



اولین دوره بین المللی فیتنس در ایران

۱۶ لغایت ۲۰ فروردین
6-10 APRIL

آسیب های رایج در فیتنس و مروری بر حرکات اصلاحی

دکتر سید محمد حسینی

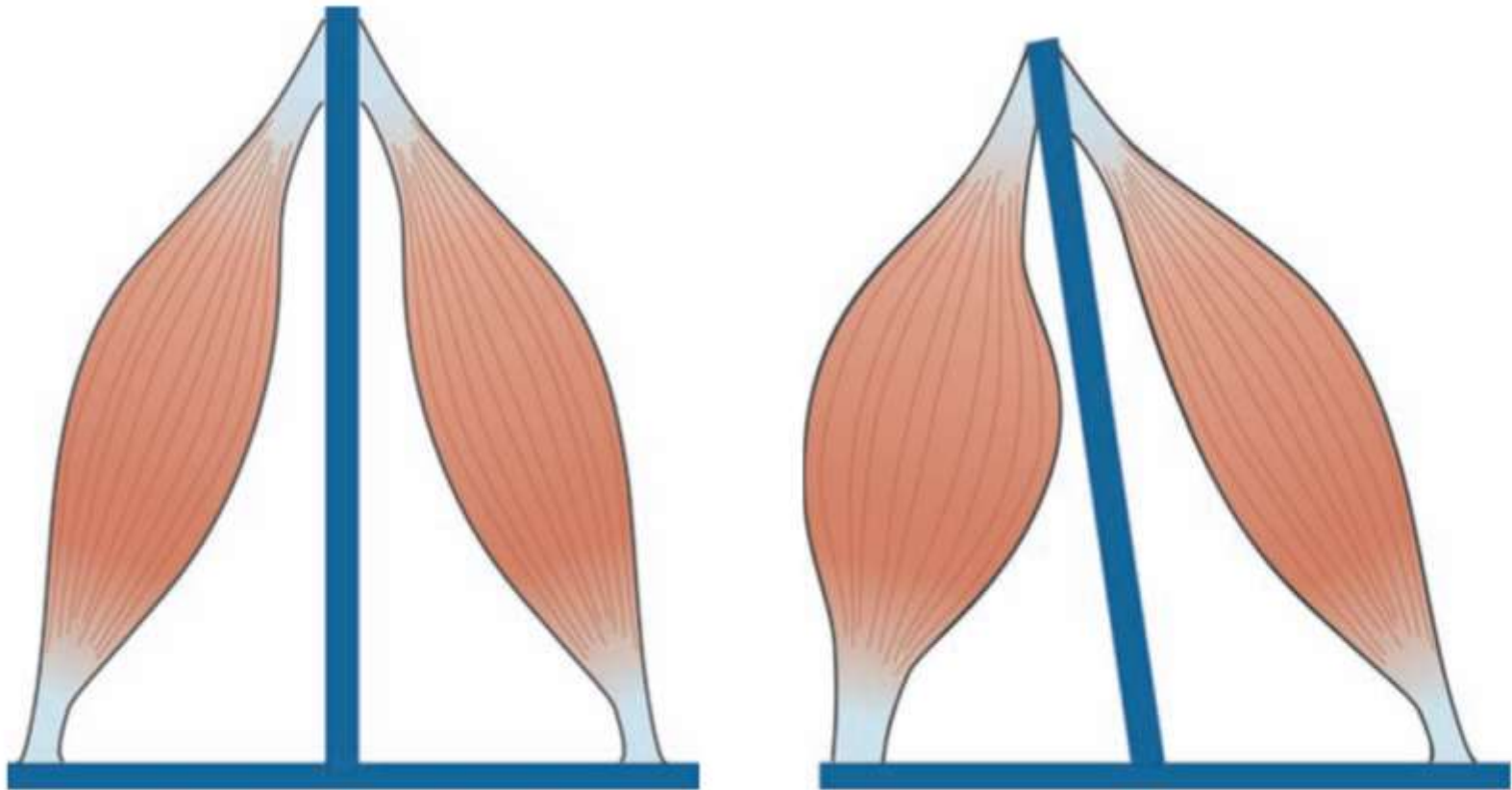
دکتری آسیب شناسی ورزشی و حرکات اصلاحی

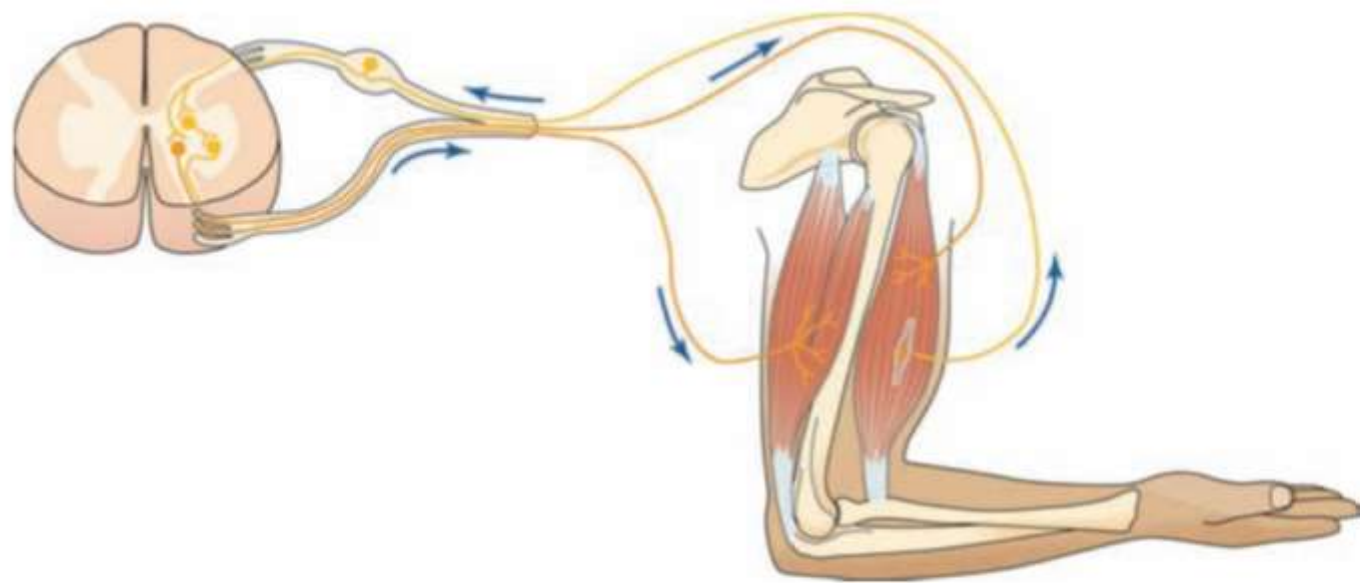
هیئت علمی دانشگاه شهید بهشتی

اینستاگرام: @dr.sm.hoseini

تعداد عضلانی

Muscle coordination





➤ **آگونیست‌ها:** عضلاتی که به عنوان حرکت دهنده‌های اصلی عمل می‌کنند.

➤ **آنتاگونیست‌ها:** عضلاتی هستند که در نقطه‌ی مقابل حرکت دهنده‌های اصلی، عمل می‌کنند.

➤ **عضلات همکار:** عضلاتی هستند که به حرکت دهنده‌های اصلی در خلال الگوهای عملکردی حرکت، کمک می‌کنند.

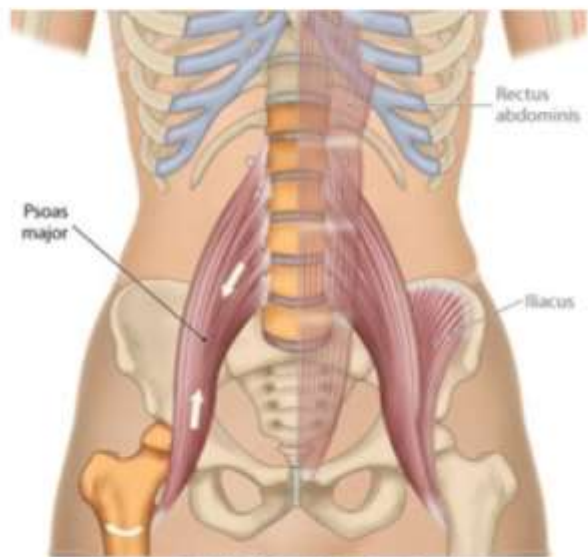
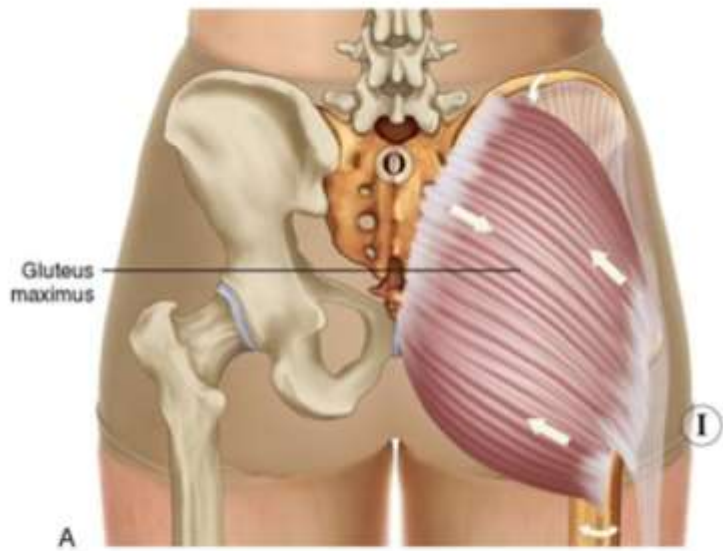
➤ **پایدار کننده‌ها:** هنگامی که حرکت دهنده‌های اصلی و عضلات همکار، در حال اجرای الگوی حرکتی هستند، بدن را حمایت یا پایدار می‌کنند.

Table 2.4 MUSCLE SYNERGIES

Bench Press	
Prime Mover	Pectoralis major
Synergists	Anterior deltoid
	Triceps
Stabilizers	Rotator cuff
	Biceps



Figure 5.5 Overused muscles on gym members.



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• محرک عصبی یکی از عضلات (همکار) در الگوی حرکتی خاص کاهش می یابد

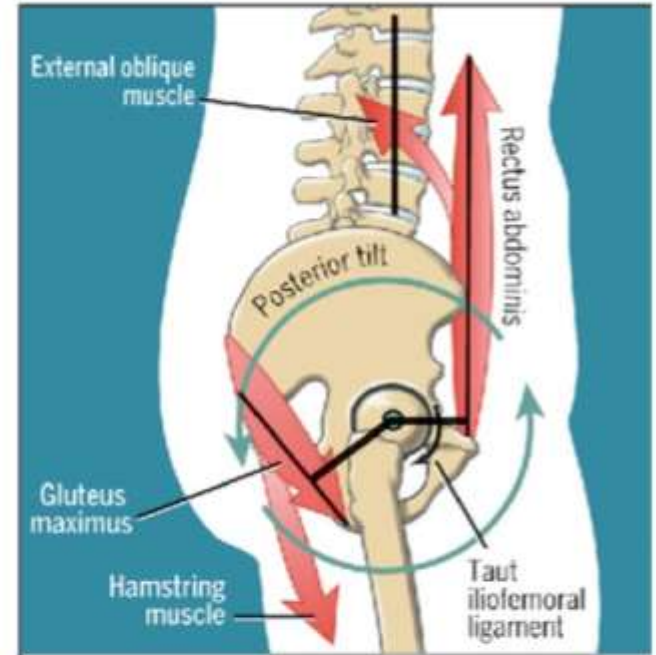
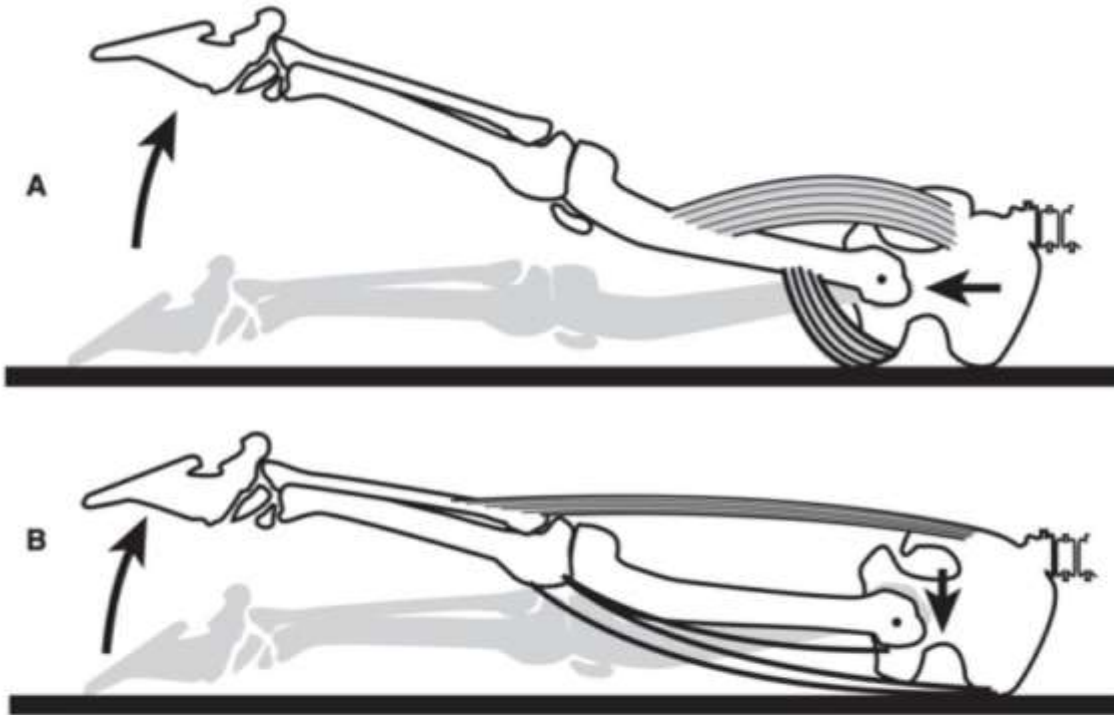
• غلبه همسترینگ بر سرینی بزرگ

• غلبه همسترینگ بر راست شکمی

• غلبه تنسور فاشیا لاتا بر گلوئوس مدیوس

• غلبه قسمت فوقانی تراپزیوس بر قسمت تحتانی آن

غلبه عضلات بر یکدیگر





A Normal lumbar and hip flexion

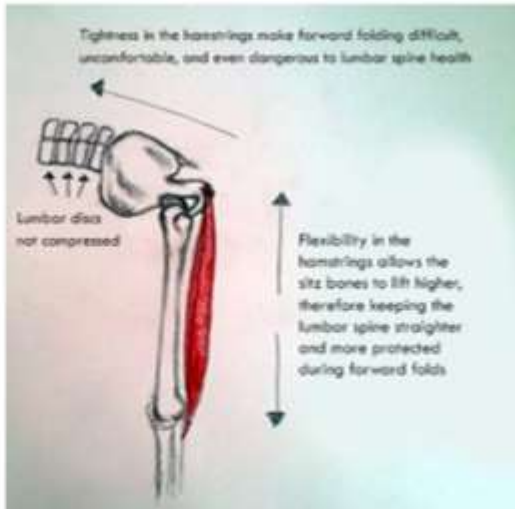


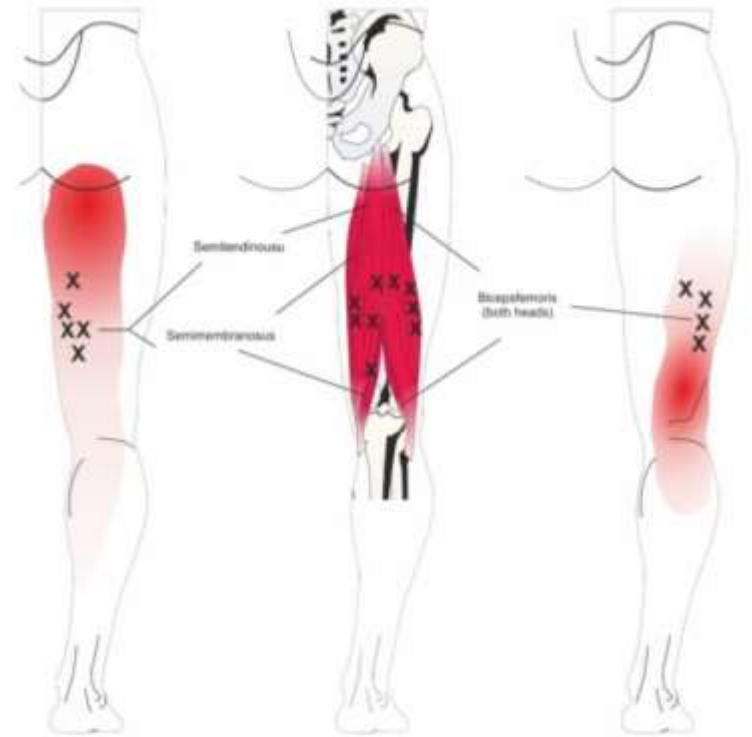
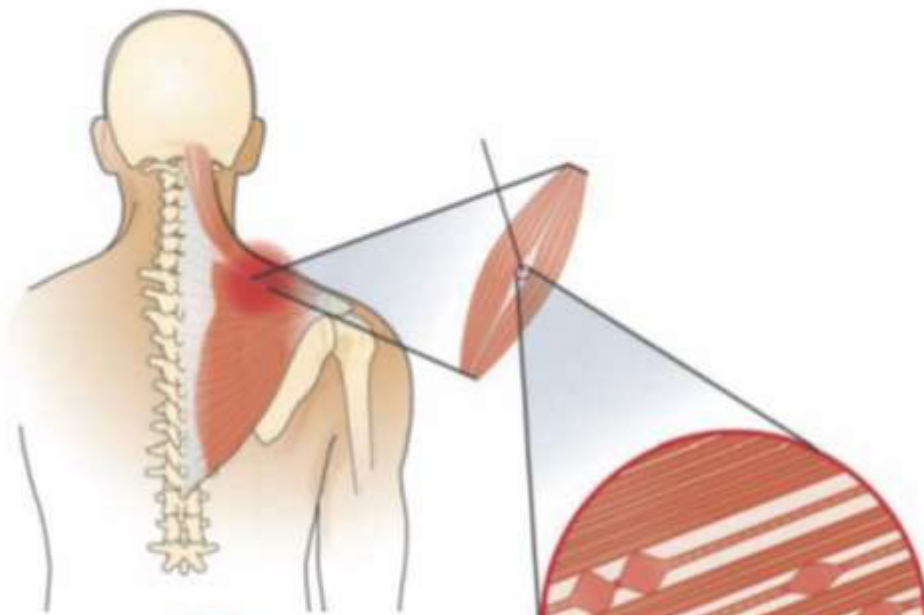
B Limited hip flexion and excessive lumbar flexion

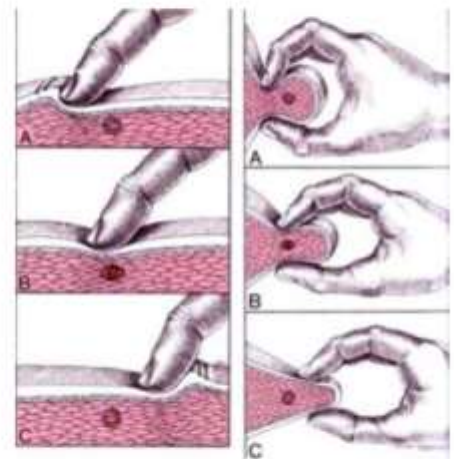


C Limited lumbar flexion and excessive hip flexion

Source: Matt Dalton. Dalton's Orthopedic Treatment, Evaluation, and Prevention, 4th Edition. www.daltonortho.com
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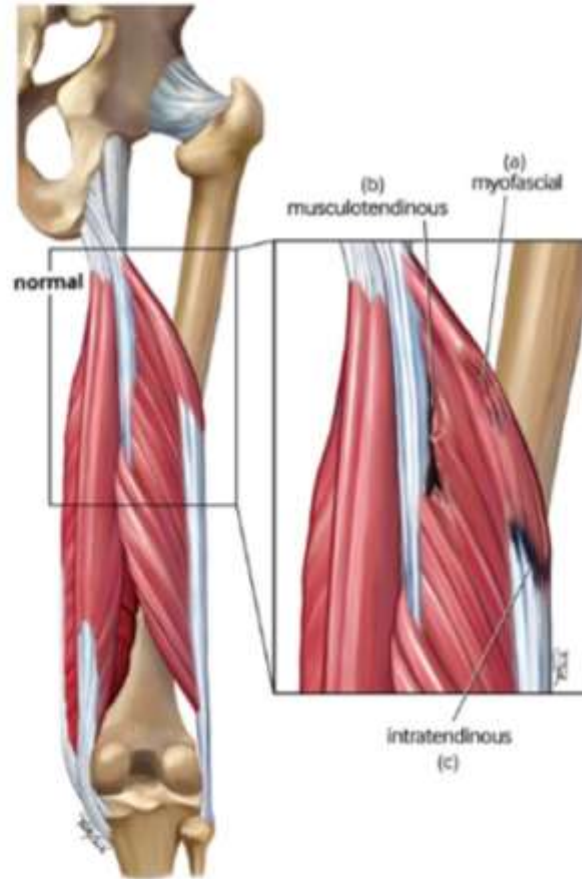
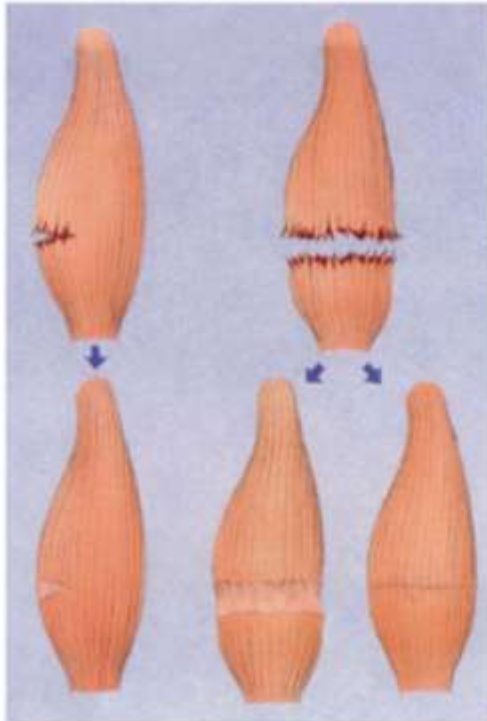








آسیب های ورزشی حاد و مزمن



R.I.C.E.

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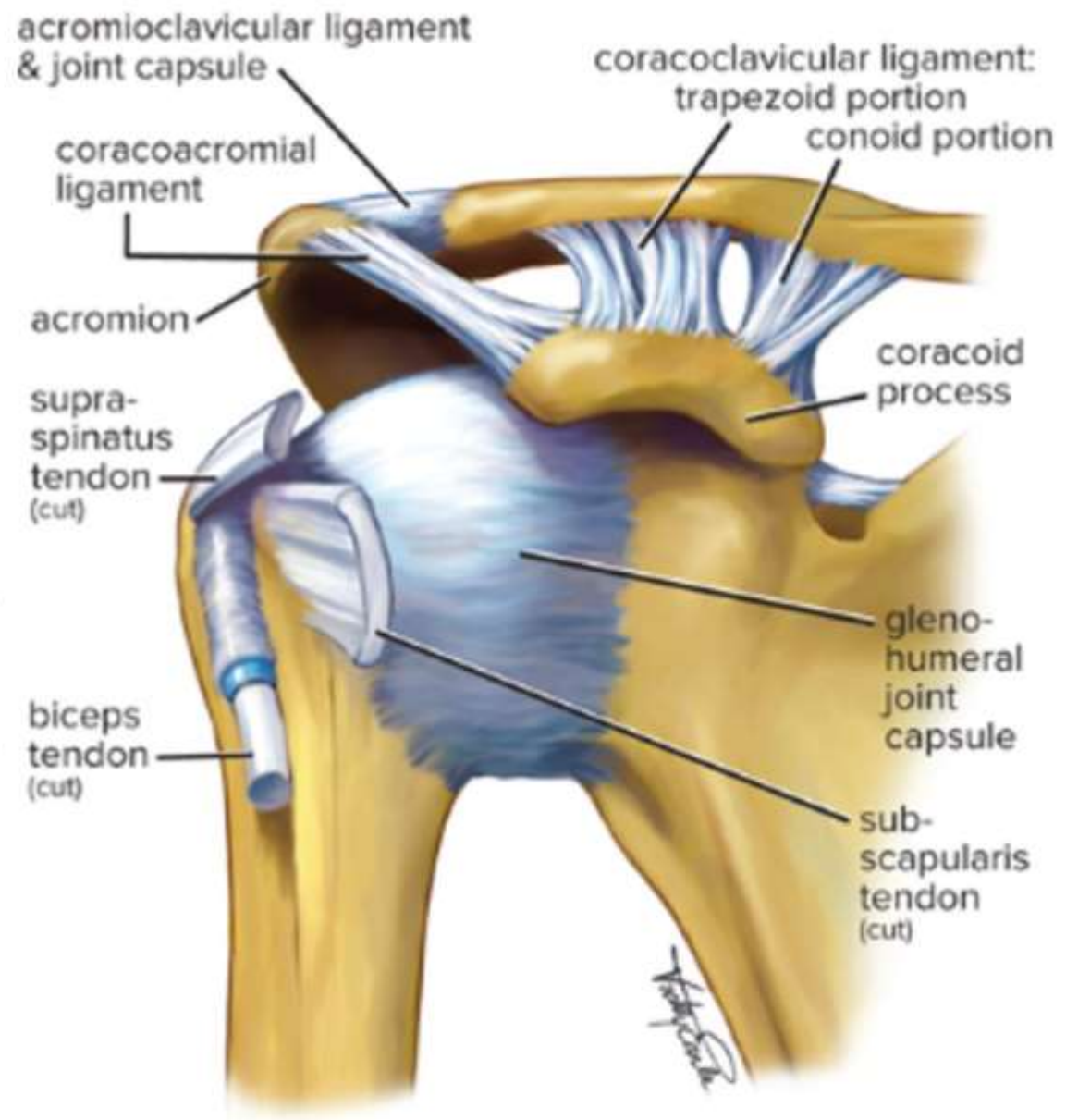
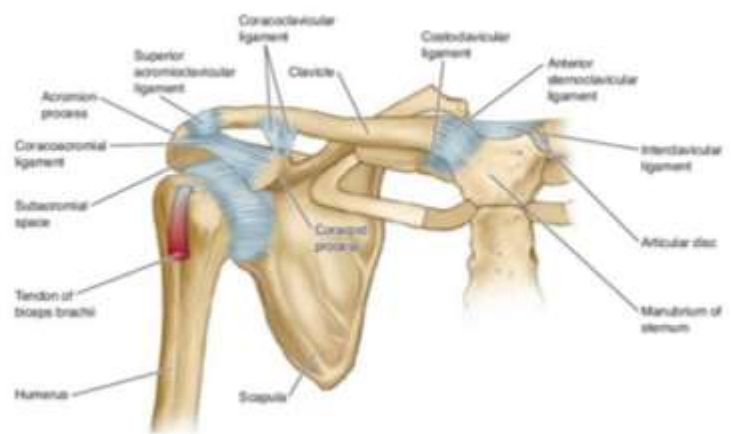
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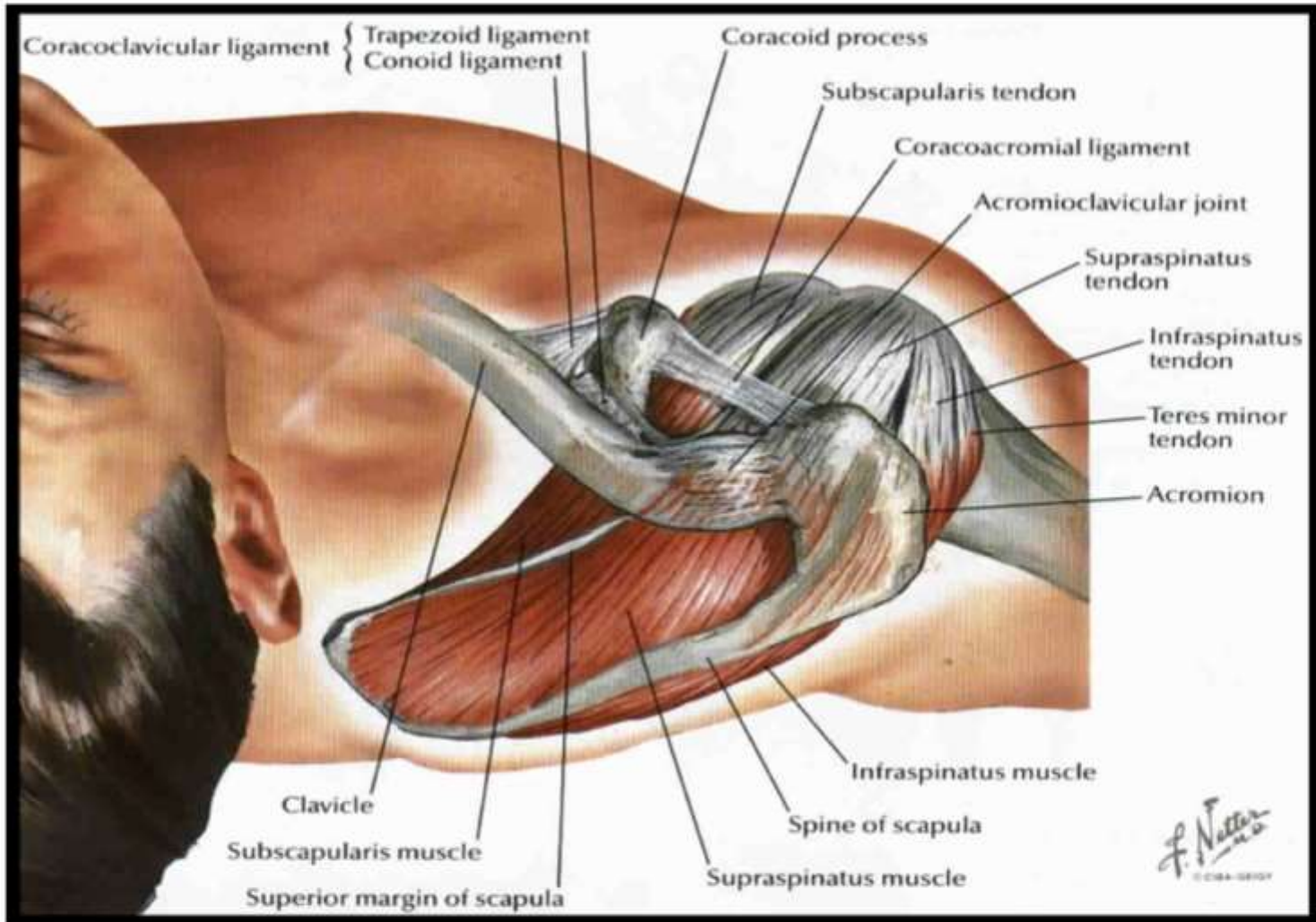
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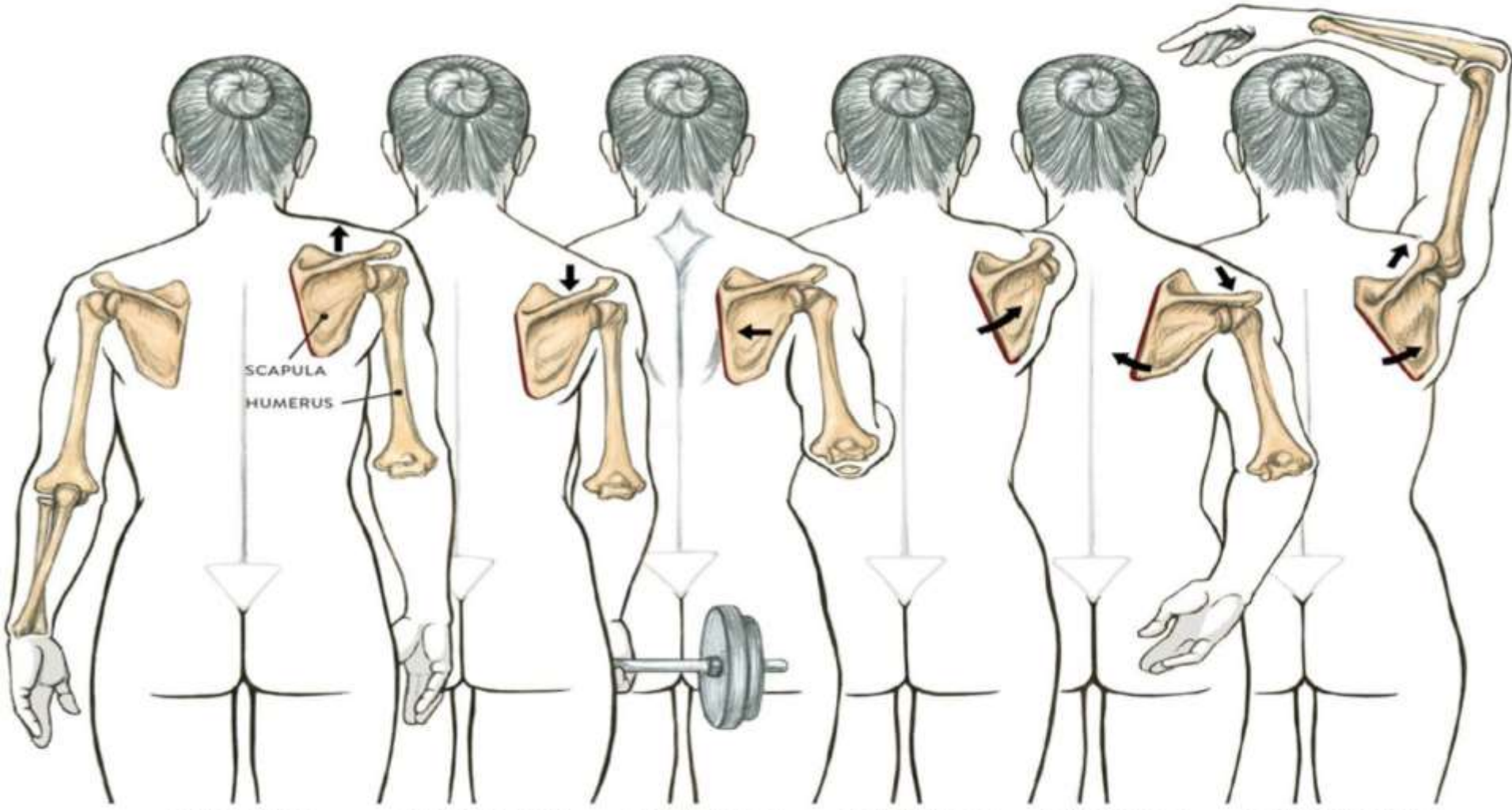
• بالا نگه داشتن عضو صدمه دیده



