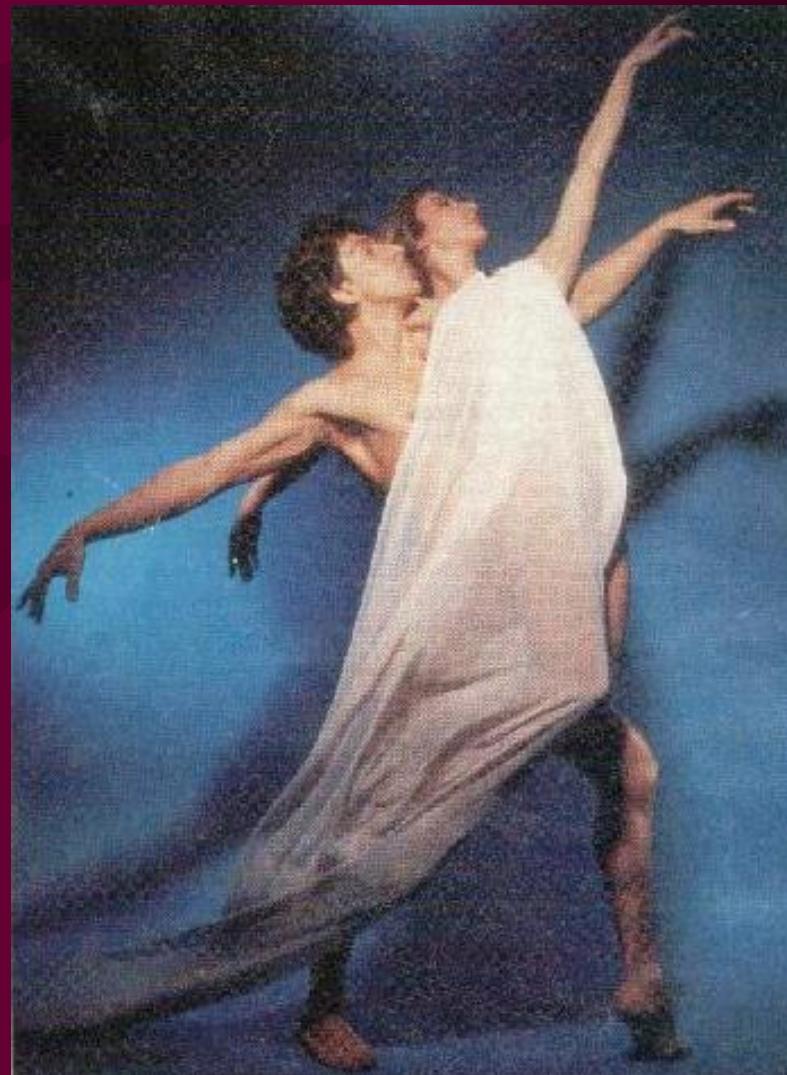


# CADENA CINEMATICA DE MIEMBRO SUPERIOR

BIOMECANICA  
DEL CODO



# CODO

## FUNCIONES

APROXIMAR/  
SEPARAR  
DEL BRAZO

INVERTIR  
POSICION  
DE LA MANO

ADAPTACION

PROPIEDADES

MOVILIDAD

ESTABILIDAD

## ESTRUCTURA

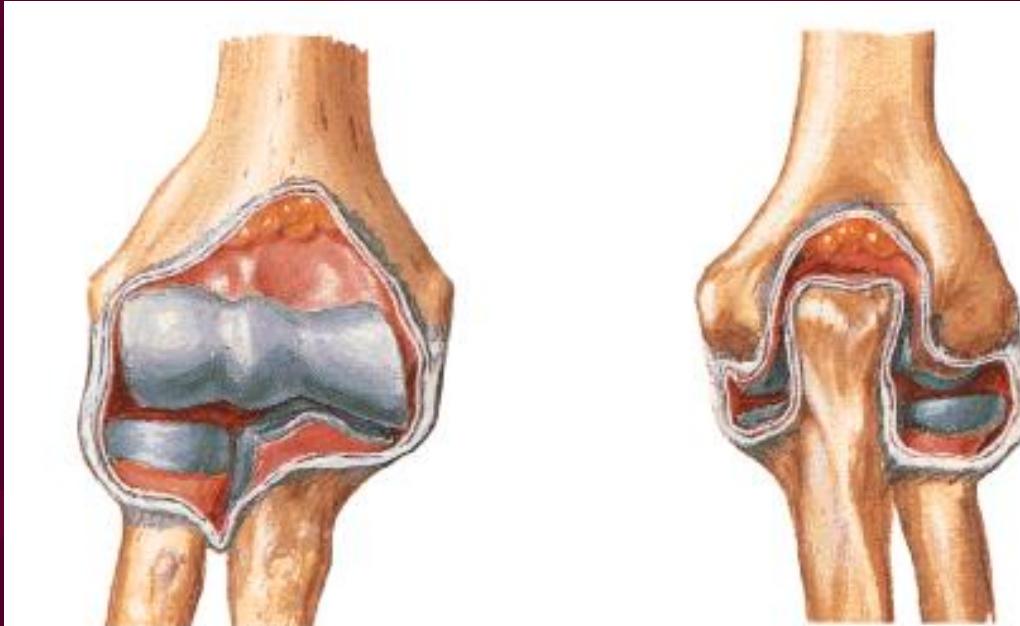
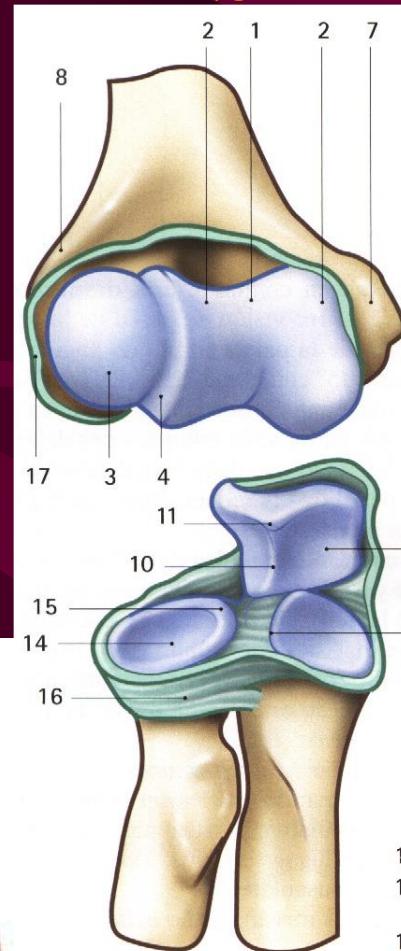
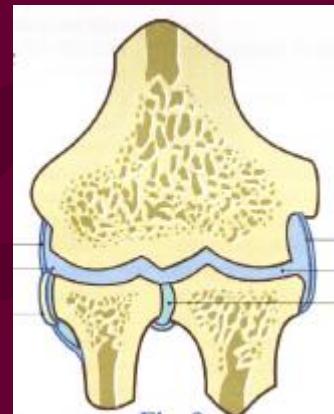
EPIFISIS INFERIOR  
HUMERO

EPIFISIS SUPERIOR  
CUBITO- RADIO

# CARACTERISTICAS ESTRUCTURALES

## Superficies Articulares

ANATOMICAMENTE  
SIMPLE  
MECANICAMENTE  
COMPUESTA



TROCLEA:  $330^\circ$  a  $340^\circ$

CAV. SIGM.  $> 190^\circ$

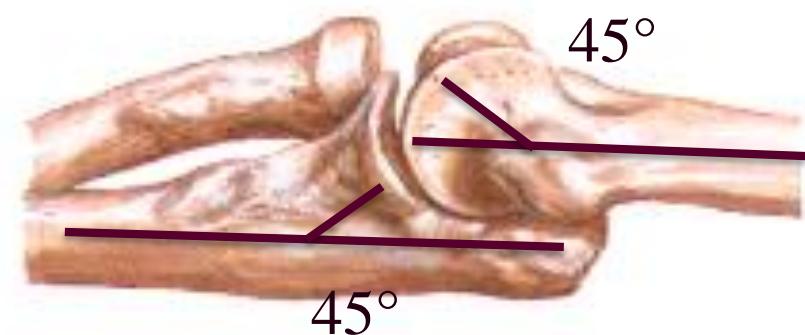
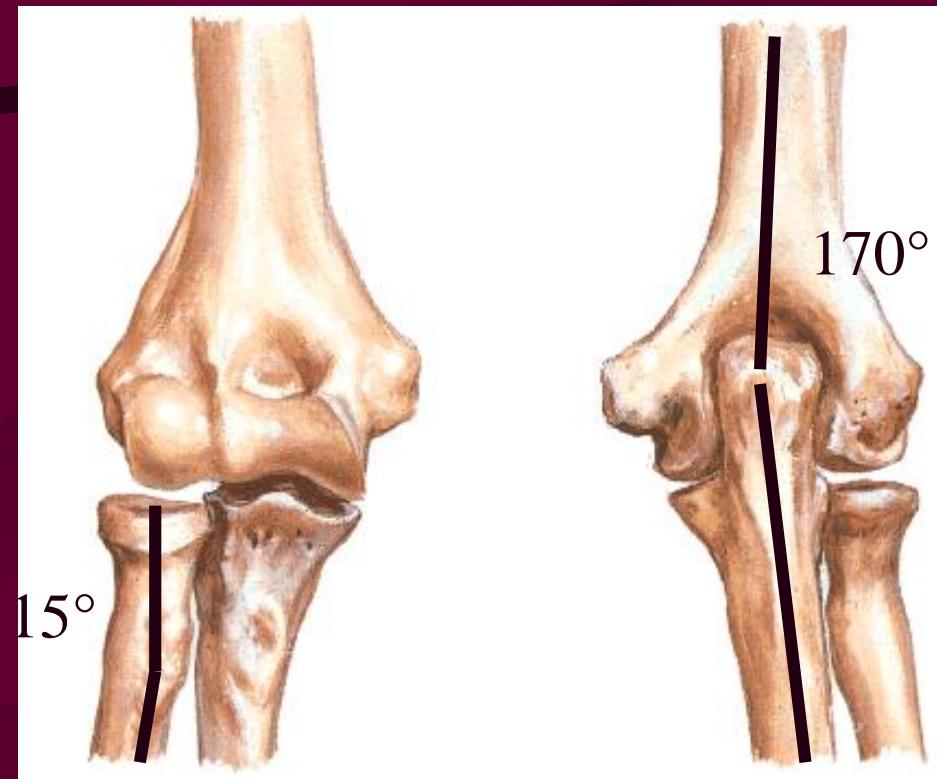
CONDIGO:  $180^\circ$

CUPULA RADIO:  $40^\circ$

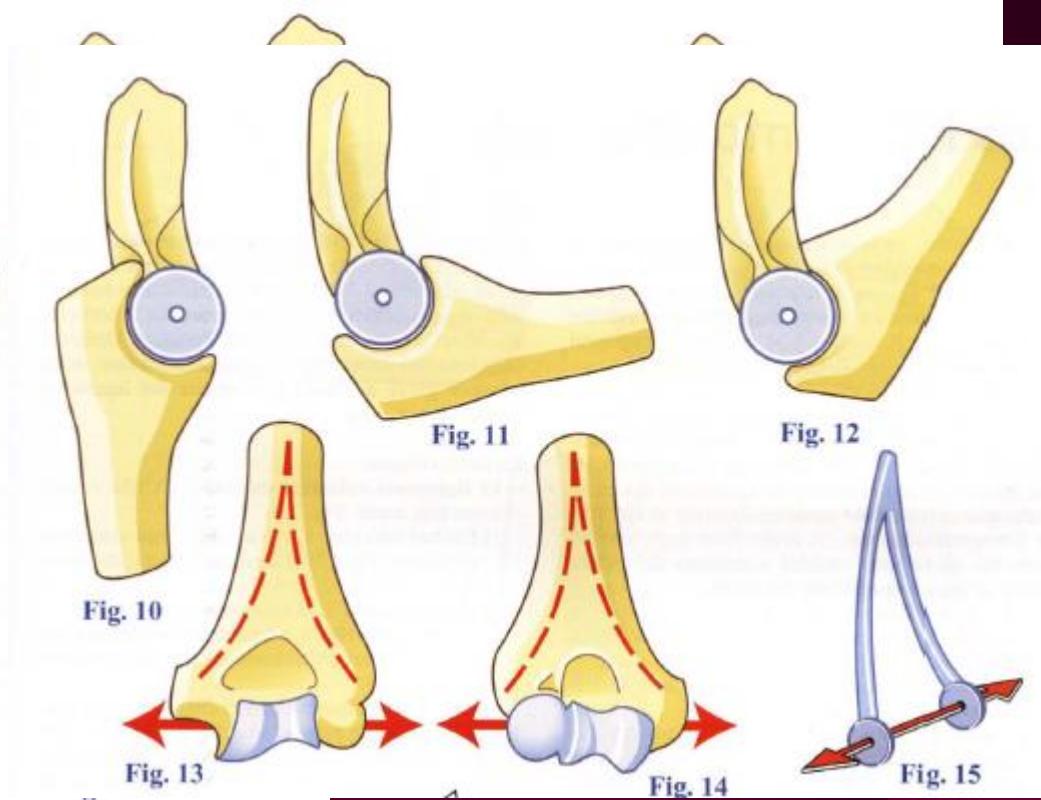
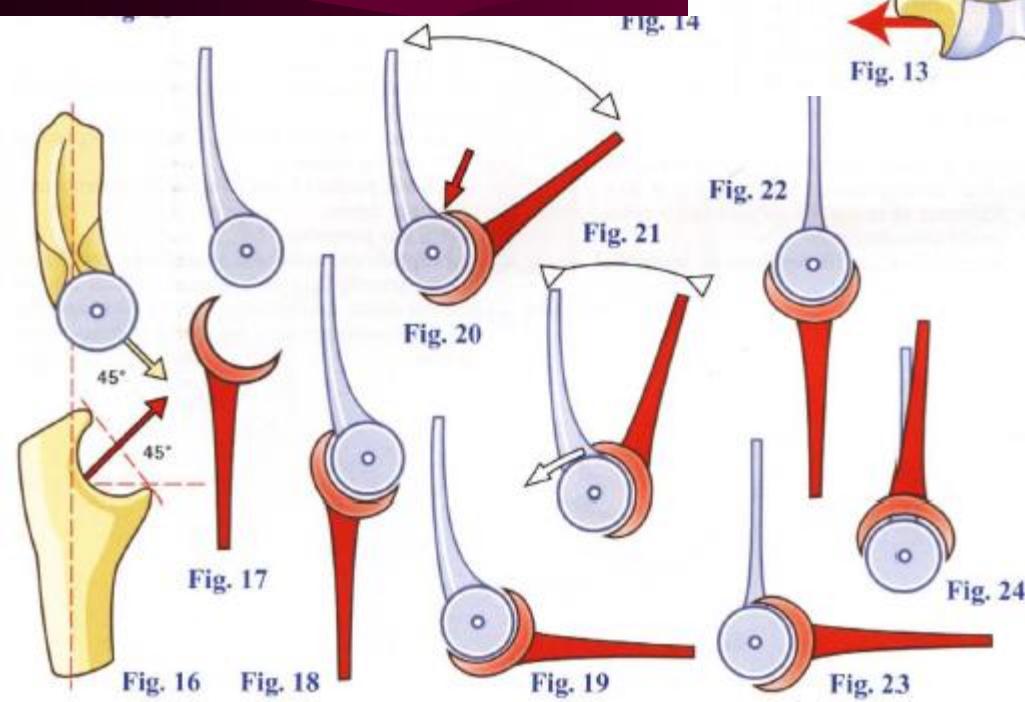
PERIMETRO

