What is the cause of XYY?
The usual reason for XYY occurring is that an extra Y chromosome was present in the sperm that fertilised the egg that went on to produce the baby. When sperm are formed, they divide a couple of times and share chromosomes equally among the newly formed cells. Occasionally cells do not divide evenly and chromosomes are not shared as expected. This is a completely random event. It is not caused by being an older parent. There is no known case where anything a parent did or did not do before pregnancy or while they were pregnant caused their baby to have an extra Y chromosome.

Puberty and having children
Puberty is completely normal in XYY boys. Current evidence suggests that XYY men form relationships, settle down and have children at the same age as XY men.

Telling
Deciding when to tell a boy about the extra chromosome is personal, but once a boy is old enough to have children of his own he has a right to know. Many families tell boys in early adolescence. When the time comes, it can be helpful to draw on the expertise of a support group or an expert geneticist. Other professionals who look after your child are usually best told on a need-to-know basis.

Families say ...
... a gentle giant.
... friendly, outgoing and well-liked.
... an incredible memory for his obsessions.
... a fascinating mind, somewhat off-centre.
... like living with a teenager for 15 years.
... when I was told, I was devastated.
... very much a central part of the family, likes to love and be loved.
Tall stature is common, but few boys are as tall as this.

**What is XYY?**

XYY is a genetic variation in which boys and men have an extra Y chromosome. Most cells of our body usually have 46 chromosomes, boys and men with XYY (sometimes called 47,XYY) have an additional Y chromosome. About 90 per cent of people with XYY have the extra Y chromosome in every cell of their body, while about 10% have a mixture of XY and XYY containing cells (this is called mosaic XYY).

**What is a chromosome?**

The human body is made up of many cells and inside most cells is a nucleus that contains the same set of chromosomes. Chromosomes are made from long stretches of DNA that code for our genes. Genes are the instructions that tell our bodies how to grow, develop and function. A typical cell has 46 chromosomes, 22 ‘autosomal’ chromosomes (numbered 1 to 22) and two ‘sex’ chromosomes; girls usually have two X chromosomes and boys usually have one X and one Y.

**How is XYY detected?**

The majority of boys with XYY are not detected. They go through life unaware of their extra Y chromosome. XYY may be discovered by chance during prenatal diagnosis undertaken for an unrelated reason. A chromosome analysis of amniotic fluid will show the extra Y chromosome. A small number of boys are diagnosed by a genetic test during childhood.

**What are the main effects of XYY?**

Most boys and men have:

- Nothing unusual about their appearance, although they are often tall
- No typical medical problems or illnesses
- Intelligence in the usual range. The average IQ is over 100, but some boys may still need extra learning support
- No problems with sex organs or puberty
- Possibly a greater vulnerability to behaviour problems, including hyperactivity
- Possibly, greater vulnerability to stress

**How common is XYY?**

It has been estimated that about one boy in 1000 has an extra Y chromosome. Most do not know they have an extra chromosome.

**Learning**

Boys usually achieve intelligence levels within the normal range. One study of 60 boys showed that their average IQ was 105 and the range was 65 to 129; a more recent study of boys diagnosed during pregnancy showed an IQ range of 100 to 147. Compared with their brothers and sisters, most boys with XYY show a slight drop in IQ, but no more than you would expect from natural variation between members of a family.

**Points to consider**

All children thrive best in a secure, loving and stimulating environment where their needs are recognised and any necessary professional help is provided. This is particularly true of boys with XYY for whom such a home can help to compensate for any immaturities and subtle vulnerabilities they may have.

- **Speech** Most boys with XYY start to talk at the expected age, but speech delay is twice as common as in other boys. A home environment that encourages natural conversation is helpful. With early speech therapy, many boys catch up before starting primary school and by the teenage years the speech delay has resolved for the great majority.

- **Temper tantrums** In some boys there is a tendency for toddler tantrums to be severe and long lasting and parenting techniques of avoiding triggers, diversionary tactics and time out may not work. With maturity and more fluent speech these tantrums do fade and most older boys are no more aggressive than anyone else.

- **School** Boys with XYY usually attend mainstream schools but despite their intelligence they tend to need extra support. Some have a degree of learning difficulty but with early support, most commonly with literacy, continuing problems are unusual.

- **Attention** Boys with XYY are naturally active and some find sitting still to concentrate difficult. They do best in an environment where they can be active.

- **Writing** There is a tendency for some boys to be slow at tasks like drawing, writing and cutting. Most catch up with extra practice at primary school but a few advance faster with help from occupational therapy. Access to keyboards and computers can be helpful for these boys.

- **Socially** Many boys have no social difficulties. A small number are awkward in groups and can seem immature, aloof or anxious. School may be particularly trying for them and families benefit from guidance in behavioural techniques and social skills.

**Stature**

Boys may be unusually tall. From an average length at birth, growth accelerates from age 2 so by puberty boys with XYY are already almost 8 centimetres (three inches) taller than other boys. Final adult height is an average of 188 centimetres (6'2") and some boys are much taller.