AK근육검사

AK와 신경학
(신경생리학적 측면의 AK)

신경학적 개념의 근육검사

- 근육검사는 일종의 신경학적인 반사이며 역동적으로 변하는 뇌의 상태를 시시각각 다양한 상태에서 알려주는 도구입니다. 일반 의학적인 검사에 나타나지 않는 부분들 특히 숨겨진 문제나 잠재적인 질병 그리고 근본적인 이상(underlying basic cause)을 찾아내는데 도움이 됩니다.

응용근신경학의 신경학적인 면

- Muscle testing equals functional neurology
- Dr. Schmitt

AK=functional neurology references

- Schmitt, W.H., & Yanuck, S.F. Expanding the neurological examination using functional neurological assessment part II: neurological basis of applied kinesiology. Intern J Neuroscience, 1999, 97. 77-108

- Motyka, R.M. & Yanuck, S.F. Expanding the neurological examination using functional neurological assessment part I: methodological considerations. Intern J Neuroscience, 1999, 97. 61-76.

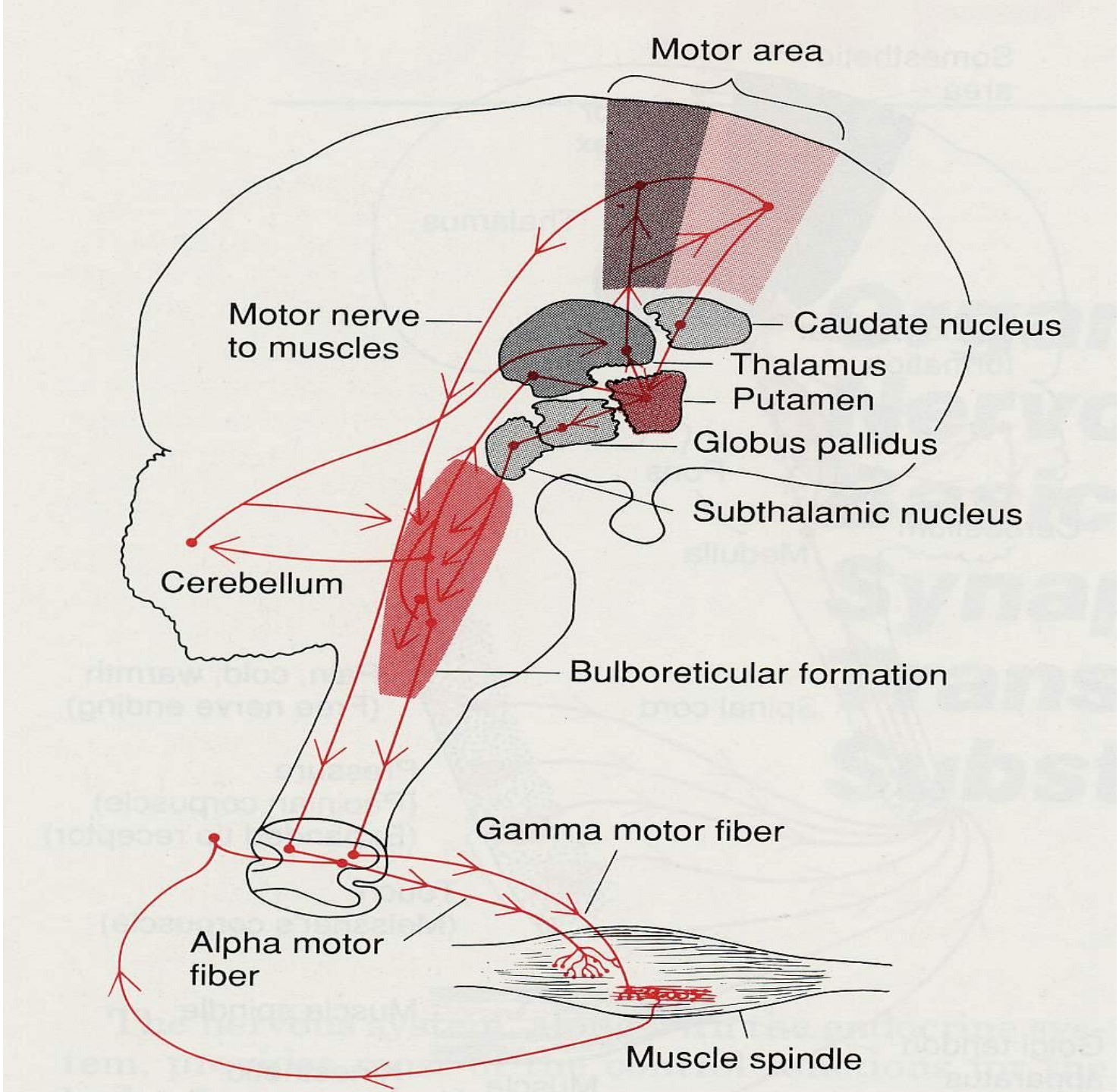
근육의 신경생리학적 기전

근육의 고유수용체–척수–소뇌, 대뇌–척수의 전각세포–근육

척수반사: 근육의 수용체-척수의 전각세포-근육

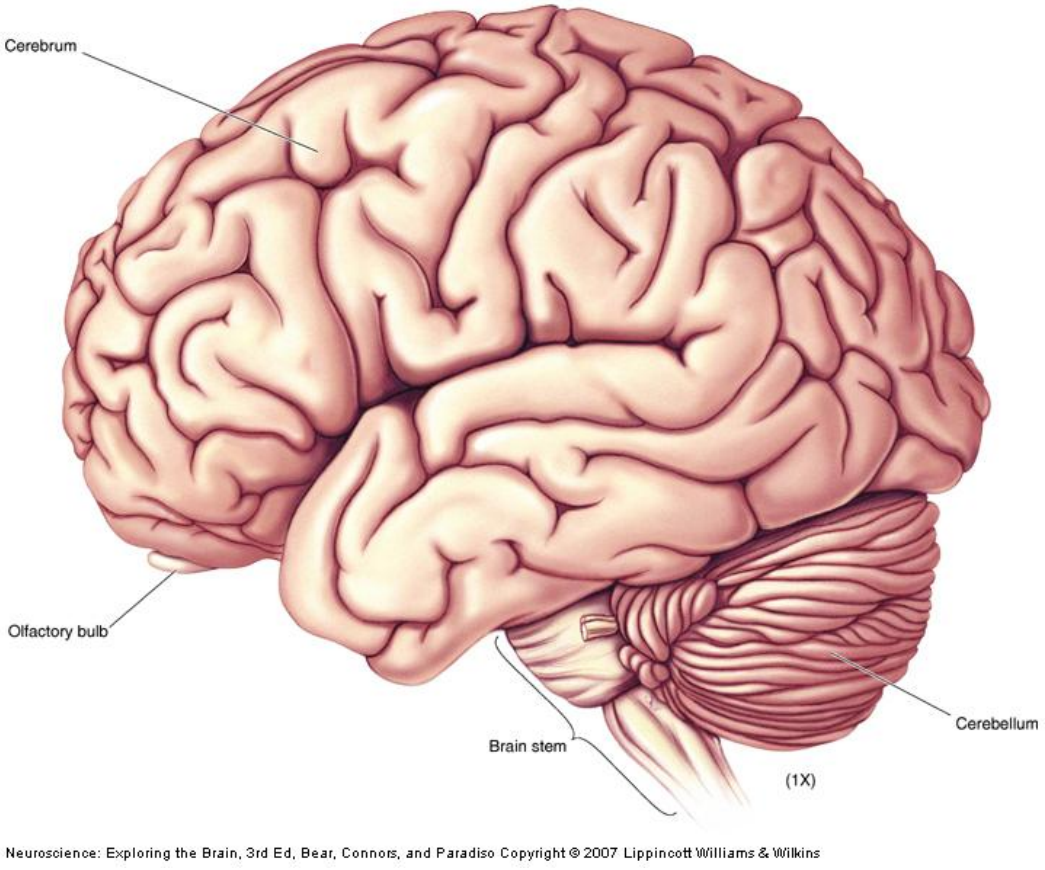
미각, 후각수용체-**NTS**-대뇌-척수의 전각세포-근육

Central Integrative state of Ventral horn cell of spinal cord

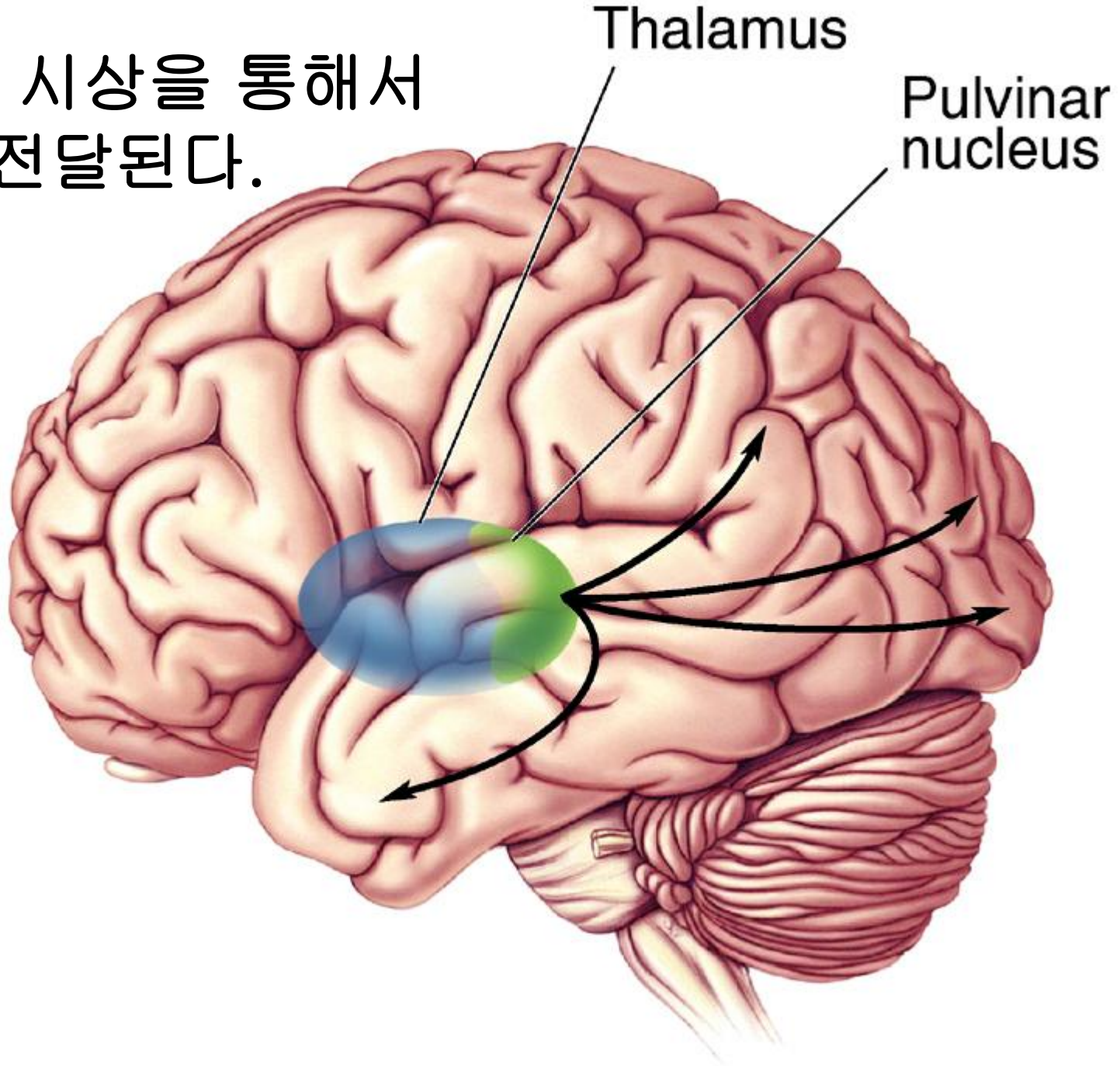

Motor area
Motor nerve to muscles
Caudate nucleus
Thalamus
Putamen
Globus pallidus
Subthalamic nucleus
Cerebellum
Bulboreticular formation
Gamma motor fiber
Alpha motor fiber
Muscle spindle

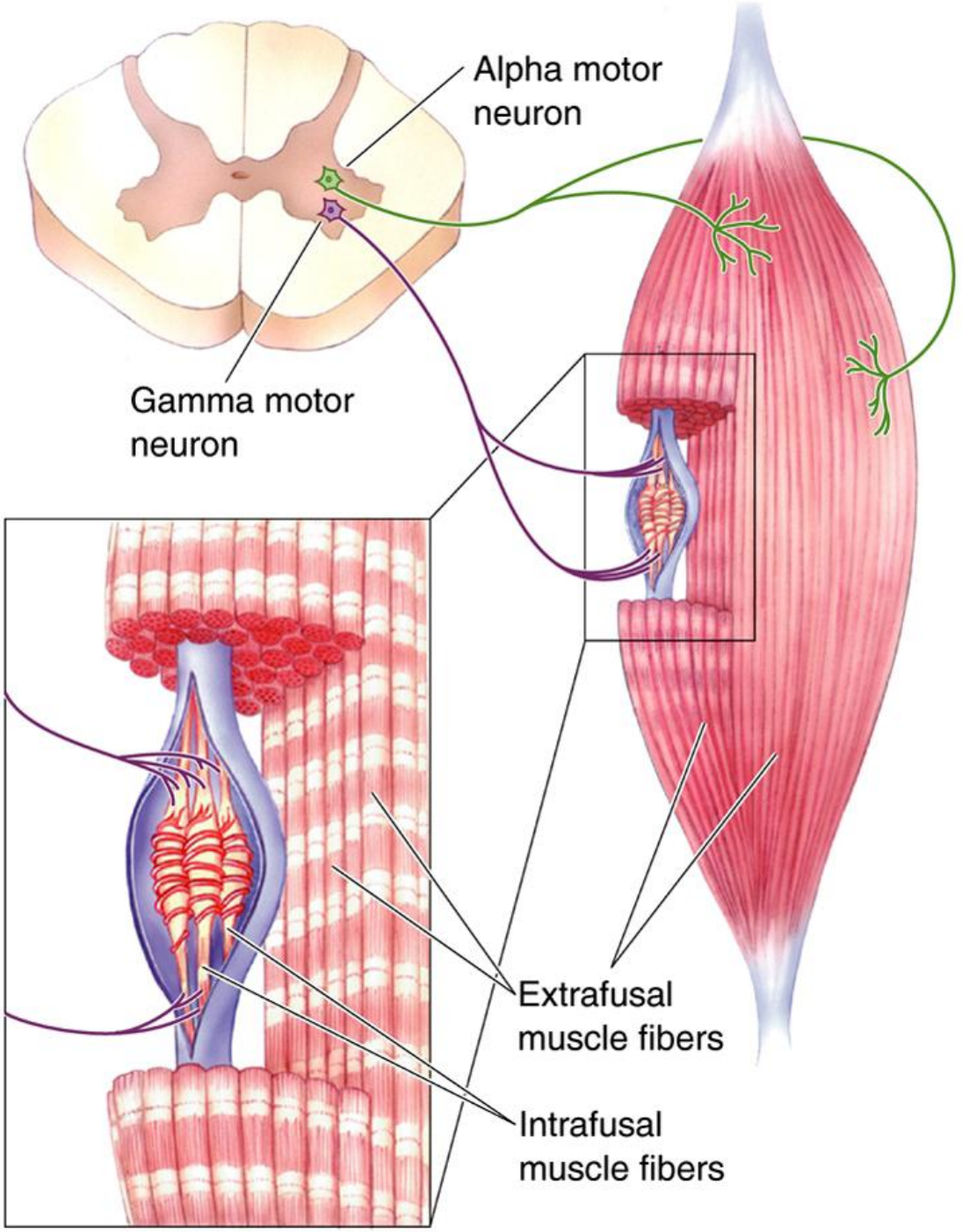
뇌에 가는 자극

- 시각
- 청각
- 촉각
- 미각
- 후각
- 인식
- 중력(고유감각 수용체)-근육, 관절, 힘줄의 센서-머리 가까운 목의 중심이 중요

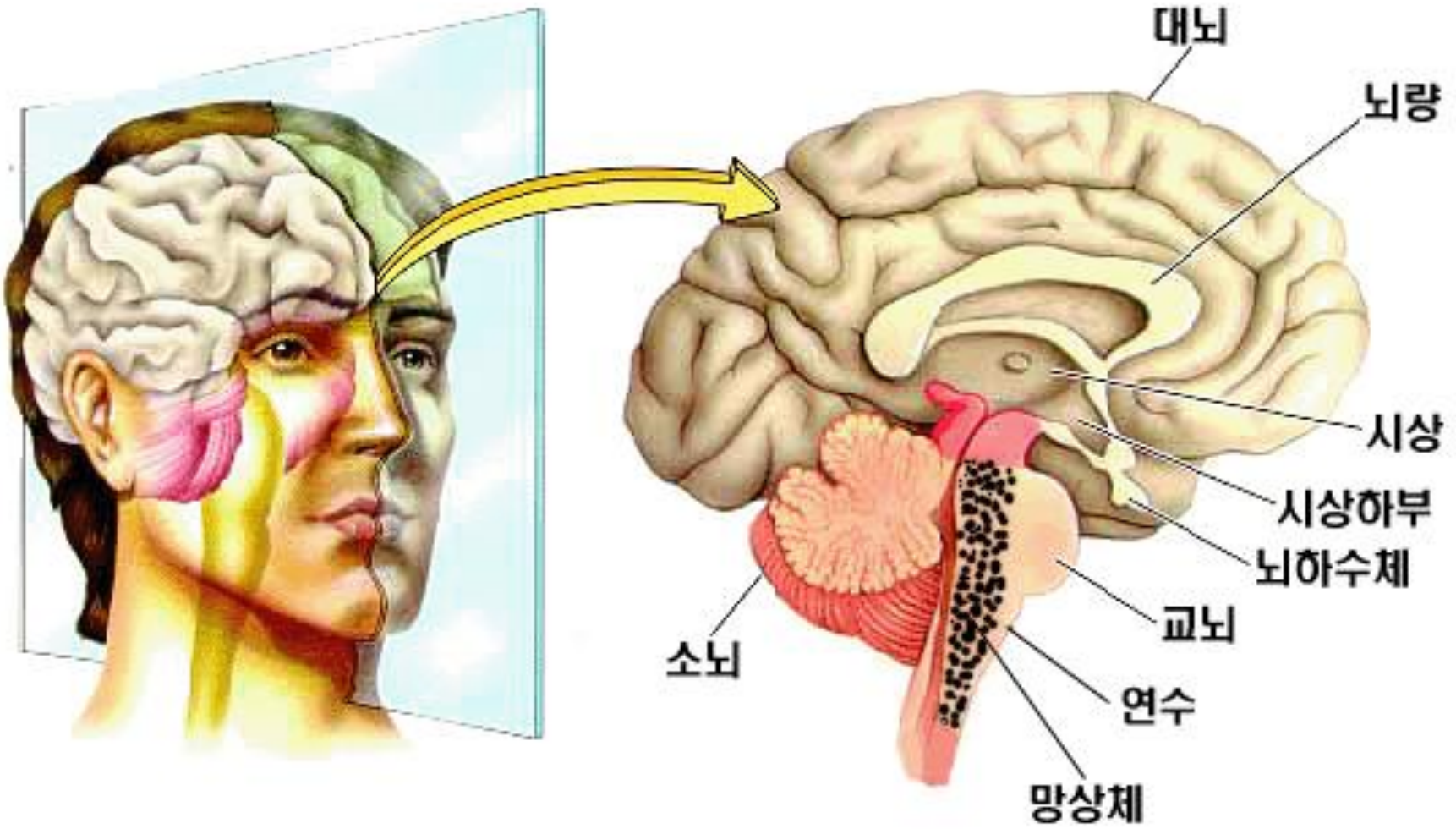


모든 감각은 시상을 통해서
뇌에 전달된다.

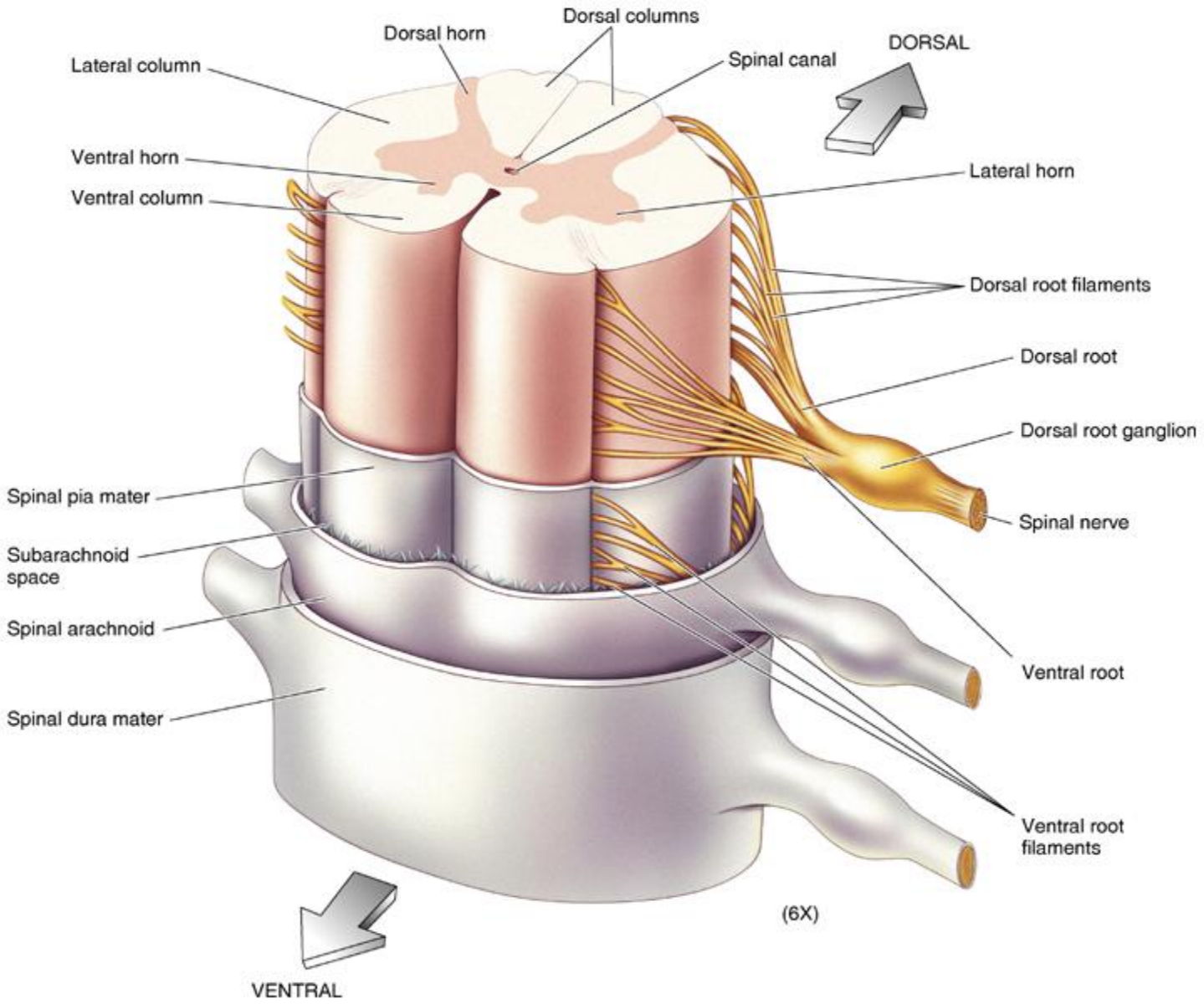


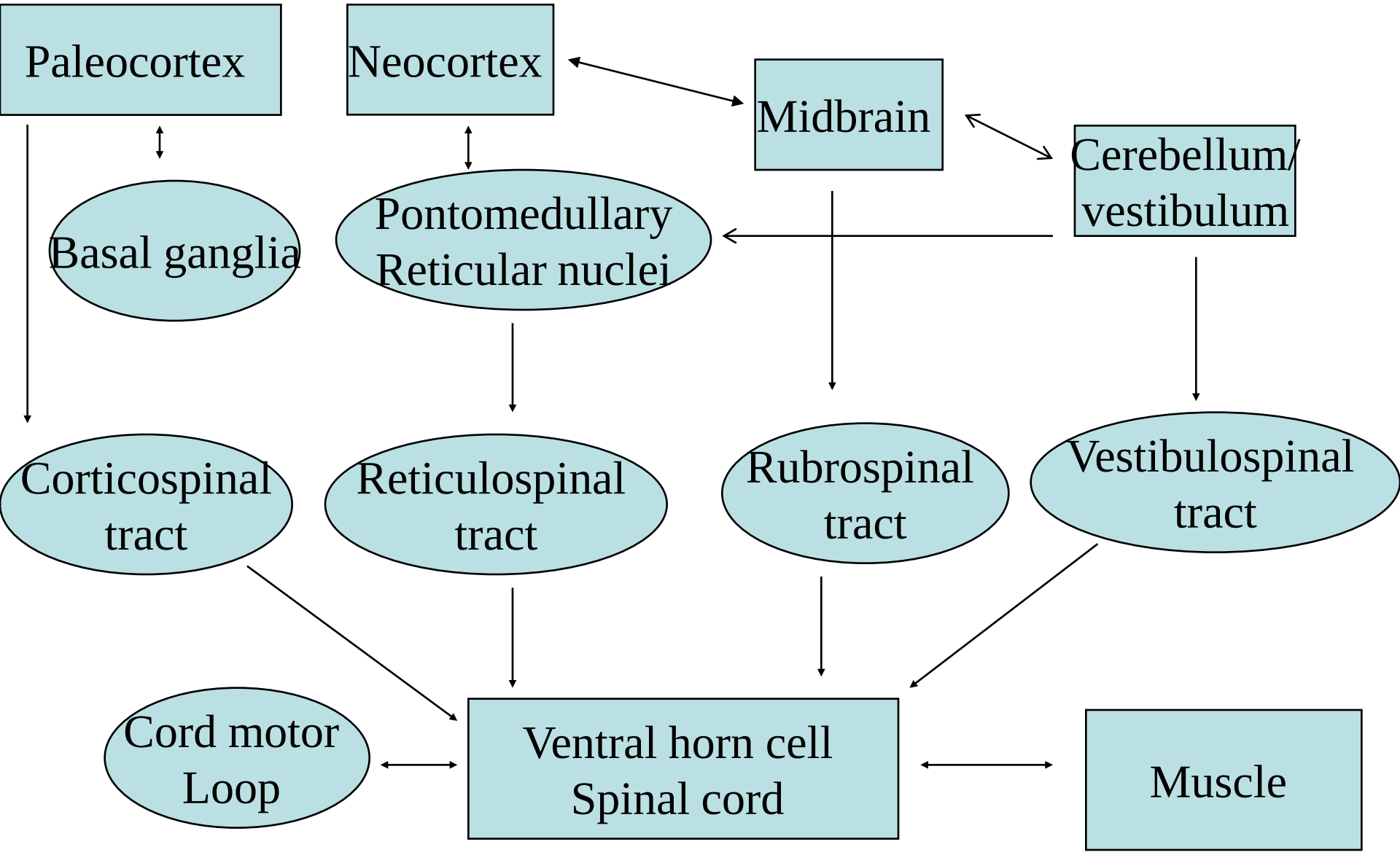


뇌에 의한 자율신경의 조절



옆뿔 세포(외각 세포)




Paleocortex
Neocortex
Midbrain
Cerebellum/
vestibulum
Basal ganglia
Pontomedullary
Reticular nuclei
Corticospinal
tract
Reticulospinal
tract
Rubrospinal
tract
Vestibulospinal
tract
Cord motor
Loop
Ventral horn cell
Spinal cord
Muscle

- Muscle testing is an important tool in the decision making process of what to do for a patient than confronted with a number of different alternatives.
- 근육검사는 여러가지 가능성을 앞에 두고 무엇이 문제인지 혹은 어떤 것을 해야 하는지를 알려주는 중요한 도구다.
- -Walter Schmitt Jr. -

- 빨리 진단, 치료 경과를 확인할 수 있다. – muscle facilitation and inhibition으로 알 수 있다.

정상 근육의 항진(facilitation) 과 억제(inhibition)

견관절의 신전근 검사

견관절 신전근 검사가 정상적으로 **억제**

혹은 항진

견관절의 굴곡근이 정상적으로 항진

Autogenic Facilitation (AF)

- 약한 근육의 belly를 스트레치 하면 근방추에서 나오는 Ia afferent에 의해서 monosynaptic excitiation되어서 일시적으로 약한 근육이 강해짐
- AF가 안 되면 IRT의심

Autogenic inhibition (AI)

- 정상 근육의 양끝에서 근육 중간으로 밀면 근방추의 활동이 일시적으로 약해져서 강한 근육이 약해진다.
- 약해지지 않으면 항진된 근육(facilitated muscle)이다.

Science and Art of Muscle Testing
근육검사

- 개념: 근육의 절대적인 힘을 검사하는 것이 아니고 인체에 가해지는 여러가지 변화에 따른 근육의 긴장도(힘)을 검사한다.
- 근육은 척수의 앞뿔세포(anterior horn cell)에서 나오는 운동신경의 지배를 받는다.
- 앞뿔세포는 뇌의 역동적인 변화를 대변한다.
- 근방추(muscle spindle)은 Ia afferent를 통해서 뇌에 정보를 제공한다.

Muscle test principles
근육검사의 원칙

- "Isolate" muscle. 검사하고자 하는 근육을 분리한다.
- Avoid recruitment 다른 근육들의 도움을 차단한다.
- Use consistent pressure 항상 같은 힘들 준다.
- Use consistent timing 같은 시간 동안 힘을 가한다.
- Avoid preconceived results of the test 예측되는 검사결과를 고려하지 않고 중립적으로 검사.

Muscle Test Findings
근육검사 결과

- Normal functioning muscle - Strong (정상 근육-강하게 검사됨)

- Hypotonic - Inhibited or Weak muscle (저긴장성 근육- 억제되거나 약한 근육)

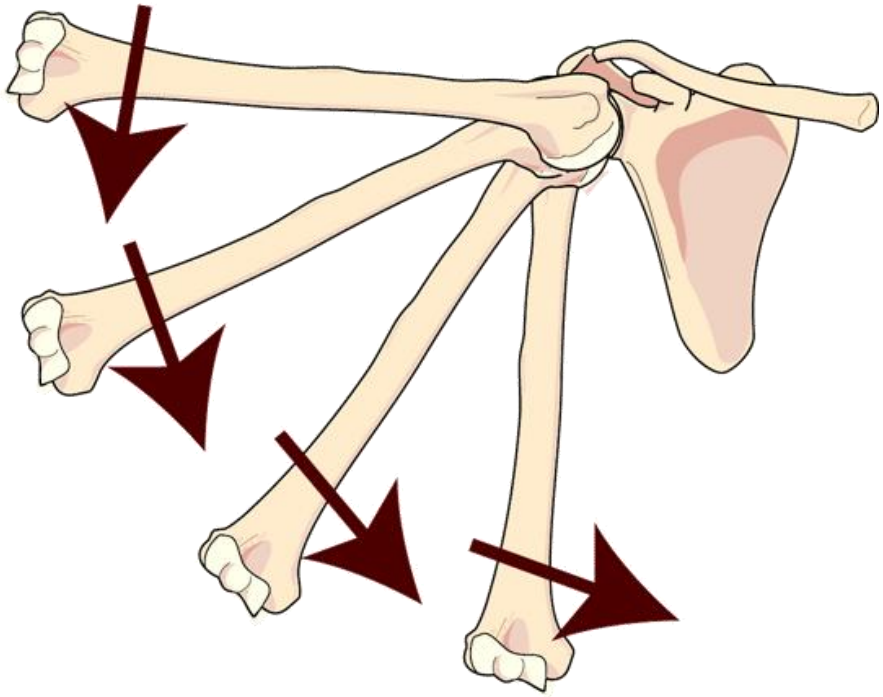
- Hypertonic - Facilitated muscle - cannot be inhibited (과긴장된 근육-억제되지 못하는 근육, 강하게 검사됨)

Muscle Testing Protocol
근육검사 방법

- 1. 기시부와 부착부를 가까이 근접시킨다 (Approximate the origin and insertion of the muscle)
- 2. 적절한 안정성을 유지한다(Give proper stabilization)
- 3. 검사자의 부드러운 손으로 접촉한다(Contact with the soft parts of your testing hand)

근육검사 방법

- 4. 힘을 주는 방향은 검사하는 근섬유의 방향과 직각을 이루어야 한다 (The vector of force for the muscle test should be at a tangent to the arc of the body part)

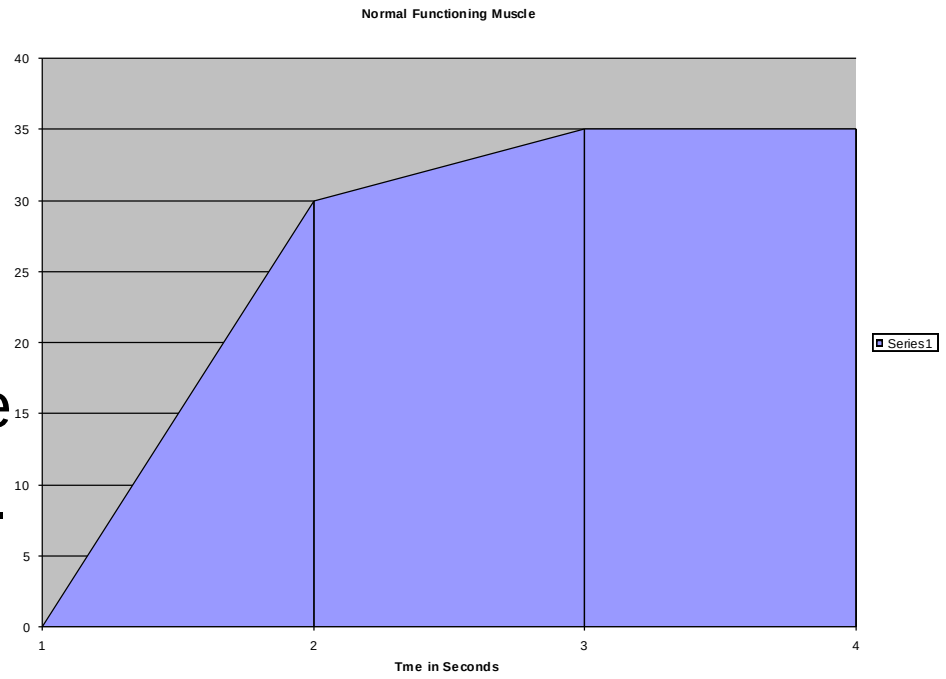


Muscle Testing Protocol

- 5. 환자가 검사받는 근육에 최대한 힘을 가하도록 설명한다(Instruct the person being tested to push maximally in the required direction)
- 6. 검사하는 근육이 검사자가 힘을 가하는 데에 적응을 한다면 조금씩 힘을 더 가한다(Increase the force slightly to determine if the muscle can adapt to this increase in force.)
- 7. 적응에 실패한 근육은 더 이상 수축을 할 수 없을 것이다.Failure of the muscle to adapt will cause the muscle contraction to fail

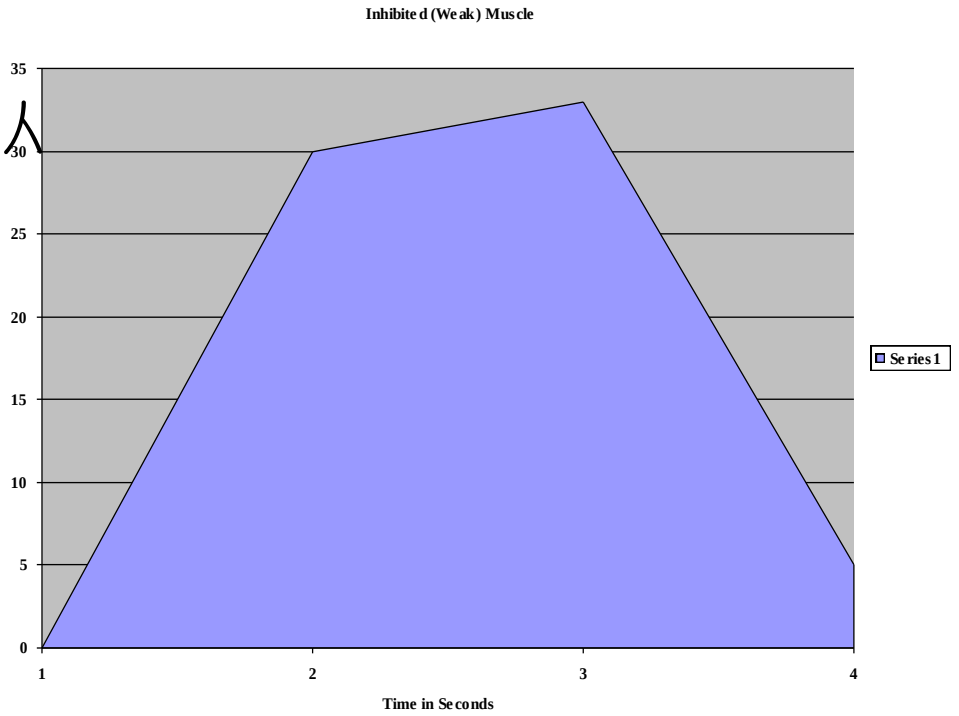
정상 근육(Normal Test)

- 환자가 검사자가 가하는 힘에 저항한다Patient applies pressure against tester
- 검사자는 더 힘을 가한다.Tester increases force
- 환자는 그 힘에 적응한다. Patient is able to adapt



약한 근육

- 환자는 검사자가 가하는 힘에 저항한다.
- 검사자는 힘을 증가시킨다.
- 환자는 적응할 수 없다.



정밀도(Reproducibility of Results)

- 응용 근신경학의 경험이 많은 의사들이 근육 검사를 하면 약 90%의 높은 정밀도 및 정확도, reliability를 보여주었다.

근육이 약해진 원인

- 너무 많아서 다 나열할 수 없다.
- 근육 자체의 국소적 문제
  - 외상(major or micro trauma-잘 느끼지 못하는 미세한 외상에도 약해질 수 있다-개인차 많다.)
  - 근육내의 센서(Proprioceptors - spindle cell - GTO's)의 이상
- 근육을 지배하는 신경의 압박, 포착(죄임, entrapment) 등 말초신경의 모든 문제
- 그 말초신경을 조절하는 중추신경의 기능적인 병적인 문제.

근육이 약해진 원인

- 감정적인(정서적인) 문제
- 반사점에 접촉
- 척추, 두개골, 관절에 유발검사
- 응용근신경학에서 검사하는 근육 특히 지표근육(indicator muscle)은 역동적으로 변화(dynamic change) 한다. 그 변화를 통해서 진단의 단서를 찾고 치료의 결과를 평가, 추적하는 자료로 삼는다.

MUSCLE TESTING FOR FUNCTIONAL, NEUROLOGICAL, NEUROCHEMICAL, EVALUATION

기능적인, 신경학적인, 신경화학적인 평가를 하기 위한 근육검사

Diagnosing the process....
Not just the name

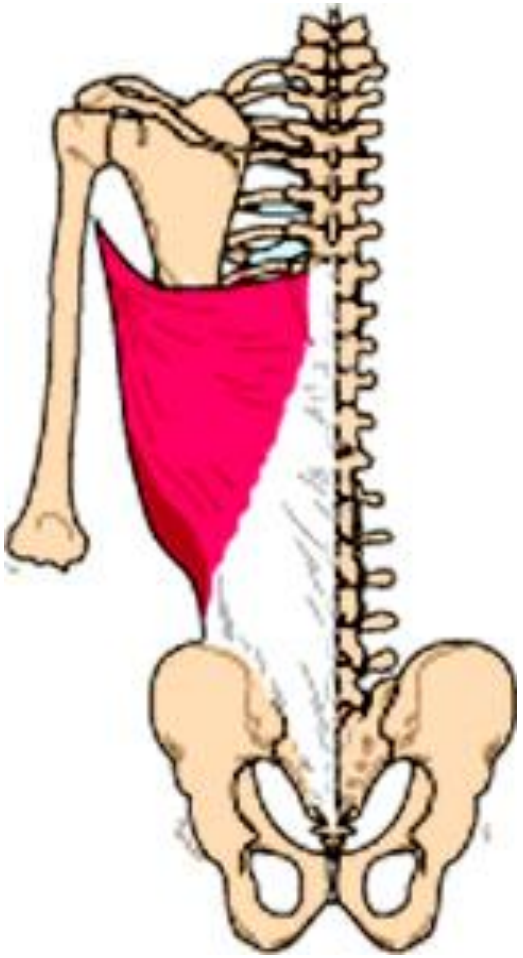
질병의 이름보다는 정확한 근본적
인 원인을 찾는 치료학문이다.

근육

- 넓은 등근(광배근, latissimus dorsi)
- 큰가슴근 빗장뼈분지(대흉근쇄골지 Pectoralis major claicle, PMC)
- 큰가슴근 흉골지(대흉근 흉골지,Pectoralis major sternum, PMS)
- 허리근(psoas)
- 넙다리 근막긴장근(대퇴근막장근,Tensor fascia lata)
- 궁둥구멍근(이상근,Piriformis)

넓은 등근 Latissimus dorsi

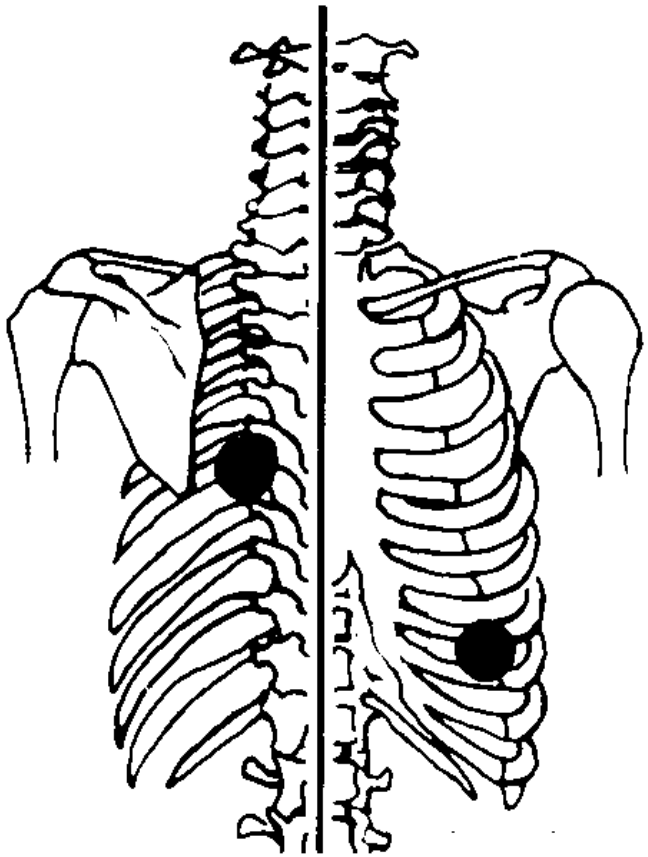
- **신경지배**: 완신경총에서 나오는 흉배신경, C6, 7, 8
- **신경림프 반사점**:
- **전방**: 좌측 늑연골 접합부 위치의 제7늑간.
- **후방**: 좌측 제7흉추와 제8흉추 사이의 추궁판
- 영양제: metabolic synergy, digestzyme

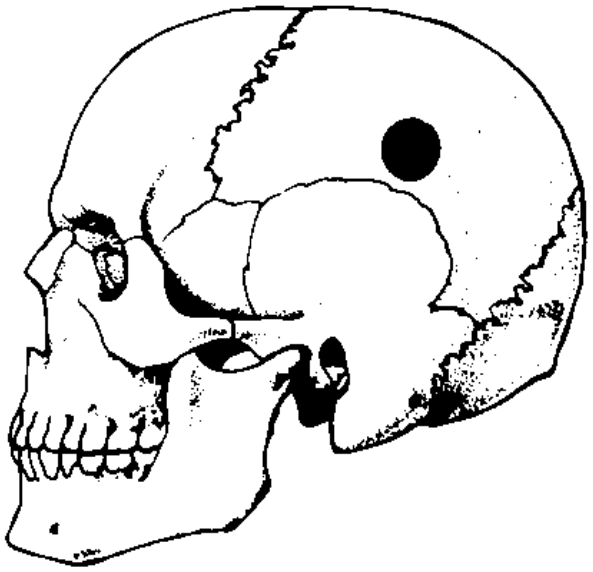


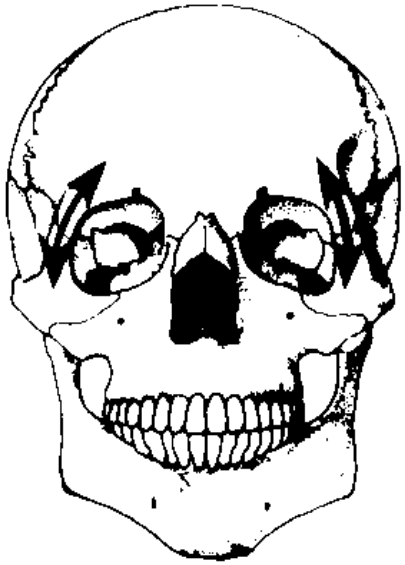

VPII

넓은 등근

- 기능: 위팔뼈(상완골)을 신전, 내회전, 내전
- 약할 때의 임상적인 의의
- 상부 등세모근(승모근)의 긴장
- 수영을 하거나 노를 저을 때 힘들다.
- 큰가슴근과 같이 작용하여 아래로 누르거나 평행봉을 할 때 작용
- 역기나 물건을 들어 올릴 때 엉덩엉치관절의 문제를 일으킬 수 있다.
- 드물지만 어느 한 쪽이 약해지면 반대쪽이 긴장이 되어 오십견을 일으킬 수 있다.
- 췌장-혈당조절의 이상이 있거나 소화효소의 부족이 있을 수 있다.

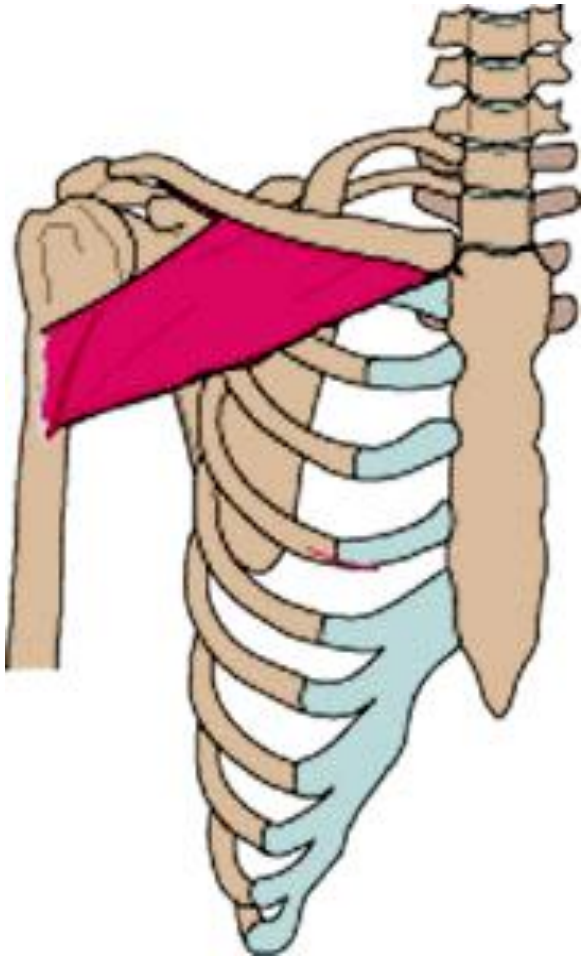






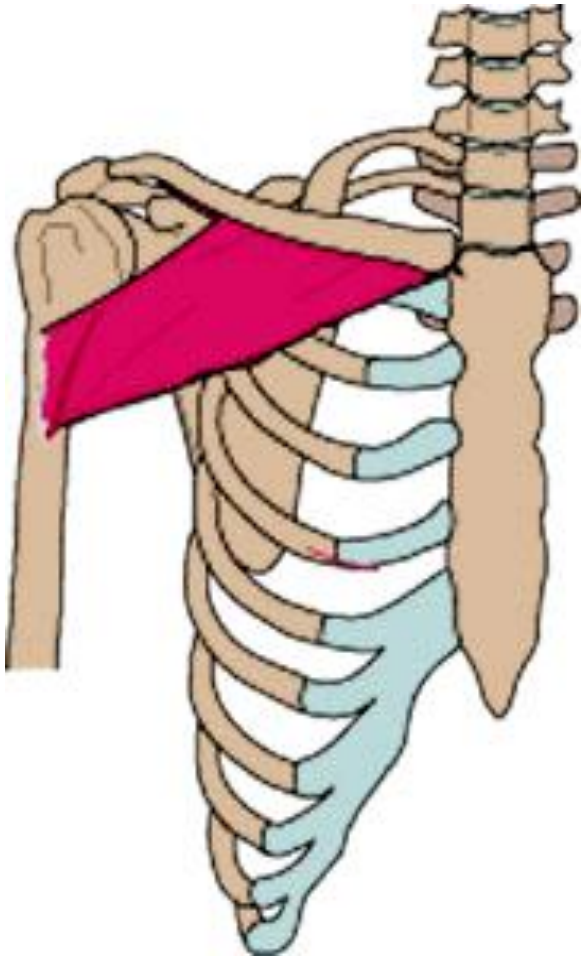
큰가슴근 빗장뼈분지 Pectoralis Clavicular

- 신경지배: 외측흉근신경, C5, 6, 7
- 신경림프 반사점:
- 전방: 좌측의 유두선상 제6늑간에서 흉골에 이르는 부위
- 후방: 좌측 제6흉추와 제7흉추 사이의 추궁판 부근



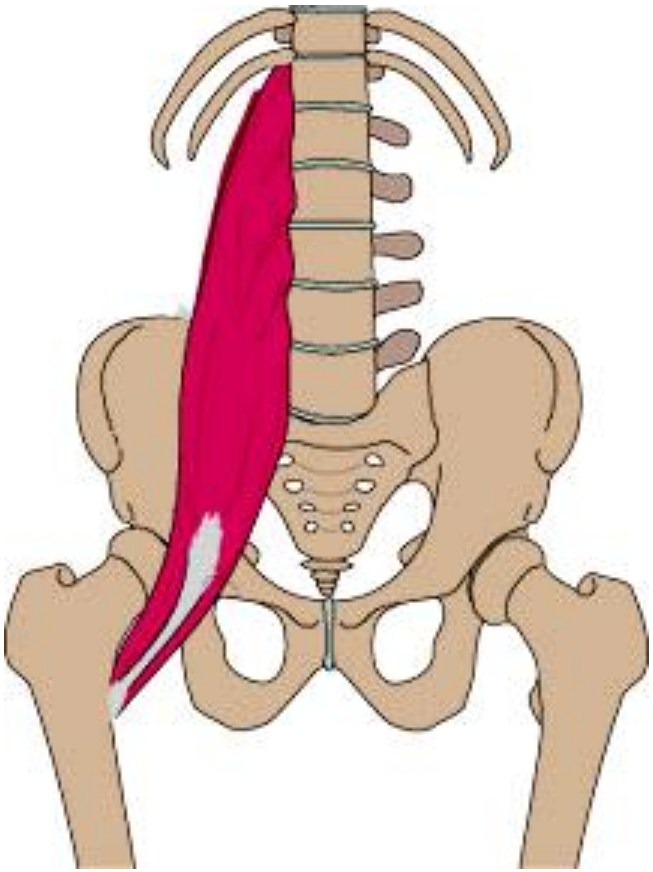
Pectoralis Clavicular

- 신경혈관 반사점: 양측 전 두융기
- 영양: 비타민 B, betaine hydrochloride(HCL), 위 농축물 혹은 핵단백질 추출물과 함께 비타민 B12, digestzyme, gastromend HP
- 연관된 경락: 위경
- 연관된 장기/내분비선:



허리근(Psoas)

- 기시부
  - 척추제, 디스크, 횡돌기T12-L5.
- 부착부
  - 소전자



허리근

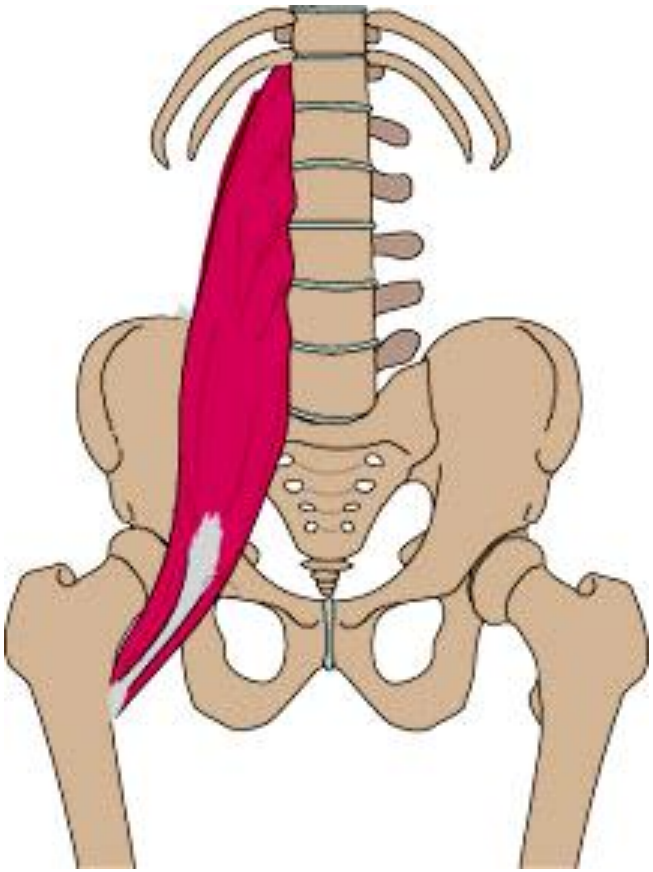
- **방법**
  - 무릎을 신전시키고 다리를 외회전 시킨다. 30도 외전하고 40도 굴곡하여 검사한다.
- **고정**

  반대쪽 ASIS 혹은 대퇴
- **힘의 방향(Vector of Force)**

  근육의 방향에 수직으로,

  다리에 수직으로 힘을 가한다.

- **신경지배**: 요신경총, L1, **2, 3**, 4
- **신경림프 반사점**:
- **전방**: 배꼽 상방으로 1인치, 측방으로 1인치 되는 곳
- **후방**: 제12흉추와 제1요추 수준의 극돌기와 횡돌기 사이.
- **신경혈관 반사점**: 외후두융기 측방 1.5인치 되는 곳.
- **영양**: 비타민 A, E, 신장 농축물이나 핵단백질 추출물
- **연관된 경락**: 신경
- **연관된 장기/내분비선**:
  신장



허리근

- 기능: 고관절의 굴곡 및 외회전
- 약할 때의 임상적인 의의
- 요통
- 요추 측만증
- 양측이 약할 경우는 요추의 전만감소
- 바로 누우면 약한 쪽의 엄지 발가락이 더 안쪽으로 회전함.
- 동측의 족부의 과도한 내회전이 있을 수 있다.
- 신장결석을 포함한 신장의 문제가 있을 수 있다.

넙다리 근막긴장근
Tensor Fascia Lata

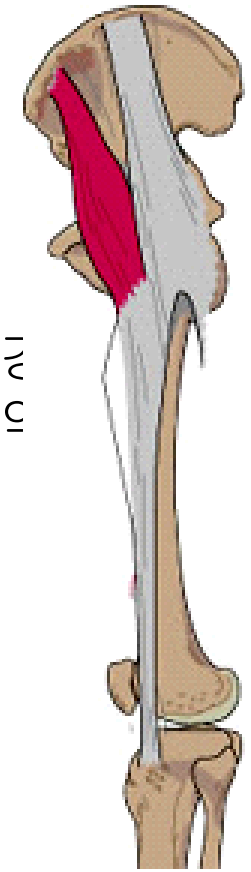
기시: 장골능 외측 순(lip)의 전방부, 장골 전연.

종지: 대퇴근막 장경인대의 중간 1/3 부위.

신경지배: 상둔신경, **L4, 5, S1**

신경림프 반사점:

전방: 양측의 전외측 대퇴부. 대퇴근막장근의 신경
림프 반사는 대응되는 대장의 구역에 따라 몇 구역
으로 나뉜다.



넙다리 근막긴장근
Tensor Fascia Lata

후방: 제2요추, 제4요추, 장골릉을 세 꼭지점으로 하는 삼각형 영역

신경혈관 반사점: 측두융기 후면

영 양 : acidophilus, probiotics, **Probiotic synergy**

Dysbiosis: **GI microb-x**

- Fungus: oregano, castorbean oil(SF 722), Morinda sureme
- Bacteria: Isatis, Berbcap
- Parasite: chinese wormwood(Artecin)

연관된 경락: 대장경

연관된 장기/내분비선: 대장

넙다리근막긴장근

- 기능: 고관절의 외전, 굴곡, 내회전, 그리고 무릎의 신전과 외측 안정성에 관여함.
- 약할 때 임상적인 의의
  - 무릎 외측의 문제
  - 고관절의 외전감소, 고관절 관절염
  - 천장관절 아탈구의 재발
  - meralgia paresthetica
  - 모든 종류의 대장의 문제, dysbiosis

궁둥구멍근 Piriformis

- **기시**: 전방 천골공 사이와 외측에 걸친 천골의 앞면, 천장관절낭, 대좌골공 변연, 천골결절인대.
- **종지**: 대퇴골 대전자의 상연
- **신경지배**: 천골신경총, L5, S1, 2
- **신경림프 반사점**:
- **전방**: 치골결합의 상부
- **후방**: 후상장골극과 제5요추 극돌기 사이
- **신경혈관 반사점**: 측두융기의 후면
- **영양**:남성/여성 내분비 농축물 혹은 핵단백질 추출물, libido stim-M, Libido stim-F, adrenal complex, Thyroid synergy
- **연관된 경락**: 심포경

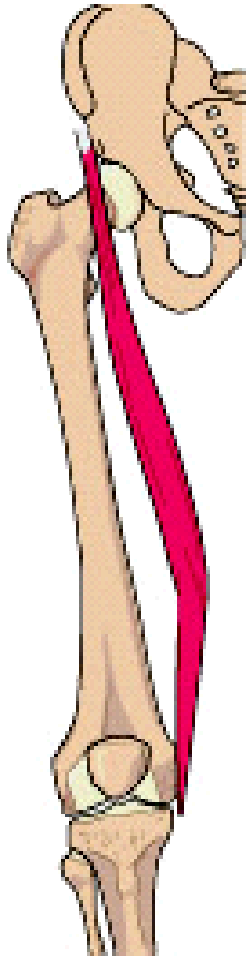
- 인체에 대한 신경생리학적인 개념
- 인체를 전체로 보고 치료하는 습관 (구조, 화학, 정신)
- 환자의 증상을 쫓지는 않지만 절대로 무시하지 않는다. 환자가 말하는 것과 신체언어의 의미를 읽을 수 있어야 한다.

궁둥구멍근

- 기능: 고관절 외회전근
- 약할 때 임상적인 의의
  - 대전자 주위의 통증
  - 약한 쪽에서 근육이 아래로 좌골신경을 누른다.
  - 누웠을 때 약한 쪽으로 족무지가 내회전한다 (장요근의 약화와 구분해야함).
  - 천골의 아탈구-흔히 목의 통증과 관련이 있다.

Sartorius 넙다리빗근

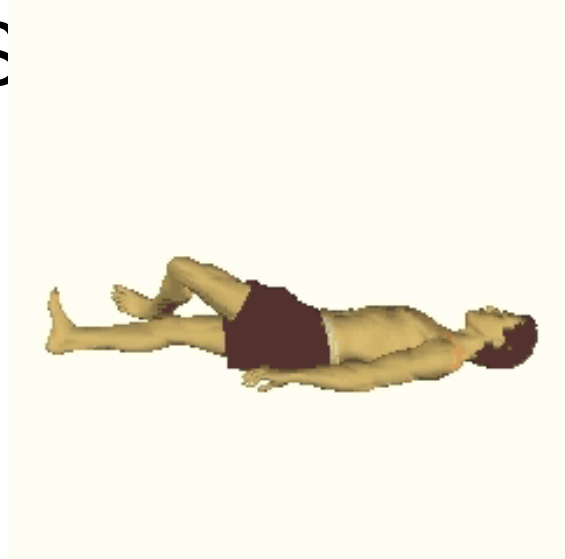
- Origin
- Anterior superior iliac spine. It may also be attached to the inguinal ligament.
- 위앞엉덩뼈가시(전상장골극)에서 시작
- Insertion
- To the medial surface of the body of the tibia anterior to the insertion of the gracilis and the semitendinosus. It may also be attached to the tendon of the patella
- 무릎의 안쪽에서 gracilis, semitendinosus와 같이 붙는다.



Sartorius - Indications

- Chronic pelvic imbalance. 골반의 만성 불균형
- Knee instability. 무릎관절의 내측 불안정(더물다)
- Medial knee pain. 무릎안쪽의 통증
- Post.rotation of iliac crest 골반의 미세한 삐뚤어짐 PI(Posterior inferior변형, Cat **Ⅱ)**
- Tenderness over the lower one third of the muscle. 근육의 아래 1/3의 압통이 있을 수 있다.
- Lack of medial knee support while flexing the knee. 무릎을 굽힐 때 내측에 불안정
- Standing, the subject may have a genu valgus (knock-knee) state. 서있을 때 외반슬-더물다.

Sartorius



- Body part position
  - Leg in the Fabere-Patrick test.position 고관절을 약간 굴곡, 외회전한 상태
- Stabilization
  - By the patient using their hands to stabilize themselves on the table 환자는 테이블을 잡는다.
- Vector of Force
  - The hand on the lateral thigh applies pressure to extend, adduct and medially rotate the thigh. At the same time with equal pressure, the lower leg contact attempts to extend the knee. 오른쪽 그림의 위치에서 무릎을 펴면서 무릎 바깥쪽에 힘을 주어서 왼쪽 위의 그림처럼 만든다.

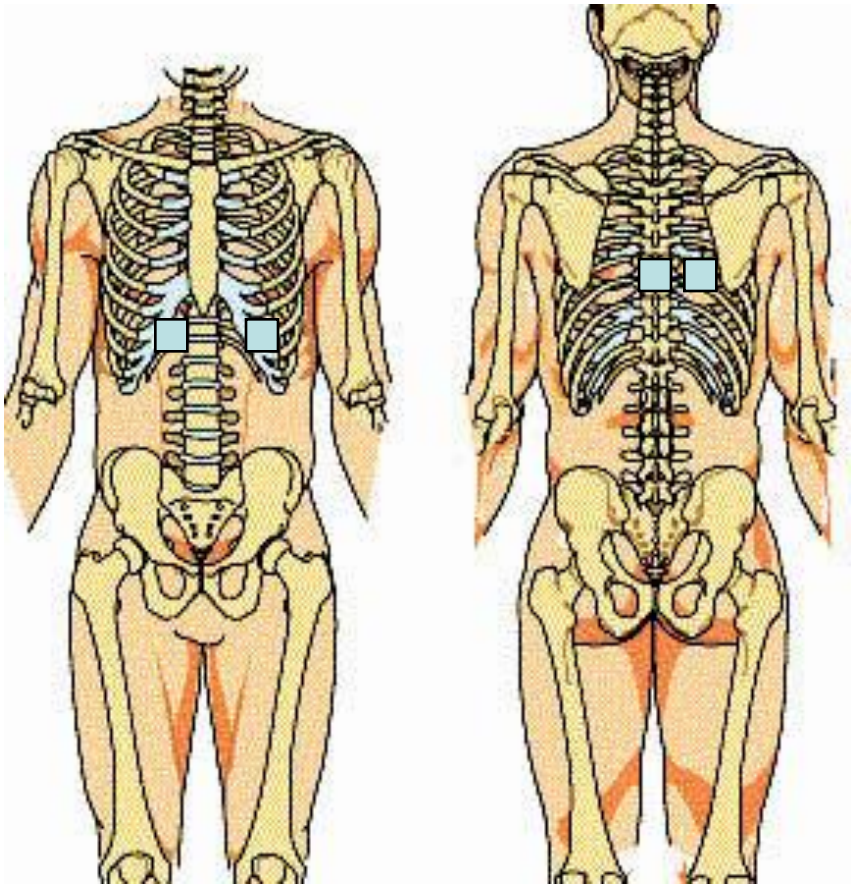
넙다리 빗근

검사가 쉽지 않다.

Sartorius 넙다리 빗근의 림프반사점

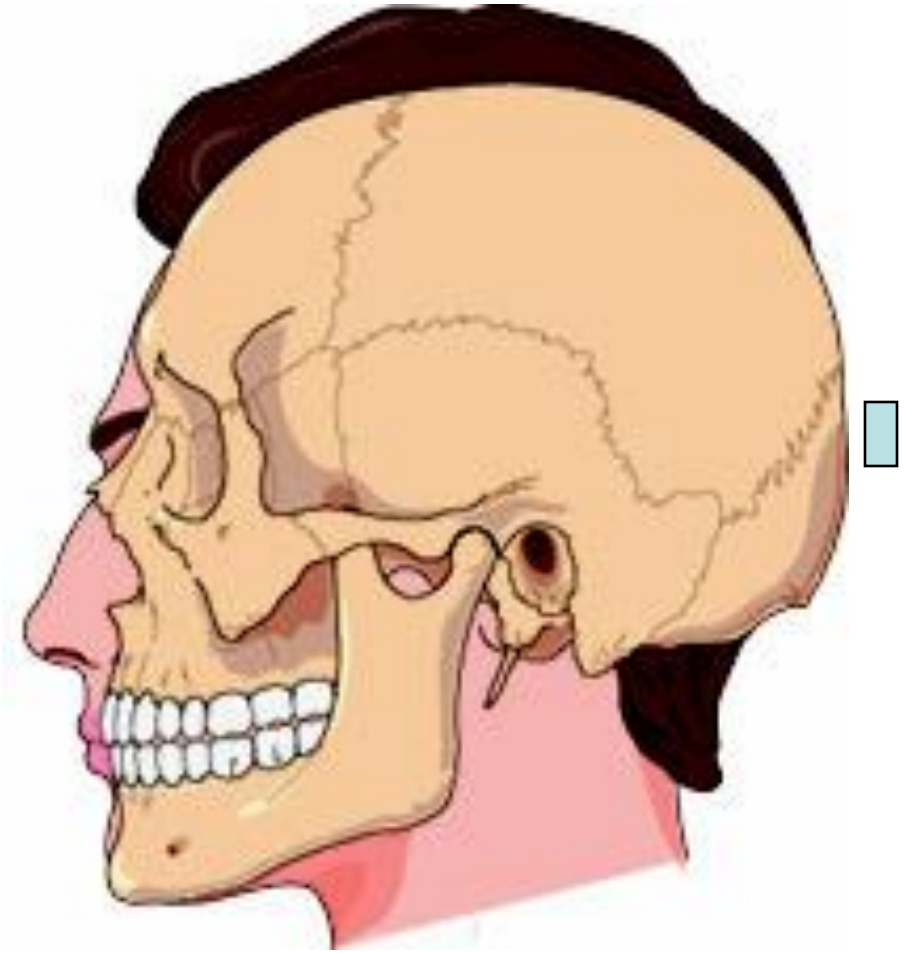
- 앞쪽

  배꼽 위 2인치, 옆으로 1 인치인 부위
- Posterior
  - 11, 12번 흉추의 척추돌기와 횡돌기 사이



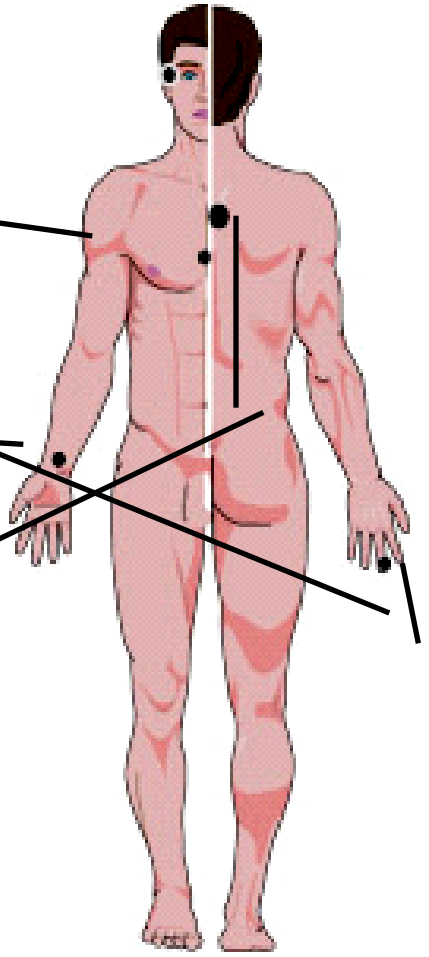
Sartorius

- Vascular reflexes혈관 반사
  - Located over the lambda



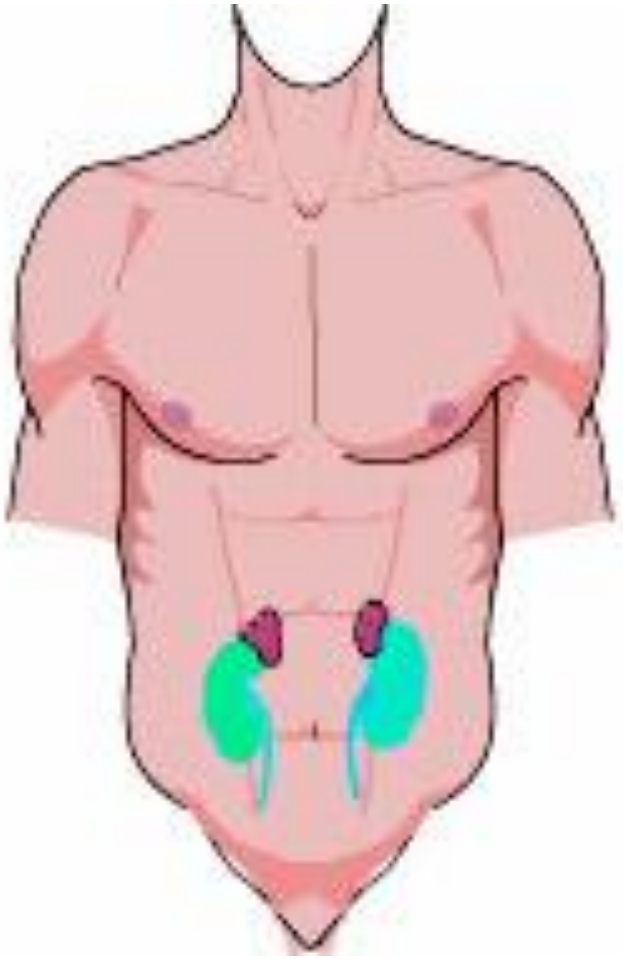
Sartorius

- **Meridian** – Circulation/sex
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - BI – 14 T – 5 T – 6



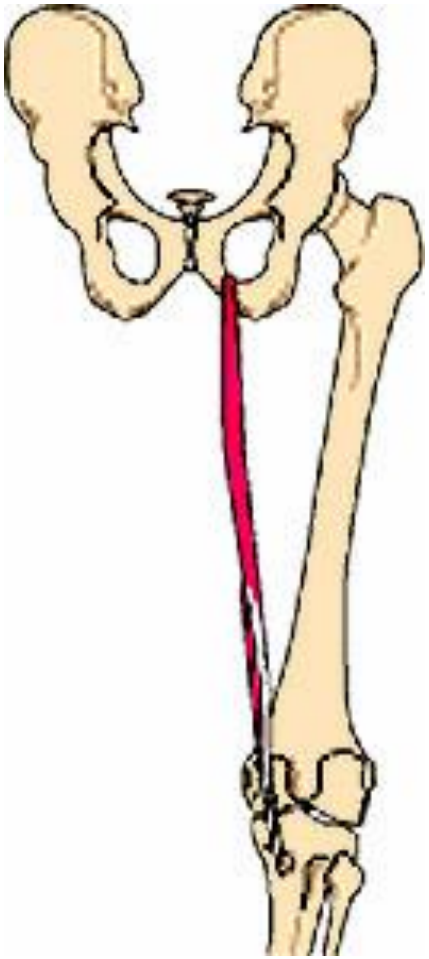
넙다리 빗근의 영양치료
부신의 영양치료와 같다.

- Adrenal extracts
- Tyrosine and the cofactors needed to convert tyrosine like B – 6, B – 12 and folic acid.
- Adrenal complex
- Adrenotone plus
- Catecholacalm –정서적인 스트레스



Gracilis두덩정강근

- Origin
- Arises from the lower rim of the pubis at the junction of the pubis and the inferior pubic ramus
- Insertion
- Into the medial surface of the tibial body distal to the tibial condyle. It joins the tendons of the sartorius and the semitendinosus



Gracilis 두덩정강근의 임상적 의의

- Posterior rotation of the ipsilateral iliac crest due to lack of anterior support. 골반의 앞쪽을 support못해서 PI변형 잘 생긴다.
- Tenderness over the lower or superior one third of the fibers of the muscle. 이 근육의 위, 아래에 압통
- Lack of medial knee support while flexing the knee. Standing may reveal a genu valgus (knock-knee) state. 무릎 안쪽의 불안정-외반슬-거의 안 생김

Gracilis 근육검사 전통적 방식

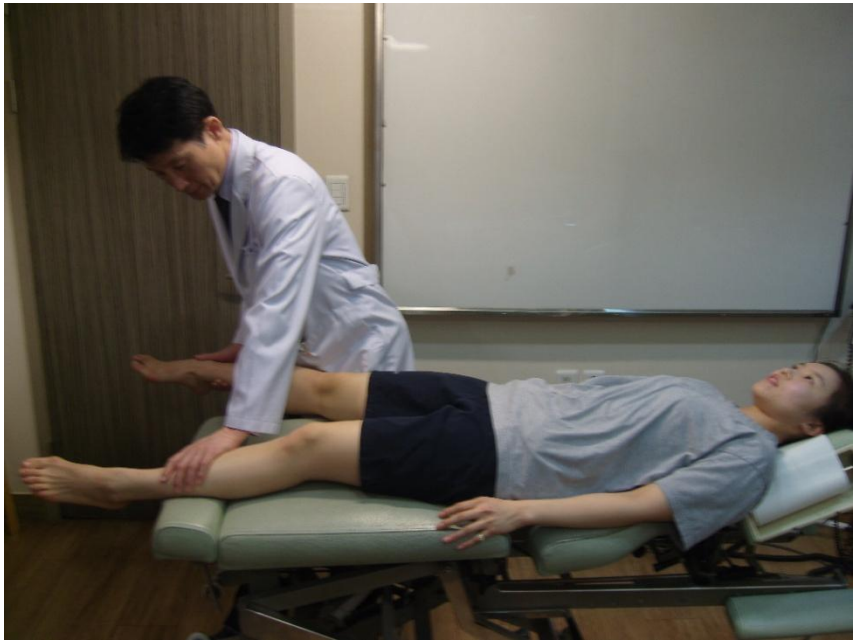
- Body part position
  - In the prone position, the femur is extended 20 degrees, abducted 20 degrees and medially rotated. The knee is then flexed 20 - 30 degrees.
- Stabilization
  - The leg is supported just superior to the knee.
- Vector of Force
  - Pressure is applied to extend the knee with slight lateral pressure.

두덩정강근의 전통적 검사법

Gracilis alternate test 근육검사 더 간단하다.

- Body part position
  - In the supine position, the femur is internally rotated 45 degrees
- Stabilization
  - The opposite leg is supported just superior to the ankle.
- Vector of Force
  - Pressure is applied to abduct the leg..

두덩정강근 간편한 방법

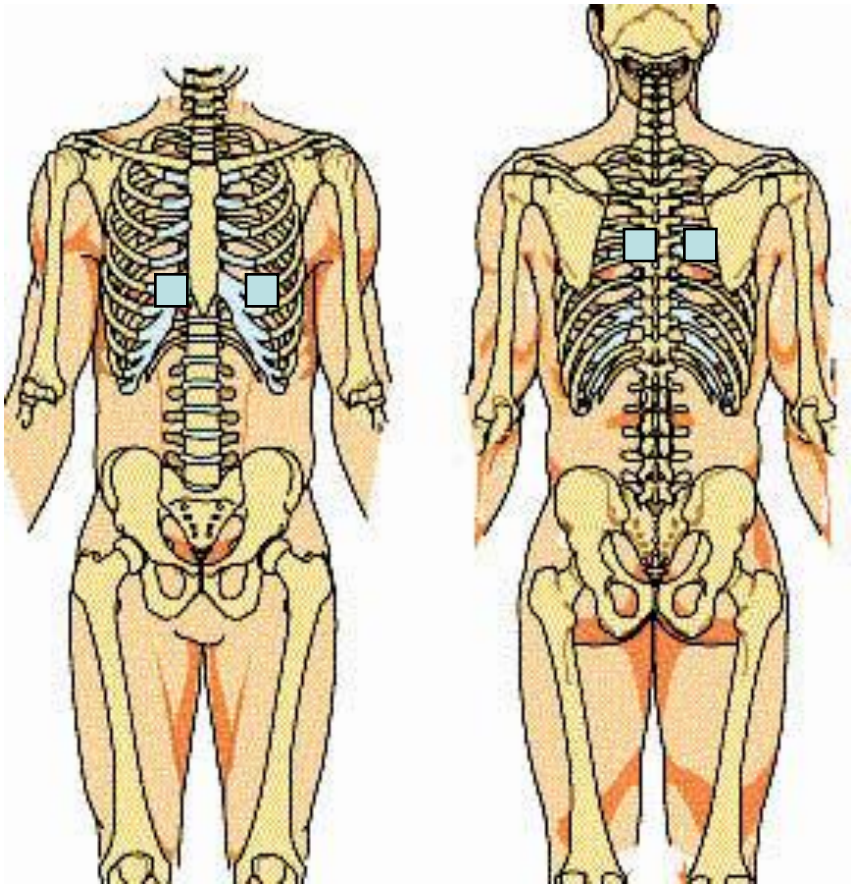


Gracilis – Nerve Supply

- L – 2 & 3.
  - Anterior division of the obturator nerve.

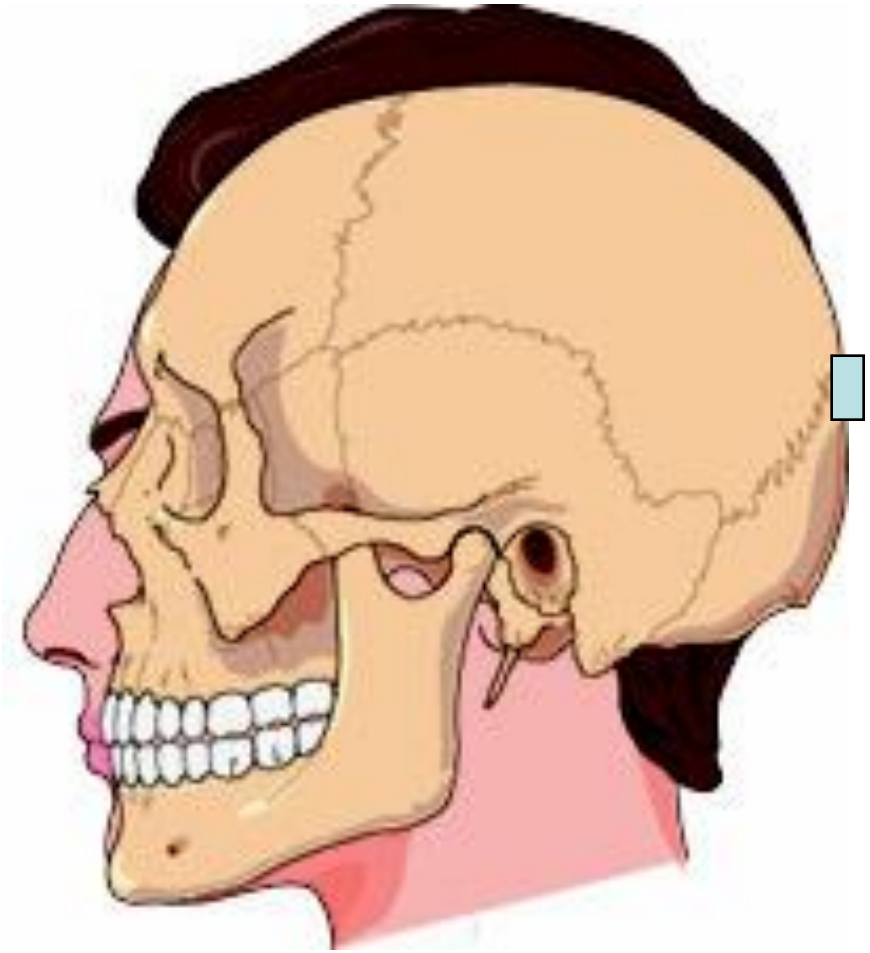
Gracilis 두덩정강근
림프 반사는 넙다리 빗근 sartorius 와 같다.

- Anterior
  - Located one inch lateral and two inches superior to the umbilicus
- Posterior
  - Located between the spinous and transverse process of T – 11 & T – 12.



Gracilis Vascular reflex

- Located over the lambda

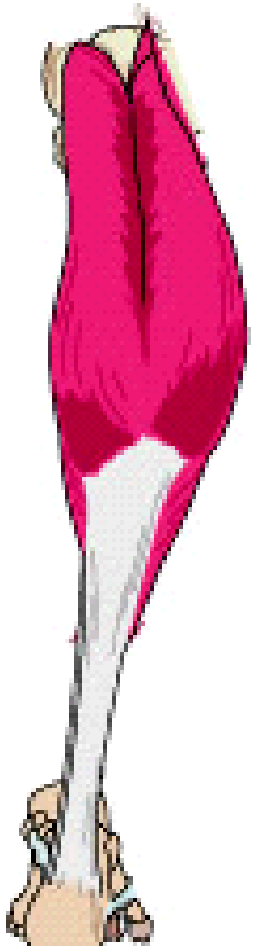


Gracilis Nutrition
영양치료도 넙다리 빗근과 같다.

- Adrenal extracts
- Niacin and the other cofactors needed for the cholesterol based hormones to be produced.
  - These include pantothenic acid, folic acid, vitamins C and E.
- Adrenal complex
- Adrenotone plus
- Catecholacalm-정서적인 스트레스

Gastrocnemius 장딴지근

- Origin
  - Medial head: Medial condyle of the femur
  - Lateral head: Lateral condyle of the femur
- Insertion
  - Both heads join to the Achilles' tendon which attaches to the posterior surface of the calcaneus



Gastrocnemius

- Indications
- The subject will stand with an anterior lean to the body.
- There is a hyperextension of the knee standing.
- Inability to rise on the toes.

Gastrocnemius

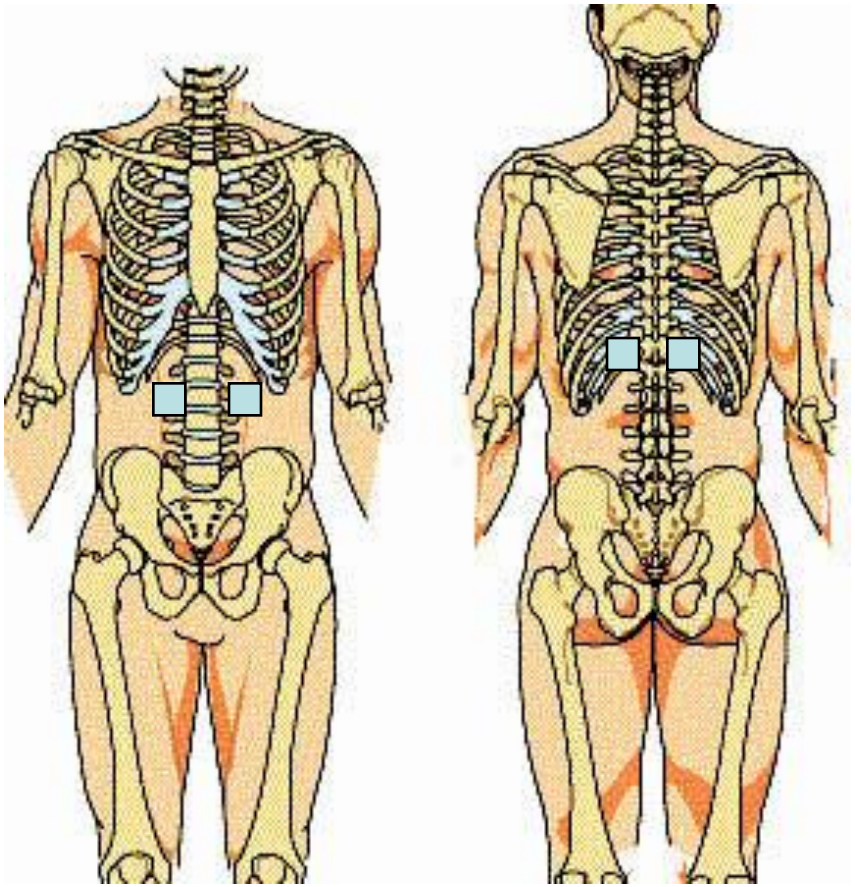
- 강한 근육이어서 근육검사가 쉽지 않다.
- Body part position
  - The subject is prone with the knee extended. The subject is asked to plantarflex the foot fully..
- Stabilization
  - Due to the strength of the muscle none is needed unless the muscle is tested in a standing position. Then the tibia will need support.
- Vector of Force
  - Pressure is applied to dorsiflex the foot..

Gastrocnemius

- Nerve Supply
  - S - 1 & 2.
  - Tibial nerve.

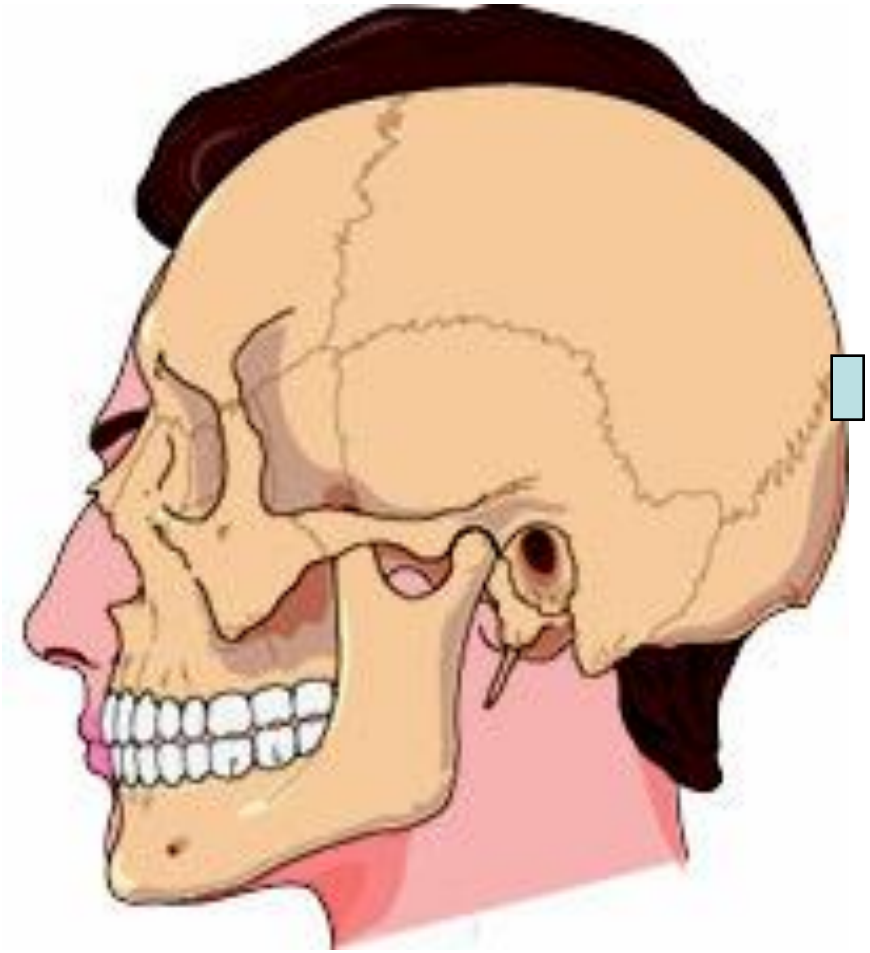
Gastrocnemius 장딴지근의 림프반사도 다른 부신 근육과 같다.

- Lymphatic reflexes
- Anterior
  - Located one inch lateral and two inches superior to the umbilicus
- Posterior
  - Located between the spinous and transverse process ofT – 11 & T – 12.



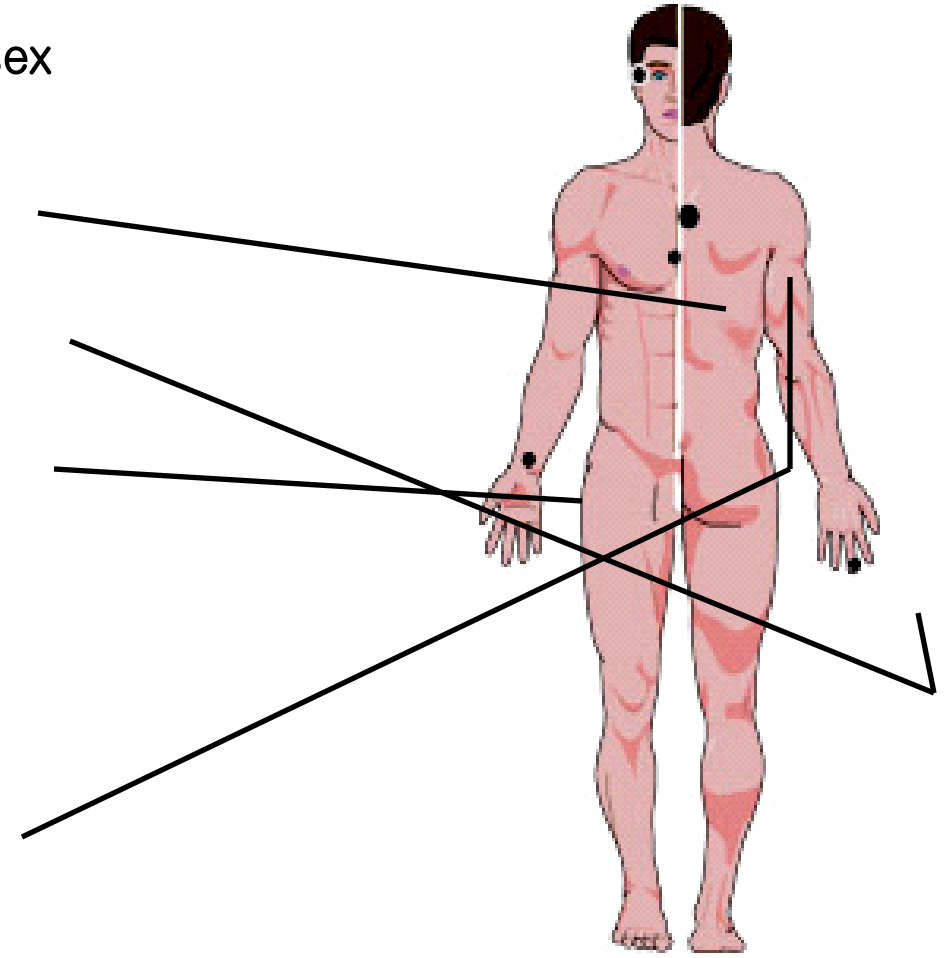
Gastrocnemius

- Vascular reflexes
  - Located over the lambda



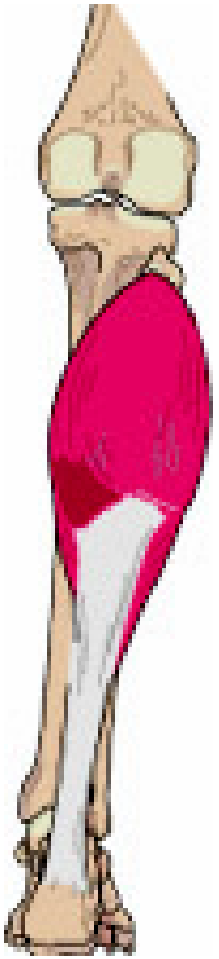
Gastrocnemius

- Meridian – Circulation/sex
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - BI – 14 T – 5 T – 6



Soleus가자미근

- Origin
  - To the posterior surface of the head of the fibula and to the proximal 1/3 of the posterior surface of the fibula.
- Insertion
  - Joins to the Achilles tendon with the fibers of the gastrocnemius which attaches to the posterior surface of the calcaneus.



