

Factsheet 11

Pubertal Induction



SCAN ME

What is puberty?

Puberty is the name given to the changes that occur in a young person's body as they develop from a girl to a woman or from a boy to a man. In most girls and boys these changes happen naturally, starting between the ages of 8 and 13 years in girls and 9 and 14 years in boys.

Females have two small organs inside their abdomen called ovaries which produce the hormone oestrogen. A hormone is a chemical messenger which travels around the body giving instructions for how it should work. As a girl gets older, the amount of oestrogen produced by her ovaries increases and makes her breasts and womb grow and develop and gives her a womanly shape. An egg is released by the ovaries each month and travels into the womb where it can be fertilised by a man's sperm. At the same time, the lining of the womb gets thicker, so if the egg is fertilised, it can attach itself to the wall of the womb and develop into a baby. However, if the egg is not fertilised, this thicker lining of the womb is not needed so it leaves the body as her monthly bleed or "period". This is also called "menstruation".

Why are girls with Turner syndrome different?

The ovaries in girls with Turner Syndrome (TS) may only make small amounts of oestrogen and have very few eggs and so puberty does not usually occur naturally. Most girls with TS need treatment with oestrogen to allow the changes of puberty to occur, a process called "pubertal induction".

Why is pubertal induction important?

Oestrogen is a very important hormone in a woman's body. Although your ovaries may not work, giving oestrogen allows all the other changes of puberty to occur. This means that your breasts will grow and develop and you will grow a bit faster in height. The womb will grow & develop so that if, at some point in the future,

you want doctors to try to help you to have a baby with an egg donated by another woman, your womb will be ready. Oestrogen has other important functions for your future health, keeping the heart and blood vessels healthy, and allowing your bones to accumulate good amounts of calcium to ensure that they are strong and healthy.

What is the best age to induce puberty?

Your doctor will check your growth and development, and may use a blood test to measure your hormones, to see if you are likely to need oestrogen treatment. It is often started at 11-12 years of age; this is the same age as for girls going through puberty naturally.

Oestrogen is started in very low doses which are increased gradually, meaning that you won't start your periods for about 3 years. Although this may seem a long time to wait, it is important for puberty to progress slowly to ensure good breast development and to allow you to grow as tall as possible. If oestrogen is given in high doses too quickly, it may slow your growth too early.

Of course, some girls with TS will not be diagnosed until after they are teenagers, and oestrogen can certainly be started later. The doses may be adjusted by your doctor if you are starting puberty in the teenage years.

Do all girls with TS need oestrogen treatment?

Most girls with TS do not make sufficient oestrogen in their bodies and need oestrogen treatment to progress through and to complete puberty.

About 1 in 10 girls with TS have ovaries which contain eggs and can produce oestrogen. This can be predicted to some extent by testing your genetics and also measuring the hormones communicating with the ovaries (FSH and also AMH). Your Consultant will be able to discuss this with you around the time of puberty.

Alternatively, you may notice that you have started puberty naturally by yourself!

If you start puberty yourself, without the help of oestrogen treatment, sometimes the process stops before you have completed puberty, that is, before you have started your periods. Alternatively, you may find that your periods stop after a few months or years. This may happen when the ovaries are small and can only produce enough oestrogen for a short time. If this happens to you, it is important to tell your Consultant since you are likely to need oestrogen treatment.

When will my breasts begin to develop?

In most girls it will take a few months after starting oestrogen treatment before you see any changes in breast development but it will happen!

It is important that the dose of oestrogen is increased gradually to give your breasts as good a shape as possible. Therefore the process of breast development will be very gradual over a few years.

Why do I still develop pubic hair?

You may notice that you are developing pubic hair despite being told that you need oestrogen treatment to go through puberty. This is because the hormone which causes pubic hair to grow is not oestrogen but a group of hormones called androgens. Androgens are produced in the adrenal glands which are not affected by TS.

How is oestrogen given?

