

THE SHOULDER REGION

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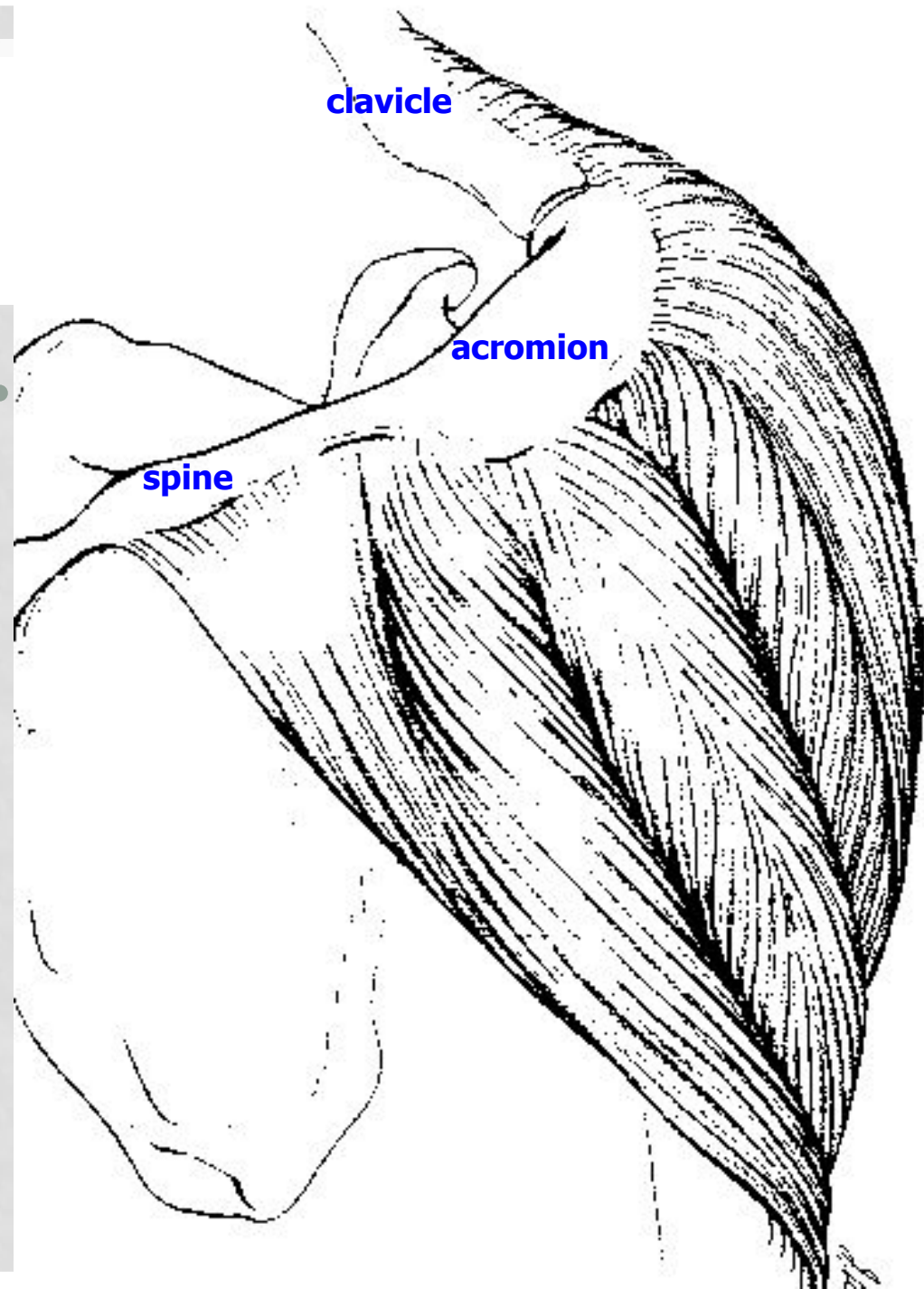
THE SHOULDER REGION

- Deltoid
- Teres major
- Subscapularis
- Supraspinatus
- Infraspinatus
- Teres minor
- Rotator cuff
- Subacromial bursa
- Shoulder joint
- Abduction mechanics
- Supraspinatus tendonitis
- Painful arc
- Supraspinatus rupture
- The shoulder in sections

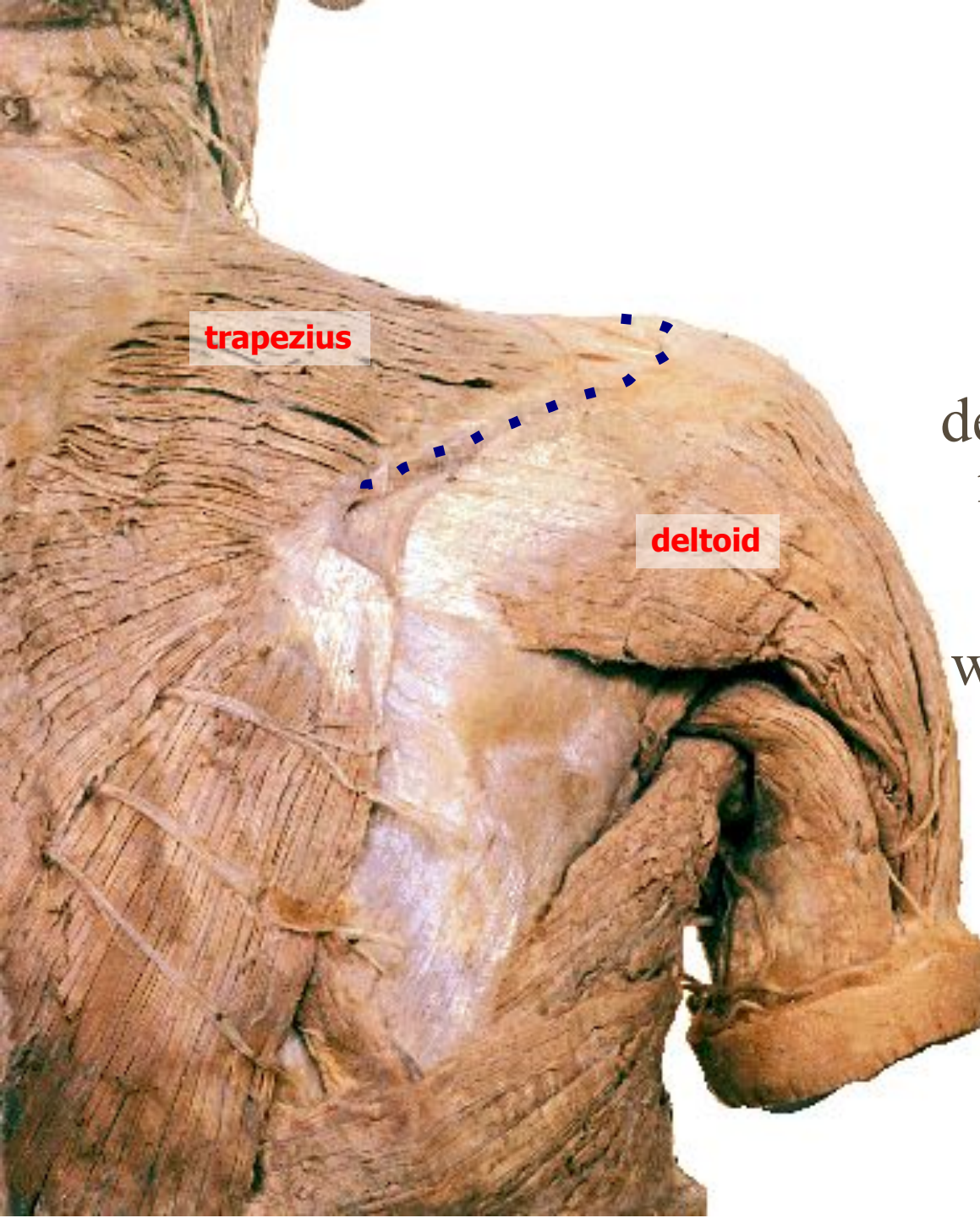
Origin

DELTOID

Arises from the clavicle and scapula (acromion and spine) immediately below the attachment of trapezius muscle



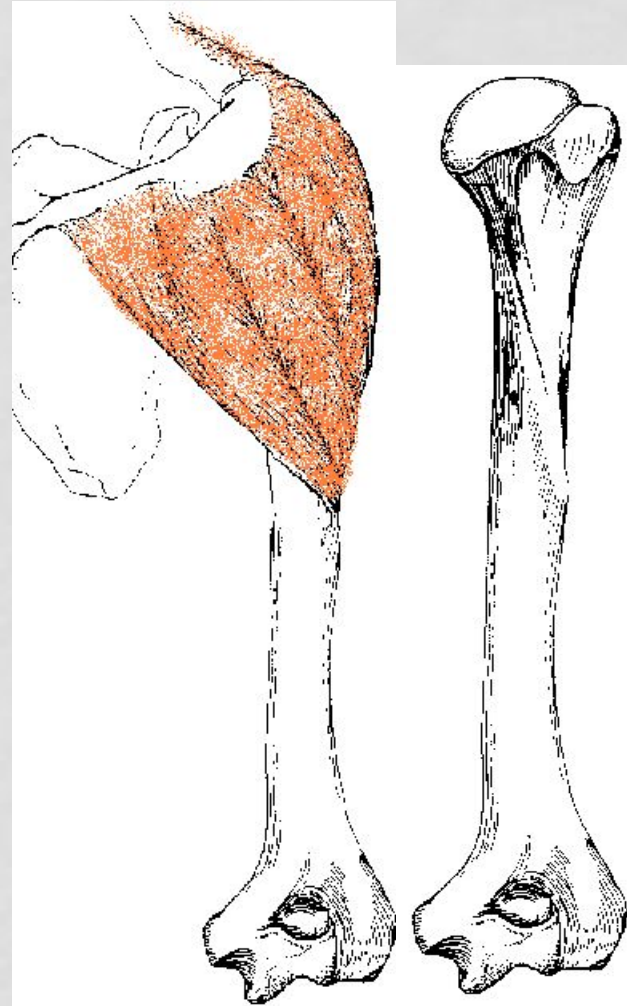
DELTOID



the two muscles, •
deltoid and trapezius
may be regarded as
being one large
continuous sheet
with the spine of the
scapula, the
acromion, and the
lateral third of the
clavicle exposed
between them

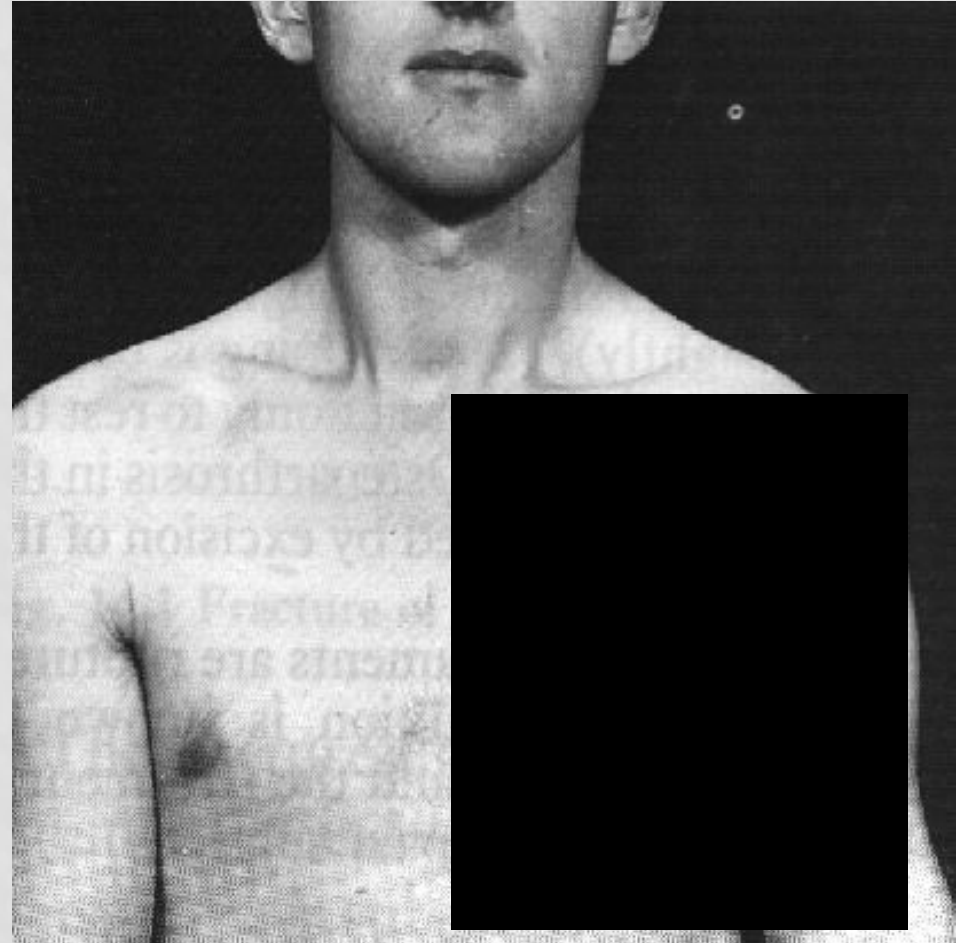
DELTOID

Inserted into the deltoid •
tuberosity of the
.humerus



DELTOID

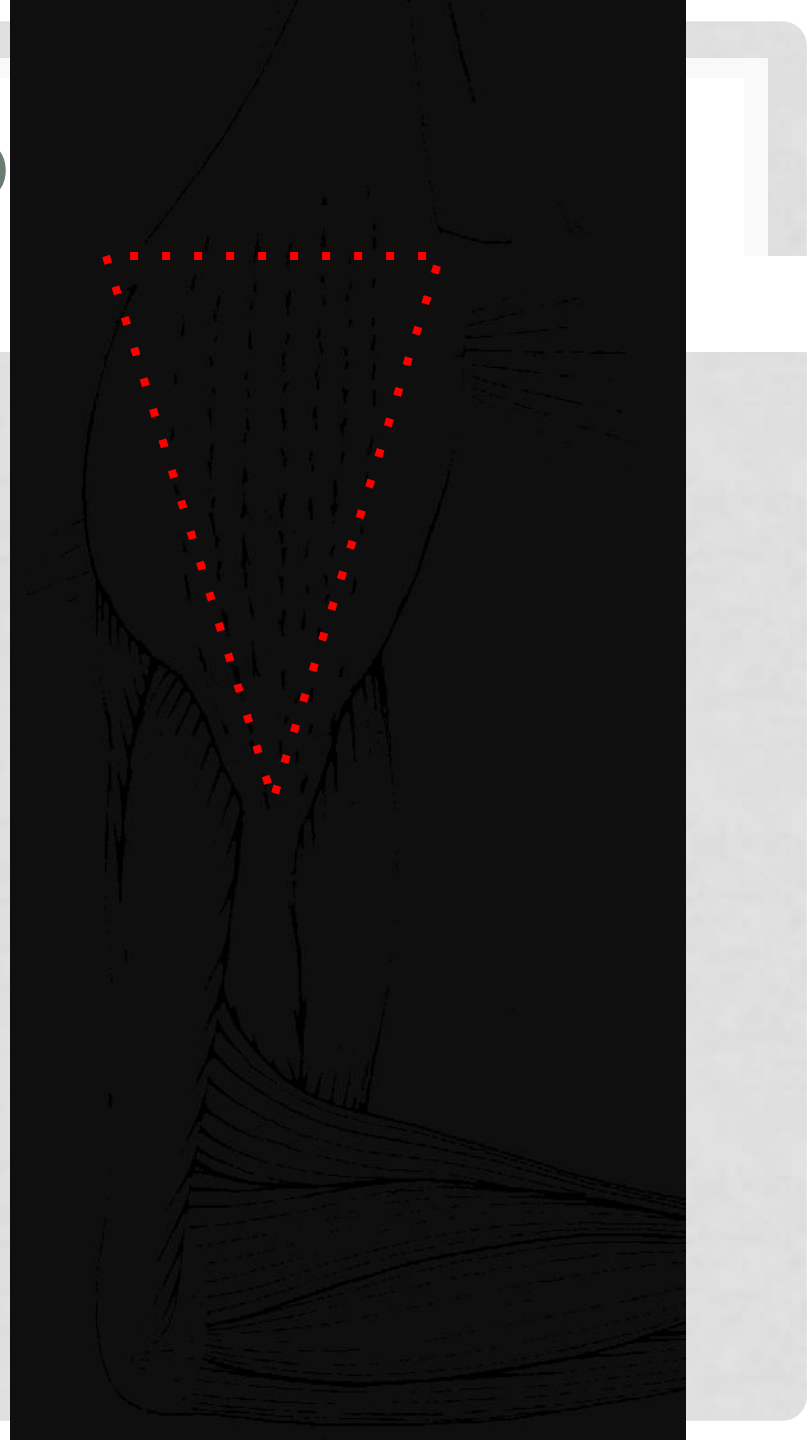
The muscle crosses the shoulder joint and forms the rounded contour of the shoulder owing to the underlying upper end of the humerus, this rounded appearance is lost when the shoulder dislocates



Dislocation of the shoulder

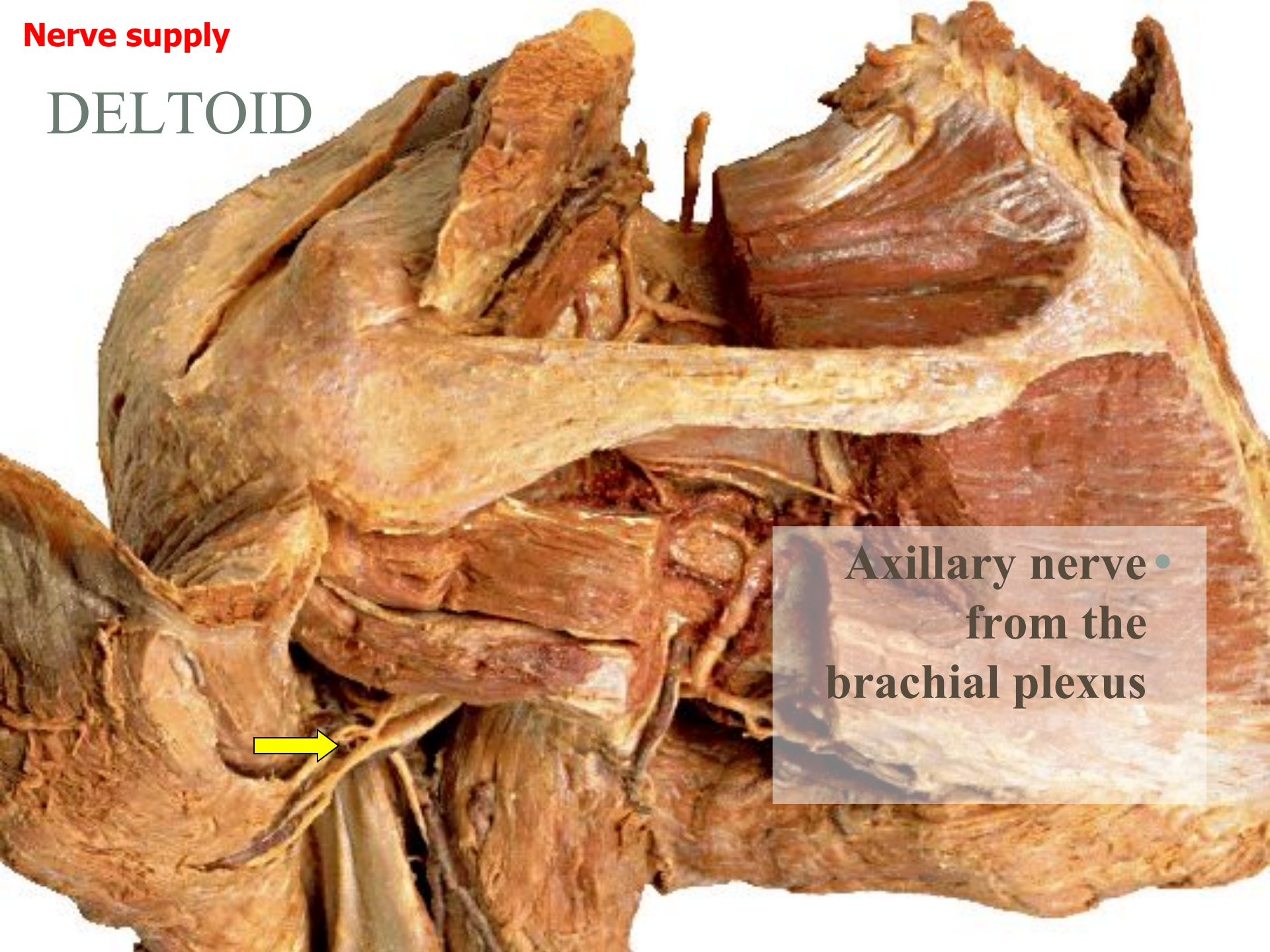
DELTOID

The muscle is triangular •
in shape when viewed
from the lateral side,
hence its name (G.
.delta-like)



Nerve supply

DELTOID



**Axillary nerve •
from the
brachial plexus**

Action

CLAVICLE

DELTOID

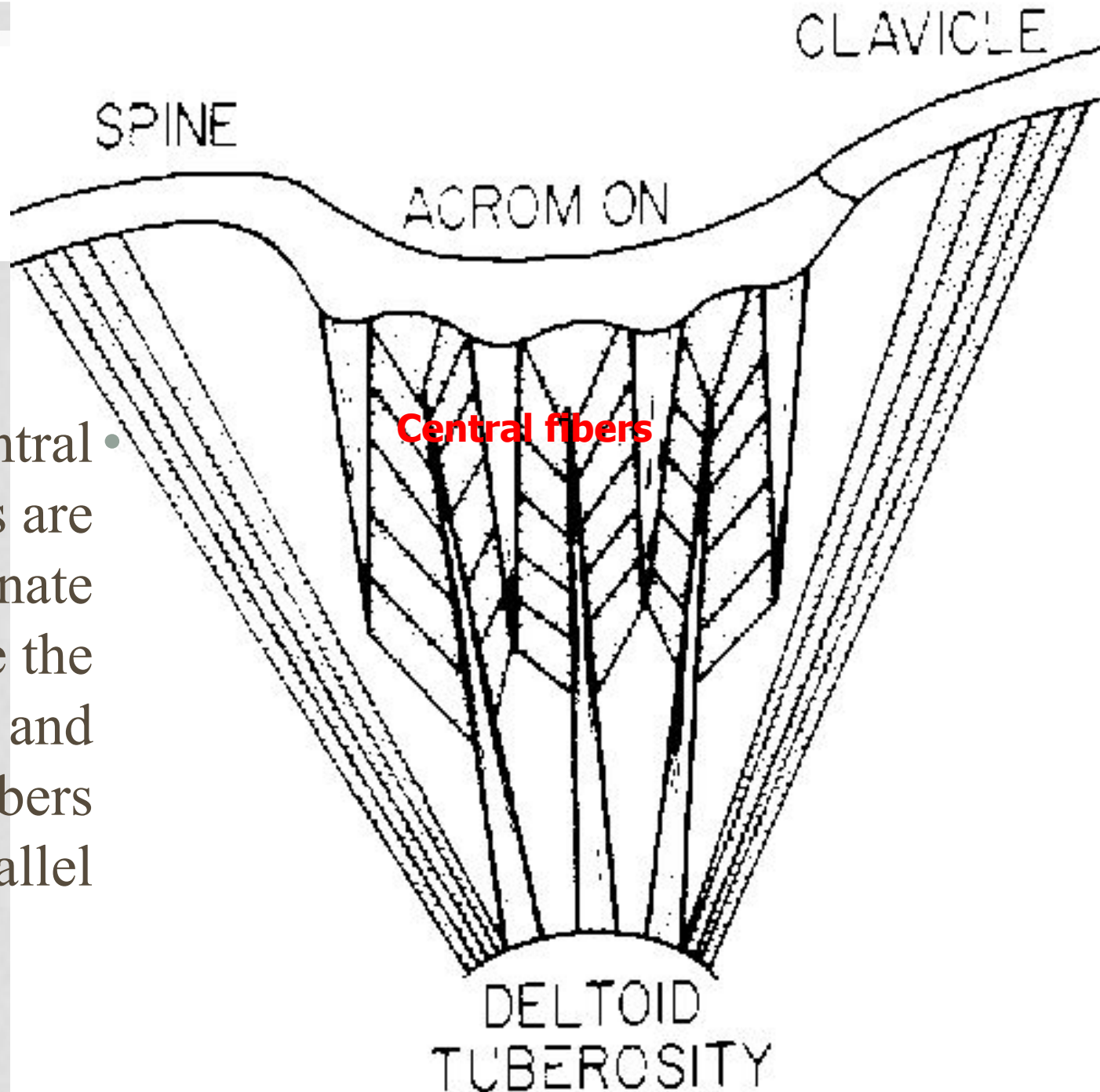
SPINE

ACROMION

The central fibers are multipennate while the anterior and posterior fibers are parallel

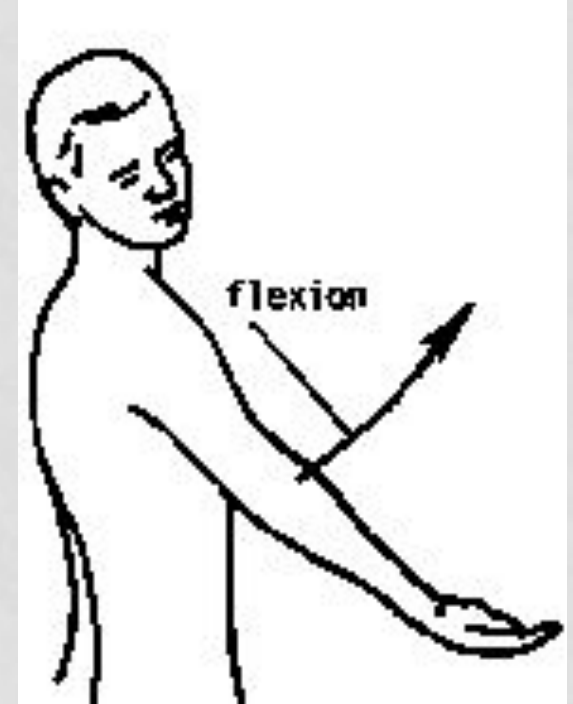
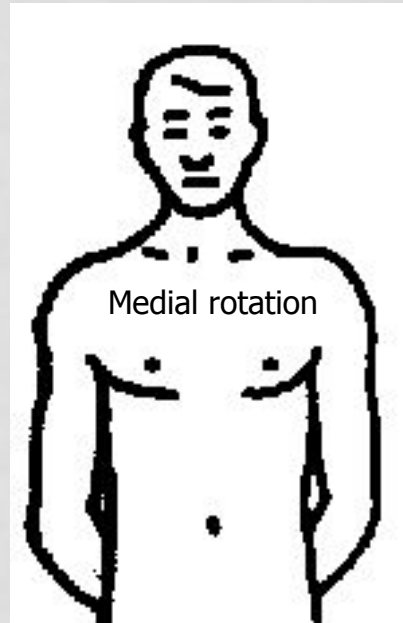
Central fibers