Soleus Action

- Plantar flexes the foot.
- Begins the walking process by relaxing to allow the center of gravity to move anterior. Aids in the stabilization of the tibia on the talus.
- Synergists
- Antagonists

Soleus

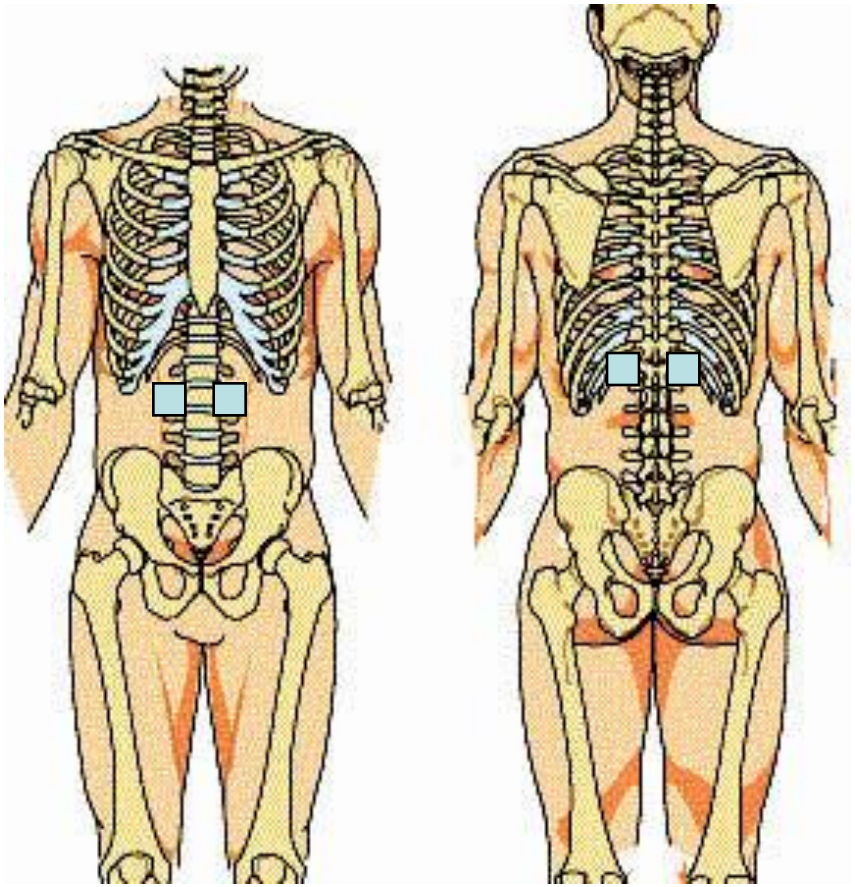
- 장딴지근과 마찬가지로 강한 근육이어서 근육검사가 쉽지는 않다.
- Body part position
  - The subject is prone with the knee flexed at 90 degrees.
- Stabilization
  - Due to the strength of the muscle none is needed unless the muscle is tested in a standing position. Then the tibia will need support.
- Vector of Force
  - Pressure is applied to dorsiflex the foot..

Soleus

- Nerve Supply
  - S - 1 & 2.
  - Tibial nerve.

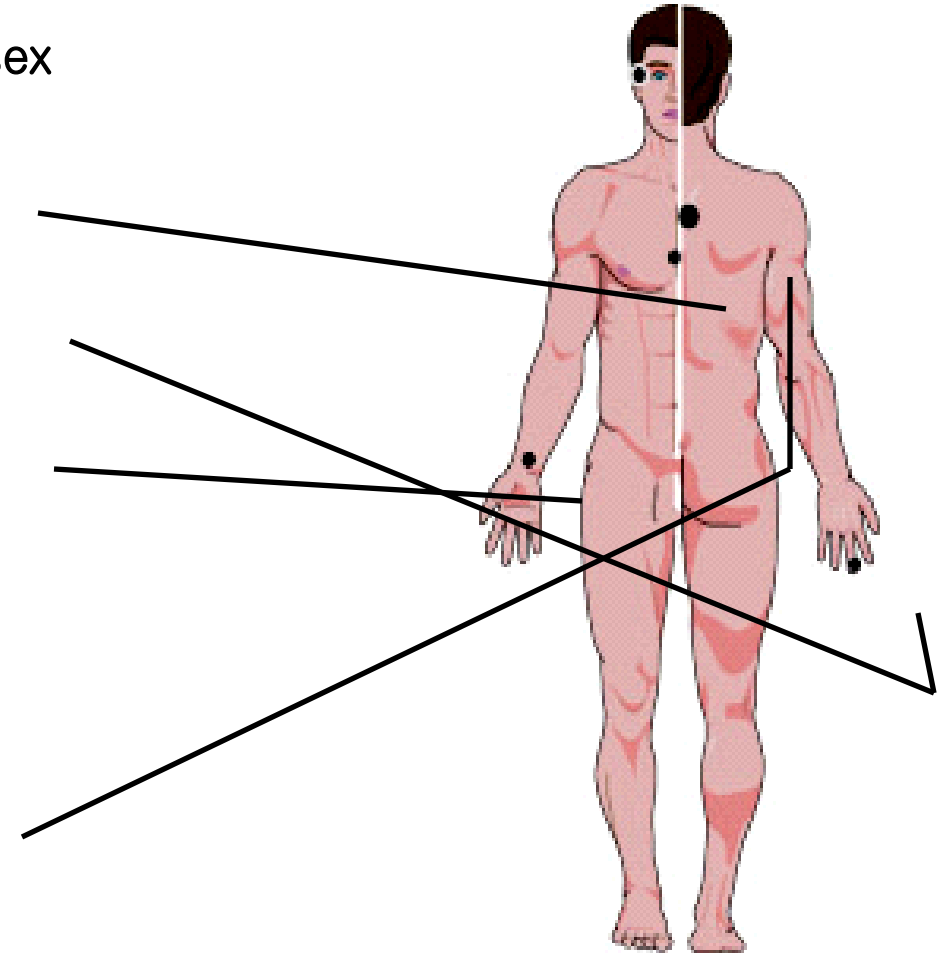
Soleus 가자미근의 림프반사도 다른 부신근육과 같다.

- Anterior
  - Located one inch lateral and two inches superior to the umbilicus
- Posterior
  - Located between the spinous and transverse process ofT – 11 & T – 12.



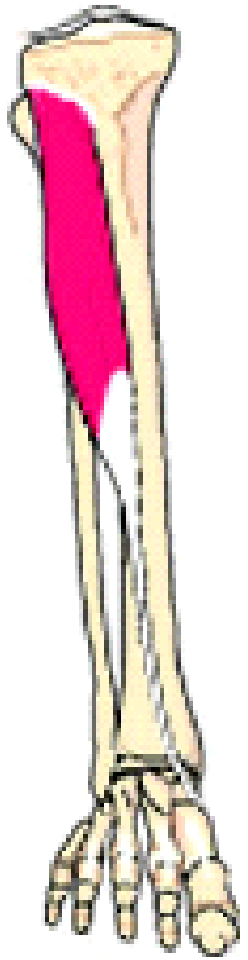
Soleus

- Meridian – Circulation/sex
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - BI – 14 T – 5 T – 6



Tibialis Anterior앞정강근

- Origin
  - Lateral condyle and upper 2/3 of the lateral surface of the tibia, the interosseous membrane;, the crural fascia and the intermuscular septum
  - 정강뼈외측과 골간막에서 시작
- Insertion
  - Medial plantar surface of the medial cunieform and the base of the first metatarsal 발의 안쪽 쇄기 뼈와 첫번째 발허리뼈에 부착



Tibialis Anterior 임상적의의

- Disc protrusion 허리 디스크가 있을 때 약할 수 있다.
- Chronic weakness creates foot drop
- Shortening with localized pain in the gastrocnemius/soleus muscle groups 장딴지가 아플 수 있다. 근육이 짧아져서
- Foot drop or slapping of the foot at heel strike.
- Tripping over objects as the foot clearance with the ground is diminished. 걸을 때 발이 땅에 걸린다.
- Loss of anterior support while leaning backwards in the standing position. 서서 뒤로 기울일 때 앞쪽의 안정성이 없어짐.

Tibialis Anterior

- Body part position
  - The subject is asked to pull their foot towards their nose. If shortening of the gastrocnemius is suspected, bend the knee 90 degrees to allow full dorsiflexion
- Stabilization
  - Pressure is applied above the malleoli grasping the lower leg
- Vector of Force
  - Pressure is applied through the broad contact in the direction of plantarflexion and slight eversion .

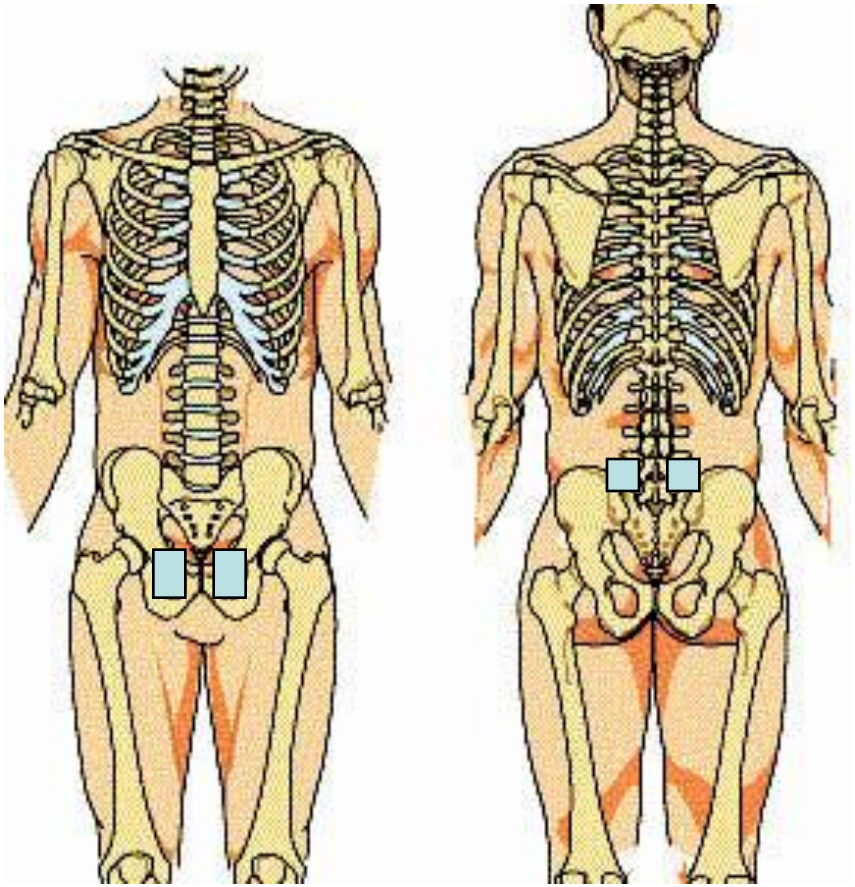
앞정강근

Tibialis Anterior

- Nerve Supply
- L –4, 5 and S – 1.
  - Deep Peroneal nerve

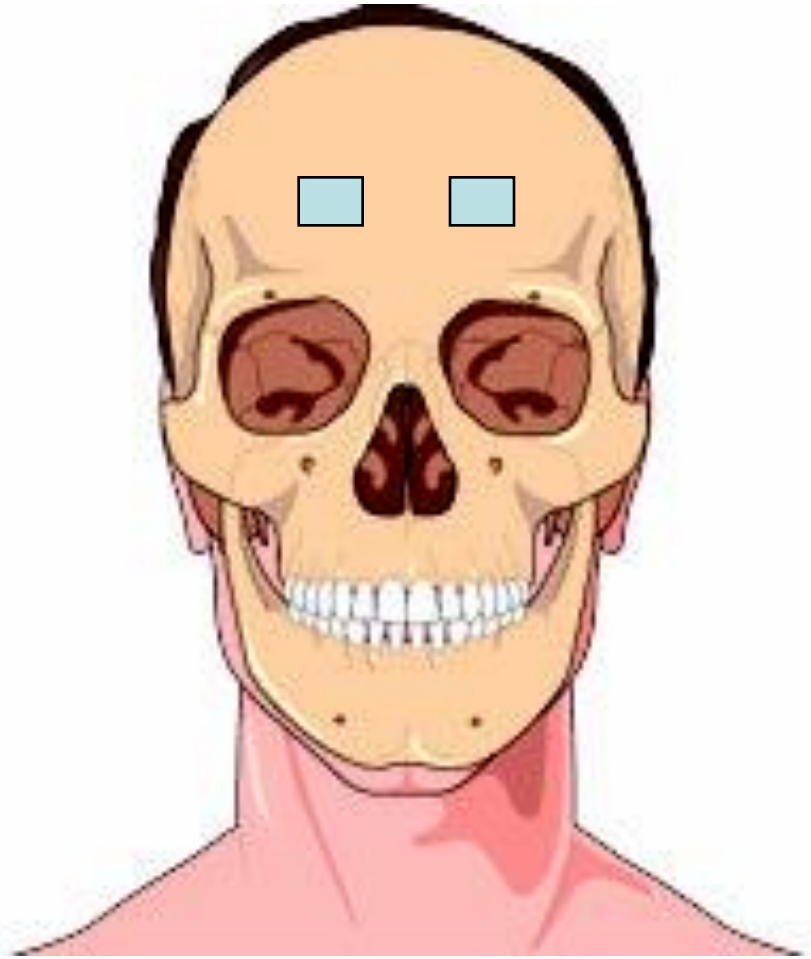
Tibialis Anterior 앞정강근의 림프 반사

- Anterior
  - Located 3/4 of an inch above the symphysis
- Posterior
  - Lies over the lamina of L – 2



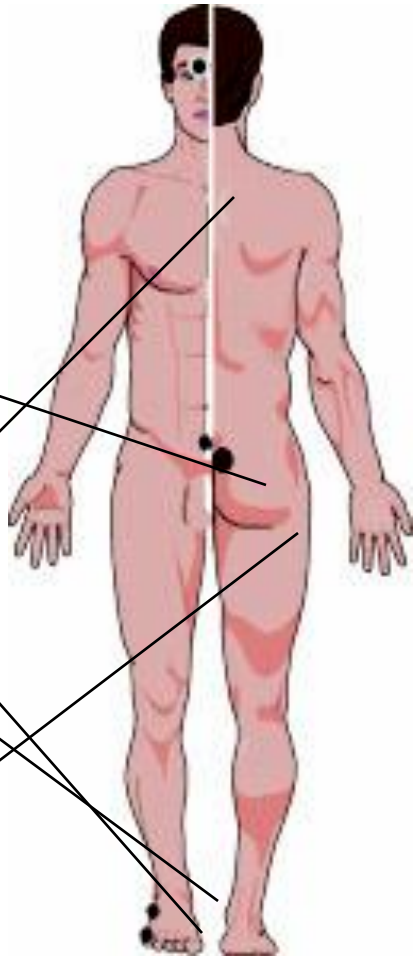
Tibialis Anterior

- Vascular reflexes
  - Over the frontal eminence



Tibialis Anterior

- **Meridian** – Bladder
- Alarm
- Tonification: Bl – 67
- Sedation: Bl – 65
- B & E – Bl – 1
- Associated Bl – 28 2nd Sacral



Tibialis Anterior
앞정강근과 관련된 영양치료

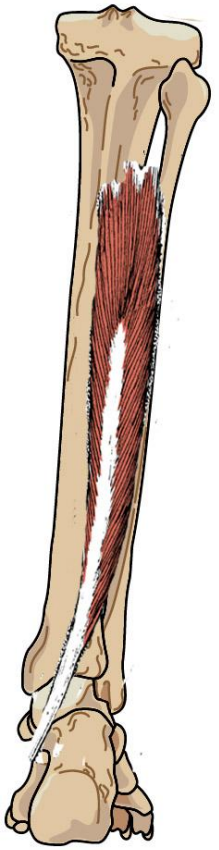
방광과 관련됨

UT synergy

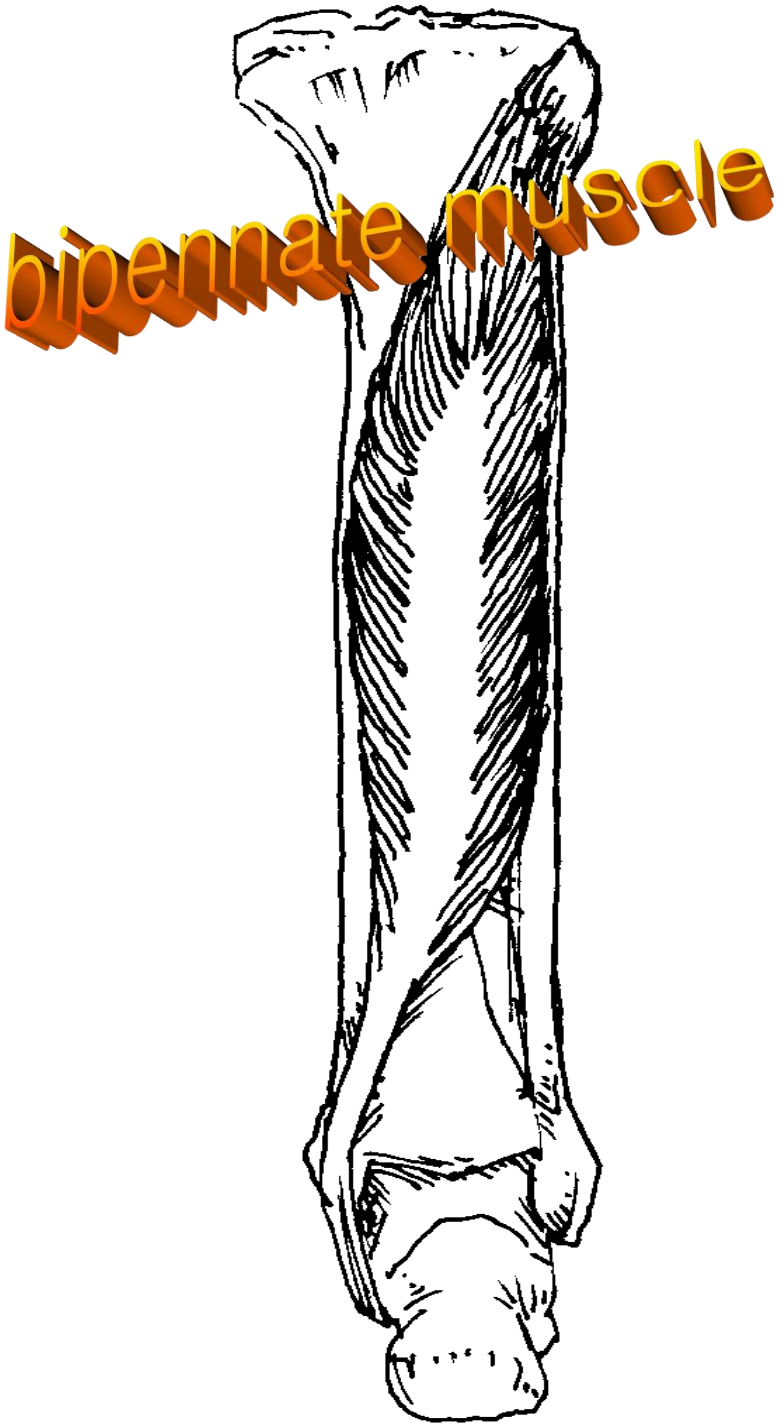
Cranberry complex

Tibialis Posterior 뒤정강근

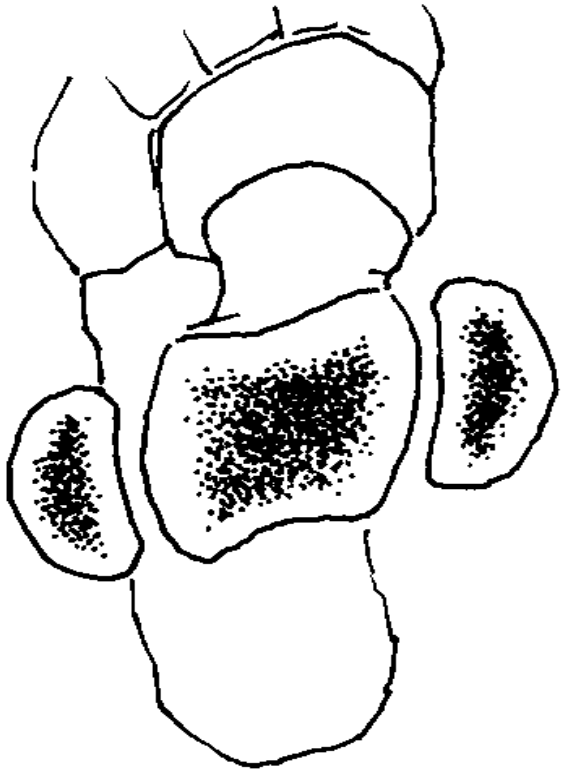
- Origin
  - Medial surface of the fibula, the interosseous membrane, the lateral portion of the posterior surface of the body of the tibia, the deep transverse fascia and the intermuscular septa
    정강이 뒤 외측, 골간막에서 시작
- Insertion
  - Mainly to the plantar surface of the navicular but also to the plantar surfaces of the calcaneus, cuboid, all cuneiforms and to the base of the second to fourth metatarsals.발바닥 뼈 전체에 부착(발꿈치뼈 제외)

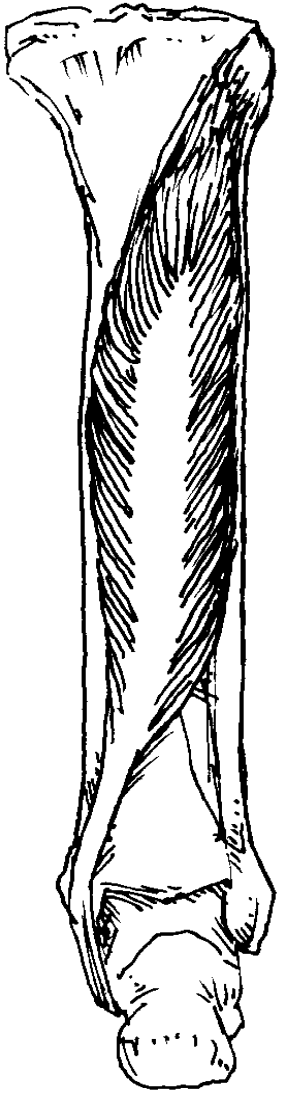


bipennate muscle



Ankle mortise





Tibialis Posterior 뒤정강근의 문제 임상적의의

- Excessive pronation 과도한 업침.
  - Bunion formation.
  - Heel spurs.
  - Balance problems.
  - Knee, acetabulum, lumbar, cervical and TMJ pains relieved by reducing the foot pronation.
  - 이 모든 것이 과도한 업침에 의한 것

Tibialis Posterior

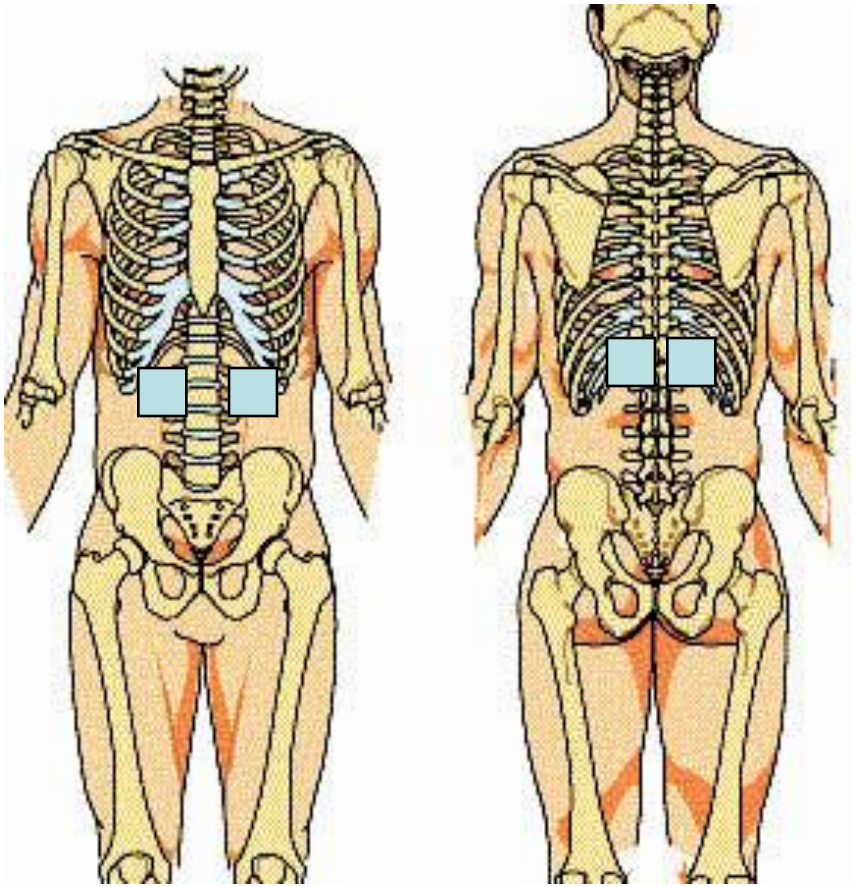
- Body part position
  - The subject is asked to fully plantar flex the foot and then fully invert the foot.
- Stabilization
  - Pressure is applied above the malleoli with one finger over the tendon of the tibialis anterior to feel for elevation of the tendon indicating recruitment.
- Vector of Force
  - In the direction of eversion. From inferior to superior and medial to lateral

Tibialis Posterior

- Nerve Supply
- L – 5 & S – 1

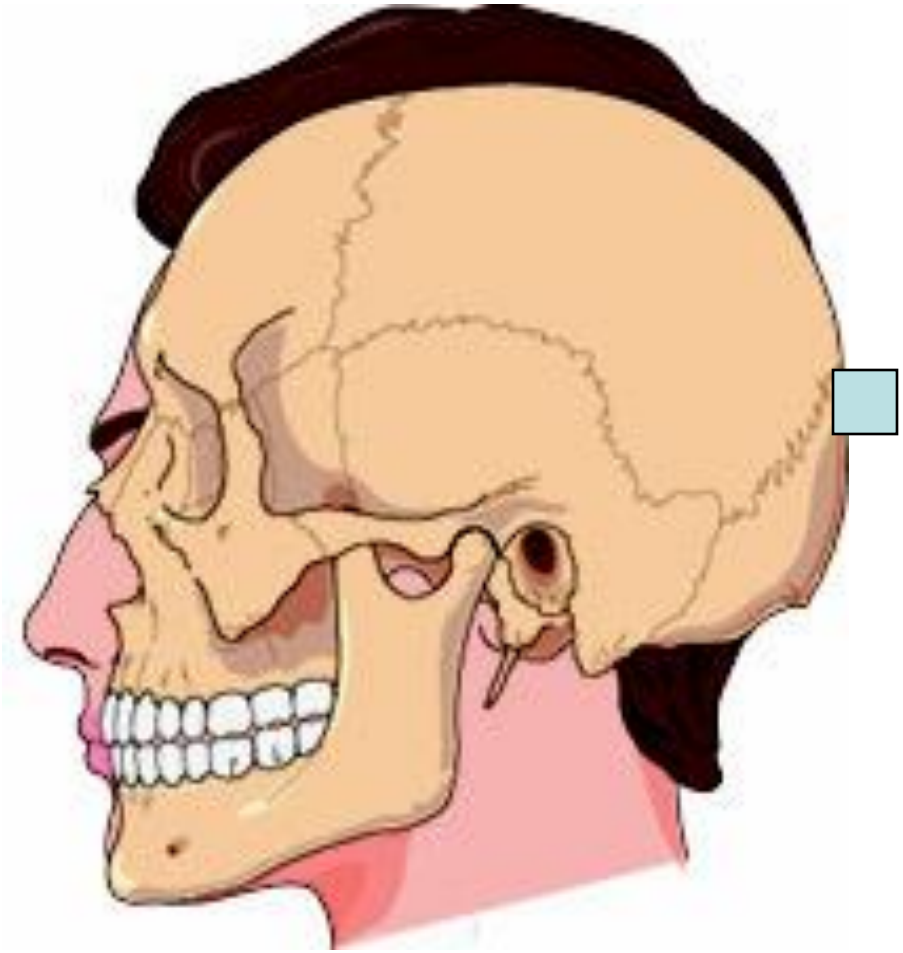
Tibialis Posterior 뒤정강근의 림프반사는 다른 부신근육과 같다.

- Lymphatic reflexes
- Anterior
  - Located two inches lateral and two inches superior to the umbilicus
- Posterior
  - Located between the spinous and transverse process of T – 11 & T – 12.



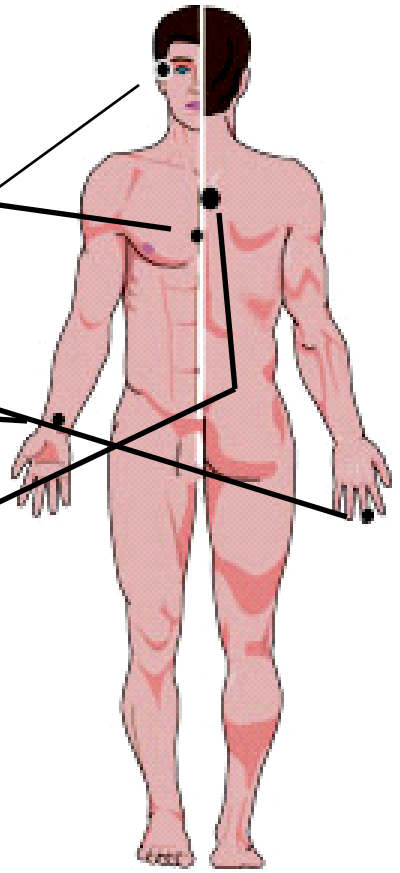
Tibialis Posterior

- Vascular reflexes
  - Located over the lambda



Tibialis Posterior

- **Meridian** – Circulation/sex
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - BI – 14 T – 5 T – 6



Tibialis Posterior영양치료도 다른 부신 근육과 같다.

- Nutrition
- Adrenal extracts
- Tyrosine and the cofactors needed to convert tyrosine like B - 6, B - 12 and folic acid.
- Adrenal complex
- Adrenotone plus
- Catecholacalm

Peroneus longus & brevis
긴종아리근과 짧은종아리근

- Origin
  - Longus: From the fibular head, the superior 2/3 of the lateral surface of the fibula and the intermuscular septa
  - Brevis: Distal 2/3 of the fibula lateral surface; intermuscular septa.
- Insertion
  - Longus: Into the ventral and lateral aspects of the 1st metatarsal and the medial cuneiform 첫번째 발허리뼈, 안쪽 쇄기뼈에 부착
  - Brevis: Into the tuberosity on the lateral aspect of the 5th metatarsal 5번째 발허리뼈에 부착

Peroneus longus & brevis 임상적 의의

- Ankle weakness and instability. 발목이 약하고 불안정
- Decreased inversion. 외번이 안됨
- Foot calluses under the metatarsal arch. 발허리뼈 머리 부위의 굳은 살
- Entrapment of the common peroneal nerve 종아리 신경이 죄임
- Adduction (toe in) walking.
- Loss of lateral stability when the weight shifts forward over the foot 발목의 외측이 불안정
- Excess inversion of the foot during the swing phase of gait.

Peroneus longus & brevis

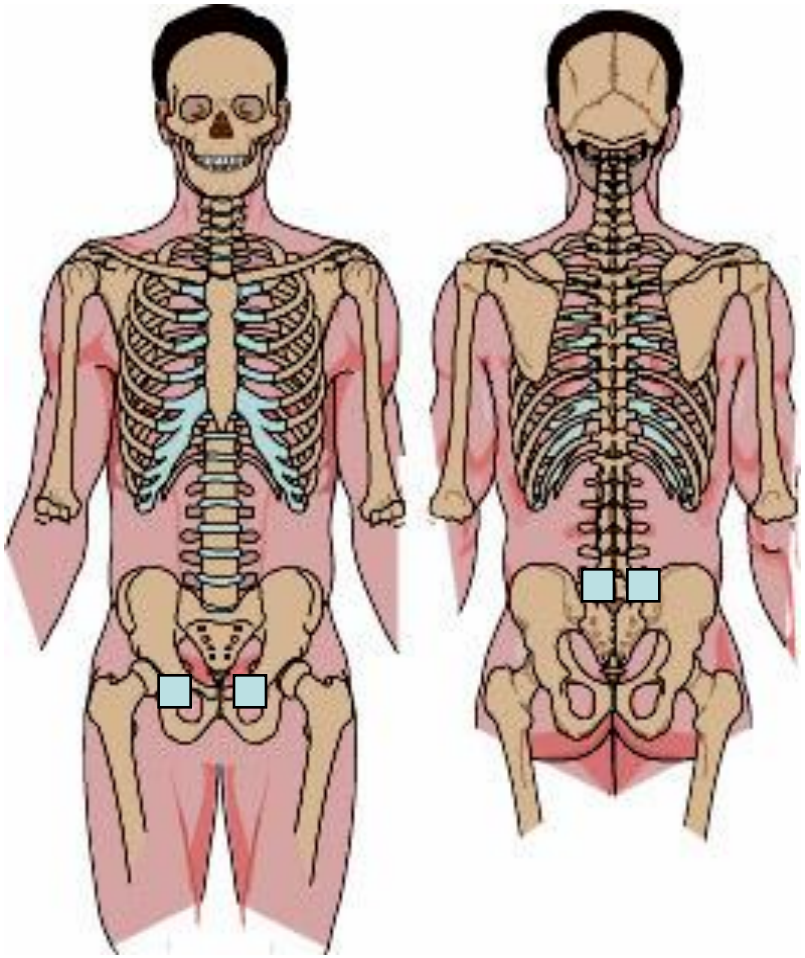
- Body part position
  - The subject is asked to fully plantar flex the foot and then fully evert the foot.
- Stabilization
  - Grasp the lower leg above the malleoli
- Vector of Force
  - Direction of inversion. This force is from inferior to superior and lateral to medial in an arc.

Peroneus longus & brevis

- Nerve Supply
- L –4, 5 and S – 1.
  - Peroneal nerve

Peroneus longus & brevis
종아리근 림프반사

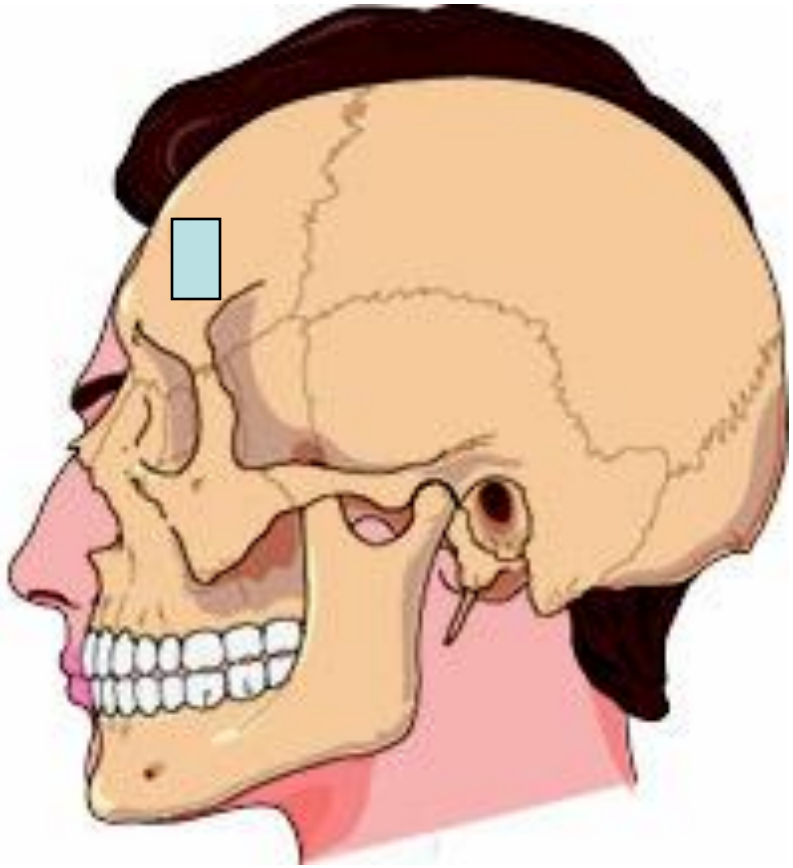
- Anterior
  - Located over the pubes at the lower margin of the symphysis
- Posterior
  - Located between the transverse process of L – 5 and the posterior superior iliac spine.



Peroneus longus & brevis

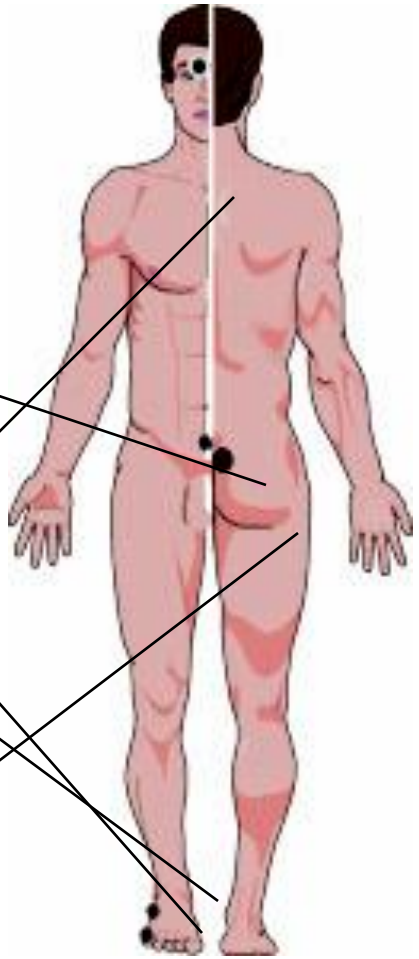
- Vascular reflexes

- Located over the frontal eminence.



Peroneus longus & brevis

- **Meridian** – Bladder
- Alarm
- Tonification: Bl – 67
- Sedation: Bl – 65
- B & E – Bl – 1
- Associated Bl – 28 2nd Sacral

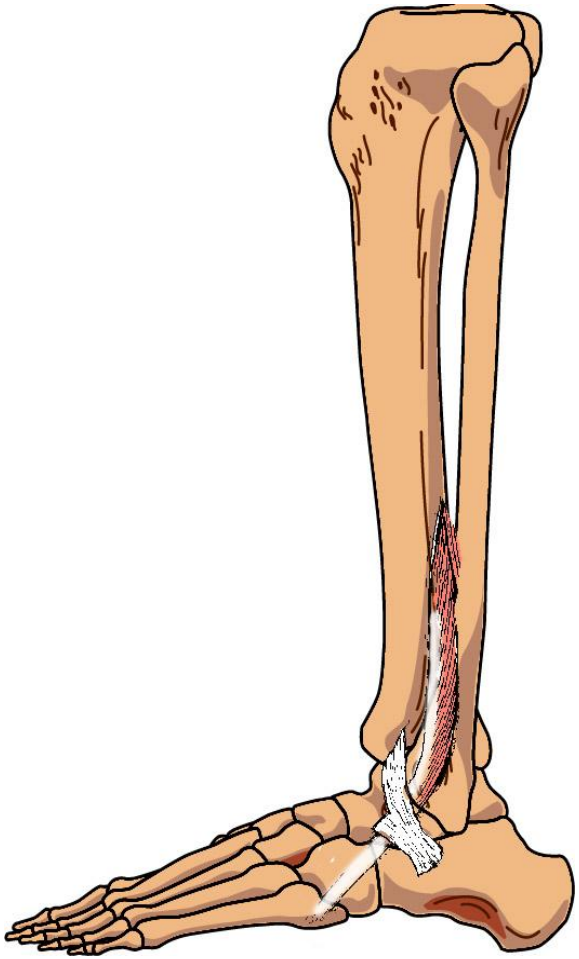


Peroneus longus & brevis 영양치료

- Calcium.
- Test breath holding.
  - If the patient can only hold their breath for a short time, normal 40 seconds, test against thiamine complex.
- Potassium
- B complex.
- Bladder related: Cranberry complex, UT synergy

Peroneus Tertius 셋째종아리근

- Origin
- Distal 1/2 of the anterior margin of the fibula and the intermuscular septa. 종아리뼈의 아래 ½에서 시작
- Insertion
- Tubercle of the fifth metatarsal, the medio-dorsal surface of the fifth metatarsal and the base of the fourth metatarsal
- 5번째 발허리뼈 위쪽면에 부착, 4번째도



Peroneus Tertius 의 임상적 의의

- Ankle weakness and instability. 발목이 약하거나 불안정 (발목이 삘 때 손상이 가장 잘 되는 ant talofibula ligament와 같은 주행)
- Decreased inversion.
- Foot calluses under the metatarsal arch as well as the medial aspect of the distal phalanx of the first toe. 발허리뼈 머리 부위, 족무지의 끝에 굳은 살
- Adduction (toe in) walking.
- Loss of lateral stability when the weight shifts forward over the foot

Peroneus Tertius

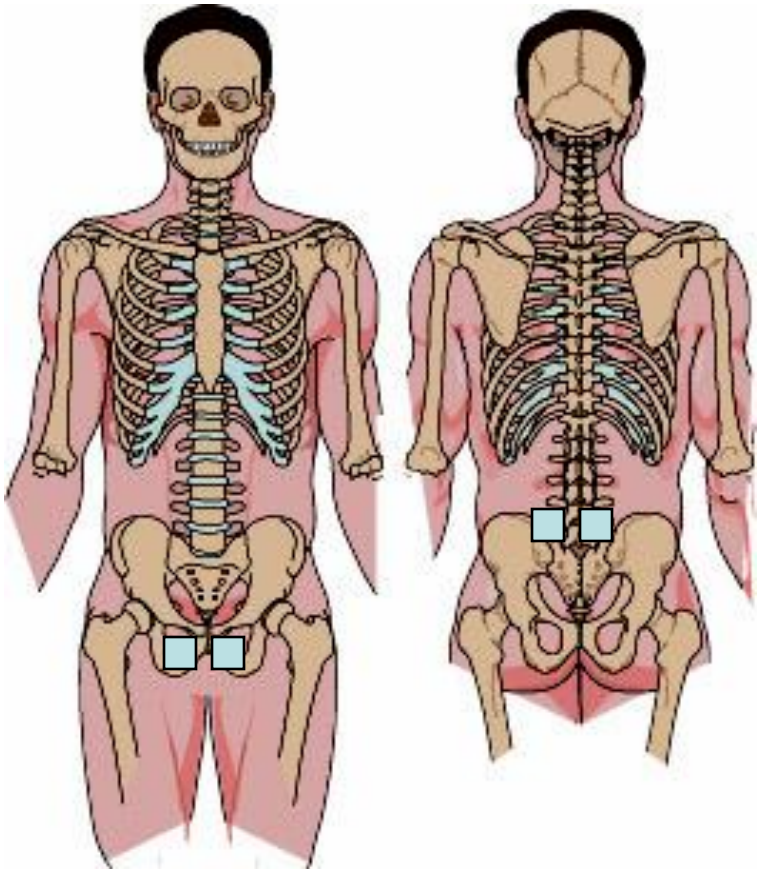
- Body part position
  - Fully dorsiflex the foot and then fully evert the foot. The toes are then flexed fully to prevent contraction of the toe extensors.
- Stabilization
  - Grasp the lower leg above the malleoli
- Vector of Force
  - In the direction of plantar flexion and inversion. This force is from superior to inferior and lateral to medial in an arc

Peroneus Tertius

- Nerve Supply
- L –4, 5 and S – 1.
  - Peroneal nerve

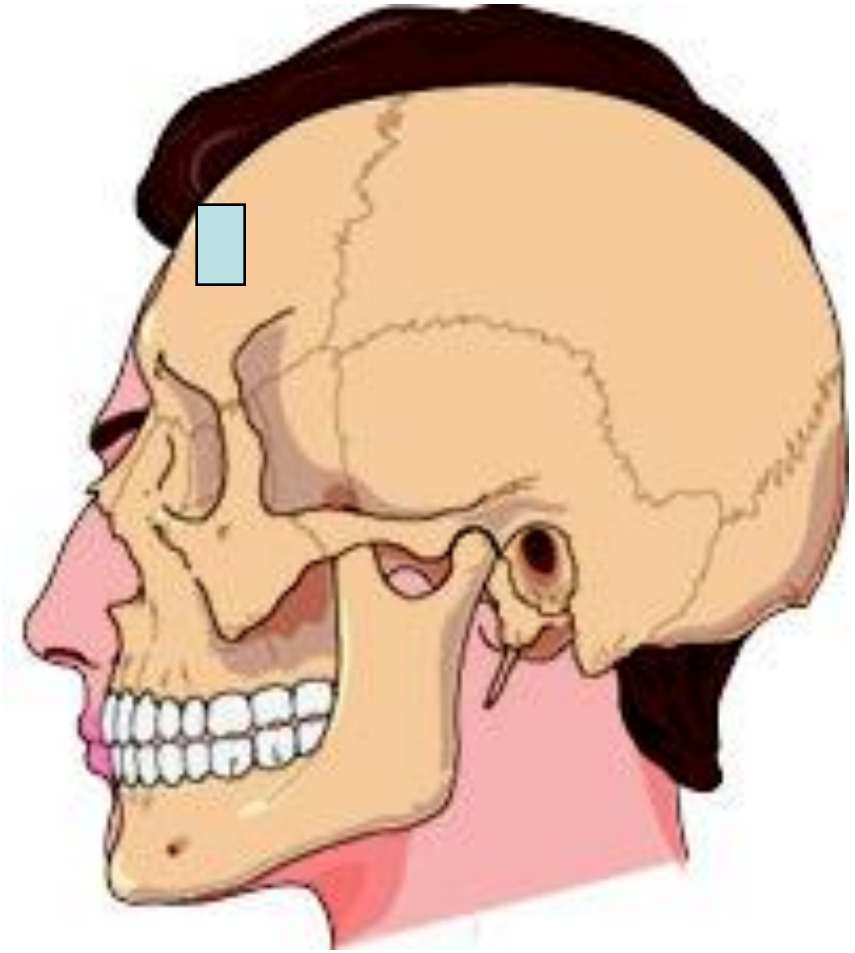
Peroneus Tertius 림프 반사
방광과 관련된 근육

- Anterior
  - Located over the pubes at the lower margin of the symphysis
- Posterior
  - Located between the transverse process of L – 5 and the posterior superior iliac spine.



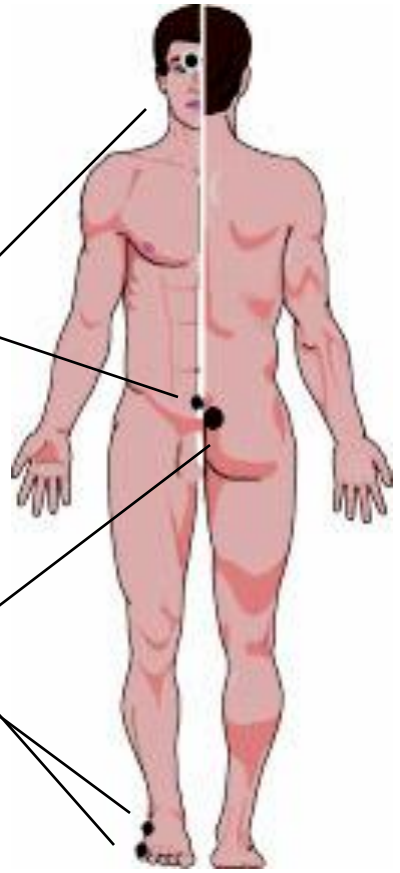
Peroneus Tertius

- Vascular reflexes
- Located over the frontal eminence.



Peroneus Tertius

- Meridian – Bladder
- Alarm
- Tonification: Bl – 67
- Sedation: Bl – 65
- B & E – Bl – 1
- Associated Bl – 28 2nd Sacral



Peroneus Tertius

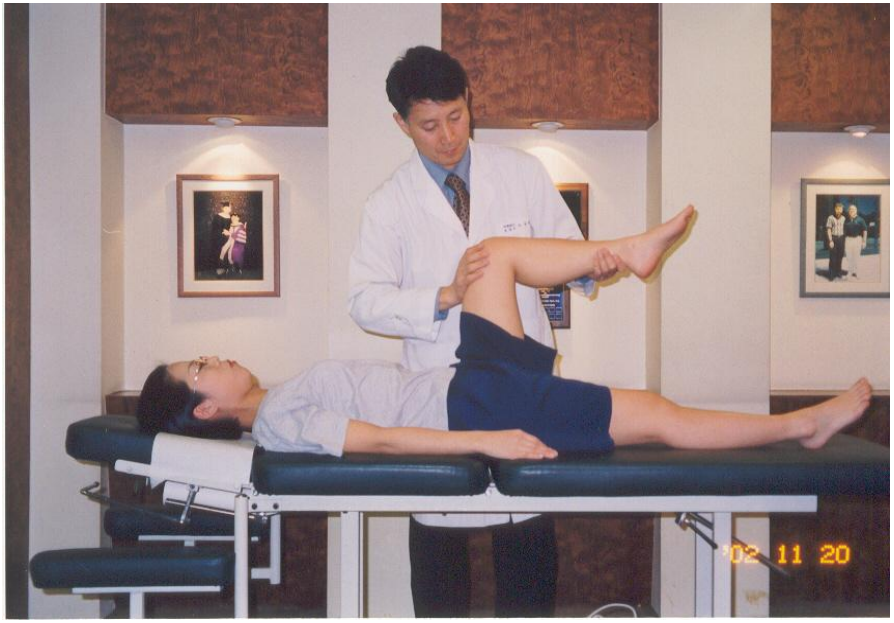
- Nutrition
- Calcium.
- Test breath holding.
  - If the patient can only hold their breath for a short time, normal 40 seconds, test against thiamine complex.
- Potassium
- B complex.
- Bladder related: Cranberry complex, UT synergy

넙다리 곧은근Rectus Femoris

- 기시부
- AIIS, superior brim of the acetabulum 비구상방

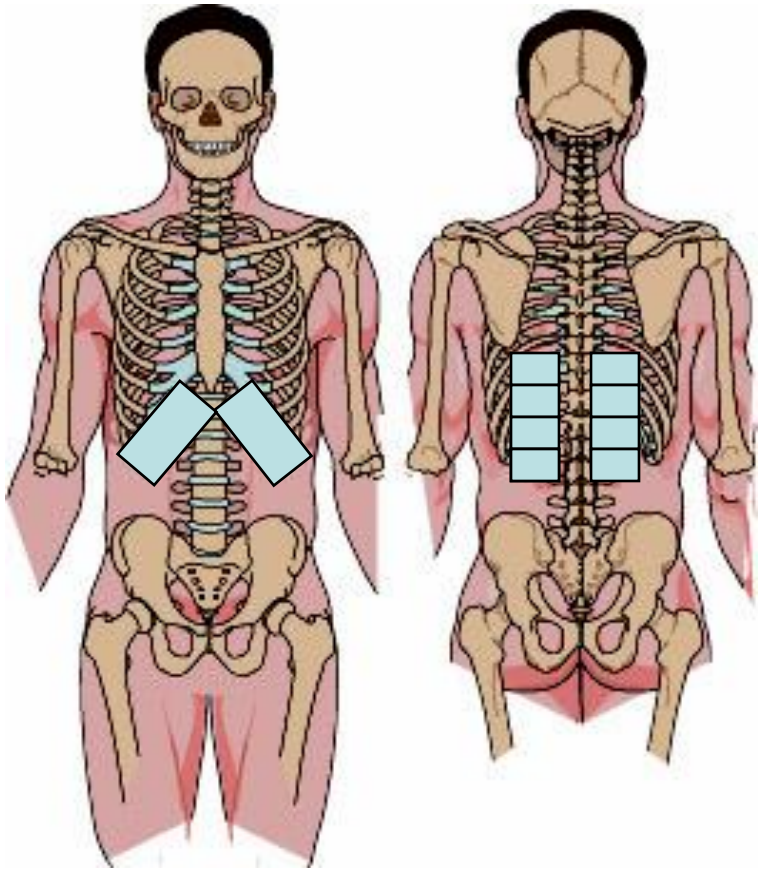
- 부착부
- 경골결절

- 자세
  - 무릎을 90도 고관절을 90도 굴곡
- 고정
  - 앉은 자세에서는 환자의 어깨를 고정
- 힘을 가하는 방향
  - 대퇴에 수직으로



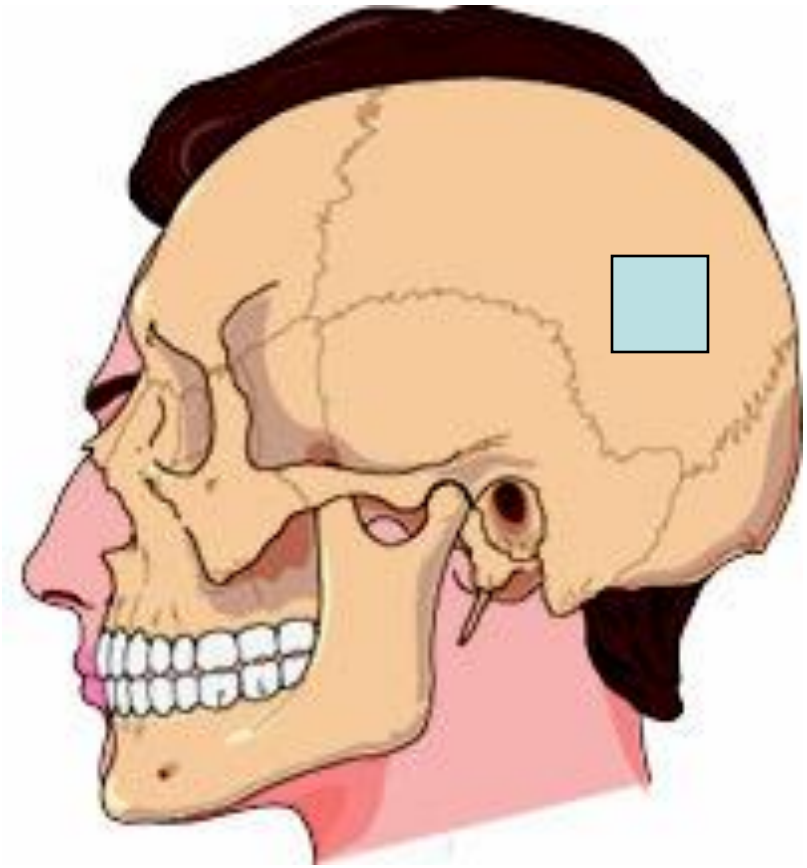
Rectus Femoris

- Nerve Supply
- L - 2, 3 & 4.
- Femoral Nerve
- Lymphatic reflexes- 소장 관련
- Anterior
  - Located along the inferior margin of the rib cage
- Posterior
  - Lies over the lamina of T - 8 - 11



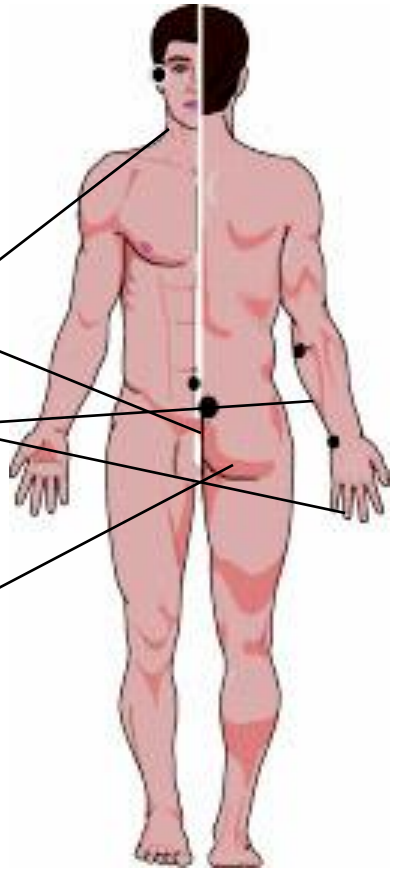
Rectus Femoris

- Vascular reflex
- Located over the parietal eminence



Rectus Femoris

- **Meridian - Small Intestine**
- **Alarm**
- **Tonification: SI - 3**
- **Sedation: SI - 8**
- **B & E - SI - 19**
- **Associated point**
  - **Bl - 27 First Sacral**



Rectus Femoris Indications

- 골반의 만성 불안정
- 슬관절의 만성 불안정
- 보행의 불균형
- 앉은 자리에서 일어나기 힘들다.
- 계단을 오르기가 힘들다.
- 이 근육이 약하면 장골의 후방변형을 일으키며 약한 쪽의 골반이 낮아진다.

Rectus Femoris

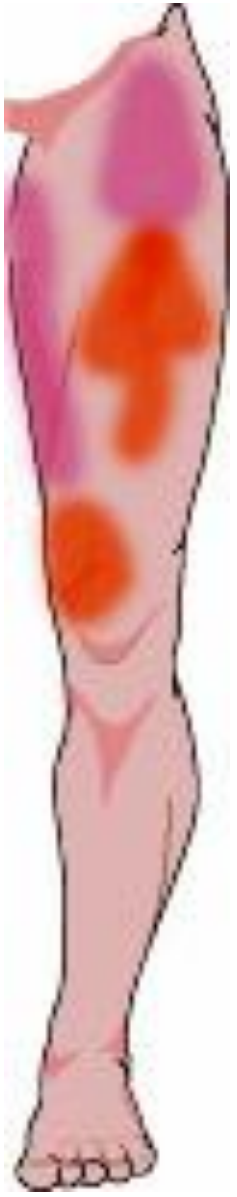
- **Nutrition**
  - **Digestzyme**
  - **Vitamin D3**
  - **Their weakness related to small intestine imbalances may indicate the need for nutritional support to aid in the healing of any inflammation.**
  - **Coenzyme Q10**

넓은 근(중간, 안쪽, 가쪽)
Vastus Intermed, Med, Lat

- **Action**
  - **Jointly, the muscles create extension of the knee. 무릎을 펴게**
  - **The medial and lateral sections support the knee on the medial and lateral aspects. 무릎의 안쪽과 바깥쪽을 지지함.**

Vastus Intermed, Med, Lat

- **Referred Pain**
- **Intermedius:**
  - **pain is referred to the anterior aspect of the thigh with radiation up superior to the inguinal ligament.**
- **Lateralis:**
  - **over the lateral aspect of the thigh from the iliac crest to below the fibular head.**
- **Medialis:**
  - **over the lower medial 1/2 of the thigh and the patella.**



Vastus Intermed, Med, Lat

- 슬관절의 만성 불안정성
- 슬개골의 불균형
- 슬개골 아래의 통증
- Short stride.
- Tripping over objects on the ground.
- 서있을 때 혹은 무릎을 굴곡, 신전시 슬개골의 이상위치 혹은 이상운동이 있다.

Vastus Intermed, Med, Lat

자세

- 무릎을 70도 굴곡, 대퇴를 25도 내, 외회전하여 내측, 외측 광배근 검사

고정

- 팔을 환자의 무릎 뒤에 두고 반대측 무릎을 잡는다.

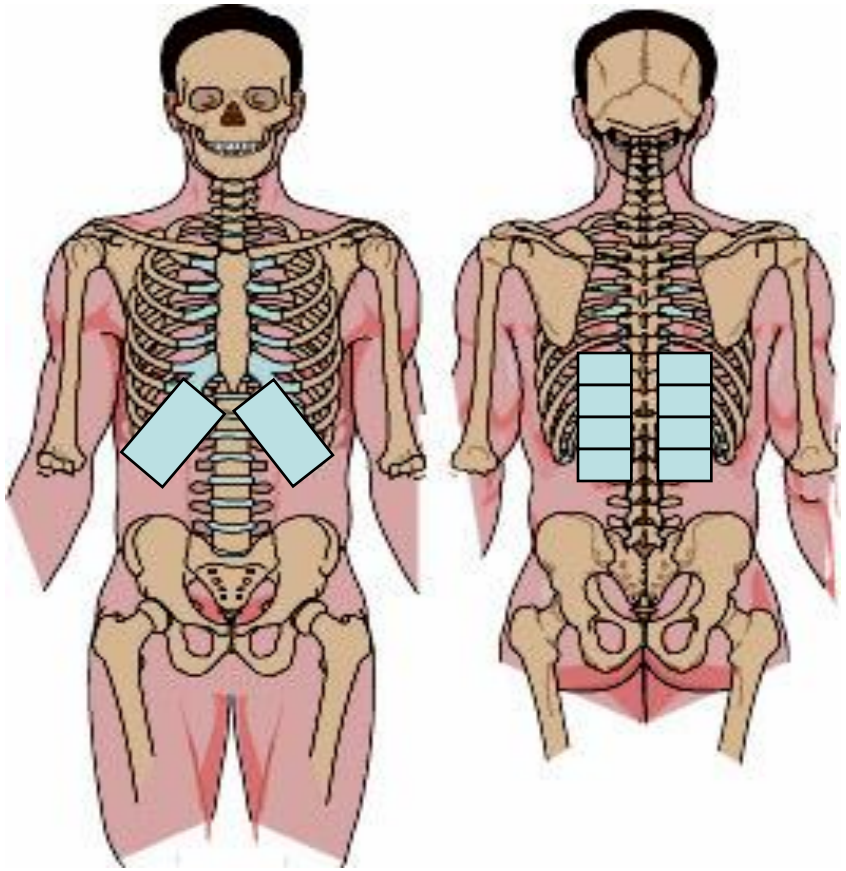
힘을 가하는 방향

- 정강이에 수직으로 힘을 가한다.

넓은근(vastus) 근육검사

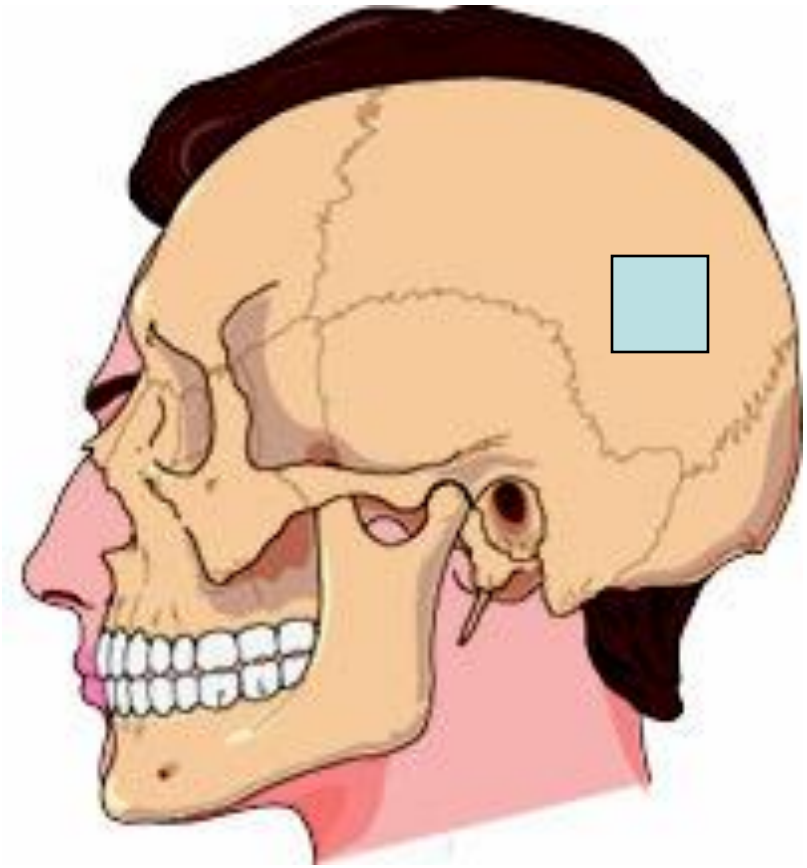
Vastus Intermed, Med, Lat

- Nerve Supply
- L - 2, 3 & 4.
- Femoral Nerve.
- Lymphatic reflexes
- Anterior
  - Located along the inferior margin of the rib cage
- Posterior
  - Lies over the lamina of T - 8 - 11



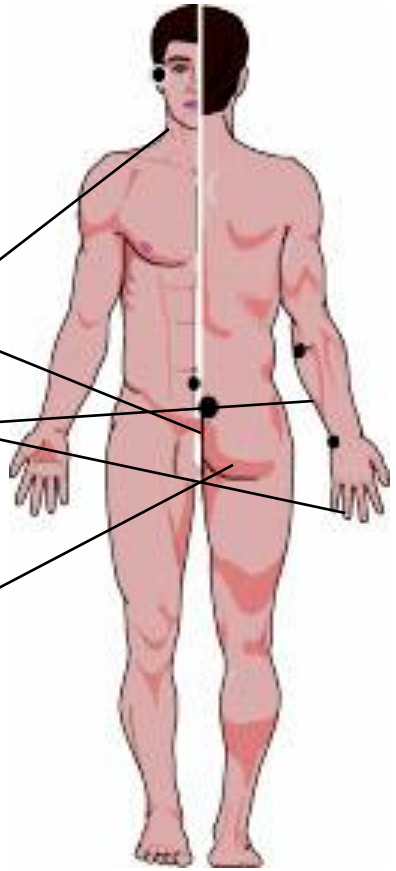
Vastus Intermed, Med, Lat

- **Vascular reflex**
- **Located over the parietal eminence**



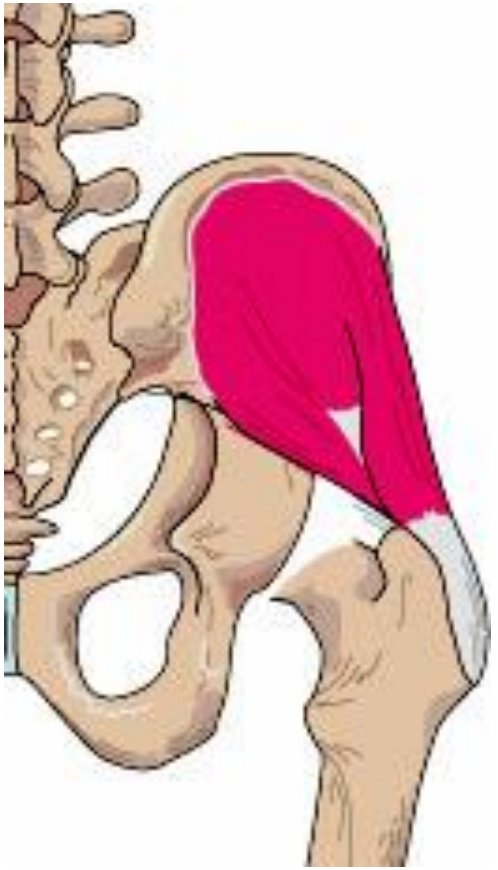
Vastus Intermed, Med, Lat

- **Meridian - Small Intestine**
- **Alarm**
- **Tonification: SI - 3**
- **Sedation: SI - 8**
- **B & E - SI - 19**
- **Associated point**
  - **Bl - 27 First Sacral**



중간 볼기근 Gluteus Medius

- 기시부Origin
  - 장골, 장골능 전반 3/4
- 부착부
  - 대전자



Gluteus Medius - Action

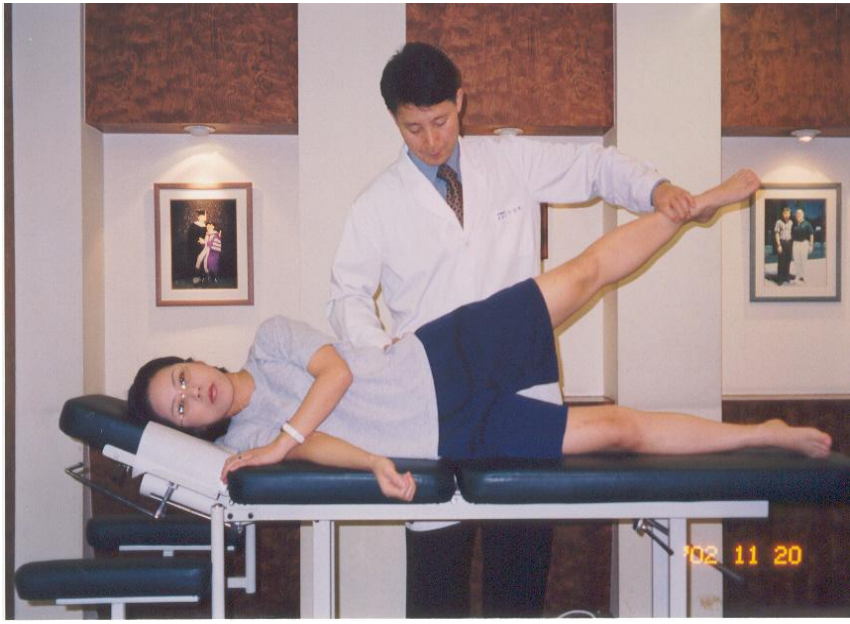
- 대퇴의 일차적인 외전근.
- 보행의 입각기 중반에서 발로 체중이 이동할 때 골반을 안정화시킨다.
- 대퇴의 내회전을 보조한다.

Gluteus Medius - Indications

- 서있을 때 고관절이 높다.
- 보행시 과도한 회전
- 같은 쪽의 골반, 어깨, 후두가 높다.
- Trendelenberg test +

중간 볼기근 Gluteus Medius

- 자세
  - 옆으로 누워서 다리를 벌린다. 아래쪽 다리는 90도로 무릎을 굴곡하여 안정성을 유지시킨다.
- 고정
  - 장골능을 손으로 잡아서 골반의 회전을 방지한다.
- 힘을 가하는 방향
  - 경골에 수직으로 arc를 그리면서

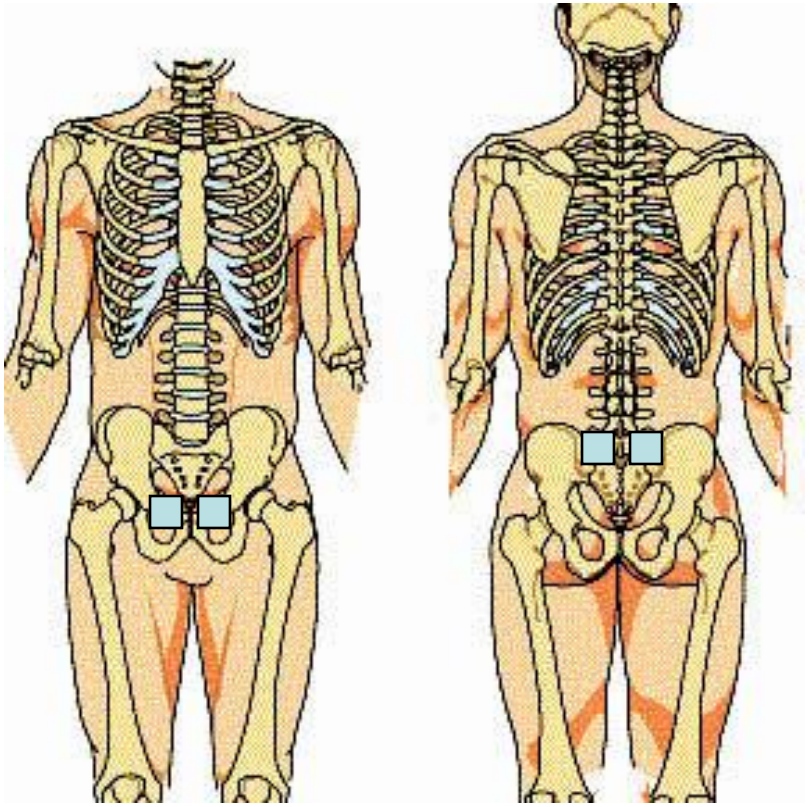


Gluteus Medius Nerve Supply

- L 4 - 5 & S - 1.
  - Superior gluteal nerve.

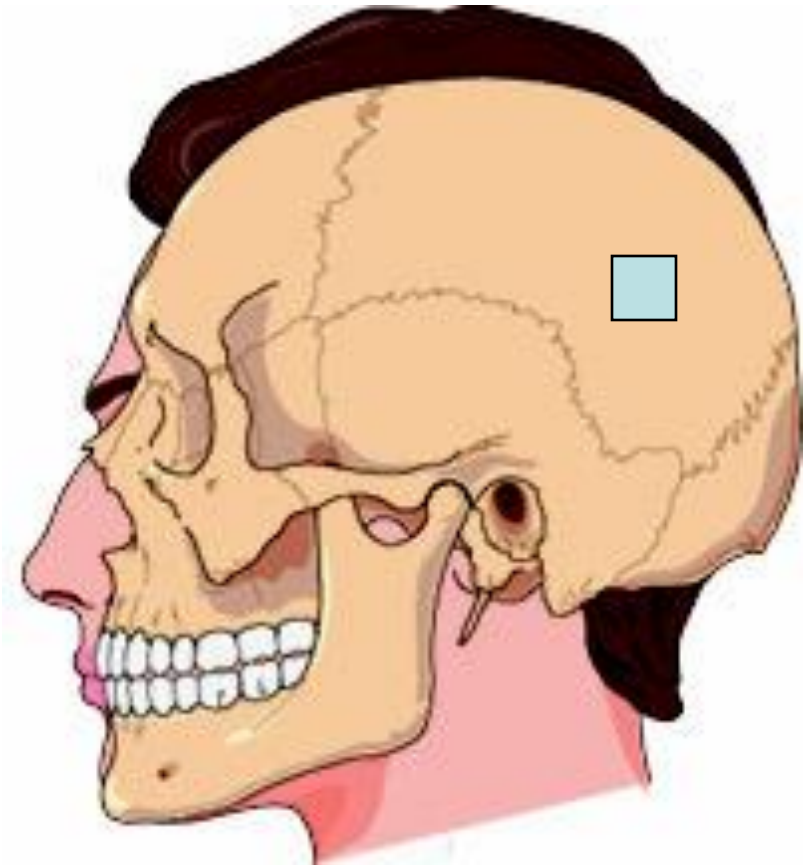
Gluteus Medius

- Lymphatic reflexes
- 전방
  - 치골상부
- 후방
  - 요추 5번과 PSIS사이



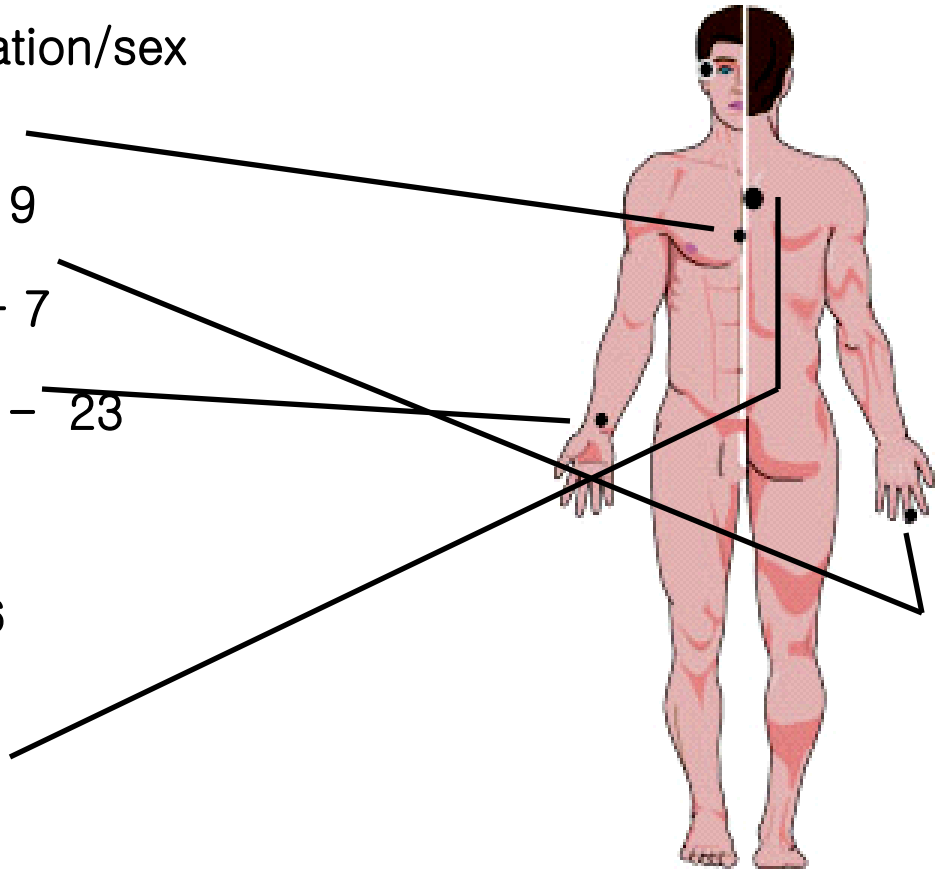
Gluteus Medius

- **Vascular reflexes**
- **Located over the parietal eminence**



Gluteus Medius

- Meridian – PC Circulation/sex
  심포
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - Bl – 14 T – 5 T – 6

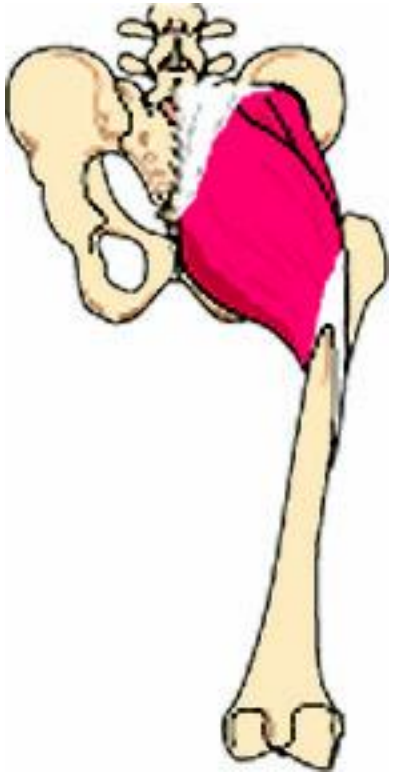


Gluteus Medius - Nutrition

- **Femguard**
- **Niacin and the other cofactors needed for the cholesterol based sex hormones to be produced.**
  - **These include niacin, zinc and vitamins E.**

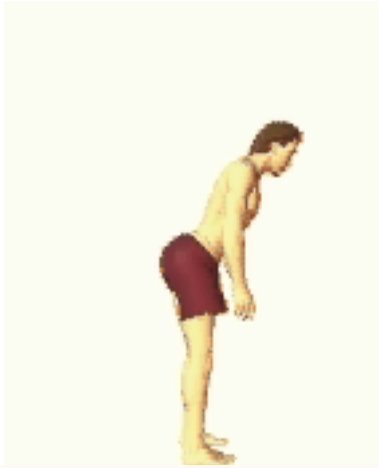
큰 볼기근 작용

- 대퇴의 신전, 외회전
- 달리기, 뛰기와 같은 long stride에 작용.
- Long stride에서 뒤넙다리근과 함께 deceleration에 관계. Heel strike후에 무릎관절의 안정성에 도움을 준다.



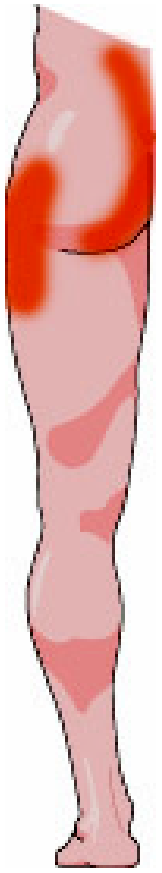
Synergists

- **Trunk extension:**
  - **Hamstrings, sacrospinalis and quadratus lumborum**
- **Thigh extension:**
  - **Hamstrings, posterior portion of the gluteus medius**
- **Lateral thigh rotation:**
  - **Piriformis**
- **Sacroiliac stability:**
  - **Piriformis**



Referred Pain

- **Pain is usually found throughout the buttock area with small areas of intense pain to palpation.**



Gluteus Maximus Indications

- 근육의 위축이 눈에 보인다
- 앉은 자세에서 손의 도움없이 일어나는 데에 어려움이 있다..
- 장골의 전방 변이가 생기고 그 쪽의 고관절이 높아진다.
- 체중부하시 슬관절의 외측부 불안정성이 있다.

Gluteus Maximus

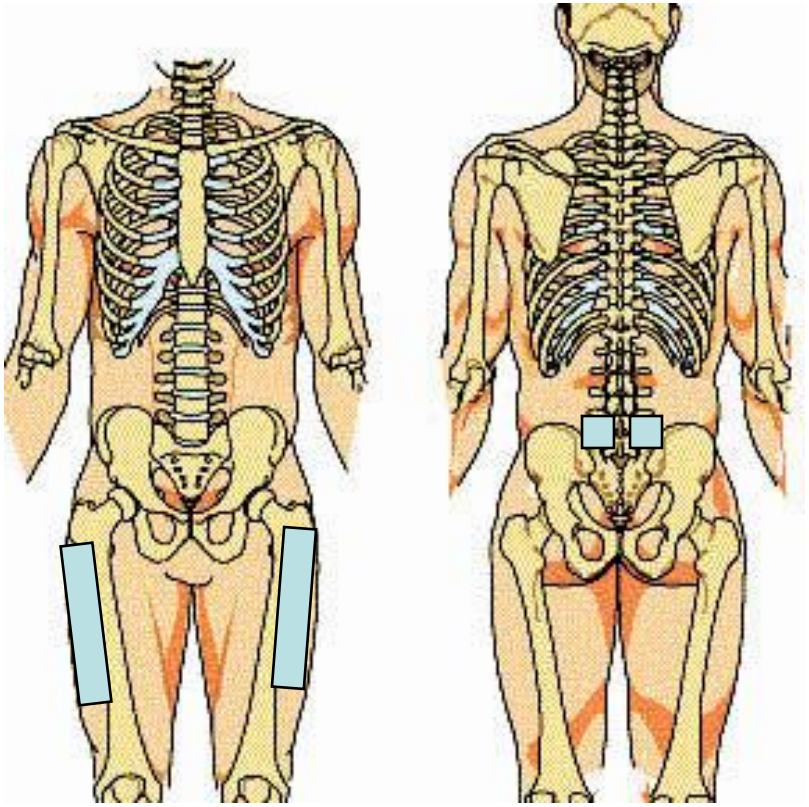
- 자세
  - 슬관절을 90도 이상 굴곡하고 대퇴를 신전시킨다.
- 고정Stabilization
  - 골반
- 힘을 가하는 방향
  - 앞쪽으로 약간 아래로

Gluteus Maximus

- Nerve Supply
- L - 5 S - 1 & 2.
- Inferior gluteal nerve.
- Nutrition: femguard

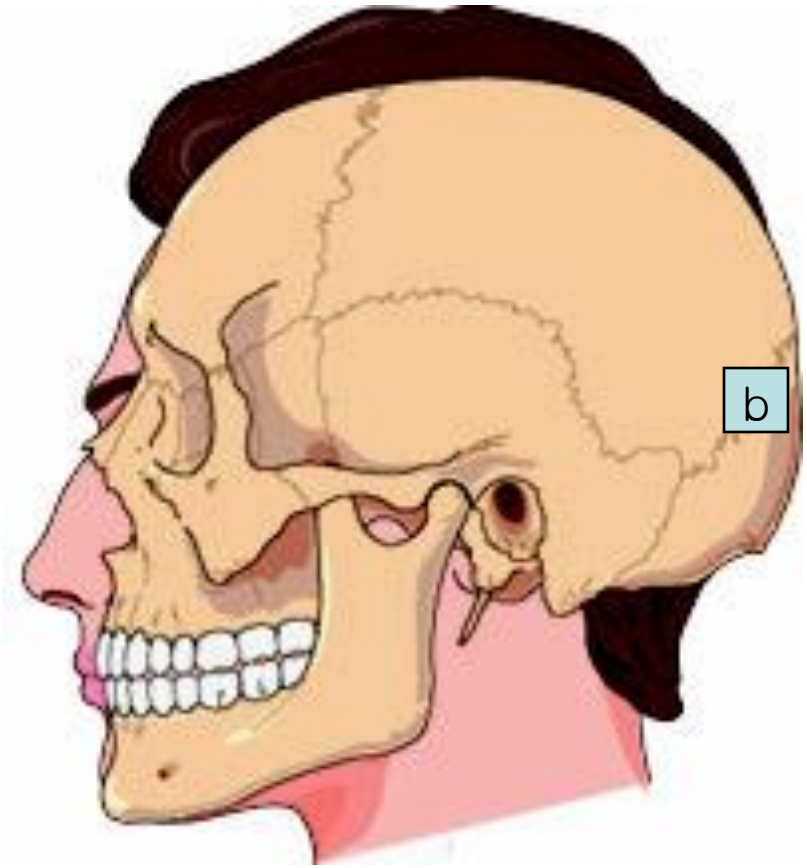
Gluteus Maximus

- Lymphatic reflexes
- Anterior
  - Located along the lateral thigh to just above the knee
- Posterior
  - Located between transverse process of L - 5 and the posterior superior iliac spine.



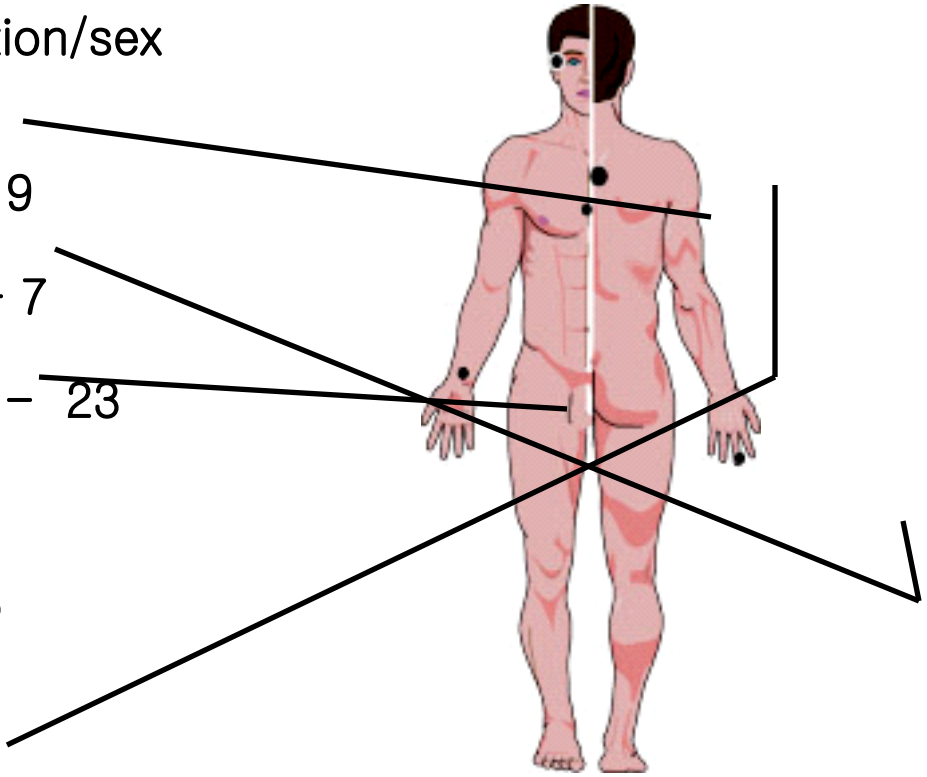
Gluteus Maximus

- **Vascular reflexes**
- **Located over the mid section of the lambdoidal suture**



Gluteus Maximus

- Meridian –pc Circulation/sex
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - BI – 14 T – 5 T – 6



모음근 Adductors - Origin

- **Pectineus:**
  - **Superior surface of the pubis**
- **Brevis:**
  - **Inferior ramus of the pubis**
- **Longus:**
  - **Between the symphysis and the obturator**
- **Magnus:**
  - **Posterior fibers- Ischial tuberosity**
    - **Anterior fibers - Inferior pubic ramus**

Adductors - Insertion

- **Pectineus:**
  - **Lesser trochanter to the linea aspera**
- **Brevis:**
  - **Lesser trochanter to the linea aspera**
- **Longus:**
  - **Middle 1/3 of the femur on the linea aspera**
- **Magnus:**
  - **Adductor tubercle on the medial condyle of the femur; superior to the greater trochanter along the linea aspera**

Adductors - Action

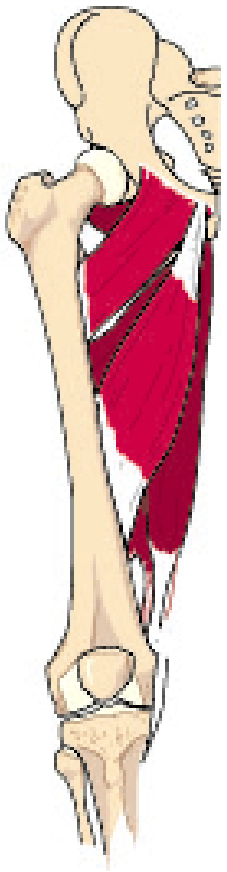
- Jointly, these muscles adduct the thigh providing medial knee support.
- Medial rotation of the thigh by the longus, brevis and anterior portion of the magnus.
- **Thigh extension** is produced by the posterior portion of the adductor magnus.

