WRIST FRACTURES: WHAT DO WE NEED TO KNOW?

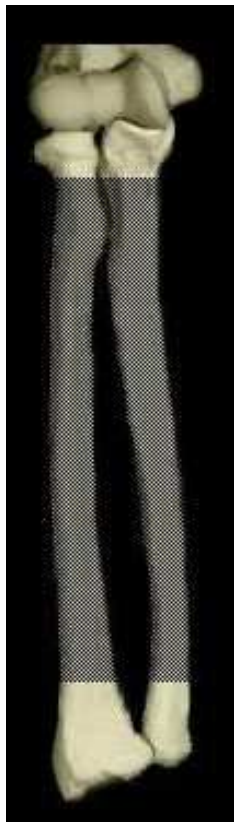
D. STOFFELEN MD, PHD

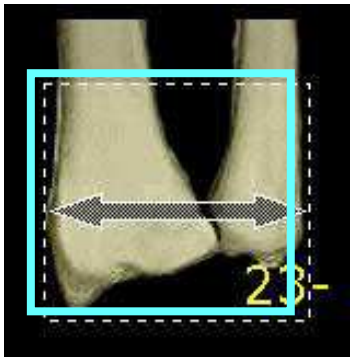
Müller AO Classification

2 3 -

Bone

Distal segment





Type A	:	Extraarticular
Type B	:	Partial articular
Type C	:	Complete articular

Type A

Type B

Type C

Type A
Extraarticular

ulna

A1

radius

A2

A3

simple

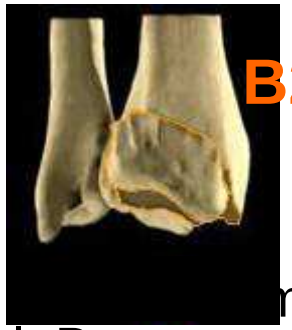
multifrag.

Type B
Partial articular

sagittal

B1

frontal



B2

B3

dorsal Barton

palmar (reverse-B)

