

Chapter 12: Chromosomes and Human Inheritance

Human Chromosomes

- Most chromosomes are called “ _____ ” (____ in humans)
- The other _____ chromosomes are called “ _____ chromosomes”
 - Human females have _____ chromosomes
 - Human males have an _____ and a _____
- Each human egg has _____ autosomes plus one _____
- Each human sperm has _____ autosomes plus an _____ or _____
- The _____ chromosome carries the gene for _____ (_____ determining factor)
- A _____ of the paired chromosomes is called a _____

Chromosomal Links

- Genes are said to be _____ if they are found on the _____ chromosome
- _____ genes are usually inherited _____
- _____ can allow linked genes to be sorted _____ sometimes
- There is a _____ proportion between _____ of linked genes and the _____ of crossing over between them
- If genes are found on the _____ chromosome, the gene is called “ _____ ”
- The expression of x-linked (aka _____) traits is _____ related
- Males are more likely than a female to express the _____ version of an x-linked trait
 - Males cannot be _____ for x-linked traits

Human Genetic Variation

- Human genetics is very _____ to study
 - Humans live in diverse _____ (this may affect gene _____)
 - Humans have long _____
 - Humans have small _____ (making _____ studies unreliable)
 - Experimentation is _____
- Most data comes from family _____
- Many human disorders are _____ mutations
 - _____ are symptom-free; only homozygous _____ are affected
 - Two heterozygous parents have a _____ chance of having an affected child
 - Examples include sickle-cell, Tay Sachs, and _____
- Some human disorders are autosomal _____ mutations
 - A dominant allele is always _____
 - If it affects _____ or _____, it should become less common
 - Two examples of autosomal dominant mutations that are not becoming less common are _____ and _____ disease
- _____ recessive disorders are most common in _____
 - Heterozygous females are called "_____"
 - Males only can receive the gene from their _____
 - _____ pass it to their daughters
 - Examples are _____ colorblindness and _____

Chromosomal abnormalities

- So far, all these discussed mutations are single _____ (maybe just 1 _____) changes
- Sometimes, larger sections of a _____ will be changed
- We call these "chromosomal mutations", which often lead to multiple _____
- Examples of chromosomal mutations are:
 - _____ (loss of a segment)
 - _____ (repetition of a segment)

- _____ (reversal of a segment within the chromosome)
- _____ (a segment moves and attaches to a non-homologous chromosome)

Changes in Chromosome Number

- _____ is a condition where a cell (or whole organism) receives an extra set of chromosomes
 - This is common in _____, but _____ in humans
- _____ is a condition where there is one extra or one missing _____
 - This can be caused by a _____ during meiosis
- _____ syndrome is the most famous aneuploidy
 - This is also called _____
 - 1 in _____ live births have Down syndrome
 - It is most common with _____ mothers
 - The most common serious symptoms are mental _____ and _____ defects
- _____ syndrome is a female with only one ___ chromosome
 - Affected females usually do not go through _____ development, and are therefore _____
 - Other symptoms include premature _____, small size, and shorter life spans
- _____ syndrome leads to usually normal females (some slight _____ problems)
- _____ syndrome is a male with the _____ condition
 - There is usually an _____ sexual development, and sterility often results (sometimes some _____ traits partially develop)
 - Other common symptoms are low _____ and large body size
- _____ syndrome leads to a _____ that (other than some minor _____ impairment) is normal
 - In the past, it was _____ thought that these men were more likely to become _____ criminals
- XXX, XXY, and XYY are often not _____, and the people lead _____ lives