DELTOID
TUBEROSITY



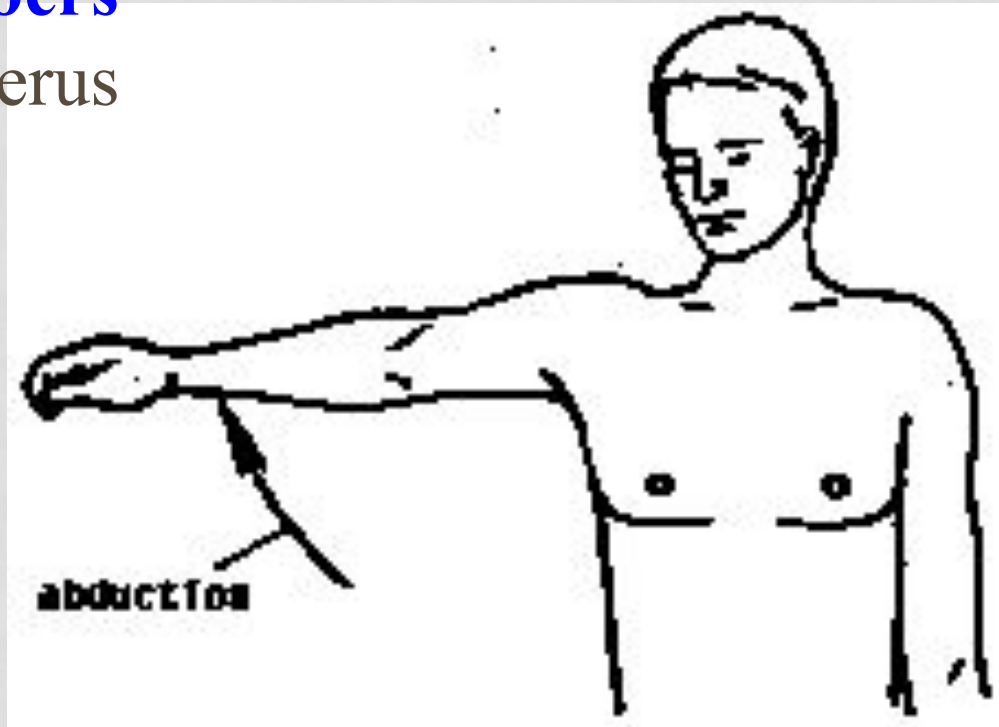
DELTOID

Acting in part the •
anterior fibers flex
and medially rotate
the humerus



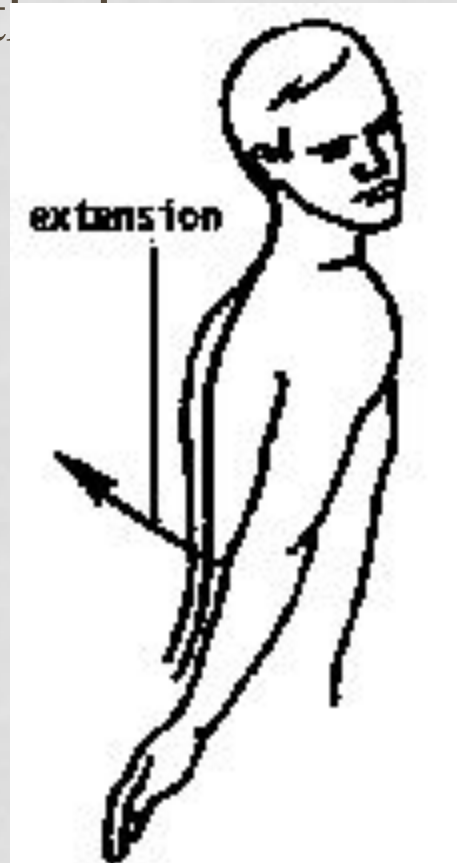
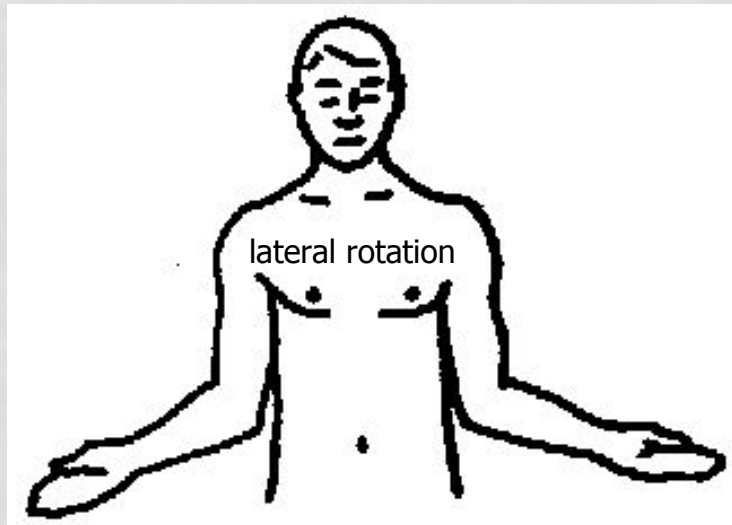
DELTOID

- The **middle fibers** •
•abduct the humerus



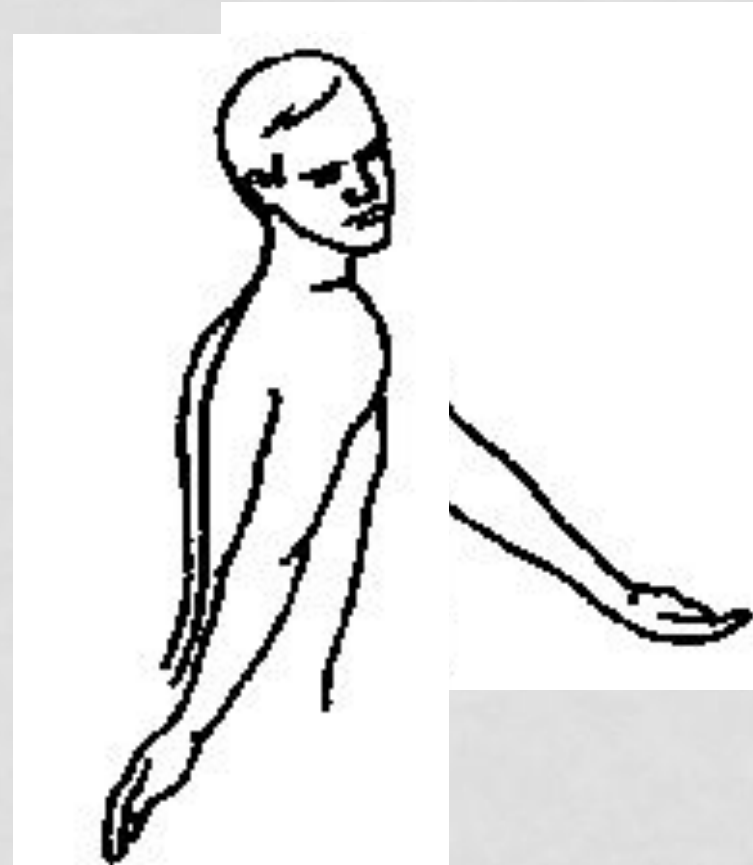
DELTOID

The **posterior fibers** extend and laterally rotate •



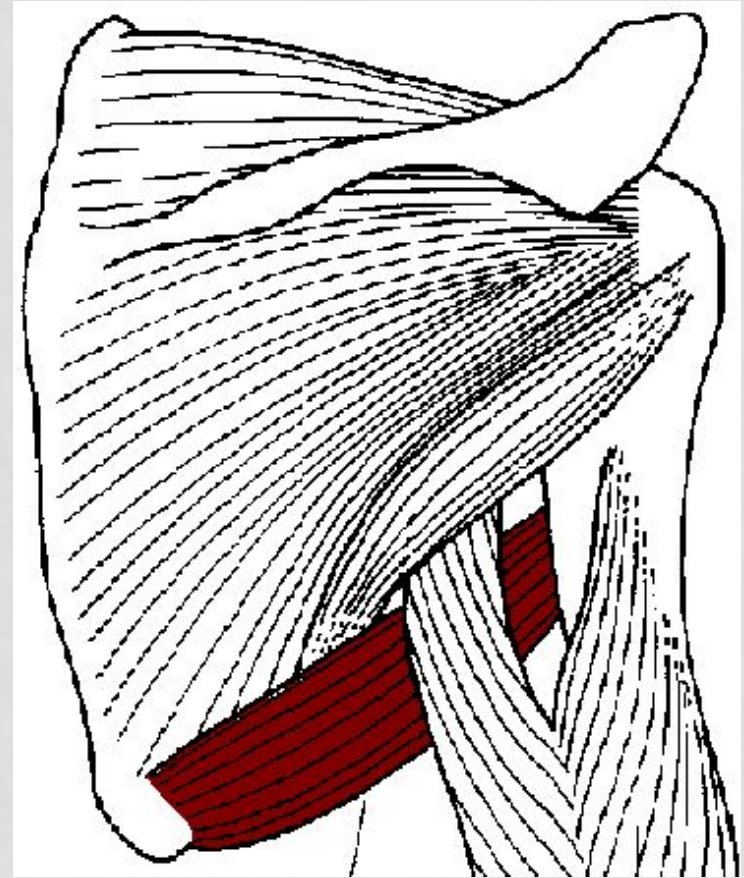
DELTOID

The anterior and •
posterior fibers are
alternating in action
when swinging the arm
during walking



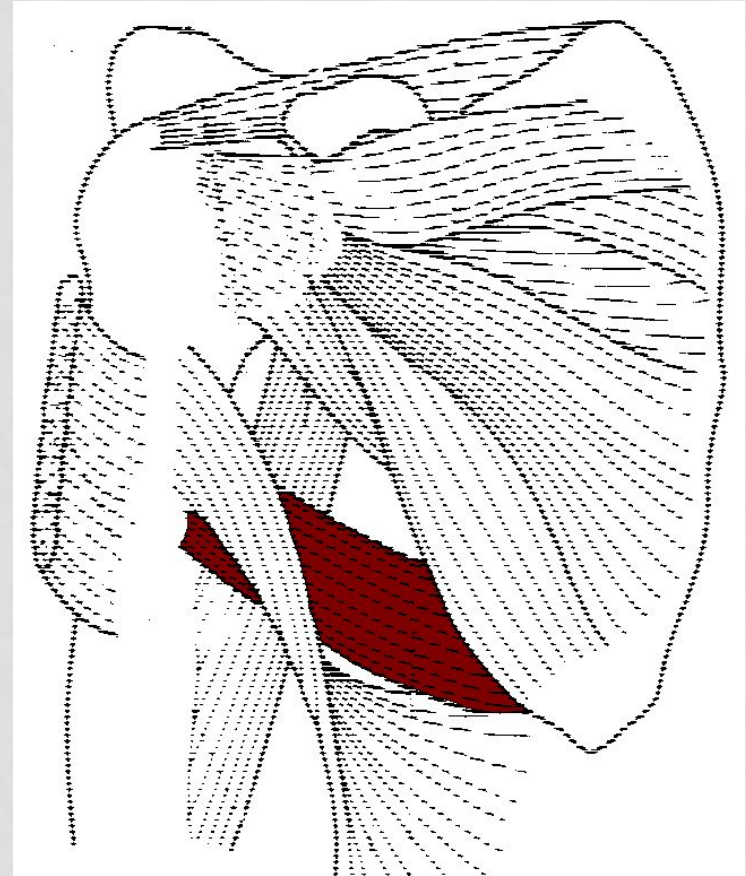
TERES MAJOR

Arises from the dorsal •
surface of the inferior
angle of the scapula



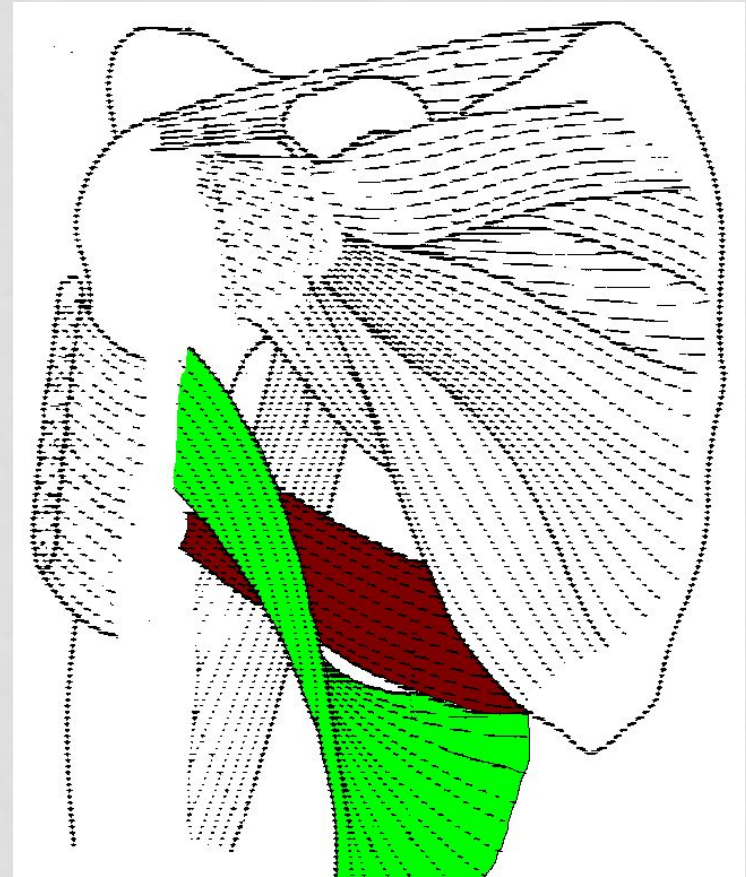
TERES MAJOR

Inserted into the medial lip of the intertubercular groove of the humerus •



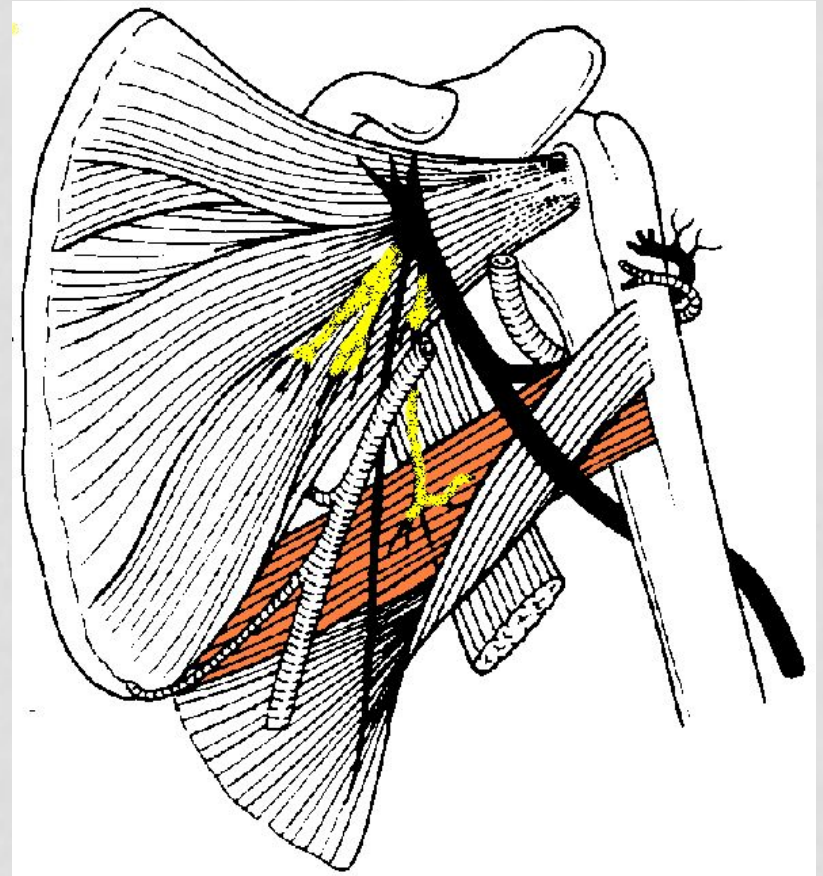
TERES MAJOR

The the tendon of that •
latissimus dorsi curves
around the lower border
of teres major and comes
to lie in front of it since
the former is inserted
lateral to the tendon of
teres major



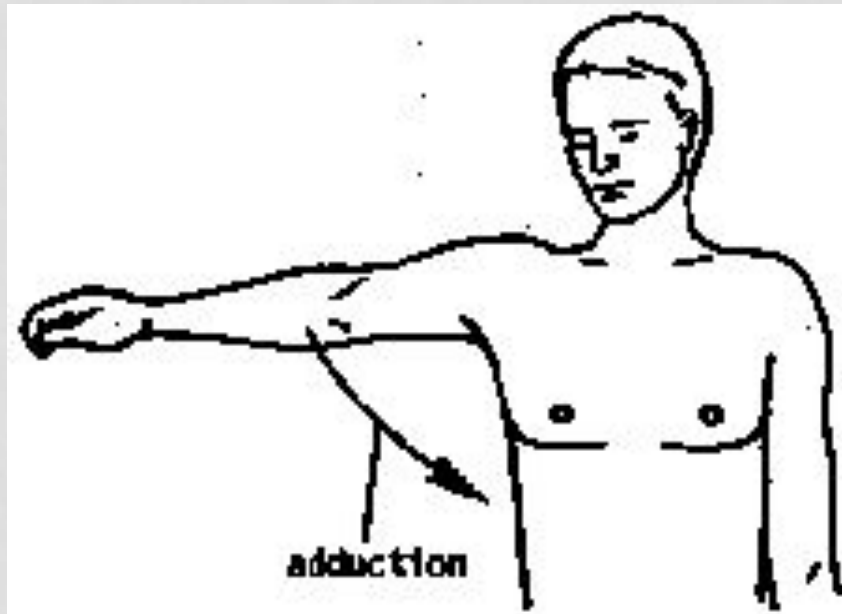
TERES MAJOR

Lower subscapular •
.nerve



TERES MAJOR

An adductor and extensor of the humerus at the shoulder joint •

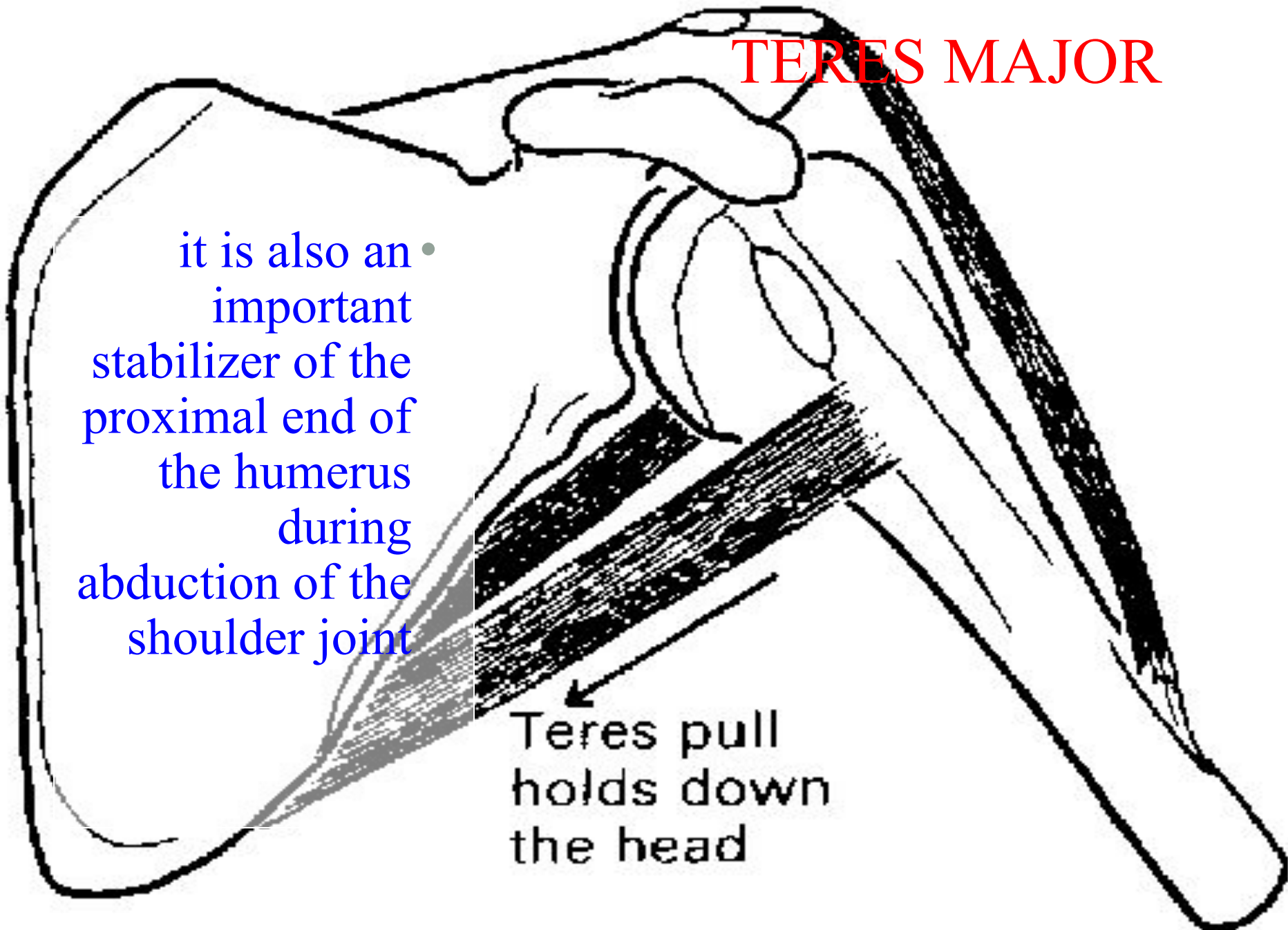


Action

TERES MAJOR

it is also an •
important
stabilizer of the
proximal end of
the humerus
during
abduction of the
shoulder joint

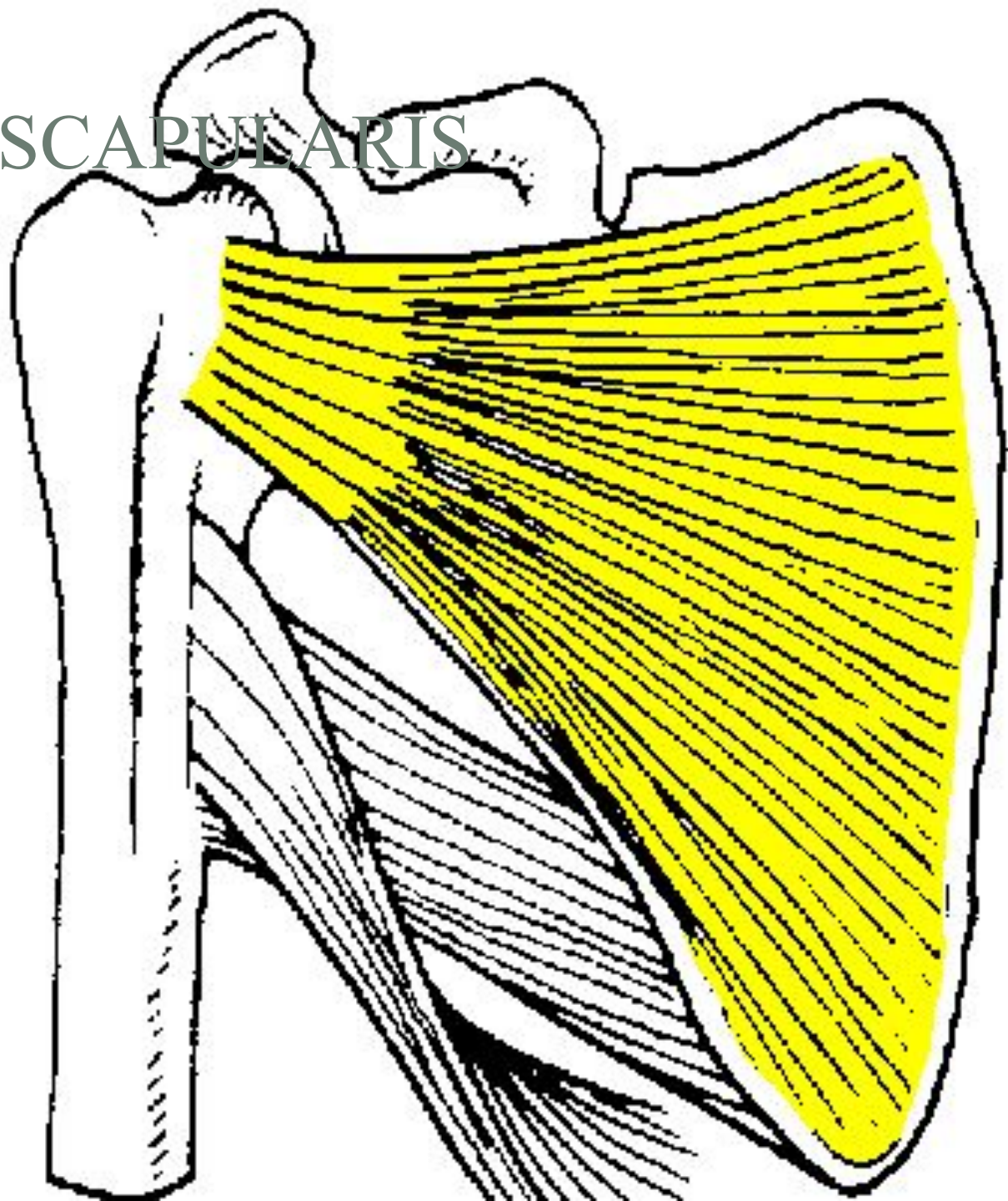
←
Teres pull
holds down
the head



Origin

SUBSCAPULARIS

Subscapular •
fossa



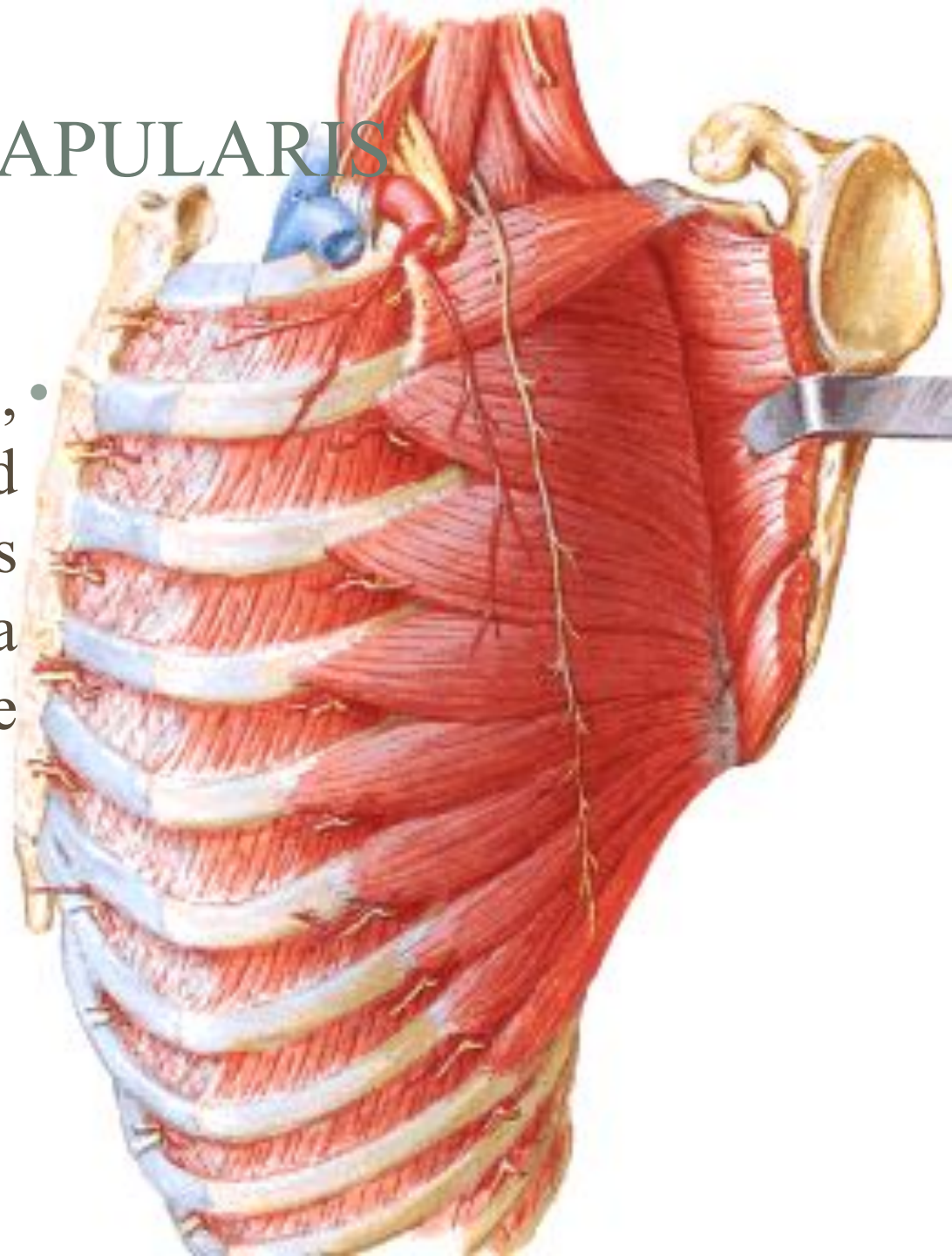
SUBSCAPULARIS

Medial to it, serratus •
anterior is attached to
the anterior aspect of
the medial border of the
;scapula



