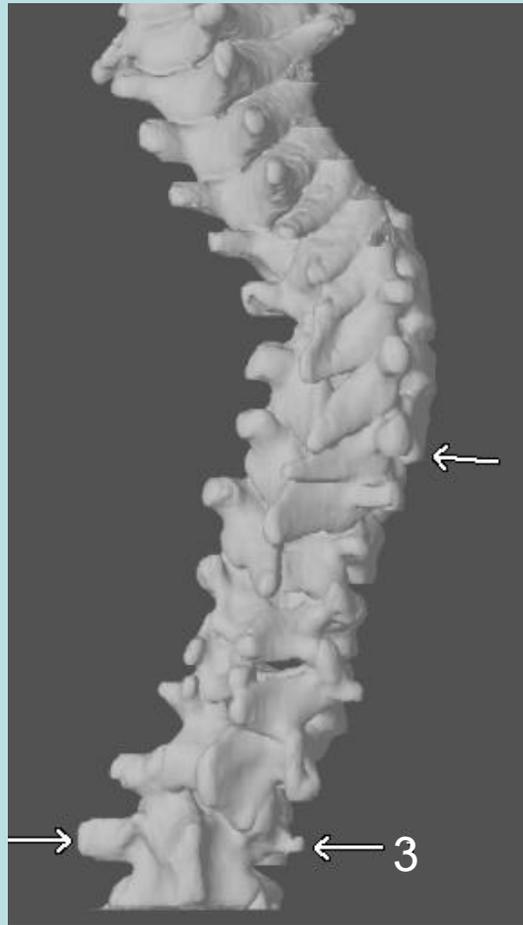
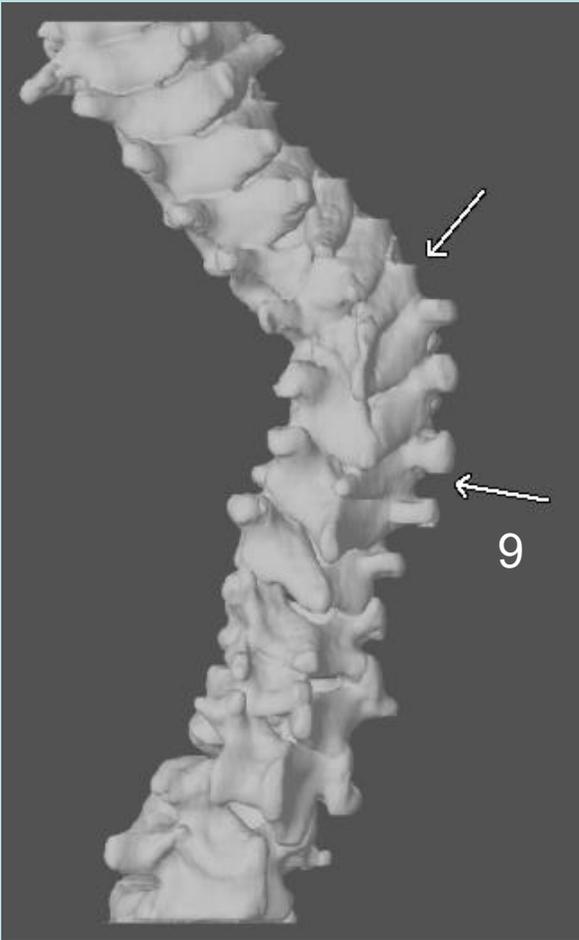


s/p tether release

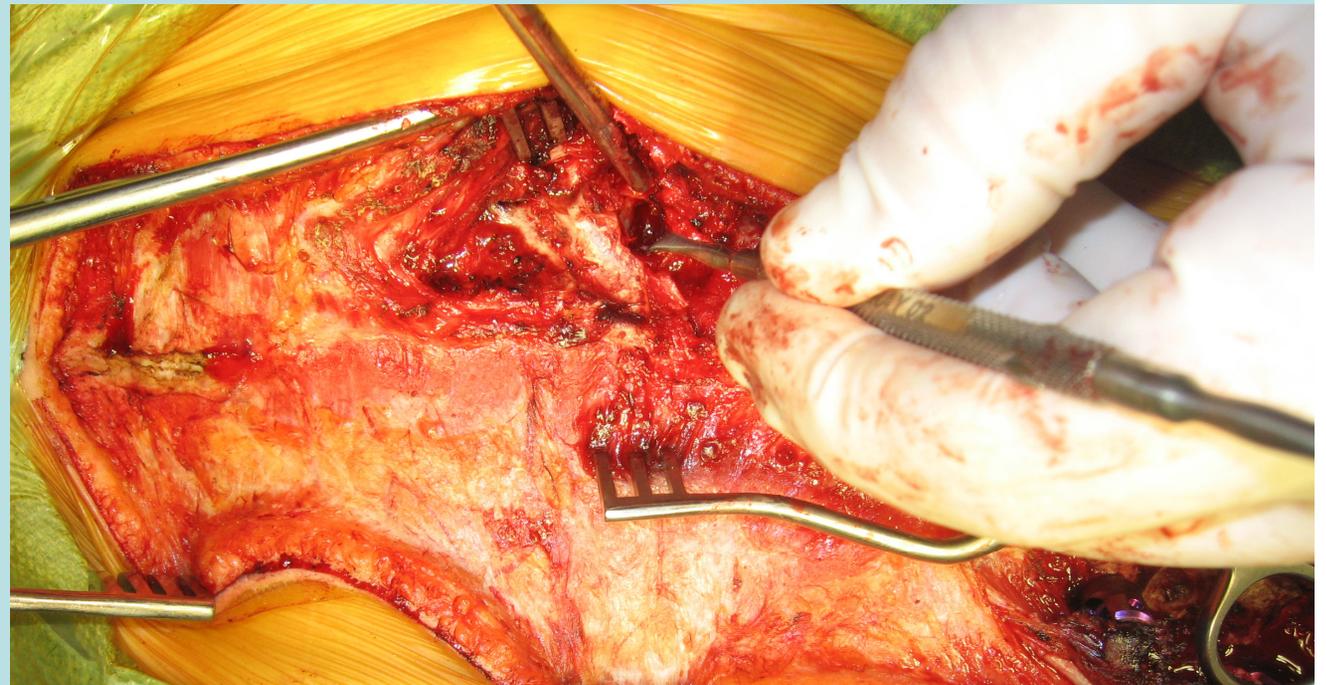
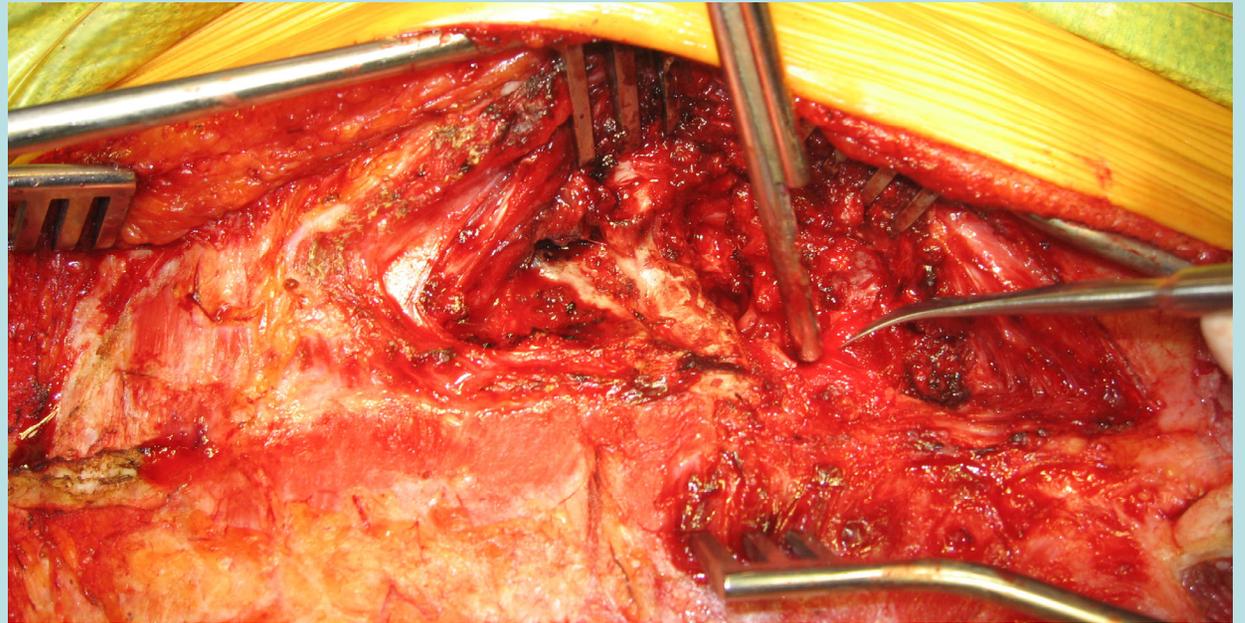
# Preop 12/05