آسیب شانه
عضلات شانه







1. Elevation of right scapula

2. Depression of scapula

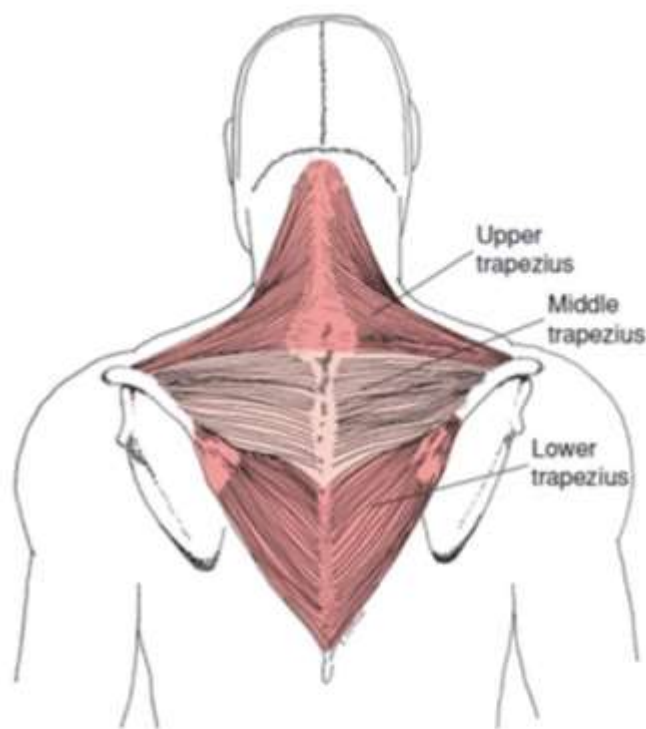
3. Adduction of scapula

4. Abduction of scapula

5. Downward rotation of scapula

6. Upward rotation of scapula

ذوزنقه Trapezius



سر ثابت: ستون مهره ها
سر متحرک: قسمت داخلی استخوان کتف

عمل: (به طور کلی)

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سمت ستون مهره ها)

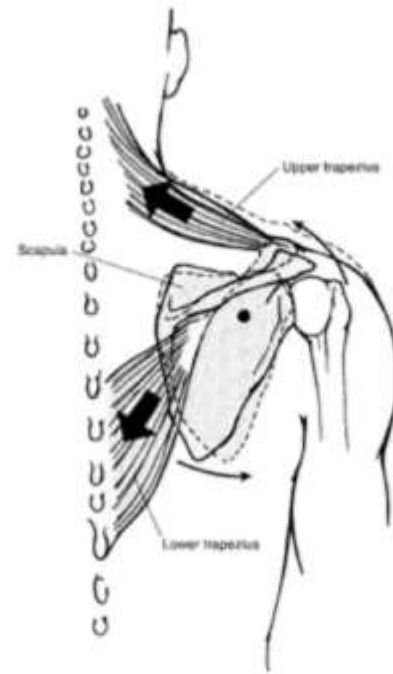
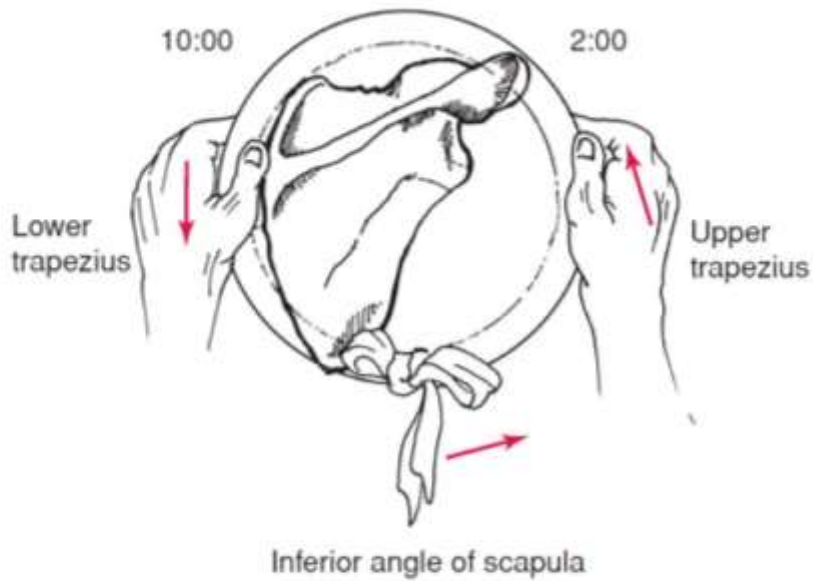
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بالا کشیدن کتف

کشش پایینی کتف

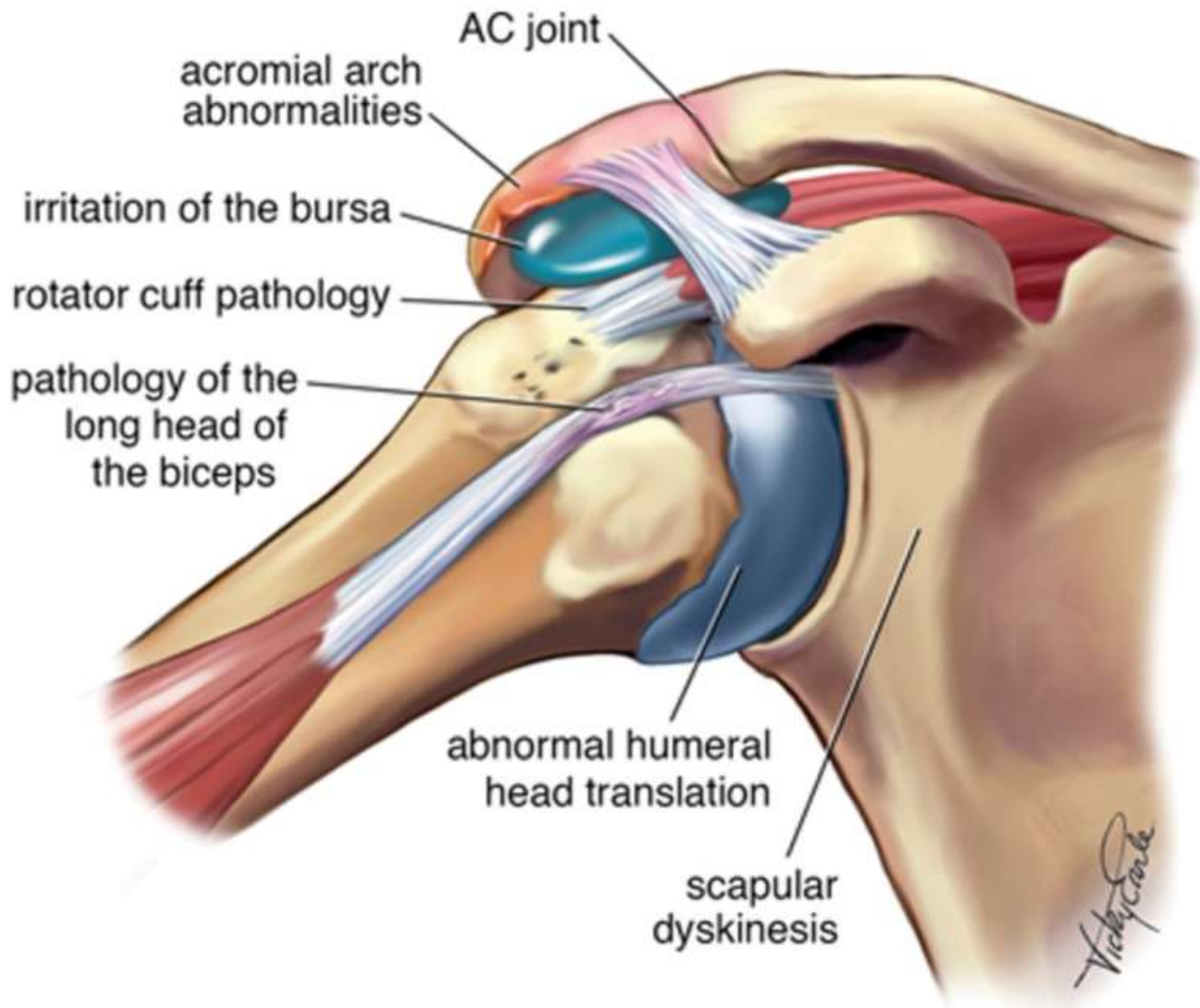
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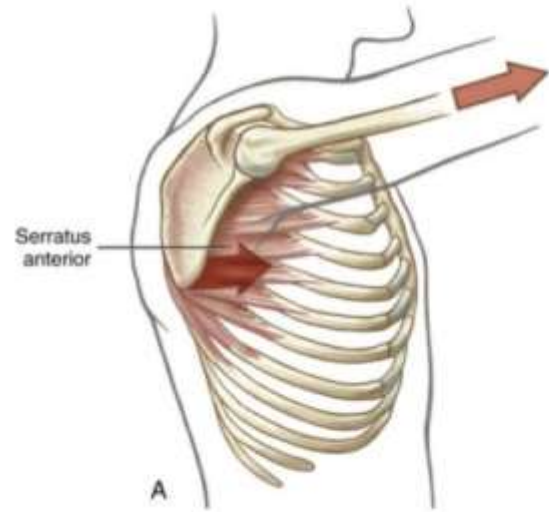
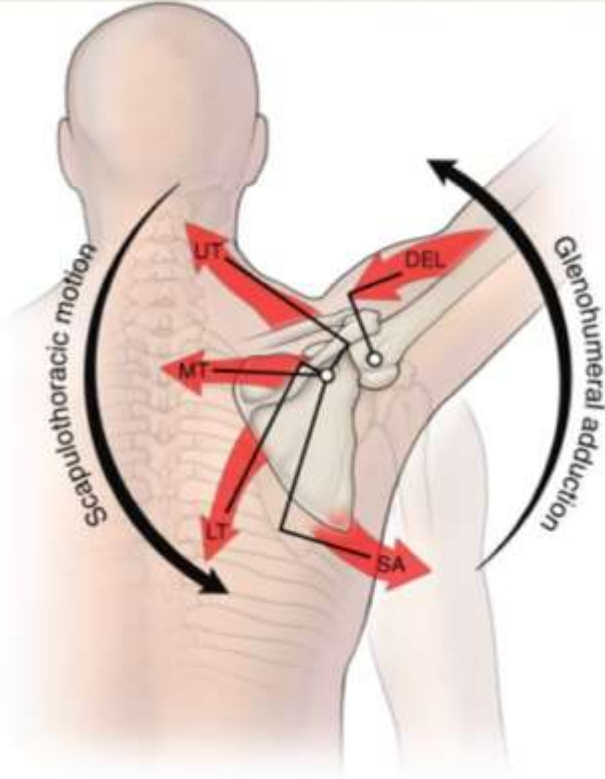
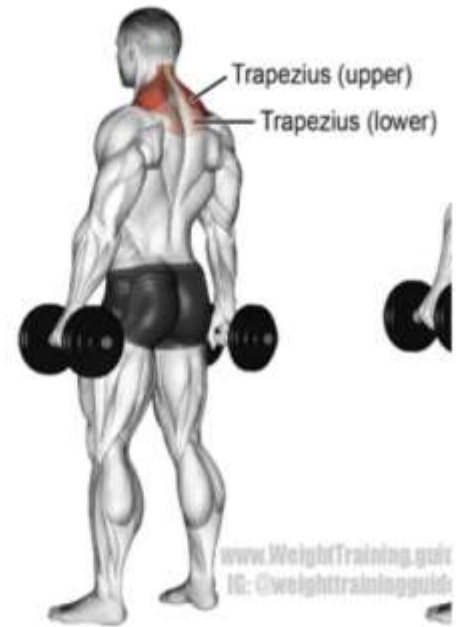
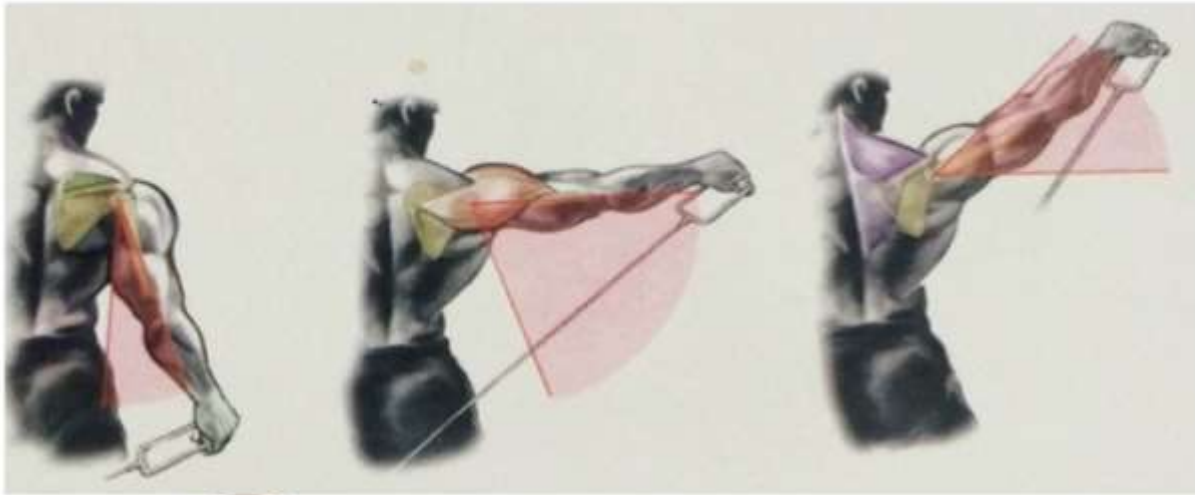
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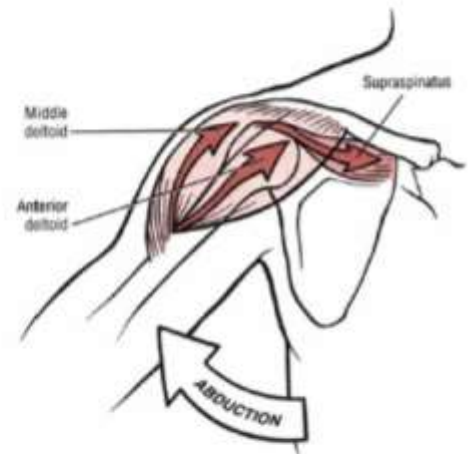
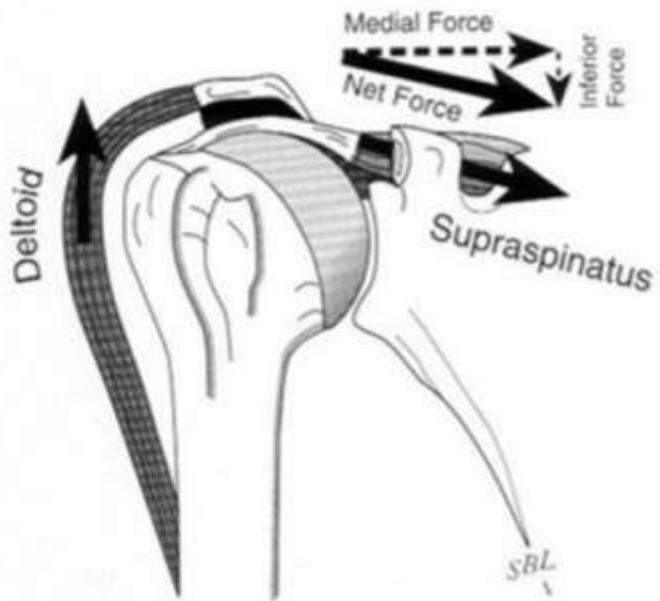
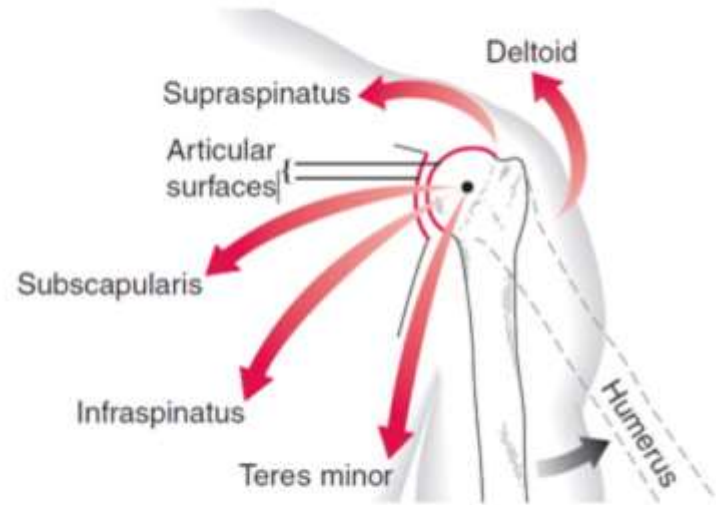


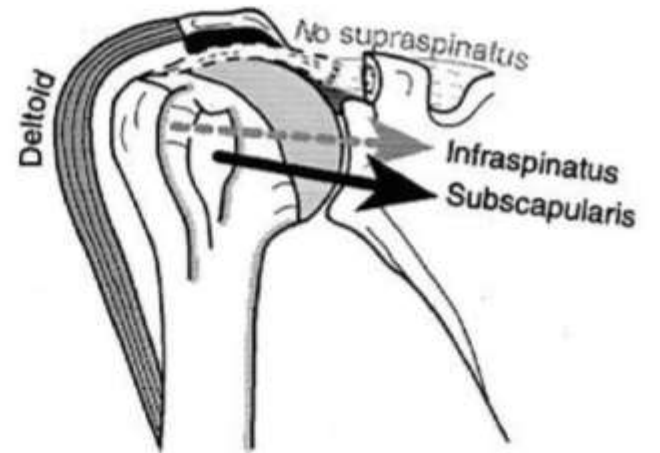
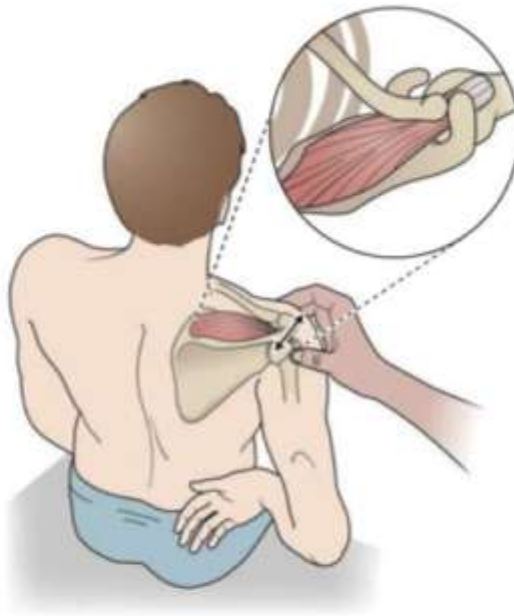
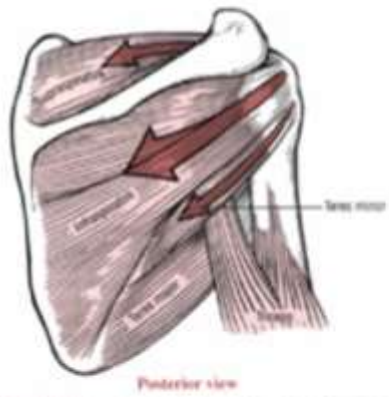
Shoulder Impingement



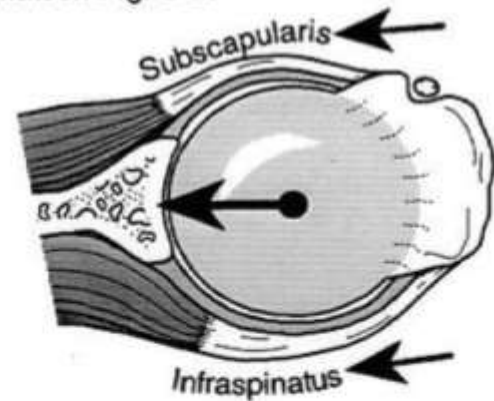


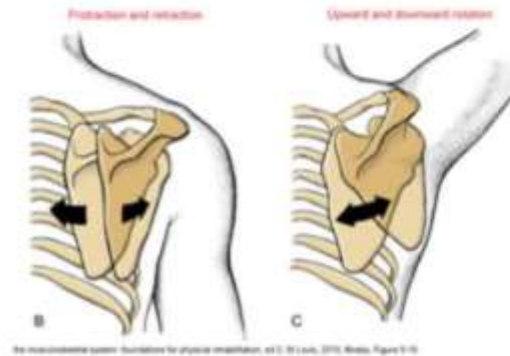
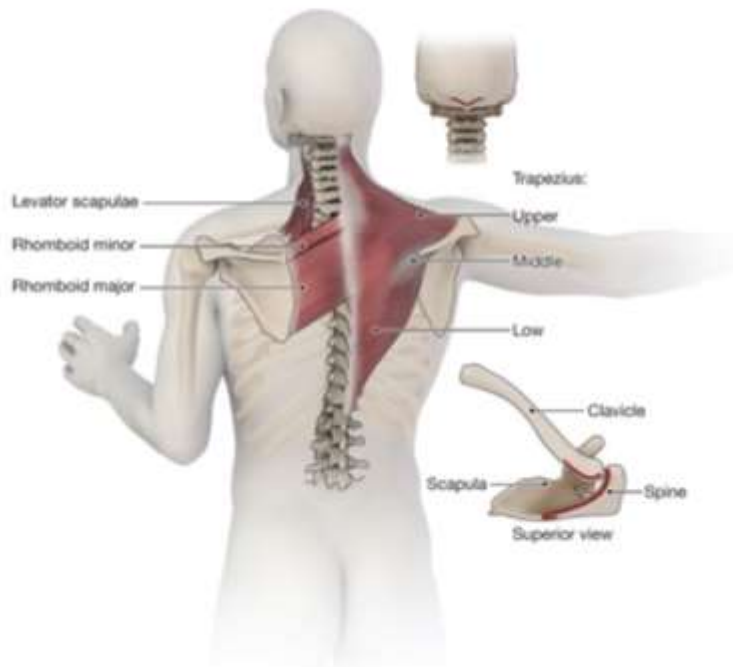






