

# Immune system blamed for cancer- The immune system may help to create tumors

## *Hyperbaric Oxygen Reduces Inflammation and restores circulation*

Long-term over-activation of the immune system may be the single most important cause of cancer, say experts. When the immune system goes into over-drive it leads to inflammation of the tissues.

Many scientists agree that this inflammation may play a role in the development of cancer. An inflamed tissue is a melting pot of cancer-causing molecules.

Professor Angus Dalgleish However, a new report suggests that the importance of this role may have previously been under-estimated.

The authors argue that long-standing over-activation of the immune system is the key event in the genesis of many forms of the disease.

The research could herald an entirely new approach to both preventing and treating cancer. Drug therapy.

It raises the prospect that some existing anti-inflammatory drugs - currently front-line treatments for conditions like arthritis and inflammatory bowel disease - could be used to keep cancer at bay.

According to conventional wisdom, cancer has a variety of causes.

But Dr Ken O'Byrne, of the University of Leicester, and Professor Angus Dalgleish of St George's Hospital in London argue that many of these factors work in the same way - by switching on the immune system for too long.

Dr O'Byrne said: "One of the biggest mysteries of cancer is why the body allows cells to build up cancerous mutations, when it has an immune system that ought to stop this from happening.

*"But we think that when the immune system overcooks, perhaps because of long-term exposure to an infection or carcinogenic chemical, it loses its ability to fight disease and instead may actually begin to nurture and protect young cancer cells.*

*"If we could calm the immune system down with certain anti-inflammatory drugs, we might be able to reduce the rates of many common cancers. Kicked into action"*

This review makes a fascinating case for the link between exhausted immunity, chronic inflammation and cancer. Dr Mary Berrington Tissues become inflamed when the immune system is kicked into action by injury, infection or an allergic reaction.

White blood cells and molecules involved in the immune response are produced to fight off infection and aid the healing process.

However, the same molecules that stimulate the regeneration of damaged tissues may also play a part in the birth of cancer and accelerate its growth and spread.

The researchers argue that continually switching on the immune system encourages cancer in a number of ways:

- Immune cells that would normally kill developing cancer cells can be switched off.
- Immunity for healthy cells can be spread to cancer cells too.
- Blood vessel growth is stimulated, providing nutrition for cancer cells
- Many immune system molecules are extremely chemically reactive, and may actually cause cancerous mutations by attacking DNA.

The researchers believe that nearly all carcinogens work by over-cooling the immune system. For instance, tobacco smoke can cause long-term inflammation.

They also believe that cancer might cause inflammation too, thus creating the conditions needed to boost the growth and spread of the disease.

Professor Dagleish said: *"An inflamed tissue is a melting pot of cancer-causing molecules, so what better way for a cancer cell to give itself a helping hand than by learning to copy those very same conditions?"*

*"Of course this means that some anti-inflammatory pills might not only help in preventing cancer, but in treating the disease too."*

Dr Mary Berrington, Science Information Manager for The Cancer Research Campaign, said: "This review makes a fascinating case for the link between exhausted immunity, chronic inflammation and cancer.

*"It's essential that we look at all the evidence, although much of it at the moment is circumstantial."*

The report is featured in the British Journal of Cancer.