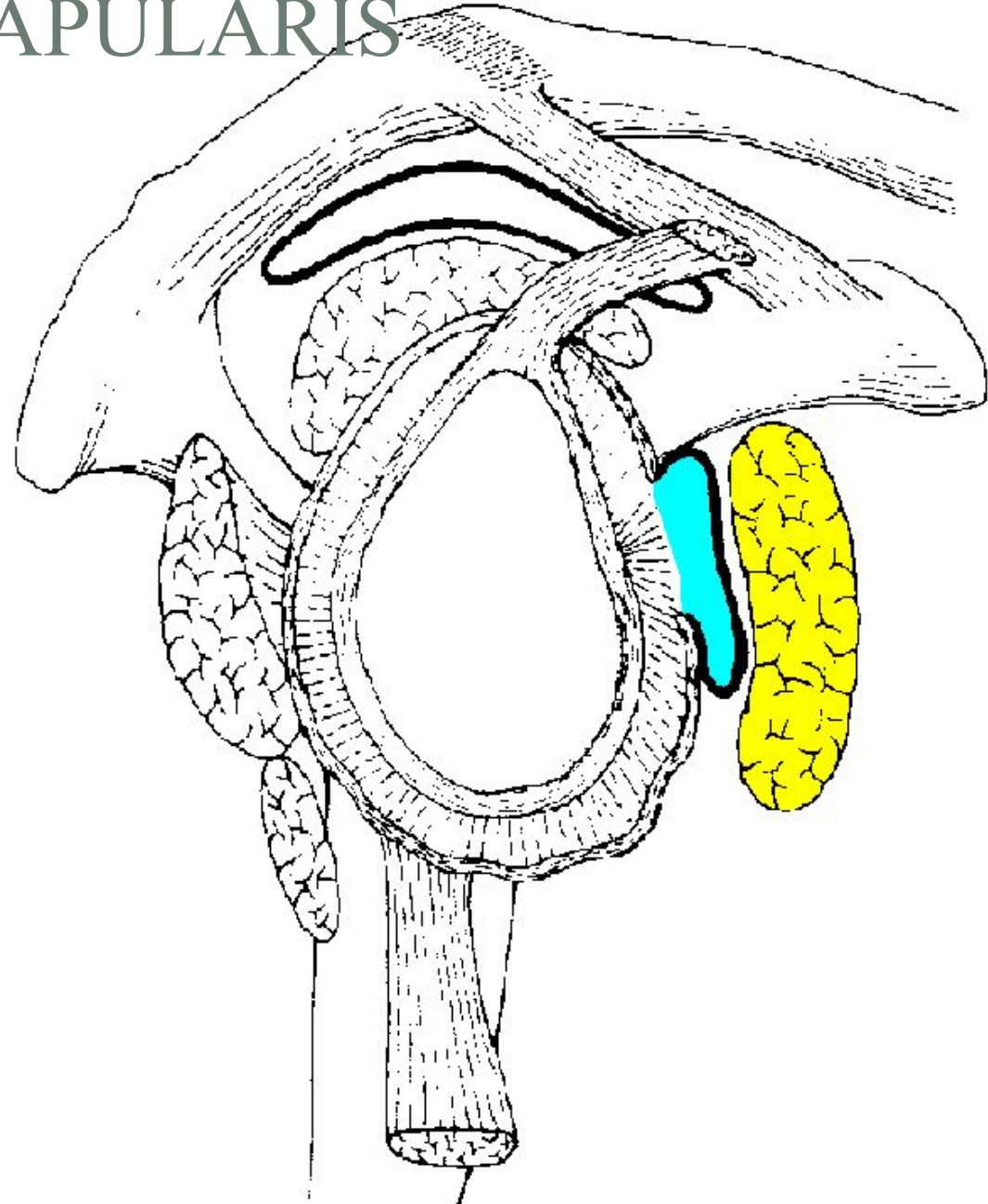
SUBSCAPULARIS

these two muscles, •
serratus anterior and
subscapularis thus
separate the scapula
from the thoracic cage



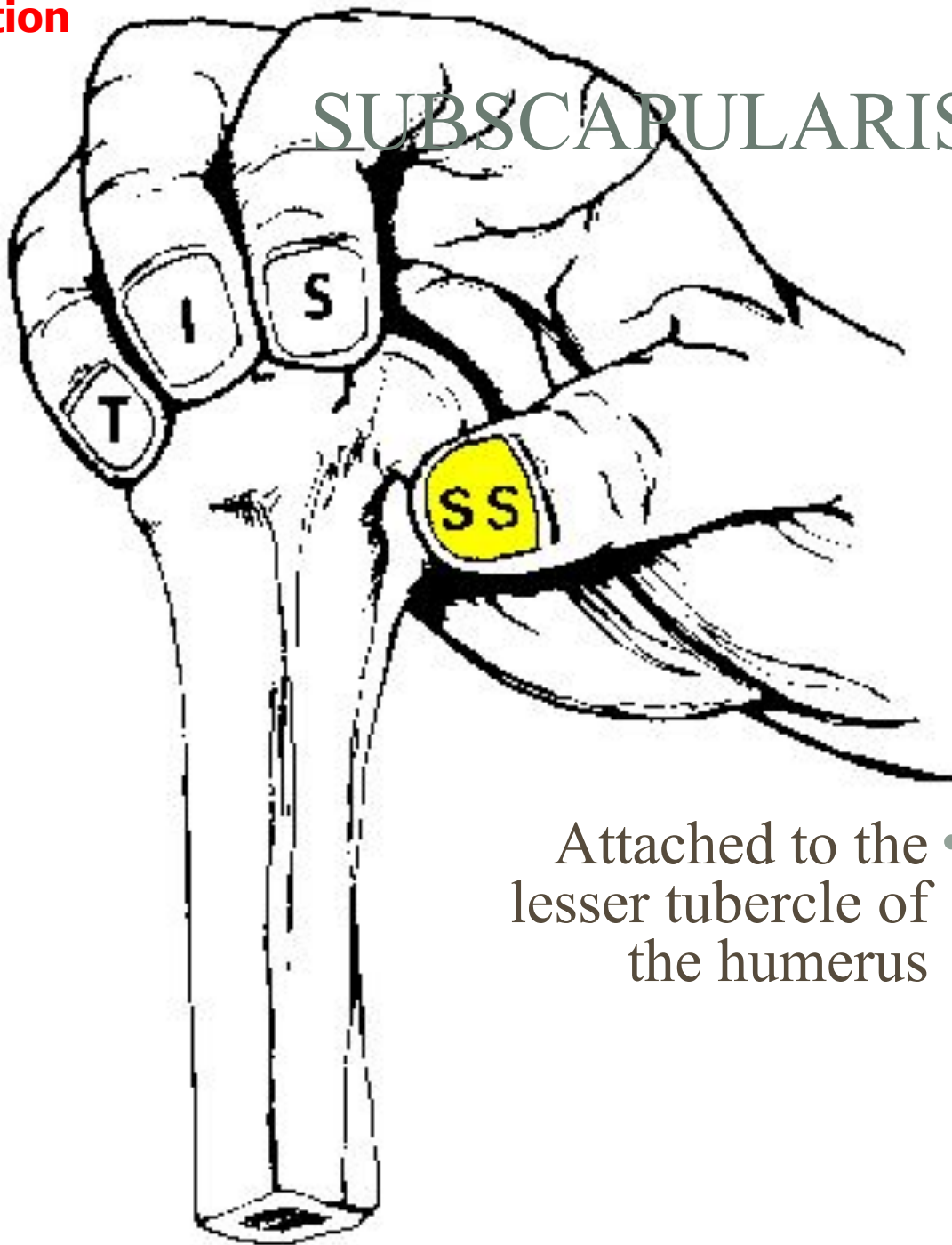
SUBSCAPULARIS

The tendon of •
subscapularis extends
in front of the
shoulder joint,
separated from the
joint by the
subscapular bursa

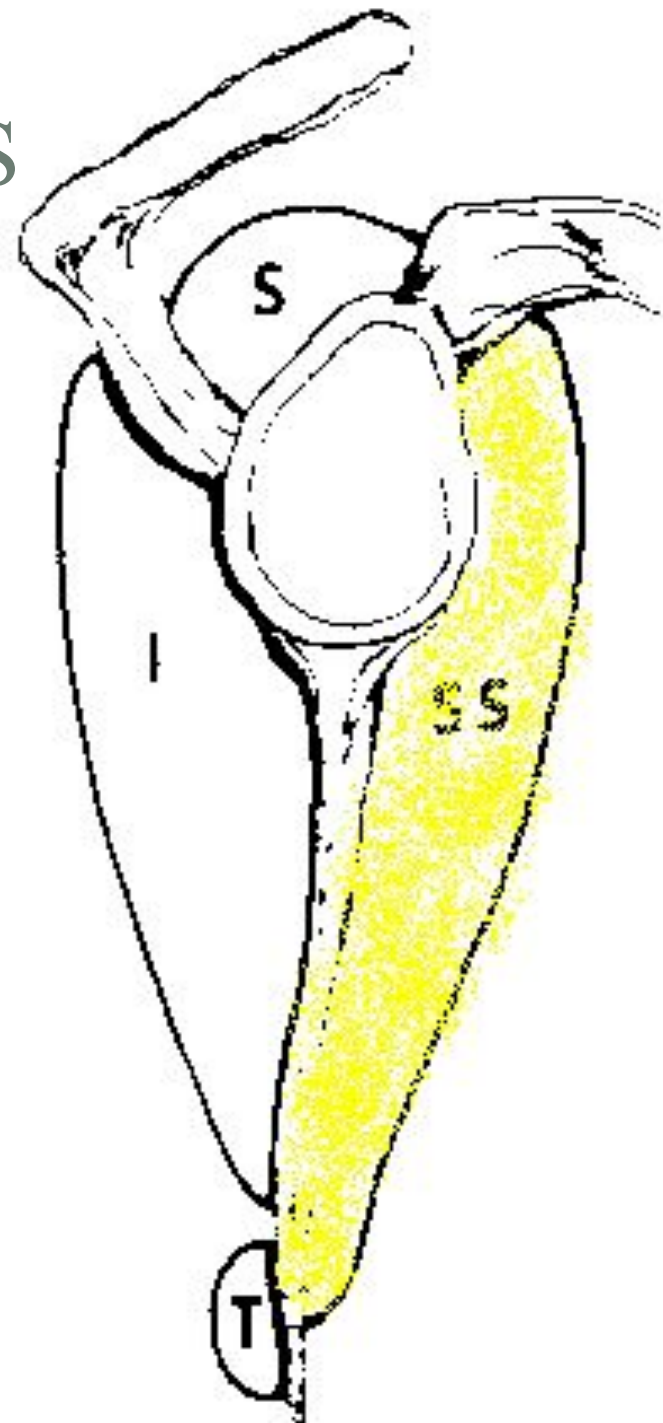


Insertion

SUBSCAPULARIS

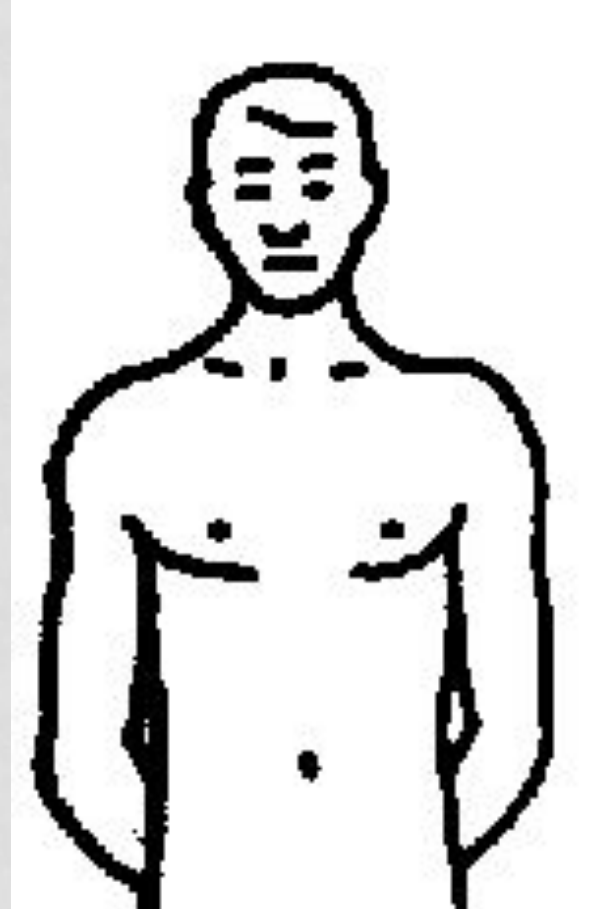


Attached to the •
lesser tubercle of
the humerus



SUBSCAPULARIS

The muscle is an •
obvious medial rotator
of the humerus



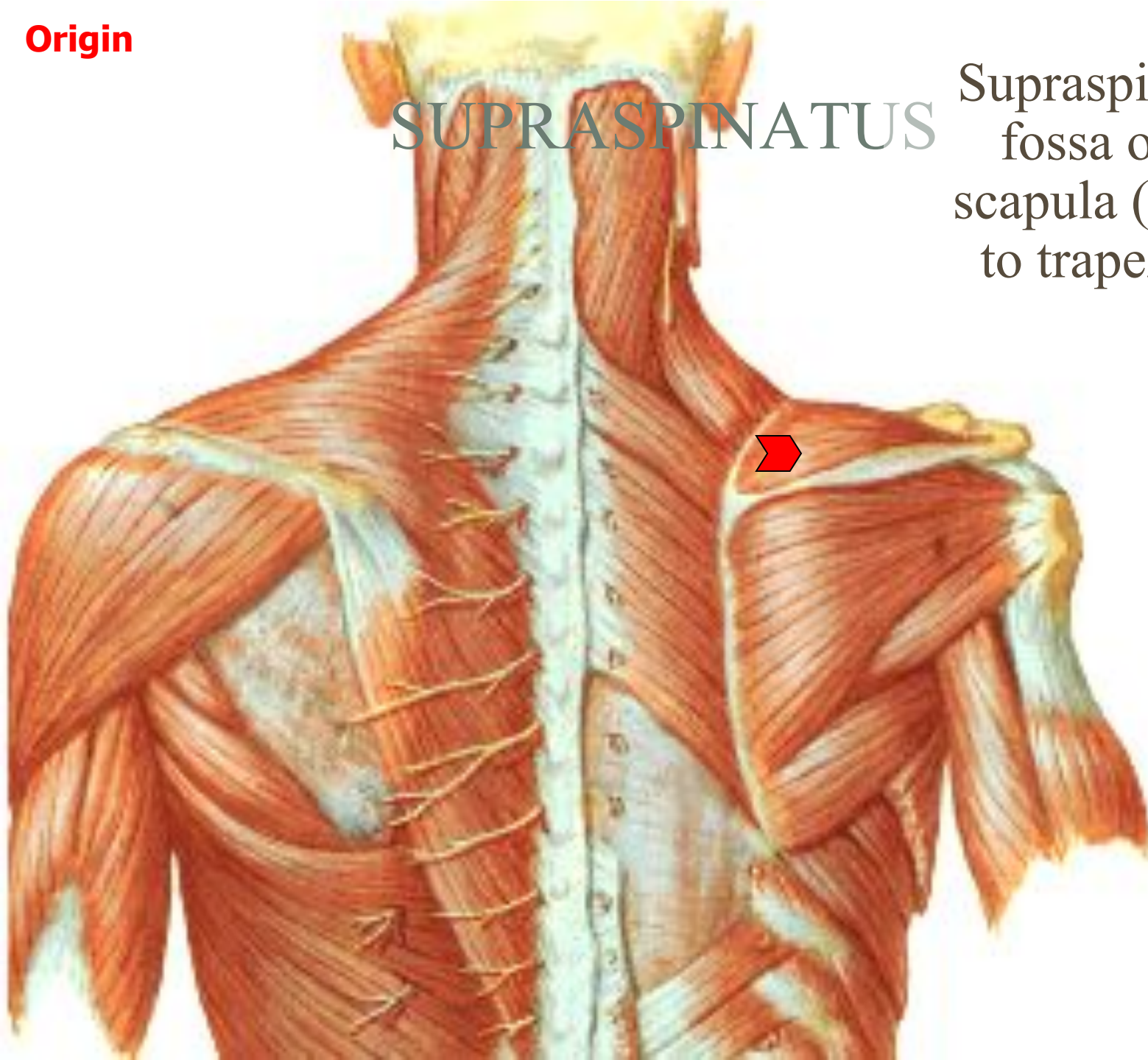
SUBSCAPULARIS

Upper and lower •
subscapular nerves

Origin

SUPRASPINATUS

Supraspinous •
fossa of the
scapula (deep
to trapezius)

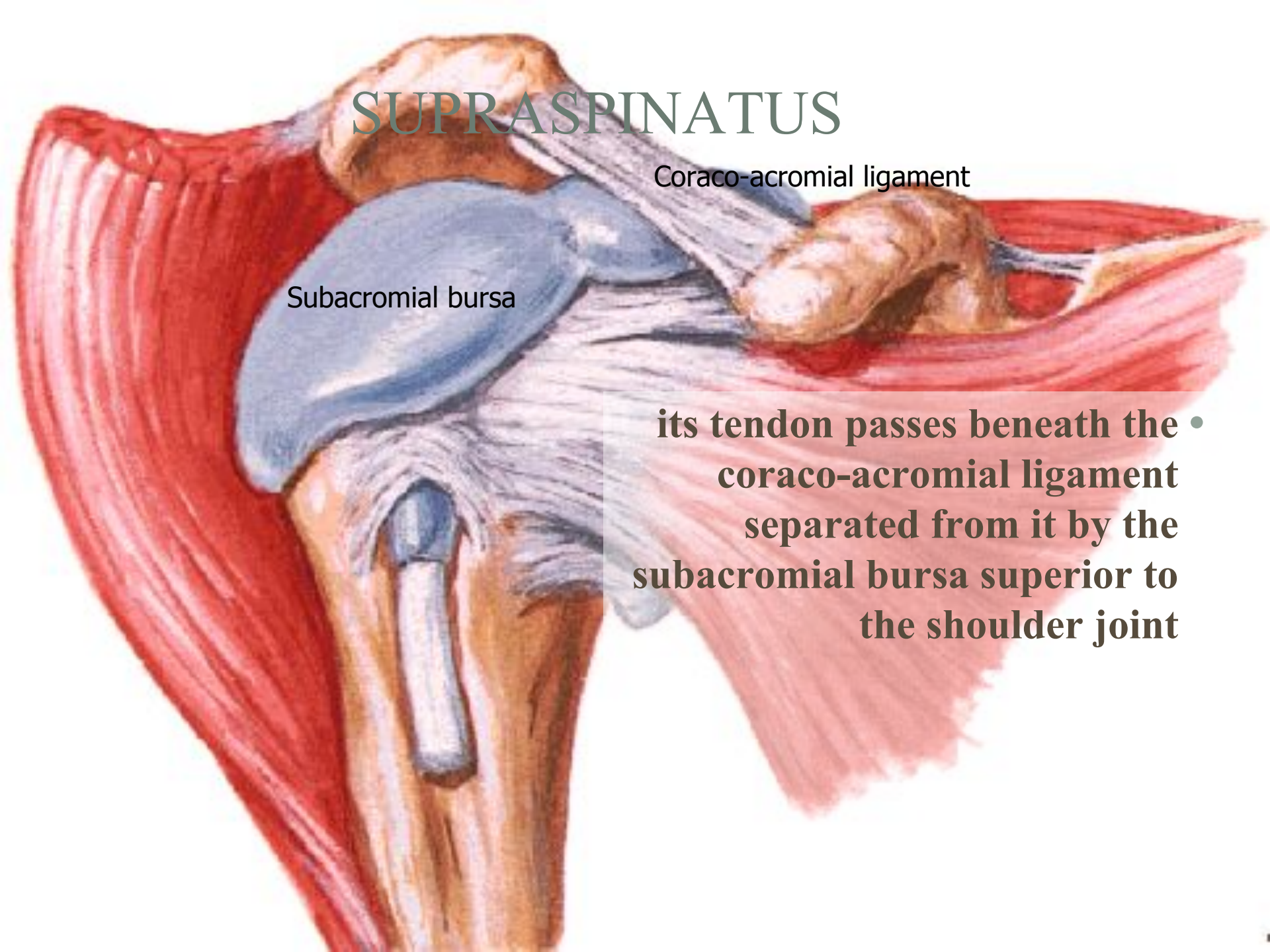


SUPRASPINATUS

Coraco-acromial ligament

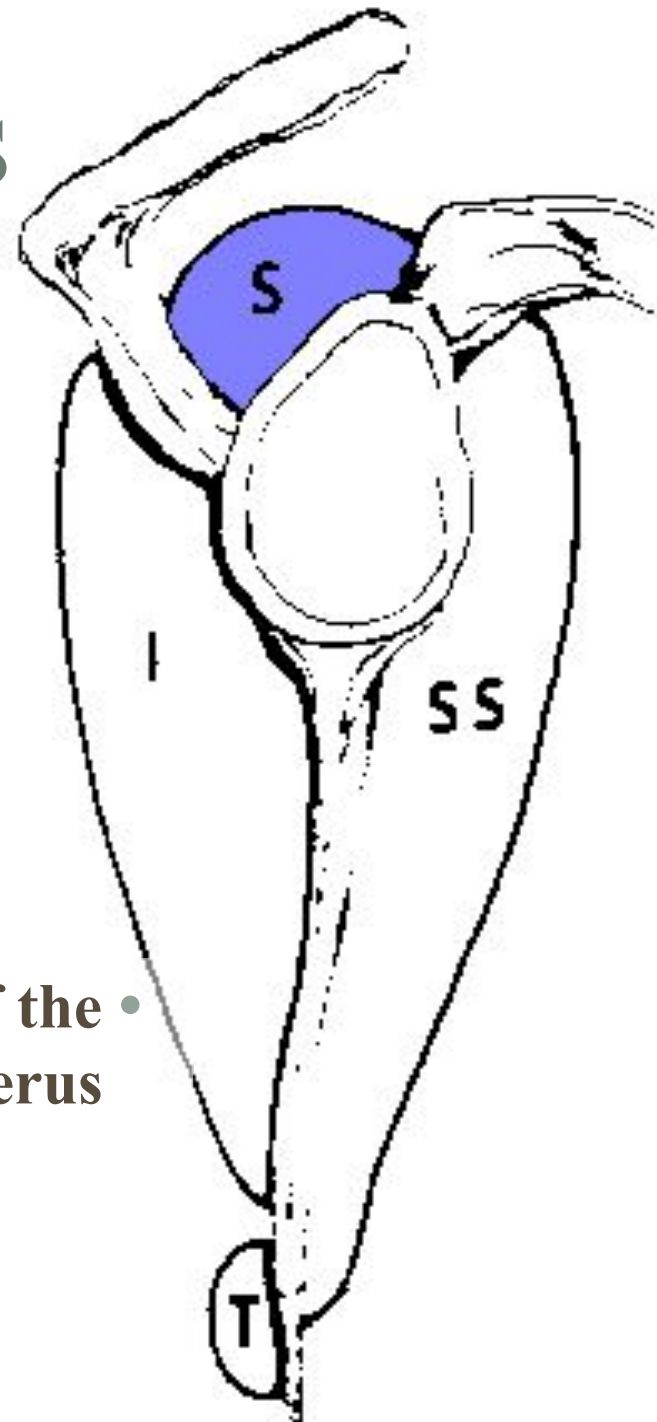
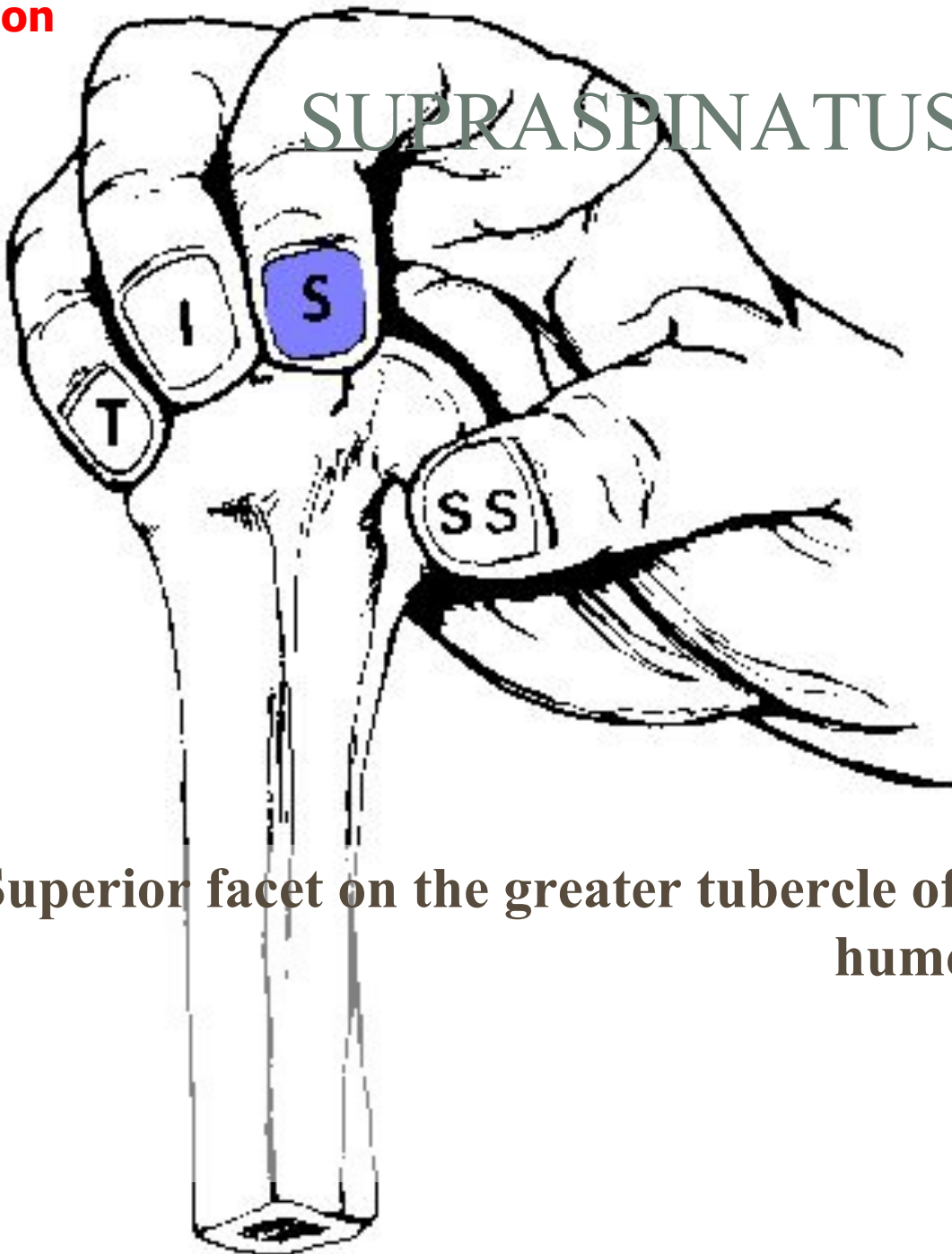
Subacromial bursa

its tendon passes beneath the •
coraco-acromial ligament
separated from it by the
subacromial bursa superior to
the shoulder joint



Insertion

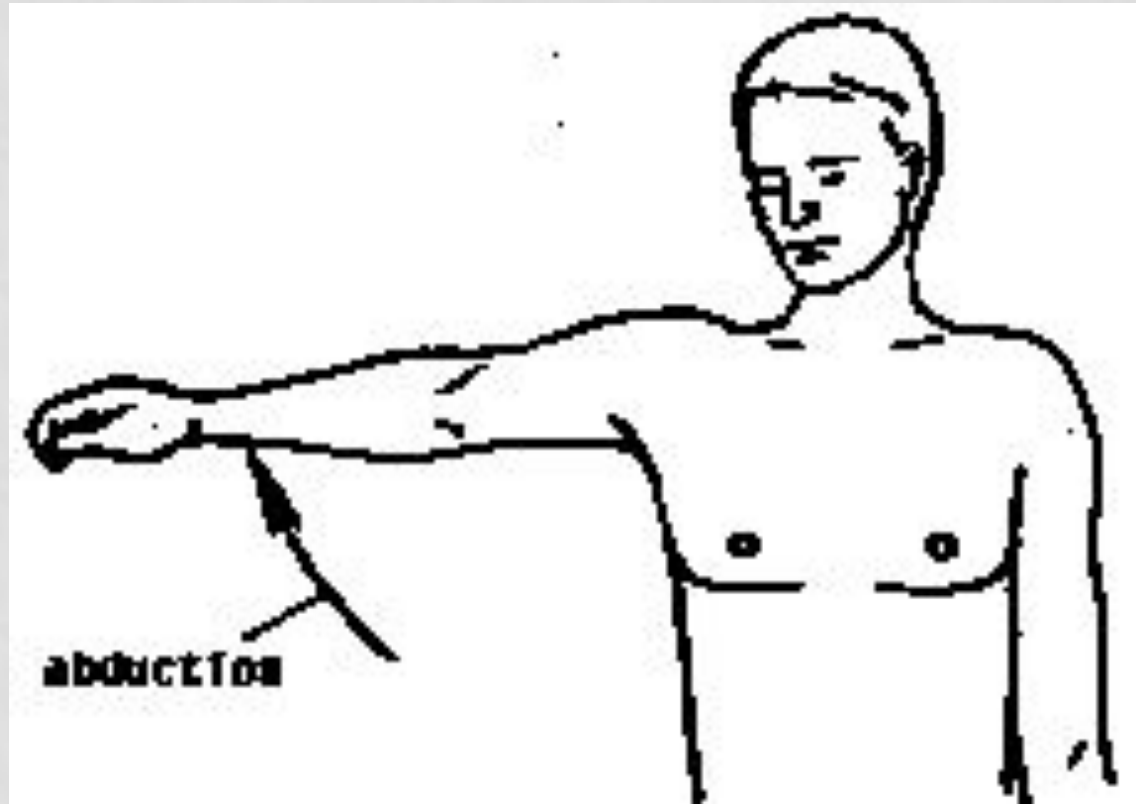
SUPRASPINATUS



Superior facet on the greater tubercle of the •
humerus

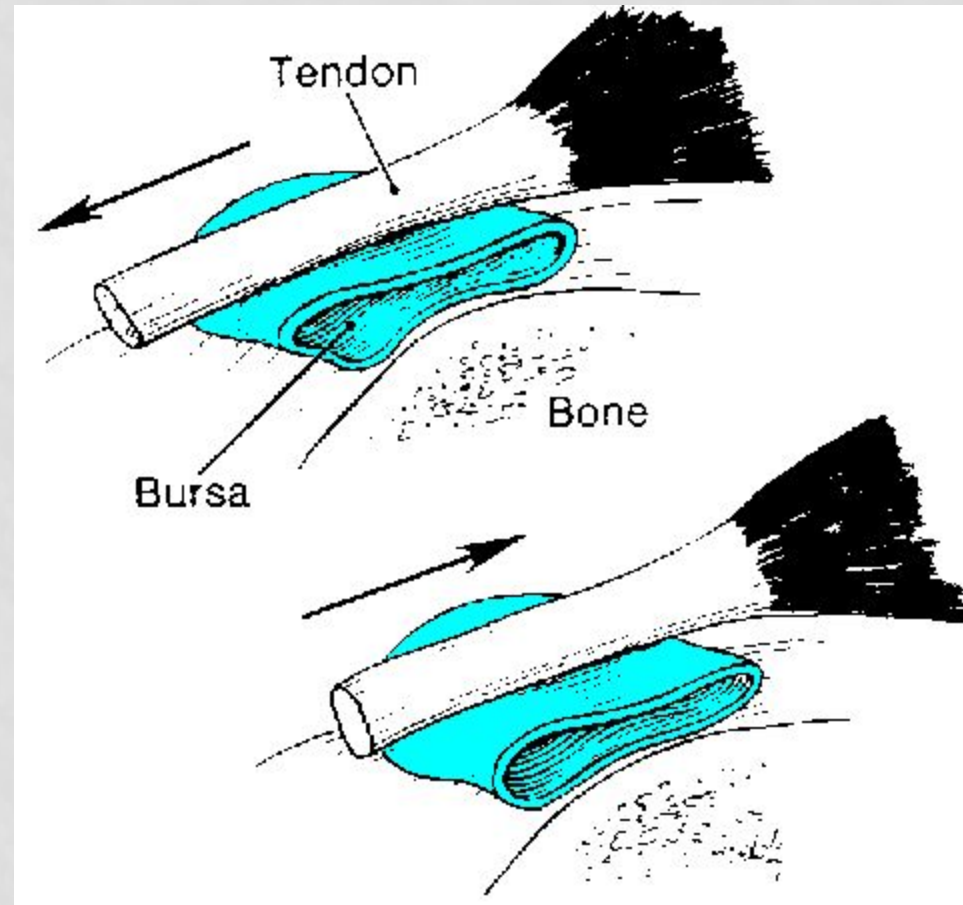
SUPRASPINATUS

An obvious abductor •



FUNCTION OF A BURSA

a bursa is a flattened sac •
containing a film of
synovial fluid, it is
usually present where
tendons rub against bones
or ligaments; here
supraspinatus tendon
against coraco-acromial
[ligament

