



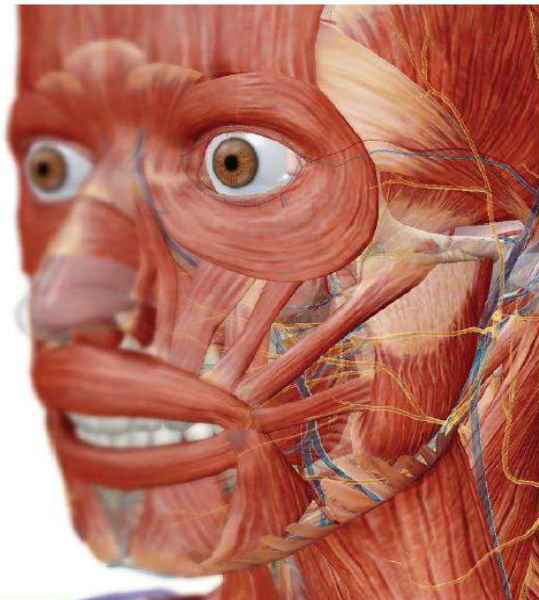
# FREE CPE OPPORTUNITY

REVISION – The Muscular System – Lab Activity

## *Head and Neck*

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**Collect Total 20 CPE Points**



### The Muscular System: Head and Neck

A muscular system lab activity  
Stephanie Wallace, Instructor of Biology, TCU

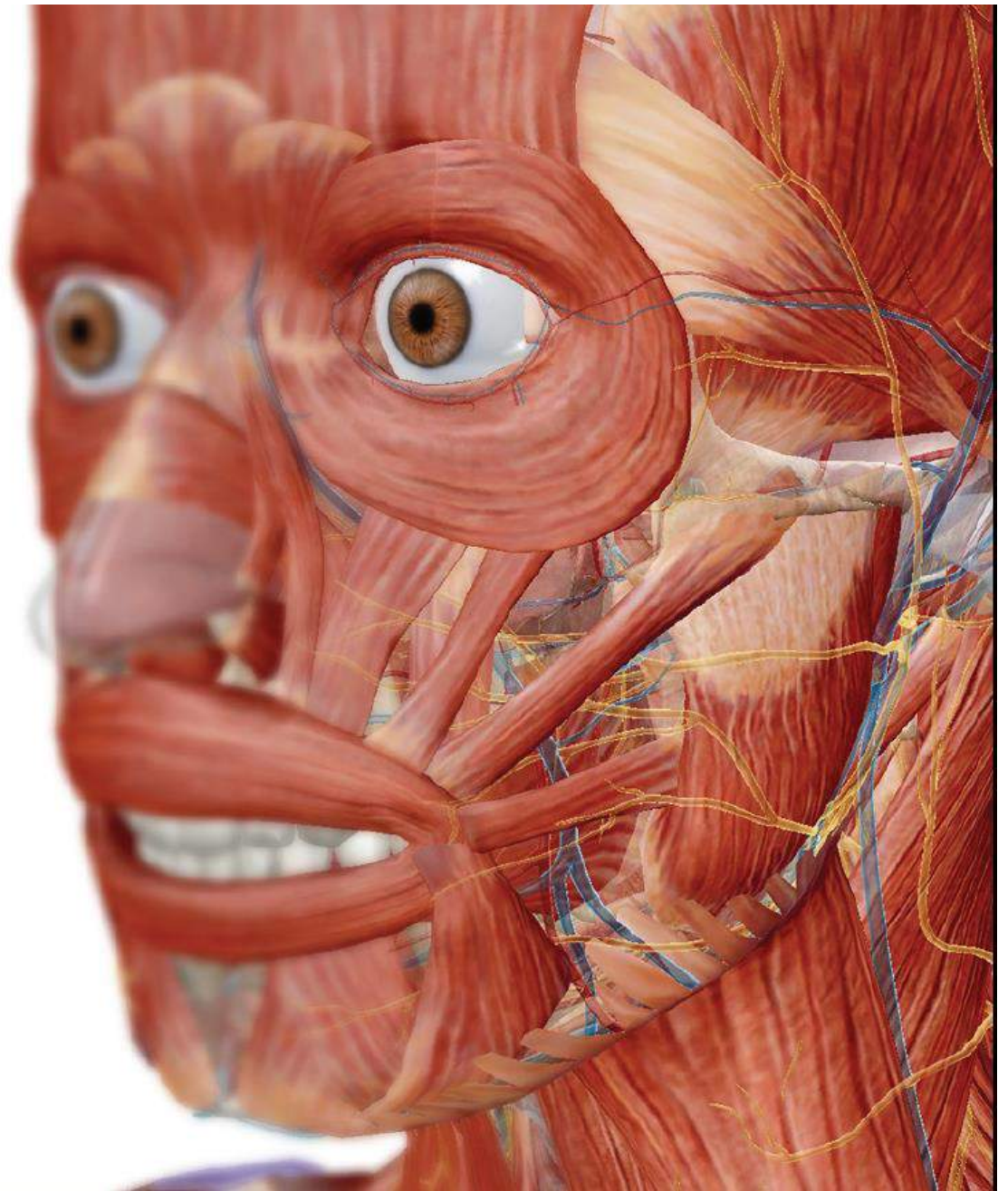
Use any good Anatomy text book or Atlas – go to the Muscular System – Head and Neck

