

# ASSESSMENT & DIAGNOSIS IN ELBOW INSTABILITY

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# CAUSES OF ELBOW INSTABILITY

- **ligament insufficiency**
- **bony defects**

# CAUSES

- trauma



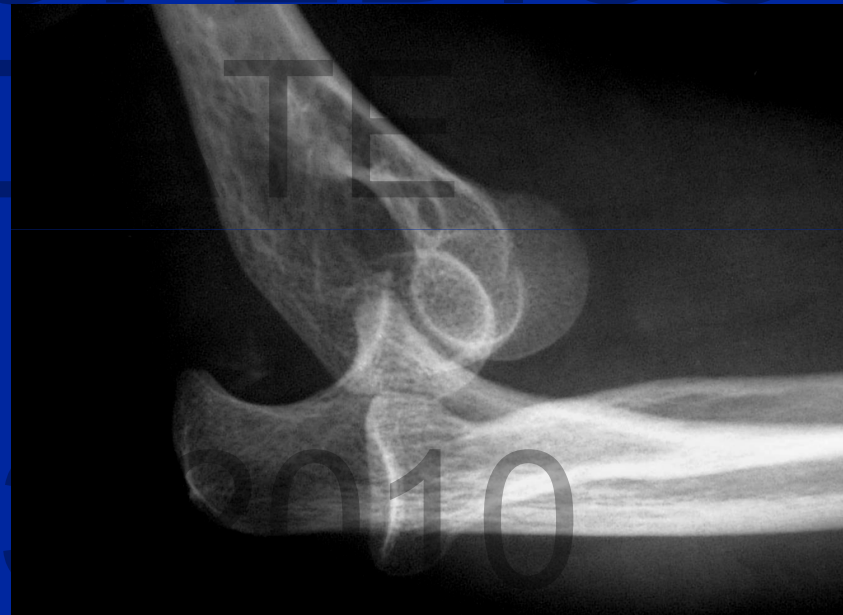
# CAUSES

- trauma



# CAUSES

- trauma



# CAUSES

- trauma
- hyperlaxity



# CAUSES

- trauma
- hyperlaxity
- **prior surgery**



# CAUSES

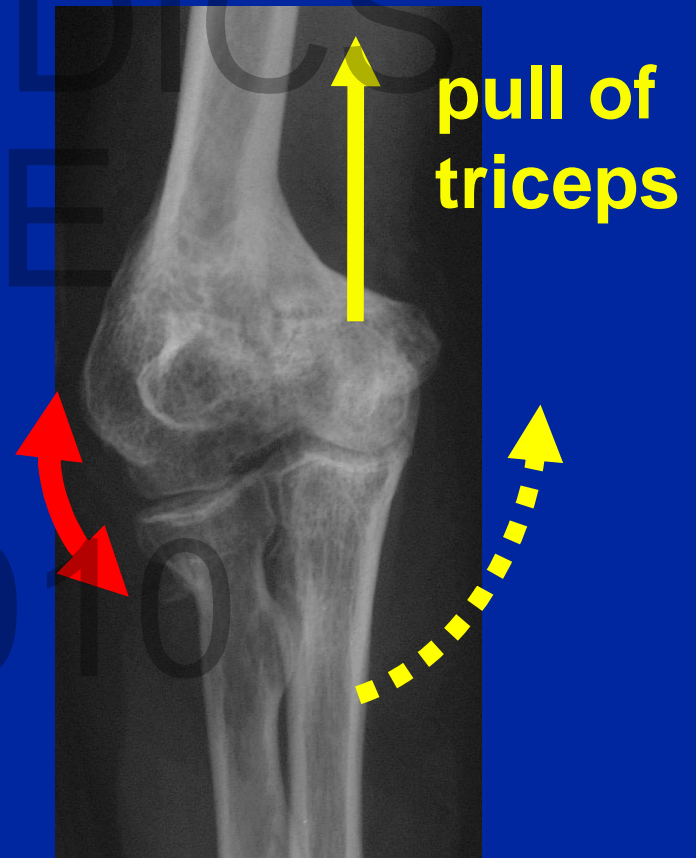
- trauma
- hyperlaxity
- prior surgery
- **deformity**





# CAUSES

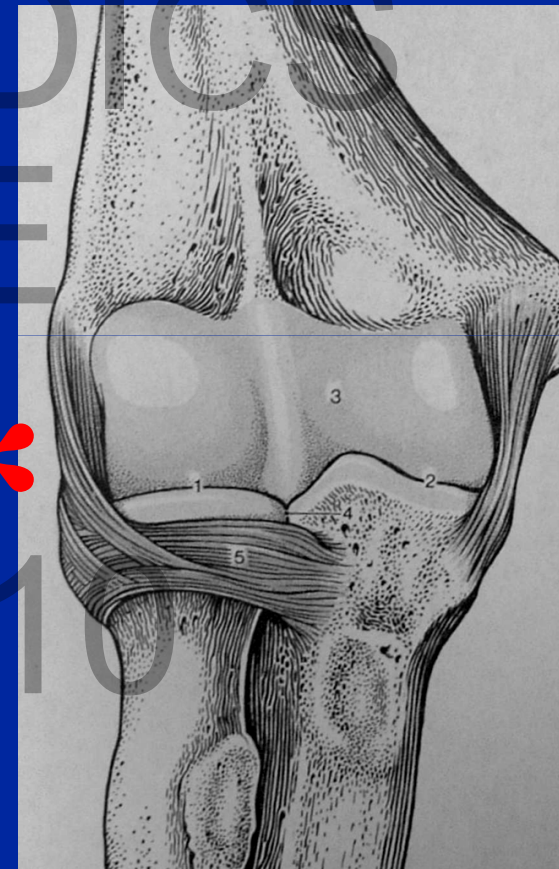
- trauma
- hyperlaxity
- prior surgery
- **deformity**