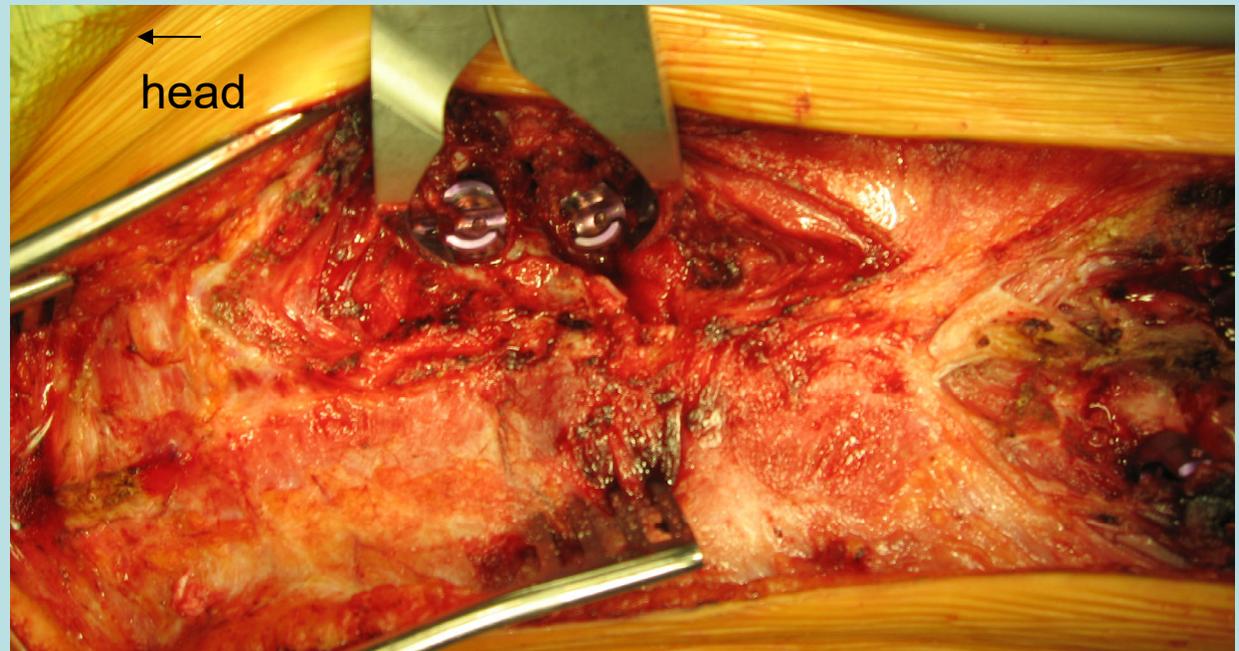
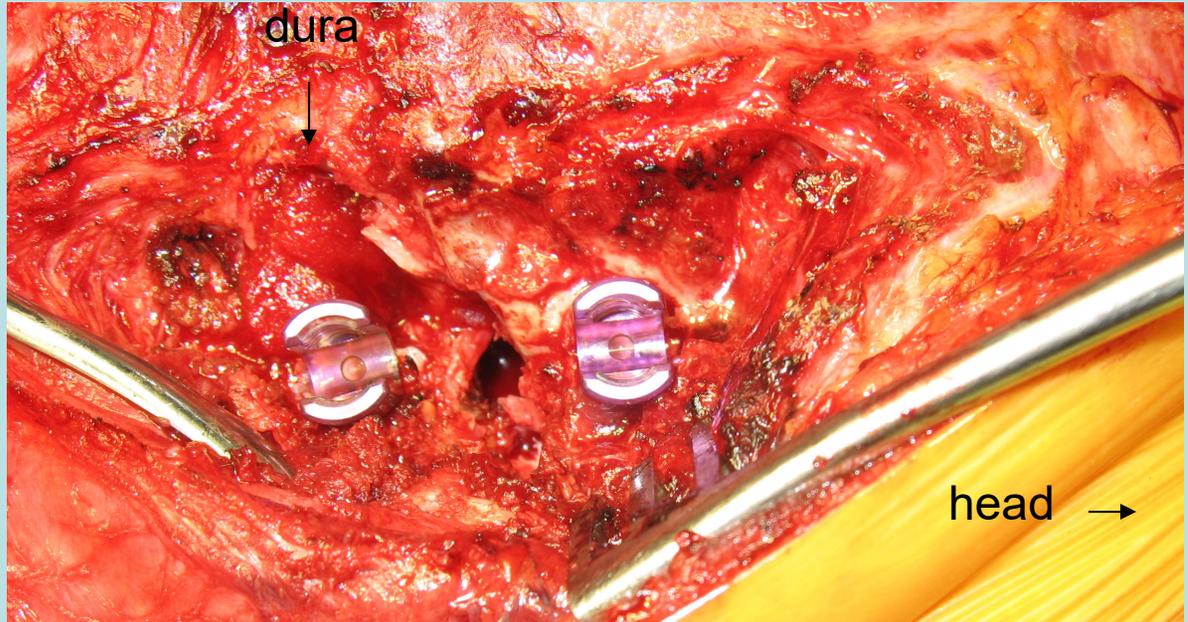
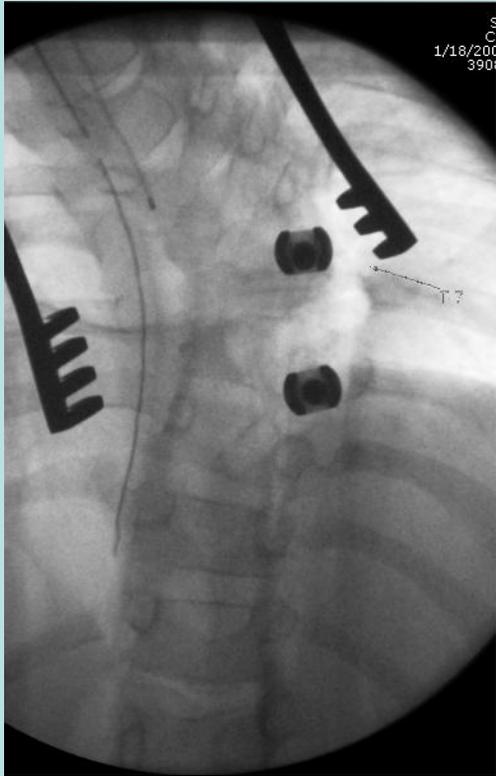


# Preop bend



# Eggshell T8 (convex exposure only)



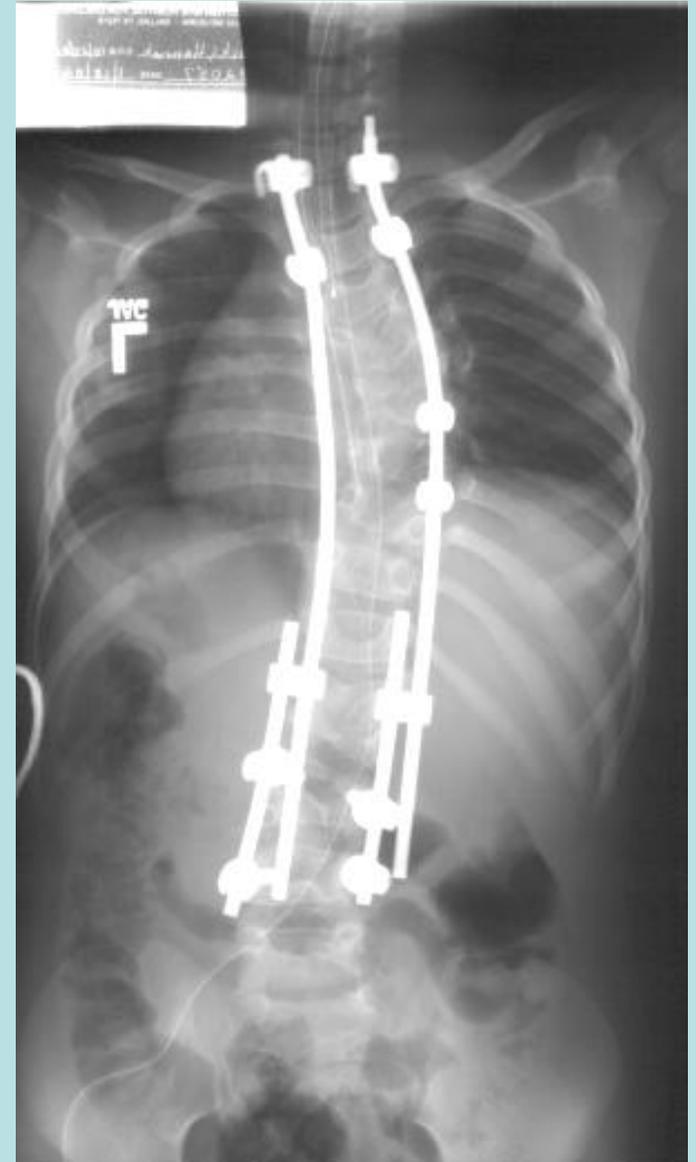
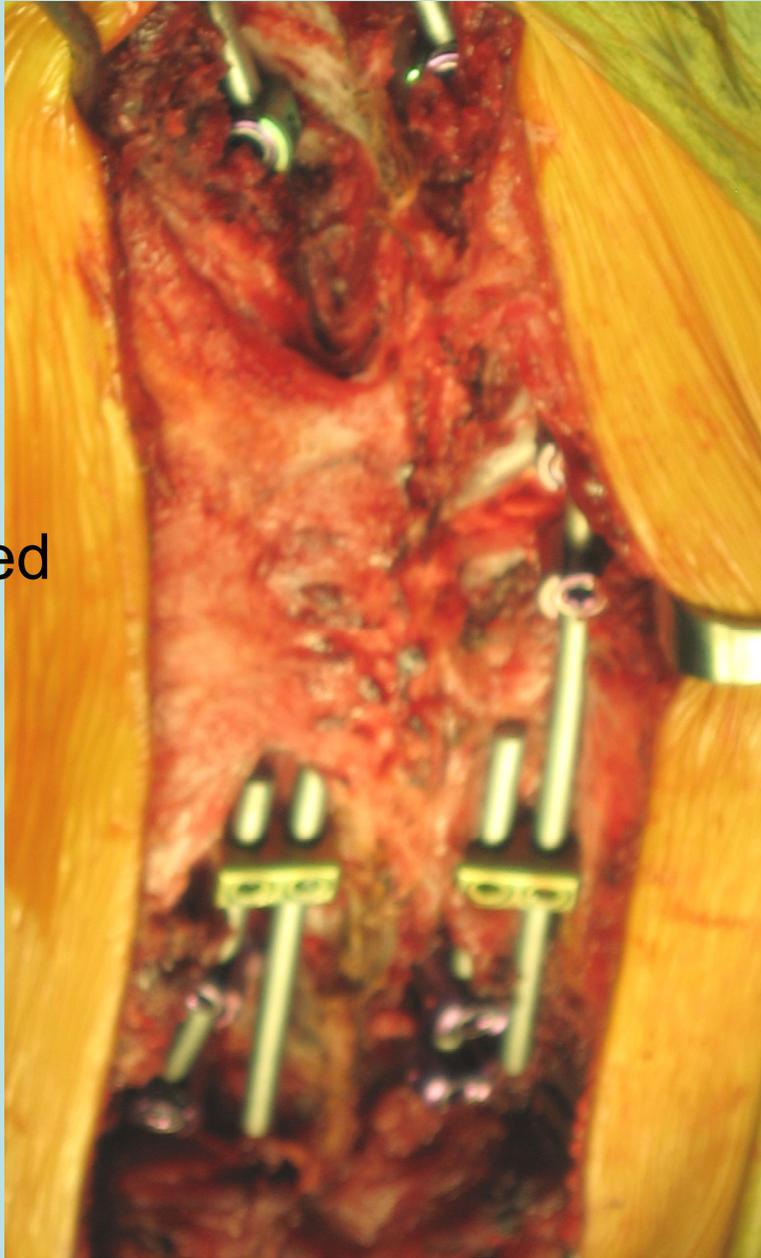


Eggshell  
cont.

i.p.o.

