

## **GCSE Biology – Mitosis and the cell cycle - Transcript**

Mitosis and the cell cycle helps our bodies grow and repair. The process is happening inside our cells all the time, so how does it work?

Mitosis is how a cell divides to make two genetically identical cells, but cells don't just divide randomly. They go through a repeating pattern called the cell cycle. We can split the cell cycle into three main stages.

Stage 1 is synthesis or interphase. This is when the cell grows and synthesises, or makes, new organelles such as ribosomes and mitochondria. This ensures the new cells will have everything they need to function properly. This also includes copying your chromosomes. Most human body cells have 46 chromosomes. but I've simplified it to 2 here. As the cell divides, each chromosome makes a copy of itself. There are now 2 identical versions of each chromosome in the nucleus

Stage 2 is mitosis. The nuclear membrane breaks down and one full set of chromosomes is pulled to each end of the cell. A new nuclear membrane forms around each set of chromosomes. The cell now has 2 nuclei each with a full set of genetic information.

Stage 3 is cell division, or cytokinesis. The cell's membrane pinches together creating two genetically identical cells, each with the same DNA as the original. These cells can then both grow and replicate their DNA and begin the process all over again.

This process is happening in your body all the time. It's how your skin heals, how your hair and nails grow, and how old cells are replaced with new ones.

It is also the process by which adults grow from babies and provides the cells for growth spurts. And mitosis isn't just a human process. All plants and animals grow and repair themselves in this way.

So when the body repairs itself from a knock or a scrape, you've got mitosis to thank.