Adductors - Indications

- Wide stance로 걷는다.
- 기립자세에서 골반의 측방변이가 있을 것이다
  .
  - 천장관절의 만성 불안정성
  - 대퇴내측의 만성 통증
  - 비구의 통증
  - 서혜부의 통증

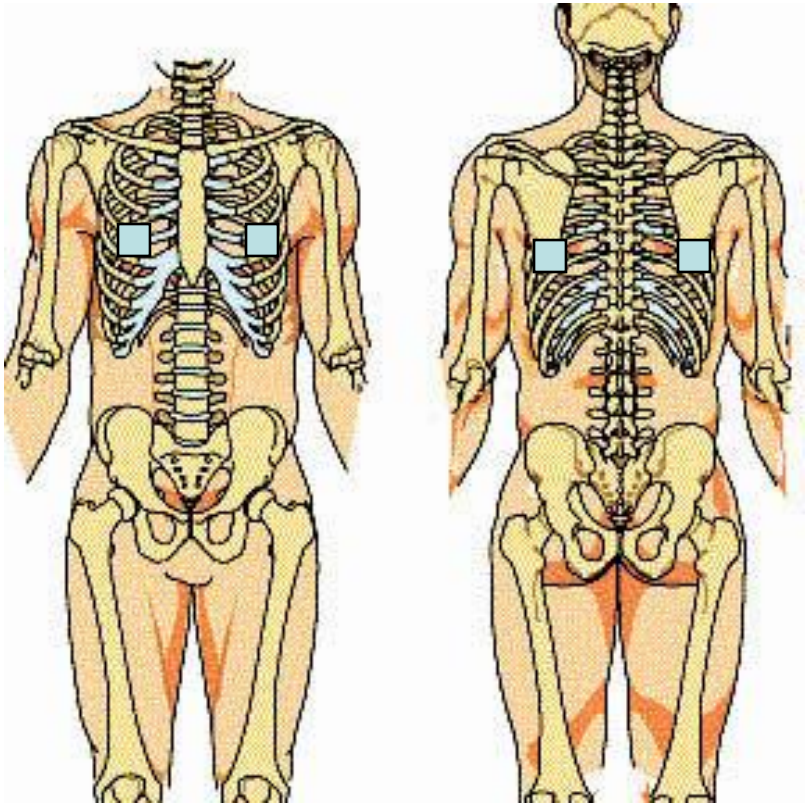
Adductors

- Nerve supply
  - L-2,3 &4 - all
    - Magnus adds L-5 - S-1
  - All obturator nerve
    - Pectineus adds Femoral n.
    - Magnus adds sciatic n.
- Nerve Entrapment
  - Obturator Nerve Syndrome



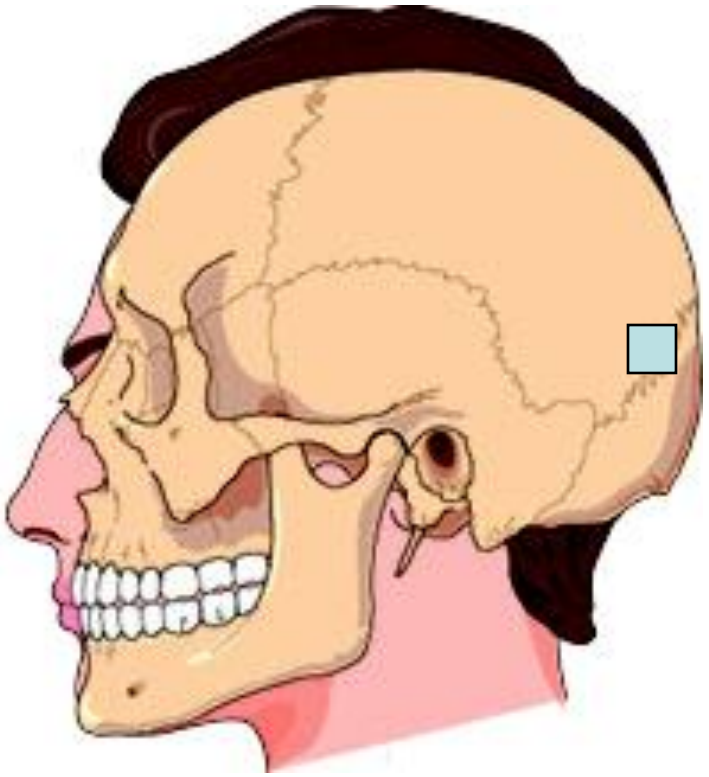
Adductors

- **Lymphatic reflexes**
- **Anterior**
  - **Behind the aeola**
- **Posterior**
  - **Inferior angle of the scapula**



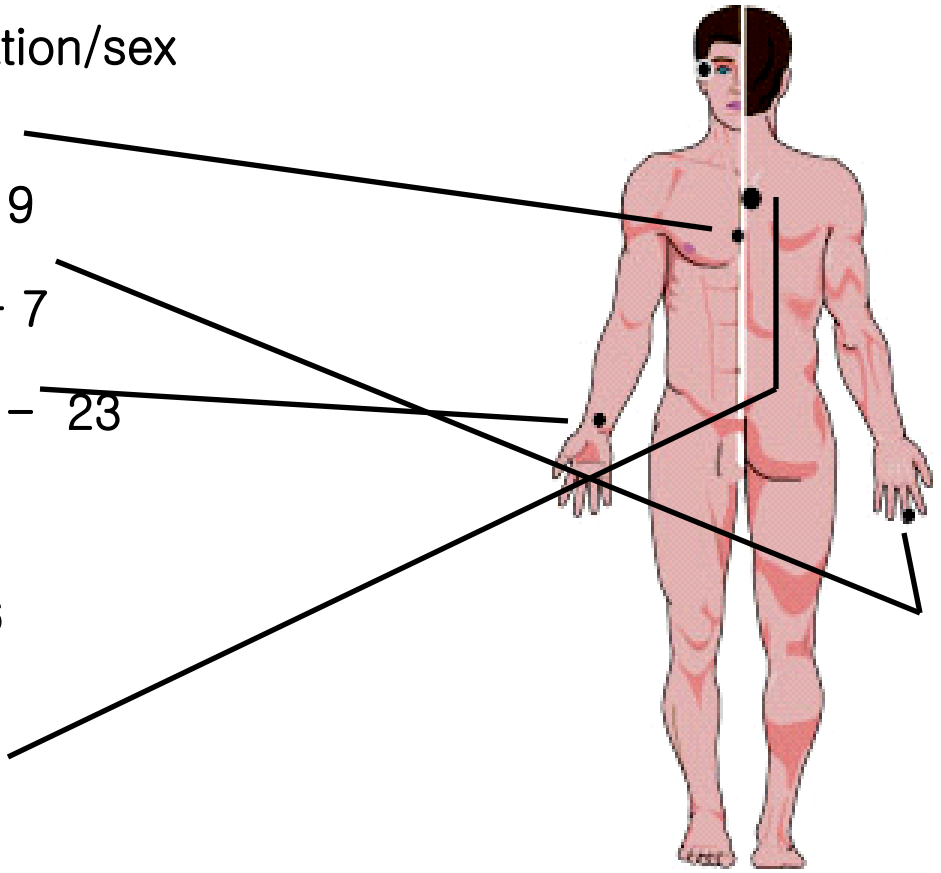
Adductors

- **Vascular reflexes**
  - **Midway along the lambdoidal suture**



Adductors

- Meridian – pc Circulation/sex
- Alarm
- Tonification: CX – 9
- Sedation: CX – 7
- B & E – TW – 23
- Associated point
  - BI – 14 T – 5 T – 6



Adductors

- Nutrition
  - femguard
  - Steroid hormone imbalance
    - Cholesterol
    - Niacinamide
    - Vitamin E
    - Zinc

뒤넙다리근 Hamstrings Origin

- **Semitendinosus:**
  - **To the ischial tuberosity.**
- **Semimembranosus:**
  - **Superior lateral surface ischial tuberosity.**
- **Lateral hamstrings:**
  - **Biceps femoris long head to the ischial tuberosity and the sacrotuberous ligament.**
  - **Biceps femoris short head to the linea aspera, the lateral supracondyle of the femur and the lateral intermuscular septum.**

Hamstrings Insertions

- **Semitendinosus:**
  - **Into the medial surface of the tibia.**
- **Semimembranosus:**
  - **Into the tibial medial condyle.**
- **Biceps femoris:**
  - **Into the lateral head of the fibula and the lateral aspect of the tibia.**

뒤넙다리근의 작용

- 다리가 자유롭게 움직일 때

  슬관절을 굴곡시키고 골반에서 대퇴를 신전시킨다.
- 고정되어 있을 때
  - 보행시에 기립자세를 유지하고 swing phase의 끝에서 deceleration하는 것을 도운다.
- 내측 뒤넙다리근은 내회전, 외측 뒤넙다리근은 외회전

Hamstring Referred Pain

- **Posterior aspect of the thigh extending from the gluteal fold to just inferior to the knee.**
- **Medial hamstrings refer pain more medial and proximally and the lateral hamstrings more lateral and distally.**

Hamstrings

- 자세
  - 슬관절을 약 60조 정도 굴곡시키고 내측, 외측 뒤넙다리근을 검사할 때는 30도 정도 회전을 해서 검사한다.
  - 고정
  - 뒤넙다리근의 위 혹은 장골능

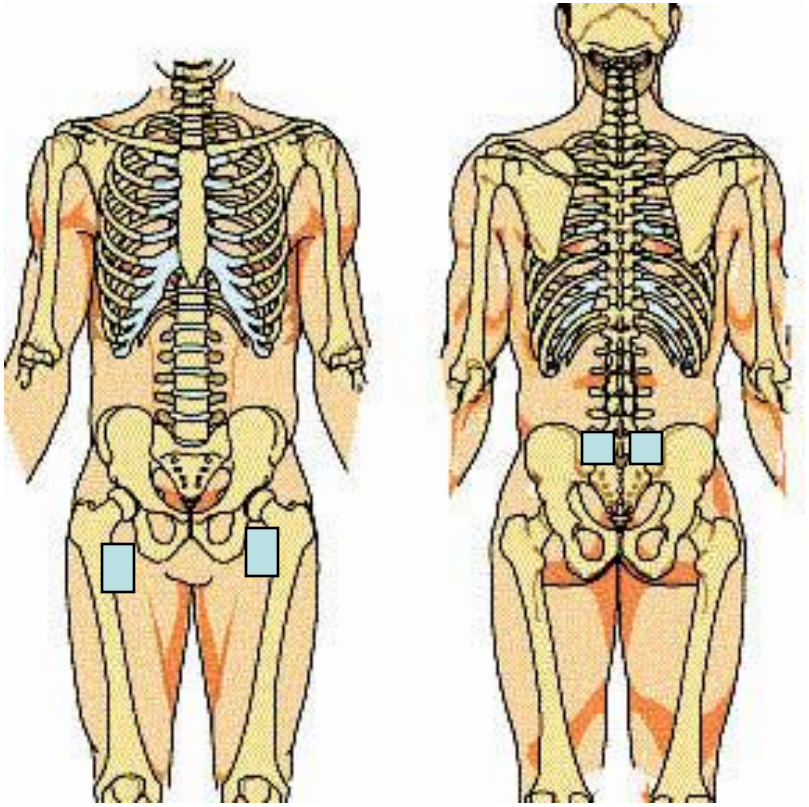
  힘의 방향
  - 하퇴가 arc를 그리도록

Hamstrings

- **Nerve Supply**
- **L - 5 S - 1 & 2.**
- **Inferior gluteal nerve.**

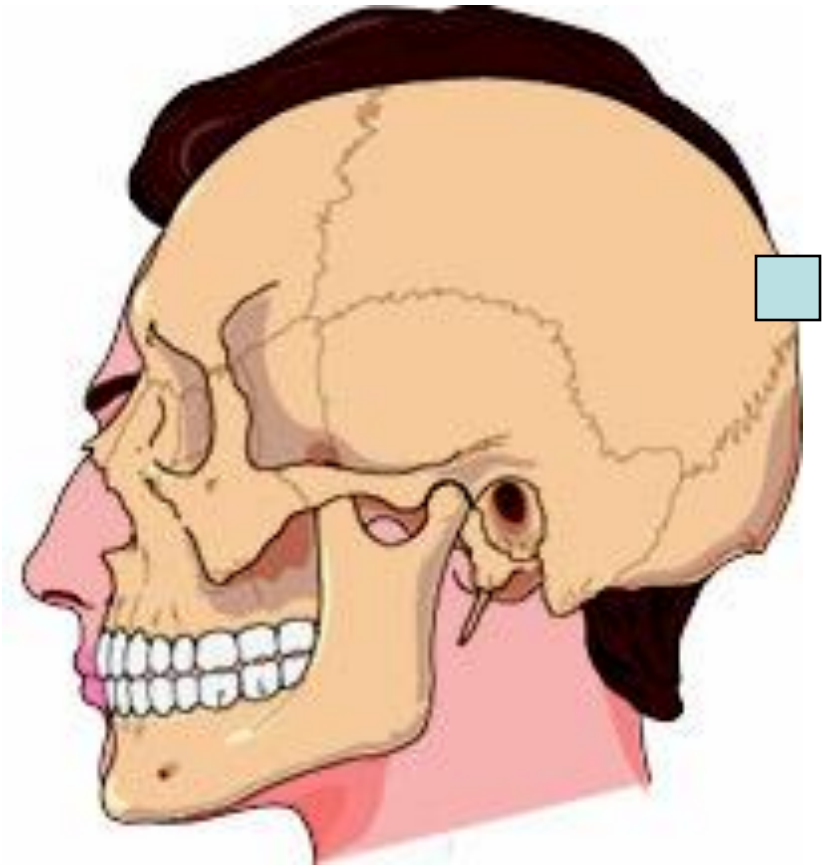
Hamstrings

- Lymphatic reflexes
- Anterior
  - Located over the lesser trochanter of the femur
- Posterior
  - Located between transverse process of L - 5 and the posterior superior iliac spine.



Hamstrings

- Vascular reflexes
- Located one inch superior to the lambda

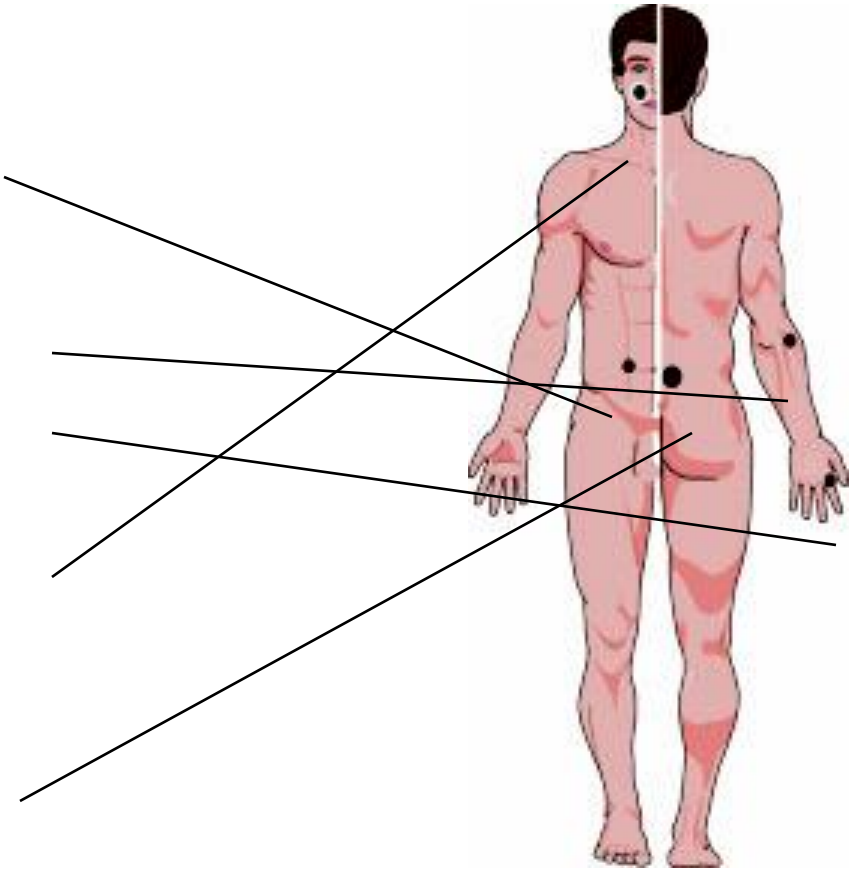


Hamstrings

- **Meridian - Large Intestine**

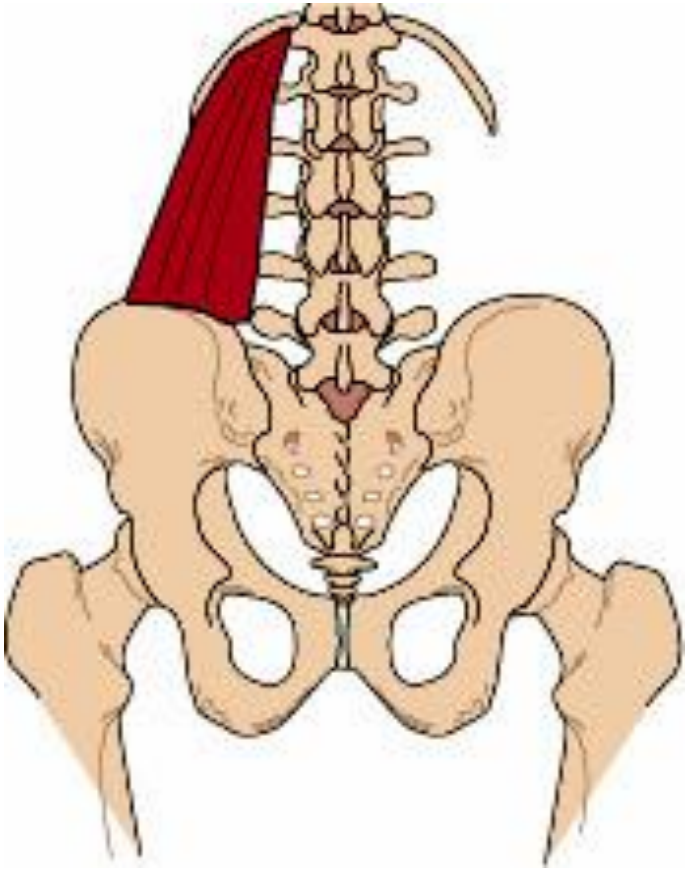
- **Alarm**
- **Tonification: LI - 11**
- **Sedation: LI - 2**
- **B & E - LI - 20**

- **Associated point**
  - **Bl - 25 L - 4 - L - 5**



허리네모근Quadratus Lumborum

- **Origin**
  - **From the posterior superior surface of the iliac crest and from the iliolumbar ligament.**
- **Insertion**
  - **Inserts into the transverse processes of the first, second, third and fourth lumbar vertebrae and into the inferior surface of the twelfth rib.**



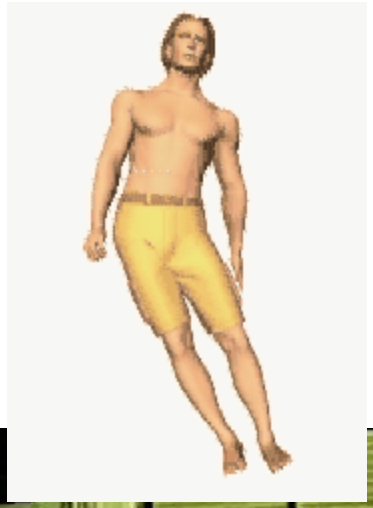
Quadratus Lumborum Action

- **Elevates the pelvis if the rib cage is fixed or laterally bends the lumbar spine if the pelvis is fixed.**
- **Aids in the support of the pelvis. Lateral support of the lumbar spine.**
- **Chronic contraction creates imbrication imbalances**

Quadratus Lumborum

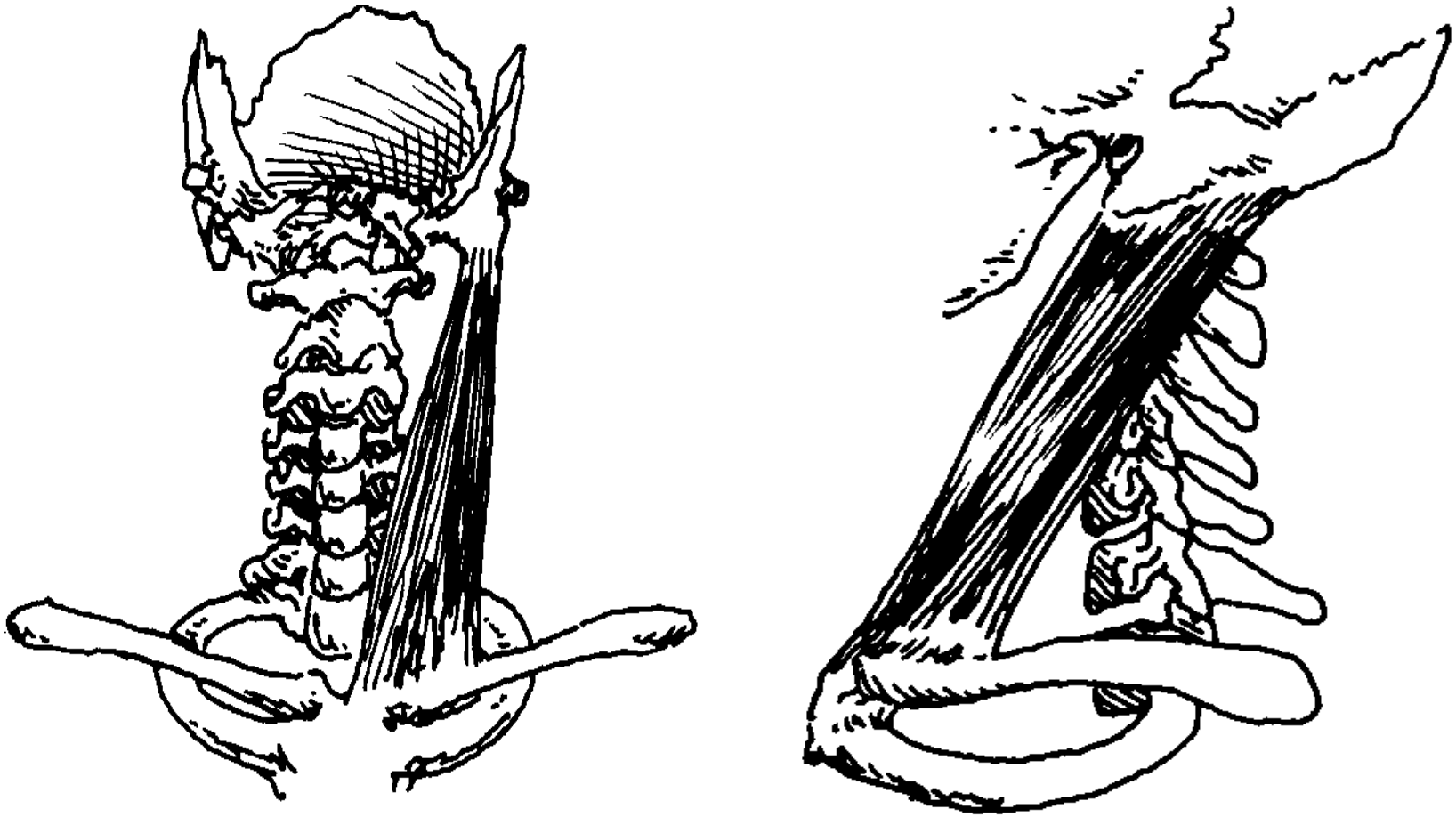
- **Indications**
  - **Lumbar disc imbalances.**
  - **Lumbar imbrication.**
  - **Pelvic imbalances.**
  - **Spasms on lumbar flexion.**

Quadratus Lumborum



- **Body part position**
  - **The pelvis is moved towards the side of the test to form a "C". The legs are kept together.**
- **Stabilization**
  - **Pressure is applied against the pelvis.**
- **Vector of Force**
  - **Pull the legs towards your body without allowing the patient to pull their heels into the table.**

흉쇄유돌근(Sternocleidomastoid)



Neck flexor 45도 회전
SCM 90도 회전

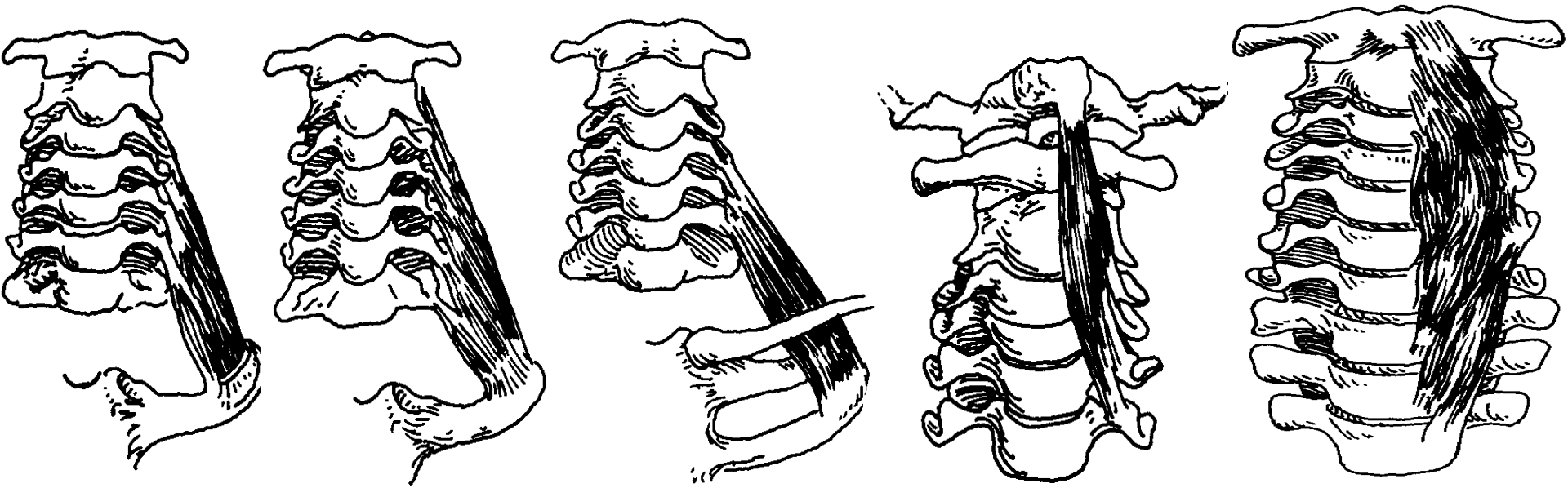
SCM 과 neck flexor

Neck flexor, SCM 동영상

SCM동영상 TL후

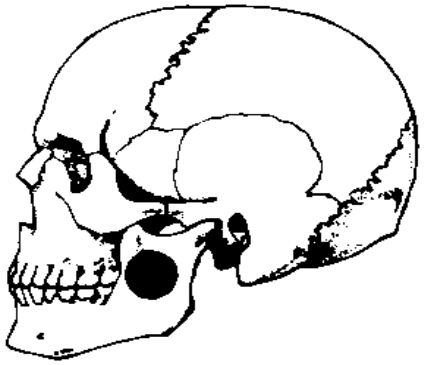
이 TL후 SCM 동영상

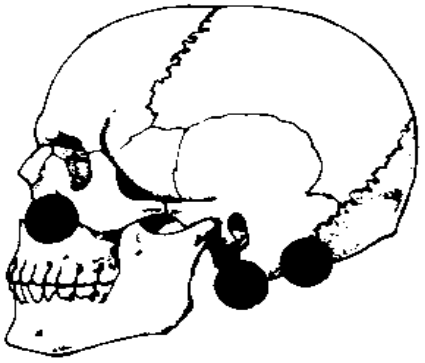
경부 굴곡근(neck flexors)

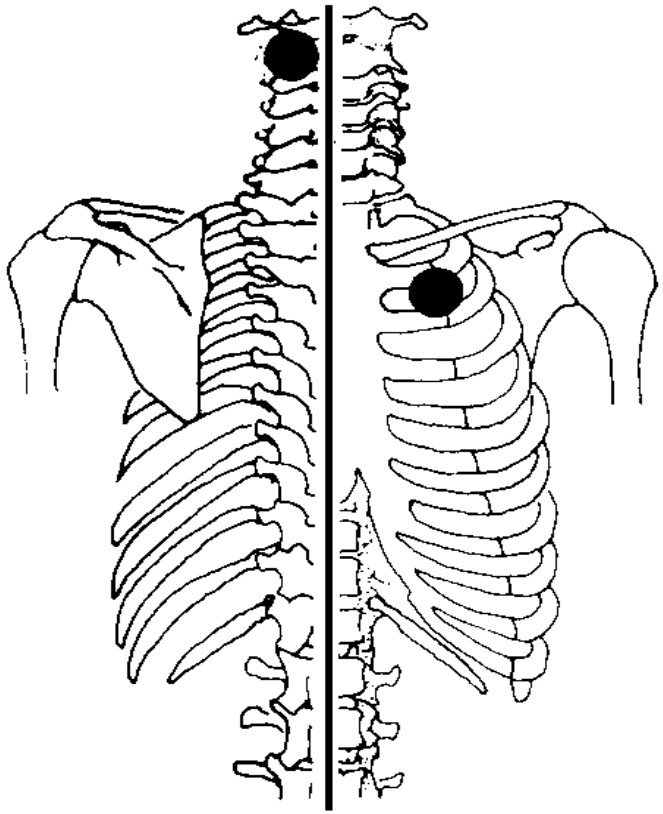


전체적인 neck flexor

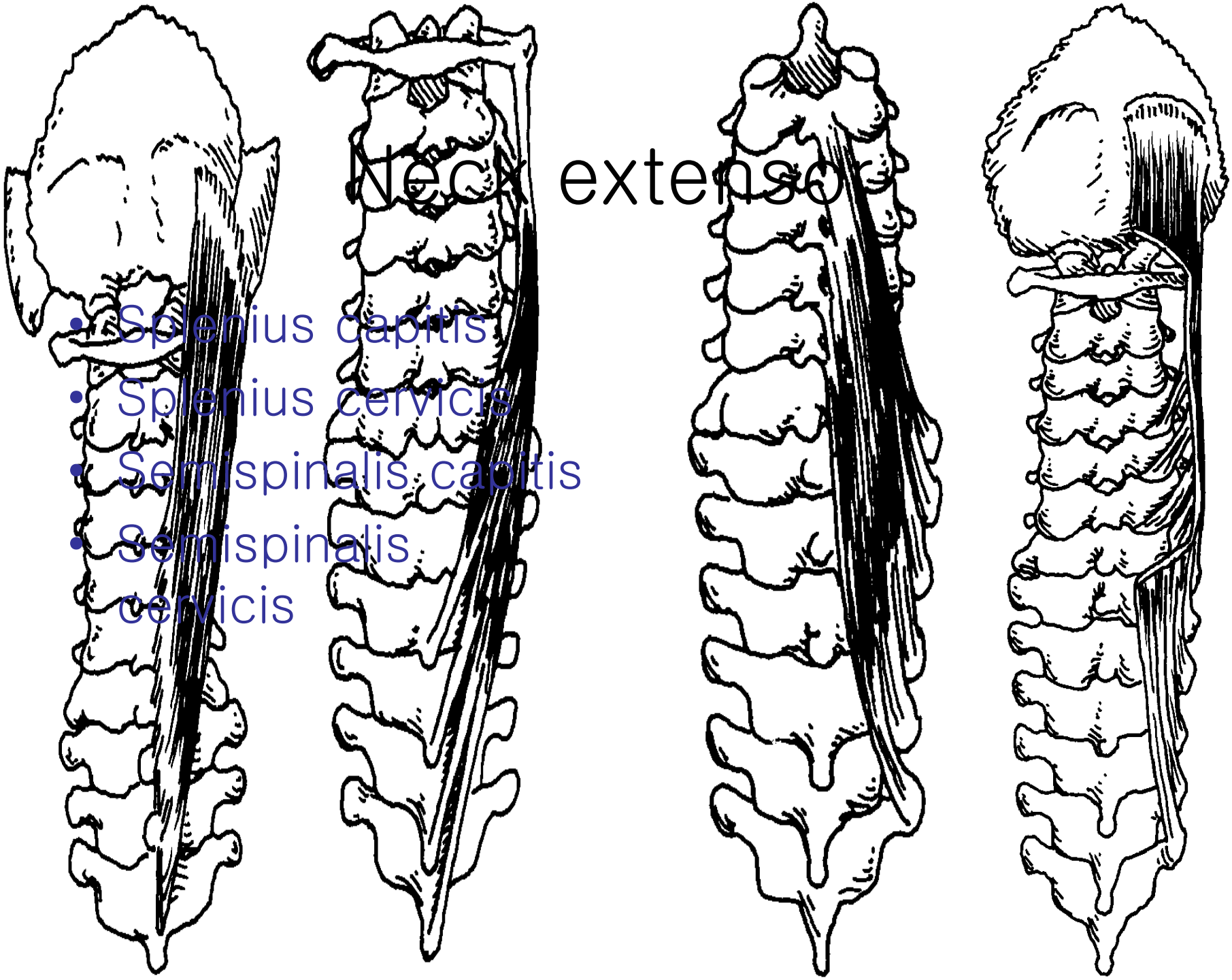
경부굴곡근 NL, NV







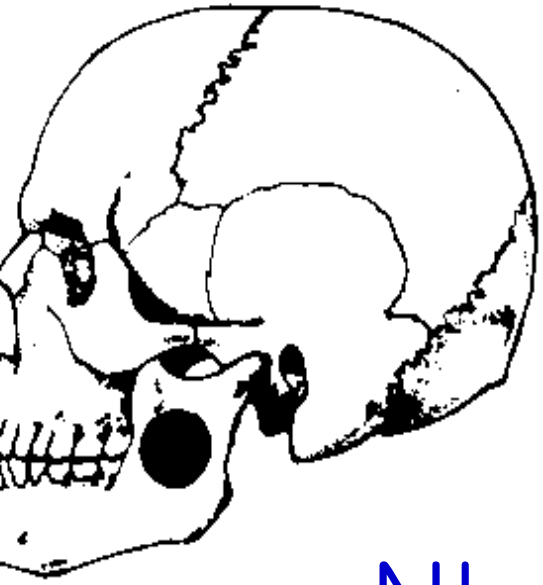
Neck extensor

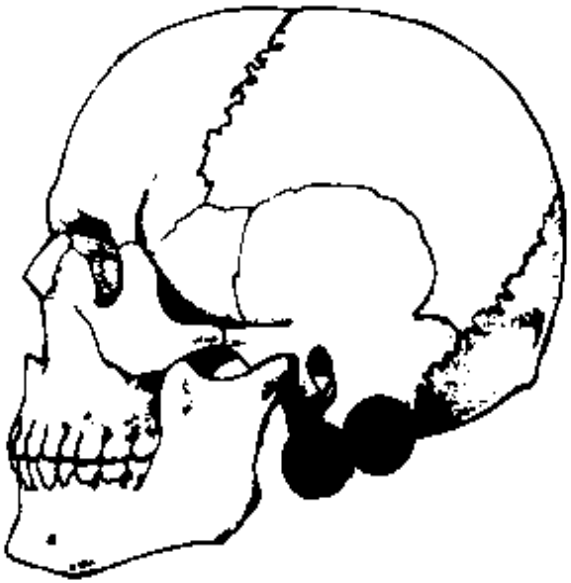


- Splenius capitis
- Splenius cervicis
- Semispinalis capitis
- Semispinalis cervicis

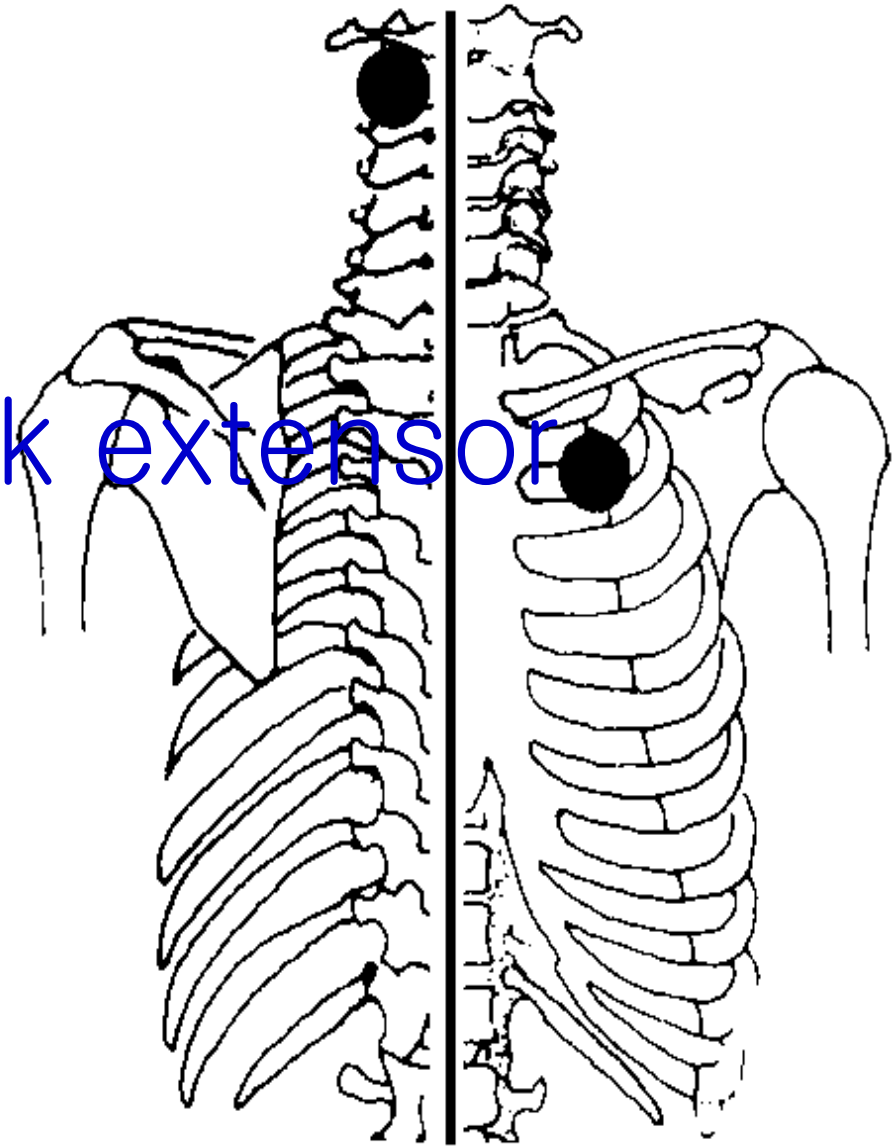
Neck extensor

Neck extensor 동영상



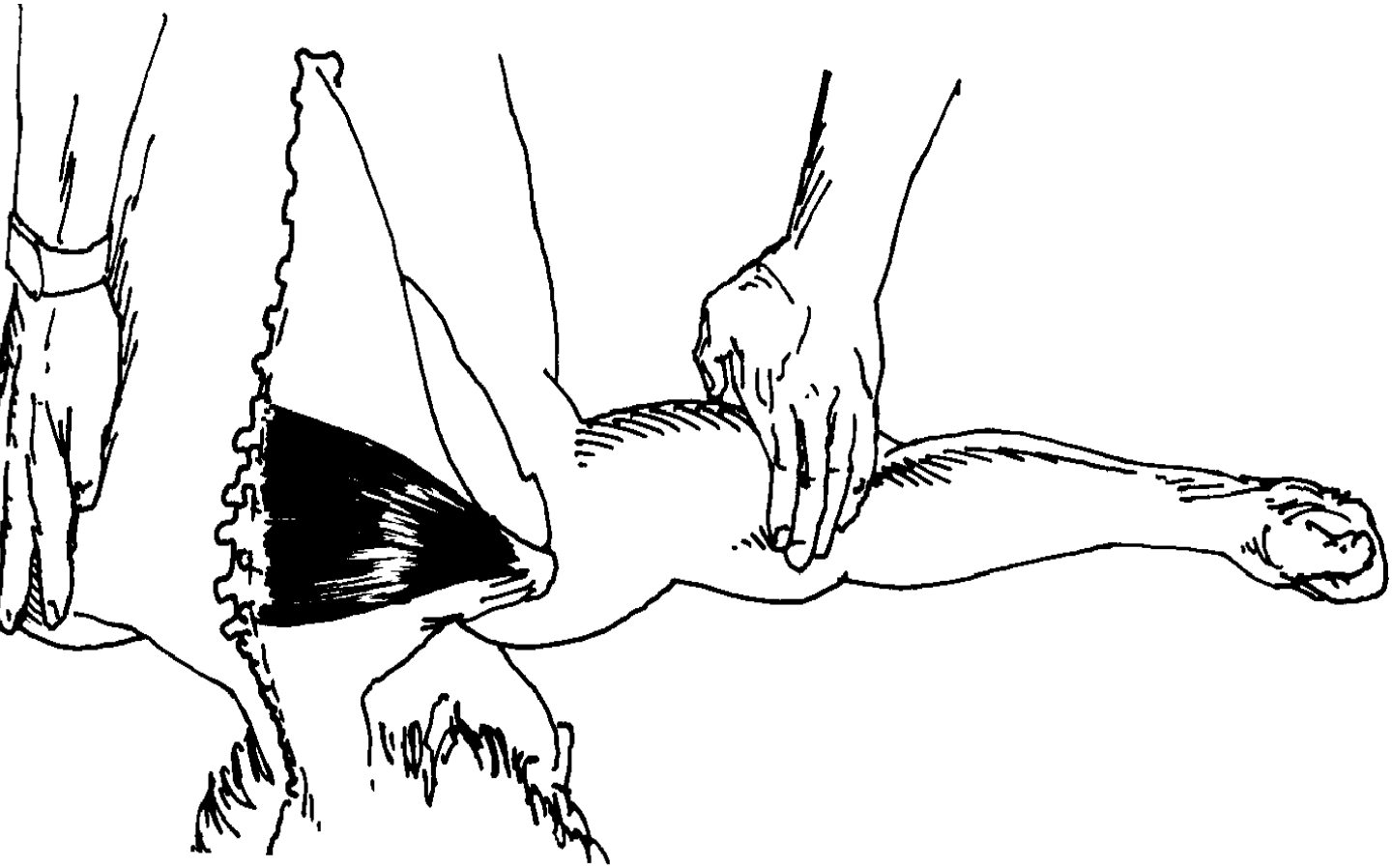


NL, NV neck extensor

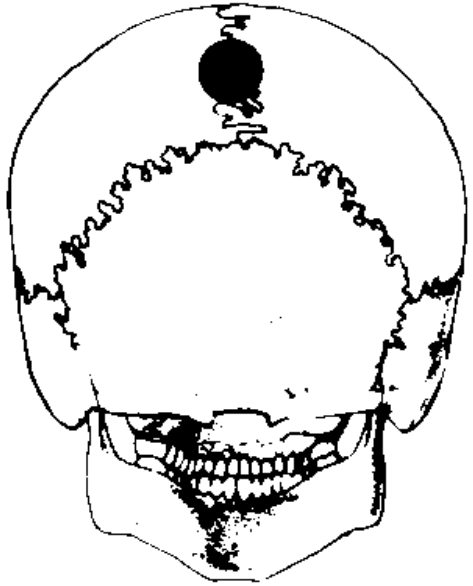


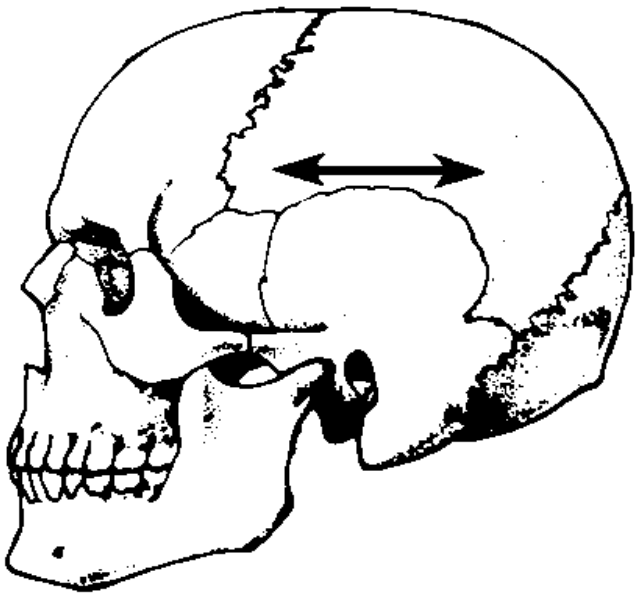
중부 세모근(Trapezius Middle Division)

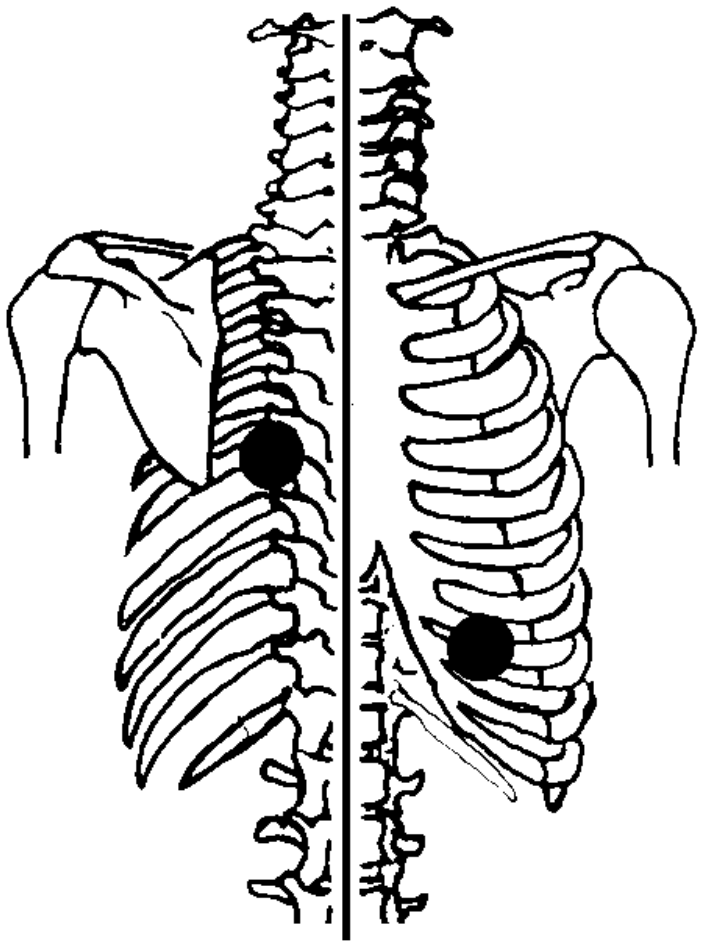
- **신경지배**: 척수 부신경, C2, 3, 4의 전지(ventral ramus)
- **신경림프 반사점**:
- **전방**: 좌측 제7늑간
- **후방**: 좌측 제7흉추와 제8흉추 사이에 추궁판 부근
- **신경혈관 반사점**: 람다 상방 1인치 되는 곳
- **영양**: 비장 농축물 혹은 핵단백질 추출물, 비타민 C, 칼슘
- **연관된 경락**: 비경
- **연관된 장기/내분비선**: 비장



중부 세모근(Trapezius Middle Division)



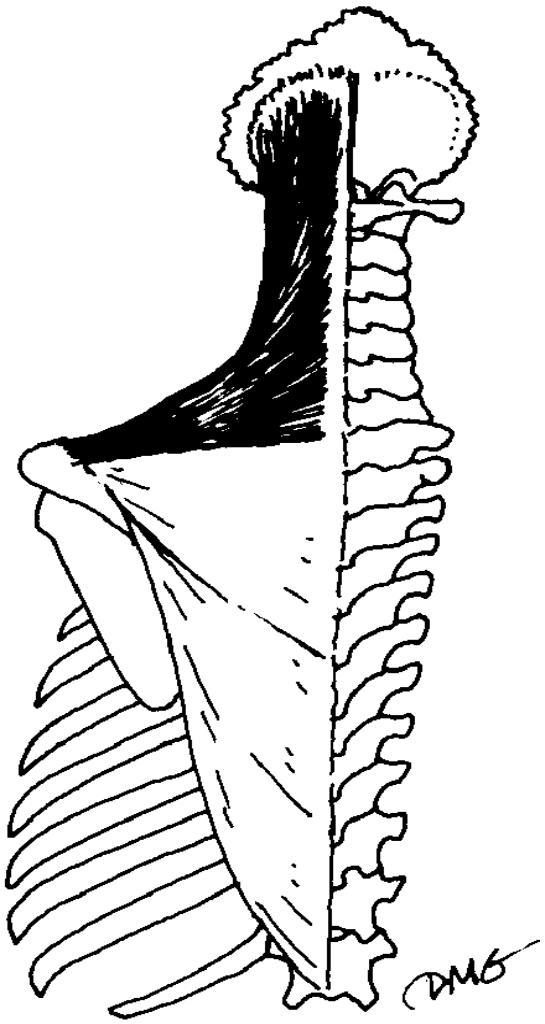




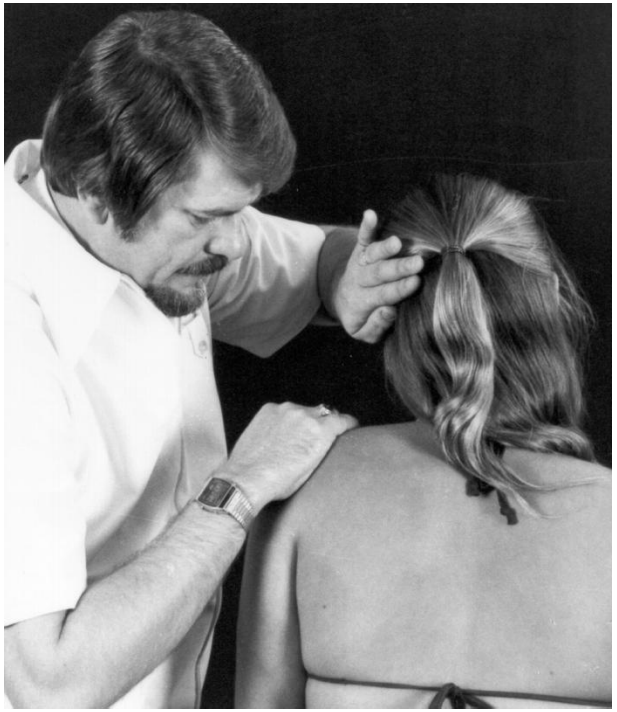
하부 세모근 (lower trapezius)

중부, 하부 세모근 동영상

상부 세모근(upper trapezius)

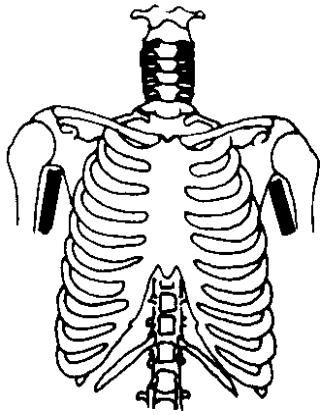


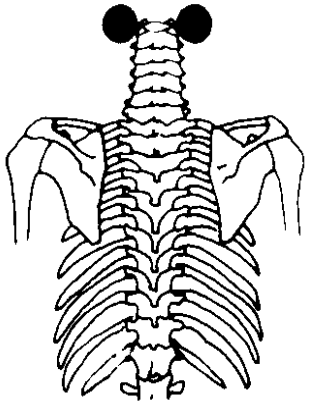
상부 세모근

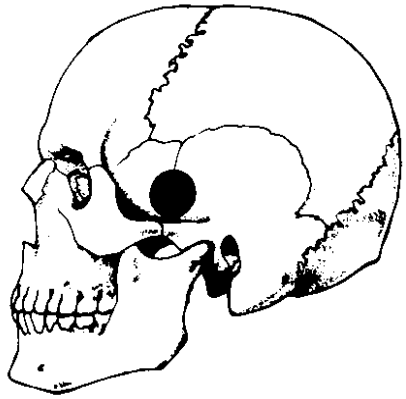


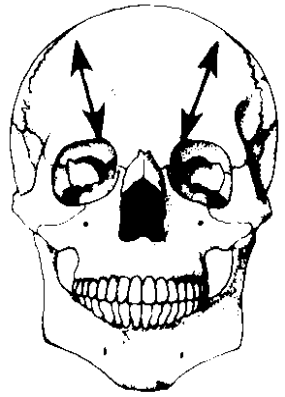
상부 등세모근 동영상

상부 등세모근 TL후 동영상



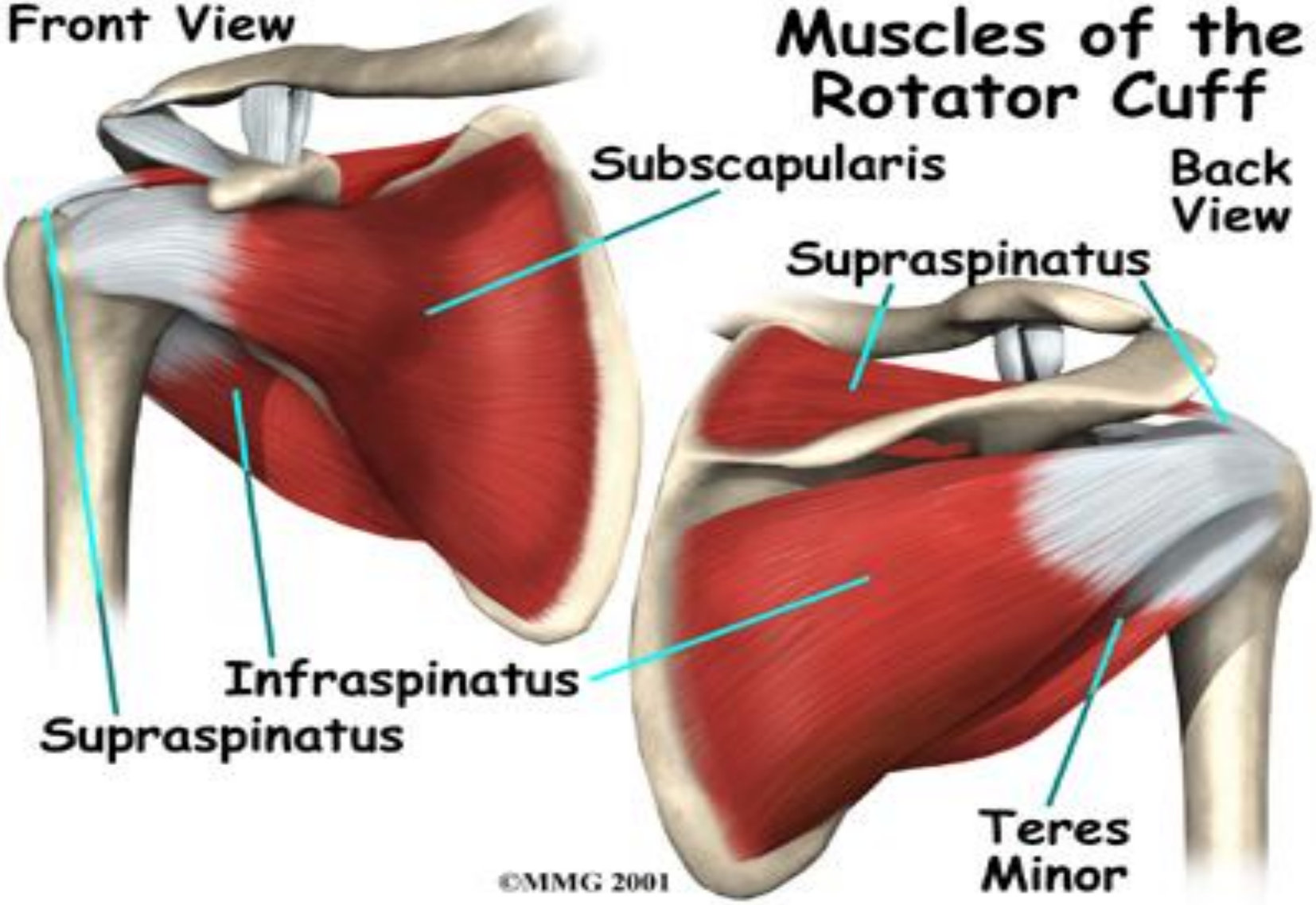




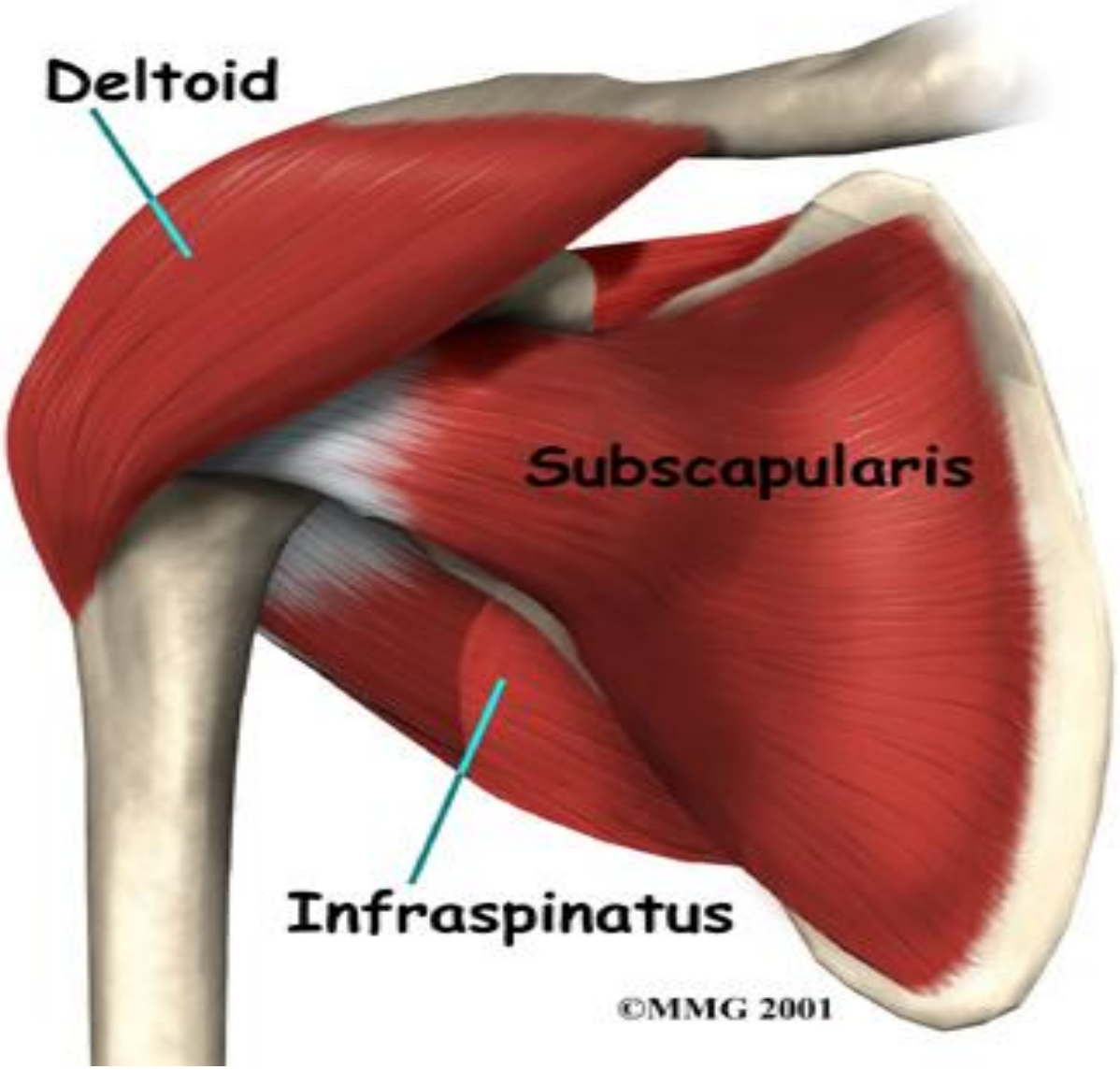


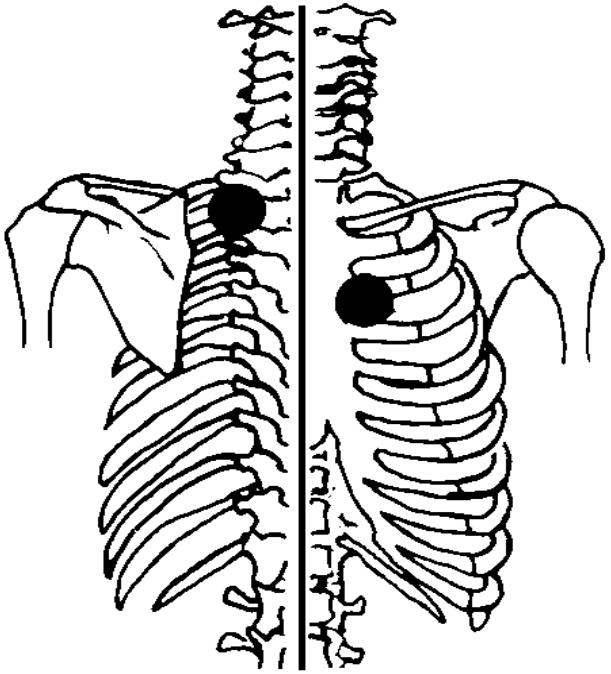
SHOULDER MUSCLES

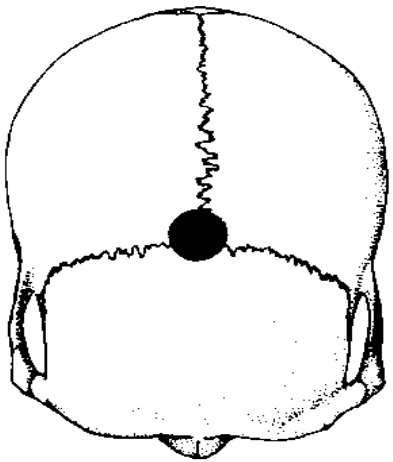
Rotator cuff

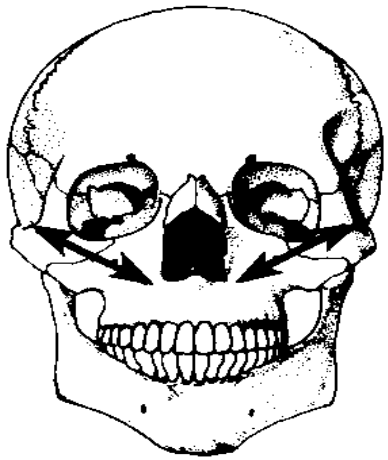


어깨 밑근, 견갑하근 subscapularis







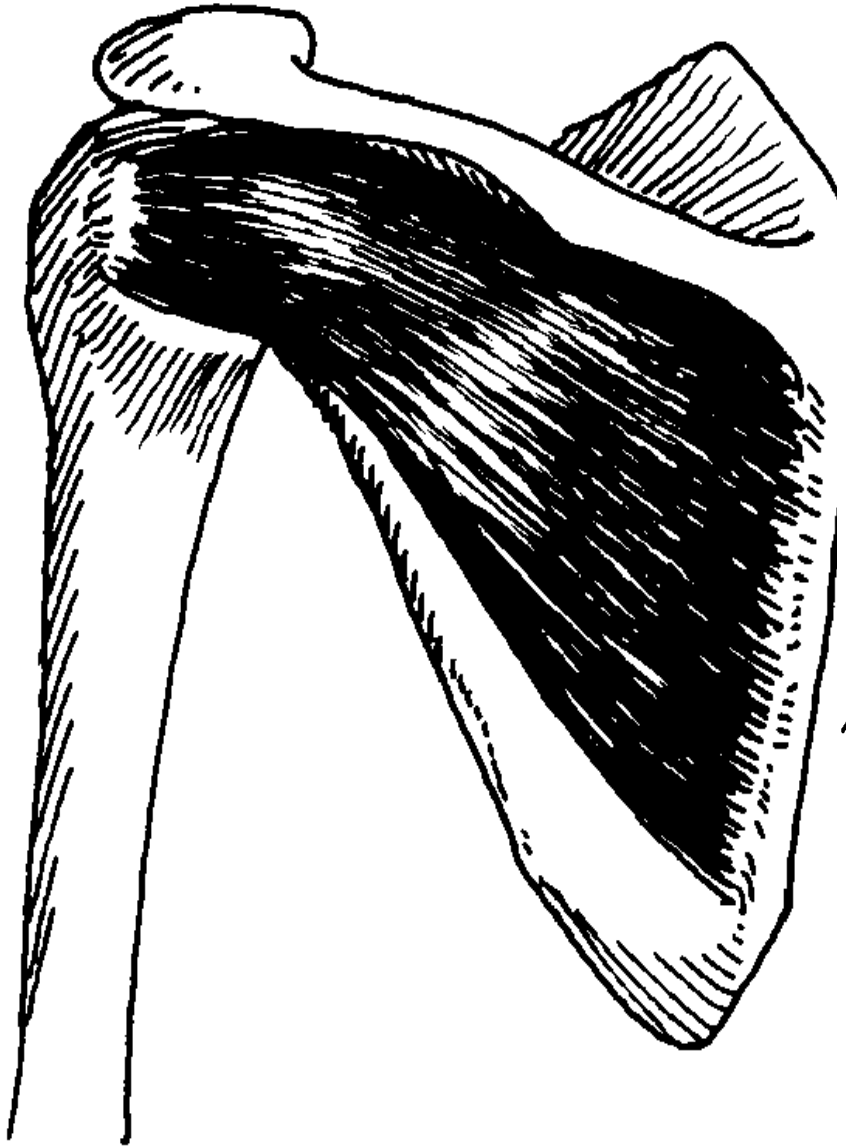


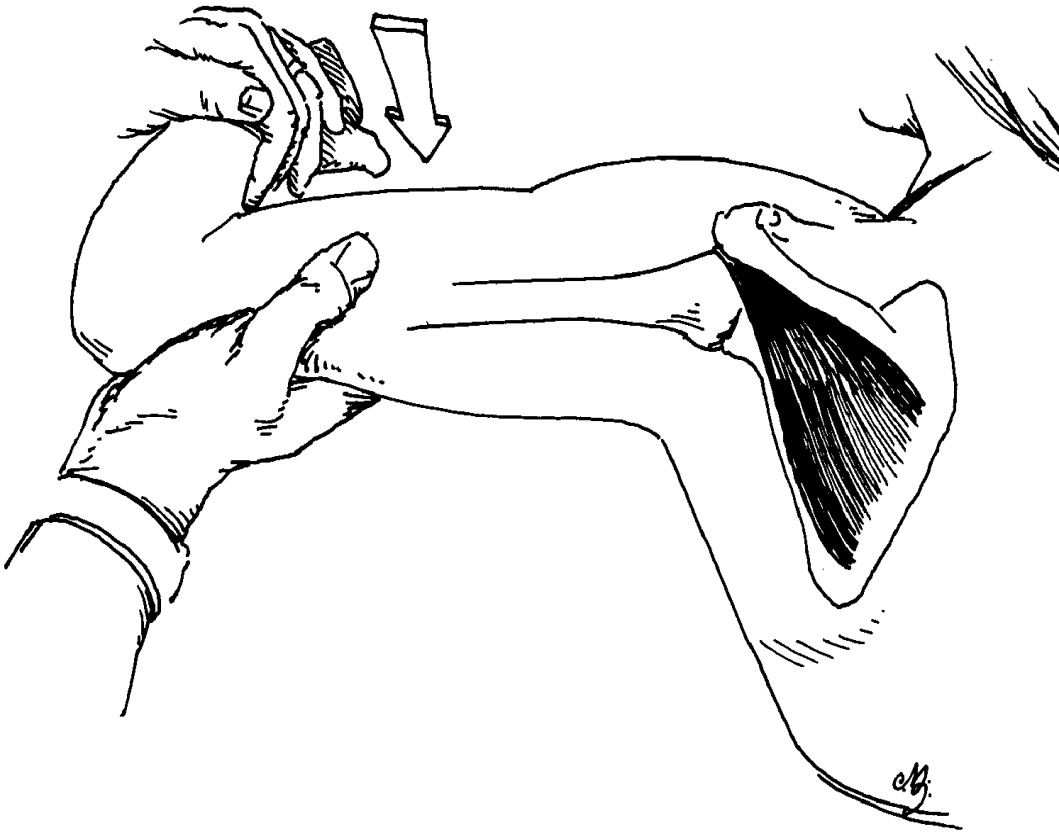
- 기시: Anterior scapula (subscapular fossa)
- 종지: Humerus – lesser tuberosity, shoulder joint capsule
- 기능: medial rotation
- Spinal Levels: Innervation: C-5/6 (upper & lower subscapular) TS/Meric: T-2 Acup: T-5/6
- 기관: 심장
- 경락: 심장
- 영양: Cardio-plus
- Chapman's Reflex: (Bilateral) Ant: 2nd IC space; Post:T-2/3

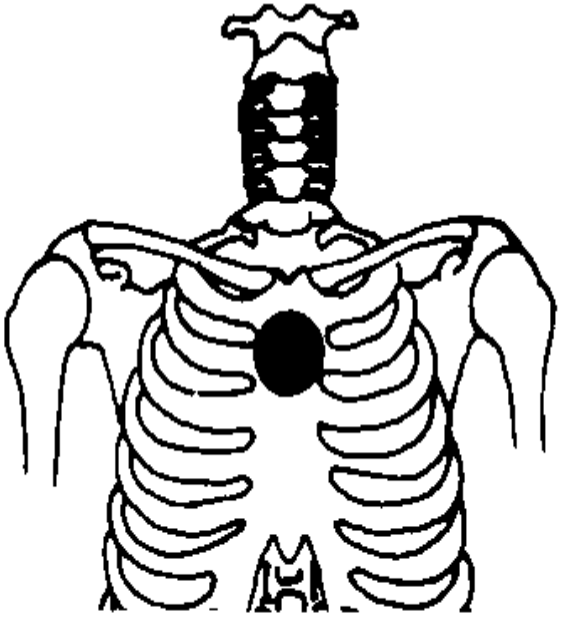
임상적 의의

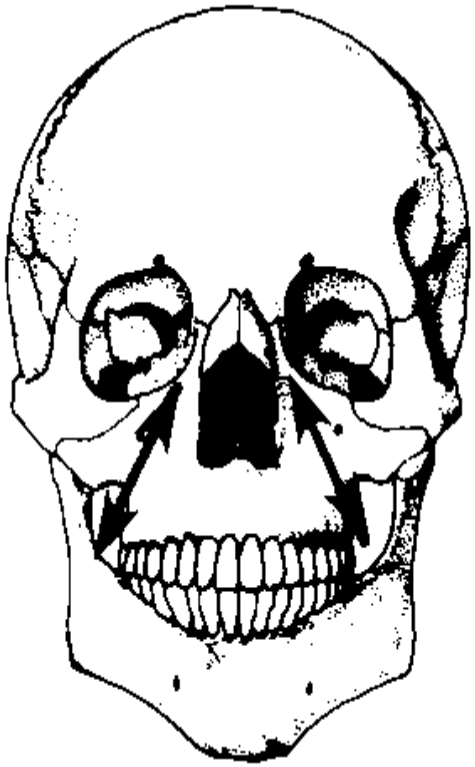
- 던지는 동작
- 테니스 동작(forehand), 골프 등.
- 앞으로 팔을 뻗치는 것이 힘들다(통증, 제한적 ROM)
- 몸 반대로 팔을 뻗치는 것이 힘들다(통증, 제한적 ROM)
- 등 뒤로 팔을 제끼는 것이 힘들다
- 기시-종지부위 손상-“rotator cuff syndrome”
- 기시부위 전체가 다 손상됨을 고려
- 심장 문제(coronary, cardiac)

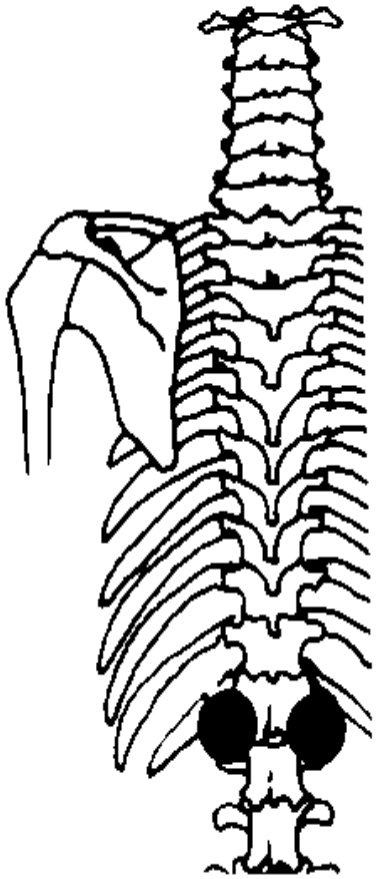
극하근 infraspinatus

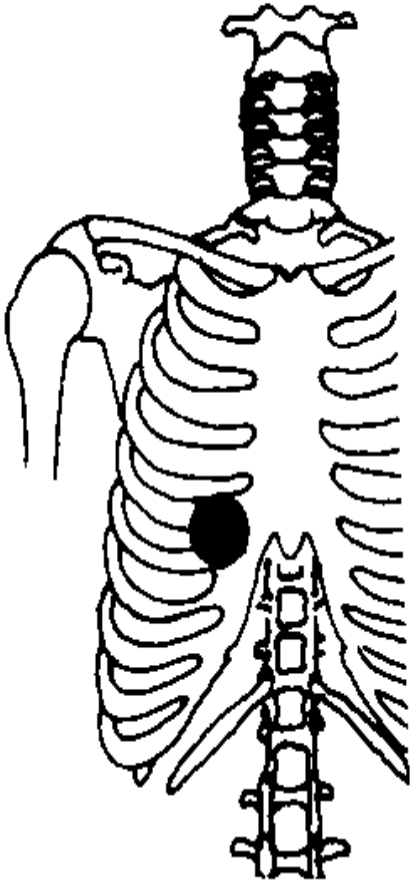












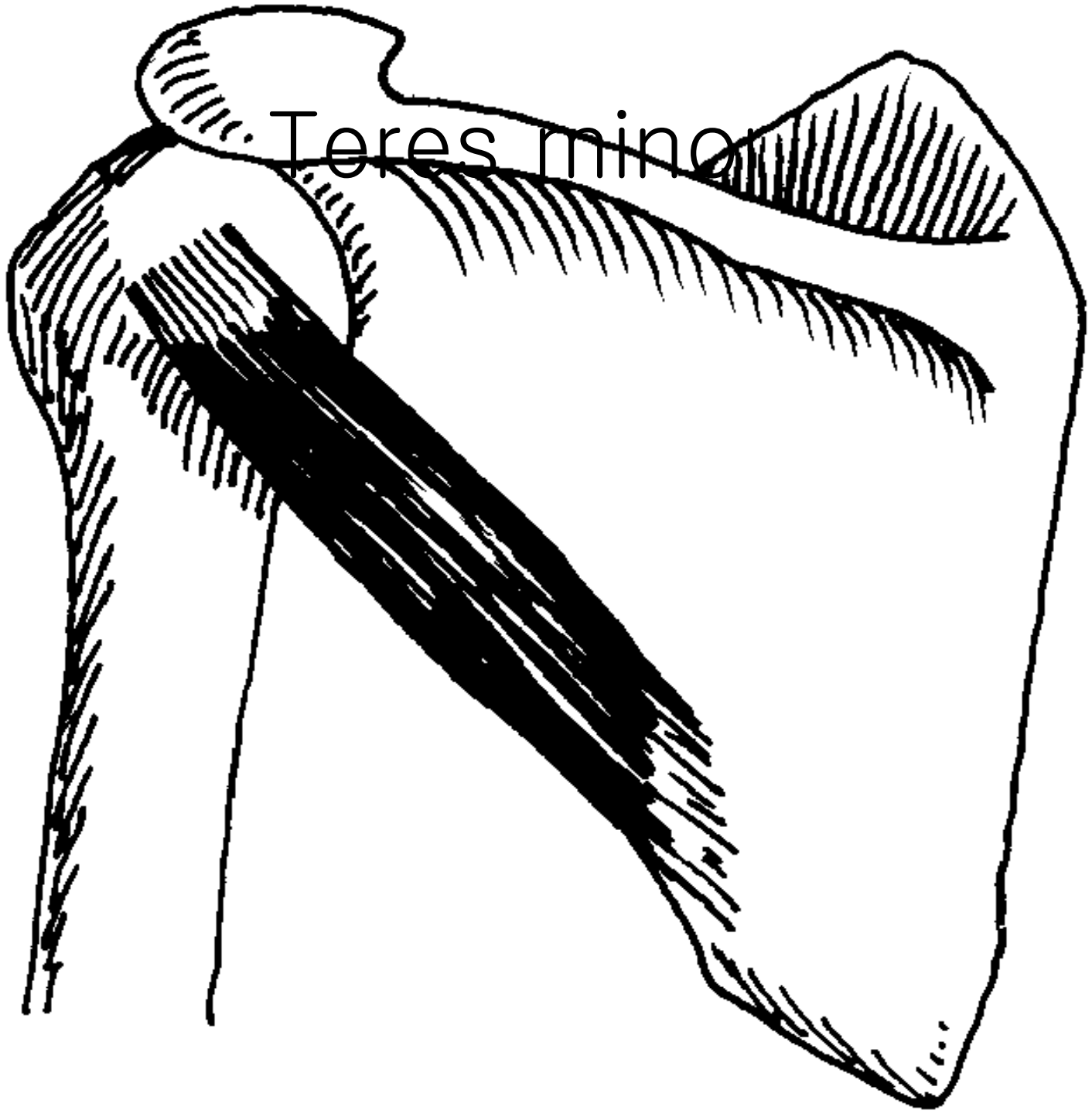
Infraspinatus

- Related to thymus
- The most important immune system: chronic ill, infection etc
- Too much cortisol inhibit thymus gland: thymus atrophy
- Vitality

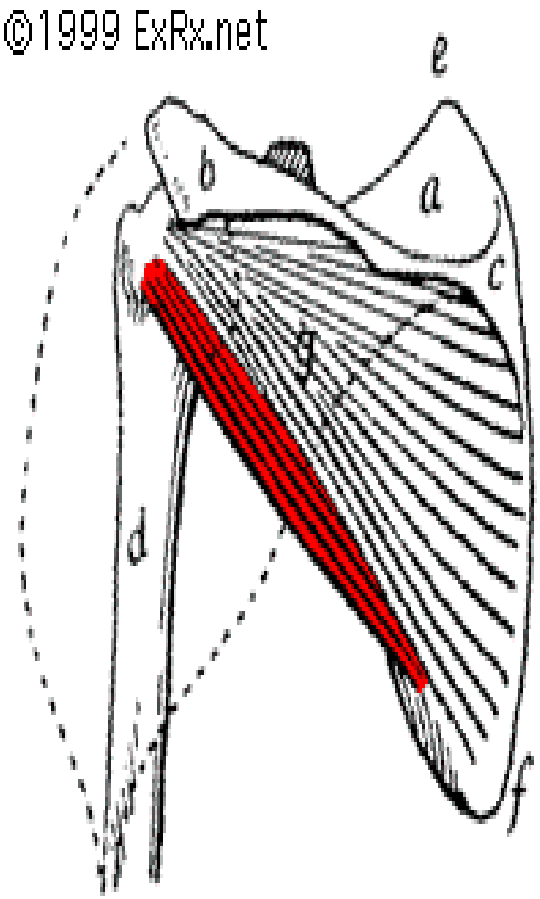
- 기시: Medial 2/3rds of infraspinous fossa of scapula
- 종지: Greater tubercle of humerus (middle facet), shoulder joint capsule
- 기능: lateral rotation; with teres minor and teres major produces smooth shoulder abduction by stabilizing scapula
- Spinal Levels: Innervation: C-5,6 (suprascapular) TS Line/Meric: N/A Acupuncture: L-1/2
- 기관: 흉선
- 경락: 삼초경
- 영양: Immunoberry
- Chapman's Reflex: (Ant. only) Right 5th IC space from mid axillary line to mid mamillary line

임상적 의의

- 어깨 올리기 힘들다(통증, ROM제한)
- 등 뒤로 팔 돌리기 힘들다
- 손바닥을 위로해서 팔을 머리 뒤로 올리기 힘들다
- 테니스 동작(backhand), 골프 등
- 기 시 – 종 지 손 상 – “rotator cuff syndrome”
- 기시-종지 손상-견갑 부위 어디든지.
- **면역력 문제(감염, 자가면역성, 암환자)**


Teres minor

Teres minor


©1999 ExRx.net
a
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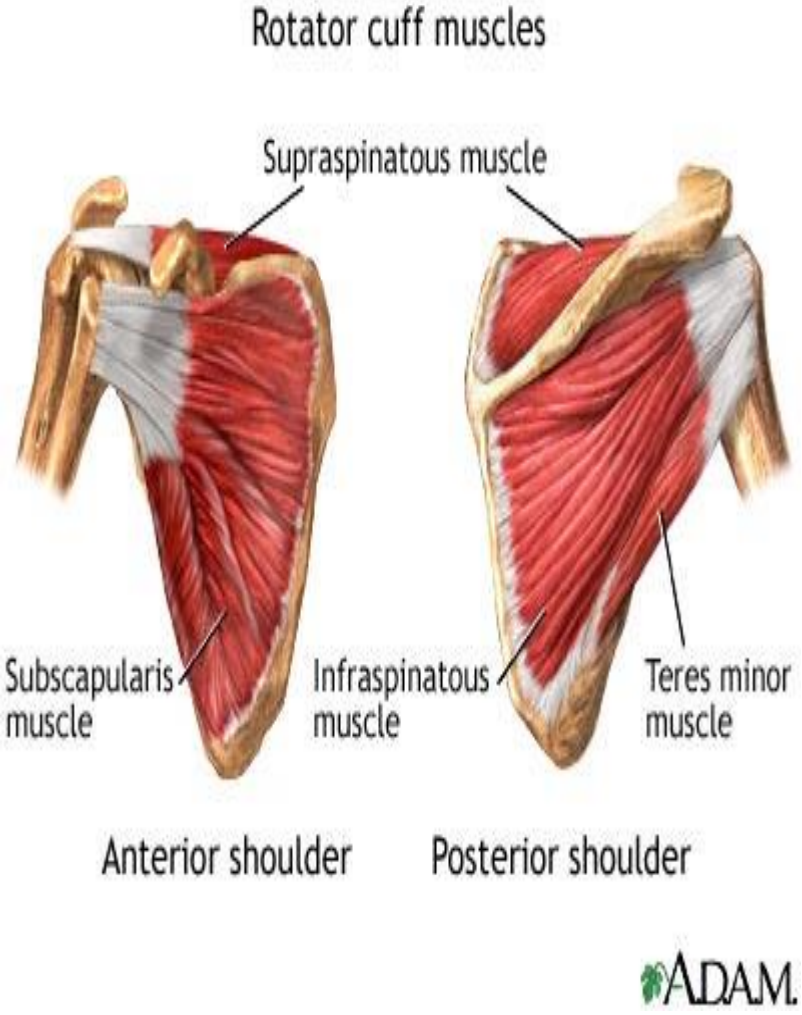
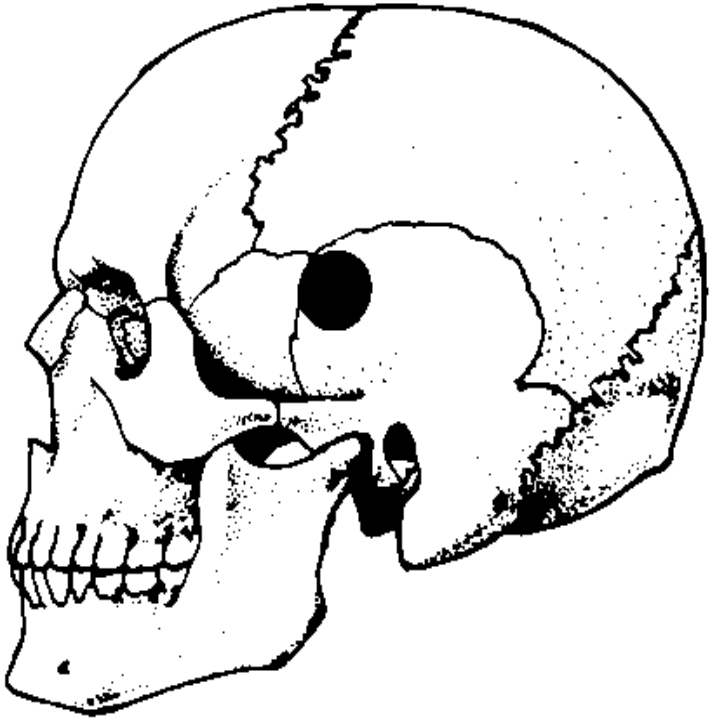
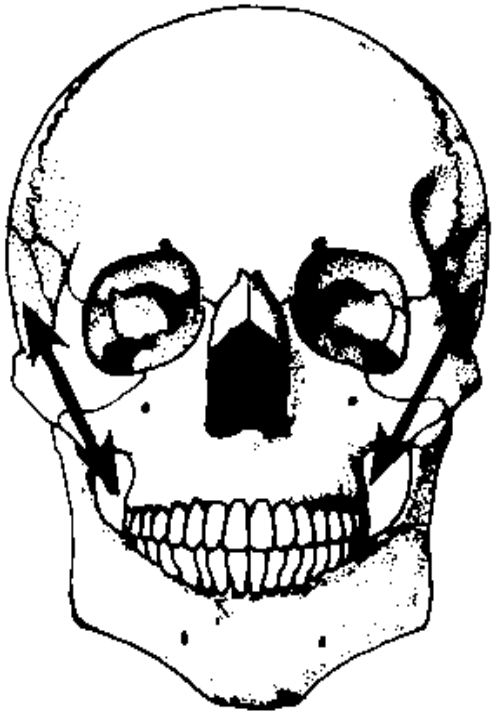
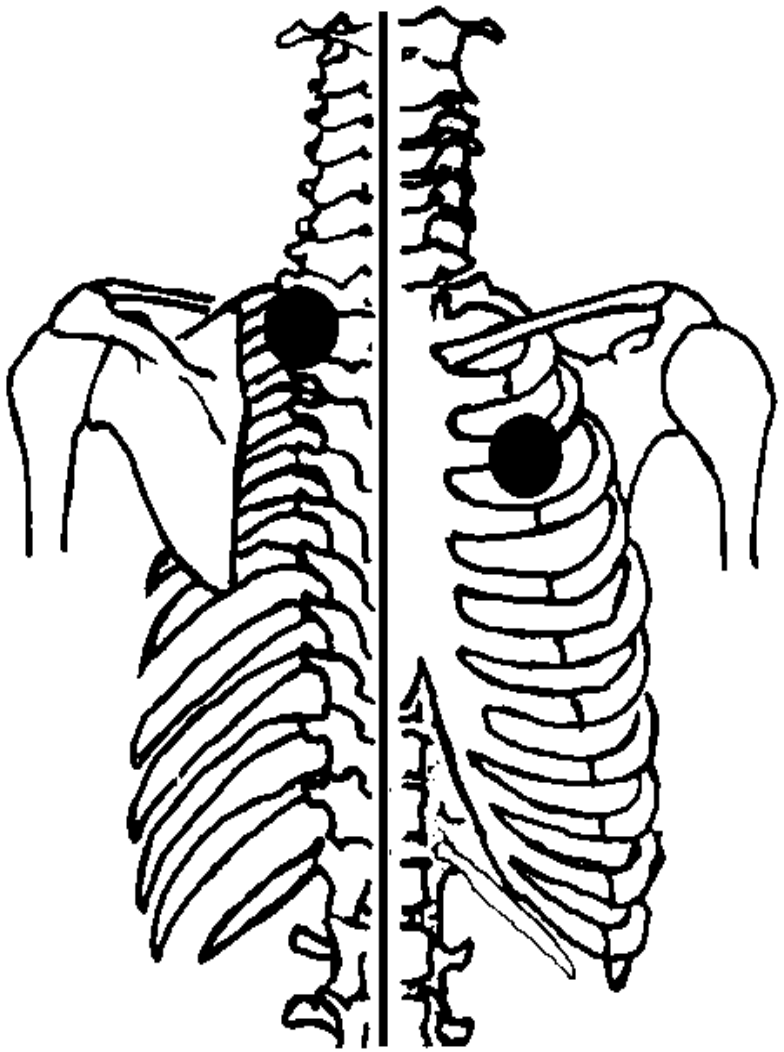

Rotator cuff muscles
Supraspinatous muscle
Subscapularis muscle
Infraspinatous muscle
Teres minor muscle
Anterior shoulder
Posterior shoulder
A.D.A.M.

- **기시:** Middle to lower 1/3 of axillary border of scapula
- **종지:** Greater tubercle of humerus – lowest facet
- **기능:** lateral rotation; with infraspinatus and teres major produces smooth shoulder abduction by stabilizing scapula
- **Spinal Levels: Innervation:** C-(4),5,(6) (axillary) **TS Line/Meric:** N/A **Acupuncture:** L-1/2
- **기관:** 갑상선
- **경락:** 삼초경
- **영양:** 갑상선 추출물, 요오드, Parotid tissue,
- **Chapman's Reflex:** (Bilateral)



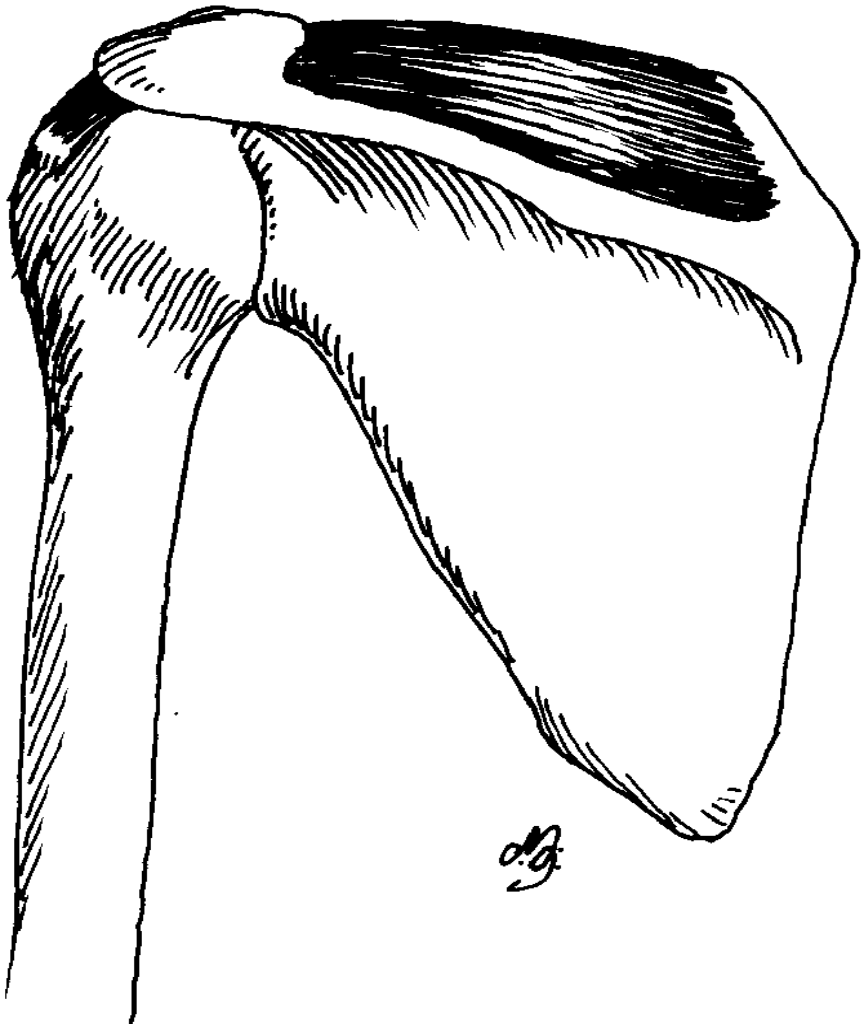


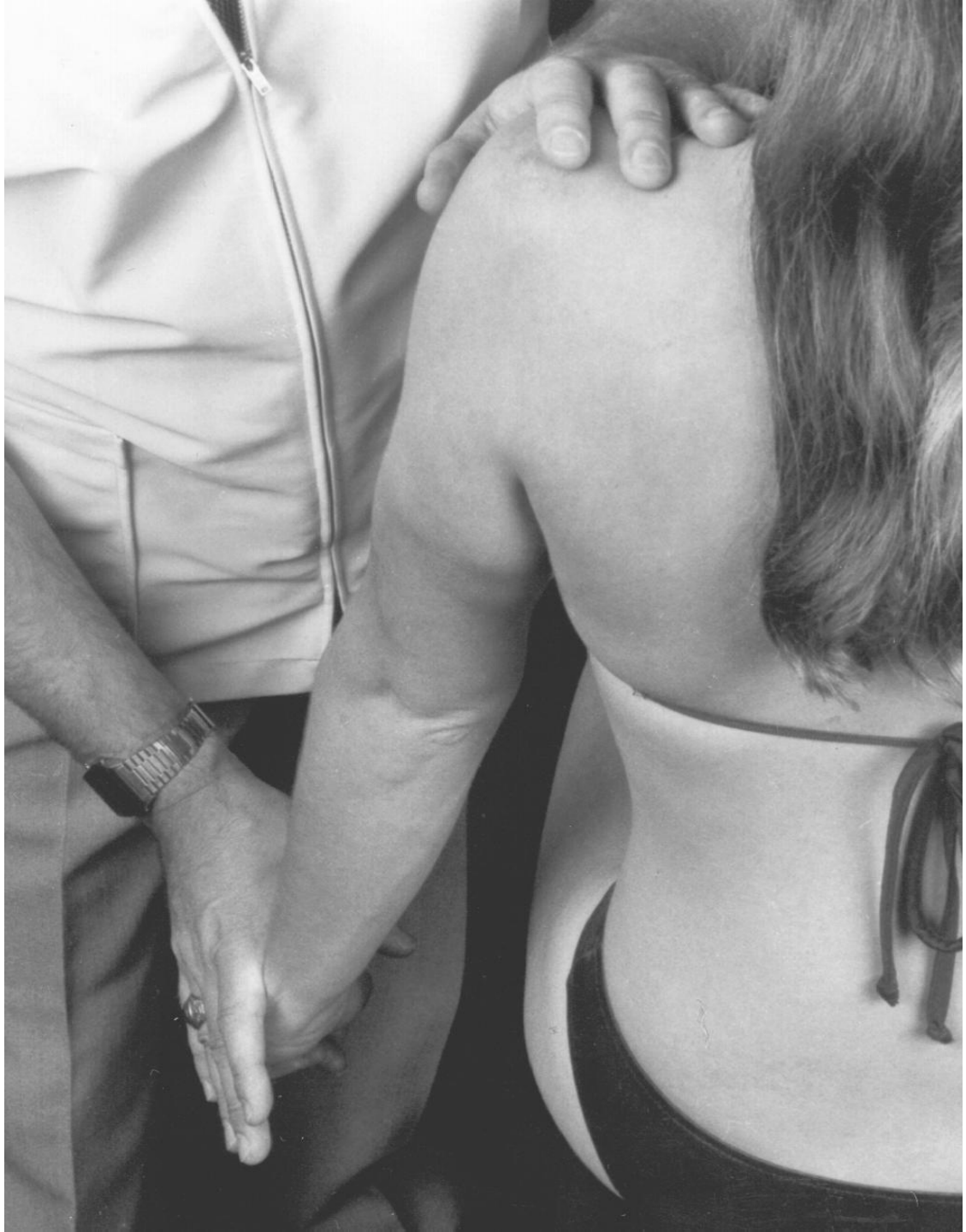


임상적 의의

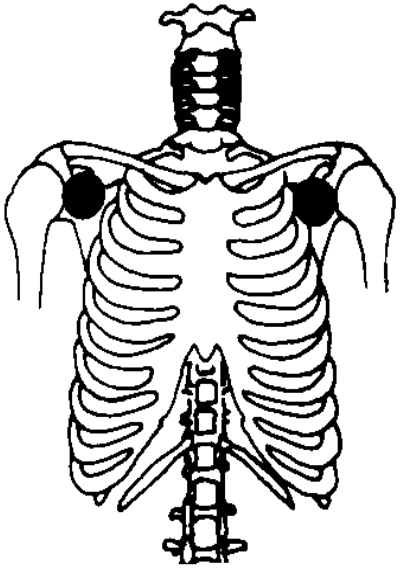
- 뒤에서 손바닥을 볼 수 있다
- 어깨 올리기 어렵다
- 팔을 뒤로 뻗치기 어렵다
- 손바닥을 위로 하고 팔을 머리위로 올리기 힘들다
- 테니스 동작(backhand), 골프 등
- 기시-종지 손상 “rotator cuff syndrome”
- 갑상선 질환

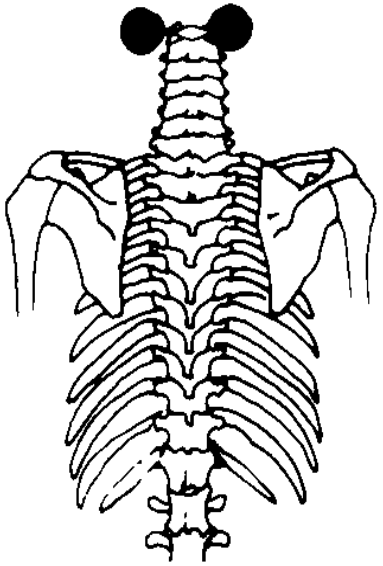
극상근 supraspinatus

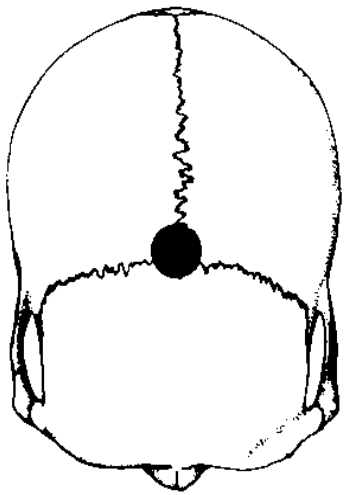


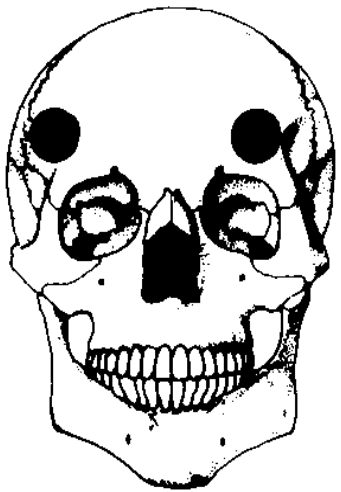


- 기시: Medial 2/3rds of supraspinous fossa of scapula
- 종 지 : Greater tubercle of humerus, shoulder joint capsule
- 기능: begins abduction (1^{st} 15^{O} – 20^{O}); holds humeral head in glenoid fossa
- Spinal Levels: Innervation: C-5,(6) (suprascapular) TS Line/Meric: N/A Acup: T-6/7, T-7/8
- 기관: Brain, thyroid(neurolink)
- 경락: 독맥 혹은 임맥
- 영양: Brain vitale
- Chapman's Reflex: (Bilateral) Ant: Over coracoid process; Post: Base of skull to C-1 lamina







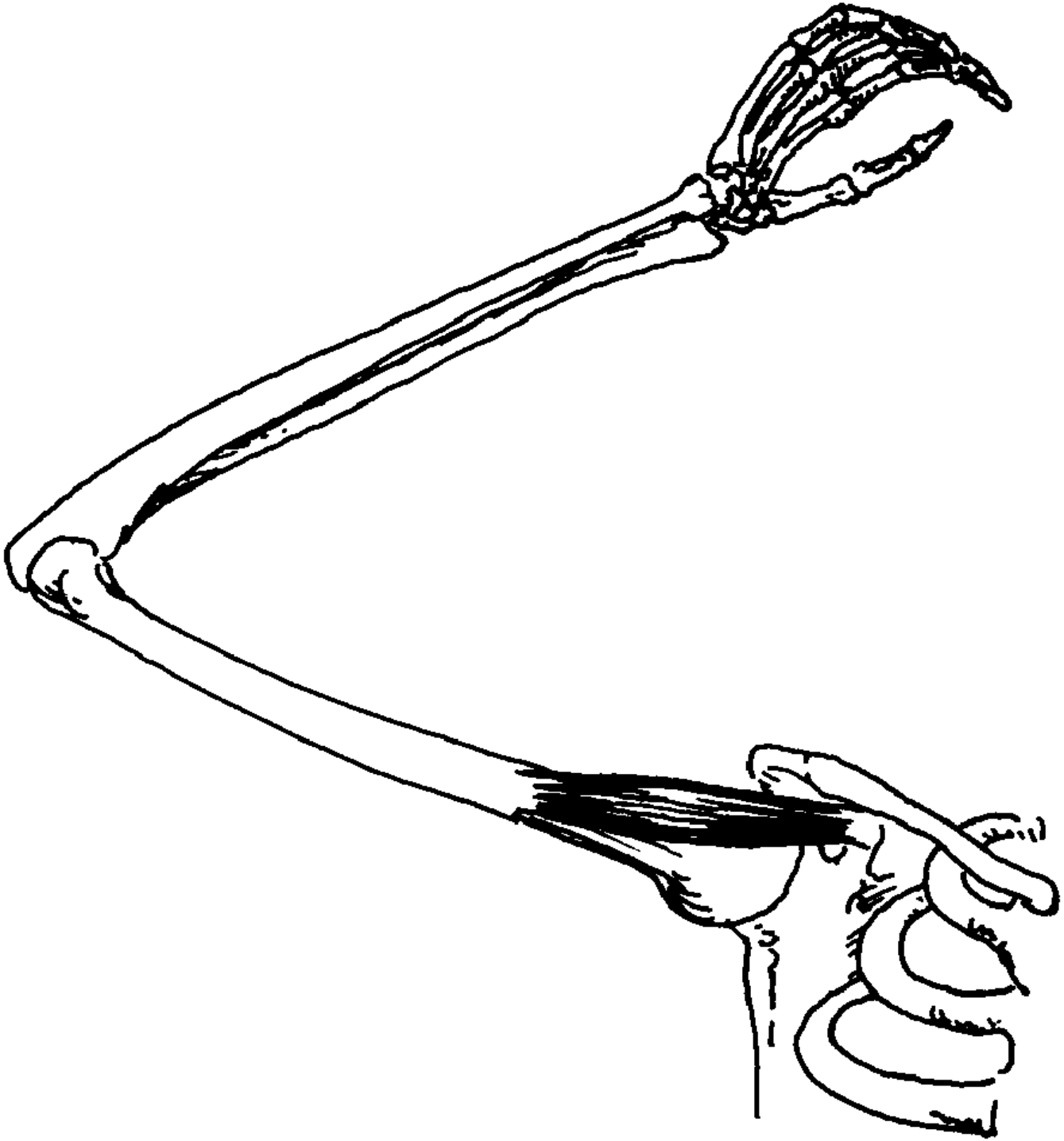


임상적 의의

- humeral abduction어렵다
- 어깨와 관련된 통증 이나 가동력 문제
- 기시-종지 손상 “rotator cuff syndrome”
- Degeneration –tearing
- 뇌- cerebrovascular accident (including transient ischemic attacks)

Corcobrachialis

- Organ: lung
- Musculocutanous nerve innervation C6,7
- NV, NL
- 머리뒤로 손을 돌리기가 힘들다.



