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# About Endometrial Cancer

## Overview and Types

If you've been diagnosed with endometrial cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- [What Is Endometrial Cancer?](#)

## Research and Statistics

See the latest estimates for new cases of endometrial cancer and deaths in the US and what research is currently being done.

- [Key Statistics for Endometrial Cancer](#)
  - [What's New in Endometrial Cancer Research?](#)
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# What Is Endometrial Cancer?

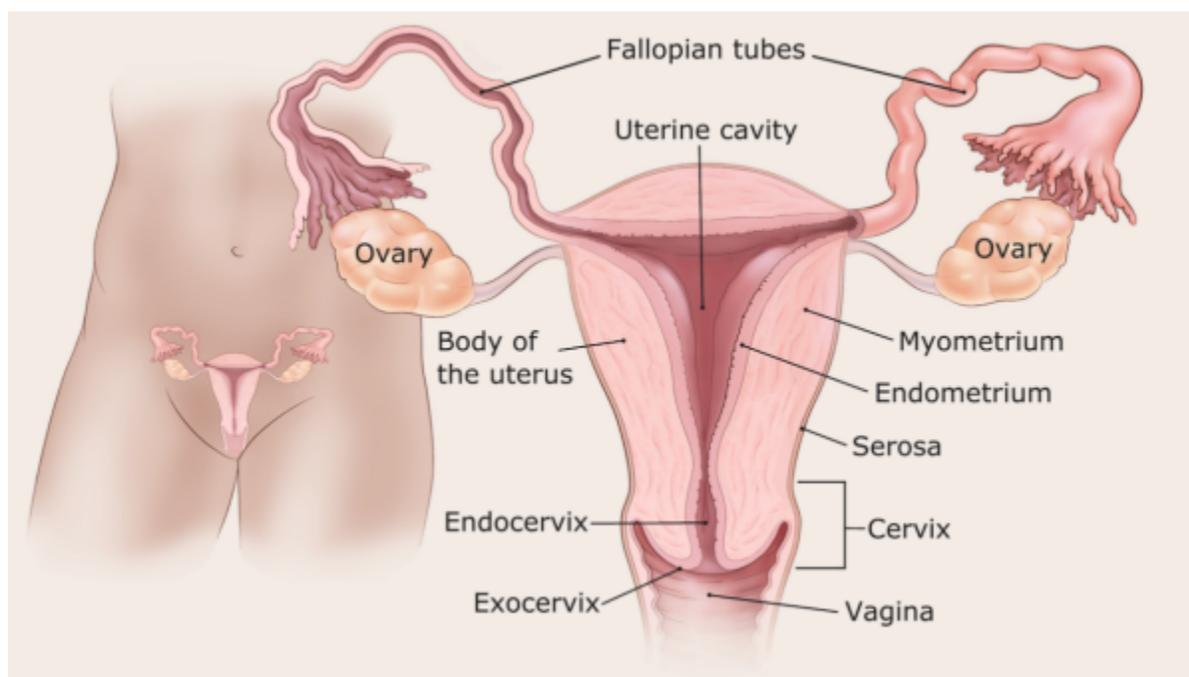
Endometrial cancer starts when cells in the endometrium (the inner lining of the uterus) start to grow out of control. Cells in nearly any part of the body can become cancer, and can spread to other parts of the body. To learn more about how cancers start and spread, see [What Is Cancer?](#)<sup>1</sup>

## About the uterus and endometrium

The uterus is a hollow organ, normally about the size and shape of a medium-sized pear. The uterus is where a fetus grows and develops when a woman is pregnant. It has 2 main parts (see image below):

- The upper part of the uterus is called the *body* or the *corpus*. (*Corpus* is the Latin word for body.)
- The *cervix* is the lower end of the uterus that joins it to the vagina.

When people talk about cancer of the uterus, they usually mean cancers that start in the body of the uterus, not the cervix. ([Cervical cancer](#)<sup>2</sup> is a separate kind of cancer.)



The body of the uterus has 2 main layers:

- The **myometrium** is the outer layer. This thick layer of muscle is needed to push the baby out during birth.
- The **endometrium** is the inner layer. During a woman's menstrual cycle, hormones cause the endometrium to change. Estrogen causes the endometrium to thicken so that it could nourish an embryo if pregnancy occurs. If there is no pregnancy, estrogen is produced in lower amounts and more of the hormone called *progesterone* is made. This causes the endometrial lining to shed from the uterus and become the menstrual flow (period). This cycle repeats until menopause.