CUPULA:  $240^\circ$

CAV. SIGM.  $< 70^\circ$ .



# ESTRUCTURA Paleta Humeral



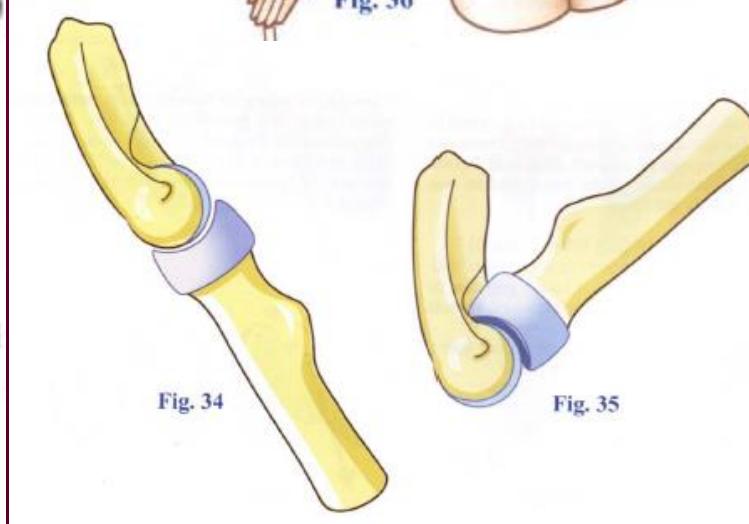
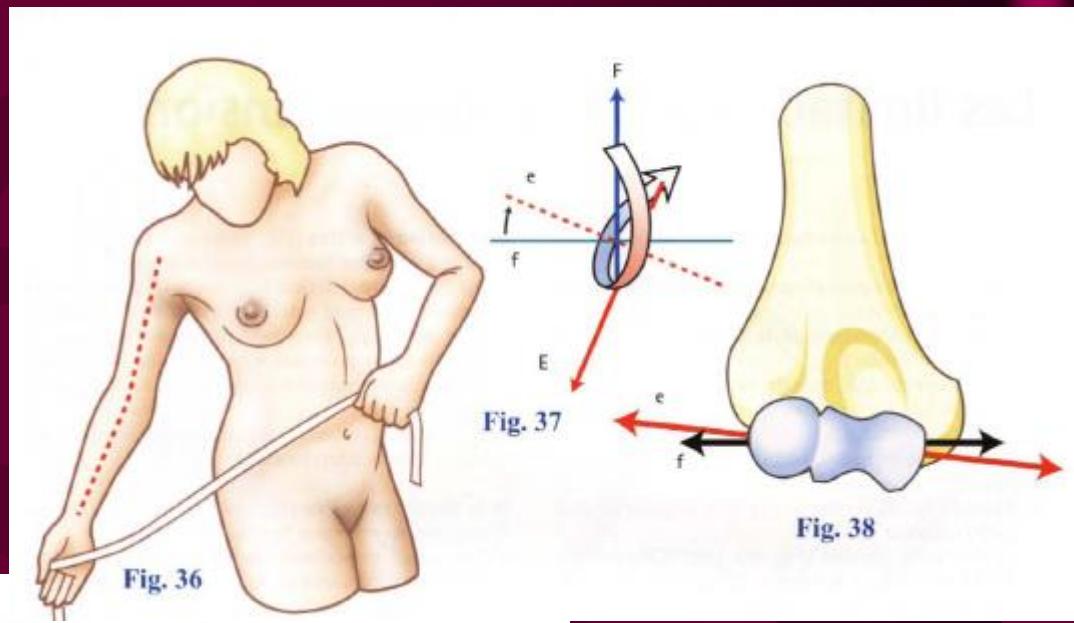
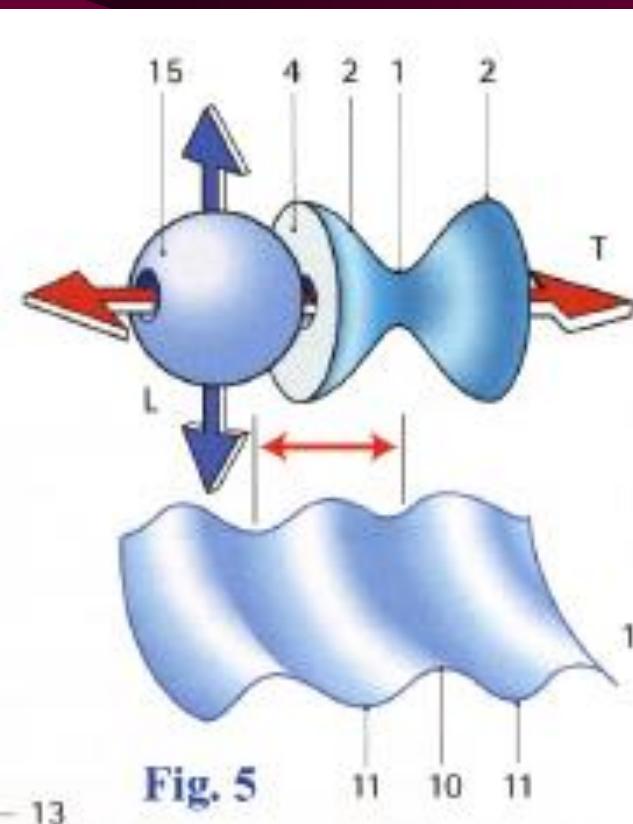
## OPTIMIZAR EL MATERIAL

- MEJORAR MOVILIDAD
- ALOJAR MASAS MUSCUL.
- MAS RESISTENCIA CON MENOS MATERIAL

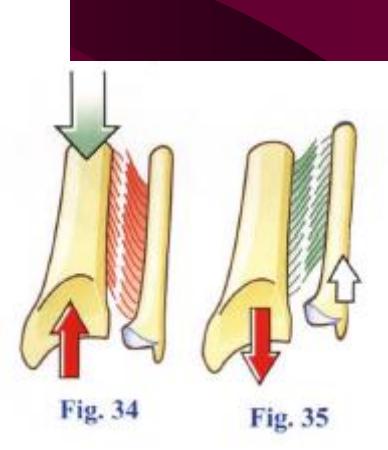
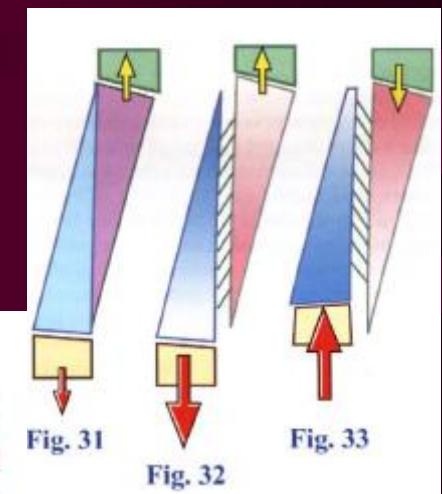
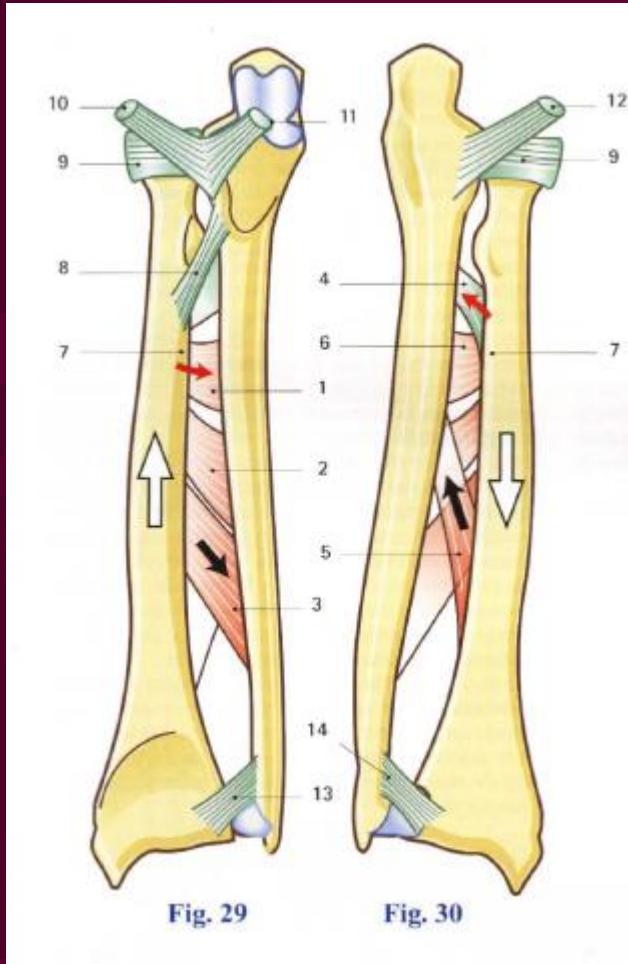
# CARACTERISTICAS ESTRUCTURALES

## Tróclea Humeral

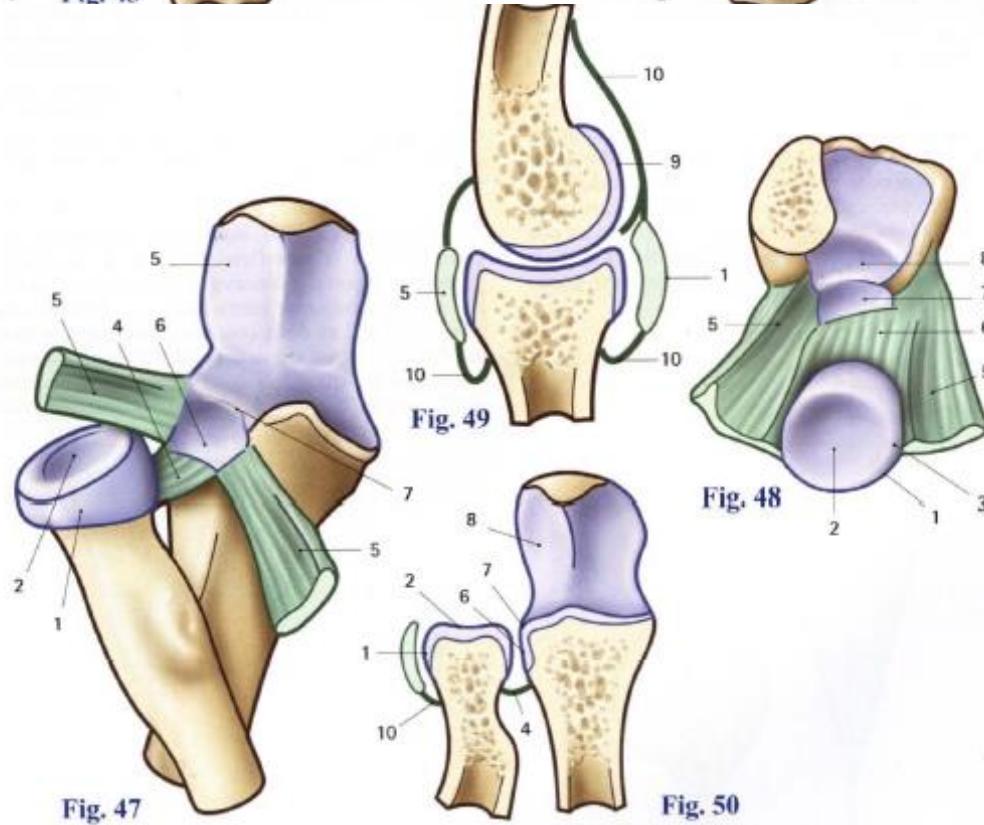
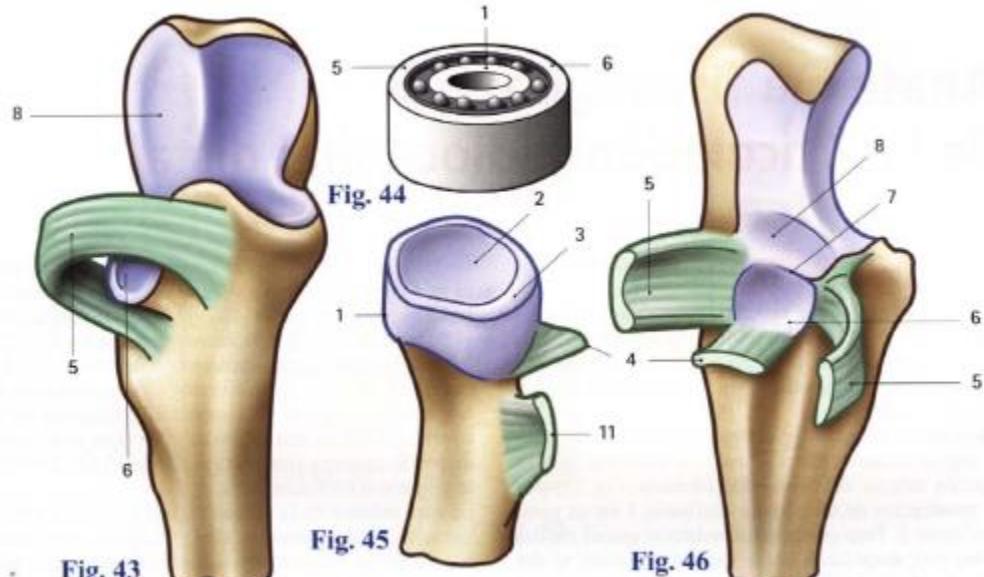
- CUBITO VALGO FISIOLOGICO



