



Why Some Traits Are More Common in Males or Females

KS4 BIOLOGY

GENETICS

INHERITANCE

Ages 11-14 ⌚ 3 min read

What Makes Boys and Girls Different?

Have you noticed that some characteristics show up more in boys than girls, or vice versa? This happens because of **sex chromosomes** – special packages of instructions inside our cells that determine whether we're male or female. Understanding this is like opening a cookbook where different recipes make different meals depending on which ingredients you have.

Every person has **23 pairs of chromosomes** in their cells. The last pair decides if you're male or female. Girls have **two X chromosomes** (written as XX), while boys have **one X and one Y chromosome** (written as XY). This tiny difference has a big impact on which traits appear more often in each sex.

How Genes Work on Chromosomes

Genes are tiny instructions on chromosomes that tell our bodies how to grow and develop. Some genes sit on the X chromosome. This is important because boys only have one X chromosome, while girls have two.

Think of it like having one instruction manual versus two. If a boy has a gene for colour blindness on his single X chromosome, he'll be colour blind. But a girl would need the same gene on both her X chromosomes to be colour blind – which is much rarer.

This is called **sex-linked inheritance**, and it explains why some traits are more common in one sex than the other. Colour blindness, haemophilia (a bleeding disorder), and some forms of muscular dystrophy appear far more often in boys than girls because boys only have one copy of the X chromosome.

Other Reasons for Different Traits

Sex chromosomes aren't the only reason traits differ between males and females.

Hormones – special chemicals in our bodies – also play a huge role. **Testosterone** is

more common in males and influences muscle growth and bone development.

Oestrogen is more common in females and affects different body systems.

Environment and culture matter too. Sometimes traits seem more common in one sex because of how society expects boys and girls to behave, not just biology.

Think of it like a recipe that can be changed by different cooks. The basic ingredients (genes) are similar, but different environments and choices can create different results.

Understanding why traits vary between sexes helps doctors treat diseases better and shows us that biology is wonderfully complex!