# TYPES OF INSTABILITY

## Lateral

- varus
- postero-lateral rotatory \*



# TYPES OF INSTABILITY

## ORTHOPEDICS

Lateral

- varus

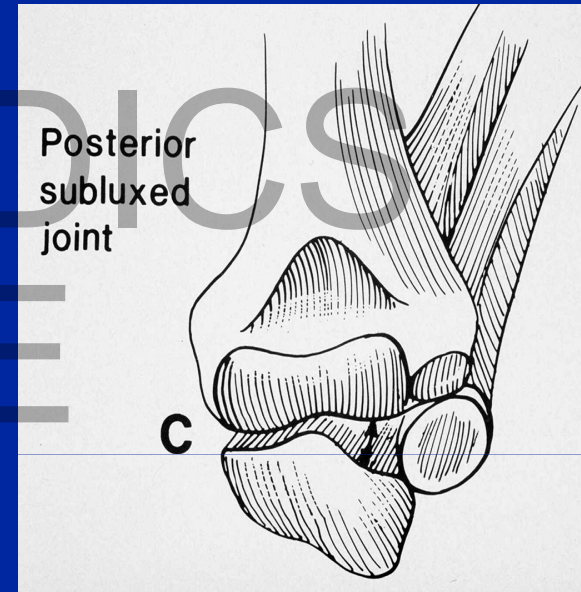


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# TYPES OF INSTABILITY

## Lateral

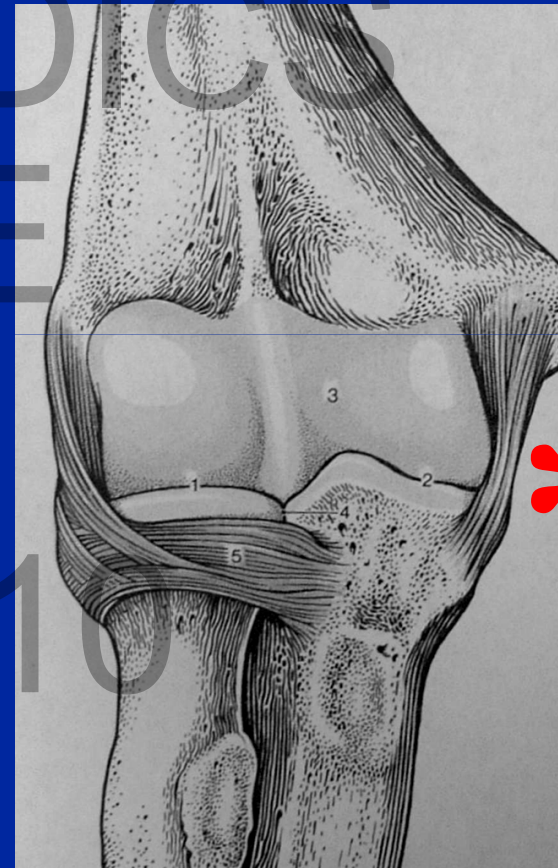
- varus
- postero-lateral rotatory



# TYPES OF INSTABILITY

## Medial

- valgus
- postero-medial rotatory



# TYPES OF INSTABILITY

## ORTHOPEDICS

**Medial**

- valgus



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# TYPES OF INSTABILITY

## Medial

- valgus
- postero-medial rotatory



# SYMPTOMS

- pain
- snapping
- recurrent  
subluxations / dislocations

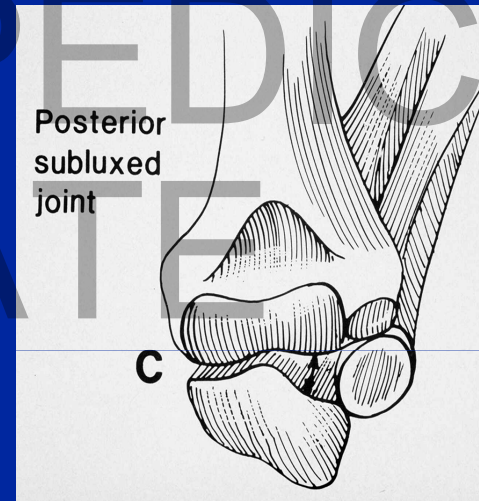
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# SYMPTOMS