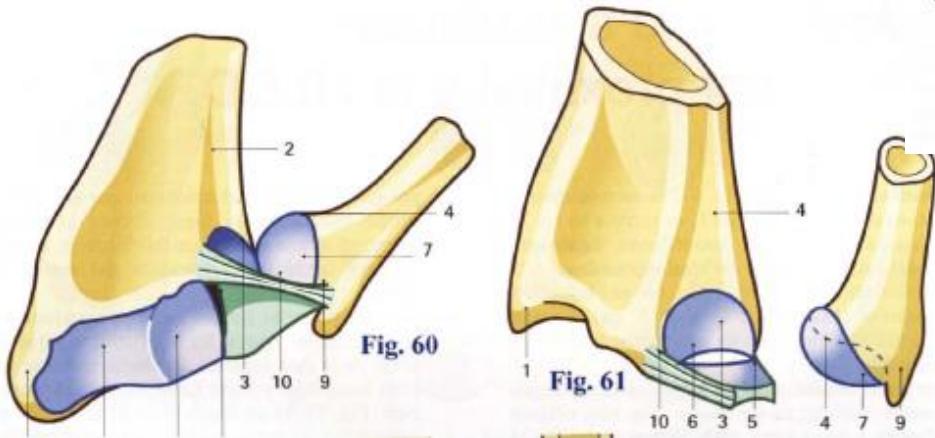
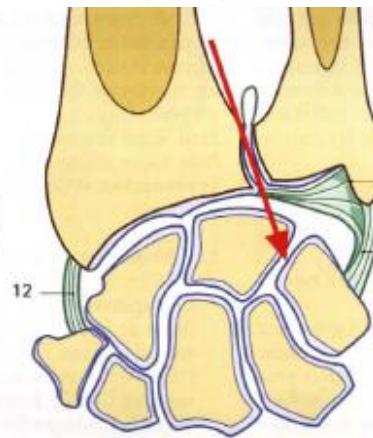
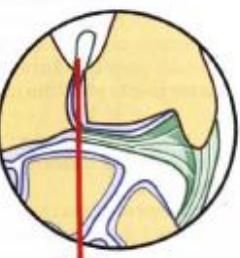
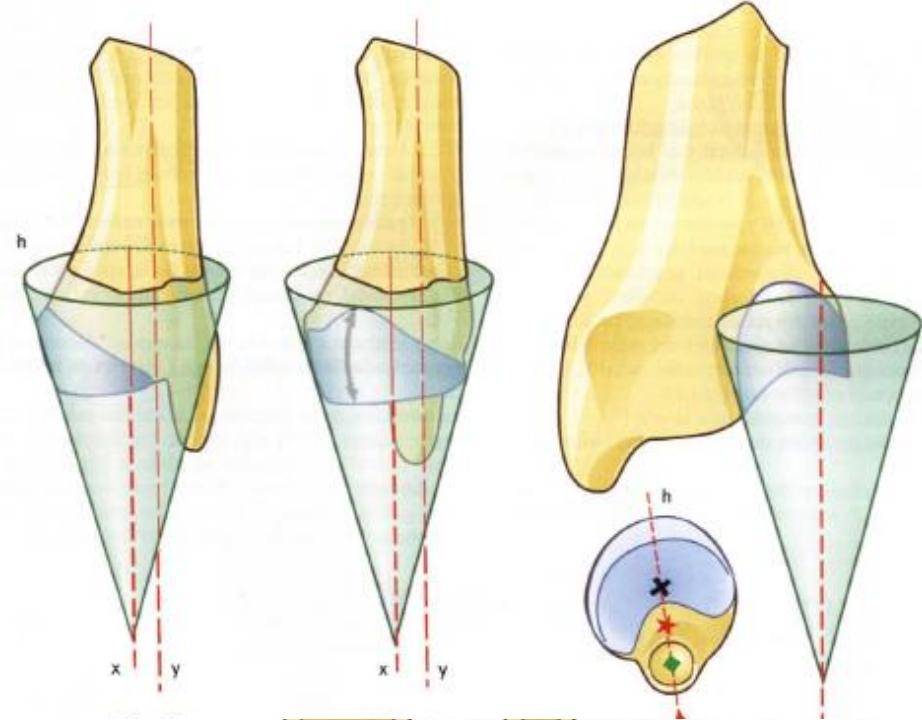
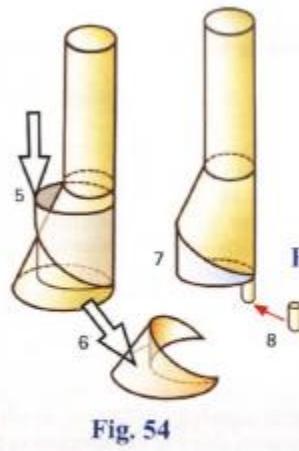
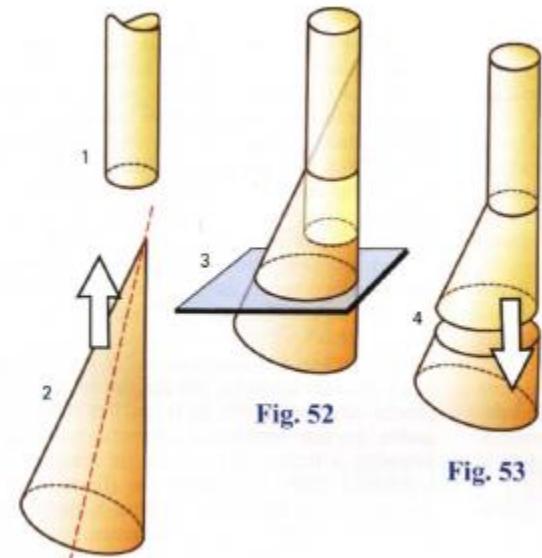
# ARTICULACIONES RADIOCUBITALES



# ARTICULACION RADIOCUBITAL SUPERIOR

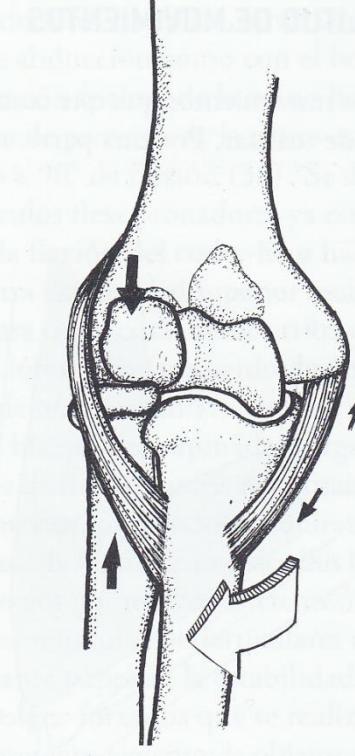


# -ARTICULACION RADIOCUBITAL INFERIOR



# ESTABILIDAD FACTORES DE COAPTACION OSTEO- ARTICULAR

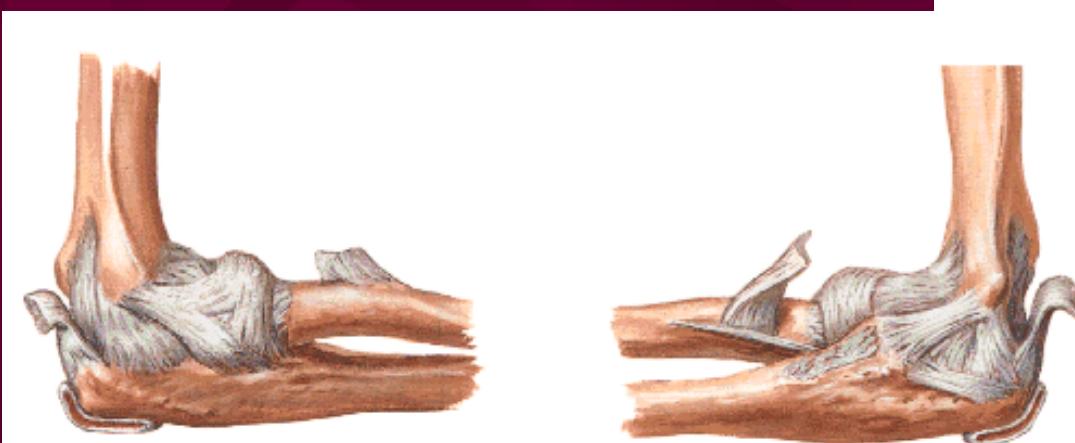
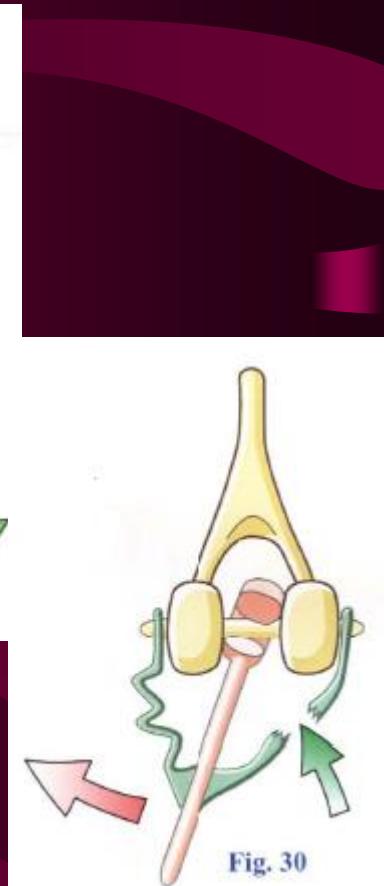
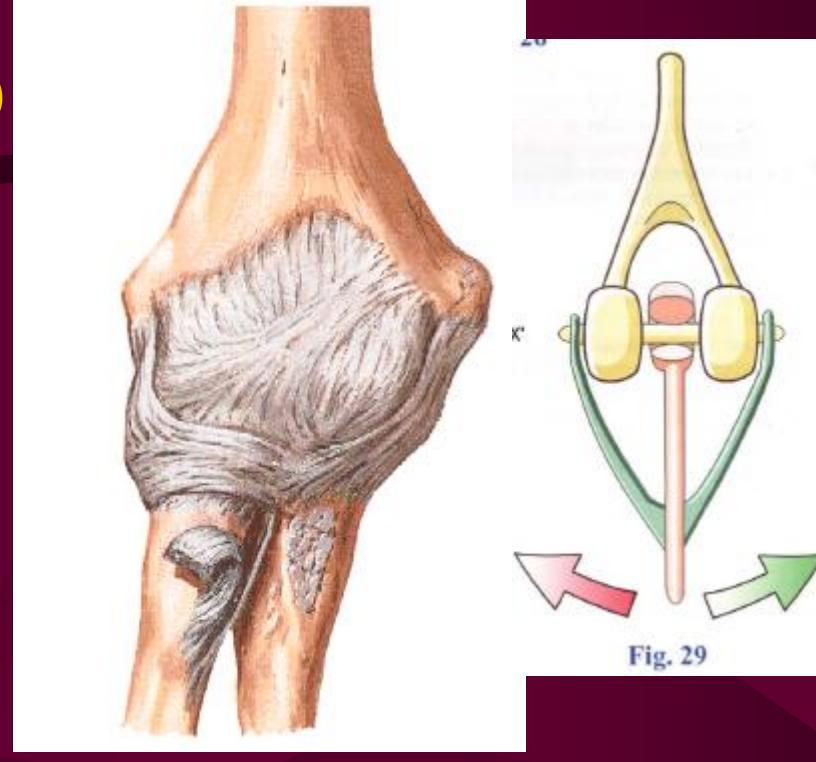
FUERZAS VALGIZANTES  
DE COMPRESSION  
Y DE TRACCION



# ESTABILIDAD

## Ligamentos del codo

Funcion  
Coaptadora  
Brinda estabilidad  
y limita  
movimientos de  
lateralidad



