

DISSECTION OF THE SUPERIOR EXTREMITY

Preliminary direction and dissection: as in the dissection of the inferior extremity, separate or isolate each muscle completely to its skeletal attachments, removing the fascia which binds it to other muscles by probe or blunt dissection. **Make only the cuts specified.** Preserve the **nerves and blood vessels** in so far as possible.

As presented here, each muscle is first defined in terms of its attachments (origin and insertion), and the definition is followed by some supplementary information. It pays to read the entire treatment of a muscle first, then to go back and locate it in terms of its attachments, visualize its principle action and then do the dissection. The dissection is planned in its entirety and if its sequence is preserved it should proceed readily.

Ventral Aspect of the Neck

Examine the ventral aspect of the neck and identify the muscles illustrated in Figure 15.

The following preliminary dissection is useful to establish several landmarks and to expose certain structures of the head and neck but especially to identify the superior or clavicular border of the trapezius muscle. Begin by **freeing** the **External Jugular Vein-EJV** (right and left, blood from head and neck.) on the **left** side of the neck (remove its fascial attachment). The **EJV** continues superiorly up to the jaw and is formed by the union of superficial veins of the head, i.e. posterior facial vein. Inferiorly, where it disappears from view, it passes deeply between two muscles, a medial **Sternomastoid-free muscle** (O-sternum, I-mastoid process of skull, P-turns head laterally) that is fused with its fellow on the opposite side, and a lateral **Cleidomastoid-free muscle** (O-sternum, I-mastoid process of skull, P-turns head laterally). The cleidomastoid is overlapped by the clavicular edge of the trapezius, which should be teased free. Followed to their attachments on the mastoid process of the skull, the cleidomastoid comes to lie deep to the sternomastoid and both muscles pass deep to the prominent **BONUS-Submandibular Salivary Gland-SEE Figure 29** (production of saliva) at the angle of jaw and to the **BONUS-Parotid Salivary Gland-SEE Figure 29** (production of saliva) below the ear. In man, the sternomastoid and cleidomastoid muscles are combined to form **Sternocleidomastoid** (O-sternum, I-mastoid process of skull, P-turns head laterally) a lateral neck muscle that is prominently displayed when the head is turned far to a side.

Extrinsic Muscles of the back and shoulder

General Overview: Although the upper (clavicular) and lower (spinous) portions of this extensive superficial back muscle are attached to bone origin and insertion, the central (acromial) portion is attached to bone only at insertion to the acromion process. Centrally, the left and right trapezius muscles contribute to the acromial aponeurosis, which rides freely over the vertebrae, and arrangement that allows greater movement of the shoulder. This structure should be identified at this time. This aponeurosis can be seen to best advantage by holding the forelimbs of the cat together. In man, the aponeurosis is less pronounced and the three portions of the trapezius form one muscle.

TRAPEZIUS (You will identify all three muscles):

Clavicular portion: 0-cervical and thoracic vertebrae, 1-Scapula and clavicle, P-elevate shoulder. **Acromial Portion:** Origin and insertion same as above, P- retract scapula.

Spinous Portion: origin and insertion- same as above, P-depress shoulder.

Examine plate 23 The Superficial muscles of shoulder and forelimb, Dorsal View before reading the Following Information

Dissect the following:

Free the inferior edge of the trapezius (**spinotrapezius portion**) from the underlying muscle and **pass a probe under the muscle** so that the probe emerges at the opposite border. Cut along the probe and reflect the two portions of this muscle to their attachments. **Reference the “cut dotted line” on plate 23 for additional help!!**

Cut the origin of the acromiotrapezius (acromial aponeurosis), free the two borders as seen on the model and fold to insertion. Place a **probe under the clavotrapezius** from the freed edge on the acromial side through to the border already exposed from when the cleidomastoid and clavotrapezius were exposed. **Cut** according to the model and as shown on the diagrams.

