

Sex-Linked Traits

- Recall you have 46 chromosomes.
 - o Of these 46 chromosomes, 44 are known as autosomes and the other 2 are your sex chromosomes, or the X and Y chromosome.
 - o These 2 chromosomes determine if you are genetically female or male.
 - i.e. XX - genetically female
 XY - genetically male

- Everyone has an X chromosome because it is the only one your mother can give you.
 - o This means it is the male gamete that determines the genetic sex of the offspring.
- Sex-linked traits are traits found on the sex chromosomes. Most are found on the X chromosome because it is larger than the Y chromosome.
- When we write the genotypes for sex linked traits, we first write out which sex chromosomes the person has, and then place the alleles as a superscript (like an exponent).
 - o Dominant alleles are still represented by a capital letter, recessive alleles by a lower case letter.
 - Ex. Hemophilia is a sex-linked recessive disorder, meaning you will have it if you have the recessive alleles. So,

how common

$X^H X^H$ - no hemophilia

$X^H X^h$ - no hemophilia, carrier

$X^h X^h$ - hemophilia

H^{no} - hemophilia
 h - hemophilia

$X^H Y$ - no hemophilia

$X^h Y$ - hemophilia

- Males are more likely to inherit sex-linked recessive disorders because there is only 1 X chromosome present.

- To solve problems involving sex-linked traits, follow these steps:

① Determine the parents' genotypes

② Write one parent's genotype across the top of the Punnett Square, the other parent's genotype down the left side

③ Cross them out

④ The results are your offspring. Use this info to determine percentages.