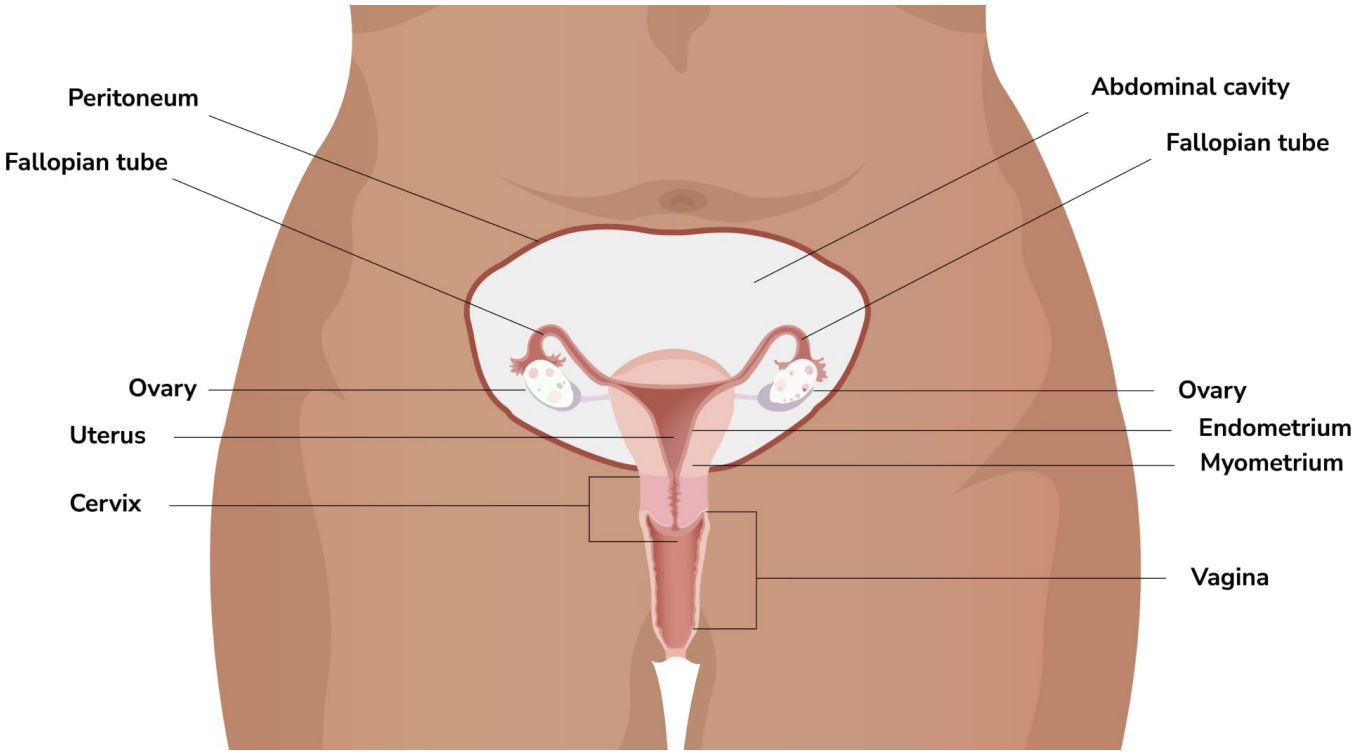
Olivia
Your Ovarian Cancer Support

What is ovarian cancer?



The ovaries are a pair of organs that produce eggs. They also produce hormones that, among many other things, affect breast growth, body shape, and the menstrual cycle.