# ESTABILIDAD

Kapandji

## FACTORES DE COAPTACION:

OSTEO-ARTICULAR

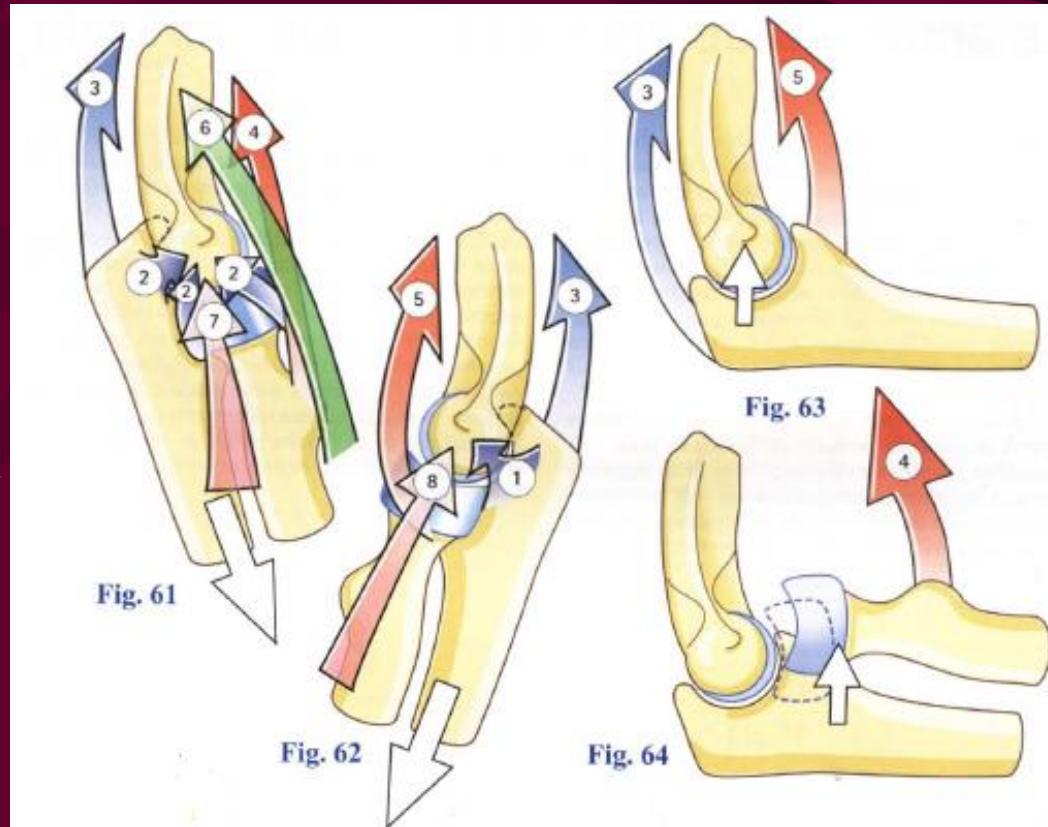
LIGAMENTARIO- MUSCULAR

SOLICITUDES:

TRACCION LONGITUD.

COMPRESION LONGITUD.

COAPTACION EN FLEXION



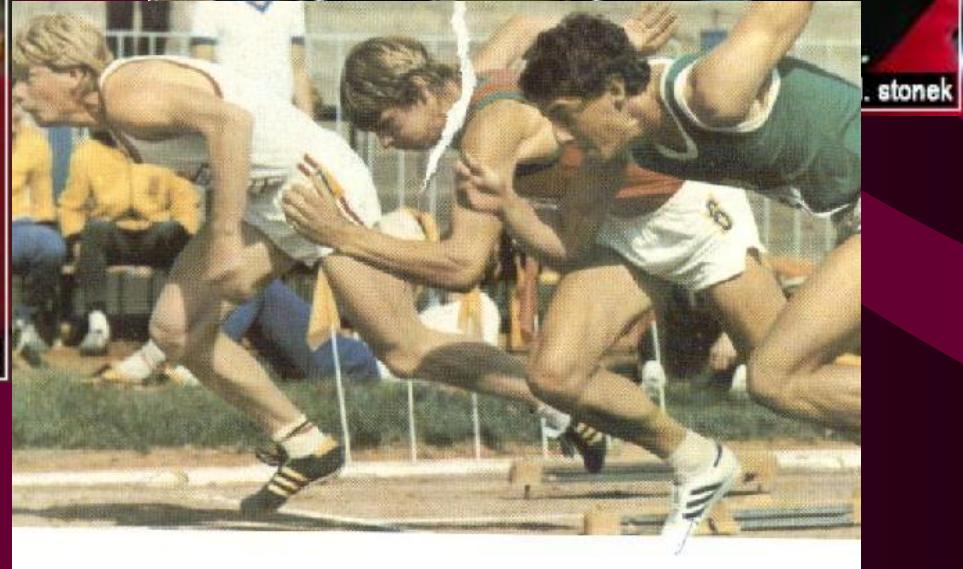
# CINEMATICA

ROM EN AVD:

