

In this article...

- How different cancer treatments affect sexual function and sexuality
- Physical, psychosocial and psychosexual side-effects of cancer treatment
- How health professionals can support patients, including using an intervention model

Sexual effects of cancer: people born with female reproductive organs



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Key points

People affected by cancer want health professionals to talk to them about sexual problems

Radiotherapy can reduce sexual wellbeing, due to altered body sensation, body image or physical changes

The side-effects of chemotherapy can reduce sexual desire and, in some cases, induce menopause

Surgery for some cancer types can affect sexual function, arousal and orgasm

Hormone therapies can cause menopausal symptoms, thereby reducing sexuality

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Abstract When given for a variety of cancer types, many cancer treatments – including radiotherapy, chemotherapy, surgery and hormone therapy – have a negative effect on sexual wellbeing. This is due to both physical and psychosocial aspects of a patient's cancer journey. This article – the first in a two-part series exploring the sexual side-effects of cancer treatment – discusses these issues in women and people born with female reproductive organs. It highlights the need for open communication and comprehensive support, as well as varying levels of intervention depending on patients' individual needs.

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Sexual difficulties are a common consequence of cancer diagnoses and treatments, and can affect a person's sexual function, sexual relationships and identity. This will be explored in this two-part series. This first article will discuss the sexual health needs of women and people born with female reproductive organs (transgender men and people who are non-binary, gender-fluid or intersex) following a cancer diagnosis. The second article will explore these issues among men and people born with male reproductive organs.

Physical changes can occur as a direct result of some cancer types, especially those of the reproductive system and pelvis. Sexual difficulties can also be an indirect consequence of treatment; these include physiological changes, such as treatment-induced menopause, and psychological impacts, such as altered body image, low mood and relationship changes.

Sexual wellbeing is a component of care that is often overlooked by health professionals. Clinicians are hesitant to raise the

topic, due to fear of embarrassment or lack of knowledge about how to resolve the problem (Butcher et al, 2016; Gilbert et al, 2016). This avoidance may be more common for patients from the LGBTQ+ community, due to knowledge gaps and fear of using the wrong terminology or not getting it right (Ussher et al, 2023a; Ussher et al, 2023b; Perz et al, 2014). However, Barbera et al (2016) identified that people affected by cancer want clinicians to raise the topic of sexual health and dysfunction, to give them permission to talk about these sensitive issues. By listening to such concerns, health professionals can reassure patients that:

- They are not alone in their experiences;
- It is common for sexual function, sexual identity and sexual relationship(s) to be affected by cancer and its treatment.

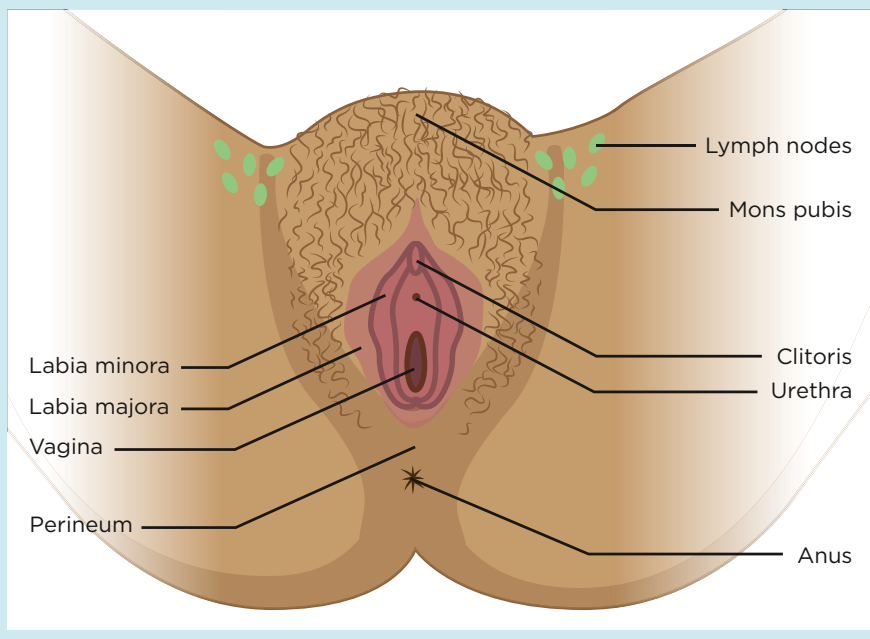
Treatment types

Radiotherapy

Radiotherapy is used to treat many different cancer types. It can be used alone or in conjunction with other treatments, and can be delivered:

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Fig 1. The vulva and surrounding structures



- Externally – known as external-beam radiotherapy (EBRT);
- Internally – via brachytherapy or interstitially with needles.