Read, study, visualise and then perform the tasks required in this Lab Activity

When you have finished, scan and send your work to [office@maa.org.au](mailto:office@maa.org.au) to collect your

20 CPE points

**Record Head and Neck – Lab Activity 20 points** on your CPE Record sheet when you send it in to update your CPE Records



# The Muscular System: Head and Neck

A muscular system lab activity

Stephanie Wallace, Instructor of Biology, TCU

## **PRE-LAB EXERCISES – Refresh your knowledge**

Before coming to lab, get familiar with a few muscle groups we'll be exploring during lab. Using any good Anatomy Text Book or Anatomy Atlas and find the following muscles. Read the muscle's definition and record them here:

<b>MUSCLE</b>	<b>DEFINITION</b>
1. Occipitofrontalis (epicranius)	
2. Orbicularis oculi	
3. Orbicularis oris	
4. Nasalis	
5. Zygomaticus major	

Look for the Head Rotators and find the following muscles. Read the muscle's definition and record them here:

<b>MUSCLE</b>	<b>DEFINITION</b>
1. Sternocleidomastoid	
2. Scalene group (anterior, middle, posterior)	

## **IN-LAB EXERCISES – Test yourself in each module that follows**

Use the following modules to guide your exploration of the head and neck region of the muscular system. As you explore the modules, locate the muscles on any charts, models, or specimen available. Please note that these muscles act on the head and neck – those that are located in the neck but act on the back are in a separate section.

When reviewing the action of a muscle, it will be helpful to think about where the muscle is located and where the insertion is. Muscle physiology requires that a muscle will “pull” instead of “push” during contraction, and the insertion is the part that will move. Imagine that the muscle is “pulling” on the bone or tissue it is attached to at the insertion.

Module 1: **A. Muscles of Facial Expression**

Module 2: **B. Muscles of the Upper Mouth**

Module 3: **C. Muscles of the Lower Mouth**

Module 4: **D. Muscles of Mastication**

Module 5: **E. Laryngeal Muscles**

Module 6: **F. Neck Muscles (that act on the head)**

Module 7: **G. Mandible Depression**

Finally - put it all together – test yourself

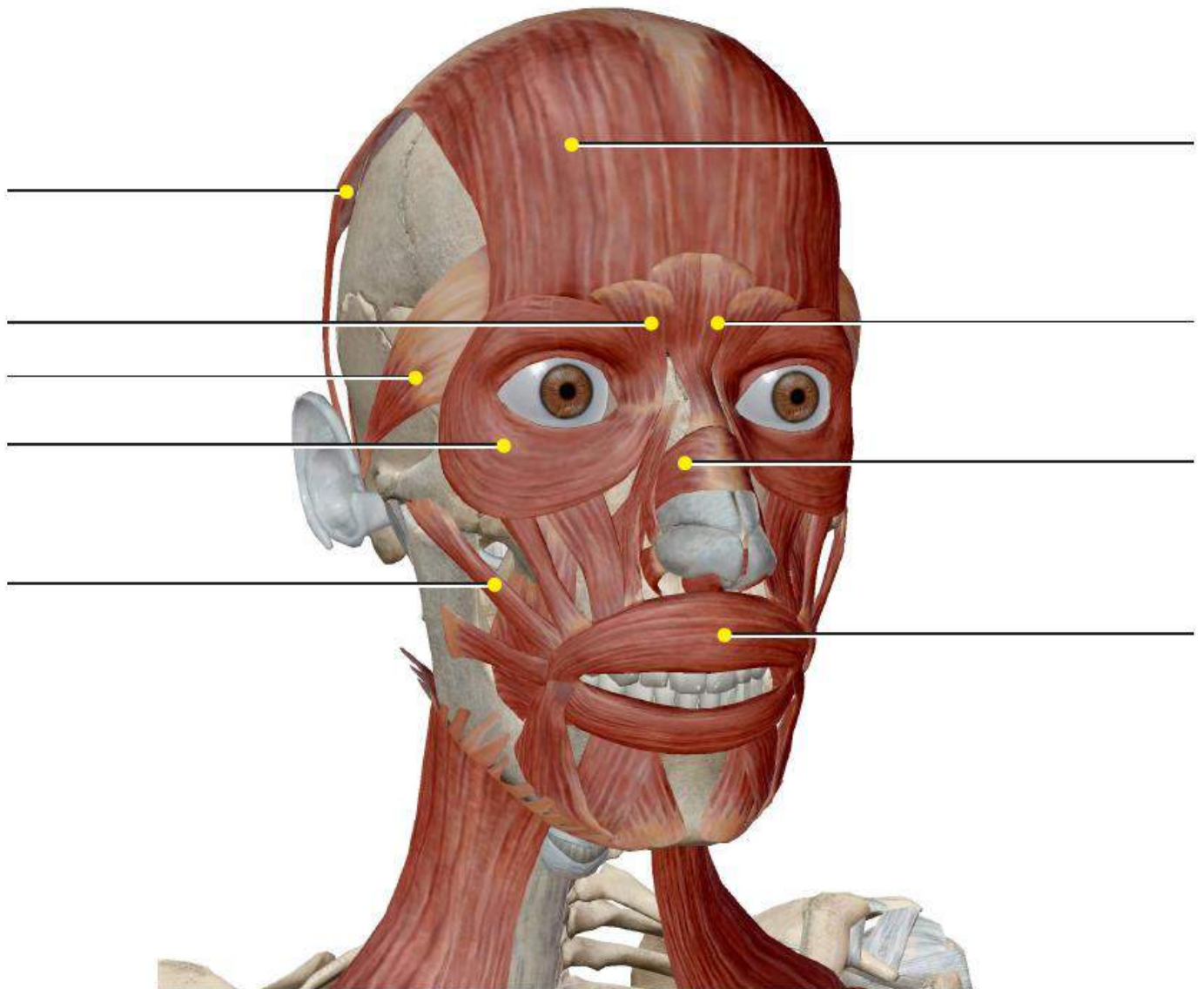
1. In each module below, label the muscles in the diagrams
2. In each module below, identify the following:
  1. Muscle location
  2. Origin(s) and insertion(s)
  3. Muscle action
  4. Nerve supply