Latissimus Dorsi: 0-the lumbodorsal aponeurosis, I-humerous, P-extends, adducts and rotates humerous. **Loosen the inferior** edge of this wide, flat and hack muscle where it passes obliquely forward across abdomen and thorax. **Free this muscle by blunt dissection** (probe with fingers). Its superior border was exposed when the **spinotrapezius** was reflected. Ventrally, it is fused with the pectoral muscles from which it should be separated by cutting forward along the seam of attachment to the axillary region where it can be pulled from the pectoralis to avoid cutting nerves and blood vessels. **Transect the latissimus** and trace it to the **origin and insertion**. From its insertion a thin covering of muscle extends down the medial aspect of the arm to the elbow. This muscle flap is absent in man. **Reference plate 23 and the teaching cat-Meow!!**

Ventral View: Examine Plate 17 Superficial Muscles Underlying the Great Cutaneous Muscle

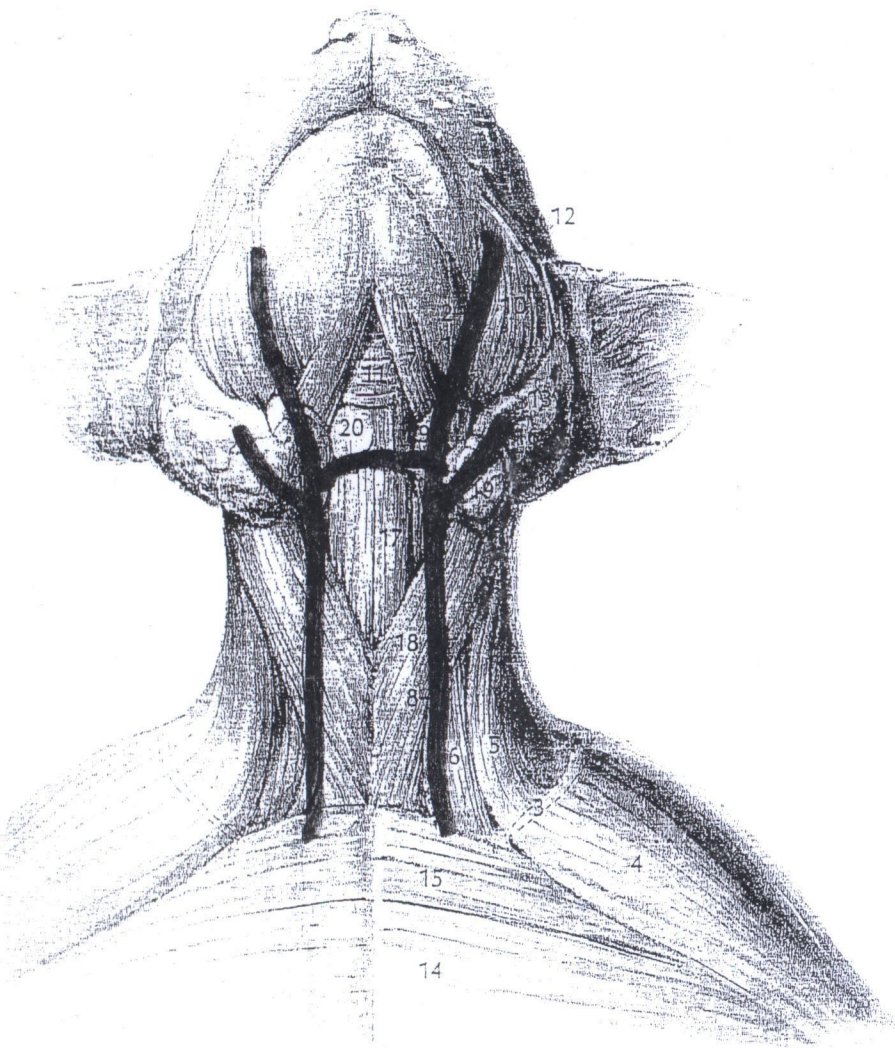
Pectoantebrachialis: Origin- manubrium. Insertion- forearm. Purpose- adducts forearm. **This muscle should be cut at the insertion and freed to its origin. Reference plate 17 and the teaching cat!!!**

Pectoralis: This muscle will be **considered as one**, but are actually several muscles, which take their origin from the sternum and ribs and insert to the humerus and scapula. Its purpose is to adduct the arm. In man, there are two pectoral muscles, the P. Major and the P. Minor, which inserts to the coracoid process. **Free the pectoralis** by blunt dissection and leave it intact. It will be cut at the insertion later on in the dissection. **Reference plate 17 and the teaching cat!!**

Xiphi Humeralis: Origin-sternum. Insertion- humerus. Purpose- draws arm posteriorly. The xiphohumeralis originates from the sternum, passes obliquely deep to the pectoralis minor, and inserts by a narrow tendon near the proximal end of the humerus. **Free all borders** but leave completely intact for 10 extra credit points.