The aim of treatment is to deliver radiation to cancer cells to kill them; however, due to radiation exposure, the treatment can also damage healthy tissue in or near the treatment field. This damage may be temporary during treatment or persist into long-term side-effects. It may even develop several years after treatment.

Pelvic cancers – such as those of the endometrium, cervix, vagina, vulva, rectum, anus and urethra (Fig 1) – can be treated with EBRT and/or internal radiotherapy. These treatments (particularly internal radiotherapy) can cause tissue damage, resulting in:

- Fibrosis and adhesions;
- Vaginal stenosis and shortening of the vagina;
- Vaginal dryness;
- Damage to anal tissue;
- Reduced oestrogen levels;
- Menopause (in people who are not post-menopausal or female hormone-suppressed) (Pelvic Radiation Disease Association (PRDA), 2022).

These changes can affect sexual function, causing reduced desire, dyspareunia and orgasm changes. In some cases, vaginal or anal penetration may be impossible.

The PRDA's (2022) best-practice pathway provides guidance on the management of these side-effects and changes. This includes the importance of access to

support and approaches to the prevention of late consequences; for example, the use of vaginal dilators may be suggested to maintain vaginal patency and prevent vaginal stenosis.

Consideration should also be given to the impact of radiotherapy on trans men who have had gender-affirming surgery. Although radiotherapy will be planned to try to avoid the person's penis, if they still have a vagina they may experience the damage described above and need appropriate specialist support.

Other side-effects of radiotherapy include damage to the bladder or bowel. This could lead to incontinence, causing people to avoid intimacy due to fear of leaking urine or faeces. This is dependent on the site of both the cancer and the healthy tissues surrounding the site that are treated with radiotherapy (PRDA, 2022).

Lymphoedema, especially of the pubic and upper-leg regions, can also cause difficulties for patients: the physical restriction, sensation changes and skin irritation it causes can negatively affect sexual function (Harris, 2019).

Radiotherapy for other cancer types can also cause sexual difficulties. Tissue damage caused by such treatment for throat and oral cancers can affect function and enjoyment of oral sex (Hoole et al, 2015). Radiotherapy for brain, bowel or breast cancers can also cause changes to a person's sexual wellbeing, due to altered body sensation, body image or physical changes (Dizon et al, 2014).

Chemotherapy

The impact of chemotherapy on sexuality tends to be more transitional and indirect. Side-effects such as nausea, poor appetite, fatigue, neuropathy, sore mouth and pain can have a negative effect on sexual desire and the willingness to be sexual. For some patients, managing day-to-day challenges can take priority over sexual intimacy.

Once chemotherapy is completed, many people's sexuality returns to how it was before treatment. For others, the effects may continue, along with the psychological distress caused by their disease and treatment. This may be related to their experiences during treatment – for example, the need for barrier contraception while undergoing chemotherapy. It may also be related to myths or concerns about their risk of infection or their cancer being contagious (Macmillan Cancer Support, 2019a).

In some cases, chemotherapy drugs can damage the ovaries, inducing menopausal symptoms or menopause; this may be temporary or permanent. A study by Duijts et al (2011) highlighted that people with treatment-induced menopausal symptoms described the sudden onset of these as distressing, and many needed specialist input to address concerns. Loss of fertility can also have an impact on self-image, sexuality and relationships (Macmillan Cancer Support, 2019a). The impact of treatment-induced menopause is discussed further below.

Surgery

The aim of surgery is to remove the tumour and any surrounding areas that may be affected, while preserving healthy tissue and structures nearby. Surgery not only creates anatomical changes, but can also alter nerve and blood supply to various parts of the body (Macmillan Cancer Support, 2017). The site and extent of the surgery have the potential to affect sexual function, arousal and orgasm (Vaidakis et al, 2014).

Removal of reproductive or sexual organs does not always lead to negative sexual outcomes; it can improve some people's sex lives, for example by removing a bulky tumour in the cervix or uterus. However, if surgery includes removal of clitoral or vaginal tissue, it does directly affect sexual function. Side-effects can include dryness, itching or soreness affecting the inner or outer genital tissue. Penetrative sexual activity may become painful, and patients may feel that their vagina is no longer open or is blocked; this



can be caused by both physical changes and psychological affects (Cleary and Hegarty, 2011).

Surgery for breast cancer is varied and may involve removal of some or all of the breast tissue. It may include breast reconstruction; if so, this can be immediate or delayed. These treatments can influence how a person feels about themselves as a sexual person, for reasons including:

- The cosmetic outcome;
- Altered sensation;
- Altered body image (Macmillan Cancer Support, 2019b).

Surgery for breast cancer can include lymph node removal and/or cause lymphoedema. These both result in reduced lymphatic drainage and swelling of the affected tissues, which can negatively affect body image and sexuality (Harris, 2019).