## POSTERO-LATERAL ROTATORY INSTABILITY

- supination
- extension



# SYMPTOMS

## POSTERO-LATERAL ROTATORY INSTABILITY

- extension / supination



# SYMPTOMS

## POSTERO-LATERAL ROTATORY INSTABILITY

- extension / supination



# SYMPTOMS

## POSTERO-MEDIAL ROTATORY INSTABILITY

- more symptoms in pronation
- joint incongruity



# SYMPTOMS

## POSTERO-MEDIAL ROTATORY INSTABILITY

ORTHOPEDICS  
UPDATE

- pain
- stiffness



# SYMPTOMS

## POSTERO-MEDIAL ROTATORY INSTABILITY

# ORTHOPEDICS

- **no** subjective instability

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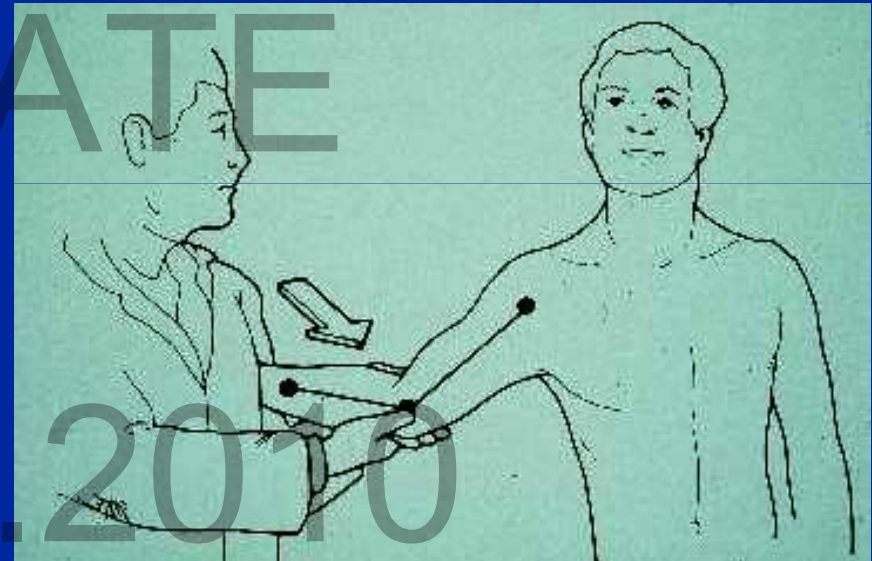
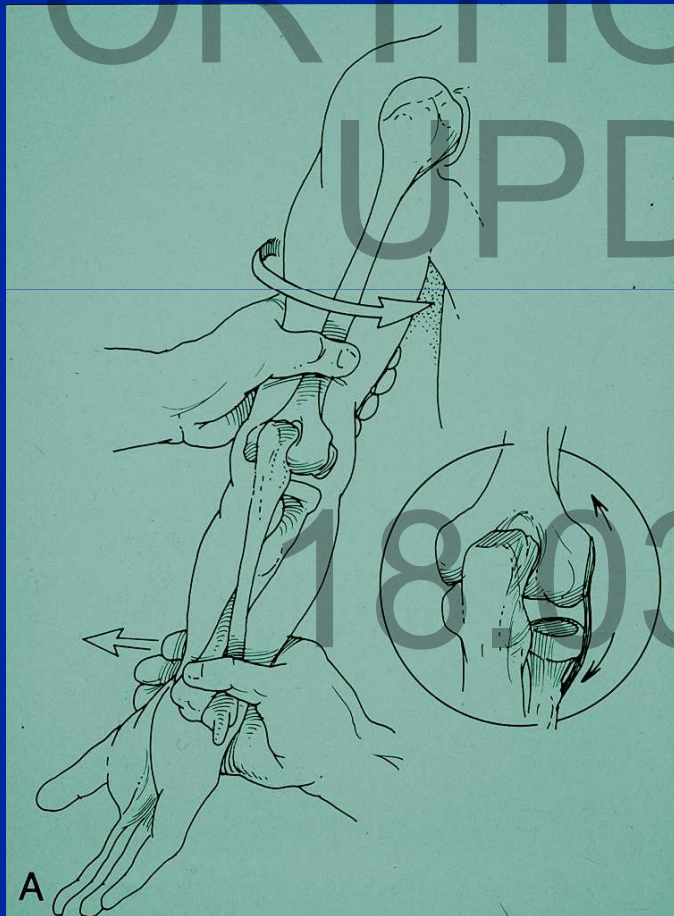
# DIAGNOSIS



# DIAGNOSIS VARUS-VALGUS INSTABILITY

ORTHOPEDICS

UPDATE





# DIAGNOSIS

## VARUS-VALGUS INSTABILITY

- Varus-valgus stress x-rays:



