

Concept 12.2

Accidents affecting chromosomes can cause disorders.

Nonseparation of Chromosomes:

Nondisjunction - homologous chromosomes or sister chromatids failing to separate during meiosis.

- Can occur in anaphase of meiosis I or II, resulting in gametes with abnormal numbers of chromosomes.
- Trisomy 21 (Down Syndrome)

Damaged Chromosomes:

Even if all chromosomes are present in normal numbers in a cell, changes in chromosome structure may also cause disorders.

Types of Changes

- Duplication
- Deletion
- Inversion
- Translocation

Jumping Genes: (Barbara McClintock 1940s)

Certain genetic elements had the ability to move from one location to another in a chromosome. They can even move to a different chromosome.

“Jumping genes” (now called **transposons**) can land in the middle of other genes and disrupt them.