**Tissues and Their Functions**

Animal tissues are grouped into four basic types: [connective](https://en.wikipedia.org/wiki/Connective_tissue), [muscle](https://en.wikipedia.org/wiki/Muscle_tissue), [nervous](https://en.wikipedia.org/wiki/Nervous_tissue), and [epithelial](https://en.wikipedia.org/wiki/Epithelium). Collections of tissues joined in structural units to serve a common function compose organs. While all [eumetazoan](https://en.wikipedia.org/wiki/Eumetazoa) animals (i.e. except Porifera) can generally be considered to contain the four tissue types, the manifestation of these tissues can differ depending on the type of organism. For example, the origin of the cells comprising a particular tissue type may differ developmentally for different classifications of animals.

The [epithelium](https://en.wikipedia.org/wiki/Epithelium) in all birds and animals is derived from the [ectoderm](https://en.wikipedia.org/wiki/Ectoderm) and [endoderm](https://en.wikipedia.org/wiki/Endoderm), with a small contribution from the [mesoderm](https://en.wikipedia.org/wiki/Mesoderm), forming the [endothelium](https://en.wikipedia.org/wiki/Endothelium), a specialized type of epithelium that composes the [vasculature](https://en.wikipedia.org/wiki/Blood_vessels). By contrast, a true [epithelial tissue](https://en.wikipedia.org/wiki/Epithelial_tissue) is present only in a single layer of cells held together via occluding junctions called [tight junctions](https://en.wikipedia.org/wiki/Tight_junctions), to create a selectively permeable barrier. This tissue covers all organismal surfaces that come in contact with the external environment such as the [skin](https://en.wikipedia.org/wiki/Skin), the airways, and the digestive tract. It serves functions of protection, [secretion](https://en.wikipedia.org/wiki/Secretion), and absorption, and is separated from other tissues below by a [basal lamina](https://en.wikipedia.org/wiki/Basal_lamina).

Connective tissue

Connective tissues are fibrous tissues. They are made up of cells separated by non-living material, which is called an [extracellular matrix](https://en.wikipedia.org/wiki/Extracellular_matrix). This matrix can be liquid or rigid. For example, blood contains plasma as its matrix and bone's matrix is rigid. Connective tissue gives shape to organs and holds them in place. Blood, bone, tendon, ligament, adipose, and areolar tissues are examples of connective tissues. One method of classifying connective tissues is to divide them into three types: fibrous connective tissue, skeletal connective tissue, and fluid connective tissue.

Muscular tissue

[Muscle cells](https://en.wikipedia.org/wiki/Muscle_cell) form the active contractile tissue of the [body](https://en.wikipedia.org/wiki/Human_body) known as [muscle tissue](https://en.wikipedia.org/wiki/Muscle_tissue) or muscular tissue. Muscle tissue functions to produce [force](https://en.wikipedia.org/wiki/Force) and cause [motion](https://en.wikipedia.org/wiki/Motion_%28physics%29), either [locomotion](https://en.wikipedia.org/wiki/Animal_locomotion) or movement within internal organs. Muscle tissue is separated into three distinct categories: visceral or [smooth muscle](https://en.wikipedia.org/wiki/Smooth_muscle), found in the inner linings of [organs](https://en.wikipedia.org/wiki/Organ_%28anatomy%29); [skeletal muscle](https://en.wikipedia.org/wiki/Skeletal_muscle), typically attached to bones, which generate gross movement; and [cardiac muscle](https://en.wikipedia.org/wiki/Cardiac_muscle), found in the [heart](https://en.wikipedia.org/wiki/Heart), where it contracts to pump blood throughout an organism.

Nervous tissue

Cells comprising the [central nervous system](https://en.wikipedia.org/wiki/Central_nervous_system) and [peripheral nervous system](https://en.wikipedia.org/wiki/Peripheral_nervous_system) are classified as nervous (or neural) tissue. In the central nervous system, neural tissues form the [brain](https://en.wikipedia.org/wiki/Brain) and [spinal cord](https://en.wikipedia.org/wiki/Spinal_cord). In the peripheral nervous system, neural tissues form the [cranial nerves](https://en.wikipedia.org/wiki/Cranial_nerves) and [spinal nerves](https://en.wikipedia.org/wiki/Spinal_nerve), inclusive of the [motor neurons](https://en.wikipedia.org/wiki/Motor_neuron).

Epithelial tissue

The epithelial tissues are formed by cells that cover the organ surfaces, such as the surface of [skin](https://en.wikipedia.org/wiki/Skin), the [airways](https://en.wikipedia.org/wiki/Airway), the [reproductive tract](https://en.wikipedia.org/wiki/Reproductive_tract), and the inner lining of the [digestive tract](https://en.wikipedia.org/wiki/Digestive_tract). The cells comprising an epithelial layer are linked via semi-permeable, [tight junctions](https://en.wikipedia.org/wiki/Tight_junctions); hence, this tissue provides a barrier between the external environment and the organ it covers. In addition to this protective function, epithelial tissue may also be specialized to function in [secretion](https://en.wikipedia.org/wiki/Secretion), [excretion](https://en.wikipedia.org/wiki/Excretion) and [absorption](https://en.wikipedia.org/wiki/Digestion). Epithelial tissue helps to protect organs from microorganisms, injury, and fluid loss.