

# Muscular System Disorders

Dr Katek

# Muscle Tone- state of partial contraction (ready to pull)

- ▶ Loss of muscle tone:
- ▶ 1) Can occur in severe illness such as paralysis
- ▶ 2) When muscles are not used in long periods of time (atrophy or wasting away)
- ▶ 3) Lack of use can also result in a contracture (severe tightening of a flexor muscle)- results in a bending of a joint

# Muscle Tone

- ▶ Isotonic- when muscles contract and shorten
- ▶ Isometric- tension is the muscle increases but does not shorten (tensing the abdominal muscles)
- ▶ Atrophy- muscle tissue shrinks from disuse
- ▶ Hypertrophy- over exercise, the muscle fiber (cell) enlarges

# Musculoskeletal Disorders



- ▶ Strain- a tear in the muscle resulting from usually excessive use
- ▶ Muscle spasm- sustained contraction of the muscle. May occur from overuse of the muscle.

# Strains

- ▶ *Strains* are injuries that affect muscles or tendons, thick bands that attach muscles to bones. They occur in response to a quick tear, twist, or pull of the muscle. Strains are an acute type of injury that results from overstretching or over contraction. Pain, weakness, and muscle spasms are common symptoms experienced after a strain occurs.

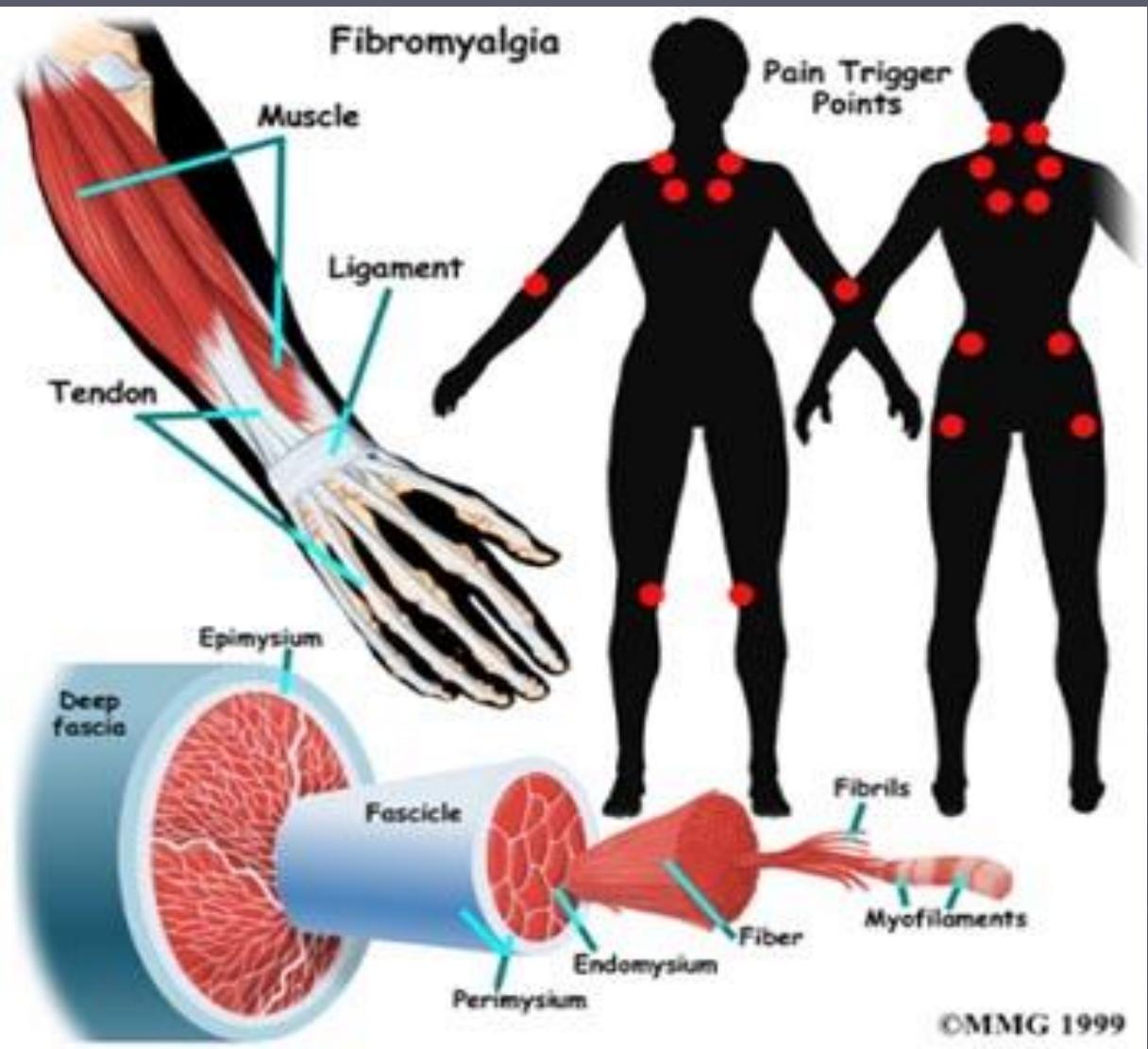
# Remember Sprains?

- ▶ *Sprains* are injuries that affect ligaments, thick bands of cartilage that attach bone to bone. They occur in response to a stretch or tear of a ligament. Sprains are an acute type of injury that results from trauma such as a fall or outside force that displaces the surrounding joint from its normal alignment.

