Muscles of mastication
- 4 pairs of muscles attached to the mandible
- Movement of temporomandibular joint
- Arise from the bones of the neurocranium
- Pennate structure
- Fasciae
- Blood supply: maxillary artery
- Nerve supply: mandibular nerve
Masseter muscle
Thick, quadrilateral muscle
Superficial and deep portion:

**The Superficial Portion**

**Origo:** maxillary process of zygomatic bone and the anterior \( \frac{2}{3} \) of the lower border of the zygomatic arch

Fibers pass downward and backward

**Insertion:** tuberositas masseterica
(the angle and lower \( \frac{1}{2} \) of the lateral surface of the ramus of the mandible)
The Deep Portion

Smaller and more muscular in texture

Origo: posterior \( \frac{1}{3} \) of lower border and the whole of the medial surface of the zygomatic arch

Fibers pass downward and forward

Insertion: the upper \( \frac{1}{2} \) of the lateral surface of the ramus mandible
Functional organization of the human masseter muscle
www.springerlink.com/index/U007G453650W2163.pdf
Bilateral contraction:
*The superficial part:*
elevation
propulsion

*The deep portion:*
elevation

Unilateral contraction:
lateropulsion
The Architecture

- The typical pennate structure - zones of muscular and aponeurotic attachments

- The pennate structure allows spread the infection (submasseteric abscess)

- The differential activity of the muscular planes during masticatory function makes it necessary to respect the anatomic and functional individuality in the diagnosis and treatment of dysfunctional disorders of the masticatory apparatus
The Masseteric Fascia

- Firmly connected with the muscle
- From arcus zygomaticus to basis mandibulae
- Dorsally merge with fascia parotis (fascia parotideomasseterica)
Palpation

The Superficial Portion

The Deep Portion
Temporalsis muscle
Broad, triangular muscle
Localized in the temporal fossa

**Origo:**
- the whole of the temporal fossa
- the deep surface of the temporal fascia

Fibers converge as they descend, and end in a tendon, which passes deep to the zygomatic arch

**Insertion:** apex and medial surface of the coronoid process (crista temporalis) and the anterior border of the ramus of the mandible to retromolar triangle
The temporalis muscle consists of three parts:

- **superficial**
- **zygomatic**
- **deep portion**
The Superficial Portion

Origo: temporal aponeurosis, temporal line
Insertion: the coronoid process of the mandible
The Zygomatic Portion

**Origo:** superior and medial zygoma and zygomatic arch

**Insertion:** coronoid process

Fuse with tendon of the superficial part of the temporalis muscle and with the deep masseter portion. Rostrally interdigitated with the portion of the deep temporalis part
The Deep Portion

**Origo:** bony surface of the frontal, sphenoid, parietal and temporal bones

**Insertion:** coronoid process and the ramus of the mandible, just caudal to the last molar (retromolar triangle)

Fibers from deep part interdigitated with the buccinator and the superior pharyngeal constrictor
Function

Elevation (anterior part)
Retropulsion (posterior part)
The Temporal Fascia

Covers the temporal muscle

Origo: superior temporal line

Insertion: zygomatic arch

Has two layers:

1. *superficial*
   
   inserted into the lateral border of the arch

2. *deep*
   
   inserted into the medial border of the arch

Between these layers is a small quantity of fat and attachment of the superficial fibres of the temporal muscle.
Palpation

The Anterior Part

The Posterior Part
Lateral (Externus) Pterygoid Muscle
Short, thick muscle, conical in form
Located in the infratemporal fossa
Two heads: upper and lower

The Upper/Sphenoid Head:

Origo: infratemporal facies of the great wing of the sphenoid bone

The Lower/Pterygoid Head:

Origo: lateral surface of the lateral pterygoid plate
Fibres pass horizontally backward and lateralward

**Insertion:**
- *fovea pterygoidea* (depression in front of the neck of the condyle)
- *joint capsule and articular disc of the TMJ* (front margin)
Alternating tendinous sheets characteristic of a penniform structure
Function

Bilateral contraction: propulsion
Unilateral contraction: lateropulsion
Medial (Internus) Pterygoid Muscle
Thick, quadrilateral
Located in the infratemporal fossa
Two heads:

Origo:
- tuberosity of the maxilla (lateralis)
- medial surface of the lateral pterygoid plate (medialis)

Fibers pass downward, lateralward and backward

Insertion: tuberositas pterygoidea
(lower and back part of the medial surface of the ramus and angle of the mandible)
Inner surface of the ramus mandibulae

1 - lateral part
2 - medial part
The Architecture

7 musculo-aponeurotic layers are making up a penniform structure.
Bilateral contraction:
propulsion
elevation

Unilateral contraction:
lateropulsion
The Interpterygoid Fascia

Between the medial and lateral pterygoid muscles

**Origo:** the base of the skull

**Insertion:** inner surface of the mandible

The border is reinforced by sphenomandibular ligament

Contain nerves and vessels

Allow spread of infection