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# Fertility in girls after chemo and radiotherapy



A brief guide by Anja-Borgmann-Staudt, published by the Berliner Krebsgesellschaft e. V. ©

Dear Patient,

As you know, you have a serious illness, which can be cured in most cases. Unfortunately, during your treatment healthy cells can be destroyed alongside cancer cells. For some patients that means that they won't be able to have children. Although cancer treatments may reduce your fertility, there are different medical ways we can still help you to have children one day. This leaflet explains about fertility after cancer treatment and what the options are for protecting your fertility.

## Measures to preserve fertility

It is possible to remove and freeze eggs, or a sample of tissue from your ovary, before you start chemo or radiotherapy. These can then be thawed and used at a later date, if you want to have children, and haven't been able to get pregnant naturally. Whether we freeze eggs or ovarian tissue will depend on whether you've reached puberty or not.

## During and after puberty

One possibility is to take and freeze eggs from your ovaries before your treatment starts. Before we do this, you will need to take hormones for about 14 days. We can start this at any point in your monthly cycle. Whether the start of your cancer treatment can be delayed by 14 days will depend on the type of cancer you have, and will have to be discussed with the doctors treating you. After you've recovered, your eggs can be thawed and artificially fertilised, when you want to have children. There's a 30%–50% chance of achieving a successful pregnancy like this, although it often takes several attempts.

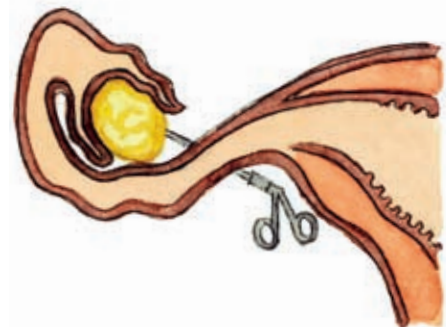


Figure 1 taking a sample of ovarian tissue



The other option is to remove and freeze a sample of tissue from your ovary, containing mature eggs, before your treatment begins (biopsy, figure 1). This can later be thawed and transplanted back into your ovary. We would only do this when you actually want to have children, as we don't yet know how long re-transplanted tissue will continue to work inside the body. The re-transplantation of ovarian tissue will also mean you can start producing hormones again. However, this procedure requires keyhole surgery, and isn't yet routine.

Do be aware though, especially if you have leukaemia or non-Hodgkin's lymphoma, there may be malignant (cancer) cells in the ovary tissue we take. In this case, instead of transplanting the tissue sample, we would consider using individual eggs for artificial fertilisation.

## Before and after puberty

If you need to have radiotherapy of your pelvis, you can have an operation to reposition your ovaries away from the path of the radiotherapy treatment, before the treatment starts. There are some risks to this operation and later complications can also arise, such as reduced blood supply to the ovaries. Before the ovaries are returned to their original position, we will need to consider whether further radiotherapy of the pelvis is likely, and whether the temporary position we've put your ovaries in, is one that is likely to keep them working well. This can be monitored with ultrasound scans.

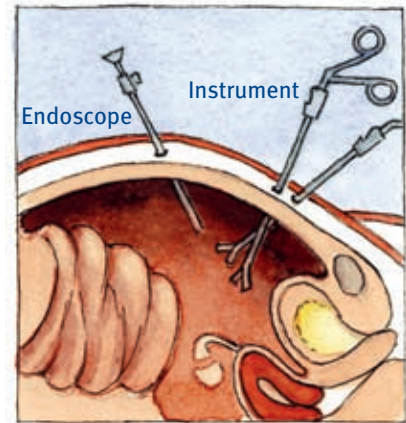


Figure 2 shows keyhole surgery to reposition the ovaries.

## Before puberty

Before puberty, we can take and freeze ovarian tissue containing immature eggs. But this is an experimental procedure, as we are still researching ways to get the eggs to mature. Even so, some hospitals can offer this experimental treatment to girls who are at particularly high risk of reduced fertility, as the tissue samples can easily be stored for a long time.

If you have the following risk factors, the chances of your fertility being reduced are so high that it's worth considering even experimental approaches to preserving your fertility.

- Radiotherapy of the pelvis of around 10 Gray or more to the ovaries, if the pelvic area is affected by cancer, or sometimes if you have radiotherapy of the spinal cord, as part of brain tumour treatment.
- Whole body radiotherapy (total body irradiation) of around 10 Gray or more, previous to a stem cell transplant.
- Busulfan chemotherapy, from a dose of about 14 mg/kg of body weight, as part of a stem cell transplant.

You can find more information about fertility after cancer treatment in our booklet about fertility in girls after chemo and radiotherapy, or on our website:

[https://kinderonkologie.charite.de/en/research/borgmann\\_staudt\\_group/](https://kinderonkologie.charite.de/en/research/borgmann_staudt_group/)

We wish you all the best!

Do you understand the possible risks to your fertility and the options for preserving it?

- Yes                       No, I've got more questions

Ask your doctor to fill in below whether you are at low, medium or high risk of reduced fertility (see also our detailed booklet).

- high risk                       medium risk                       low risk

In consultation with your parents and doctors, would you like to take steps to preserve your fertility before your treatment?

- Yes                       No