Label the diagram

**A. Muscles of Facial Expression**

These muscles insert into the skin of the face in order to create facial expressions. The specific insertion will determine what type of expression each muscle makes.

**Muscles of Facial Expression**



Fill in the chart

Facial Expression				
Muscle	Origin	Insertion	Action	Innervation
Occipitofrontalis (epicranius)				
Procerus				
Nasalis				
Depressor septi				
Corrugator supercilii				
Depressor supercilii				
Levator palpebrae superioris				
Orbicularis oculi				

Complete the chart

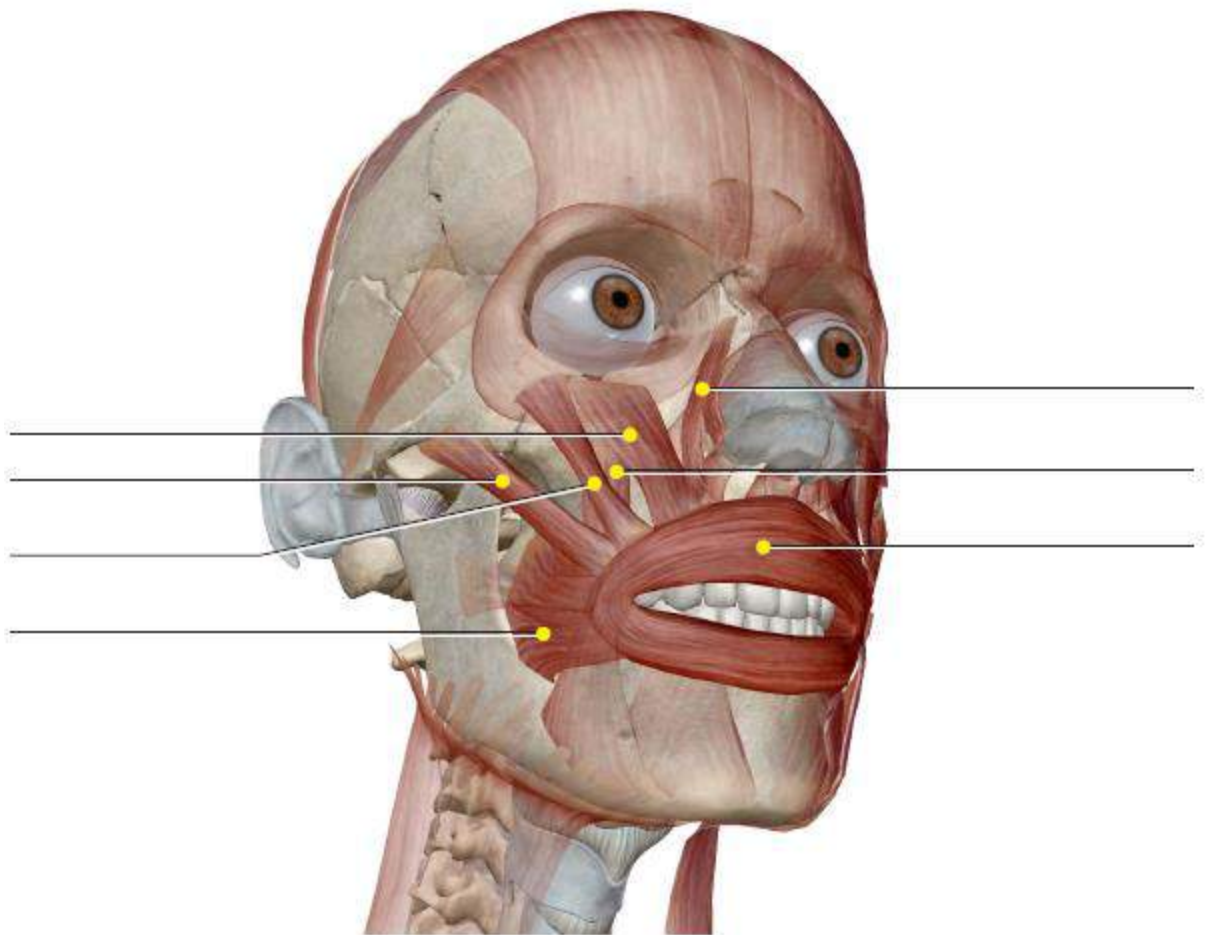
Facial Expression (continued)				
Muscle	Origin	Insertion	Action	Innervation
Auricularis anterior				
Auricularis superior				

Label the diagram

**B. Muscles of the Upper Mouth**

Many different muscles are necessary to manipulate the mouth for speech, eating, whistling, and other actions. These muscles originate in different places, but insert on the tissue of the mouth. As you study these muscles, imagine the muscle pulling on the mouth – the angle where the muscle attaches to the mouth will determine how the mouth moves. Muscles located above the mouth will pull the mouth upward.