Ovarian cancer happens when abnormal cells in or around the ovary, or fallopian tube, grow uncontrollably. Eventually, they might grow into a mass, known as a tumour, and spread to other areas of the body.[1]

Ovarian cancers account for just over 1% of all cancers. About 90% of ovarian cancers start in cells that cover the surface of the ovaries (also known as the "epithelium").[2] Other types can also be formed from egg cells or connective tissue cells.[3,4]

Unlike cervical or breast cancers, there is no standard test to detect ovarian cancer.[5] This means only 16% of ovarian cancers are found at an early stage – over half (58%) of cases are only found after the cancer has "metastasised" meaning it has spread to another part of the body.[2]

Ovarian cancer is more likely to affect people over 45, with the risk being highest in their late 70s. There is no specific cause of the disease, but there are some factors that increase the risk of developing it. Ovarian cancer is slightly more common in smokers and in people who have never given birth, but there is no one lifestyle choice that can be identified.[6]

Instead, it seems some risk of cancer is built into your genes. Inherited ovarian cancer may be

caused by mutations in the BRCA 1 and BRCA 2 genes. These genes play an important role in fixing errors in your DNA – you can think of them like scanners for the orders that control how your cells behave. Whenever your cells multiply, the BRCA scanners have to check that the DNA was copied correctly. Most of the time mistakes in the copied DNA get caught and deleted before anything goes wrong, but if the scanner misses enough important mistakes, then the cell can become cancerous.[7]

There is also a significantly increased risk of ovarian cancer in people who have rare genetic conditions, such as Lynch syndrome, which is caused by mutations in the MLH1 or MSH2 genes.[8]

Anyone with a family history of breast, ovarian, prostate or pancreatic cancer, particularly if those family members had BRCA mutations, will have a higher risk of developing the disease. The presence of a BRCA mutation increases the lifetime risk of ovarian cancer from around 1% to as high as 44% depending on which variant is inherited.[9] If you're concerned for yourself, or another member of your family, we recommend speaking to your doctor about genetic testing and genetic counselling. For more information about BRCA and genetic testing please see our article **here**.

Types of Ovarian cancer

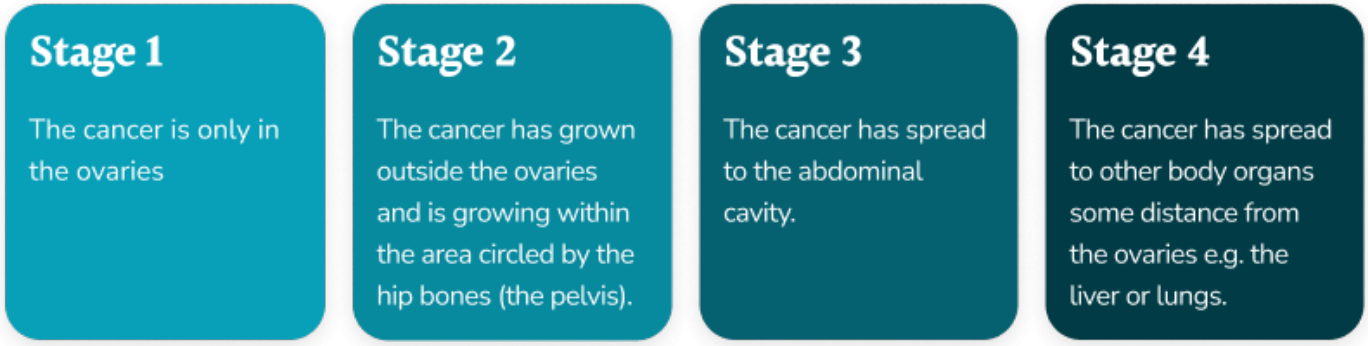
Ovarian tumours can be divided into three major groups, within which there are several different types: some growths on the ovaries are not cancerous and will not cause harm. Others are malignant and are clearly defined as cancer. Finally, there are borderline tumours that appear cancerous but are growing very slowly and can often be removed with surgery.[10] The type of cancer determines how doctors treat it. The majority of ovarian cancers (around 90%) grow from the cells lining the ovary or fallopian tubes ("epithelial cells"). About 5% of ovarian cancers grow from the eggs ("germ cells") themselves; these are most common in people in their early 20s. The remaining cancers grow from the unique connective tissue found in the ovaries ("stromal cells") and can be found at any age, but mostly are found in people in their 50s.[11]

