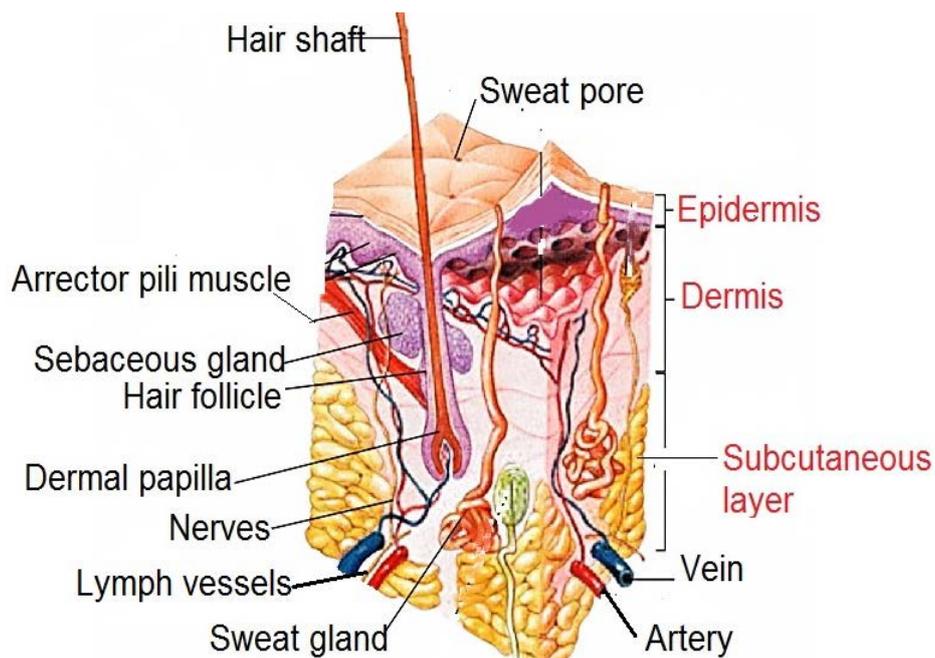




Anatomy & Physiology



Contents

Page 1	Introduction to the Human Body
Page 4	The Functions and Structure of the Skin
Page 17	The Function and Structure of the Hair
Page 26	The Functions and Structure of the Nail
Page 31	The Skeletal System
Page 43	Bones of the Skull
Page 46	Bones of the Chest, Shoulder, Arm and Hand
Page 50	Bones of the Leg and Foot
Page 54	The Muscular System
Page 56	Muscles of the Head, Face and Shoulder
Page 60	Muscles of the Arm and Hand
Page 62	Muscles of the Leg and Foot
Page 65	The Circulatory System
Page 69	Blood Supply to the Head, Face and Neck
Page 72	Blood Supply to the Arm and Hand
Page 74	Blood Supply to the Leg and Foot
Page 76	The Lymphatic System
Page 82	The Structure and Function of the Eyes
Page 84	References

Introduction to the Human Body

Throughout this course, you will gain an understanding of the human body, its various systems, structures and functions. You will learn about:

1. The Integumentary System - Skin, Hair and Nail

This is a system that protects the body from various kinds of damage, such as loss of water or abrasion from outside. It comprises of the skin and its appendages, the hair and nails.

Skin

- Learn about the functions and structure of the skin.
- Understand the process of ageing.
- Learn about the ethnic variations in skin structure.

Hair

- Learn about the function and structure of the hair.
- Understand the growth cycle of the hair.

Nails

- Learn about the functions and structure of the nail.
- Discover the factors that affect nail growth.

2. The Skeletal System

- Understand the functions of the skeleton.
- Learn the names and location of the skeletal bones.

3. The Muscular System

- Learn about the functions of the muscles and the different types of muscle tissue.

4. The Circulatory System

- Learn about the composition of blood.
- Discover the main arteries and veins within the body.

5. The Lymphatic System

- Discover the structure and functions of the lymphatic system.
- Know the location of the major lymphatic ducts.

6. Eye

- Learn about the structure of the eyes.

The body is a living organism that can breathe, move, eat and function.
It is formed by:

Atoms



Atoms such as oxygen, carbon and hydrogen combine to form Cells.



Cells



Cells are the 'building blocks' of all life.
Cells combine to form Tissues.



Tissues



Tissues are groups of similar cells wrapped together to perform a particular function. Tissues combine to form Organs.



Organs



Organs have specific functions. Organs combine to form Systems.



Systems



Systems are made of organs which have a common function.

