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**The Scope of Anatomy**

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ABSTRACT

The keys to understanding human consciousness and self-awareness are still beyond our grasp. However, we have accumulated a great deal of knowledge about what we are made of and how it all works. Some of this knowledge builds up the context onto which you are about to read, basic human anatomy. The knowledge of anatomy helps in the saving of lives, but we didn’t always have this information. To understand where it all began, we have to journey back to 300 BC in the ancient city of Alexandria where we meet Herophilus. For him, it wasn’t easy to study human anatomy because there was a ban on dissections in Alexandria. But once that ban was lifted, Herophilus was the first person in Greece to publicly dissect both human cadavers and animals. Herophilus was then deemed the father of anatomy and with intense research on the brain he learned that it was the center of the nervous system. Before his time though there was the father of medicine or Hippocrates. He was one of the greatest physicians of his time, and also brought the world of anatomy the Hippocratic oath.

*Keywords*: distill and express the complexities of human structure and functions in the simplest context without losing the essence and meaning of the material.

According to (Netter,2014) “The human body is a precisely structured container of chemical reactions. This is because it consists of trillions of atoms in specific arrangements and thousands of chemical reactions proceeding in a very orderly manner”. That literally describes us. Due to the fact that most anatomical names come from Latin and Greek, these words have meaning in their original language, and it is very helpful and interesting to know the ‘root’ meaning of these words, which is called etymology, as it helps in the learning process. Therefore, becoming familiar with the etymology of the anatomical terms is an important component of studying human anatomy.

The Scope of Anatomy

The term anatomy is derived from a Greek word “Anatome” meaning to cut up or “dissect”. It is the study of structures that make up the body and how those structures relate with each other. This 2000-year-old scientific discipline sprung to life in Ancient Egypt and was increasingly developed across the ages by anatomy heavyweights like Galen, Leonardo da Vinci, Vesalius, and many others. Physiology on the other hand is the study of how the body functions.

Anatomy and physiology are intimately related. The word physiology was derived from a Greek word for study of nature. Body structure functions depend on their form. The way structures work depends on the way they are organized. So, understanding Physiology requires an understanding of Anatomy, and vice versa. Anatomy is quite distinct from [physiology](file:///C:\wiki\Physiology)  which deal respectively with the functions of those parts and the chemical processes involved. For example, an anatomist is concerned with the shape, size, position, structure, blood supply and innervation of an organ such as the liver; while a physiologist is interested in the production of [bile](file:///C:\wiki\Bile), the role of the liver in nutrition and the regulation of bodily functions.

Anatomy is a complex and dynamic field that is constantly evolving as new discoveries are made. In recent years, there has been a significant increase in the use of advanced imaging techniques, such as [MRI](file:///C:\wiki\Magnetic_resonance_imaging) and [CT scans](file:///C:\wiki\CT_scan), which allow for more detailed and accurate visualizations of the body's structures (Grays anatomy,2012). The study of anatomy includes many sub specialties. These are 1) Gross anatomy 2) Microscopic anatomy 3) Developmental anatomy and Embryology.

***1)Gross Anatomy***

Gross anatomy studies body structure without the use of a microscope. They are further divided into systemic and regional anatomy. Systemic anatomy studies functional relationships of organs within a system whereas regional anatomy studies body part regionally. Both systemic and regional approaches may be used to study gross anatomy.

Regional Anatomy organizes the body into several body parts or regions: [upper limbs](https://www.kenhub.com/en/library/anatomy/regions-of-the-upper-limb), [lower limbs](https://www.kenhub.com/en/library/anatomy/regions-of-the-lower-limb), trunk, (thorax, abdomen, pelvis, back),[head, and neck](https://www.kenhub.com/en/library/anatomy/regions-of-the-head-and-neck). This approach divides teaching and learning into discrete regional didactic areas, each one containing its respective bones, [joints](https://www.kenhub.com/en/library/anatomy/arthrology), muscles, arteries, veins, nerves, lymphatics, and organs.

Systemic Anatomy the second branch of gross anatomy, subdivides the body into discrete organ systems that work together towards a common goal or function. The ten systems are called [integumentary](https://www.kenhub.com/en/library/anatomy/integumentary-system), [musculoskeletal](https://www.kenhub.com/en/library/anatomy/the-musculoskeletal-system) (skeletal,muscular), [nervous](https://www.kenhub.com/en/library/anatomy/the-nervous-system), [endocrine](https://www.kenhub.com/en/library/anatomy/endocrine-system), [circulatory](https://www.kenhub.com/en/library/anatomy/circulatory-system), [respiratory](https://www.kenhub.com/en/library/anatomy/the-respiratory-system), [digestive](https://www.kenhub.com/en/library/anatomy/the-digestive-system), [urinary](https://www.kenhub.com/en/library/anatomy/urinary-system), reproductive, and lymphatic.

***2)Microscopic anatomy (Histology)***

It requires the use of microscope to study tissues that form the various organs of the body. (histo = tissue; ology = study), is the study of tissues that are too small to been seen with the naked eye, and therefore require the use of various microscopes. Microscopy commonly involves studying tissues and cells that have been prepared by histological techniques in order to provide visual contrast of the different aspects of the specimen under examination. Sectioning and staining tissues is how the histological slides we will examine are prepared. Typically, tissue is treated with preserving and other agents which allow for the sectioning of tissue, which is cutting tissue into very thin slices. Histological stains, such as hematoxylin and eosin, (H&E) are commonly added to the specimens in order to create and enhance visual contrast. The various stains generate different colors and intensities, based primarily on the chemistry of the tissue and the dye (lipid, protein, acidic, basic, etc.). This yield tissues they can be more easily distinguished when they are examined under a microscope (light or electron).

The human body is complex, like a highly technical and sophisticated machine. It operates as a single entity, but is made up of a number of operational parts that work interdependently (Grays basic Anatomy,2012). Each part is associated with a specific, and sometimes related, function that is essential for the well-being of the individual. The component parts do not operate independently, but rather in conjunction with all the others. Structure (anatomy) and function (physiology) are closely correlated in the human body. It is important to understand the connection between form and function when studying anatomy as the form (shape) of a structure is strongly indicative of what it does (function). This approach to the study of anatomy is called “functional anatomy”, and it is the approach that we use in this course. Below is a detailed guide on hierarchy of complexity.

Atoms Molecules Organelles Cells Tissues Organs Organ systems Organism

We can define body systems as groups of [organs](https://www.toppr.com/guides/biology/structural-organisation-in-animals/organ-and-organ-system/) and [tissues](https://www.toppr.com/guides/biology/tissues/introduction-to-tissues/) that work together to perform important jobs for the body. There are some organs in our body which are part of more than one body system as they serve more than one function. Apart from these, other organs and tissues serve only one purpose in the body system. All body systems are necessary for an organism to be able to survive and [reproduce](https://www.toppr.com/guides/biology/how-do-organisms-reproduce/). Below, we’ll learn how our organs and tissues work together as body systems to accomplish these tasks.

### **References**

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