FLEX-EXT = $30^\circ$  -  $130^\circ$

PRON-SUP =  $50^\circ$

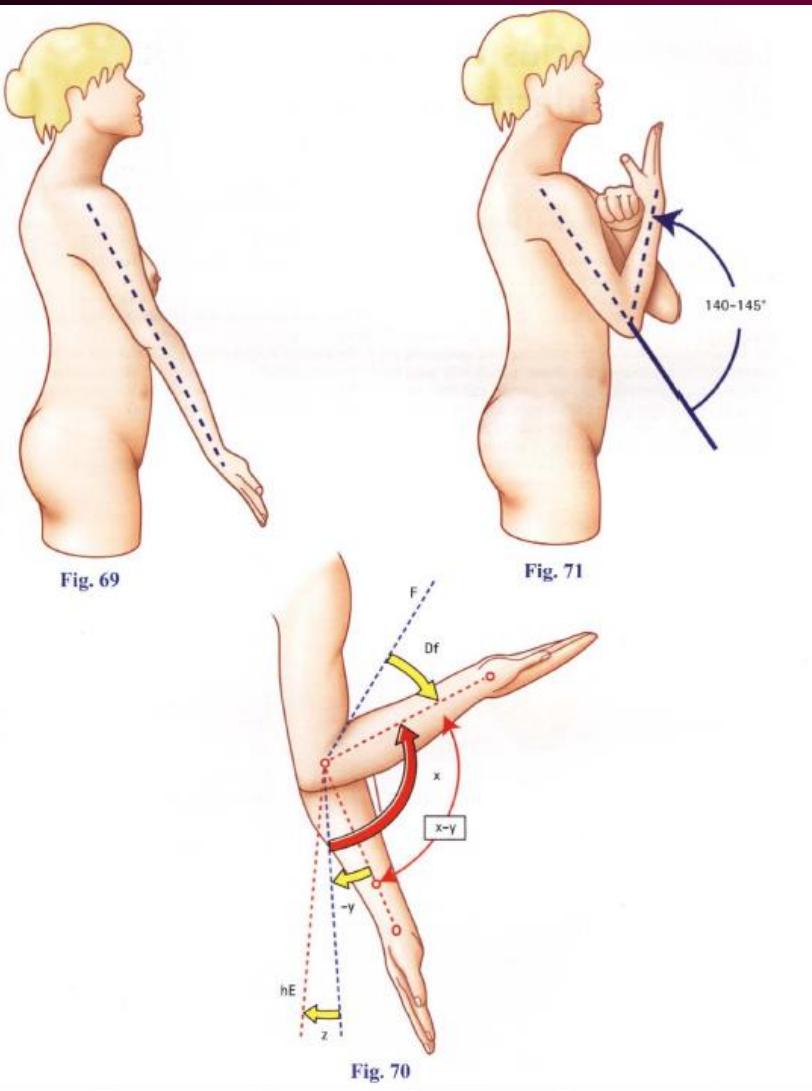
Viladot



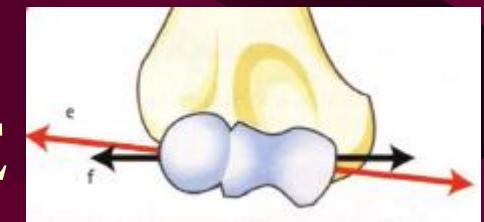
# Osteocinemática

- FLEXO- EXTENSIÓN  
BALANCEO  
PLANO SAGITAL

humerocubital – humerorradial



EJE



AMPLITUD = ROM

# LIMITES DE FLEXO – EXTENSION

ROM:  
 $0^\circ$  A  $140^\circ/160^\circ$

END- FEEL



Fig. 44

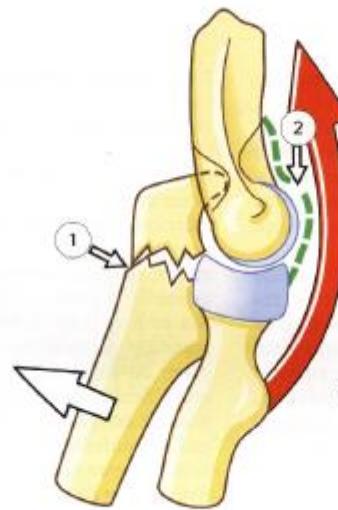


Fig. 45

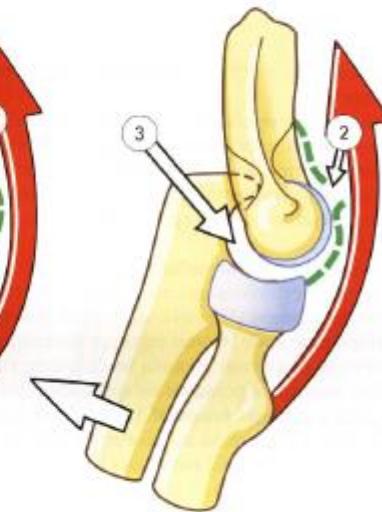


Fig. 46

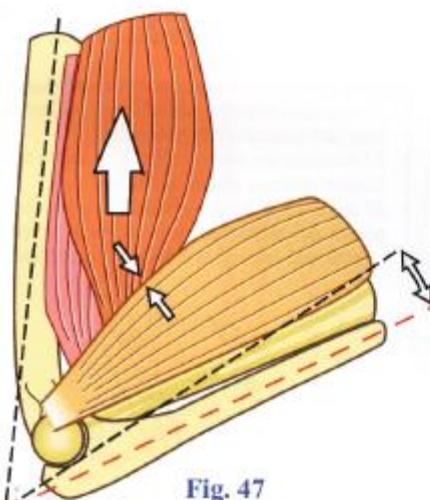


Fig. 47

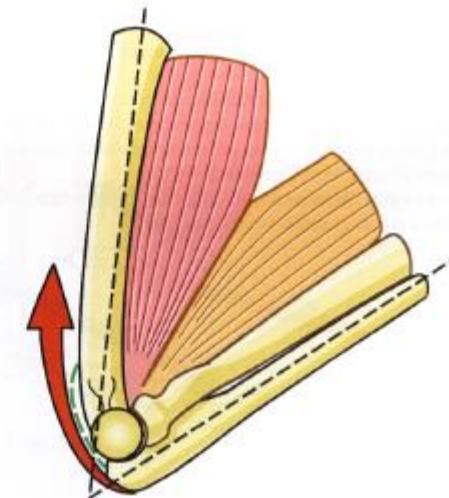


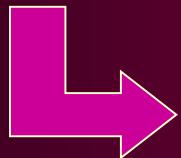
Fig. 48

# Artrocinemática de la flexoextensión

- Articulación húmero- cubital
- Articulación húmero- radial

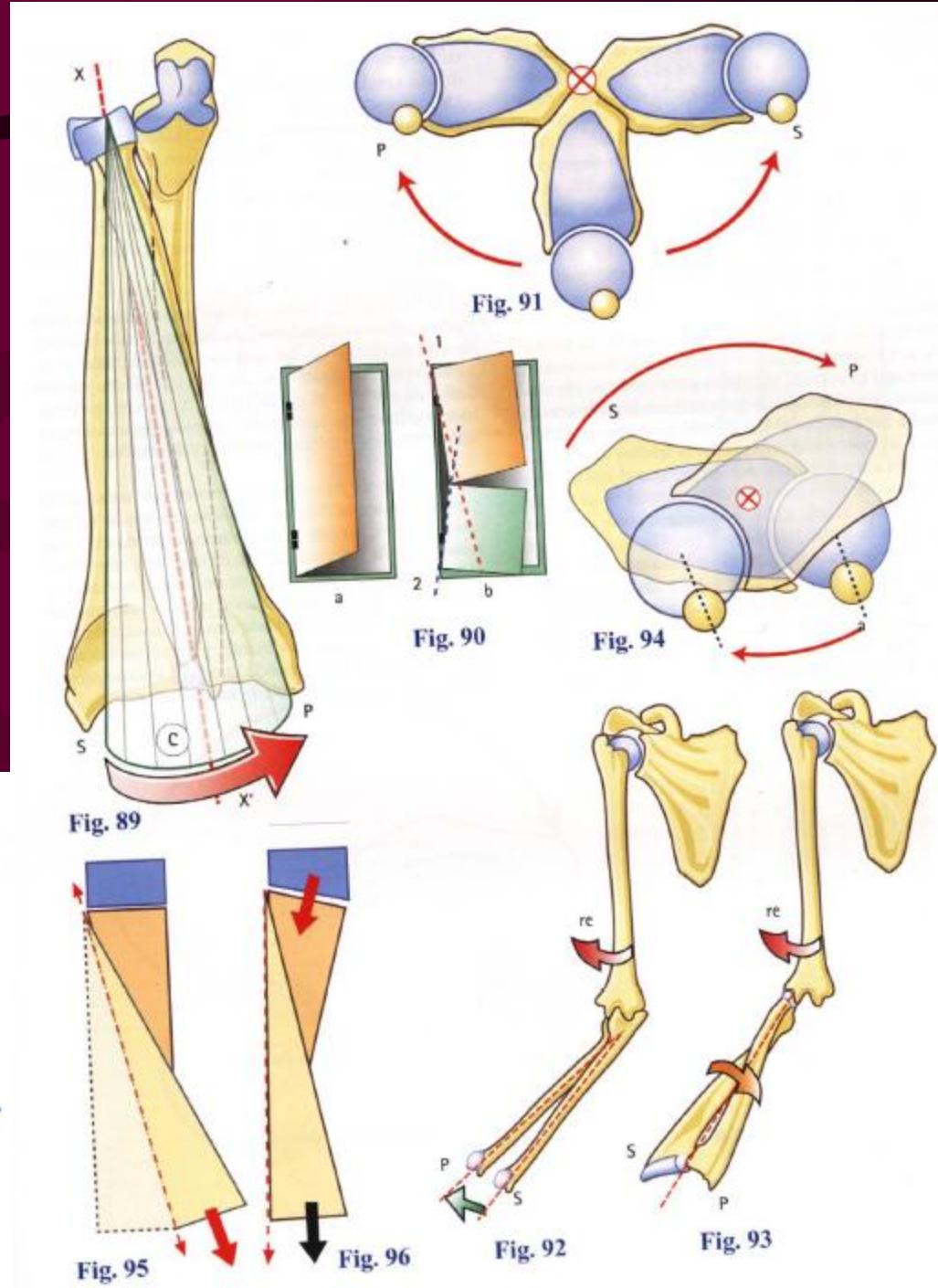
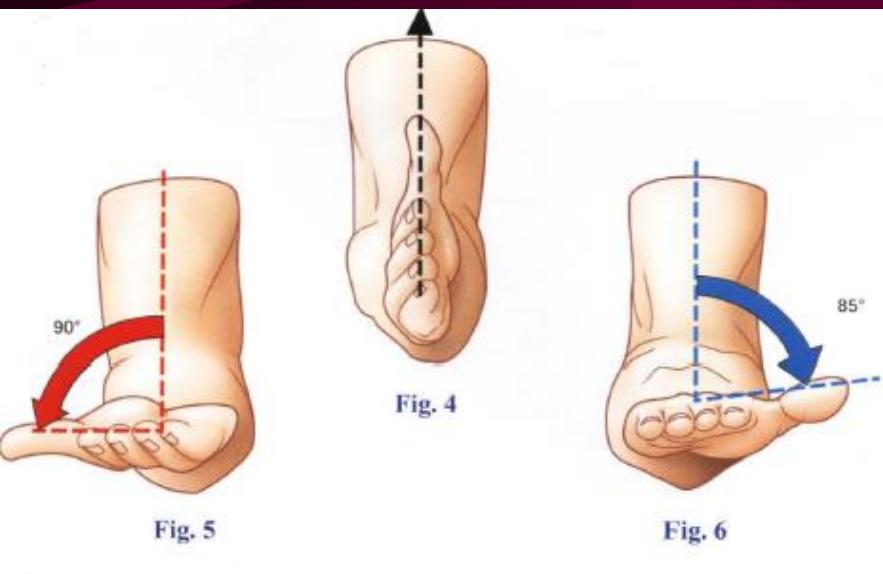


CONVEXO-CONCAVAS EN CADENA ABIERTA



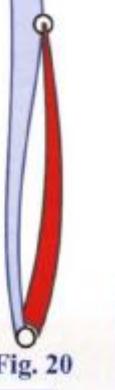
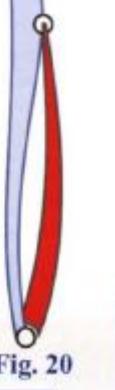
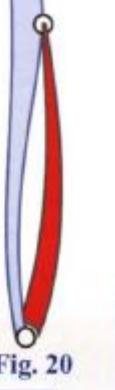
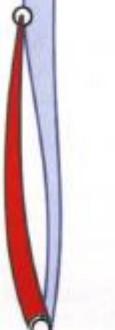
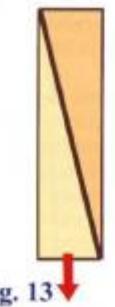
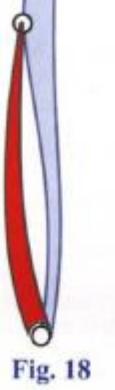
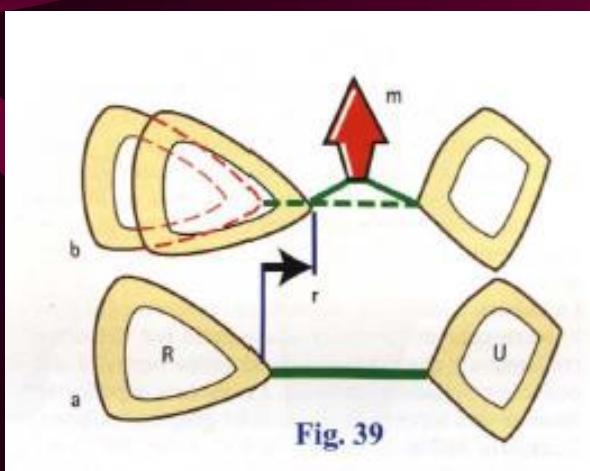
- \* rodado- deslizamiento
- \* rotación automática

# OSTEOCINEMATICA PRONOSUPINACION PLANO EJE GIRO Y BALANCEO radiocubital sup e inf



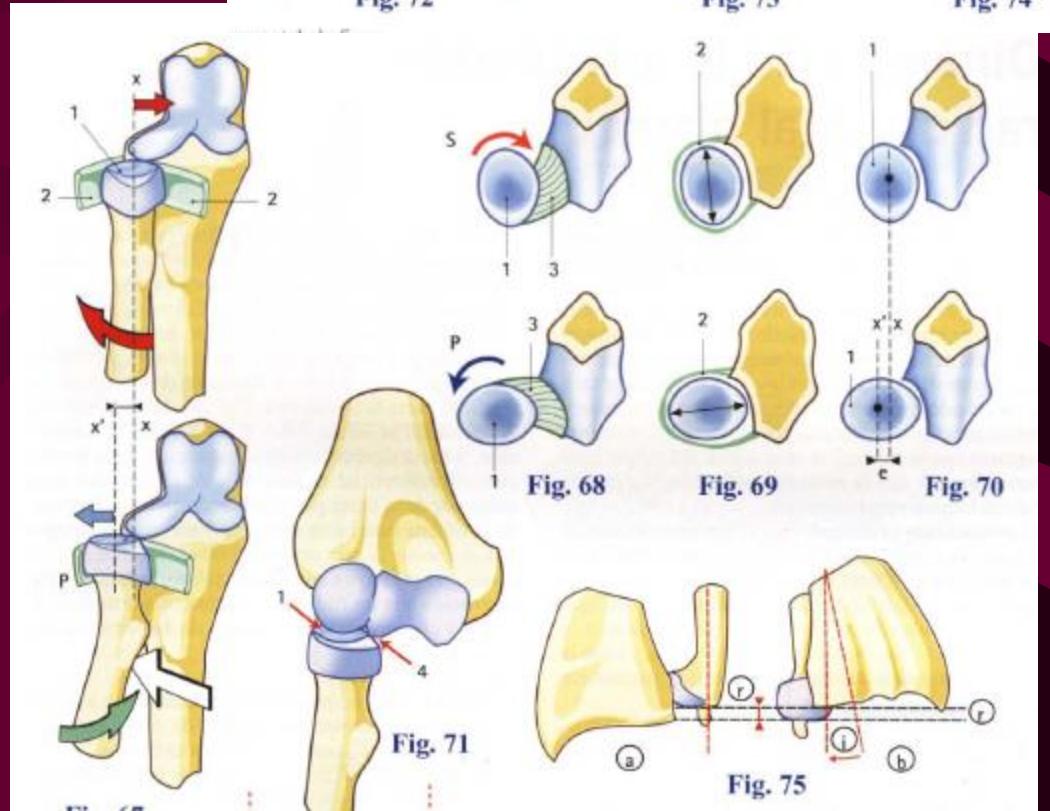
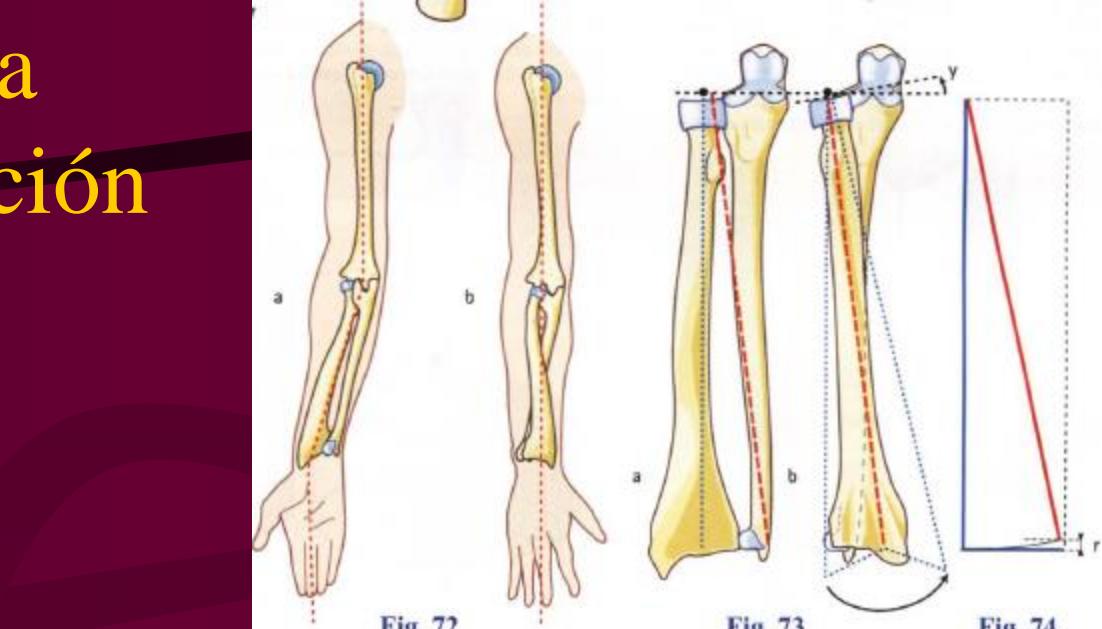
# LIMITES DE SUPINACION Y PRONACION

ROM:  $0^\circ$  -  $170^\circ$



# Artrocinemática de la pronosupinación

- Humero-radial:  
pivot
- Radio- cubital superior:  
cóncreva-convexa
- Radio- cubital inferior:  
convexo- cóncrevo



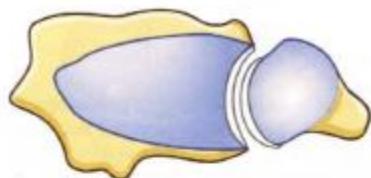


Fig. 81

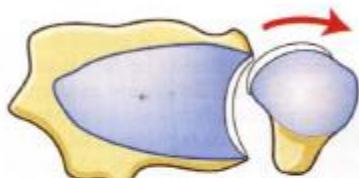


Fig. 82

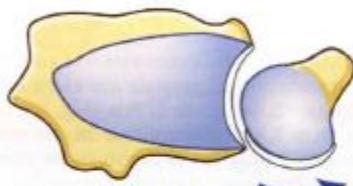


Fig. 83

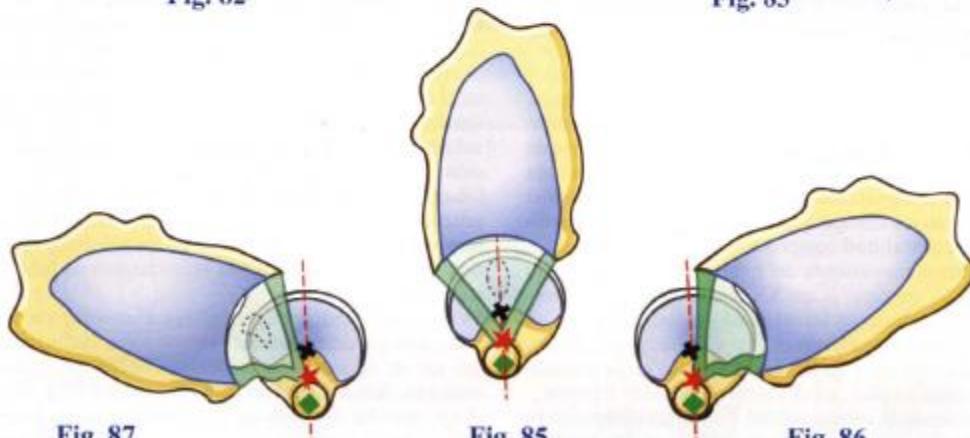


Fig. 87

Fig. 85

Fig. 86

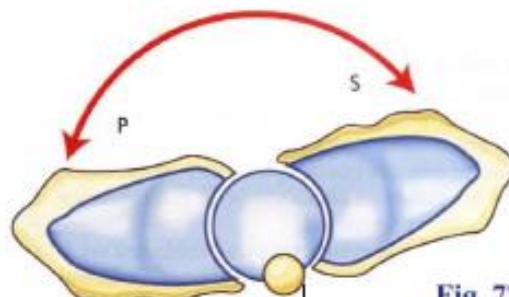


Fig. 77

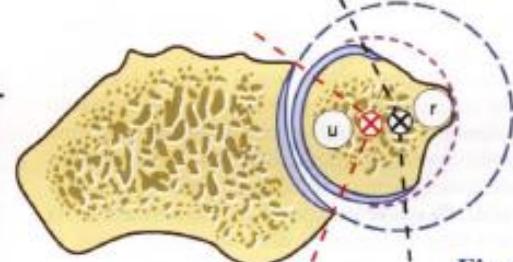
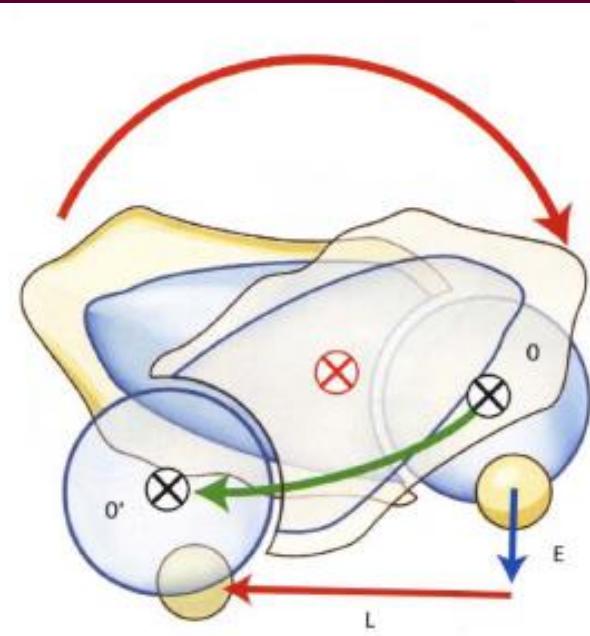