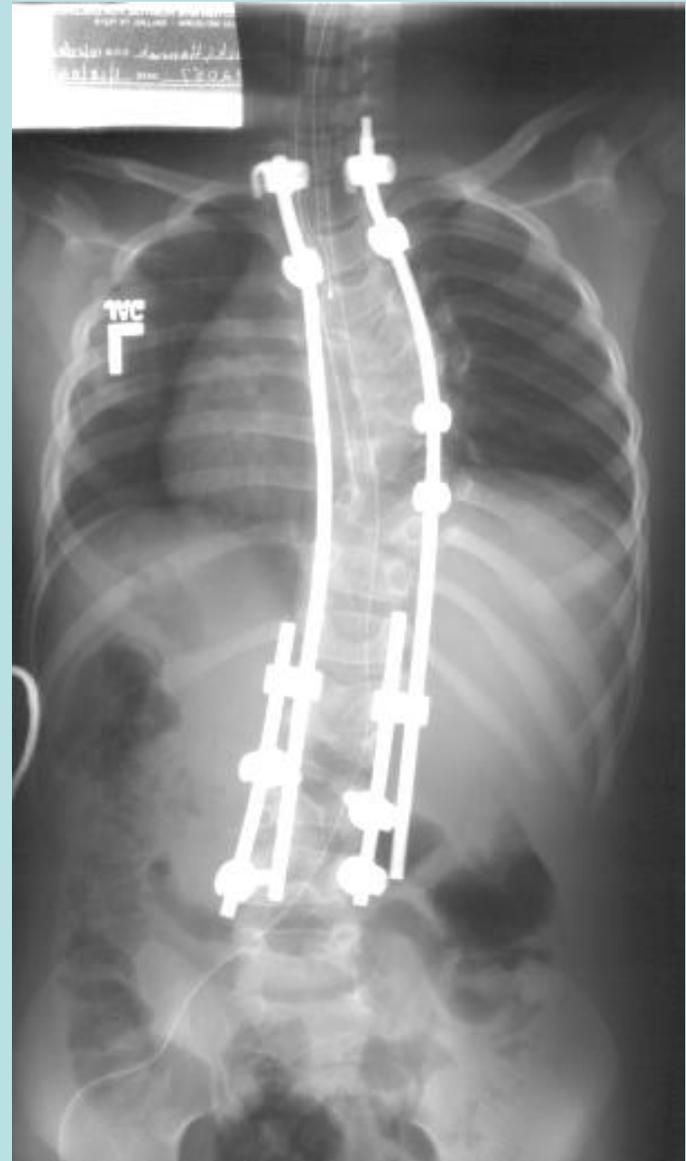
Concavity  
not exposed

Minimal  
acute  
distraction  
(mep  $\Delta$ )



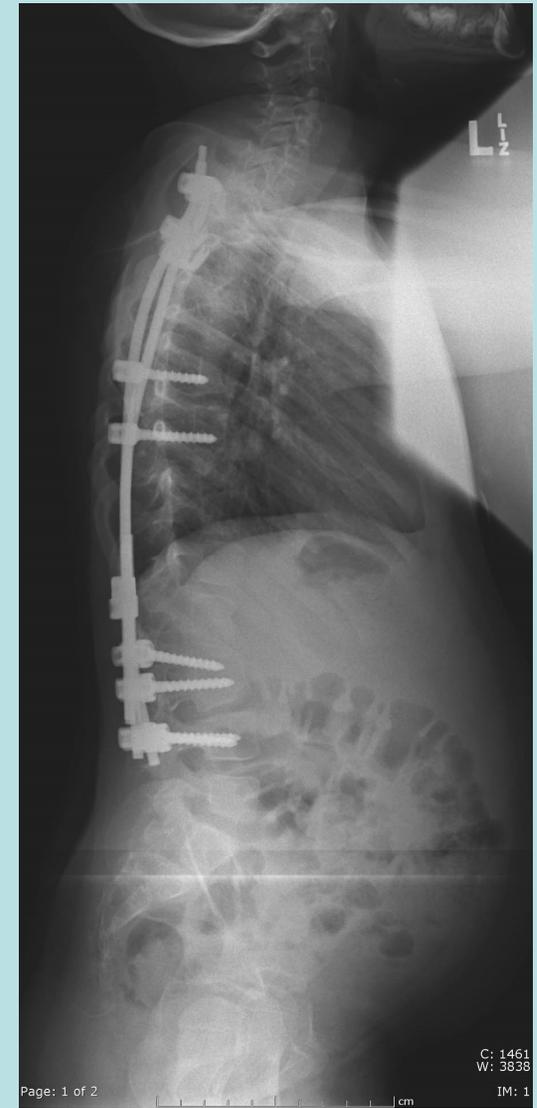
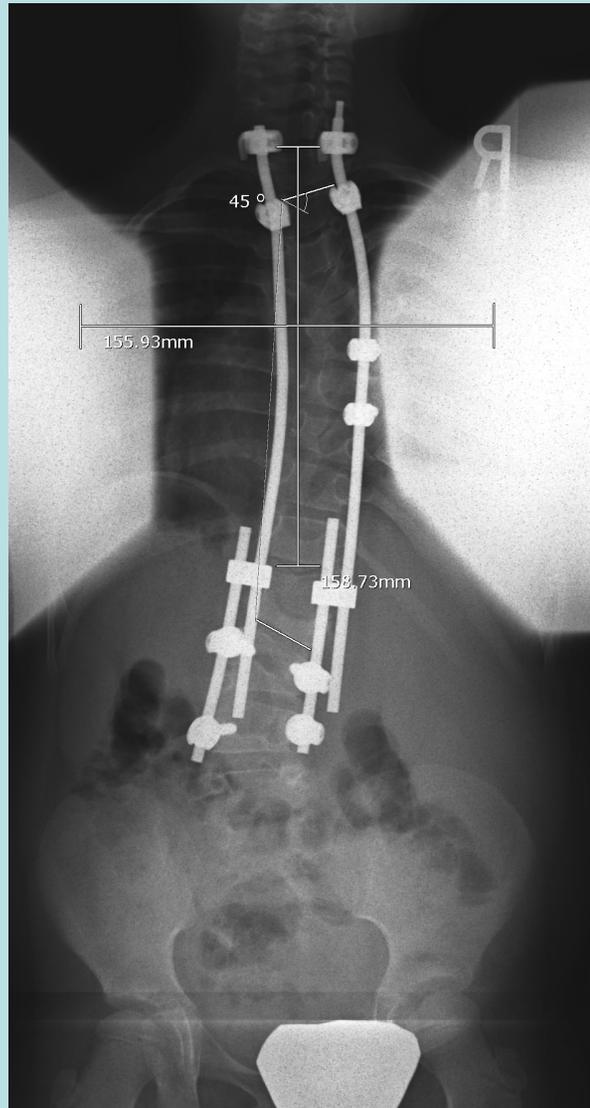
# Plan

- In 6 mos:
- Loosen apical screws and both dominos
- Lengthen at L domino while observing rod slide
- In situ bend R rod?
- Compress apex more and lock?

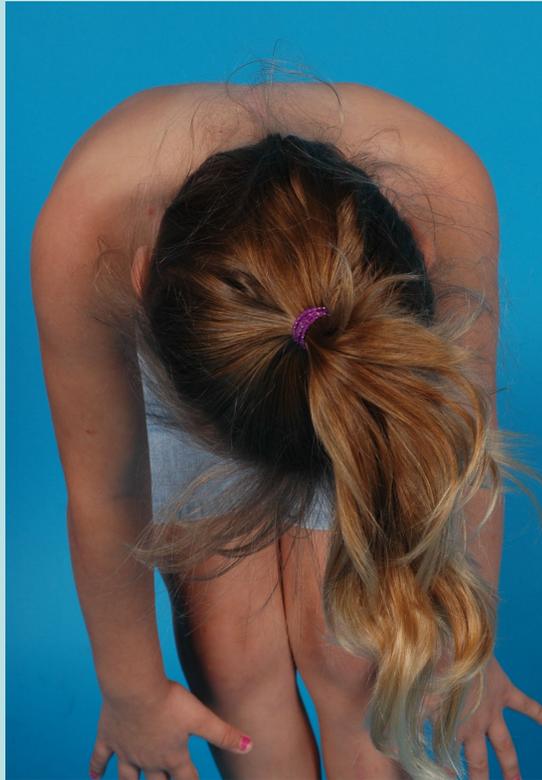


# Lengthen x 1

- T2-L2 45°
- T1-12 15.9 cm
- T6 width 15.6 cm



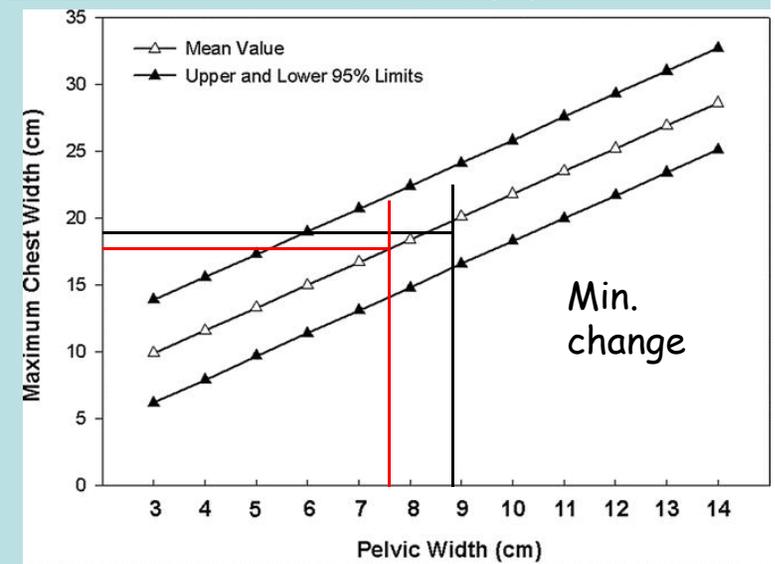
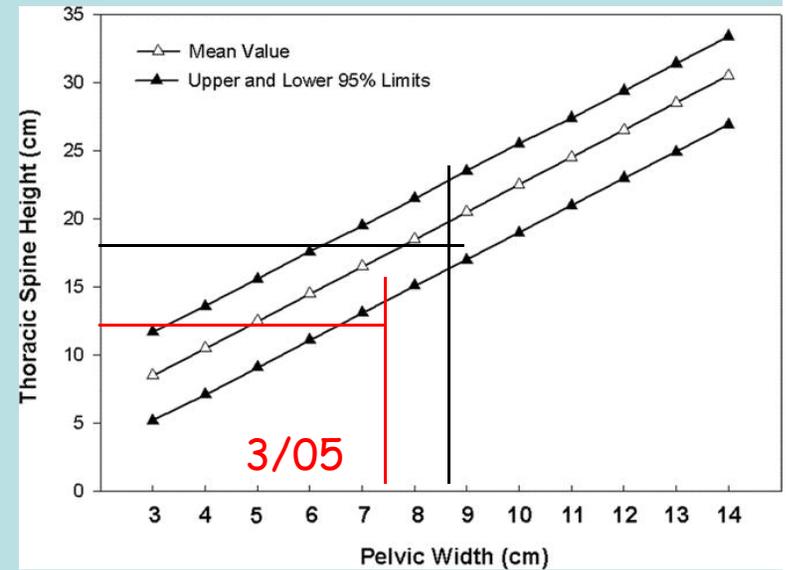
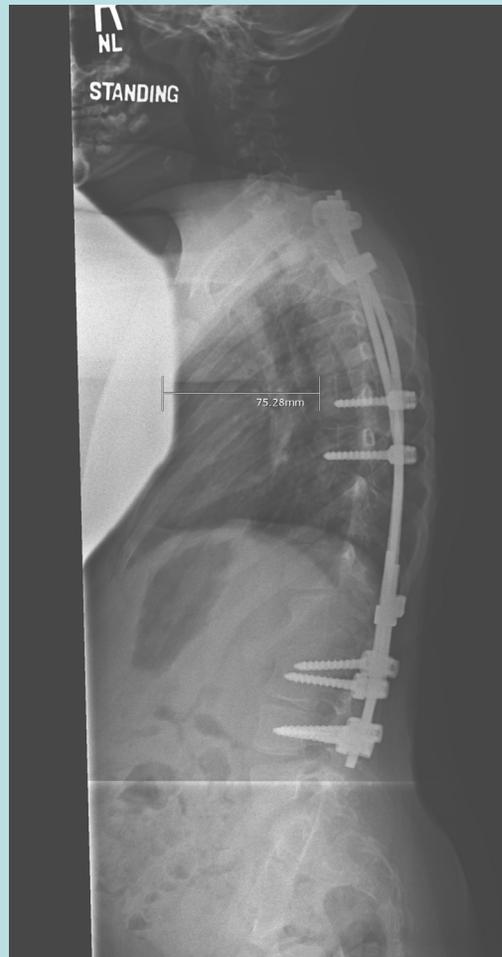
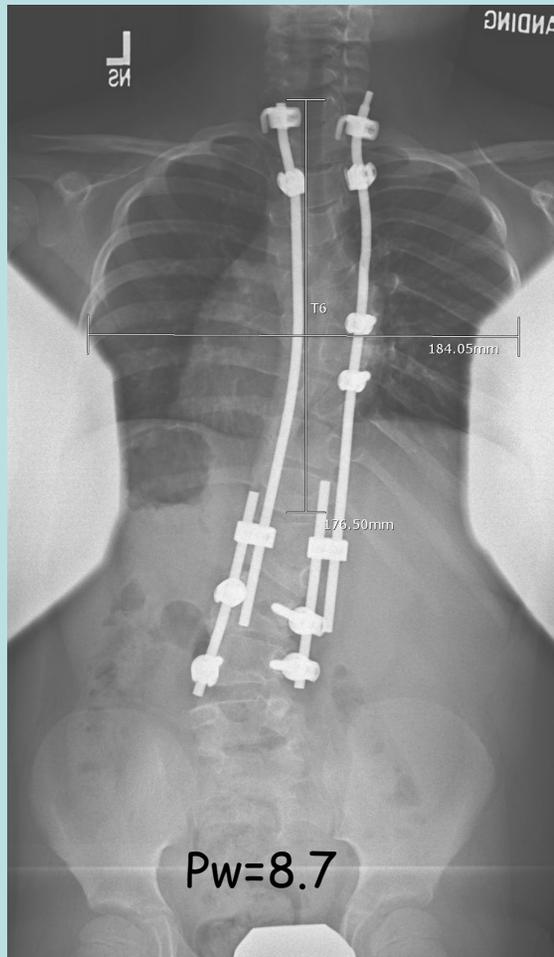
# IPO