varus stress



valgus stress

# EXAMINATION

- under fluoroscopy
- in anesthesia



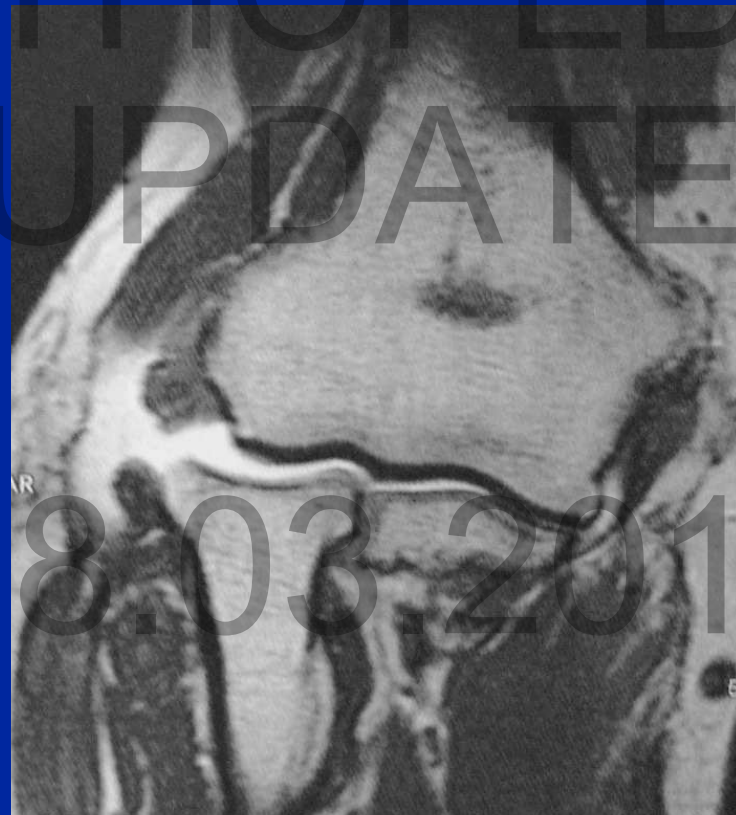
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# ORTHOPEDICS UPDATE

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# MRI

## ORTHOPEDICS UPDATE

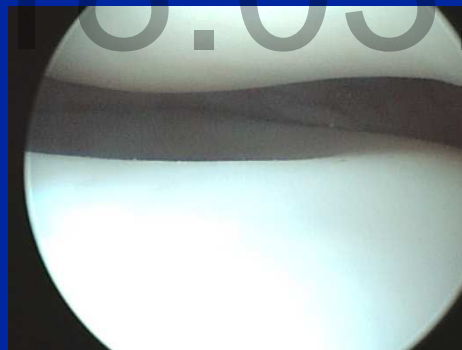


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# ARTHROSCOPY

## VARUS-VALGUS INSTABILITY

ORTHOPEDICS  
UPDATE



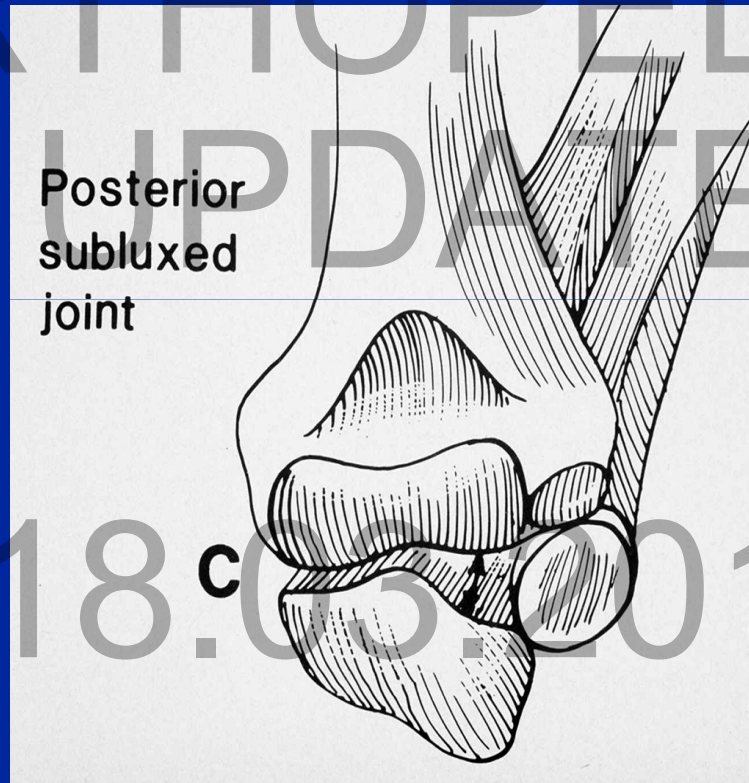
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# DIAGNOSIS