Type C
Complete articular

articular simple

C1

C2

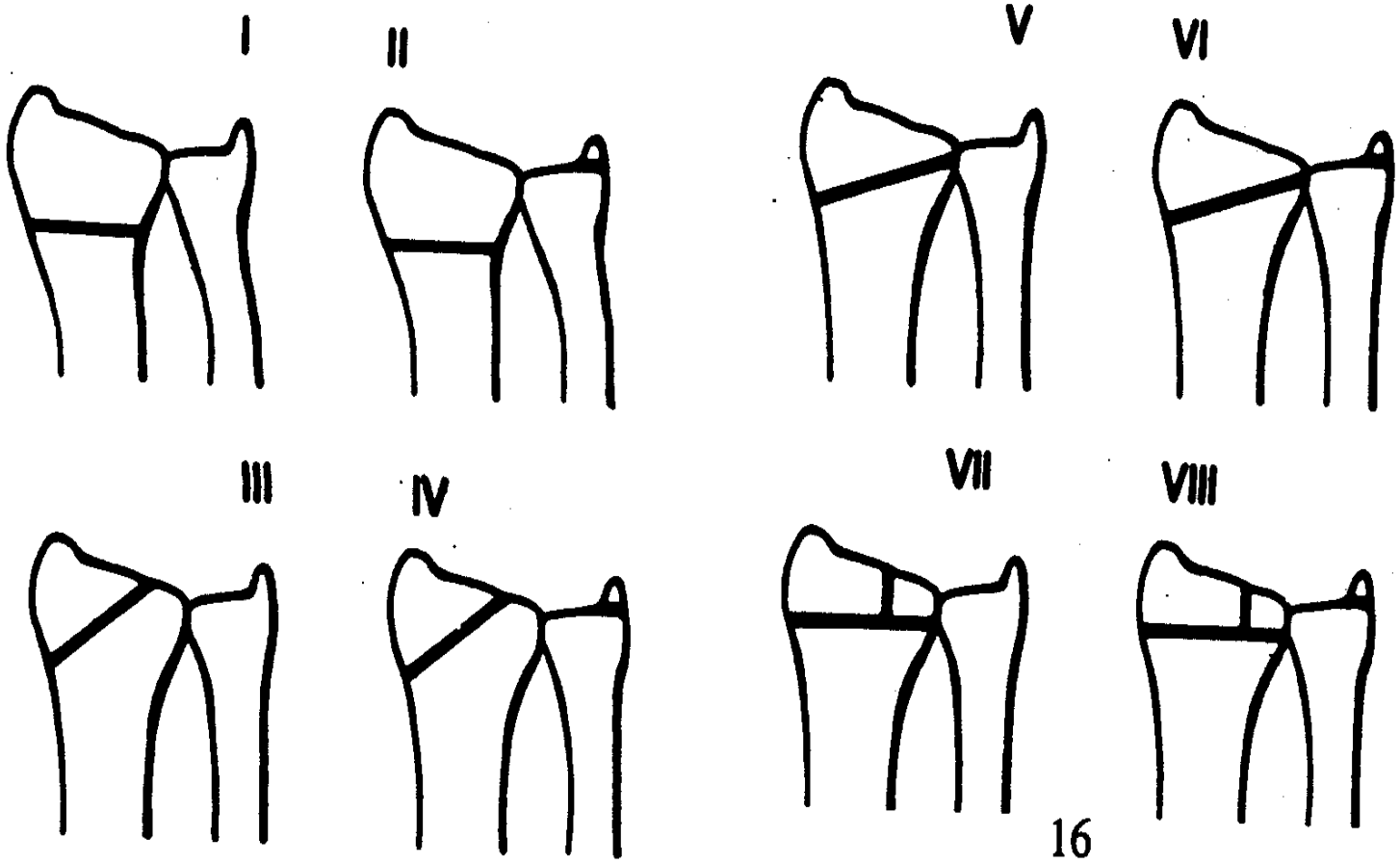
articular multifrag.

C3

metaphyseal simple

multifrag.

