

Meiosis vs mitosis

[Science](#), [Genetics](#)



Mitosis and meiosis are very similar processes but they are also quite different. In both of these dna is replicated before the prophase. The sister chromatids are both separated in anaphase of these processes, however in meiosis it is in the anaphase 2 stage. Finally both stages have microtubules to separate chromosomes and both begin in the prophase and end in telophase.

There are also several key differences. Mitosis occurs during growth of organism or to repair tissue of the organism. Mitosis ends with two diploid cells which are identical to the original cell. Meiosis goes through two divisions. Meiosis ends with 4 cells each have half the number of chromosomes and inherit the other half from the other sex cell. In meiosis the first anaphase separates homologous chromosomes and creates haploid cells. Meiosis produces gametes as opposed to somatic cells. The chromosomes assume tetrad formations during the prophase of meiosis. In meiosis there is genetic variation in the daughter cells, this is due to crossing over and independent assortment.

The largest difference between the two is meiosis makes unique daughter cells not clones. In prophase chromatids are crossed over and chromatids from each parent mix resulting in gene variations. In meiosis tetrads are also formed which allow for independent assortment as they are separated and go to opposite sides meaning each cell will have different dna. Which dna goes where is dependent on the formation of the tetrads which is random.

There is also differences in male and females for which meiosis occurs. In males four haploid sperm cells are produced, versus one haploid egg cell in females. In egg cells polar bodies are formed to attach cytoplasm because

egg cells are larger. The cells of male and female are differentiated after meiosis two. In females the meiosis process is not a constant development but rather it is hindered at times. These sex cells production is linked to hormones that can make them grow more like testosterone for males and estrogen for females.