FIG. 15.
SUPERFICIAL MUSCLES OF
THE NECK, VENTRAL VIEW

- 1 anterior facial vein
- 2 branch of facial nerve
- 3 clavicle
- 4 clavobrachialis
- 5 clavotrapezius
- 6 cleidomastoid
- 7 digastric
- 8 external jugular vein
- 9 lymph nodes
- 10 masseter
- 11 mylohyoid
- 12 parotid duct
- 13 parotid gland
- 14 pectoantibrachialis
- 15 pectoralis major
- 16 posterior facial vein
- 17 sternohyoid
- 18 sternomastoid
- 19 submaxillary gland
- 20 transverse jugular vein



NECK AND SHOULDER

Examine the ventral aspect of the neck and identify the muscles illustrated in Figure 15.

The mylohyoid originates from the medial surface of the two dentary bones and inserts on a median raphe which extends from the hyoid bone to the mandibular symphysis. It raises the floor of the mouth and draws the hyoid bone anteriorly.

The digastric originates from the jugular and mastoid processes and inserts on the inferior border of the dentary bone. It is a depressor of the mandible.

The masseter originates from the zygomatic arch and inserts on the posterior half of the lateral surface of the dentary bone. It elevates the mandible.

Examine the lateral aspect of the neck and shoulder, and identify the muscles illustrated in Figure 16.

The temporal muscle originates from the lateral surface of the skull posterior to the orbit, and inserts on the coronoid process of the dentary bone. It acts with the masseter to elevate the mandible.

The sternomastoid originates from the manubrium of the sternum and from the midventral line anterior to the manubrium. It passes obliquely around the neck to insert on the superior nuchal line and on the mastoid process. Singly it turns the head; both muscles

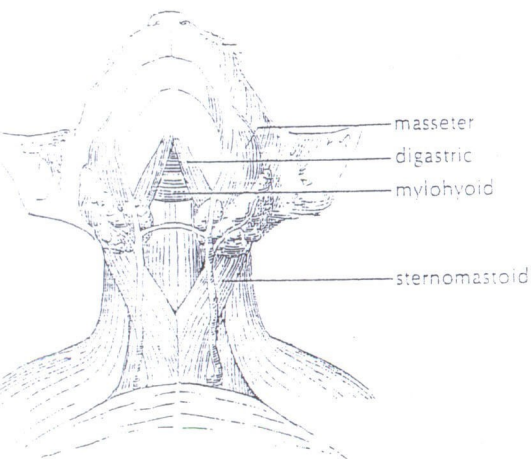
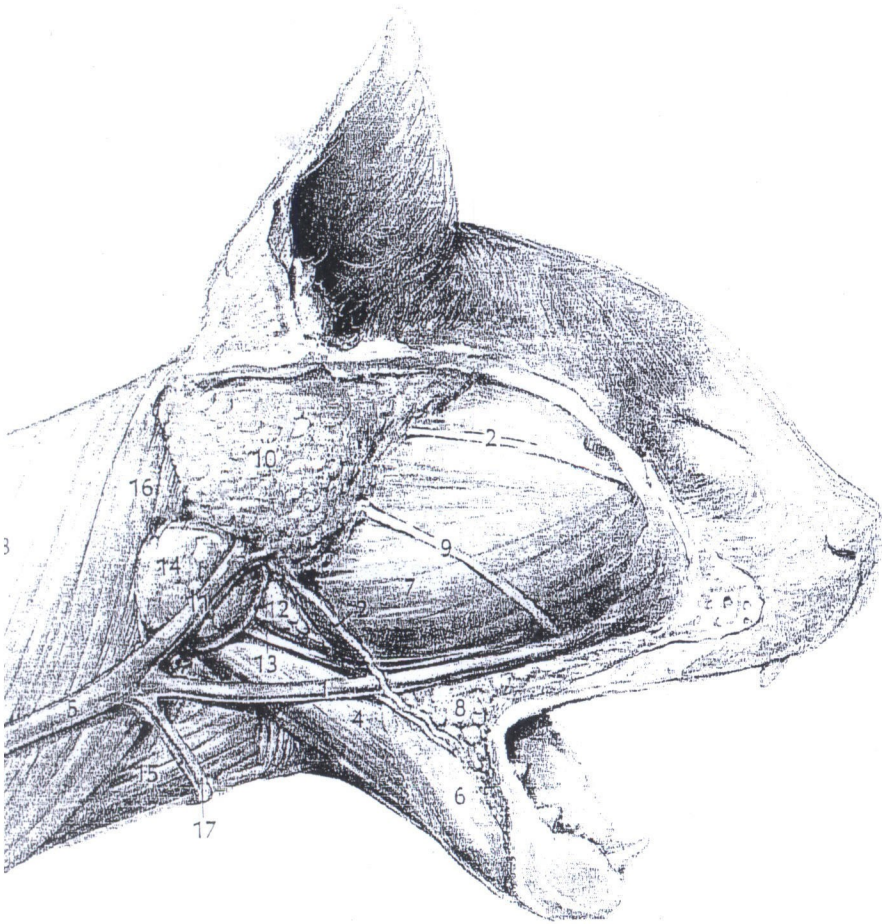