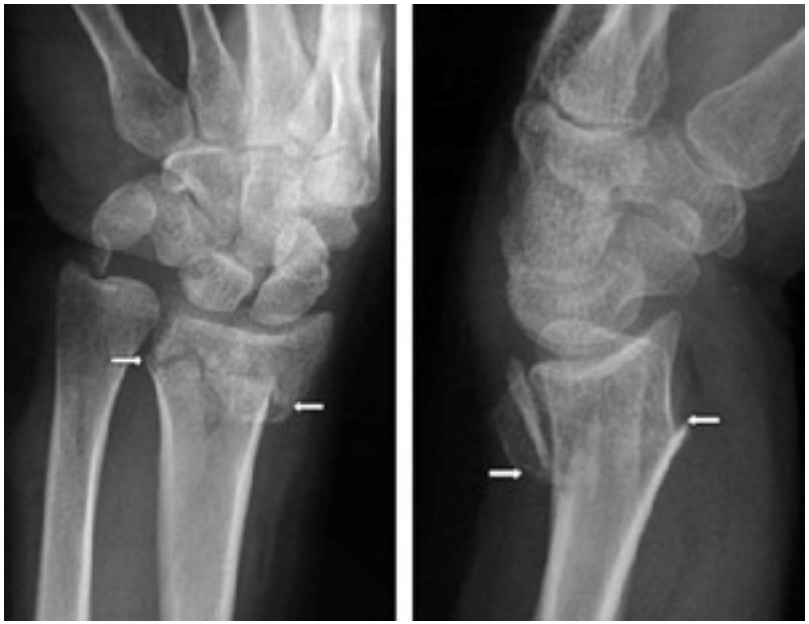
CLASSIFICATION: Fryckman



TO MAKE LIFE SIMPLE

Pouteau colles

Smith



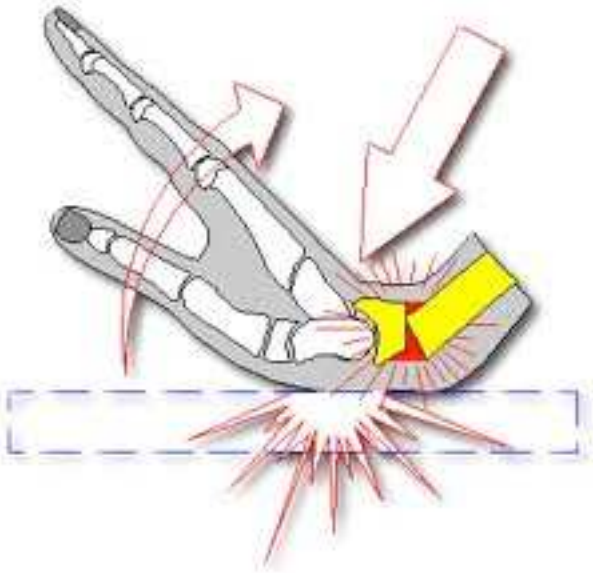