## POSTERO-LATERAL ROTATORY INSTABILITY

ORTHOPEDICS

Posterior  
subluxed  
joint



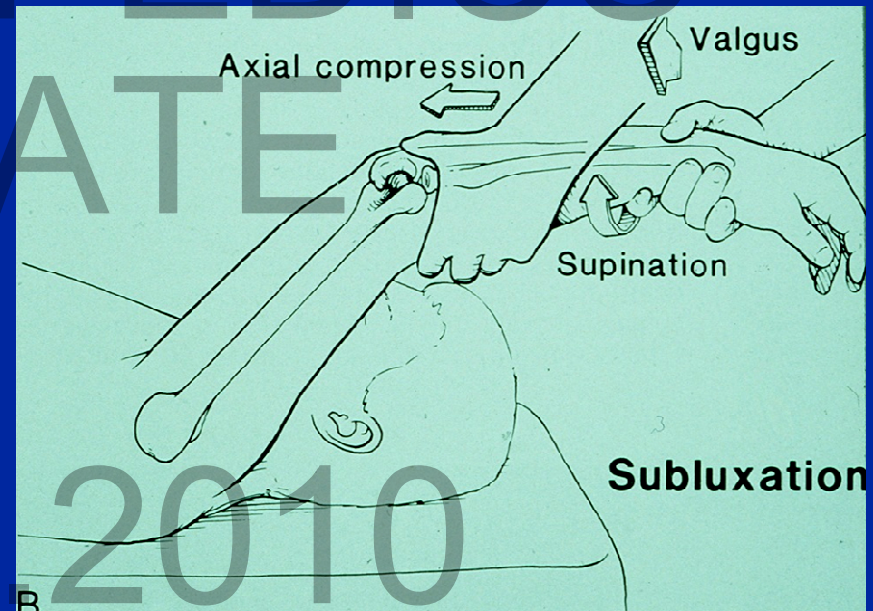
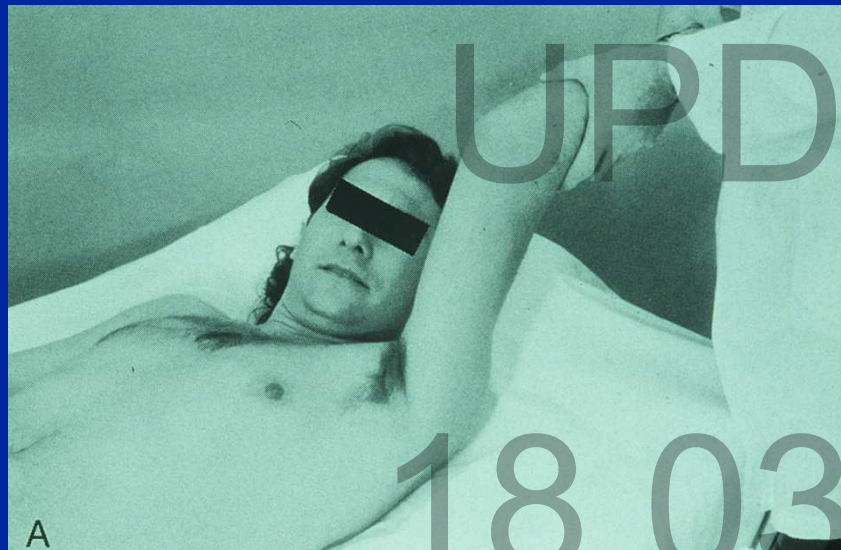
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# PIVOT-SHIFT TEST OF ELBOW

ORTHOPEDICS

UPDATE

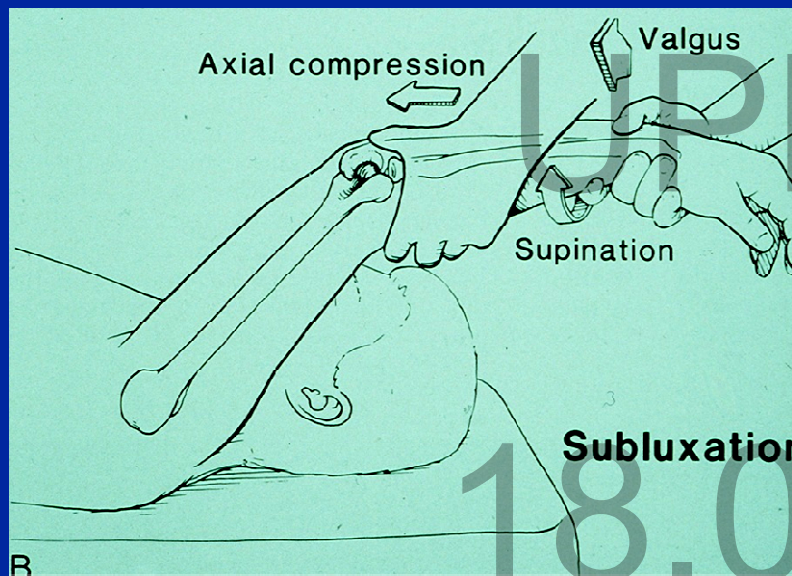
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O'Driscoll, JBJS 73-A, 1991

# PIVOT-SHIFT TEST OF ELBOW

## ORTHOPEDICS



O'Driscoll, Bell, Morrey, JBJS 73-A, 1991



# POSTERO-LATERAL ROTATORY DRAWER TEST

ORTHOPEDICS

UPDATE



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O'Driscoll, Bell, Morrey, JBJS 73-A, 1991