임상적 의의

- 빗질 어렵다
- 면도가 어렵다
- 팔을 위로 뻗치고 있기 힘들다
- 폐

기 시 : Tip of coracoid process – shares tendon with short head of biceps

종지: Medial side of humerus – just opposite deltoid insertion

기능: flexion; adduction

Spinal Levels: Innervation: C-5,6,7 (musculocutaneous) TS Line/Meric: T-4 Acup: T-3/4

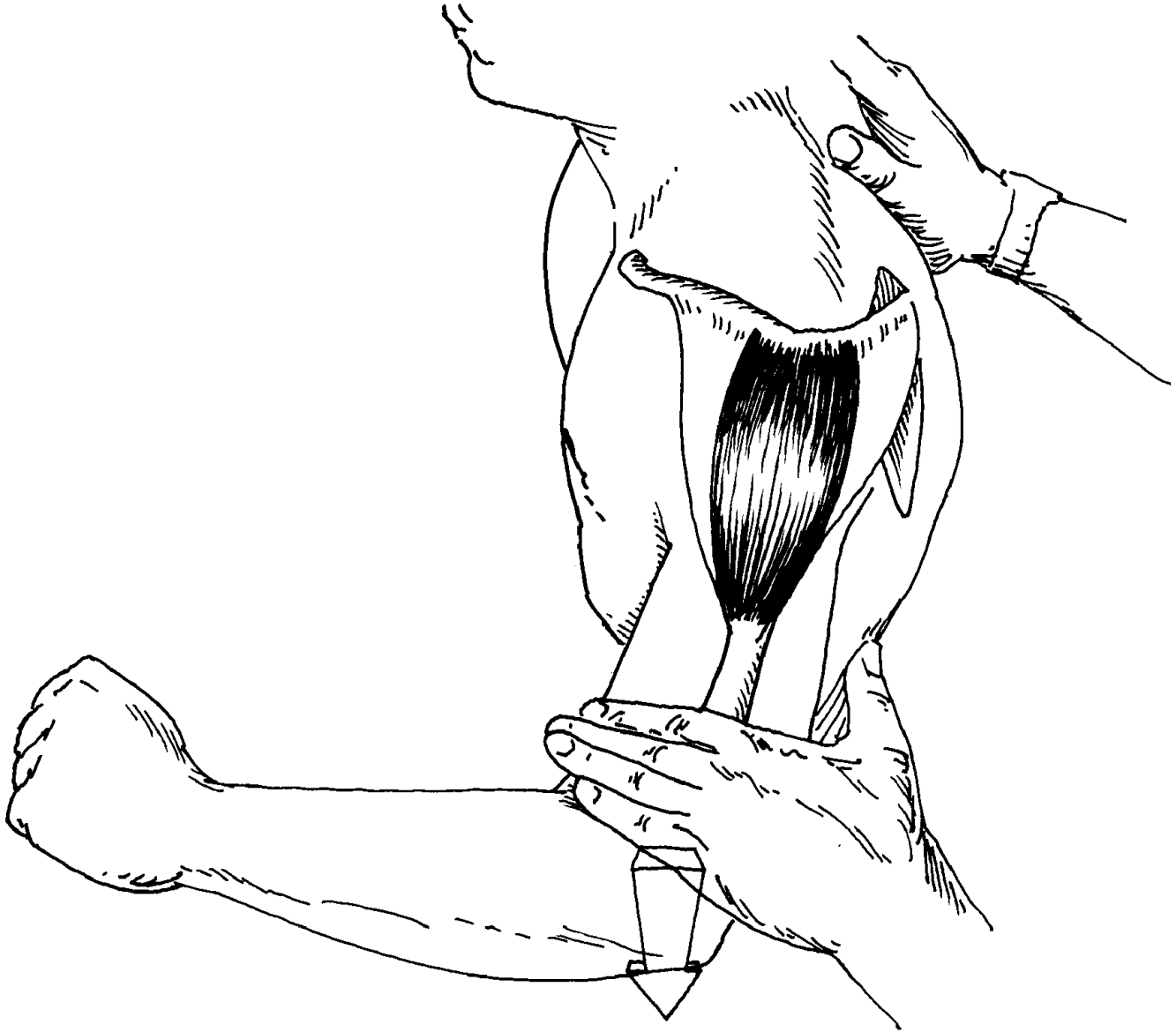
기관: 폐

경락: 폐

영양: Vitamin C; Lung tissue

Chapman's Reflex: (Bilateral) Ant: 2nd, 3rd, 4th IC spaces; Post:T-3/4

Middle deltoid

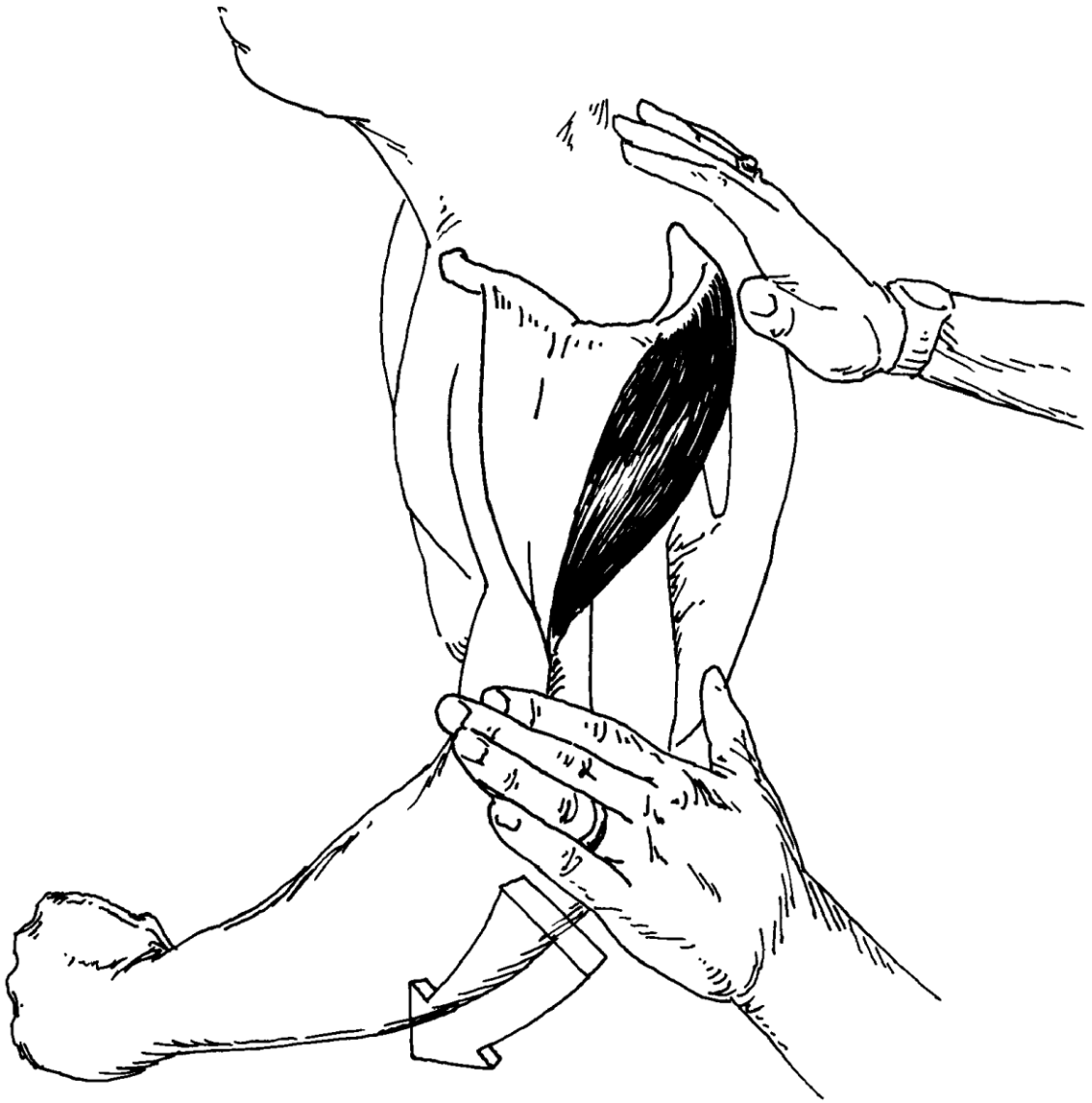


- 기 시 : Upper surface of acromion (embraces insertion of upper trapezius)
- 종지: Deltoid tubercle of humerus
- 기능: abduction; cannot initiate abduction; lifts arm only to 90° – further elevation from tilting glenoid fossa superiorly
- Spinal Levels: Innervation: C-5/6 (axillary) TS Line/Meric: T-3 Acupuncture: T-3/4
- 기관: 폐
- 경락: 폐
- 영양: 비타민C; 폐 추출물, (RNA)
- Chapman's Reflex: (Bilateral) Ant: (2nd), 3rd, (4th) IC spaces; Post: T-(2)/3/4

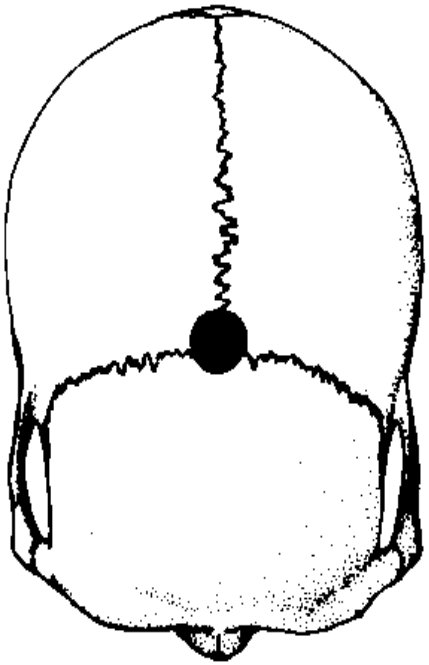
임상적 의의

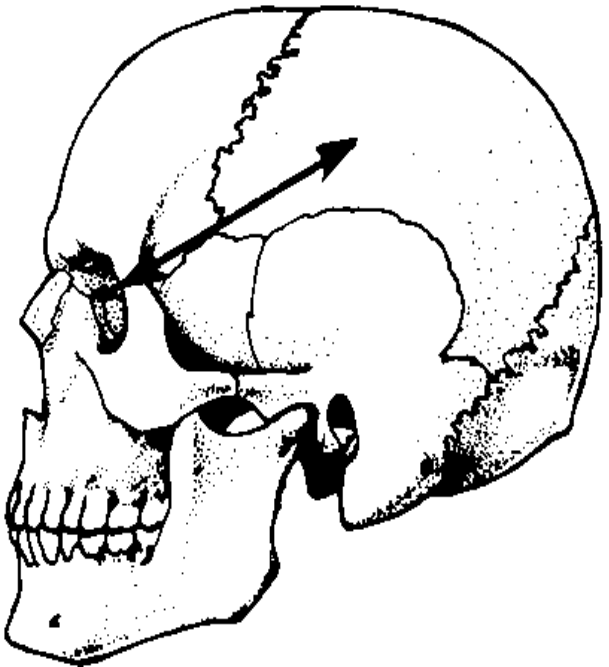
- 어깨 abduction어렵다
- 폐 청진시 Absent – pneumothorax
- 폐와 관련된 질환(less likely in asthma)
- Route of elimination (nasal / sinus congestion)
- Bilateral – C-7 / T-1 / T-2 AK “fixation”

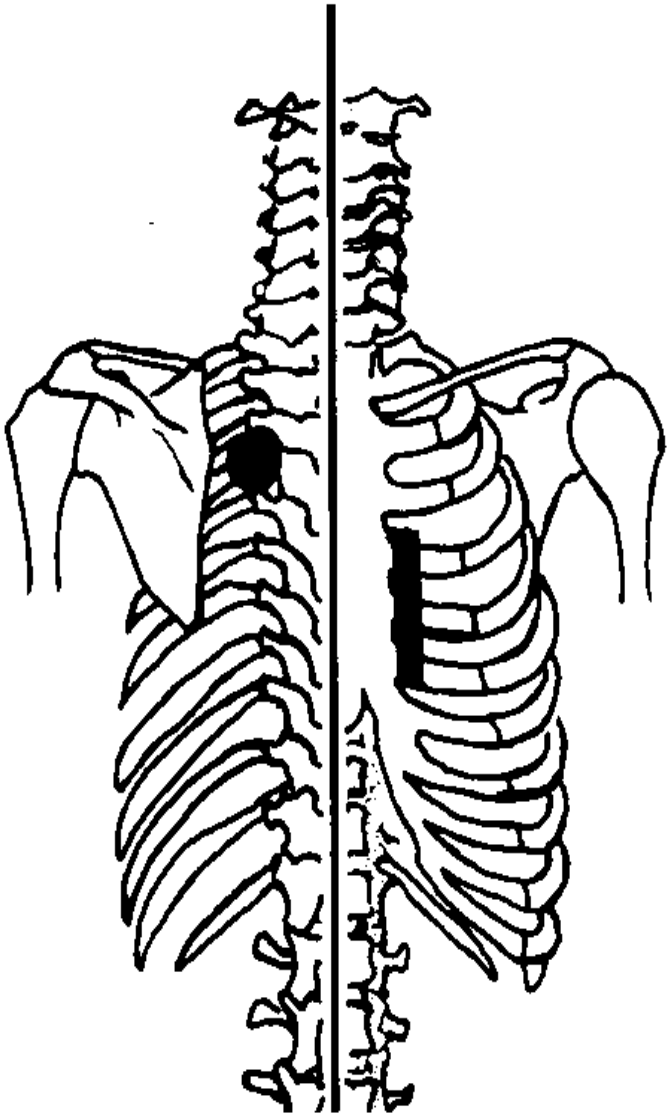
후방 삼각근



- 기시: Posterior border of spine of scapula
- 종지: Deltoid tubercle of humerus
- 기능: abduction; shoulder extension
- Spinal Levels: Innervation: C-5/6 (axillary) TS Line/Meric: T-3 Acupuncture: T-3/4
- 기관: 폐
- 경락: 폐
- 영양: 비타민C; 폐 추출물, (RNA)
- Chapman's Reflex: (Bilateral) Ant: (2^{nd}), 3^{rd}, (4^{th}) IC spaces; Post: T-(2)/3/4



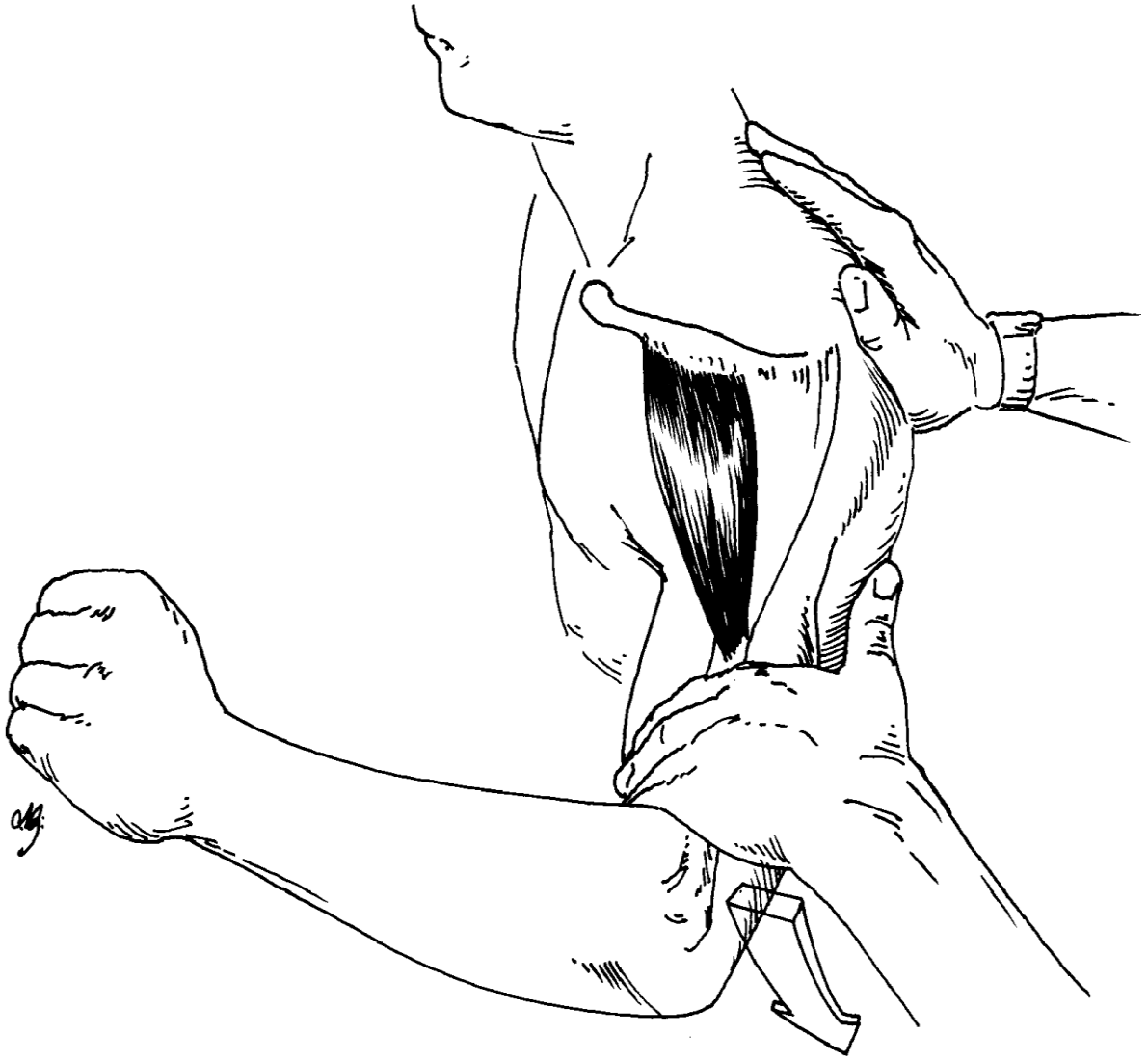




임상적 의의

- supraspinatus 와 함 께 동 작 – supraspinatus와 함께 잘 다친다
- abduction어렵다
- 차 뒷자석으로 팔 돌리는 것이 힘들다
- abduction에서 Adduction

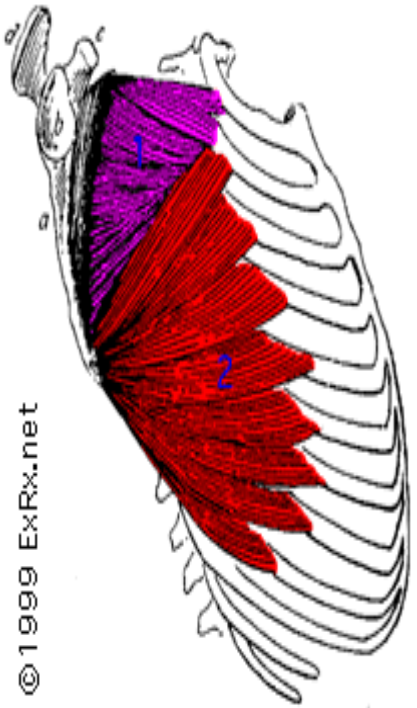
전방 삼각근

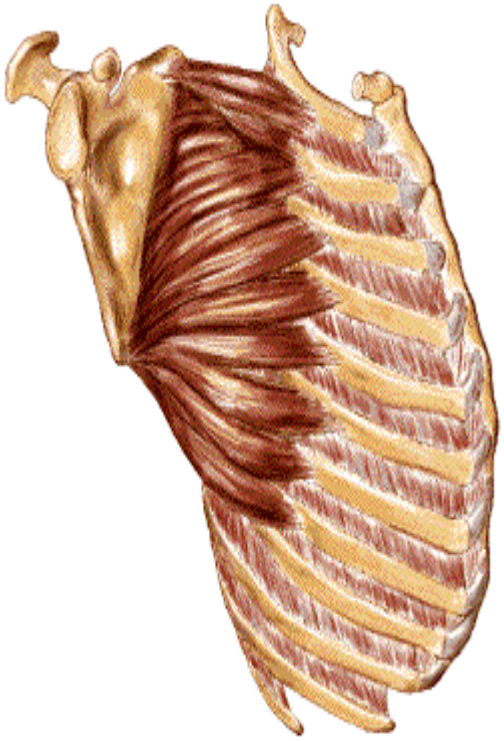


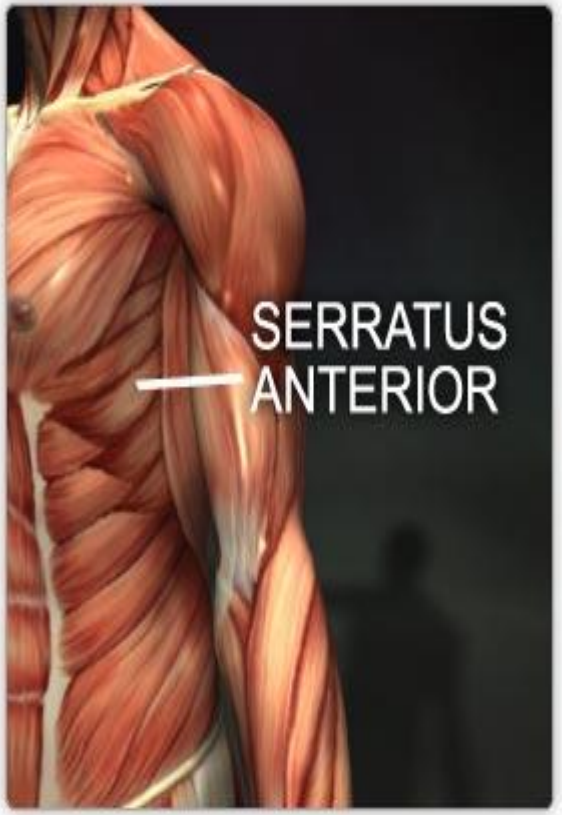
임상적 의의

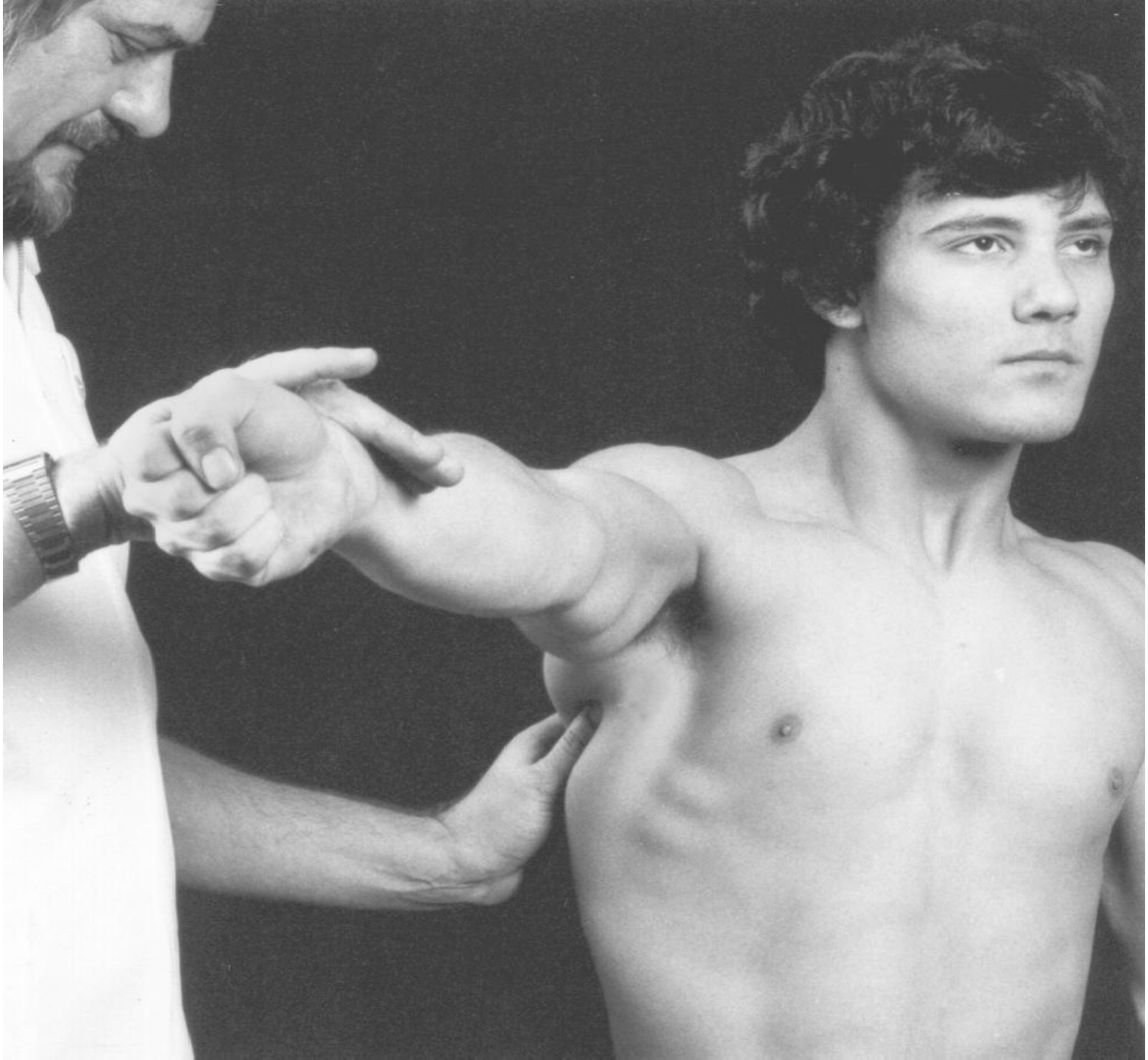
- PMC와 함께 정렬
- Abduction, flexion어렵다
- 던지는 동작

Serratus anterior 앞톱니근









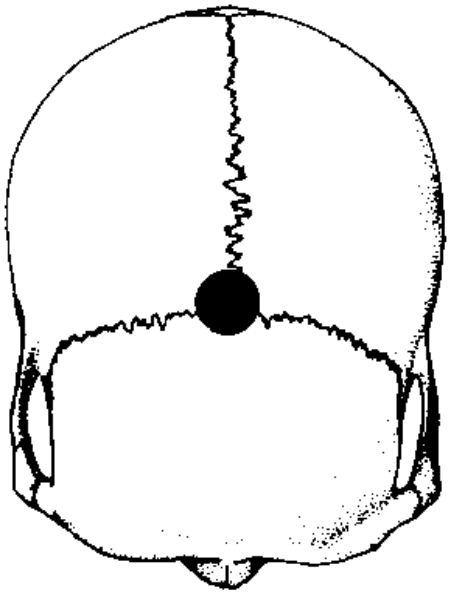
serratus ant

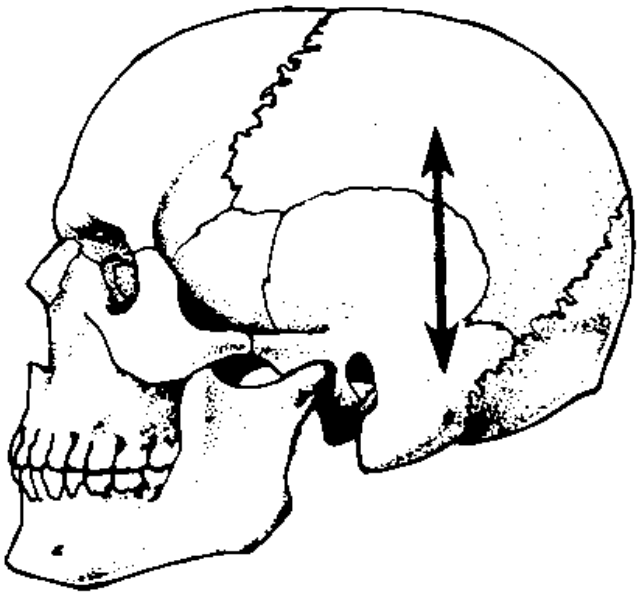
- **신경지배**: long thoracic n , C5, 6, 7
- **신경림프 반사점**:
- **전방**: 제3늑간 제5늑간에 흉골 인접 부위
- **후방**: 제3흉추, 제4흉추, 제5흉추의 추궁판
- **신경혈관 반사점**: 정수리점
- **영양**: 폐 농축물 혹은 핵단백질 추출물, 비타민 C
- **연관된 경락**: 폐경
- **연관된 장기/내분비선**: 폐

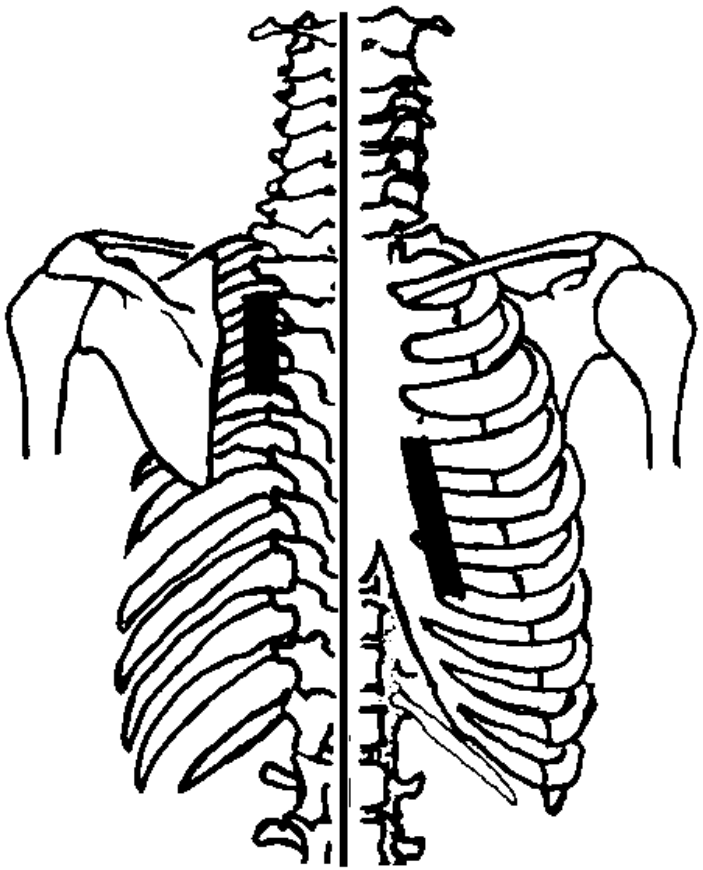
- 기시: By finger-like slips (serrated – saw-tooth) from the upper 8-9 ribs – outer surfaces and superior borders – runs as a broad sheet of muscle along chest wall
- 종지: Entire vertebral border of scapula – 5/8 of fibers insert on lower border; lower fibers insert in directly opposite direction from the rhomboids fibers;
- 기능: most powerful protractor of shoulder; rotates glenoid fossa upward (works with upper and lower trapezius); anchors scapula to chest wall so other shoulder muscles can pull from a fixed source

- **Spinal Levels:** **Innervation:** C-5,6,7 (long thoracic) **TS Line/Meric:** T-3 **Acupuncture:** T-3/4
- **기관:** 폐
- **경락:** 폐
- **영양:** 비타민 C; 폐 추출물
- **Chapman's Reflex:** (Bilateral) Ant: 3rd, 4th, 5th IC spaces; Post: T-3/4/5

Serratus ant

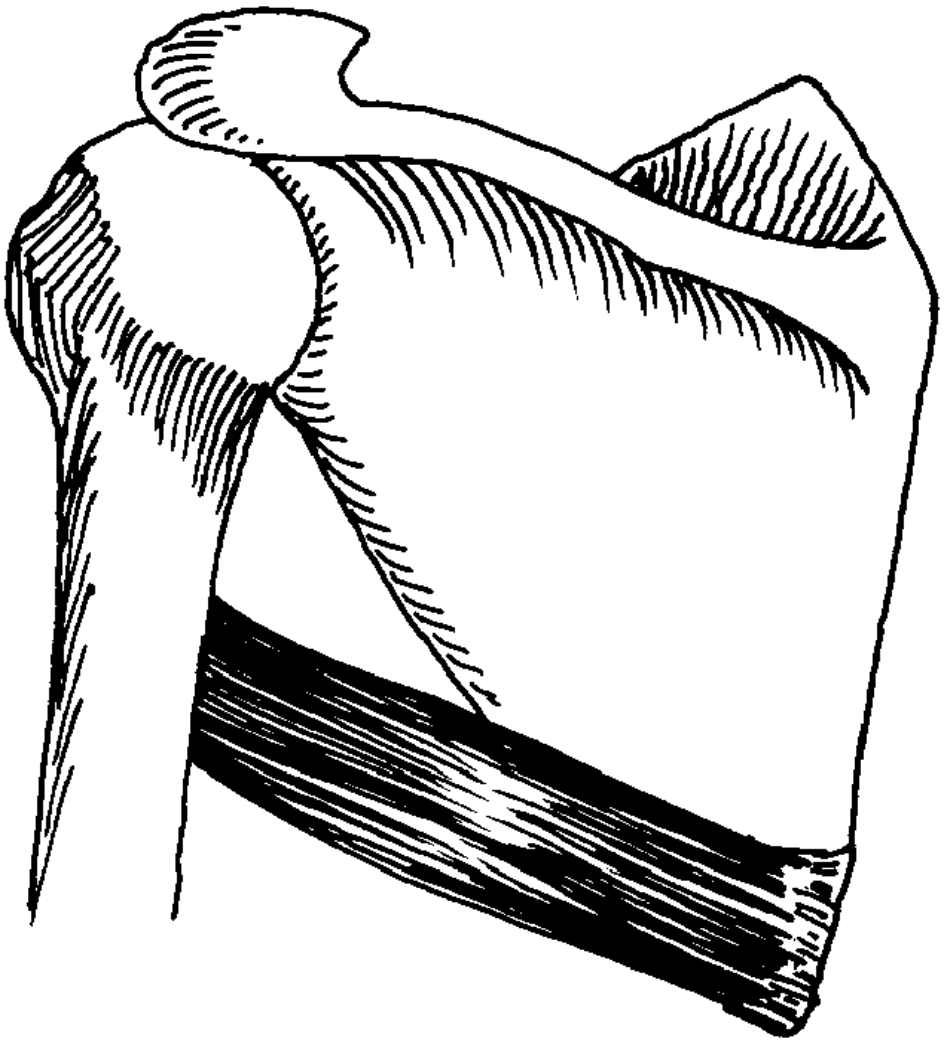




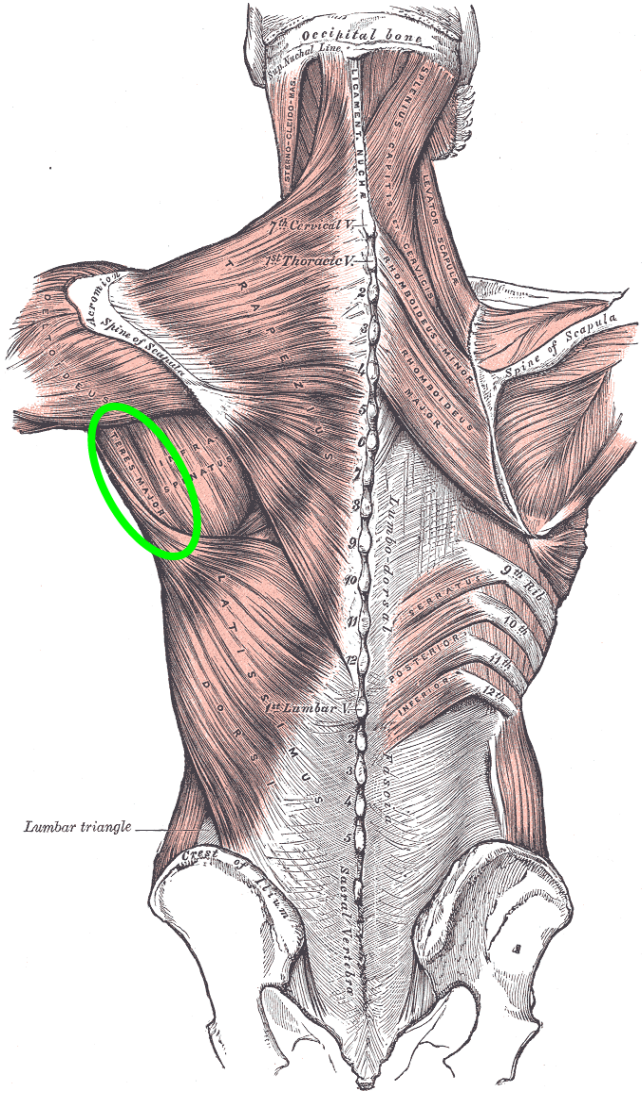


- AK 첫환자
- paralysis - humerus가 90도 이상 abduction 제한된다
- abduction동안에 scapular 움직임 관찰한다
- 물건을 잡으려 하거나 미는 동작을 할 때 어렵다(통증과 제한된 ROM)
- rhomboid가 수축된다
- 앞으로 넘어지면서 스스로 손으로 바닥을 짚을 때 다친다
- 호흡문제-횡격막-늑골 위치에 영향
- 호흡문제-폐
- 기시부위를 다치면 유방통처럼 느낀다
- Bilateral - C-7 / T-1 / T-2 AK “fixation”

큰원근, 대원근(Teres Major)



Teres major

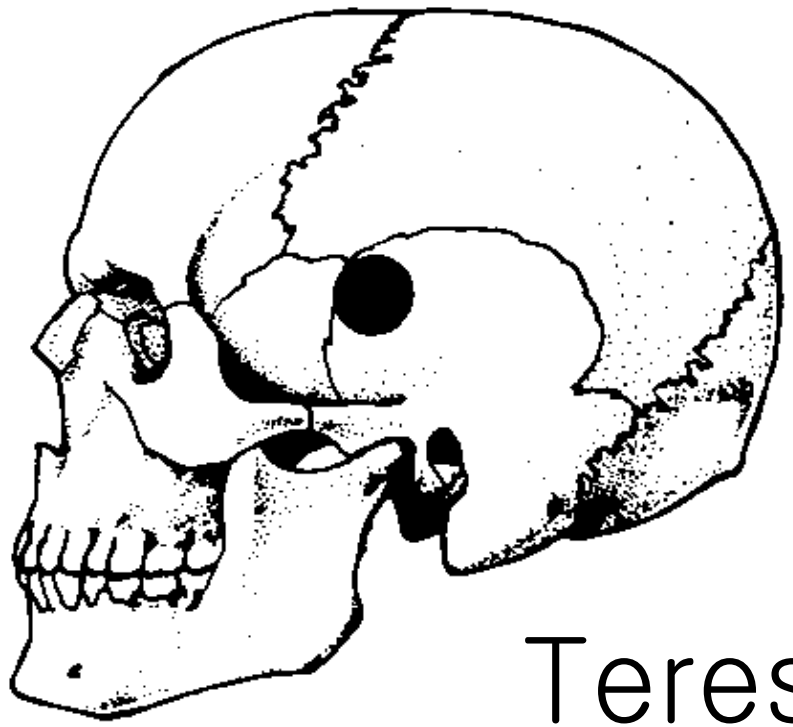

Occipital bone
Sup. Nuchal Line
Sterno-cleido-mas.
Trapezius
Levator Scapulæ
Cervicalis Ascendens
Rhomboideus Minor
Rhomboideus Major
7th Cervical V.
1st Thoracic V.
Acromion
Spine of Scapula
Deltoideus
Teres Major
Latissimus Dorsi
Serratus Posticus Inferior
9th Rib
10th
11th
12th
1st Lumbar V.
Lumbar triangle
Crest of Ilium
Sacral Vertebræ

teres major

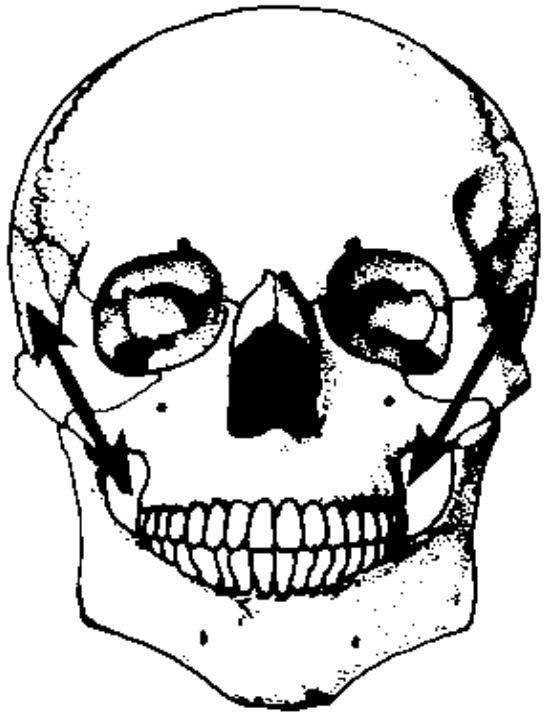
- **신경지배**: 하견갑하신경, C5, **6**, 7
- **신경림프 반사점**:
- **전방**: 제2늑간에 흉골로부터 2.5인치 떨어진 곳
- **후방**: 제3흉추 높이에 추궁판 부근
- **신경혈관 반사점(잠정적)**: 관자놀이점(pterion) 하방 1인치 지점과 제1늑골, 쇄골, 흉골이 만나는 곳

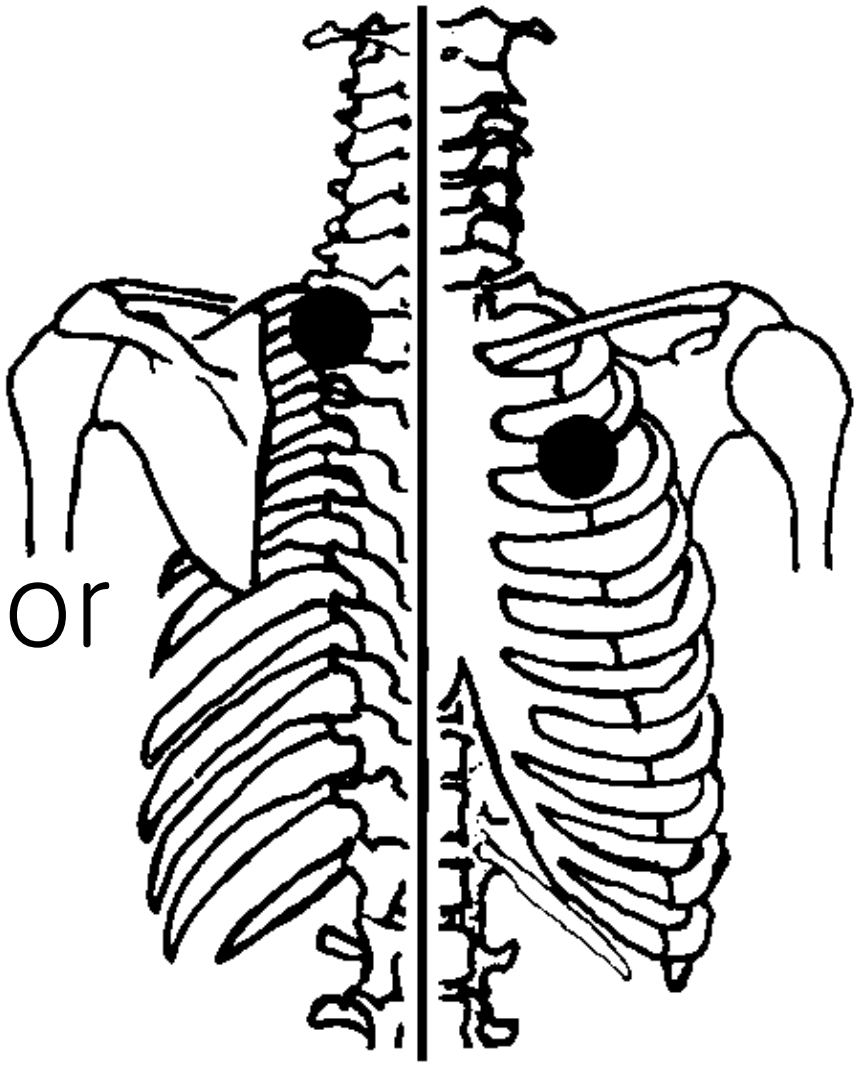
teres major

- **연관된 경락**: 독맥
- **연관된 장기/내분비선**: 흉추 고정과의 관련성 때문에 일반적으로 척추와 관련된다



Teres major

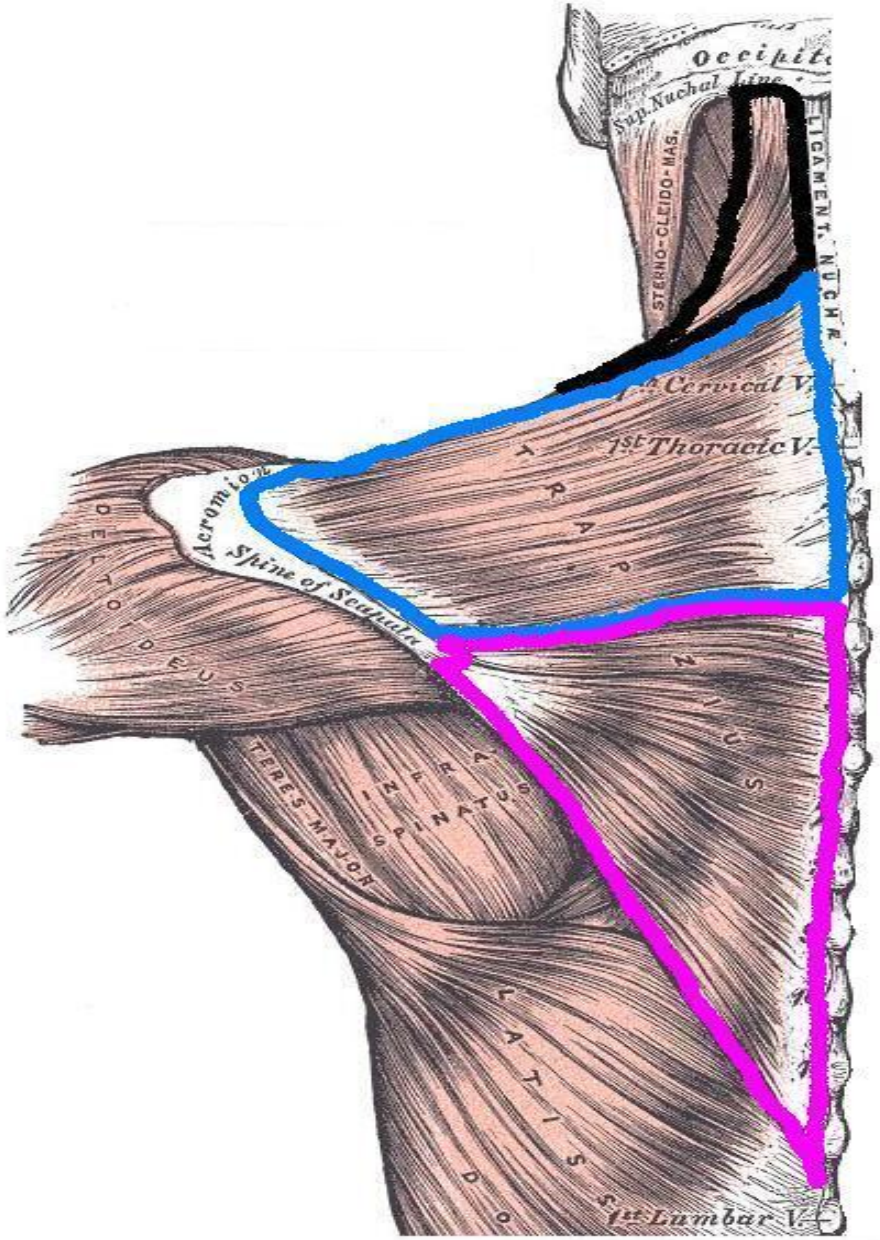




- **기시:** Dorsal surface of inferior angle of scapula & inferior 1/3rd of lateral border of scapula; sometimes blends with latissimus dorsi
- **종지:** Medial lip of bicipital groove
- **기능:** Extension and medial rotation of humerus; does not move shoulder girdle, but does stabilize upper end of humerus during abduction
- **Spinal Levels: Innervation:** C-5,6,(7) **TS Line/Meric:** N/A **Acupuncture:** T-6/7
- **기관:** Spine; 산-염기 균형
- **경락:** 독맥
- **영양:** Acid ash minerals; alkaline ash minerals; zinc;
- **Chapman's Reflex:** (Bilateral) Ant: 2nd IC space – 2-3' lateral to sternum; Post: T-3

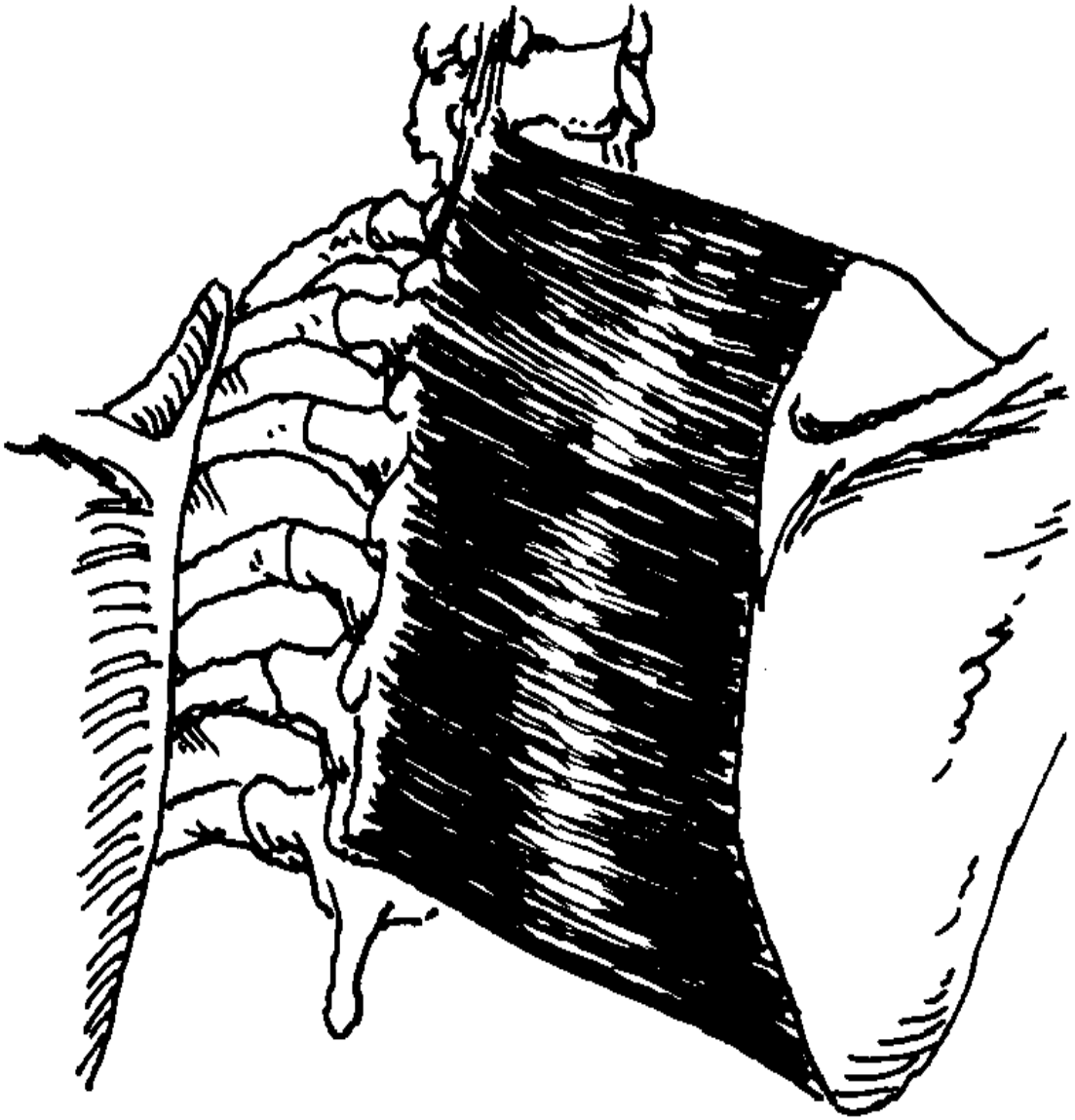
임상적 의의

- 손바닥을 앞에서 볼 수 있다
- 팔을 lateral rotation으로 올릴 수 있지만 medial rotation상태에선 힘들다
- 수영
- 산-염기 미네랄 불균형
- Bilateral - Thoracic AK “fixation”

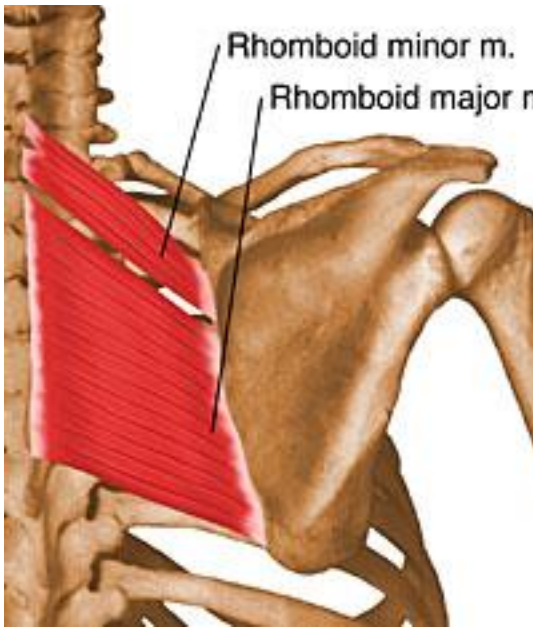


Divisions of the Trapezius Muscle

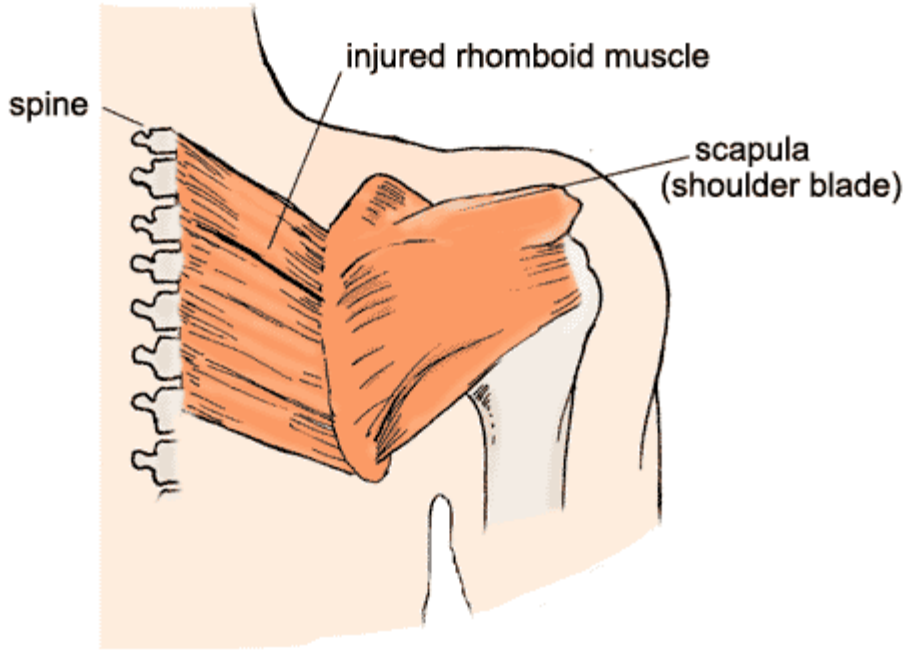
Rhomboid 능형(마름모)근

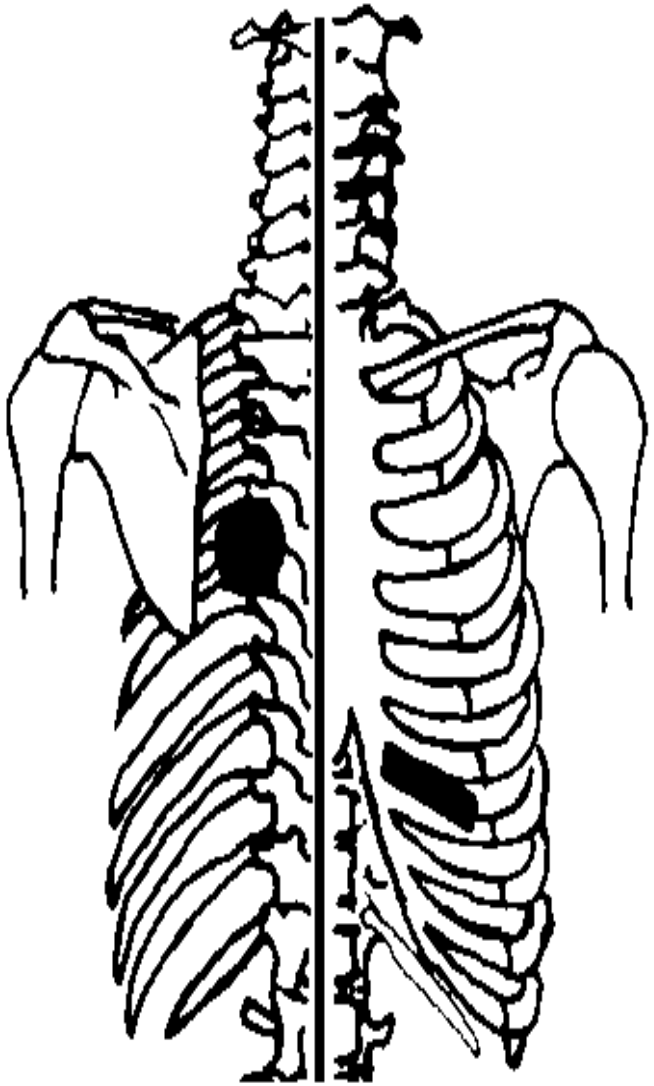


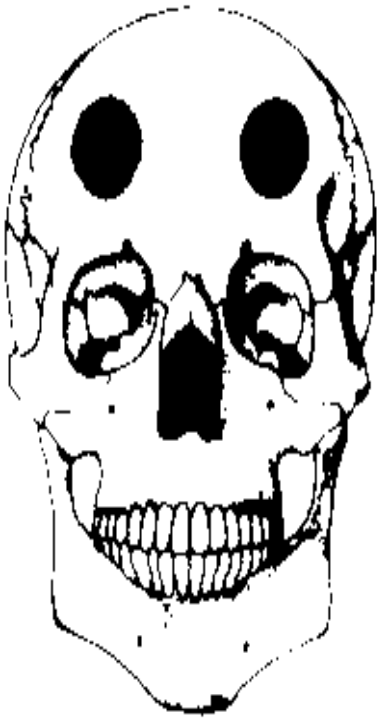
rhomboid

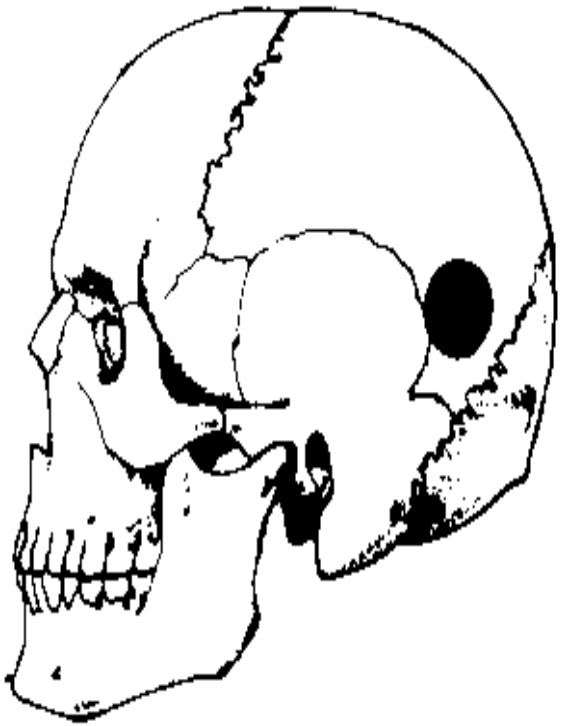


Rhomboid Muscle Strain/Spasm









- Major – 기시: SPs of T-2 to T-5
- Minor – 기시: Ligamentum nuchae; SPs of C-7 & T-1
- Major – 종지: Medial border of scapula from spine to inferior angle
- Minor – 종지: Medial border of scapula at the root of the spine of the scapula
- 기능: Retracts scapula; turns glenoid fossa downward; holds scapula to chest wall; only primates have scapula which is longer than wider – only primates can raise arm overhead

- **Spinal Levels:** **Innervation:** C-4,5 (dorsal scapular) **TS Line/Meric:** N/A **Acupuncture:**
- T-11/12 (T-8-9) (controversial)
- **기관:** 위, (간) (controversial)
- **경락:** 위; (간) (controversial)
- **영양:** 비타민 A
- **Chapman's Reflex:** (Left only) Ant: $5^{th}/6^{th}$ IC space; Post: T-5/6/7

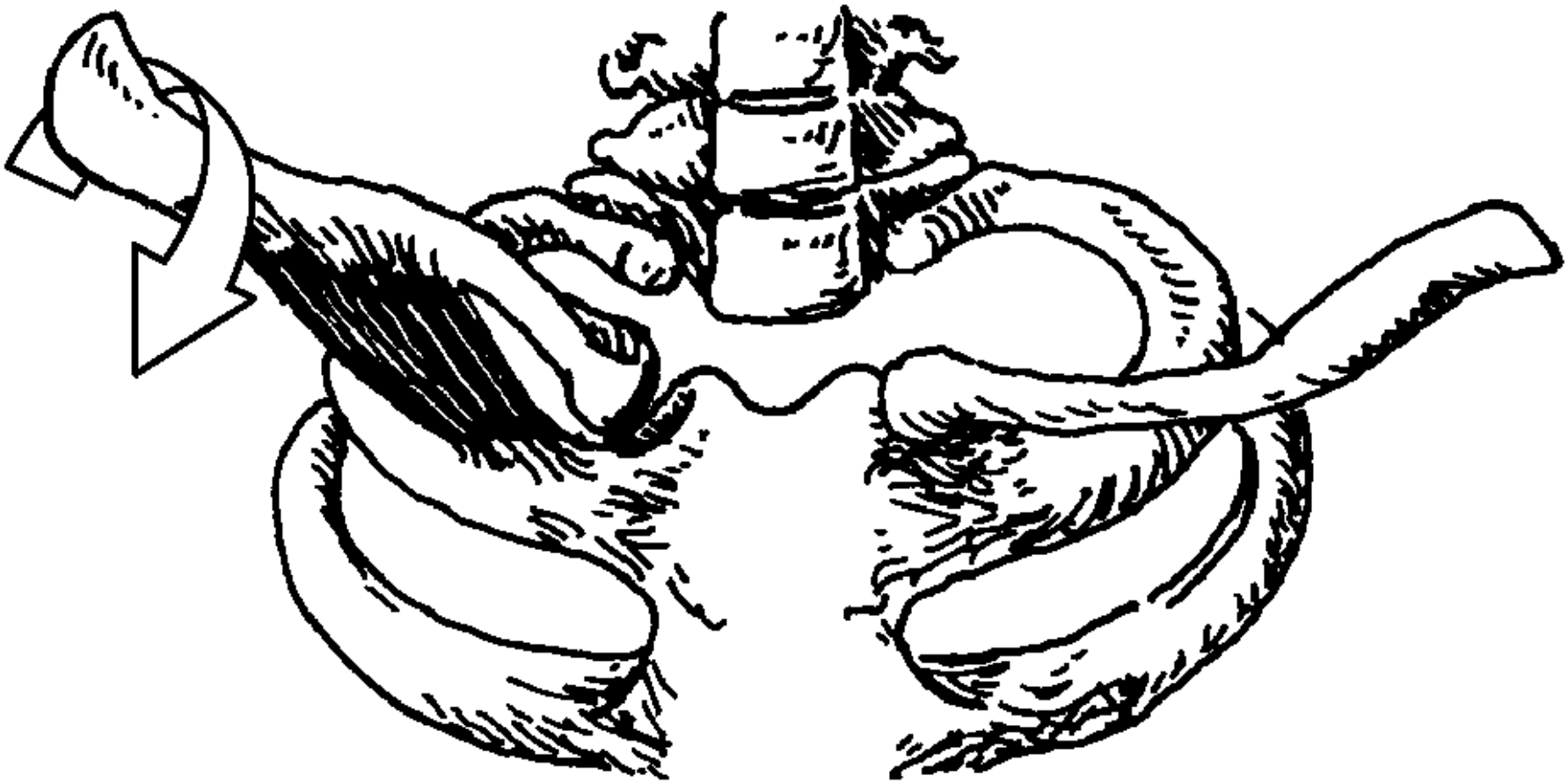
Rhomboid

- Adduct scapula, downward rotate scapula
- Related to LR
- NL controversy: right 5th가 맞는 듯
- TMJ related m
- Common source of trigger; facial release or st/counterst
- Posture: 양쪽 견갑골의 내측과 척추와의 거리 비교
- 한쪽이 reactive로 작용할 수 있다.

임상적 의의

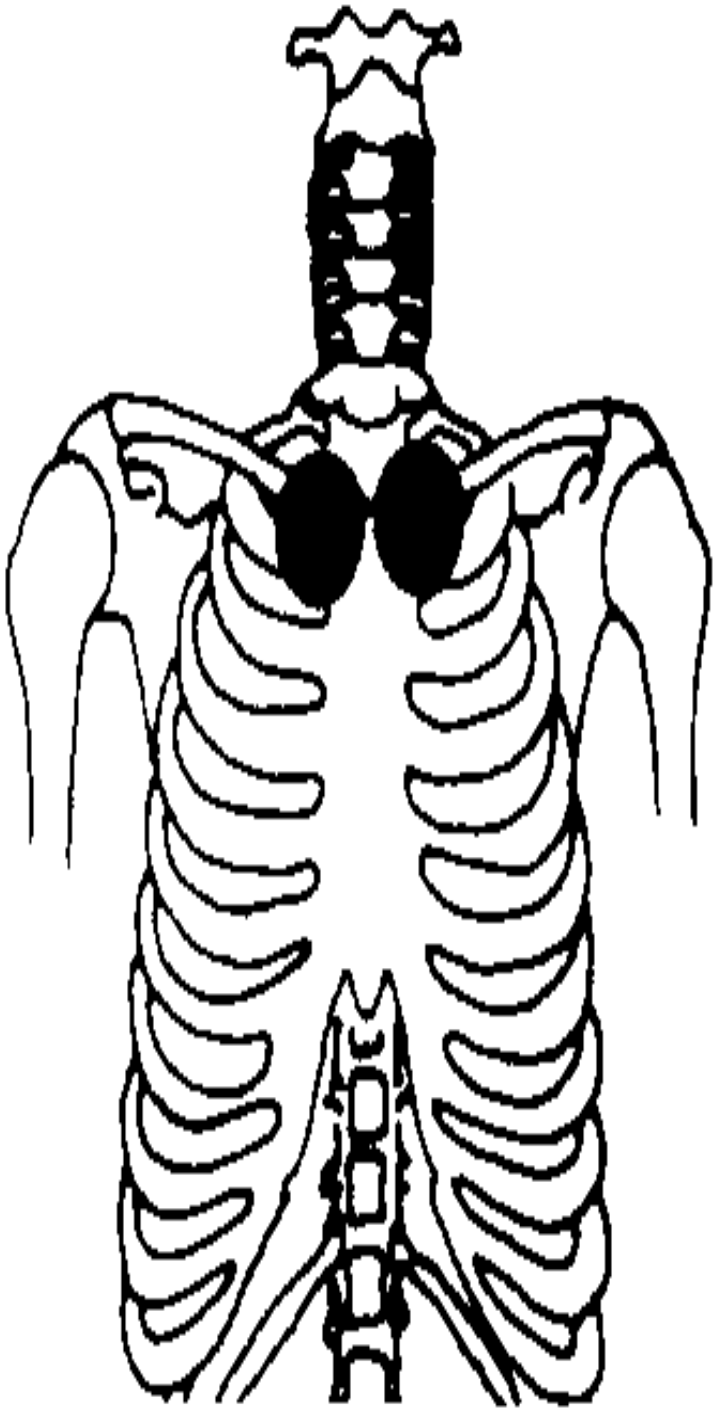
- 장작패는 동작
- PMS, Serratus Anterior약하면 tight해질 수 있다.

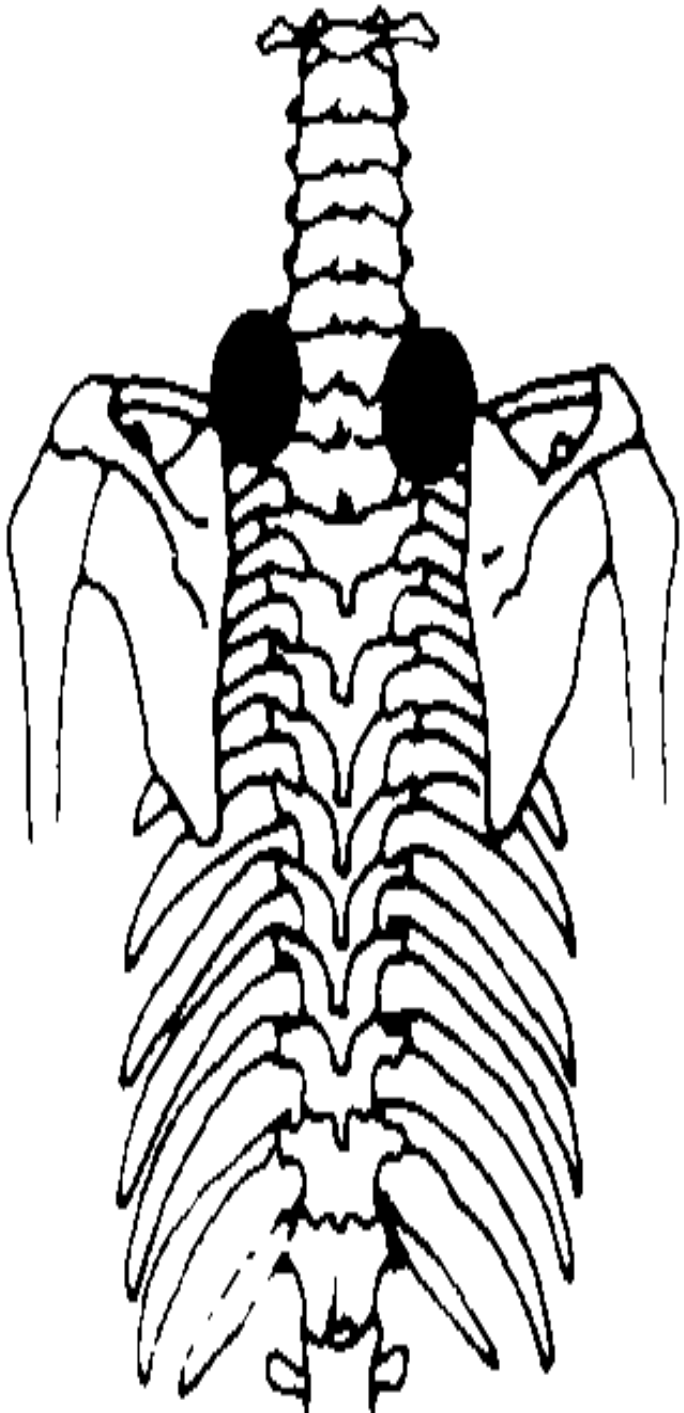
Subclavius



- **기시:** 1st rib at junction of costal cartilage
- **종지:** Groove in inferior surface of clavicle between costoclavicular & conoid ligaments
- **기능:** Draws clavicle anteriorly & inferiorly – "crank-like" action of clavicle during abduction; restrains active elevation and protraction of clavicle
- **Spinal Levels: Innervation:** C-5,6 (brachial plexus branch) **TS/Meric:** N/A **Acup:** T-12/L-1(?)
- **기관:** N/A
- **경락:** 위장
- **영양:** N/A
- **Chapman's Reflex:** (Bilateral) Ant: Junction of clavicle, 1st rib, & sternum; Post: T-1

임상 의의:
오십견





subclavius

- Chronic shoulder instability.
- Proper function is essential for stabilizing the clavicle.
- Excessive motion of the clavicle head when the patient shrugs the shoulder
- Single most important m of frozen shoulder

검사법

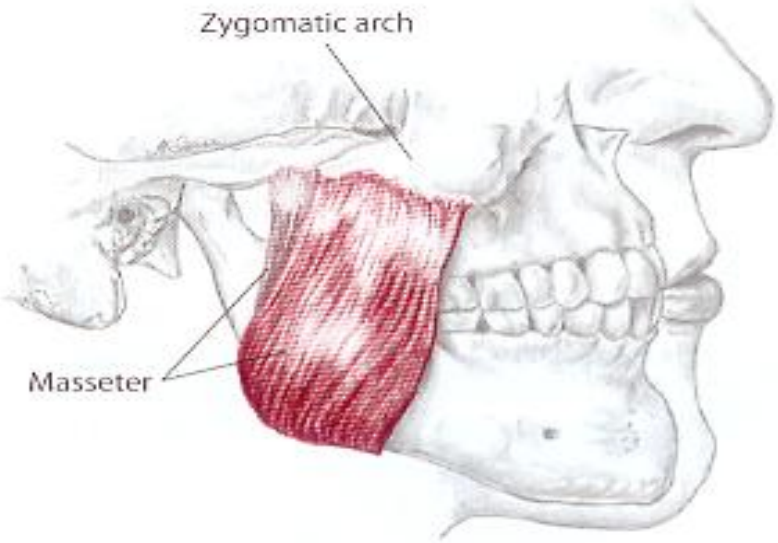
- TL 후 indicator deltoid
- 팔을 올려서 arc

TMJ 근육

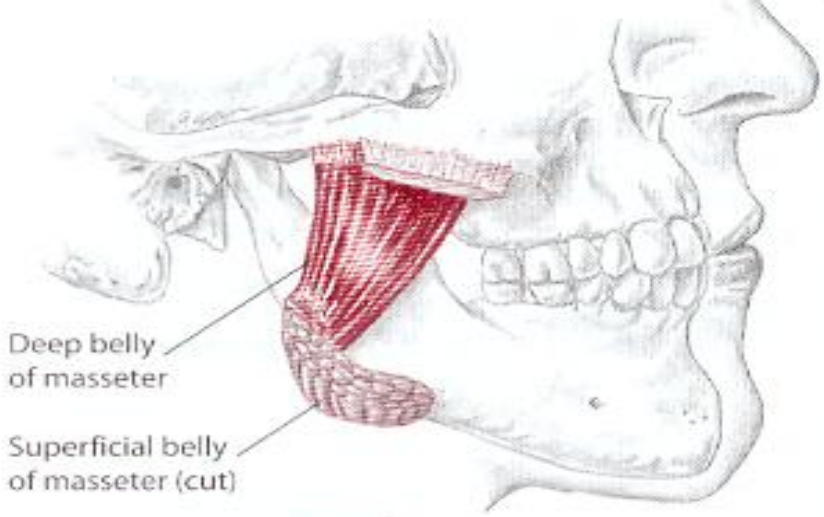
- Closing: temporalis, masseter, internal pterygoid, superior division external pterygoid
- Opening: inferior division external pterygoid, anterior digastric
- Lateralization: opposite internal pterygoid and inferior division external pterygoid, same side temporalis
- Protrusion: inferior division external pterygoid
- Retraction: deep fibers of masseter, posterior temporalis

Masseter

- 기시: Zygomatic arch
- 종지: Angle & ramus of mandible – outer surface; coronoid process
- 기능: Closes the jaw; clenches the teeth; mastication
- Spinal Levels: Innervation: V-3 (mandibular)



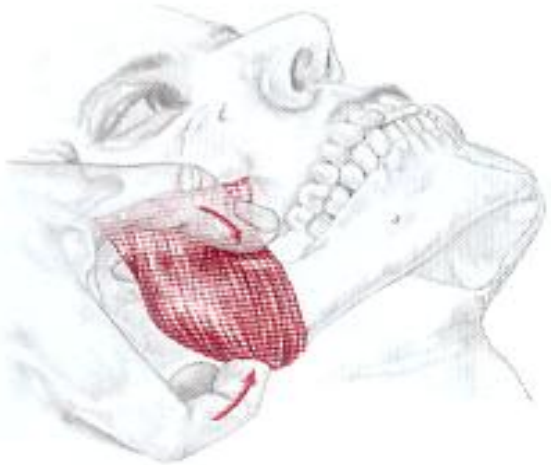
(5.43) Lateral view



(5.44)

Location Superficial, side of face
BLMs Angle of mandible, zygomatic arch
Action "Clench your jaw"

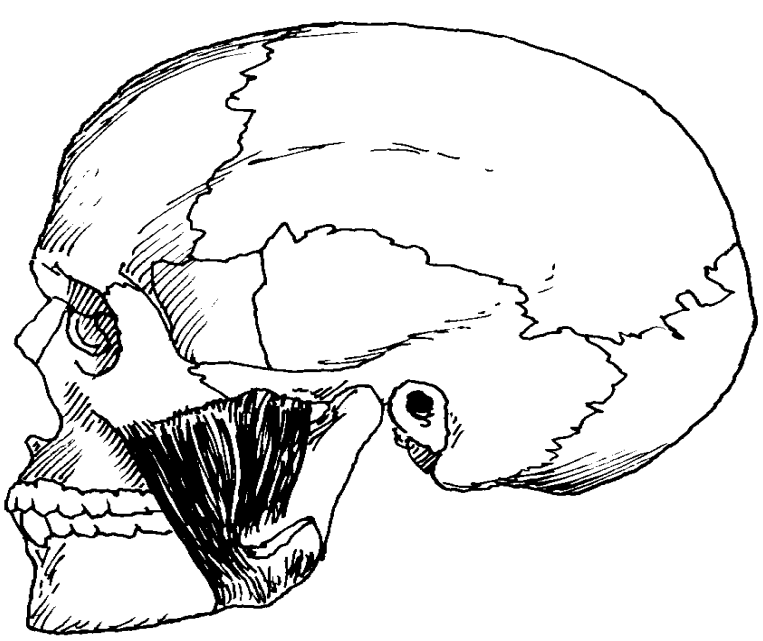
(5.45) Partner supine, clenching her jaw

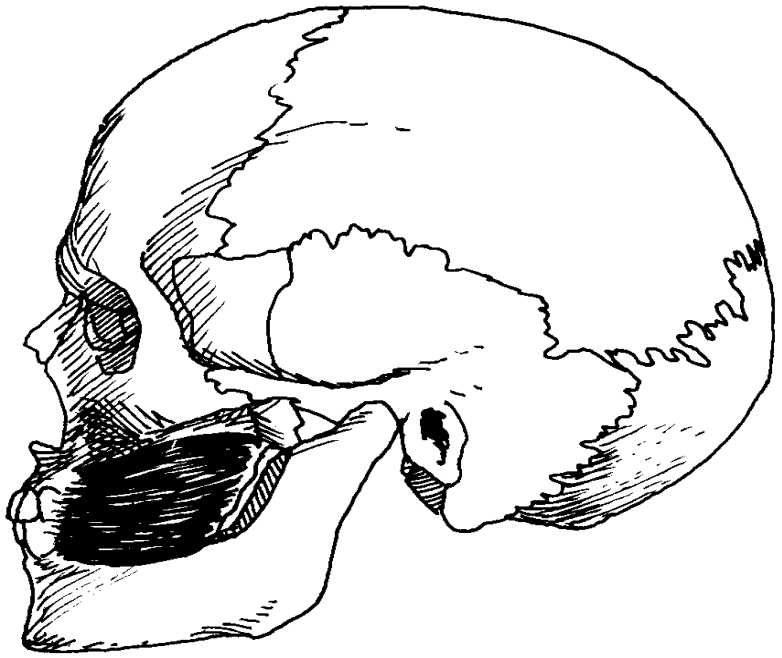


(5.46) Partner relaxes her jaw while you grasp the masseter

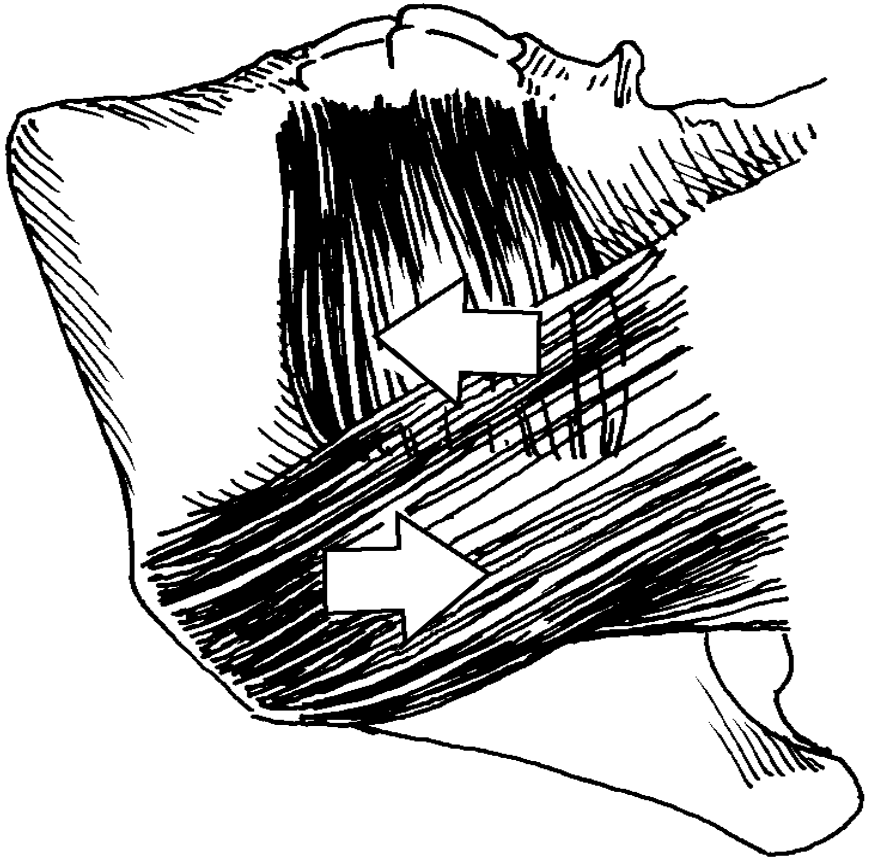
masseter

- action: aids to closing the mandible. The deep masseter fibers aid in retraction of the mandible
- check for cruciate suture fault





Masseter and buccinator



Maseter and buccinator 치료

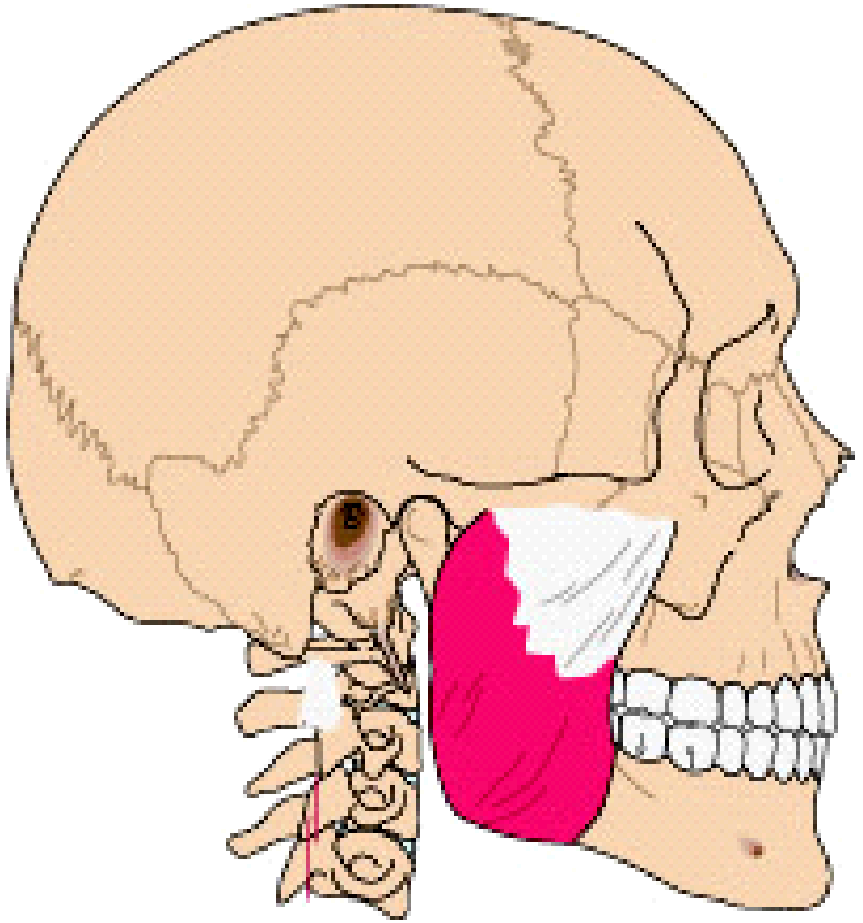
Masseter

- 기관: N/A
- 경락: 위장
- 영양: Raw veal bone
- Chapman's Reflex: (Bilateral) Ant: IC spaces 2, 3, & 4 peristernal; Post: T-2,3,4

- 임상적 적응증:
- TMJ 문제
- 턱 근육이 쉽게 피로해지면서 씹는 문제가 생긴다

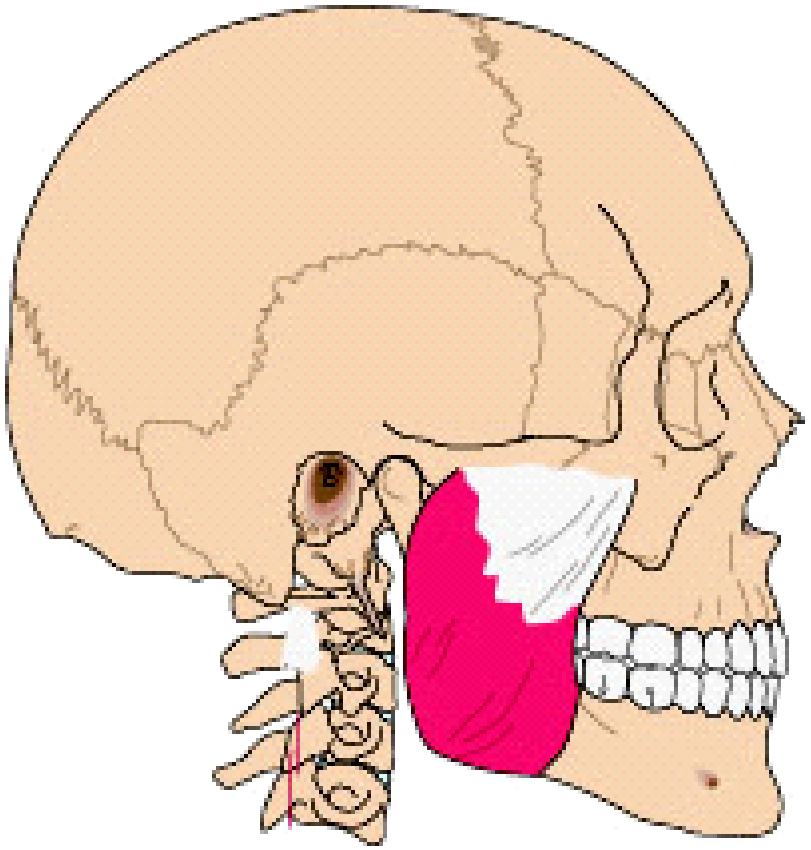
Masseter – Origin

- Superficial:
  - Zygomatic arch
- Deep:
  - Zygomatic arch



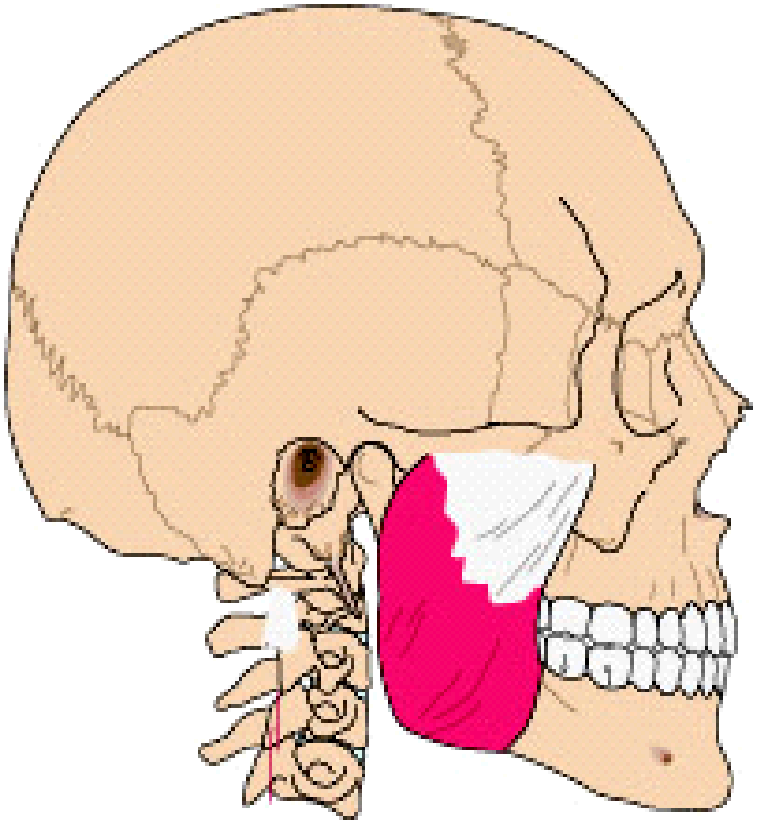
Masseter – Insertion

- Superficial:
  - External surface of the angle of the mandible and the inferior half of the ramus.
- Deep:
  - External surface of the superior half of the ramus of the mandible



Masseter – Action

- Aids to closing the mandible.
- Deep masseter fibers aid in retraction of the mandible.