WRIST FRACTURES

STATEMENT 1

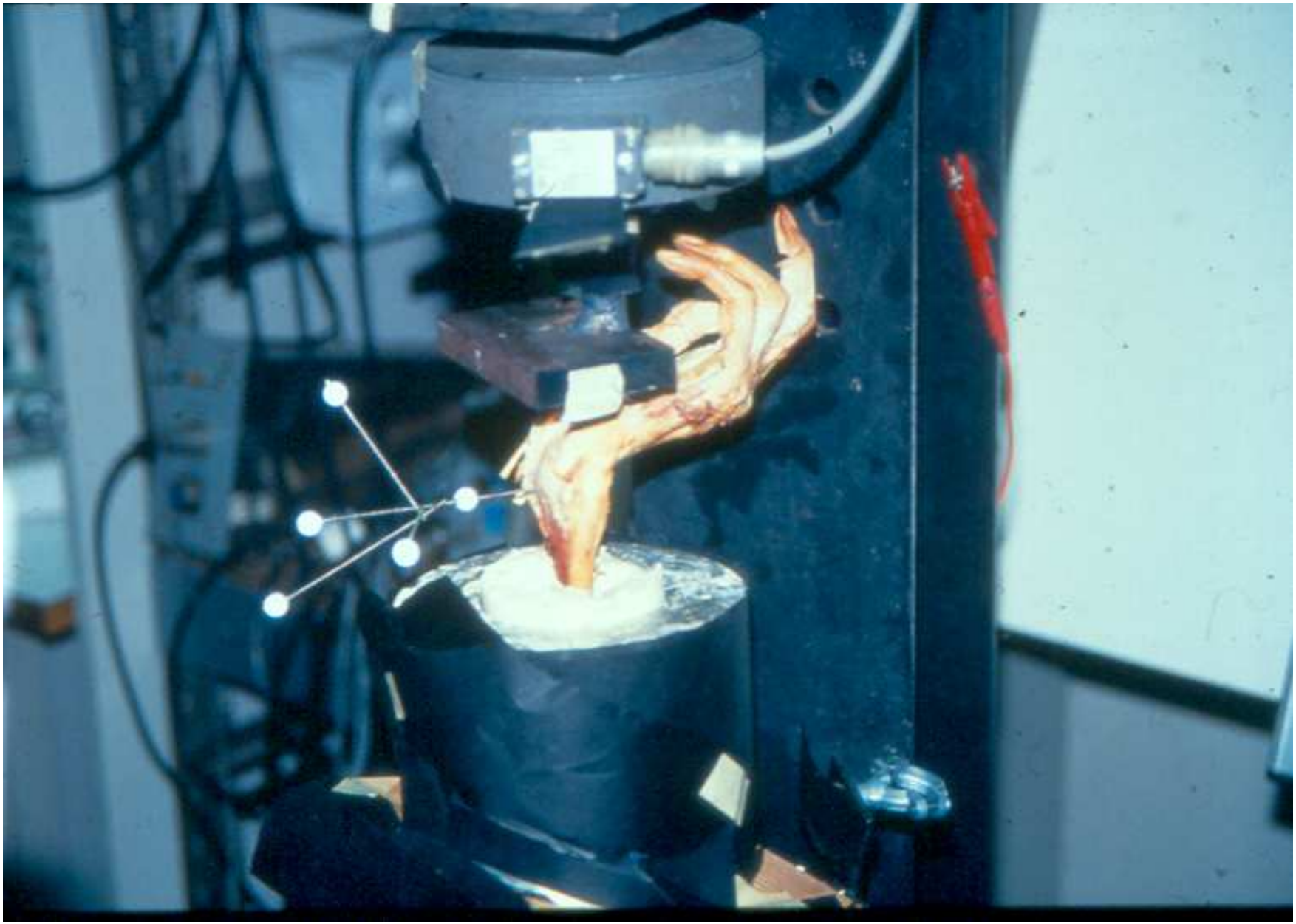
TREATMENT DOES NOT DEPEND ON THE CALENDER AGE but on the patients expectations!

