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5. CELLULAR DEVELOPMENT

During growth and development, the number of cells increases, whereas cells also turn over to meet the needs of growth. Both hyperplasia, an increase in cell number, and hypertrophy, an increase in cell size, occur. The process used by cells to accomplish growth is cell division. Without cell division, cell populations could not be sustained through activation of undifferentiated stem cells, tissue repair could not be accomplished, and cell death (apoptosis) would be inevitable. Cell division occurs as either mitosis or meiosis depending upon the type of cell involved in the process. These mechanisms, particularly meiosis, are the foundation of inheritance.