Masseter – Synergists

- Closing:
  - Temporalis, Superior division of the External Pterygoid, Internal Pterygoid
- Lateral deviation:
  - Contralateral Superior External Pterygoid and Internal Pterygoid, ipsilateral temporalis
- Retraction:
  - Posterior Temporalis

Masseter – Nerve Supply

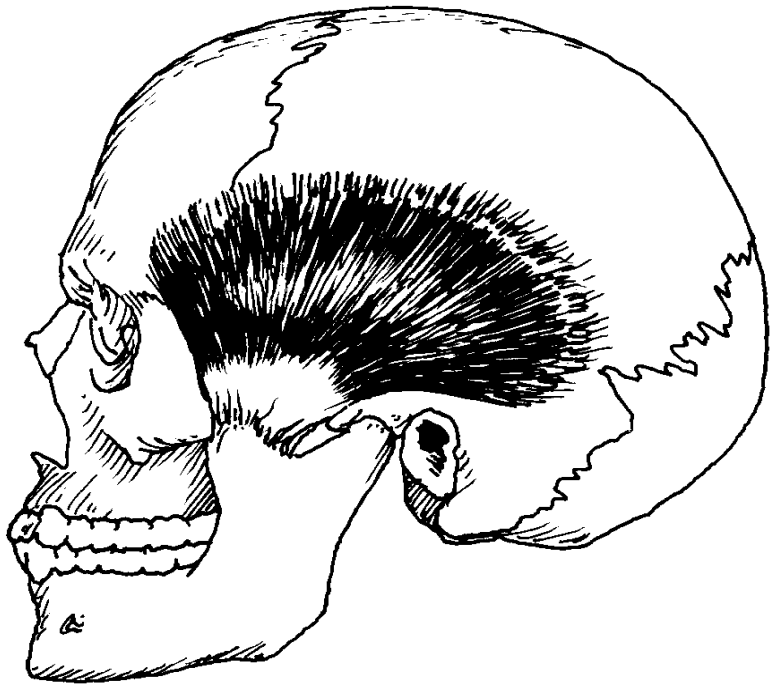
- Massenteric nerve which is derived from the anterior branch of the mandibular division of the Trigeminal nerve. (Cranial V)

Temporalis

- origin: temporal fossa
- insertion: mandible at coronoid process and ramus

Temporalis

- action: closing the mouth
  - clenching of the incisors from anterior fibers
  - retract the mandible from posterior fibers
  - lateral deviation from middle and posterior fibers

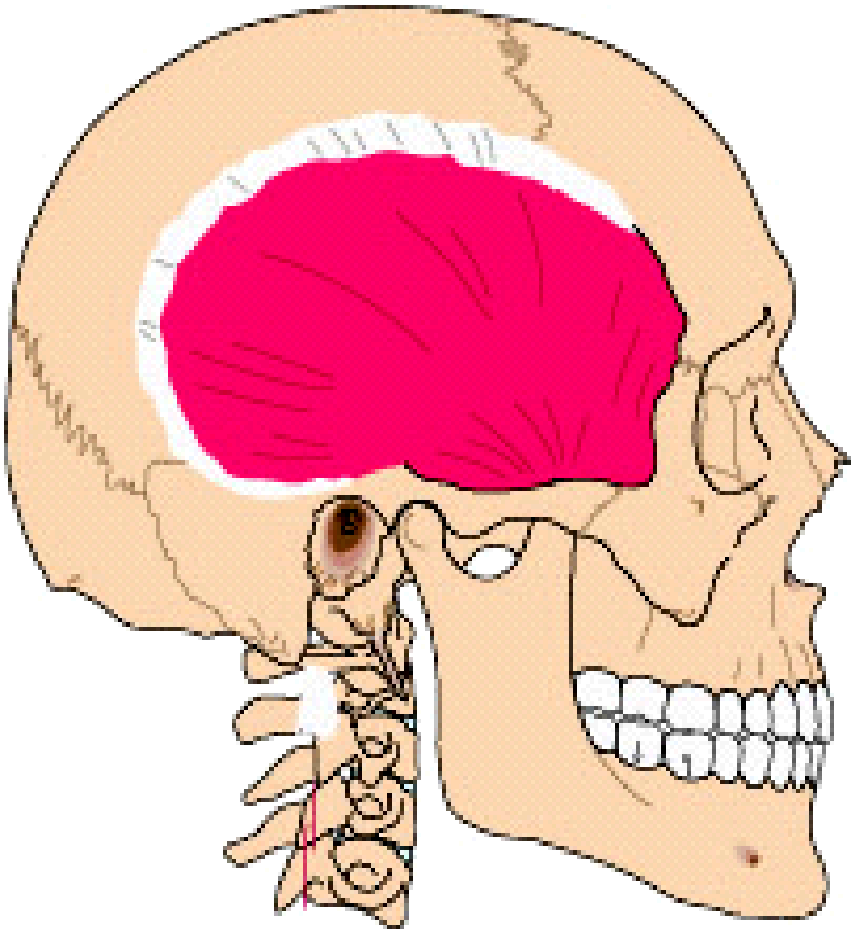


Temporalis

- 기관: N/A
- 경락: 위장
- 영양: Raw veal bone
- Chapman's Reflex: (Bilateral) Ant: IC spaces 2, 3, & 4 peristernal; Post: T-2,3,4
- 임상적 적응증:
- TMJ 문제
- 턱 근육이 쉽게 피로해지면서 씹는 문제가 생긴다
- temporoparietal jam cranial fault와 관련된 fascial flush

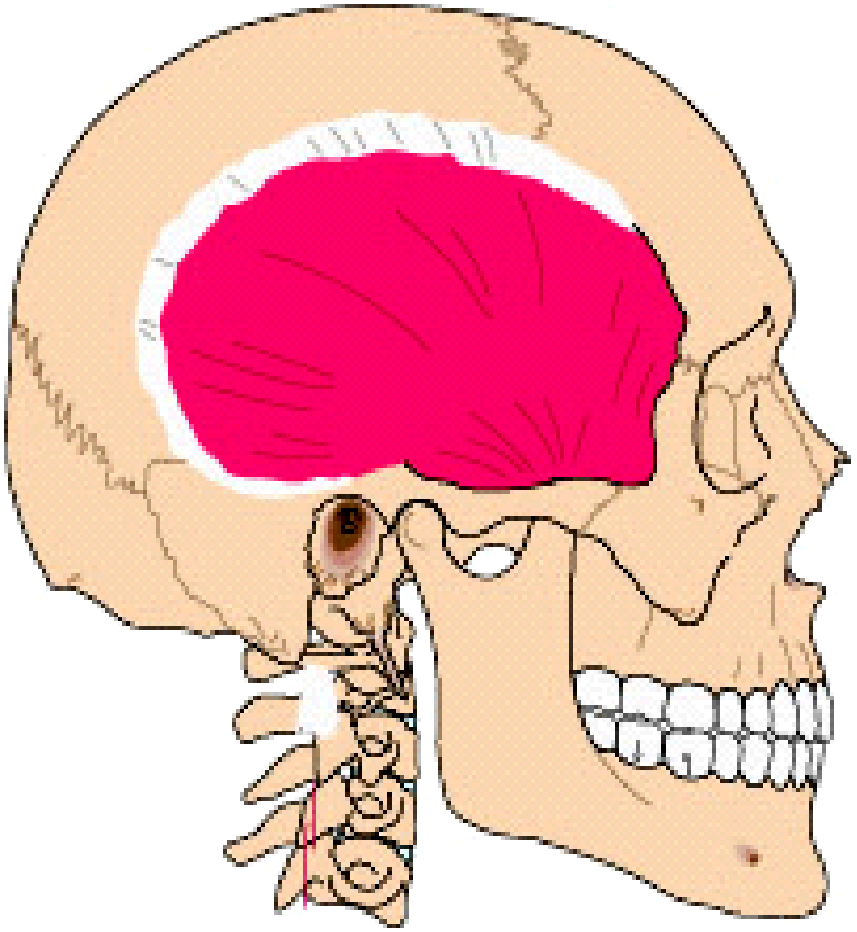
Temporalis – Origin

- Attaches to the rim of the temporal fossa which is composed of parts of the frontal, sphenoid and parietal bones.



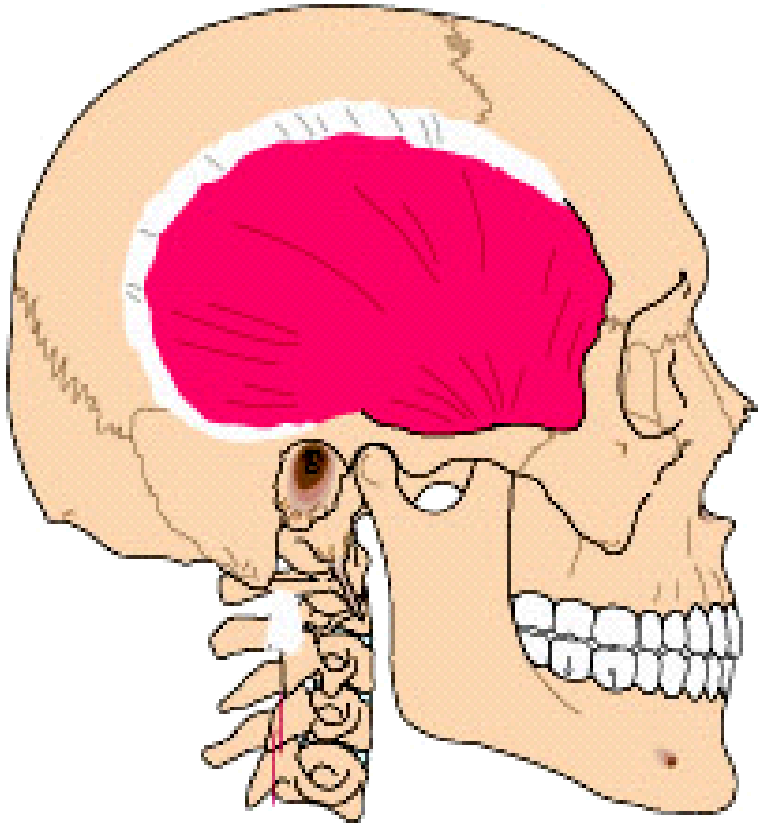
Temporalis- Insertion

Attaches to the mandible at the coronoid process as well as the anterior superior edge of the ramus.



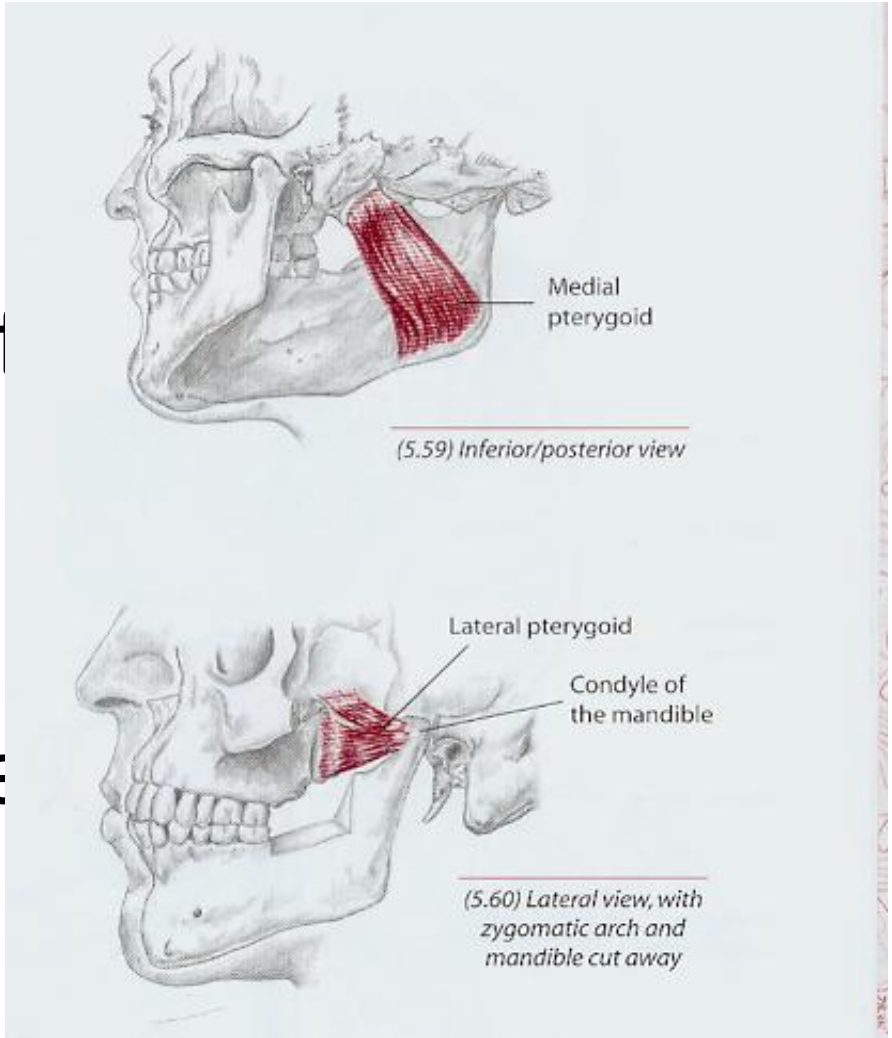
Temporalis – Action

- Aids in closing the mouth (elevation of the mandible).
- Clenching of the incisors is accomplished by the anterior fibers.
- The posterior fibers function to retract the mandible.
- Lateral deviation to the side of contraction is performed by the middle and posterior sections of the muscle.



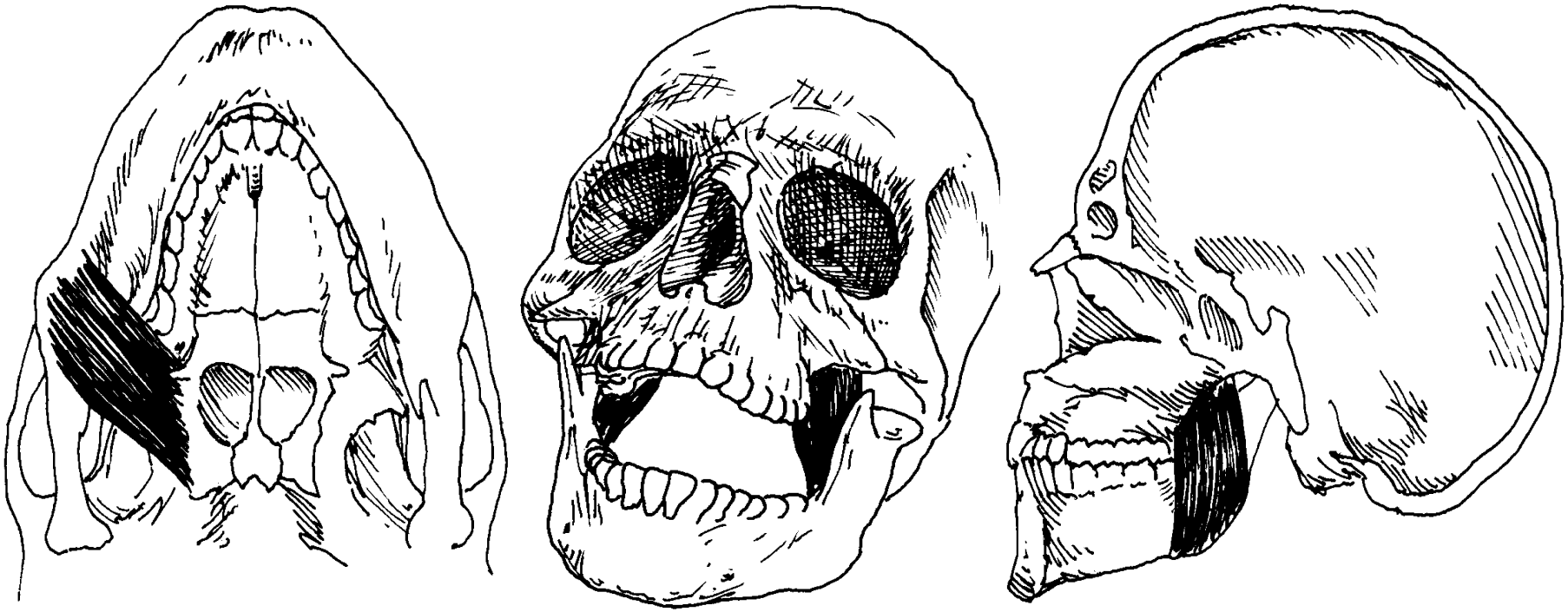
Internal pterygoid

- origin: medial aspect of the lateral pterygoid of the sphenoid
- insertion: lower border of the ramus(angle of the mandible)



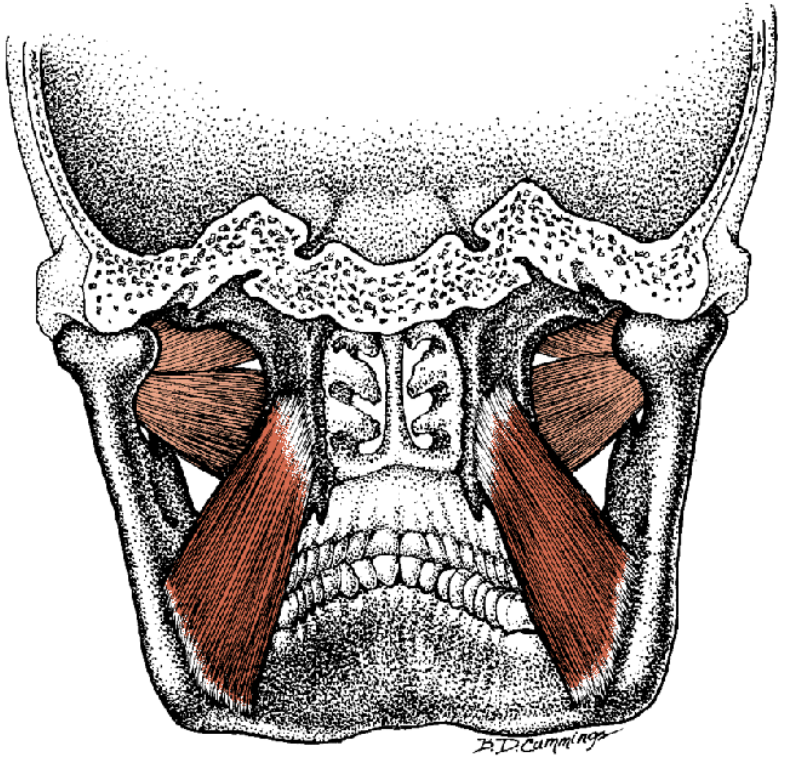
Internal pterygoid

- masseter와 internal pterygoid는 mandibular sling을 형성–hold the mandible and stabilize the condyle



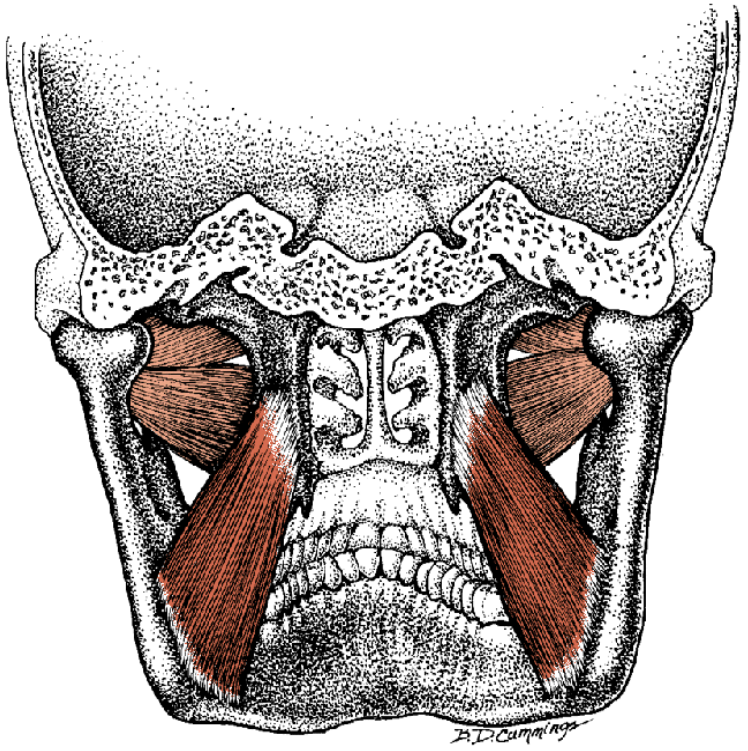
Internal Pterygoid

- Origin
  - Attaches to the inner aspect of the lateral pterygoid plate of the sphenoid.



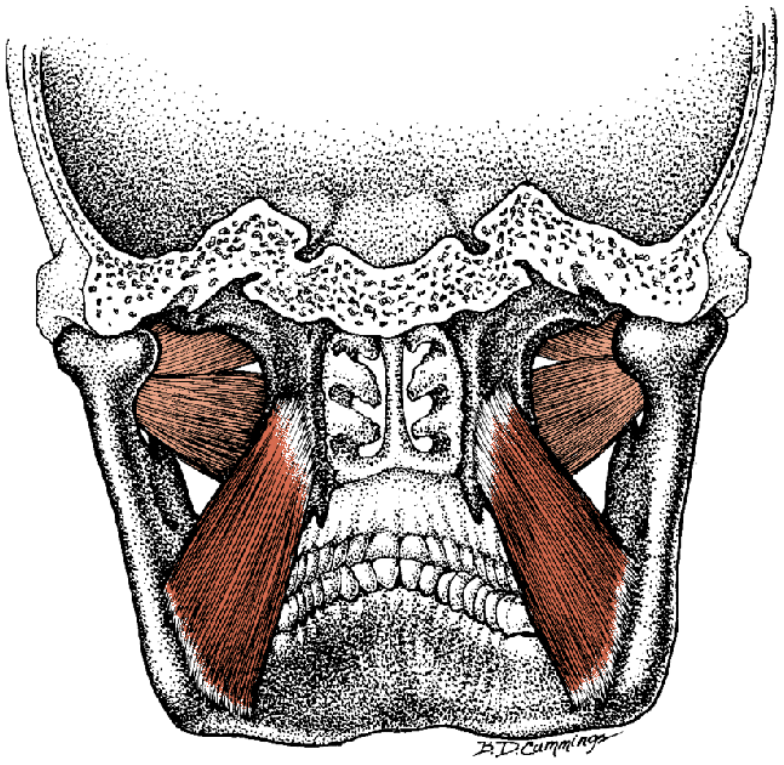
Internal Pterygoid

- Insertion
- Attaches to the lower border of the ramus near the angle of the mandible.



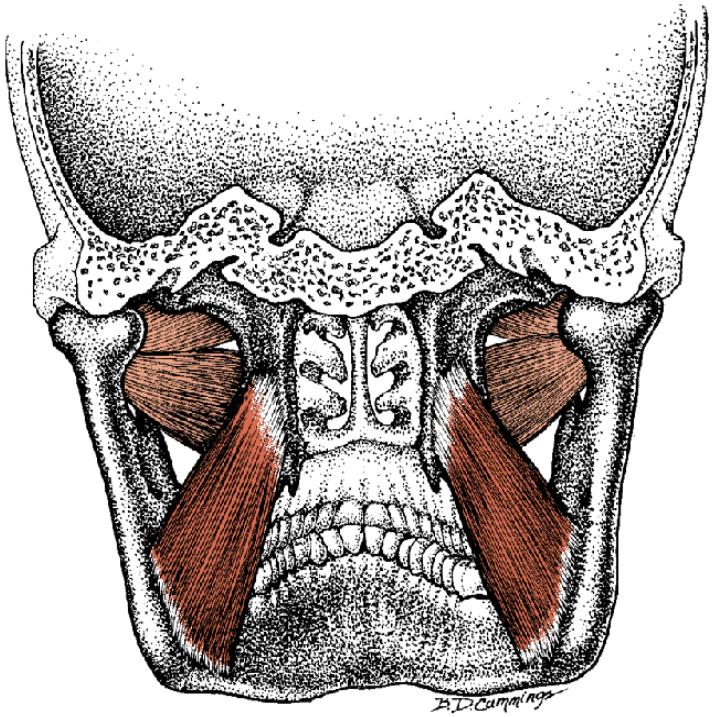
Internal Pterygoid

- The masseter and the internal pterygoid form the mandibular sling. The combination of these muscles acts to hold the mandible and stabilize the condyle squarely in the fossa.



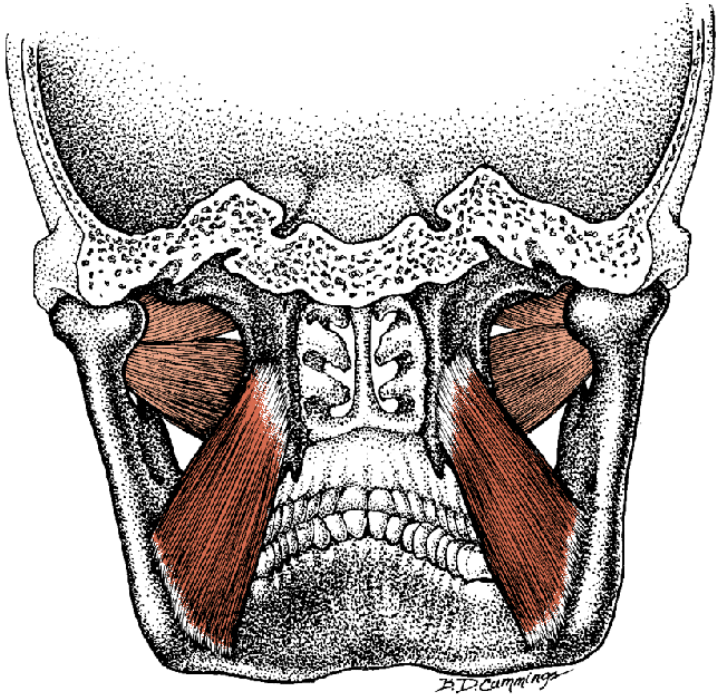
Internal Pterygoid

- Action
  - Aids in closing the mouth.
  - Unilateral contraction causes lateral deviation of the mandible to the side opposite that of the contracted muscle.
  - Most responsible for lateral deviation of the mandible



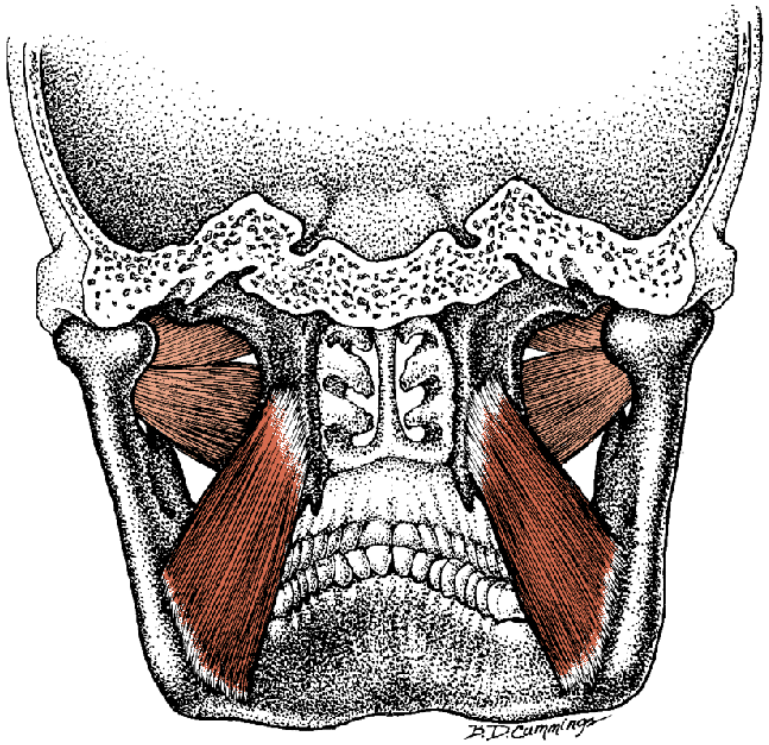
Internal Pterygoid – Synergists

- Closing: Masseter, Temporalis, Superior division of the External Pterygoid
- Lateral deviation: Ipsilateral Superior External Pterygoid, contra lateral masseter and temporalis



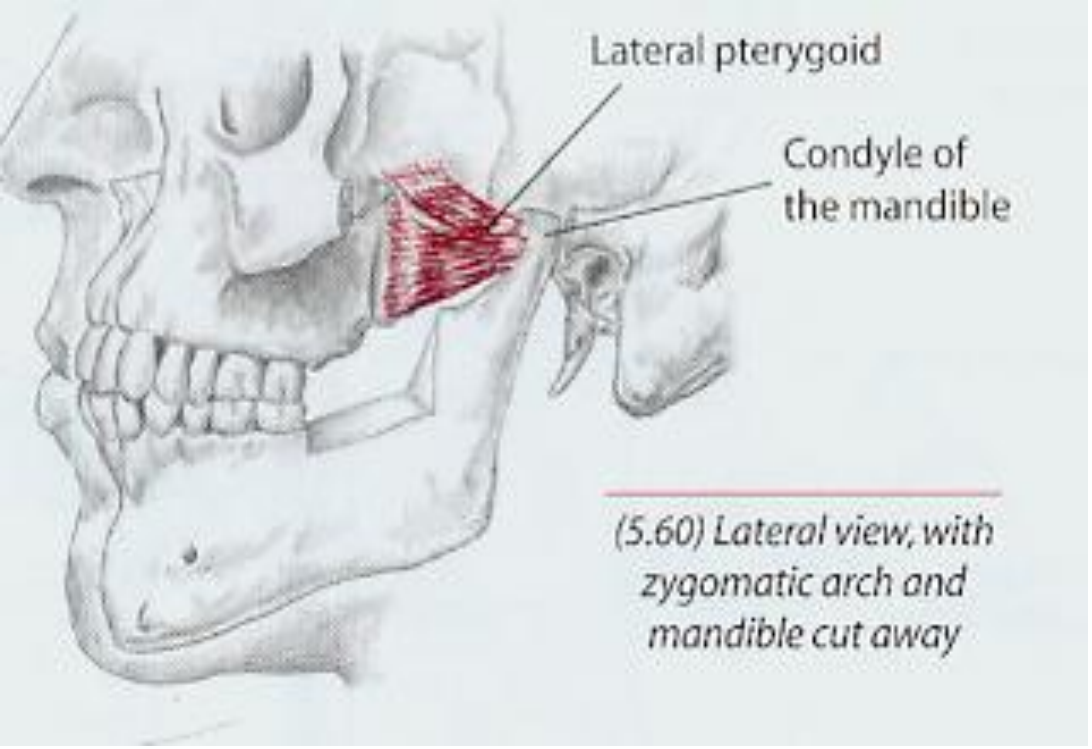
Internal Pterygoid

- Synergists
- Protrusion: Superior division of the External Pterygoid, Superficial Masseter, Anterior fibers of the Temporalis

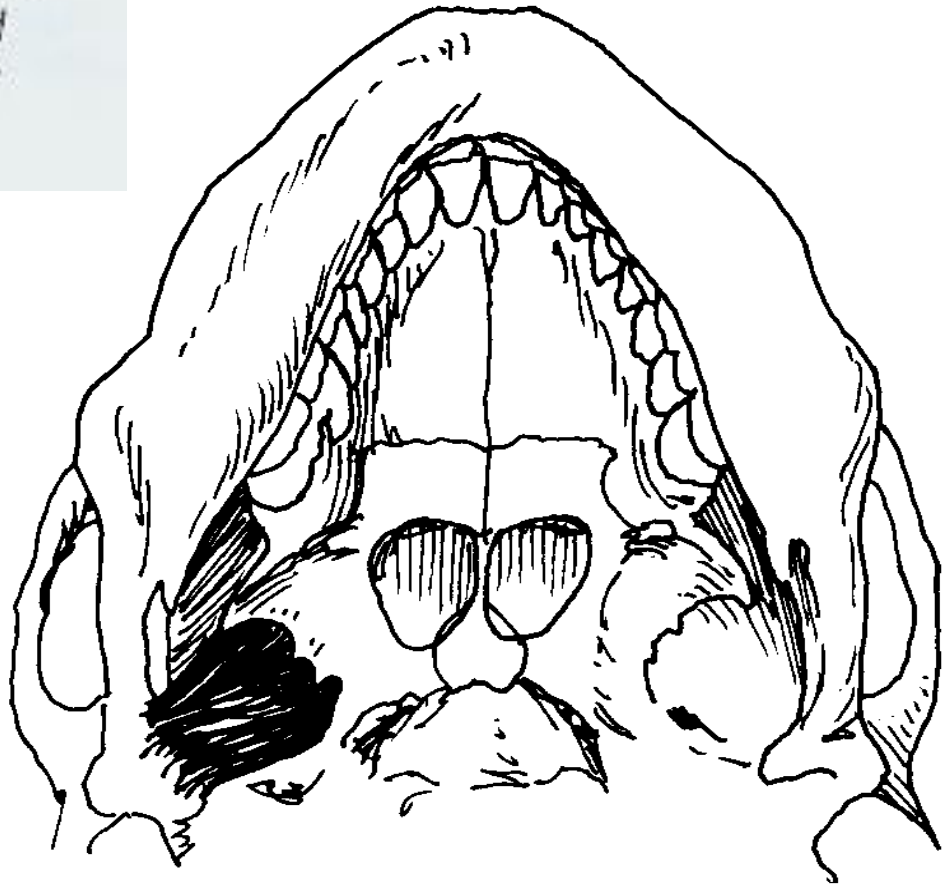


External pterygoid

- origin: superior-infratemporal crest and inferior lateral surface of the wing of the sphenoid
  - inferior-lateral surface of the pterygoid plate of the sphenoid
- insertion: superior- TMJ joint capsule, articular disc, superior 1/3 neck of the condyle
  - inferior-neck of the condyle and ramus of the mandible just inferior to TMJ joint

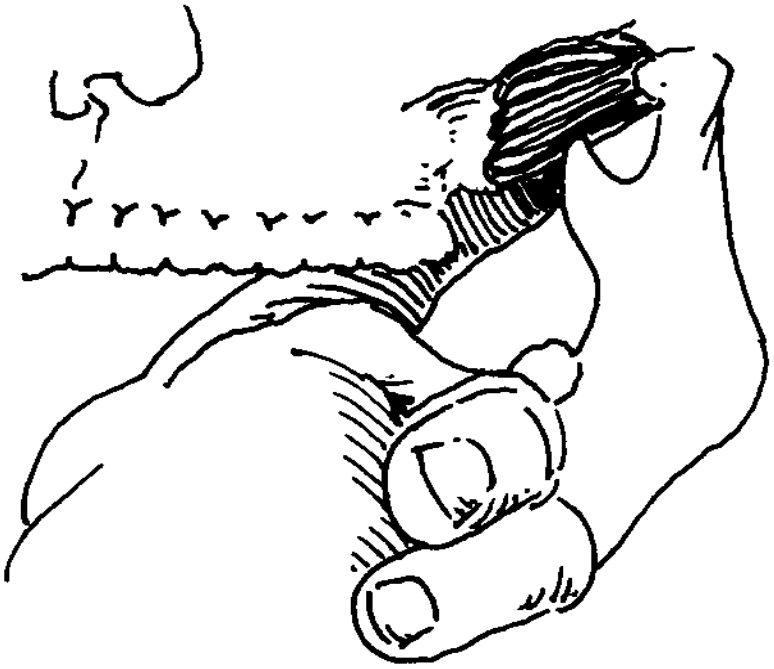


(5.60) Lateral view, with zygomatic arch and mandible cut away



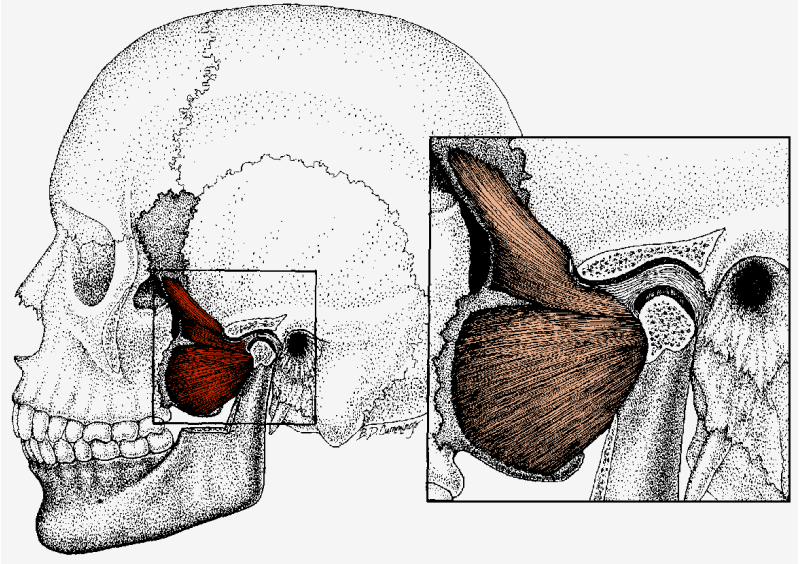
External pterygoid

- action:
  - superior-exerts anterior traction on the disc during closing
  - inferior-opening mouth. Protrusion of the mandible when contracted bilaterally.



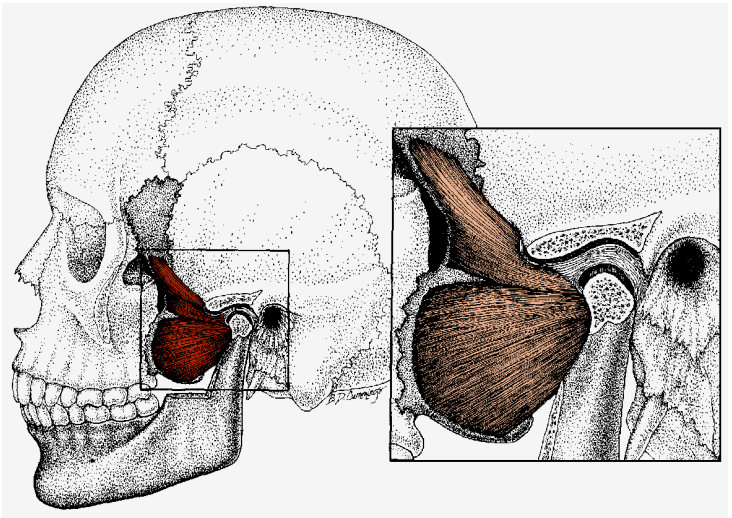
External Pterygoid – Origin

- Superior:
  - Attaches to the infratemporal crest and to the inferior lateral surface of the wing of the sphenoid
- Inferior:
  - Lateral surface of the pterygoid plate of the sphenoid



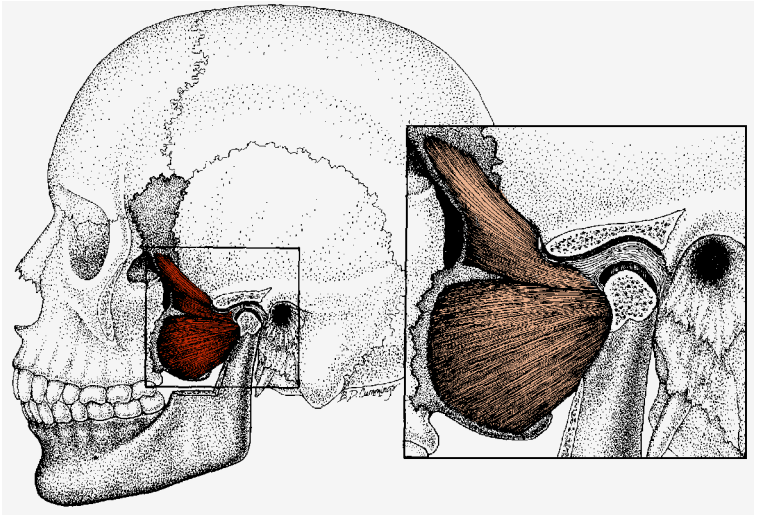
External Pterygoid – Insertion

- Superior:
  - Ligament of the TMJ joint capsule, the articular disc, superior one third of the neck of the condyle.
- Inferior:
  - Attaches to the neck of the condyle and the ramus of the mandible just inferior to the TMJ joint.



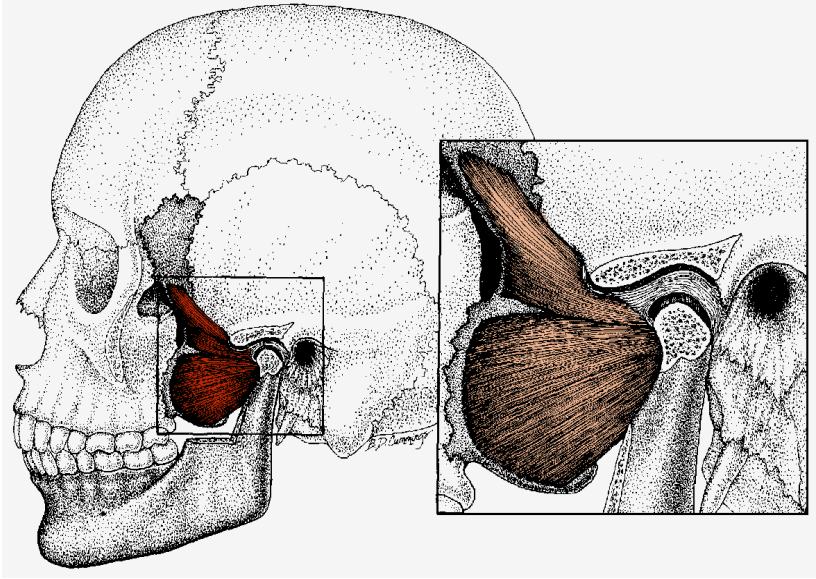
External Pterygoid – Action

- Superior:
  - Anterior traction on the disc during closing.
- Inferior:
  - Opening the mouth, protrusion of the mandible when contracted bilaterally, unilateral contraction aids in lateral deviation of the mandible to the side opposite contraction. Pulls the head of the condyle inferior and anterior during opening.



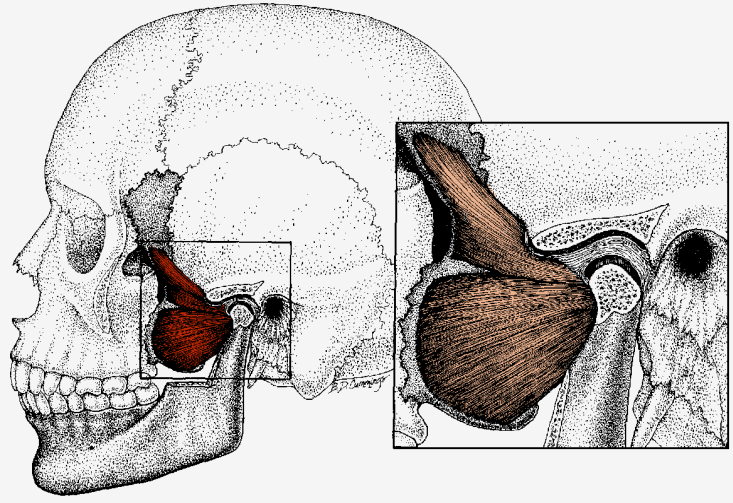
External Pterygoid – Synergists

- Superior division:
  - Masseter, Temporalis, Medial Pterygoid
- Inferior division:
  - Digastric, suprahyoid muscles



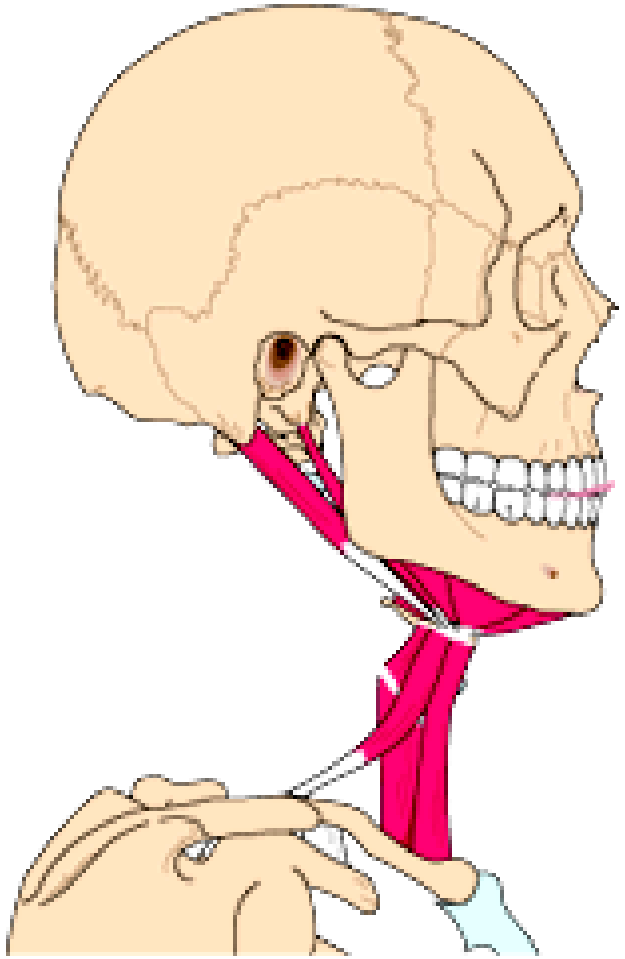
External Pterygoid–Synergists

- Lateral deviation: Ipsilateral Internal Pterygoid, contra- lateral masseter and temporalis
- Protrusion: Internal Pterygoid, Superficial Masseter, Anterior fibers of the Temporalis



Hyoid

- Importance
- Action
- Nerve supply
- Referred Pain
- Reflexes



Hyoid

- U shaped bone located between the mandible and the sternum

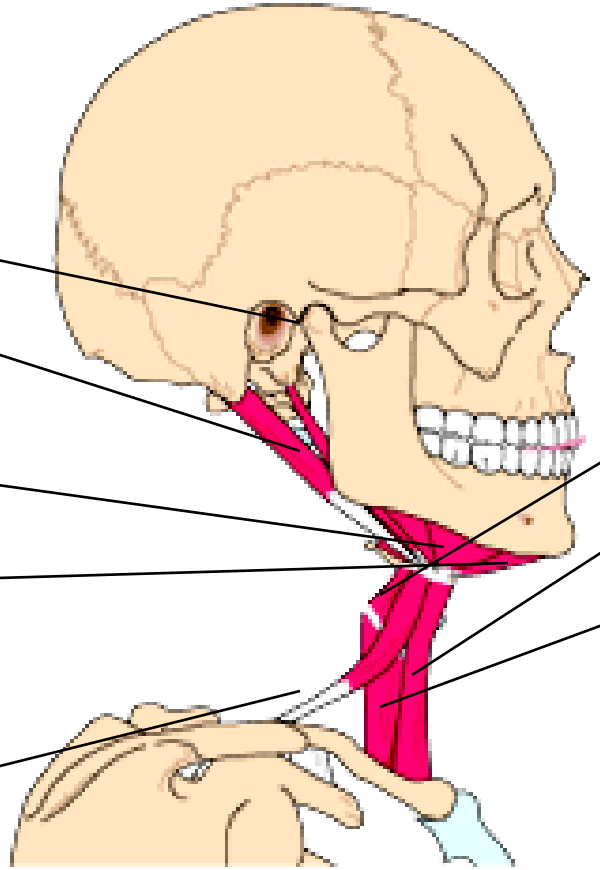
- Suspended by muscles from the skull, tongue, first rib, sternum and scapula

Importance

- The hyoid appears to function as a gyroscope
- Postural imbalances are replicated in muscle imbalances of the hyoid muscles

Muscles

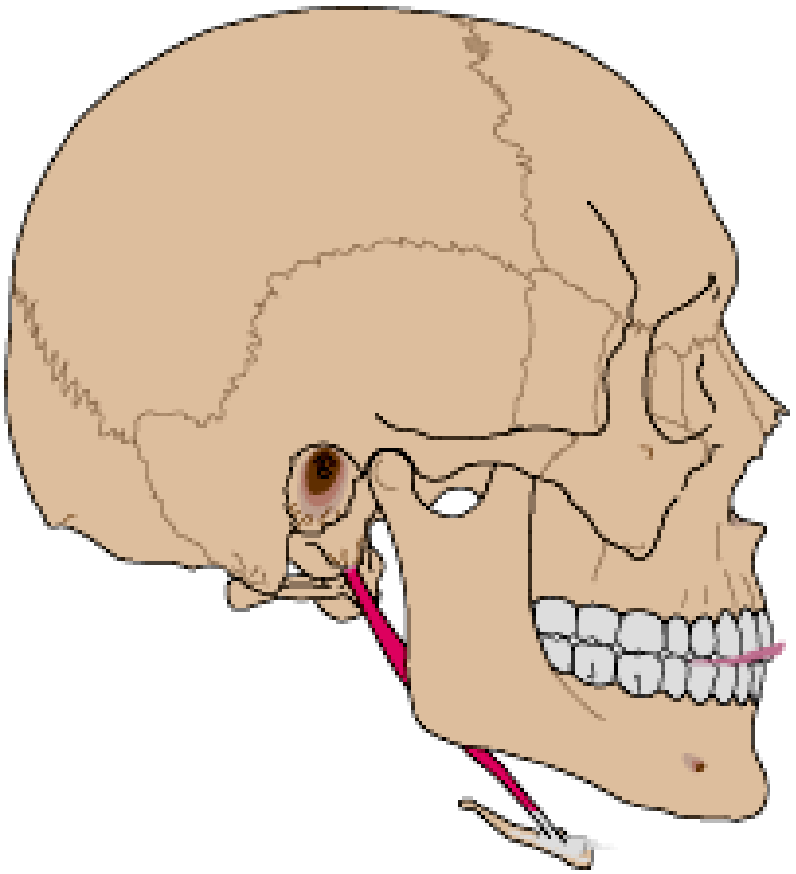
- Stylohoid
- Digastric
- Mylohoid
- Geniohyoid



- Omohyoid

- Thyrohyroid
- Sternohyoid
- Sternothroid

Stylohoid

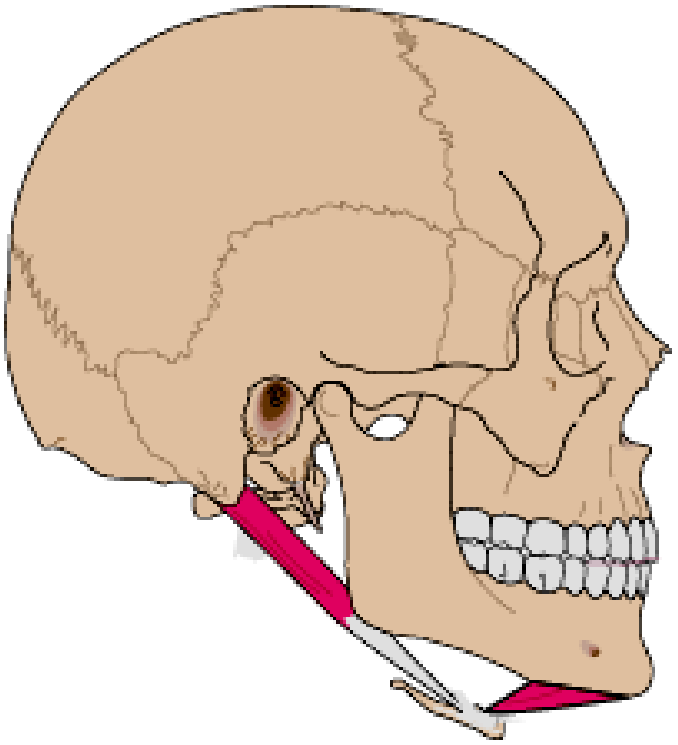


- Origin
  - Lateral posterior surface of the stylohyoid process
- Insertion
  - Body of the hyoid
- Nerve supply
  - Facial
- Action
  - Pulls hyoid superior and posterior

Stylohyoid

- Origin: styloid process of the temporal bone
- Insertion: hyoid
- Action: elevate and draw hyoid posterior

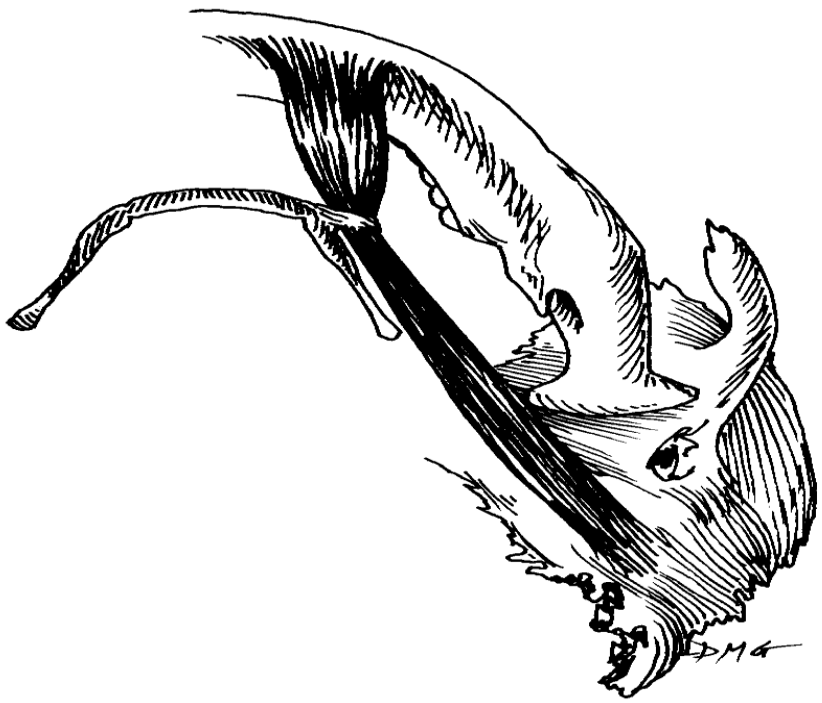
Digastric



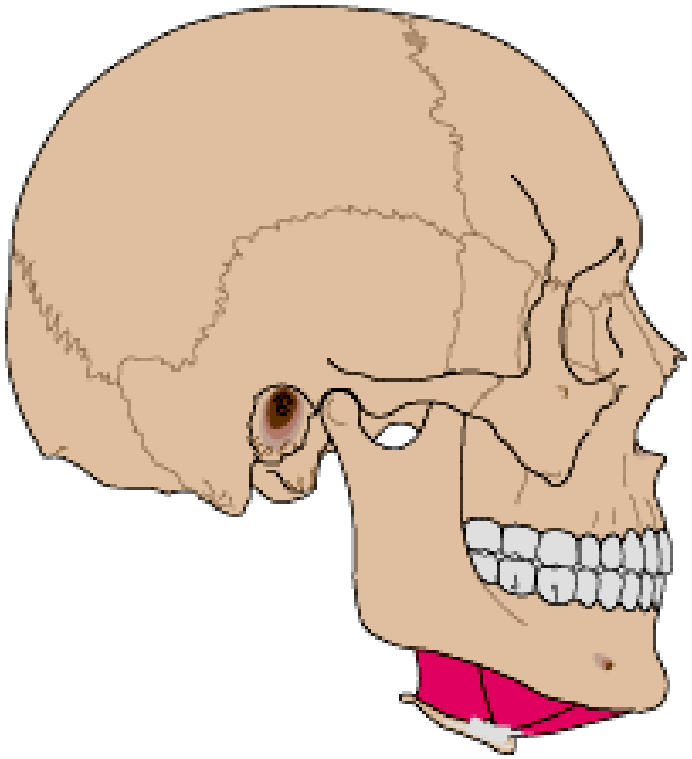
- Origin
  - Anterior from the mandible near symphysis menti. Posterior from the mastoid
- Insertion
  - Anterior and posterior to the lateral hyoid body
- Nerve supply
  - Anterior – Trigeminal nerve
  - Posterior – Facial Nerve
- Action
  - Anterior assists in mouth opening – hyoid elevation

Digastric

- origin: posterior surface of the symphysis menti
- insertion: hyoid
- action: elevate and draw the hyoid anterior

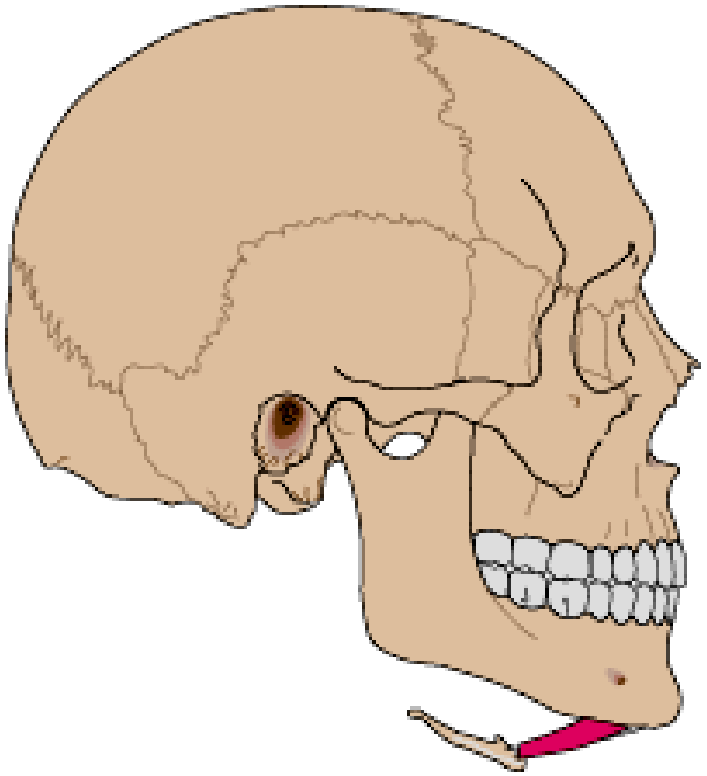


Mylohoid



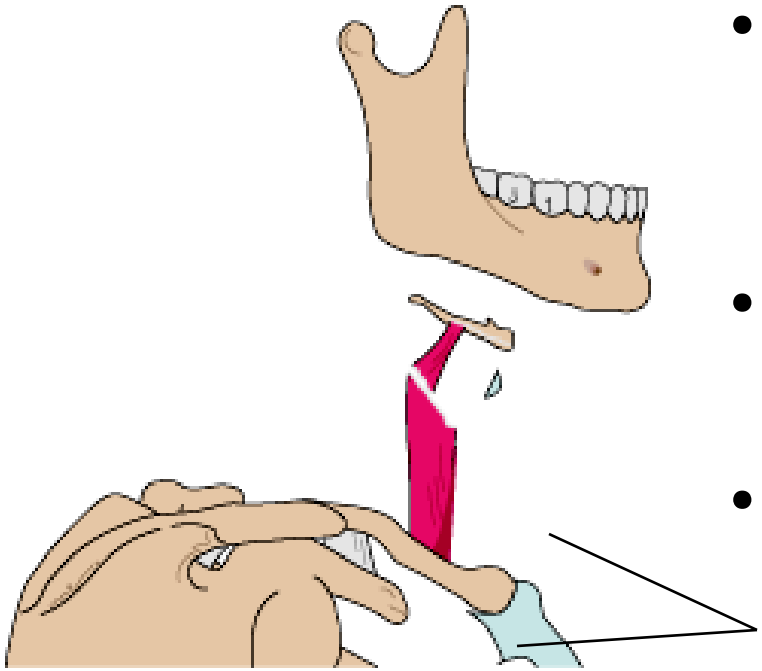
- Origin
  - Symphysis menti to the last tooth on the mandible
- Insertion
  - Anterior hyoid body
- Nerve supply
  - Trigeminal nerve
- Action
  - Elevates the hyoid, tongue and floor of the mouth

Geniohoid



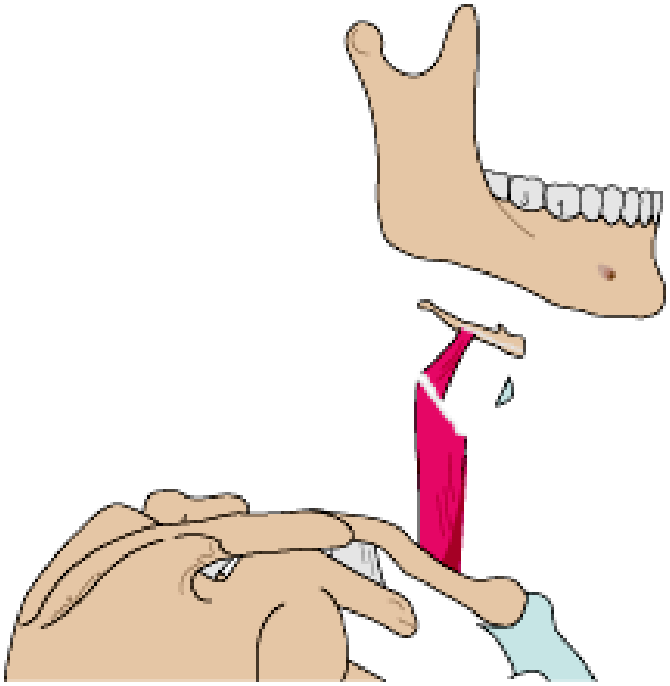
- Origin
  - Symphysis menti
- Insertion
  - Hyoid body
- Nerve supply
  - Hypoglossal nerve
- Action
  - Elevates and moves hyoid anterior

Sternothyroid



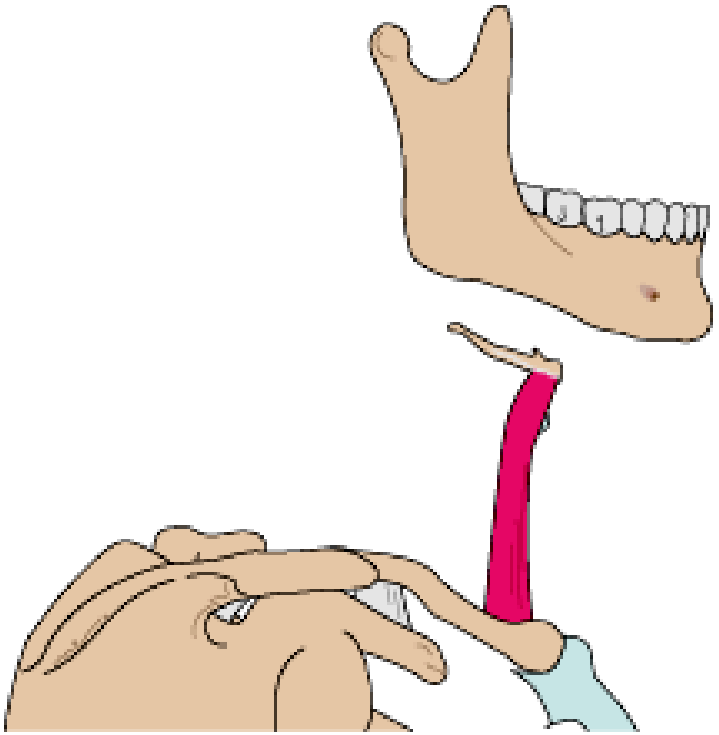
- Origin
  - First rib and the manubrium
- Insertion
  - Thyroid cartilage
- Nerve supply
  - C – 1 – 3
- Action
  - Pulls the larynx inferior
  - Involved in swallowing and speaking

Thyrohyoid



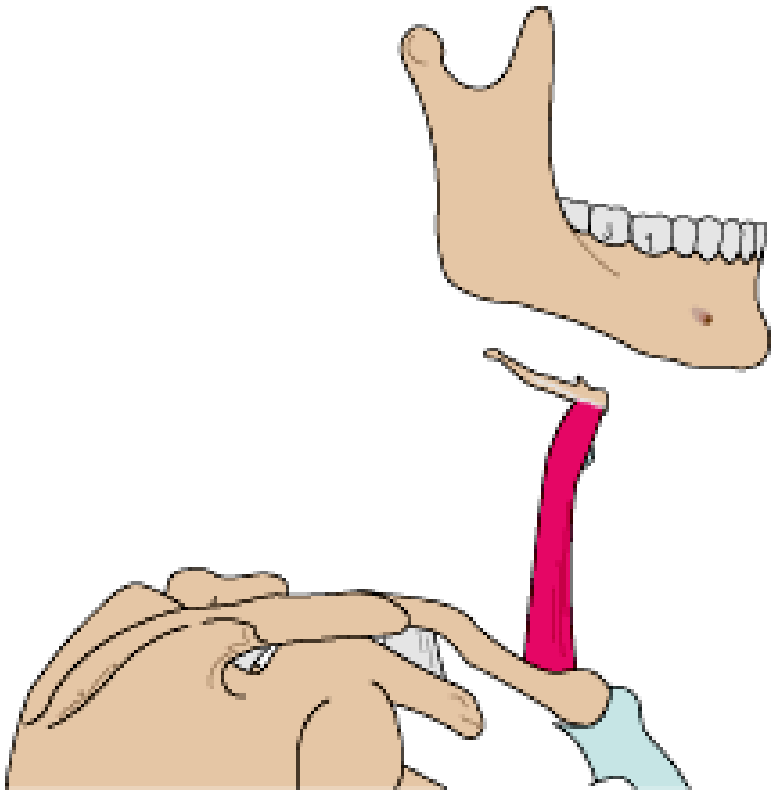
- Origin
  - Thyroid cartilage
- Insertion
  - Lower border of the body of the hyoid
- Nerve supply
  - C – 1
- Action
  - Pulls the hyoid inferior
  - Pulls the thyroid cartilage superior

Sternohyoid



- Origin
  - Medial clavicle, manubrium
- Insertion
  - Lower border of the body of the hyoid
- Nerve supply
  - C – 1 – 3
- Action
  - Pulls the hyoid inferior

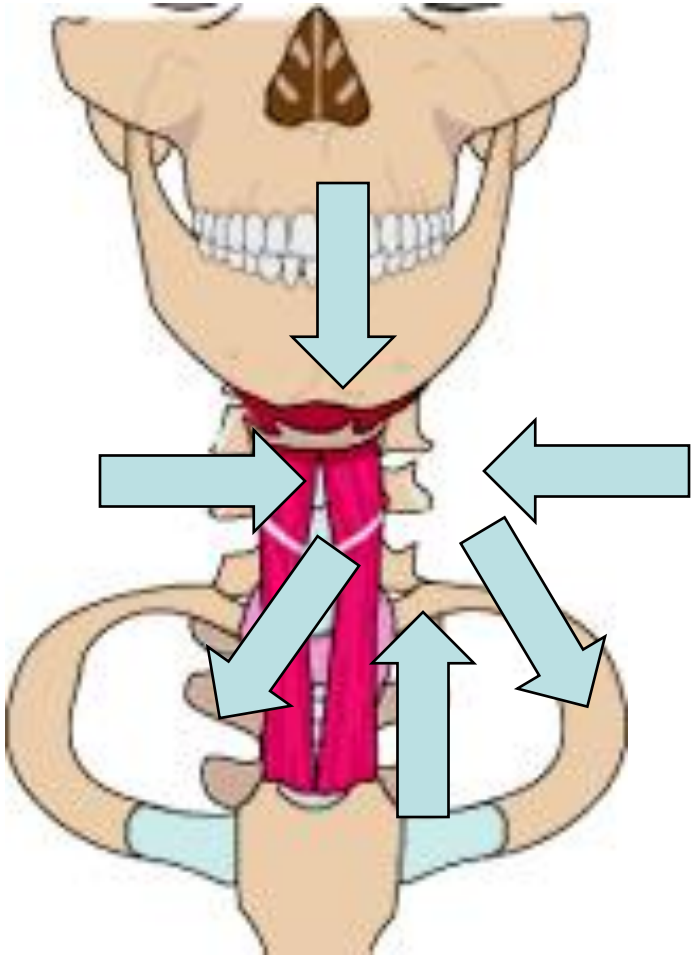
Omohyoid



- Origin
  - Superior scapula near scapular notch
- Insertion
  - Lower border of the body of the hyoid
- Nerve supply
  - C – 1 – 3
- Action
  - Pulls the hyoid inferior

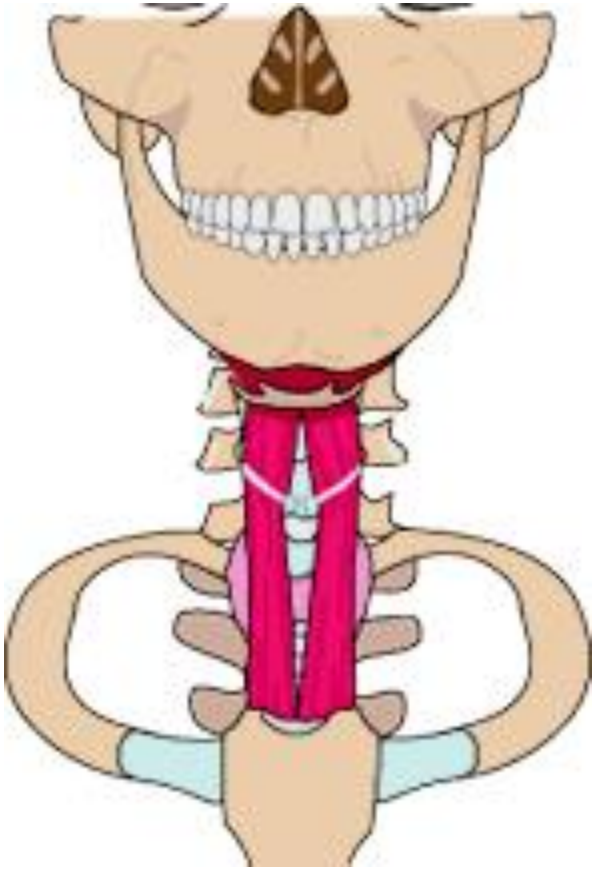
Testing

- Motion palpate the hyoid for restriction in motion
- Using a strong indicator muscle, press and hold hyoid in direction to stretch the tight muscle
- Weakness indicates a muscle imbalance



Treatment

- Tenderness
  - Strain counterstrain
- Directional challenge
  - Use TL and challenge to test for need of turning up or down the spindle cells on the opposing muscle



Hyoid

- Hyoid를 한쪽으로 밀었을 때 challenge되는 근육은 hyoid가 밀리는 방향의 반대에 있는 근육이 된다.
- 치료: turn down muscle spindle cell

Triceps – medial and lateral heads

Spinal

Levels: Innervation: C-(6),7,6 (T-1)

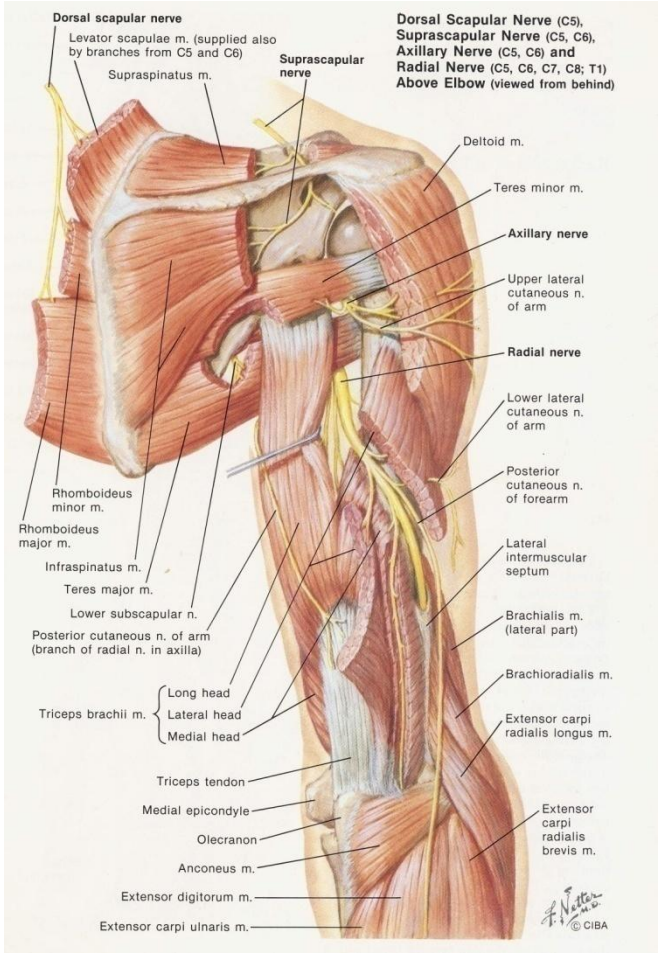
TS Line/Meric: T-6 배수혈: T-11/12

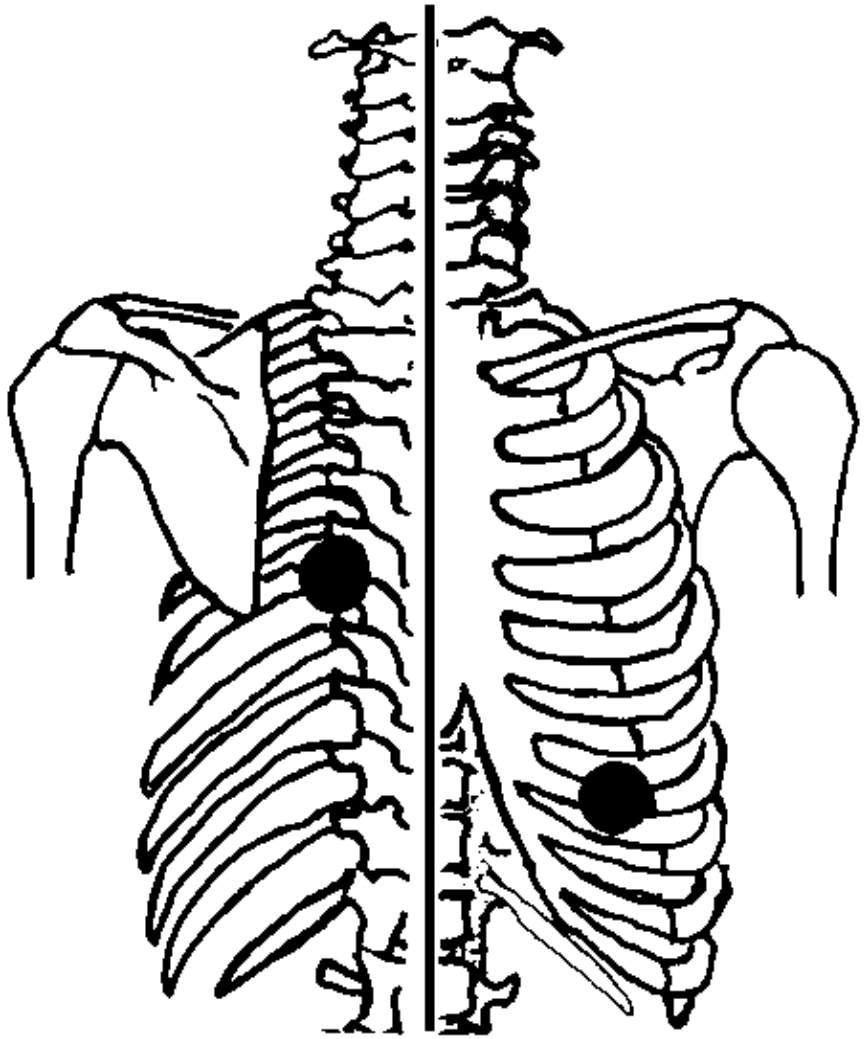
기관: 췌장 – 혈당 조절; 소화기 효소 부족

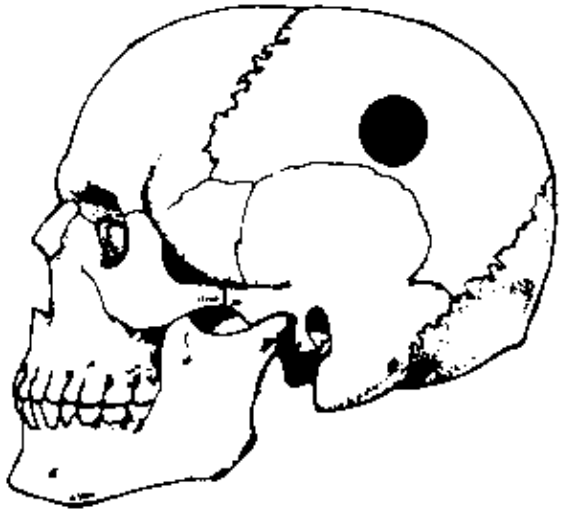
경락: 비-췌장

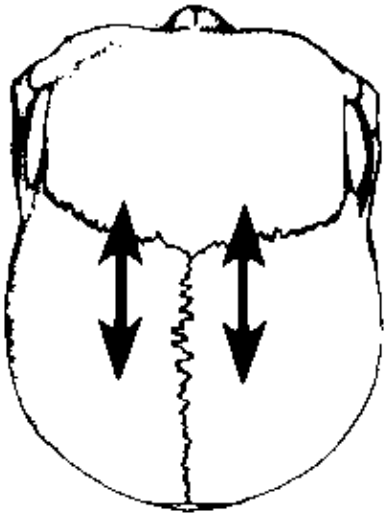
영양: metabolic synergy, glucosupreme

Chapman's Reflex: Ant: Left 7th IC space, medial portion, 7th costal cartilage; Post: Left T-7/8









Triceps – medial and lateral heads

- 임상적 적응증:
- 주관절 문제 ‘tennis elbow’ “golf elbow”
- 췌장-고인슐린증에서는 triceps가 overactive된다

Triceps – long head

- 기시: Infraglenoid tubercle of scapula
- 종지: Upper posterior surface of olecranon; deep fascia of forearm
- 기능: elbow extension; shoulder extension; long head and lateral head are comparable with the biceps brachii
- Spinal Levels: Innervation: C-(6),7,6 (T-1) TS Line/Meric: T-6 배수혈: T-11/12
- 기관: 췌장 – 혈당 조절; 소화기 효소 부족
- 경락: 비-췌장

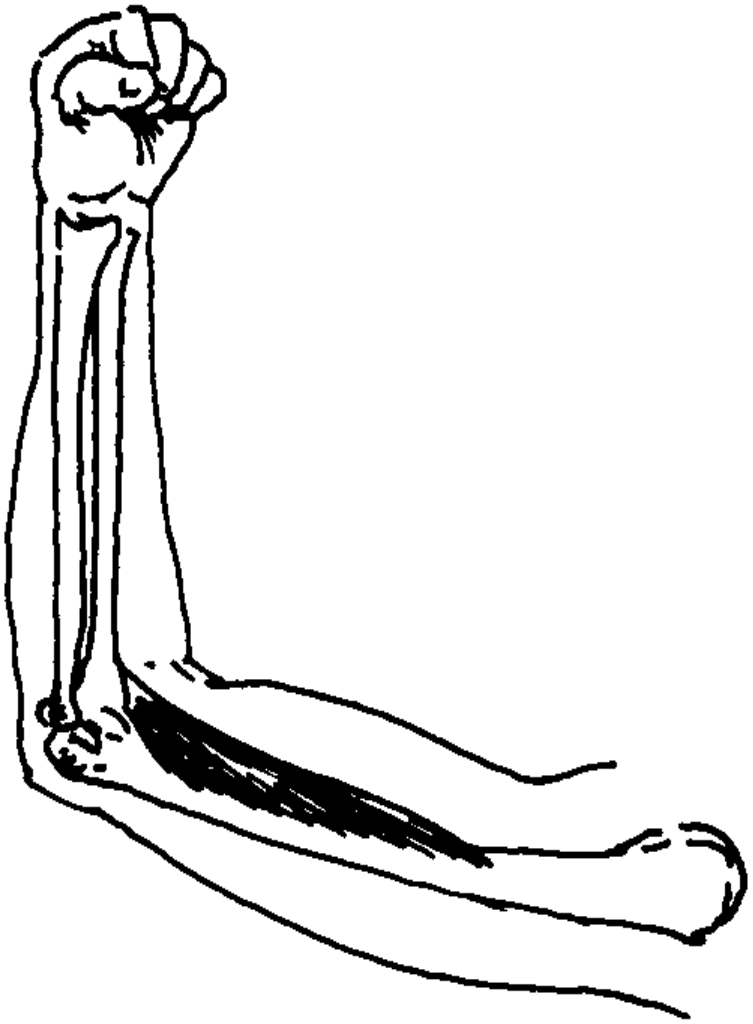
Triceps – long head

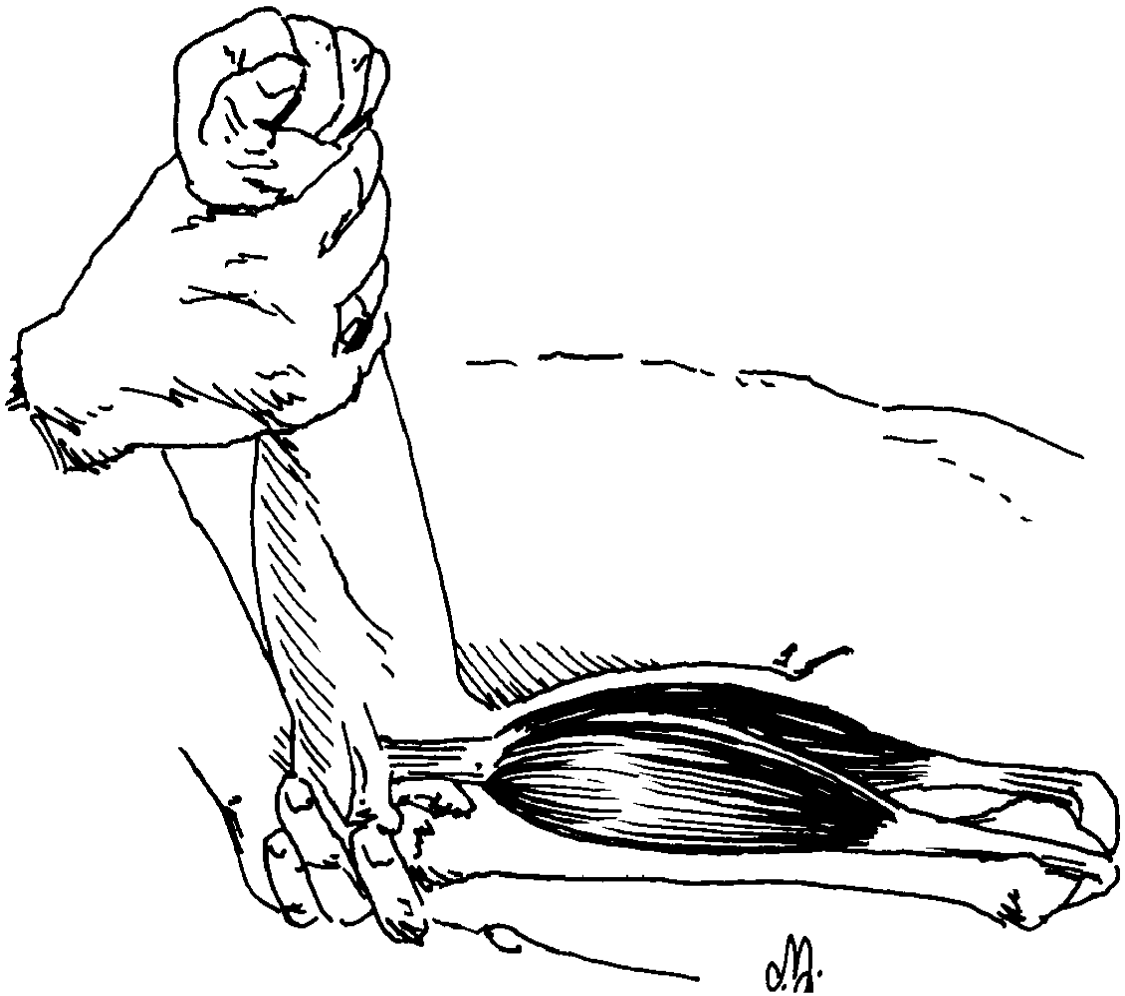
- 임상적 적응증:
- 주관절 문제
- 견관절 통증 및 ROM 저하
- 팔 뒷굼치 하기 힘들다
- 췌장 – 고인슐린증에서는 triceps가 overactive된다

Brachialis

- 기시: Lower anterior humerus (extensive)
- 종지: tuberosity of ulna
- 기능: flexes elbow (biceps brachii often gets credit for work done by brachialis)
- Spinal Levels: Innervation: C-5,6 (musculocutaneous) TS Line/Meric: N/A 배수혈: T-12/L-1
- 기관: 위장
- 경락: 위장

Biceps brachii/brachialis





Brachialis

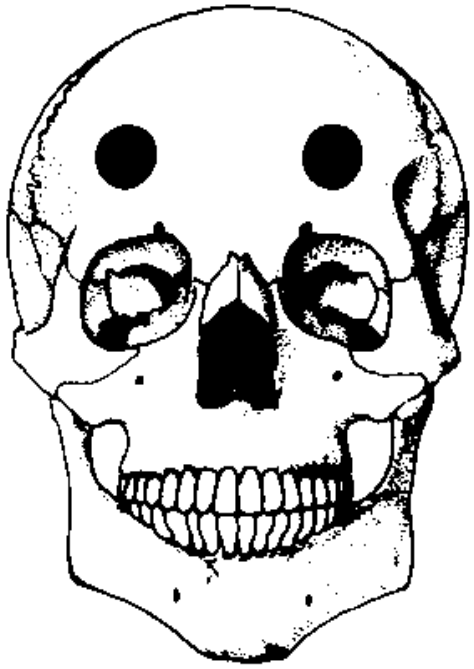
- 영양: 위산; (duodenal concentrate; 클로로필)
- Chapman's Reflex: (Bilateral) Ant: $4^{th}/5^{th}$ IC spaces; Post: C-2 (T-4/5)
- 임상적 적응증:
- biceps brachii와 더불어 테스트
- 주관절 굴곡시 통증이나 ROM저하
- 고인슐린 증에서는 양측 모두 약할 수 있다
- Ulna subluxations
- 위장

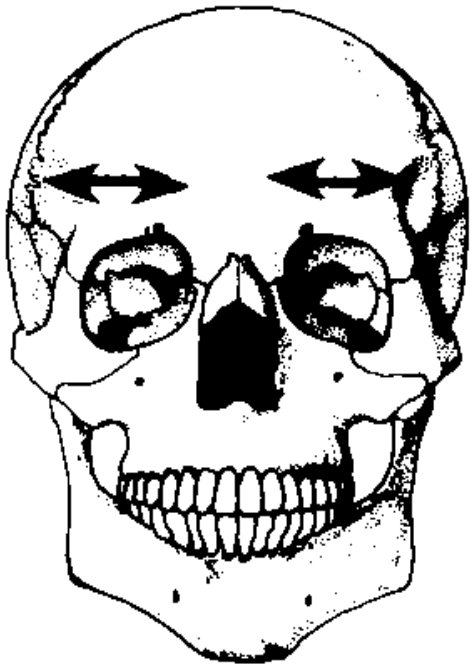
Biceps brachii

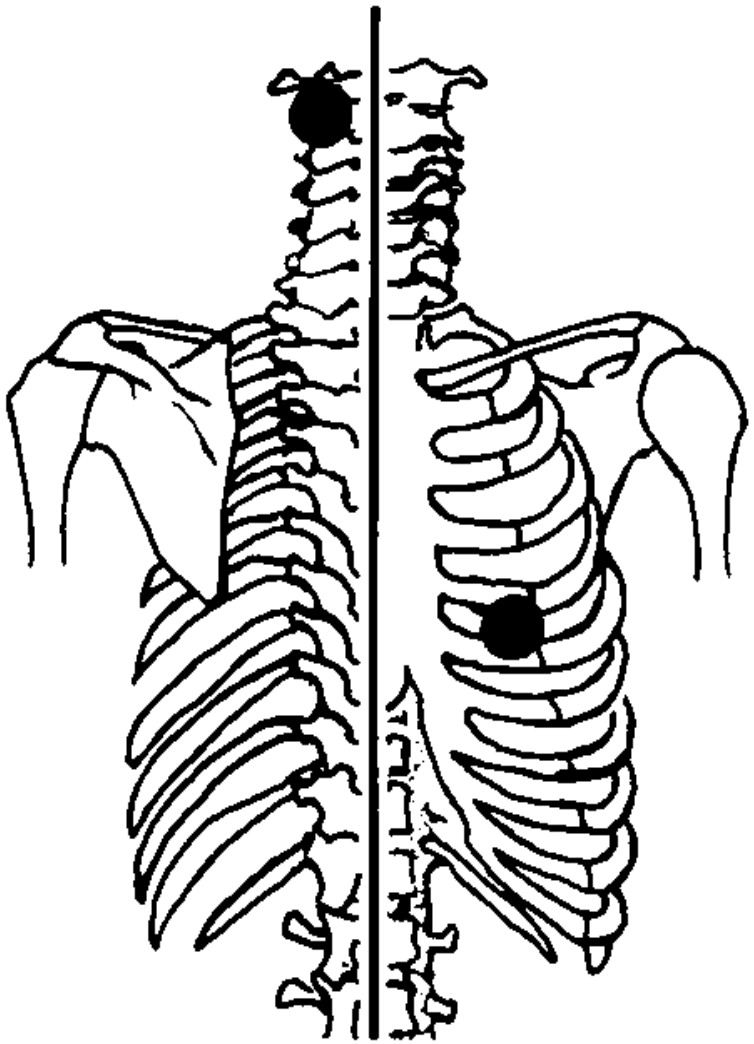
- Long head – 기시: Supraglenoid tubercle of scapula
- Short head – 기시: Coracoid process
- 종 지 : Tuberosity of radius; Lacertus fibrosis (=deep Aponeurosis continuous with deep fascia of forearm)
- 기 능 : 주 관 절 굴 곡 (especially against resistance – assists brachialis); supinates forearm (especially against resistance – assists supinator); flexes shoulder; helps retain humeral head in glenoid fossa (long head only)

Biceps brachii

- Spinal Levels: Innervation: C-5,6 (musculocutaneous) TS Line/Meric: N/A 배수혈: T-12/L-1
- 기관: 위장
- 경락: 위장
- 영양: 위산; (duodenal concentrate; 클로로필)
- Chapman's Reflex: (Bilateral) Ant: $4^{th}/5^{th}$ IC spaces; Post: C-2 (T-4/5)







Biceps brachii

- 임상적 적응증:
- Slipped bicipital tendon – 어깨를 올린 후 되돌아 올 때 통증이 온다
- 고인슐린증에서 양측 모두 약할 수 있다
- Radius subluxations
- 주관절 굴곡시 통증 및 ROM 저하

Biceps brachii

- forearm supination하기 어렵다(통증이나 ROM 저하), 특히 저항이 있을 때.
- 스크루 드라이버 사용시
- Long head는 기시부위에서 손상될 수 있다.
- 위장