# ORTHOPEDICS

## UPDATE

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# STRESS X-RAYS



**MRI**

ORTHOPEDICS  
UPDATE

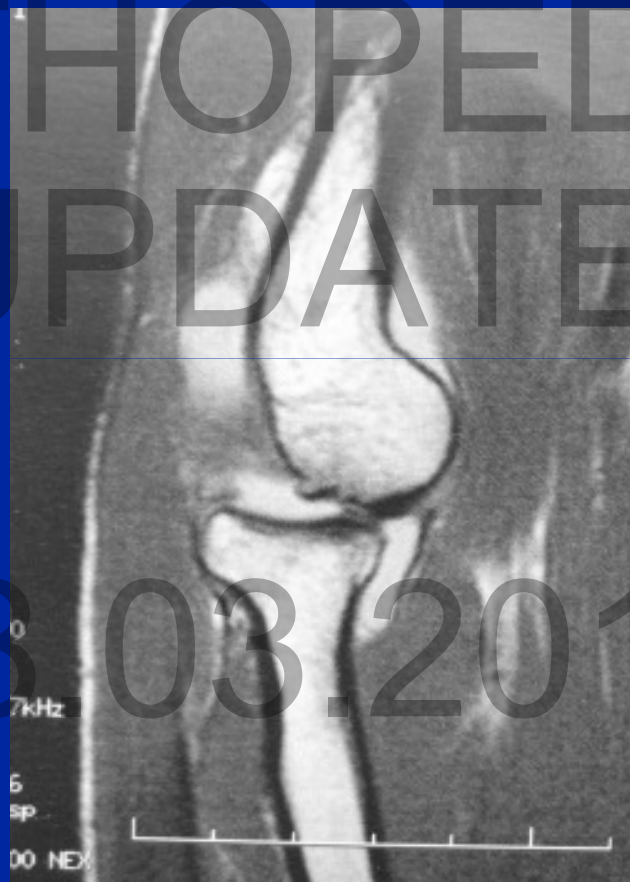


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# MRI

## ORTHOPEDICS UPDATE

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# EXAMINATION

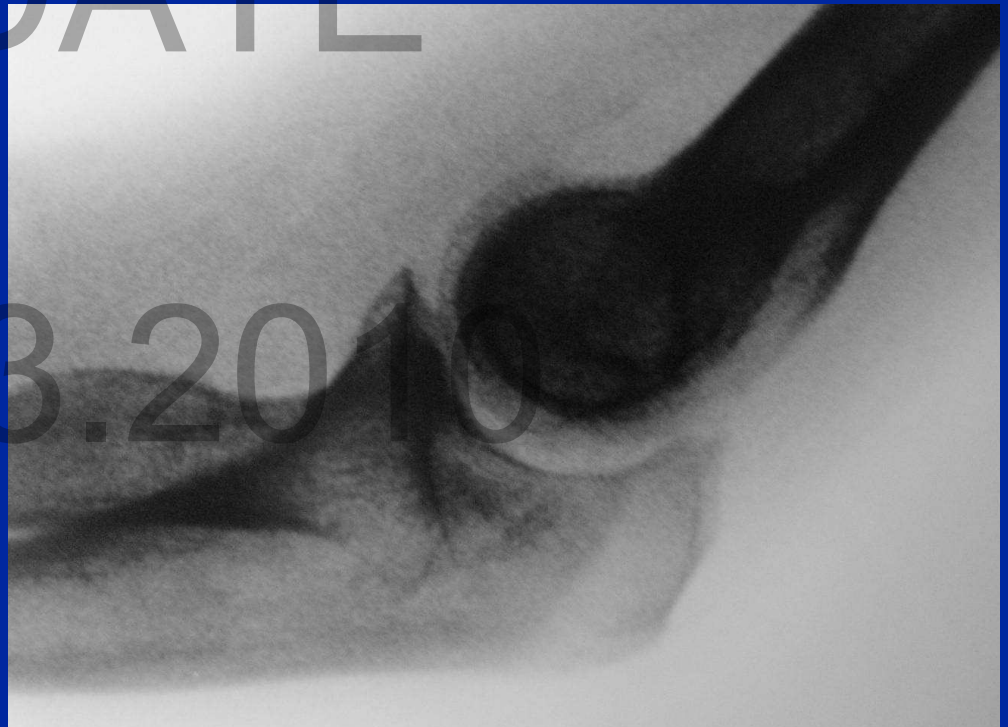
Under - fluoroscopy  
- anesthesia



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# ORTHOPEDICS UPDATE



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# DIAGNOSIS

## POSTERO-MEDIAL ROTATORY INSTABILITY

ORTHOPEDICS  
UPDATE

- pain
- stiffness

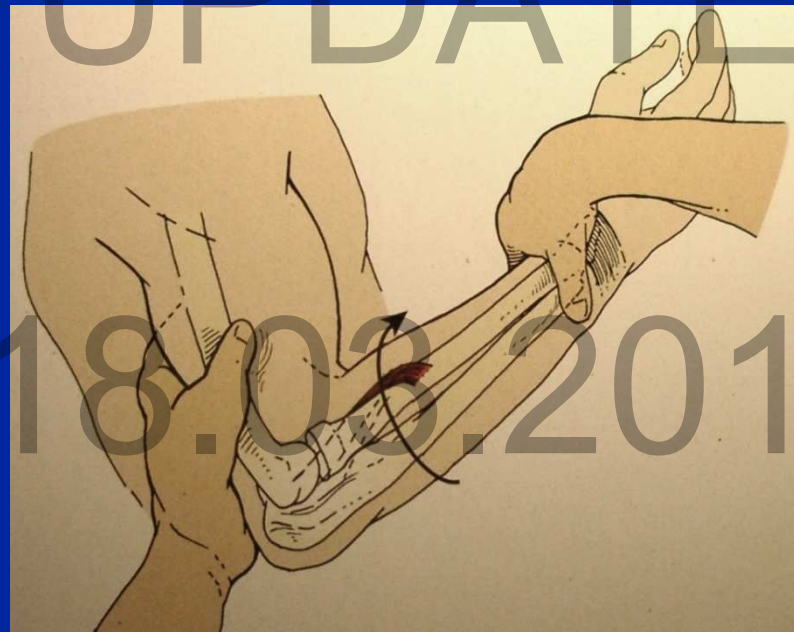




# DIAGNOSIS

## POSTERO-MEDIAL ROTATORY INSTABILITY

- painful passive pronation



# X-RAY FINDINGS

## POSTERO-MEDIAL ROTATORY INSTABILITY

ORTHOPEDICS

UPDATE

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# X-RAY FINDINGS

## POSTERO-MEDIAL ROTATORY INSTABILITY

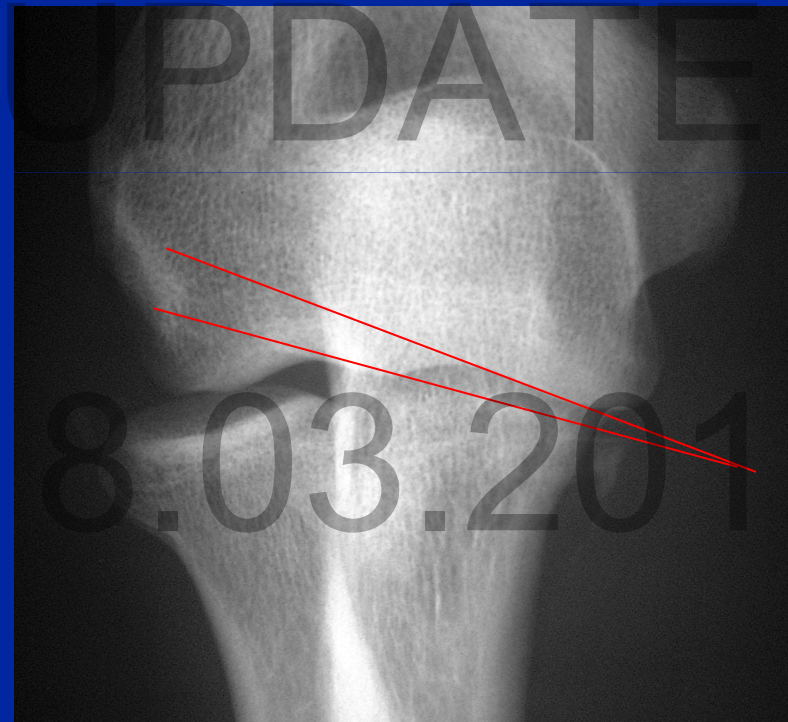
- double contour articular surface of ulna