Sp

# Fibromyalgia

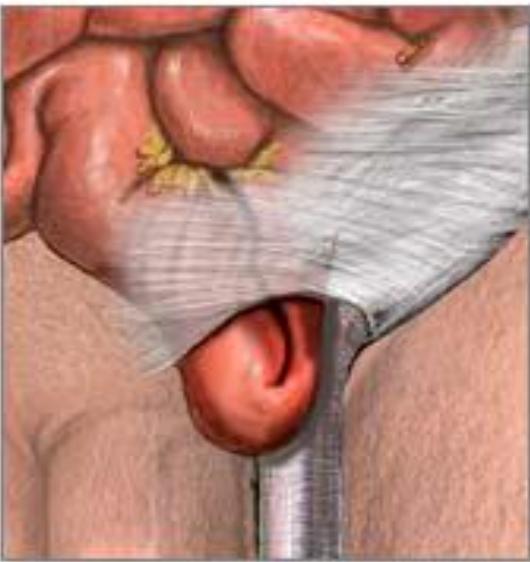
- ▶ Chronic widespread muscle pain to specific muscle sites lasting 3 or more months
- ▶ Sx: muscle stiffness, numbness or tingling in the arms or legs, fatigue sleep disturbances, and depression.
- ▶ Etiology: unknown, but stress, weather, and poor physical fitness affect the condition
- ▶ TX: pain relief, massage, ex, stress reduction, med to relax muscle and relieve pain



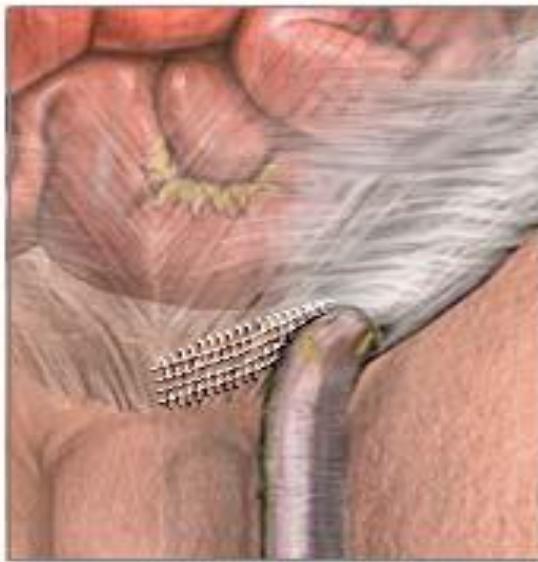
# Hernias

- ▶ *Imagine an inner tube poking through a hole in an old tire — that's what a hernia is like.*
- ▶ Hernia occurs when organ protrudes through a weak muscle
- ▶ Abdominal- organs protrude through the abdominal wall
- ▶ Inguinal- occurs in the inguinal area

