

THE MUSCULAR SYSTEM



Function of the muscular system

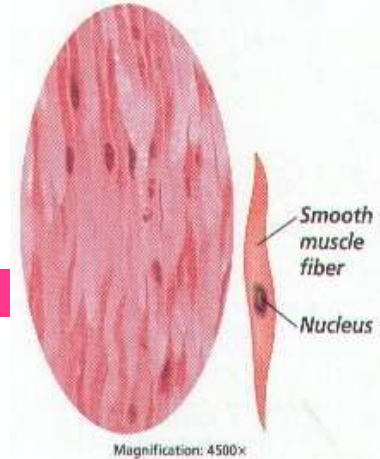
- Provides movement in conjunction with the skeletal system
- Important in life support
- Used by humans for food

Classifications of Muscles

- Voluntary: Movement of the muscle is under the control of the animal

- Involuntary: Movement of the muscle is not controlled by the animal

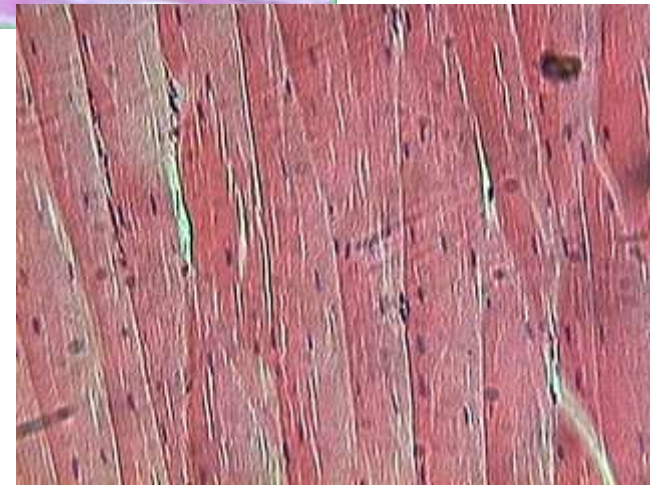
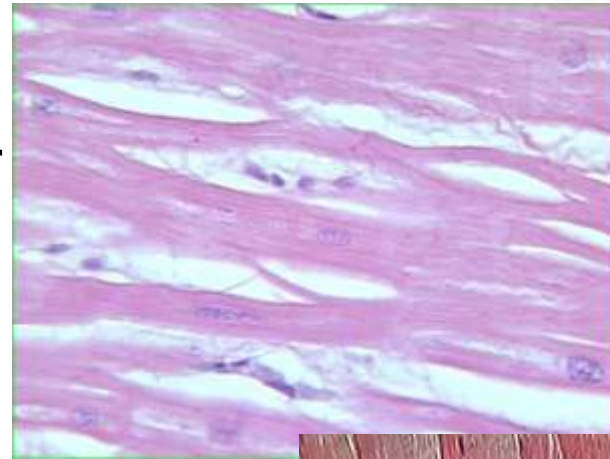
Types of Muscles