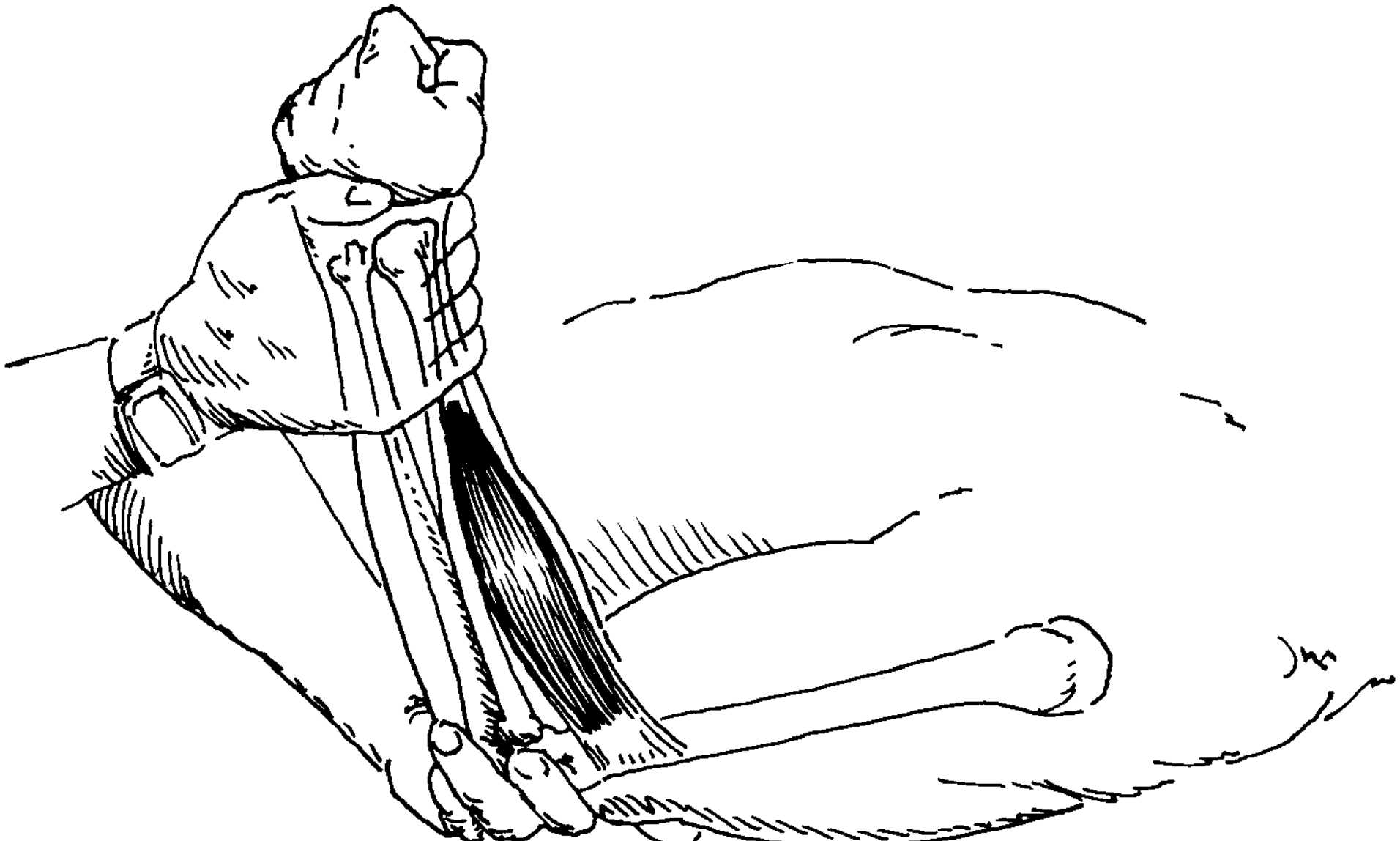
Brachioradialis

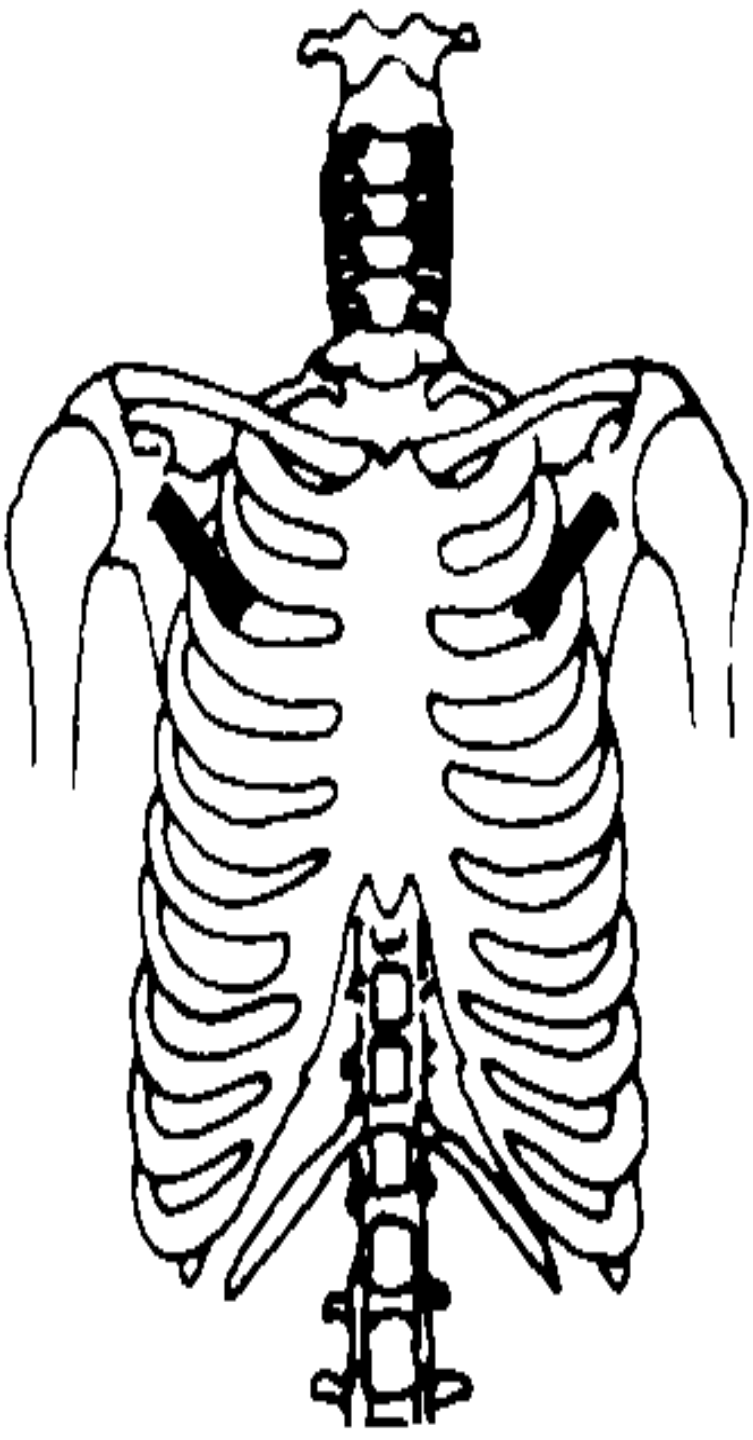
- 기시: Proximal 2/3rd of supracondylar ridge (from lateral epicondyle to halfway up humeral shaft)
- 종지: By a long, ribbon-like tendon to the lateral base of styloid process of the radius
- 기능: flexes elbow, especially with forearm semi-pronated (especially with heavy loads or rapid movements) as in carrying a coat, or carrying a baby; hitch-hiking motion or thumbs-up motion

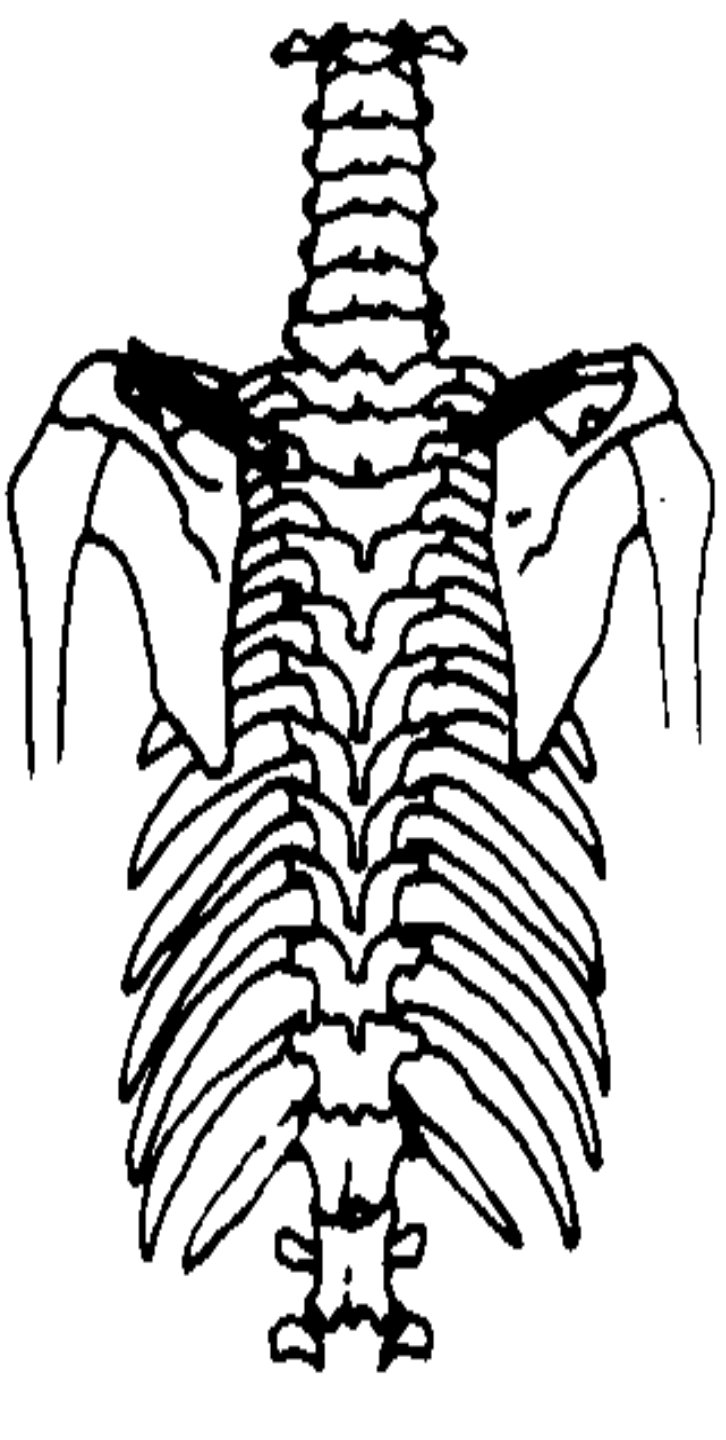
Brachioradialis

- Spinal Levels: Innervation: C-5,6 (radial) TS Line/Meric: N/A 배수혈:T-12/L-1
- 기관: 위장
- 경락: 위장
- 영양: N/A
- Chapman's Reflex: (Bilateral) Ant: Entire pectoralis major muscle; Post: Over supraspinatus origin

Brachioradialis





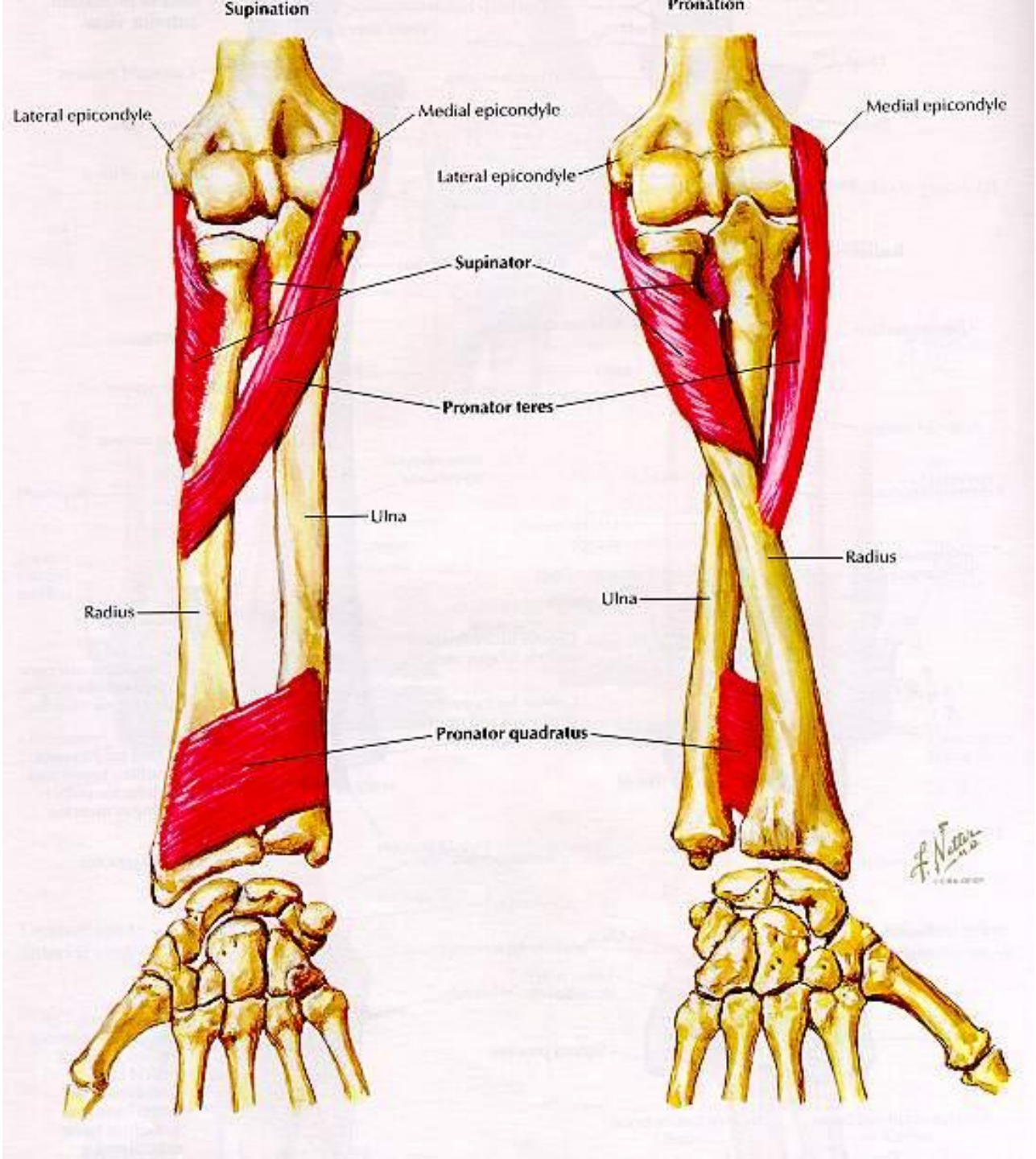


Brachioradialis

- 임상적 적응증:
- 주관절 통증(보통 기시부위)
- 팔이semi-pronated 위치에서 물건을 들 때 통증이 있거나 fatigue가 있다
- 일반적인 신경과민 증세가 있는 경우 이 근육이 약해진다(Chapman's NL reflex)

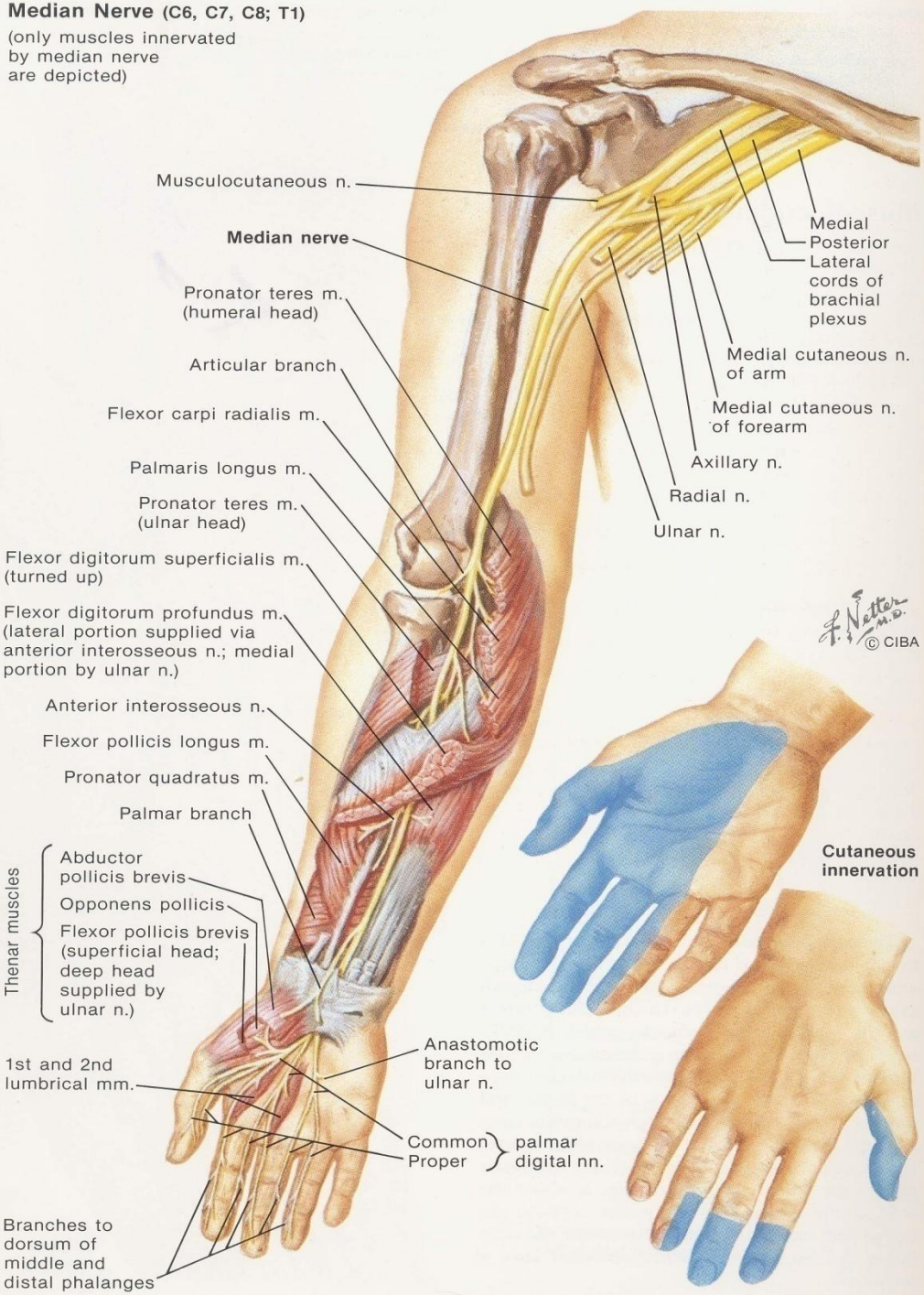
Pronator teres

- 기시: Humerus-medial epicondyle; ulna-medial side of coronoid process
- 종지: Radius – middle of the lateral shaft where bowing reaches its maximum
- 기능: elbow flexion; forearm pronation, especially when power is needed
- Spinal Levels: Innervation: C-6,7 (median) TS Line/Meric: N/A 배수혈: T-12/L-1
- 기관: 위장
- 경락: 위장


Supination
Lateral epicondyle
Medial epicondyle
Supinator
Pronator teres
Ulna
Radius
Pronator quadratus
Pronation
Medial epicondyle
Lateral epicondyle
Radius
Ulna

Median Nerve (C6, C7, C8; T1)

(only muscles innervated by median nerve are depicted)



Pronator teres

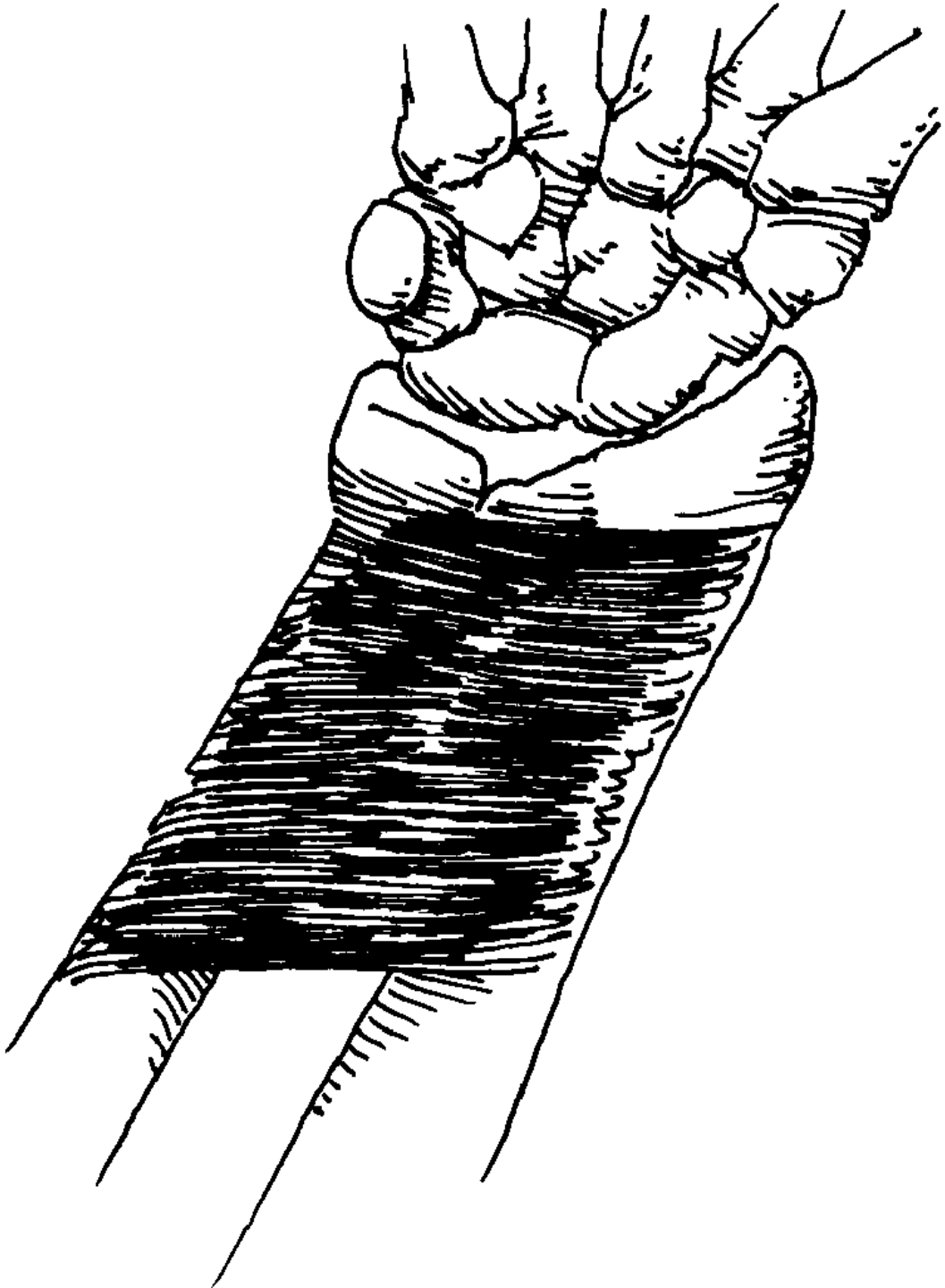
- 영양: N/A
- Chapman's Reflex: (Bilateral) Ant: On anterior chest wall behind areola (*not* in the breast tissue); Post: Below inferior angle of scapula
- 임상적 적응증:
- 주관절 굴곡/신전을 통해 구별한다: pronator teres & pronator quadratus tests
- 스크루 드라이버를 사용해서 나사를 풀 때 어렵다

Pronator teres

- 주관절 통증 – medial epicondylitis
- Radius subluxations
- 수완관절 통증–특히 pronation할 때
- Wrist subluxations
- 위장, 대장(?)

Pronator quadratus

- 기시: Front of ulnar shaft just above wrist joint (distal 1/4 of ulna)
- 종지: Front of radius shaft just below wrist joint; distal ¼ of radius – most anterior and medial areas
- 기능: pronates forearm; stabilizes radius and ulna at wrist
- Spinal Levels: Innervation: C-7,8 T-1 (median) TS Line/Meric: N/A 배수혈 :T12/L1



Pronator quadratus

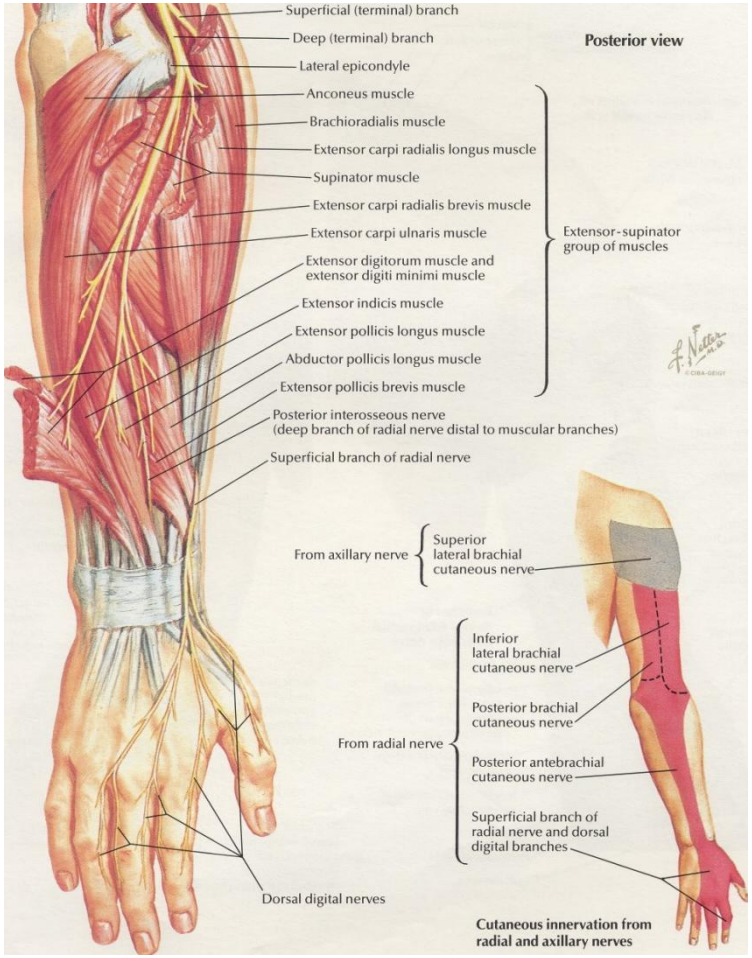
- 기관: 위장
- 경락: 위장
- 영양: N/A
- Chapman's Reflex: (Bilateral) Ant: On anterior chest wall behind areola (*not* in the breast tissue); Post: Below inferior angle of scapula
- 임상적 적응증:
- 주관절 굴곡/신전을 통해 구별- pronator teres and pronator quadratus tests

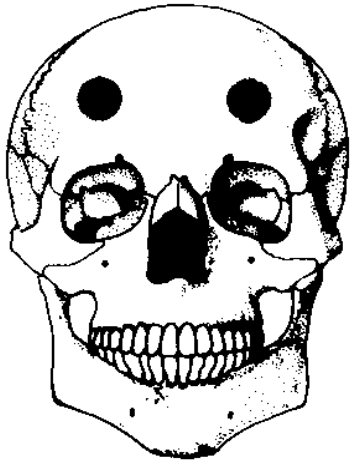
Pronator quadratus

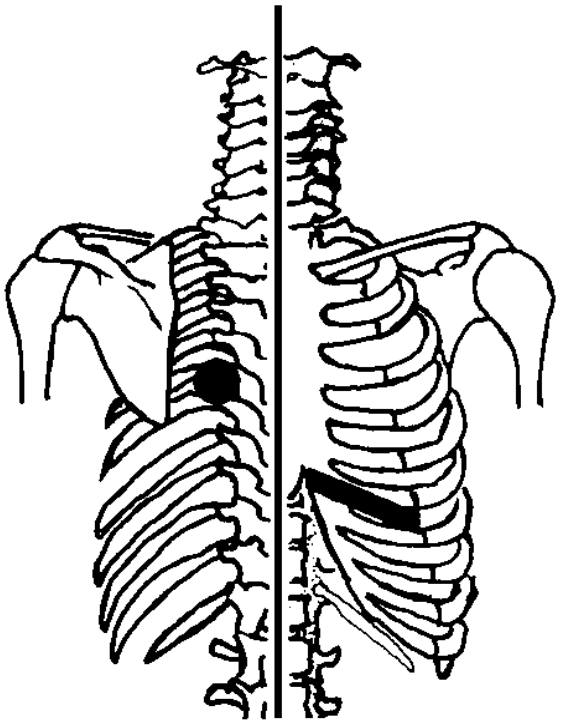
- 나사 풀기가 어렵다
- push-ups 등 하기 힘들다
- Carpal tunnel syndrome
- Wrist subluxations
- 주관절 통증
- 대장(위장?)

Supinator

- 기시: Lateral condyle of humerus; radial collateral ligament; annular ligament; supinator crest of ulna
- 종지: Lateral surface of radius – upper 1/3rd
- 기능: supinates forearm, especially when power not needed
- Spinal Levels: Innervation: C-(5),6 (radial) TS Line/Meric: N/A 배수혈:T-12/L-1







Extensor Carpi Radialis Longus & Brevis

- Longus – 기 시 : Humerus-lateral supracondylar ridge – distal 1/3rd
- Longus – 종지: Dorsal surface of base of 2nd metacrpal – radial side
- Brevis – 기 시 : Humerus-lateral epicondyle (common extensor tendon); radial collateral ligament; deep antebrachial fascia
- Brevis – 종 지 : Dorsal surface of 3rd metacarpal
- 기능: Extends wrist; abducts wrist; stabilizes wrist for finger movements

Extensor Carpi Radialis Longus & Brevis

- Spinal Levels: Innervation: C-(5), 6,7,8 (radial) TS Line/Meric: N/A 배수혈: L-4/5
- 기관: 우측 – Ileocecal valve; 좌측 – Houston valve (rectosigmoid folds)
- 경락: 신장
- 영양: N/A
- Chapman's Reflex: (Bilateral - Same as ICV / Houston valve) Ant #1: From the ASIS downward about three inches; Ant #2 area: From the point of the right shoulder downward about 2 or 3 inches; Post: C-3

Extensor Carpi Radialis Longus & Brevis

- 임상 적응증:
- 주관절 문제 – lateral epicondylitis ("tennis elbow")
- 수완관절 신전 혹은 외전이 어렵다(통증, 가동범위 감소)
- Open ileocecal valve syndrome

Extensor Carpi Ulnaris

- 기시: Humerus-lateral epicondyle (common extensor tendon); aponeurosis from posterior border of ulna; deep antebrachial fascia
- 종지: Base of 5th metacarpal – ulnar side
- 기능: Extends wrist; adducts wrist; stabilizes wrist for finger movements
- Spinal Levels: Innervation: C-(6),7,8 (radial) TS Line/Meric: N/A 배수혈: L-2/3

Extensor Carpi Ulnaris

- 기관: 우측 – Ileocecal valve; 좌측 – Houston valve (rectosigmoid folds)
- 경락: 신장
- 영양: N/A
- Chapman's Reflex(Bilateral – Same as ICV / Houston valve) Ant #1: From the ASIS downward about three inches; Ant #2 area: From the point of the right shoulder downward about 2 or 3 inches; Post: C-3

Extensor Carpi Ulnaris

- 임상 적응증:
- 주관절 문제
- 수완관절 신전 혹은 외전이 어렵다(통증, 가동범위 감소)
- Open ileocecal valve syndrome

Finger extensors (Extensor digitorum; Extensor Indicis; Extensor Digiti Minimi)

- Extensor digitorum – 기시: Humerus-lateral epicondyle (common extensor tendon); deep antebrachial fascia
- Extensor digitorum – 종지: Middle & disatl phalanges 2-5
- Extensor Indicis – 기시: Ulna-posterior surface (distal to origin of extensor pollicis longus); interosseus membrane
- Extensor Indicis – 종지: index finger with extensor digitorum longus tendon

Finger extensors (Extensor digitorum; Extensor Indicis; Extensor Digiti Minimi)

- Extensor Digiti Minimi – 기시: Humerus-lateral epicondyle (common extensor tendon); deep antebrachial fascia
- Extensor Digiti Minimi – 종지: Little finger with extensor digitorum longus tendon
- 기능: extend fingers
- Spinal Levels: Innervation: C-6,7,8 (radial) TS Line/Meric: N/A 배수혈: N/A

Finger extensors (Extensor digitorum; Extensor Indicis; Extensor Digiti Minimi)

- 기관: 우측 – Ileocecal valve; 좌측 – Houston valve (rectosigmoid folds)
- 경락: 신장
- 영양: N/A
- Chapman's Reflex: (Bilateral – Same as ICV / Houston valve) Ant #1: From the ASIS downward about three inches; Ant #2 area: From the point of the right shoulder downward about 2 or 3 inches; Post: C-3

Finger extensors (Extensor digitorum; Extensor Indicis; Extensor Digiti Minimi)

- 임상 적응증:
- 수,완관절 신전 곤란(통증, 가동력감소)
- 수, 완관절 굴곡 곤란(통증, 가동력 감소)

Flexor carpi radialis

- 기시: Medial epicondyle of humerus (common flexor tendon); deep antebrachia fascia
- 종지: Base of 2nd metacarpal; a slip to base of 3rd metacarpal
- 기능: wrist flexion; wrist abduction (slight); stabilizes wrist for finger movements
- Spinal Levels: Innervation: C-6,7,(8) (median) TS Line/Meric: N/A 배수혈: (T-12/L-1)

Flexor carpi radialis

- 기관: N/A
- 경락: (위장)
- 영양: N/A
- Chapman's Reflex: (Bilateral) Ant: On anterior chest wall behind areola (*not* in the breast tissue); Post: Below inferior angle of scapula
- 임상 적응증:
- 주관절통 – medial epicondylitis
- 수완관절 통증, 굴곡시 약화

Flexor carpi ulnaris

- 기시: Humerus-medial epicondyle (common flexor tendon); Ulna-medial margin of olecranon, proximal 2/3rds of posterior border; deep antebrachial fascia
- 종지: Pisiform; hamate; 5th metacarpal
- 기능: wrist flexion; wrist adduction (works with extensor carpi ulnaris); stabilizes wrist for finger movements
- Spinal Levels: Innervation: C-(7),8 (T-1) (ulnar) TS Line/Meric: N/A 배수혈:(T-12/L-1)

Flexor carpi ulnaris

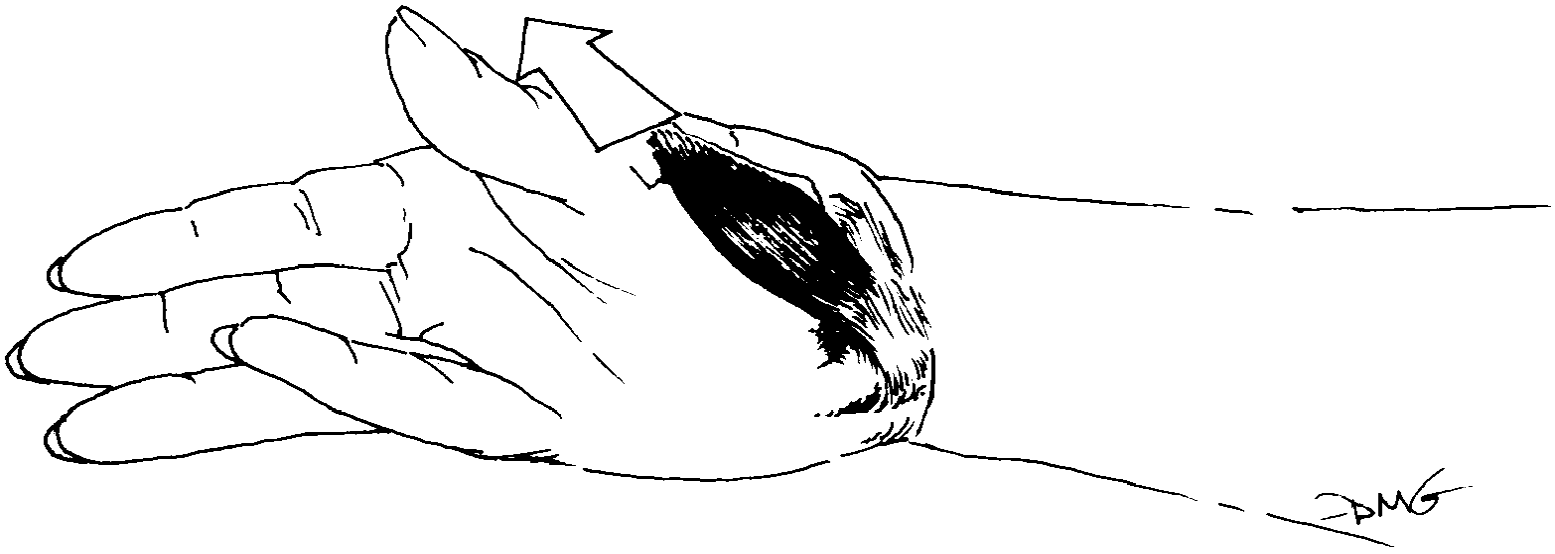
- 기관: N/A
- 경락: (위장)
- 영양: N/A
- Chapman's Reflex: (Bilateral) Ant: On anterior chest wall behind areola (*not* in the breast tissue); Post: Below inferior angle of scapula

Flexor carpi ulnaris

- 임상적 적응증:
- 주관절통 – medial epicondylitis (“golf elbow”)
- 수완관절 통증, 굴곡시 약화

Thenar muscle
Opponens pollicus

- 기 시 : Flexor retinaculum; tubercle of trapezium bone
- 종지: Entire 1st metacarpal – radial side
- 기능: flexes & abducts (away from palm) the 1st metacarpal; slightly internally rotates thumb; causes opposition of the thumb toward the other fingers.
- Spinal Levels: Innervation: C-6,7 (median) TS Line/Meric: N/A 배수혈: T-12/L-1



Opponens pollicus

- 기관: 위장
- 경락: 위장
- 영양: digestzyme
- Chapman's Reflex: (Bilateral) Ant: On anterior chest wall behind areola (*not* in the breast tissue); Post: Below inferior angle of scapula
- [Also reported as: (Bilateral) Ant: inferior to pubic bone; Post: L-5/PSIS]

Opponens pollicus

- 임상적 적응증:
- Carpal tunnel syndrome
- 물건 잡기 힘들다
- 병뚜껑 열기 힘들다

Carpal tunnel syndrome

Differential diagnosis

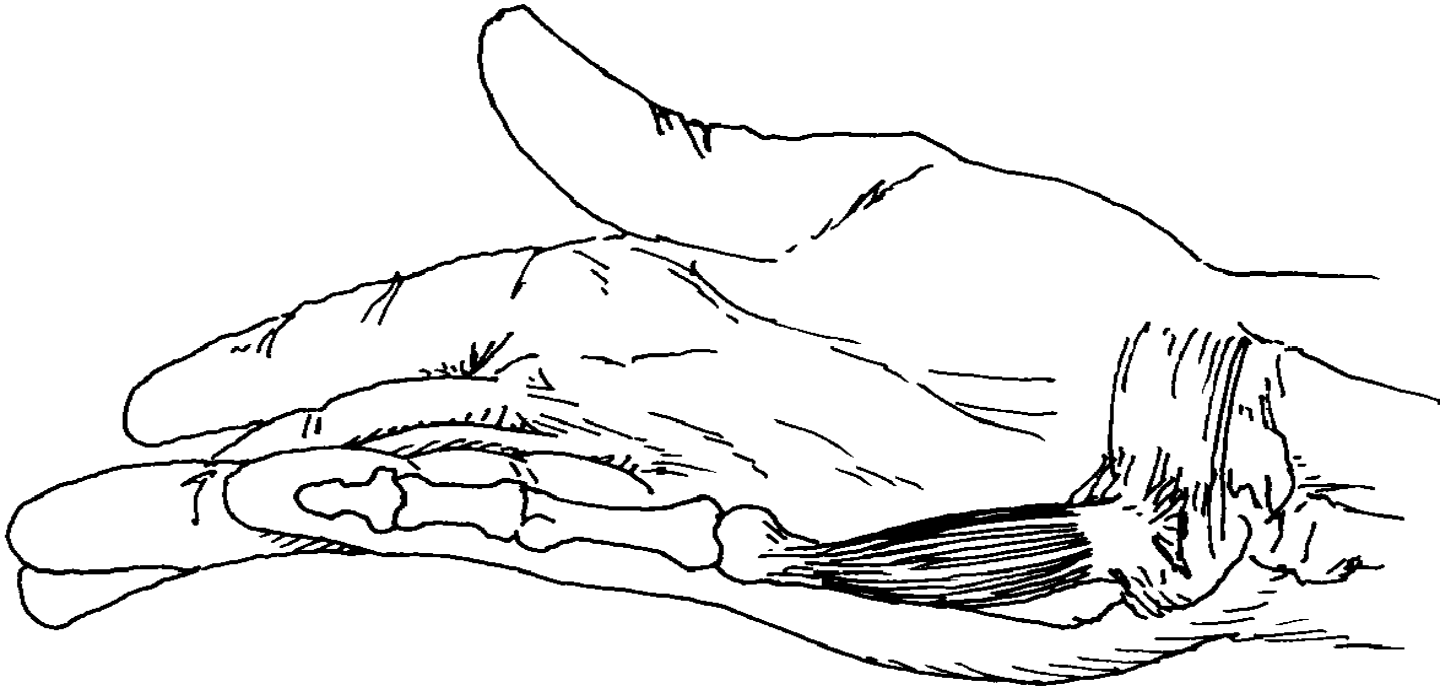
- Opponens pollicis/abductor pollicis brevis weakness
- Flexor digitorum strong
- Ulnar nerve muscle strong
  - Opponens digiti minimi
  - Flexor digiti minimi
  - Adductor pollicis
- Challenge and TL

치료

- Weak pronator quadratus-radius/ulnar separation
  - muscle origin/insertion
- Taping
- Nutrition-B6
  - Active form인 pyridoxal-5-phosphate가 되려면 마그네슘, 아연, riboflavin, phosphorus가 필요

Opponens digiti minimi

- 기시: Hamulus (hook) of hamate bone; flexor retinaculum
- 종지: Entire 5th metacarpal shart – ulnar side
- 기 능 : flexes & slightly rotates the 5th metacarpal; helps to lift ulnar portion of hand so metacarpophalangeal flexors can bring little finger toward thumb (opposition); helps to cup hand
- Spinal Levels: Innervation: C-(7),8 T-1 (ulnar) TS Line/Meric: N/A 배수혈: T-12/L-1



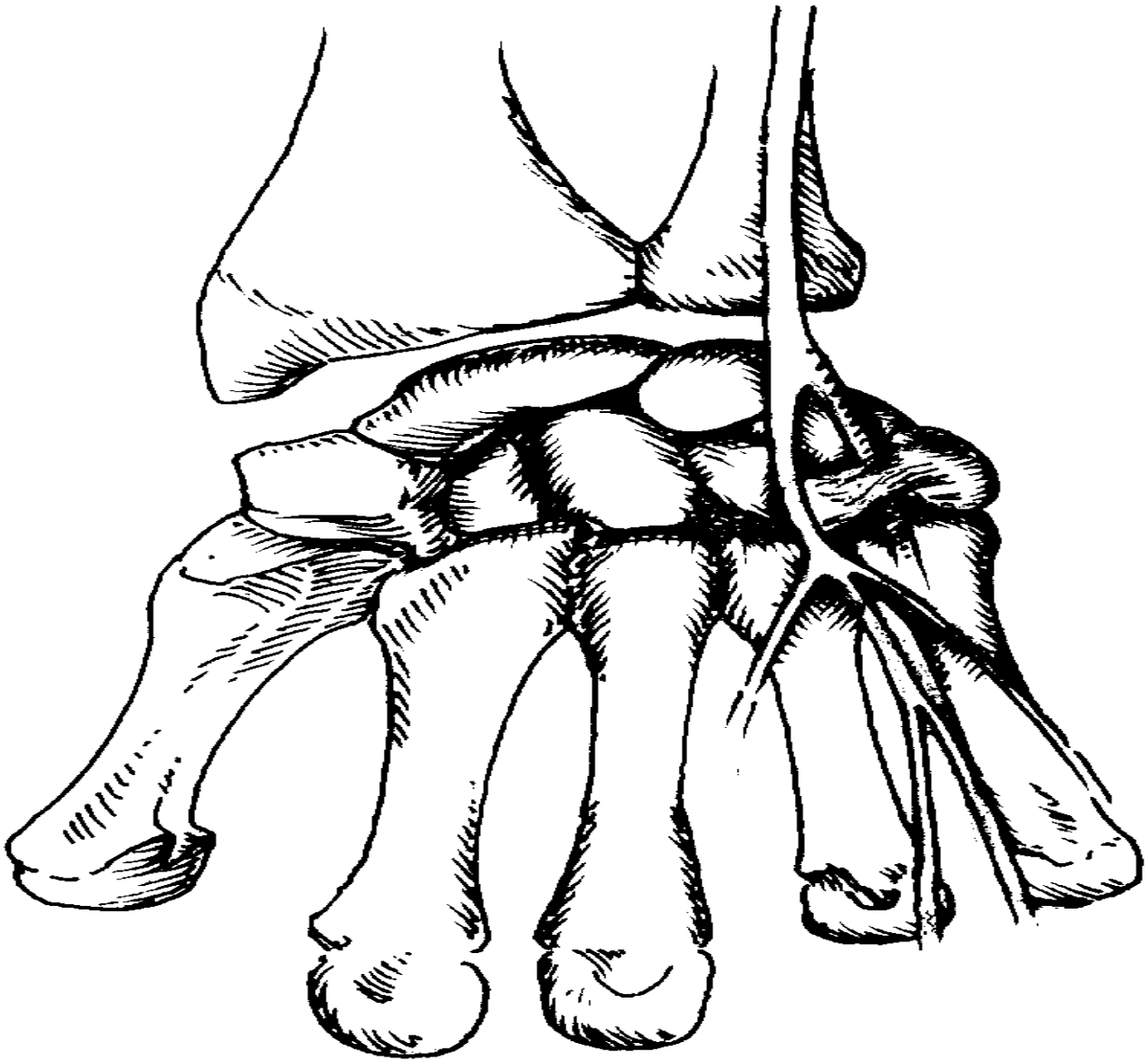
Opponens digiti minimi

- 기관: 위장
- 경락: 위장
- 영양: Raw veal bone
- Chapman's Reflex: (Bilateral) Ant: On anterior chest wall behind areola (*not* in the breast tissue); Post: Below inferior angle of scapula (Also reported as: (Bilateral) Ant: inferior to pubic bone; Post: L-5/PSIS)

Opponens digiti minimi

- 임상 적응증:
- Pisiform-hamate syndrome
- 약지를 쓰기 힘들다

Pisiform hamate syndrome



DDX

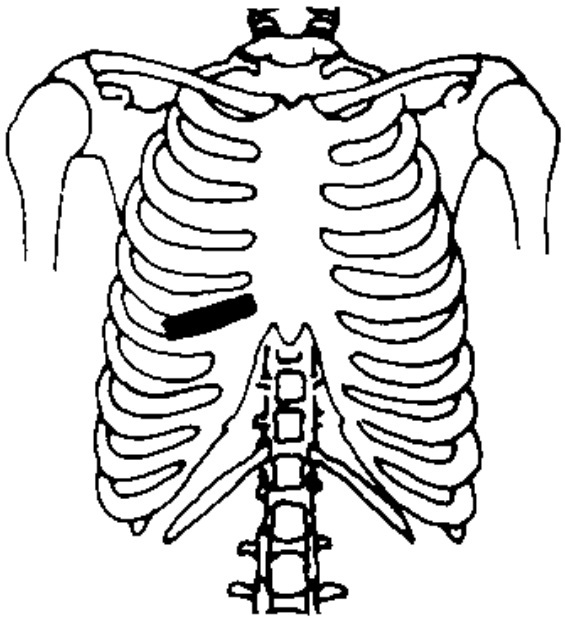
- Adductor pollicis and 1st dorsal interosseous weak
- Normal 4th, 5th flexor digitorum profundus

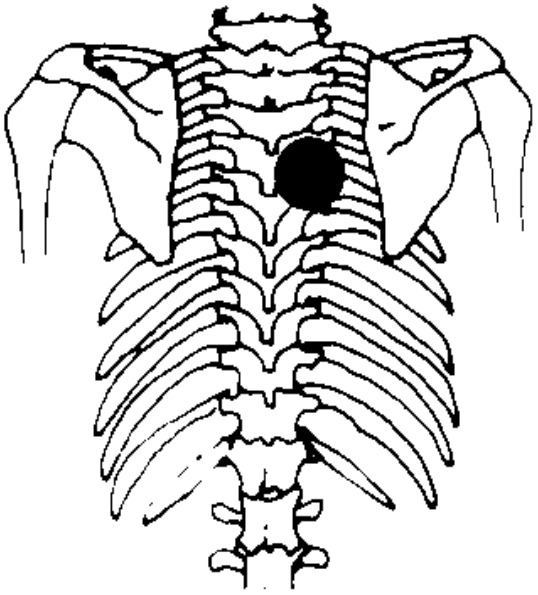
Pisiform challenge

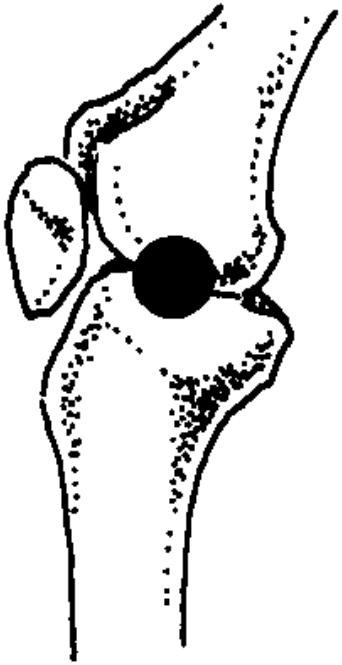
슬와근(popliteus)

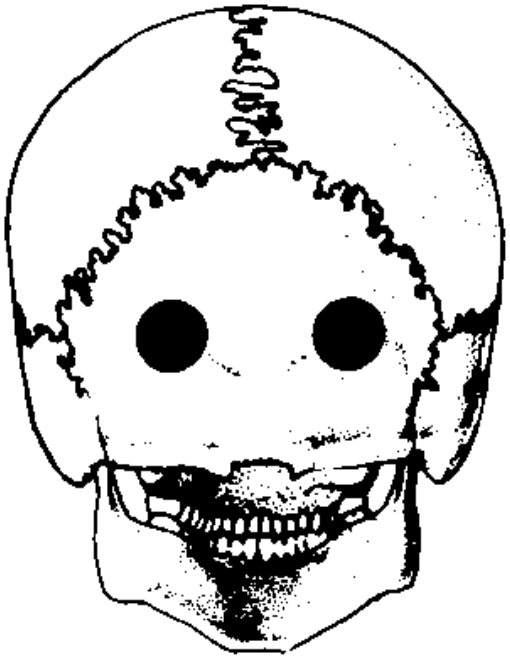
- **신경지배**: 경골신경, L4, 5, S1
- **신경림프 반사점**:
- **전방**: 우측 유두정중선의 제5늑간에서 흉골에 이르는 영역
- **후방**: 우측 제5흉추, 제6흉추 추궁판 사이
- **신경혈관 반사점**: 슬관절 내측면의 반월판 위치
- **영양**: 비타민 A
- **연관된 경락**: 담경
- **연관된 장기/내분비선**: 담낭

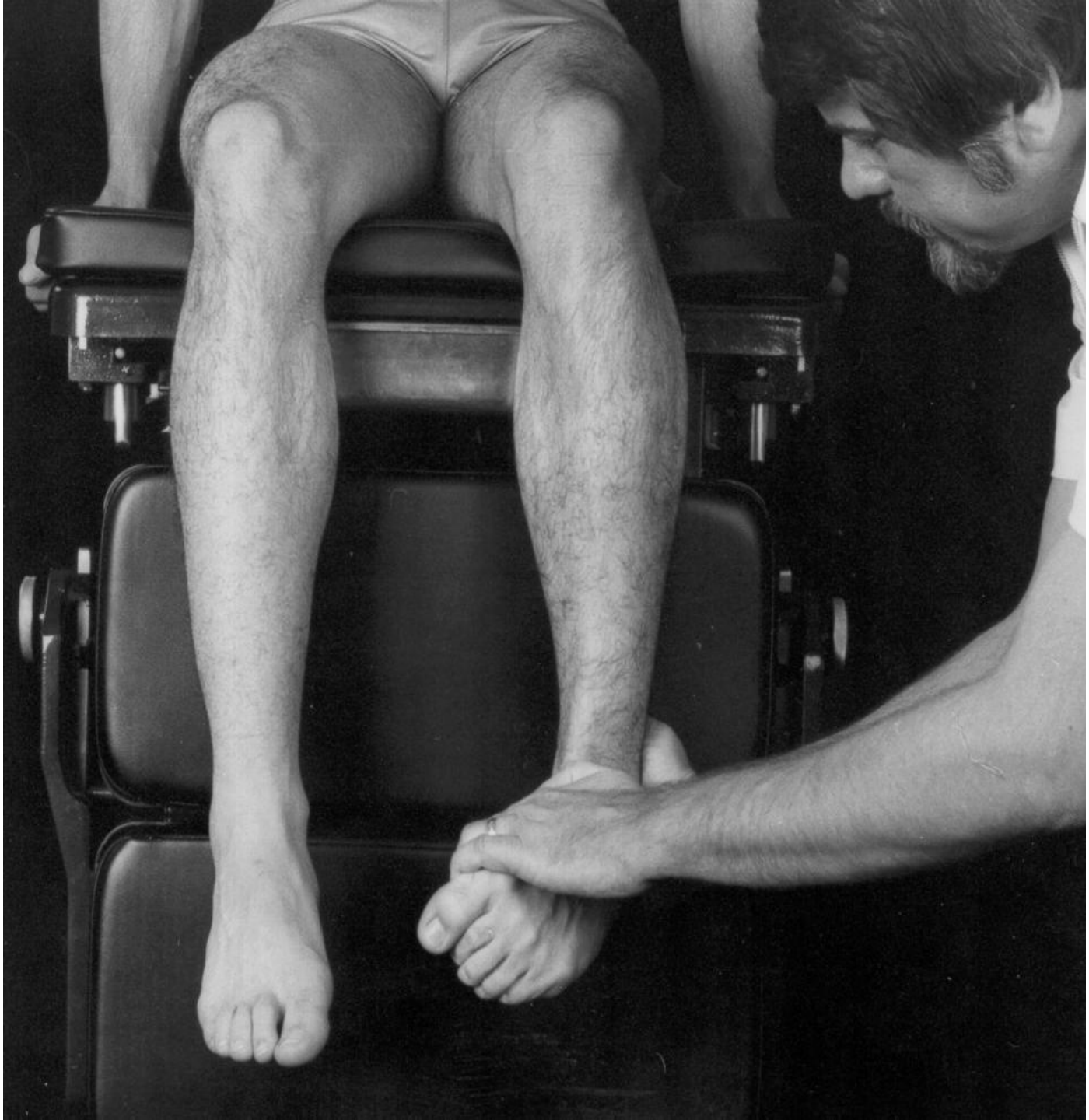
popliteus





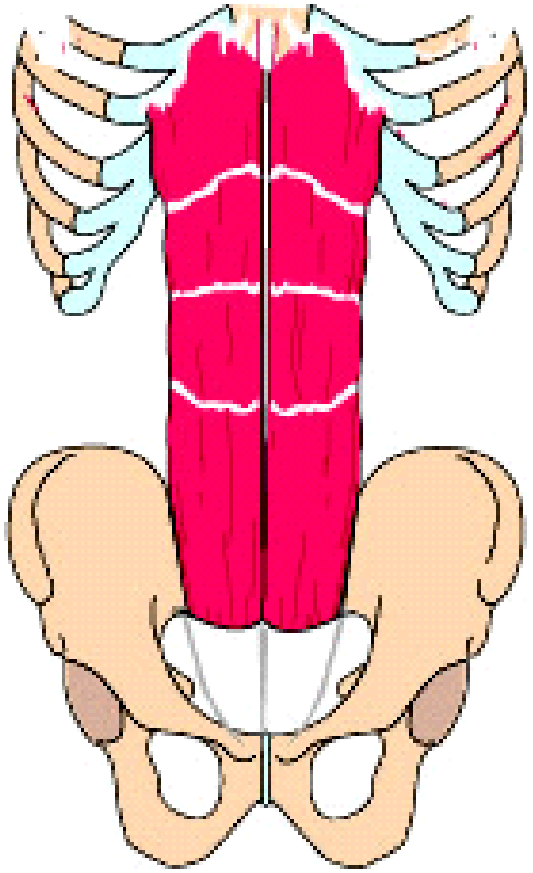






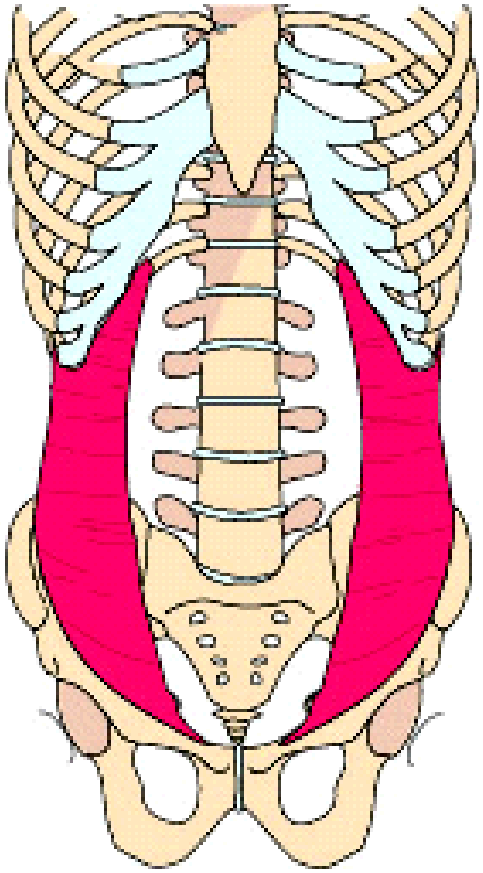
복직근 Rectus Abdominus

- 기시부Origin
  - 치골접합, 치골능
- Insertion
  - 5,6,7 늑연골, xiphoid process

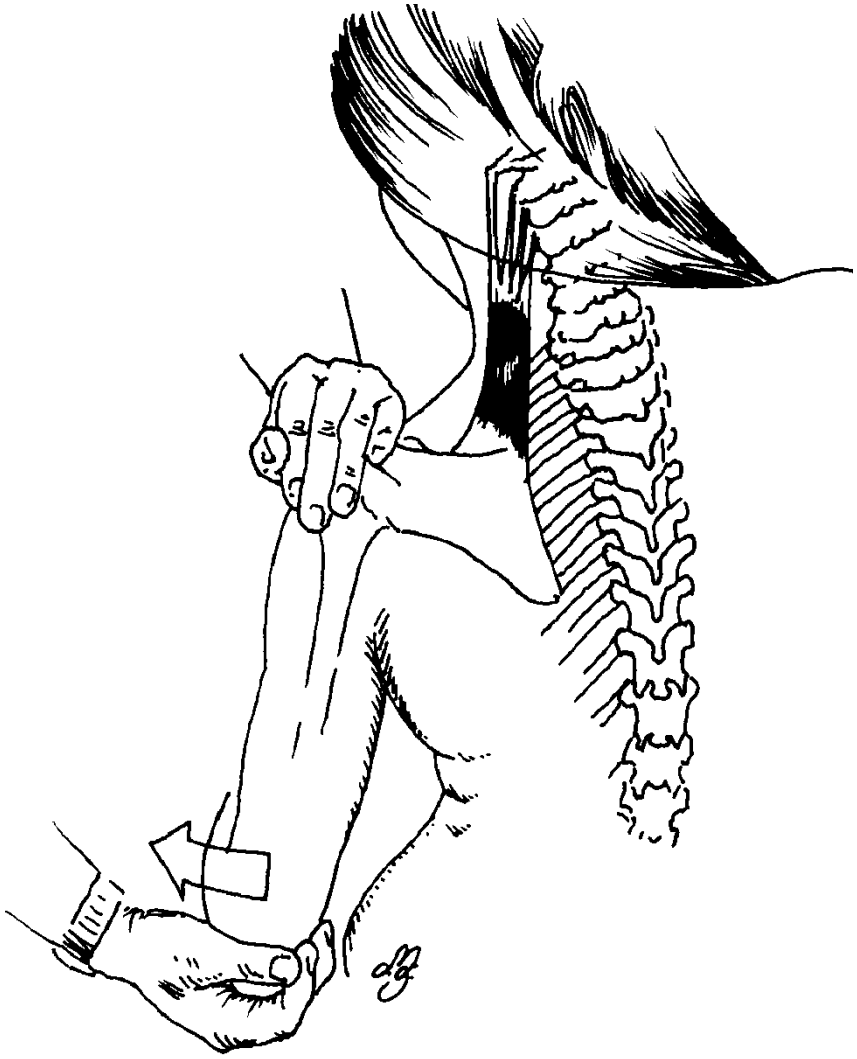


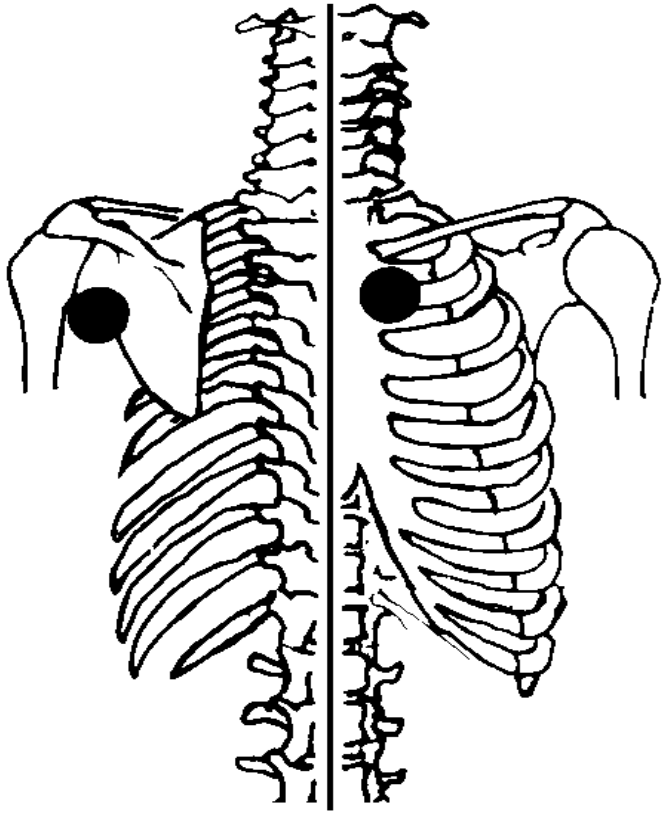
복사근 Abdominal Oblique

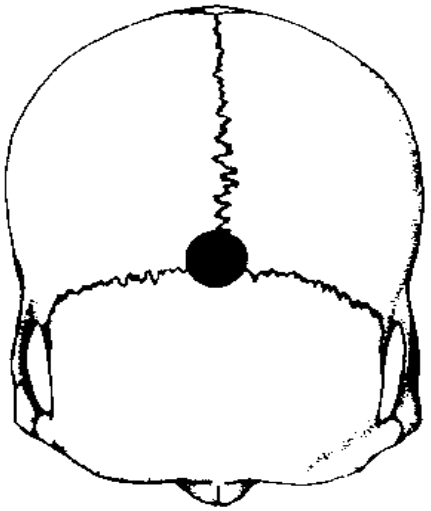
- 기시부Origin
  - 9번에서 12번까지의 늑골의 하연
- 부착부Insertion
  - 장골능의 외측부

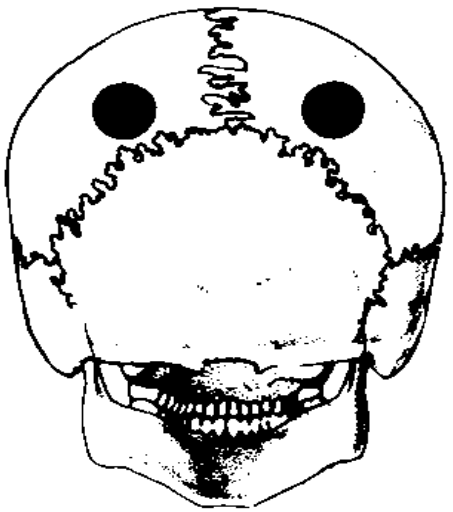


견갑거근 levator scapulae









근육과 장기와의 관계

- Chapman NL-organ relation을 Dr. Goodheart 최초로 근육과 관련된 장기에 대한 기술
- 그 뒤로 근육을 이용한 여러 진단, 치료학문에 이용됨

Heart

- Subscapularis
- Vastus lateralis
- Middle deltoid

subscapular

SUBSCAPULARIS

Description:
thick, triangular muscle, lying on the costal surface of scapula

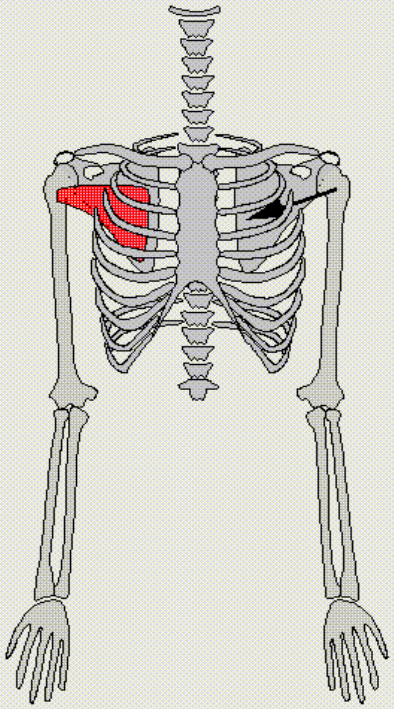
Origin:
the subscapular fossa

Insertion:
the lesser tubercle of humerus

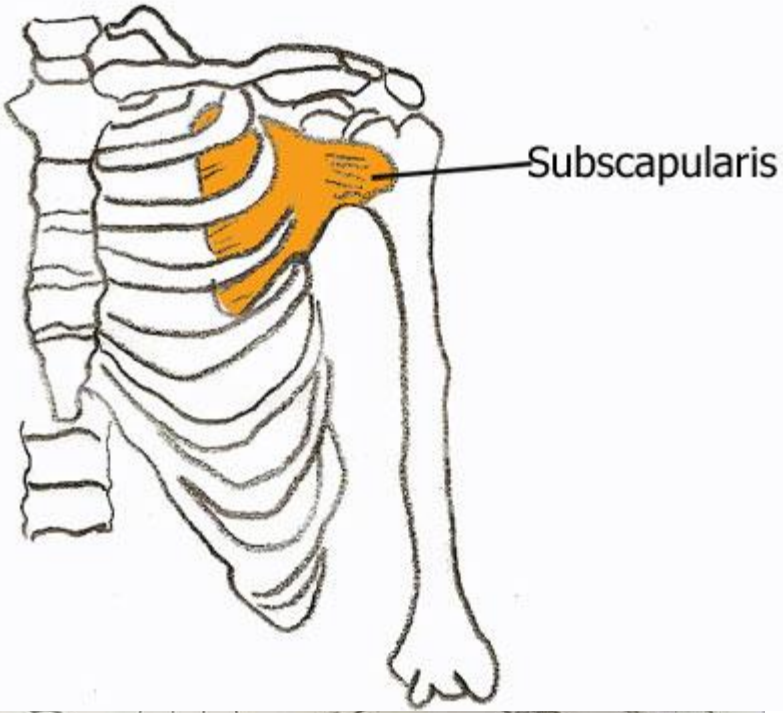
Function:
- medial rotation of the arm
- adduction of the arm

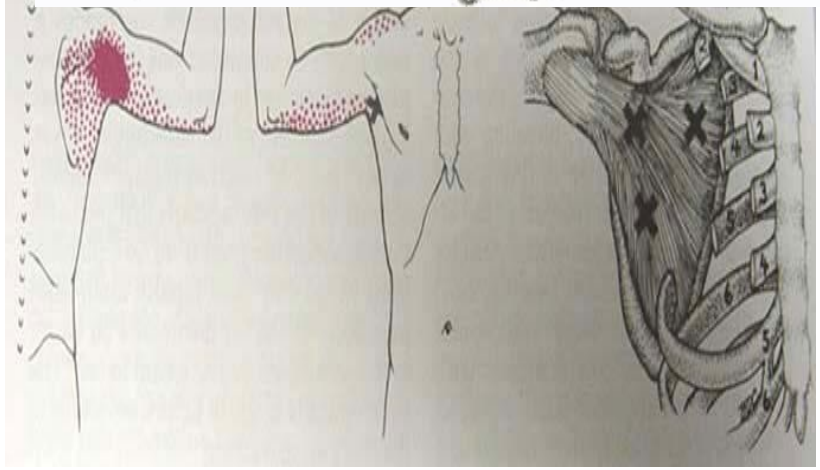
Modelization:
one vector between the humerus and the subscapular fossa

Notes:



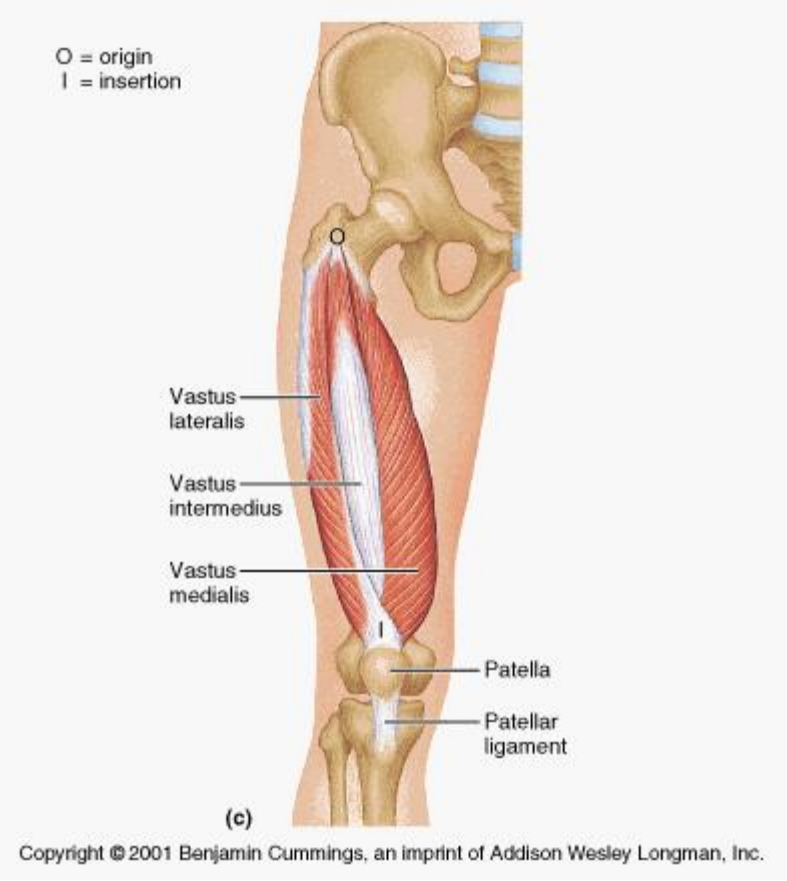
W. MAUREL – LIG / DI / EPFL – CHARM PROJECT

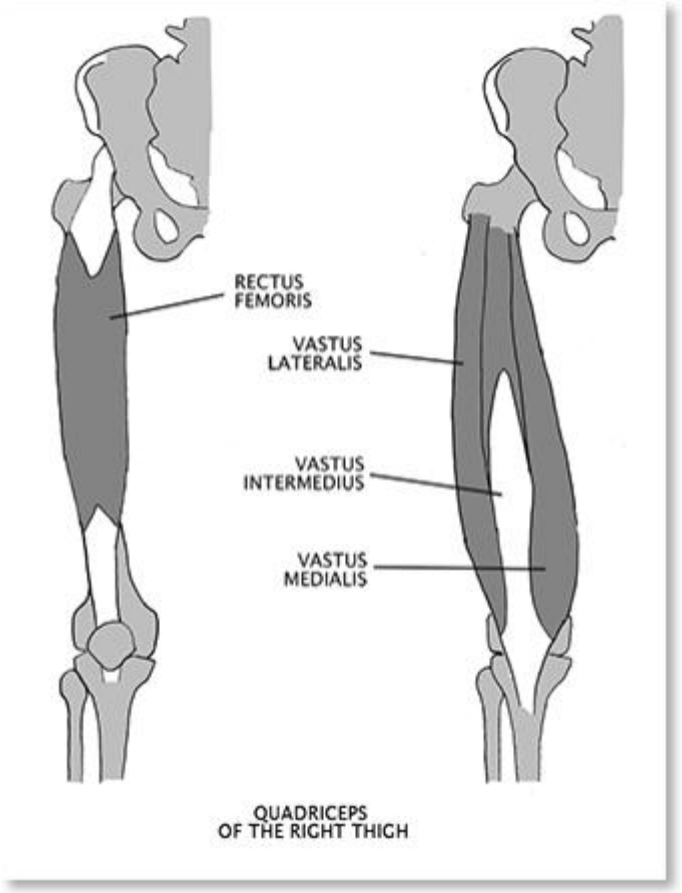




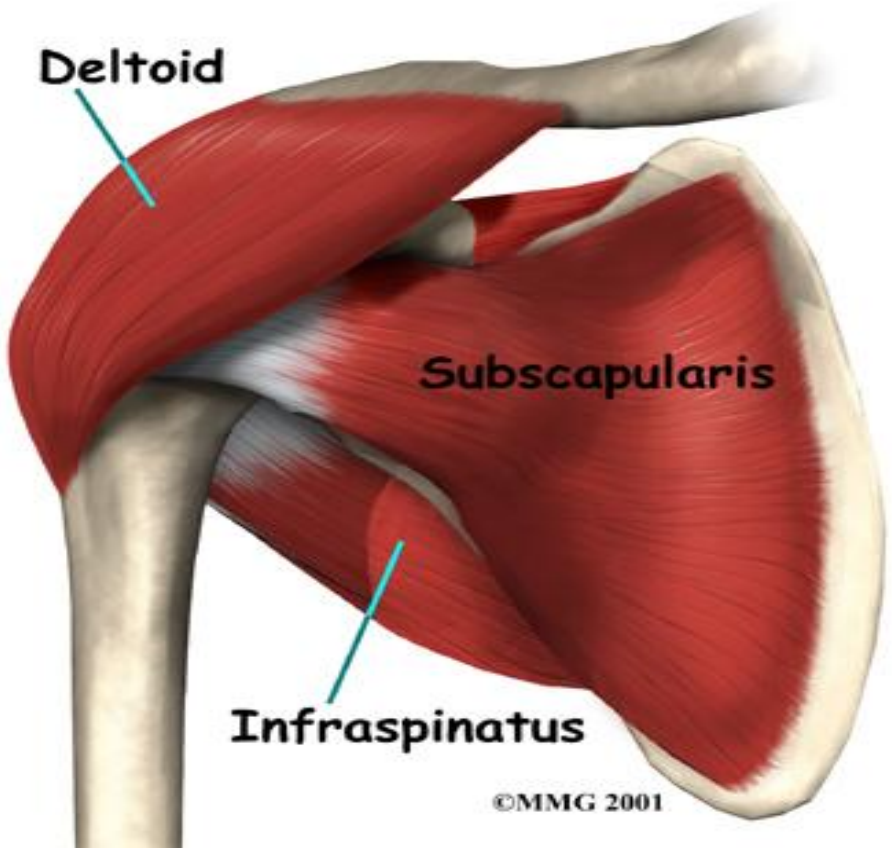
quadriceps

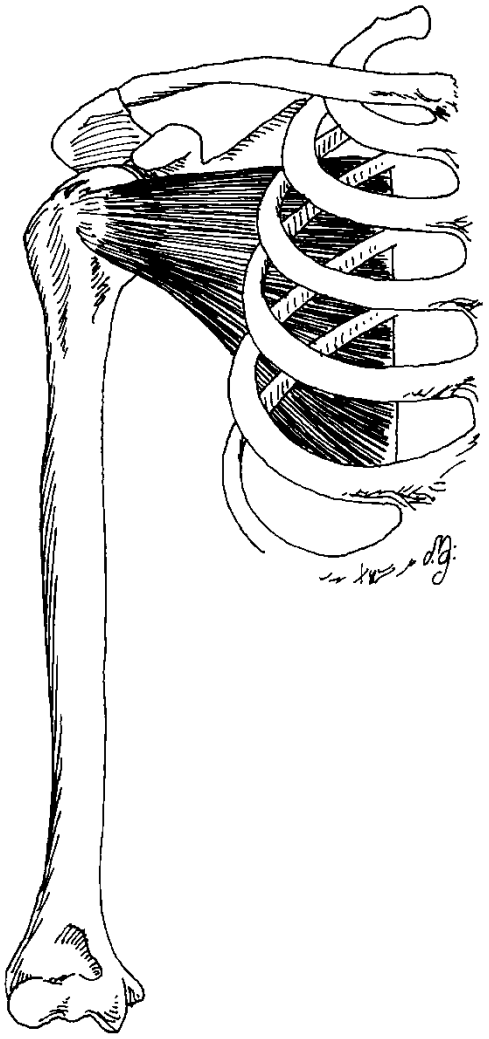
넙 적 다 리 네 갈 래 근

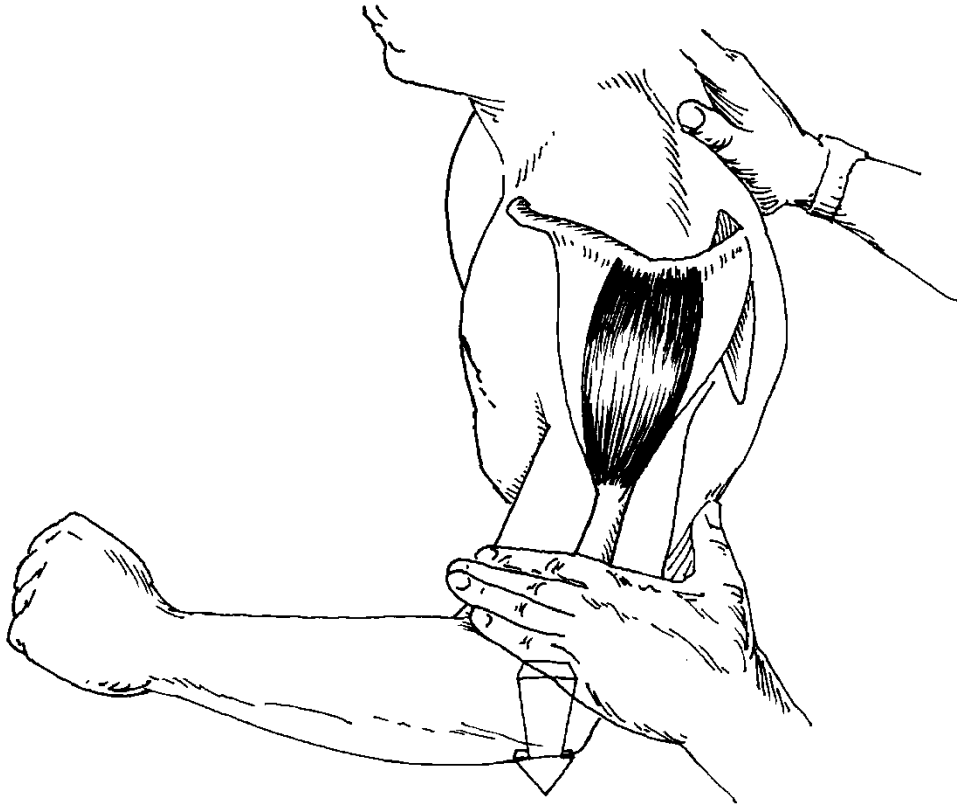


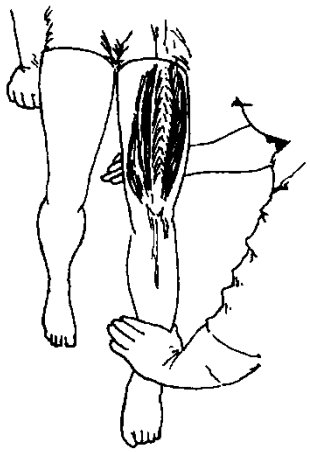


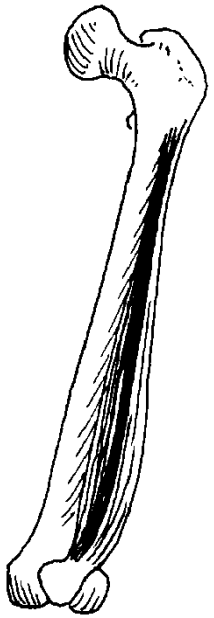
deltoid

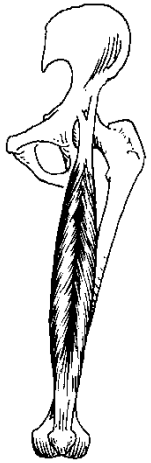








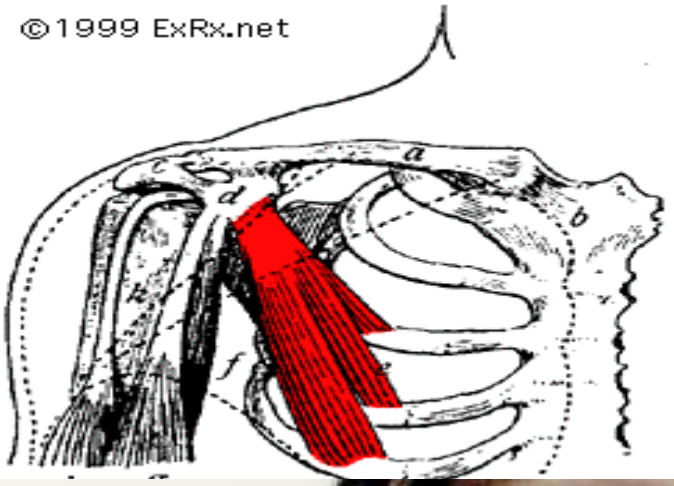




Liver

- PMS
- Rhomboid

pect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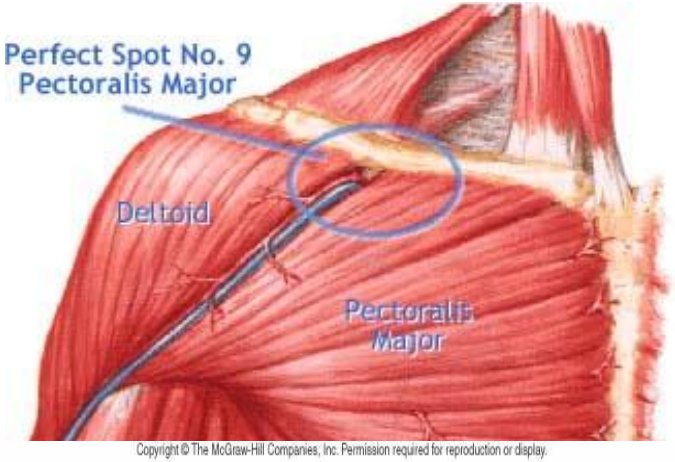
Perfect Spot No. 9
Pectoralis Major
Deltoid
Pectoralis Major
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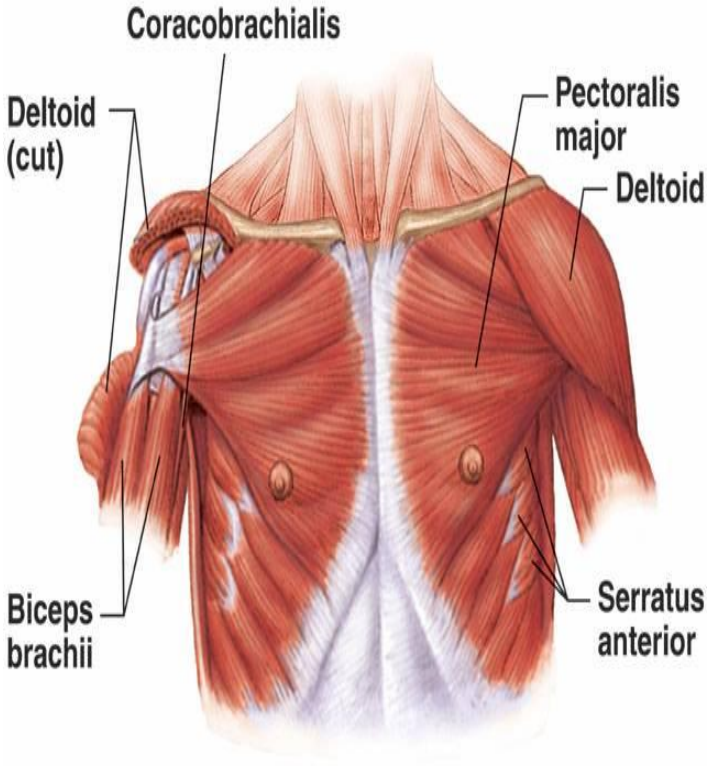
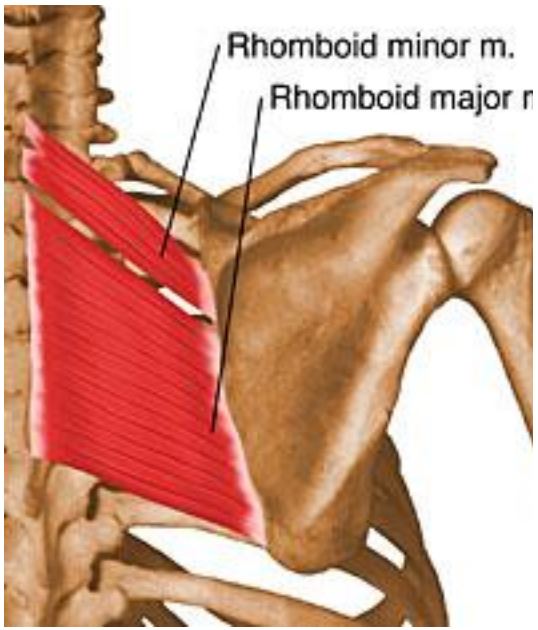
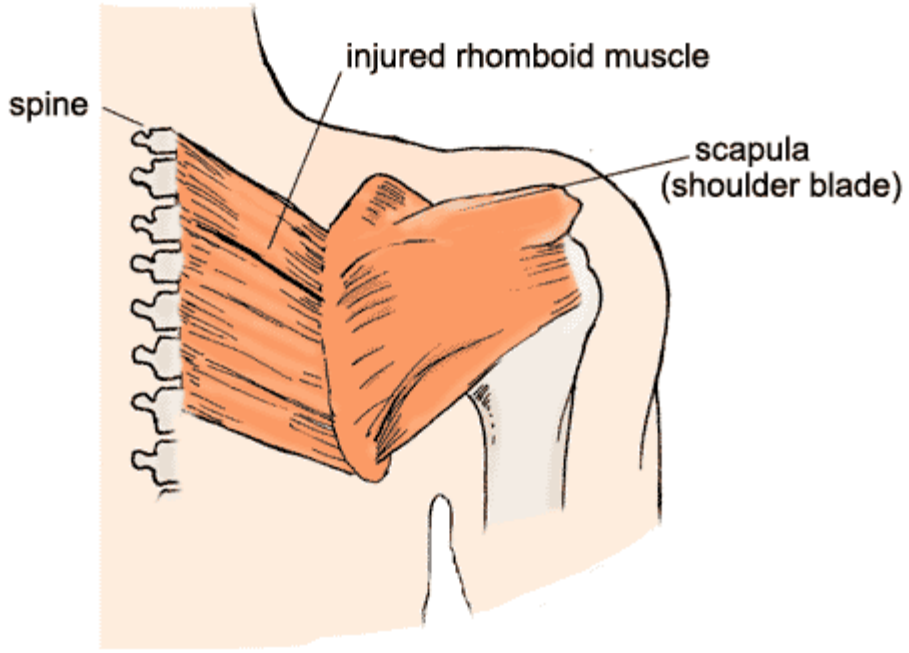
BRACHIAL NERVE
CORACOID PROCESS
CLAVICLE
RADIAL ARTERY
PECTORALIS MINOR
PECTORALIS MAJOR (CUT)

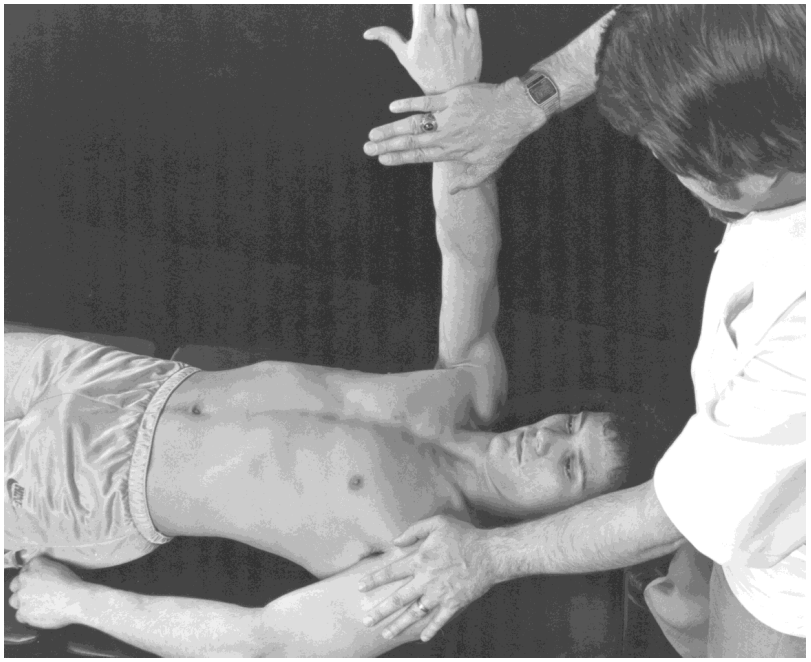

Coracobrachialis
Deltoid (cut)
Pectoralis major
Deltoid
Biceps brachii
Serratus anterior

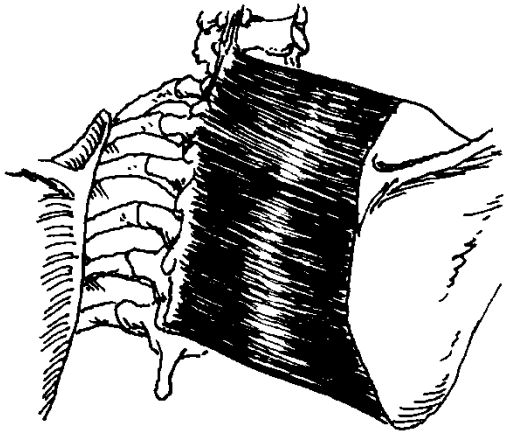
rhomboid



Rhomboid Muscle Strain/Spasm



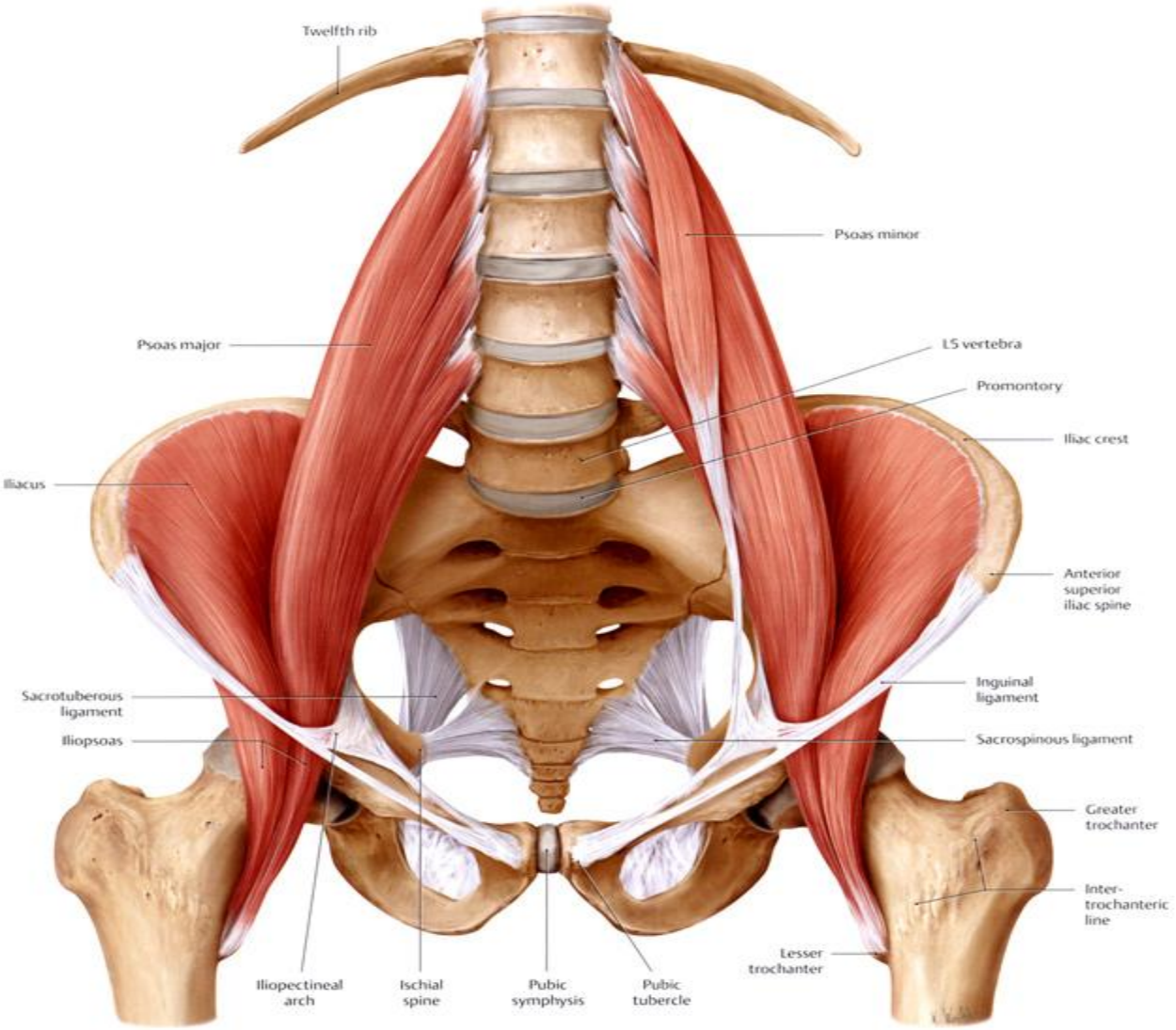


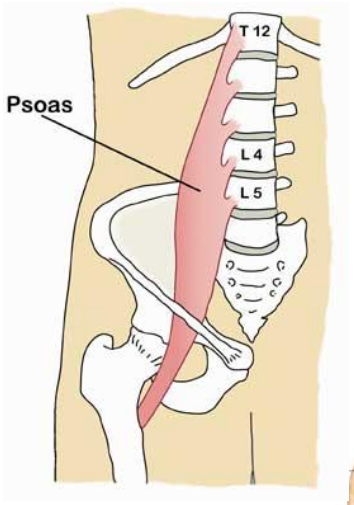


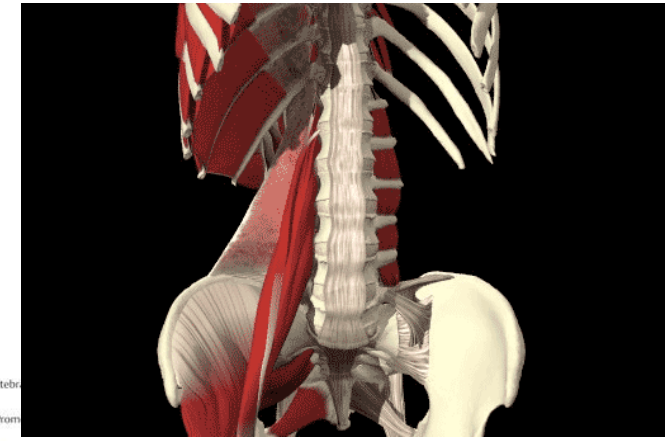
Kidney

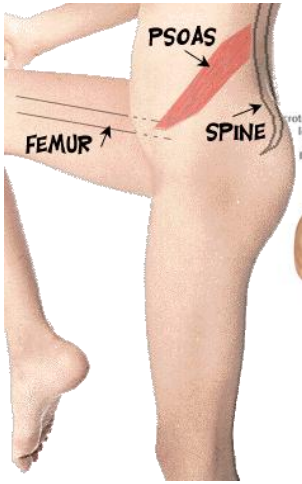
- Psoas/iliacus
- Intertransversarii
- Upper trap
- Gemellus sup
- Obturator externus

