

# **Support and Movement Group**

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# **The Support And Movement Group Has Five Main Parts:**

Centrioles, Cilia, Cell wall, Cytoskeleton, and the Flagellum.

# centrioles

- located near the nucleus and helps divide cell division
- found only in animal cells

**Study Tip:** think of your hands as centrioles and you divide M&Ms by their colors with your hands

**Centrioles relate to homeostasis by:** helping the materials get to where they need to be quicker and easier

# Cilia

The cilia helps build projections from the cell surface. It is found in animals. There are two groups, the motile group and the Nonmotile group.

**Study Tip:** think of the hairs on your arms and the pores as the projections in the cilia.

**Motile group** - found in the lungs, they keep airways clear of mucus and dirt.

**Unmotile group** - found in organs, acts as a sensory antenna, sends signals to cells

**Does Cilia Relate to Homeostasis?** It relates to homeostasis because it moves bacteria and proteins to the right part of the body or clears parts of your body, for example lungs.

# Cell Wall

**Cell Wall**-shapes, supports, and protects the cell. It's the supporting layer around the membrane. It is in plant cells and bacteria but not in animal cells.

**Study tip:** Think of an egg like the shell to cover the yolk because it protects the egg from cracking/breaking.

Cell wall relates to homeostasis because it controls the direction of the growth and the structure of the plant cell.

Most cell walls are porous enough to allow water, oxygen, carbon dioxide, and certain substances to pass through easily. Cell walls provide much of the strength needed for plants to stand against force of gravity.

# Cytoskeleton

**Cytoskeletons** are structures that help cells maintain their shape and internal organization. Cytoskeletons also provide mechanical support that enables cells to carry out essential functions like division and movement.

Cytoskeletons are found in animal cells and plant cells. This cell is a unique type of eukaryotic cell, it acts as both a muscle and skeleton for movement and stability.

Cytoskeletons are very complex cells. Two of its primary proteins are microfilaments and microtubules.

**Microfilaments:** These are fine, thread-like fibers. They are made up of actin, and form networks in some cells. They also produce a tough flexible framework that supports the cell. They also help the cell with its movement.

**Microtubules:** These are hollow structures made up of proteins known as tubulins. Microtubules, in many cells, play the critical role of maintaining the cells shape. They are also important in cell division.

# How is the Cytoskeleton Related to Homeostasis?

Cytoskeletons transport the materials and support the cell by giving it its shape and its internal organization. Cytoskeletons are classified in the group of support and movement because they support the cells movement, protect the cell, and helps the cell move and transfer proteins and other materials.

## Here's A Study Tip:

- Think of a pottery and you are shaping it on your own and then you transport the paint to which you decorate it.

# Flagellum

Flagellum - use chemical energy to pull on, or slide along, the microtubules, producing controlled movements.

## Study Tip:

Flagellum is similar to legs as controlled movements.

Flagellum is related to homeostasis by producing controlled movements while using chemical energy to move.

Flagellum is found in animal cells and not in plant cells.



**THE END**