**Muscles of the Upper Mouth**





Fill in the chart

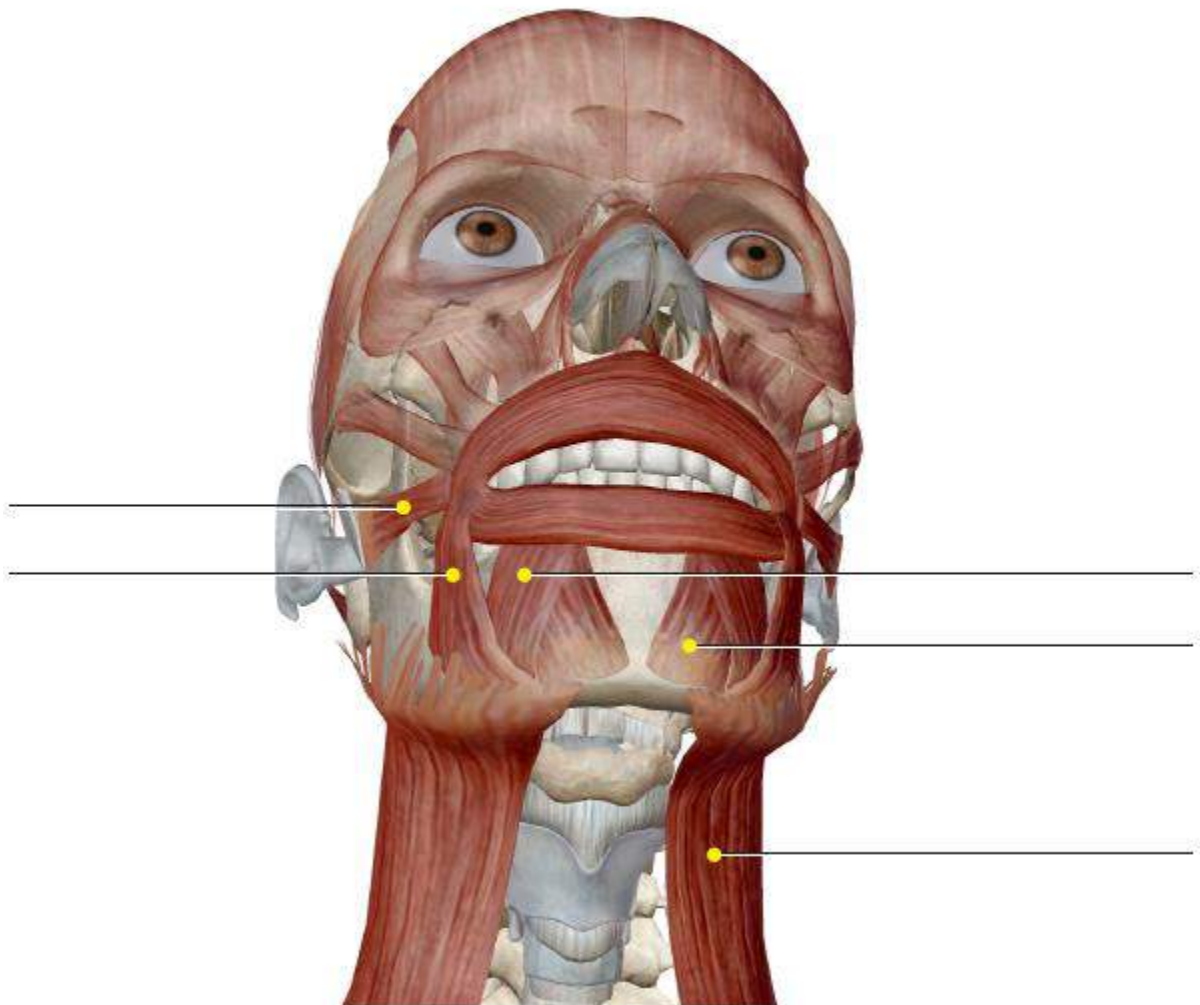
Upper Mouth				
Muscle	Origin	Insertion	Action	Innervation
Orbicularis oris				
Zygomaticus major				
Zygomaticus minor				
Levator labii superioris				
Levator labii superioris alaeque nasi				
Levator anguli oris				
Buccinator				

Label the diagram

**C. Muscles of the Lower Mouth**

Use the same reasoning as with the muscles of the upper mouth to study these muscles. Since these muscles are located under the mouth, the mouth will be pulled downward or laterally when these muscles contract.