Fig. 80



0°

L

E

# POSICIONES ARTICULARES

	POSICION CERO	POSICION REPOSO	POSICION BLOQUEO
ARTIC. CUBITO- HUMERAL	EXTENSION Y SUPINAC	70 FLEXION 10 SUPIN	EXTENSION SUPINAC
ARTIC. RADIO- HUMERAL	EXTENSION Y SUPINAC	EXTENSION Y SUPINAC	90 FLEXION Y 5 SUPINC
ARTIC. RADIOCUBI TALES	90 FLEXION SEMIPRONA CION	70 FLEXION 35 SUPIN (S) 10 SUPIN (I)	5 SUPINAC.

# CINETICA

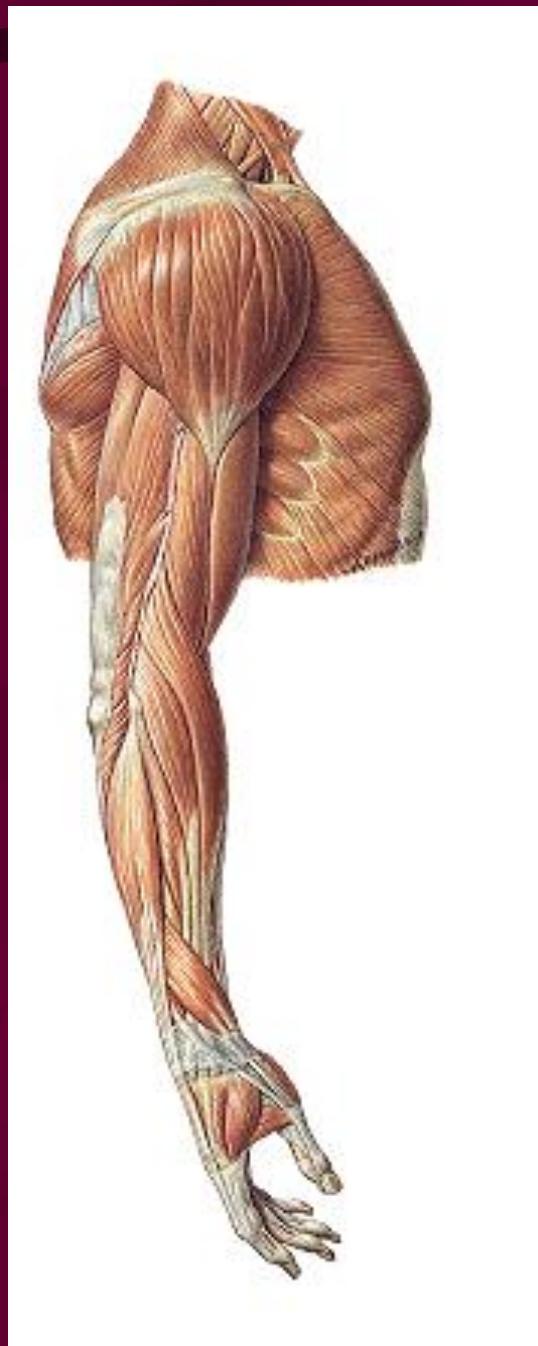
- FLEXO- EXTENSION
- PRONO- SUPINACION

Tipo de Palancas

Polea anatomica con triceps

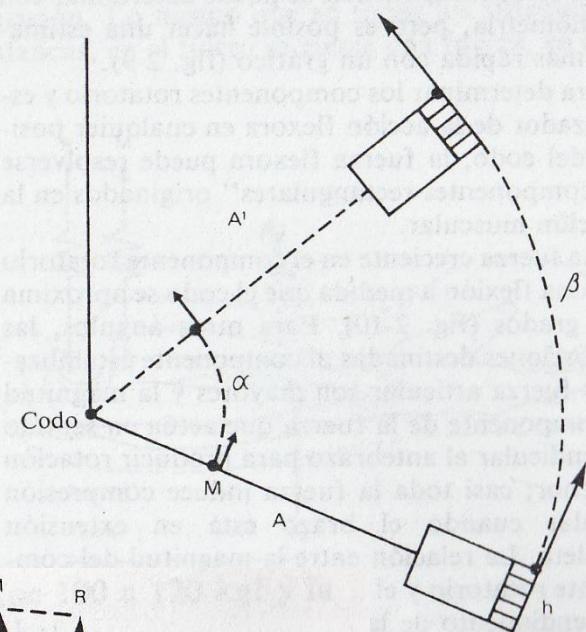
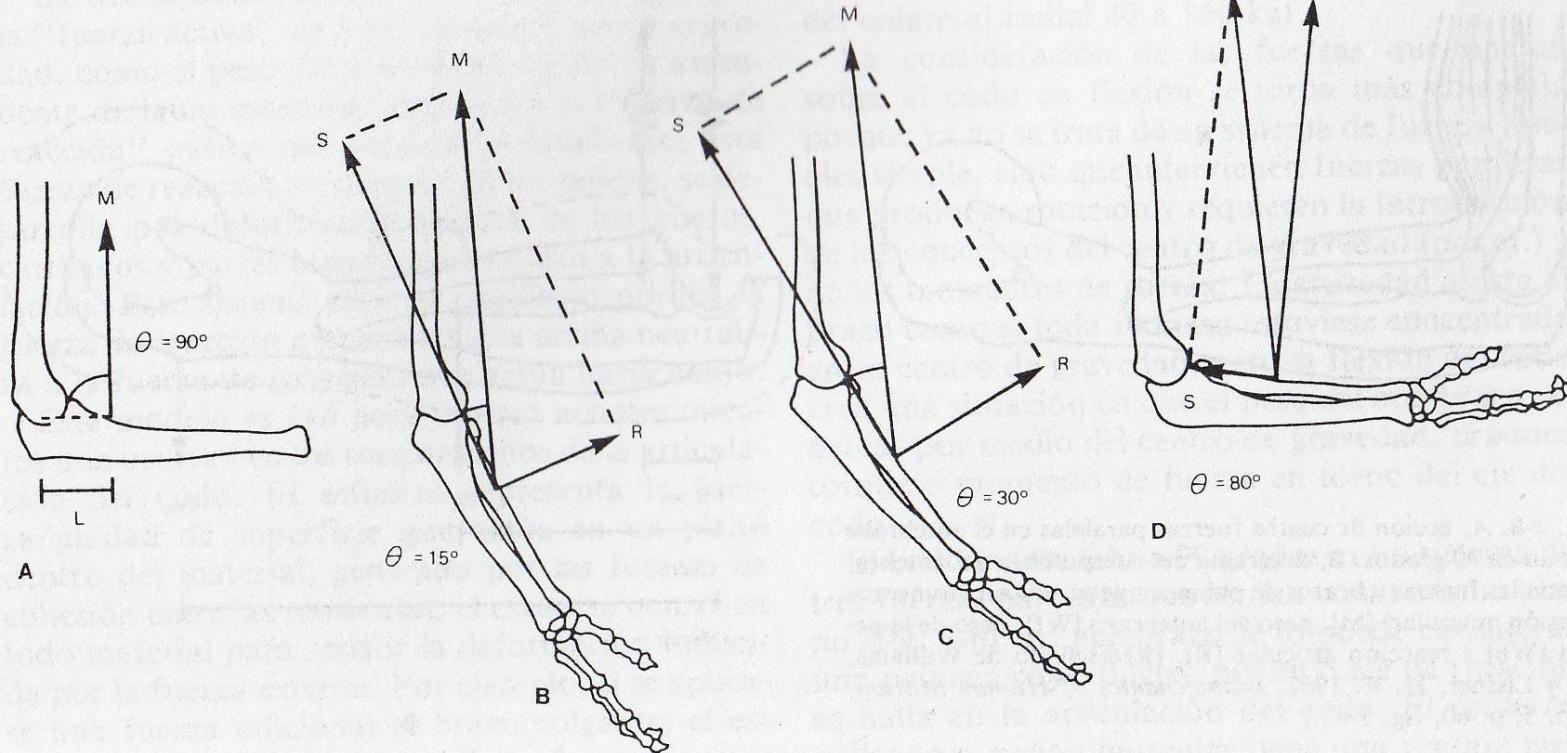
Angulos de eficacia por CR y CL