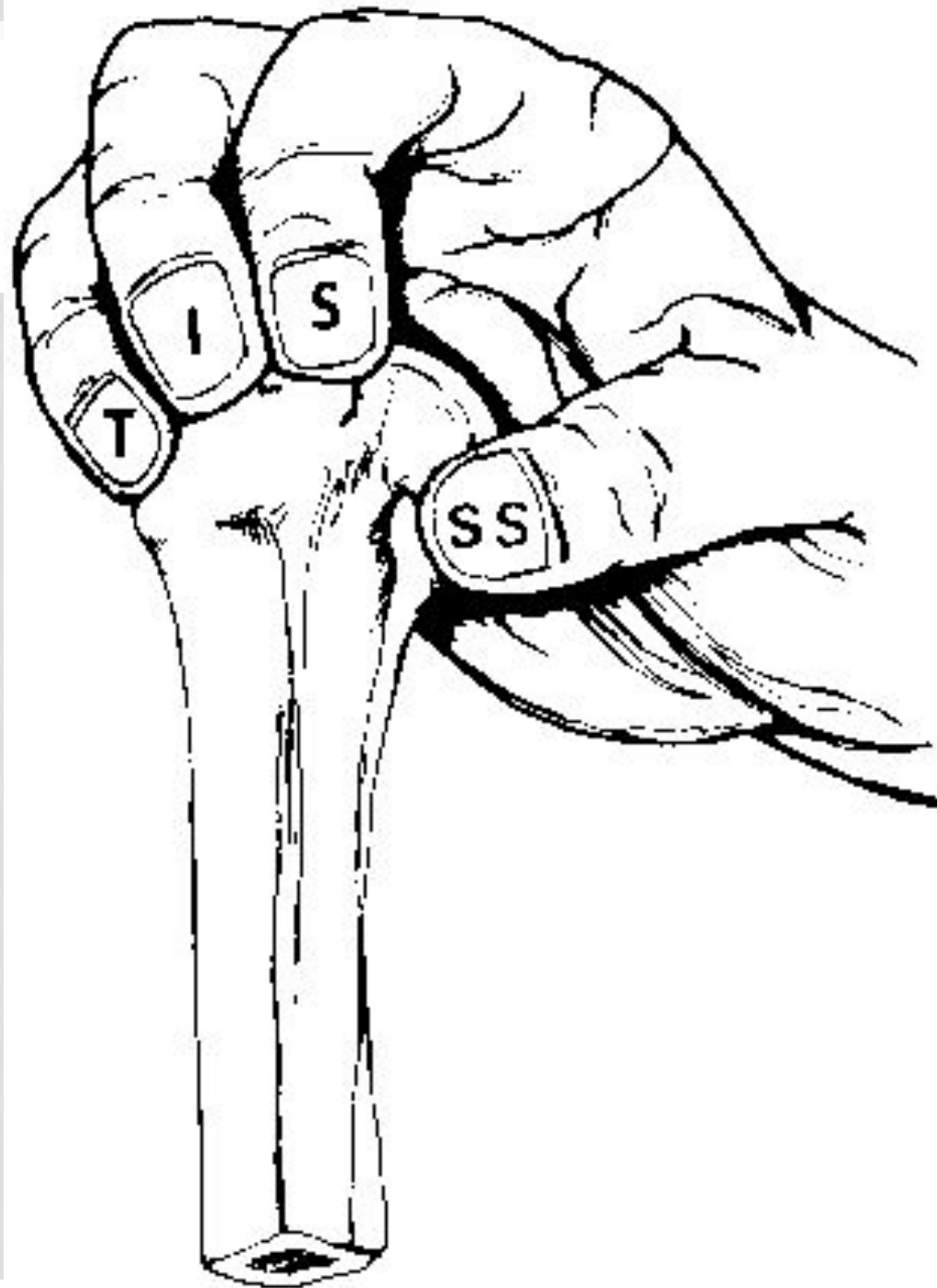


The greater tubercle of the humerus carries 3 smooth facets: superior, middle, and inferior

The superior one is for the attachment of supraspinatus

The middle for infraspinatus

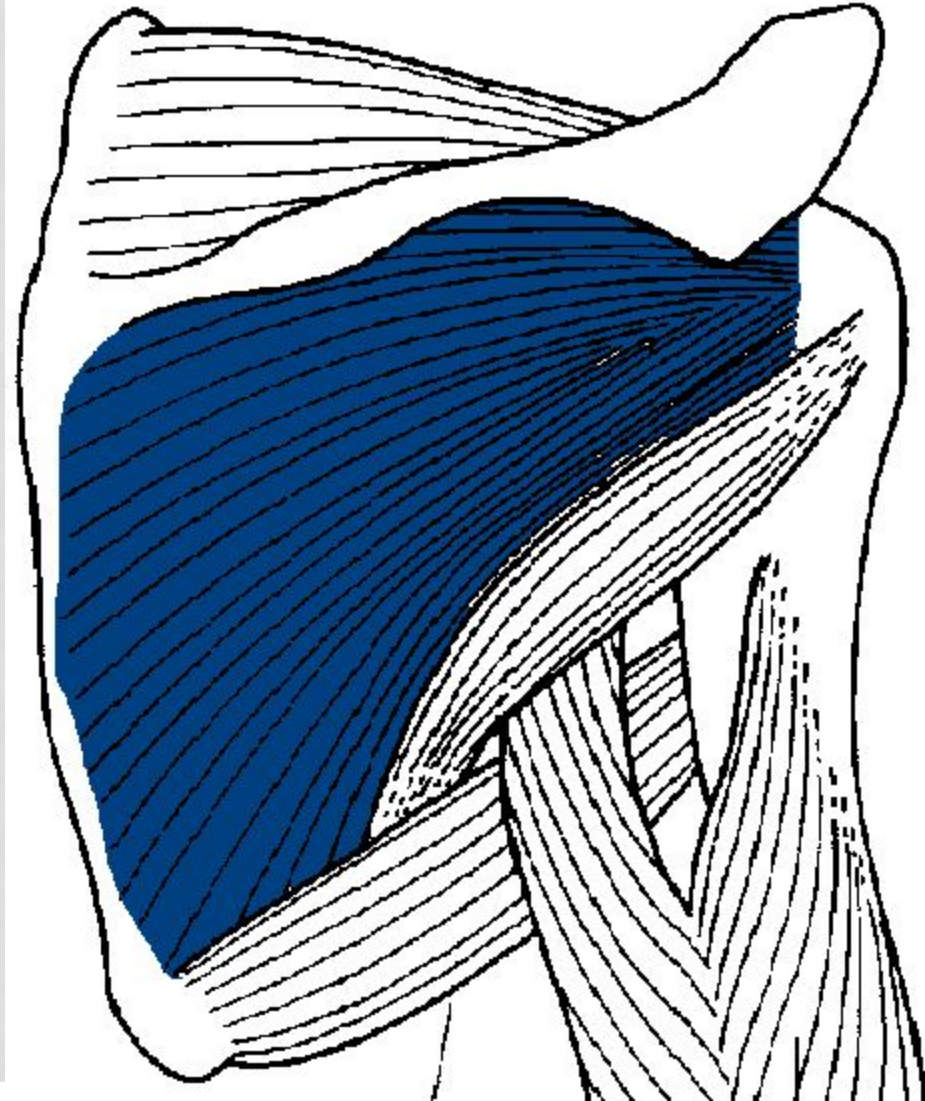
The inferior for teres minor muscle



Origin

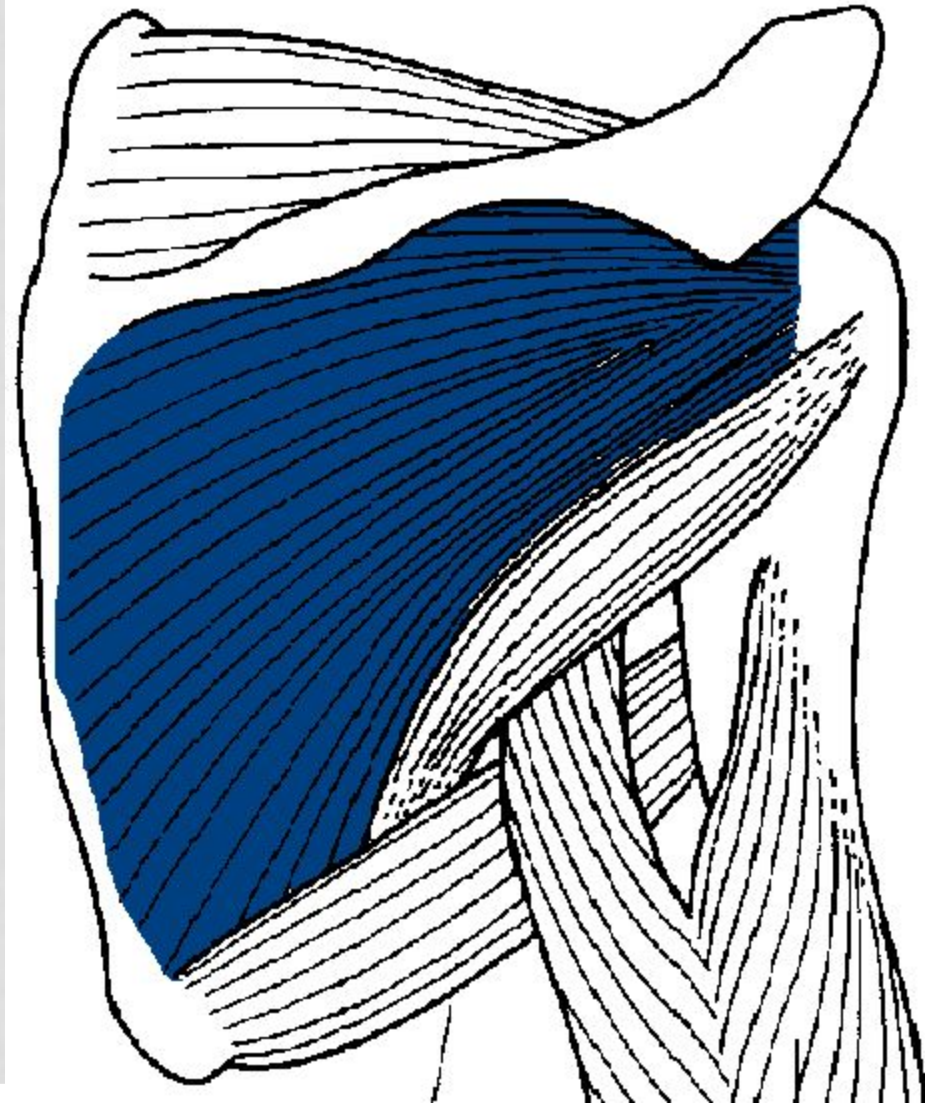
INFRASPINATUS

Infraspinous fossa •



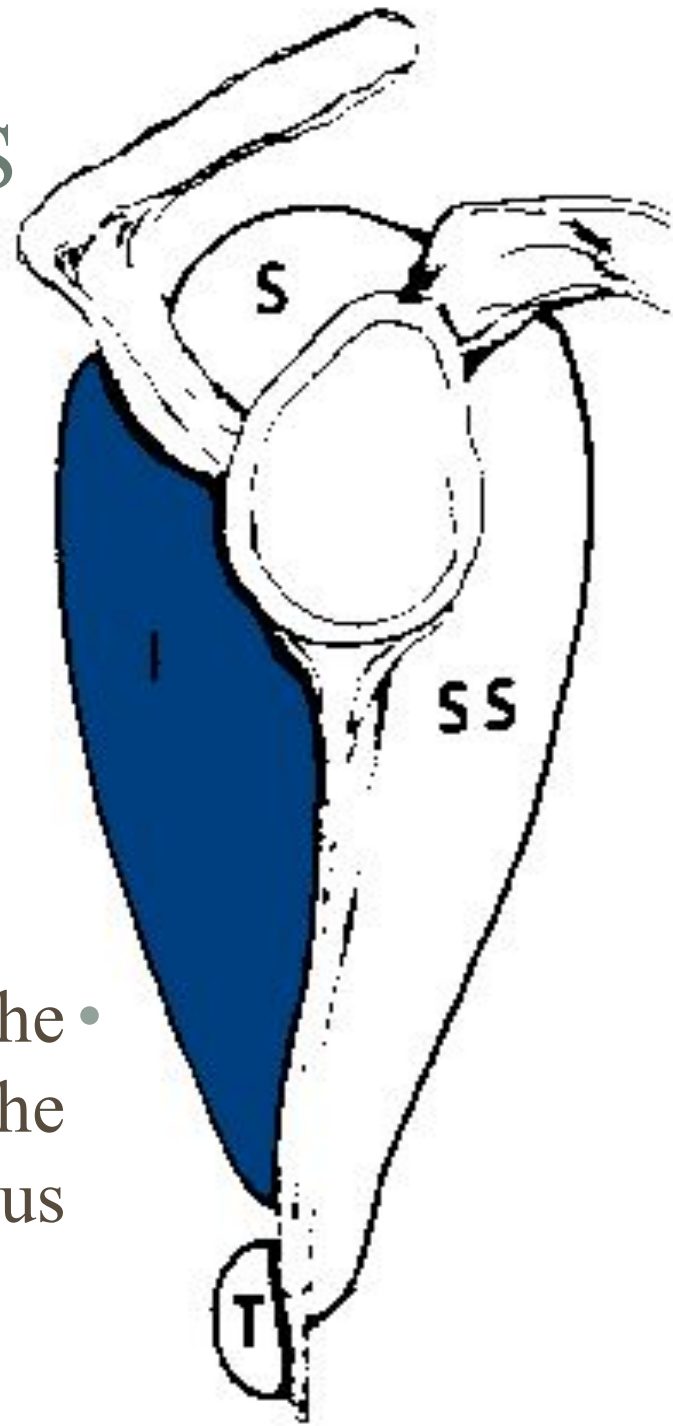
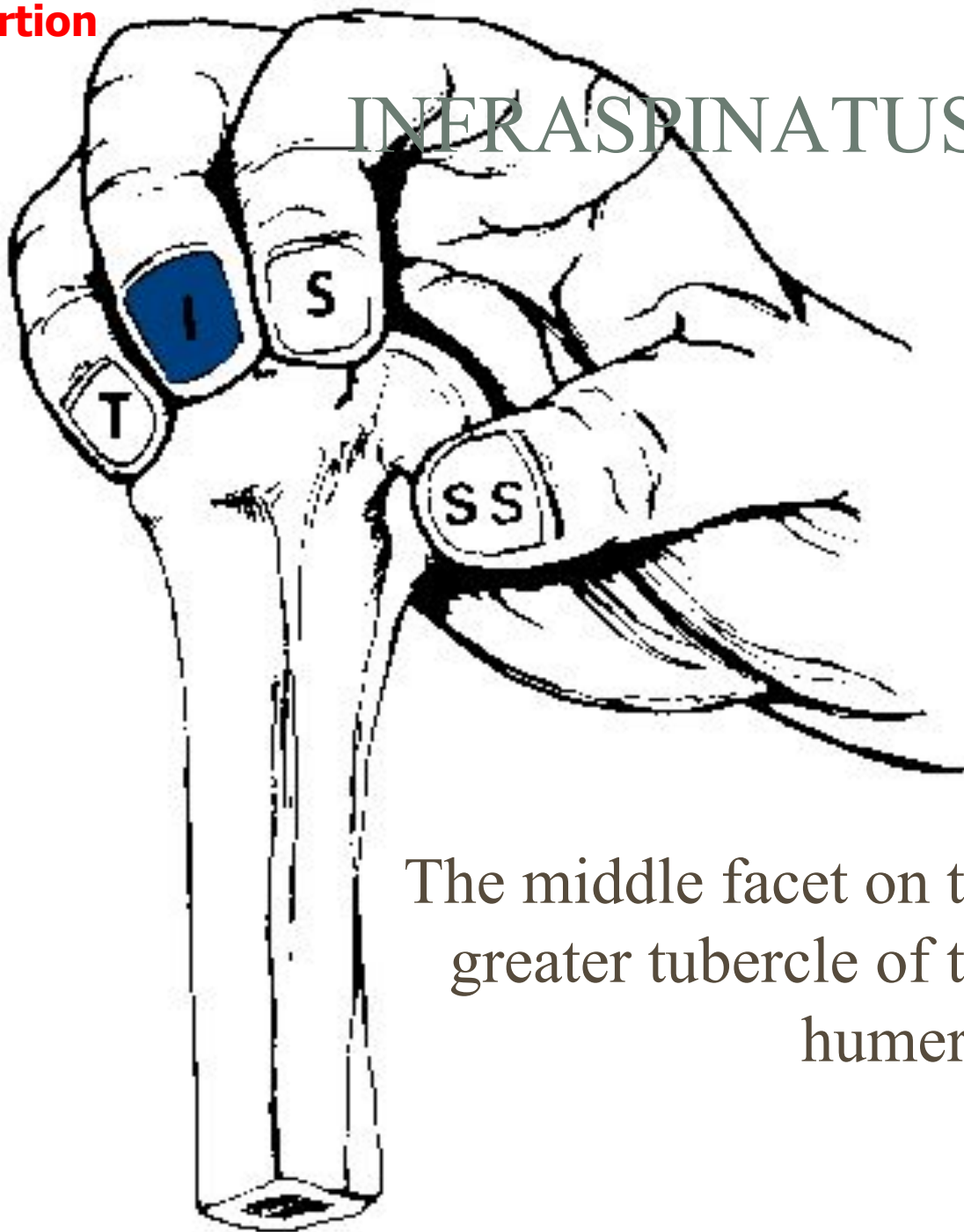
INFRASPINATUS

Its tendon passes •
behind the shoulder
joint to be attached
to the humerus



Insertion

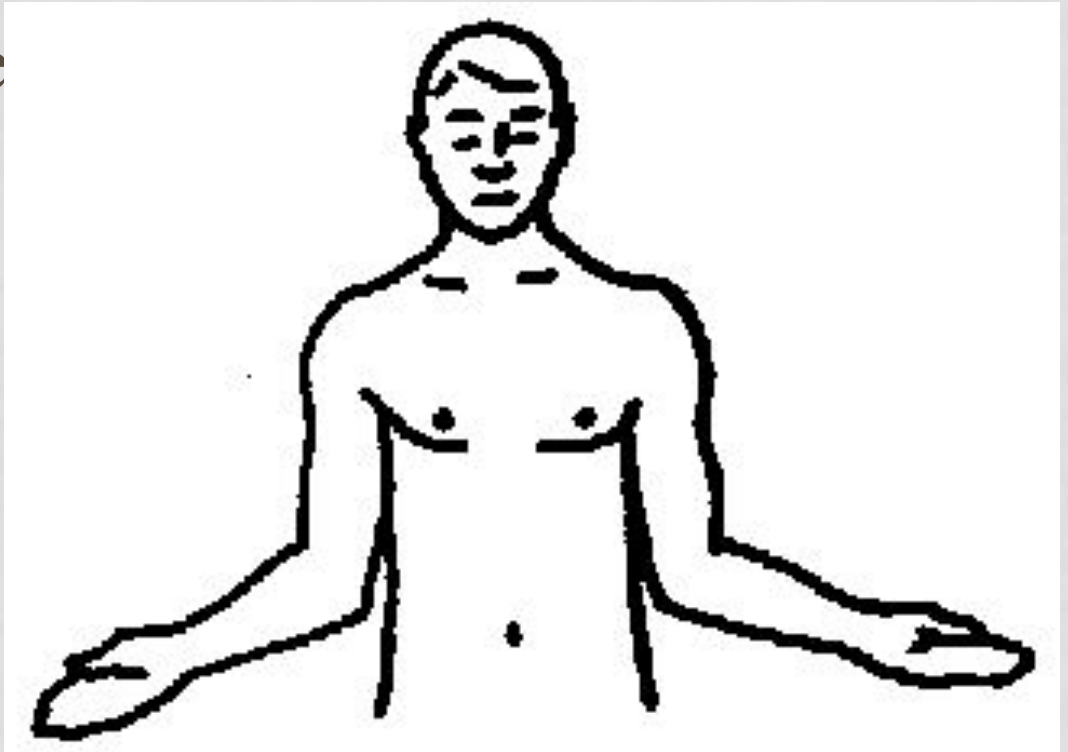
INFRASPINATUS



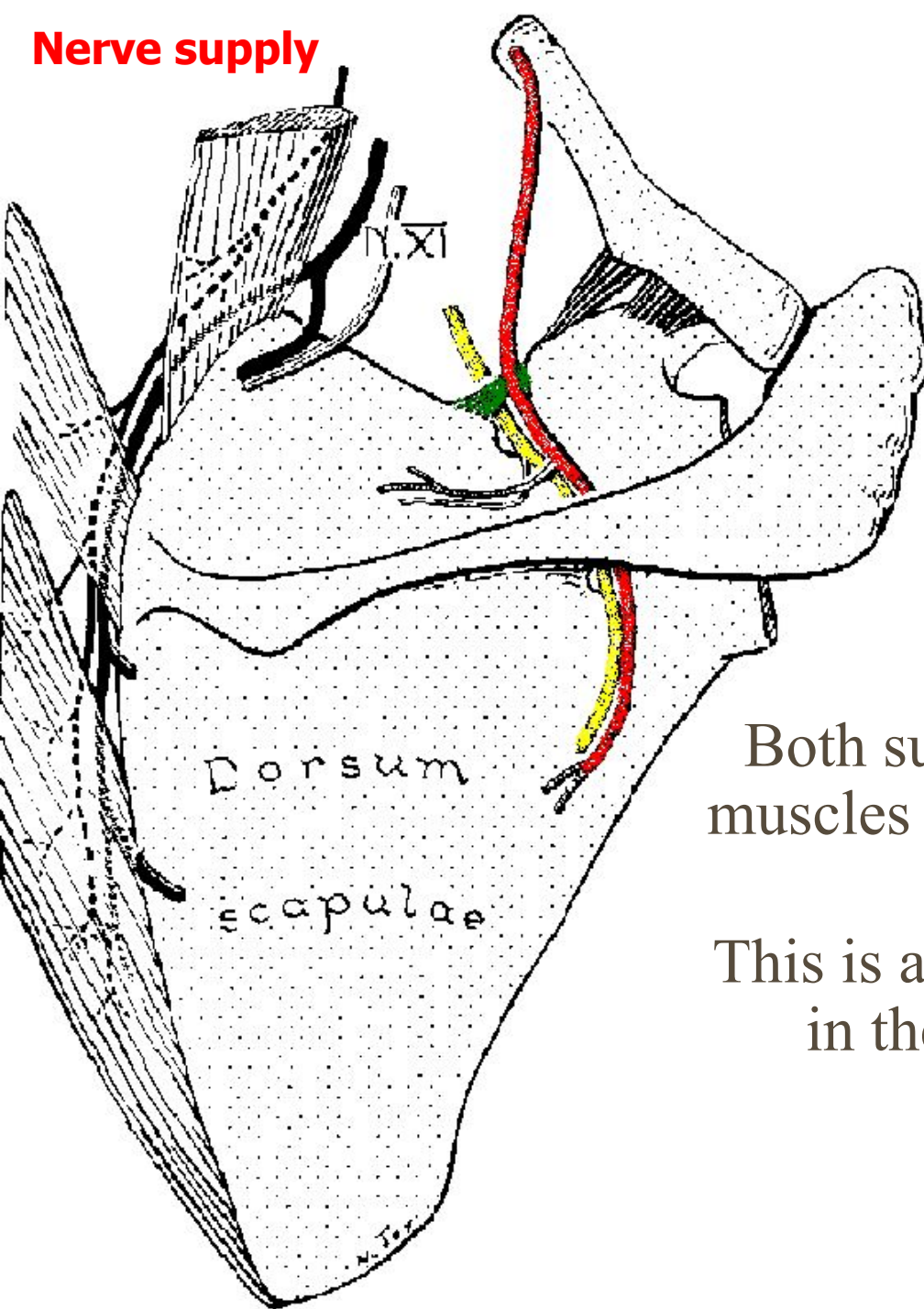
The middle facet on the •
greater tubercle of the
humerus

INFRASPINATUS

An obvious lateral •
rotator of the hume



Nerve supply

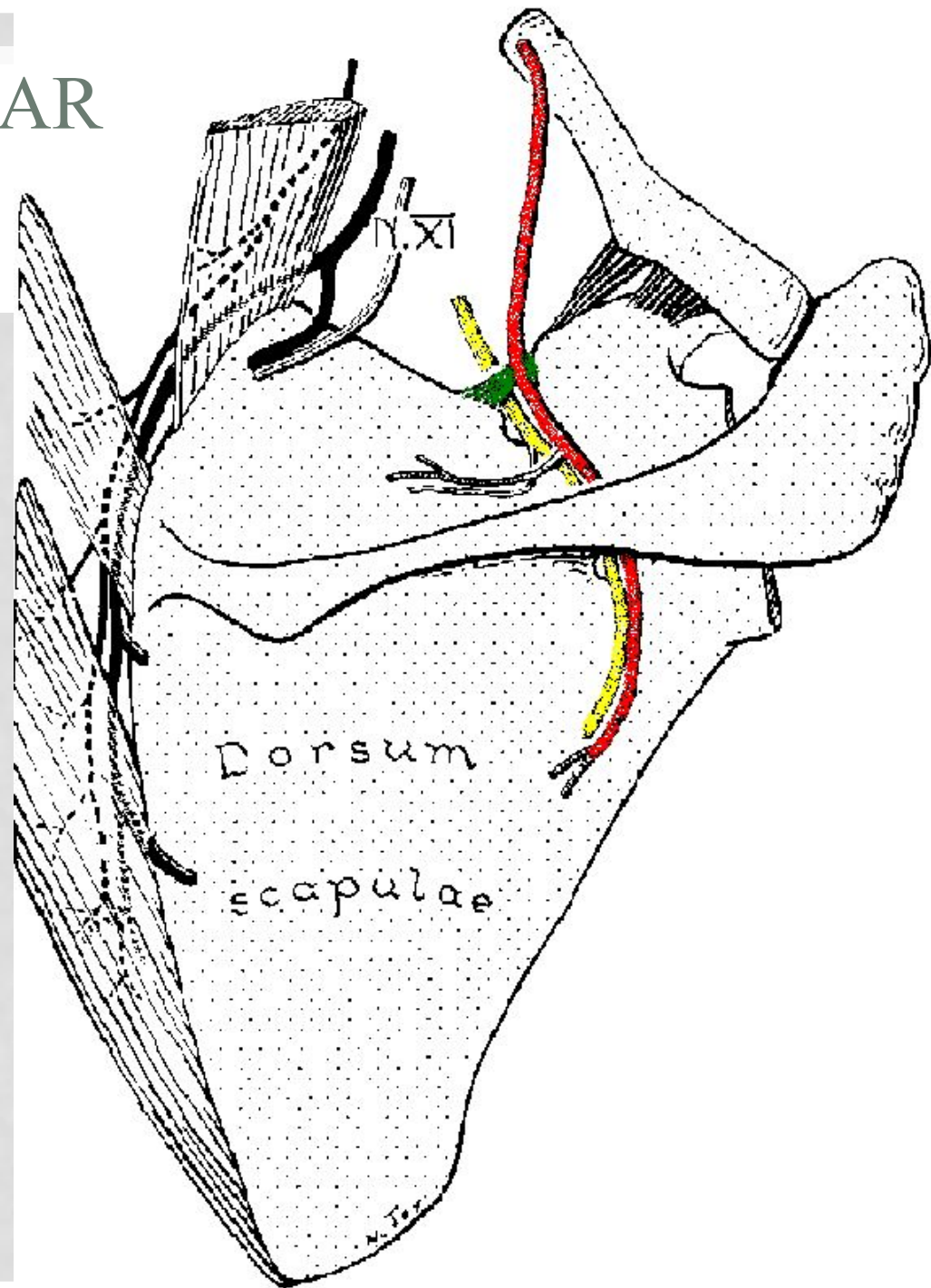


SUPRASCAPULAR NERVE

- Both supraspinatus and infraspinatus muscles are supplied by suprascapular nerve
- This is a branch of the brachial plexus in the neck that passes beneath the suprascapular ligament