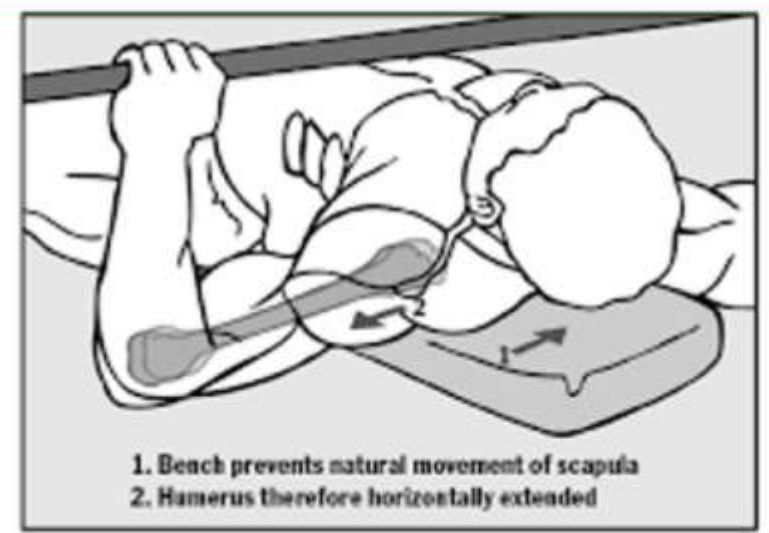
Matsen Fig. 3-20





Source: Mark Dutton: Introduction to Physical Therapy and Patient Skills
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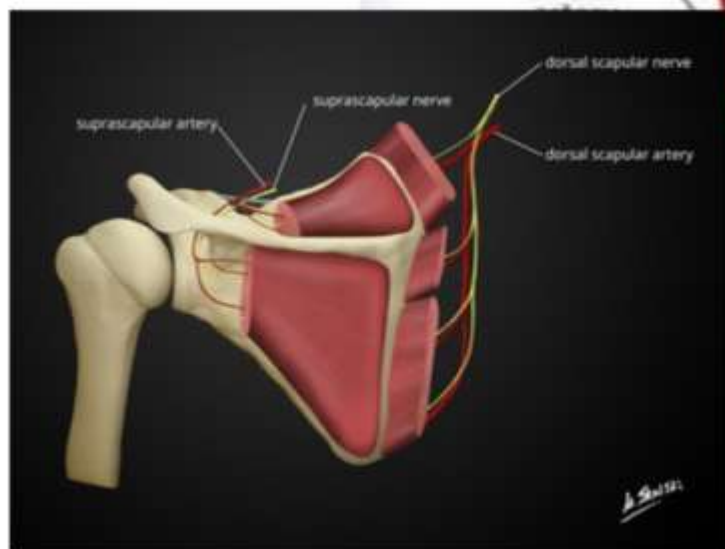
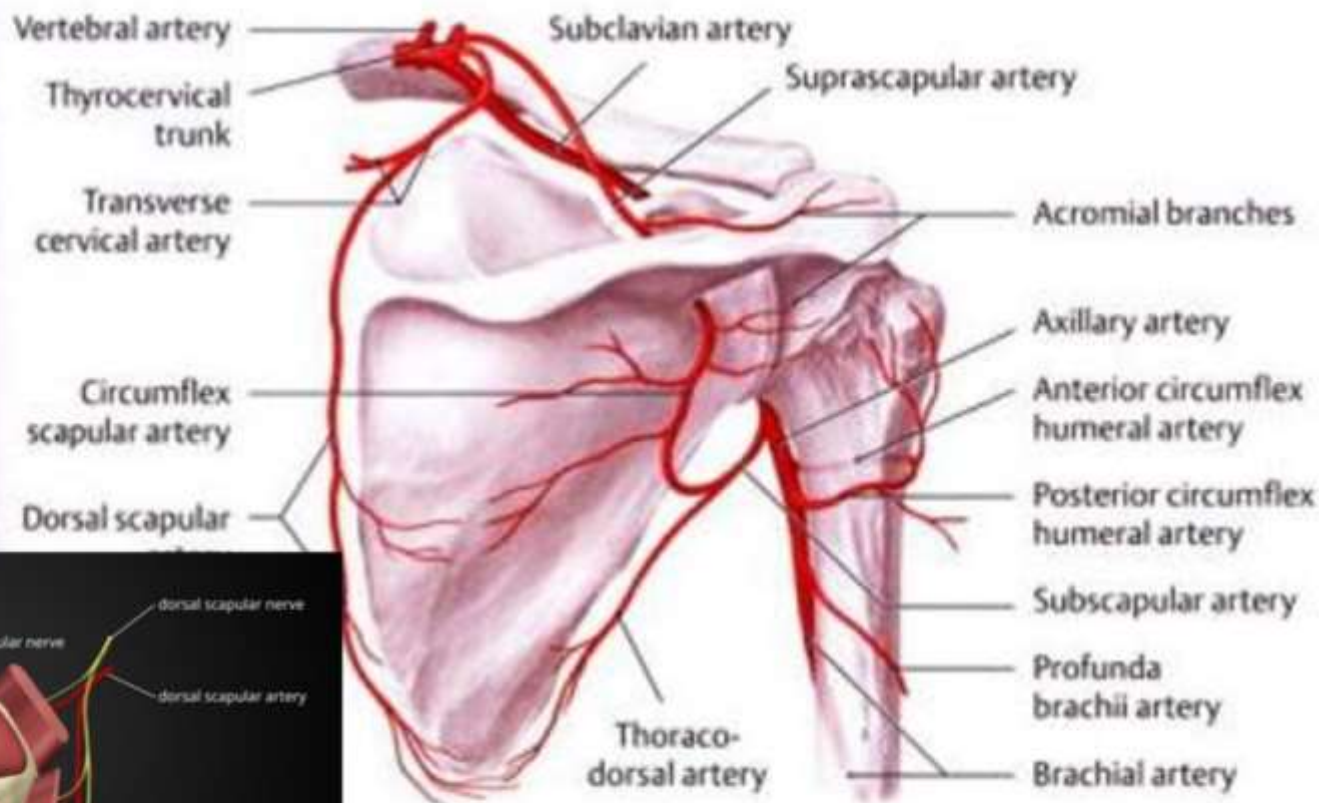
Figure 2: Black arrows show direction of force of pull of supraspinatus and deltoid muscles



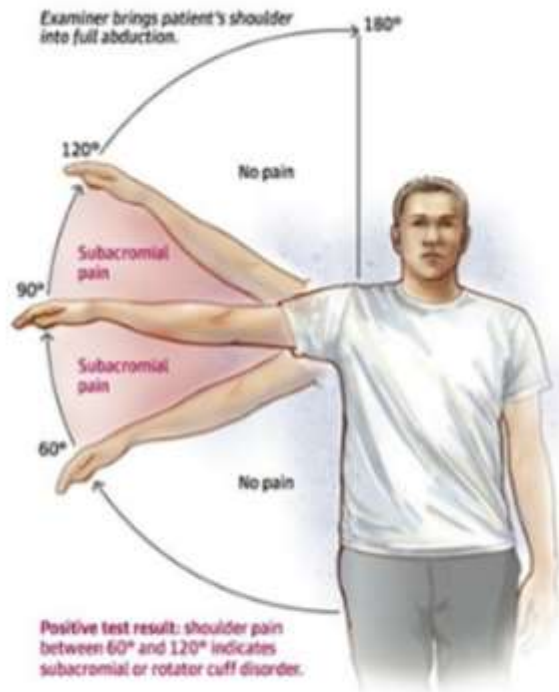
1. Bench prevents natural movement of scapula
2. Humerus therefore horizontally extended



خونرسانی ضعیف در تاندون فوق خاری

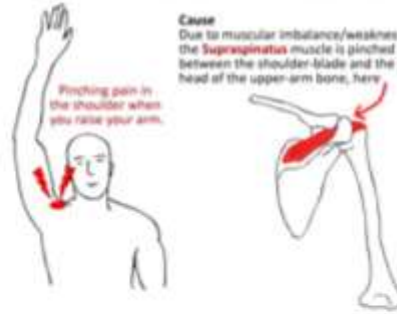


A Pain provocation test: painful arc test



1

Shoulder Impingement Syndrome



C Composite test: external rotation resistance test (infraspinatus muscle)



Positive test result: patient experiences either pain or weakness during the maneuver

Hawkins test

Neer's test

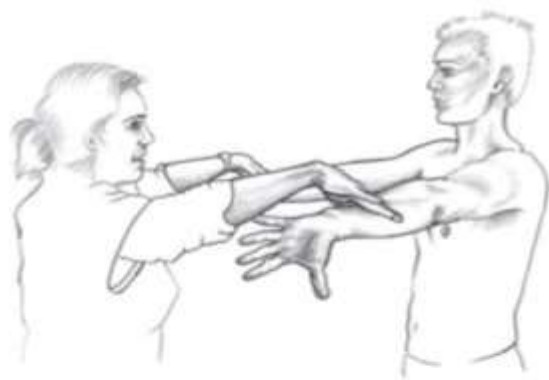
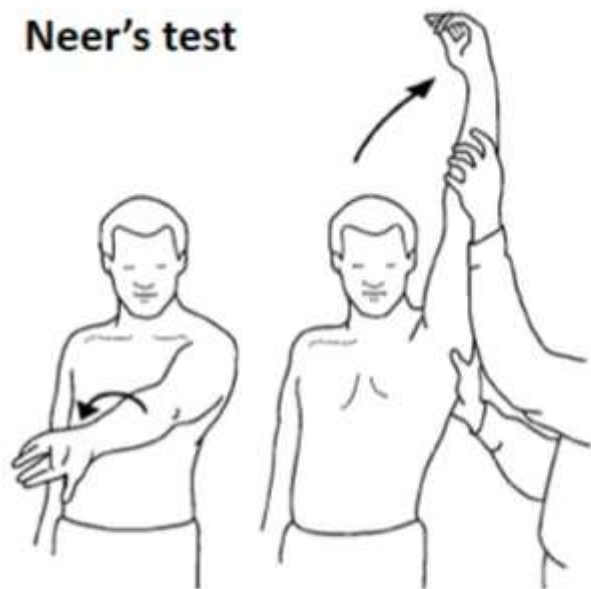


Figure 7.19 Empty can test (Jobe supraspinatus test). The shoulder is put into 90° abduction in the scapular plane and maximal internal rotation (thumbs down); resistance is given against further elevation. Pain and/or weakness confirm impingement and supraspinatus pathology. (© Medical Illustrator Tommy Bolc, Sweden.)

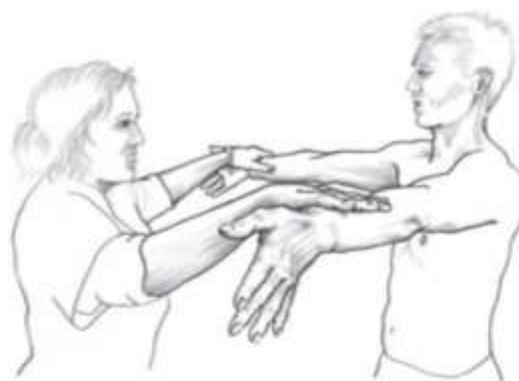
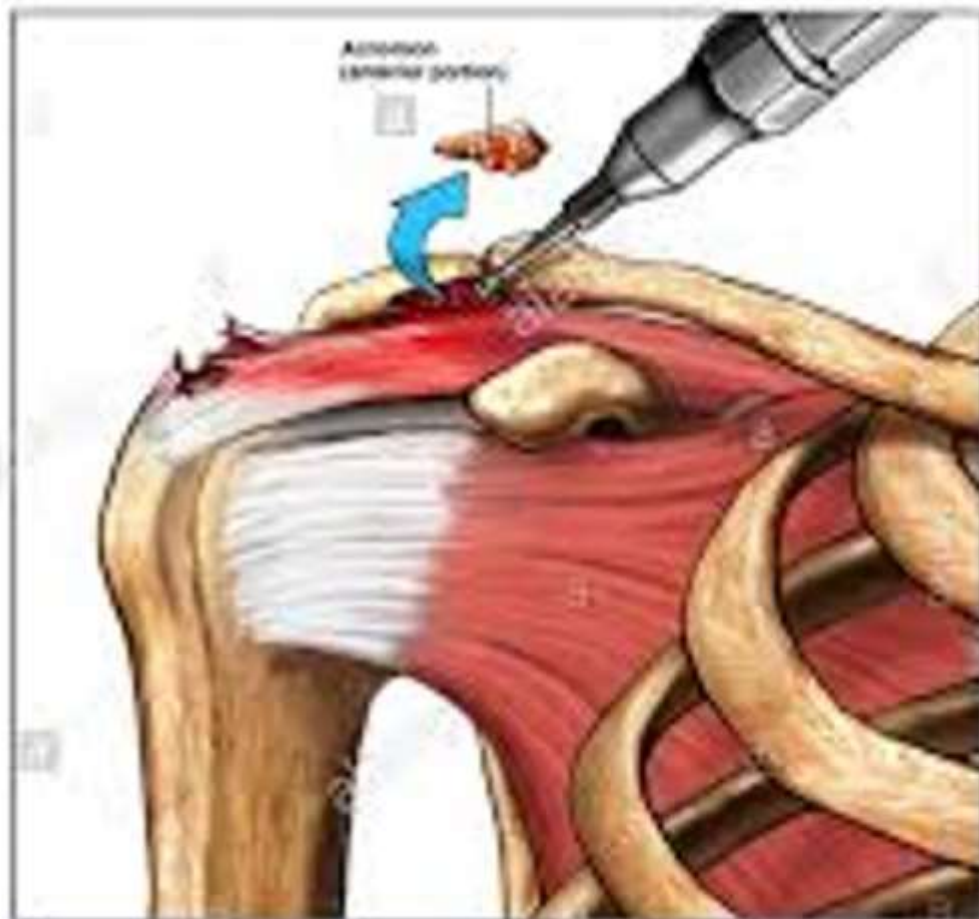


Figure 7.20 Full can test. The shoulder is put into 90° abduction in the scapular plane and external rotation (thumbs up); resistance is given against further elevation. Pain and/or weakness confirm supraspinatus pathology. (© Medical Illustrator Tommy Bolc, Sweden.)
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اعمال پزشکی

A large skin incision is made over the shoulder to reach the area of injury. The anterior portion of the acromion is removed.



پیشگیری و توان بخشی سندروم ایمپینجمنت



رهای عضلات (تریگروپونت)

جنبش پذیری (موبیلیتی)

کشش عضلات کوتاه

تقویت عضلات ضعیف شده

تقویت حس عمقی

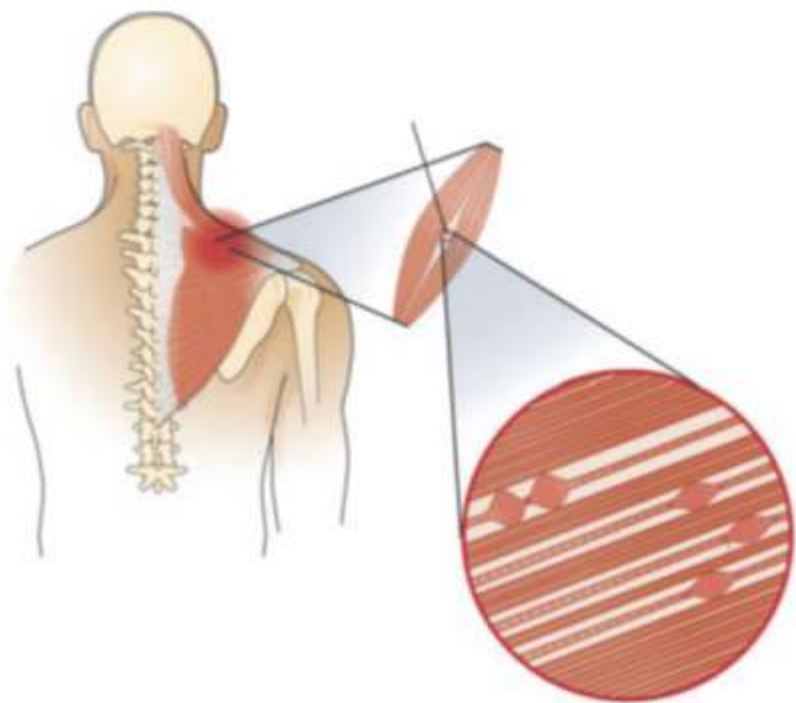








Figure 3. Self stretch of posterior capsule.



WWW.WEIGHTTR
@WEIGHTTR
WEIGHTRA



@dr.sm.hoseini

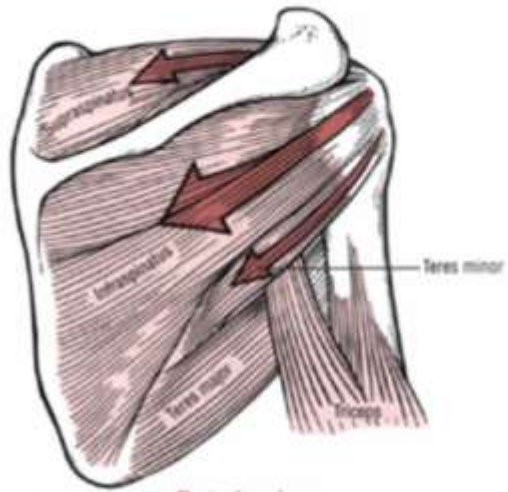




Figure 4. Rowing in prone.



Figure 5. Prone extension.



Figure 6. Prone horizontal abduction



Figure 7. Recruitment of the lower trapezius. Lift the hand off the table by externally rotating the shoulder.



Figure 8. "Superman."



Figure 9. "TYI Exercises." T: Prone on mat. Retract scapulae with arms abducted to 90 degrees and humerus in horizontal abduction.



Figure 10. "TYI Exercises." Y: Shoulders externally rotate with elbow flexed to 90 degrees.



Figure 12. Protraction of scapula.



Figure 13. Prone, supported on



Figure 14. Quadruped position.



Figure 15. Push up position.



Figure 18-65 Slide board exercises. **A**, Forward and backward motion. **B**, Wax-on/wax-off motion. **C**, Hands lateral motion. The athlete shifts weight from side to side

closed-kinetic chain, and the athletic trainer applies pressure to the scapula in a random direction. The athlete moves the scapula isotonicly into the direction of resistance.

B



Figure 18-67 Swiss ball exercises. The athlete lies in a prone position on the Swiss ball and maintains a stable position.

C





Figure 16. Push up position; legs elevated in chair.



Figure 17. Push up position; hands placed on wobble board.



Figure 18. "Walk-outs."



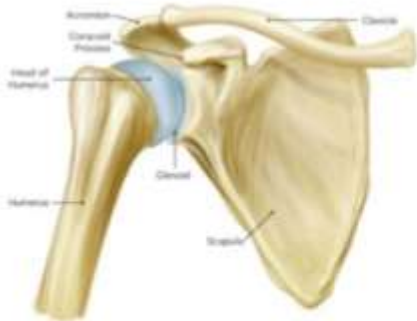
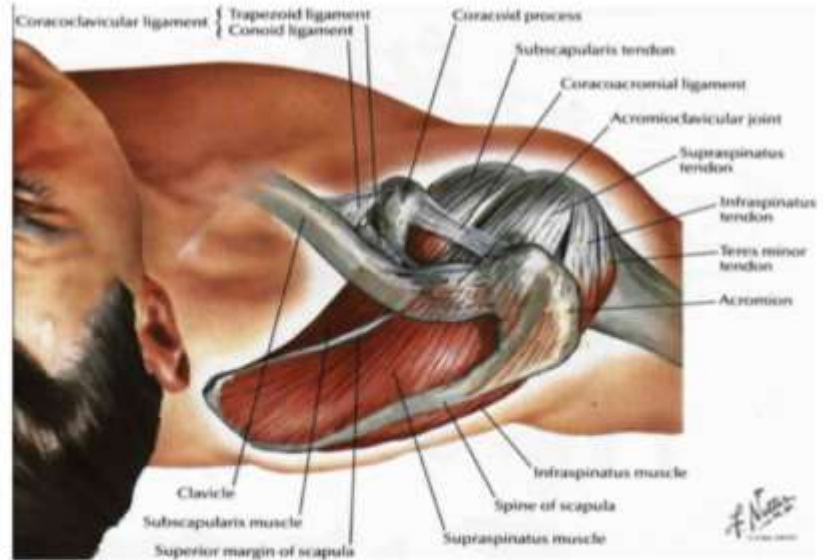
Figure 19. "Step-overs."



دررفتگی و نیمه دررفتگی شانه



Shoulder Subluxation



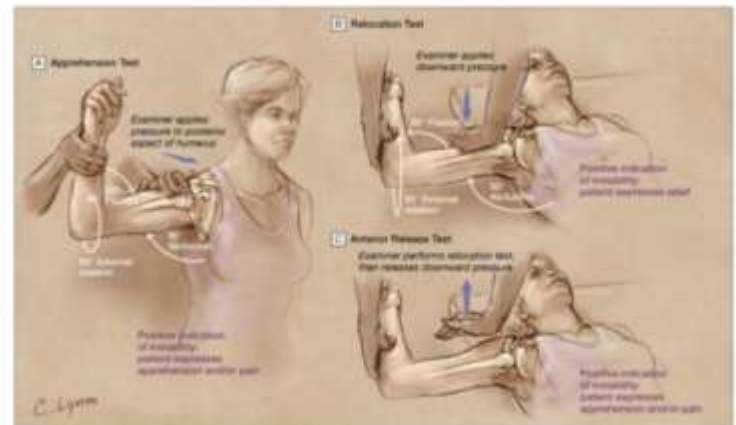
Normal Position of the Shoulder



Shoulder Subluxation

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Source: Soper D., Soper D. The Rational Clinical Examination: Evidence-Based Clinical Diagnosis. 10th. Elsevier; 2014. Copyright © American Medical Association. All rights reserved.

Shoulder Dislocation Exercises



Wand exercise: Flexion



Wand exercise: Extension



Wand exercise: External rotation



Wand exercise: Internal rotation



Wand exerci
Shoulder abduction a

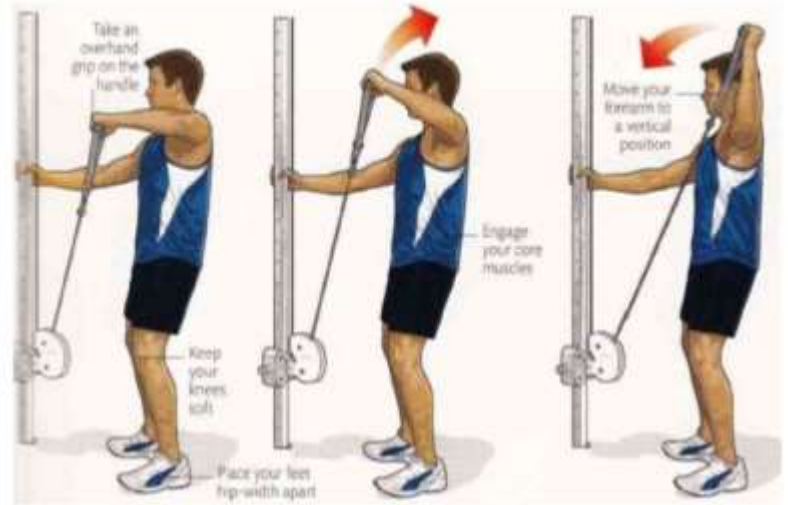
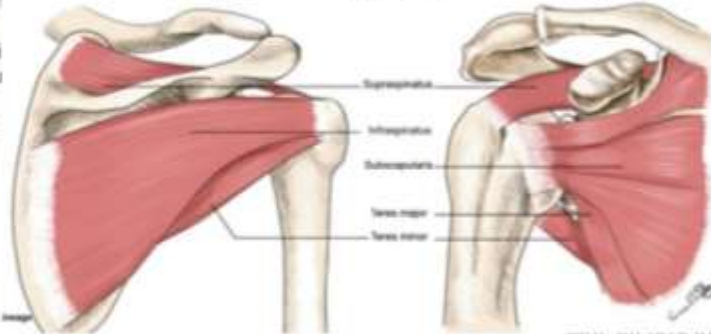
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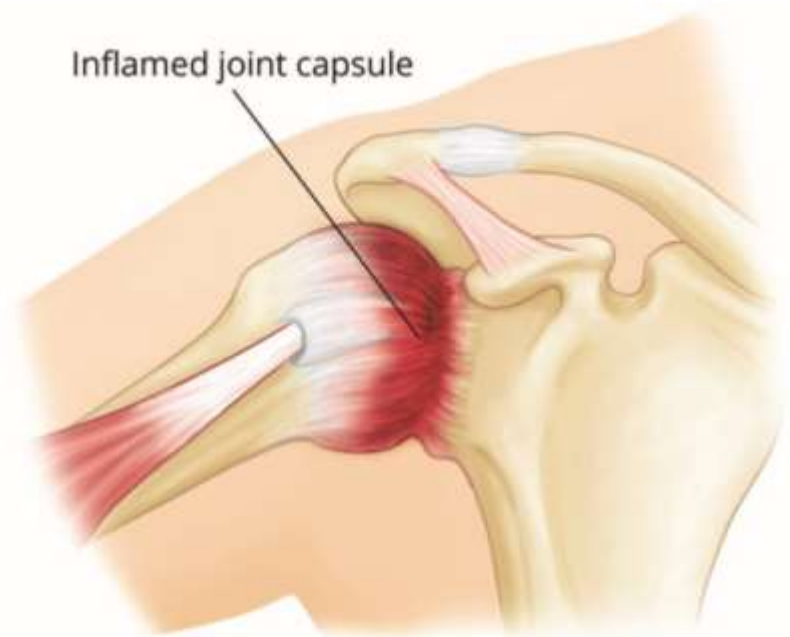
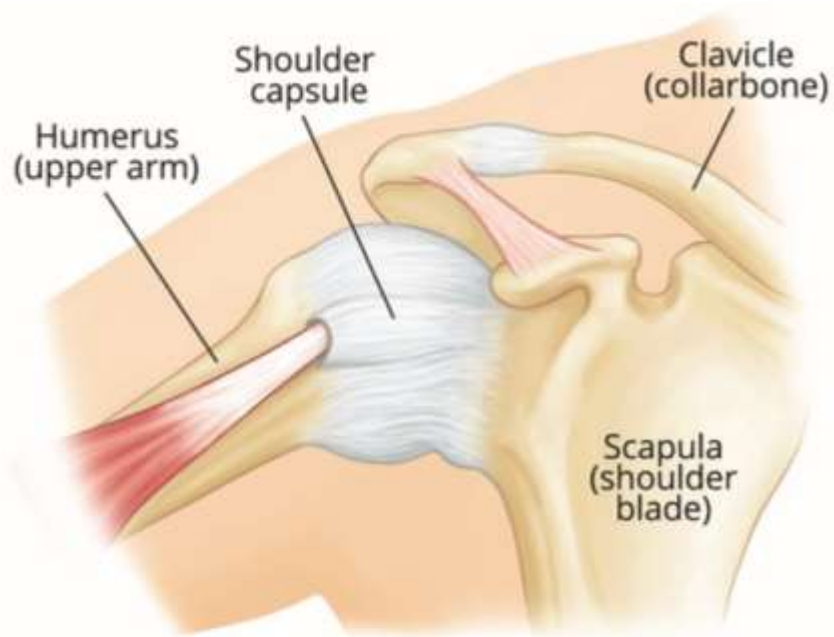
Posterior View