Posiciones de los musculos biarticulares

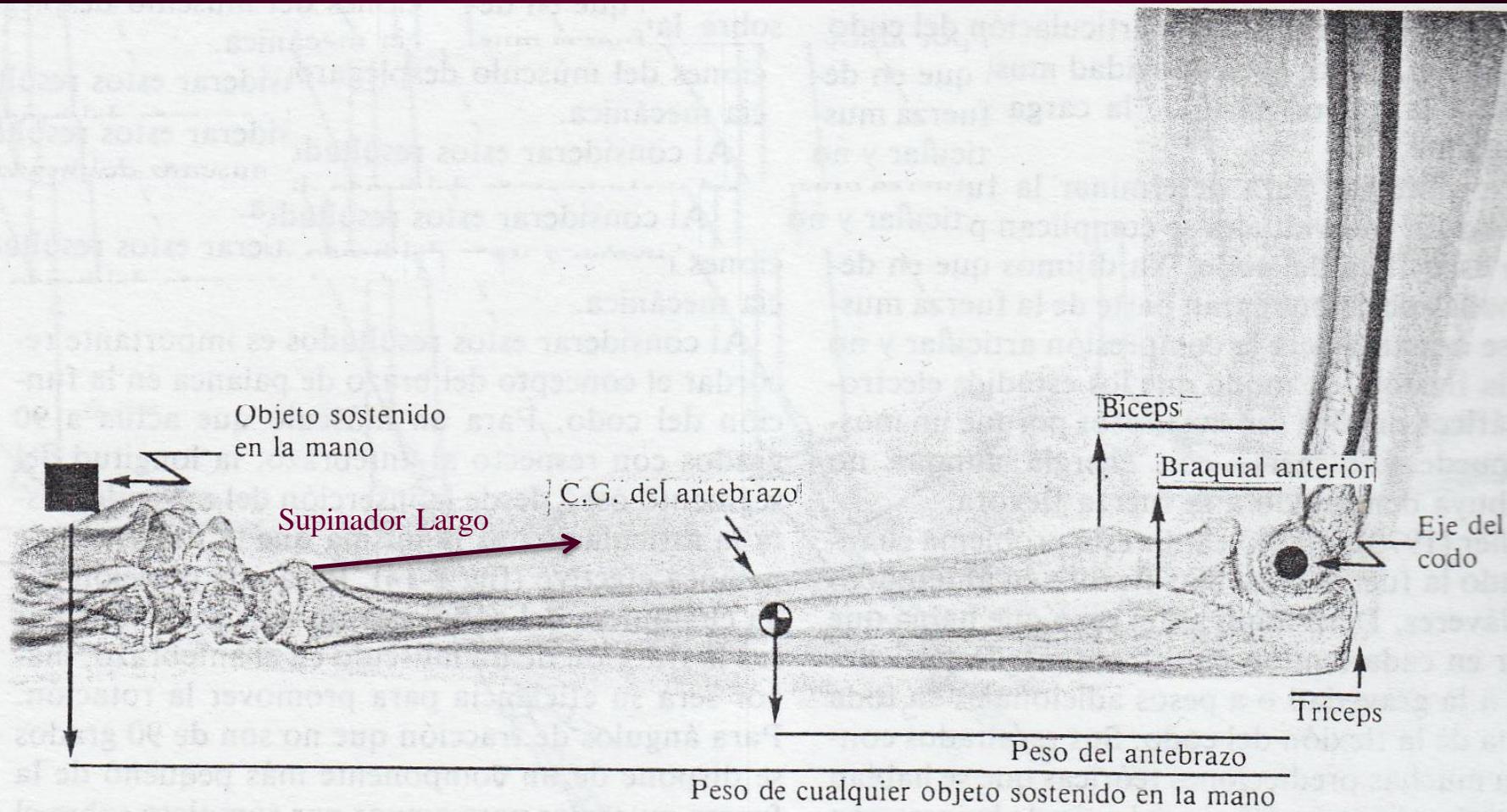


# EFICACIA

- ANGULO DE TRACCION
- CR Y CL



# PALANCAS



# Miocinética- Flexión

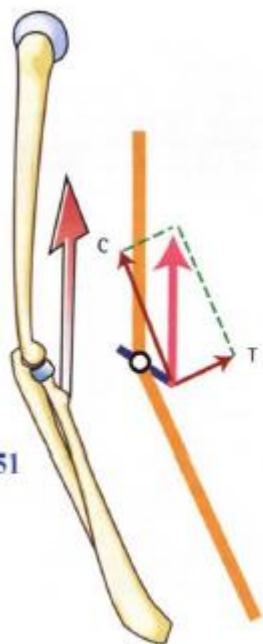
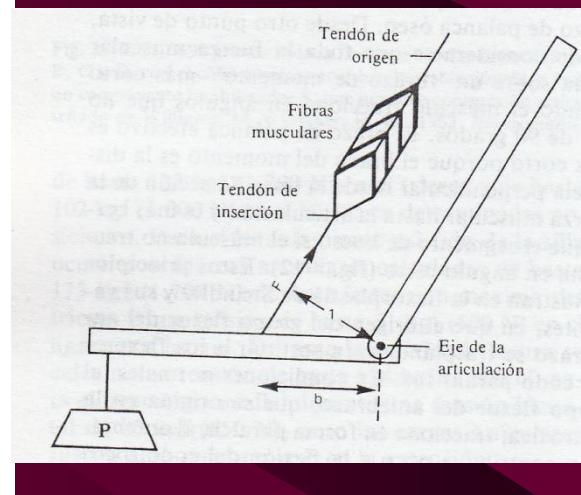
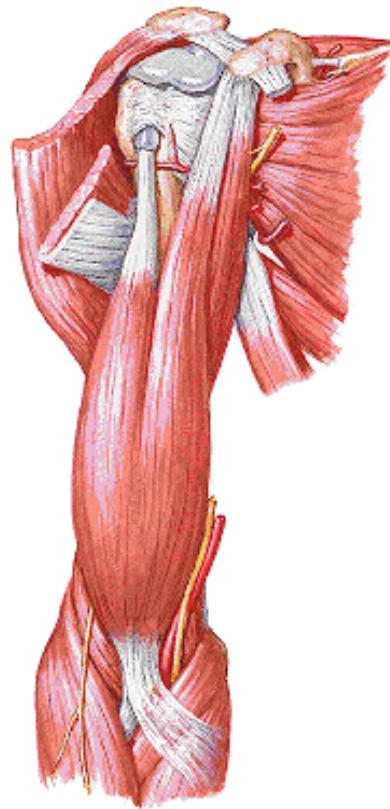


Fig. 51

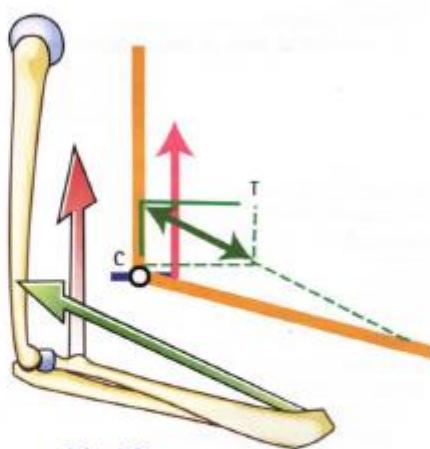


Fig. 52

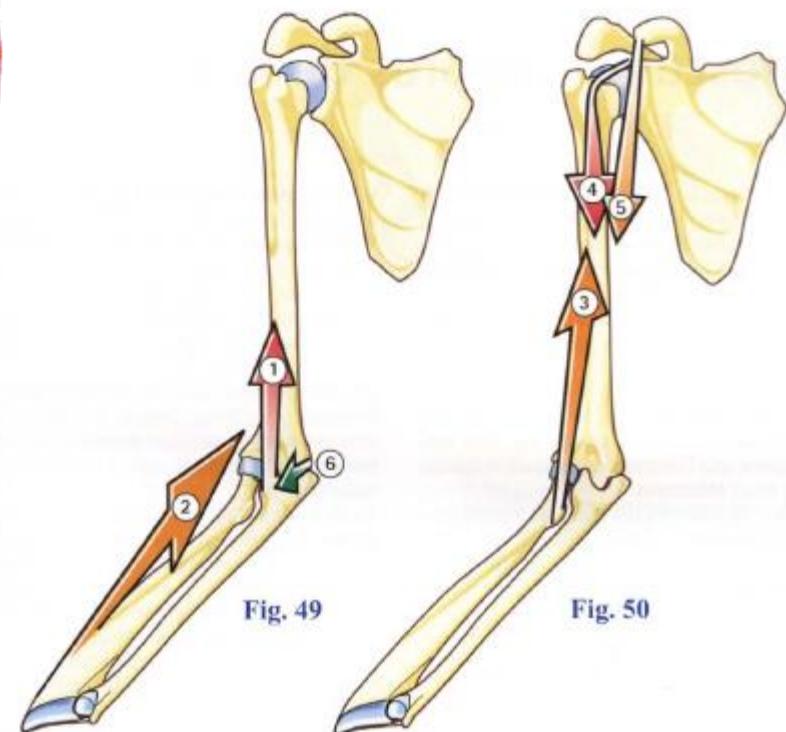
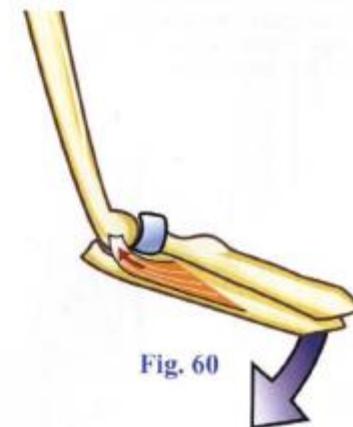
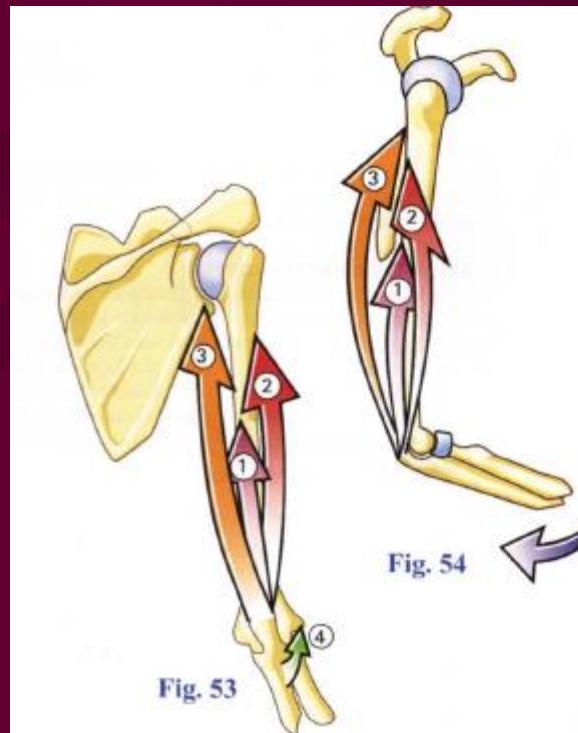
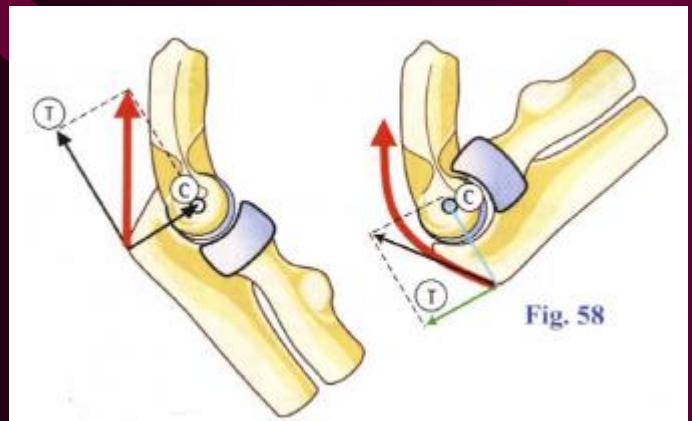
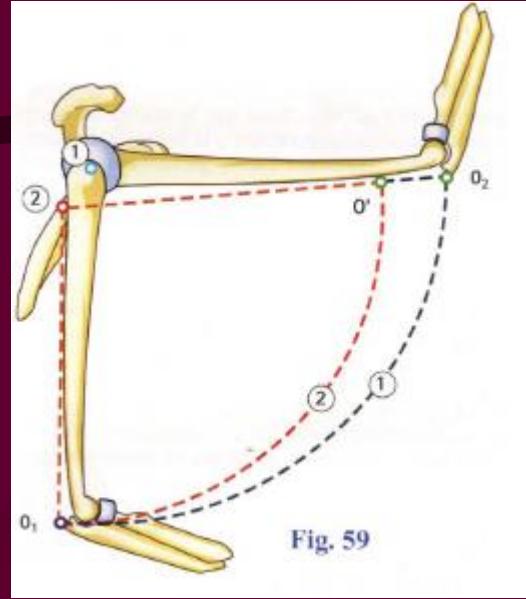
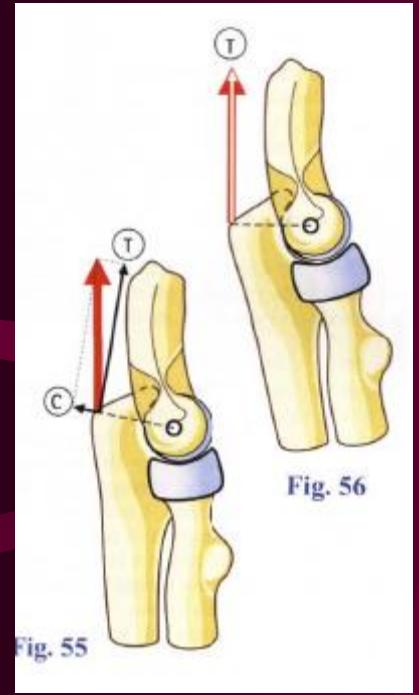