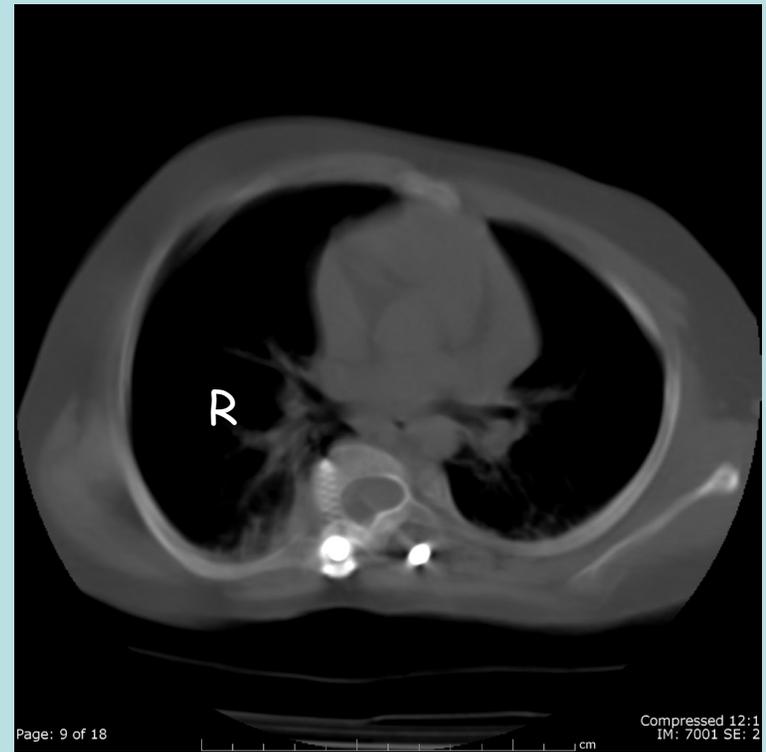
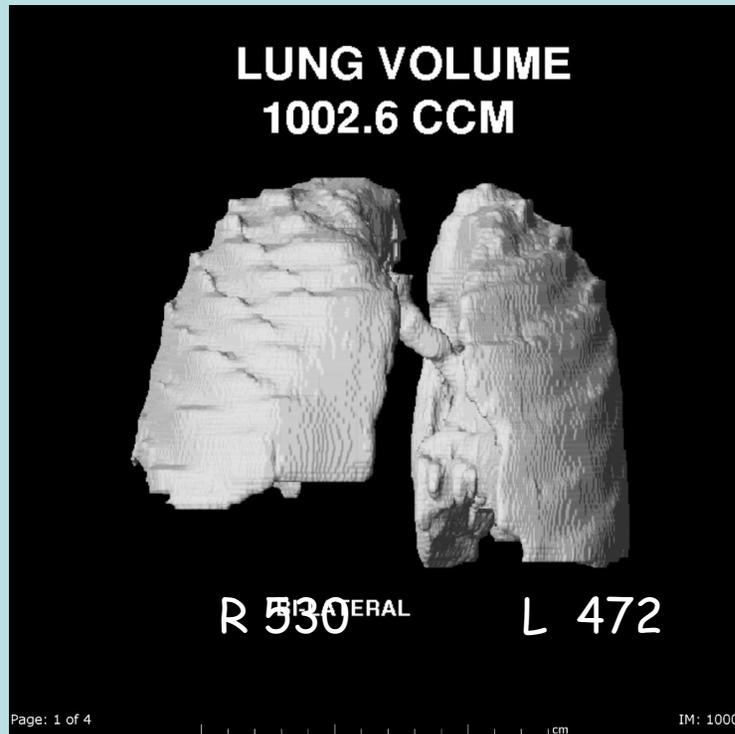
# Lengthen #2 – f/u 9/07

T1-12 17.6, T6 wd 18.4

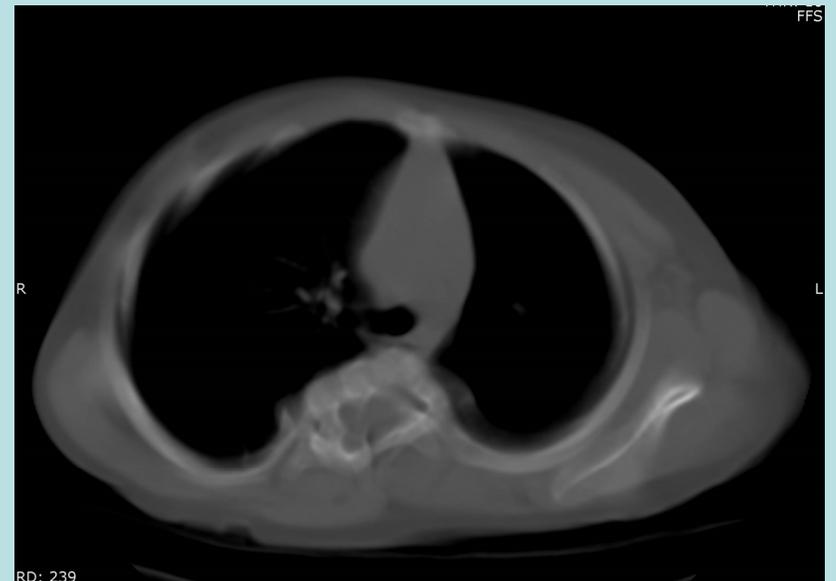
T6 sag 7.5



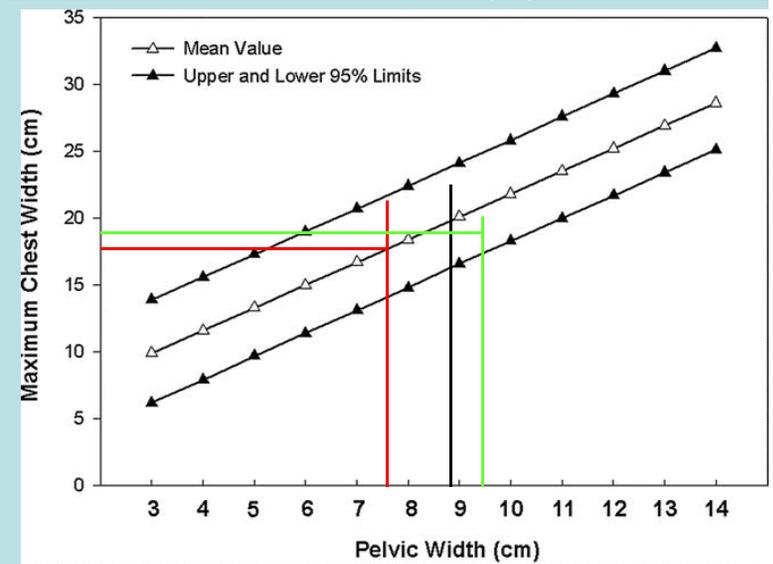
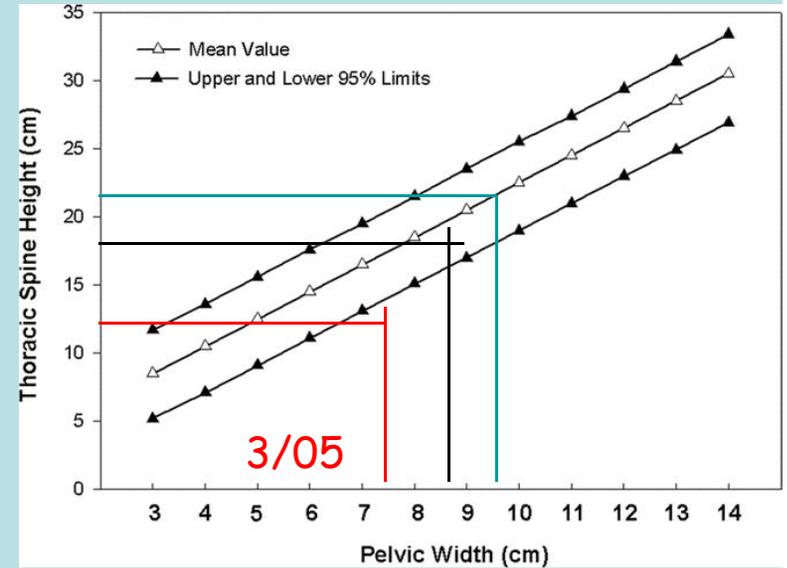
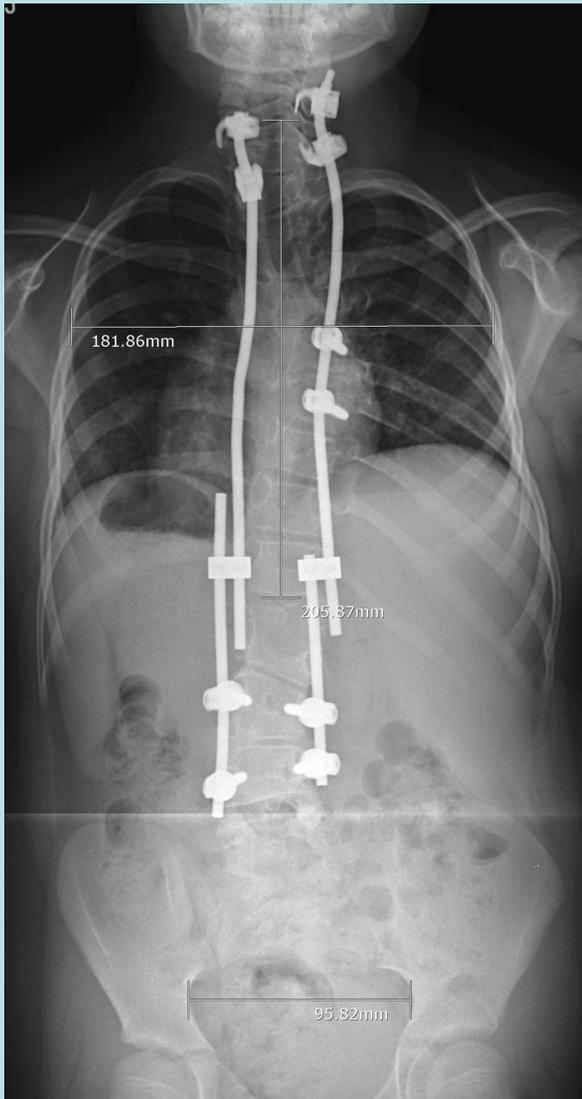
# Lung volumes 9/07 – little change



