

Sex Linkage

♂ Male = XY

♀ = XX

- some genes are carried on the X chromosome
 - eg) colour blindness
 - hemophilia
 - coat colour in cats
 - male pattern baldness
 - Duchene muscular dystrophy
- Females get 2 genes from X chromosome so Twice the chance of getting the dominant (or recessive) gene.
- Males only get 1 chance at those genes ; (from the mother) because father contributes a "Y"

Symbols & Sexes

$X^H X^H$ = Female ; no hemophilia gene

$X^H X^h$ = Female carrier of hemophilia gene

- phenotype is normal But she can pass "h" to sons & daughters

$X^h X^h$ = Female with hemophilia

$X^H Y$ = male ; normal

$X^h Y$ = male hemophilia

→ genetic disorder where blood does not clot
∴ excessive bleeding if injured

Eg) A woman and a man with "normal" phenotypes for hemophilia, have a son with hemophilia. What are the genotypes of parents & son?

parents : ♀ × ♂

son :

Eg) If a woman has hemophilia, what are the possible genotypes of her parents?

woman with hemophilia =

Eg) A woman who is a carrier for colour blindness, has a child with a man with normal colour vision. What are the likelihoods... their son is colour blind?

Eg) An orange male cat and a black & white cat^(recessive) have a litter of kittens. What %'s probabilities of colour & sex for the kittens?

parents. ♂ × ♀

↓

Why is there not a black (or black & white) female?

Why are all calico cats female?