Chiropractic Technician Class

Presentation By: Dr. Kay Miller.

The Role of Exercise as it Relates to Our Musculoskeletal System

- Introduction to the topic and Preliminary Physical exam
- Musculoskeletal anatomy: Upper Body
- Upper Body continued with relation to muscle function/exercise
- Musculoskeletal Anatomy: Lower Body
- Lower body continued with relation to muscle function/exercise
- Conclusion and wrap up

Review of Vital Signs

- Record and chart the following vital signs:
  - Height
  - Weight
  - Blood Pressure
  - Body Mass Index (BMI)
  - Growth charts for children 2-20, including BMI

Vital Signs

- Age: years
- Weight: pounds
- Height: inches
- Pulse: beats per minute (bpm)
- Respiration: breaths per minute (bpm)
- Temperature: degrees Fahrenheit
- Blood Pressure: systolic/diastolic

Vital Signs

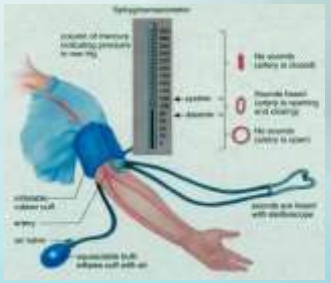
- Age: recorded from last birthday
- Weight: Use a scale that is calibrated
- Height: Use a scale with a measuring device
- Pulse: 2 fingers over radial artery. Taken for 30 seconds and multiply by 2.
- Respiration: Watch the patient breath for 30 seconds and multiply by 2
- Temperature: recorded in degrees in Fahrenheit

Vital Signs

- Blood Pressure:
  - Systolic: the pressure in the arteries when the heart is at full contraction (the heart beats)
  - Diastolic: the pressure in the arteries when the heart is at rest (between heart beats)

Vital Signs

- Blood Pressure:
  - Apply the fully deflated cuff around the upper arm 1" above the elbow.
  - Place the stethoscope in your ears (ear pieces facing forward)
  - While keeping the patient's arm relaxed, palpate the radial pulse (at the wrist) and inflate the cuff 20mmHg above the point where the pulse is not felt.
  - Place the diaphragm side of the stethoscope in the antecubital fossa. Release the air from the sphyg at a rate of 2-3 mmHg/second
  - Record the first heart beat (systolic) to the last (diastolic).



Vital Signs
New Guidelines for Hypertension

	Systolic	Diastolic
Normal	Under 120	Under 80
Prehypertension	120-139	80-89
Hypertension		
Stage I	140-159	90-99
Stage II	160 or greater	100 or greater

Vital Signs: Blood Pressure

Practice taking blood pressure

Vital Signs

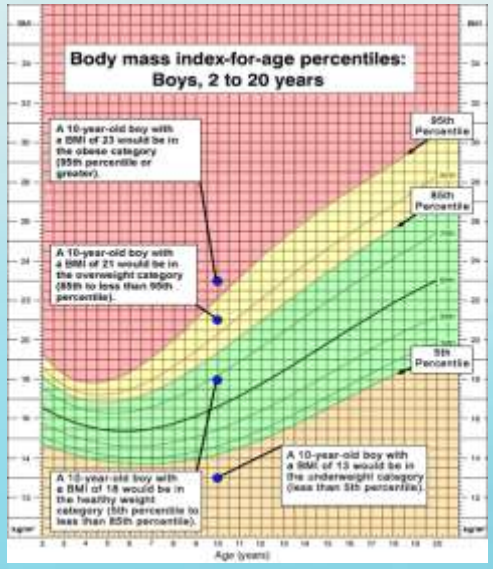
BMI

- Measure of body fat based on Height and weight
- BMI=$\frac{\text{weight (lbs) x 703}}{\text{Height (in) 2}}$

BMI

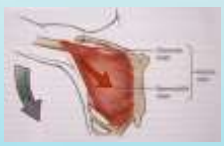
BMI	Weight Status
Below 18.5	Underweight
18.5-24.9	Normal
25.0-29-9	Overweight
30.0 and above	Obese

BMI for Children



Musculoskeletal Anatomy: Upper Body

- Pectoralis Major: Prime mover of arm flexion, adducts, medially rotates arm



- Serratus Anterior: Prime mover to protract and hold scapula against chest wall, rotates scapula, causing inferior angle to move laterally and upward, essential to raising arm. Stabilizer.