6/04: Lung vol 531 R + 444 L =  
975



# Lengthen #4– f/u 5/09



8+5 - lengthen q yr



No Apical control case

16 Months: wt 5.2 kg (<5%)

- MRI, -CT non-cong.





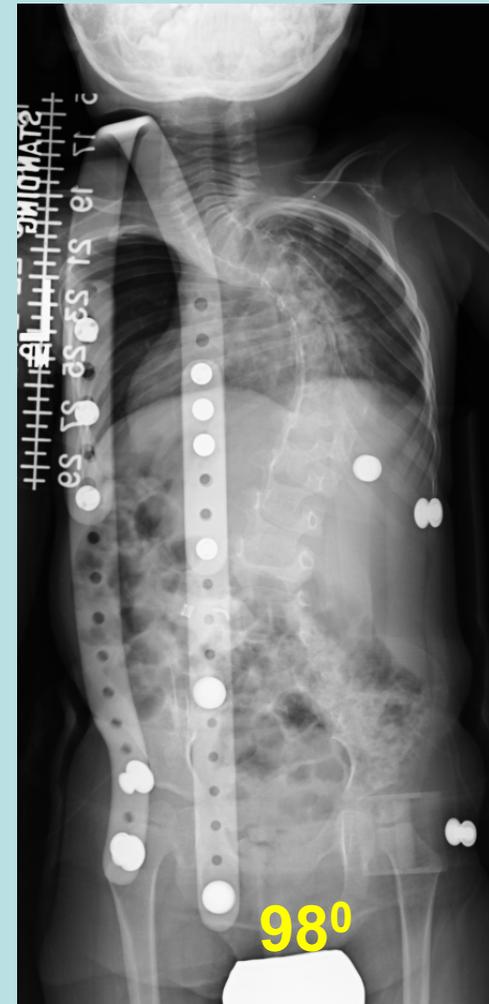
# 18 Months (2 mo txn)

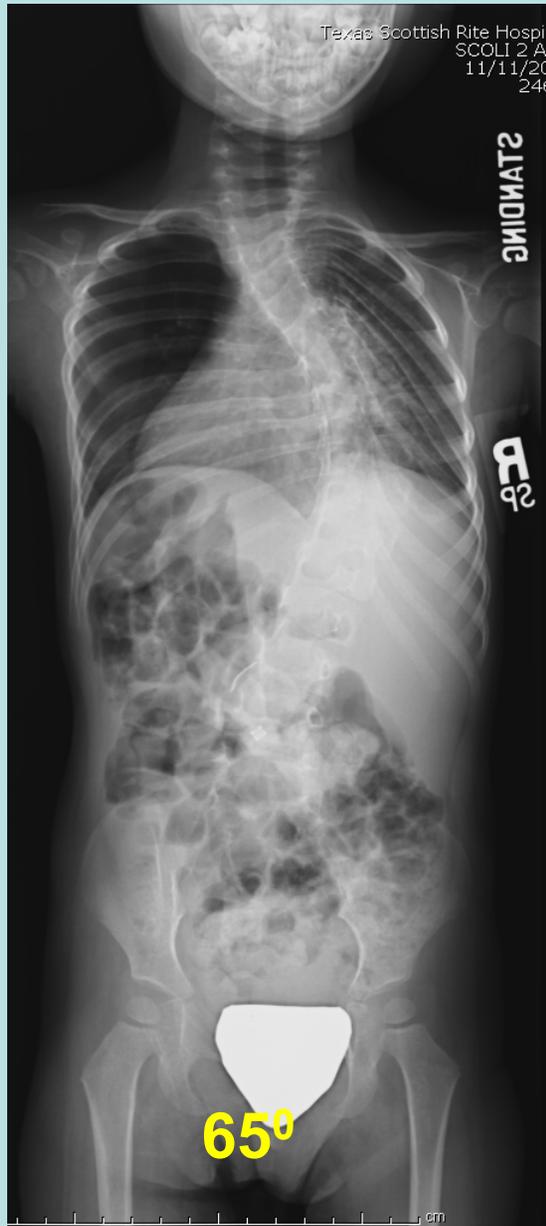
- **Halo Txn**
  - 2 lbs initial
  - 10 lbs @ DC
- **Curve: 68<sup>0</sup>**
- **Kyphosis better**



