Lab manual: Exploring Anatomy & Physiology in the Laboratory – Core Concepts
by Erin Amerman, Morton Publishing, 2014, Photo Atlas (Cat Dissection Ch. 19, p. 169-184)

Labs 1 and 2: MUSCULAR SYSTEM
Cat Dissection: Photo Atlas, Chapter 19
Human Muscles: Unit 7, Muscle Tissue and Muscular System

Cat Dissection: Photo Atlas, Ch.19 (p. 170-176)

Cat Muscles	Structures
1. Pectoralis major	
2. Pectoralis minor	
3. Clavotrapezius	
4. Acromiotrapezius	
5. Spinotrapezius	Lumbodorsal Fascia
6. Clavodeltoid	
7. Acromiodeltoid	
8. Spinodeltoid	
9. Latissimus dorsi	
10. Levator scapulae ventralis	
11. Serratus ventralis	
12. Rhomboideus (major, minor, capitis)	
13. Supraspinatus	Rotator cuff
14. Infraspinatus	
15. Teres major	
16. Subscapularis	
17. Digastric	
18. Mylohyoid	
19. Sternomastoid	
20. Cleidomastoid	
21. Sternohyoid	
22. Masseter	
23. Triceps brachii (long, lateral, medial heads)	
24. Biceps brachii	

Cat Muscles	**Structures**
25. Brachialis	
26. Flexors, lower forelimb	
27. Extensors, lower forelimb	
28. External oblique	Aponeurosis
29. Internal oblique	
30. Transversus abdominis	Peritoneum
31. Rectus abdominis	Linea alba
32. External intercostals	
33. Internal intercostals	Pleura
34. Sartorius	Tailor's muscle
35. Gracilis	
36. Tensor fascia lata	
37. Gluteus medius	
38. Gluteus maximus	
39. Biceps femoris	
40. Semimembranosus	Sciatic nerve
41. Semitendinosus	Hamstring Muscles: 1. Biceps Femoris 2. Semitendinosus 3. Semimembranosus
42. Quadriceps femoris a. Rectus femoris b. Vastus medialis c. Vastus lateralis d. Vastus intermedius	
43. Gastrocnemius	Calcaneal (Achilles) tendon
44. Soleus	

Ex. 7-2: Skeletal Muscles, p. 165-172
Ex. 7-3: Muscle Origins and Insertions, p.174-176

HUMAN MUSCLE LIST

Muscle	***Origin***	***Insertion***	***Action***
Masseter	zygomatic arch	mandibular ramus	closes jaw
Temporalis	temporal bone	mandible	closes jaw
Sternocleidomastoid	sternum & clavicle	mastoid process	flexes neck forward (if both contract)
Pectoralis major	clavicle, sternum	greater tubercle (humerus)	flexion, adduction, medially rotates arm
Deltoid	acromion & spine of scapula, clavicle	deltoid tuberosity (humerus)	abducts arm
Intercostals:			
External	lower border of each rib	upper border of next rib	elevate ribcage, inspiration
Internal	upper border of rib below	lower border of rib above	depress ribcage, expiration
Rectus abdominis	pubic symphysis	xiphoid process, 5th-7th costal cartilages	flexes vertebral column, abdominal compression
External oblique	lower 8 ribs	linea alba, iliac crest	flexes vert. column, abdom. compression, lateral flexion
Trapezius	occipital bone, spines of thoracic vertebrae	clavicle, spine & acromion of scapula	extends head; adducts, elevates, or depresses scapula
Latissimus dorsi	lower thoracic vert. & lumbar vert.	humerus	extension, adduction med. rotation of humerus
Teres major	inferior angle of scapula	intertubercular groove (humerus)	medially rotates and adducts humerus

Muscle	***Origin***	***Insertion***	***Action***
Rhomboids (Major and minor)	spinous processes upper thoracic vert.	vertebral border of scapula	adducts & rotates scapula
Biceps brachii *short head*: *long head*:	coracoid process (scapula) tubercle above glenoid cavity	radial tuberosity	flexion of forearm
Triceps brachii *long head*: *lateral head:* *medial head*:	glenoid cavity humerus (post.) humerus	ulna (olecranon process)	extension of forearm
Gluteus maximus	ilium, sacrum, coccyx	fascia lata (iliotibial tract)	extension of hip (climbing stairs)
Sartorius	ASIS	medial aspect of proximal tibia	flexes leg, laterally rotates thigh
Quadriceps femoris: {Rectus femoris, Vastus intermedius, Vastus lateralis, Vastus medialis}	arises by 4 heads, from ilium and femur	tibial tuberosity	leg extension flexes thigh
Biceps femoris	ischial tuberosity, linea aspera (femur)	fibula and tibia	flexes leg, extends & adducts thigh
Gastrocnemius	condyles of femur	calcaneus via calcaneal tendon	plantar flexion

Lab 3 : Digestive System:
Cat Dissection: Photo Atlas, Chapter 19
Unit 14: Digestive System

Cat Dissection: Photo Atlas, Ch.19, p. 178-184)
Ex. 14-1: Digestive System Anatomy, p. 363-367

Parotid gland
Submandibular gland
Vestibule
Tongue
- Filiform papillae
- Lingual frenulum

Hard palate
Soft palate
Oropharynx
Nasopharynx
Epiglottis
Glottis
Trachea
Larynx
Esophagus
Diaphragm
Parietal peritoneum
Visceral peritoneum
Liver
Falciform ligament
Gall bladder

Liver lobes:
- Caudate
- Right
- Left

Greater Omentum
Lesser Omentum
Stomach
- Fundus
- Body
- Pylorus
- Greater curvature
- Lesser Curvature
- Pyloric Sphincter
- Rugae