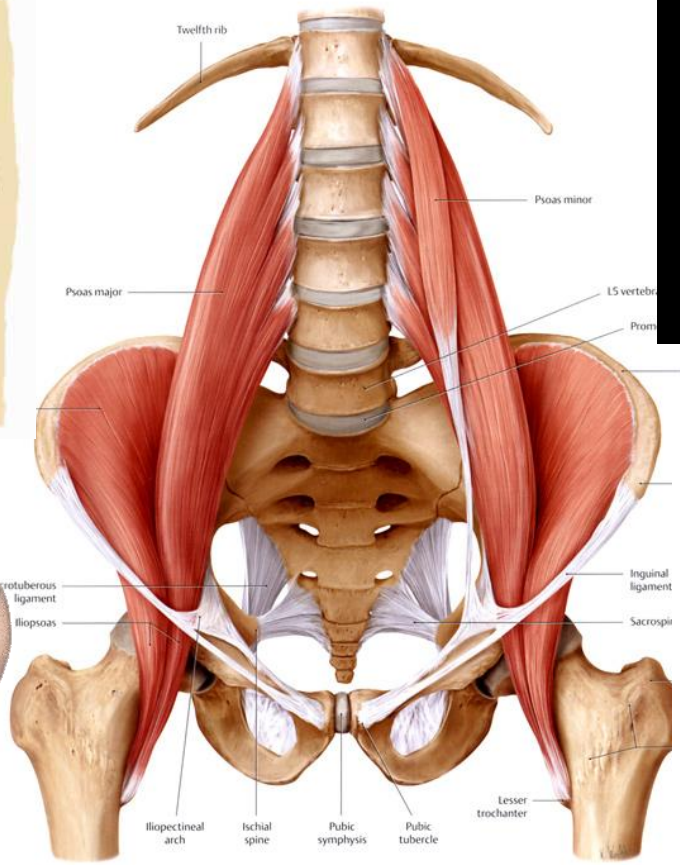
psoas

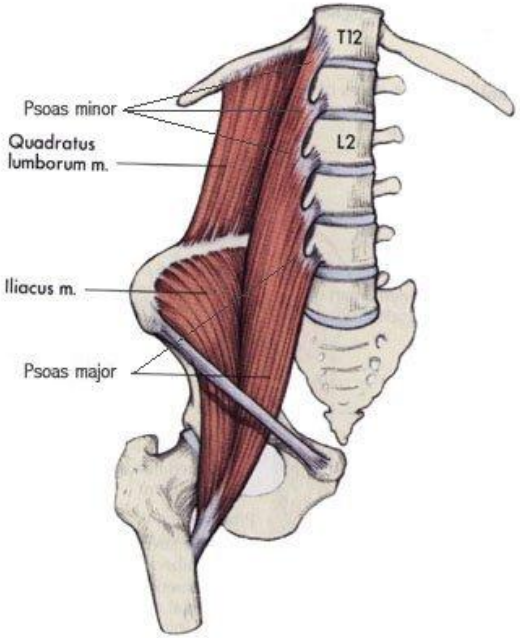

Twelfth rib
Psoas minor
Psoas major
L5 vertebra
Promontory
Iliac crest
Iliacus
Anterior superior iliac spine
Inguinal ligament
Sacrotuberous ligament
Iliopsoas
Sacrospinous ligament
Greater trochanter
Inter-trochanteric line
Lesser trochanter
Iliopectineal arch
Ischial spine
Pubic symphysis
Pubic tubercle


T 12
Psoas
L 4
L 5

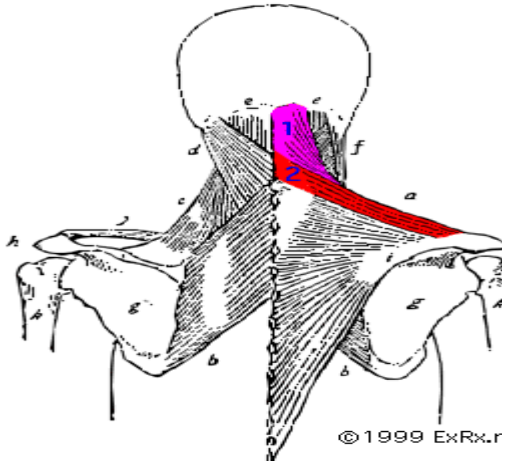



PSOAS
FEMUR
SPINE


Twelfth rib
Psoas minor
Psoas major
Iliac crest
Inguinal ligament
Iliopsoas
Iliopectineal arch
Ischial spine
Pubic symphysis
Pubic tubercle
Lesser trochanter


T12
Psoas minor
Quadratus lumborum m.
L2
Iliacus m.
Psoas major

trap


1
2
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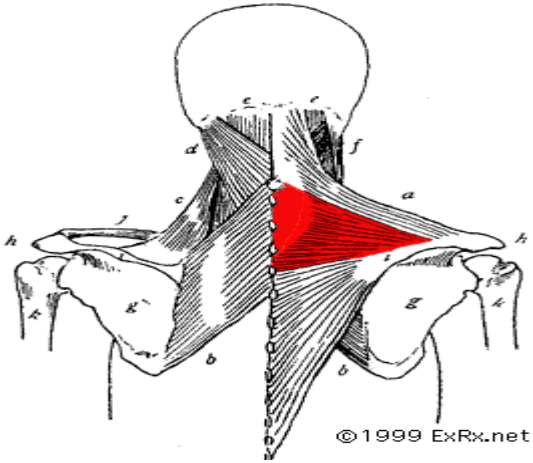
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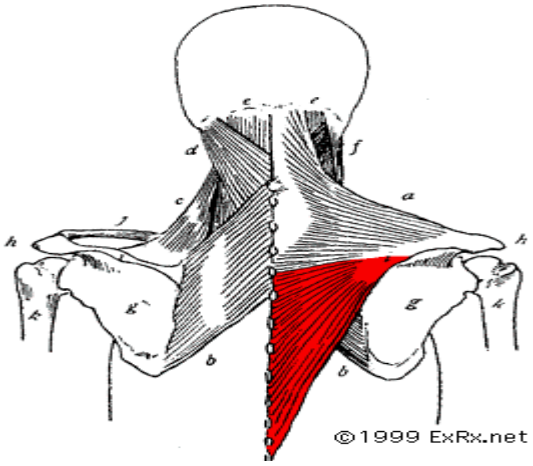
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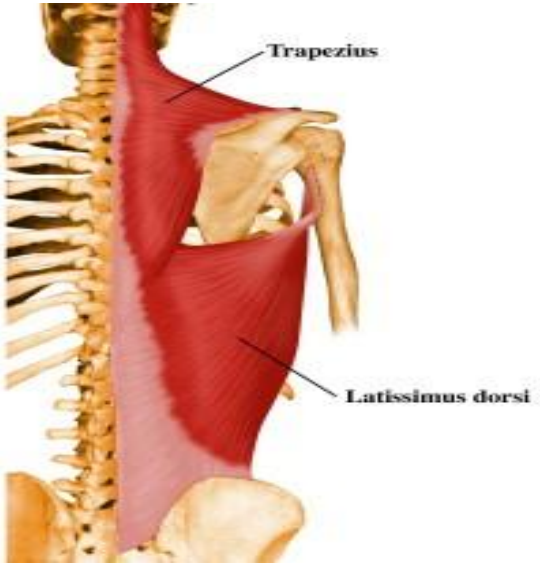
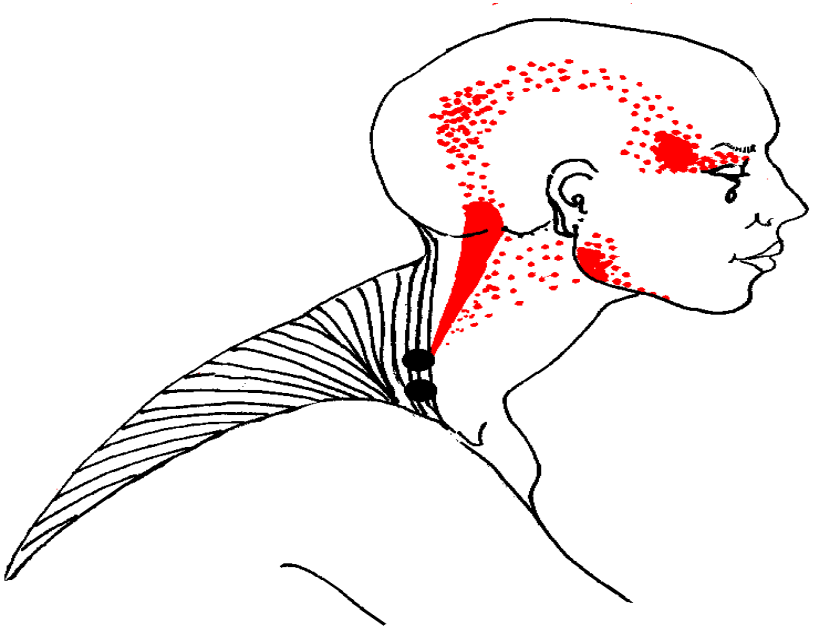
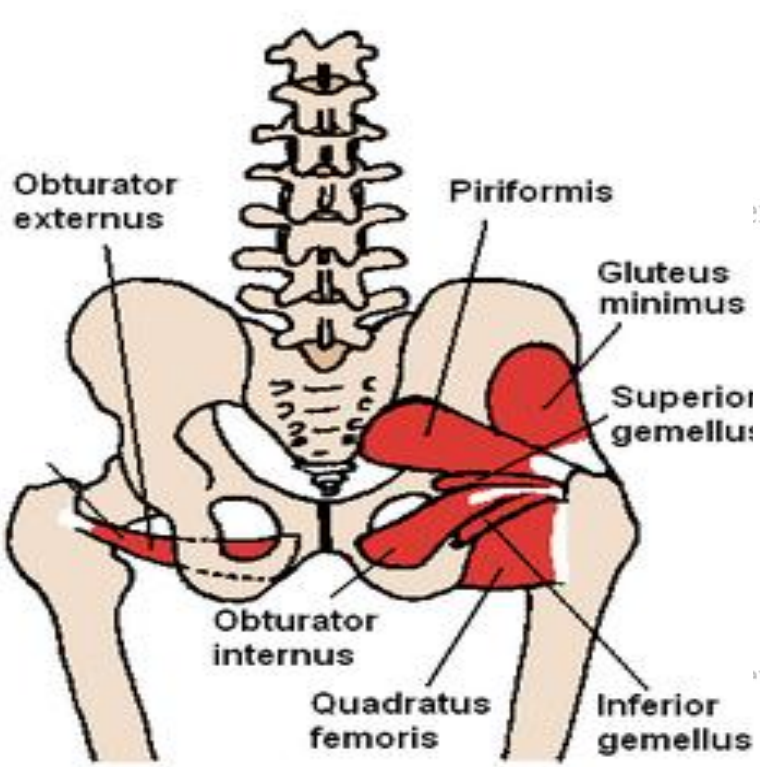
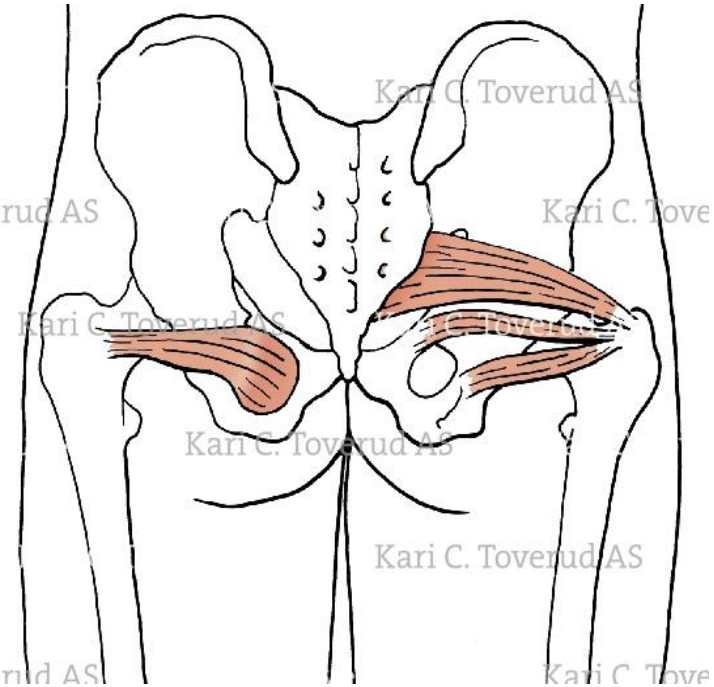

Trapezius
Latissimus dorsi

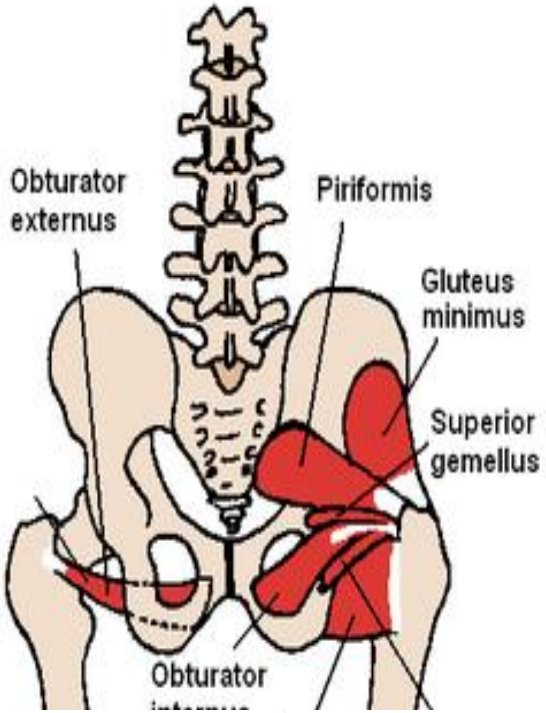


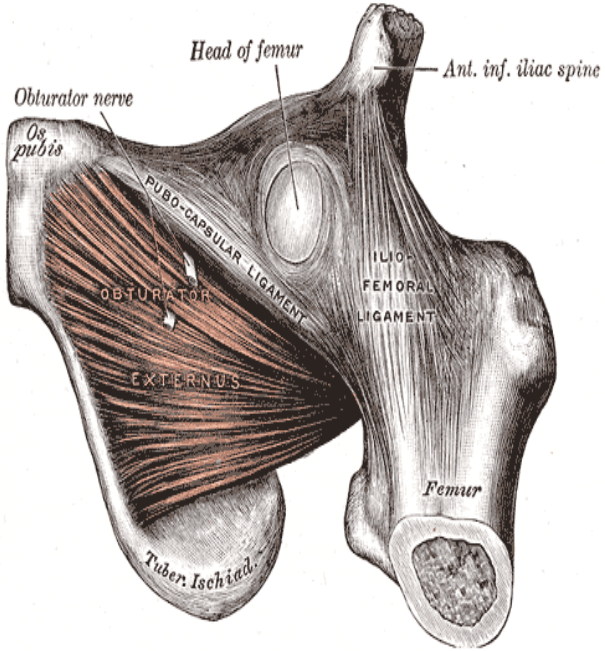
gemellus

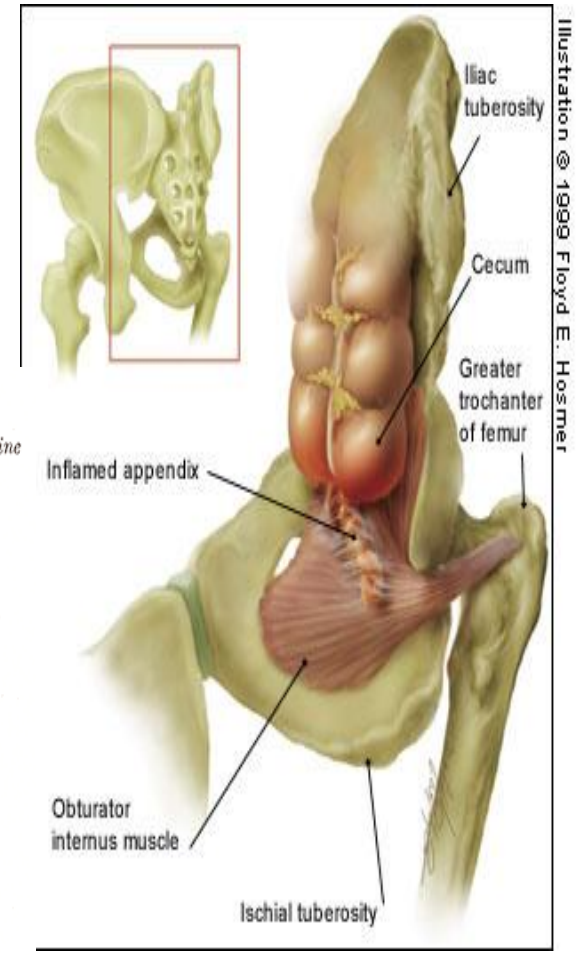

Obturator externus
Piriformis
Gluteus minimus
Superior gemellus
Obturator internus
Quadratus femoris
Inferior gemellus

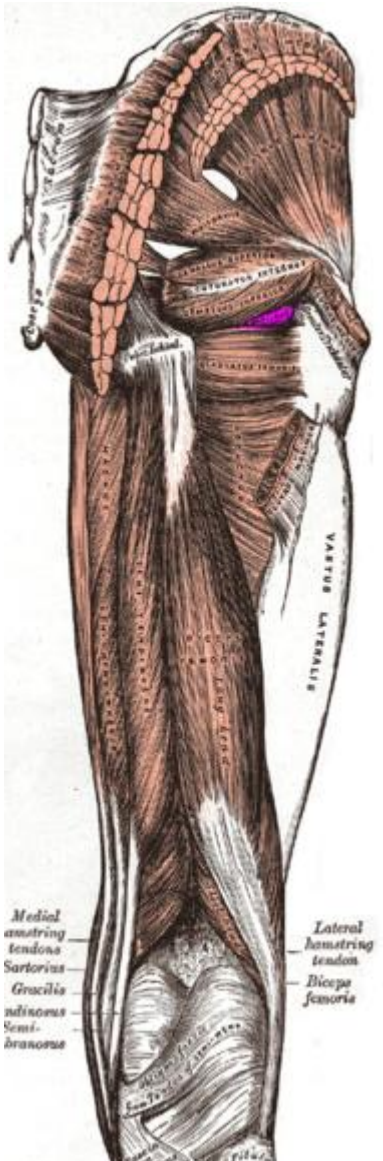

Kari C. Toverud AS

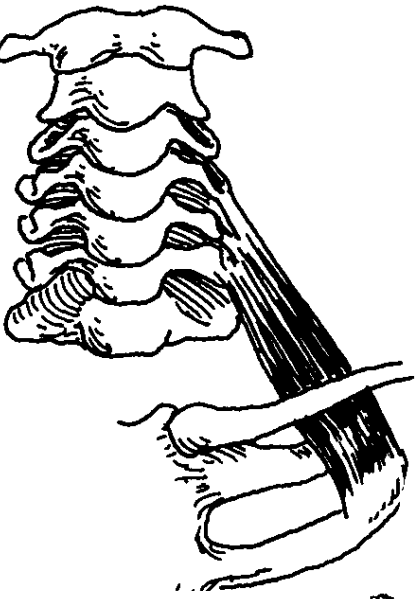
Obturator ext

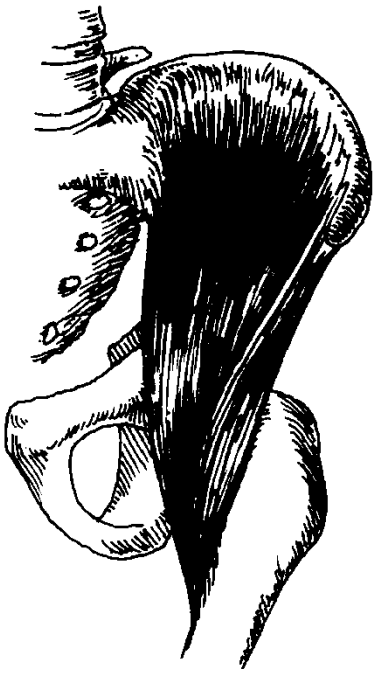


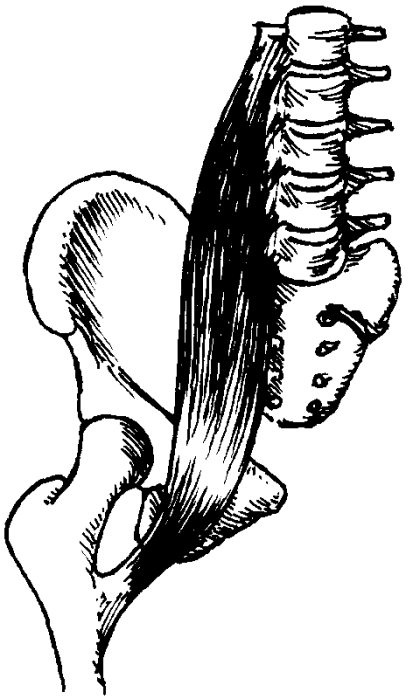


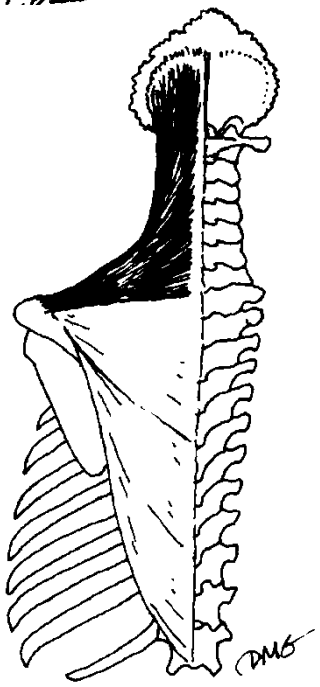


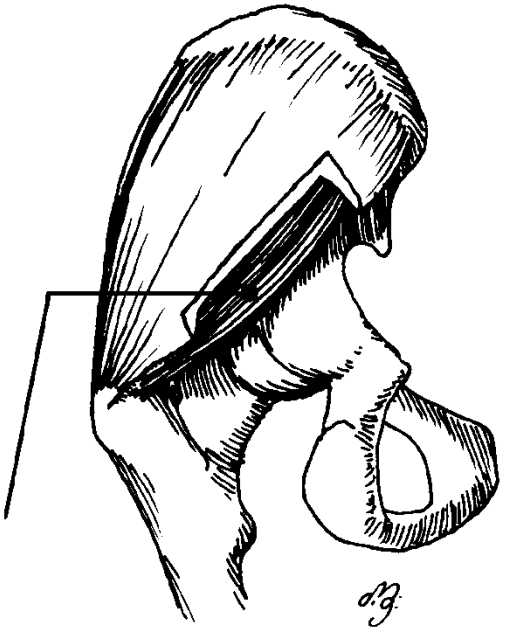








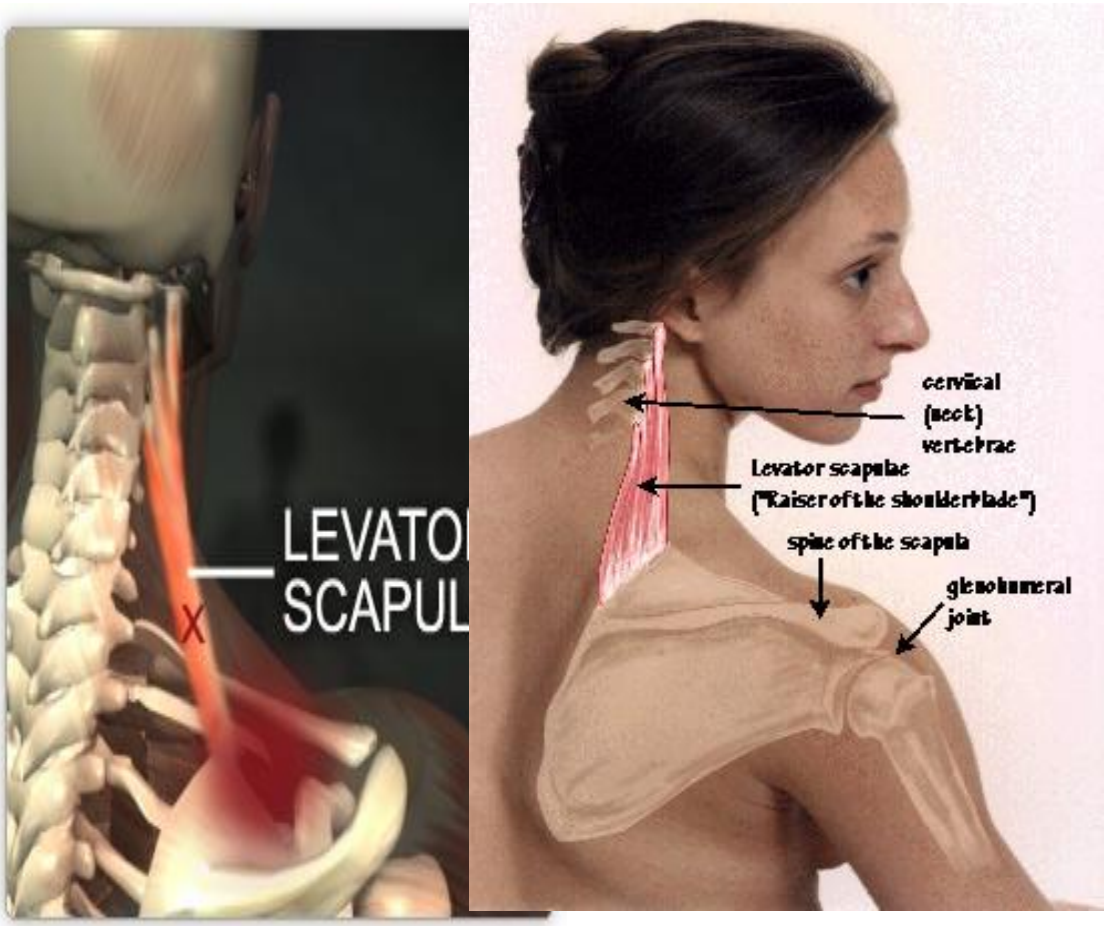


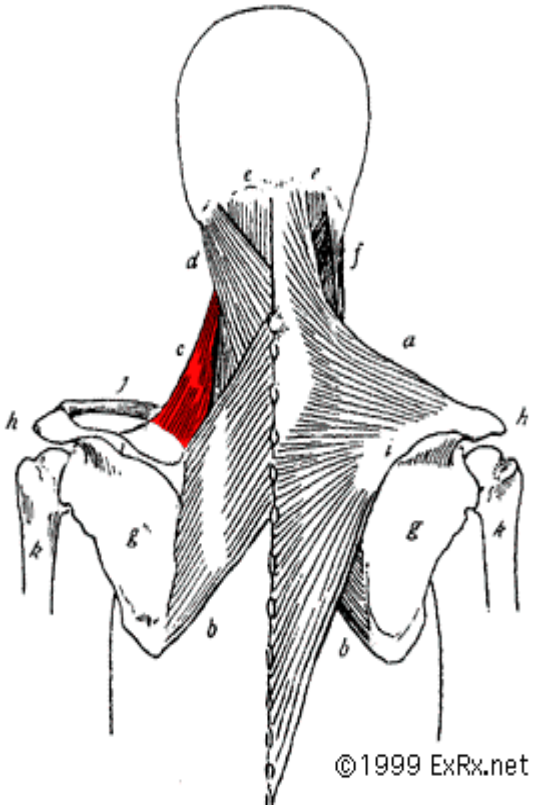


Lung

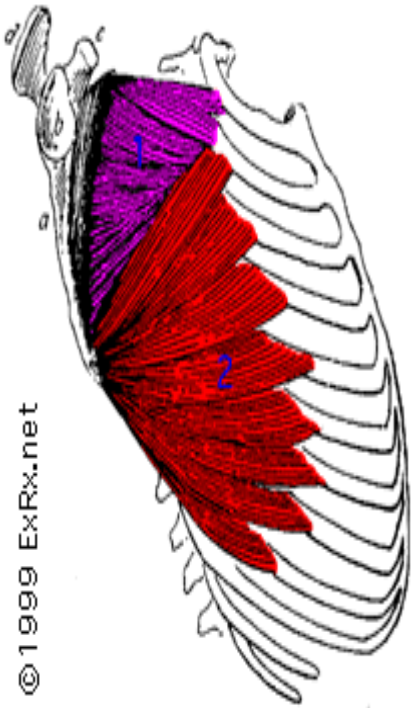
- Post deltoid
- Serratus ant
- Levator scapulae
- External pterygoid

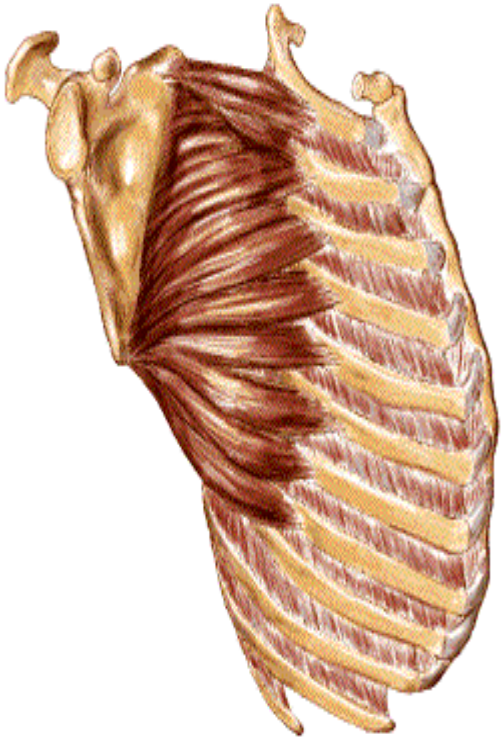
Levator scapula

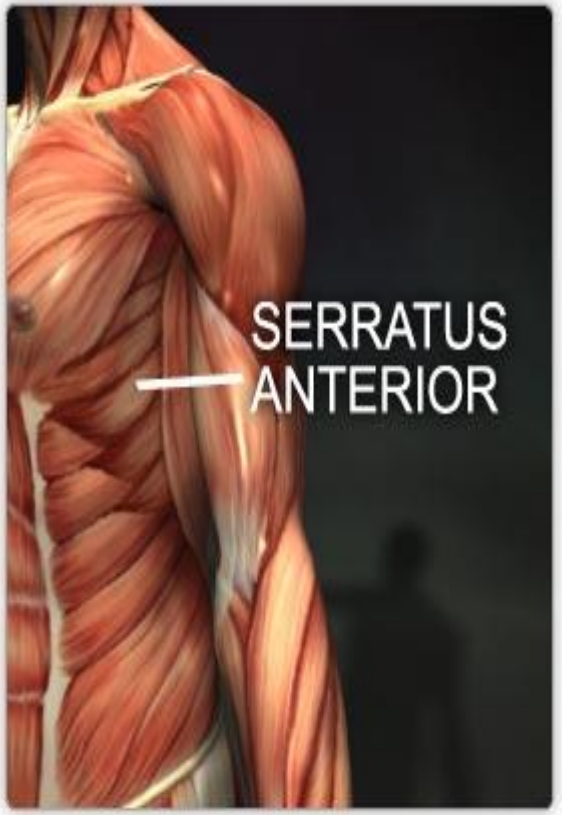




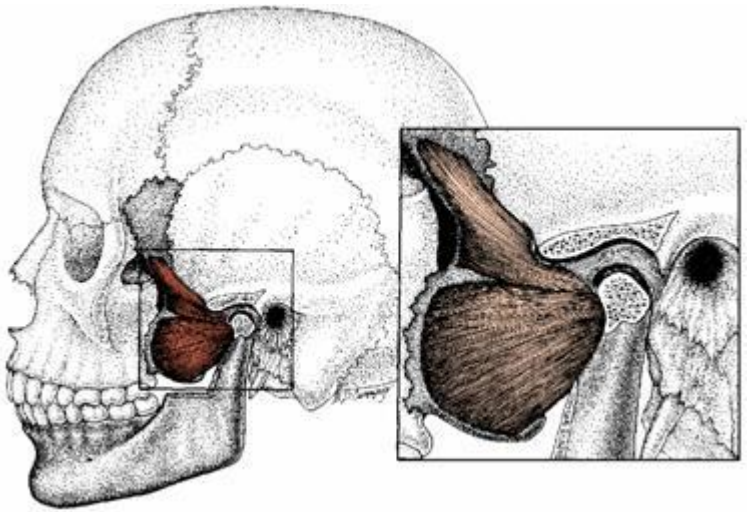
Serratus anterior

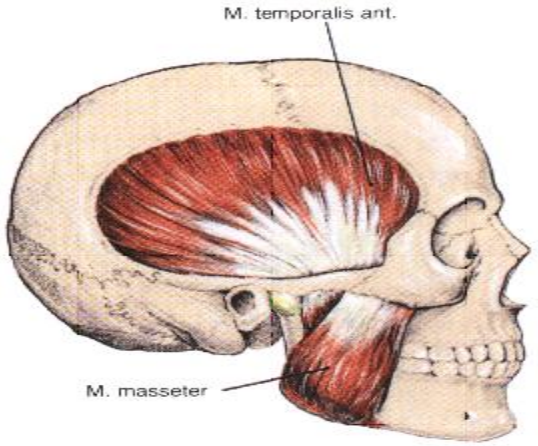


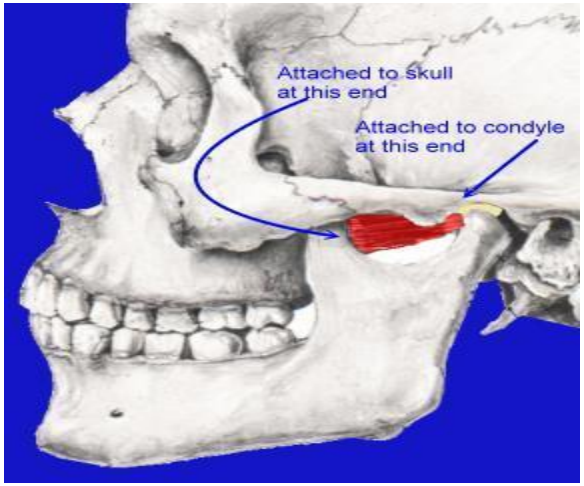


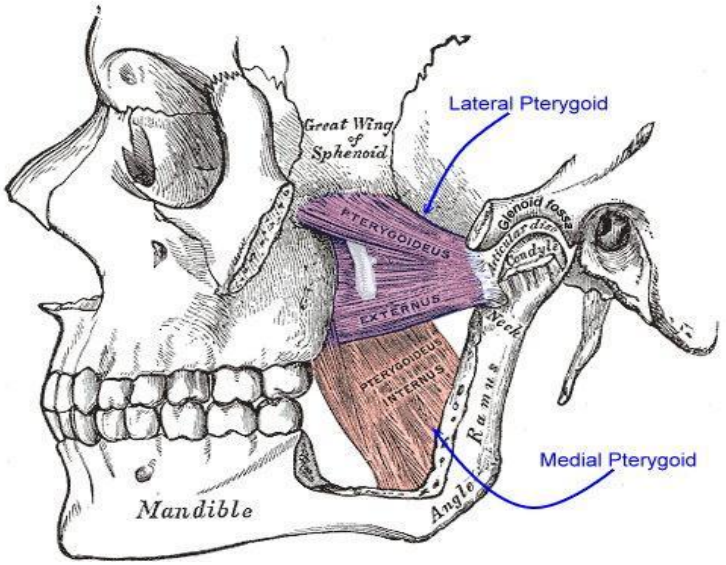


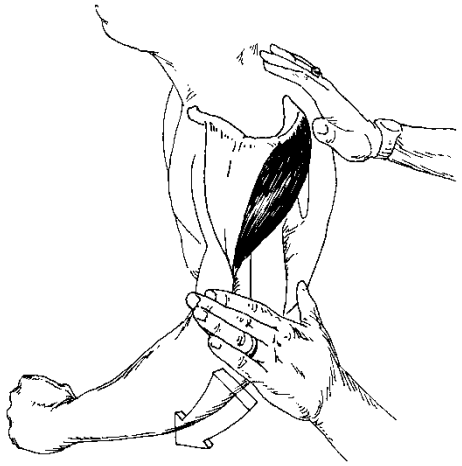
TMJ muscles

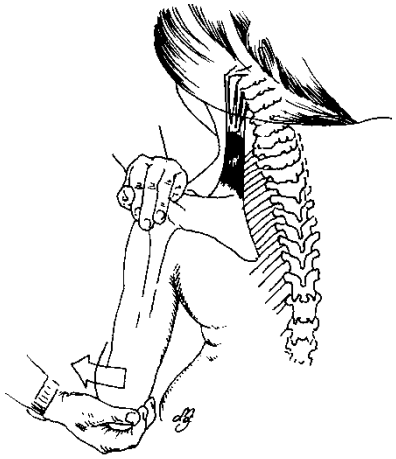


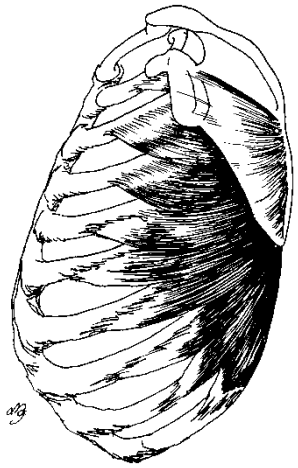

M. temporalis ant.
M. masseter


Attached to skull at this end
Attached to condyle at this end


Great Wing of Sphenoid
Lateral Pterygoid
PTERYGOIDEUS EXTERNUS
Glenoid fossa
Articular disc
Condyle
Neck
Ramus
PTERYGOIDEUS INTERNUS
Medial Pterygoid
Mandible
Angle



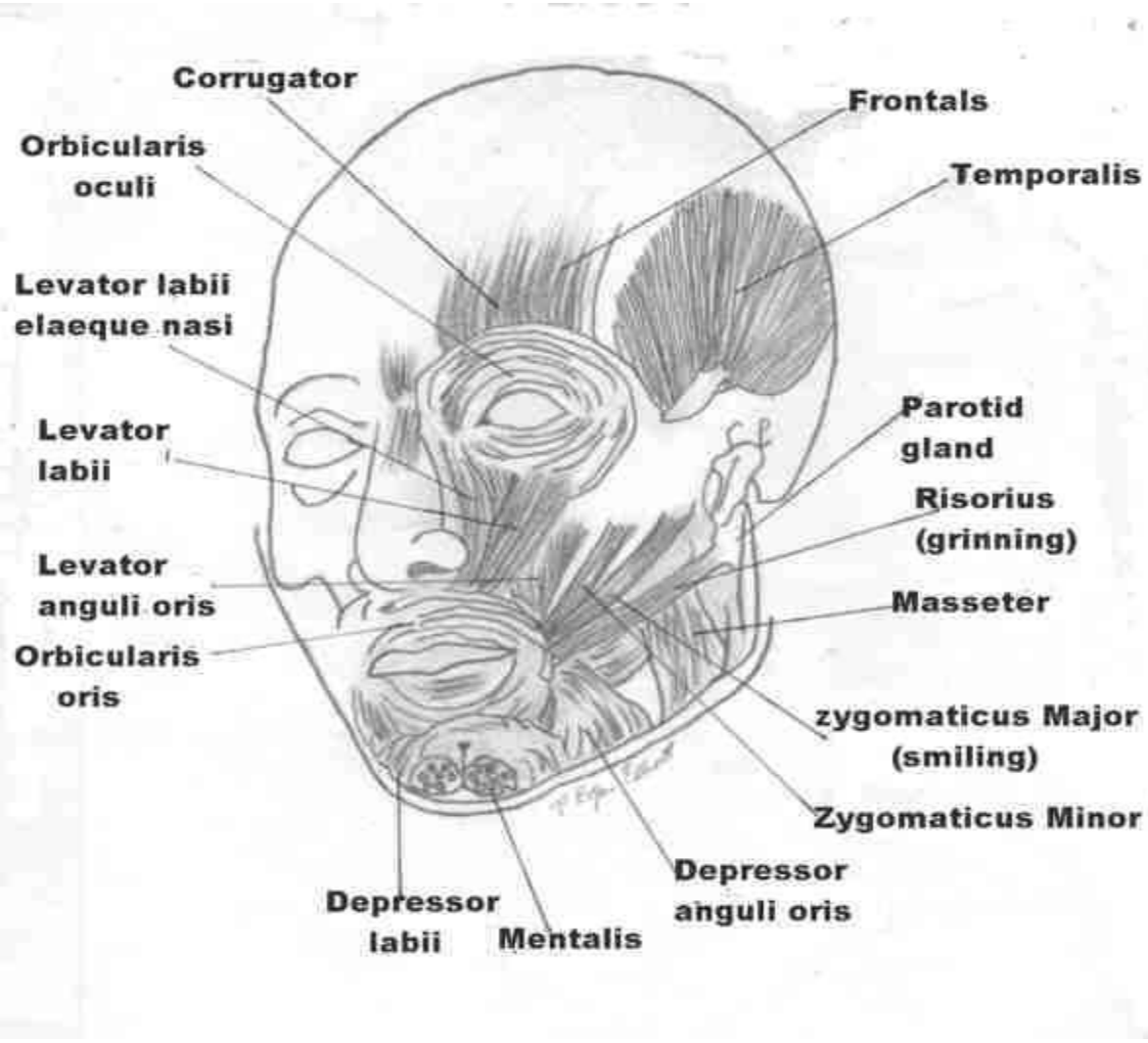


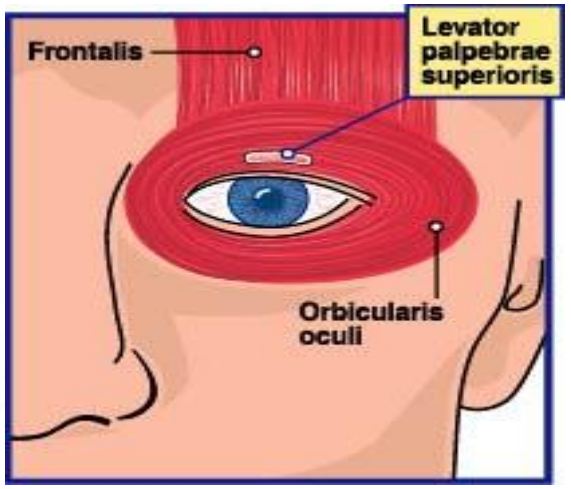


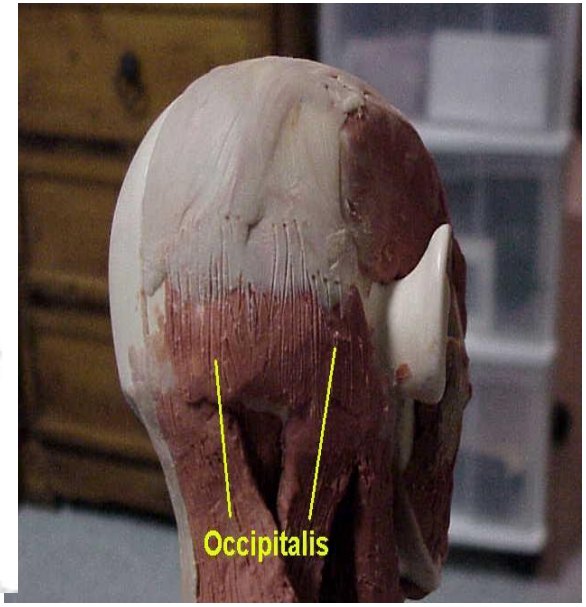
Spleen-pancreas

- Zygomaticus minor
- Orbicularis oris
- Buccinator
- Ticeps brachi
- Middle/lower trap
- Latissimus dorsi

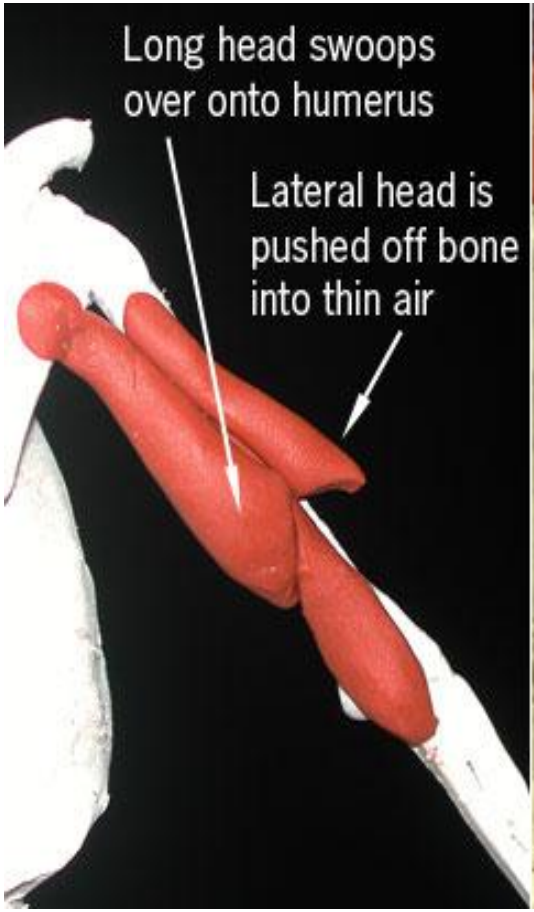
Orbicularis/occipitalis



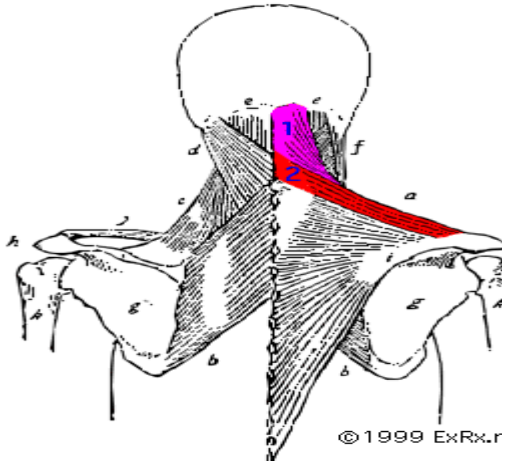




Biceps/triceps



trap


1
2
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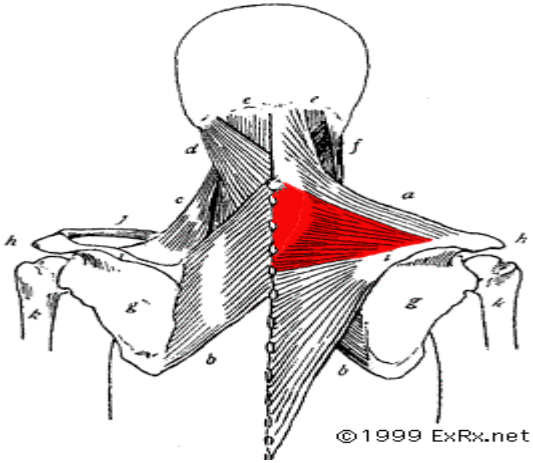
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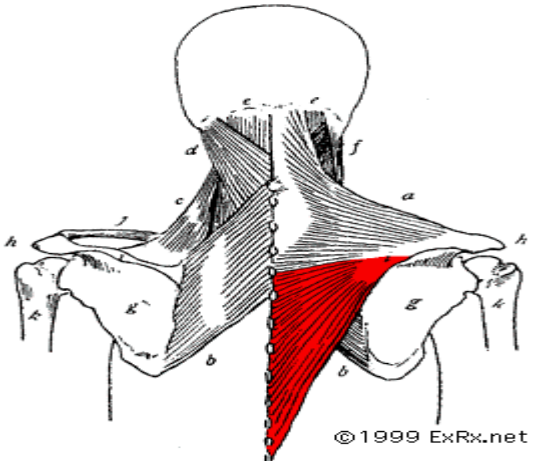
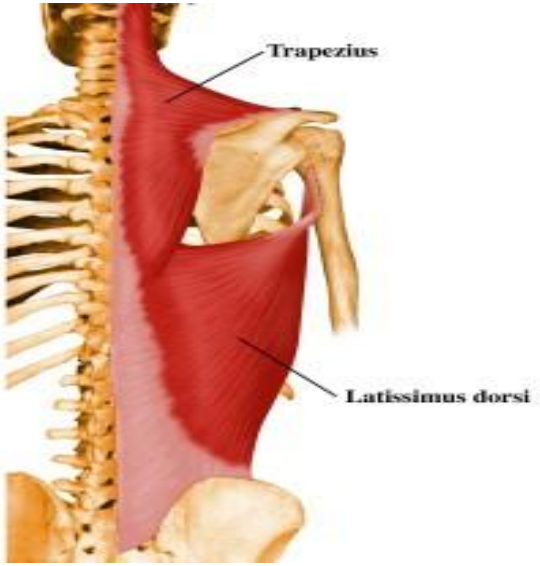
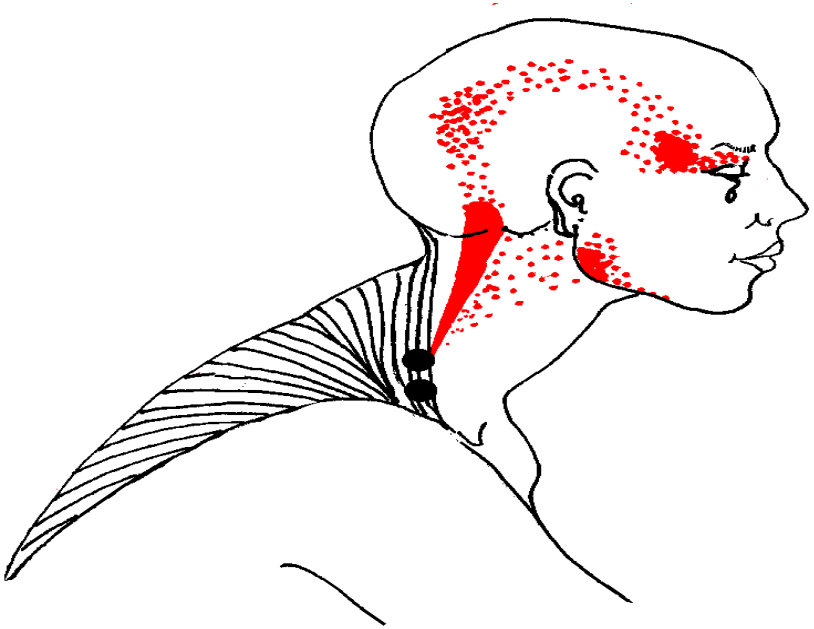
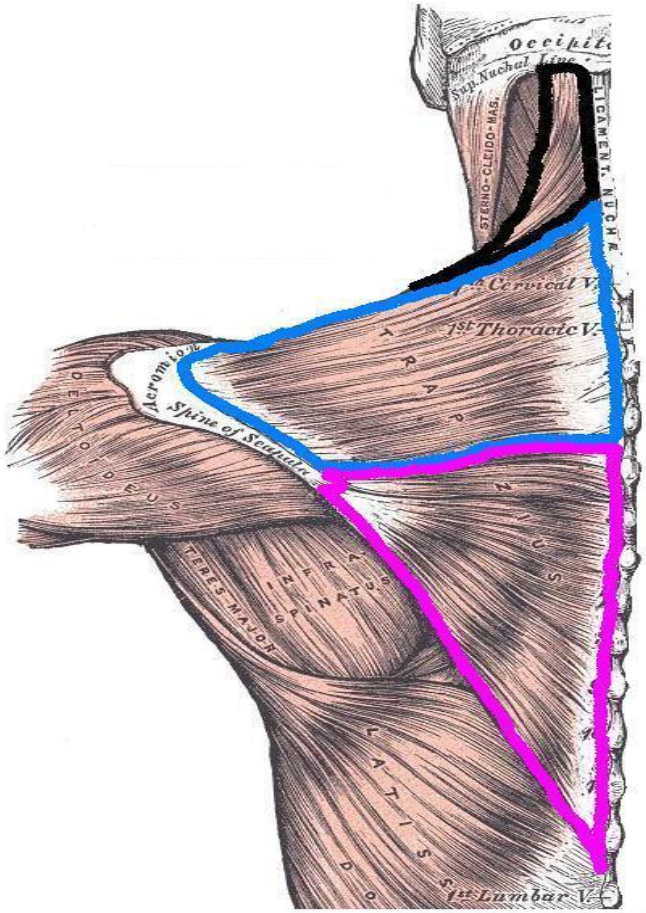
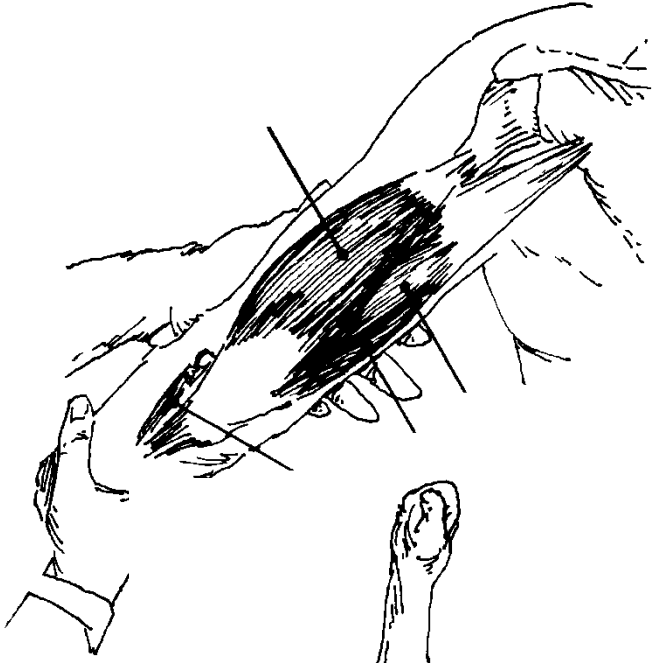

©1999 ExRx.net

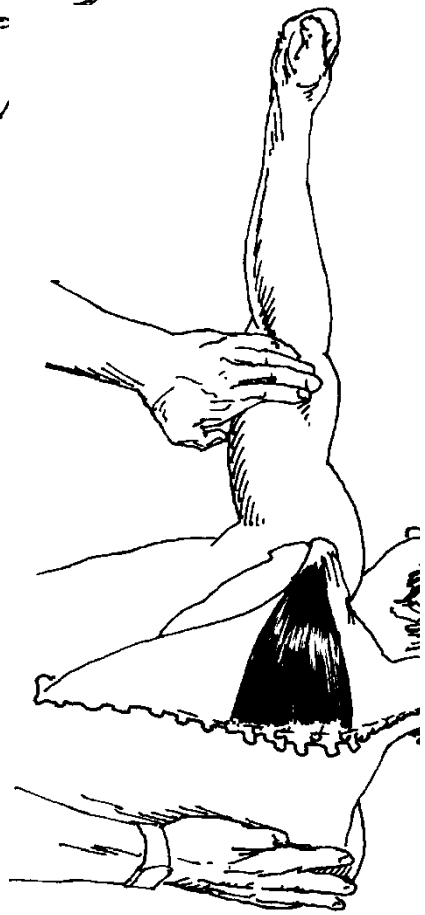

Trapezius
Latissimus dorsi

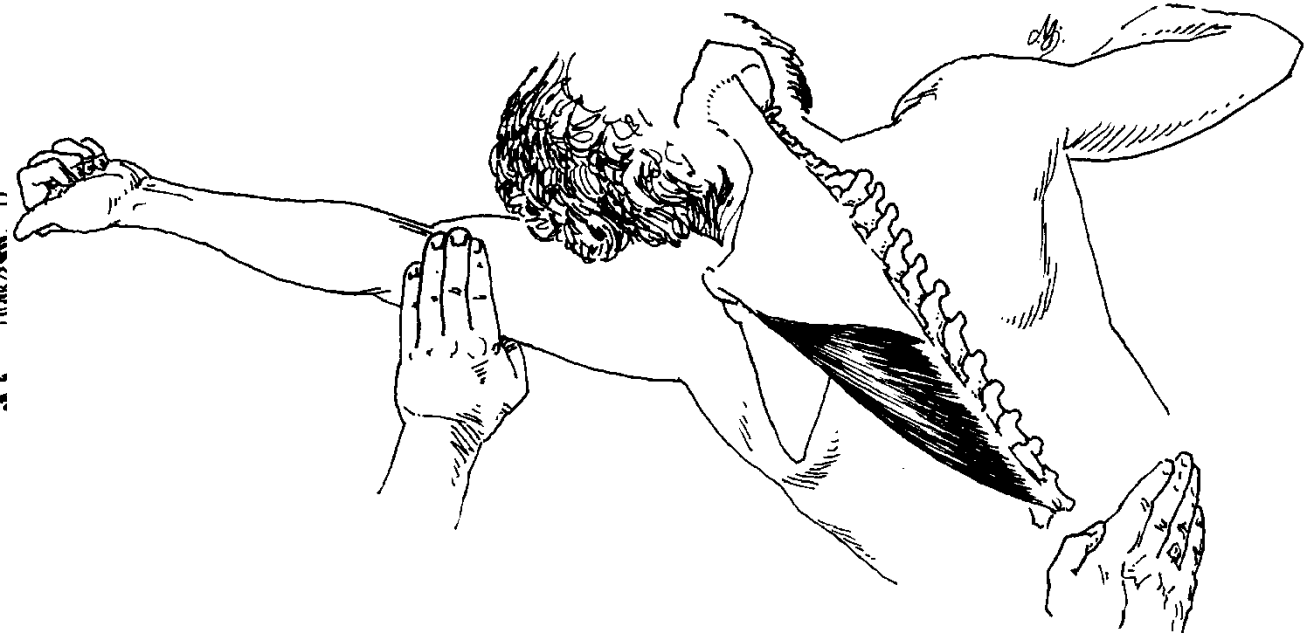




Divisions of the Trapezius Muscle



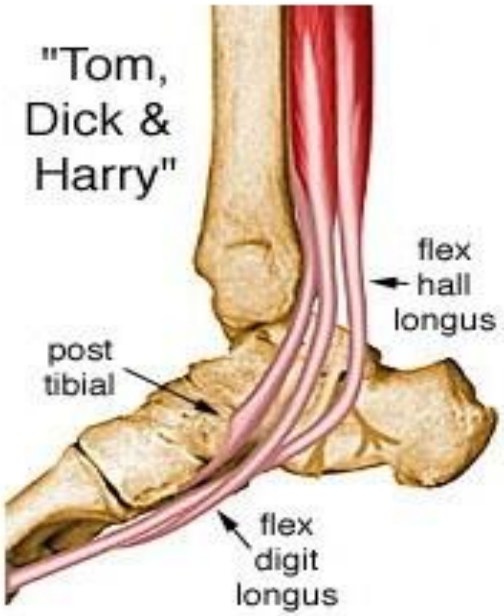


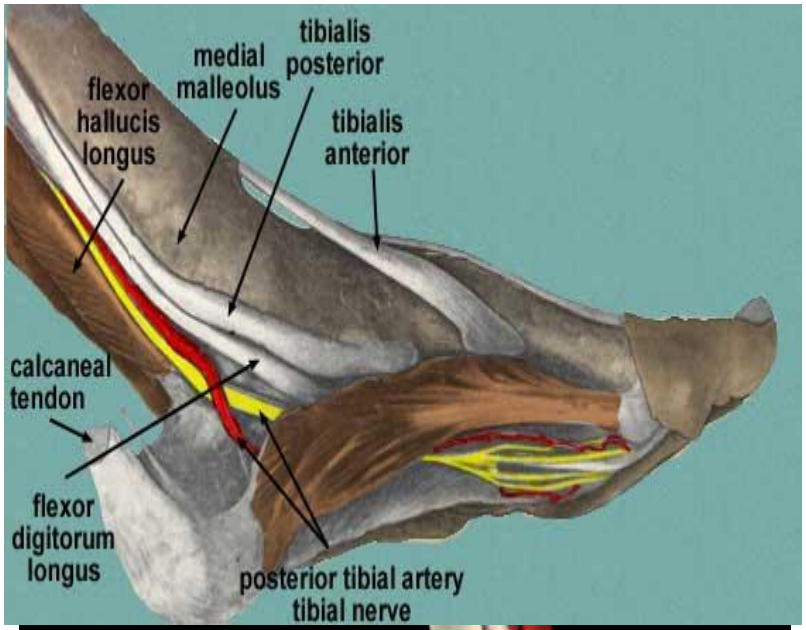


Adrenal

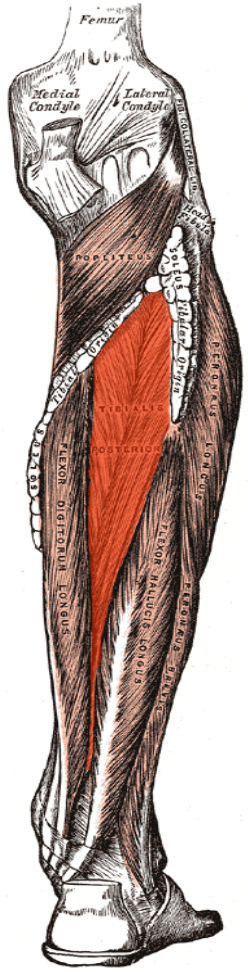
- FHL
- TP
- Piriformis
- Sartorius
- Adductors
- Soleus
- Gastrocnemius

Flexor hallucis

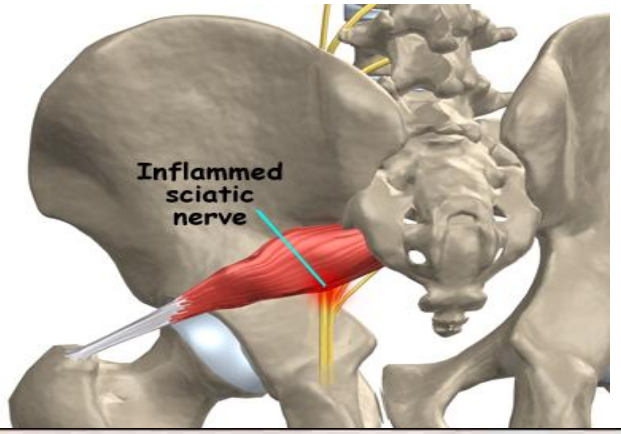


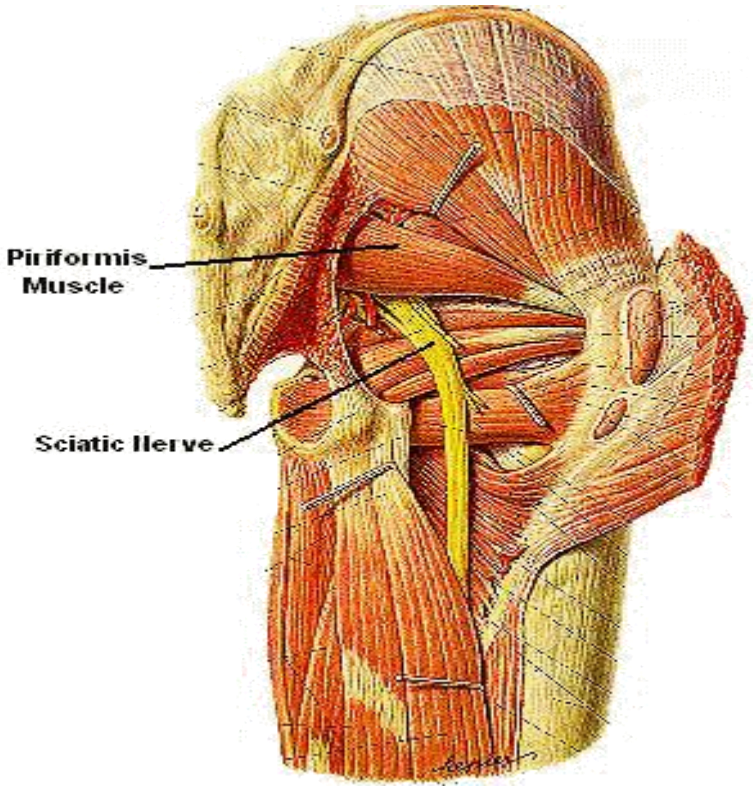


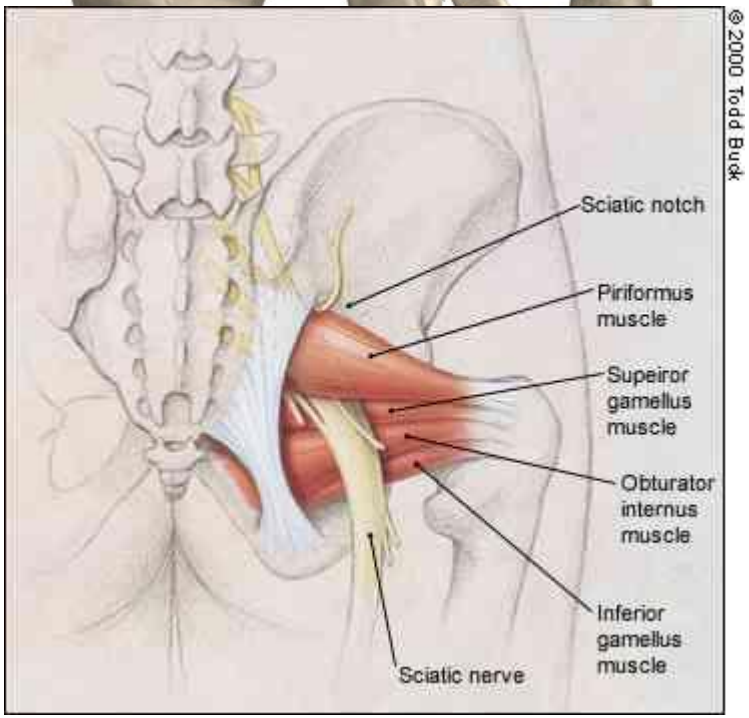
Tibialis posterior



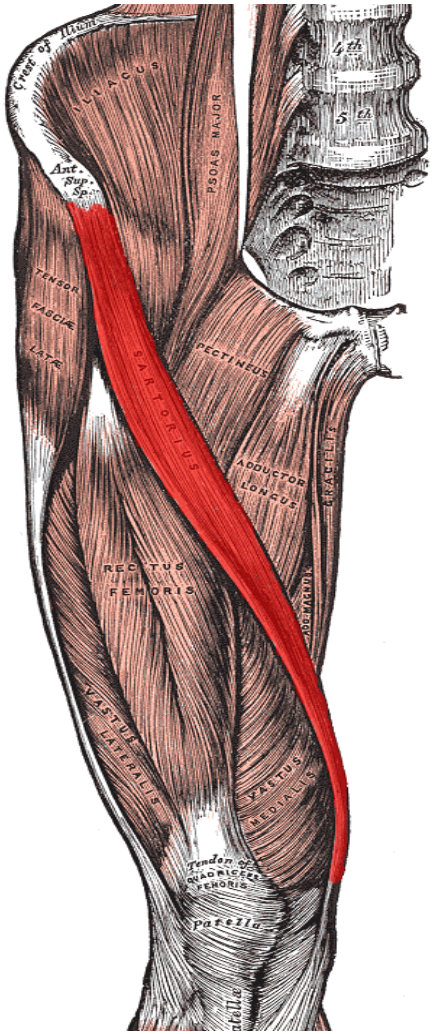
piriformis

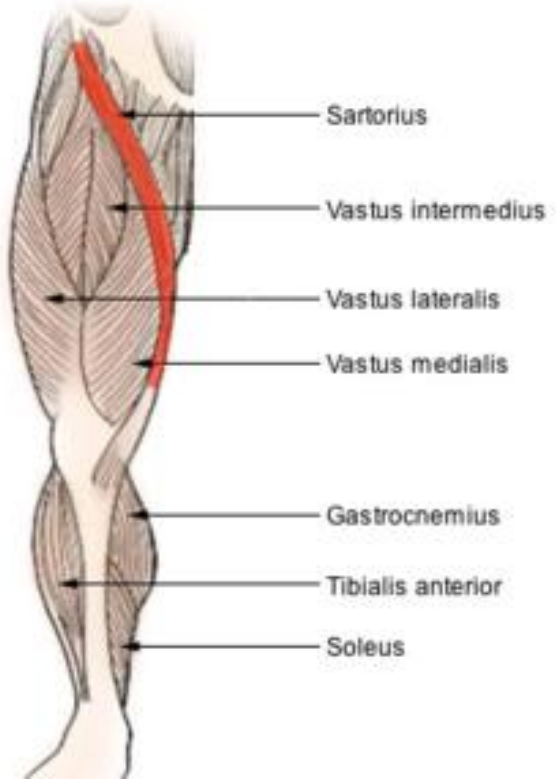

Inflammed
sciatic
nerve


Piriformis
Muscle
Sciatic Nerve

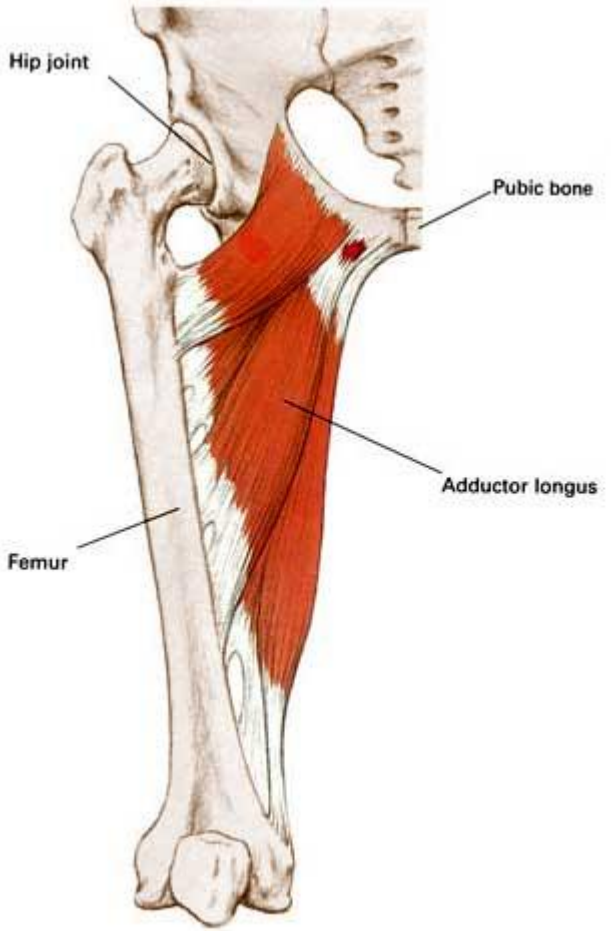

Sciatic notch
Piriformus
muscle
Supeiror
gamellus
muscle
Obturator
internus
muscle
Inferior
gamellus
muscle
Sciatic nerve
© 2000 Todd Buck

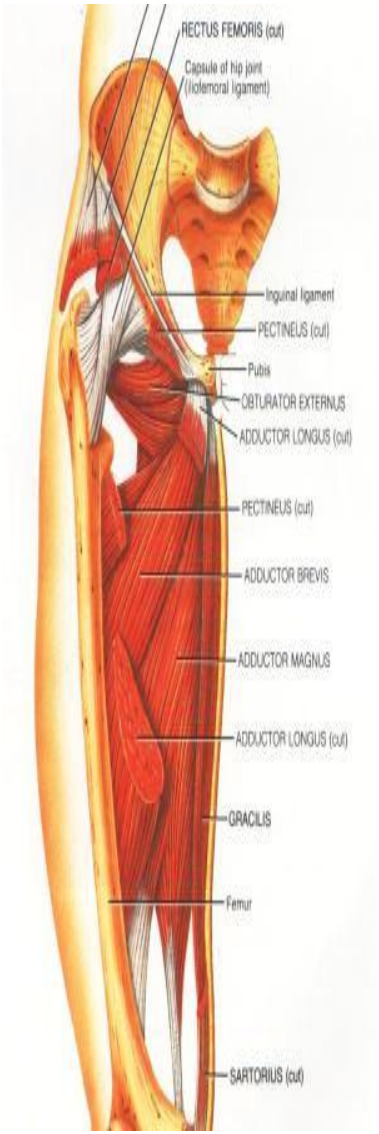
sartorius

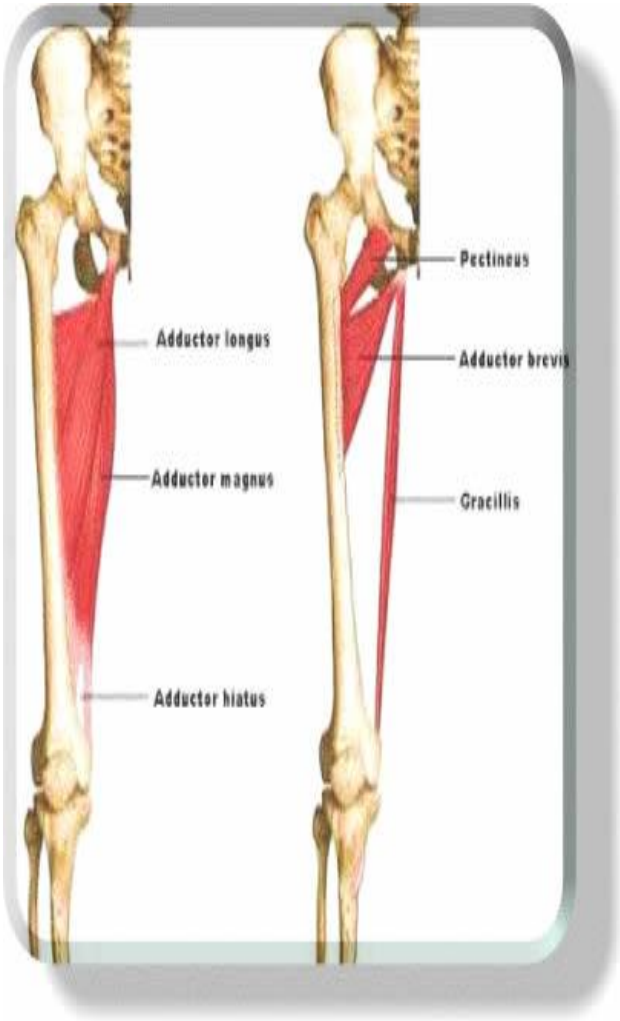

Crest of Ilium
Ant. Sup. Sp.
ILIACUS
PSOAS MAJOR
TENSOR FASCIÆ LATÆ
SARTORIUS
PECTINEUS
ADDUCTOR LONGUS
GRACILIS
RECTUS FEMORIS
VASTUS LATERALIS
VASTUS MEDIALIS
Tendon of QUADRICEPS FEMORIS
patella


Sartorius
Vastus intermedius
Vastus lateralis
Vastus medialis
Gastrocnemius
Tibialis anterior
Soleus

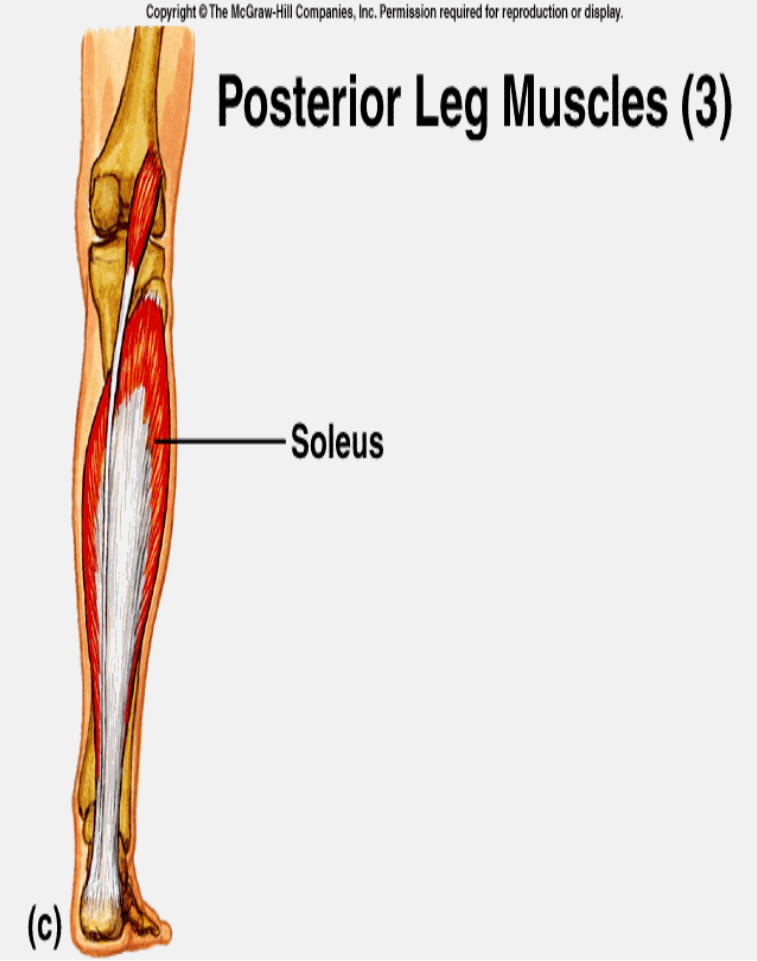
adductor

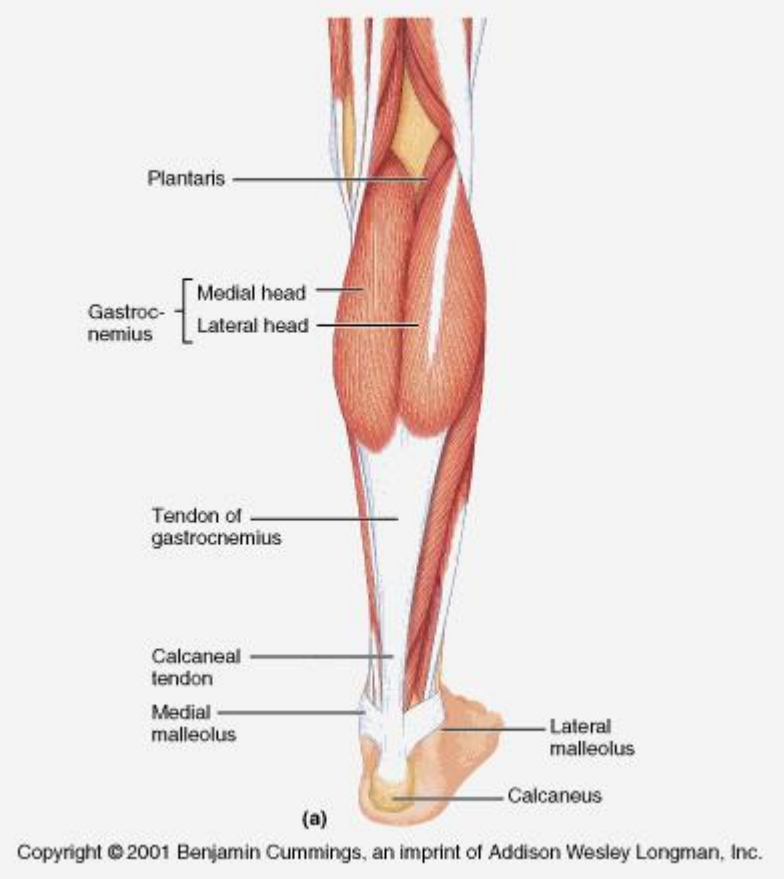

Hip joint
Pubic bone
Adductor longus
Femur

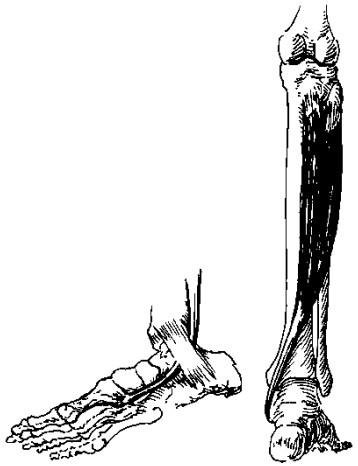

RECTUS FEMORIS (cut)
Capsule of hip joint (iliofemoral ligament)
Inguinal ligament
PECTINEUS (cut)
Pubis
OBTURATOR EXTERNUS
ADDUCTOR LONGUS (cut)
PECTINEUS (cut)
ADDUCTOR BREVIS
ADDUCTOR MAGNUS
ADDUCTOR LONGUS (cut)
GRACILIS
Femur
SARTORIUS (cut)

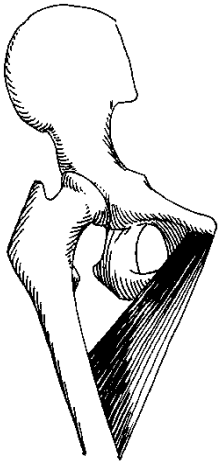

Pectineus
Adductor longus
Adductor brevis
Adductor magnus
Gracillis
Adductor hiatus

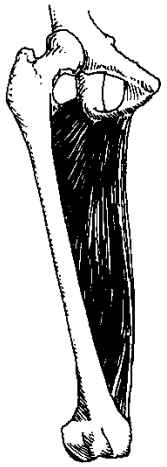
Gastrocnemius/soleus

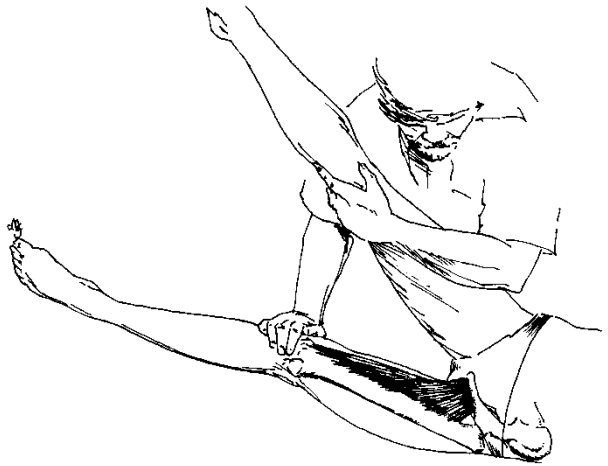


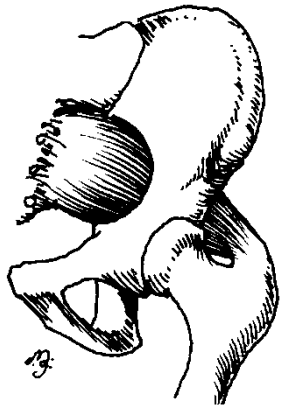


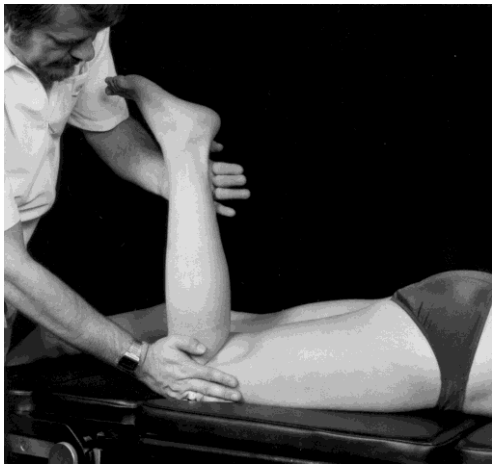


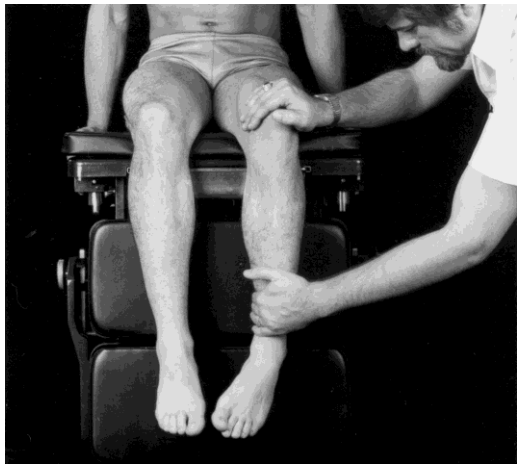


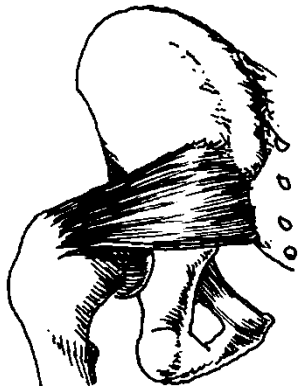


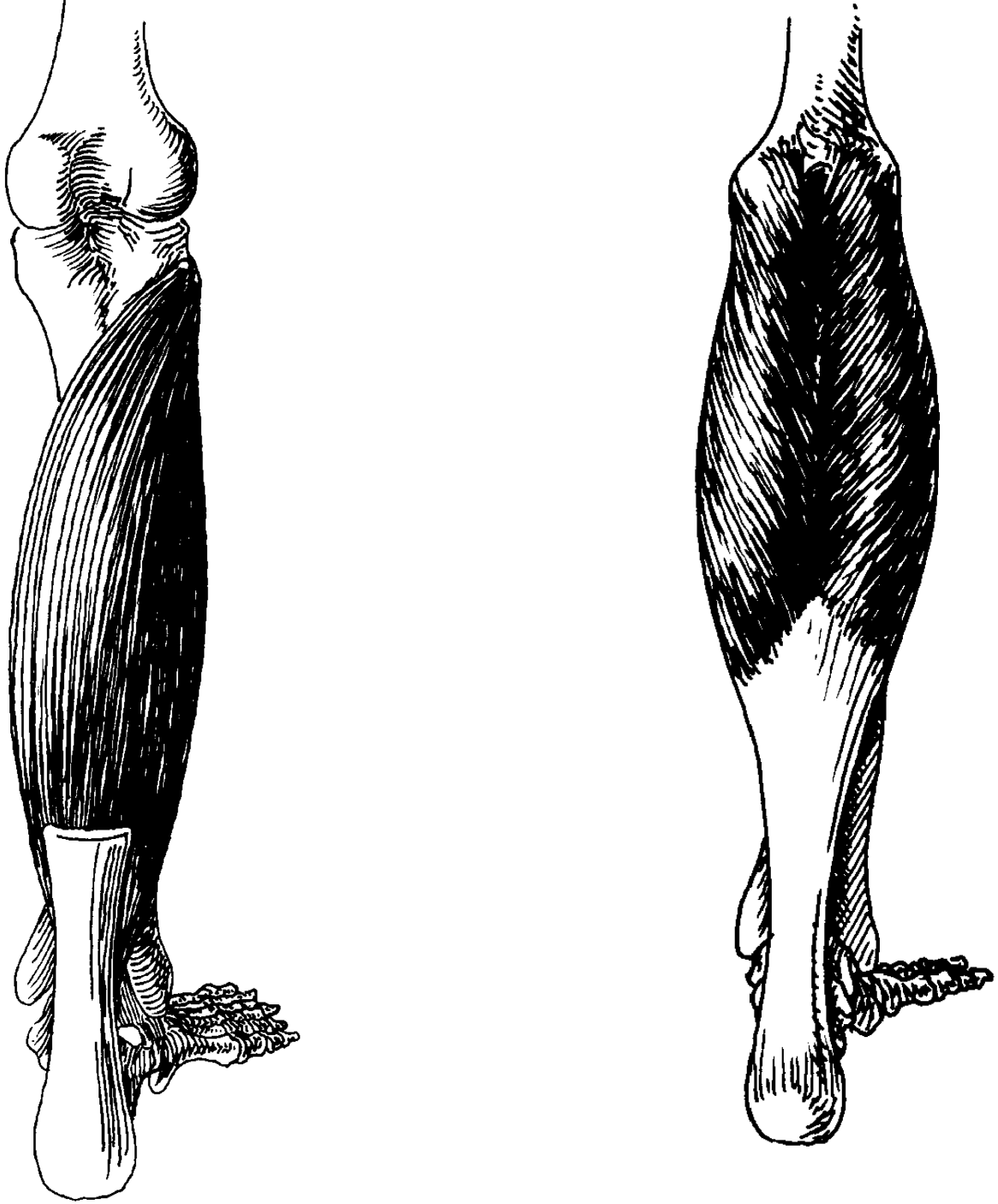








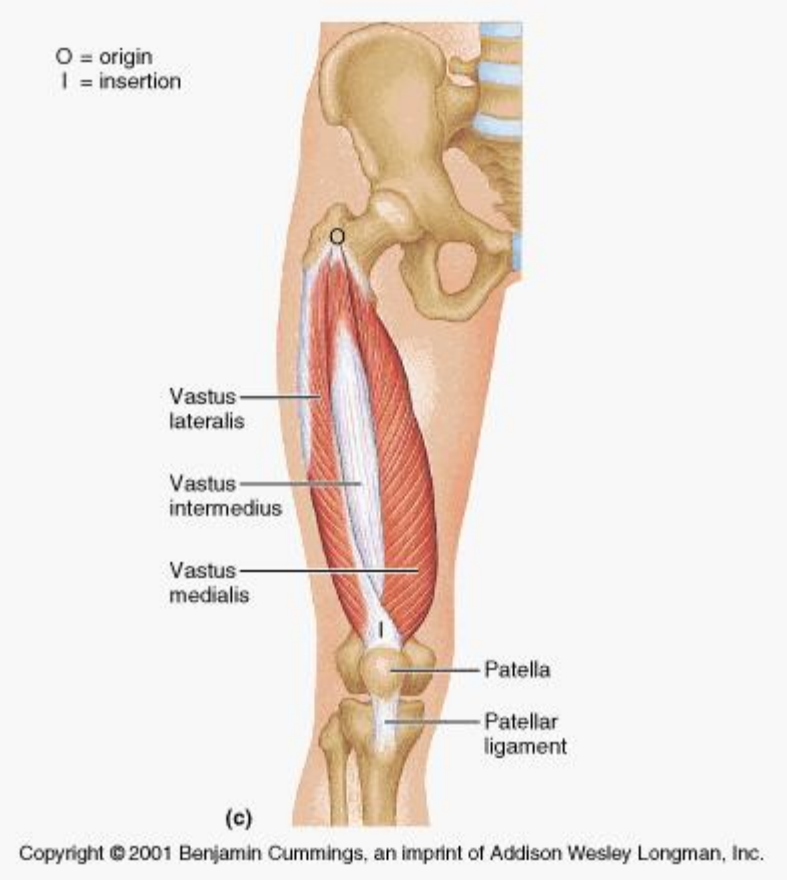


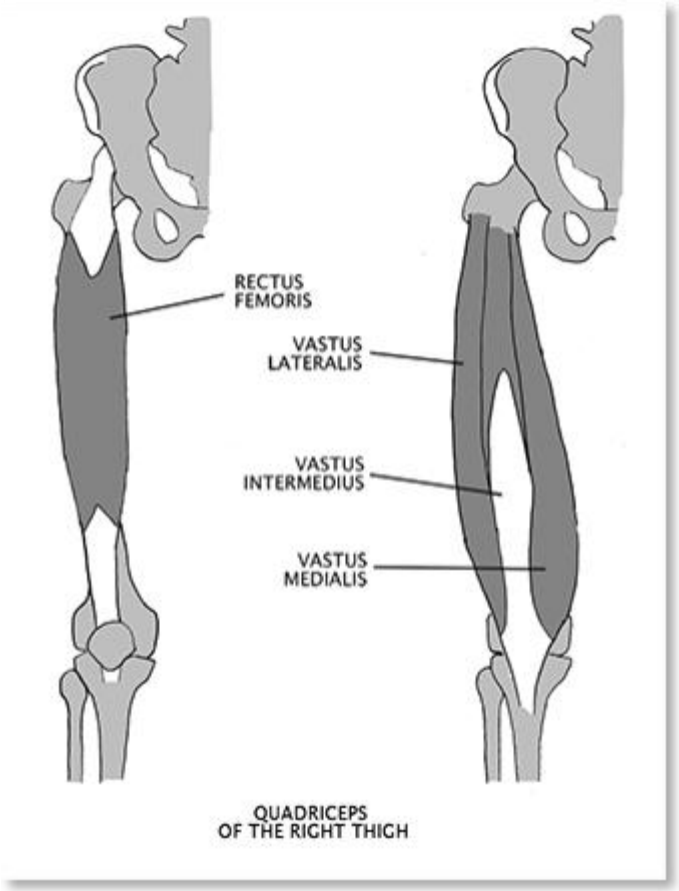


SI

- quadriceps
- Palmaris longus(duodenum)
- Anconeus(ilium)

