How Genetic Disorders are Inherited

**Dominant Disorders:**
*A Fifty-Fifty Chance*

The affected parent has a single defective gene (D), which dominates its normal counterpart (n). Each child has a 50 percent risk of inheriting the faulty gene and the disorder.

![Diagram of Dominant Disorders](image)

**Recessive Disorders:**
*One Chance in Four*

Both parents carry a single defective gene (d) but are protected by the presence of a normal gene (N), which is generally sufficient for normal function. Two defective copies of the gene are required to produce a disorder. Each child has a 50 percent chance of being a carrier like both parents and a 25 percent risk of inheriting the disorder.

![Diagram of Recessive Disorders](image)
X-Linked Disorders: Males Are at Risk

One normal copy (green x) of a gene on the X chromosome is generally sufficient for normal function. Women who have a defective gene (red x) on one of their two X chromosomes are protected by the normal copy of the same gene on the second chromosome. But men lack this protection, since they have one X and one Y chromosome. Each male child of a mother who carries the defect has a 50 percent risk of inheriting the faulty gene and the disorder. Each female child has a 50 percent chance of being a carrier like her mother.