Natural oestrogen may be given via a skin patch (a bit like a sticky plaster), so that the oestrogen is absorbed through the skin. Oestrogen may also be given as a tablet. There are 2 main types of oral oestrogen – natural **oestrogen** and synthetic **ethinyloestradiol**. Although ethinyloestradiol has been used widely in the past in the UK, natural oestrogens are now more widely used. You may want to discuss this with your Consultant to help you to decide which of these is better for you.

The skin patches need to be cut to size when you start oestrogen treatment, usually beginning with ¼ patch which is changed every 3-4 days. It may be applied anywhere below the waist but most girls put it on their bottom covered by their pants. It usually sticks well but can be replaced if it falls off or covered with a small piece of “Opsite” tape, a transparent waterproof tape or “Mefix” tape a white soft adhesive tape. Available from your clinic or GP it can also be purchased online. The dose of oestrogen is increased every 6 months by increasing the fraction of patch used until you reach an adult dose after several years.

Oestrogen tablets also start with a very low dose which is increased gradually, usually every 6 months, until an adult dose is reached.

It is important to be aware that the natural oestrogen products used (both patches and tablets) were designed for older women whose ovaries are no longer working, a process known as the “menopause”. This means that the information leaflet provided gives warnings and advice about their use in women over the age of 50-60 years. Generally, these warnings **do not** apply to girls and women under 50 since their bodies need oestrogen to work well. If you are worried at all, do speak to your doctor since they can give you more explanation and reassurance.

Cut the patch to size...



...peel off the backing foil...



...apply the patch to your skin...



...and you're done - simple!



Will I have periods like my friends?

When the oestrogen dose is high enough, your womb will start to react by thickening its lining every month. It will eventually shed and cause a period. However, if you let the womb thicken and thicken, you may become unwell, so, it is important that you “shed” the lining of your womb regularly, as your period. This means that you need to “add in” another hormone known as progesterone. Progesterone is normally produced for part of each month in women who have periods naturally and helps to regulate their periods.

Progesterone can be started in tablet form as a course for 12-14 days, and when the course of tablets is finished, you may expect to have a period lasting around 3-7 days. Progesterone is usually given together with oestrogen as a combined patch or combined tablet, which is easy to use and gives a regular period.

Do periods hurt?

Periods may give you a sore tummy, especially on the first day of bleeding. Painful periods may happen to any woman, both those with TS and those without. The pain may be eased by medicines such as paracetamol or ibuprofen which you can buy from a supermarket or pharmacist. A warm bath or hot water bottle held over your tummy may also help.

The first few periods can be heavy and uncomfortable but usually improve with time on

regular oestrogen/progesterone treatment. If you are still getting pain you should speak to your doctor who should be able to help.

What happens after pubertal induction?

When you have completed your pubertal development, you may think you do not need to take oestrogen any more. But you **do**! It is important to take oestrogen and progesterone as an adult woman. In fact, you will probably take it until you are around 50 years old.

There are many different products available and you should discuss the options with your Consultant or Endocrine Nurse Specialist. Once again, the use of natural oestrogen is preferred, either as patches or tablets. If you find that one product does not suit you well, it is very easy to change to a different one; it is important that you feel happy with your choice. If you are in a sexual relationship and on treatment with natural oestrogen, you may need to consider protection against a possible unwanted pregnancy particularly if your body went through early puberty naturally. It is important to take your chosen oestrogen product as instructed. If you stop taking your oestrogen treatment, you may not feel unwell but it could have serious effects on your heart, bones and womb, and the success of any future fertility treatment you may be planning.

This factsheet was written by Dr Debbie Matthews, Paediatric Endocrinologist, Newcastle and Arlene Smyth TSSS [UK]

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TURNER SYNDROME



SUPPORT SOCIETY [UK]

**Further information about Turner Syndrome can be obtained from: Arlene Smyth - Executive Officer
Turner Syndrome Support Society (TSSS)**

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