There is also a layer of tissue called the **serosa** which coats the outside of the uterus.

## Types of endometrial cancer

Endometrial cancer (also called *endometrial carcinoma*) starts in the cells of the inner lining of the uterus (the endometrium). This is the most common type of cancer in the uterus

Endometrial carcinomas can be divided into different types based on how the cells look under the microscope. (These are called **histologic types**.) They include:

- Adenocarcinoma (most endometrial cancers are a type of adenocarcinoma called endometrioid cancer -- see below)
- Uterine carcinosarcoma or CS (covered below in the grading section)
- Squamous cell carcinoma
- Small cell carcinoma
- Transitional carcinoma
- Serous carcinoma

**Clear-cell carcinoma, mucinous adenocarcinoma, undifferentiated carcinoma, dedifferentiated carcinoma, and serous adenocarcinoma** are less common types of endometrial adenocarcinomas. They tend to grow and spread faster than most types of endometrial cancer. They often have spread outside the uterus by the time they're diagnosed.

## Endometrioid cancer

Most endometrial cancers are adenocarcinomas, and endometrioid cancer is the most common type of adenocarcinoma, by far. Endometrioid cancers start in gland cells and look a lot like the normal uterine lining (endometrium). Some of these cancers have squamous cells (squamous cells are flat, thin cells), as well as glandular cells.

There are many variants (or sub-types) of endometrioid cancers including:

- Adenocarcinoma, (with squamous differentiation)
- Adenoacanthoma
- Adenosquamous (or mixed cell)
- Secretory carcinoma
- Ciliated carcinoma

- Villoglandular adenocarcinoma

## Grading endometrial cancer

The **grade** of an endometrial cancer is based on how much the cancer cells are organized into glands that look like the glands found in a normal, healthy endometrium.

In **lower-grade cancers (grades 1 and 2)**, more of the cancer cells form glands. In **higher-grade cancers (grade 3)**, more of the cancer cells are disorganized and do not form glands.

- **Grade 1** tumors have 95% or more of the cancer tissue forming glands.
- **Grade 2** tumors have between 50% and 94% of the cancer tissue forming glands.
- **Grade 3** tumors have less than half of the cancer tissue forming glands. Grade 3 cancers tend to be aggressive (they grow and spread fast) and have a worse outlook than lower-grade cancers.

**Grades 1 and 2 endometrioid cancers are type 1 endometrial cancers.** Type 1 cancers are usually not very aggressive and they don't spread to other tissues quickly. Type 1 endometrial cancers are thought to be caused by too much estrogen. They sometimes develop from atypical hyperplasia, an abnormal overgrowth of cells in the endometrium. (See [Endometrial Cancer Risk Factors](#)<sup>3</sup> for more on this.)

A small number of endometrial cancers are **type 2 endometrial cancer**. Type 2 cancers are more likely to grow and spread outside the uterus, they have a poorer outlook (than type 1 cancers). Doctors tend to treat these cancers more aggressively. They don't seem to be caused by too much estrogen. Type 2 cancers include all endometrial carcinomas that aren't type 1, such as papillary serous carcinoma, clear-cell carcinoma, undifferentiated carcinoma, and grade 3 endometrioid carcinoma. These cancers don't look at all like normal endometrium and so are called **poorly differentiated** or **high-grade**.

**Uterine carcinosarcoma** (CS) starts in the endometrium and has features of both endometrial carcinoma and sarcoma. (The sarcoma is cancer that starts in muscle cells of the uterus.) In the past, CS was considered a different type of uterine cancer called *uterine sarcoma* (see below), but doctors now believe that CS is an endometrial carcinoma that's so abnormal it no longer looks much like the cells it came from (it's poorly differentiated).

Uterine CS is a type 2 endometrial carcinoma. CS tumors are also known as *malignant mixed mesodermal tumors* or *malignant mixed mullerian tumors* (MMMTs). They make up about 3% of uterine cancers.

## Other types of cancer in the uterus

**Uterine sarcomas** start in the muscle layer (myometrium) or supporting connective tissue of the uterus. These include uterine leiomyosarcomas and endometrial stromal sarcomas. These cancers are not covered here, but are discussed in detail in [Uterine Sarcoma](#)<sup>4</sup>.