- Deltoid: Acting as a whole prime mover of arm abduction. Can aid in flexion, extension, and rotation of humerus

Musculoskeletal Anatomy: Upper Body

- Pectoralis Minor: With ribs fixed, draws scapula forward and inferiorly and draws rib cage superiorly. Depresses scapula.

- Trapezius: extends head, raises, rotates and retracts scapula

Musculoskeletal Anatomy: Upper Body

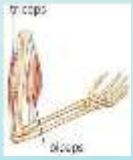
- Latissimus Dorsi: Prime mover of arm extension, adducts and medially rotates arm

- Infraspinatus: Lateral rotation of humerus
- Teres minor: Lateral rotation of humerus
- Teres major: extends, medially rotates and adducts humerus
- Supraspinatus: initiates abduction of humerus, stabilizes shoulder joint
- Levator scapulae: elevates and adducts scapula, laterally flexes neck to same side

Musculoskeletal Anatomy: Upper Body

- Rhomboids (major and minor): pull scapula medially and stabilize scapula

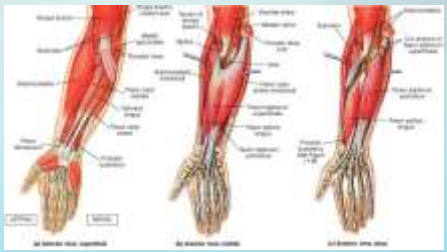




- Semispinalis: extends head and rotation toward the opposite side
- Triceps brachii: forearm extensor
- Biceps brachii: flexion of elbow and supination of forearm

Musculoskeletal Anatomy: Upper Body

- Brachialis: flexion or forearm
- Pronator Teres: Pronate forearm



- Flexor Carpi Radialis: Flexior of wrist, abducts hand
- Palmaris Longus: Flexes wrist
- Flexor Carpi: flexor of wrist and adducts hand
- Supinator: acts with biceps brachii to supinate forearm

Upper Body Exercises

- Imbalances:
  - Neck stretches
    - SCM
    - Traps
    - Scalenes
    - Levator Scapula

(Show video of muscle movements first)

Upper Body Exercies

- Stronger Posture:

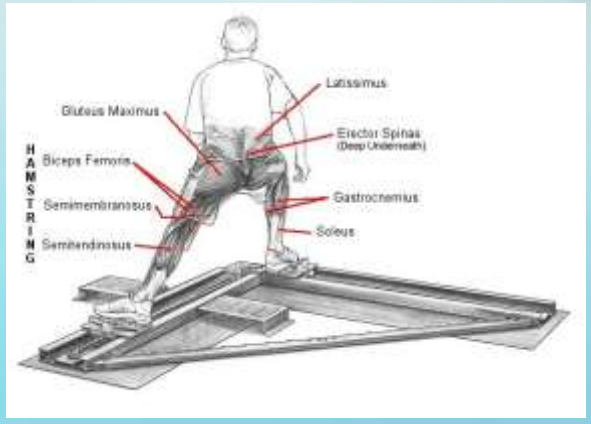
Sleeper Stretch of the shoulder

External Rotation Stretches

Thoracic Extension Stretches

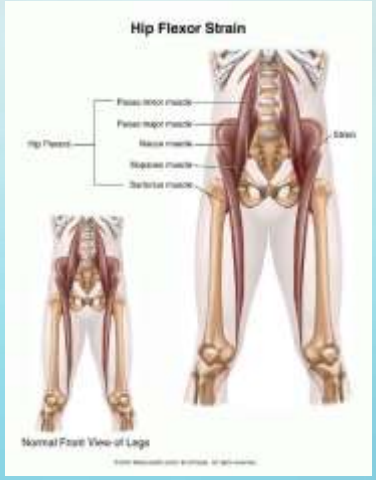
Musculoskeletal Anatomy: Lower Body

- Hip Extension
  - Gluteus Maximus
  - Bicep Femoris
  - Semitendinosus
  - Semimembranosus
  - Adductor Magnus



Musculoskeletal Anatomy: Lower Body

- Hip Flexion
  - Psoas
  - Rectus Femoris
  - Iliacus
  - Tensor Fascia Latae
  - Adductors
  - Sartorius