The Functions and Structure of the Nail

The nails are composed of horny, flattened cells which become keratinised; giving the nail a hard appearance. Keratin found within the nail is also responsible for making the nail strong and flexible.

Functions of the Nail

- Protects the delicate network of blood vessels and nerves at the tip of the fingers and toes from injury.
- Acts as a tool that helps us to touch and manipulate small objects.
- Helps with scratching.

Nail Structure

The following diagrams show the cross sections of a nail.

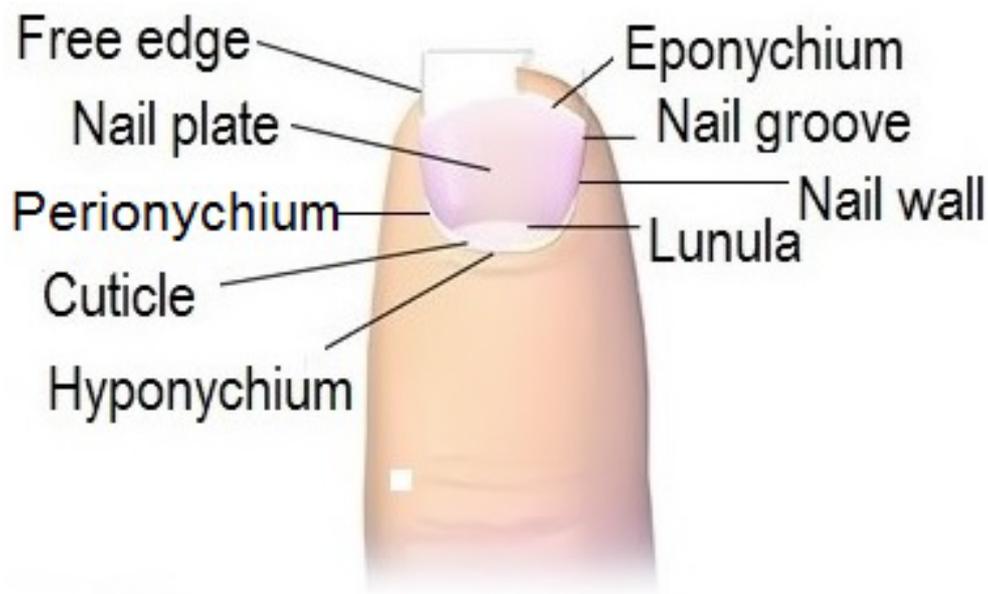


Figure 1

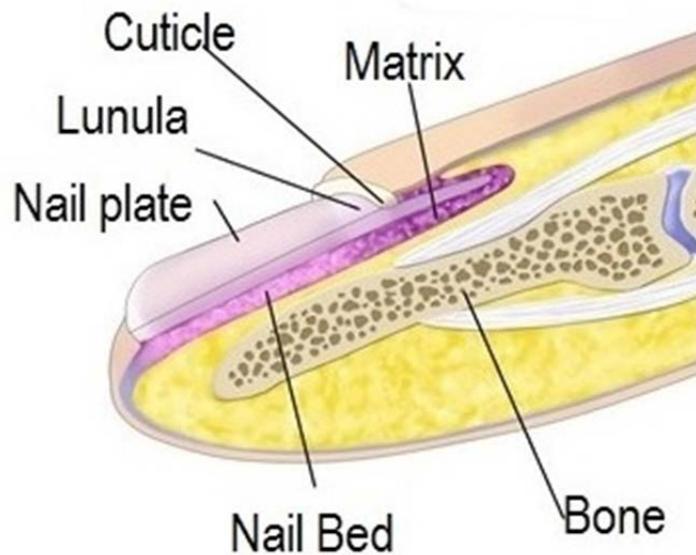


Figure 2

Nail Matrix

The nail matrix is often referred to as the nail root and lies under the eponychium at the base of the nail, it is part of the germinativum layer of the epidermis.

It is the area where **living cells** are produced through **mitosis**, these new cells push forward to form the nail plate.

Function - produces new nail cells.

Nail Bed

The nail bed is a continuation of the matrix and it is the part of the skin that the nail plate rests upon. It has patterns of transverse and longitudinal grooves that help keep the nail plate in place.

The nail bed consists of **blood vessels** that carry **vital nutrients** and **oxygen** necessary for the growth of the nail.

Function - provides nourishment to the nail.

Figure 1 & 2 - Blausen.com staff. "Blausen gallery 2014". Wikiversity Journal of Medicine.