**Muscles of the Lower Mouth**



Fill in the chart

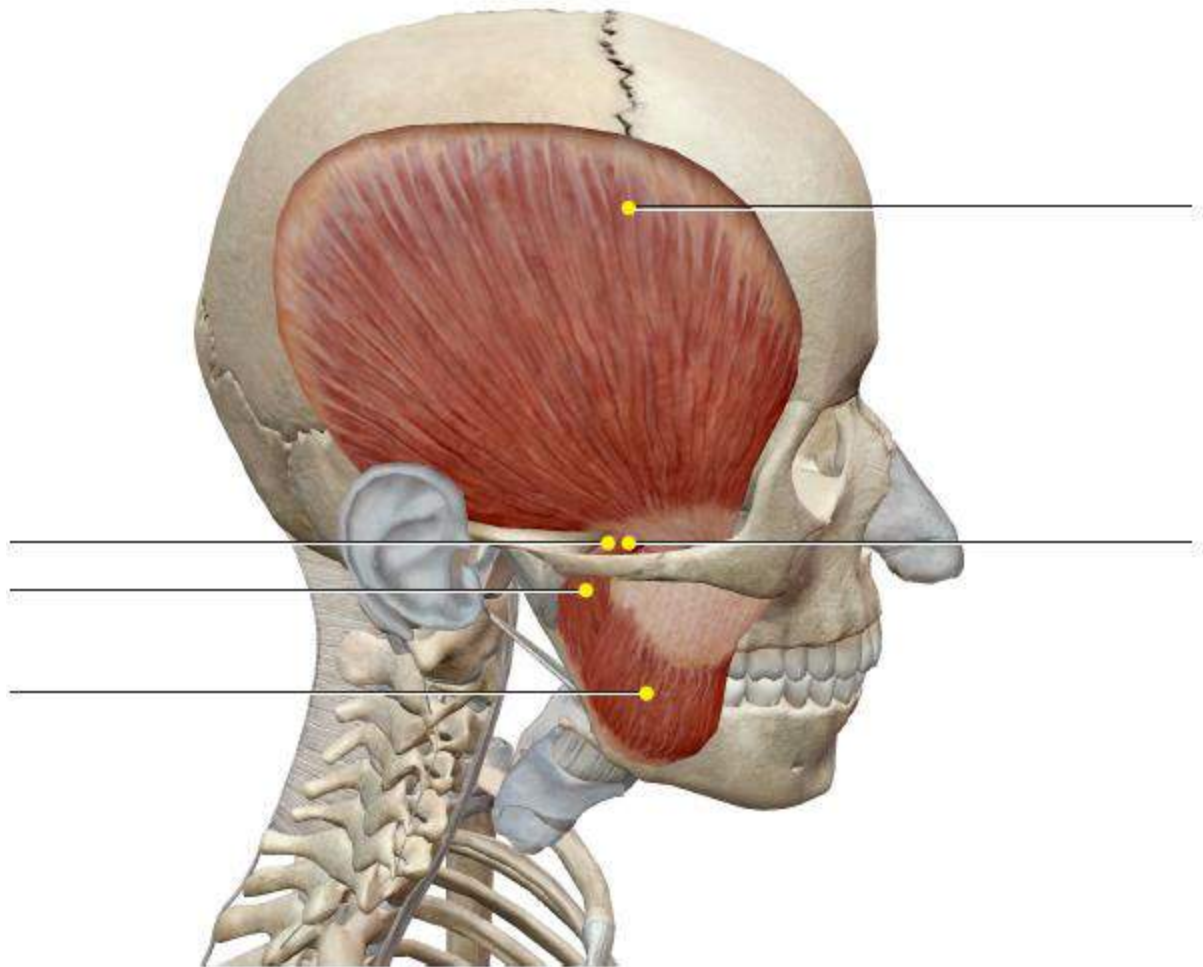
Lower Mouth				
Muscle	Origin	Insertion	Action	Innervation
Depressor anguli oris				
Depressor labii inferioris				
Risorius				
Mentalis				
Platysma				

Label the diagram

**D. Muscles of Mastication**

These are the muscles involved in chewing food. Consider the different ways food may be manipulated in the mouth as you study these muscles.