Rotator Cuff

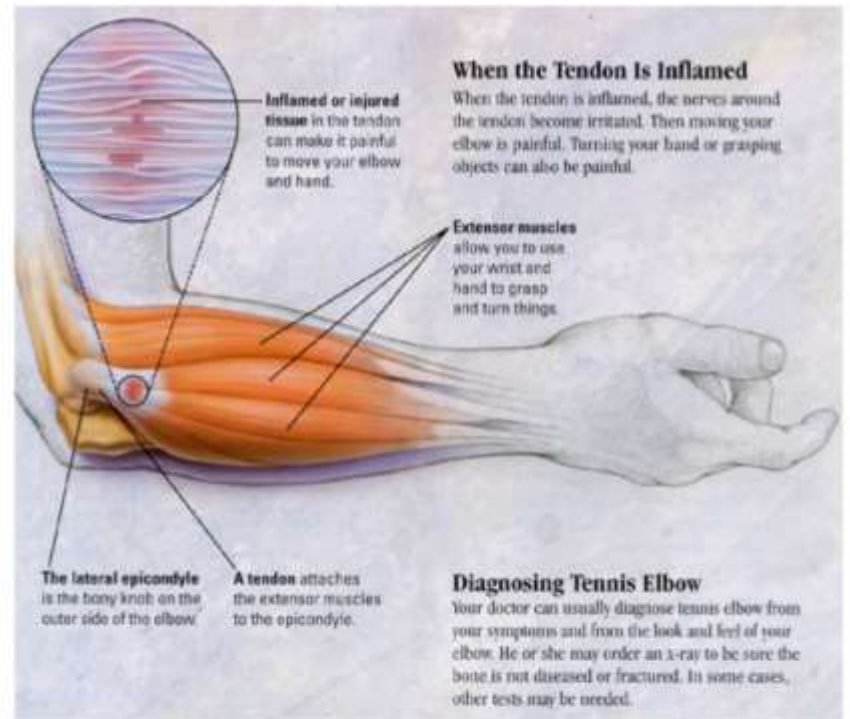
Anterior View

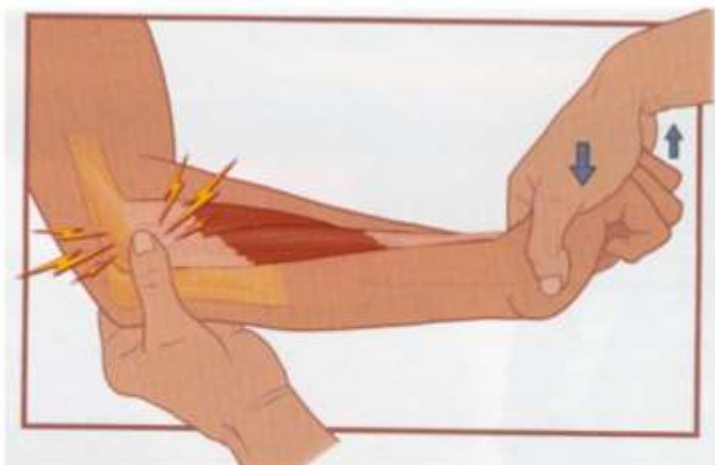


شانه منجمد



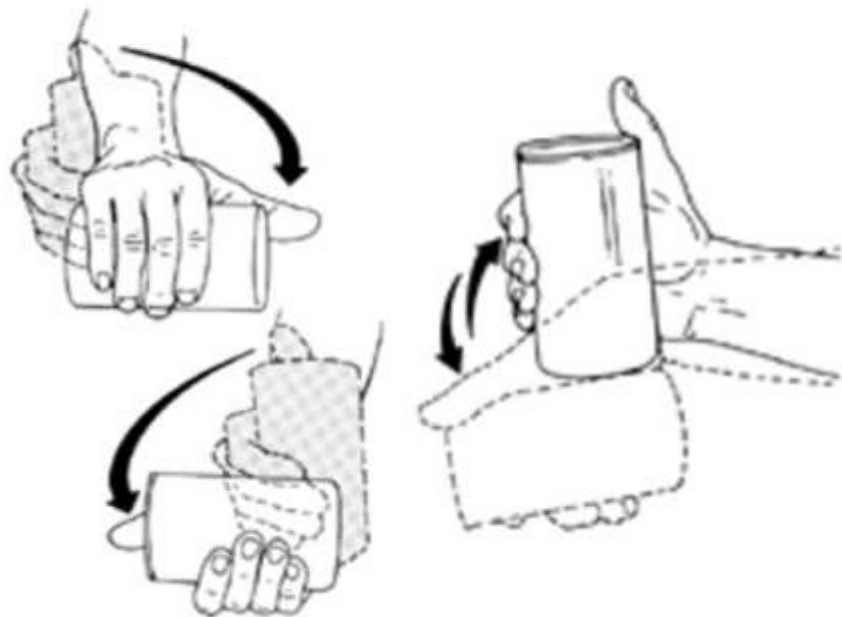
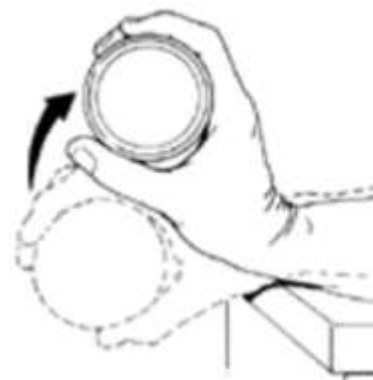
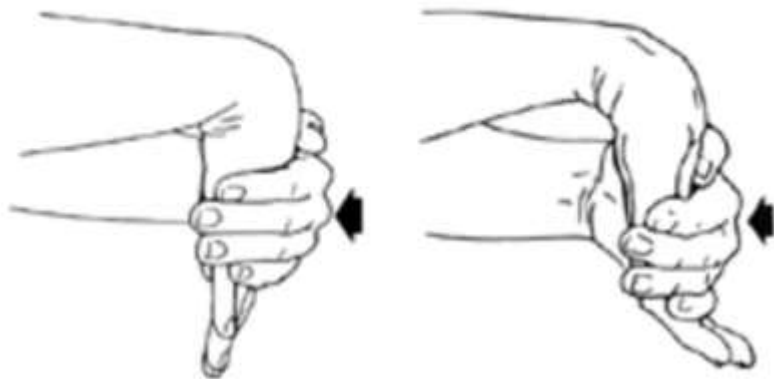
عارضه آرنج تنیس بازان



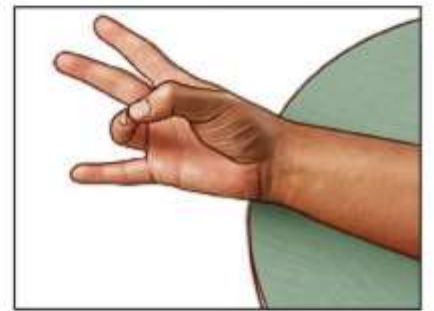
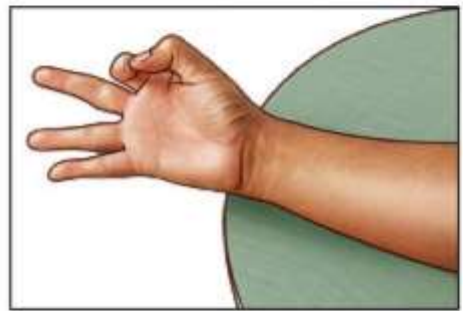
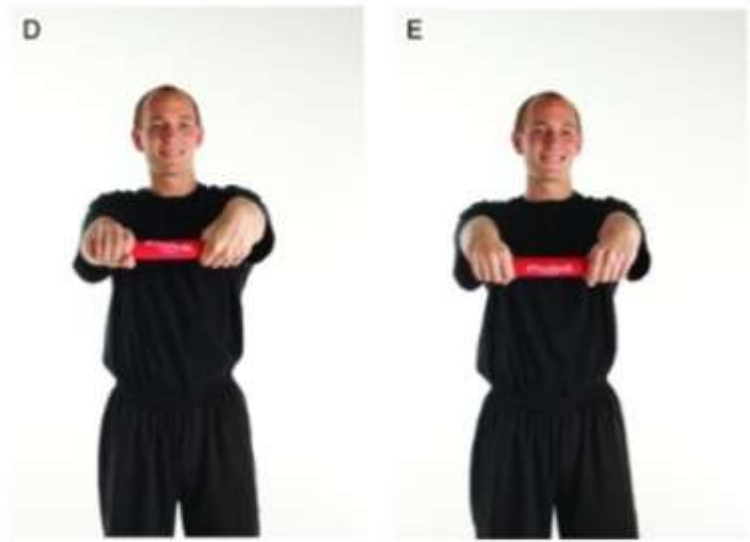




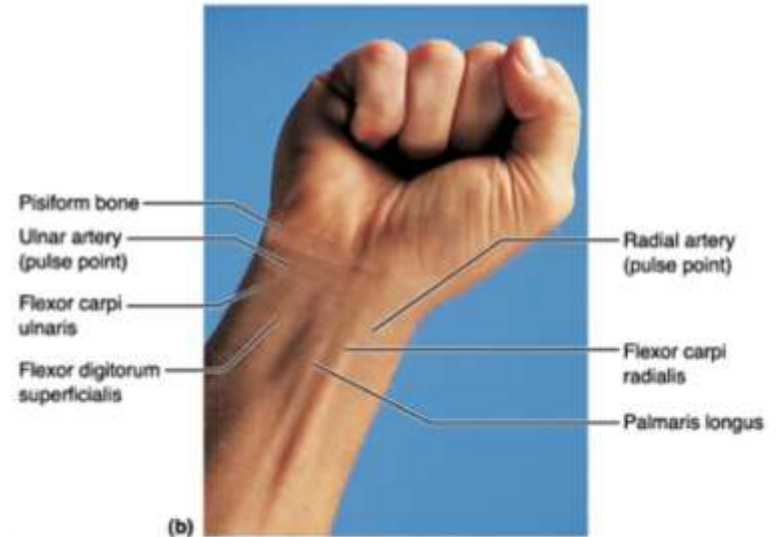
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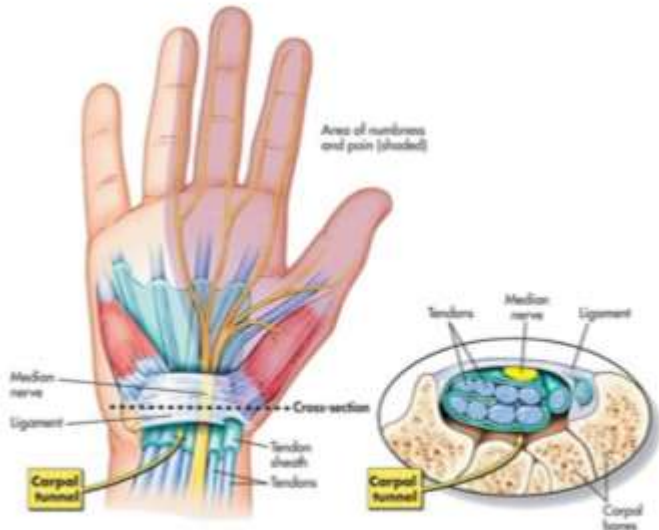
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فشردهگی عصب مديان (سندورم تونل کارپال)



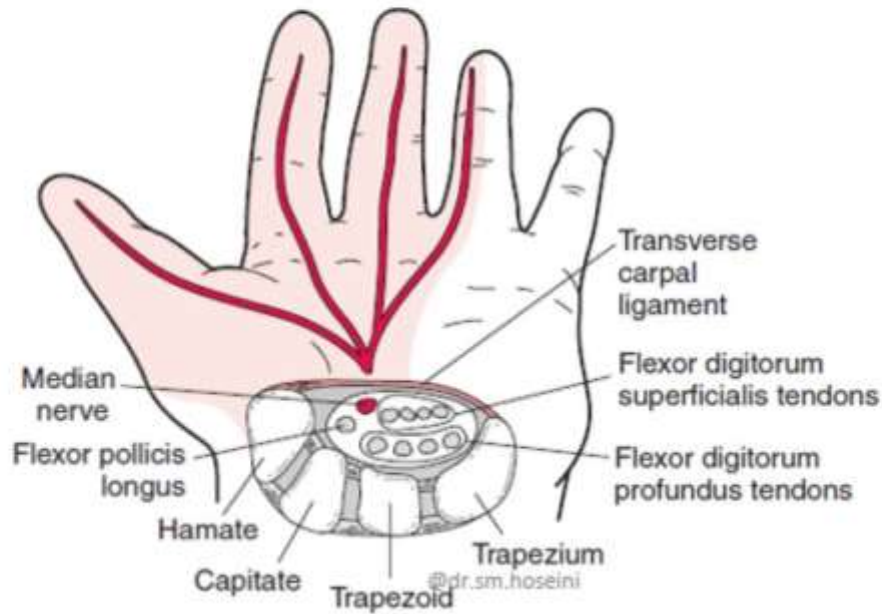
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HGH Benefits:

The Good and Bad Sides of Using It for BodyBuilding



محور میانی بدن
(ستون مهره ها، تنه، شکم، گردن)

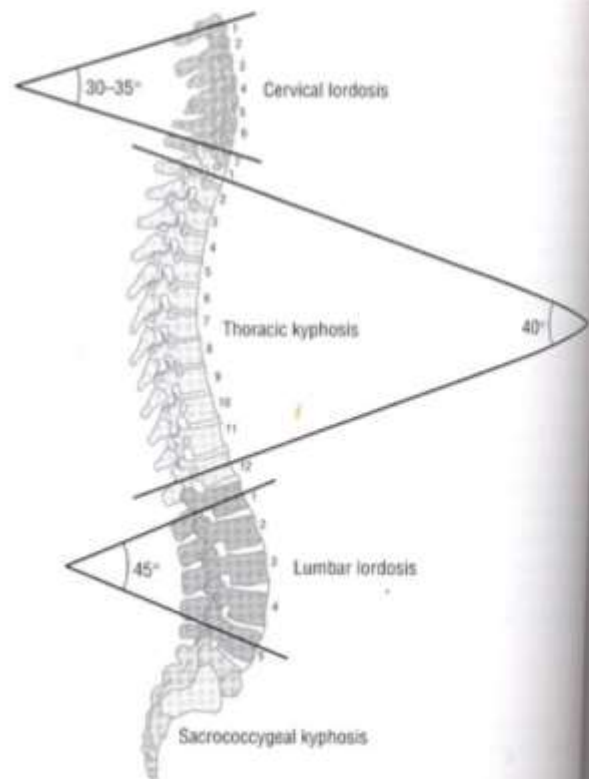
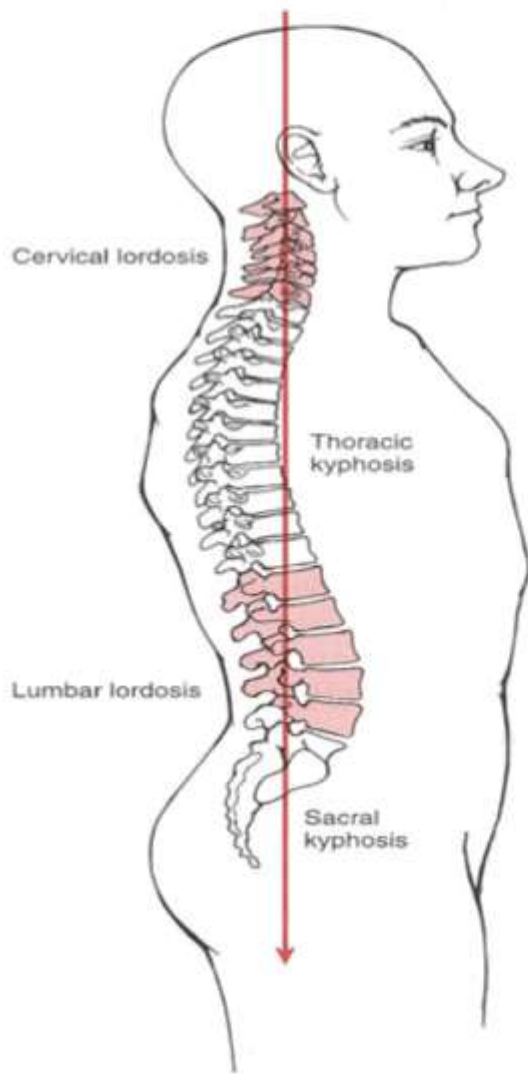
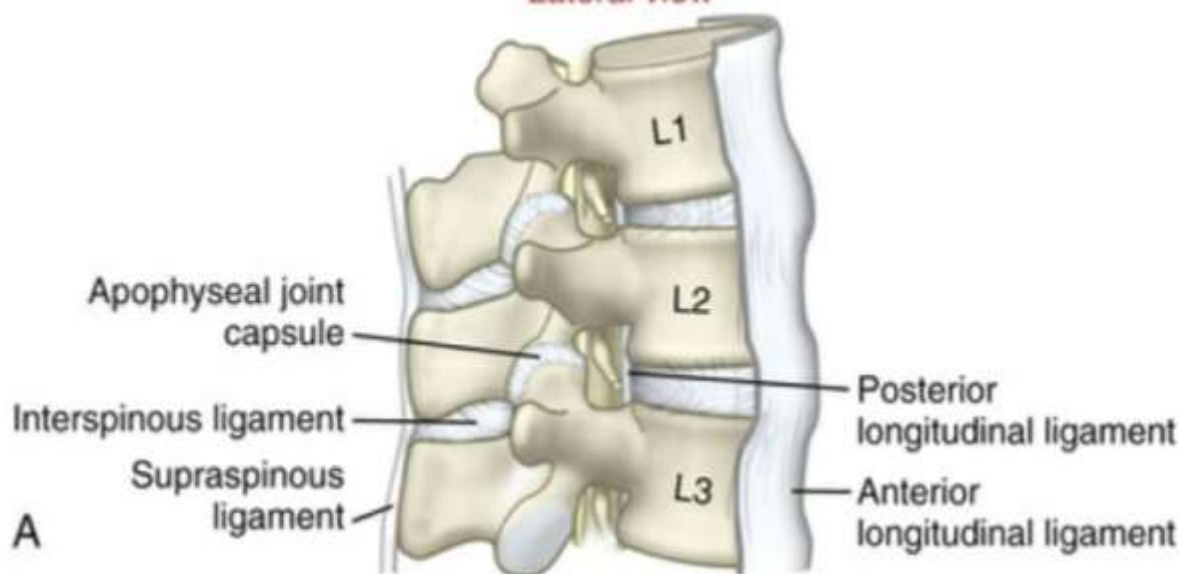
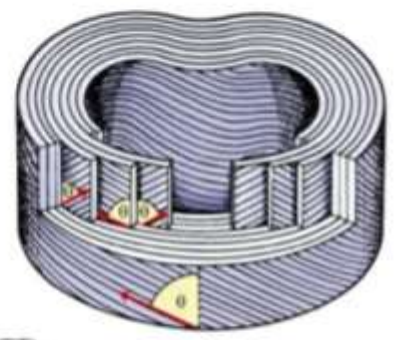
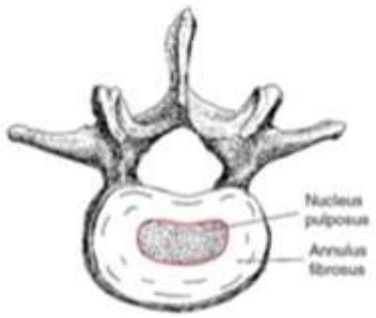


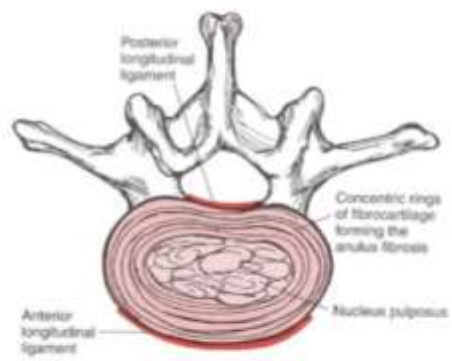
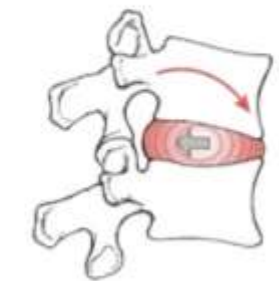
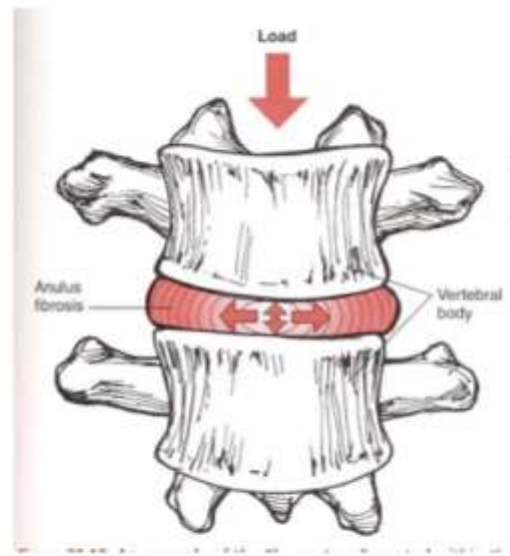
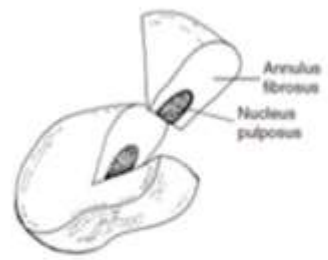
FIGURE 9-40. The normal sagittal plane curvatures across the regions of the vertebral column. The curvatures represent the normal resting postures of the region.

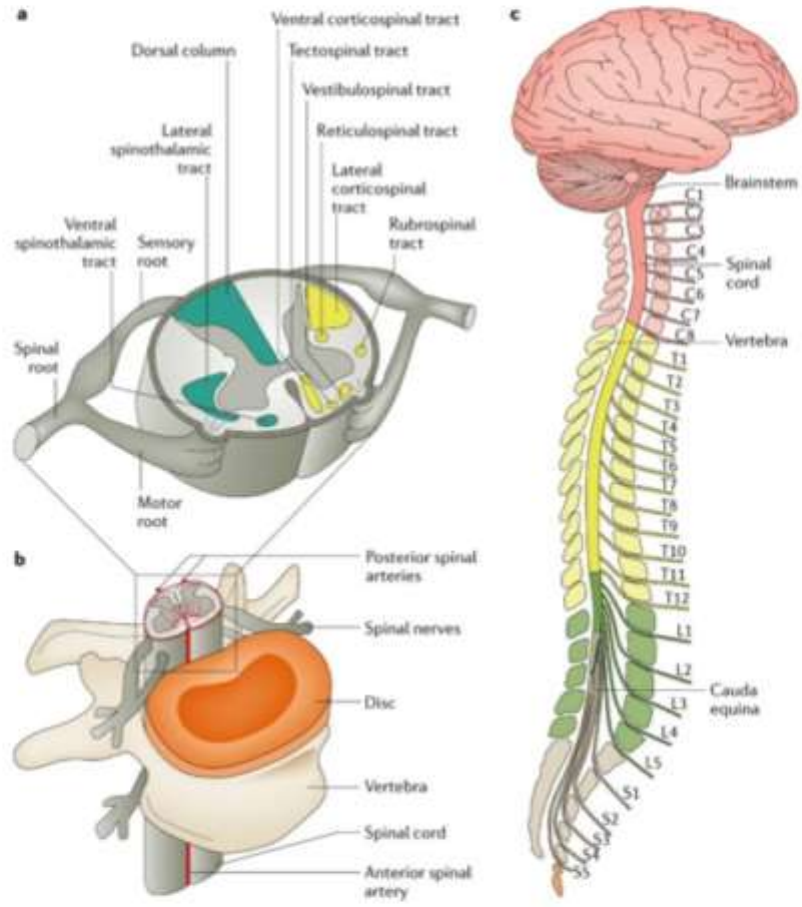
Lateral view

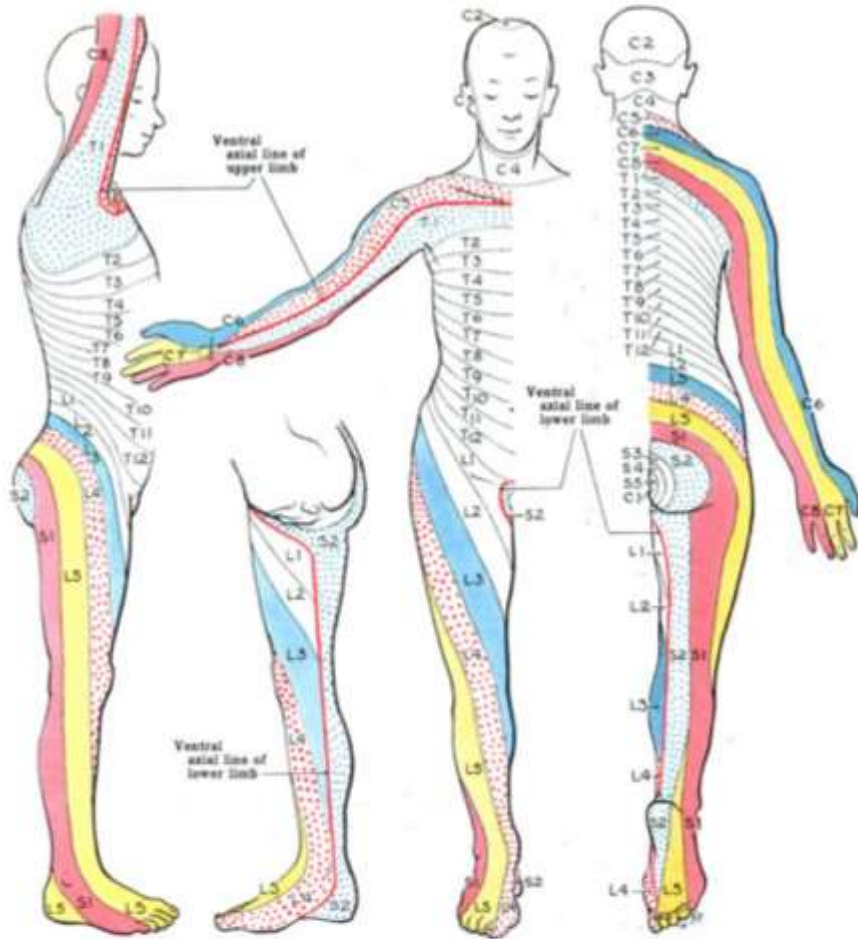




A







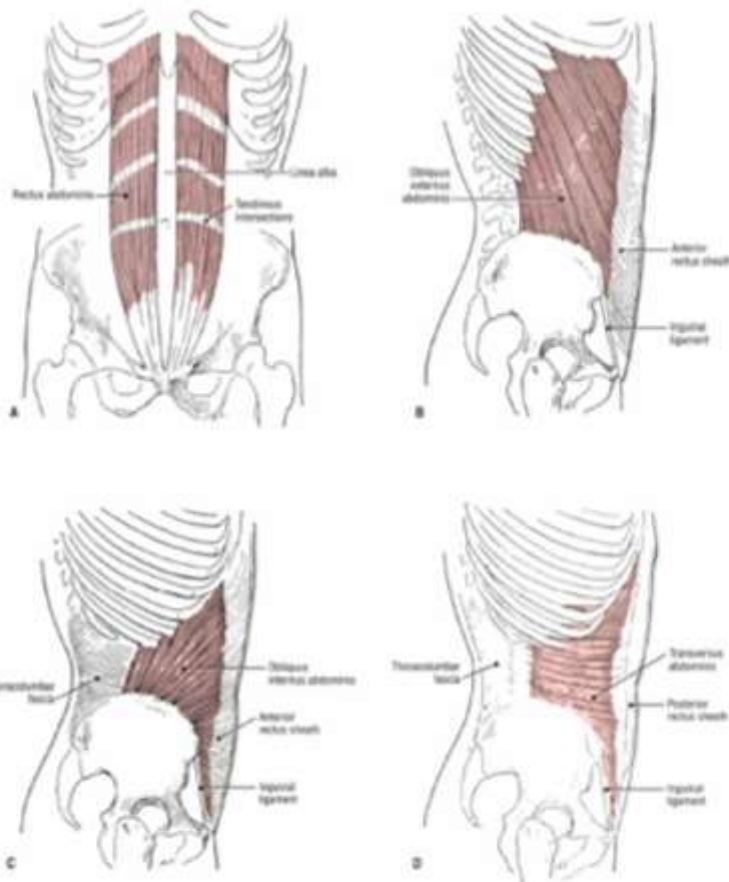
Sensory Impairment Related to Level of Spinal Cord Injury

Key Indicators

Dermal segmentation

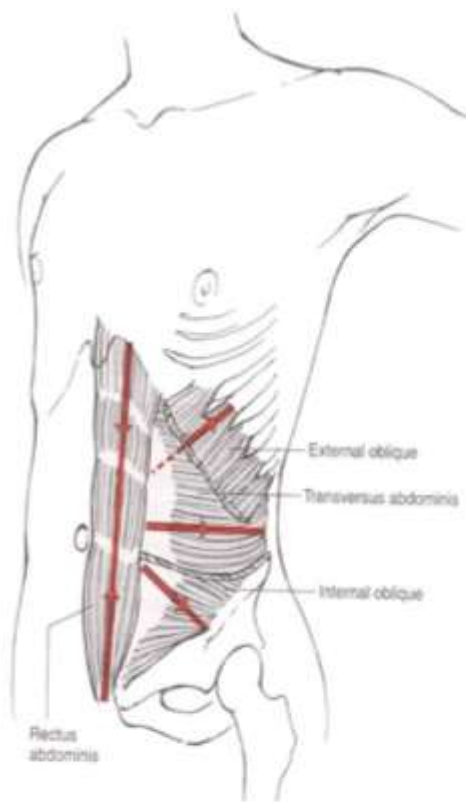
Cervical segments
C5-Anterolateral shoulder
C6-Thumb
C7-Middle finger
C8-Little finger
Thoracic segments
T1-Medial arm
T3-3rd, 4th Interspace
T5-Nipple line, 4th, 5th Interspace
T8-Xiphoid process
T10-Bustle
T12-Pubes
Lumbar segments
L2-Medial thigh
L3-Medial knee
L4-Medial ankle
Great toe
L5-Dorsum of foot
Sacral segments
S1-Lateral foot
S2-Postero-medial thigh
S3, 4, 5-Perianal area

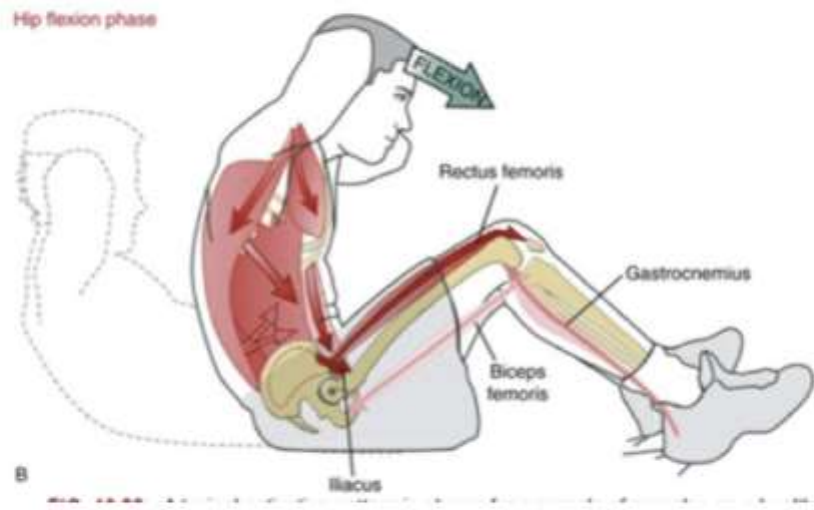
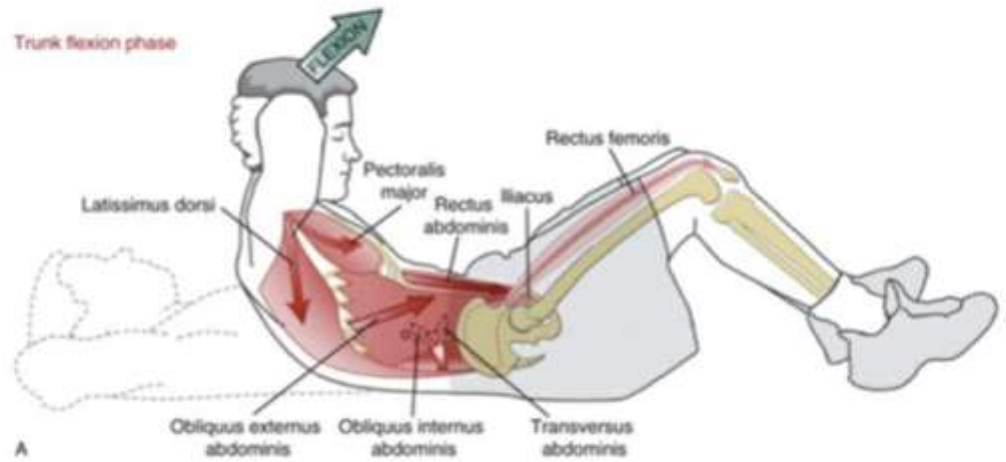
عضلات ناحیه شکم (The Abdominalis)



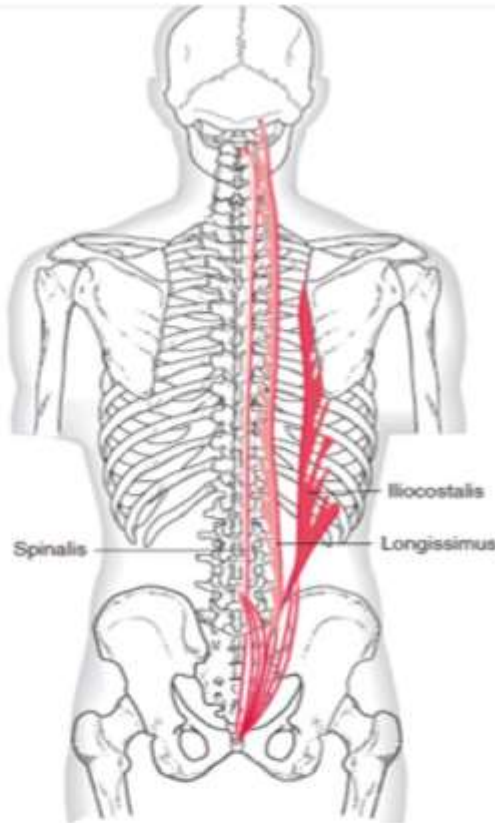
حرکات عضلات مایل شکمی

- قرارگیری ضربدری
- حرکات چرخشی برعکس هم
- دراز و نشست با دست به زانوی مخالف





Erector Spinae (عضلات راست کننده ستون مهره ها)



• گروه عضلانی هستند که در ناحیه پشت قرار دارند .