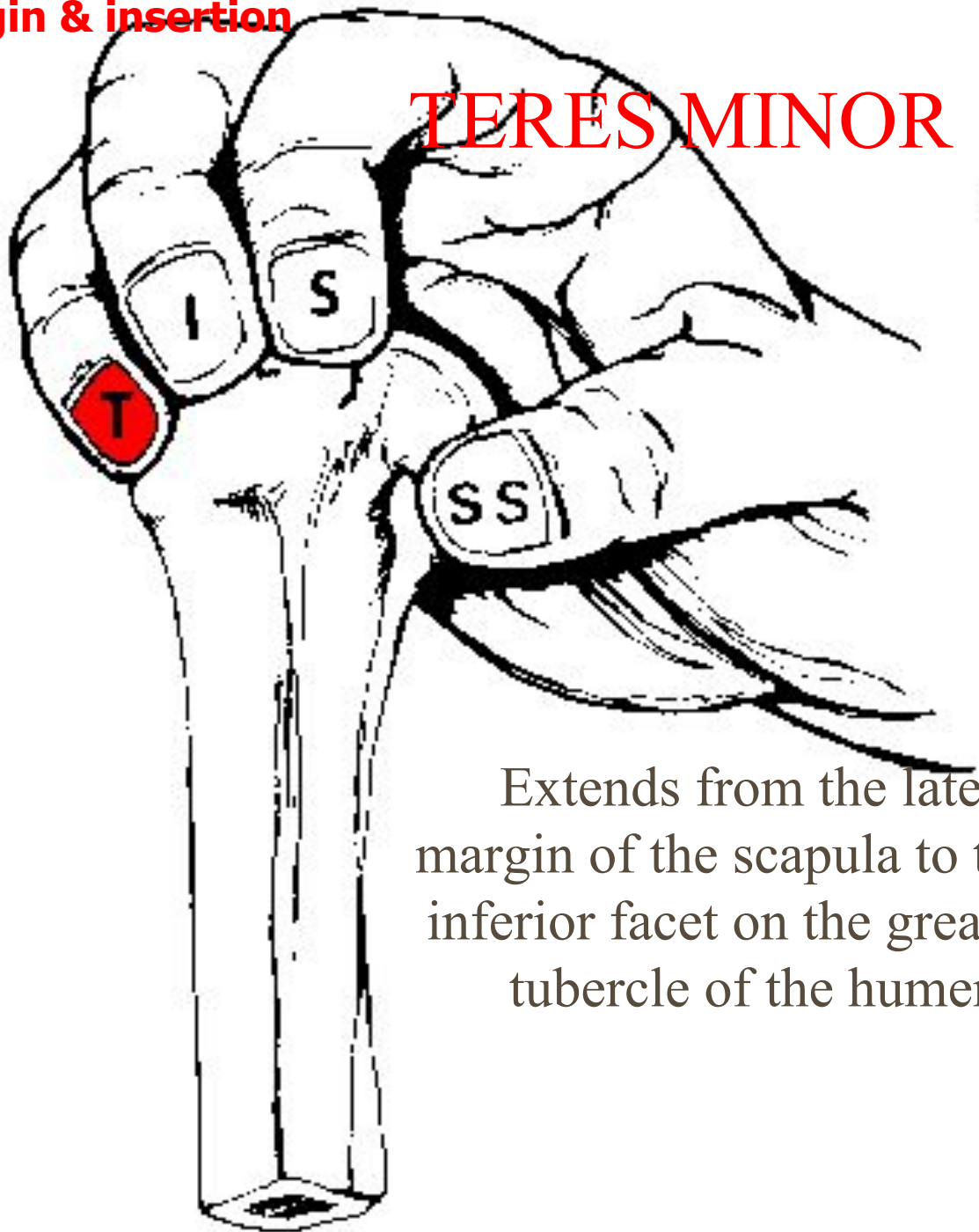
SUPRASCAPULAR VESSELS

the accompanying vessels pass superior ligament into the supraspinous fossa then passes through spino-glenoid notch to supply infraspinatus

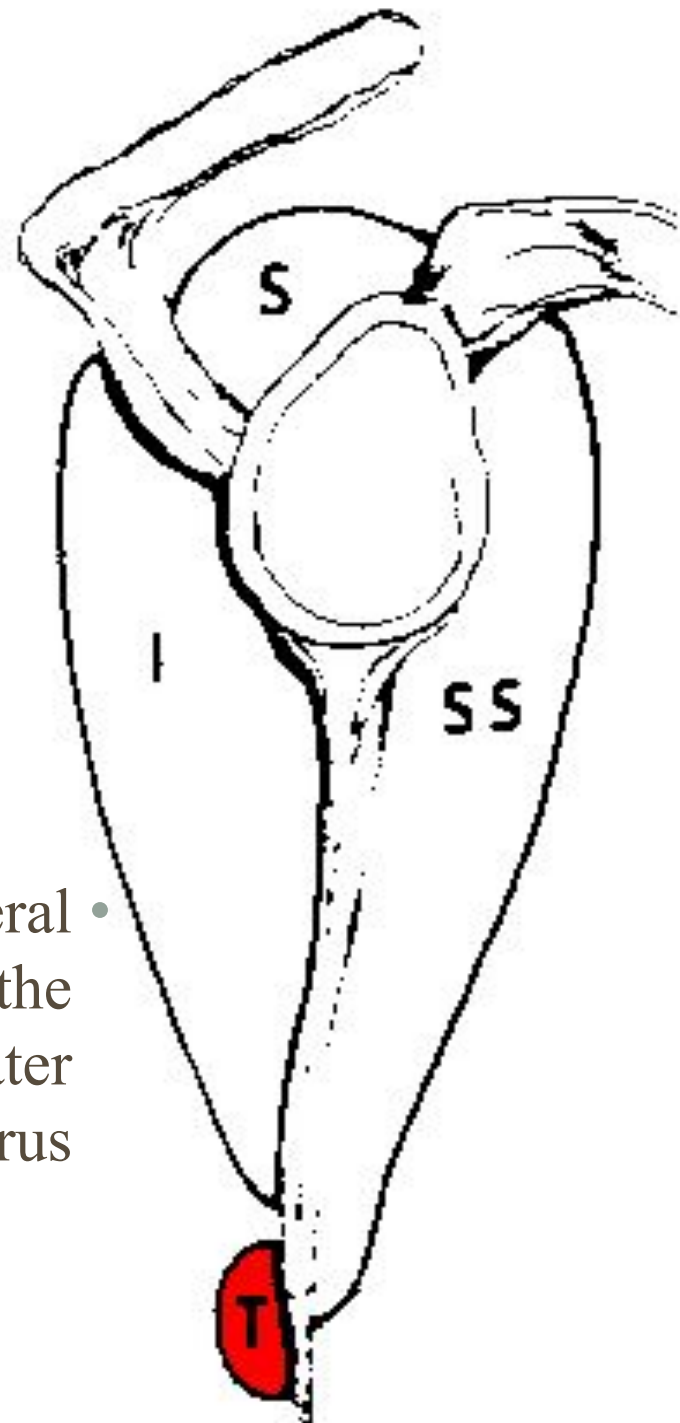


Origin & insertion

TERES MINOR

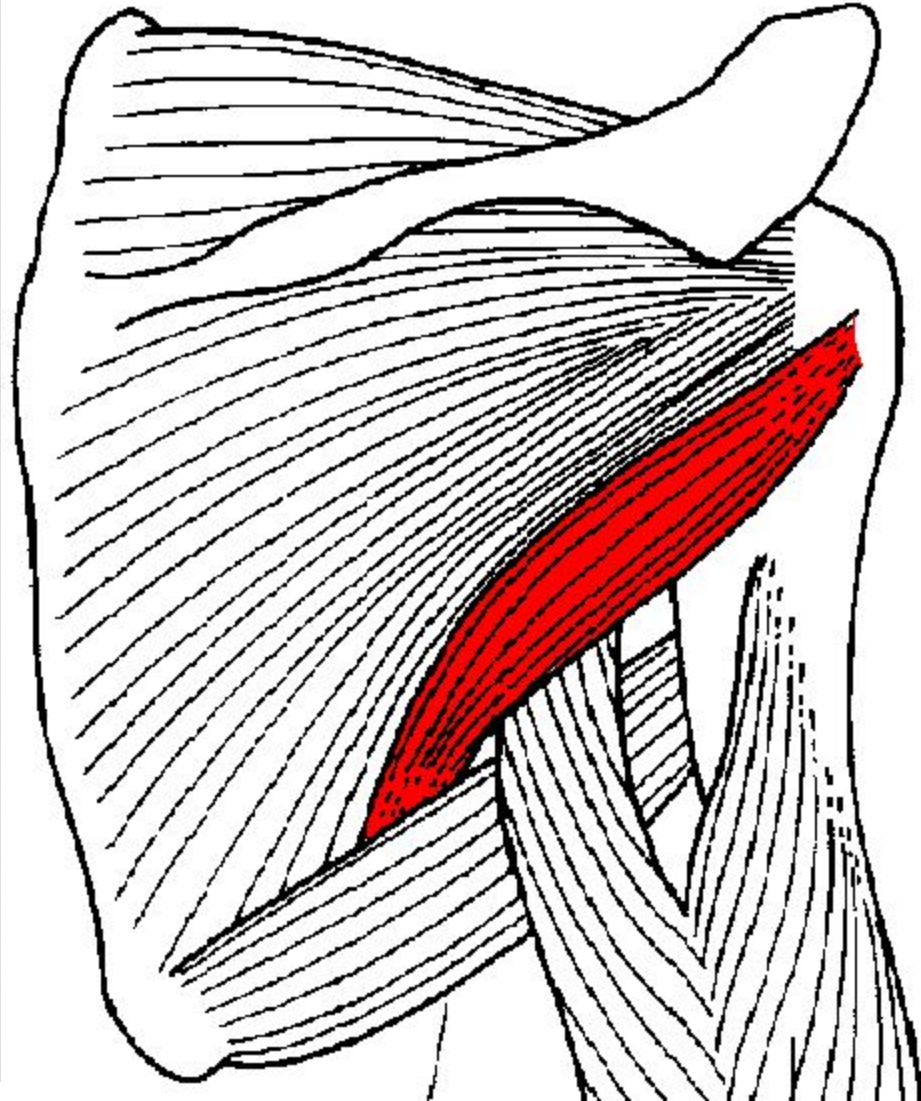
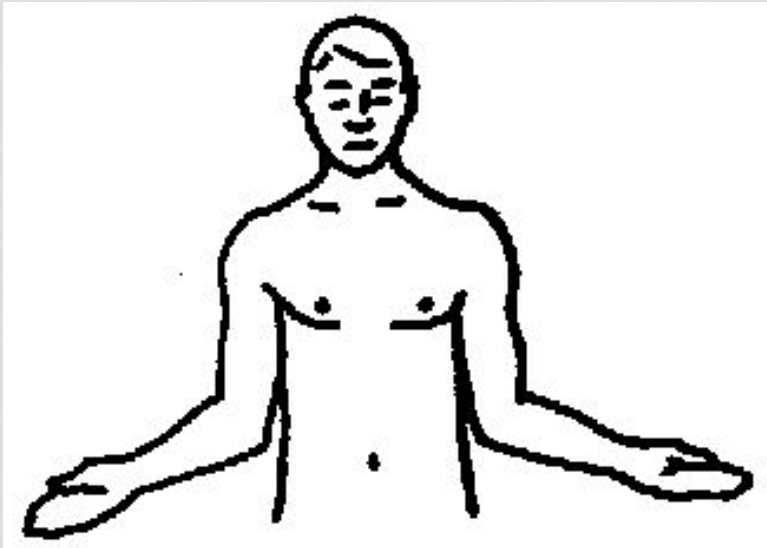


Extends from the lateral •
margin of the scapula to the
inferior facet on the greater
tubercle of the humerus



TERES MINOR

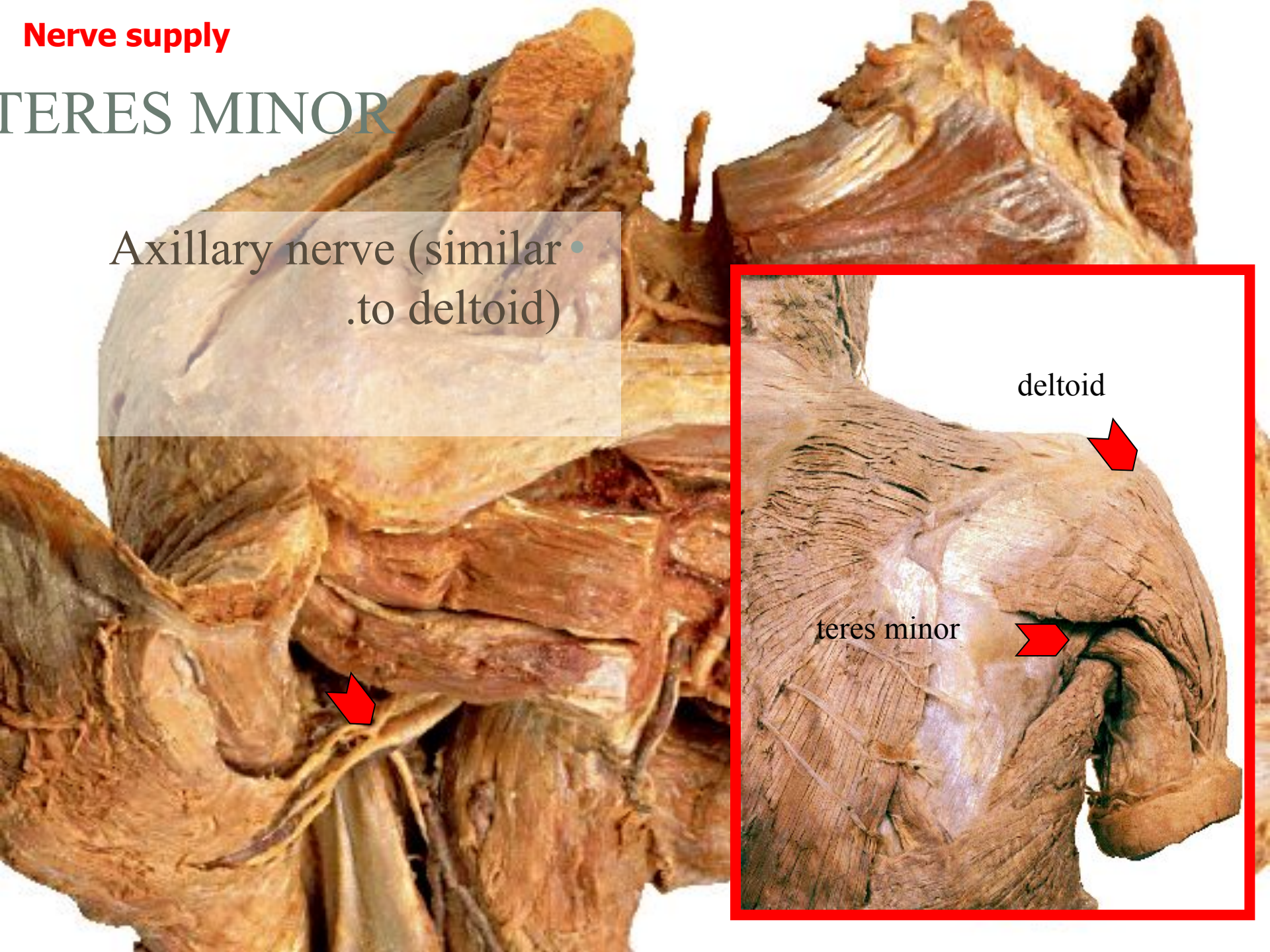
It is thus a lateral rotator •



Nerve supply

TERES MINOR

Axillary nerve (similar •
to deltoid)

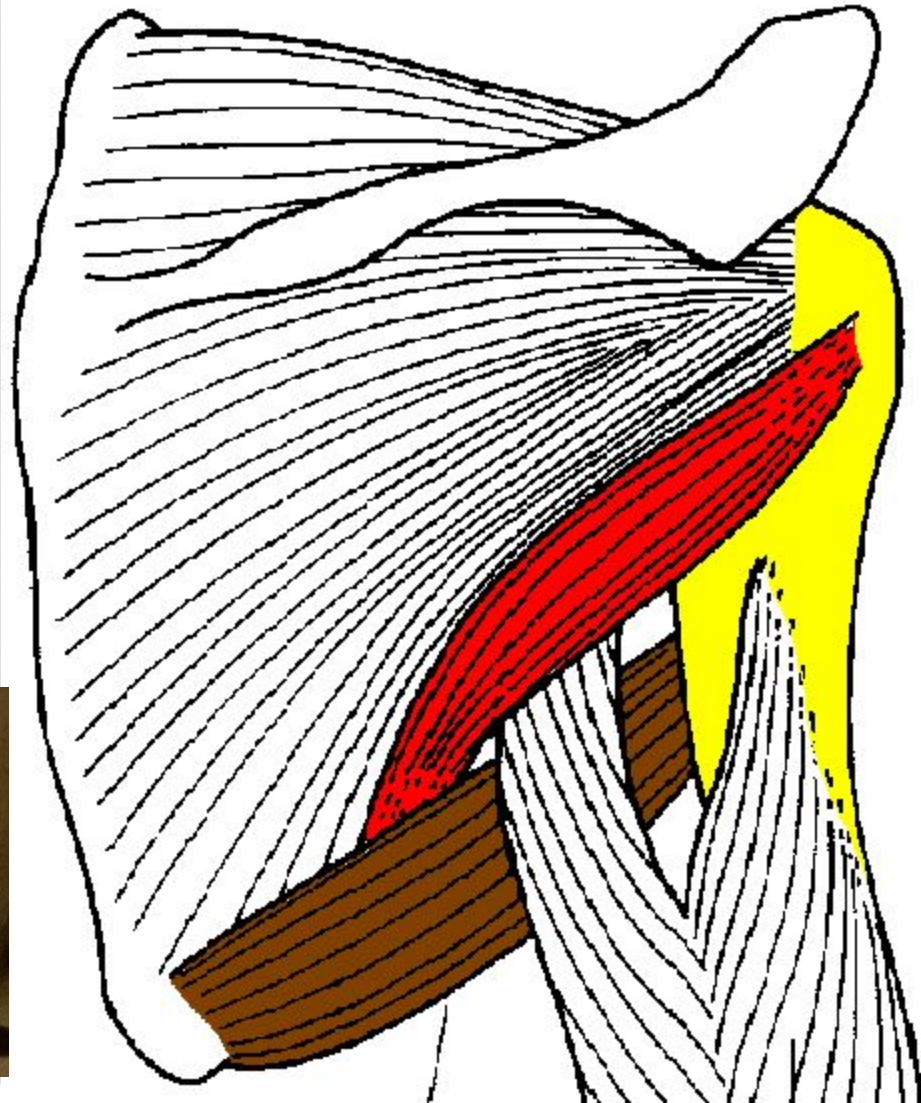


deltoid

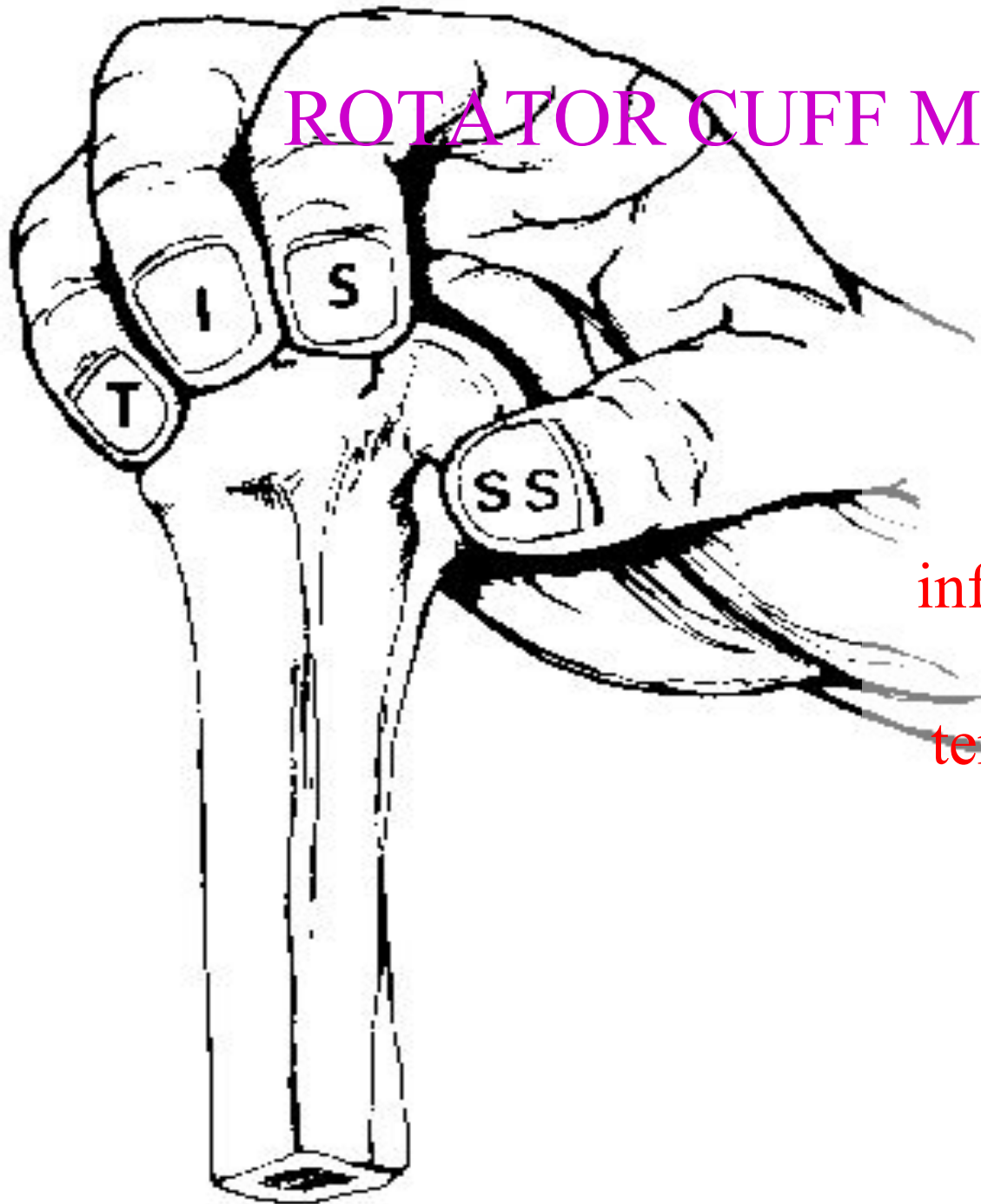
teres minor

TERES MAJOR & MINOR

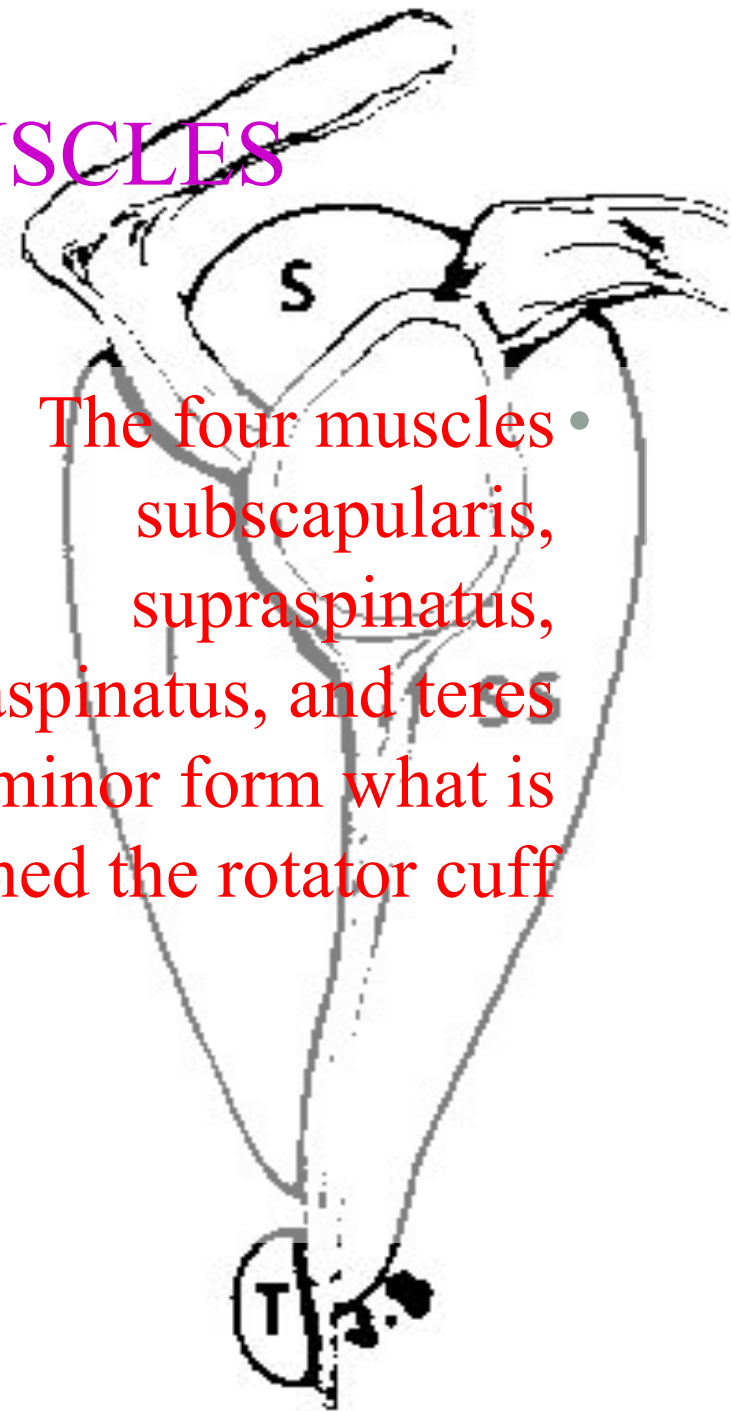
Note that teres major • passes to the front of the humerus but teres minor to the back, so that the humerus is like a cigarette held between two fingers



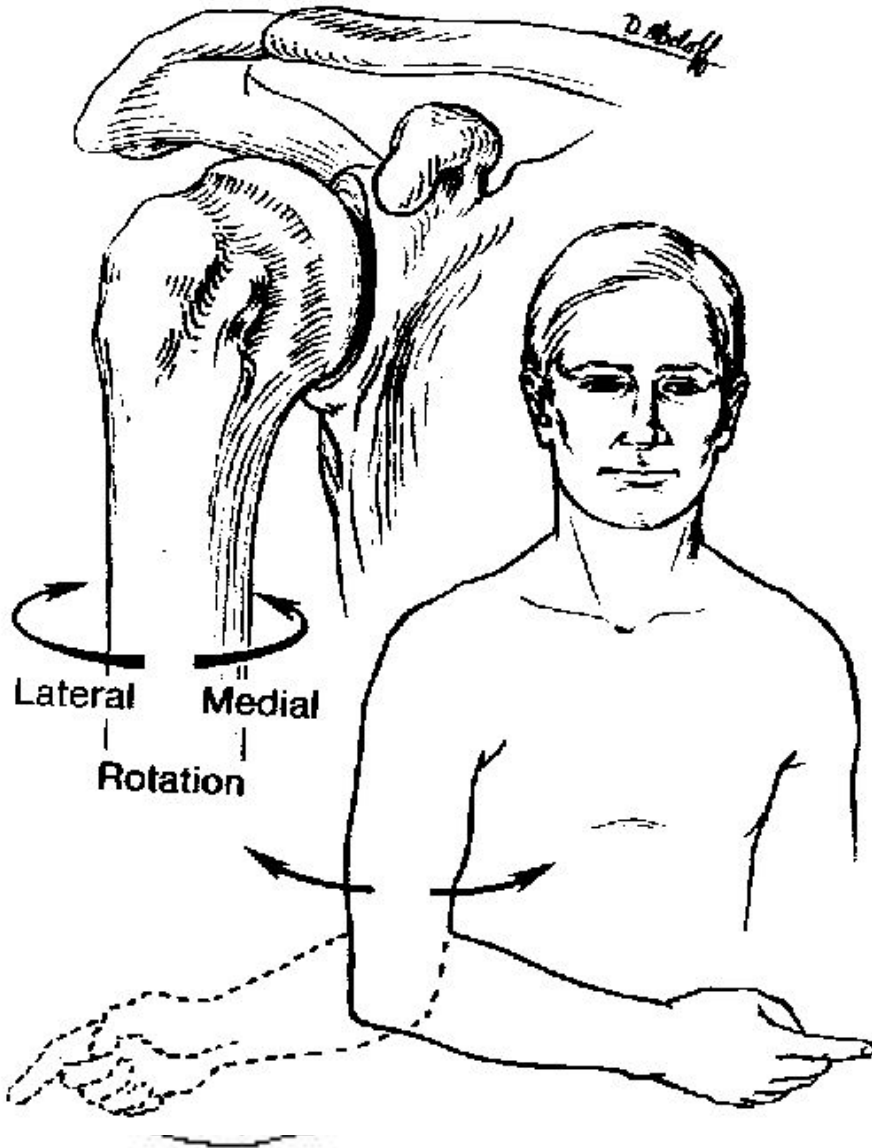
ROTATOR CUFF MUSCLES



The four muscles •
subscapularis,
supraspinatus,
infraspinatus, and teres
minor form what is
termed the rotator cuff