**Muscles of Mastication**



Fill in the chart

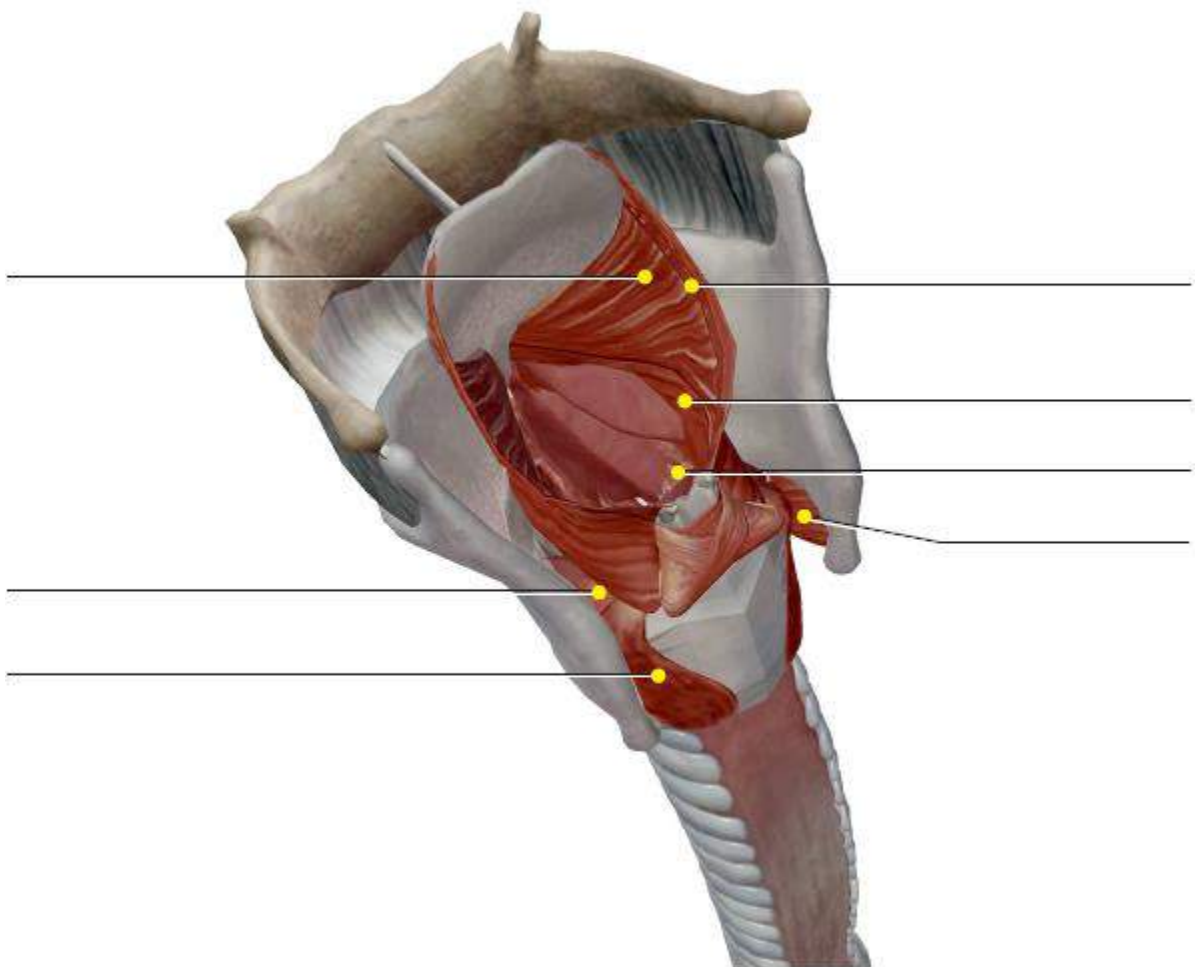
<b>Muscles of Mastication</b>				
<b>Muscle</b>	<b>Origin</b>	<b>Insertion</b>	<b>Action</b>	<b>Innervation</b>
Deep masseter				
Superficial masseter				
Temporalis				
Medial pterygoid				
Lateral pterygoid				

Label the diagram

**E. Laryngeal Muscles**

These muscles are responsible for manipulating the cartilages and vocal structures of the larynx for speech.

**Laryngeal Muscles**



Fill in the chart

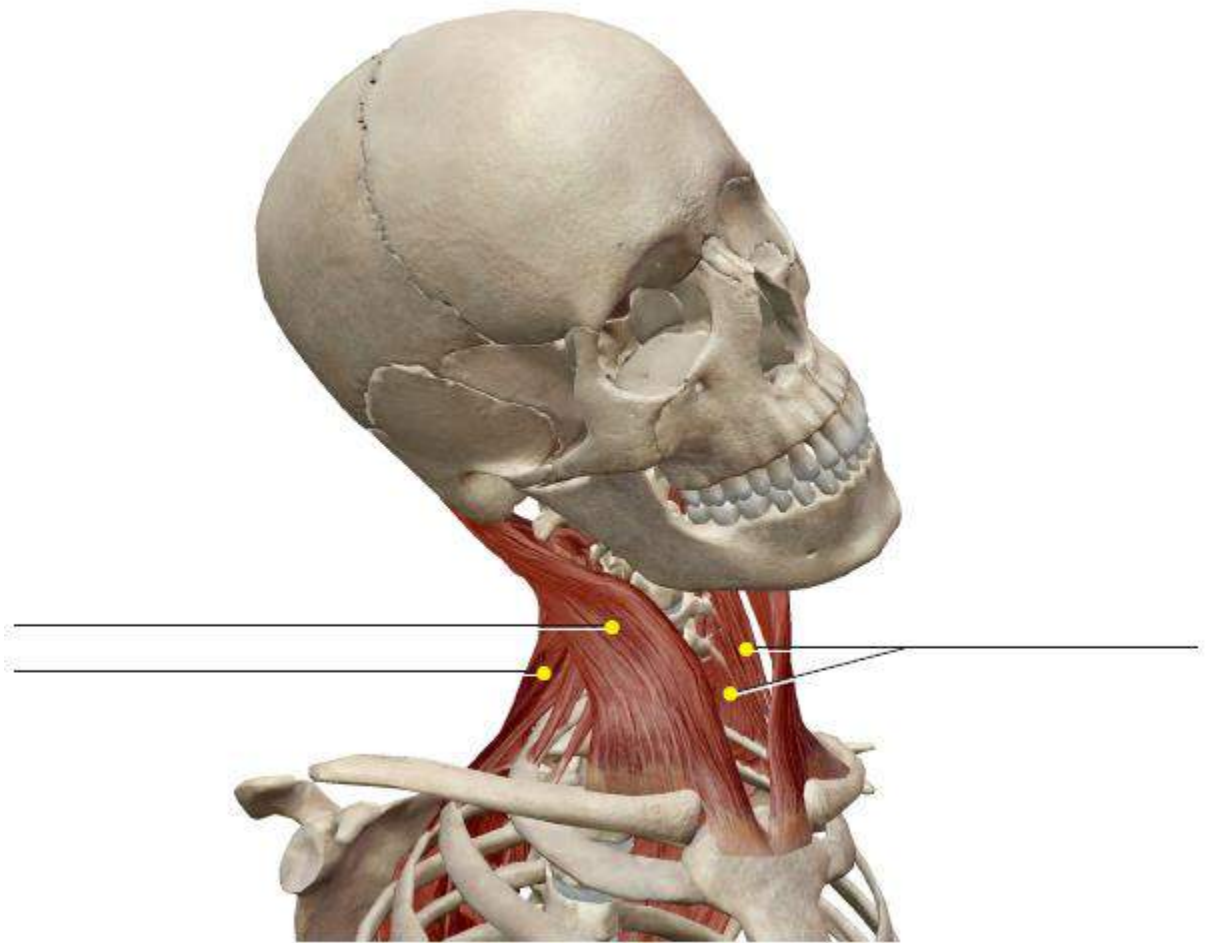
Laryngeal Muscles				
Muscle	Origin	Insertion	Action	Innervation
Thyroepiglottic				
Aryepiglottic				
Thyroarytenoid				
Vocalis				
Lateral cricoarytenoid				
Posterior cricoarytenoid				
Oblique arytenoid				
Cricothyroid				

