

## **Muscles of mastication:**

### **Masseter:**

- Very prominent in herbivores.
- Closes the jaw and moves it forward.
- Originates in the zygomatic arch/cheek bone (small in herbivores; since temporalis is small and does not need to pass under it –see below) and inserts on lower ramus of mandible/jaw (very large in herbivores)

### **Temporalis:**

- Very prominent in carnivores.
- Closes the jaw, allowing teeth to sink into prey.
- Originates in the temporal region (which is quite large in carnivores reaching up to a prominent sagittal crest if present—crest/ridge-like structure on top of the head) and inserts on the coronary process of mandible. Passes under zygomatic arch, which is why these arches are so large in carnivores (to make room for this muscle).
- Note that the sagittal crest is not limited to carnivores. Carnivorous animals do not have large masseters or pterygoids since they do not have lateral movement or forward movement of the jaw.

### **Pterygoids:** (on underside of skull – looks like butterfly—see image on next page).

- Prominent in herbivores.
- Side-to-side action for grinding vegetation; moves jaw forward, opens the jaw.
- Goes from the pterygoid process on underside of skull to the mandible.
- Note that there are lateral and medial pterygoids, so they insert along different parts of the mandible.

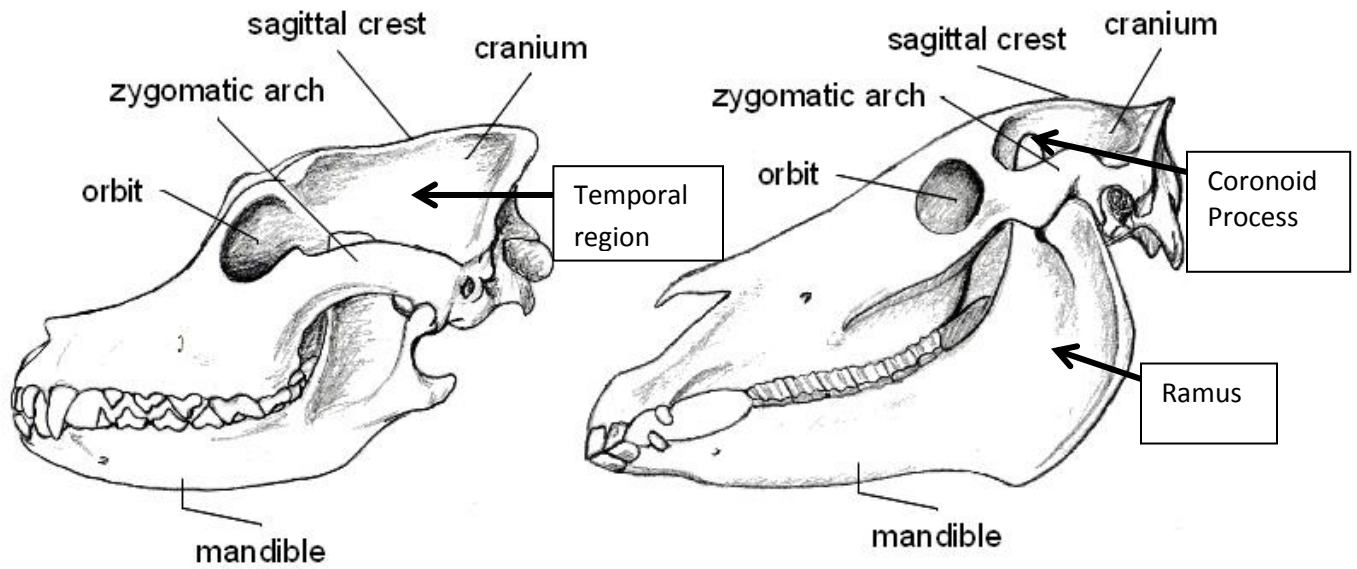
### ***Other characteristics to mention:***

#### **Eye placement:**

- Prey animals have eyes on the sides for peripheral vision to watch out for predators.
- Predatory animals have front-facing eyes (binocular vision for depth perception to gauge distance)
- Large eyes: tend to be nocturnal, keen night vision (the larger the better eyesight, e.g., large cats—very acute vision).

**Nasal passage:** (nasal turbinates) provides the framework for membrane to sense odors. The greater the size and longer, the better the sense of smell, e.g., long in canids/dogs and shorter in felids/cats (rely on other senses like sight to locate prey)

**Auditory bulla:** the more bulbous, the better the hearing, e.g., felids/cats. (labeled “e” on second image, page 3).



**Dog and Horse Skulls – Side View (after Ellenberger)**

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