Magnification: 4500x

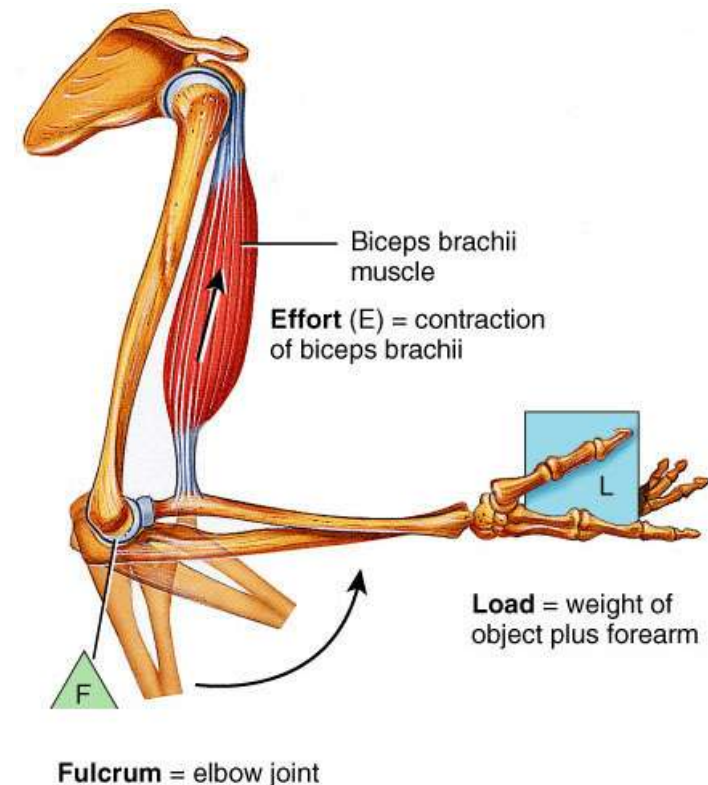
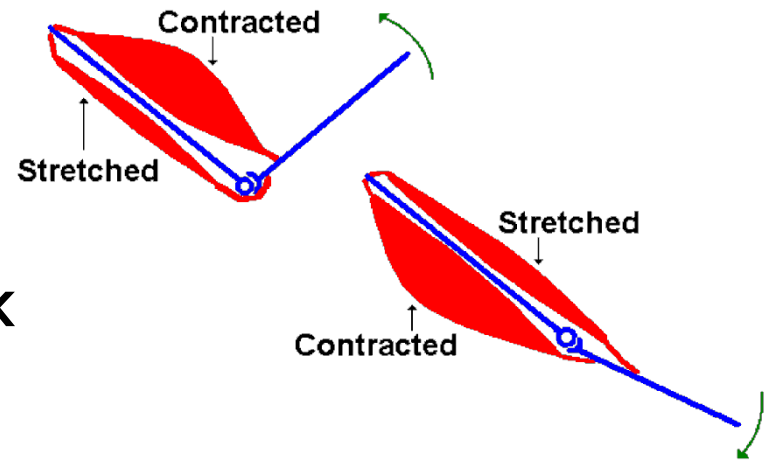
Smooth muscle fibers are under involuntary control and appear spindle-shaped.

- Smooth Muscles: Involuntary muscles, found in the walls of internal organs and the blood vessels.
- Cardiac Muscles: Muscles that form a network to make up the heart.
- Skeletal Muscles: Have a striped appearance, include voluntary and involuntary, attached to and moves your bones. This is a majority of the muscle tissue in your body.



Musculoskeletal Machines

- The skeleton and muscles work together in lever systems
- Muscles can only shorten by contraction, they cannot actively elongate.
- An external force is needed to stretch a muscle back to its resting length.
- Opposing muscle sets provide this external force.