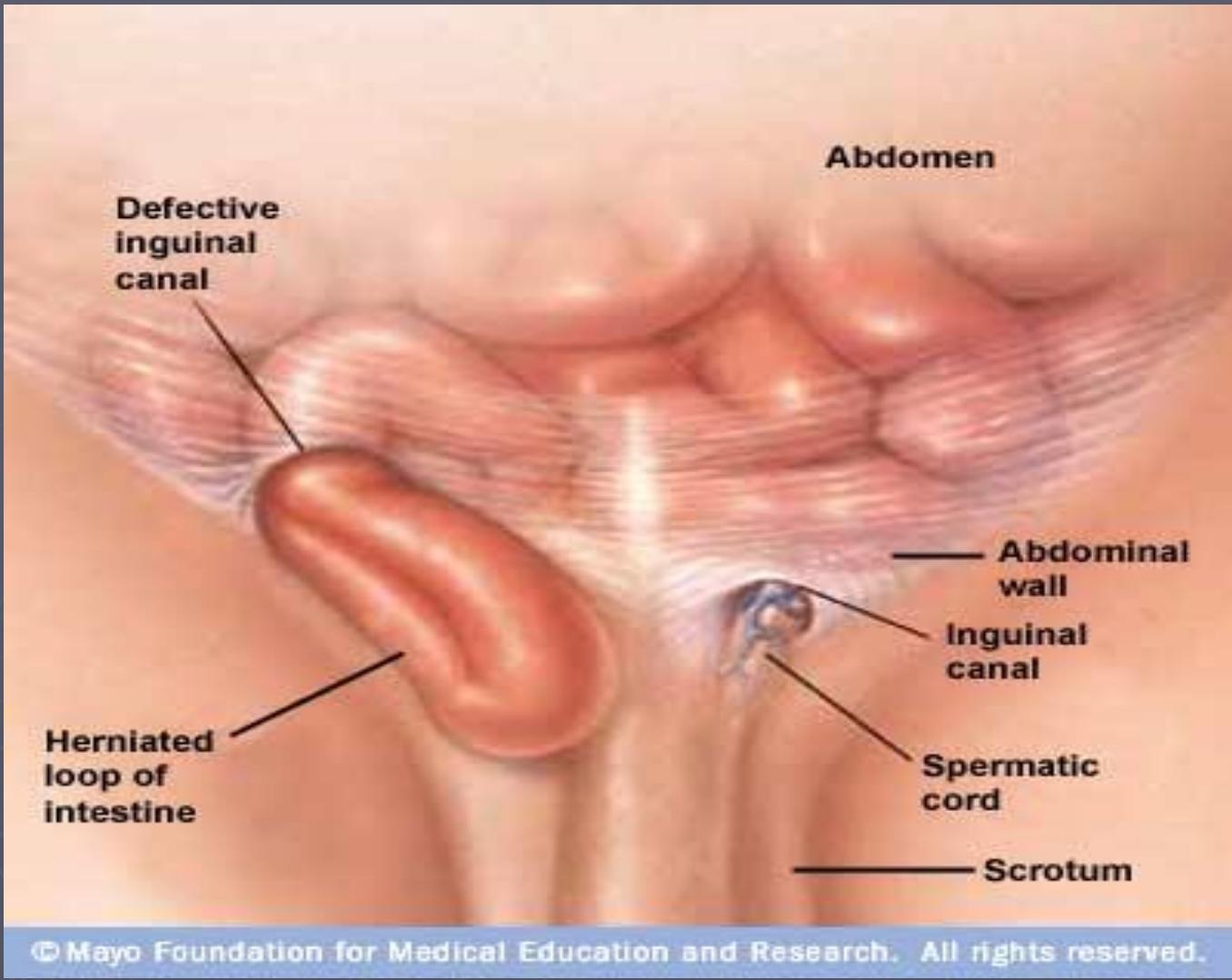
**Before**



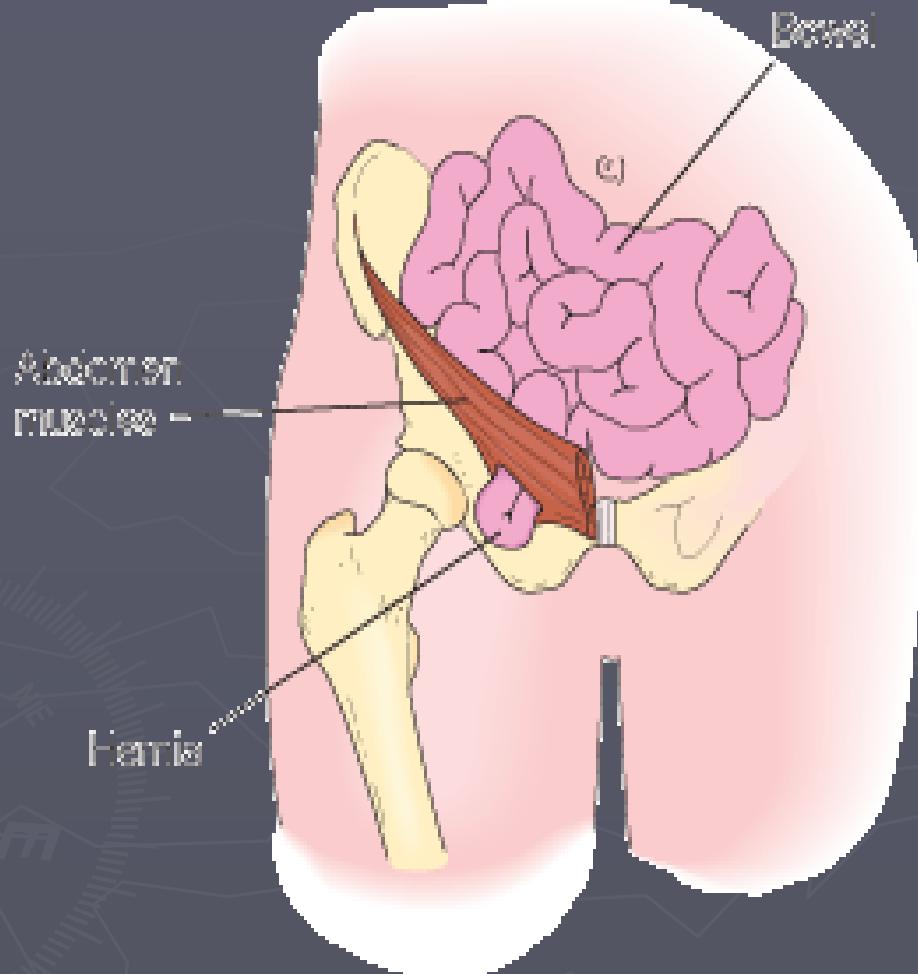
**After**



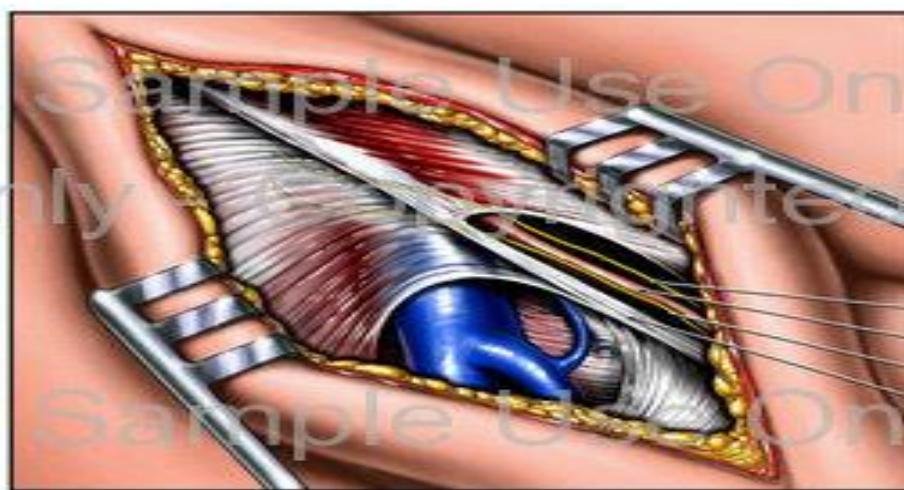
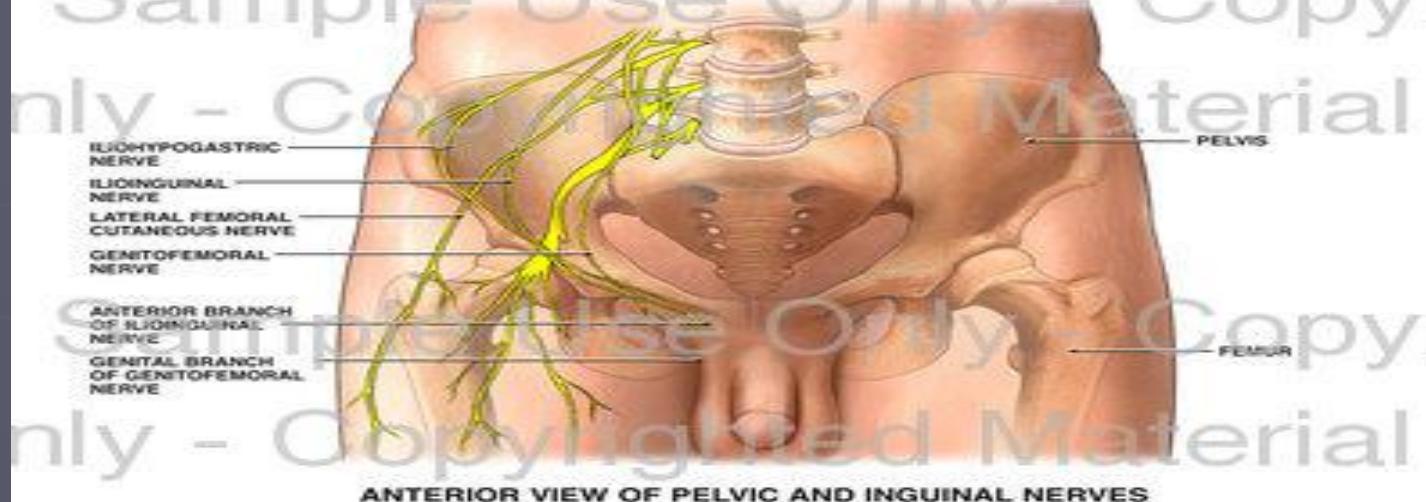
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## Anatomy of the Inguinal Area



SURGEON'S VIEW OF INGUINAL AREA

# Inguinal hernias

- ▶ Direct inguinal hernias are caused by connective tissue degeneration of the abdominal muscles, which causes weakening of the muscles during the adult years. Direct inguinal hernias occur only in males. The hernia involves fat or the small intestine sliding through the weak muscles into the groin. A direct hernia develops gradually because of continuous stress on the muscles. One or more of the following factors can cause pressure on the abdominal muscles and may worsen the hernia:
- ▶ sudden twists, pulls, or muscle strains
- ▶ lifting heavy objects
- ▶ straining on the toilet because of constipation
- ▶ weight gain
- ▶ chronic coughing

# Diagnosing inguinal

- ▶ Many hernias are discovered during routine physical exams. If you're a guy, you may have had a physical exam where your doctor gave you a testicular exam and checked your testicles for a hernia. By placing a finger at the top of your scrotum and asking you to cough, the doctor can feel if you have a hernia.