THE DORSAL AND VOLAR FRACTURES

- THE MECHANISM OF INJURY



THE DORSAL AND VOLAR FRACTURES



STATEMENT 2

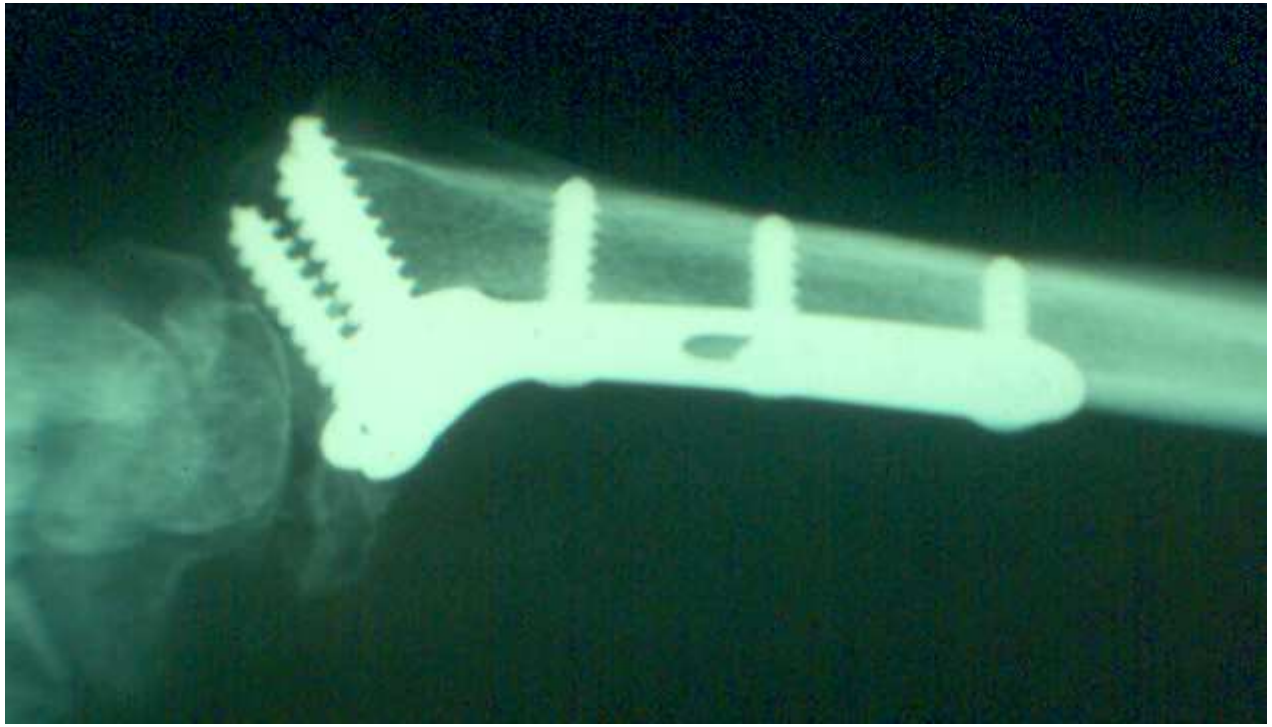
VOLAR WRIST FRACTURES DON'T ALWAYS HAPPEN BY A FALL ON THE BACK OF THE WRIST

STATEMENT 3

VOLAR DISPLACED FRACTURES NEED PERFECT ANATOMY AND ARE THEREFORE

ARE ALWAYS TREATED WITH ORIF

(AND FIX THE DISTAL FRAGMENT
IN VOLAR BARTON FRACTURES…..)



(AND FIX THE DISTAL FRAGMENT
IN VOLAR BARTON FRACTURES…..)

STATEMENT 3B

VOLAR DISPLACED FRACTURES

ARE ALWAYS TREATED WITH ORIF

(AND USE THE RIGHT PLATE…..)

STATEMENT 4
WHAT IS STABILITY IN WRIST FRACTURES?