FIG. 29.
THE SALIVARY GLANDS

- 1 anterior facial vein
- 2 branch of facial nerve
- 3 clavotrapezius
- 4 digastric
- 5 external jugular vein
- 6 mandible
- 7 masseter
- 8 molar gland
- 9 parotid duct
- 10 parotid gland
- 11 posterior facial vein
- 12 sublingual gland
- 13 submaxillary duct
- 14 submaxillary gland
- 15 sternohyoid
- 16 sternomastoid
- 17 transverse jugular vein



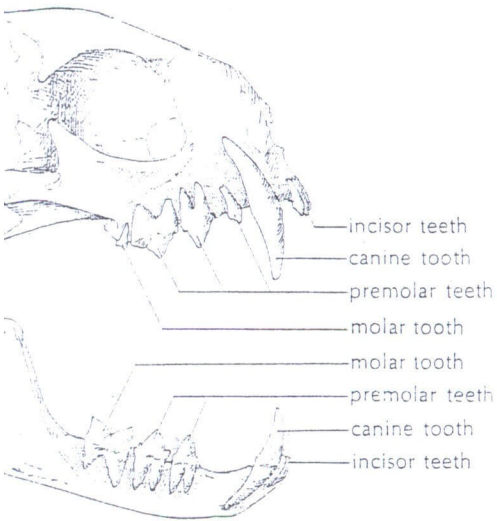
SAGITTAL SECTION OF HEAD AND NECK

Use a bone saw to cut the head and neck in the sagittal plane. Wash the sections and identify the structures illustrated in Figure 30. Also refer to a skull cut in the sagittal plane and to Figure 5 on page 7. Review the names of the bones seen in this section and observe the relations of the bones to the other structures of the head and neck.

TEETH For convenience the teeth may be described by the dental formula:

$$\begin{array}{c} 3 - 1 - 3 - 1 \\ 3 - 1 - 2 - 1 \end{array}$$

The numbers represent, from left to right, the number of incisors, canines, premolars and molars on either side. Figures in the upper row represent teeth in the upper jaw; figures in the lower row represent teeth in the lower jaw. In the cat the deciduous teeth appear two or three weeks after birth, and are replaced by permanent teeth at about seven months. Observe that the incisors of both jaws and the first premolar and molar of the upper jaw are quite small compared with the other teeth. Also observe that the last upper molar and the lower molar form a shearing mechanism, typical of carnivores, as opposed to the grinding mechanism found in herbivores.



TONGUE

Observe the papillae of the tongue. Those in the central portion carry small spines which serve as scrapers. Similar spines may be seen on the prominent transverse ridges of the hard palate. At the sides and back of the tongue are softer and larger papillae.



- 1 acromiodeltoideus
- 2 acromioclavicularis
- 3 aponeurosis between coracoclavicularis
- 4 coracobrachialis
- 5 external oblique
- 6 infraspinatus
- 7 latissimus dorsi
- 8 levator scapulae ventralis
- 9 pectoralis major, cut
- 10 platysma
- 11 radial nerve, superficial
- 12 raphe between coracobrachialis and triceps brachii
- 13 spinodeltoideus
- 14 spinotracheus
- 15 teres major
- 16 triceps brachii, lateral
- 17 triceps brachii, long head



- 1 aponurosis of the external oblique
- 2 clavobrachialis
- 3 clavotrapezius
- 4 epitrochlearis
- 5 external abdominal of great cutaneous
- 6 latissimus dorsi
- 7 pectoanteriorbrachialis
- 8 pectoralis major
- 9 pectoralis minor
- 10 triceps brachii, long head
- 11 xiphohumeralis
- 12