Cancers that start in the cervix and then spread to the uterus are different from cancers that start in the body of the uterus. They're described in [Cervical Cancer](#)<sup>5</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/cancer-basics/what-is-cancer.html](http://www.cancer.org/cancer/cancer-basics/what-is-cancer.html)
2. [www.cancer.org/cancer/cervical-cancer.html](http://www.cancer.org/cancer/cervical-cancer.html)
3. [www.cancer.org/cancer/endometrial-cancer/causes-risks-prevention/risk-factors.html](http://www.cancer.org/cancer/endometrial-cancer/causes-risks-prevention/risk-factors.html)
4. [www.cancer.org/cancer/uterine-sarcoma.html](http://www.cancer.org/cancer/uterine-sarcoma.html)
5. [www.cancer.org/cancer/cervical-cancer.html](http://www.cancer.org/cancer/cervical-cancer.html)

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See all references for Endometrial Cancer [www.cancer.org/cancer/endometrial-](http://www.cancer.org/cancer/endometrial-)

[cancer/references.html](#))

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## Key Statistics for Endometrial Cancer

### How common is endometrial cancer?

In the United States, cancer of the endometrium (the lining of the uterus) is the most common cancer of the female reproductive organs. The American Cancer Society estimates for cancer of the uterus in the United States for 2021 are:

- About 66,570 new cases of cancer of the body of the uterus (uterine body or corpus) will be diagnosed.
- About 12,940 women will die from cancers of the uterine body.

These estimates include both endometrial cancers and [uterine sarcomas](#)<sup>1</sup>. Up to 10% of uterine body cancers are sarcomas, so the actual numbers for endometrial cancer cases and deaths are slightly lower than these estimates.

### Lifetime chance of getting endometrial cancer

Endometrial cancer affects mainly post-menopausal women. The average age of women diagnosed with endometrial cancer is 60. It's uncommon in women under the age of 45.

This cancer is slightly more common in white women, but Black women are more likely to die from it.

There are more than 600,000 survivors of endometrial cancer in the US today.

Visit the American Cancer Society's [Cancer Statistics Center](#)<sup>2</sup> for more key statistics.

### Hyperlinks

1. [www.cancer.org/cancer/uterine-sarcoma/about/what-is-uterine-sarcoma.html](http://www.cancer.org/cancer/uterine-sarcoma/about/what-is-uterine-sarcoma.html)
2. [cancerstatisticscenter.cancer.org/](http://cancerstatisticscenter.cancer.org/)

## References

American Cancer Society. *Facts & Figures 2021*. American Cancer Society. Atlanta, Ga. 2021.

See all references for Endometrial Cancer ([www.cancer.org/cancer/endometrial-cancer/references.html](http://www.cancer.org/cancer/endometrial-cancer/references.html))

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# What's New in Endometrial Cancer Research?

Research on endometrial cancer prevention, early detection, and treatment is being done in medical centers around the world.

Endometrial cancer is usually found early, when it's small and easiest to treat. But advanced endometrial is less common and has been hard to study well. Most experts agree that treatment in a [clinical trial](#)<sup>1</sup> should be considered for any type or stage of endometrial cancer. This way women can get the best treatment available now and may also get the treatments that are thought to be even better. Many of the new and promising treatments discussed here are only available in clinical trials.

## Gene changes

For years we have known that damaged or defective DNA (DNA mutations) can change key [genes](#)<sup>2</sup> that control cell growth. If these genes are damaged, out-of-control growth may result in cancer. Scientists are learning more about how certain genes called [oncogenes and tumor suppressor genes](#)<sup>3</sup> control cell growth and how changes in these genes cause normal endometrial cells to become cancer.

Sometimes, endometrial cancer and [colon cancer](#)<sup>4</sup> may seem to “run in a family.” We now know that some of these families have a higher risk for these cancers because they have an inherited defect in certain genes that normally help repair damage to DNA. If these repair enzymes aren't working properly, damage to DNA is more likely to persist and cause cancer.

DNA repair defects like this have also been found in endometrial cancer cells from women who haven't inherited them.

One of the normal genes responsible for suppressing tumor growth, called *PTEN*, is often abnormal in endometrial cancers. And we know that endometrial cancers without other tumor suppressor genes (or with inactive ones), like the *KRAS* and the *TP53* gene, tend to be more likely to come back after initial treatment. Tests for these and other DNA changes may someday be used to help predict how fast the cancer might grow and spread. This will help doctors choose the best treatment for each woman with this disease.

### **Early detection**

Studies are looking for ways to find endometrial cancer early -- before a woman has symptoms. Researchers are looking for DNA changes in endometrial cancer cells. Tests for these changes may someday help [find endometrial cancers early](#)<sup>5</sup>.