Bones of the Skull

The bones which form the head are collectively known as the **skull**. The skull weighs around 11 pounds and consists of 22 bones. It can be divided into two parts; **the face** (which contains 14 bones) and the **cranium** (which contains 8 bones).

Functions of the Skull

- Protects the brain.
- Supports the structures of the face.
- Provides a surface for muscle attachment.

The diagram below shows the bones of the Cranium.

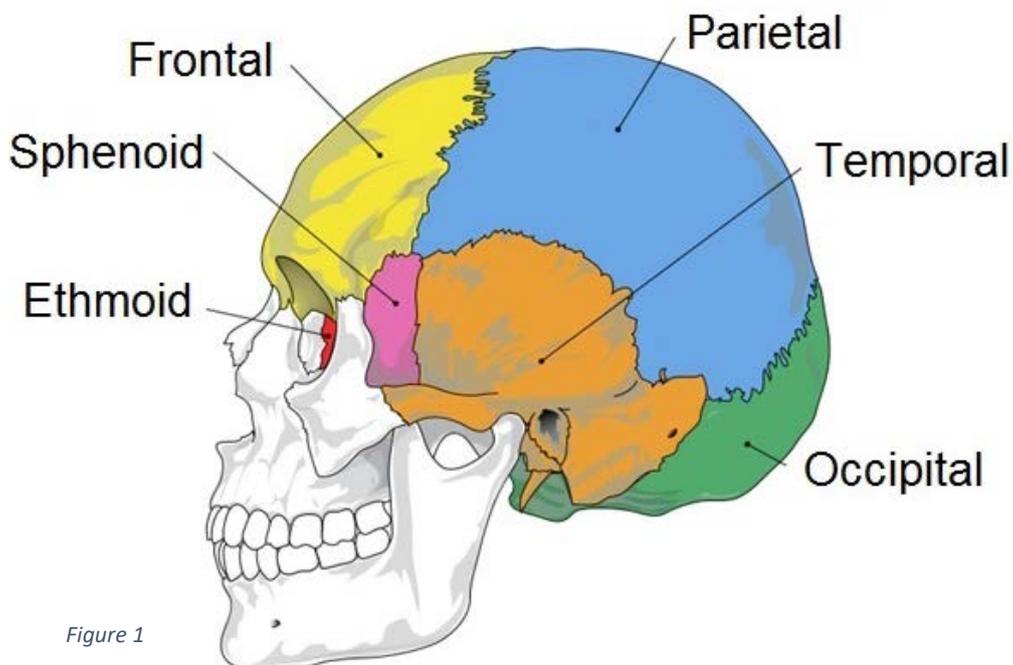


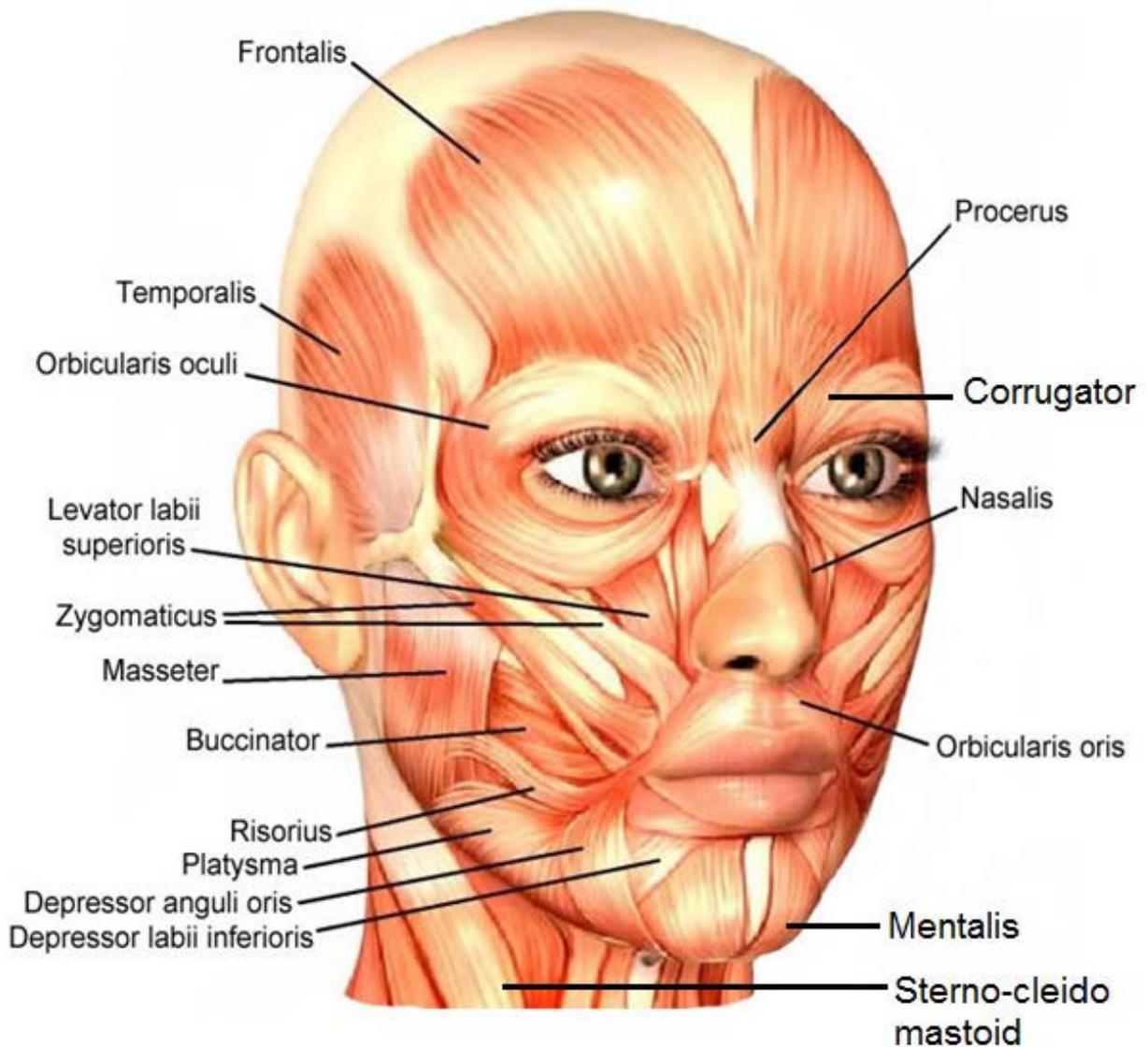
Figure 1

Figure 1 - By Lady of Hats Mariana Ruiz Villarreal (made it myself) [Public domain], via Wikimedia Commons.

Muscles of the Head, Face and Shoulder

There are lots of muscles in the face. These small muscles allow us to chew, communicate and make different facial expressions. The amount of tone within the muscle decreases as we age.

Below is a diagram showing the muscles of the face.



The following table highlights the position and action of the facial muscles.

Muscle	Position	Action
Frontalis	Extends over the forehead.	Lifts the eyebrows and wrinkles the forehead. Used when expressing surprise.
Temporalis	Extends over the ears and down to the corner of the jaw.	Lifts the mandible when chewing.
Orbicularis oculi	Circular muscle that surrounds the eye.	Closes the eyelid as in blinking or winking.
Corrugator	Located between the eyebrows.	Draws the eyebrows down as in frowning.
Procerus	Located between the eyebrows.	Draws the eyebrows down creating a puzzled look.