Surgery for urological or colorectal cancers may require formation of a stoma to allow for removal of bodily waste. This usually results in the use of a colostomy bag worn on the abdomen. This can negatively affect sexuality, due to altered body

“Surgery for oral and throat cancers is likely to affect a person’s ability to kiss and perform oral sex”

image and fear of leakage during sexual activity (Sörensson et al, 2020).

Surgery for oral and throat cancers is likely to affect a person’s ability to kiss and perform oral sex. This is multifactorial, and causes may include:

- Disrupted saliva production;
- Altered function of the tongue, lips and/or swallow;
- Disfigurement.

This may be prohibitive for both the person affected and their partner(s) (Hoole et al, 2015).

People who have had surgery for lung cancer may experience shortness of breath. This can hinder and/or cause concerns about physical exertion during sexual activity, due to possible increased breathlessness, and often results in people avoiding sexual activity (Lindau et al, 2011).

It is important to remember that surgery for any cancer type can affect how a person experiences themselves. They may experience any of the following, all of which can affect psychological and physical ability, and their intimate lives:

- Scarring;
- Loss of limbs through amputation;
- Altered body function, including speech, motor skills and/or tracheostomy.

Hormone therapy

Breast, endometrial and ovarian cancers can be hormone sensitive. Medication can, therefore, be given to reduce or stop hormone production as a cancer treatment. It can also prevent recurrence of the cancer, and may be needed for several years after the initial cancer treatment (Cancer Research UK, 2024). Suppressing oestrogen leads to menopausal symptoms. This, in turn, reduces sexual function and sexuality (Seav et al, 2015; Vaidakis et al, 2014).

People taking gender-affirming hormones may need to stop taking them,

Box 1. How to support patients

- Consider your own values and beliefs about sexuality, and notice and reflect on any barriers to approaching this topic
- Explore patients' concerns using non-judgemental language and compassionate communication by actively listening; myths and misconceptions can perpetuate sexual problems that can be alleviated by being explored
- Language is important; where possible, try to explore the terms the patient uses to clarify their concern
- Seek to understand the patient's level of distress and whether it is related to a sexual problem, how they feel about their relationship or their body
- Increase your knowledge on the subject by reading and participating in continuing professional development events
- Use a framework to help guide you, for example, Annon's (1976) PLISSIT model (Table 1), which highlights different intervention levels for individual patients (Holmes et al, 2015)
- Expand your knowledge of gender, sexual and relationship diversity to increase your confidence in approaching this component of care that is often missed (Ussher et al, 2023a)
- Avoid assumptions about how a patient identifies
- Work in partnership with patients
- In line with the Nursing and Midwifery Council's (2018) code, "prioritise people"
- Do not expect to know everything: ask for help and advice
- Signpost patients to literature and support groups – the NHS and many cancer charities have excellent resources
- Consider further training in this specialist area, either through the College of Sexual and Relationship Therapists or the Institute of Psychosexual Medicine

depending on the risk of recurrence in certain cancer types. The cancer team needs to explore this with individual patients (Ussher et al, 2023b).

Cancer sites

Cancers of the reproductive organs

Women and people born with female reproductive organs who are affected by a cancer of the uterus, fallopian tubes, ovaries, cervix or vulva have higher rates of psychosexual problems than people with other cancer types (Logue et al, 2020). This is because the treatments discussed above can change the function and feel of the outer (vulva, labia, clitoris) and inner (vagina and clitoral tissue) sexual organs (Fig 1). These effects can be short or long term.

A considerable impact can be felt due to misunderstandings or myths about what cancer treatment has caused, removed or mutilated. For example, in our shared clinical experience, we have met patients with a range of misapprehensions after surgery, such as that:

- Their vagina has been sewn up and they can no longer have penetrative sex;
- A sex toy might now get 'lost' in their vagina.

These psychosocial changes can interfere with people feeling able to enjoy sexual pleasure and/or have an orgasm, which can often cause them to feel frustrated and sad

(Macmillan Cancer Support, 2019a). It may be helpful to provide patients with information about the type of treatment they are undergoing to help them understand it. We also think this is an area that needs further research.

Bowel cancer

People who have been treated for bowel cancer may feel embarrassed about a lack of control over their bodily functions. For example, passing wind or needing to open their bowels urgently can interfere with someone's willingness to engage in sexual activity or ability to enjoy sexual pleasure (Sörensson et al, 2020).

Having a colostomy bag after surgery can also contribute to issues with sexual activity. For example, people may:

- Be concerned that the bag will leak, expand or smell unpleasant;
- Feel uncomfortable in certain sexual positions.