# Incisional Hernia

- ▶ Incisional hernia: Abdominal surgery causes a flaw in the abdominal wall. This flaw can create an area of weakness in which a hernia may develop. This occurs after 2%-10% of all abdominal surgeries, although some people are more at risk. Even after surgical repair, incisional hernias may return.

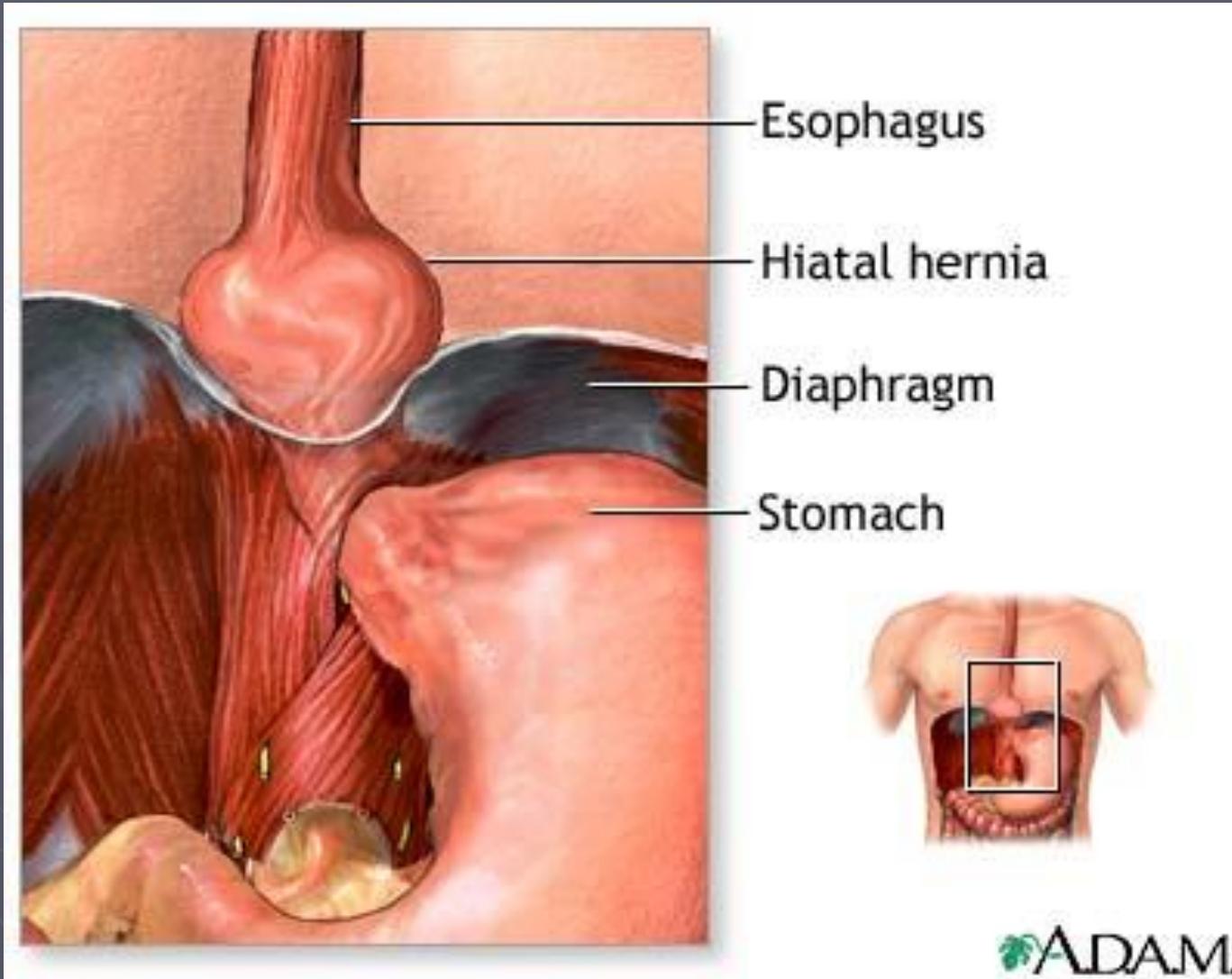




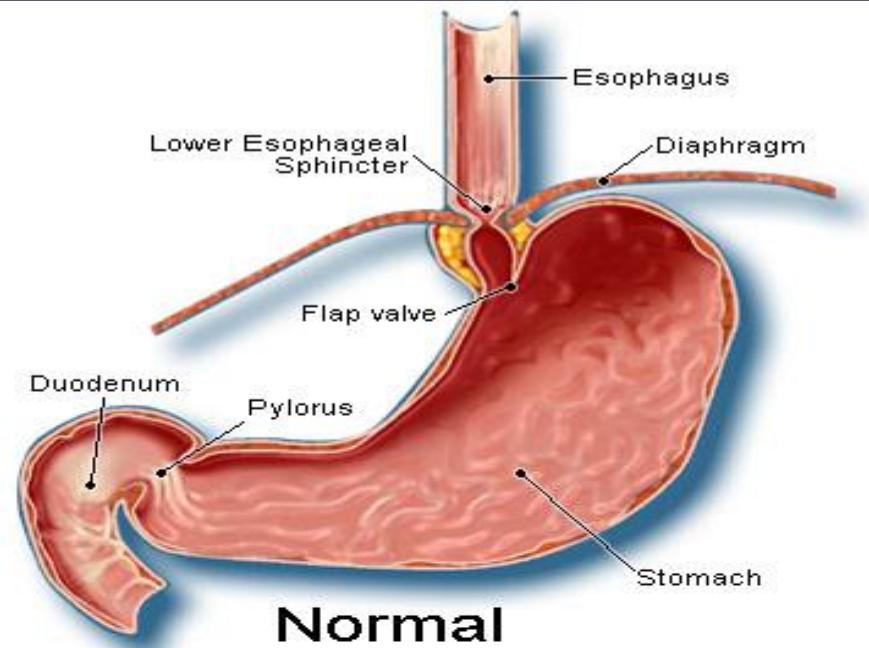


# Hiatal Hernia

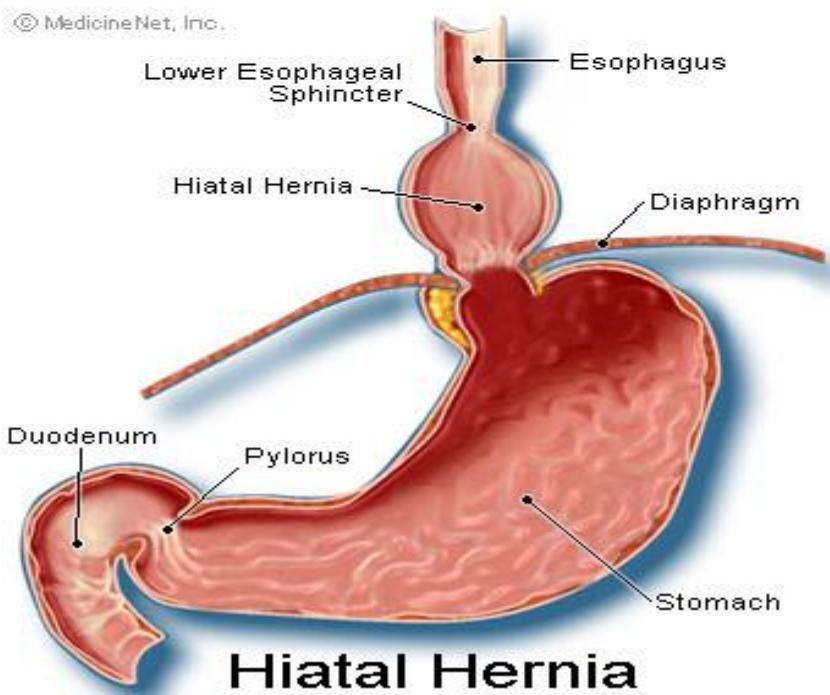
- ▶ Hiatal hernia is a condition in which the stomach pushes through the diaphragm.
- ▶ The cause is unknown, but hiatal hernias may be the result of a weakening of the supporting tissue. Increasing age, obesity, and smoking are known risk factors in adults