# 2+6 Years – recurrence -ve workup

- Brace: 8 mos.
- Plan – halo txn
- Cycle repeated 3 more times until age 4+6





# 4+4 Years



82°



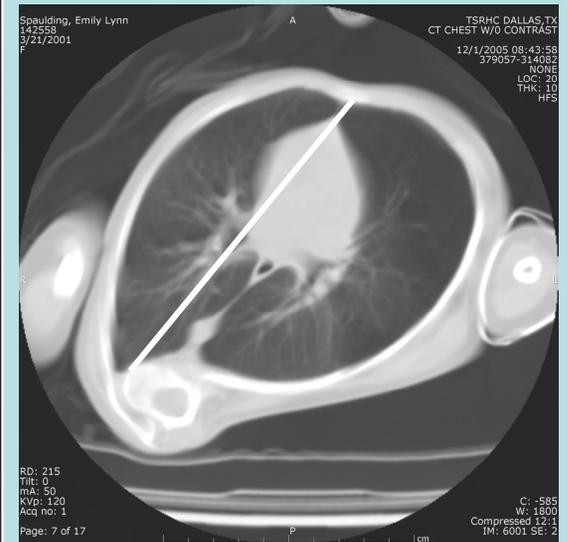
110°



**Age: 15 mos**  
**Cobb: 100°**  
**T1-T12: 10.3 cm**

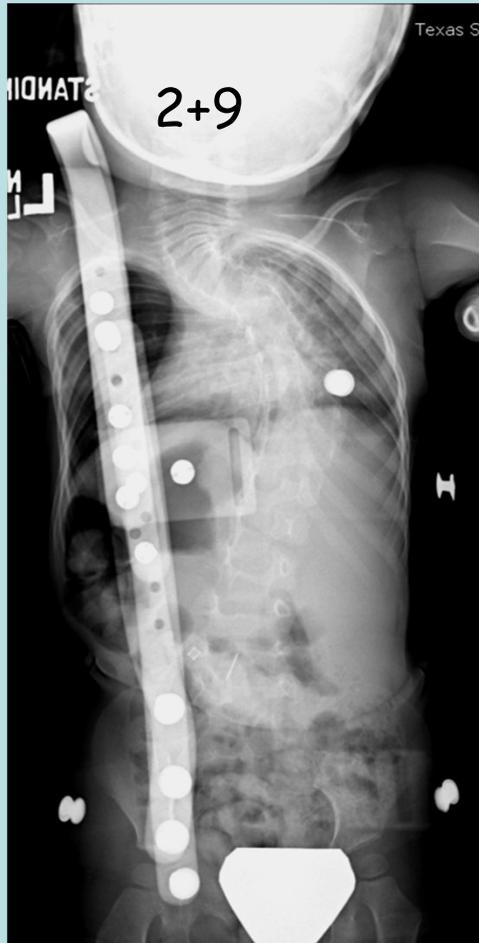


**Age: 4+4 yrs**  
**Cobb: 100°**  
**T1-T12: 12.1 cm**

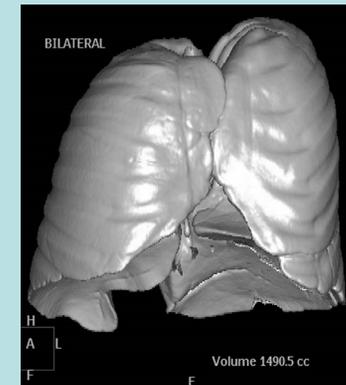
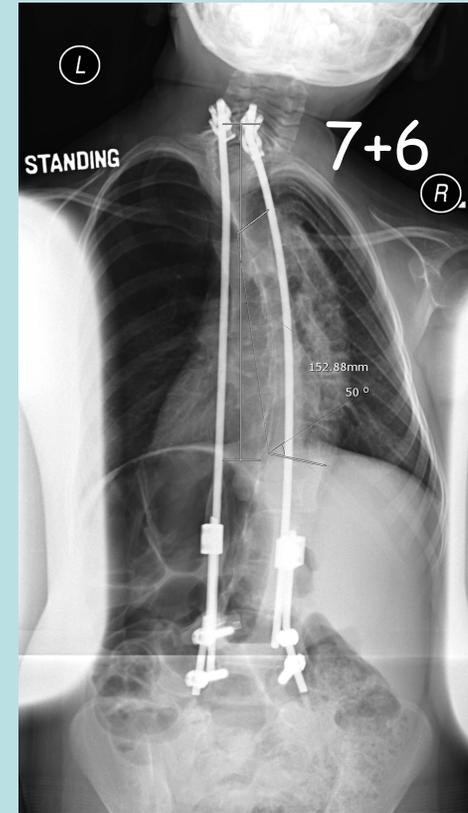
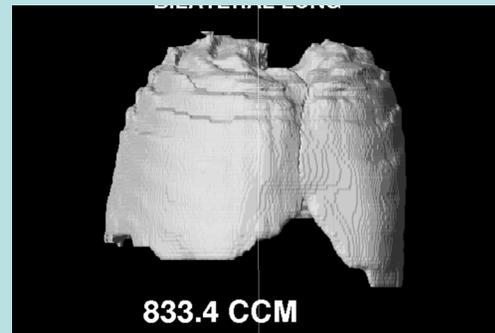
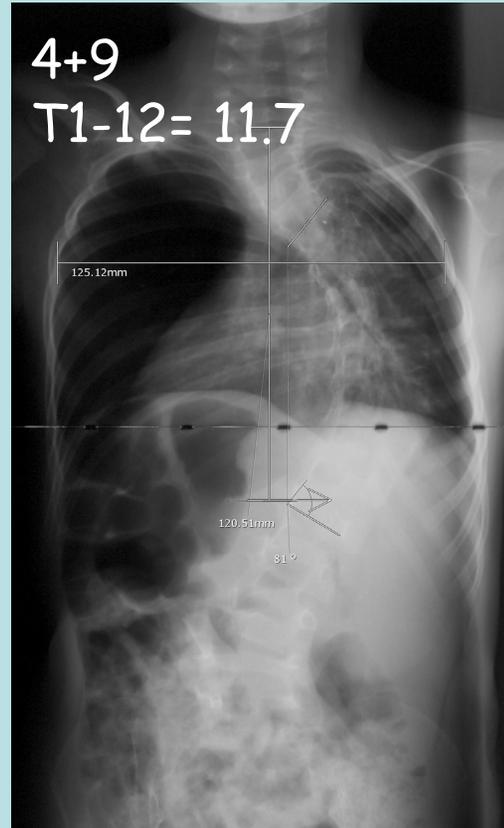


**Windswept  
penetration**

# Non-op → Operative

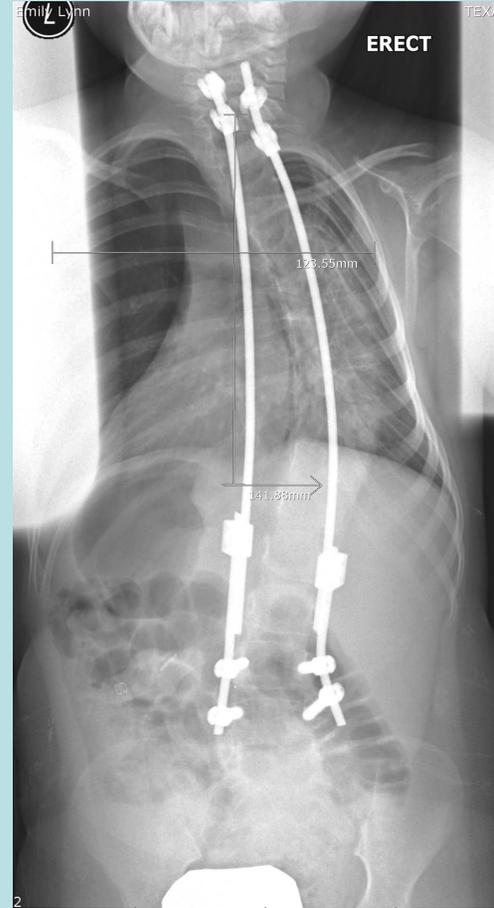
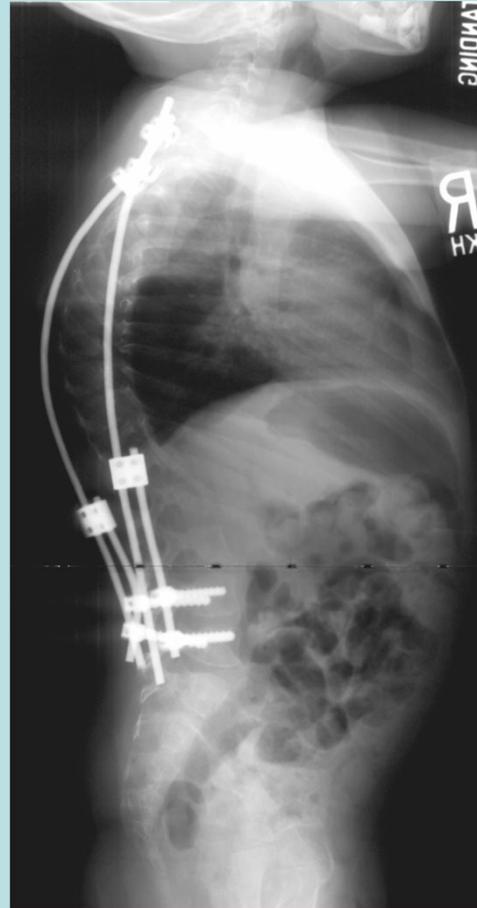
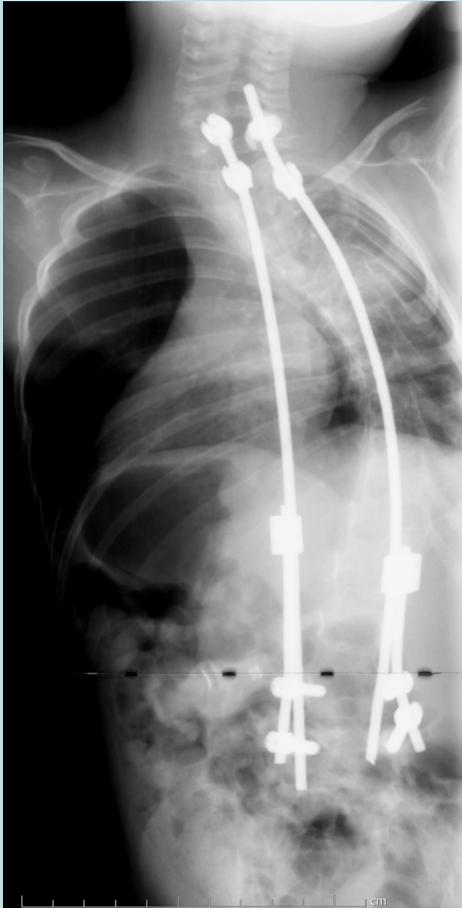


T1-12 = 11.3 cm  
R 379 L 415 =  
794



T1-12= 15.4  
R 679 L 801  
= 1480

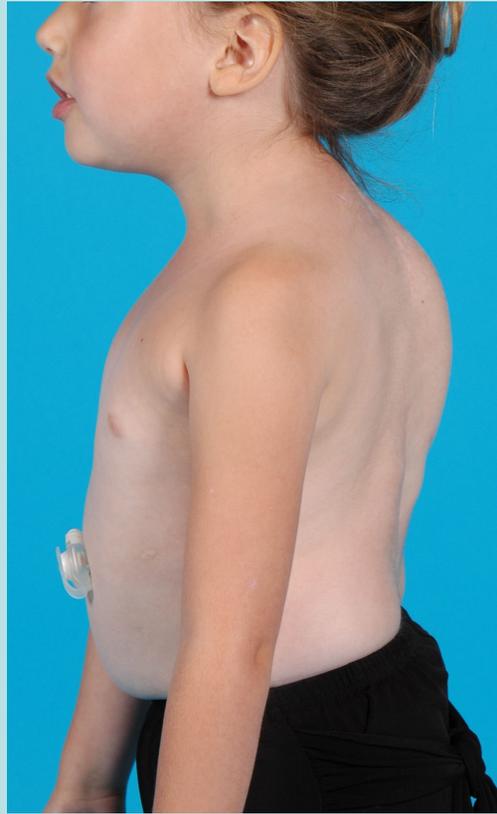
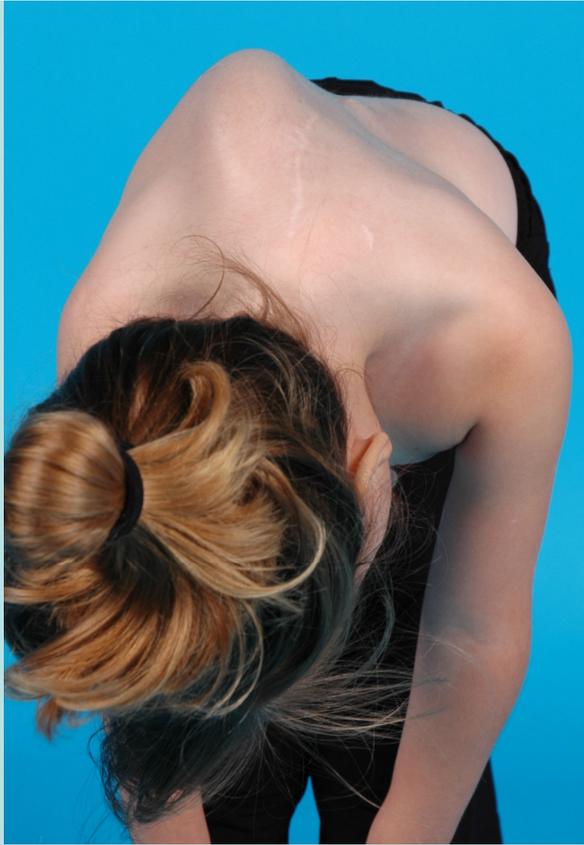
# Surgical rx - growing rods