خاصه ای (Iliocostalis)

طویل (Longissimus)

شوکی (Spinalis)

سر ثابت: بخش خلفی ستون مهره ها در ناحیه گردنی، پشتی، کمری، تاج خاصه ای سطح خلفی خاجی و نه دنده پایینی.

سر متحرک: زائده پستانی استخوان گیجگاهی، بخش خلفی مهره های گردنی، پشتی، کمری و دوازده دنده قفسه سینه.

در هر دو طرف سبب باز شدن (اکستنشن، هایپر اکستنشن) مفصل اطلس و استخوان پس سری و به طور کلی ستون مهره ها می شود.

عملکرد یک طرفه سبب فلکشن جانبی و چرخش ستون مهره ها به همان سمت می شود

عضلات سطحی و عمقی

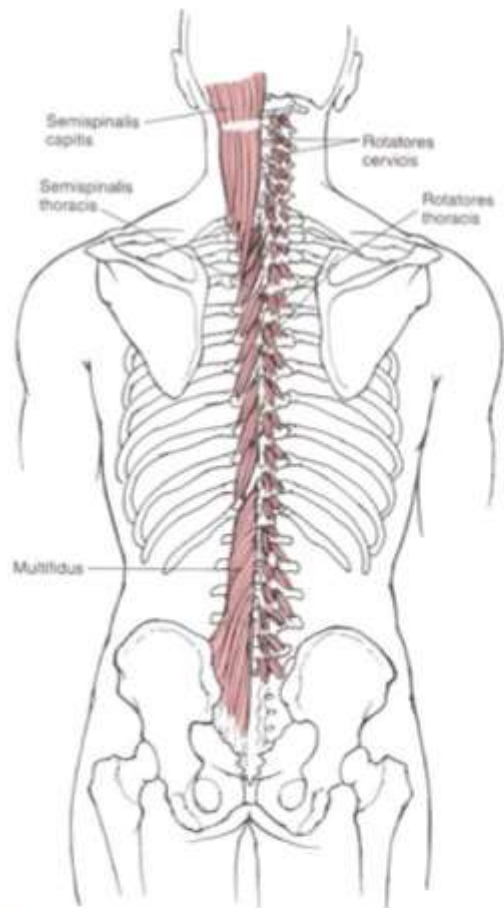
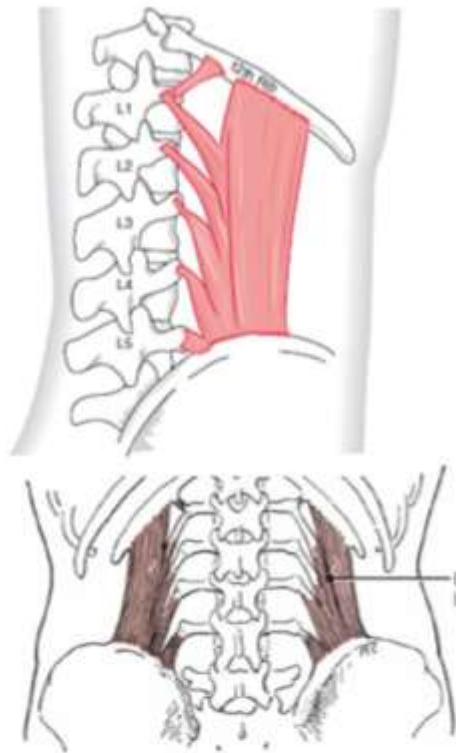


Figure 30.8: Transversospinales muscles include the semispinalis, multifidus, and rotatores muscles.

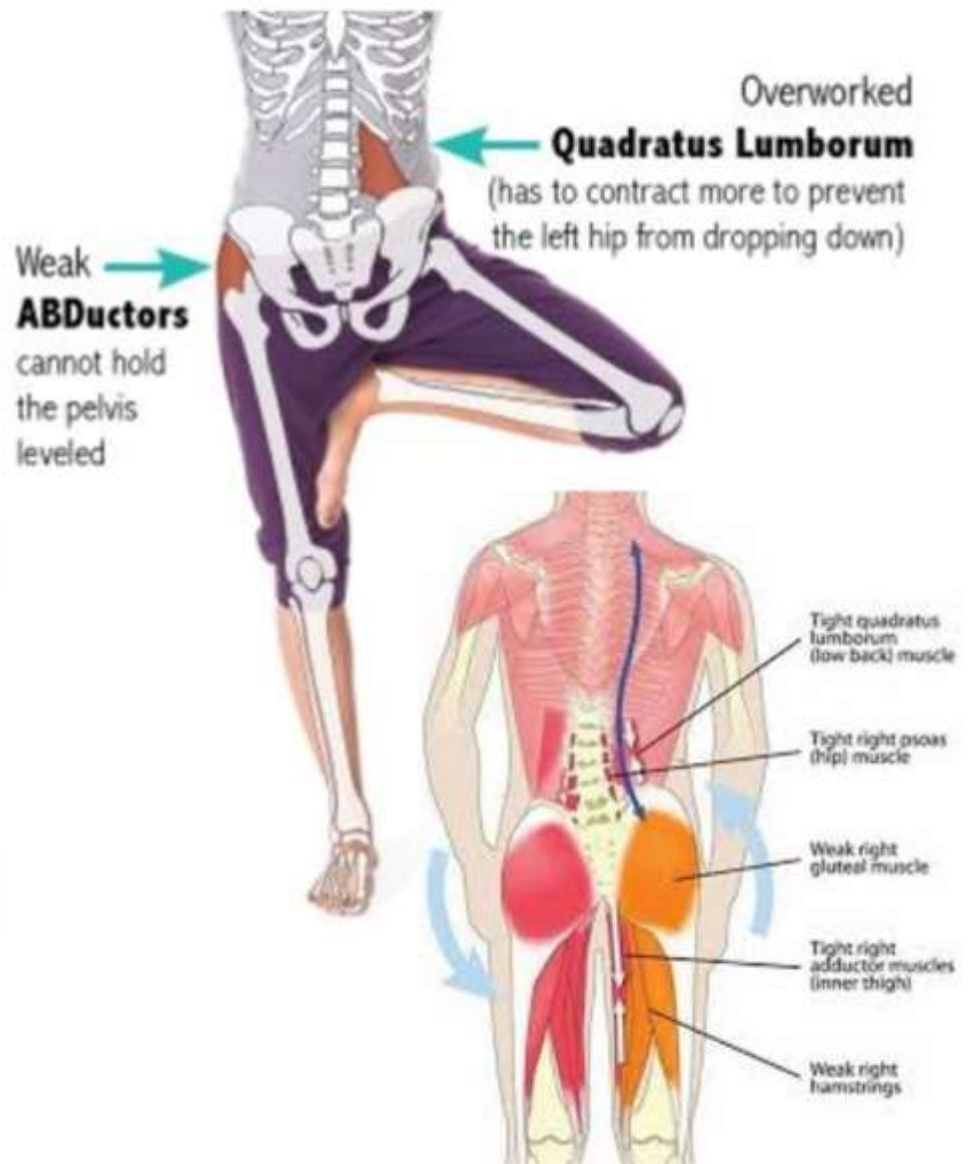
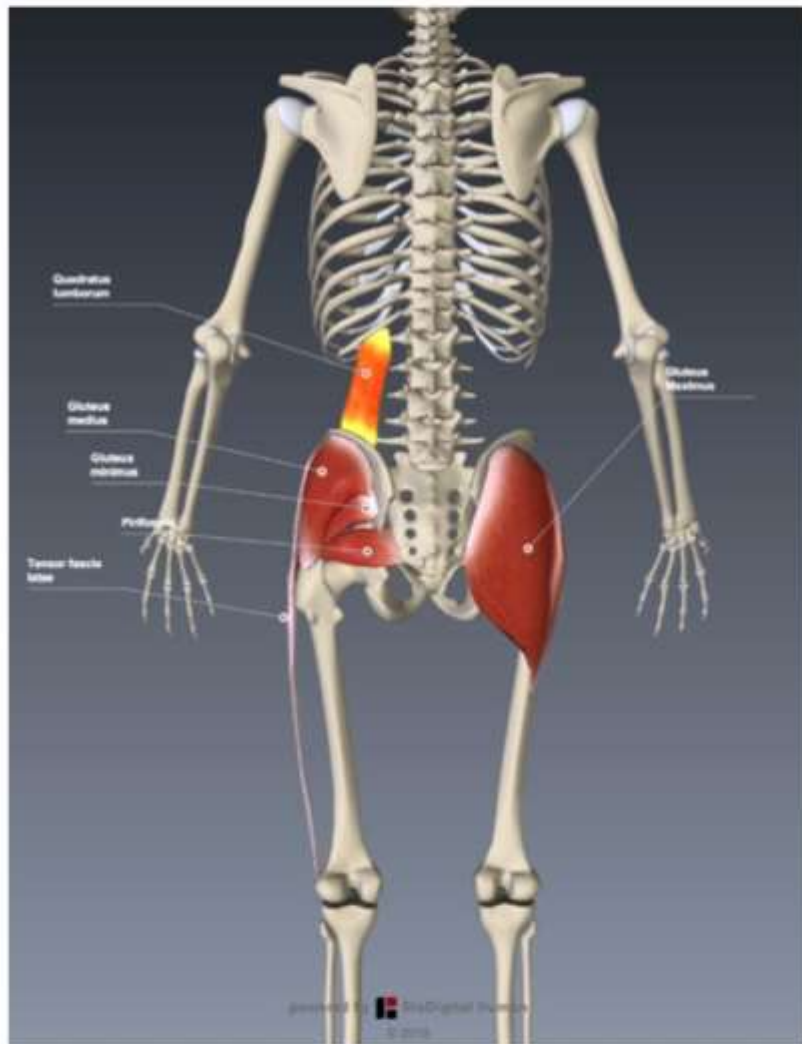


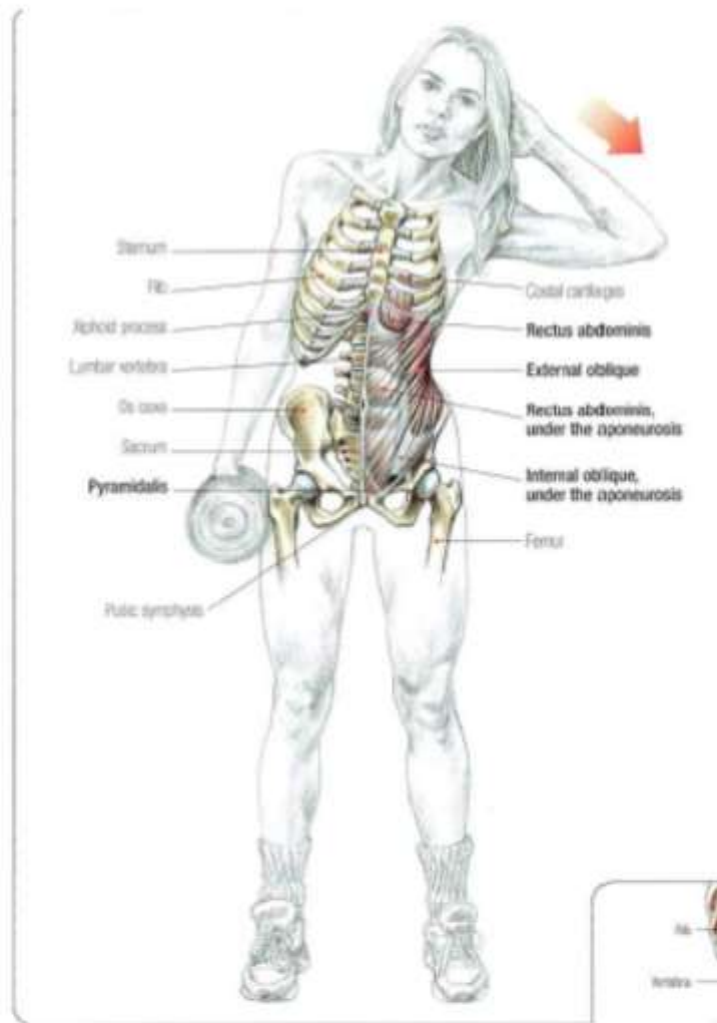
Figure 30.5: The three groups of the erector spinae are, from lateral to medial, the iliocostalis, longissimus, and spinales muscle groups.

Quadratus Lumborum مربع کمری

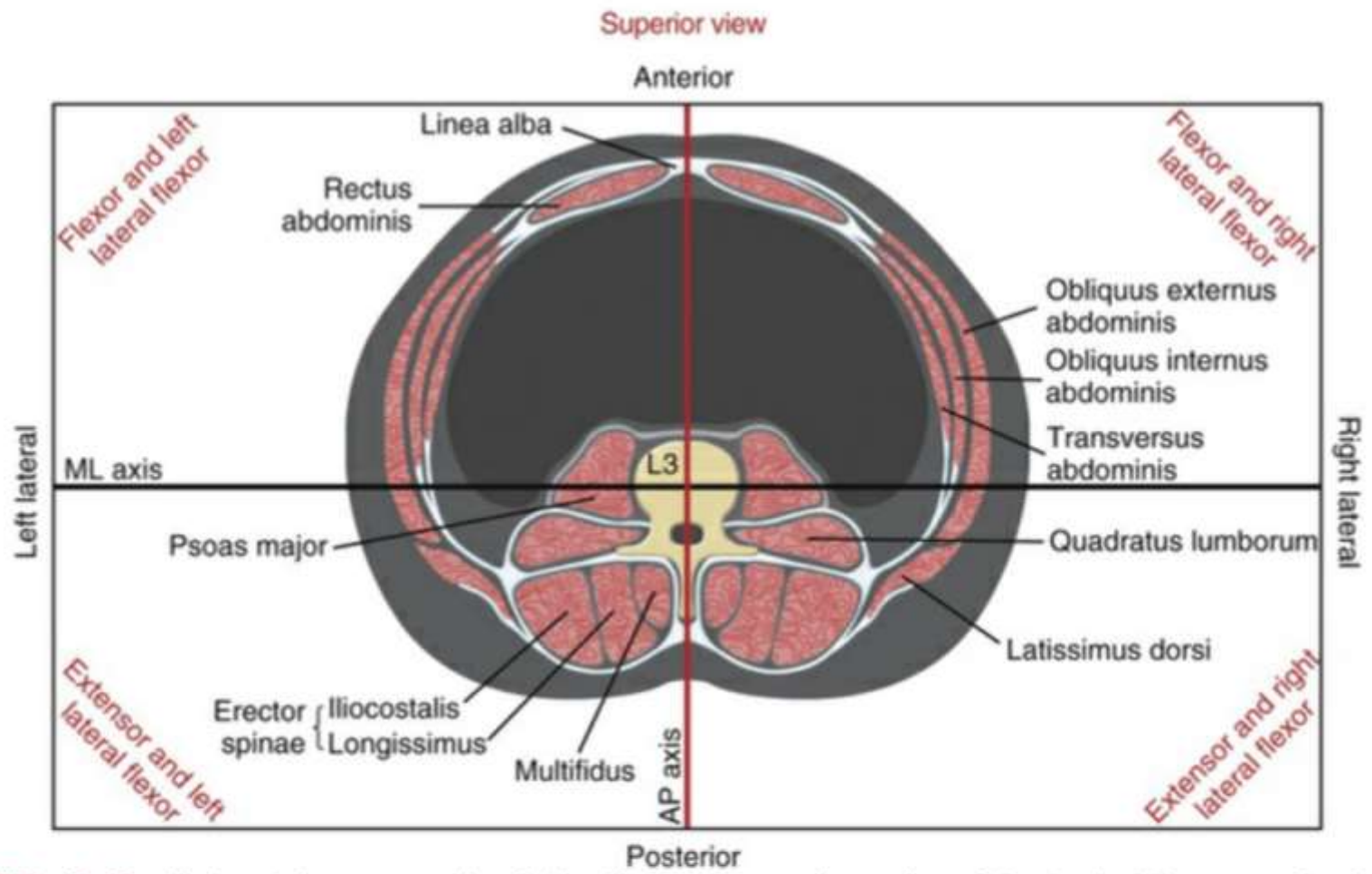


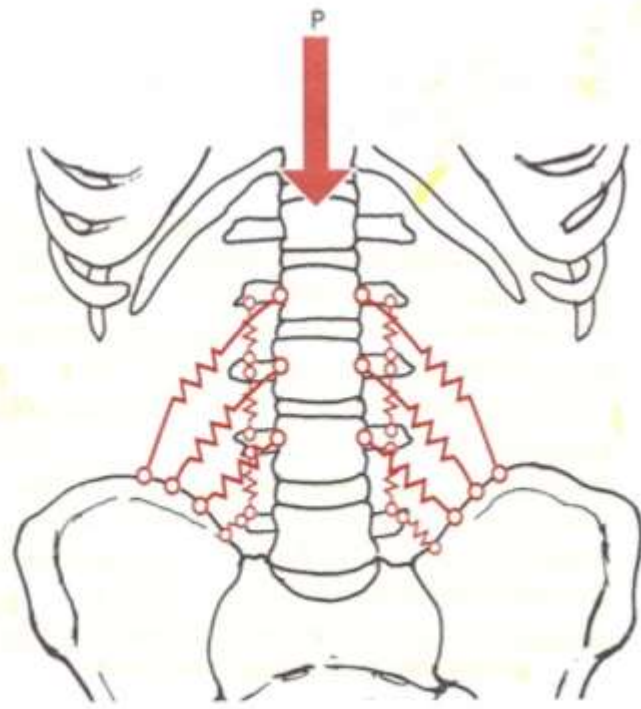
- در طرفین ستون مهره ها در ناحیه مهره های کمری قرار گرفته اند و به خاطر وجود بافت چربی در این قسمت لمس کردن آن مشکل می باشد.
سر ثابت: تاج خاصره ای استخوان خاصره
سر متحرک: دوازدهمین دنده و زائده های عرضی چهار مهره کمری
- در هر دو طرف، ثابت کننده مهره های کمری ستون مهره هاست و در یک طرف سبب فلکشن جانبی ستون مهره ها می شود، نیز با کشیدن آخرین دنده به پایین به عمل بازدم تنفسی کمک می نماید.



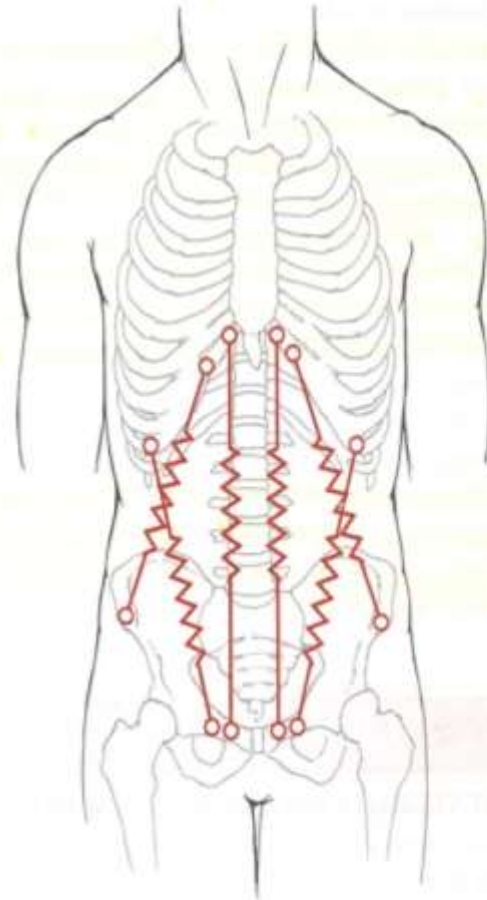






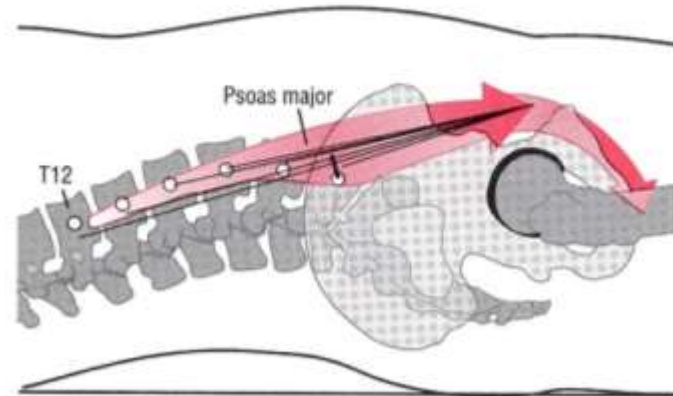
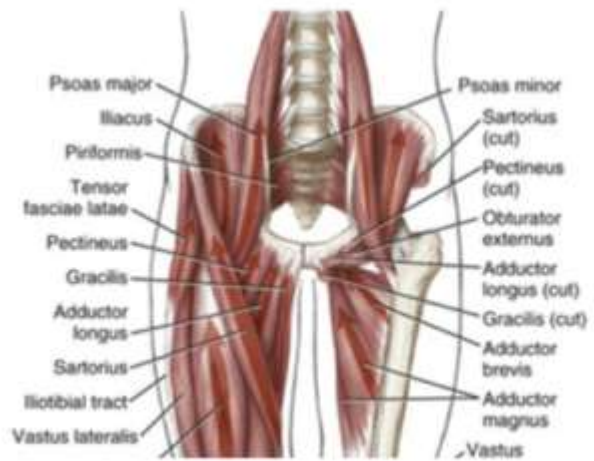


A



B

سوئز خاصره



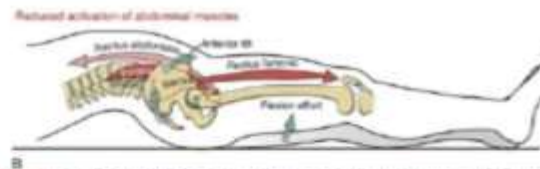
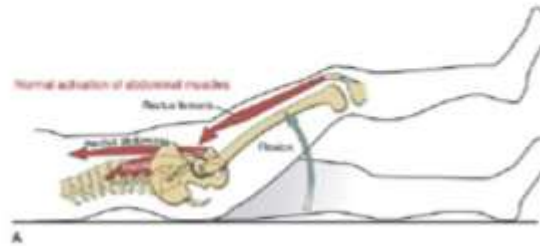


FIG. 12.29 The stabilizing role of the abdominal muscles is shown during a unilateral straight-leg raise. (A) With normal activation of the abdominal muscles (such as the rectus abdominis), the pelvis is stabilized and prevented from anterior tilting by the strong inferior pull of the hip flexor muscles. (B) With reduced activation of the rectus abdominis, contraction of the hip flexor muscles causes a marked anterior tilt of the pelvis. Note the increase in lumbar lordosis that accompanies the anterior tilt of the pelvis. The reduced activation in the abdominal muscle is indicated by the lighter red.