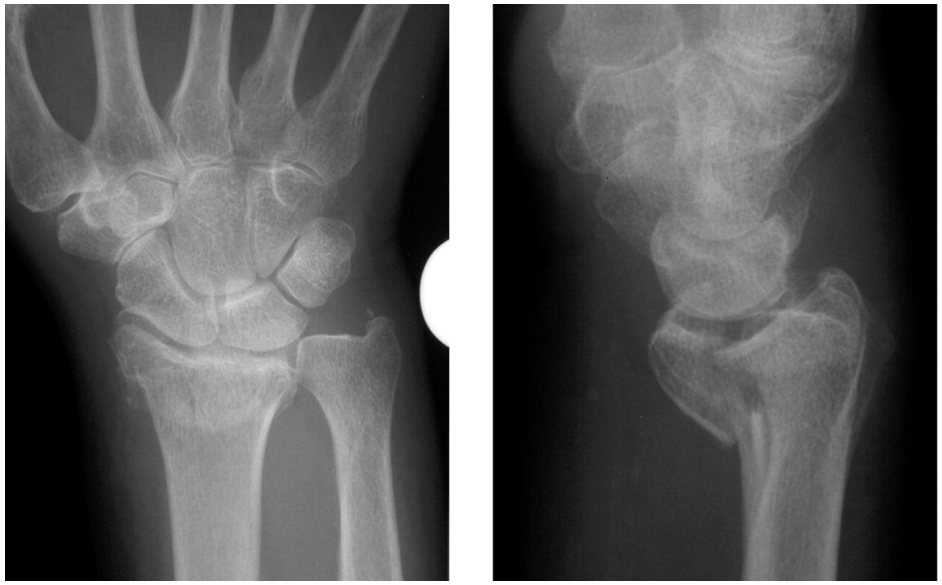
A COLLES FRACTURE IS UNSTABLE WHEN

- THERE IS DORSAL COMMINUTION
- THERE IS INTRA-ARTICULAR STEPP-OFF >2MM
- THERE IS RADIAL SHORTENING OF >2MM

THE NEED FOR ANATOMY
STATEMENT 5

FUNCTION WILL DECREASE WHEN

- DORSAL ANGULATION >10°
- LATERAL SHIFT >2MM
- RADIAL SHORTENING OF >2MM

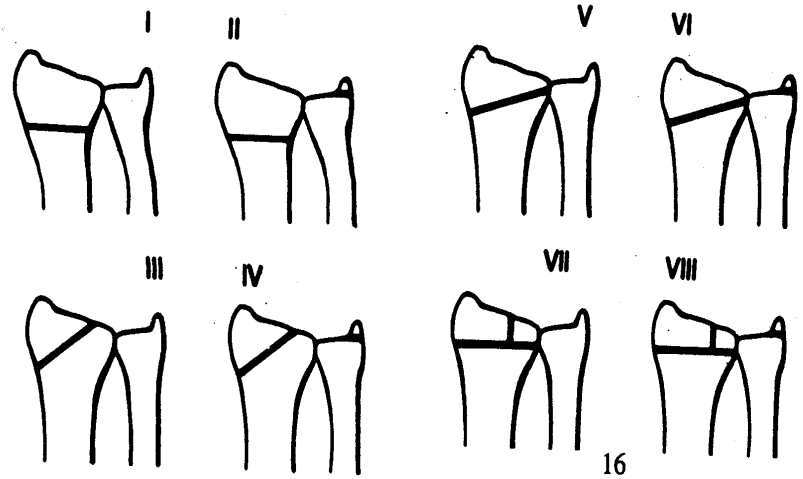


THE TREATMENT

Undisplaced fractures

	Count	Cooney 6wk	Cooney 3m	Cooney 6m	Cooney 1y
1 week plaster	25	61.6	77.4	84.6	86.8
std. dev.		12.1	13.8	11.6	10.9
3 weeks plaster	27	56.8	71.5	81.3	82.2
std. dev.		19.7	19.2	19.3	18.6
P (1 vs 3wk)=		0.29	0.19	0.45	0.27

WHAT WITH A SIMPLE FRACTURE?



PLASTER OR PINNING?

Results for Frykman type I and II fractures

Treatment	Cooney score	Improved. Cooney score	Age	Sex (%M)	Length	Weight	Mechanism (% high vel.)
Clos. red. + plaster	76.9	34.6	55.8	31%	168	68.5	0.31
Kapandji pinning	73.3	19.2	60.0	8%	165	70.9	0
P(Sign. diff.)=	0.28	0.0005	0.0005	0.012	0.29	0.51	0.00008
P(Multivar. infl.)=	0.53	0.00045	0.00045	0.94	0.65	0.56	0.26

WHAT WITH A COMPLEX FRACTURE?

