

Additional Bio Notes

Recessive Disorders

- Cystic fibrosis – build up of mucous on certain cells, typically die young
- Tay-Sachs disease – dysfunctional enzyme causes brain malfunction, die young
- Sickle-cell disease – substitution of a single amino acid which alters the shape of hemoglobin

Dominant Disorders

- Huntington's Disease – degenerative disease of the nervous system, die late 35 to 40
- Achondroplasia – dwarfism

Chromosomal Basis for Sex

- XX and XY - humans
- XO and XX – males only have one sex chromosome
- ZZ and ZW – males have same sex chromosome vs. females who have two different (reverse of humans)
- Haploid and Diploid – males develop from unfertilized eggs (they have no father)

Sex-Linked Disorders

- Color blindness – can't see colors 
- Duchenne muscular dystrophy – weakening of muscles and loss of coordination
- Hemophilia – absence of a protein required for clotting

X-Inactivation in females

- Barr body – only one X is completely active in females the other condenses into a Barr body
- Reactivated in meiosis

Alteration of Chromosome Number and Genetic Disorders

- Nondisjunction – homologous chromosomes don't separate during meiosis
- Aneuploidy – abnormal chromosome number
 - Trisomic – $2n + 1$
 - Trisomy 21 – Down syndrome
 - Monosomic – $2n - 1$
- Polyploidy – $3n$ or $4n$

Alteration of Chromosome Structure

- Deletion – loss of a chromosomal fragment
- Duplication – fragment joins another chromosome
- Inversion – deletion rejoins original chromosome in reverse order
- Translocation – deletion joins a non-homologous chromosome