Label the diagram

**F. Neck Muscles (that act on the head)**

These muscles are located in the neck and move the head when they contract. It will again be helpful to pay careful attention to the location of the muscle and insertion to understand the action of each muscle.

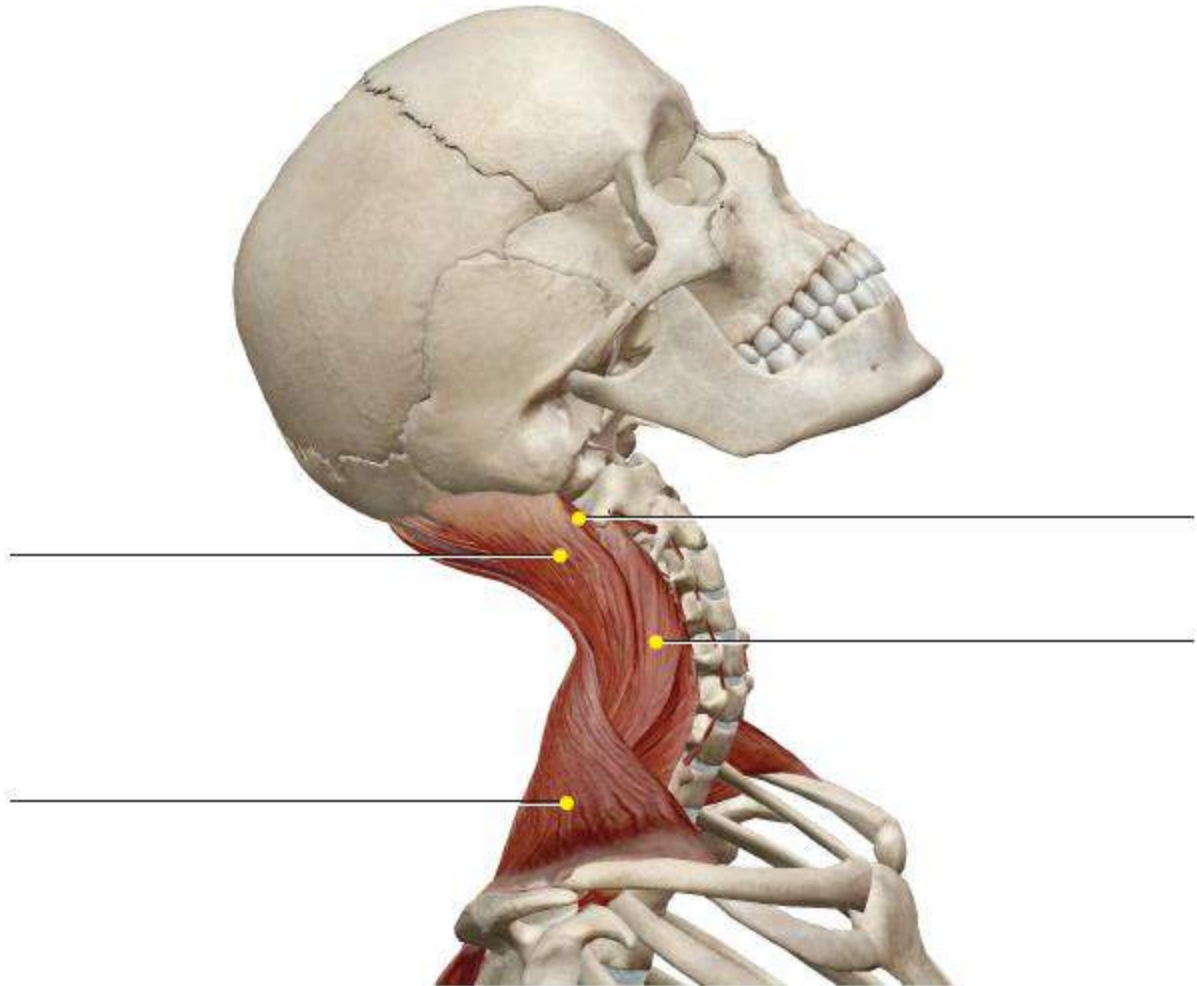
**Neck Muscles**





Label the diagram

**Neck / Neck Extension**



Fill in the chart

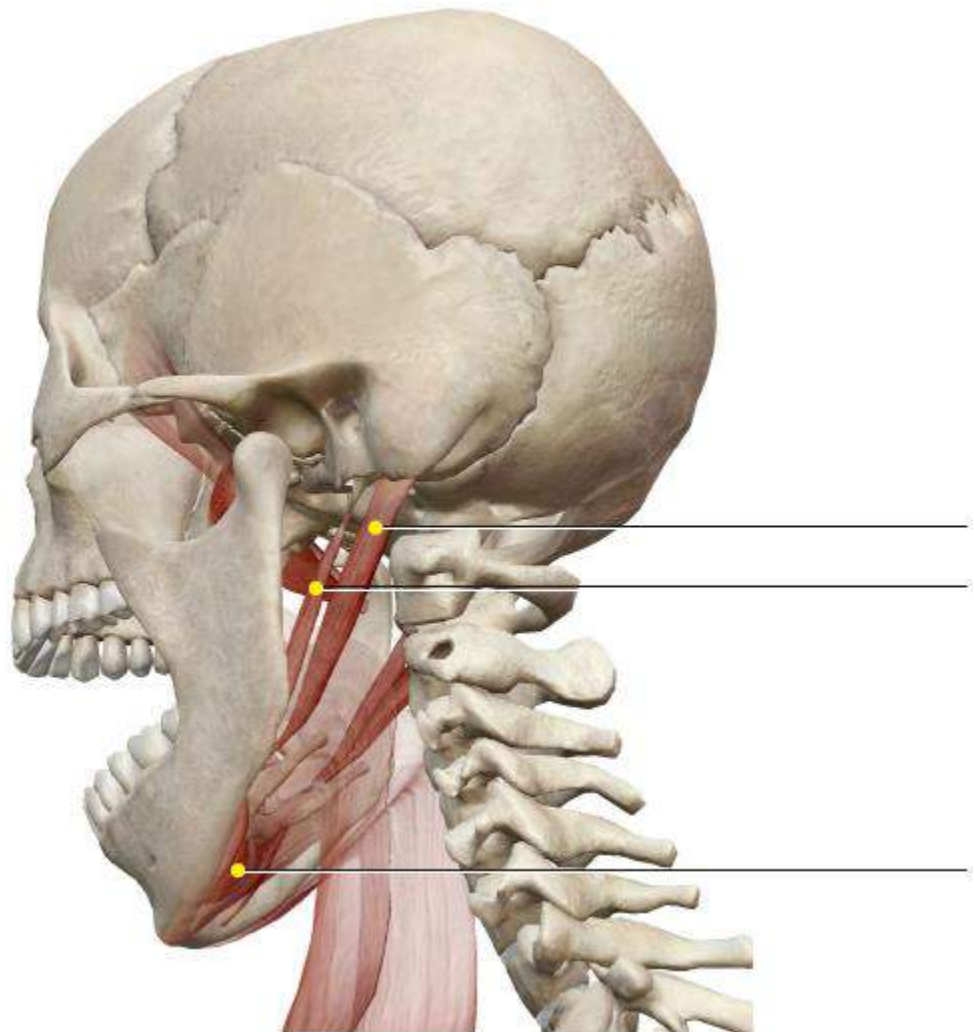
Neck Muscles				
Muscle	Origin	Insertion	Action	Innervation
Sternocleidomastoid				
Semispinalis capitis				
Splenius capitis				
Splenius cervicis				
Longissimus capitis				
Scalenes				
Trapezius				

Label the diagram

**G. Mandible Depression**

These muscles attach to the hyoid bone– the only bone in the body that does not articulate with another bone. They participate in swallowing and moving the mandible.

**Mandible Depression**



Fill in the chart

<b>Suprahyoid Muscles</b>				
<b>Muscle</b>	<b>Origin</b>	<b>Insertion</b>	<b>Action</b>	<b>Innervation</b>
Digastric				
Stylohyoid				
Mylohyoid				
Geniohyoid				

Almost finished – Test yourself

### **PUTTING IT ALL TOGETHER**

1. Based on what you've learned about the muscles in this exercise, what do you think the following terms mean?

a. Major

b. Minor

c. Levator

d. Depressor

e. Capitis

2. Which muscles are used when performing the following actions?

a. Smiling

b. Frowning

c. Raising the eyebrows

d. Expressing surprise

e. Whistling

f. Chewing

g. Swallowing

h. Nodding the head “yes

i. Shaking the head “no”

j. Tilting the head to look up toward the sky

k. Tilt the head to the side (bring the ear to the shoulder)

3. Bell's Palsy results from damage to the facial nerves.

If innervation to the facial nerves ceased, which muscles would be affected?

Which actions of the face would be affected?

***Now you have finished, scan and send your work to [office@maa.org.au](mailto:office@maa.org.au) to collect your FREE 20 CPE Points***

Member Number:

Name: