What Is Cancer? What Causes Cancer?

Cancer is a class of diseases characterized by out-of-control cell growth. There are over 100 different types of cancer, and each is classified by the type of cell that is initially affected. Cancer harms the body when damaged cells divide uncontrollably to form lumps or masses of tissue called tumors (except in the case of leukemia where cancer prohibits normal blood function by abnormal cell division in the blood stream). Tumors can grow and interfere with the digestive, nervous, and circulatory systems, and they can release hormones that alter body function. Tumors that stay in one spot and demonstrate limited growth are generally considered to be benign. More dangerous, or malignant, tumors form when two things occur: a cancerous cell manages to move throughout the body using the blood or lymph systems, destroying healthy tissue in a process called invasion that cell manages to divide and grow, making new blood vessels to feed itself in a process called angiogenesis. When a tumor successfully spreads to other parts of the body and grows, invading and destroying other healthy tissues, it is said to have metastasized. This process itself is called metastasis, and the result is a serious condition that is very difficult to treat.

How cancer spreads

How a cancer spreads In order to spread, some cells from the primary cancer must break away, travel to another part of the body and start growing there. Cancer cells do not stick together as well as normal cells do. They may also produce substances that stimulate them to move. But how do cancer cells travel through the body? There are three main ways a cancer spreads

1. Local spread

The cancer grows directly into nearby body tissues. There is more about this in
the page on how a cancer grows.

2. **Through the blood circulation**
   In order to spread, the cancer cell must first become detached from the primary cancer. It must then move through the wall of a blood vessel to get into the bloodstream. When it is in the bloodstream, it is swept along by the circulating blood until it gets stuck somewhere, usually in a very small blood vessel called a capillary. Then it must move back through the wall of the capillary and into the tissue of the organ close by. There it must start to multiply to grow a new tumour. As you can see, this is a complicated journey. Most cancer cells do not survive it. Probably, out of many thousands of cancer cells that reach the blood circulation only one will survive to form a secondary cancer or metastasis. Some cancer cells are probably killed off by the white blood cells in our immune system. Others cancer cells may die because they are battered around by the fast flowing blood. Cancer cells in the circulation may try to stick to platelets to form clumps to give themselves some protection. This may also help them to be filtered out in the next capillary network they come across so they can then move into the tissues to start a secondary tumour

3. **Through the lymphatic system**
   The way a cancer spreads through the lymphatic system is very similar to the way it spreads through the bloodstream. The cancer cell must become detached from the primary tumour. Then it travels in the circulating lymph fluid until it gets stuck in the small channels inside a lymph node. There it begins to grow into a secondary cancer.

**What causes cancer?**
Cancer is ultimately the result of cells that uncontrollably grow and do not die. Normal cells in the body follow an orderly path of growth, division, and death. Programmed cell death is called apoptosis, and when this process breaks down, cancer begins to form. Unlike regular cells, cancer cells do not experience programmatic death and instead continue to grow and divide. This leads to a mass of abnormal cells that grows out of control.

**Prevention of cancer**
Cancer prevention At least one-third of all cancer cases are preventable. Prevention offers the most cost-effective long-term strategy for the control of cancer.
1. **Tobacco**

   Tobacco use is the single greatest avoidable risk factor for cancer mortality worldwide, causing an estimated 22% of cancer deaths per year. In 2004, 1.6 million of the 7.4 million cancer deaths were due to tobacco use.

2. **Physical inactivity, dietary factors, obesity and being overweight**

   Dietary modification is another important approach to cancer control. There is a link between overweight and obesity to many types of cancer such as oesophagus, colorectum, breast, endometrium and kidney. Diets high in fruits and vegetables may have a protective effect against many cancers. Conversely, excess consumption of red and preserved meat may be associated with an increased risk of colorectal cancer. In addition, healthy eating habits that prevent the development of diet-associated cancers will also lower the risk of cardiovascular disease.

**How is cancer diagnosed and staged?**

Early detection of cancer can greatly improve the odds of successful treatment and survival. Physicians use information from symptoms and several other procedures to diagnose cancer. Imaging techniques such as X-rays, CT scans, MRI scans, PET scans, and ultrasound scans are used regularly in order to detect where a tumor is located and what organs may be affected by it. Doctors may also conduct an endoscopy, which is a procedure that uses a thin tube with a camera and light at one end, to look for abnormalities inside the body.

**Cancer testing**

Extracting cancer cells and looking at them under a microscope is the only absolute way to diagnose cancer. This procedure is called a biopsy. Other types of molecular diagnostic tests are frequently employed as well. Physicians will analyze your body's sugars, fats, proteins, and DNA at the molecular level. For example, cancerous prostate cells release a higher level of a chemical called PSA (prostate-specific antigen) into the bloodstream that can be detected by a blood test. Molecular diagnostics, biopsies, and imaging techniques are all used together to
diagnose cancer.