} Locate on models/charts

Small Intestines:
- Duodenum
- Jejunum
- Ileum

Pancreas
Mesenteries
Colon:
- Cecum
- Ascending
- Transverse
- Descending
- Spleen

} Locate on models/charts

Kidney
Urinary Bladder

Common hepatic duct
Cystic duct
Common bile duct
Pancreatic duct

} Locate on models/charts

Bio 104: Computer Exercise - Anatomy & Physiology Revealed (APR)

Digestive System

A. See Lab Instructor to sign logbook for use of laptop and CD in the lab room.

B. Insert Anatomy & Physiology Revealed (APR) cd into cd drive and allow it to autoplay.

C. View Home Screen. Take one or more of the tours (select bottom right) to familiarize yourself with the navigational tools:

Dissection - "melt-away" layers of dissection to reveal individual structures
Animation – view animations of anatomical structures and systems
Imaging – correlate dissected anatomy with radiologic images
Self-test – gauge proficiency with timed self-tests

D. Select System → **Digestive**. Select **Dissection** (scalpel icon)→ Select Topic →**Oral cavity and pharynx**. Select View → **Lateral**. Click the green **Go** button.

Select the structures below from the list of Accessory glands and organs or Gastrointestinal tract and answer the following questions. As you review the cadaver dissections, peel away the layers and click on the tags to identify specific structures.

Select structures from the structure group **Oral Cavity and Pharynx**:

1. The **soft palate** separates _____ from _____.
2. During deglutition, the **soft palate** moves _____ (directional term) to prevent food from entering _____.
3. The **hard palate** is a horizontal plate made up of _____ and _____ bones.
4. Important functions of the **lips** include _____ and _____.
5. The _____ (number) permanent **teeth** include the upper teeth located in the _____ and the lower teeth located in the _____.
6. The main functions of the **tongue** include _____, _____, and _____.
7. **Pharynx** means _____ in Latin and has 3 subdivisions:

_____, _____, and _____.

Select **Change Topic/View**→Select **Salivary Glands**. Click the green **GO** button.

8. Name the 3 pairs of **salivary glands** and the % of saliva that they produce:
   a. _____
   b. _____
   c. _____

9. Three functions of **saliva** include:
   a.
   b.
   c.

Select **Change Topic/View**→Select **Teeth**. Click the green **GO** button.

10. The **teeth** that are important in biting and cutting are _____.
11. The **teeth** that are the longest and are important in grasping and holding are the _____.
12. The _____ and _____are important in grinding and crushing.
13. The **premolars** are known as _____.

Select Change Topic/View→Select **Esophagus**. Click **GO**.

14. The 3 parts of the **esophagus** are _____, _____, and _____.
15. The esophagus conveys from the _____ to the _____.
16. Another name for reflux esophagitis is _____.
17. The "hole" in the diaphragm for the passage of the esophagus is the _____.

Select **Animation** menu. Select **Digestive system overview**. Click the **Play** button. After viewing the animation, answer the following questions:

18. Name the four main functions of the digestive system:
    a.
    b.
    c.
    d.
19. The 2 types of digestion are _____ and _____.
20. Digestion begins in the _____.
21. Another name for chewing is _____.
22. Food is prevented from entering the nasal cavity during swallowing by the _____.
23. What muscles push food particles into the pharynx? _____.
24. The structure that prevents food from entering the respiratory system is the _____.

25. Name the structure that connects the pharynx with the stomach: _____
26. Once it has been swallowed, the food mass is called a _____.
27. The term for the involuntary wavelike contractions that propel the digesting food to the stomach is _____.
28. Rugae are also known as _____ and function in _____.
29. The stomach cells secrete: _____, _____, and _____.
30. What effect do these secretions have on the bolus? _____
31. The bolus mixed with stomach secretions is called _____.
32. _____ exits the stomach through the _____ and enters the _____.
33. The main site of nutrient absorption is the _____.
34. Name the 3 parts of the small intestines (proximal to distal):
    a.
    b.
    c.

Select **Dissection** icon. Select **Change Topic/View**→Select **Stomach and Duodenum:**

35. Name the four parts of the stomach from proximal to distal: _____, _____, _____, _____.
36. The muscular structure that prevents reflux of stomach contents is called the _____.
37. The structures that allow the stomach to expand as it fills are the _____.
38. What is the function of the major duodenal papilla ?

Select **Animation** icon (at top of screen). Select **Stomach.**

39. Where is the stomach located? Between which 2 organs?

40. What is the function of the stomach?
    What 2 processes contribute to this function?

41. What is the function of the pyloric sphincter?
42. Name the 4 layers of the stomach (outermost to innermost):
    a. c.
    b. d.
43. Name the layers of the muscularis.: _____, _____, _____
    How does it compare to the rest of the digestive tract?

44. List 2 functions of gastric mucus:
    a.

b.
c

45. Describe the gastric pits. Name the 4 cells and their secretions:
    a.
    b.
    c.
    d.

Select **Animation** icon →Select **Liver:**

46. Name the structure that separates the 2 anterior lobes of the **liver**:
    _____
47. Histologically, the liver is composed of functional units called _____.
48. Name 2 basic functions of the liver:
    a.
    b.

Select Change Topic/View → Select **Biliary ducts**:

49. Name the 2 structures that receive **bile** from the liver:
    _____ and _____
50. The structure that carries **pancreatic secretions** to the duodenum is the _____ .

Close program.
Remove CD & put in case before shutting down computer.

Shut down computer and return hardware and software to your lab instructor.