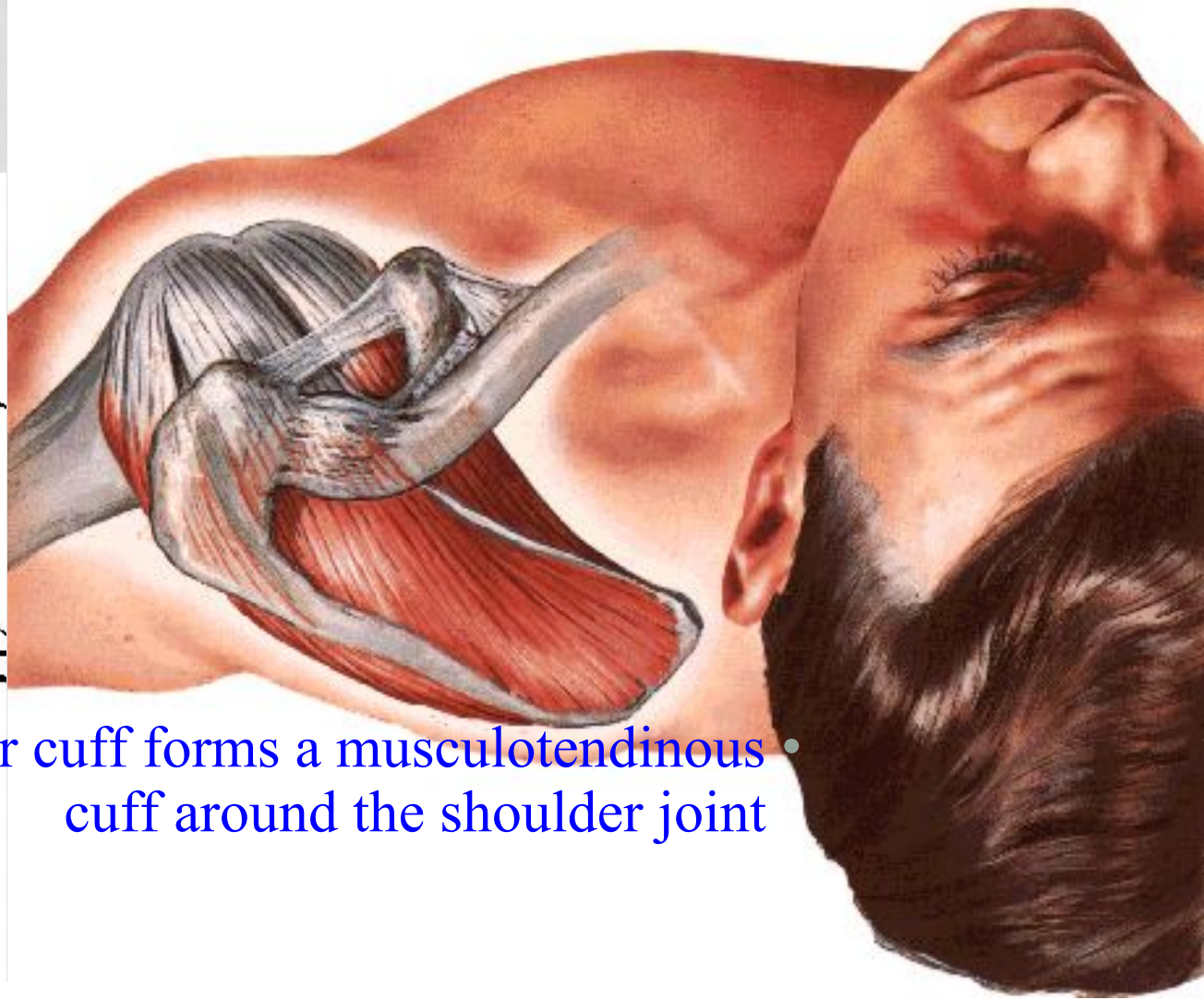
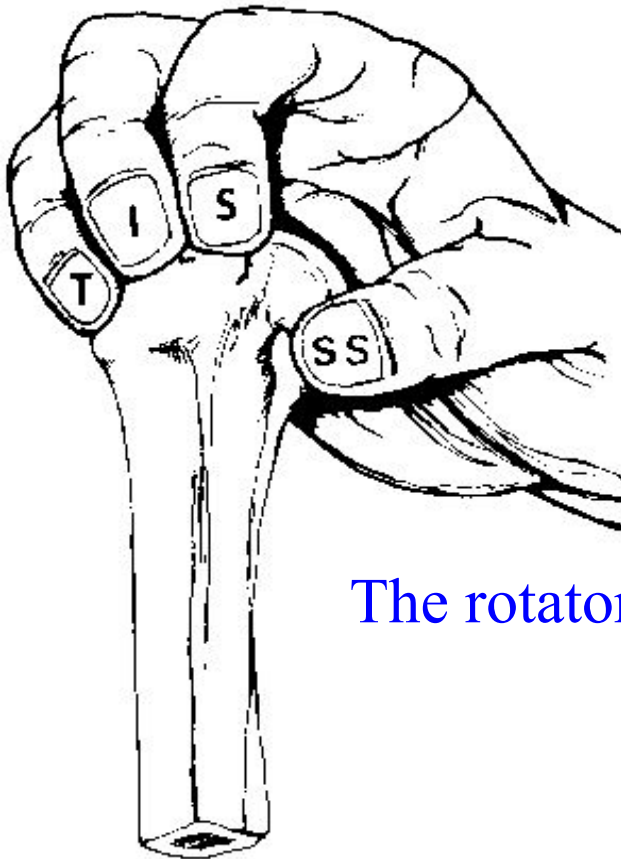


ROTATOR CUFF ACTION



- The rotator cuff except supraspinatus are rotators of the humerus

ROTATOR CUFF ACTION



The rotator cuff forms a musculotendinous cuff around the shoulder joint

ROTATOR CUFF ACTION

The tone of these muscles is •
very important in holding
the head of the humerus into
the glenoid fossa of the
scapula

So they are important in **the** •
stability of the
.shoulder joint



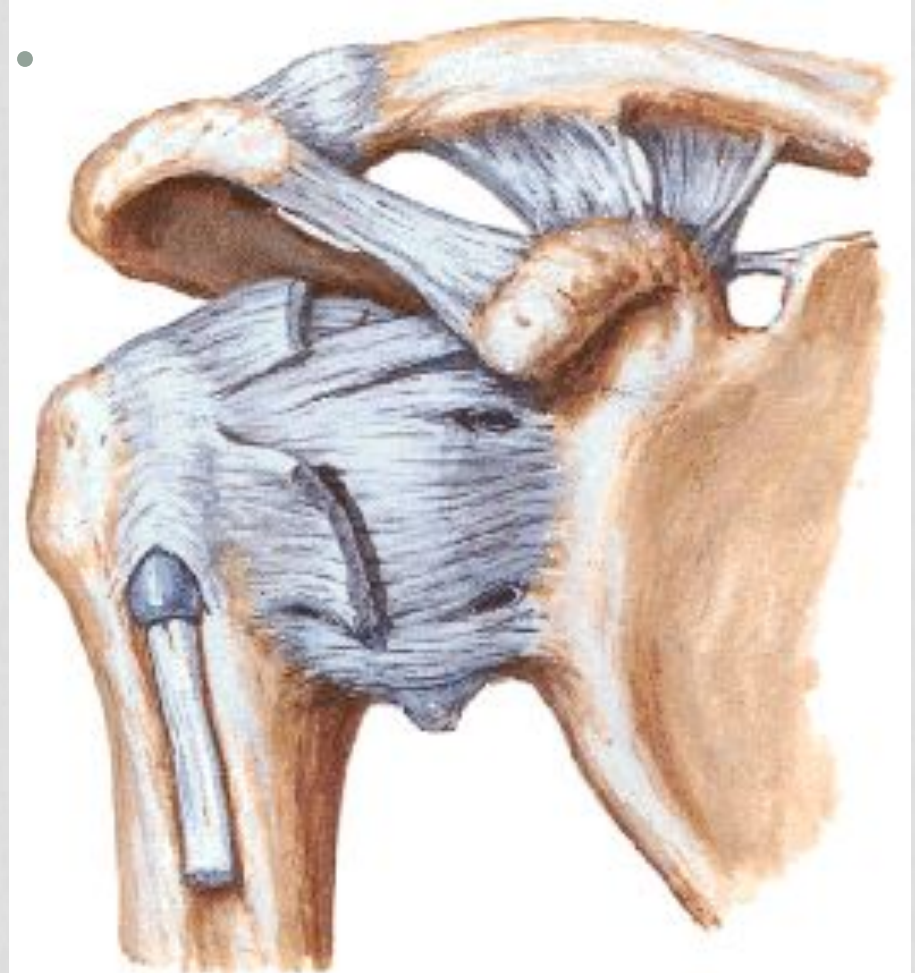
ROTATOR CUFF ACTION

- **Stability of the shoulder joint** is the function that you should never forget
- The other functions of **rotation** are probably less important and can be performed by other more powerful muscles



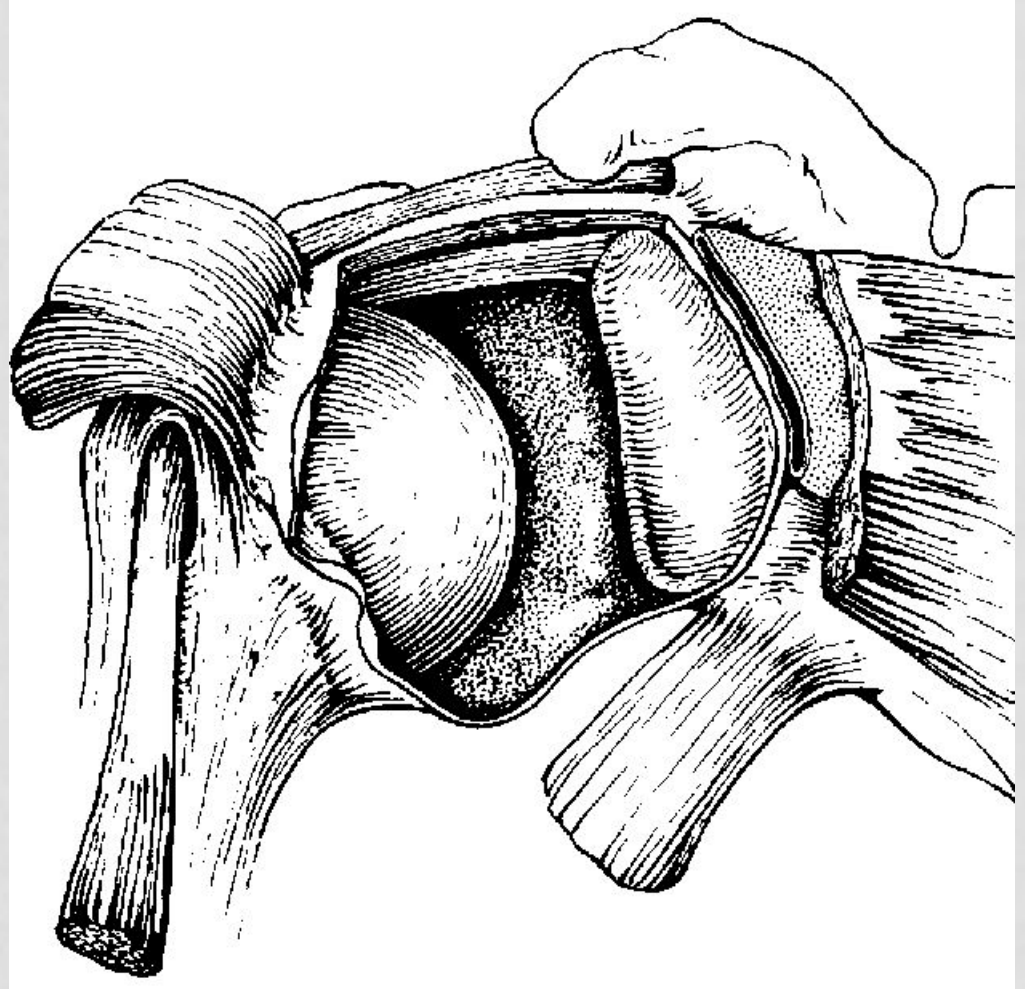
ROTATOR CUFF ACTION

The tendons of the muscles • of the rotator cuff are not only attached very to those to the shoulder joint but they fuse with the lateral part of the capsule (thus preventing the lax capsule .from being nipped)



ROTATOR CUFF ACTION

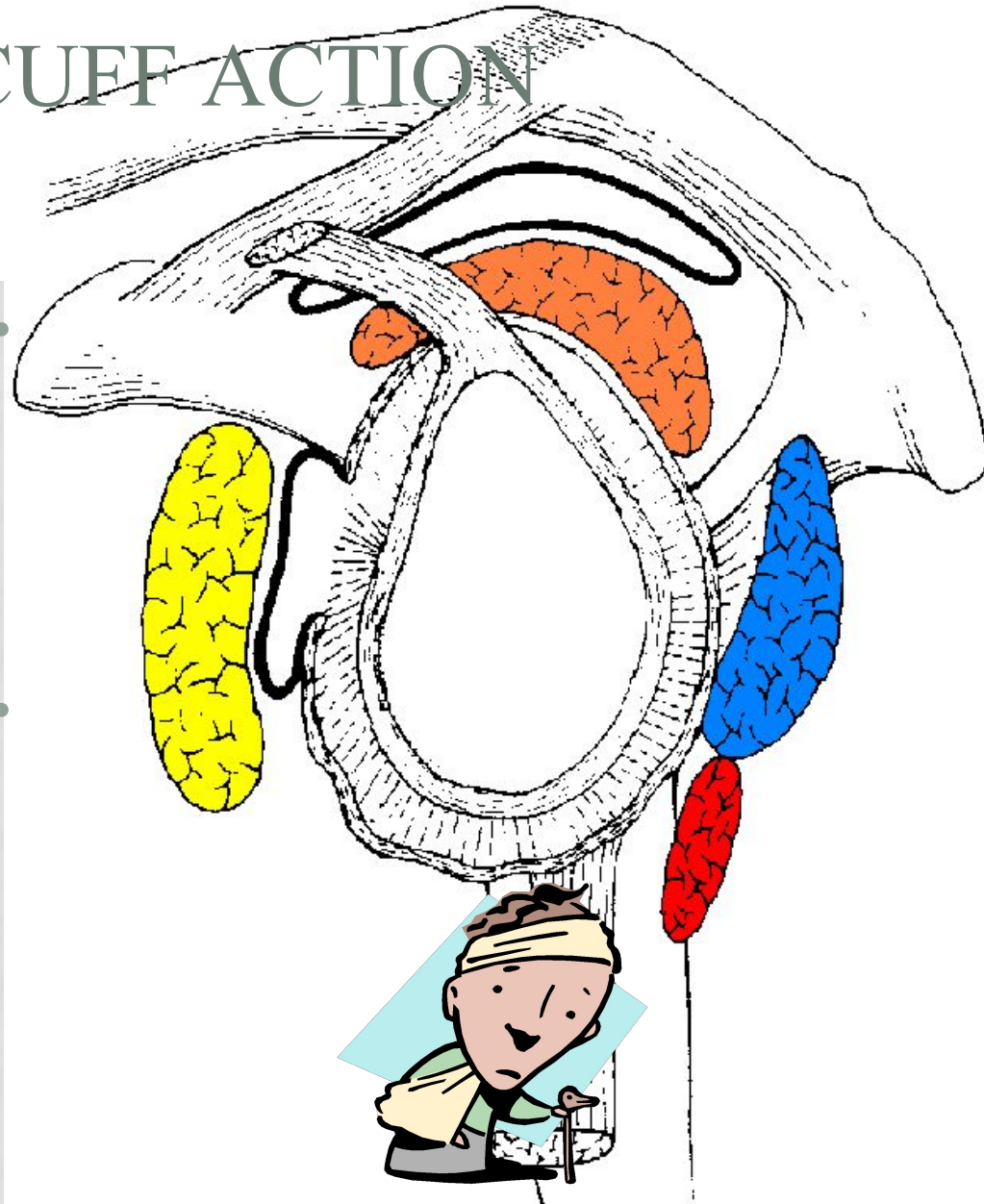
Since there is no •
cuff inferiorly, the
capsule is attached
below the articular
margin to prevent it
from being nipped



ROTATOR CUFF ACTION

Note that the cuff lies on the anterior (subscapularis), superior (supraspinatus), and posterior (infraspinatus and teres minor) aspect of the joint.

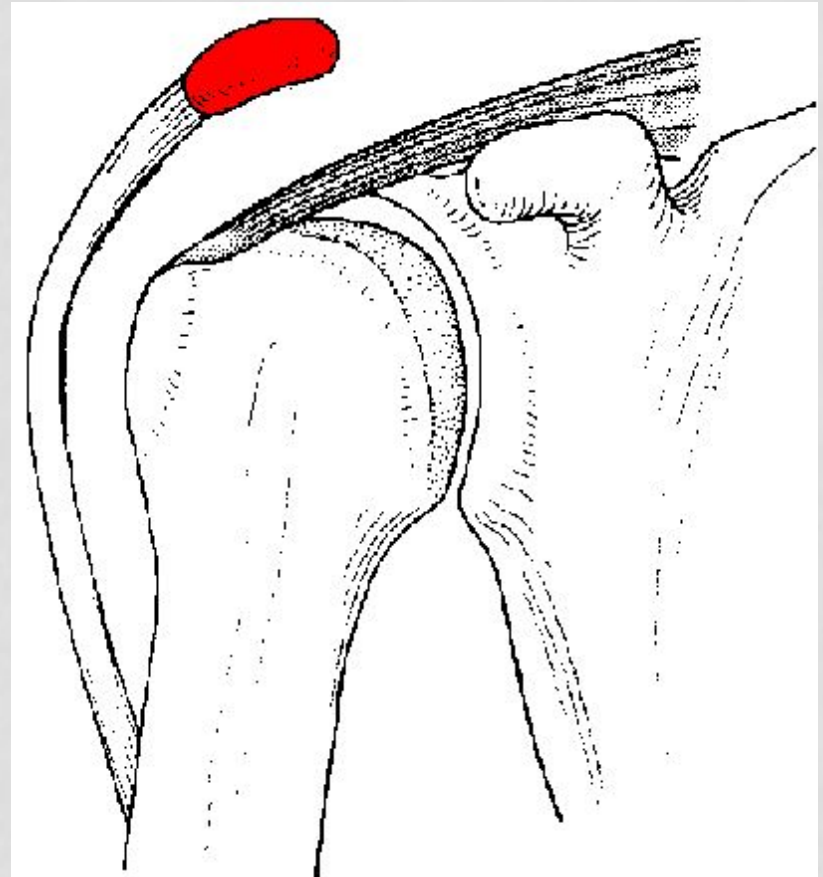
The cuff is deficient inferiorly and this is a site of potential weakness of the shoulder joint which commonly dislocates inferiorly.



SUBACROMIAL BURSA

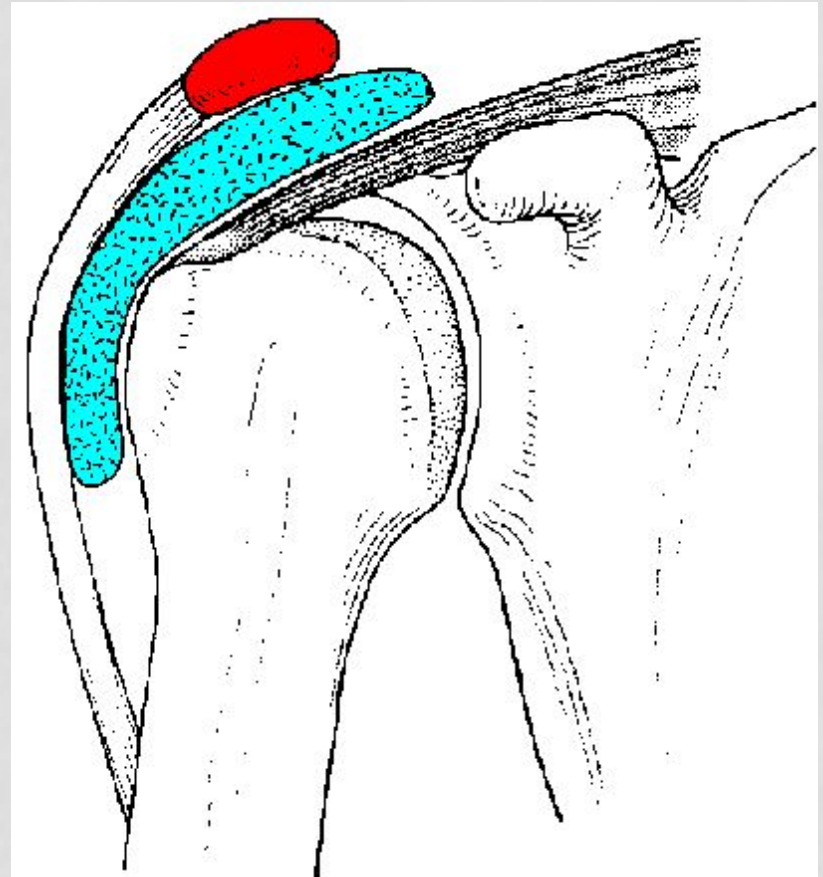
Lesions of the cuff are a •
common cause of pain
.in the shoulder region

During abduction •
supraspinatus tendon is
exposed to friction
against the acromion
.process



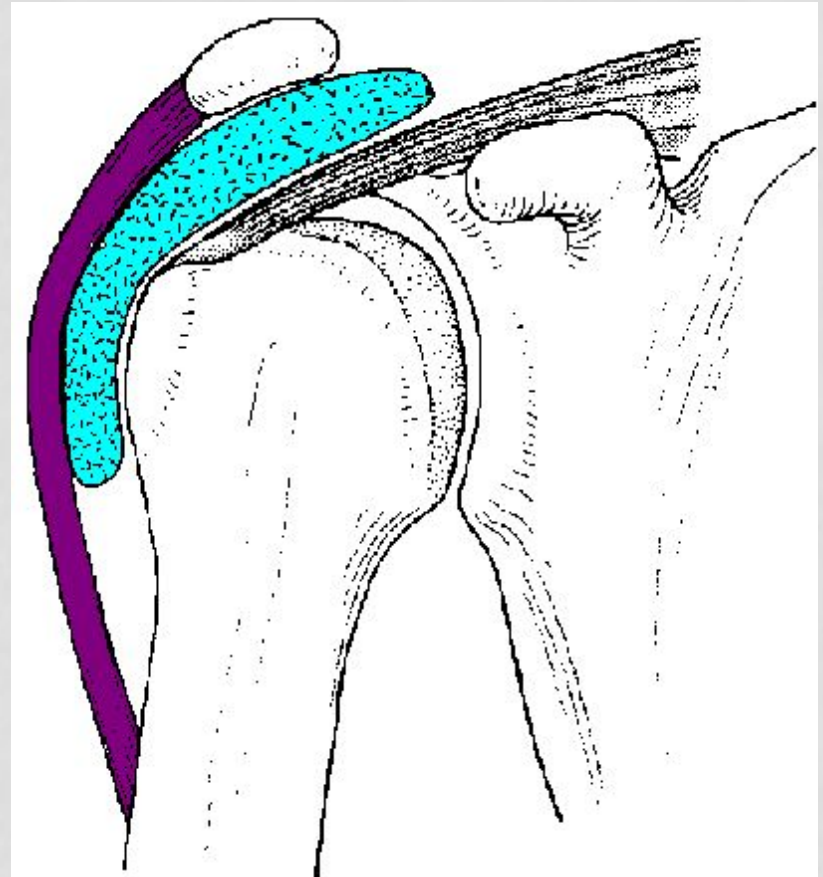
SUBACROMIAL BURSA

Normally the friction is •
reduced by the
subacromial bursa



SUBACROMIAL BURSA

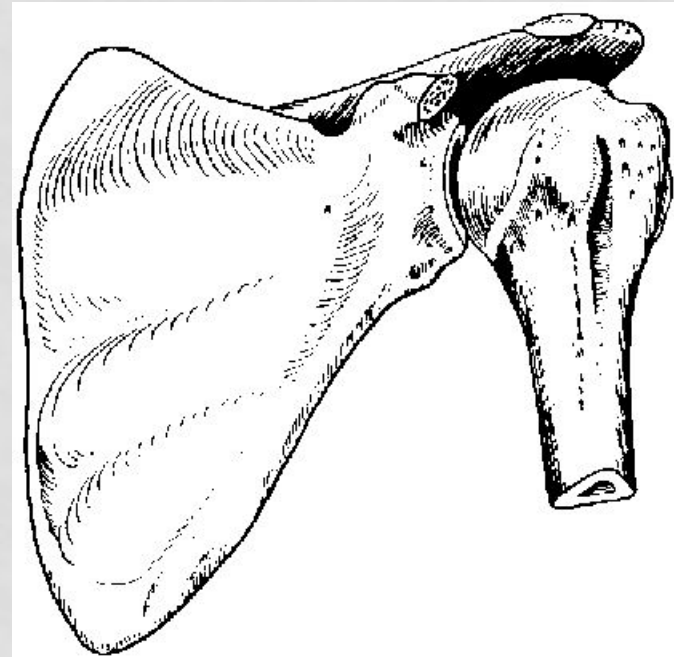
The subacromial bursa •
extends laterally
beneath deltoid, hence
its name "subdeltoid
"bursa



SHOULDER JOINT

A synovial joint of the ball and socket variety •

There is a marked disproportion between the large head of the humerus (the ball) and the small shallow glenoid fossa (the socket) •



SHOULDER JOINT

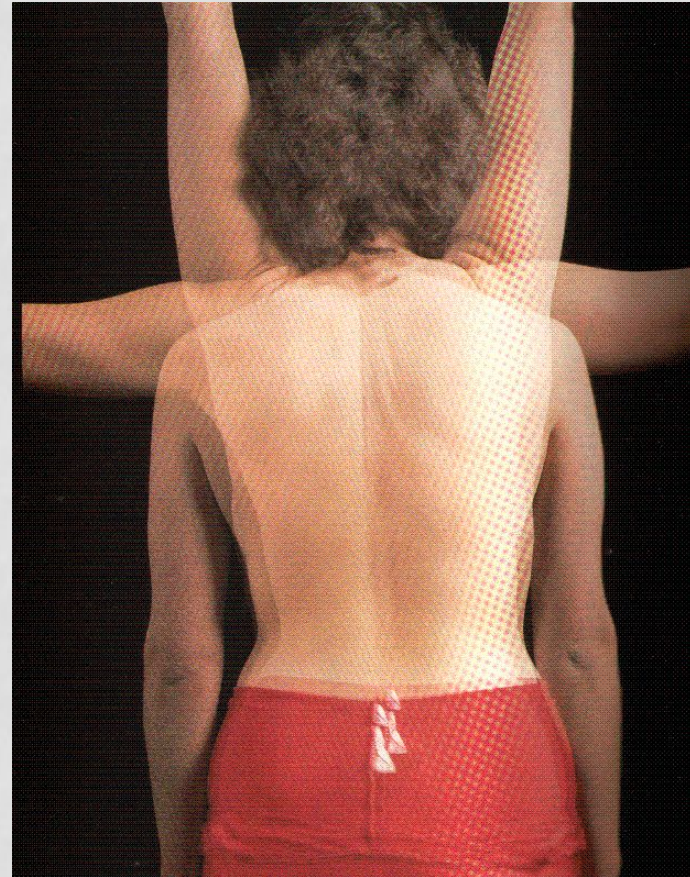
The glenoid fossa only accepts about one-third of the humeral head



