The Leeds Teaching Hospitals NHS Trust

Yorkshire Regional Genetics Service

Dominant Inheritance

Information for patients

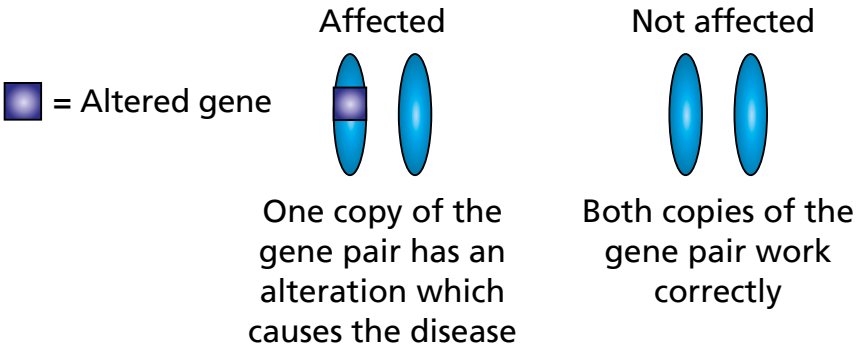
Yorkshire Regional Genetics Service

Genes are the unique instructions which make each of us an individual. There are thousands of different genes, each carrying a different instruction. If a gene is altered (or 'mutated'), it can cause a genetic condition or disease.

Genes lie on tiny structures called chromosomes. Humans usually have 46 chromosomes in each cell and they come in pairs numbered 1 - 22. The final pair are the sex chromosomes and they determine our biological sex.

What does dominant inheritance mean?

Genetic conditions that show dominant inheritance are caused by an alteration in one copy of a particular gene pair. The altered copy of the gene is dominant over the other working copy of the gene. Having a working copy of the gene cannot prevent the disease from occurring. The diagram below shows two gene pairs, one from a person affected with a dominantly inherited disease and the other is from an unaffected person.

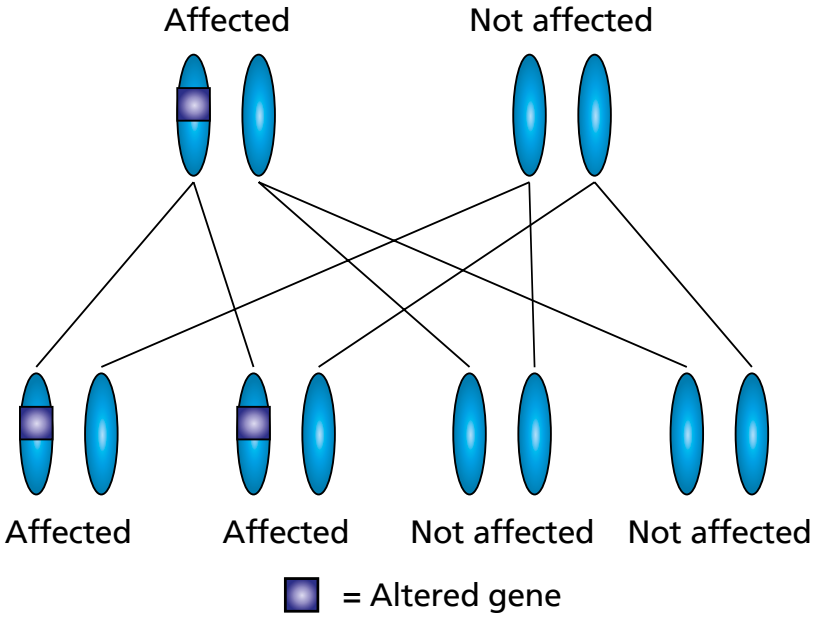


Having children

If a parent has an altered gene for a dominant condition, each of their children has a 50%, or 1 in 2 chance of inheriting the altered gene and being affected by the condition.

For each child, regardless of their sex, the risk is the same (50%).

The diagram below shows how, for each pregnancy, there is an equal chance that the baby will inherit the altered gene or the working gene from their affected parent.



Some dominant conditions are known as "late onset disorders". In other words, they only affect individuals in adulthood; however, the altered gene would have been present in that person for all of their lives.

Can a dominantly inherited condition 'skip' a generation?

In families affected by a dominantly inherited genetic disease, it is most common to see people affected in each generation of the family tree.

In some dominant conditions, it is possible for someone to inherit an altered gene without showing any symptoms of the condition. This person could then go on to have an affected child which may make the disease appear to have skipped a generation. In reality, the altered gene did not skip a generation at all but the symptoms of the disease were so mild or undetected that it may have appeared to have skipped a generation. Your doctor or genetic counsellor can discuss this with you in more detail, if appropriate.

In some families, an isolated case of a dominant disorder may be the result of a new alteration (a change which arises for the first time) in either the egg or the sperm that went to make that child. In these cases, that child could go on to have affected children themselves in the future.

For more information:

If you need more information, please contact your local Genetics Department. If you live in the Yorkshire region, please contact:

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