Fig. 49

Fig. 50

# Miocinética- Extensión



# TENSION EN SUPINACION COAPTACION EN PRONACION

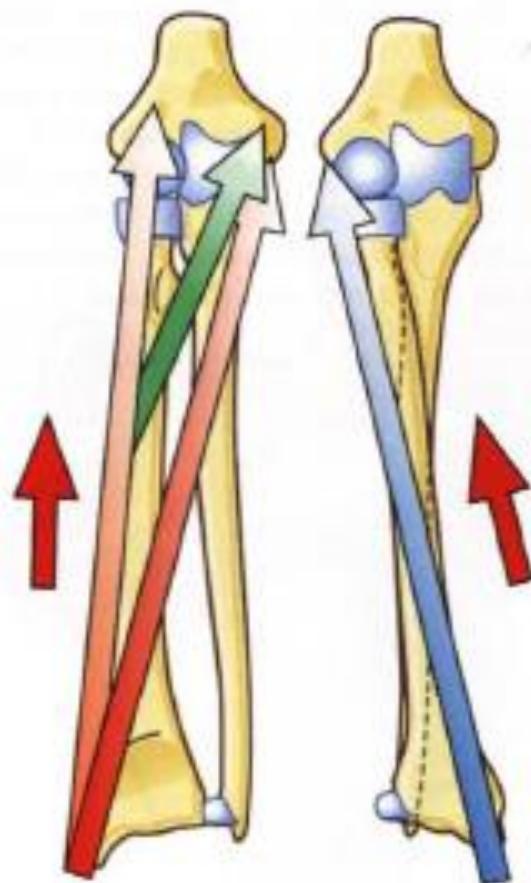


Fig. 36

Fig. 37



Fig. 40



Fig. 41



Fig. 42

# MIOCINETICA PRONOSUPINACION

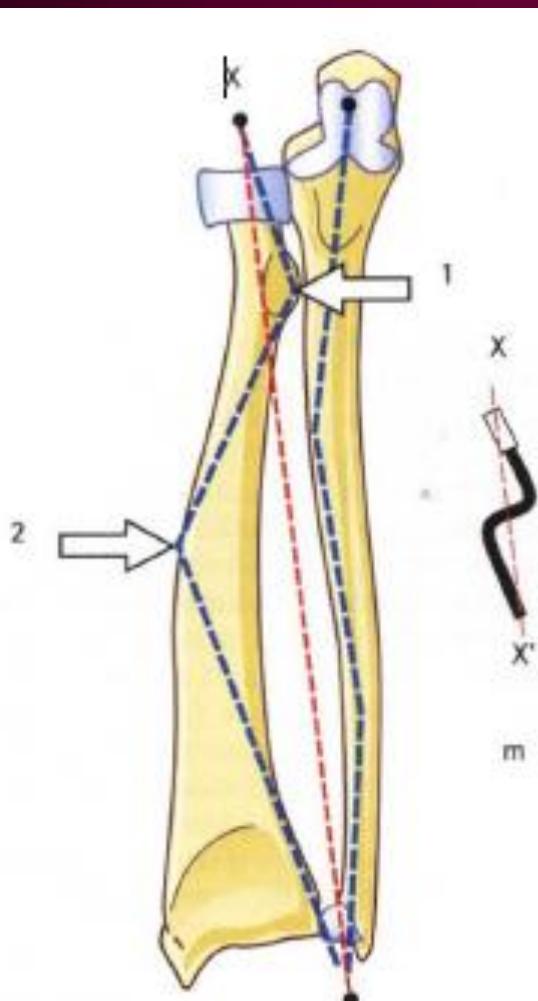


Fig. 106

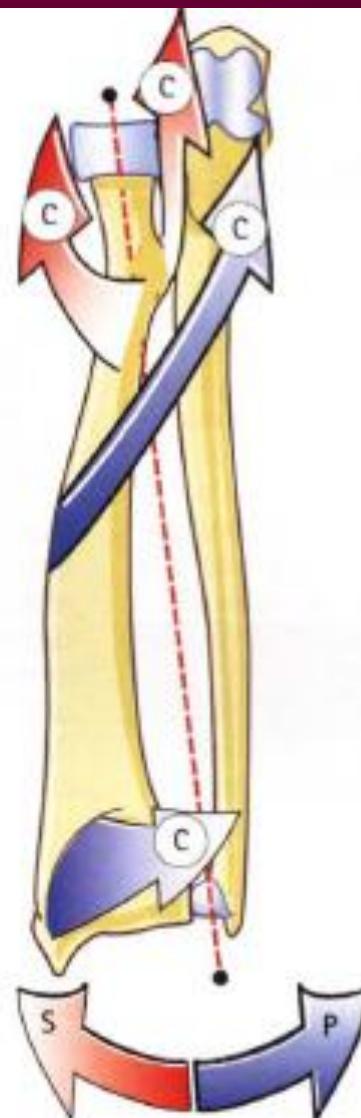


Fig. 108

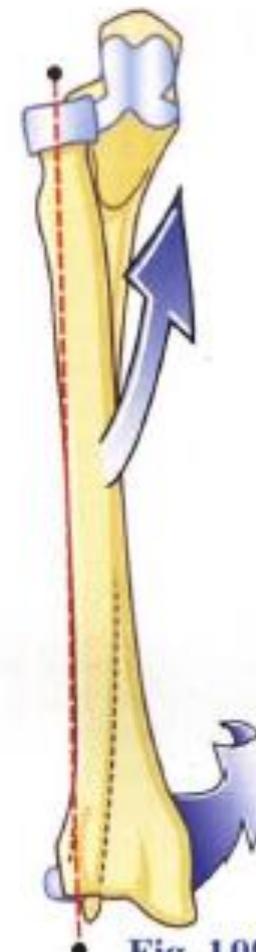
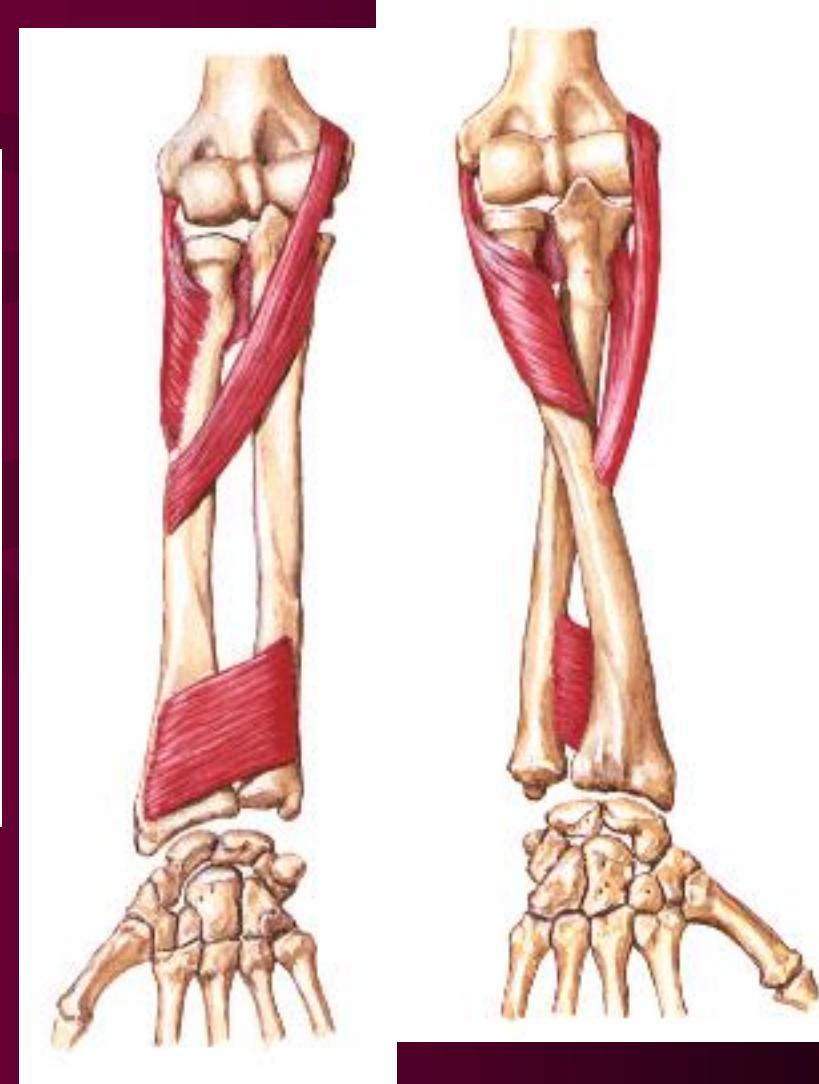
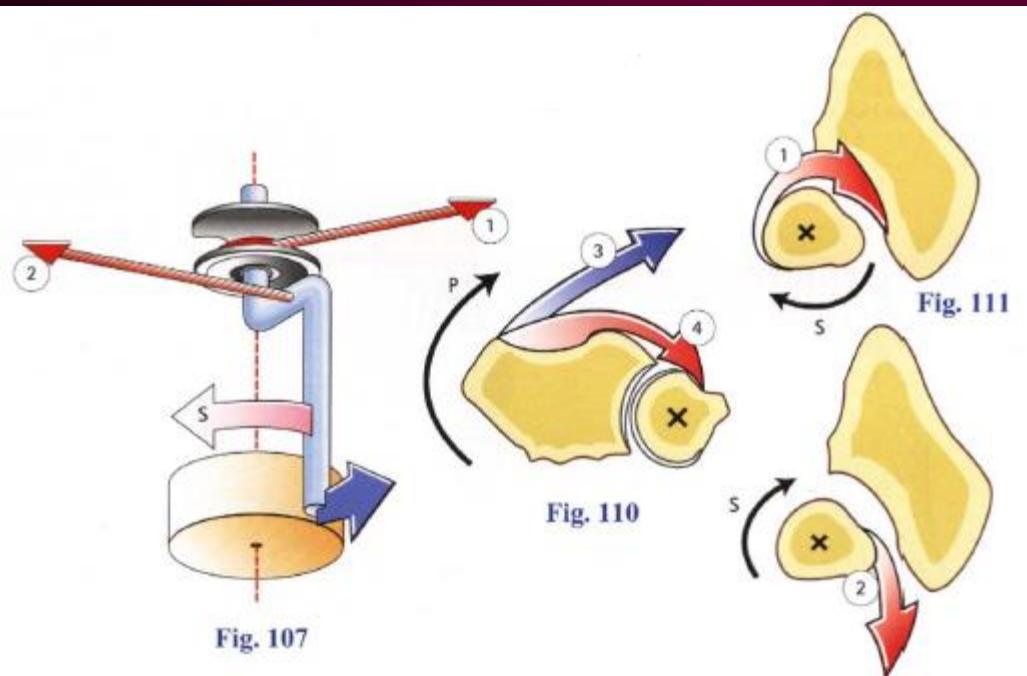
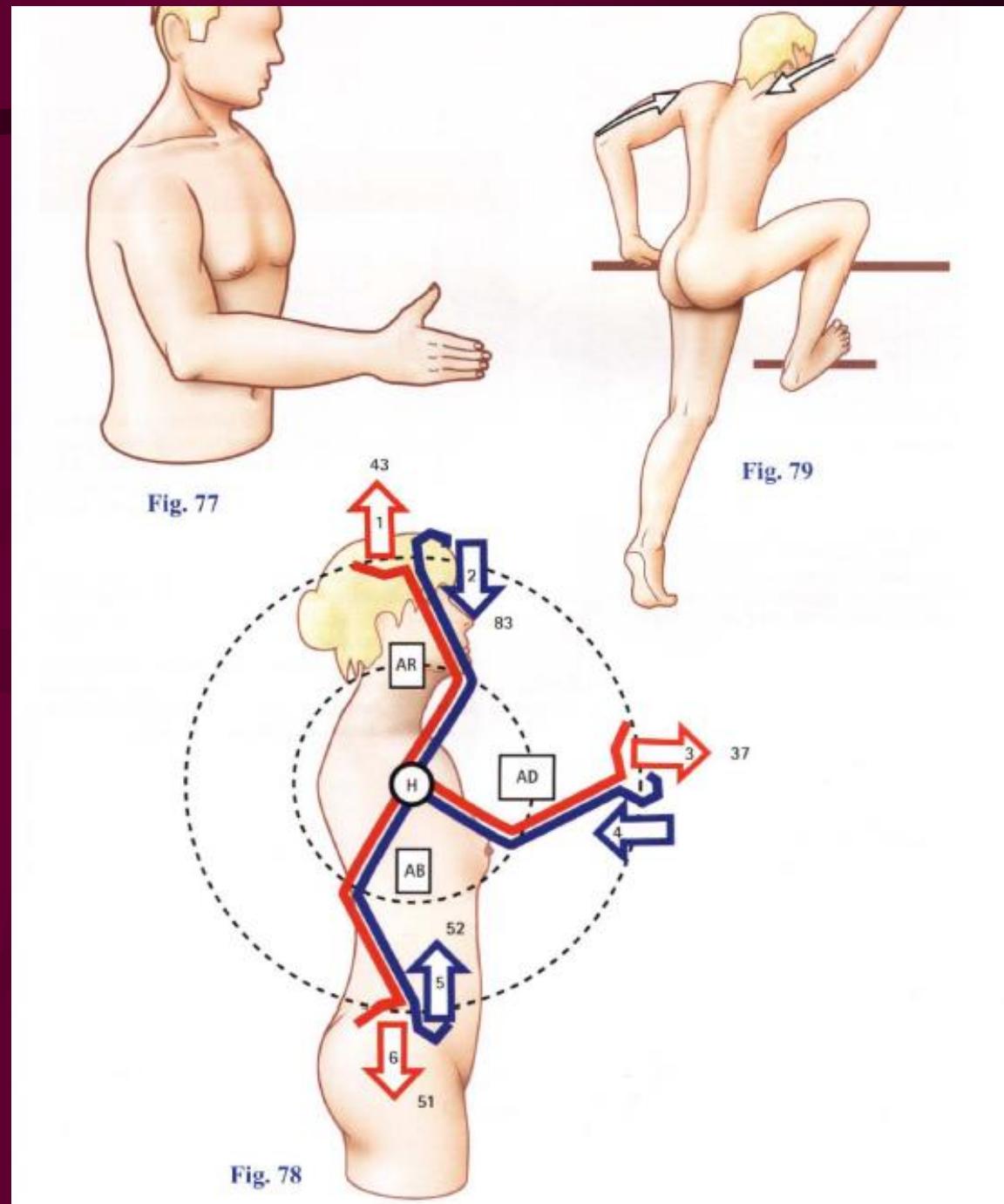


Fig. 109

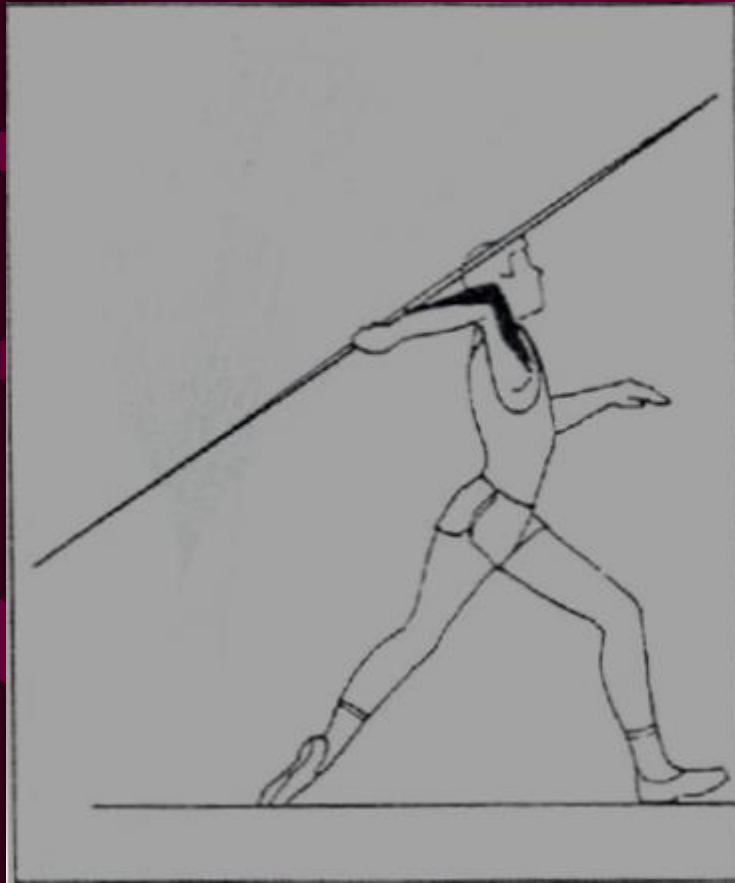
# MIOCINETICA PRONOSUPINACION



# EFICACIA



# POSICION EFICACIA DE BIARTICULARES



# CADENAS MUSCULARES