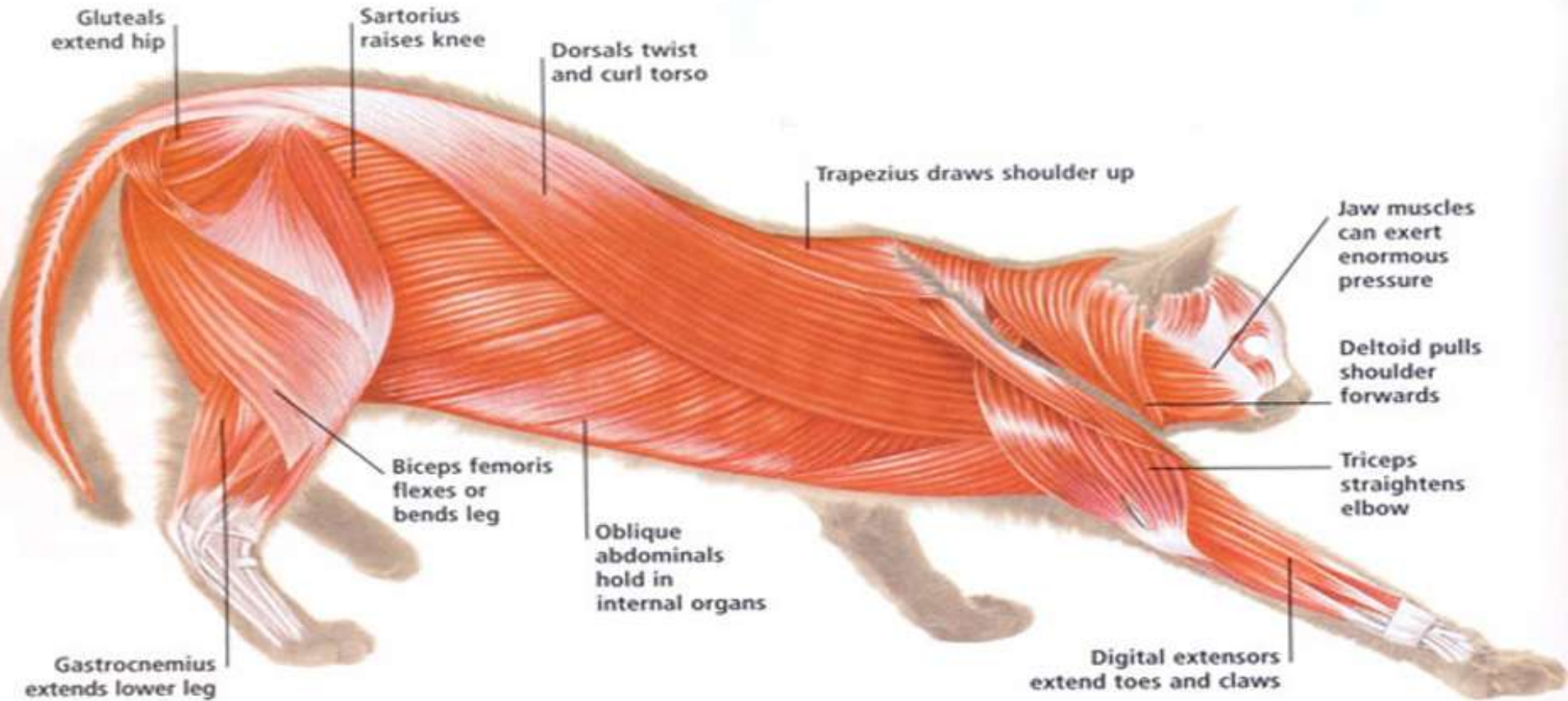
Movements

- Abduction – movement away from the median plane
- Adduction – movement towards the median plane
- Extension – moving the distal part of a limb away from the body
- Flexion – moving the distal part of a limb towards the body