Stages and grades of Ovarian cancer

Other important factors for making treatment decisions are:

- the stage, which the healthcare team uses to define how far the cancer has spread
- the grade, which describes how much different in appearance the cancer cells are from healthy cells[12]

Stage



Grade

High-grade tumours look nothing like normal healthy cells and show aggressive behaviour, rapidly dividing, often spreading beyond the ovary, but most often are highly sensitive to **chemotherapy**.[12,13] Cells in low-grade tumours appear more like healthy ovarian cells. They divide and spread more slowly, making the course of the disease less dangerous in most cases.[14]

For more information about cancer staging read our article **here**.

References

1. Cancer Research UK. What is ovarian cancer? Available from: https://www.cancerresearchuk.org/about-cancer/ovarian-cancer/what-is-ovarian-cancer. Last accessed October 2022.

2. Arora T, Mullangi S, Lekkala MR. Ovarian Cancer. StatPearls Publishing. 2021. Available from: http://www.ncbi.nlm.nih.gov/books/NBK567760. Last accessed October 2022.

3. Cancer Research UK. Sex cord stromal tumours. Available from: https://www.cancerresearchuk.org/about-cancer/ovarian-cancer/types/sex-cord-stromal. Last accessed October 2022.

4. Cancer Research UK. Germ cell ovarian tumours. Available from: https://www.cancerresearchuk.org/about-cancer/ovarian-cancer/types/germ-cell. Last accessed October 2022.

5. Menon U, Gentry-Maharaj A, Burnell M, Singh N, Ryan A, Karpinskyj C, et al. Ovarian cancer population screening and mortality after long-term follow-up in the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS): a randomised controlled trial. Lancet. 2021;397:2182–93.

6. Cancer Research UK. Ovarian cancer | Risks and causes. Available from: https://about-cancer.cancerresearchuk.org/about-cancer/ovarian-cancer/risks-causes. Last accessed October 2022.

7. Roy R, Chun J, Powell SN. BRCA1 and BRCA2: different roles in a common pathway of genome protection. Nat Rev Cancer. 2011;12:68–78.

8. Medline Plus. Genetic conditions: Ovarian cancer. Available at: https://medlineplus.gov/genetics/condition/ovarian-cancer/#causes. Last accessed October 2022.

9. National Cancer Institute. BRCA Gene Mutations: Cancer Risk and Genetic Testing. Available from: https://www.cancer.gov/about-cancer/causes-prevention/genetics/brca-fact-sheet. Last accessed October 2022.

10. Cancer Research UK. Ovarian cancer | Borderline ovarian tumours. Available from: https://about-cancer.cancerresearchuk.org/about-cancer/ovarian-cancer/types/borderline. Last accessed October 2022.

11. Doubeni CA, Doubeni AR, Myers AE. Diagnosis and Management of Ovarian Cancer. Am Fam Physician. 2016;93:937–44.

12. Cancer Research UK. Ovarian cancer | About stages and grades. Available from: https://about-cancer.cancerresearchuk.org/about-cancer/ovarian-cancer/stages-grades/about-stages-and-grades. Last accessed October 2022.

13. Gadducci A, Guarneri V, Peccatori FA, et al. Current strategies for the targeted treatment of high-grade serous epithelial ovarian cancer and relevance of BRCA mutational status. J Ovarian Res. 2019;12:9.

14. Gadducci A, Cosio S. Therapeutic Approach to Low-Grade Serous Ovarian Carcinoma: State of Art and Perspectives of Clinical Research. Cancers. 2020;12:1336.

The digital patient pathway was co-developed by the European Society of Gynaecological Oncology (ESGO), the European Network of Gynaecological Cancer Advocacy Groups (ENGAGe), and AstraZeneca with funding provided by AstraZeneca.

Job code: Z4-68713 | Date of Preparation: September 2024

Ovarian Cancer Commitment

ESGO European Society of Gynaecological Oncology

ENGAGe ESGO | European Network of Gynaecological Cancer Advocacy Groups

AstraZeneca