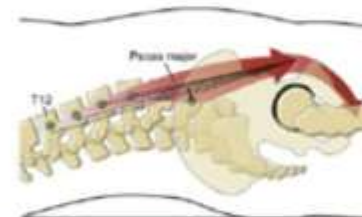
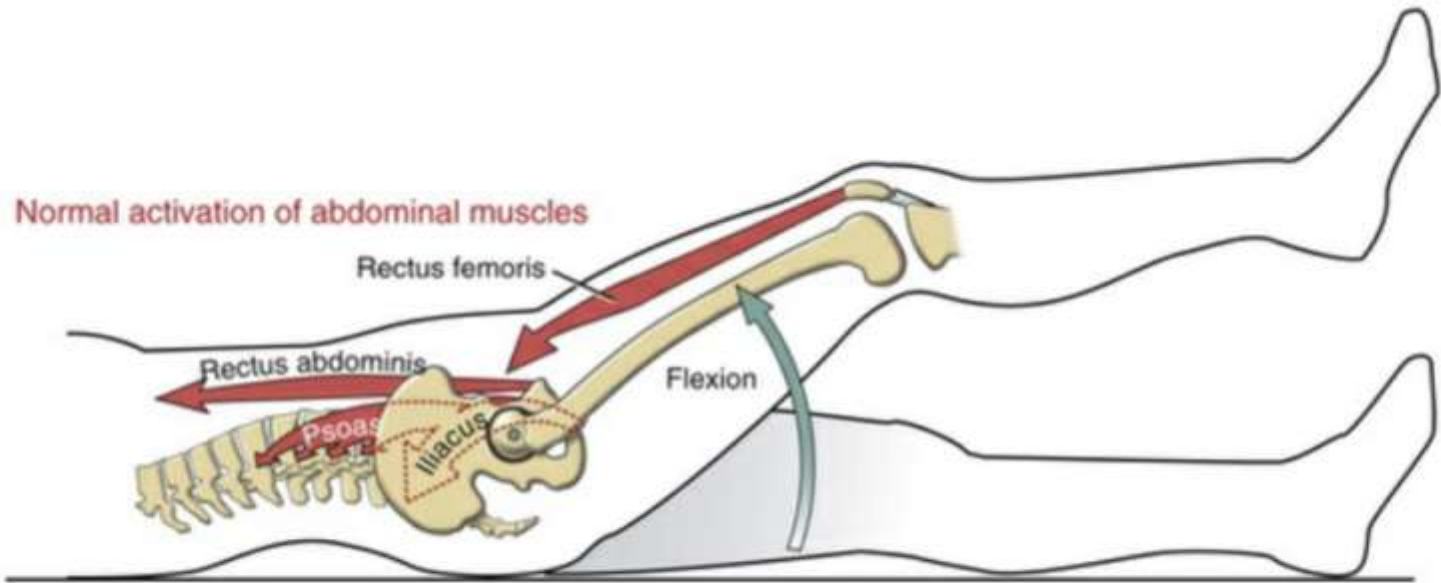
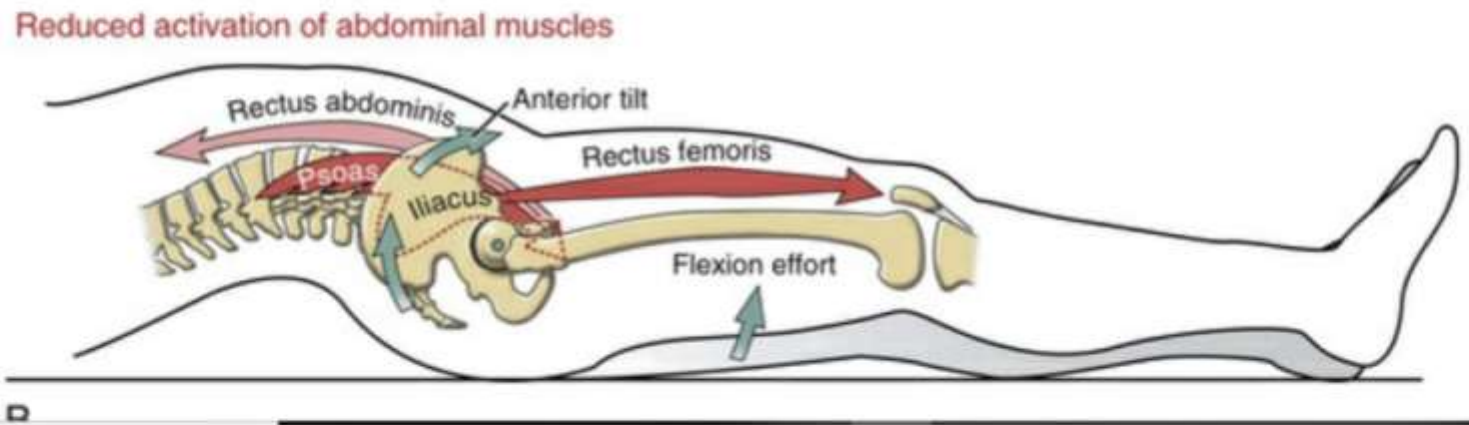


FIG. 10.17 A lateral view of the psoas major highlights its multiple lines of force relative to the medial-lateral axes of rotation within the T12-L5 and L5-S1 segments. Note that the lines of force pass near or through the axes, with the exception of L5-S1. The flexion moment arm of the psoas major at L5-S1 is shown as the short black line.



A



B

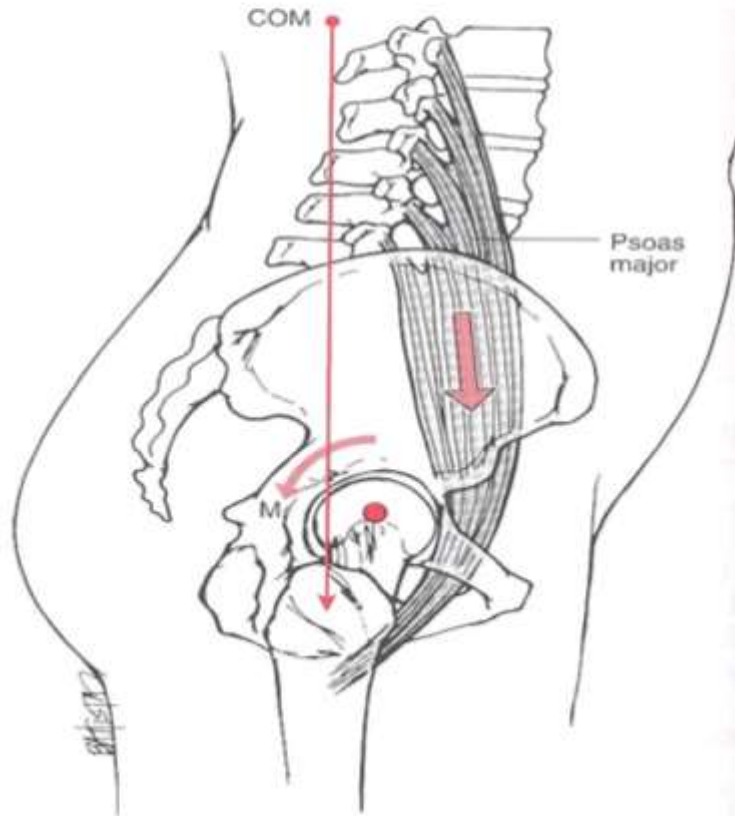


Figure 39.3: In quiet standing, the center of mass (COM) of the HAT creates an extension moment on the hip that can be resisted by contraction of the psoas major.

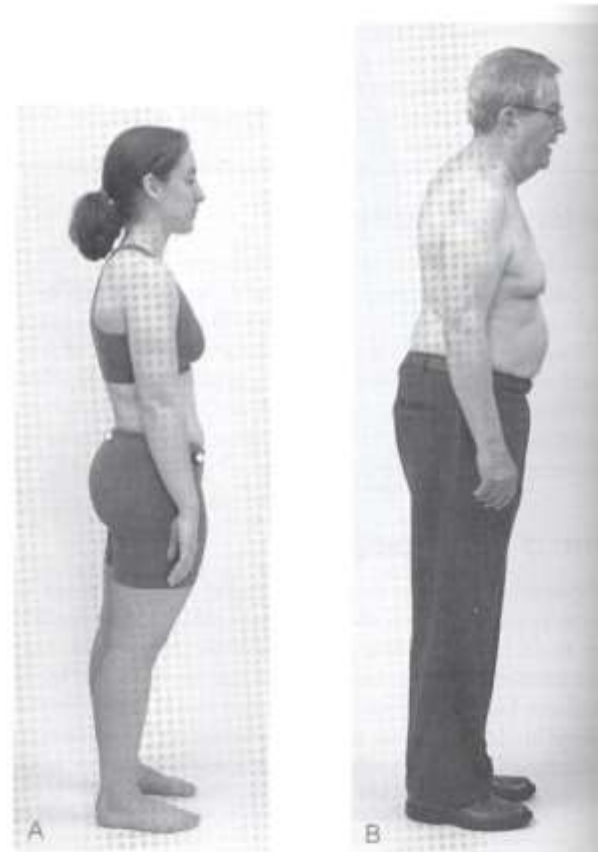
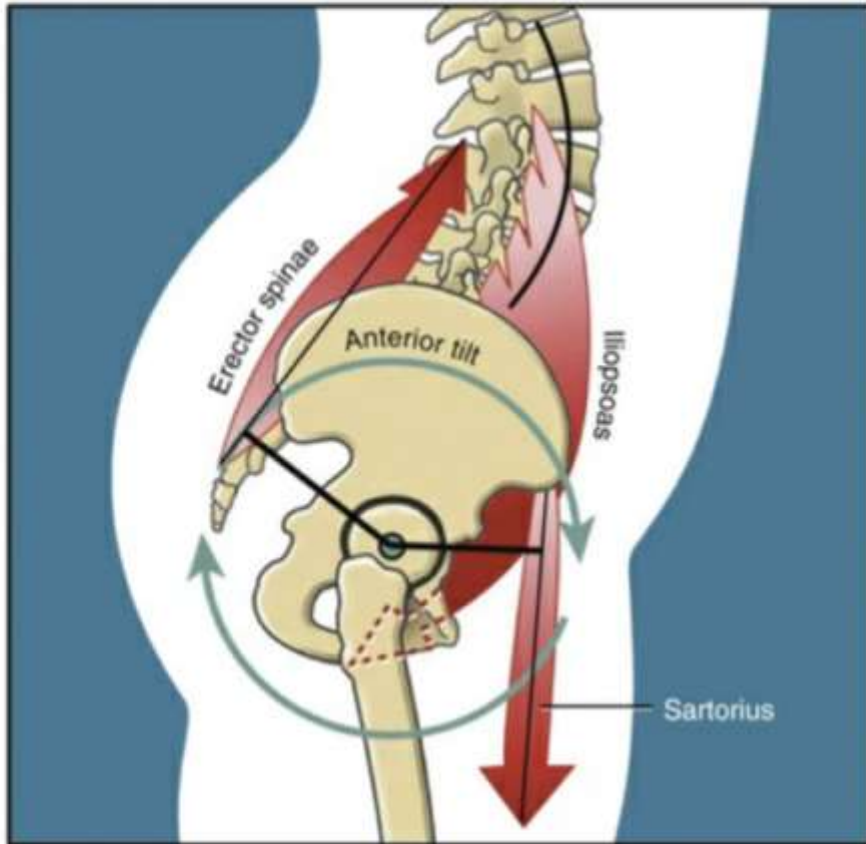
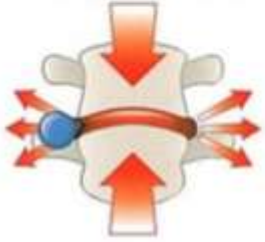


Figure 39.5: Postures associated with bilateral hip flexion contractures. **A.** An individual standing in an anterior pelvic tilt demonstrates an increased lumbar lordosis if the lumbar spine has adequate flexibility. **B.** If an individual lacks adequate lumbar spine flexibility, an anterior pelvic tilt produces a forward lean.



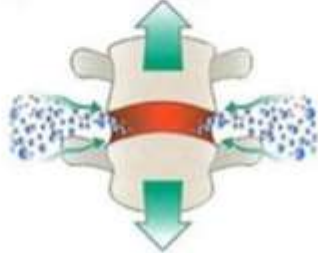
سیاتیک، سر خوردن دیسک (فتق دیسک)

Herniated Disc

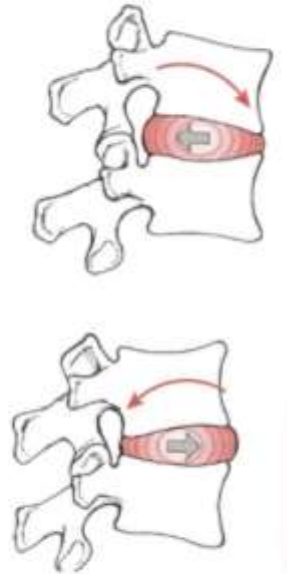
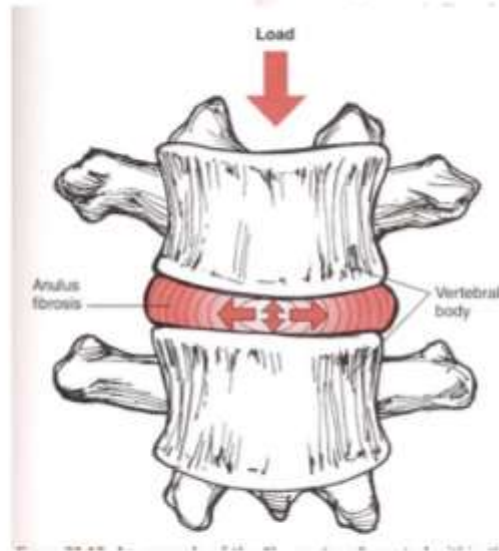
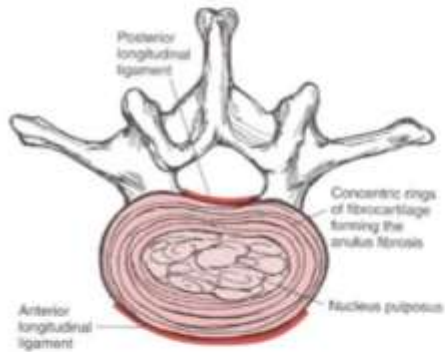
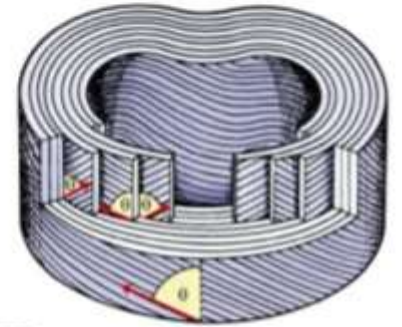


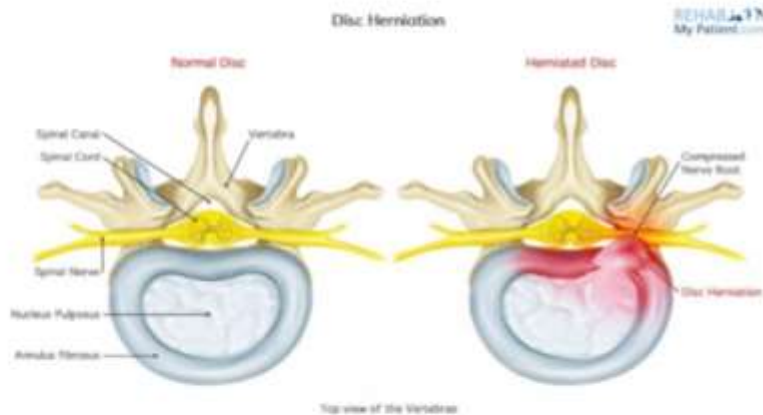
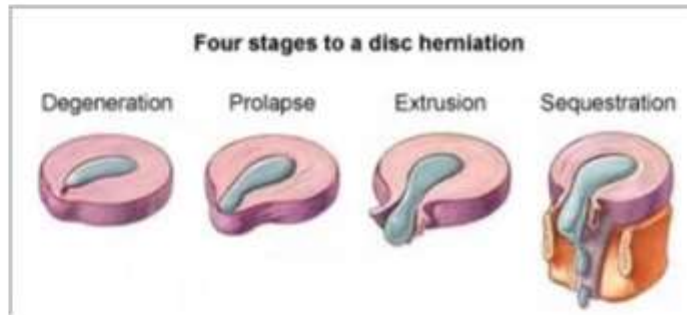
Pressure in the disc is so great that a tear occurs in the disc wall leading to sciatic pain. (numbness and tingling)

Spinal Decompression



A reduction of pressure inside the discs (decompression) aids in pulling nutrients, oxygen and moisture back into the disc.





Nerve root

L4

L5

S1

Pain



Numbness



Motor weakness

Extension of quadriceps

Dorsiflexion of great toe and foot

Plantar flexion of great toe and foot

Screening examination

Squat and rise

Heel walking

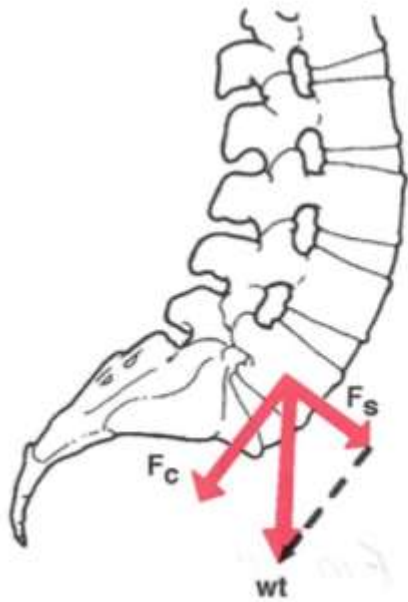
Walking on toes

Reflexes

Knee jerk diminished

None reliable

Ankle jerk diminished

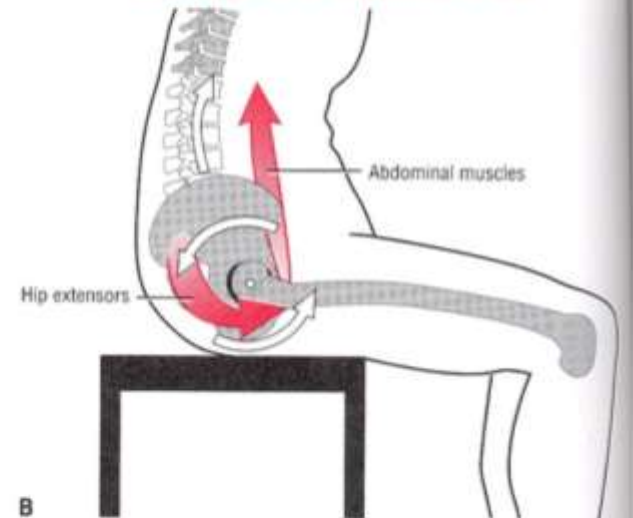


Anterior pelvic tilt with lumbar extension



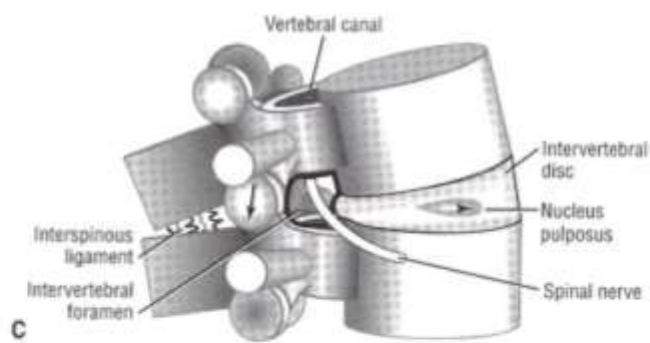
A

Posterior pelvic tilt with lumbar flexion



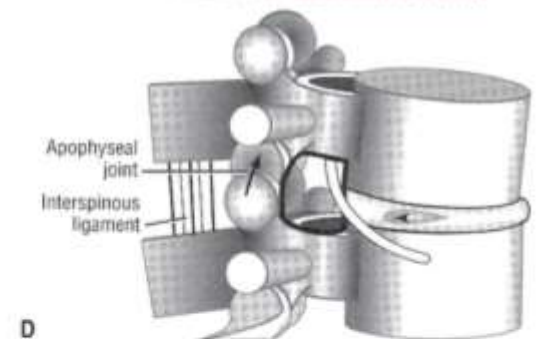
B

Intervertebral lumbar extension

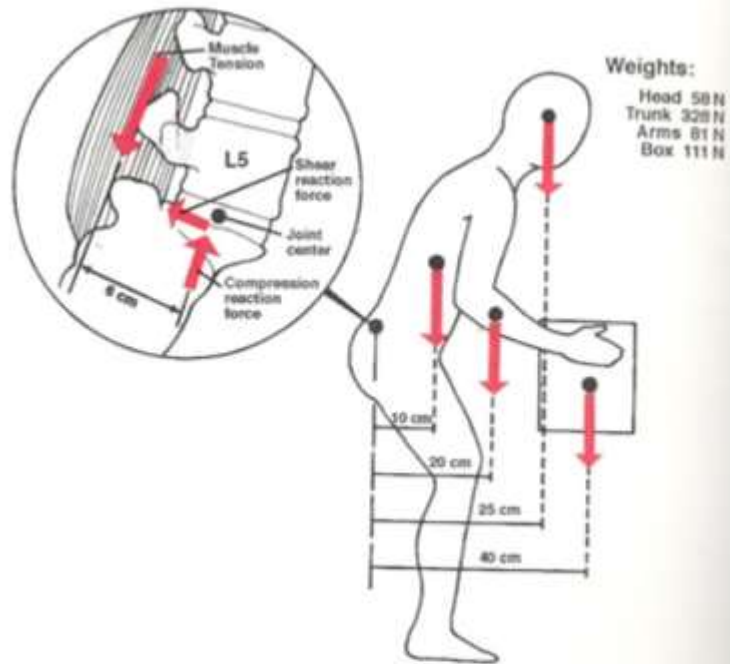


C

Intervertebral lumbar flexion



D



Torque at L5,S1 vertebral joint created by body segments and load:
 $T = (328 \text{ N})(10 \text{ cm}) + (81 \text{ N})(20 \text{ cm}) + (58 \text{ N})(25 \text{ cm}) + (111 \text{ N})(40 \text{ cm})$
 $= 10,790 \text{ Ncm}$

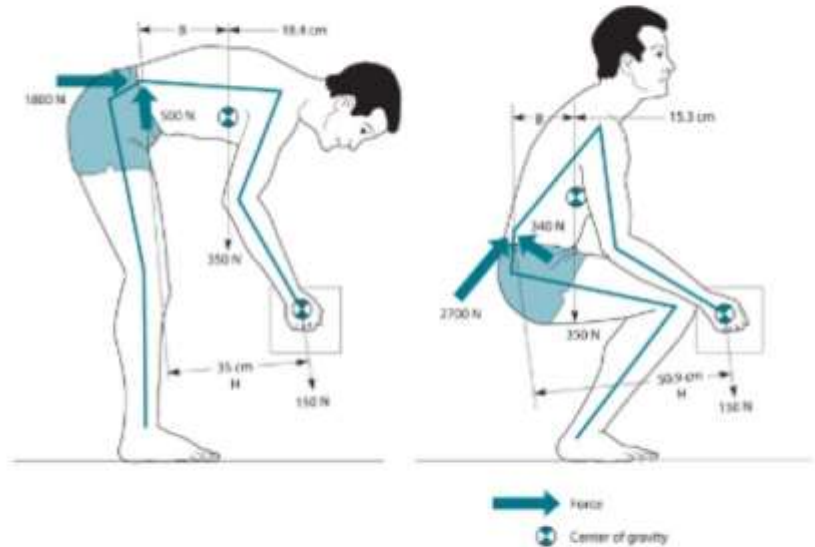
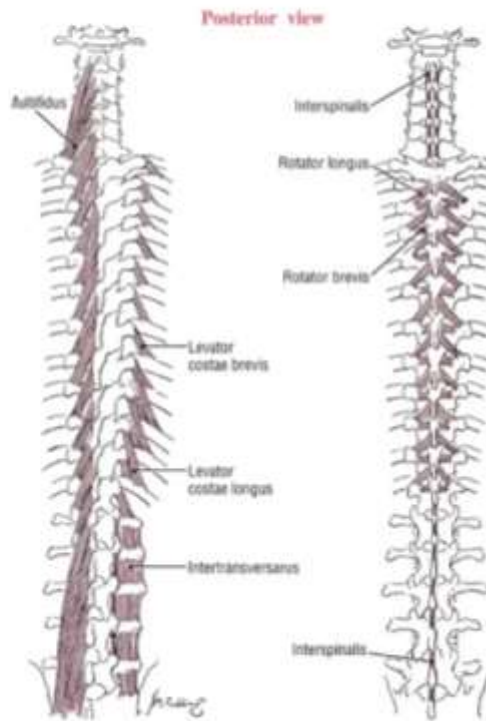




Figure 36.5 The three groups of the erector spinae are, from lateral to medial, the iliocostalis, longissimus, and spinalis muscle groups.



A) Intrinsic muscular stabilizers

- Intertransversarius and interspinalis (crosses 1 segment)
- Semispinalis cervicis (crosses 6-8 segments)
- Multifidus (crosses 2-4 segments)
- Rotator longus (crosses 2 segments)
- Rotator brevis (crosses 1 segment)



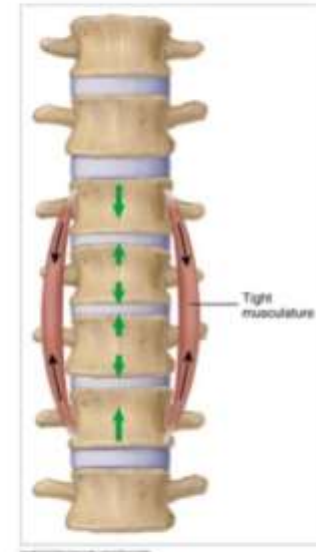
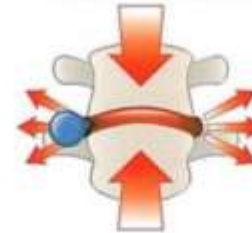
B) Spatial orientation (α) of muscle's line-of-force

Percent of force directed:
Horizontal (F_H)
Vertical (F_V)

- $\alpha = 0^\circ$
 $F_H = 0\%$
 $F_V = 100\%$
- $\alpha = 15^\circ$
 $F_H = 26\%$
 $F_V = 96\%$
- $\alpha = 28^\circ$
 $F_H = 34\%$
 $F_V = 94\%$
- $\alpha = 45^\circ$
 $F_H = 71\%$
 $F_V = 71\%$
- $\alpha = 80^\circ$
 $F_H = 96\%$
 $F_V = 17\%$

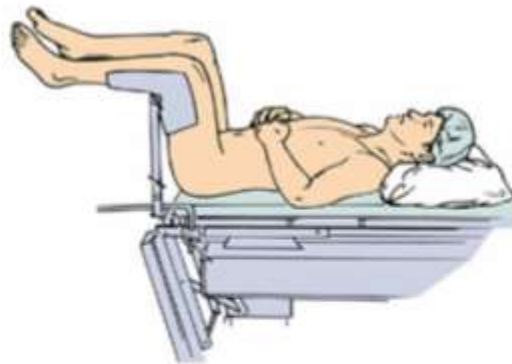


Herniated Disc





A







OnlyWomenStuff.com



@dr.sm.hoseini

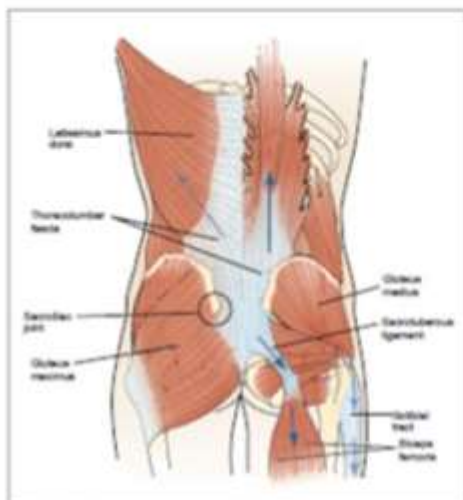


Figure 2.19 Posterior oblique sub-system.





Side plank

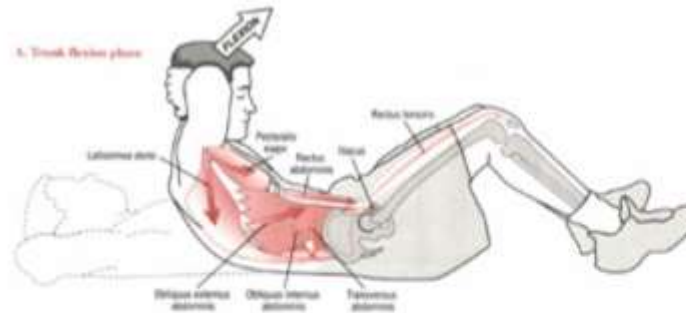




Figure 11.19 Use of physioball

(a) Leg lift seated on ball



(b) Bird dog or superman on ball



(c) Push-ups



(d) Bridging on ball



(e) Plant on the ball, moving hips forward



(f) Hamstring pull in

Table 11.5 Physioball exercises for the core

- Abdominal crunch
- Balancing exercise while seated
- 'Superman' prone exercise
- Modified push-up
- Pelvic bridging

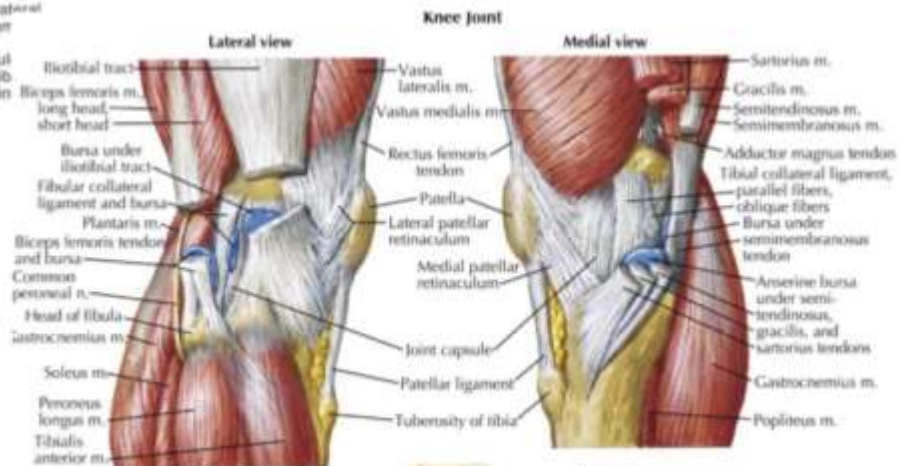


حرکاتی که فرد دارای سیاتیک (فتق دیسک) نباید انجام دهد

Squat
(Dead lift (regular and stiff
Leg Press
Clean and Jerk
Standing Military Press
Standing Shrugs
Standing Barbell Curl
Bent-Over Barbell Rows



آسیب های زانو



• حرکات زانو

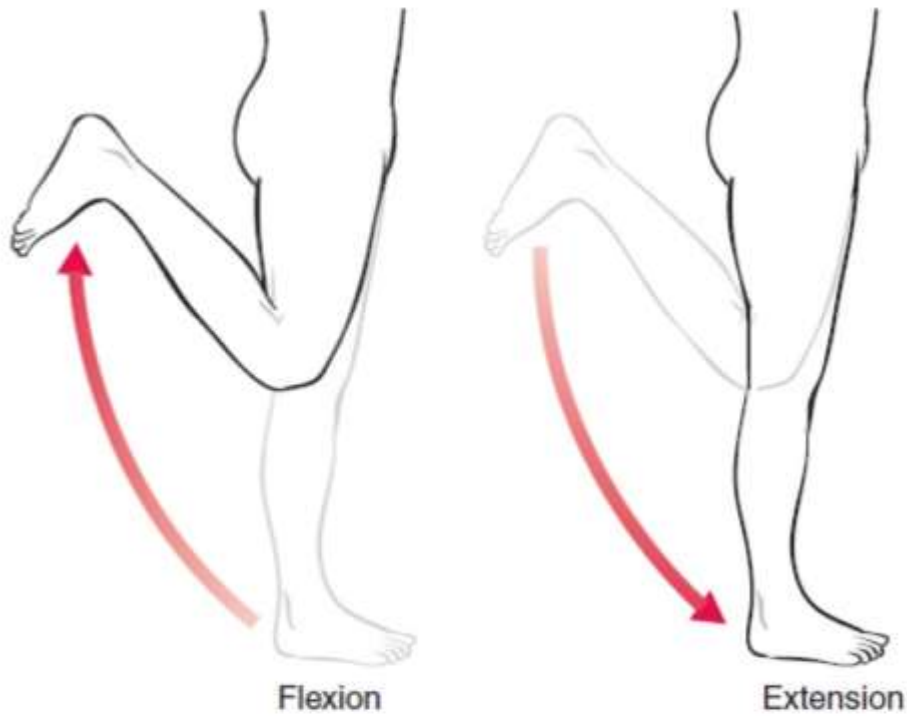


Figure 18-2. Knee motions.