SHOULDER JOINT

Is therefore very mobile •

Cyclograph showing range of abduction at shoulder girdle and joint



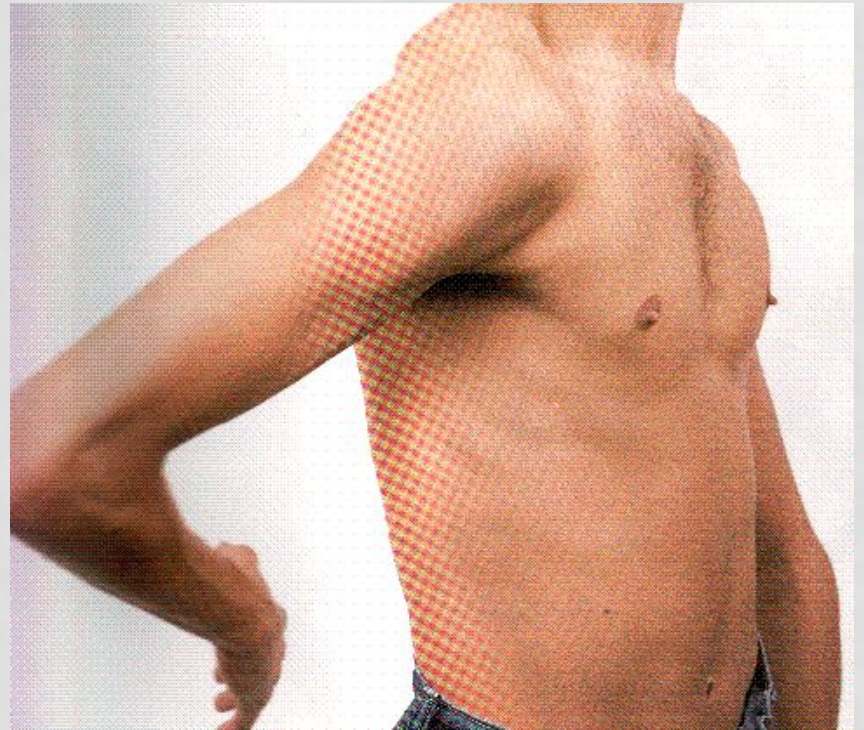
SHOULDER JOINT

As a quick and useful •
clinical guide to rotation
at the shoulder, the
patient can be asked if
they can do their own
hair



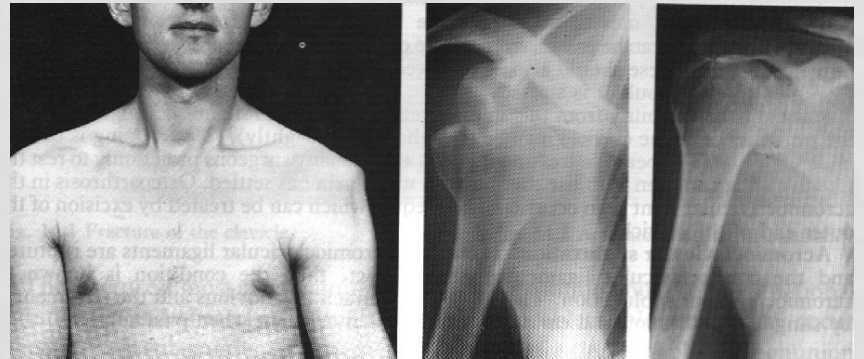
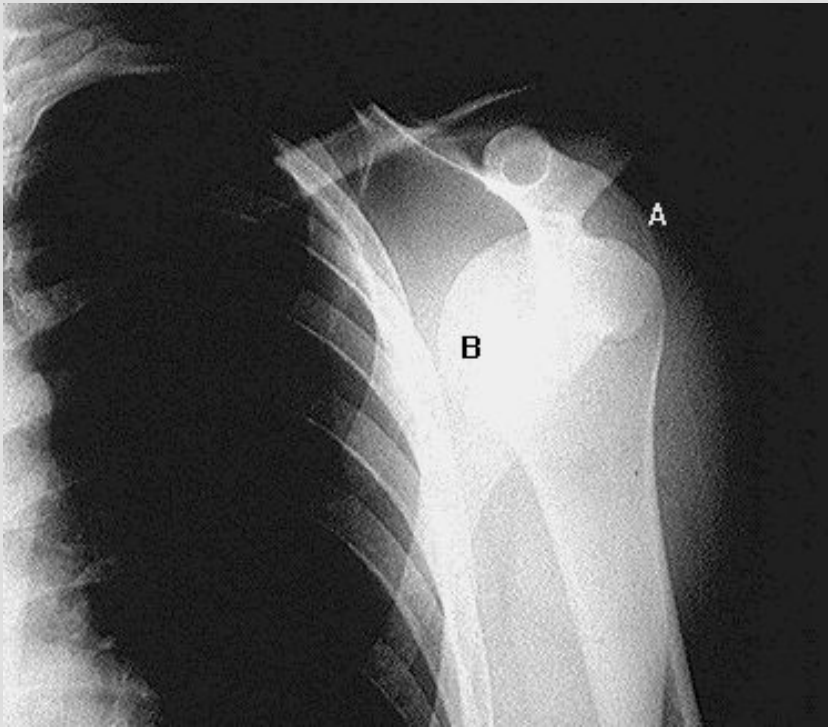
SHOULDER JOINT

If a man, he can touch •
the opposite scapula



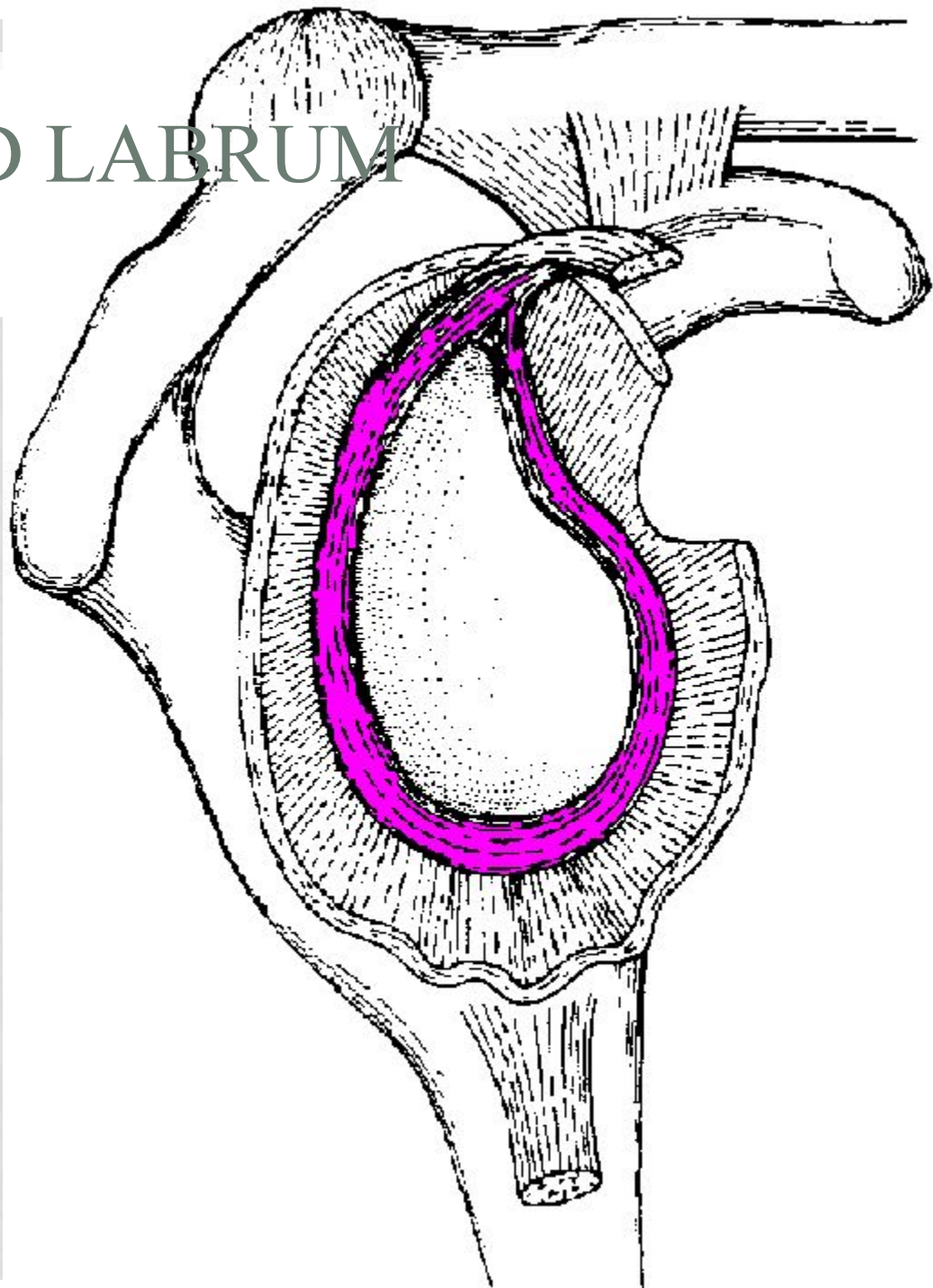
SHOULDER JOINT

Though very mobile, is •
easily dislocated



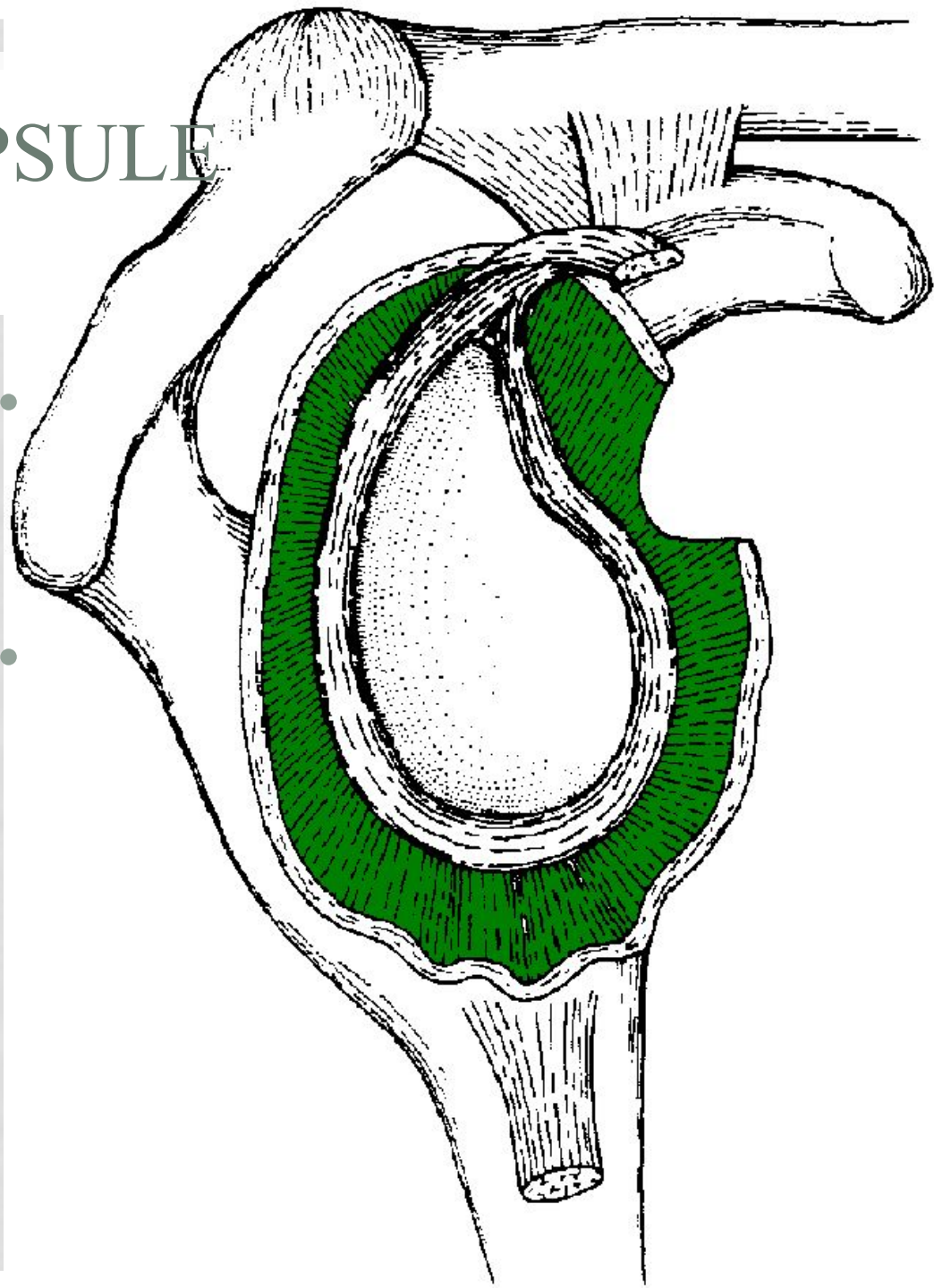
GLENOID LABRUM

The glenoid fossa is •
deepened slightly by
a rim of fibrocartilage
(the glenoid labrum)
but is still very
shallow



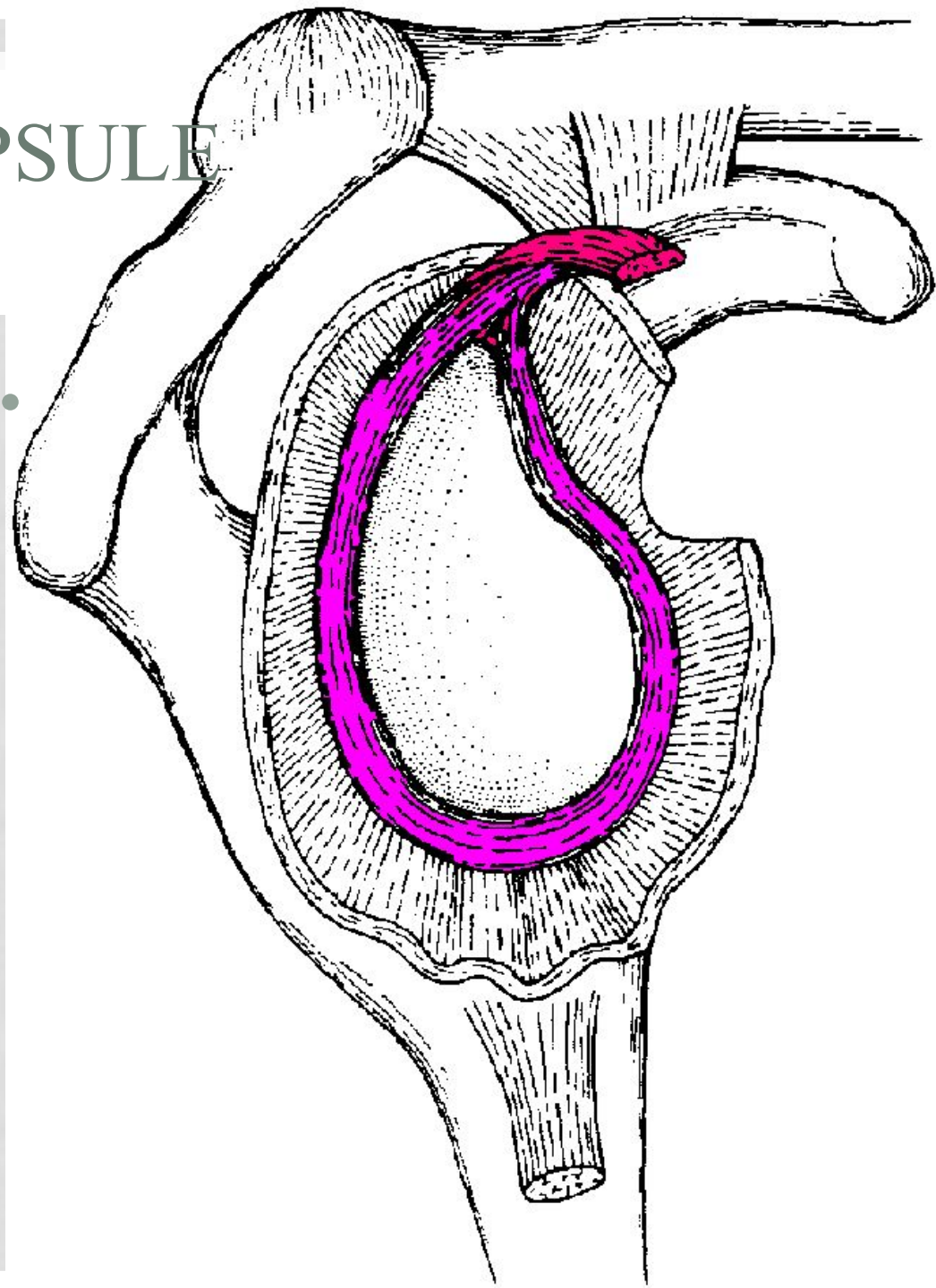
CAPSULE

- The capsule is loose (thus it allows wide range of movement)
- it is attached close to the margin of the articular surfaces



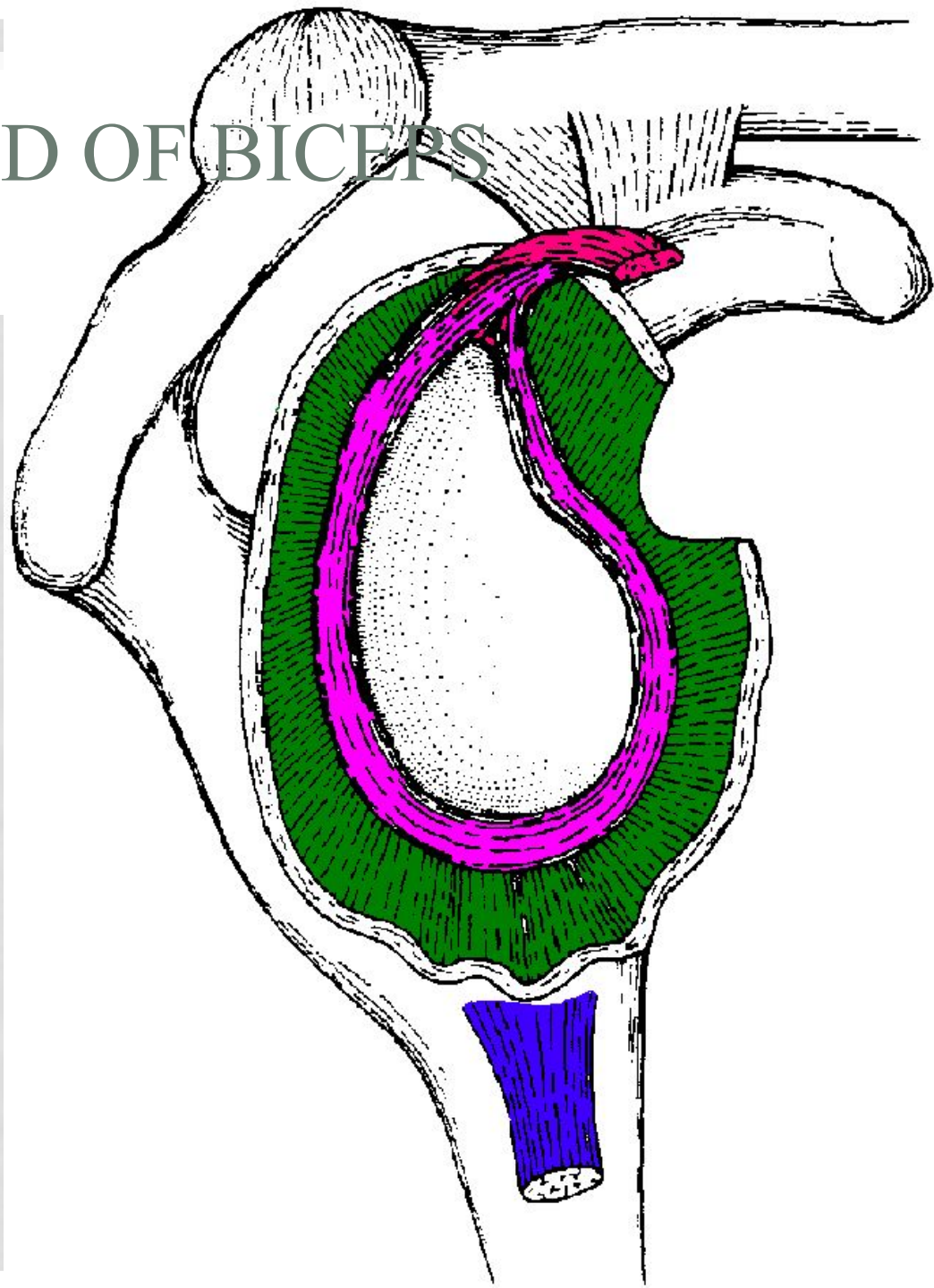
CAPSULE

Medially it encloses the labrum and the origin of the long head of biceps muscle which arises from the supraglenoid tubercle



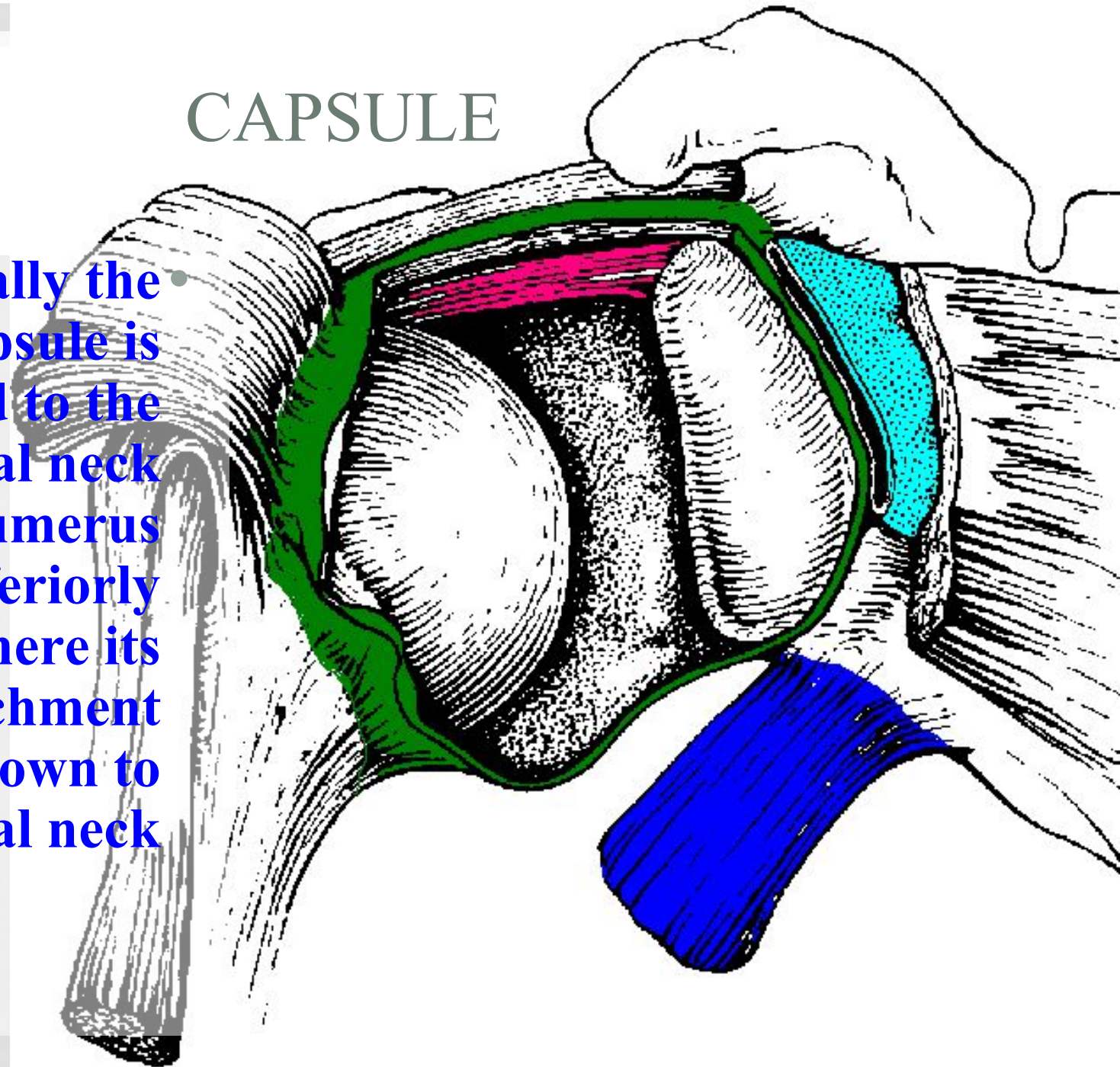
LONG HEAD OF BICEPS

The long head of biceps which arises from the infraglenoid tubercle is outside the capsule



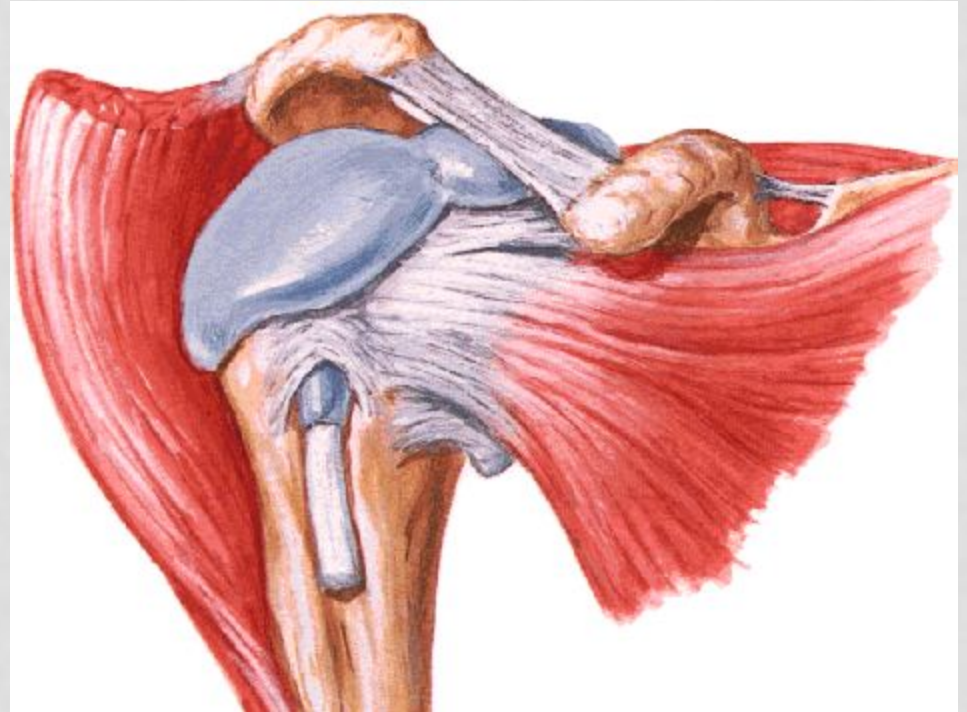
CAPSULE

• Laterally the capsule is attached to the anatomical neck of the humerus except inferiorly where its attachment extends down to the surgical neck



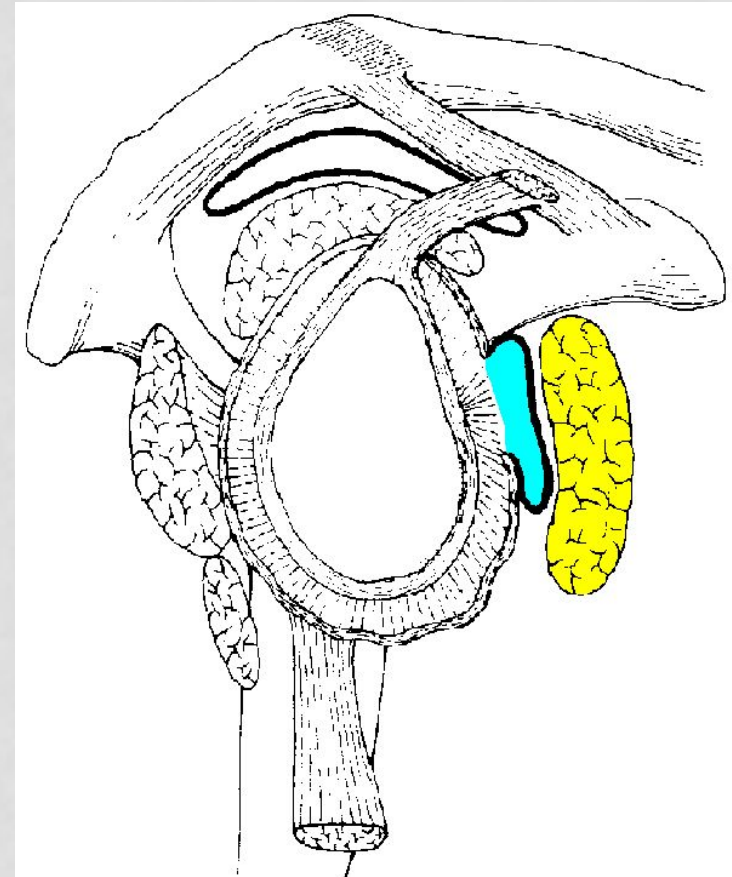
OPENINGS OF THE CAPSULE

one between the •
tubercles of the
humerus which
allows the passage of
the tendons of the
long head of biceps