Nasalis	Covers the front of the nose and surrounds the nostrils.	Dilates and compresses the nostrils. Used when blowing the nose.
Orbicularis oris	Circular muscle that surrounds the mouth.	Closes the mouth.
Levator labii superioris	Above the lip, located towards the inner cheek beside the nose.	Raises the upper lip and the corners of the mouth. Used to create a snarling expression.

Zygomaticus	Extends diagonally from the cheek bone to the corners of the mouth.	Draws the angle of the mouth backwards and upwards. Used when laughing or smiling.
Masseter	Runs from the temple to the jaw.	Works with the temporalis to close the mouth during chewing. The main muscle for mastication (chewing).
Buccinator	Main cheek muscle.	Compresses the cheek when sucking or blowing.
Risorius	Extends diagonally from the masseter to the corners of the mouth.	Pulls the corners of the mouth sideways and upwards. Used when grinning.
Depressor anguli oris	Side of chin extending down at an angle from the side of the mouth.	Draws the corner of the mouth downwards.
Depressor labii inferioris	Side of the chin extending down from the lower lip.	Pulls the lower lip downwards. Used when expressing sorrow, doubt or irony.
Mentalis	Attached to the mandible and the skin of the lower lip.	Raises the lower lip causing the chin to wrinkle.
Platysma	Extends from the chin to the chest.	Pulls the jaw and the lower lip downwards.

Discover more secrets of the Beauty World with our easy to follow Bitesize Beauty Guides and Video Tutorials



Facial



Lashes & Brows



Make-up



Manicure



Anatomy & Physiology



Pedicure

