

Recessive inheritance

What are genes?

Genes are the unique set of instructions inside our bodies which make each of us an individual. There are many thousands of different genes, each carrying a different instruction. If a gene is altered, it can cause a genetic condition or disease. This gene alteration is sometimes known as a mutation.

We have two copies of each gene. One copy is inherited from each of our parents. When we have children, we pass on only one copy of each of our genes.

What does recessive inheritance mean?

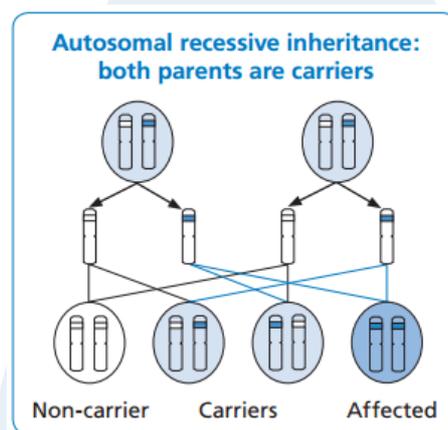
Some conditions are inherited in a recessive way. In recessive conditions, individuals only develop the condition if both copies of a gene are altered.

People who have only one altered copy of a gene are completely healthy. They are known as carriers, because they carry one altered copy of a gene. Their normal copy of the gene keeps them healthy and compensates for the altered copy of the gene.

Having children

If two parents are carriers for the same condition, there are different genetic outcomes in each pregnancy they have:

- 25% (or 1 in 4) risk of their child inheriting the altered gene from both parents and therefore being affected.



- 50% (or 1 in 2) chance of inheriting one copy of the altered gene from a parent. These children will be carriers (like their parents).
- 25% (or 1 in 4) chance that a child will inherit two normal copies of the gene and be unaffected.
- If only one parent is a carrier of the altered gene, then their children would not be affected by the condition, but there is a chance that they will be a carrier.

Parents who are closely related to each other, such as first cousins, have an increased chance of having children with recessive conditions. This is because they are more likely to be carriers of the same condition.

For more information

If you have any further questions about recessive conditions, you are welcome to contact:

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Please let us know if you would like this leaflet in another format (e.g. large print, Braille, audio).

We would like to acknowledge our Clinical Genetics colleagues at Guy's and St Thomas' Hospital NHS Trust who originally designed and wrote this leaflet.

Seen in clinic by (doctor): _____

And (Genetic Counsellor): _____

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Family reference number: _____