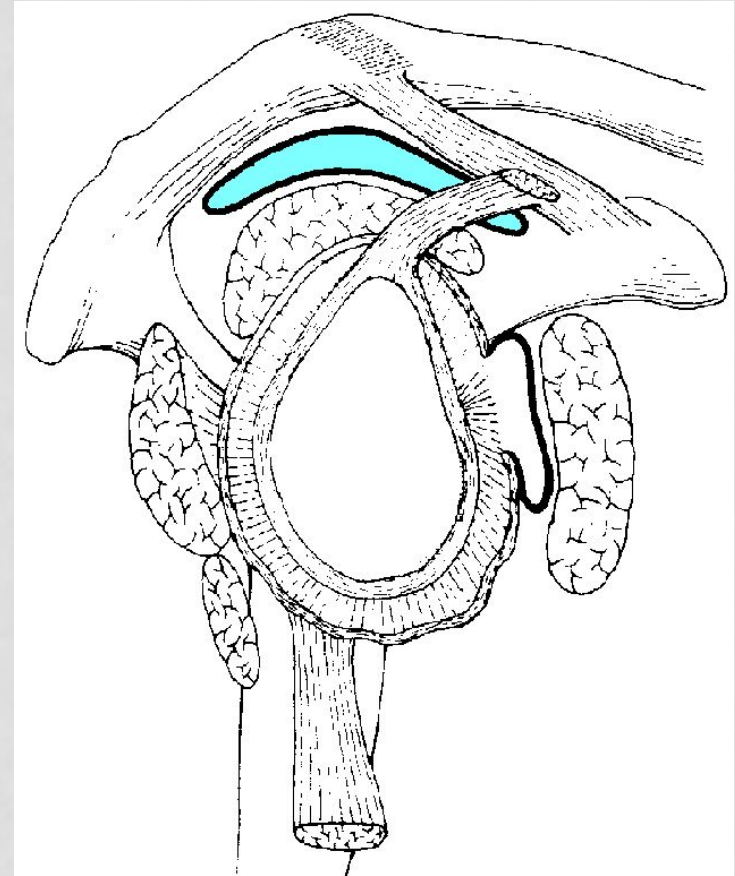
OPENINGS OF THE CAPSULE

The other opening is •
located anteriorly and
allows communication
with the subscapularis
.bursa



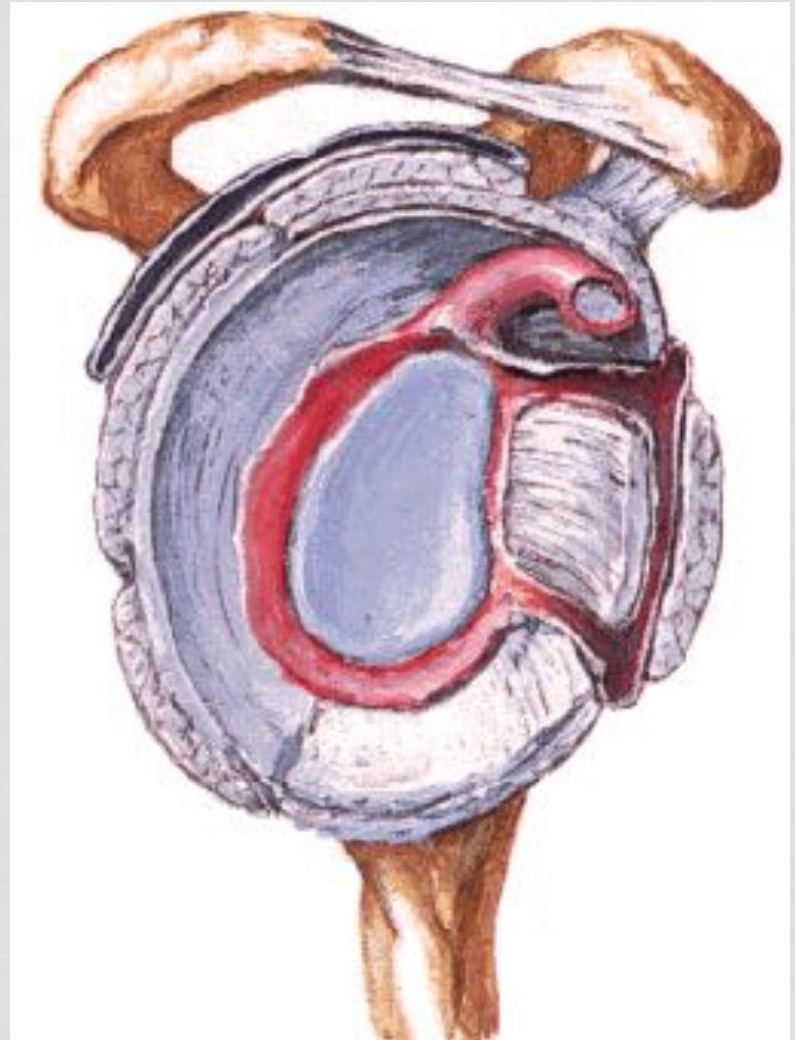
SUBACROMIAL BURSA

The subacromial bursa •
does not communicate
with the cavity of the
shoulder joint



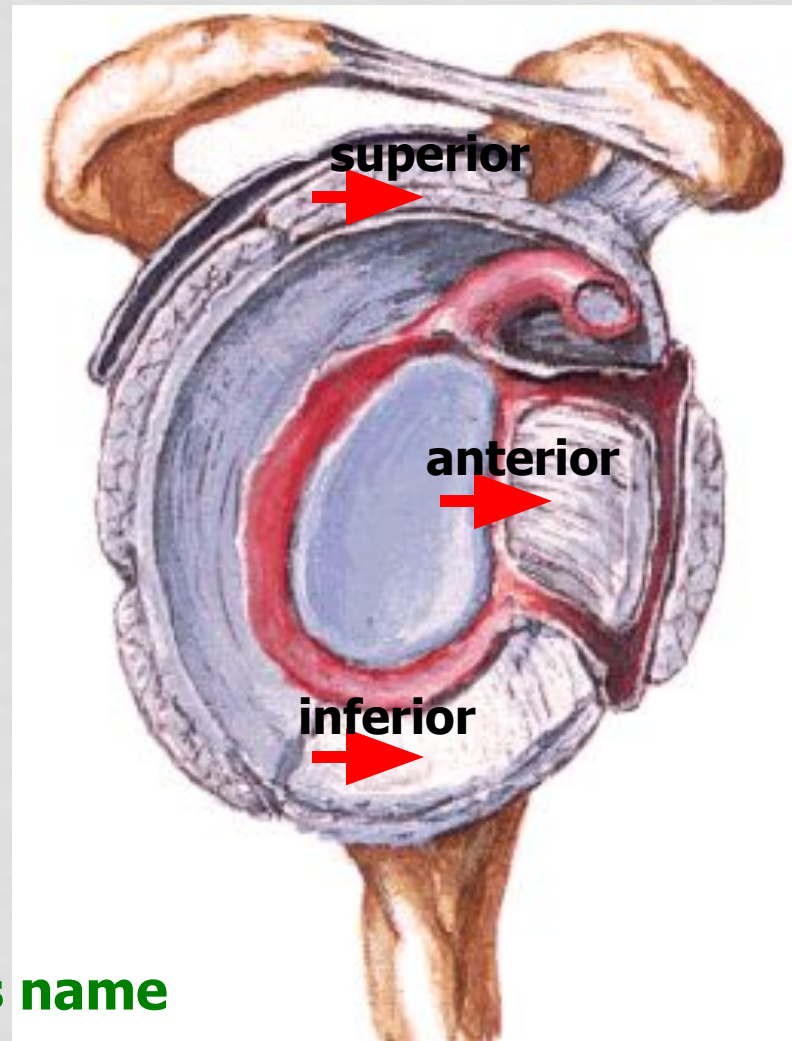
LIGAMENTS

The capsule is •
strengthened by
intrinsic and extrinsic
ligaments



INTRINSIC LIGAMENTS

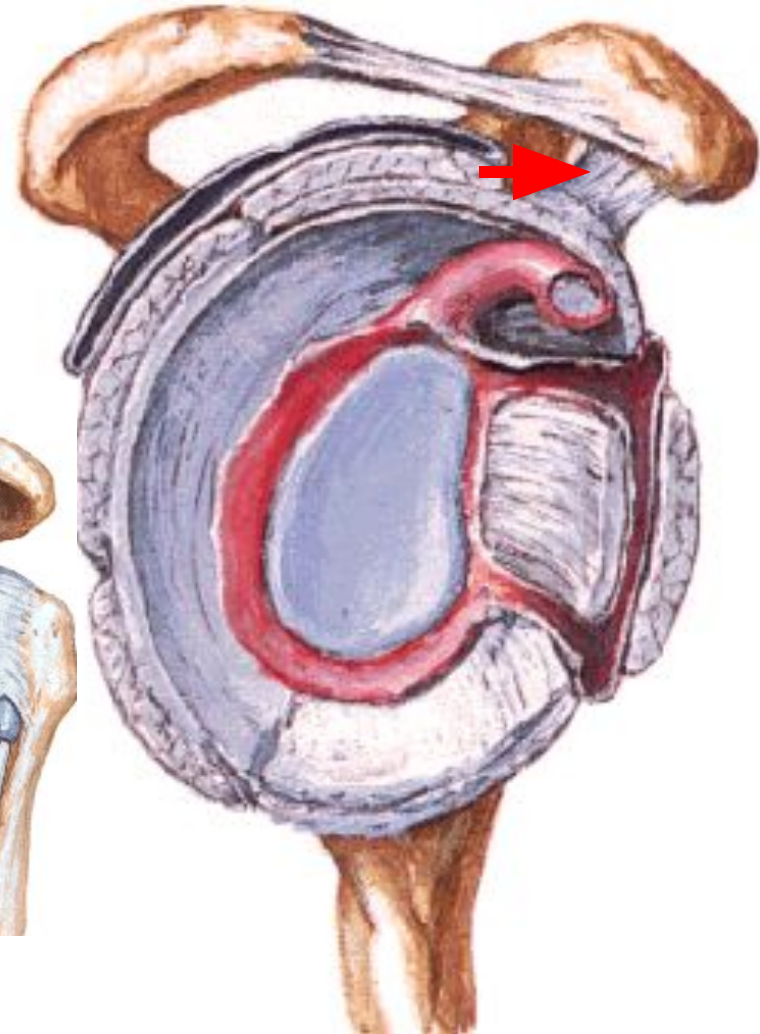
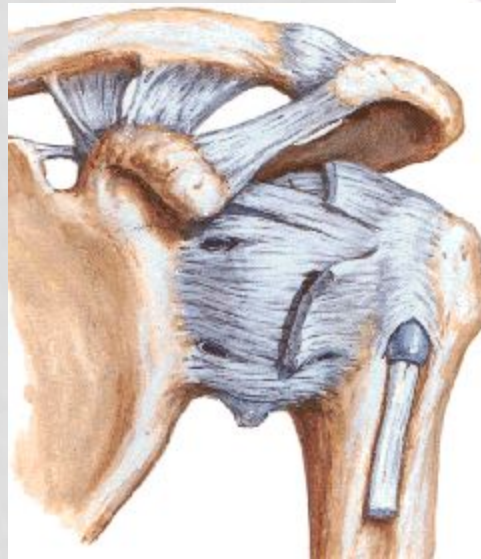
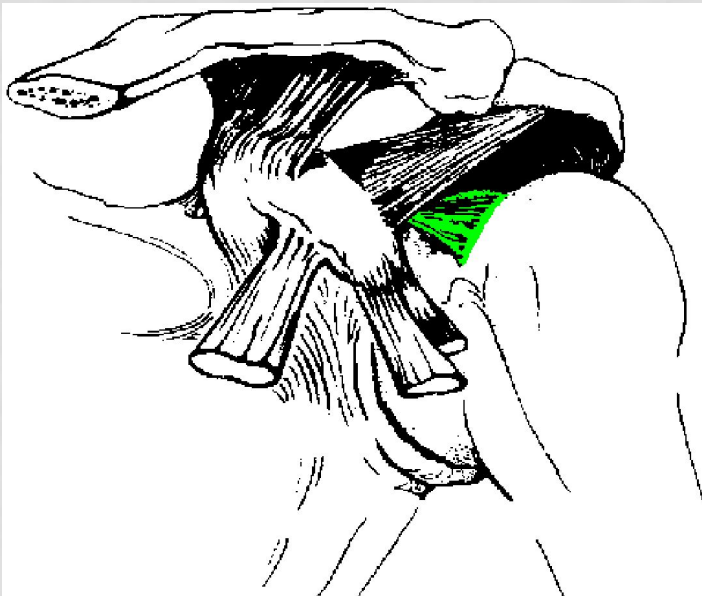
Are thickenings of the capsule itself, these are the three parts of the • **glenohumeral ligament** anteriorly



Has extensions indicated by its name

INTRINSIC LIGAMENTS

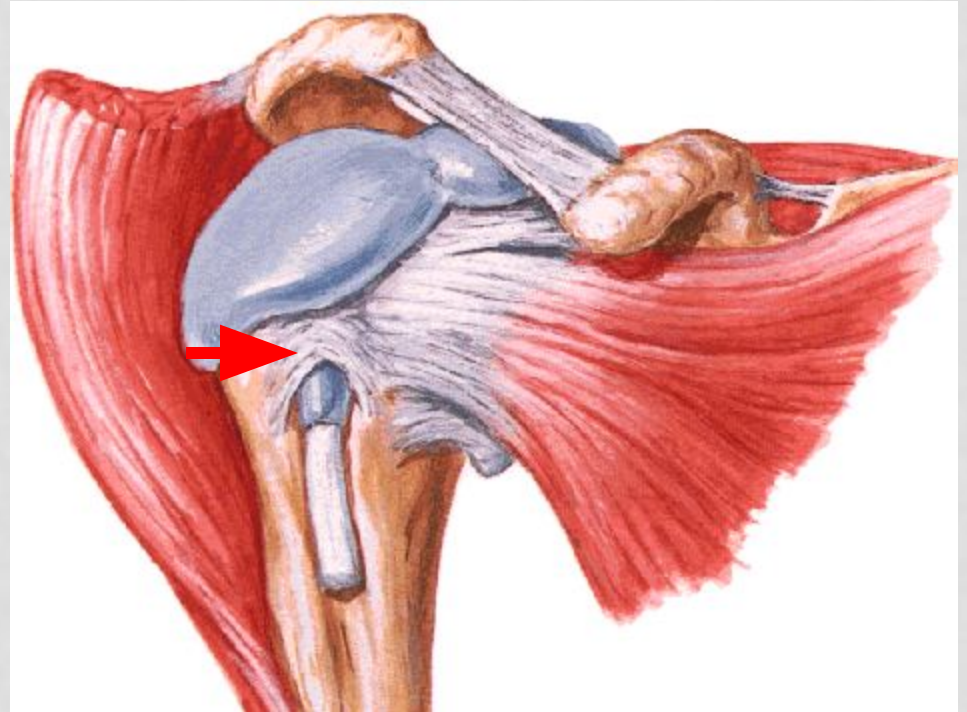
coracohumeral ligament •
superiorly



Has extensions indicated by its name

INTRINSIC LIGAMENTS

the **transverse humeral ligament** • which bridges over the superior end of the intertubercular groove converting it into a canal for the passage of the tendon of the long head of biceps as it emerges from the anterior .opening of the capsule



EXTRINSIC LIGAMENTS

- An extrinsic ligament the **coraco-acromial ligament** is more important than the previously mentioned .intrinsic ligaments
- This strong ligament links the coracoid and acromion .processes together
- These three structures form the coraco-acromial arch



CORACO-ACROMIAL LIGAMENT

- they prevent the superior displacement of the .shoulder joint
- Don't forget that the capsule is further strengthened by the tendons of the rotator of muscles fusing with its



STABILITY

The shoulder joint is unstable
because of the

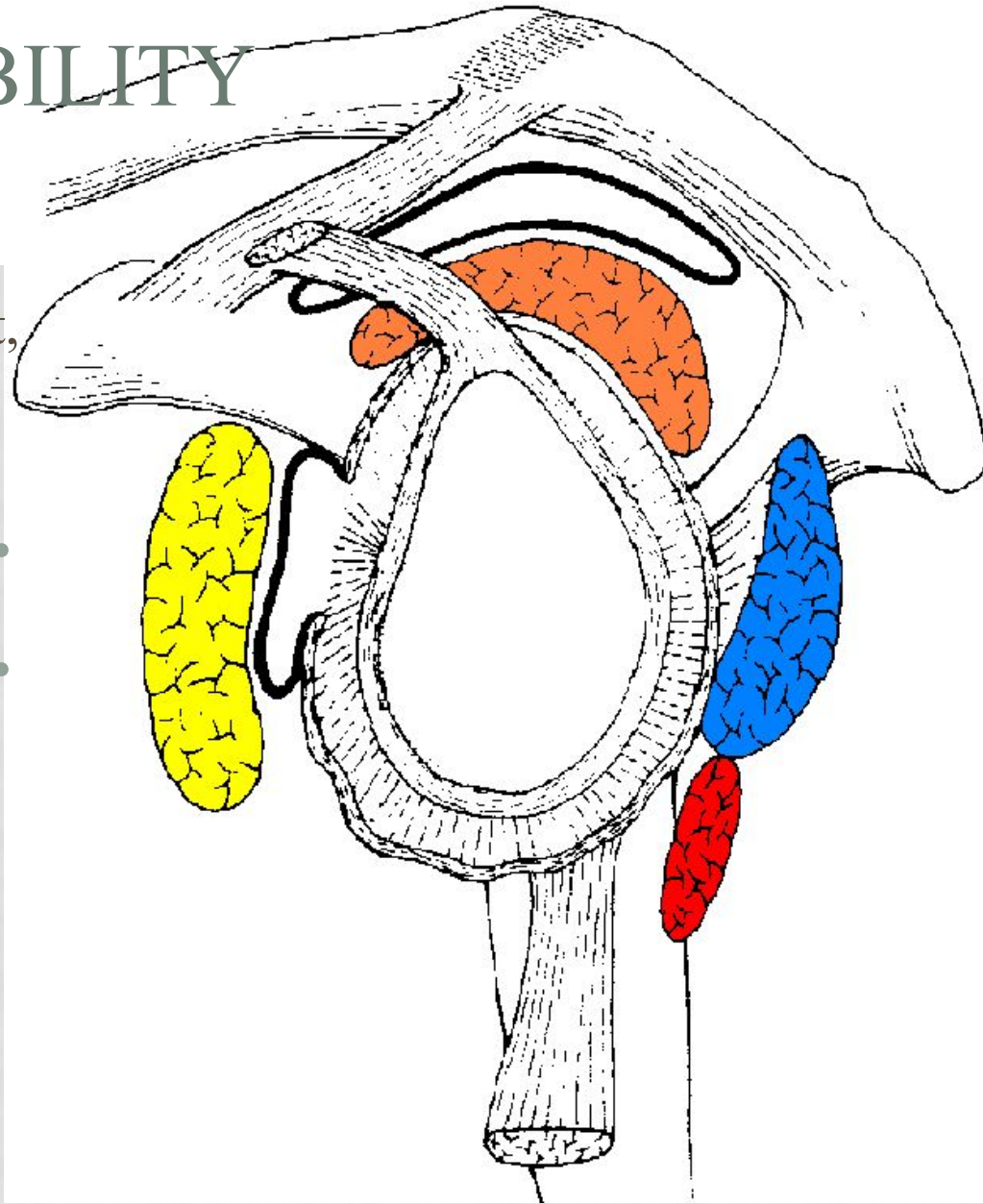
- disproportion of the articular surfaces
- shallowness of the glenoid fossa
- laxity of the capsule

all these provide a wide range
of movement on the
expense of stability

STABILITY

As for the shoulder joint, **muscles** are the most important factor in providing stability particularly the rotator cuff muscles

- the long head of biceps and triceps; the latter during abduction lies beneath the head of the humerus, this is the weakest parts of the joint being bare of rotator cuff muscles



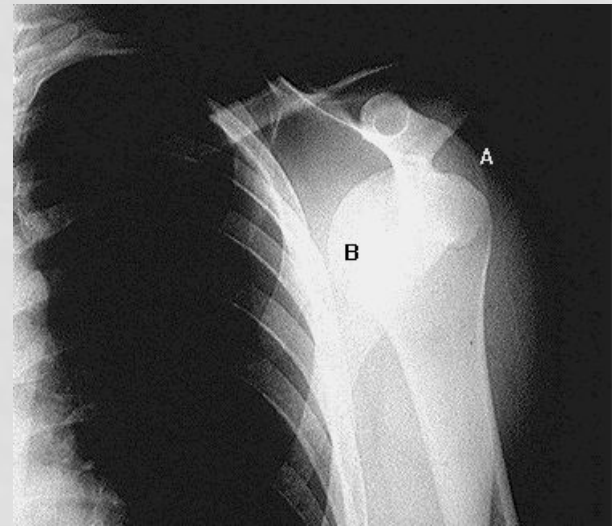
SHOULDER JOINT

Other factors include the •
coraco-acromial arch
which supports the joint
superiorly



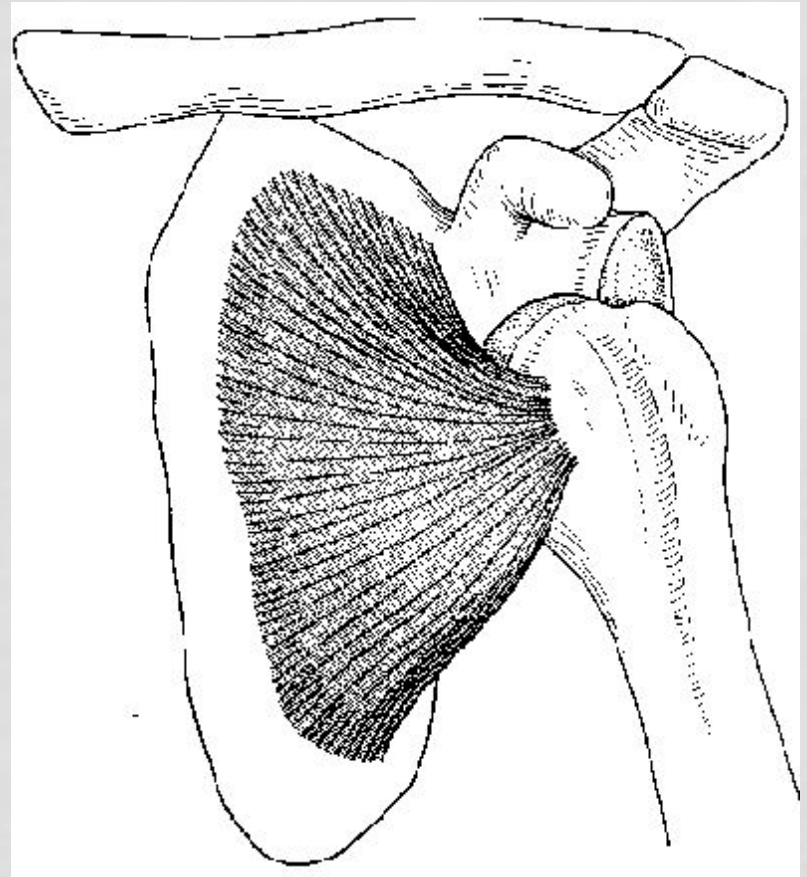
DISLOCATION

Since the inferior aspect is •
unprotected by muscle, it is
here that, in violent
abduction, the humeral head
may slip away from the
glenoid to lie in the
subglenoid region, whence
it usually passes anteriorly
into a subcoracoid position



DISLOCATION

The dislocated head is •
held adducted by the
shoulder girdle muscles
and internally rotated by
subscapularis



BLOOD SUPPLY

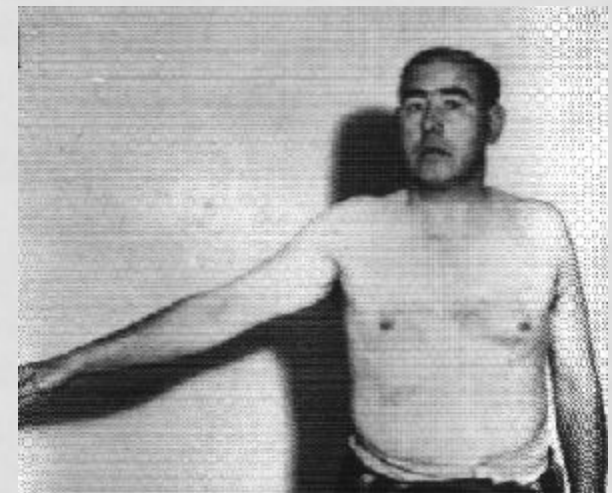
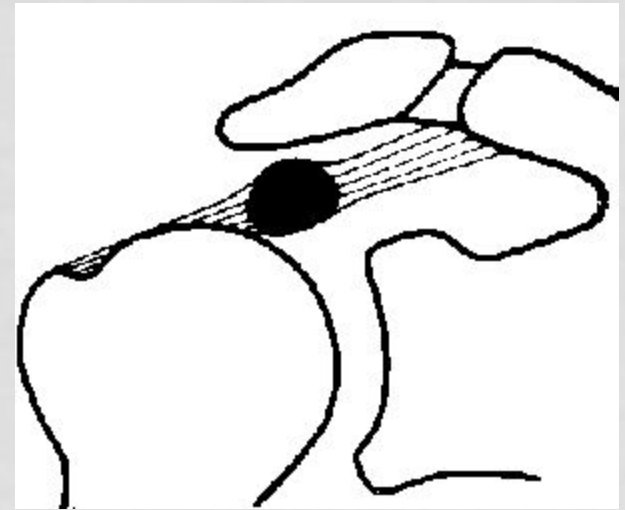
Is derived from the •
anterior and posterior
circumflex humeral
arteries (from the
axillary) and the
suprascapular artery
(from the subclavian
artery)

NERVE SUPPLY

Is derived from the •
suprascapular, axillary,
and lateral pectoral
nerves

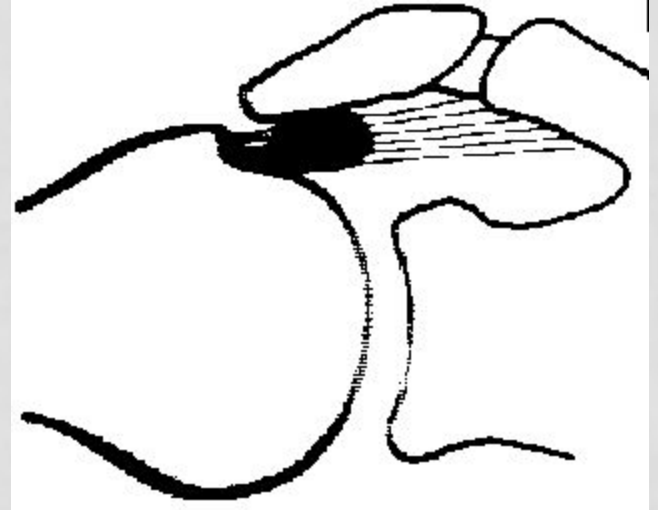
PAINFUL ARC

- In long standing cases of degeneration of rotator cuff tendons
- It is characterized by painful arc of shoulder movement between 50-130 degrees
- in this range the tendon and the overlying acromion are in intimate contact



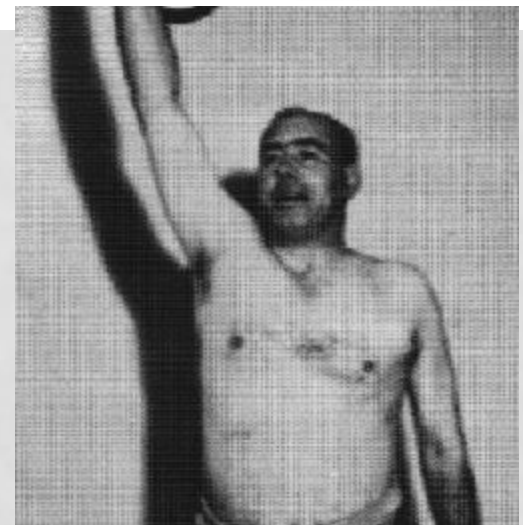
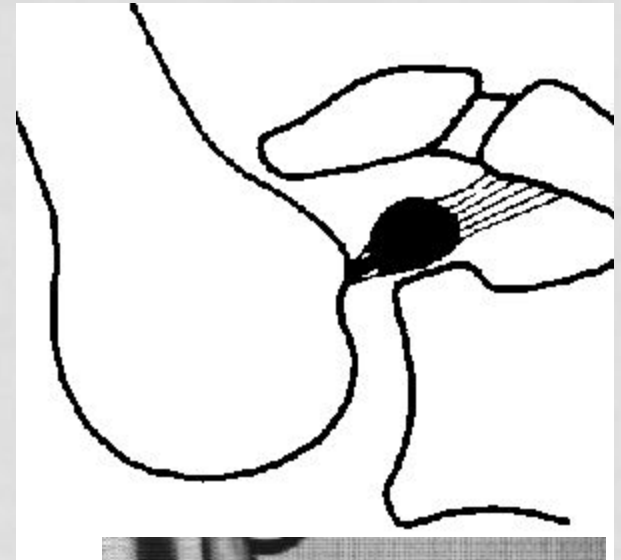
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THE END