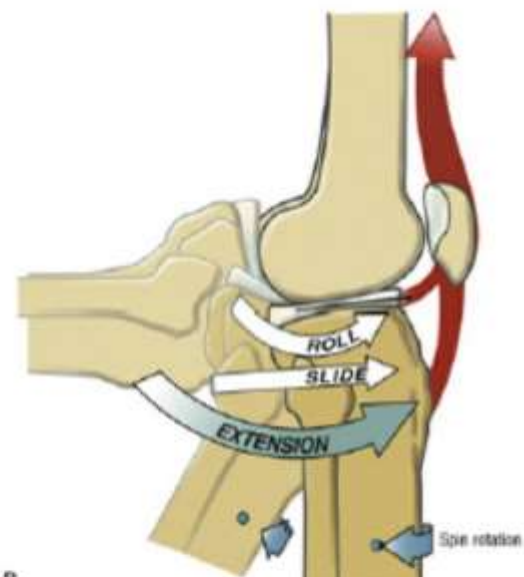
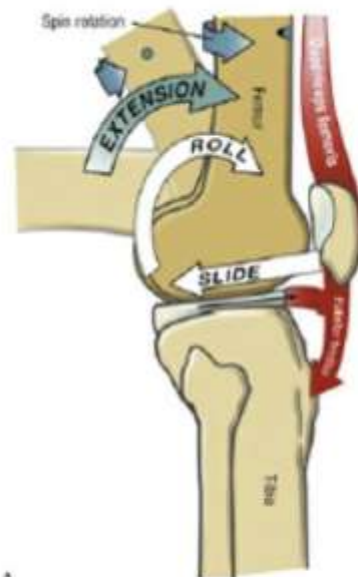
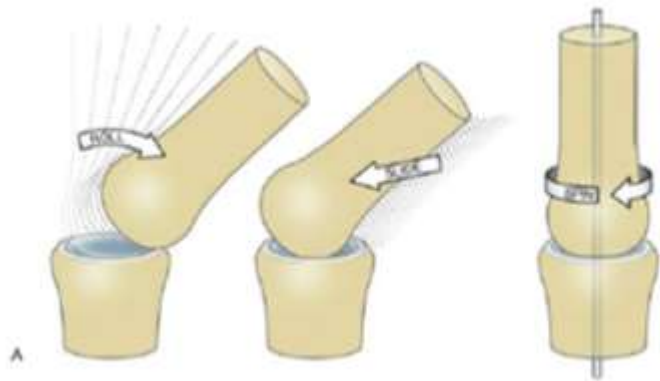


FIG. 1.11 Extension of the knee demonstrates a combination of roll-and-slide with spin arthrokinematics. The femoral condyle is convex, and the tibial plateau is slightly concave. A, Femoral-on-tibial (knee) extension. B, Tibial-on-femoral (knee) extension.

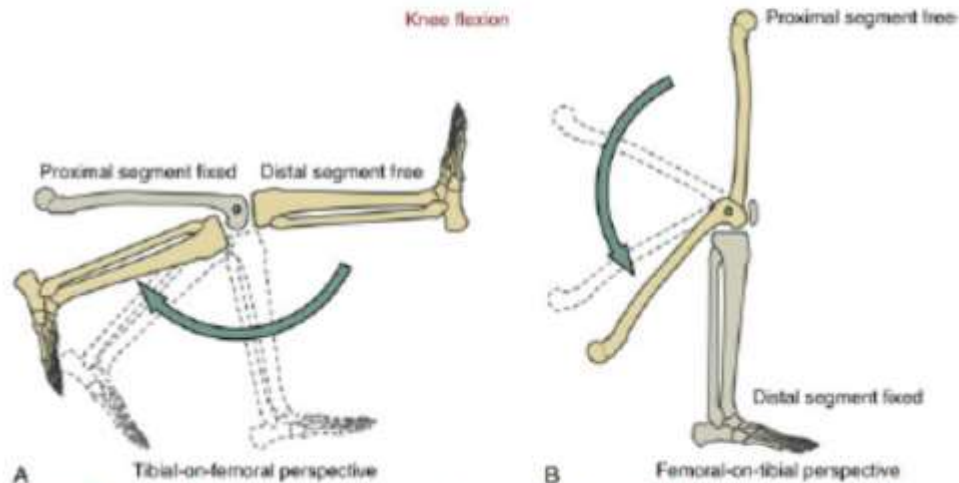
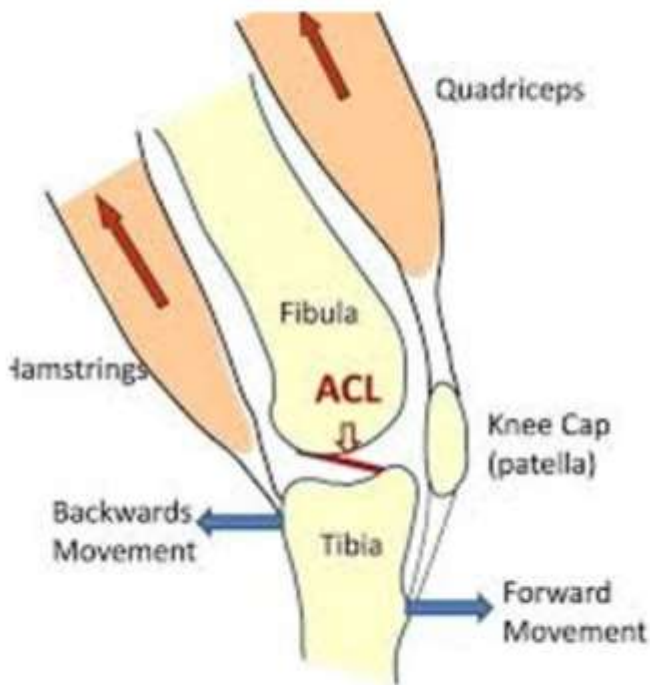
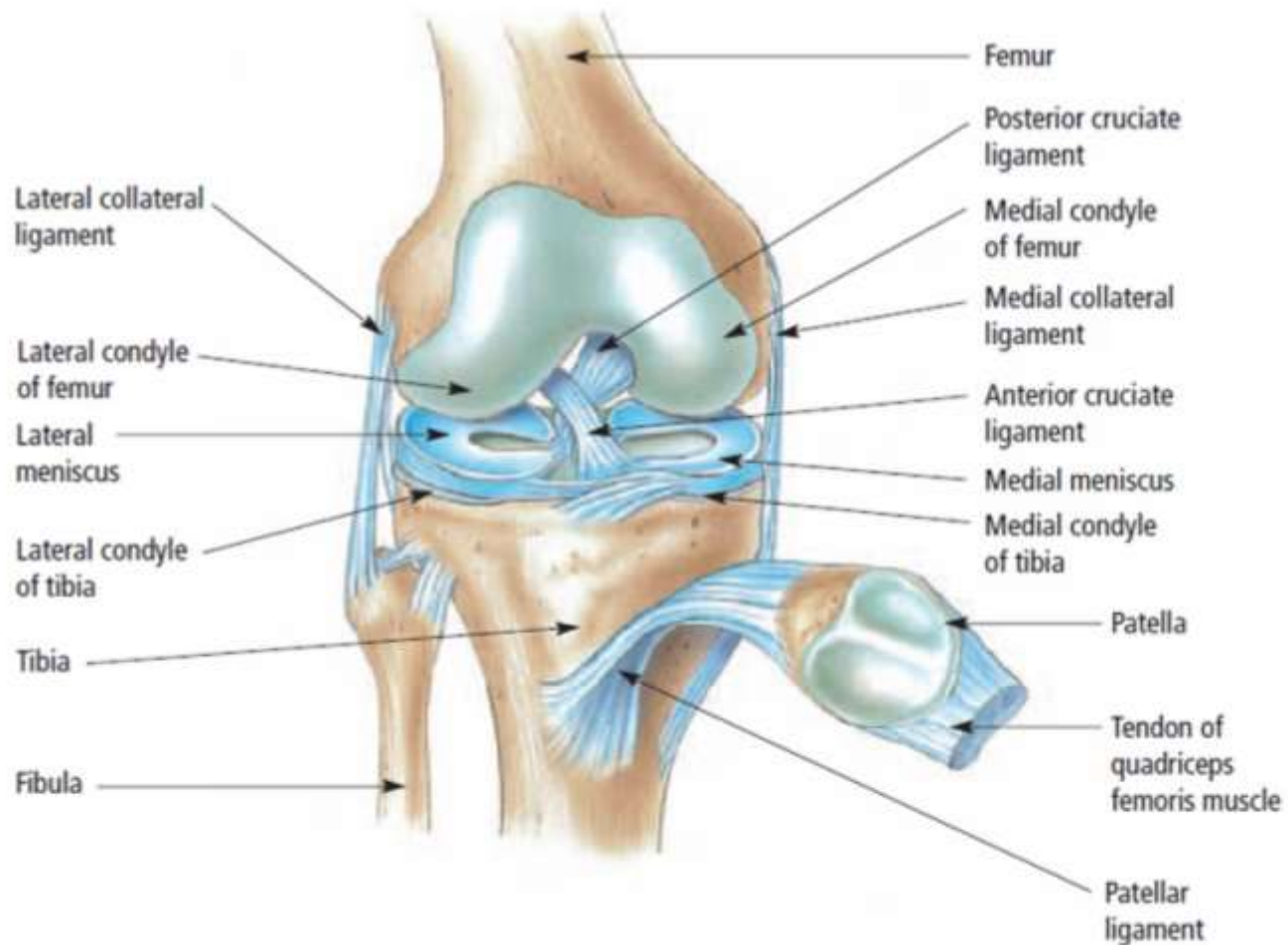


FIG. 1.6 Sagittal plane osteokinematics at the knee show an example of (A) distal-on-proximal segment kinematics and (B) proximal-on-distal segment kinematics. The axis of rotation is shown as a circle at the knee.

آسیب های رباط زانو



آسیب رباط متقاطع قدامی (ACL)

Anterior Cruciate Ligament (ACL) Injuries



Quadriceps Angle (Q Angle)

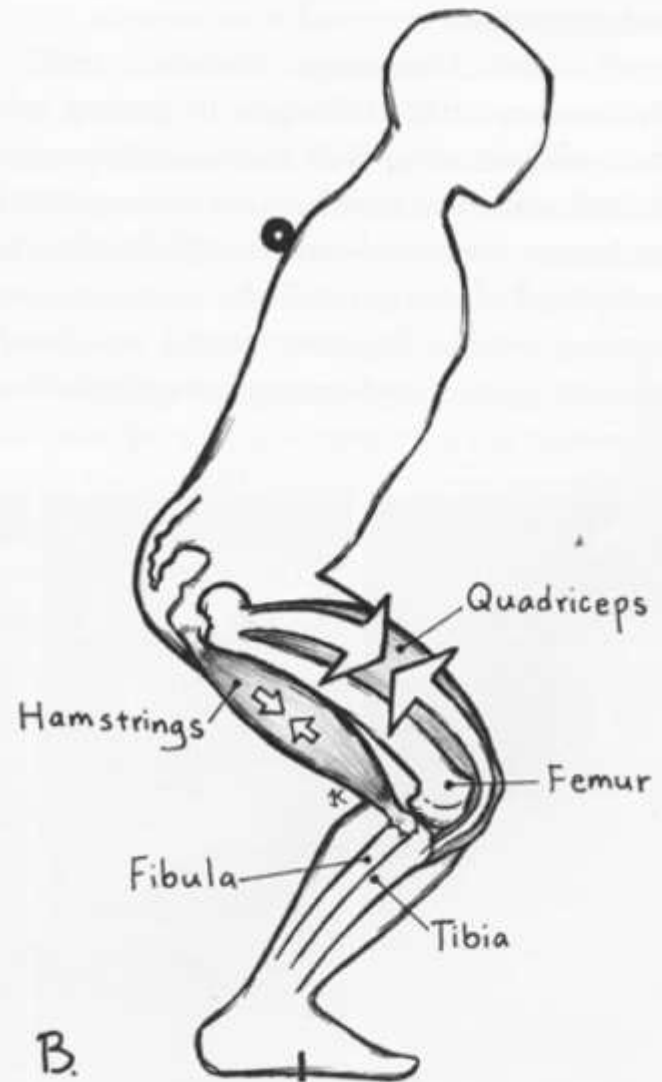
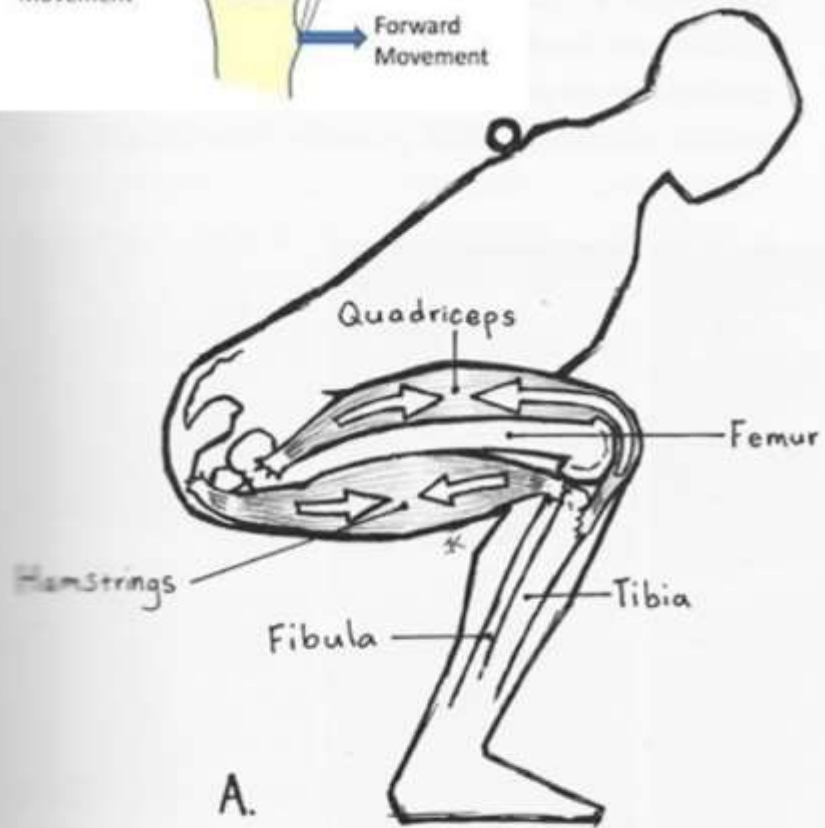
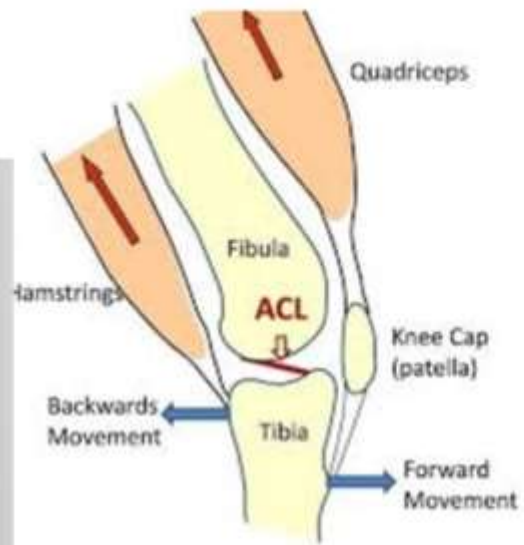
=

The Angle between:
1) ASIS to center of Patella
and
2) Patella to Tibial Tubercle

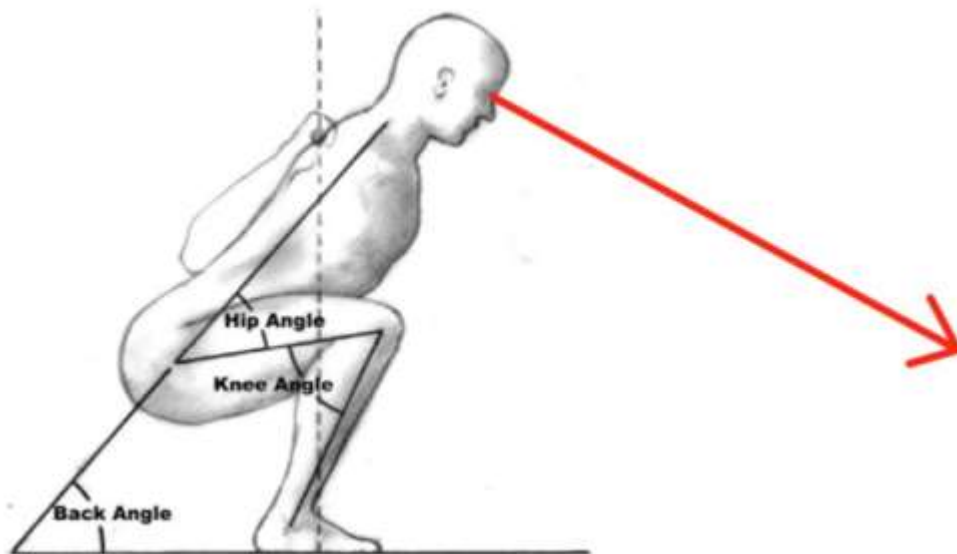
NORMAL

Men <10°

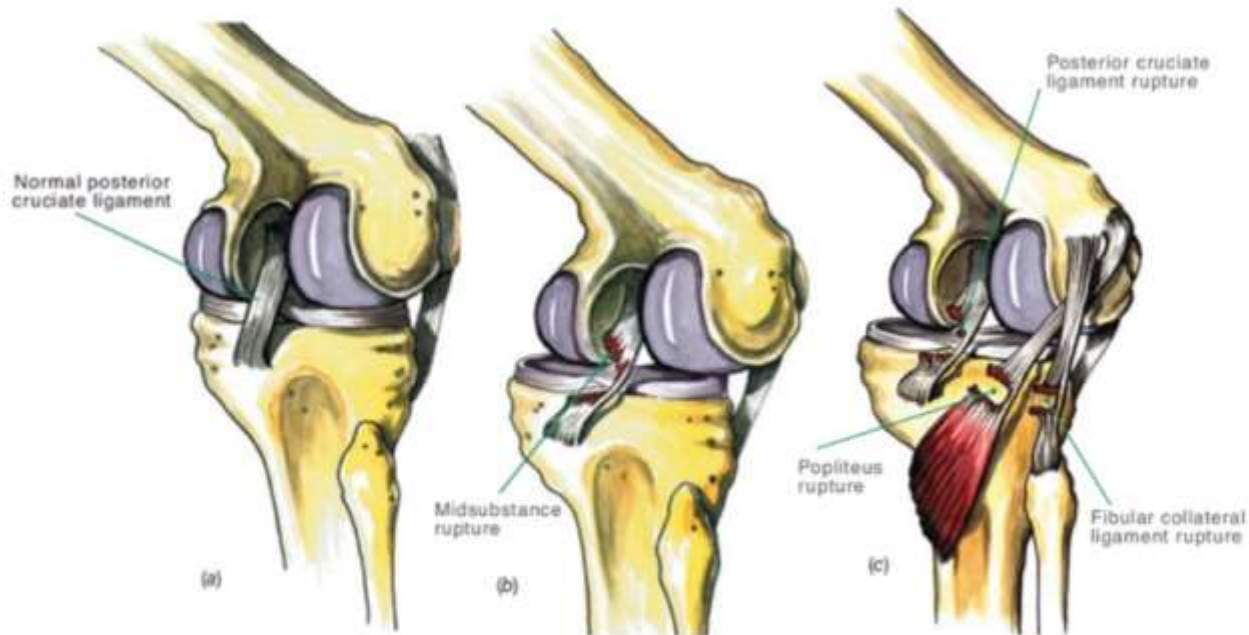
Women <15°



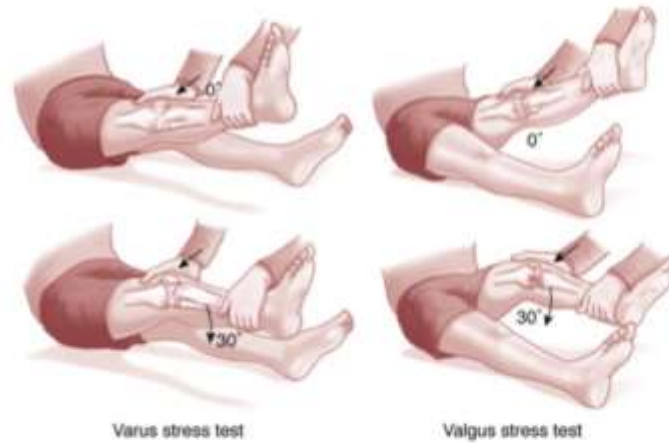
- Ball squat have greater activity of hamstring so unload the ACL
- Forward tilt of trunk (30 angle) - Erect trunk



آسیب رباط متقاطع خلفی (PCL)



علائم و تشخیص آسیب های رباطی زانو



C Posterior drawer sign (PCL)



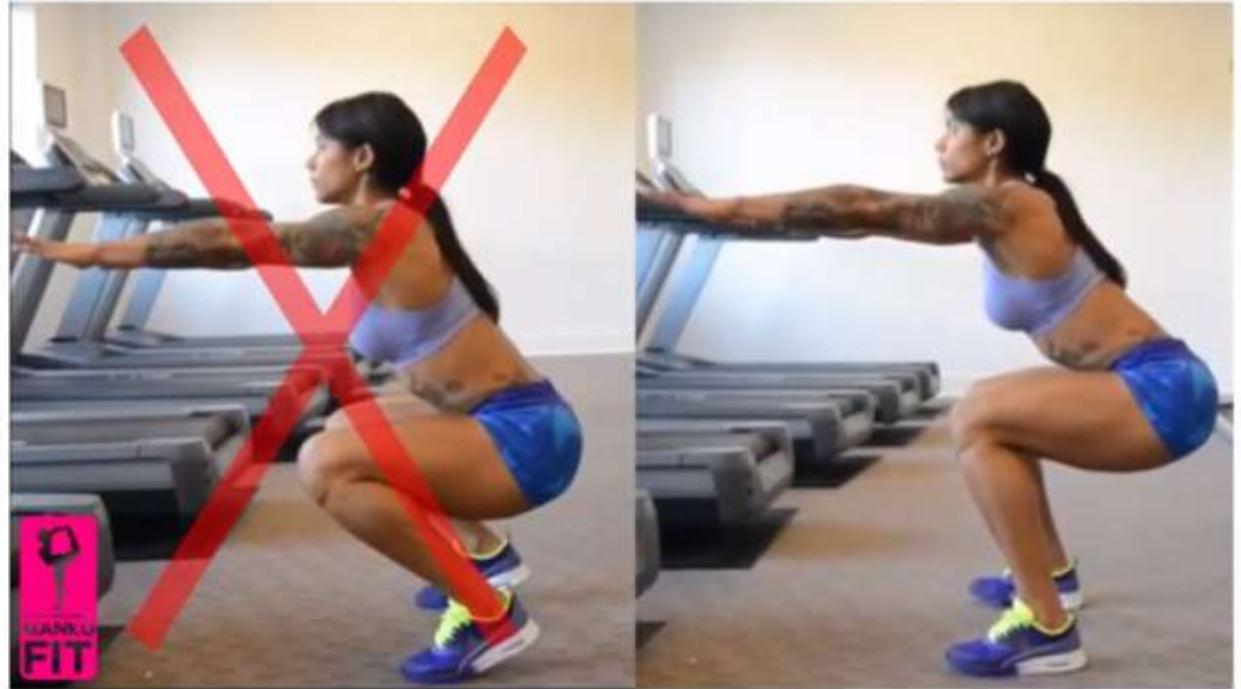
The posterior cruciate ligament (PCL) prevents the femur from sliding anteriorly on the tibia, particularly when the knee is flexed.