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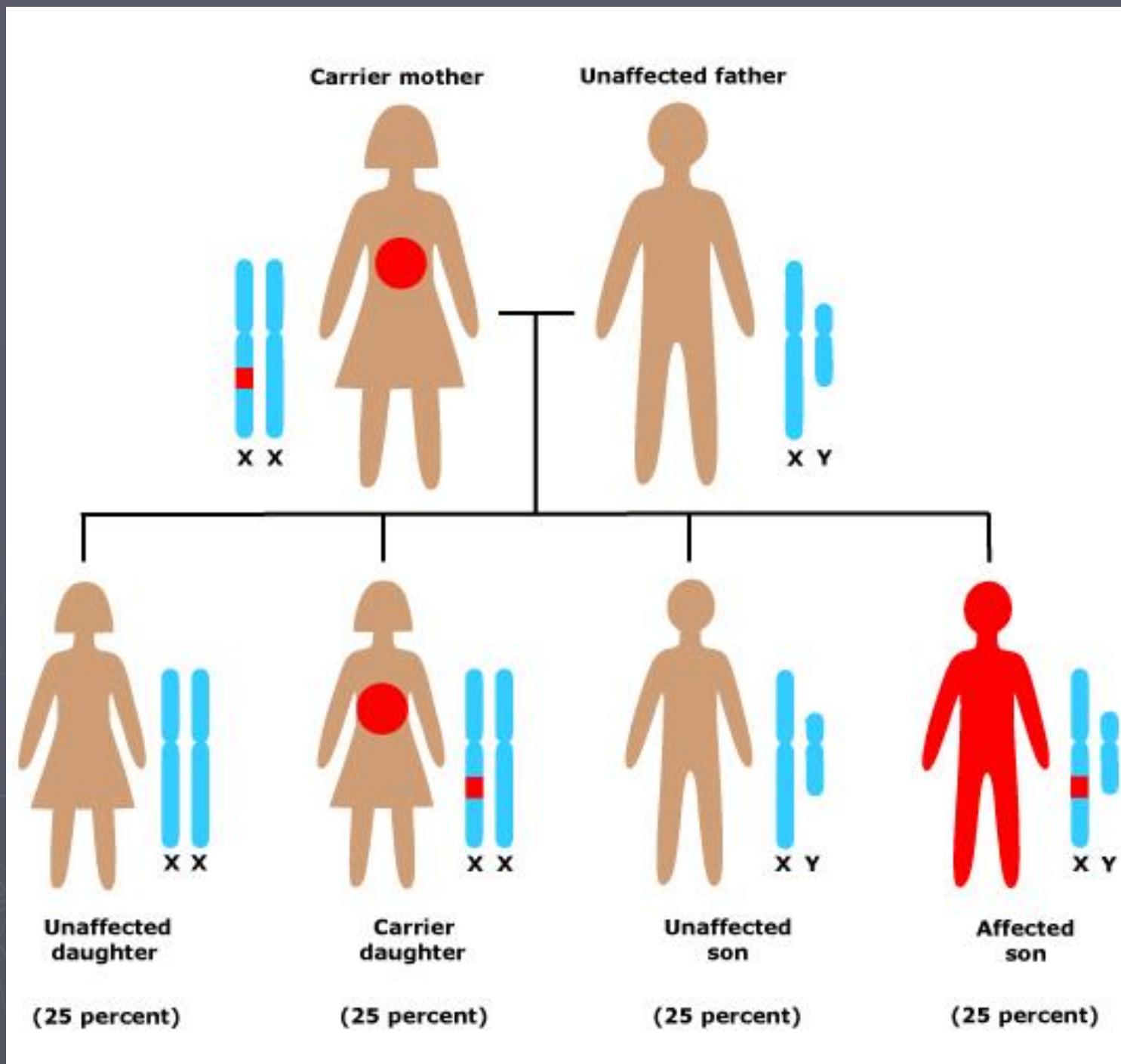
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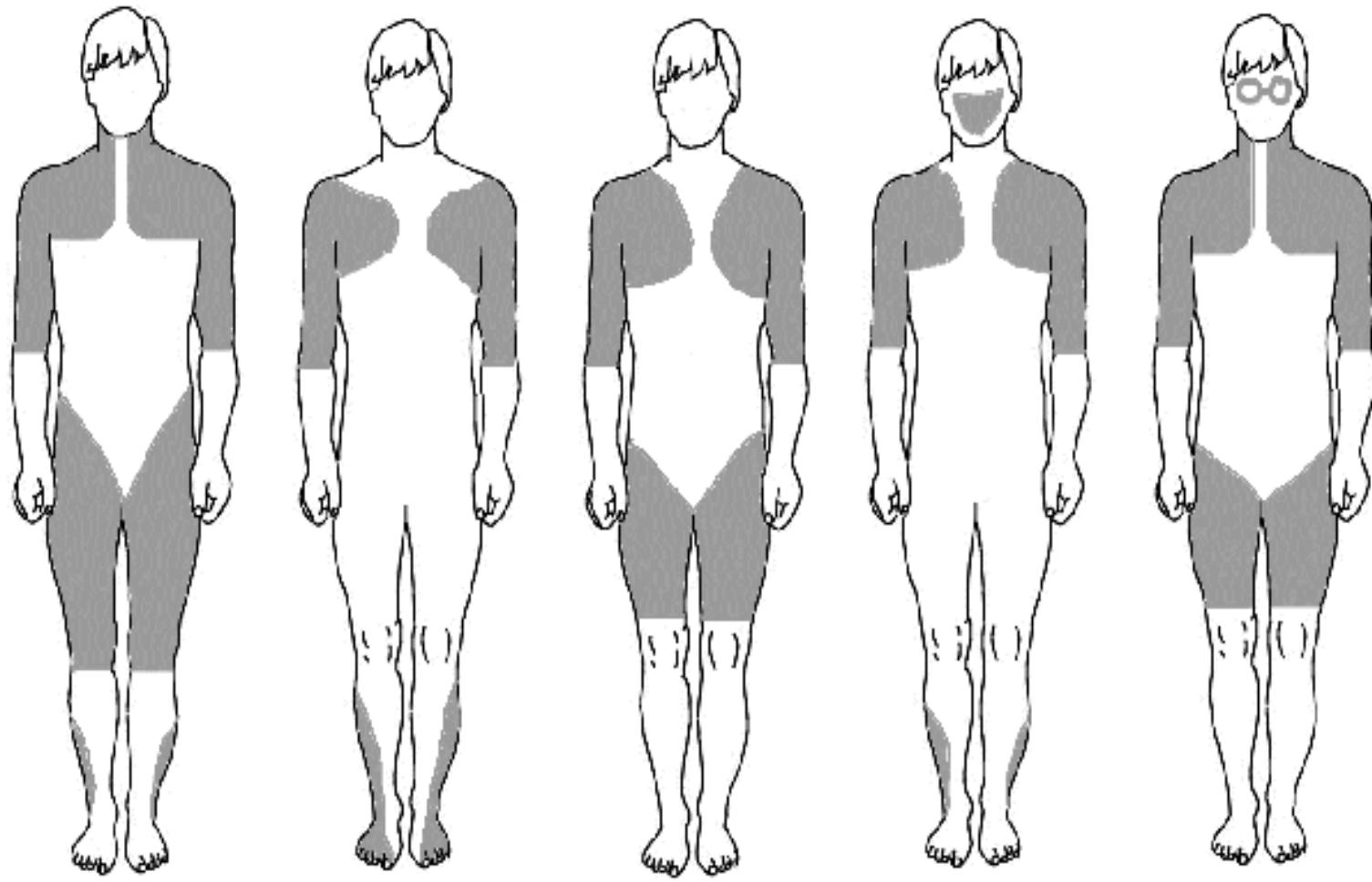


# Muscular Dystrophy

- ▶ Group of inherited diseases
- ▶ Leads to chronic progressive muscle atrophy
- ▶ Usually appears in early childhood
- ▶ Most types result in total disability and early death
- ▶ P.T. is used to slow progress of dz