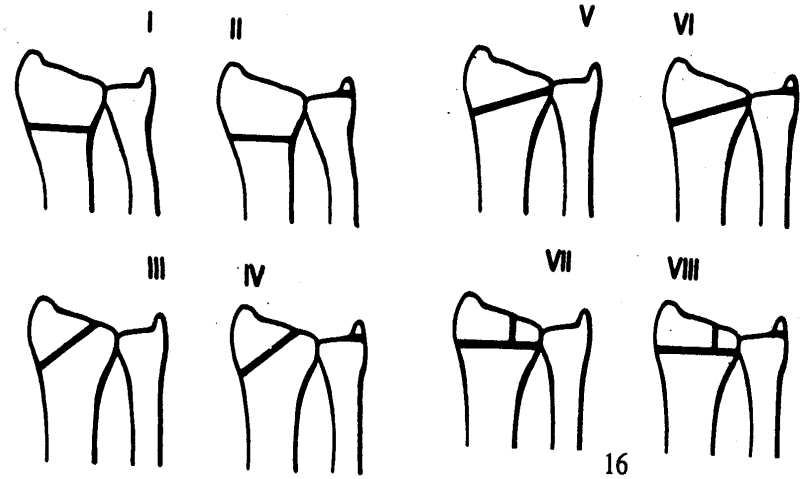
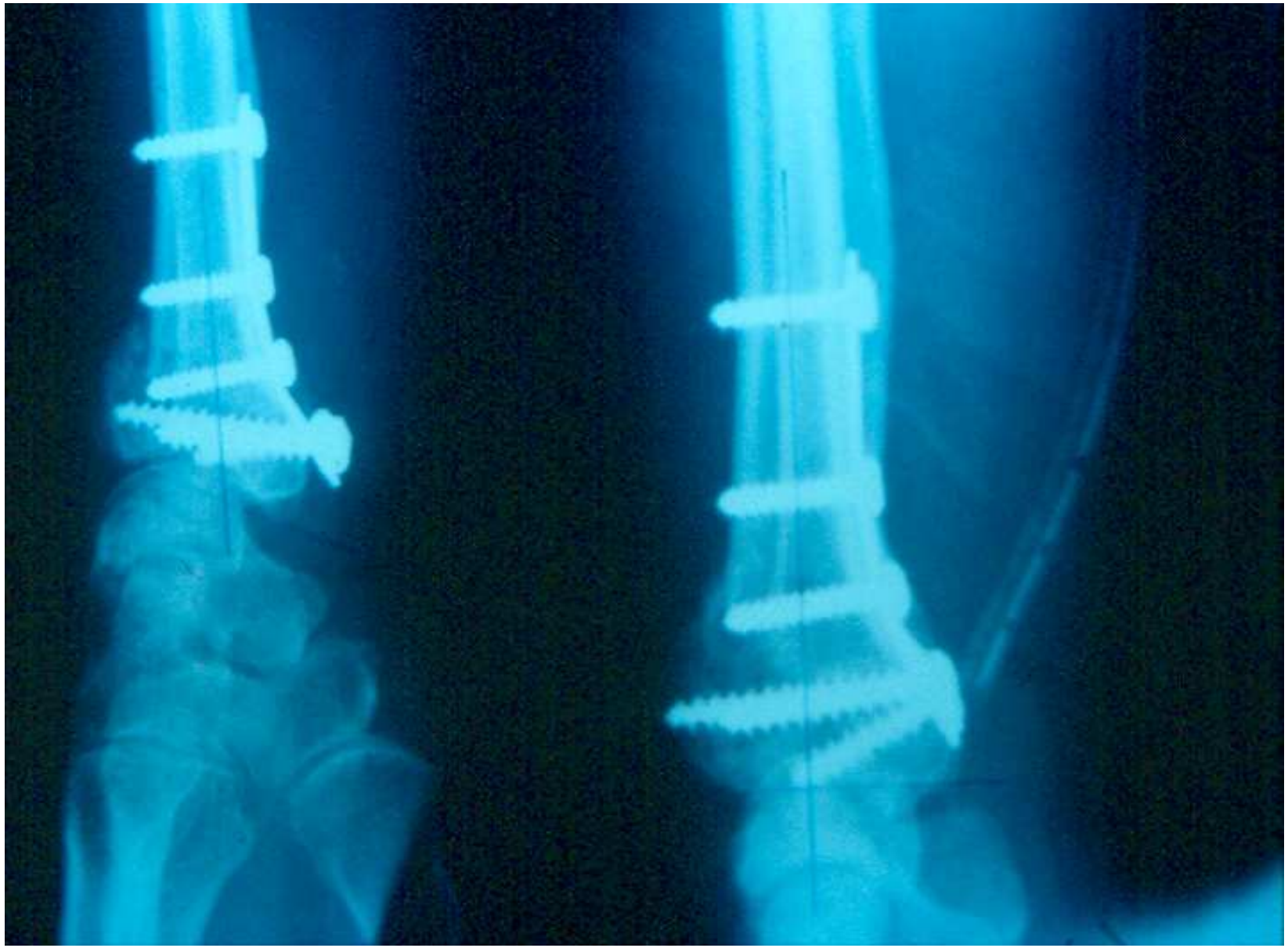


PLATE OR EXTERNAL FIXATION?