حرکات بدنسازی مرتبط با ACL و PCL

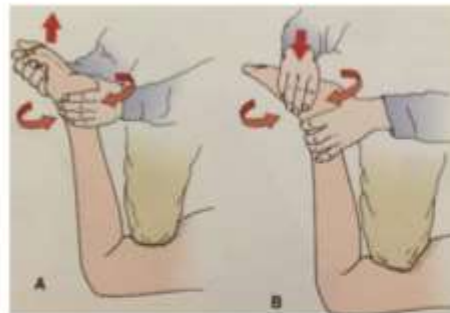
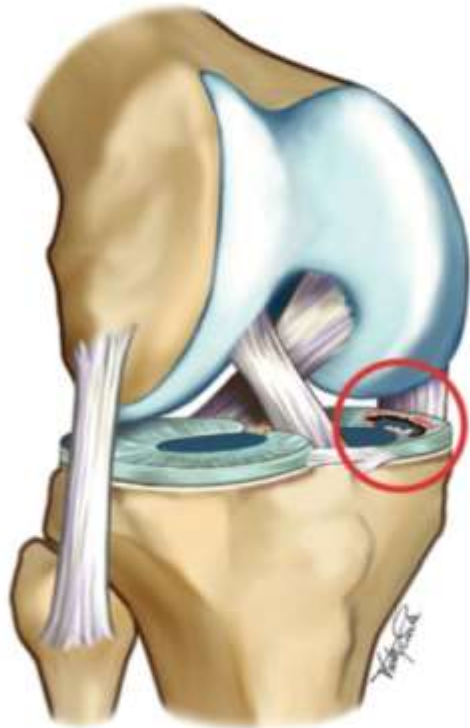
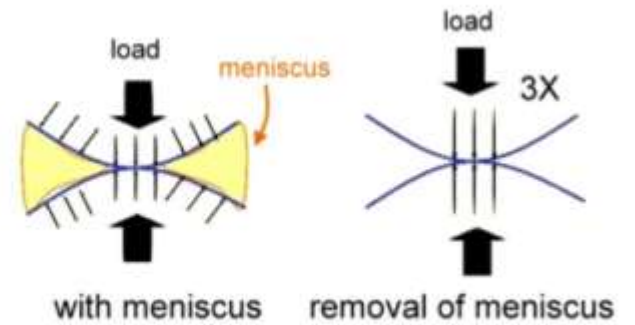
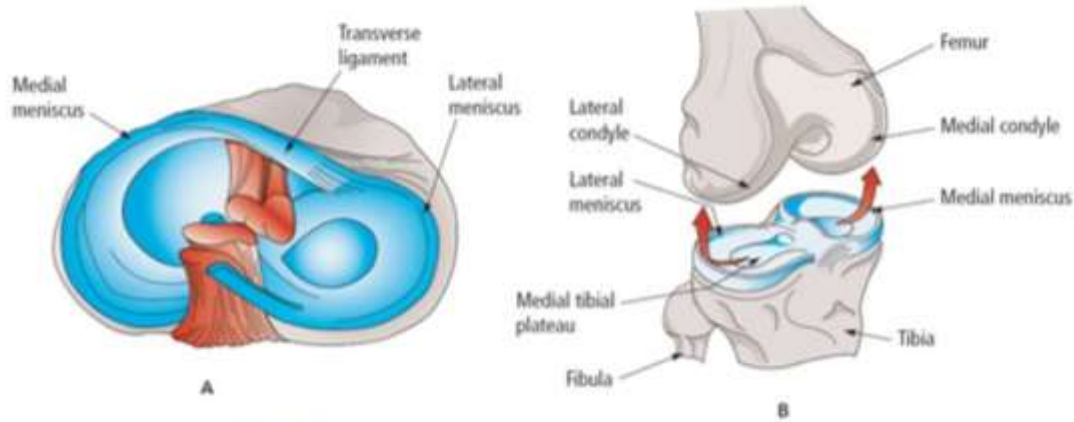


BARBELL SQUAT

حرکات بدنسازی مرتبط با ACL و PCL

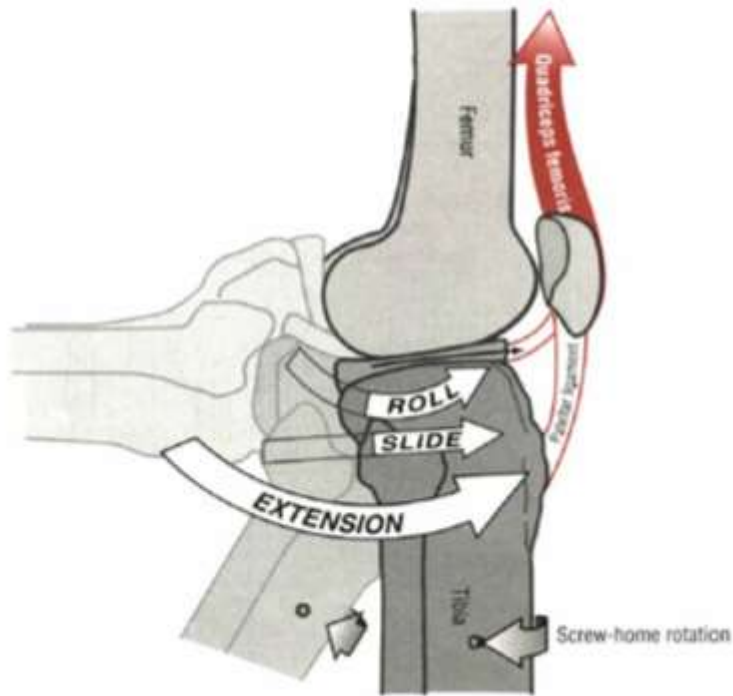


آسیب های منیسک

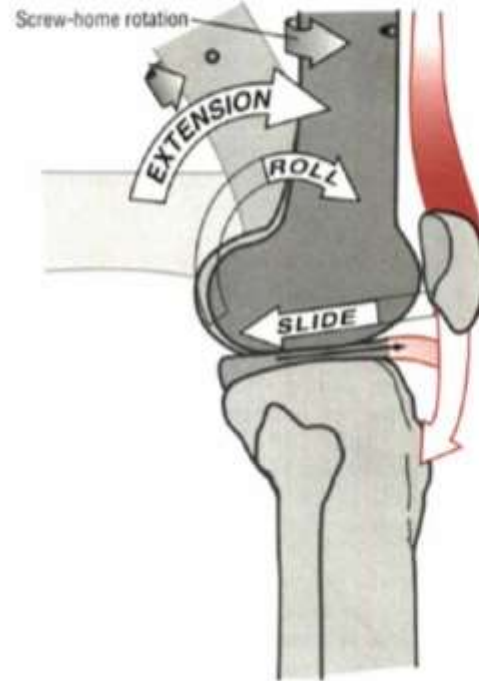


• زنجیره حرکتی باز و بسته در مبحث مینیسک و رباط متقاطع قدامی

A. Tibial-on-femoral extension



B. Femoral-on-tibial extension

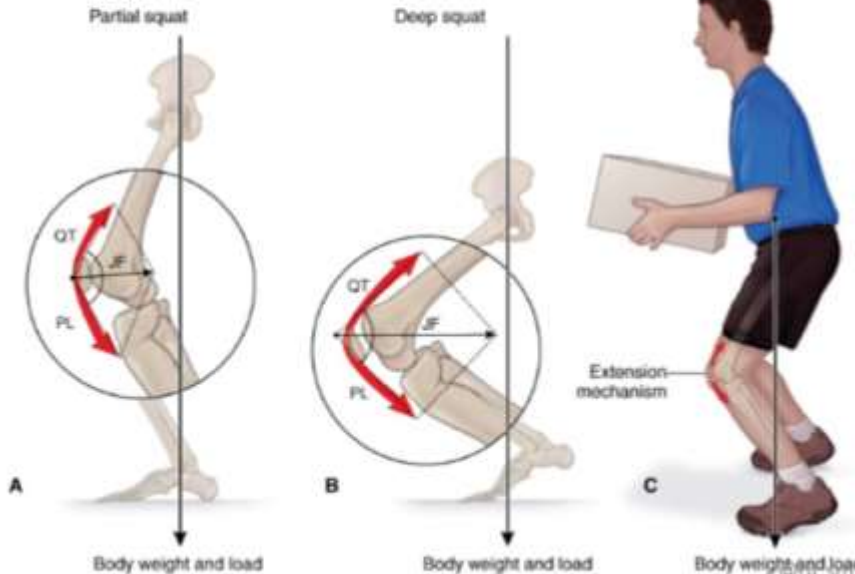
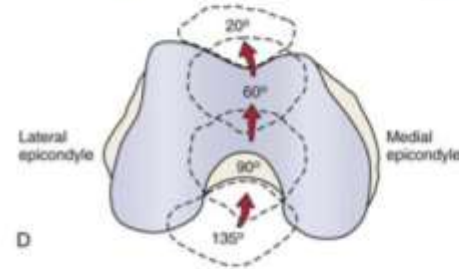
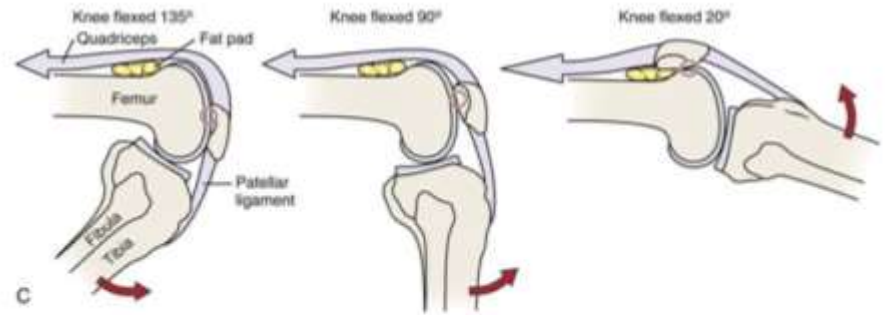


کندرومالاسی کشکک (سائیدگی کشکک یا سندروم درد کشککی - رانی)

. Chondromalacia

. Patellofemoral Pain Syndrom

Chondromalacia Patella
(Knee joint as Seen From Below)



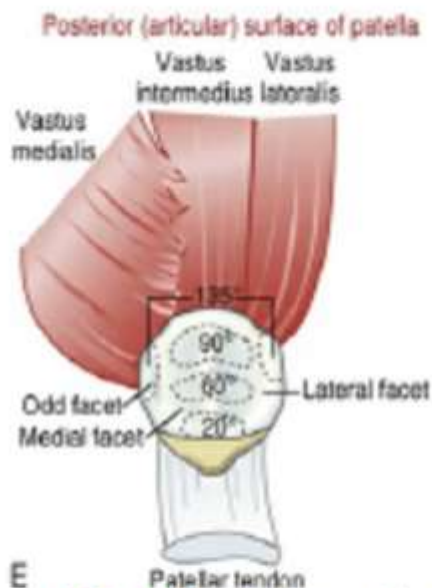
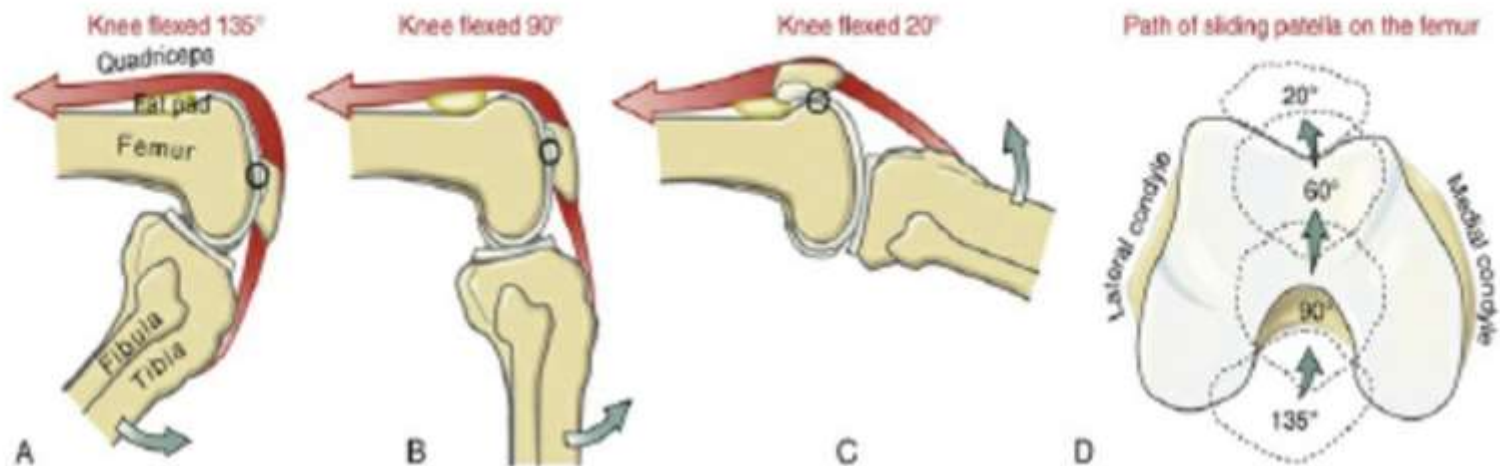
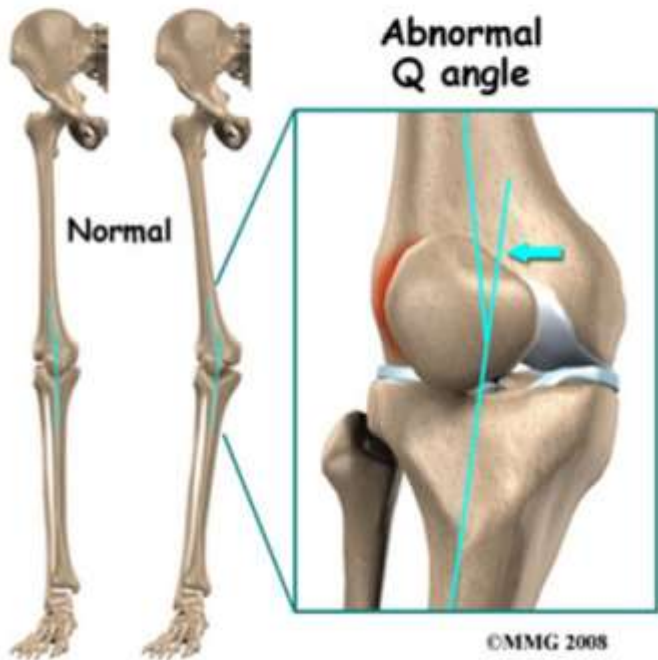
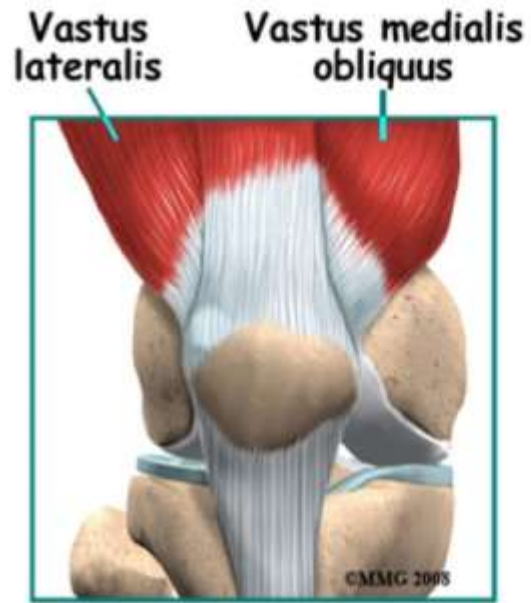
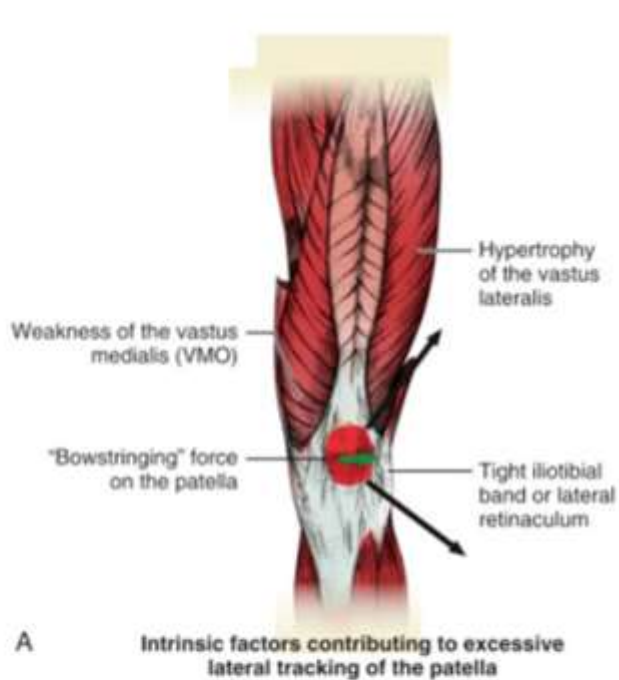


FIG. 13.23 The kinematics at the patellofemoral joint during active tibial-on-femoral extension. The circle depicted in (A) to (C) indicates the point of maximal contact between the patella and the femur. As the knee extends, the contact point on the patella migrates from its superior pole to its inferior pole. Note the suprapatellar fat pad deep to the quadriceps. (D) and (E) show the path and contact areas of the patella on the trochlear groove of the femur. The values 135, 90, 60, and 20 degrees indicate flexed positions of the knee.

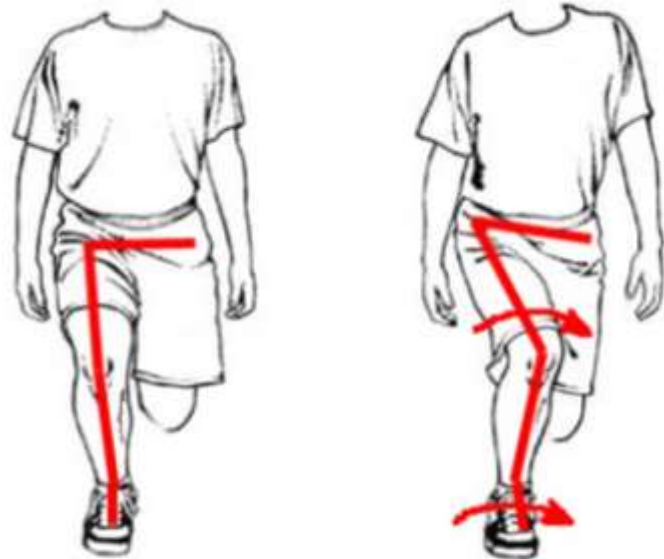


BRACEABILITY

QUADRICEP CONTRACTION



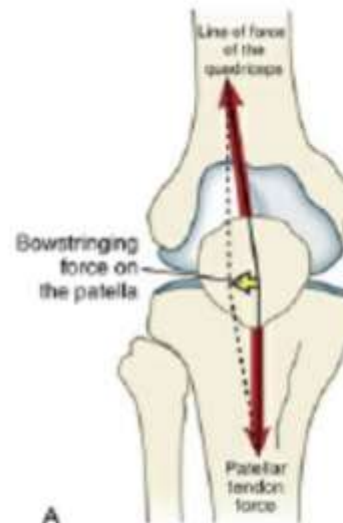




A

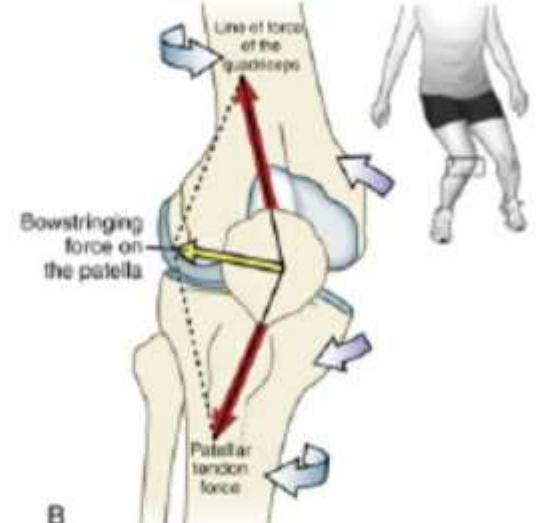
B

Neutral alignment



A

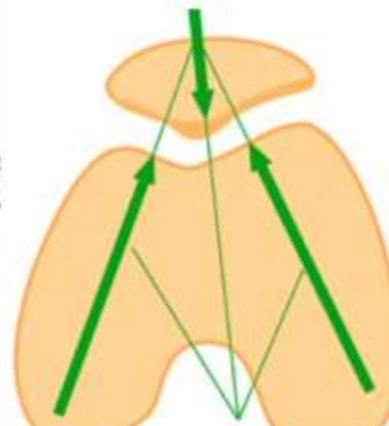
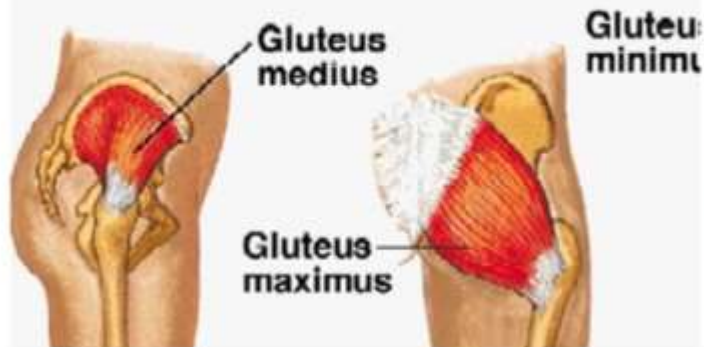
Excessive knee external rotation and valgus



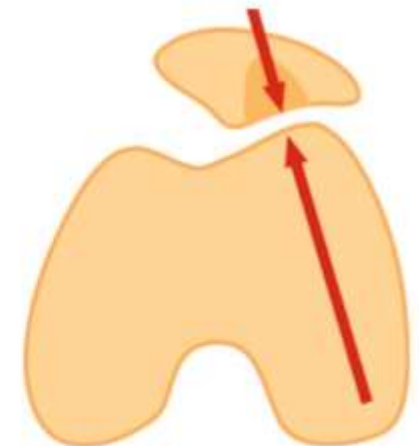
B

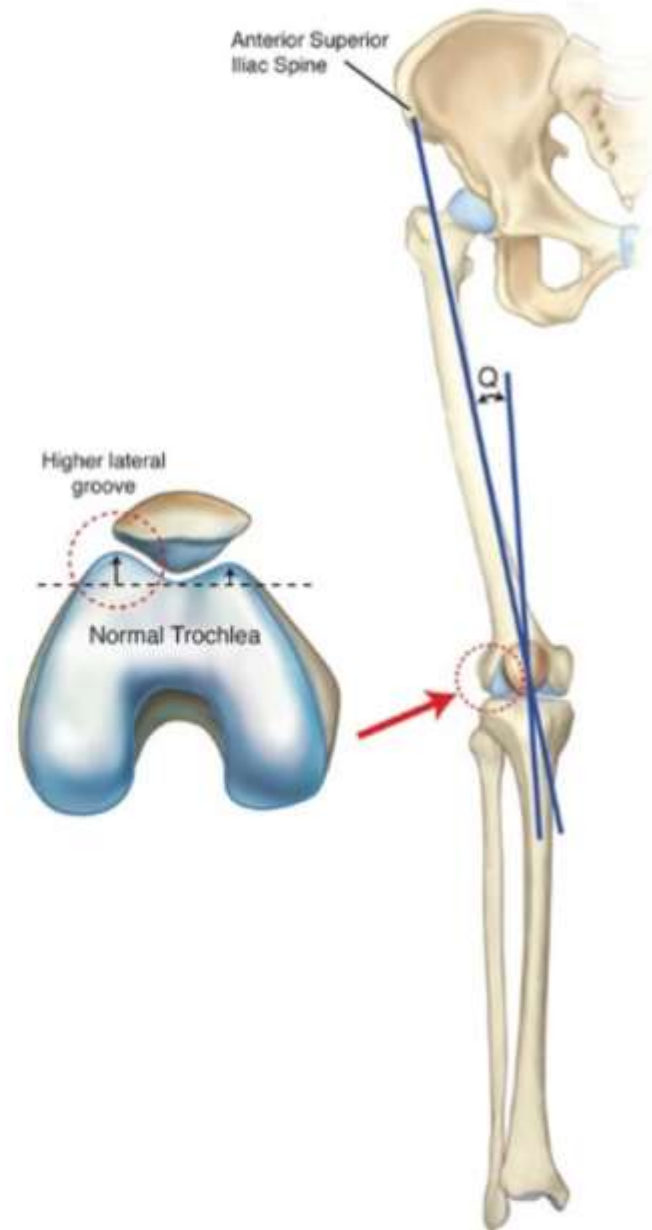
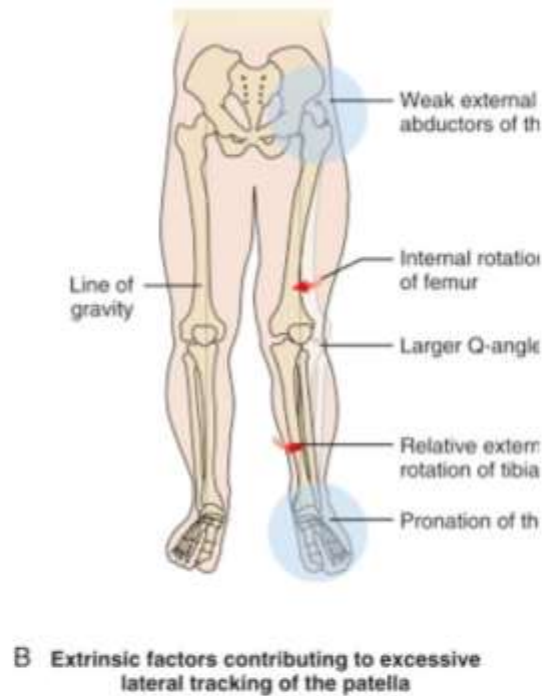
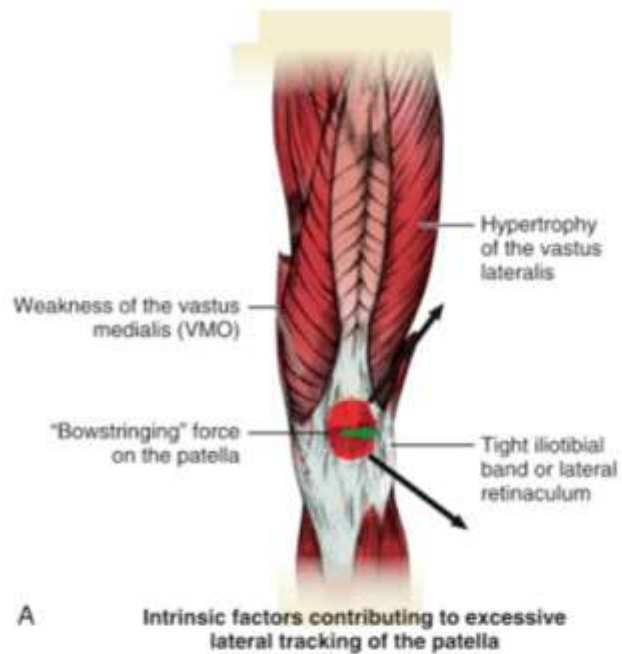
13.31 (A) Neutral alignment of the knee, showing the characteristic lateral bowstringing force on the patella. (B) Excessive knee valgus and knee external rotation can increase the Q-angle and thereby increase the lateral bowstringing force on the patella. Blue arrows indicate bone movement that can increase knee external rotation, and purple arrows indicate an increased valgus load placed on the knee. Note that the increased external rotation of the knee can occur as a combination of excessive internal rotation of the femur and external rotation of the tibia.

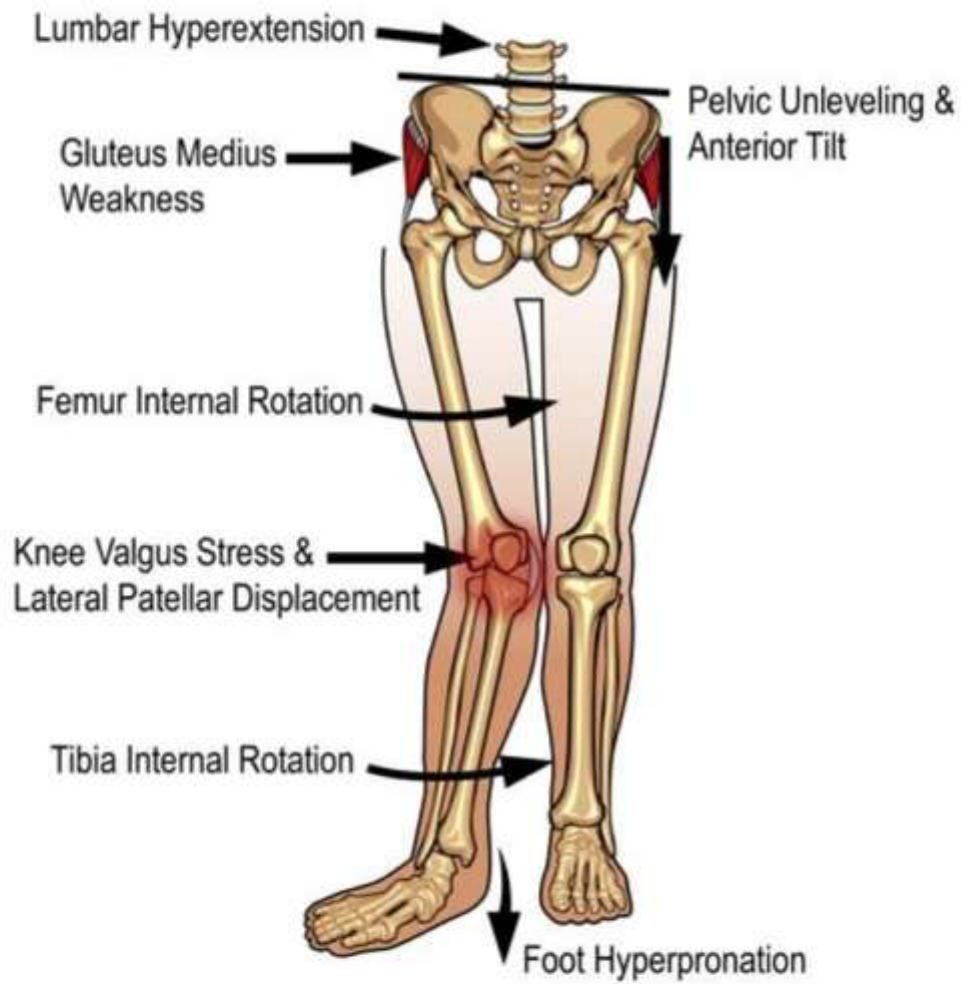
Gluteal Muscles



@dr.sm.hoseini







• مریئات و توانبخشی کاندرومالاسی



درد در نواحی مختلف زانو و دلایل احتمالی آنها



The end

@dr.sm.hoseini

آسیب شناسی ورزشی

نوشته شده توسط: محمد حسینی

آسیب شناسی ورزشی محمد حسینی

کتاب آسیب شناسی ورزشی نشر **حتمی** تالیف محمد حسینی شامل ۲۱ فصل با عناوین زیر میباشد:

آسیب های استخوان

آسیب های مفصل

آسیب های رباط

آسیب های عضله

آسیب های تاندون

آسیب های بورسها

سایر آسیب ها

اقدام های درمانی حاد و سریع در محل وقوع آسیب های ورزشی

تمرین پس از آسیب دیدگی

روش های درمانی

نکات برجسته مبحث پیشگیری یا اقدام های احتیاطی

بیومکانیک آسیب های ورزشی

آزمون های مبحث آسیب شناسی

آسیب های شانه

آسیب های آرنج و ساعد

آسیب های مچ دست و انگشتان

