

Preserving fertility in young boys
before chemotherapy / radiotherapy treatment

Testicular Tissue Cryopreservation: Parent / Carer



Testicular Tissue Cryopreservation

Some cancer treatments (chemotherapy and/or radiotherapy) may affect the fertility of young boys and this could prevent them from being able to have children in the future. Standard methods of fertility preservation e.g. sperm freezing are not an option for young boys. However, these young boys can be offered testicular tissue cryopreservation to protect their future fertility.

Frequently Asked Questions about Testicular Tissue Cryopreservation

What is testicular tissue?

The testes are part of the male reproductive system. Boys usually have two testicles that sit in the scrotum. The testes are important because they produce sperm and the hormone testosterone. There are no mature sperm inside young boys' testicles but there are lots of 'sperm stem cells'. These stem cells produce sperm but this doesn't happen until after puberty. The stem cells only work if they are supported by neighbouring cells. Together these cells are the 'testicular tissue' which can be cryopreserved.

What is cryopreservation?

Cryopreservation is a method used to safely preserve human tissue at very low temperatures (approximately -170°C) using liquid nitrogen vapour. Testicular tissue can be preserved in this way. The ultra-low temperature 'cryogenic' freezers can safely preserve the stem cells and neighbouring cells stored in the testicular tissue.

Is testicular tissue cryopreservation successful?

Testicular tissue cryopreservation is a technique that has only recently been introduced into the UK although it has been offered in other centres worldwide for a number of years. It is still a relatively new technology and so is termed 'experimental'. Although the technology has been shown to be successful in animals, to date there have not been any children born using human sperm from cryopreserved testicular tissue. Success rates in humans will become available as young boys with testicular tissue stored reach an age when they are ready to start a family.

How will testicular tissue be collected?

Testicular tissue will be collected during a short surgical procedure performed under general anaesthetic. During the operation, the surgeons will open the scrotal sac and collect a wedge-shaped section (biopsy) from one of the testes. The testicular tissue will be immediately taken by the tissue bank staff to the laboratory where it will be processed and then frozen.

Will this procedure damage the testis?

No – a testicular wedge biopsy is a routine surgical procedure. After the biopsy procedure, both testicles will continue to grow normally.

What happens if you decide to go ahead?

1. Your son's doctor will complete a referral form and send it to the Oxford Tissue Cryopreservation (OTCP) Service. The doctor will also organise for your son to have a blood test to check for the presence of certain viral infections. They will discuss these blood tests with you and your son at the time of referral.
2. Once the referral is accepted, a doctor from the Oxford tissue cryopreservation service will arrange to meet with you and your son to discuss the testicular cryopreservation procedure in detail.
3. If following the discussion you are happy to proceed, the doctor from the Oxford tissue cryopreservation service will explain and help you and your son (if appropriate) to complete all relevant consent forms. These are a requirement of UK legislations. As this is a new service in the UK, there are very strict regulations in place which are carefully monitored by two government agencies – the 'Human Tissue Authority' and the 'Human Fertility and Embryology Authority'.

When your son reaches the age of 18, he will be required to confirm his consent for ongoing storage.

4. The surgeon carrying out the testicular wedge biopsy will arrange to meet with you and your son prior to theatre to ensure you both have an opportunity to ask any questions about the surgery. If any other procedure is required for your son's cancer treatment (such as insertion of a central venous catheter), then the testicular tissue surgery will be organised to be carried out at the same time if possible.
5. At the start of the operation your son will be given a broad spectrum antibiotic to ensure that all surgical wounds are fully healed before starting his cancer treatment.
6. In the majority of cases the surgery is done as a day case and your son will be able to go home on the same day, with simple pain medication such as paracetamol and ibuprofen.
7. As soon as possible after surgery you will receive a procedure summary letter with a copy of the signed testicular tissue cryopreservation consent form. This will give you details about the tissue which has been stored and how you can contact the Oxford tissue cryopreservation service.

What will happen if your son wants to use his tissue in the future?

If at some stage in the future your son decides he wishes to use his stored testicular tissue, he will need to contact the tissue bank as detailed in the procedure summary letter. He will then be offered an appointment to meet with one of the senior medical staff working with the Oxford Tissue Cryopreservation service to discuss the most appropriate treatment options. This may involve re-implantation of some of the stored testicular tissue or there may be other options available at the time. Any future procedures will be fully discussed along with a separate consent process for any use of tissue.

Is there a risk that the stored testicular tissue could contain cancer cells?

Some cancers such as leukaemia and lymphoma have a higher risk of cancer cell contamination than others (such as solid tumours). The testicular tissue collected will be screened for cancer cells by standard histopathology methods prior to storage. If your son subsequently wishes to consider using the stored tissue, a sample would first be rigorously tested using the most advanced techniques available to detect the presence of micro-metastatic cancer cells. The options for how your son's tissue would be used in the future will depend upon ongoing research and development and would be discussed in detail with him at the time.

What will happen when your son no longer requires his tissue?

The consent form that you will be asked to sign before the tissue is collected will confirm all relevant options in detail. The tissue stored will be for your son's use only; it can never be used for any other patient. When your son no longer requires the tissue it will either be destroyed by incineration or, if you / he wishes, it will be used for ethically approved research. You and your son (if appropriate) will have the opportunity to discuss this in detail when you meet with the doctor from the Oxford tissue cryopreservation service.

If you have further questions or would like more details, please contact us

Please call:

01865 220 076 (24 hours)

Or write to:

Oxford Tissue Cryopreservation Service

Oxford Heart Valve Bank
Level 0, Oxford Heart Centre
John Radcliffe Hospital
Oxford OX3 9DU

**Lead Consultant for Oxford Tissue
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If you have a specific requirement, need an interpreter, a document in Easy Read, another language, large print, Braille or audio version, please call **01865 221 473** or email **PALSJR@ouh.nhs.uk**

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