# X-RAY FINDINGS

## POSTERO-MEDIAL ROTATORY INSTABILITY

- *wedge sign* on varus stress view



wedge sign

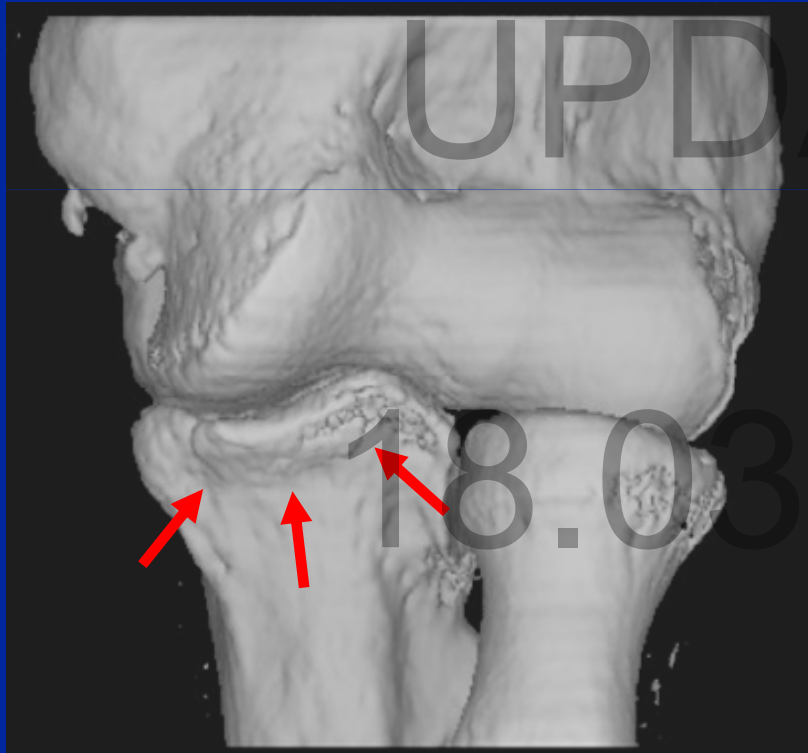
# ORTHOPEDICS UPDATE



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# CT 3 D RECONSTRUCTION

## ORTHOPEDICS

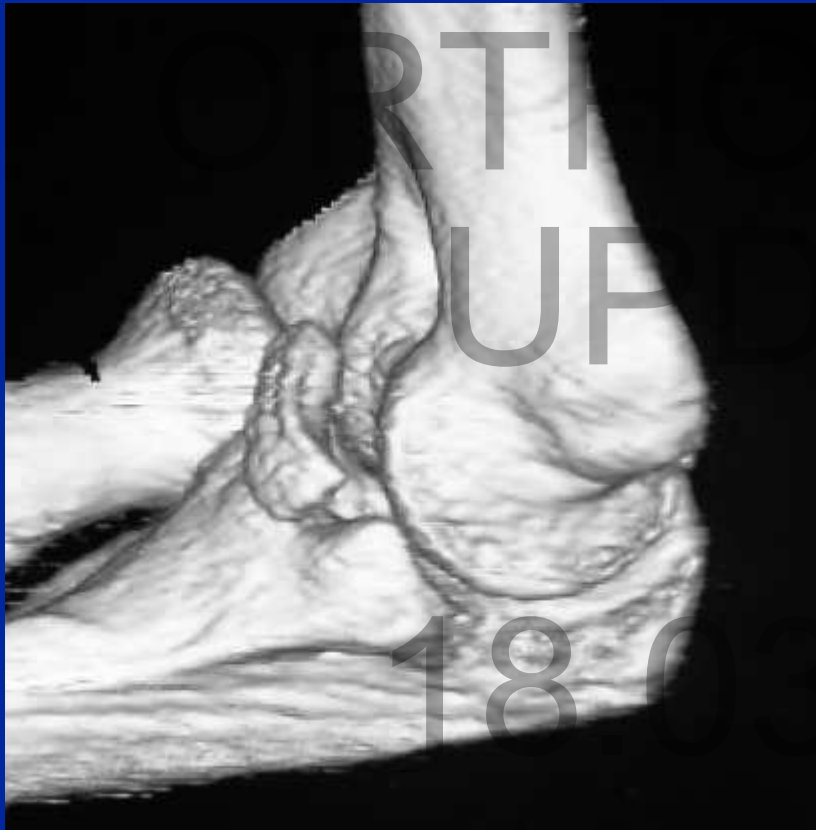


# ORTHOPEDICS

## UPDATE

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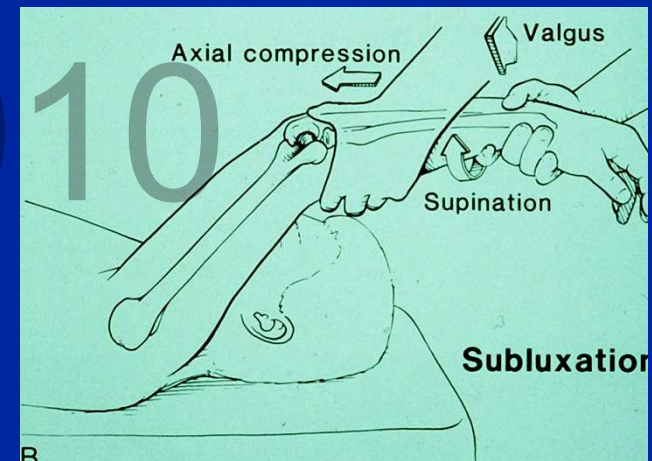
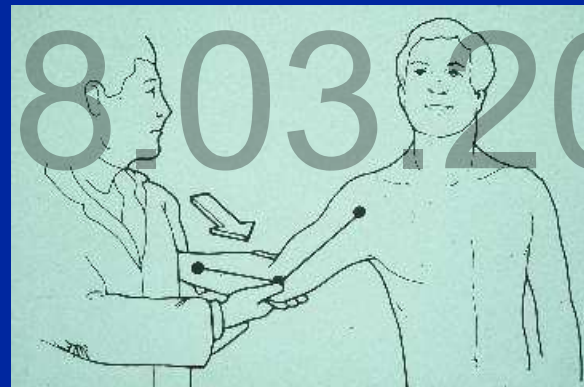
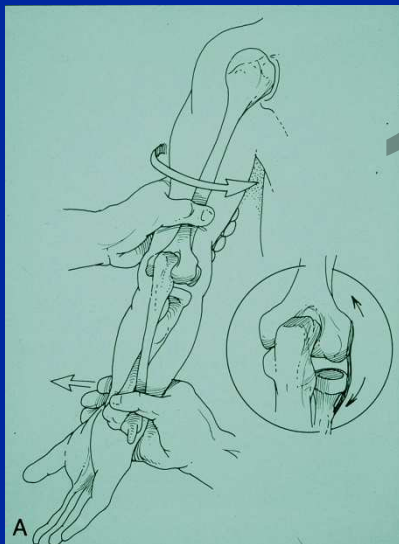
# CONCLUSIONS

## Symptoms of elbow instability

- pain
- snapping