### **Prevention**

As doctors have learned more about the [risk factors for endometrial cancer](#)<sup>6</sup>, they've begun looking for ways to help prevent it. For instance, being overweight is known to put a woman at higher risk. Studies are being done to find out if these women can benefit from prevention therapies. One study is looking at whether routine screening with endometrial biopsies might be useful in finding cell changes so they can be treated before they become cancer. Another is looking at whether a hormone-releasing IUD might help prevent endometrial cancer in these women.

Hormone therapy and a diabetes drug called metformin are also being studied for endometrial cancer prevention. These are discussed below.

### **New drug treatments**

New drugs, new combinations of drugs, chemotherapy drugs, immunotherapies, and targeted therapies are being researched for use in women with advanced endometrial

cancer. The use of chemotherapy, with or without radiation after surgery is also being studied.

## Metformin

Metformin is a drug used to help control blood sugar in people with diabetes. Studies have found that diabetic women with endometrial pre-cancer and endometrial cancer who are taking metformin have better outcomes compared to women not on metformin. This has led to current clinical trials looking at whether metformin might be used to help prevent endometrial cancer and how it might to help treat women with advanced cancer. It might even be a useful treatment option for women who still want to become pregnant.

## Targeted therapy

Researchers have developed drugs that target the gene and protein changes found in cancer cells. These [targeted drugs](#)<sup>7</sup> are used to treat many kinds of cancer, and studies are now looking at how they might be used for endometrial cancer. Some studies are looking at new targeted therapies, too, and how to use targeted therapy along with other treatments.

## Hormone therapy

[Hormone therapy to treat endometrial cancer](#)<sup>8</sup> has often involved progestins, but drugs that affect estrogen may also be helpful. Studies are looking at how to best use hormone therapy to treat all stages of endometrial cancer. Some studies are trying to find out if hormone therapy might help prevent this cancer, too.

## Immunotherapy

An exciting new area of research is the use of [immunotherapy to treat endometrial cancer](#)<sup>9</sup>. This is treatment that uses the body's own immune system to fight cancer.

The immune system uses certain proteins to "see" and attack foreign cells while leaving normal cells alone. Studies have found that some endometrial cancer cells use these proteins to keep from being attacked by the immune system. As researchers learn more about this, they've begun testing drugs that focus on these cell changes to help the immune system attack the cancer cells.

## Surgery

[Surgery for endometrial cancer](#)<sup>10</sup> usually involves removing the uterus, cervix, ovaries, and fallopian tubes. Studies are comparing different ways to do this surgery, for instance, open vs. laparoscopic surgery and laparoscopic vs. robot-assisted surgery, to see if any one method is better than others.

Studies are also looking at outcomes when the ovaries are left in place. This keeps the woman from going into menopause and having the problems that come with it. It's most important in younger women with endometrial cancer.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html](http://www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html)
2. [www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer.html](http://www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer.html)
3. [www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer/oncogenes-tumor-suppressor-genes.html](http://www.cancer.org/cancer/cancer-causes/genetics/genes-and-cancer/oncogenes-tumor-suppressor-genes.html)
4. [www.cancer.org/cancer/colon-rectal-cancer.html](http://www.cancer.org/cancer/colon-rectal-cancer.html)
5. [www.cancer.org/cancer/endometrial-cancer/detection-diagnosis-staging/detection.html](http://www.cancer.org/cancer/endometrial-cancer/detection-diagnosis-staging/detection.html)
6. [www.cancer.org/cancer/endometrial-cancer/causes-risks-prevention/risk-factors.html](http://www.cancer.org/cancer/endometrial-cancer/causes-risks-prevention/risk-factors.html)
7. [www.cancer.org/cancer/endometrial-cancer/treating/targeted-therapy.html](http://www.cancer.org/cancer/endometrial-cancer/treating/targeted-therapy.html)
8. [www.cancer.org/cancer/endometrial-cancer/treating/hormone-therapy.html](http://www.cancer.org/cancer/endometrial-cancer/treating/hormone-therapy.html)
9. [www.cancer.org/cancer/endometrial-cancer/treating/immunotherapy.html](http://www.cancer.org/cancer/endometrial-cancer/treating/immunotherapy.html)
10. [www.cancer.org/cancer/endometrial-cancer/treating/surgery.html](http://www.cancer.org/cancer/endometrial-cancer/treating/surgery.html)

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