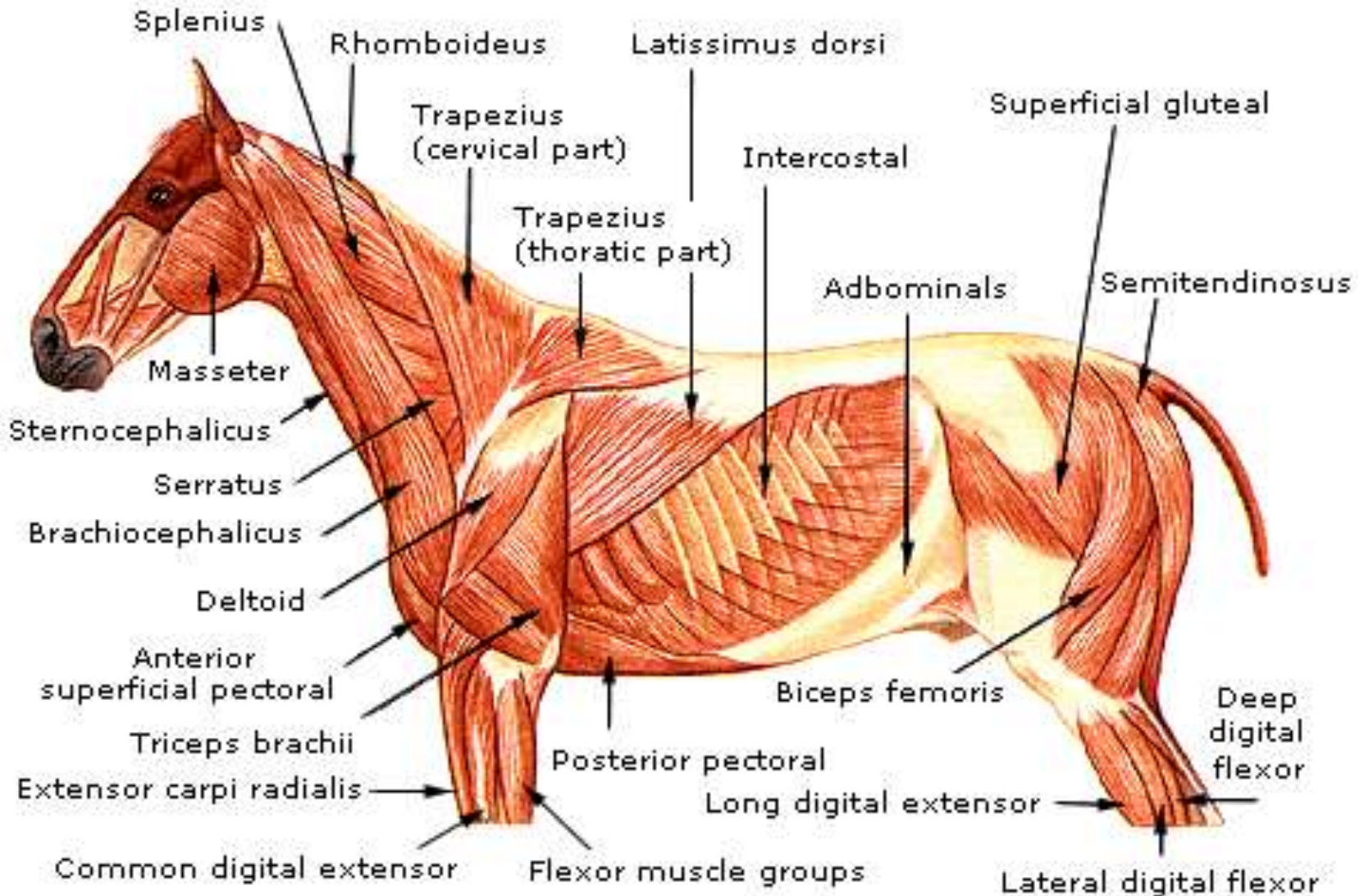
Major Muscles

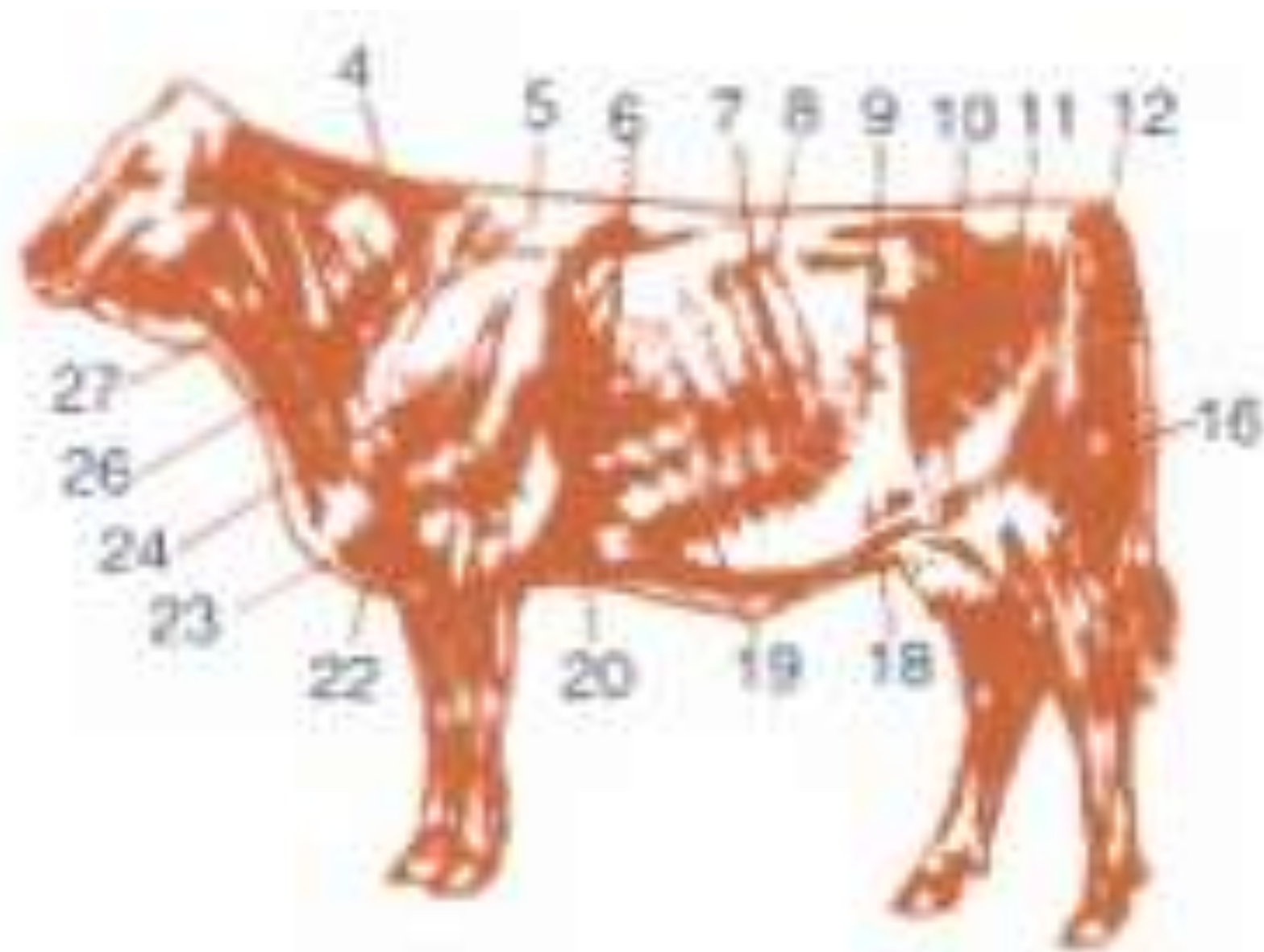
- ❑ **Abdominal obliques – large flat muscles that support digestive and reproductive organs**
- ❑ **Biceps brachii – primary flexor of the elbow joint**
- ❑ **Deep digital flexor – primary flexor of the digit**
- ❑ **Deltoid – primary abductor of shoulder**
- ❑ **Gluteals – large muscle of the upper hindquarters**
- ❑ **Latissimus dorsi – large dorsal muscle, attaches humerus to lumbar region**
- ❑ **Masseter – muscle of the cheek**
- ❑ **Pectorals – primary adductors of the forelimbs**
- ❑ **Serratus ventralis – attaches front leg to trunk**
- ❑ **Trapezius – superficial triangular muscle of the shoulder**
- ❑ **Triceps brachii – primary extensor of the elbow joint**

Cat Muscles and Functions



Horse Muscular System





Cattle Muscle Group Labels

4. **Trapezius cervicalis**
5. **Trapezius troacalis**
6. **Latissimus dorsi**
7. **External intercostals**
8. **Serratus dorsalis**
9. **Obiquus abdominis externus**
10. **Tensor fasciae latae**
11. **gluteus superficialis**
12. **Biceps femoris**
16. **Semitendinosus**
18. **Aponeurosis**
19. **Serratus thoracis**
20. **Posterior deep pectoral**
22. **Anterior superficial pectoral**
23. **Long head of triceps**
24. **Deltoid**
26. **Brachiocephalicus**
27. **Sterno-cephalicus**