- recurrent subluxation / dislocation

# CONCLUSIONS

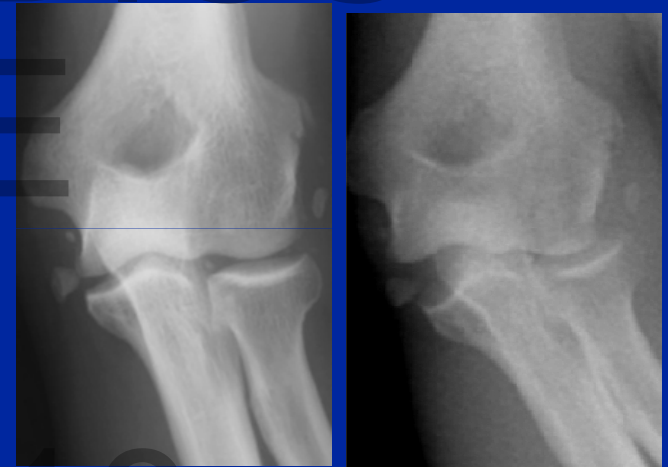
Clinical examination is helpful,  
but often insufficient



# CONCLUSIONS

## Varus-valgus instability

- stress-views
- exam under fluoroscopy



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# CONCLUSIONS

## Postero-lateral rotatory instability

- exam under fluoroscopy in anesthesia



# CONCLUSIONS

## Postero-medial rotatory instability

- stress x-rays
- CT with 3 D reconstruction



**THANK YOU  
VERY MUCH**  
ORTHOPEDICS  
UPDATE

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