

# Cell Growth and Cell Reproduction that Involves Mitosis and Meiosis

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## DESCRIPTION

Cell division describes the division of a mother cell into two daughter cells (1→2→4→8, etc.), whereas cell growth refers to the increase in cell size (mass accumulation). The process of making more cells by cell division is known as cell proliferation. The process of cell division in healthy cells is delicately regulated by hundreds of genes. A balance between the activity of the genes that encourage cell proliferation and those that repress it is necessary for normal growth. It also depends on the actions of genes that send out signals to tell injured cells when to go through apoptosis. When the rate of cellular biosynthesis (the creation of biomolecules or anabolism) outpaces the rate of cellular degradation (the breakdown of biomolecules *via* the proteasome, lysosome, or autophagy or catabolism). In some cases; cell size is proportional to DNA content. For example, endo replication, which is the continuation of DNA replication in the absence of cell division, results in bigger cells. This is how megakaryoblasts, the bone marrow cells that produce platelets, develop into granular megakaryocytes. The process of making more cells by cell division is known as cell proliferation. The cell cycle and the processes that control it are closely related to both cell division and growth. The rates of protein production, the folding rates of its slowest proteins, and for big cells the rates of protein diffusion all serve as growth constraints on cells.

Cellular growth phases should be arranged in the proper order of division, elongation, and differentiation. Mitosis and meiosis are the two distinct processes of cell division.

When people talk about "cell division" they typically mean mitosis, which is the process of creating new cells for the body. The cell division process known as meiosis it is produces egg and sperm cells.

## The development of cells

Gap 1, also known as the G<sub>1</sub> phase, is when a cell enlarges and makes sure everything is in order for it to split. The S phase, also

known as synthesis, is when a cell copies its DNA. The G<sub>2</sub> phase, also known as Gap 2, is when cells verify that all of their DNA has been correctly replicated. During the M phase of mitosis, the cell eventually divides into two. Cells therefore require food, oxygen, and water to thrive. The numerous organelles found in cells which you would compare to human organs are necessary for the cells need to provide food, water and oxygen for them to perform their functions.

**Three types of cell reproduction are compared:** The relatively simple binary fission and two more complicated types that either involves:

- Cell reproduction that involves mitosis.
- Cell reproduction that involves meiosis.
- Binary fission.

All living things are made up of one or more cells, which are three tenets principles of the cell theory. The fundamental unit of structure and organization in organisms is the cell. Existing cells give rise to new ones. Cells cannot produce the necessary proteins for mitosis if they are not grown in the interphase. Therefore, the cells are unable to carry out the mitotic process.

## Cell division types

**Mitosis:** Cells reproduce exactly like themselves through the process of mitosis.

**Meiosis:** Unlike mitosis, which produces identical daughter cells, this kind of cell division produces sperm or egg cells.

**Binary fission:** Single-celled organisms like bacteria reproduce by a process known as binary fission.

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