There are products available that can be used to support people. Stoma caps and adapted underwear can increase people's confidence and help them readjust to being able to see themselves as a sexual person.

Urological cancers

Urological cancers include bladder and kidney cancer. After treatment for these cancer types, patients may need to have a

catheter or a nephrostomy (which drains urine from the kidney through an opening in the back), either temporarily or on a permanent basis. As well as causing physical changes, these tubes can have psychological impacts. Similar to a stoma or surgical scars, people can become disconnected from their bodily sensations, which can limit or interfere with sexual pleasure. They may also feel concerned about leaking urine during sexual activity; the potential embarrassment this could cause can negatively affect their interest in, or willingness to engage in, sexual activity (Bladder and Bowel Community, 2021).

Breast cancer

Breast cancer is the most common cancer among women in the UK, with one in seven women diagnosed in their lifetime (Cancer Research UK, nd). Treatments cause changes to the breast tissue that can affect the way it looks and feels. This has the potential to affect a person's sense of sexual identity and ability to see themselves as a sexual person. For some, this will also relate to a feeling that they are losing their feminine identity; this can be exacerbated by hair loss and weight changes, which can be caused by cancer treatments (Perz et al, 2014).

Other cancers and considerations

There are many other cancer types that can affect a person's sexual life. This includes brain tumours or brain metastases, which can affect a person's personality. Head and neck cancers may affect a person's ability to kiss or perform oral sex, due to changes in their saliva, disrupted taste or function of the mouth (Hoole et al, 2015).

People who experience treatment-induced menopause (due to surgery or hormone therapy) can experience a rapid onset of symptoms and decline in their interest in sex. Genito-urinary symptoms of menopause – including vaginal dryness, pain and irritation – can be difficult to manage. They may require specialist input, especially in the context of hormone-sensitive cancers (Merlino et al, 2023; Harris, 2019).

Psychosocial effects

The changes a person experiences to their body and, more broadly, their life can affect how comfortable they feel in their own body; this is sometimes described as body image. Often people find these changes to their body image influence how they see themselves as a sexual person; this is known as their sexual

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Table 1. PLISSIT model of levels of intervention

	Level of intervention	Action
P	Permission	<ul style="list-style-type: none"> Raising the topic, so the patient knows that sex and sexuality are open topics, and they can discuss their sexual concerns or difficulties with their health professional if they wish
LI	Limited information	<ul style="list-style-type: none"> Giving information and advice about the impact of treatment on sexual function Helping the patient make informed choices about their proposed treatment
SS	Specific suggestions	<ul style="list-style-type: none"> Providing specific suggestions to help the patient engage in satisfying sexual activity by addressing their specific concerns, for example, suggesting use of lubrication for intercourse or use of vaginal dilators; this may involve taking a sexual history to understand the patient's issues
IT	Intensive therapy	<ul style="list-style-type: none"> Referring the patient to a specialist when adequate progress is not being made at the other levels and more in-depth therapy is needed

Source: Annon (1976)

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identity (Gianotten and Reisman, 2017). These changes can negatively affect their sexual relationship(s), as they can sometimes no longer feel desirable. This can lead to them avoiding being intimate with themselves or their partner(s), due to a lack of interest in sexual pleasure (Ussher et al, 2015).

Relationship difficulties are common following a cancer diagnosis, due to the disruption of social factors caused by the cancer journey. For example, for some people, role changes at home or financial difficulties affect both them and their relationship(s). For others, fear of starting a new relationship can cause them to feel distressed about engaging with potential sexual partners or to switch off from sexual feelings (Schover, 2019).

It is common for people affected by cancer to experience depression and/or anxiety, due to the significant life event of having a cancer diagnosis (Macmillan Cancer Support, 2019a). Some will require medical input, for example, antidepressants. Some of these treatments can interfere with people's sexual drive, interest or satisfaction (NHS, 2021).

Health professionals should also consider the fertility of women affected by cancer, regardless of:

- Their age;
- Whether they have biological children;
- Whether they identify as a member of the LGBTQ+ community.

People can be affected by the loss of their fertility at any age, and the psychological impact can influence their interest in sex (Gianotten and Reisman, 2017).

Box 1 lists ways to support patients with sexual symptoms and treatment side-effects.

Conclusion

This article has discussed the cancer types and treatments that have the potential to affect patients' sexual wellbeing. This includes both the physical and psychosocial elements, due to the multifaceted issues that can lead to sexual dysfunction and distress. The article has explored awareness of – and practical information about – these issues, as well as outlining suggestions on how health professionals can help patients with these concerns. The intention is to empower health professionals to address the sexual concerns of women and people born with female reproductive organs who are affected by cancer. **NT**

- The second article in this series will explore the sexual side-effects of cancer treatment in men and people born with male reproductive organs.

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