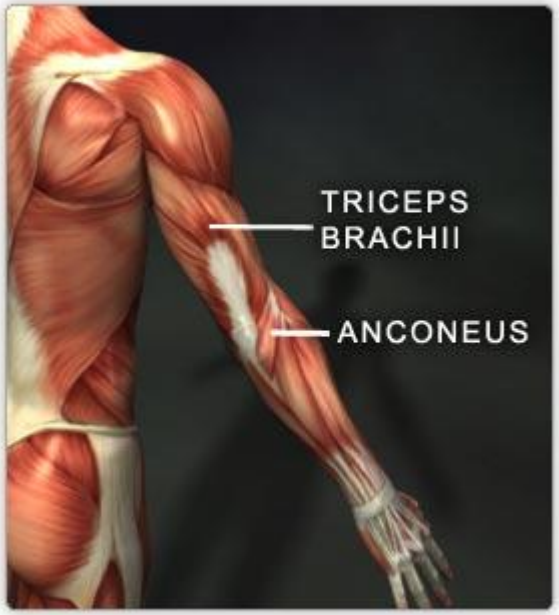
quadriceps

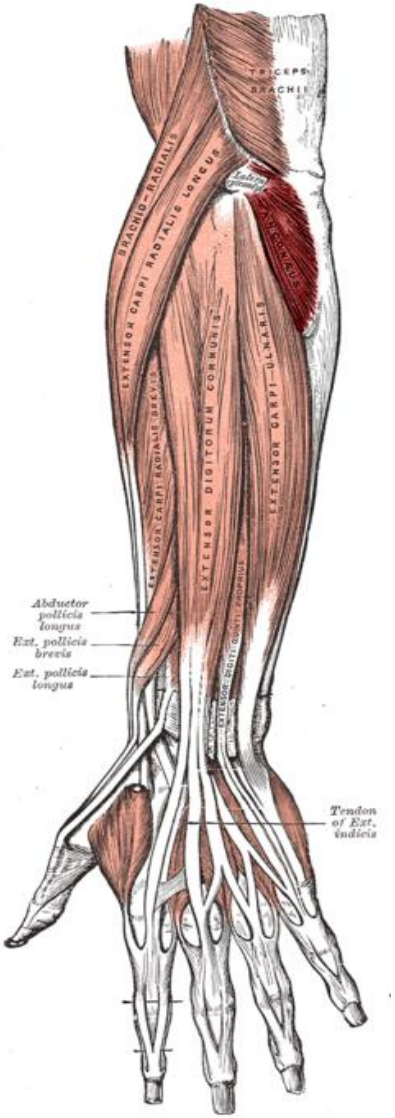


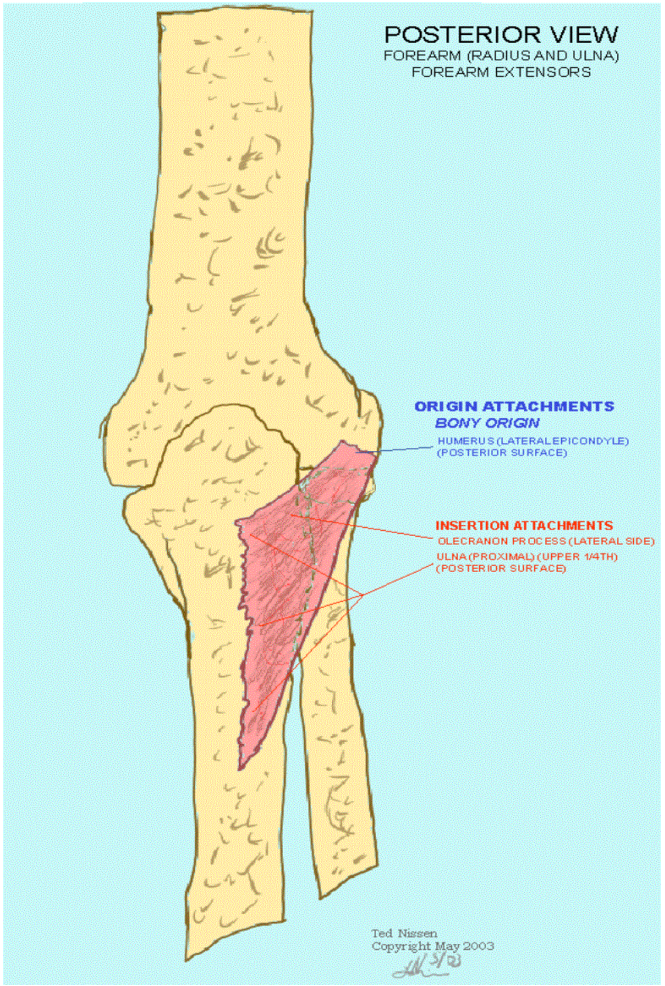


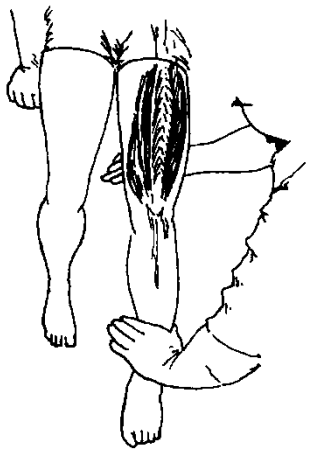
Palmaris longus

anconeus


TRICEPS
BRACHII
ANCONEUS

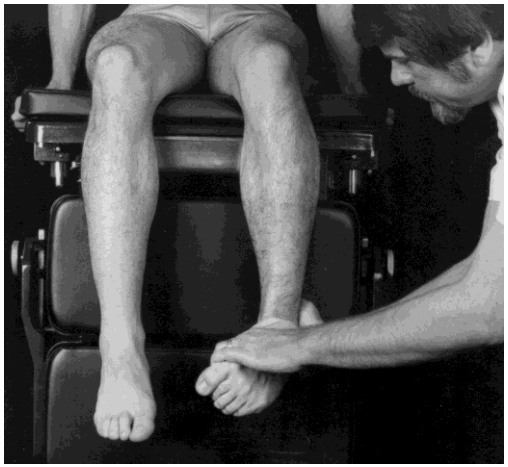

TRICEPS BRACHII
BRACHIO-RADIALIS
EXTENSOR CARPI RADIALIS LONGUS
EXTENSOR CARPI RADIALIS BREVIS
EXTENSOR DIGITORUM COMMUNIS
EXTENSOR CARPI ULNARIS
Abductor pollicis longus
Ext. pollicis brevis
Ext. pollicis longus
Tendon of Ext. indicis


POSTERIOR VIEW
FOREARM (RADIUS AND ULNA)
FOREARM EXTENSORS
ORIGIN ATTACHMENTS
BONY ORIGIN
HUMERUS (LATERAL EPICONDYLE)
(POSTERIOR SURFACE)
INSERTION ATTACHMENTS
OLECRANON PROCESS (LATERAL SIDE)
ULNA (PROXIMAL) (UPPER 1/4TH)
(POSTERIOR SURFACE)
Ted Nissen
Copyright May 2003

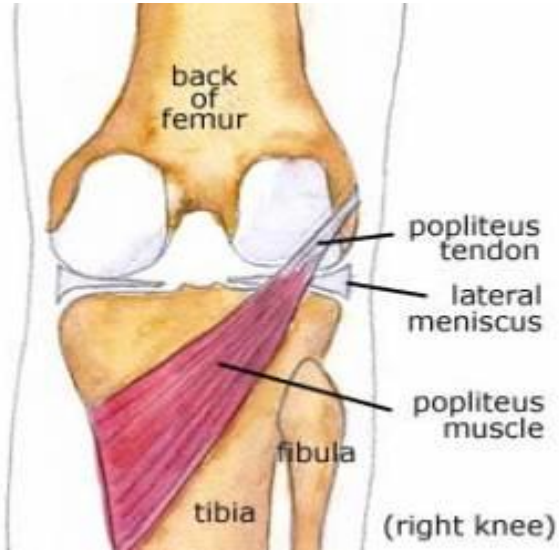


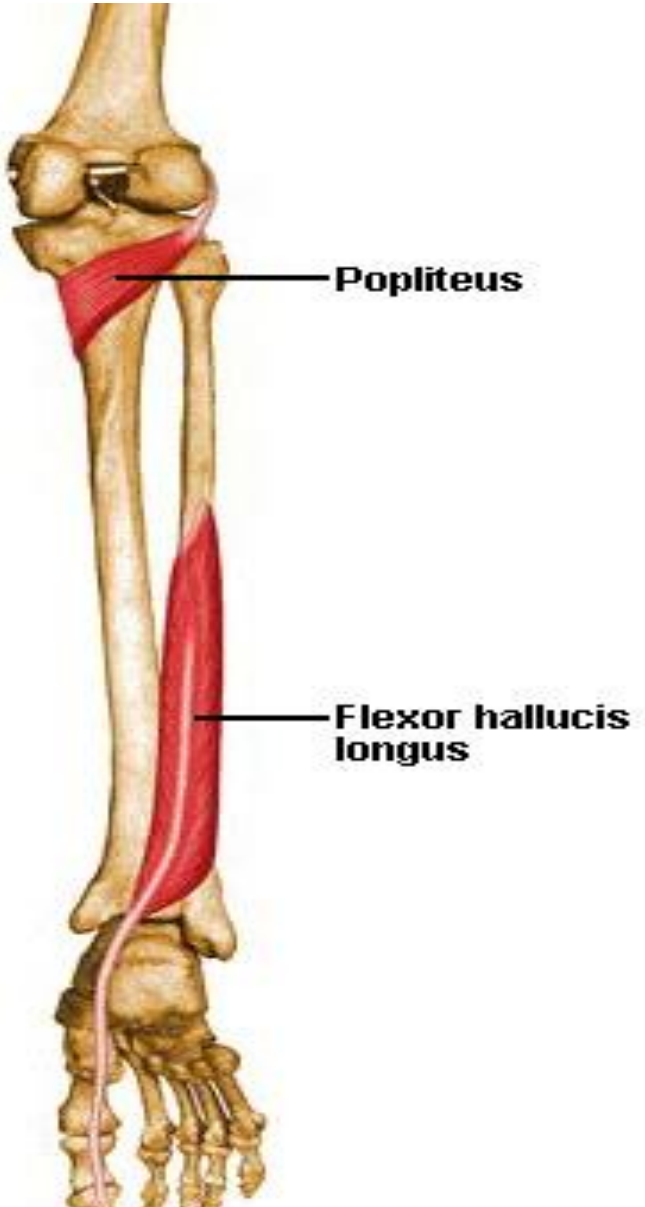
GB

- Popliteus
- Ant deltoid

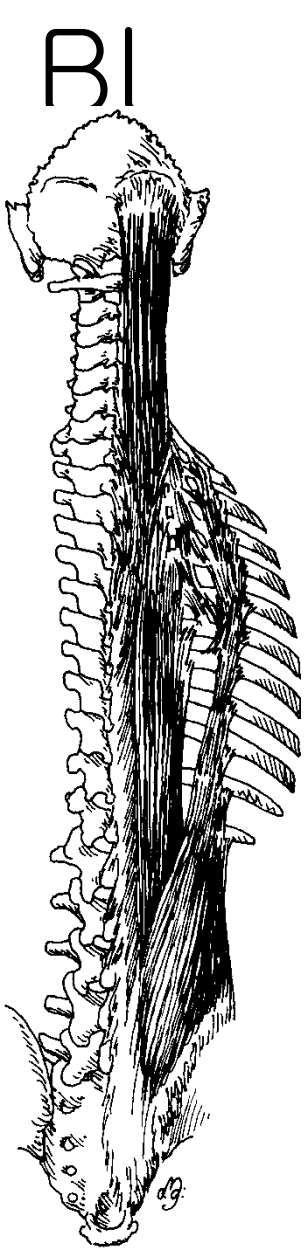


popliteus

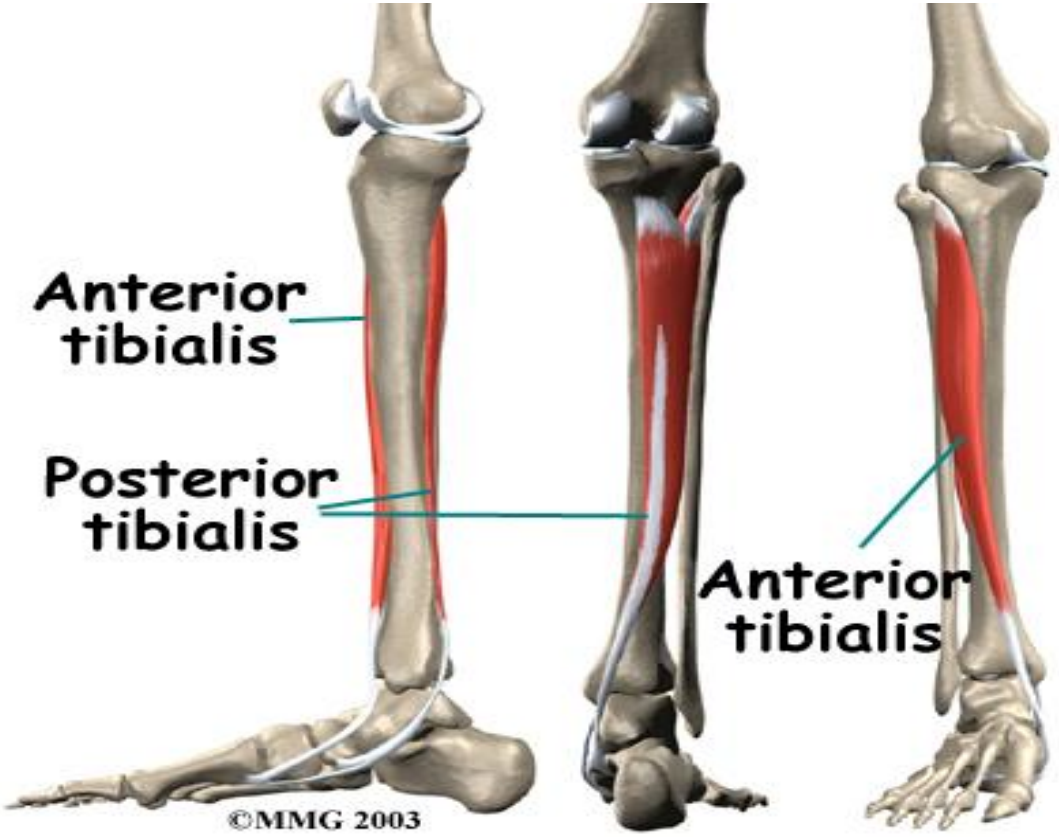

back of femur
popliteus tendon
lateral meniscus
popliteus muscle
fibula
tibia
(right knee)


Popliteus
Flexor hallucis longus

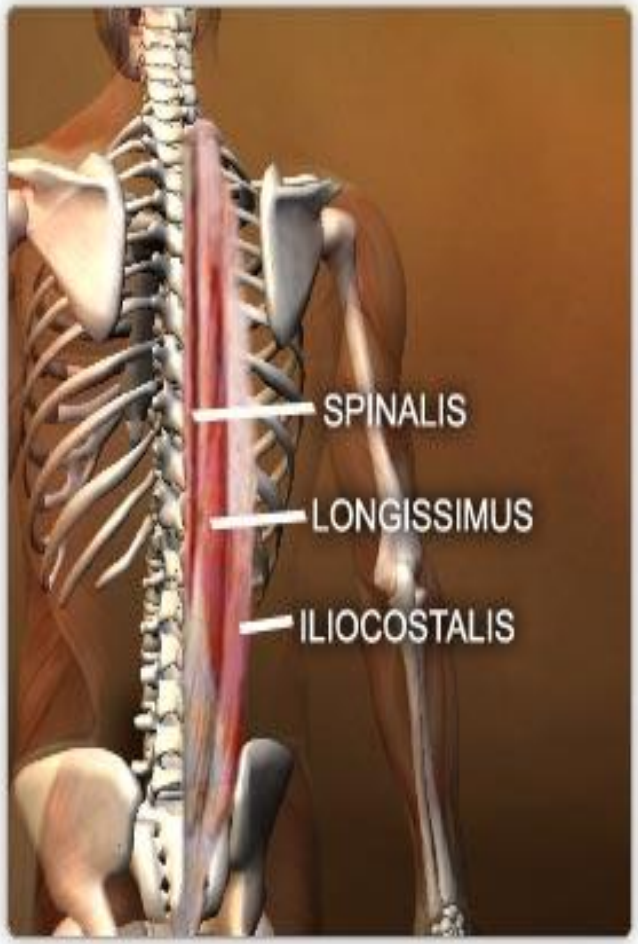
- TA
- Erector spinae

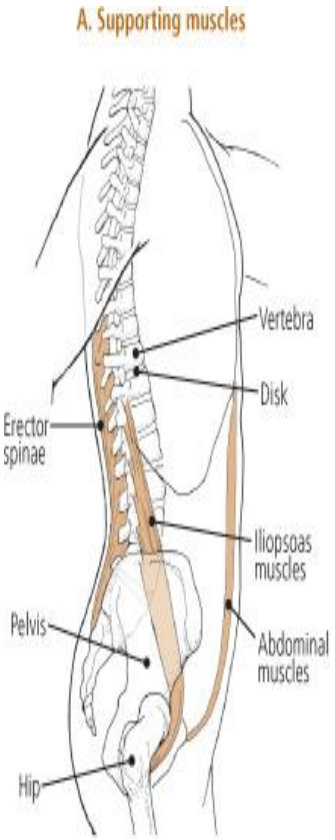


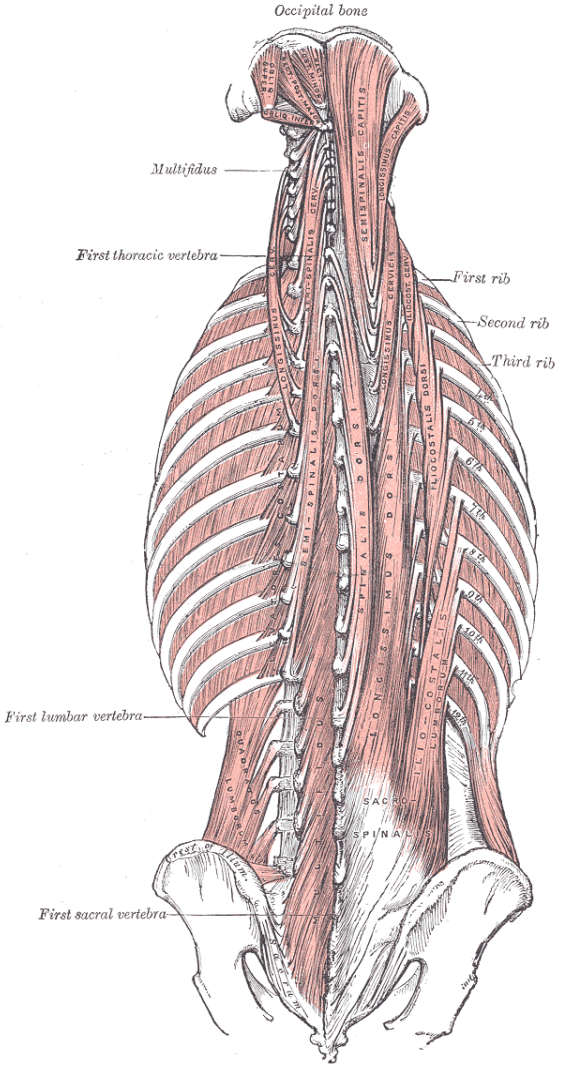
Tibialis anterior/posterior



Erector spinae

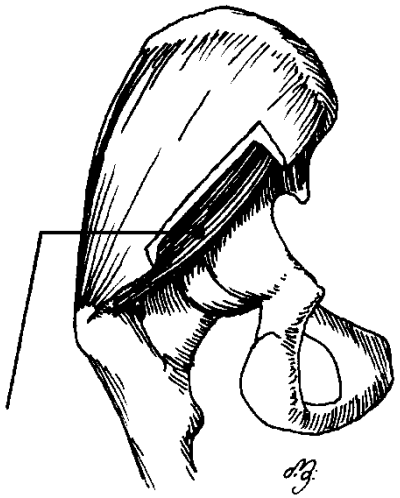




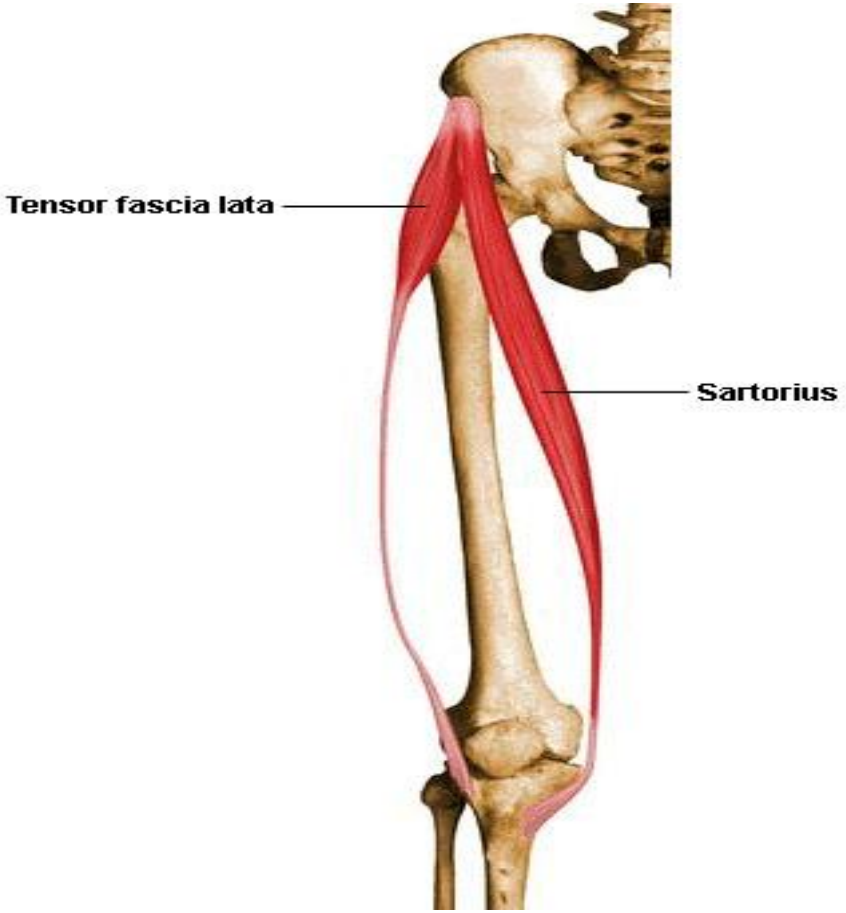


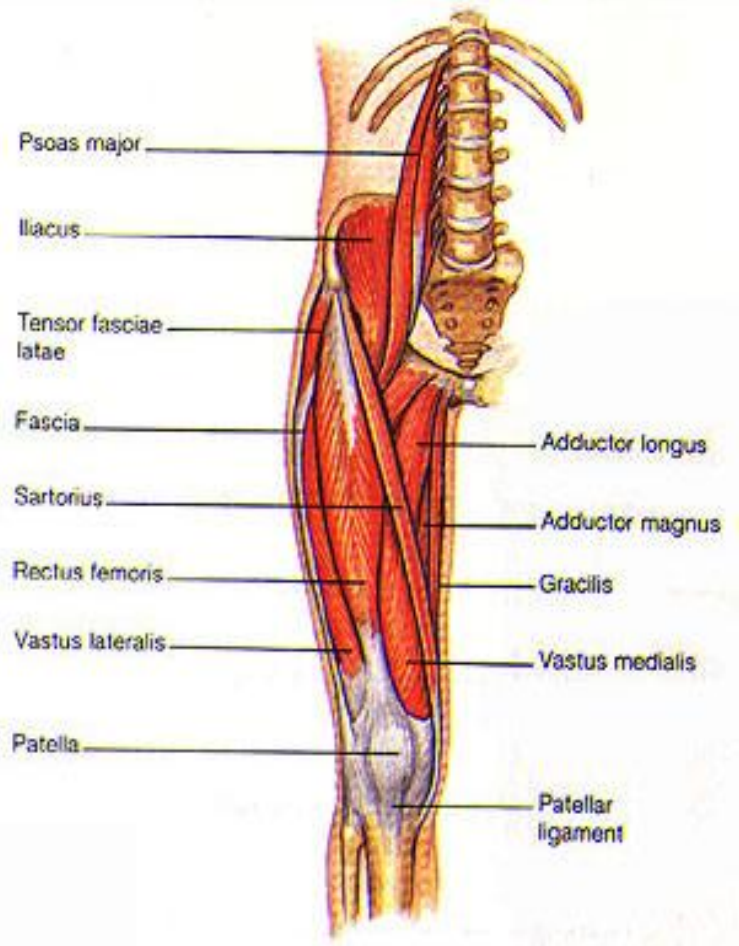
LI

- TFL(sigmoid colon)
- Gluteus minimus(ascending colon)
- Gracilis(rectum)
- Biceps femoris
- Quadratus lumborum

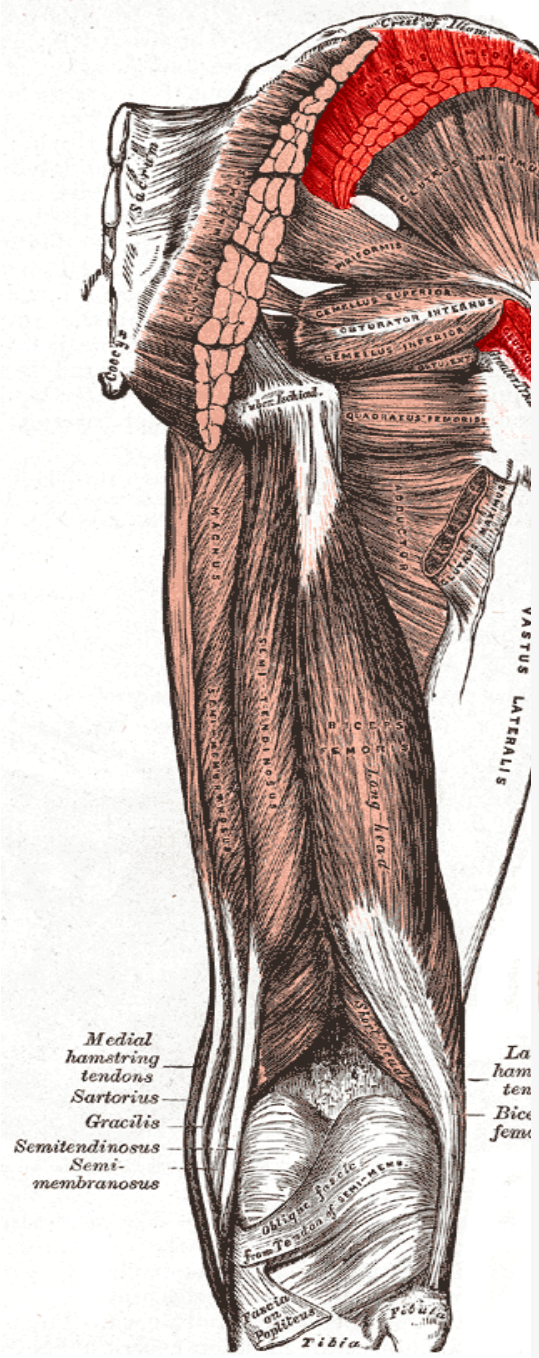


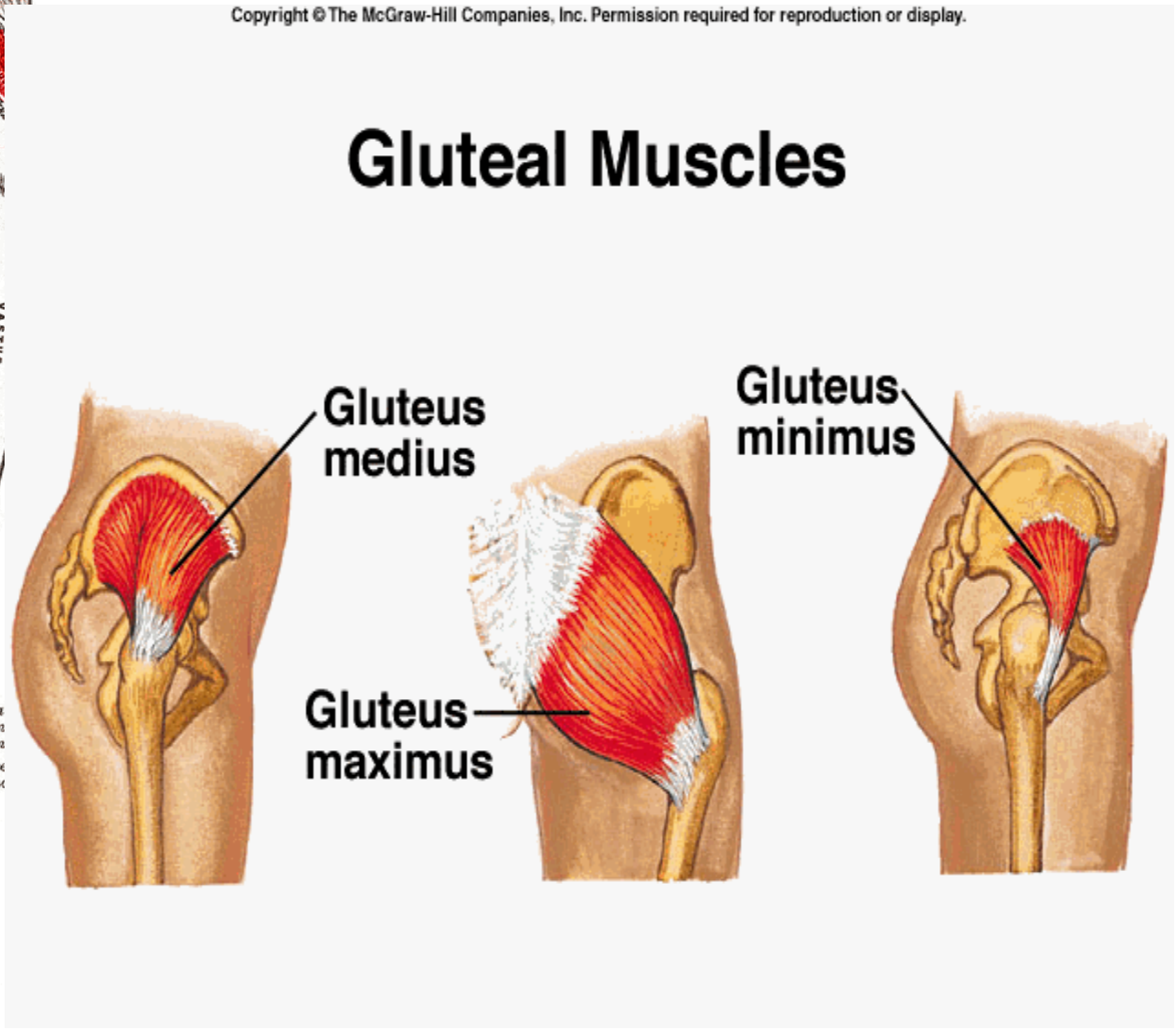
TFL/sartorius



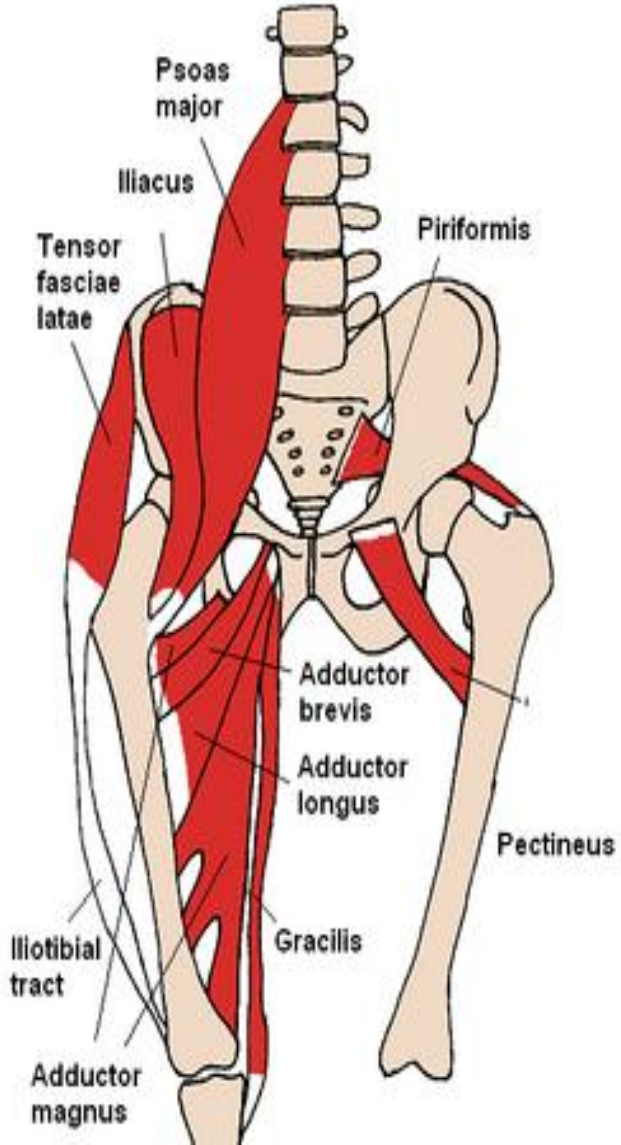


gluteus

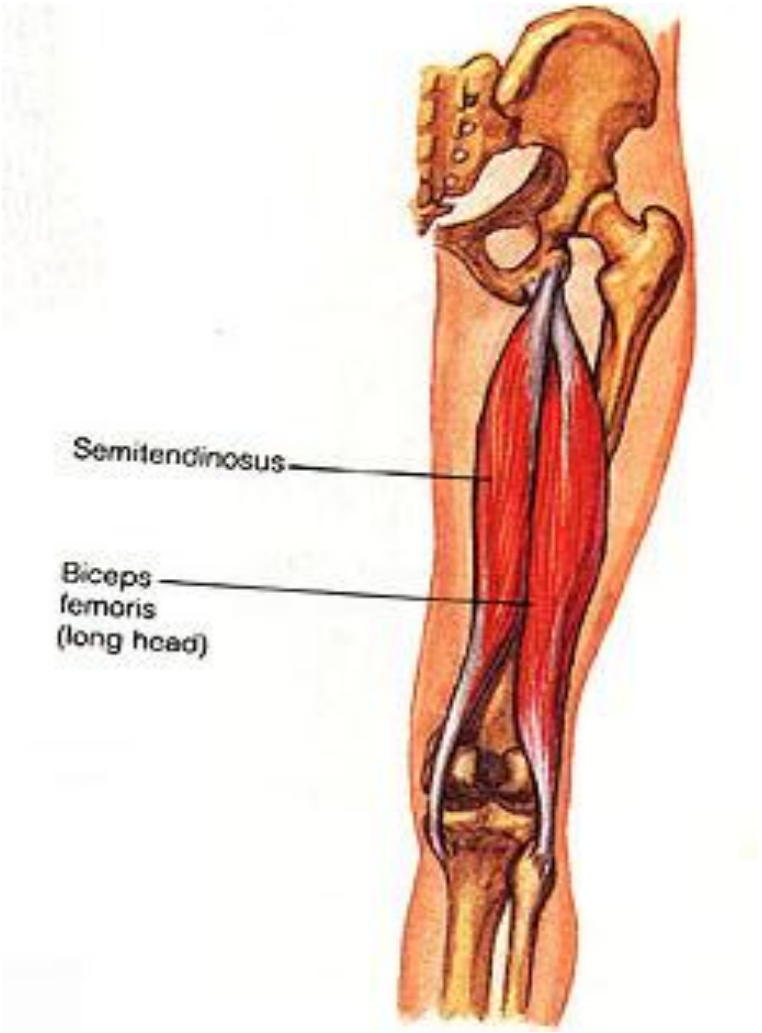




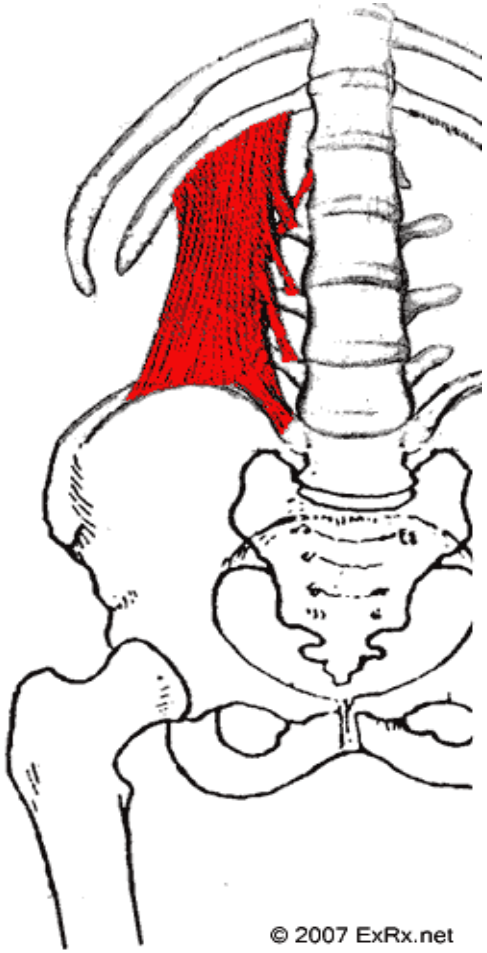
Gracilis

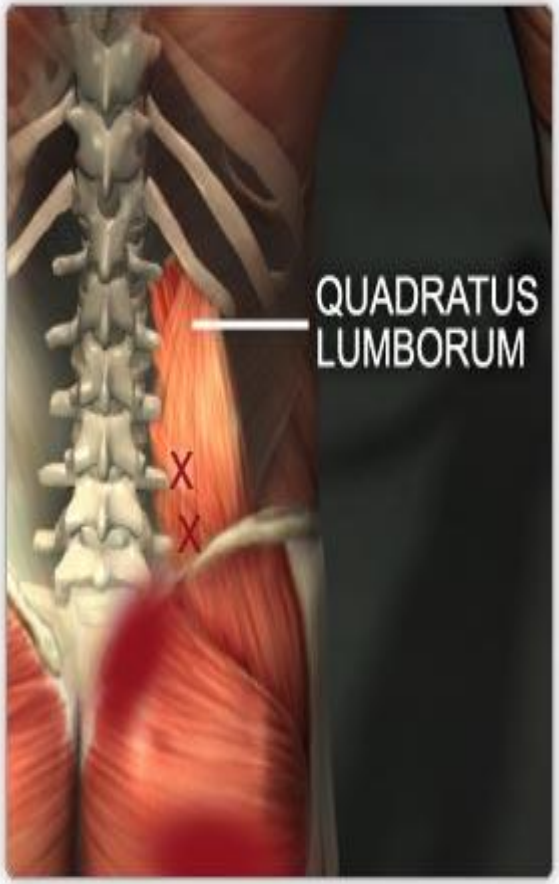

Psoas major
Iliacus
Tensor fasciae latae
Piriformis
Adductor brevis
Adductor longus
Pectineus
Iliotibial tract
Gracilis
Adductor magnus

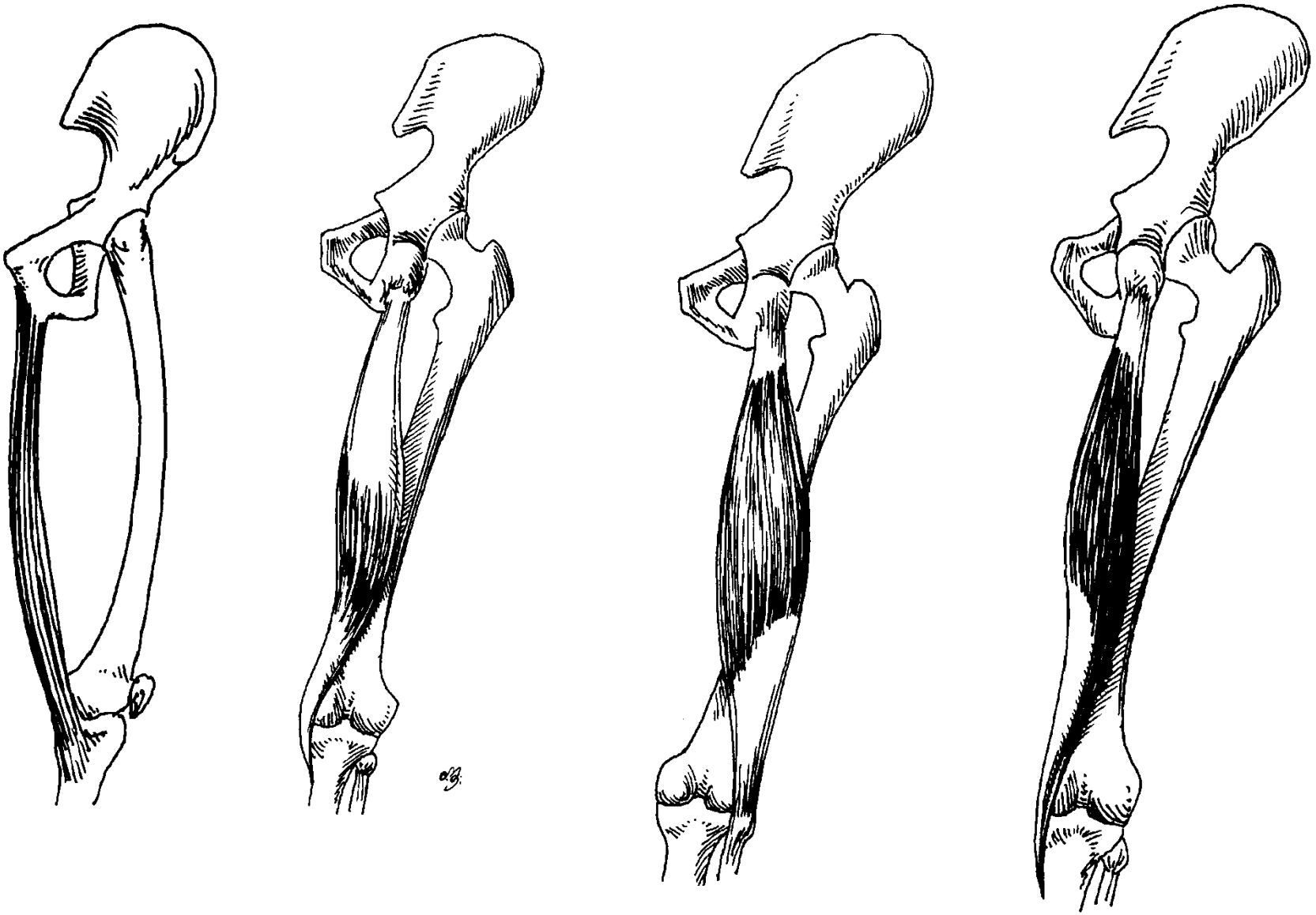
Biceps femoris

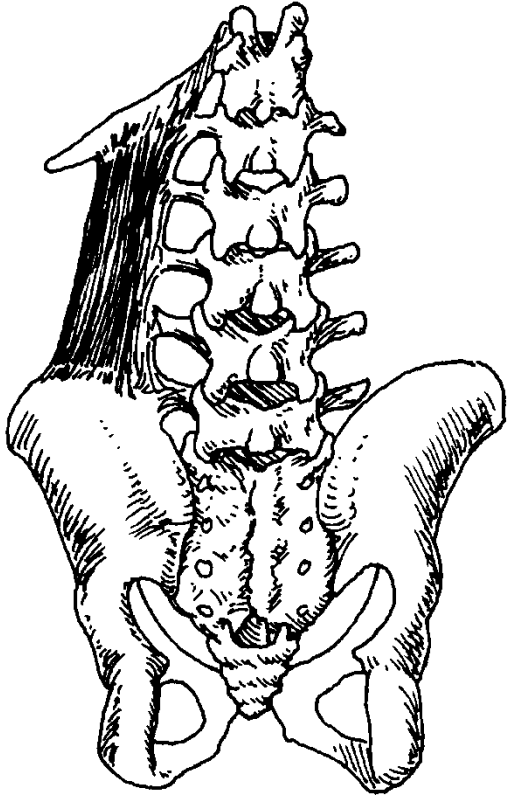


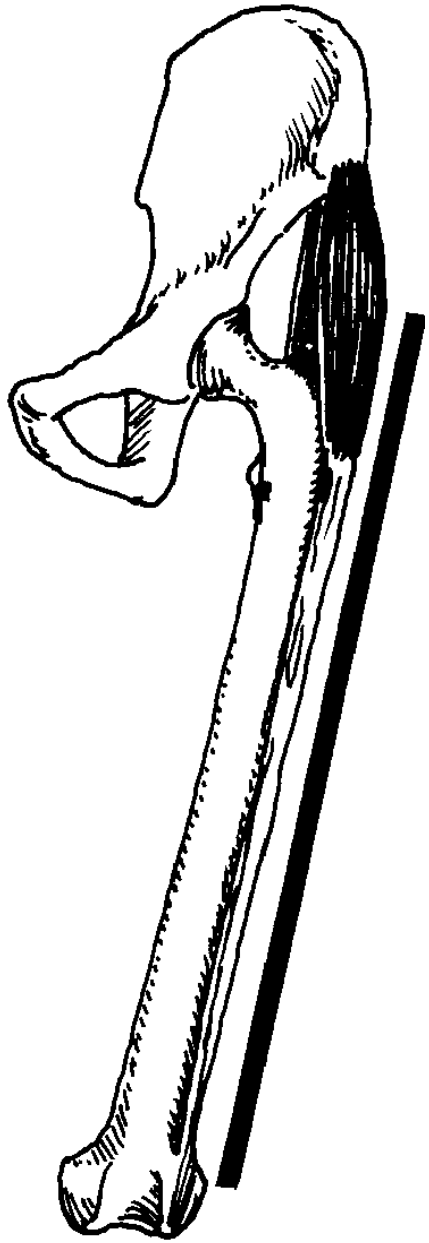
QL

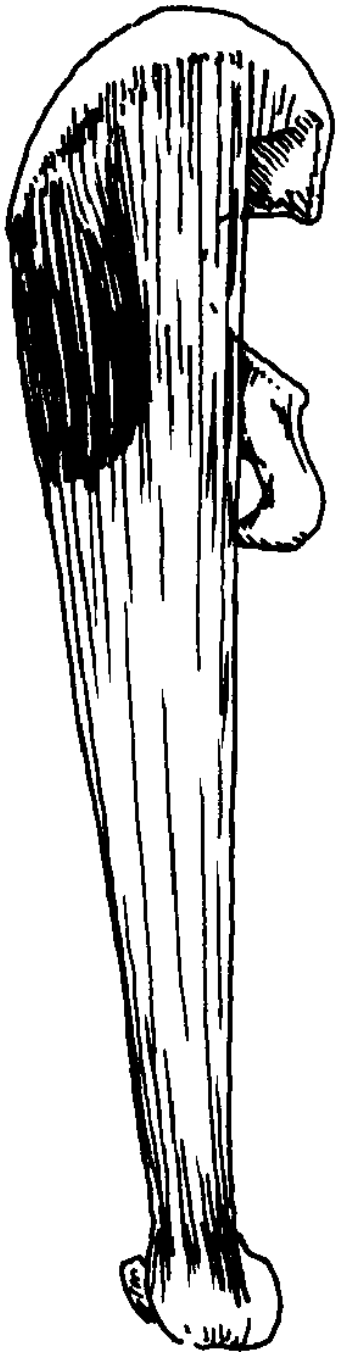






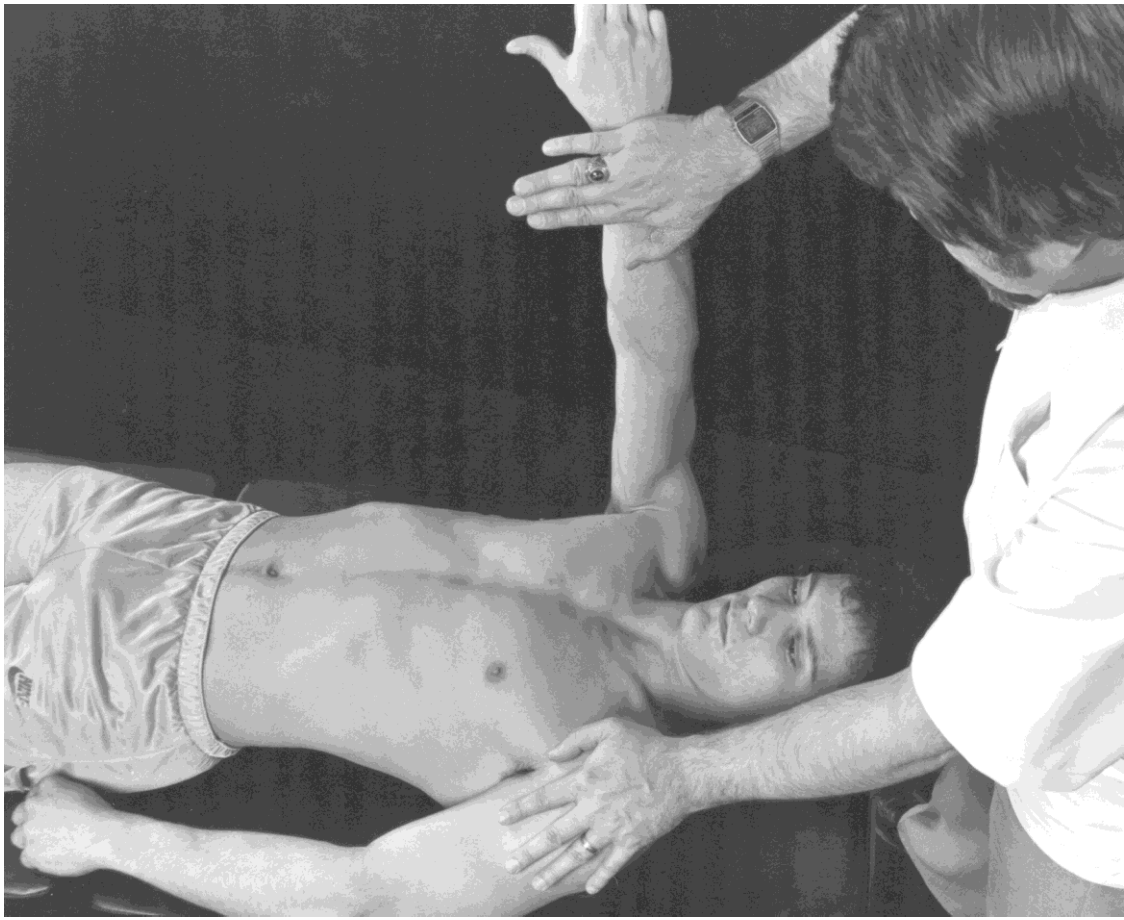


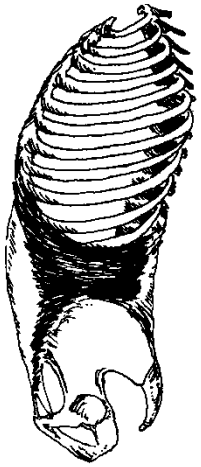


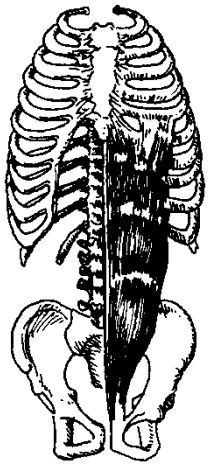


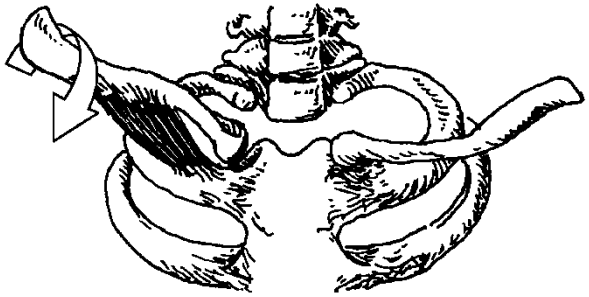
ST

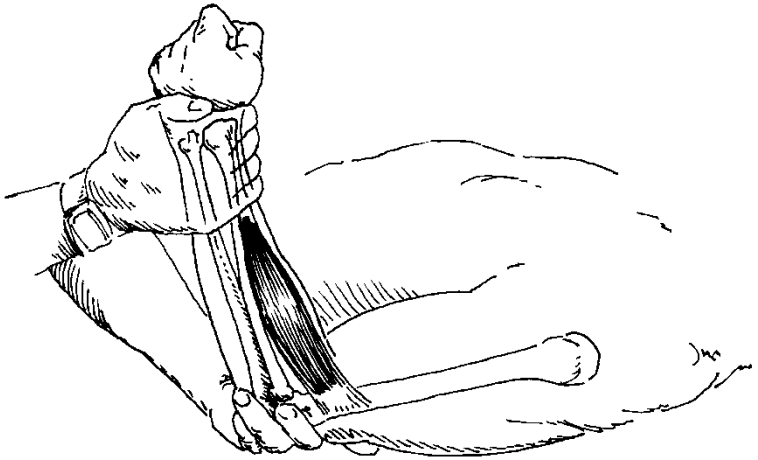
- PMC
- Abdominals
- Neck flexor/exten
- Diaphragm
- Subclavius
- Brachioradialis

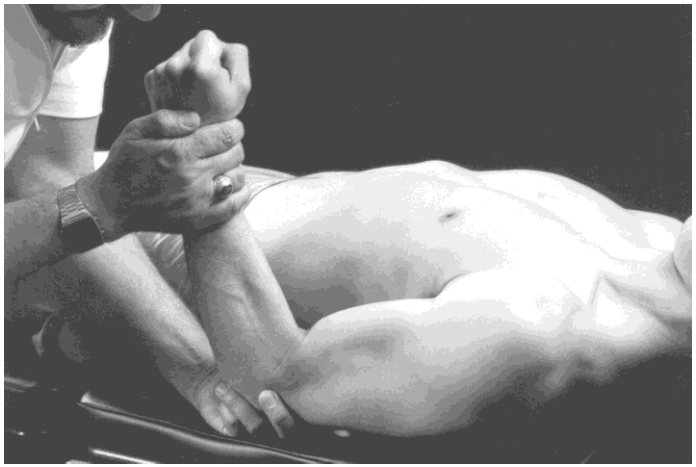








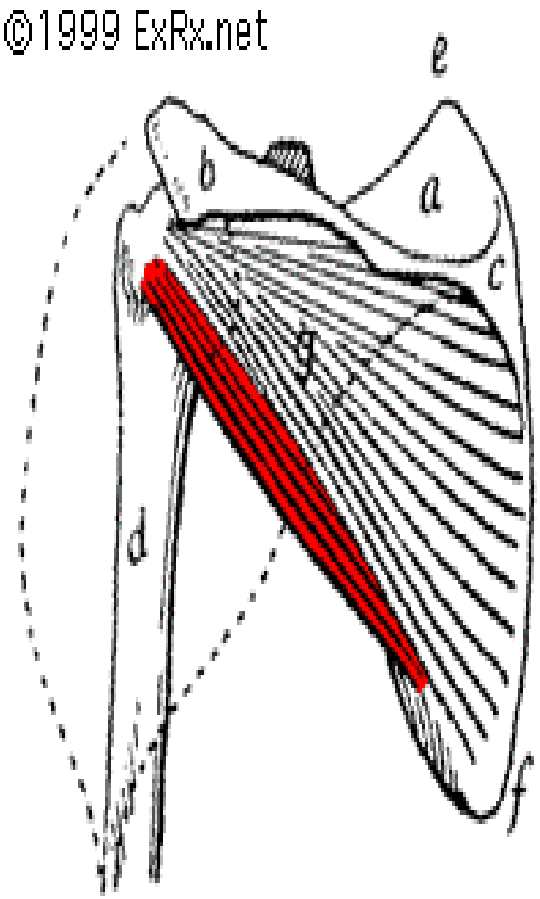


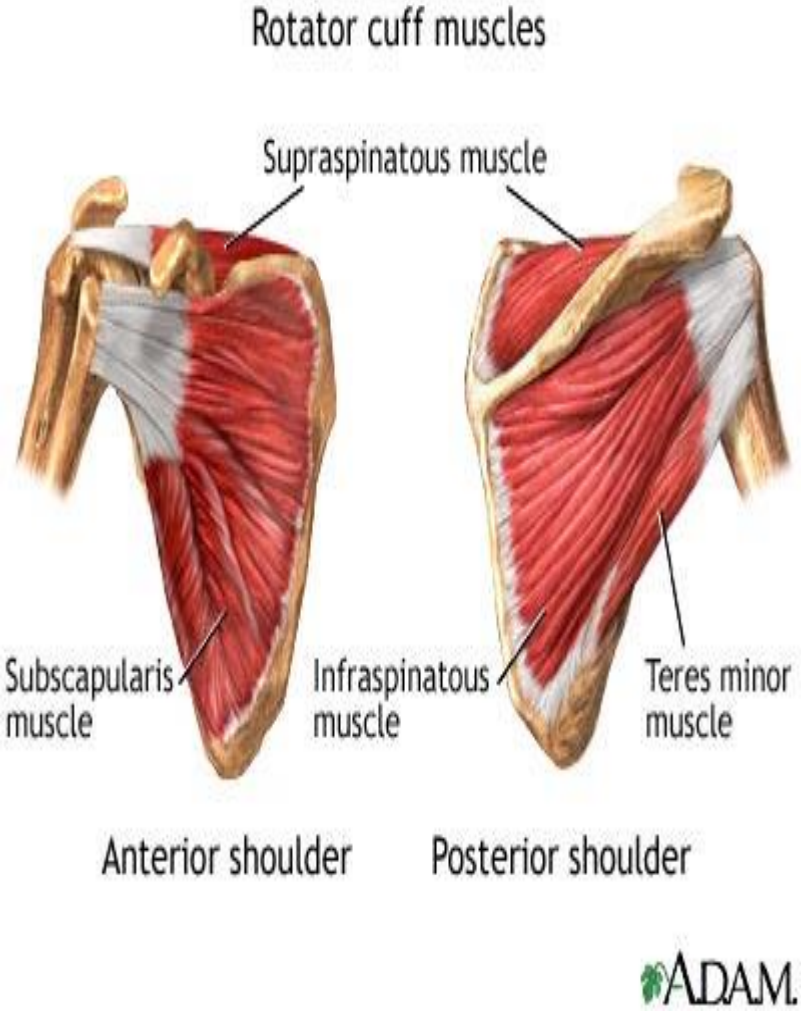


Thyroid

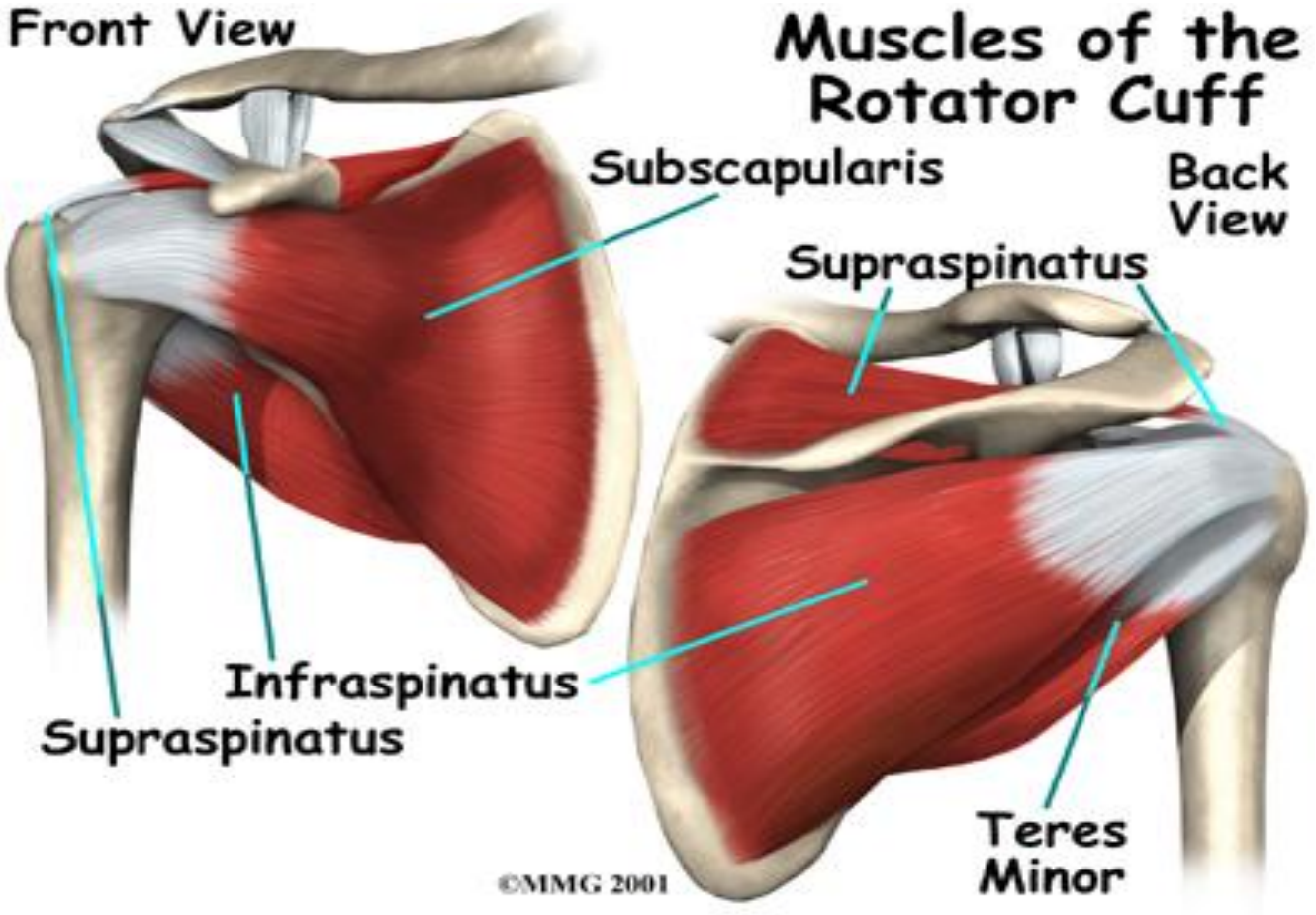
- Teres minor
- Supraspinatus
- Adductor pollicis

Teres minor

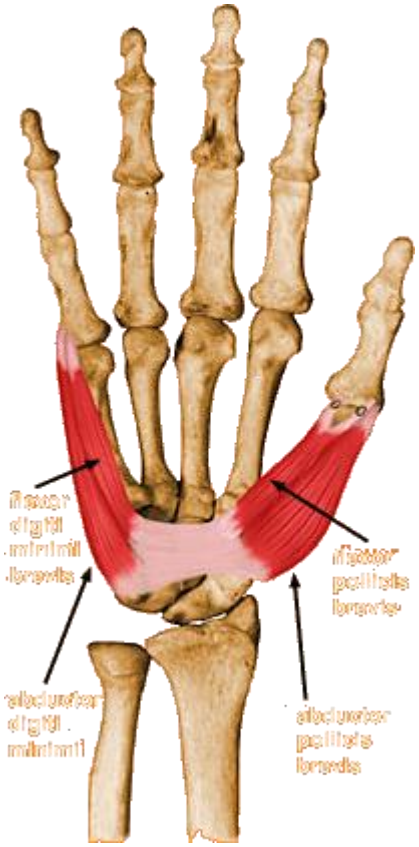

©1999 ExRx.net
a
b
c
d
e
f
g

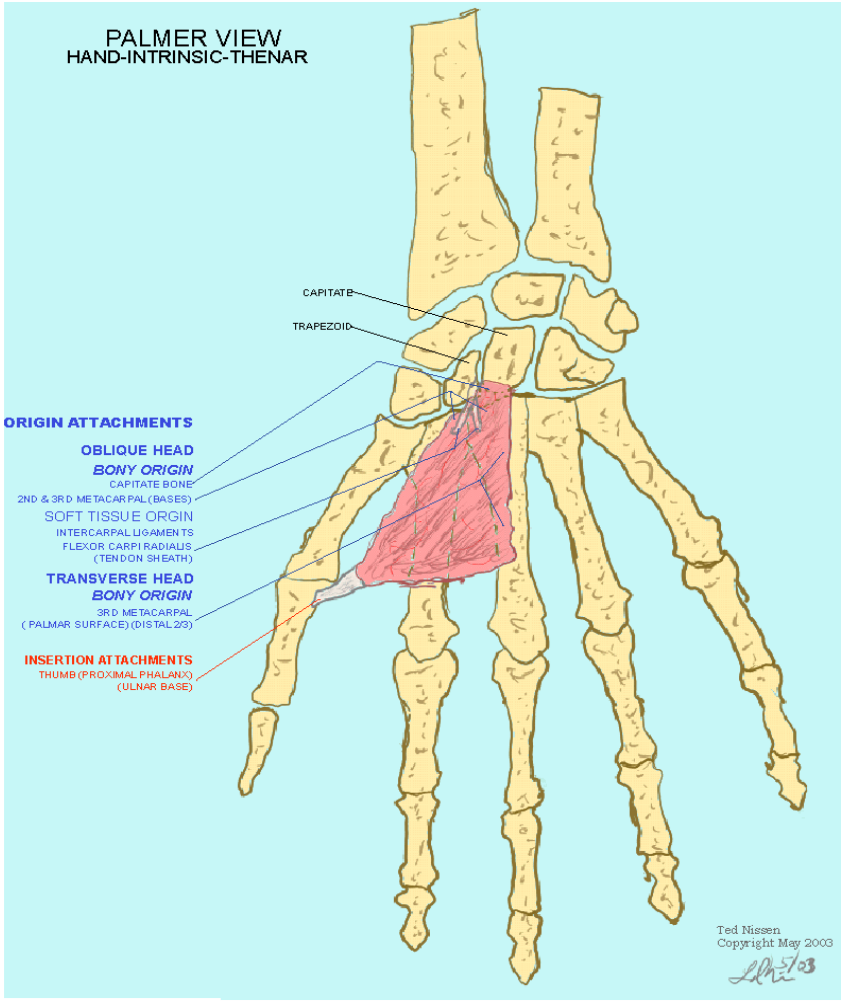

Rotator cuff muscles
Supraspinatous muscle
Subscapularis muscle
Infraspinatous muscle
Teres minor muscle
Anterior shoulder
Posterior shoulder
A.D.A.M.

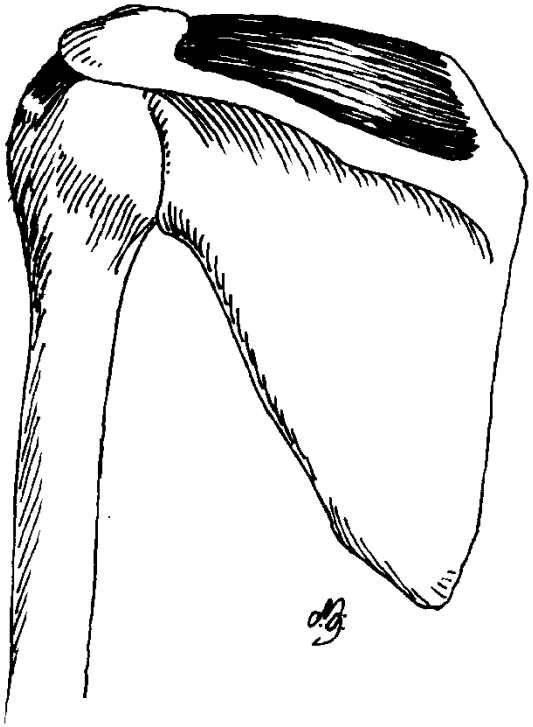
Rotator cuff

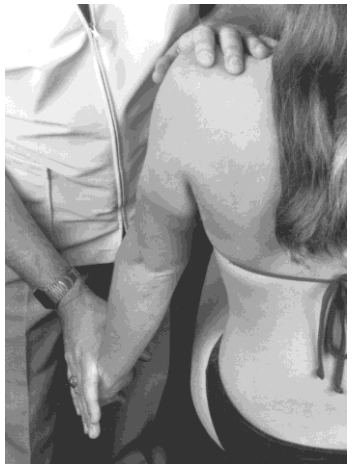


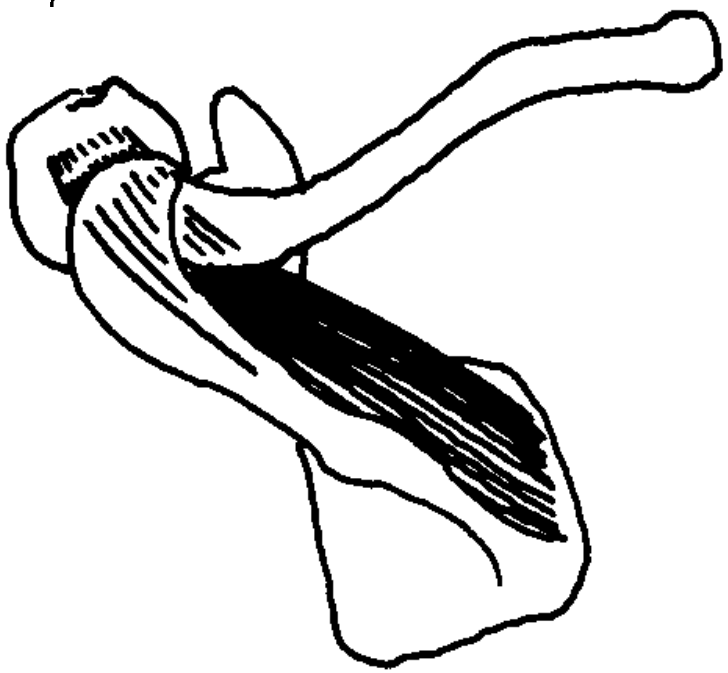
Adductor pollicis

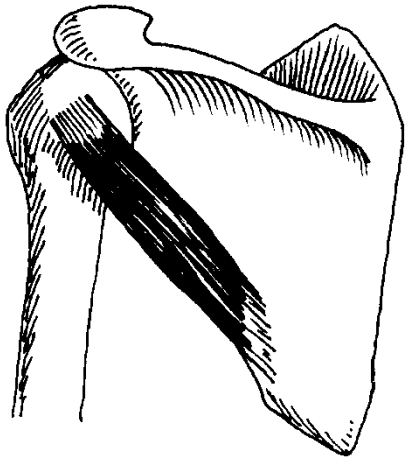


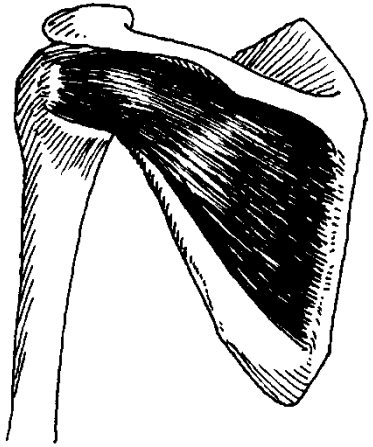








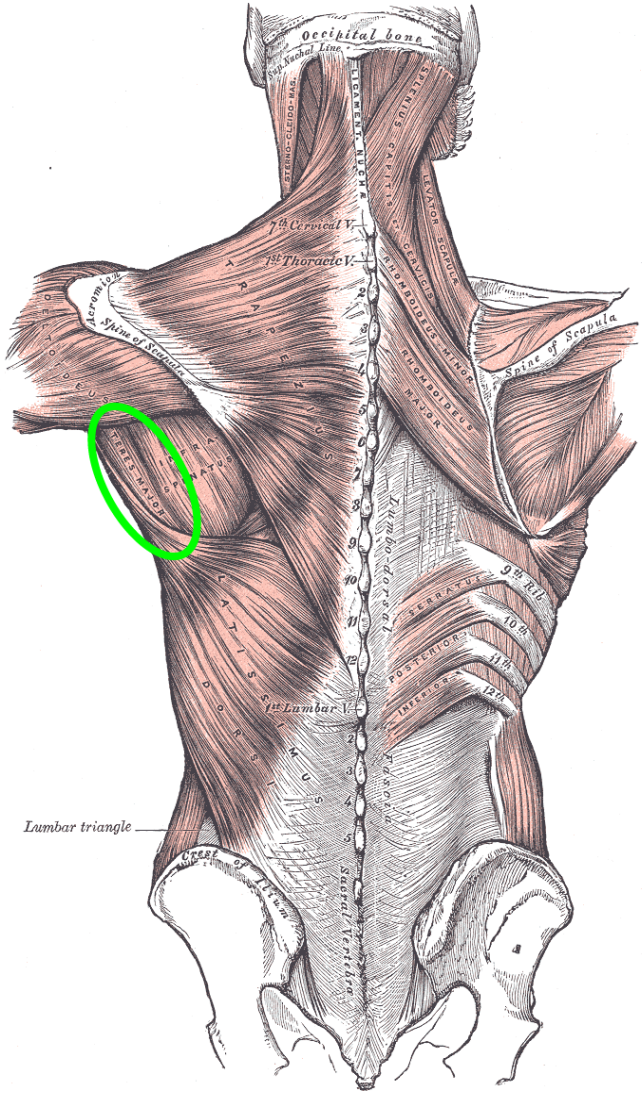


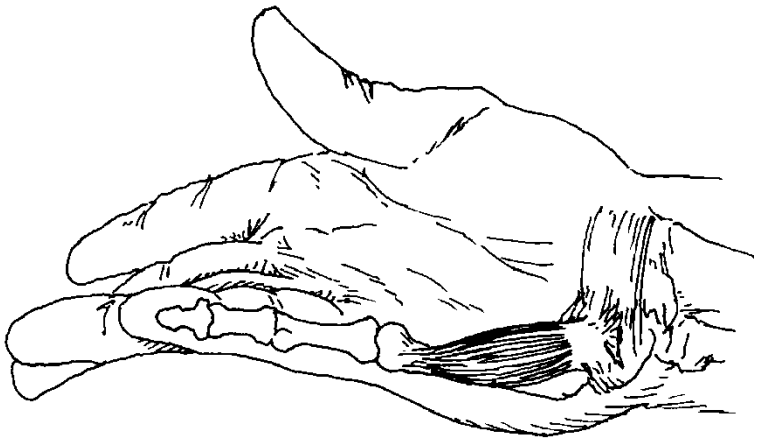


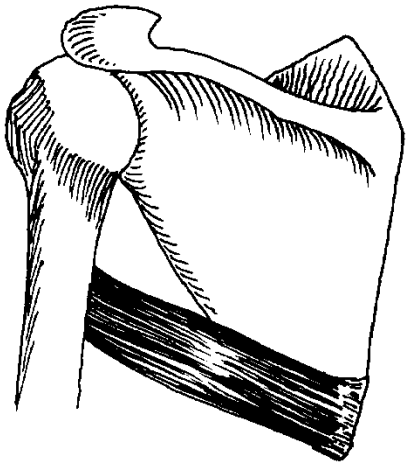
Thymus

- Dorsal interossei
- Hyoid
- Teres major
- Opponens digiti minimi
- Masseter

Teres major


Occipital bone
Sup. Nuchal Line
Sterno-cleido-mas.
Trapezius
Levator Scapulæ
Cervicalis Ascendens
Rhomboideus Minor
Rhomboideus Major
7th Cervical V.
1st Thoracic V.
Acromion
Spine of Scapula
Deltoideus
Teres Major
Latissimus Dorsi
Serratus Posticus Inferior
9th Rib
10th
11th
12th
1st Lumbar V.
Lumbar triangle
Crest of Ilium
Sacral Vertebræ

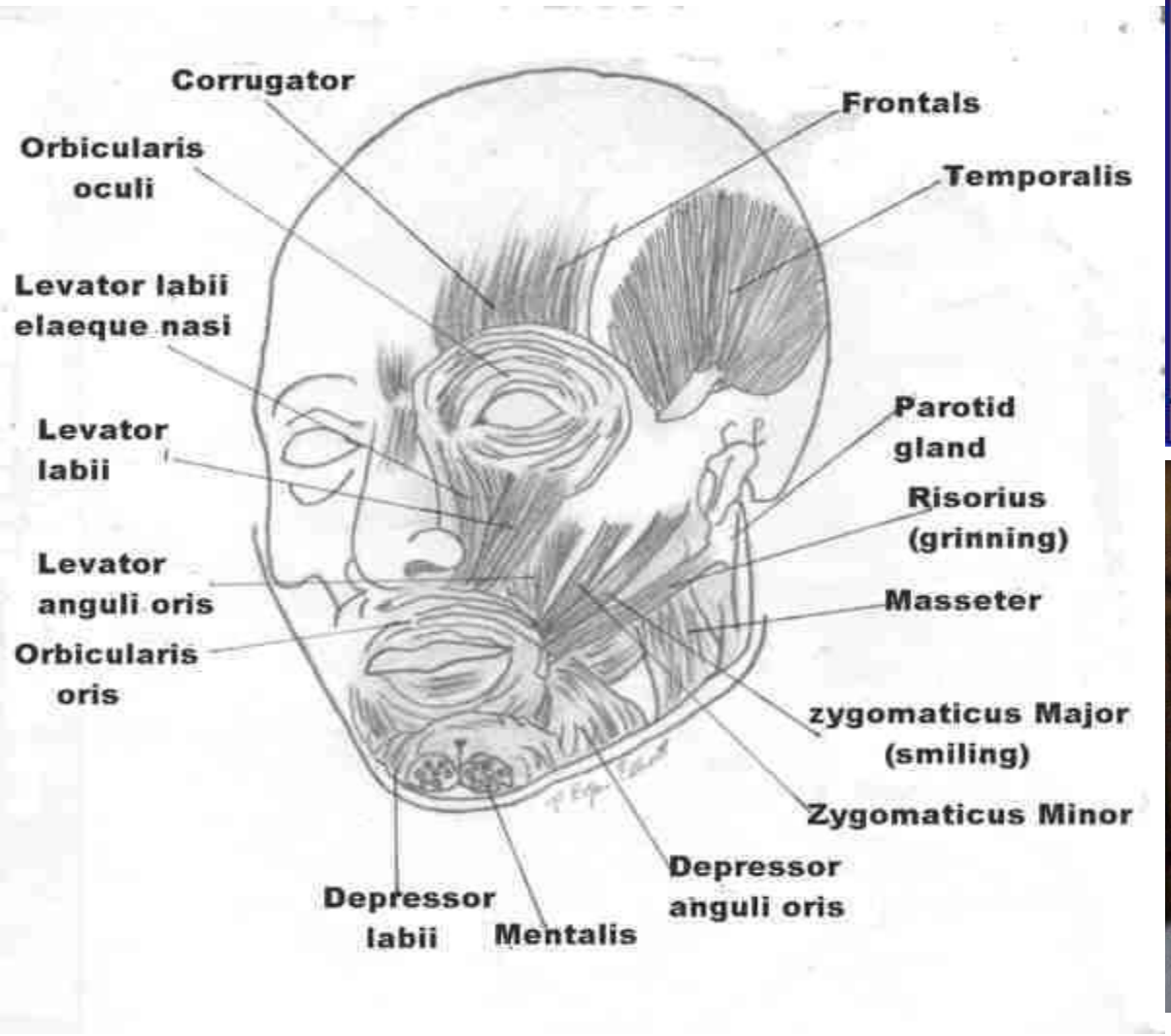


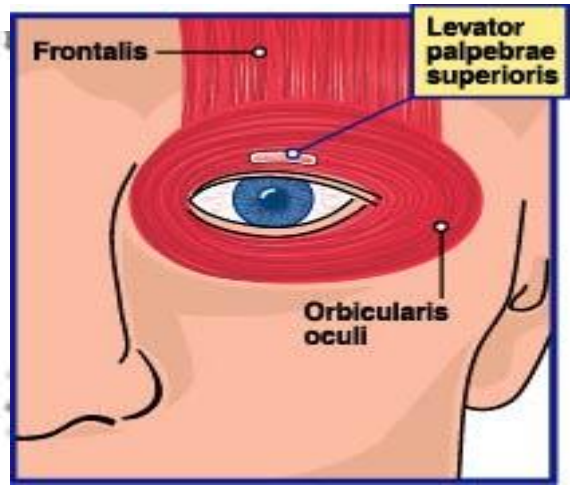


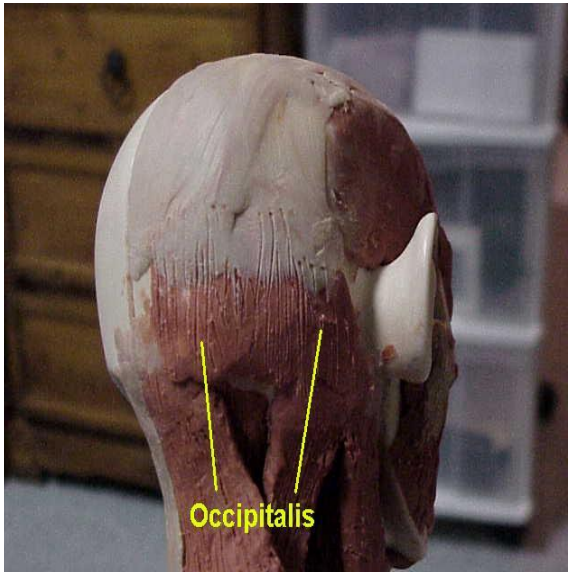
Thalamus

- Occipitalis

Orbicularis/occipitalis



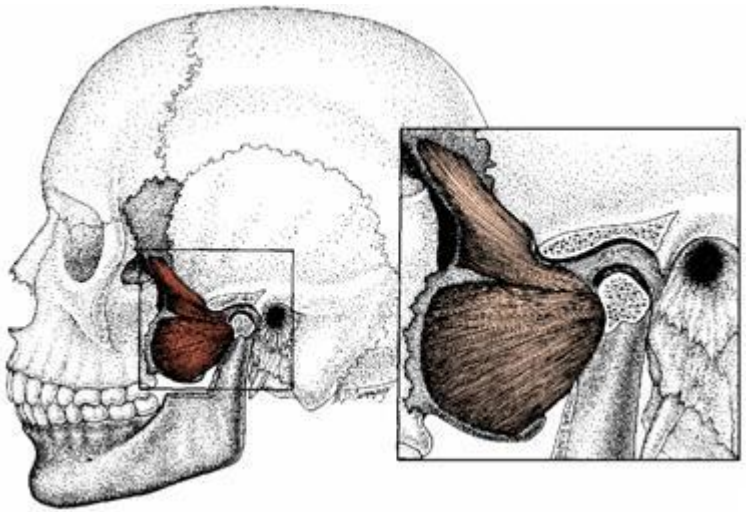


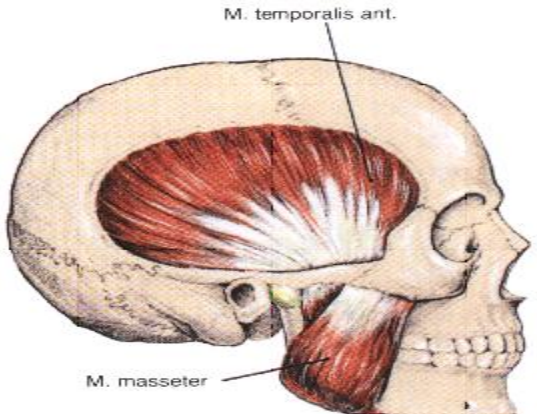


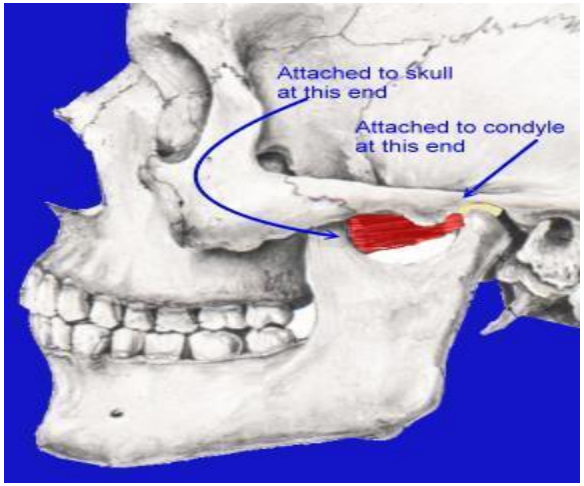
Pituitary

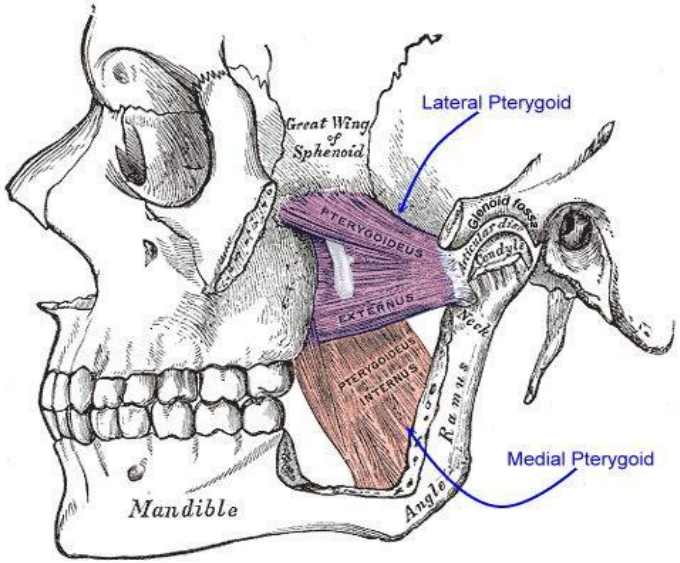
- Internal pterygoid (post)
- Temporalis (ant)
- Iliolumbar lig
- Multifidus

TMJ muscles



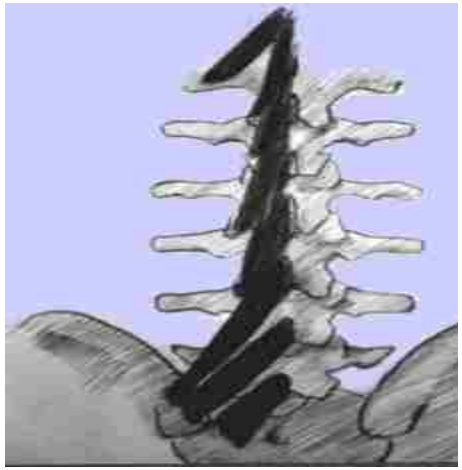

M. temporalis ant.
M. masseter

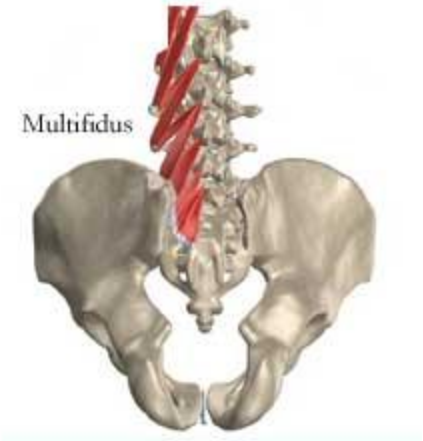

Attached to skull at this end
Attached to condyle at this end

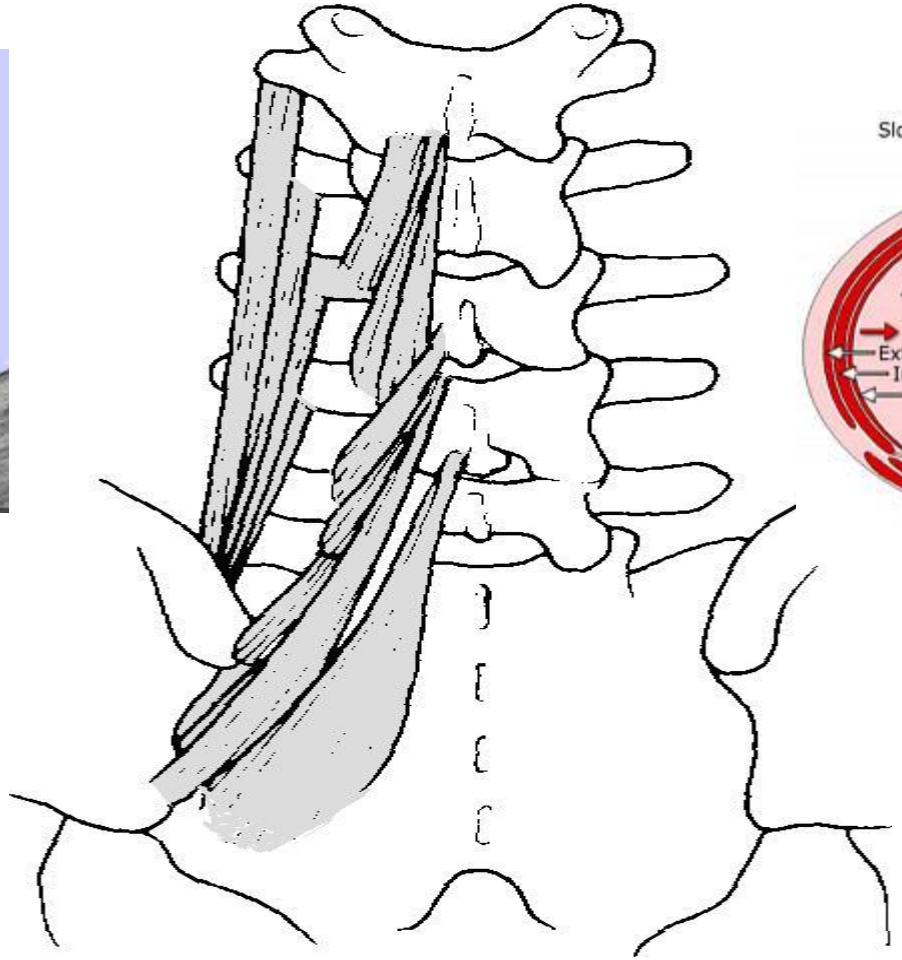

Great Wing of Sphenoid
Lateral Pterygoid
Glenoid fossa
PTERYGOIDEUS EXTERNUS
Neck
PTERYGOIDEUS INTERNUS
Ramus
Medial Pterygoid
Mandible
Angle

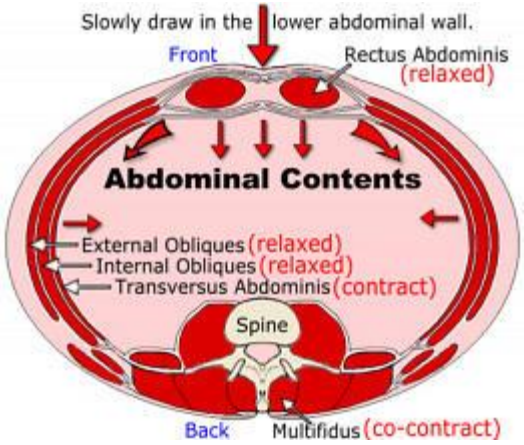
Iliolumbar ligament

multifidus




Multifidus




Slowly draw in the lower abdominal wall.
Front
Rectus Abdominis (relaxed)
Abdominal Contents
External Obliques (relaxed)
Internal Obliques (relaxed)
Transversus Abdominis (contract)
Spine
Back
Multifidus (co-contract)

- Thalamus –occipitalis
- Hypothalamus –혀를 입천장에