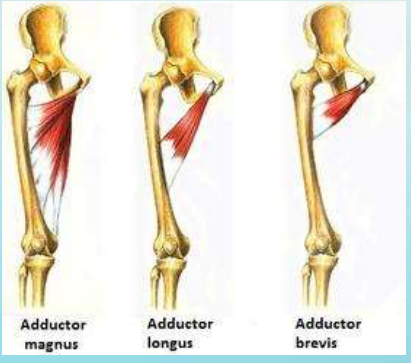


Musculoskeletal Anatomy: Lower Body

- Hip Abduction
  - Gluteus Medius
  - Gluteus Minimus
  - TFL
  - Sartorius

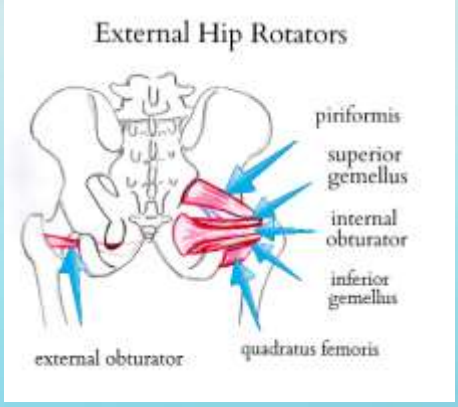
Musculoskeletal Anatomy: Lower Body

- Hip Adduction
  - Adductor Magnus
  - Adductor Longus
  - Adductor Brevis
  - Gracilis
  - Pectineus



Musculoskeletal Anatomy: Lower Body

- Hip External Rotation
  - Gluteus Maximus
  - Gluteus Medius
  - Psoas
  - Biceps Femoris
  - Sartorius



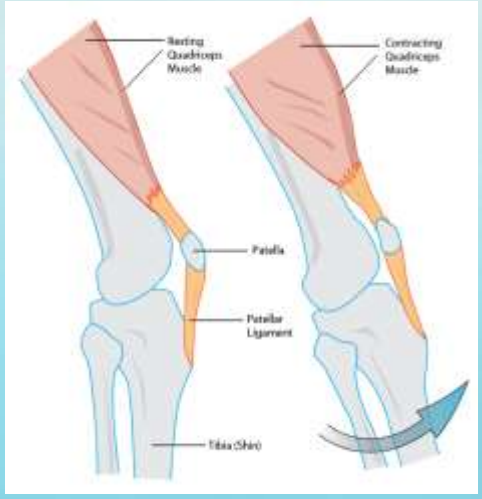
Musculoskeletal Anatomy: Lower Body

- Knee Flexion
  - Bicep Femoris
  - Semitendinosus
  - Semimembranosus
  - Gastrocnemius

  - (look at slide 19)

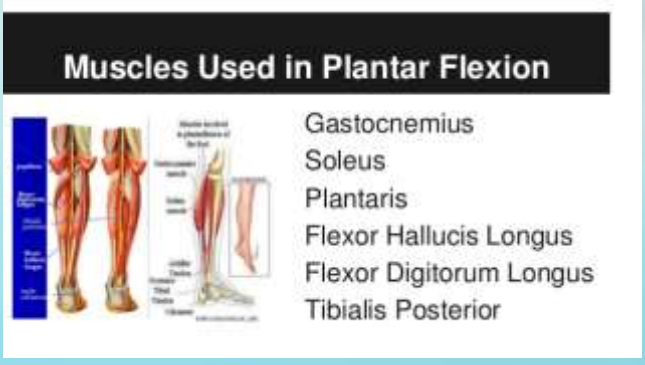
Musculoskeletal Anatomy: Lower Body

- Knee Extension
  - Rectus Femoris
  - Vastus Lateralis
  - Vastus Intermedius
  - Vastus Medialis



Musculoskeletal Anatomy: Lower Body

- Plantar Flexion
  - Gastrocnemius
  - Soleus
  - Posterior Tibialis
  - Peroneus Longus
- Dorsi Flexion
  - Anterior Tibialis



Lower Body Exercises

- Stretch for Low back and Hamstrings
- Weak hips, low back and glutes
- Crunches (abs)
- Core

Conclusion

- Proper Oxygen and nutrition to the muscles creates a healthy environment
- Where ever you lack mobility you make up for in hypermobility in another area
- Look at weak muscle groups and strengthen; don't always think you have to stretch it
- The key to getting and keeping your patient's healthy comes from a strong posture

- THANK YOU!

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