Duchenne and  
Becker Types

Emery-Dreifuss  
Type

Limb Girdle  
Type

Facioscapulo-  
humeral Type

Oculopharyngeal  
Type

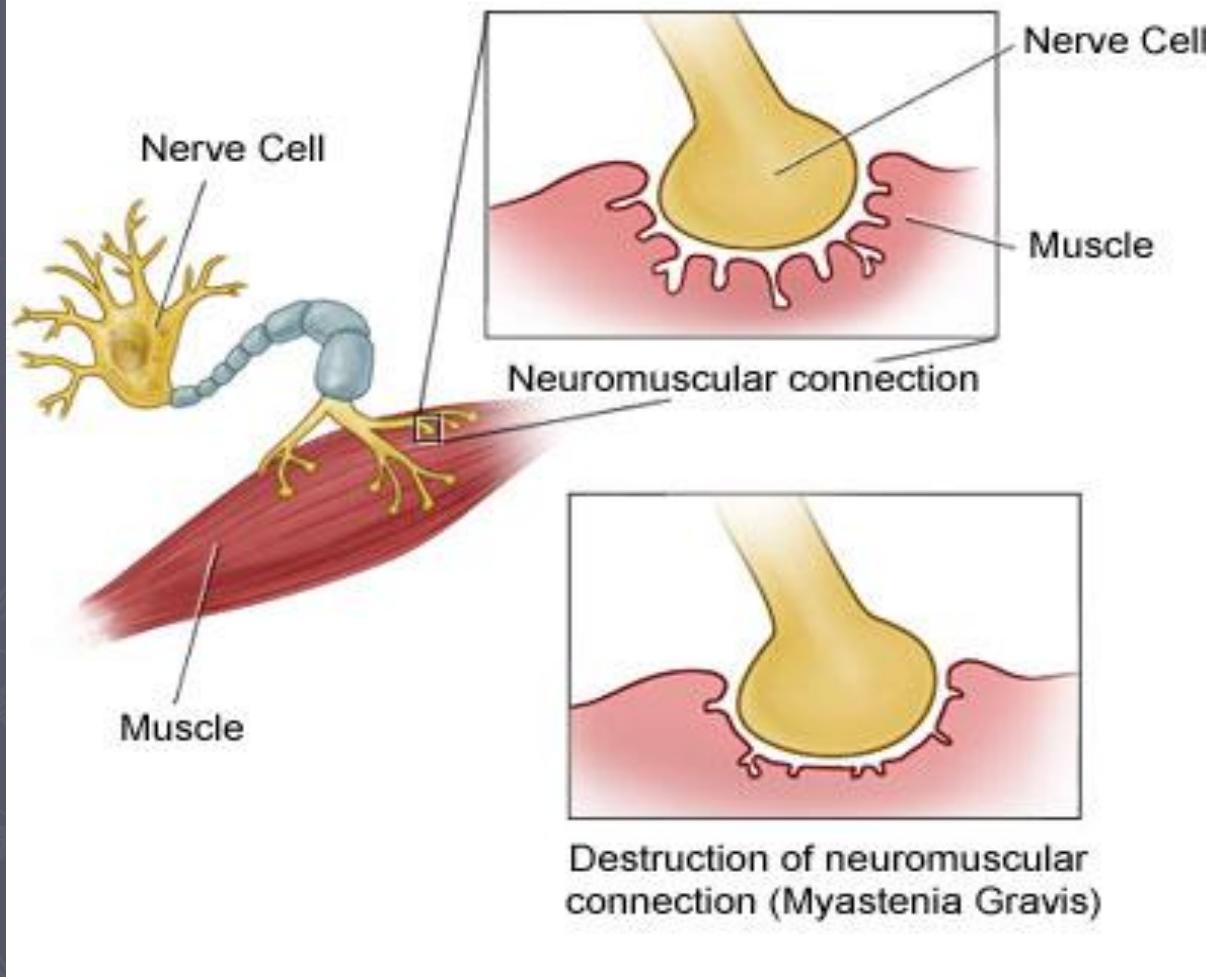
**Main areas of muscle weakness in different types of dystrophy**

# Myasthenia Gravis

- ▶ Chronic condition in which nerve impulses are not transmitted properly to the muscles
- ▶ Leads to progressive muscular weakness and paralysis
- ▶ Fatal when it affects the resp systems
- ▶ Etiology: unknown – maybe autoimmune affecting the myoneural function



## Myasthenia Gravis

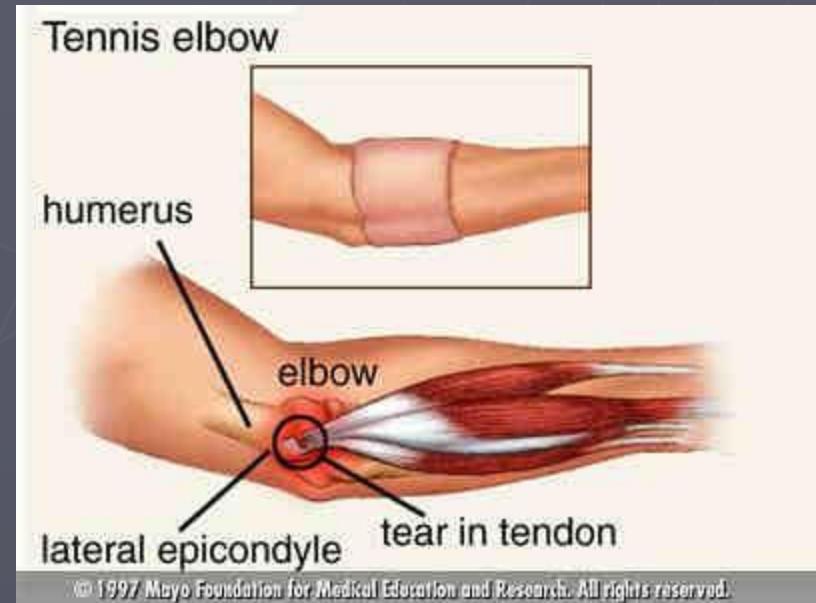
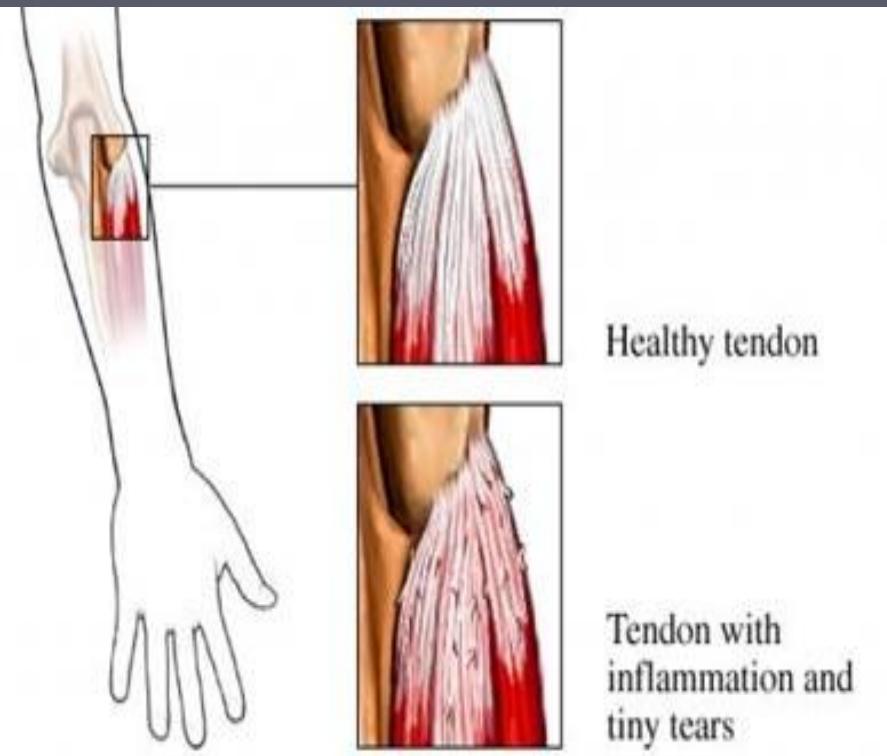


