

Understanding Cancer better- some key concepts and prepare to be shocked !

What exactly is a cancer cell

Cancer is defined in the dictionary as “ ***An uncontrolled growth of cells derived from normal tissues.***”

The importance of a good supply of oxygen in the tissues

In 1931 a scientist called Otto Warburg was awarded a Nobel Prize for his discovery that **bringing oxygen to a cancer cell could bring about its downfall.** He stated clearly and simply that the prime cause of cancer at a cellular level was oxygen deprivation. **He also discovered that the major waste product cancer cells made was lactic acid thus they were oozing with acid!**

“ We find by experiment about 35% inhibition of oxygen respiration already suffices to bring about such a transformation during cell growth.”

Numerous articles in cancer journals have since confirmed his theory and explored it further . Here are three examples of conclusions drawn from such research:

“ Tumour hypoxia (too little oxygen in the cell) adversely affects the prognosis of carcinoma of the head and neck. “

“ Analysis showed significantly lower survival and recurrence -free survival for patients with higher partial pressures of oxygen in their tissues . (ie higher concentrations of oxygen in their blood) . This is an independent highly significant predictor of survival and recurrence -free survival”

“ Tumour oxygenation predicts the likelihood of distant metastases (cancer spreading) in human soft tissue sarcoma. Greater cellular oxygen deprivation/ hypoxia is directly correlated with a worse prognosis, shorter lifespan , and greater risk of metastases.”

Taken from Cancer solution a Cancer Prevention Programme based on Warburg's Work.

In summary he discovered that the more available oxygen that reaches abnormal cells the better the outcome could potentially be and the more likely it was that cancer cell growth could be arrested. In nearly 100 years Otto's work and theory has never been superceded.

Glucose or simple sugars fuel Cancer cells

Cancer cells use what's called a short fermentation process (that does not require oxygen) and generate their energy by burning glucose. Thus **glucose or sugar fuels cancer cells!** In fact cancer cells need higher levels of glucose to produce the same amount of energy as a normal cell because fermentation is a less efficient process than the usual way in which cells produce energy, and because they are dividing more rapidly than normal cells they need more glucose still to keep them growing. So put simply the less free glucose in the body the less fuel for cancer cells.

How can we use Otto's work to help patients with Cancer?

It was **Dr Max Gerson** who took Otto's work to the next level and suggested that **the ideal task of cancer therapy was to restore the function of the oxidising systems in the entire body by alkalisising the tissues so that cancer cells couldn't survive.**

....So how is this possible in real terms . **Teaching those with Cancer techniques to maximise oxygen intake ie abdominal breathing, exercise and by using specialised nutrition to flood the body with alkalisising nutrients !!!**

The Science behind it

It is helpful to understand just a little bit of chemistry here however if this feels a bit baffling feel free just to skip this part.

All cells including cancer cells are surrounded by what's called tissue fluid. **The key to oxygenating these cells and irradiating them is by changing the pH of the fluid that surrounds them.**

Now the pH scale is a measure of how acid or alkaline something is, i.e. how many free Hydrogen atoms it contains . It ranges from 1-14.

1 is the most acid something can be , 14 is the most alkaline and 7 is what's called neutral. (Thus 1-7 is acid and 7-14 is alkali).

The blood, lymph and spinal fluid are all slightly alkaline with a pH of 7.4

***At a pH slightly above 7.4 cancer cells become dormant and at pH 8.5 cancer cells will die while healthy cells will live**

For those of you who are interested here is the chemistry behind alkalisation. Otherwise please move to * again.

It is not necessary to understand this just the concept that cancer can't thrive in alkaline oxygen rich conditions is enough!

The first concept to understand is that the body is mostly made of water which is made of two Hydrogen atoms one joined each side of an Oxygen molecule. This is expressed in chemistry as H₂O.

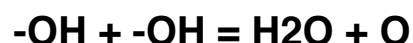
Now water or H₂O can separate into a Hydrogen atom H⁺ which we call an acid and a Hydroxide molecule -OH which we call alkaline . If tissue fluid has more H⁺ than -OH we call it acid and if it has more -OH than H⁺ we call it alkaline.

When Oxygen enters acidic fluid which normally bathes cancer cells it combines with the excess of H⁺ ions to form water (H₂O) ie oxygen helps to neutralise the acid(H⁺) whilst at the same time acid prevents oxygen from reaching the tissues that need it; **therefore acidic tissues are devoid of oxygen.**



However if we can change the fluid that surrounds the cancer cells to alkaline by flooding them with alkalising nutrients from the diet and good breathing and exercise practice something quite amazing happens !

2 hydroxide ions (-OH) in rich supply in the alkalising fluid can combine to provide one water molecule (H₂O) **AND one Oxygen atom.** In other words, an alkaline solution can generate Oxygen for the tissues.



***So going back to Otto's and Gerson's work by a specialised alkalising diet, abdominal breathing and exercise techniques we can maximise the oxygen concentration of cancerous tissues, and increase the pH such that cancer cells can't survive.**

Lastly is interesting to note that all chemotherapy, radiotherapy and prescription drugs have an acidifying effect on our cells!

A Look at the liver

Cancer cells produce a form of lactic acid as their primary waste product which can only be detoxified in the liver hence the liver can come under great strain in people with cancer. The health of the liver is vital to so many aspects of our wellbeing. Our liver could be compared to a chemical storage and production plant. Its functions include the production of certain types of immune cells, the neutralisation and destructions of toxins and drugs eg chemotherapy, the production of enzymes and bile which help us to extract nourishment from our food and much much more. It is also a major site for the storage of glucose which we know fuels cancer cells.

In summary if our liver is overwhelmed by lactic acid it struggles to carry out its normal functions eg produce immune cells and store glucose and help us absorb and store nutrients and a vicious cycle ensues and cancer has a much better chance of proliferating further.

Lastly a closer look at the blood

When we look at the blood of someone who has cancer we usually see two things. Firstly the **red blood cells**, that is the cells in our blood which carry oxygen are **clumped together**. This means the surface area for absorption of oxygen is naturally reduced so thus the oxygen carrying capacity of the blood is reduced. We know cancer struggles to grow in an oxygen rich environment so hence we can begin to see how **if we don't revitalise our red blood cells we provide yet another opportunity for cancer to grow.**

Secondly when we look at the **white cells**, the cells that allow the body to directly destroy cancer they appear **static and lifeless**. It is these cells which in a healthy immune system destroy cancer cells. **What better incentive to rebalance and rejuvenate our immune system empowering our own bodies to destroy cancer.**

A summary

We have talked about how glucose fuels cancer cells, the importance of oxygenating the tissues through an alkalising diet, abdominal breathing and exercise. We have also addressed the importance of supporting the liver and how patient's red and white blood cells usually struggle to function.

Now a question... Conventional NHS care may provide some of the newest and most effective chemotherapeutic agents, radiotherapy treatment and some very effective drugs to support patients with the side effects of their treatment but haven't we forgotten the most basic steps of all. Steps which are safe and natural and have science behind them but have somehow been forgotten and pushed aside?

Imagine what could happen if we put everything together. That is holistic Cancer Care by definition. Integration, that is bringing the best of absolutely everything we have to give a patient the best possible chance of recovery is the only true path to the future... and each and every one of us is that future!

“The body heals itself. The physician is only nature’s assistant.”

Dr. Anne Whigmore, founder of The Hippocrates Health Institute.