Muscle Tissue and Muscular System

Text: Human Biology, by Mader. pp. 254-269

1. Introduction (p. 254)
    A. Myology
    B. Functions
        i. Motion
        ii. Posture Maintenance
        iii. Heat Production
2. Muscle Types (p. 254)
    A. Skeletal Muscle Tissue
        i. Striated
        ii. Voluntary
    B. Cardiac Muscle Tissue
        i. Striated
        ii. Involuntary
    C. Smooth Muscle Tissue
        i. Nonstriated
        ii. Involuntary

3. Skeletal Muscle Tissue

    A. Components (p. 255, see figure 12.2)

        i. Tendon

        ii. Origin

        iii. Insertion

    B. Antagonistic Pairs (p. 255, see figure 12.2, again)

        i. Example

            a. Bicepts Brachii

            b. Triceps Brachii

    C. Naming of Muscles (p. 256 - 258)

        i. Size

            a. Gluteus maximus

        ii. Shape

            a. Deltoid

            b. Serratus Anterior

        iii. Location

            a. Temporalis

            b. Occipitalis

        iv. Attachment

a. Sternocleidomastoid

iv. Number of Attachments

a. Bicepts Brachii

b. Tricepts Brachii

v. Action

a. Levator Scapulae

b. Adductor Magnus

4. Histology of a Mucle Cell (Myofiber)

A. Muscle Fibers

B. Sarcolemma

C. Sarcoplasm

D. Sarcoplasmic Reticulum

E. Transverse Tubules (T Tubules)

F. Myofibrils

G. Myofilaments

i. Thin Myofilaments

ii. Thick Myofilaments

H. Sarcomeres

5. Skeletal Chemistry p. 258 - 260)

   A. Thin Myofilaments

      i. Actin

      ii. Myosin-binding site

      iii. Tropomyosin

      iv. Troponin

      v. Tropomyosin-Troponin Complex

   B. Thick Myofilaments

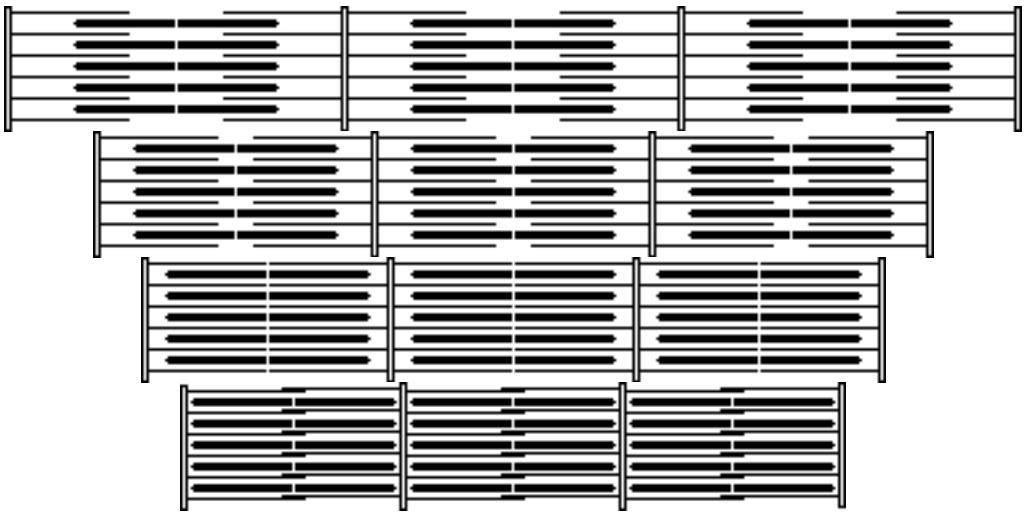
      i. Myosin

         a. Cross Bridges

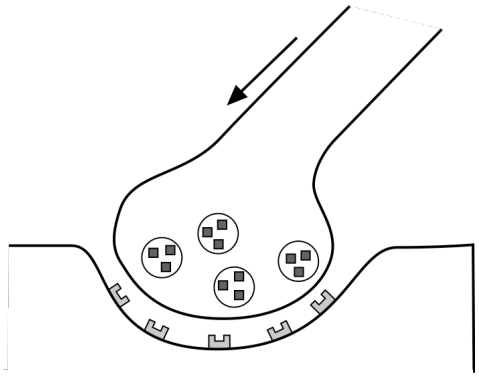
         b. Actin-Binding Site

         c. ATP-Binding Site

6. Contraction (Sliding - Filament Mechanism) (p. 260 - 262)



7. Neuromuscular Junction (p. 260 - 261)



   A. Motor Neuron

      i. Synaptic End Bulbs

         a. Synaptic Vesicles

         b. Neurotransmitters

      ii. Synaptic Cleft

      iii. Acetylcholine

8. Motor Units, (p. 162; also see handout on Motor Units)

9. ATP Production

   A. Cellular Respiration

   B. Creatine Phosphate .

   C. Anaerobic Fermentation

      i. Oxygen Debt