Autosomal Dominant Inheritance

What are Genes?

Genes are unique instructions that tell our bodies how to grow and develop and they make each of us individual. There are thousands of genes in our body, each carrying its own specific instruction. Each gene contains a string of letters arranged in an order, like the letters and words that make up a book.

If a spelling change happens in the gene, this can cause a genetic condition, disease or syndrome. Sometimes doctors or scientists refer to spelling changes in genes as a genetic mutation.

Each person has two copies of each gene. One copy is inherited from the mother and the other copy is inherited from the father. When the couple has a child, each parent only passes on one copy of each gene pair. The child then has two copies of each gene (one copy from each parent). This is how certain family traits (such as eye color) or genetic disorders can be passed through generations of a family.

What does Autosomal Dominant Inheritance Mean?

Genetic conditions that show autosomal dominant inheritance are caused by a spelling change in one copy of a particular gene pair. The changed copy of the gene is dominant over the other normal healthy copy of the gene. Having a normal copy of the gene cannot prevent the disease from occurring.

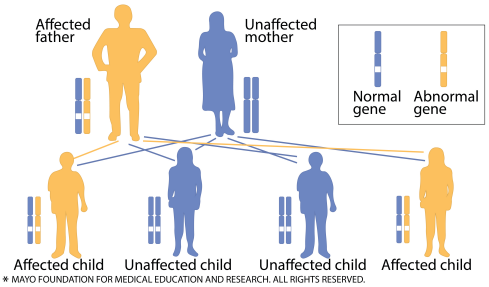
Having Children

The diagram shows two gene pairs, one from a child's father, affected with an autosomal dominantly inherited disease and the other is from a child's unaffected mother. If a parent carries a changed gene for an autosomal dominant condition, each of their children has a 1 in 2 (50%) chance of inheriting the changed gene and being affected by the condition. For each child, regardless of whether they are a boy or girl, the risk is the same.

The diagram also shows how for each pregnancy there is an equal chance that the baby will inherit either the changed gene or the normal, healthy copy of the gene from their affected parent.

Some dominant conditions are known as "late or adult onset disorders". This means they only affect people in adulthood, but the changed gene would have been present in that person since birth.

If a child is diagnosed with an autosomal dominant disease, the parents can be tested for the spelling change as well.



How can autosomal dominant inheritance affect families over generations?

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 a family, some individuals may be affected in different ways by the same autosomal dominant condition. In some families, an isolated case of an autosomal dominant disorder may be the result of a new spelling change (a change which arises for the first time) without either parent having the condition. In these cases, the child could go on to have affected children themselves in the future.

Genetic Testing

A gene test is required to make a diagnosis of an autosomal dominant condition. To arrange this, please see the contact information below.

This informational pamphlet is a project of New Leaf Center - a member of the Plain Community Health Consortium (PCHC)

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Midwest Genetics Network (Okemos, MI) **517-324-8300**
The Community Health Clinic (Topeka, IN) **260-593-0108**
UPMC Children's Hospital of Pittsburgh (Pittsburgh, PA) **412-692-5070**
WeCare Clinic - Medical Care for Special Needs (Pembroke, KY) **270-962-7383**