# Tennis Elbow

- ▶ Occurs at the bony prominence (Lateral epicondyle) on the sides of the elbow. The tendon that connects the arm muscle to elbow becomes inflamed because of the repetitive use of the arm and underconditioning. (swinging golf club, playing tennis)

<http://www.nytimes.com/video/2012/09/09/health/100000001768943/a-fix-for-tennis-elbow.html>

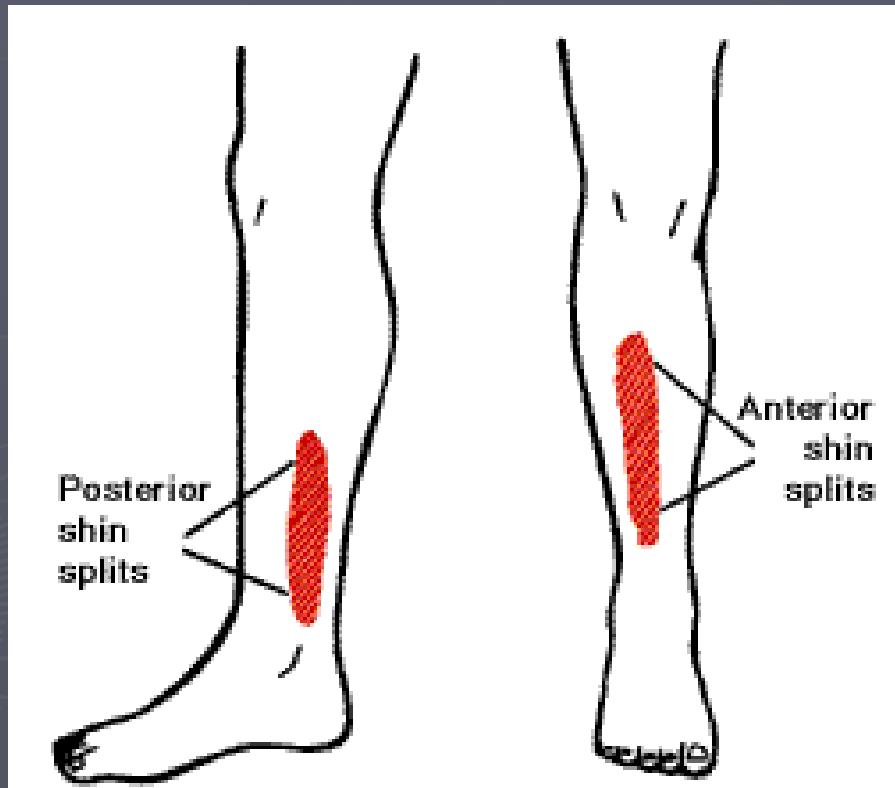
# Tennis Elbow



# Shin Splints

- ▶ Occurs when there is injury to the muscle tendon in the front of the shin.
- ▶ Occurs when jogging
- ▶ To prevent: choose a running shoe that is comfortable and has proper arch support
- ▶ Slow to heal

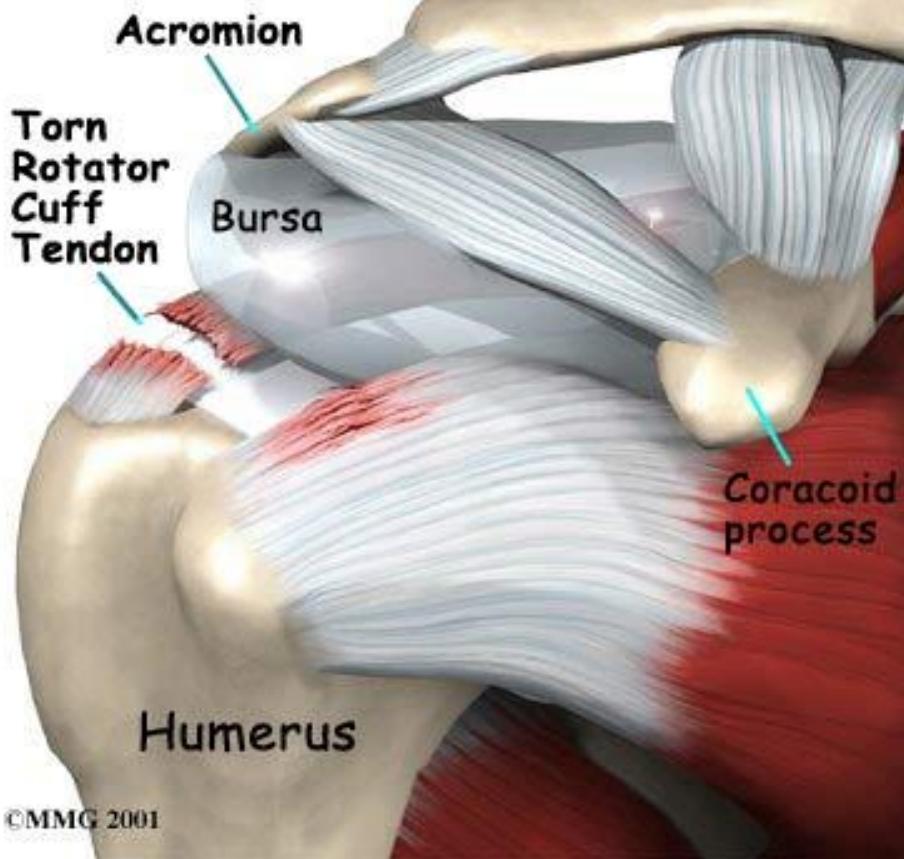
<http://video.about.com/running/How-to-Treat-Shin-Splints.htm>



# Rotator Cuff Disease

- ▶ Is an inflammation of a group of tendons that fuse together and surround the shoulder joint
- ▶ Can occur due to repetitive overhead swinging, such as swinging a tennis racquet or pitching a ball
- ▶ Supraspinatus
- ▶ Infraspinatus
- ▶ Subscapularis
- ▶ Teres minor

## Shoulder Anatomy



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CREDITS BASED LEARNING

**No of SDL hours = Lecture hours\*2  
Per week**