2/06 ipo , lengthen X 3 →

current T1-12 15.4 cm

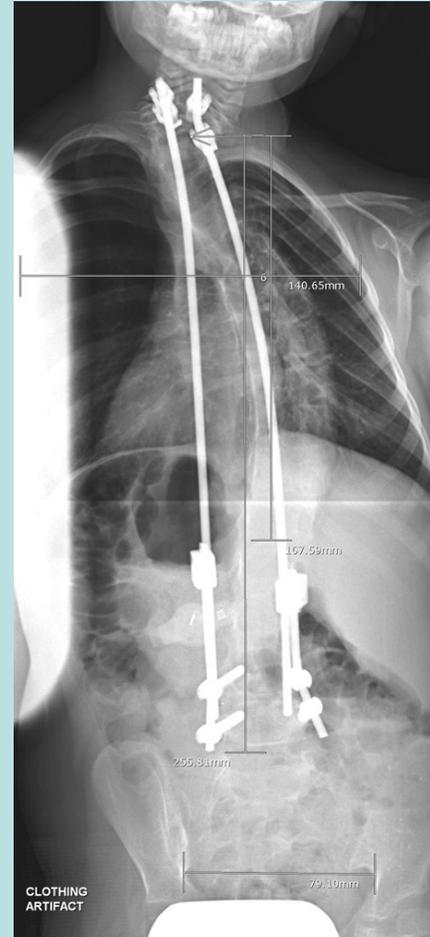
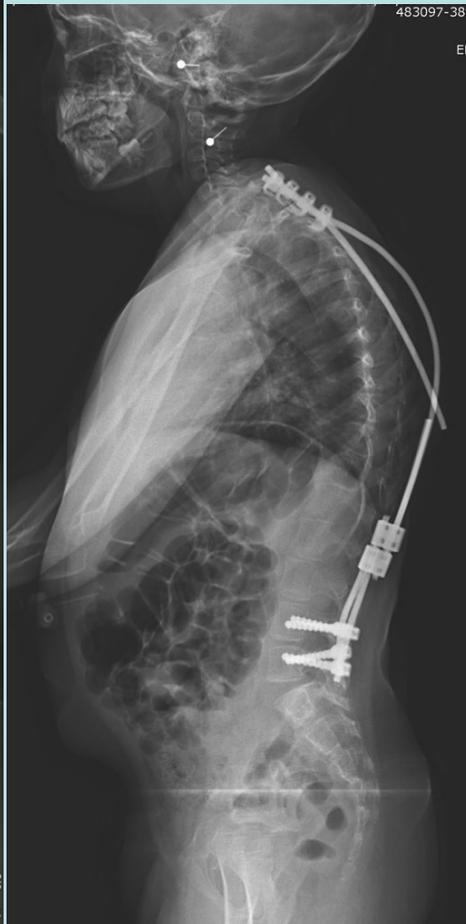
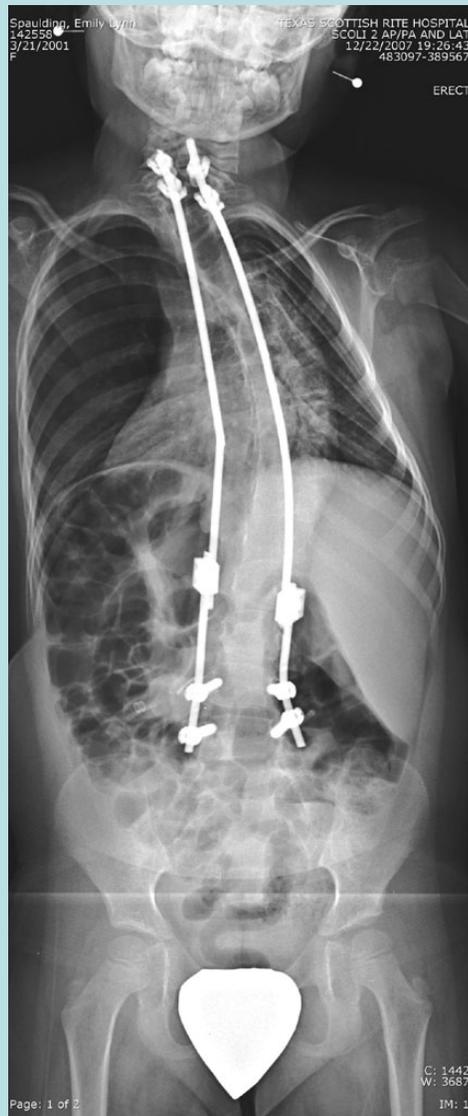
(5/07)

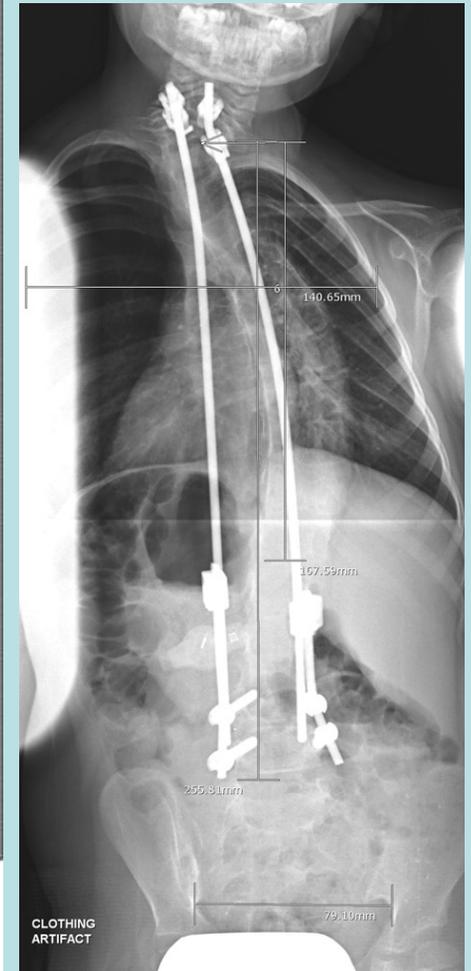
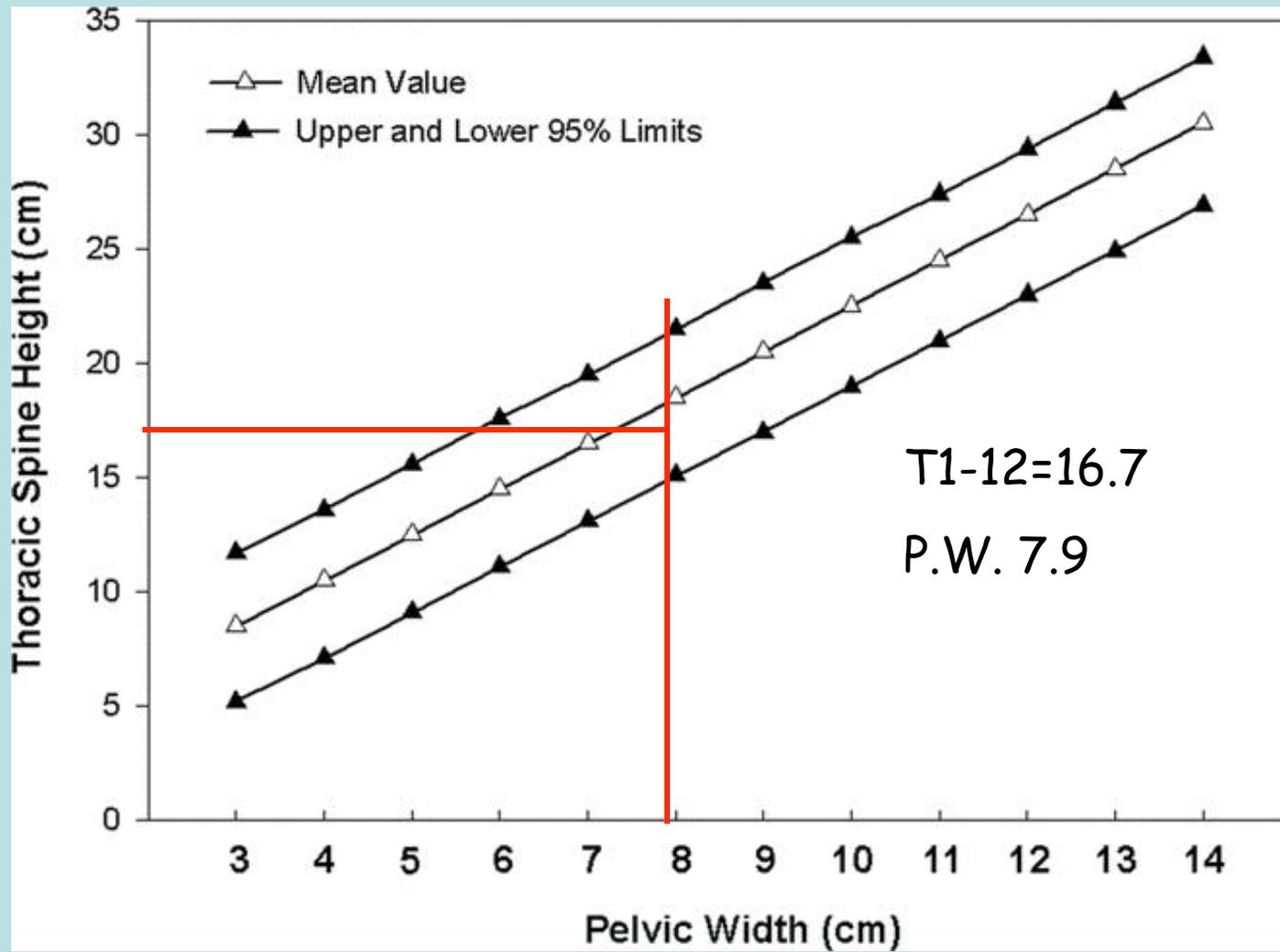


