

For more information:

If you need more advice about any aspect of X-linked inheritance, you are welcome to contact:

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Monday - Friday 9.00 am to 5.00 pm

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

Please let us know if you would like this leaflet in another format (e.g. large print, Braille, audio, British Sign Language video/DVD) or in another language.

Translation and Interpretation Service

Do you have difficulty speaking or understanding English?

আপনি কি ইংরেজিতে বুঝতে কিংবা বুঝাতে পেরেছেন? (BENGALI)

क्या आपको अंग्रेजी बोलने या समझने में कठिनाई है? (HINDI)

તમે ભાષા કારણે વાતચીત કરવામાં મુશ્કેલી આવે છે? (GUJARATI)

ਵਿ ਤੁਹਾਨੂੰ ਅੰਗ੍ਰੇਜ਼ੀ ਬੋਲਣ ਨਾਂ ਸਮਝਣ ਵਿਚ ਦਿੱਕਤ ਹੈ? (PUNJABI)

Miyey ku adagtahay inaad ku hadasho Ingriisida aad sahamto (SOMALI)

هل لديك مشاكل في فهم والتكلم باللغة الانجليزية؟ (ARABIC)

你有困難講英語或明白英語嗎? (CANTONESE)

کیا آپ کو انگریزی سمجھنے اور سمجھانے میں وقت پیش آتی ہے؟ (URDU)

☎ Telephone Number 0161 276 6202/6342

X-linked inheritance

Department of Clinical Genetics

General information

Seen in clinic by(doctor)
and(genetic counsellor)
Telephone number

Last updated Aug 2005: Leaflet 2.1:TIG 56/05



INVESTOR IN PEOPLE



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. Genes lie on tiny structures called chromosomes. Women have two X chromosomes and men have one X and one Y chromosome. The Y chromosome is much smaller than the X chromosome and contains fewer genes.

What does X-linked inheritance mean?

X-linked conditions occur when an altered gene is located on the X chromosome.

If a woman has an altered gene on one of her two X chromosomes, then she will be a healthy carrier. She is healthy because she has a second normal copy of the gene on her other X chromosome.

If a man has an altered gene on his X chromosome, then he will be affected as he has only one X chromosome.

Having children

If a woman carrier has a boy, there is a 50% (1 in 2) risk that the boy will be affected by condition caused by the altered gene that she carries.

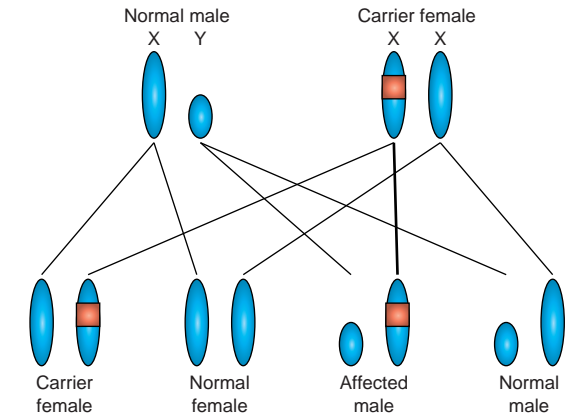
If a woman carrier has a girl, there is a 50% (1 in 2) risk that the girl will inherit the altered gene. If this happens, she will be a healthy carrier, like her mother.

When men who are affected by X-linked conditions have children, all of their daughters inherit the altered gene on their X chromosome. These daughters will all be healthy carriers.

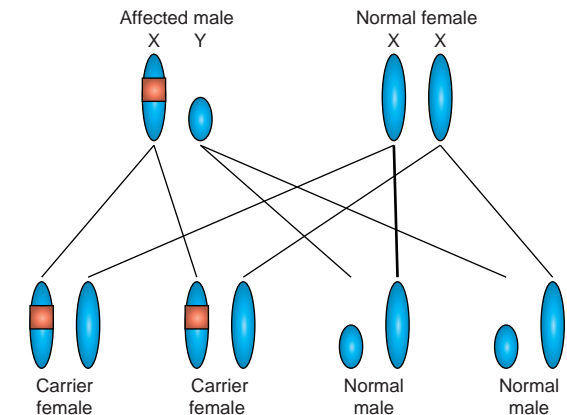
Men do not pass on their X chromosomes to their sons. Therefore, all the sons of men with X-linked conditions are completely normal.

Sometimes boys are born with X-linked conditions even though their mothers are not carriers. When this happens, it is particularly important to get specialist advice about future pregnancies.

X-linked recessive inheritance (A)



X-linked recessive inheritance (B)



■ = Altered gene