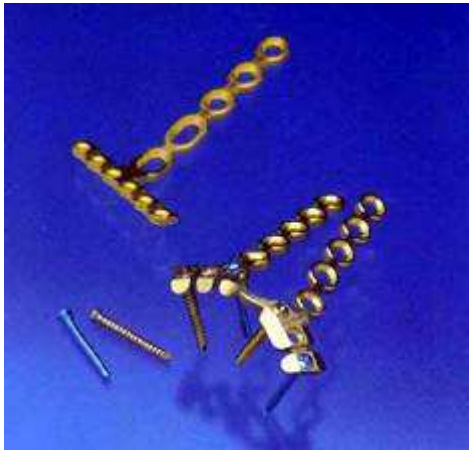
Results for Frykman type VII and VIII fractures

Treatment	Cooney score	Improved. Cooney score	Age	Sex (%M)	Length	Weight	Mechanism (% high vel.)
Plate & screw fix.	67.2	16.8	44.1	52%	171	71	44%
External fix	74.8	26.5	50.5	33%	169	73.8	22%
.P(Sign. diff.)=	0.0027	0.03	0.07	0.1	0.25	0.25	0.05
P(Multivar. infl.)=	0	0.0002	0.22	0.19	0.45	0.56	0.57



Distal radius plate & LCP (locking compression plate)

The “locking plate” has changed the way to treat distal radial fractures



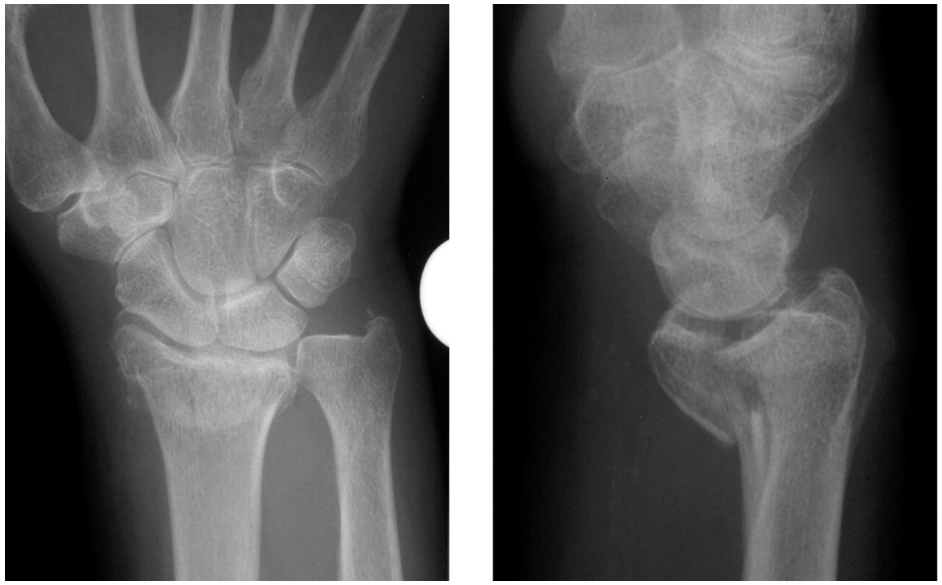

R
JvG


R

THE NEED FOR ANATOMY
STATEMENT 6

IF THE FRACTURES IS NOT REDUCED PROPERLY

THE **DRUJ** WILL BE MOST AFFECTED



COMPLICATIONS

- Median nerve compression
- RSD (reflex sympathetic dystrophy) / finger stiffness
- Pin site infection

- Late collapse
- Tendon rupture

CONCLUSION

- Calender age does not determine treatment
- Remaining dorsal angulation >0-10°
- Intra-articular stepp-off >2mm
- Shortening of 2mm
- Lateral shift of >2mm
- Simple fractures: POP or pinning
- Complex fractures: plates?
- Arthroscopy?

PAY ATTENTION TO DETAIL