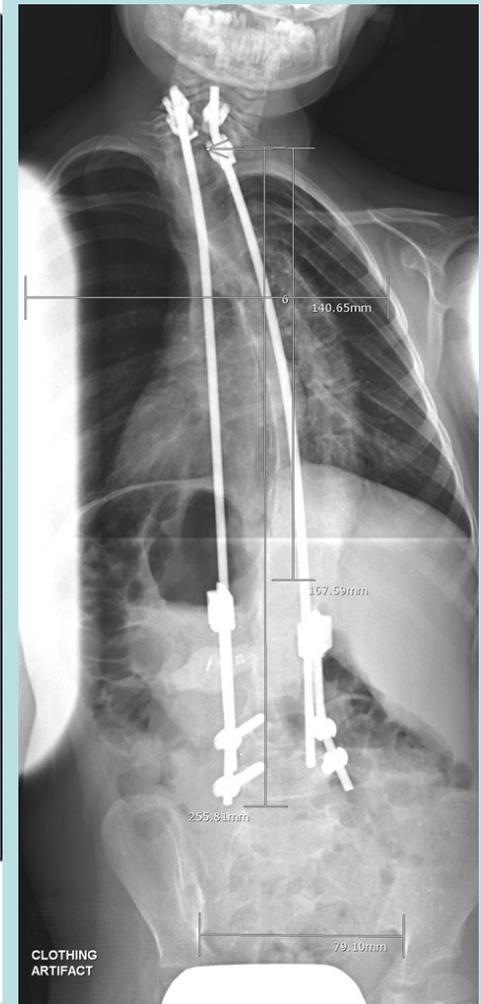
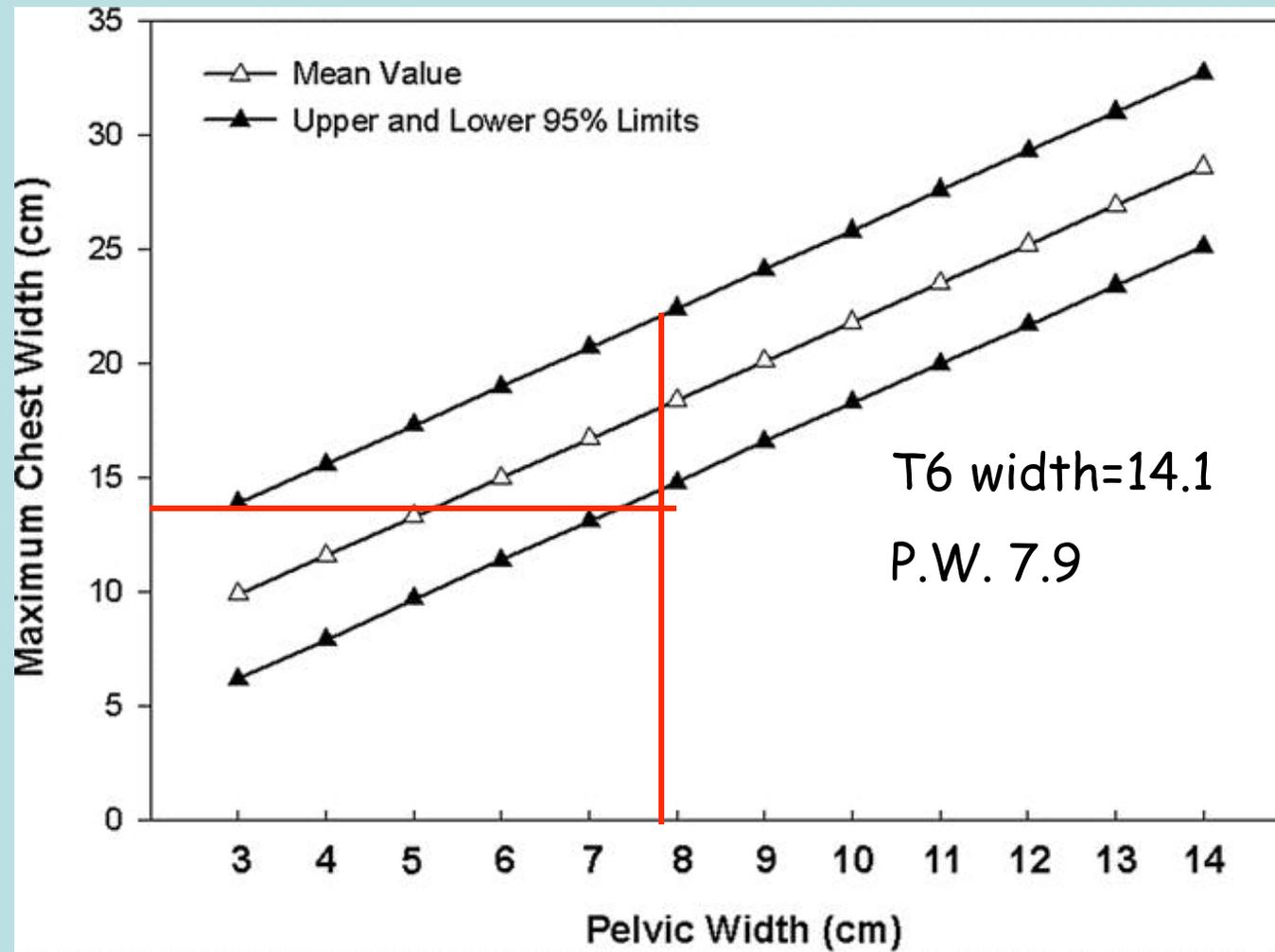
Windswept – rods slide to  
concavity

(no f/u CT yet)

# Rod fx 12/07 - revised

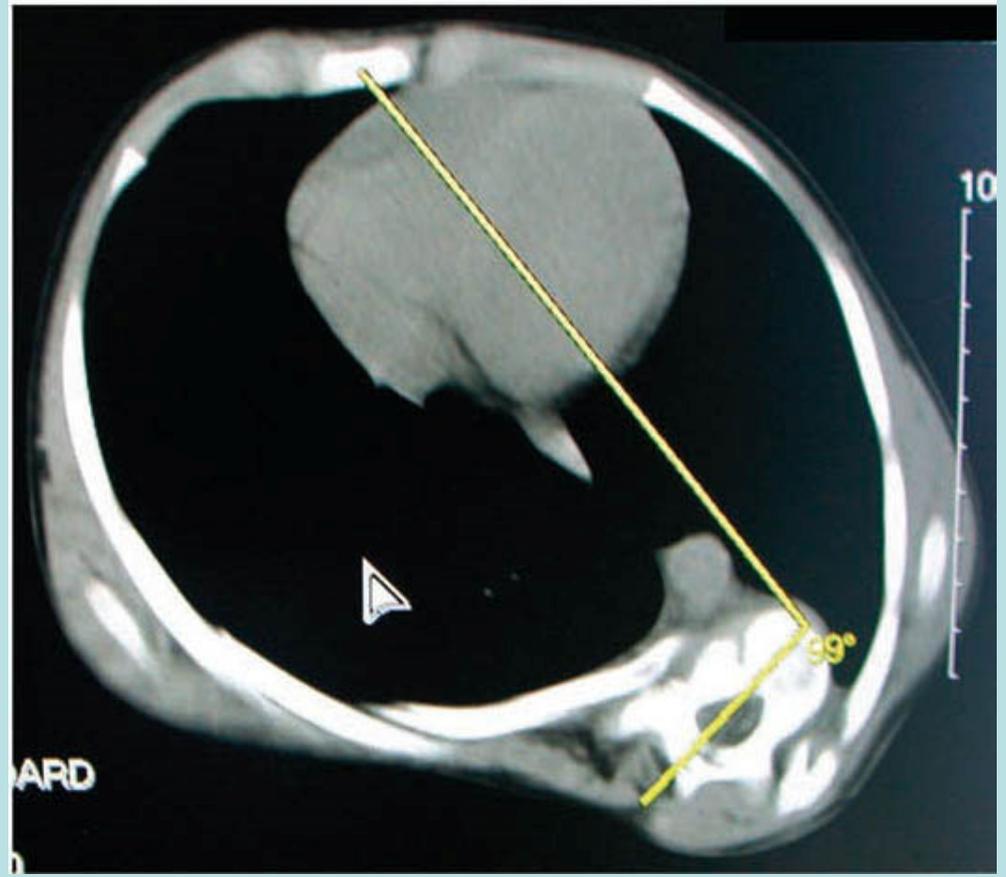




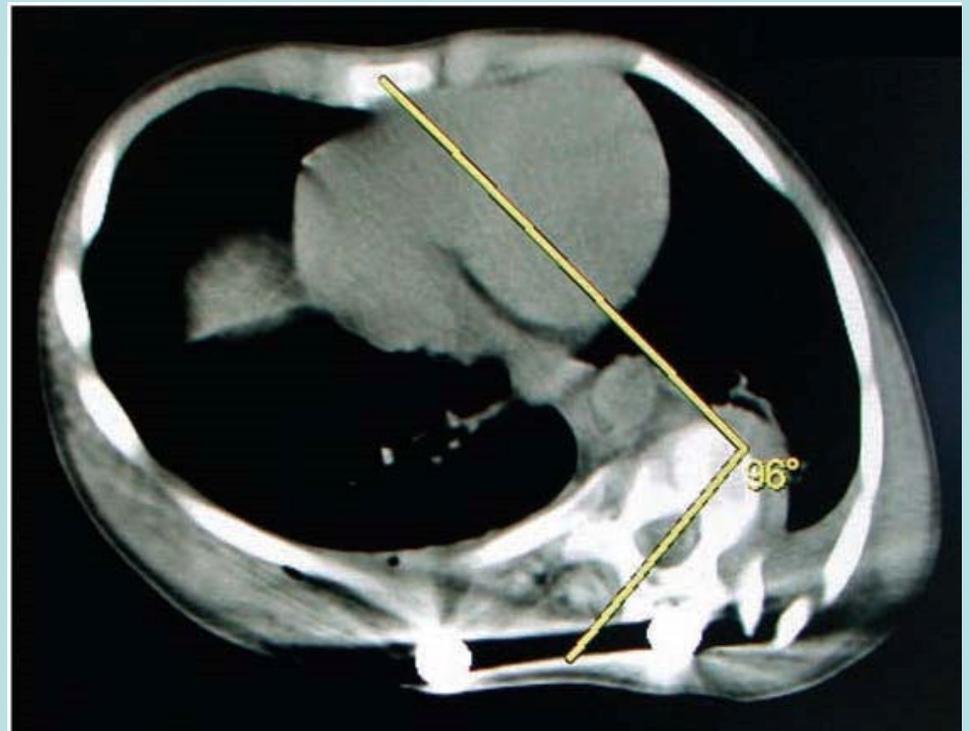
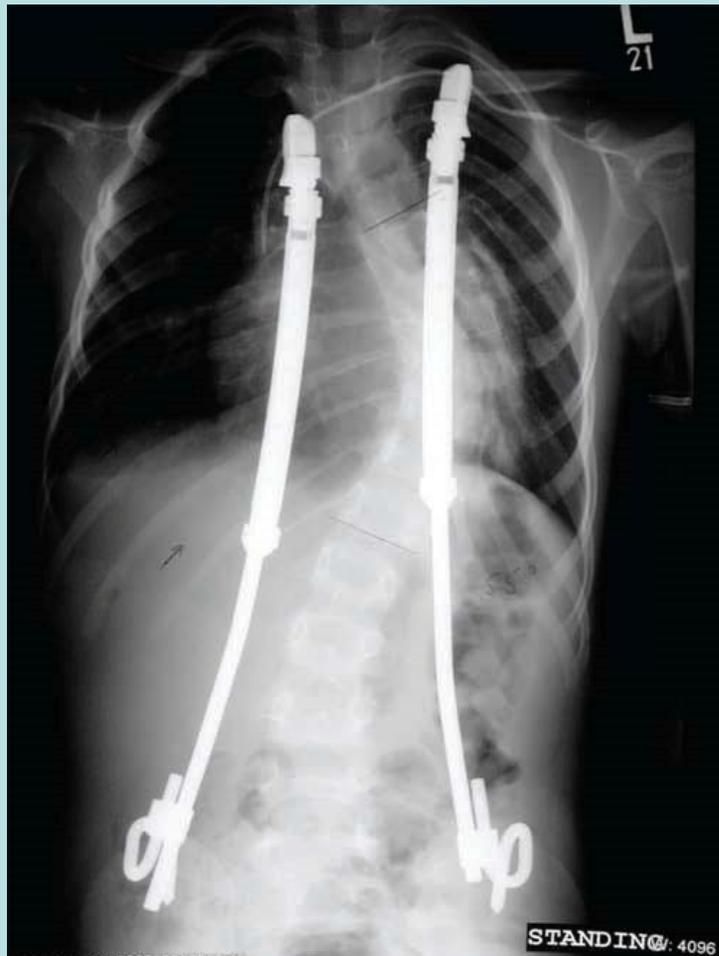


# Veptr and windswept correction

(Campbell/Smith JBJS '07 supp)



Postop – no improvement  
Distraction inefficient to correct axial plane  
deformity



# Apical Control

- Growing constructs still allow crankshaft (= Harrington distraction)
- Windswept thorax  underlying anatomic basis for T.I.S. ?
- Apical fixation allows control of a.v.t. and crankshaft  solution for windswept thorax ?