

**Genetic Counseling Brochure
Introduction & Organization**

MUTATION INTRODUCTION SECTION:

Define Mutation (include DNA in the definition): A MUTATION IS A CHANGE IN A DNA SEQUENCE THAT AFFECTS GENETIC INFORMATION.

What are possible outcomes of getting a mutation? MUTATIONS CAN BE HARMFUL, CAUSING DISEASE, DISORDERS AND POSSIBLY DEATH. SOME MUTATION MAY NOT BE HARMFUL AND SOMETIMES MAY BE BENEFICIAL.

Describe a germ cell mutation and can it be inherited?

- **GERM CELL MUTATIONS: OCCUR IN SEX CELLS (EGG OR SPERM) AND CAN BE INHERITED.**

Describe a somatic cell mutation and can it be inherited?

- **SOMATIC CELL MUTATIONS: OCCUR IN BODY CELLS (SKIN, LIVER, ETC.) AND CANNOT BE INHERITED.**

MUTATION CAUSES AND DESCRIPTION SECTION:

■ **MUTATIONS MAY INVOLVE:**

1. **Chromosome Mutation**

- ✓ **CHANGES IN THE STRUCTURE OF A CHROMOSOME OR LOSS OF A CHROMOSOME**
 - **DELETION – A PORTION OF DNA IS DELETED**
 - **DUPLICATION – A PORTION OF DNA IS REPEATED**
 - **INVERSION – A PORTION OF DNA CODE IS REVERSED**
 - **TRANSLOCATION – DNA FROM ONE CHROMOSOME RELOCATES TO ANOTHER CHROMOSOME**

2. **Gene Mutation**

- ✓ **CHANGE IN A SEGMENT OF DNA OR A SINGLE NUCLEOTIDE OF DNA**
 - **POINT MUTATION – CHANGE IN THE DNA CODE AT ONE POINT IN THE SEQUENCE.**
 1. **SUBSTITUTION – CHANGING OF ONE NUCLEOTIDE**
 2. **DELETION – LOSS OF A NUCLEOTIDE (FRAMESHIFT)**
 3. **INSERTION – ADDITION OF A NUCLEOTIDE (FRAMESHIFT)**

For each disease please complete the following:

- 1. signs and symptoms**
- 2. treatment**
- 3. prognosis**

Dominant Trait: Huntington's disease

Cause: caused by inheriting a dominant gene.

signs and symptoms

treatment

prognosis

Recessive Traits: (Choose One)

PKU or Cystic fibrosis

Cause: caused by inheriting two recessive genes for the disease.

signs and symptoms

treatment

prognosis

X Linked Traits: (Choose One)

Hemophilia or Duchenne muscular dystrophy or Lesch Nyhan

Cause: caused by inheriting a recessive gene on the X chromosome.

signs and symptoms

treatment

prognosis

Nondisjunction Traits: (Choose One)

Downs syndrome or Klinefelter's or Turner's syndrome

Cause: caused by abnormal segregation of chromosomes during meiosis. This will cause an extra chromosome or one less chromosome in a gamete (sex cell).

signs and symptoms

treatment

prognosis

COMPUTER INSTRUCTIONS:

Step One:

- Go to File
- Choose Page Setup
- Choose the middle picture under ORIENTATION (Landscape)

Step Two:

- Pick three column format

Step Three:

- Under format on the menu bar, select document
- Enter in margins of .5 for the top, bottom, right & left

Step Four: This is to print in the computer lab!!! The following process will print the brochure on both sides of the paper for you!

- Go to file, select print
- Select copies and pages
- Select layout
- Select short edge binding