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**FIRE Diabetes In 40 Days**  
- Your Online Journey to Reverse Diabetes -

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# **FIGHTING CANCER**

**- Insulin-Resistance And Cancer -**



## FEEDING CANCER: THE SECRET CANCER SUPERFUEL

At first glance, today's topic may seem as if it is straying off topic. But here's the thing: When you understand the damage sugar does to your body, you will be even more motivated to keep it out of your diet once the Journey is over. In a little more than a week, this Journey is over, and you will have to keep going on your own motivation. We're putting tools in your hands to keep the momentum going once you're back in the big, bad, sweet world.

In 1931, a remarkable prize was awarded to a remarkable man for a remarkable discovery. If that sounds like a lot of "remarkables", you are quite right. Prof Otto Warburg was given the Nobel Prize for discovering both the cause and the potential cure of cancer. Yes, that was nearly 90 years ago. Here's why: Despite the enormous importance of these findings, his research was kept outside of the mainstream media. He spent the latter half of his life trying to convince the medical fraternity of his findings, but to no avail. For the most part, his research is completely forgotten today and his name only lives on in a specific cancer test. As a diagnostic test, it does not threaten anyone's livelihood.

The "Warburg effect" is used in a test to find out where cancer cells are. With a few exceptions, all cancers exhibit the Warburg effect.

## WHAT IS THE WARBURG EFFECT AND WHY IS IT IMPORTANT?

The Warburg effect is based on the fact that cancer cells burn only glucose for fuel. In fact, cancer cells burn glucose so fast, that the oxygen in the cell runs out and the partially burnt-up glucose begins to ferment inside the cell. By tagging glucose with certain markers, it is possible to find cancerous growths in the body. Cancer cells stuffed full of glucose light up on a scan like lights on a Christmas tree. Oncologists (cancer doctors) do this test almost daily.

The importance of this effect is that virtually ALL cancers follow the exact same pathway to get energy. In other words, if this pathway can be blocked, cancer cells will be starved of energy and weaken or die rapidly. Cancer cells burn energy about 200 times faster than normal cells. In other words, they are ravenously hungry - and cancers eat only one food: glucose.

Can you guess where this is heading?

**There are basically two theories about the origin of cancer:**

1. The metabolic theory (proposed by Warburg) holds that cancer is caused by changes in the way the cell burns energy. Genetic changes may follow.
2. The genetic theory (dominant theory worldwide) holds that cancer is due to a genetic malfunction. Metabolic changes follow the genetic changes.

Here's the rub: If cancer is a metabolic disease, it is both preventable and curable. If it is a genetic disease, it is basically not preventable and basically not curable.

Follow the money and you will understand why the genetic theory is popular with those who earn their living from cancer.

But what if Warburg was right? A lot of very clever people thought he was - that is why they gave him the Nobel Prize (almost twice).



Here's an attempt to put Warburg's theory simply. What you do with this information is entirely up to you.

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## **NORMAL CELLS CAN BURN MULTIPLE FUELS**

From the beginning of the Journey, we have emphasised the fact that the body's cells can burn different fuels. This Journey has taught you how to shift your main source of fuel from glucose to fat / fatty acids / ketones. In a pinch, cells can even burn amino acids. They are versatile.

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## **GLUCOSE BURNING PRODUCES ACID**

When glucose is broken down for energy, carbon dioxide is produced. Lots of it. Carbon dioxide binds with water to form an acid. When the cell burns fatty acids for fuel, much less carbon dioxide is produced. Incomplete burning of glucose leads to a fermentation reaction (when there isn't enough oxygen present to burn all of the glucose). Warburg theorised that, when cells become full of acid and starved of oxygen, they are in danger of becoming cancerous. Cells that burn fat and have enough oxygen are not in this danger. Unlike glucose, fat cannot ferment.

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## **CANCER CELLS ARE DEDICATED GLUCOSE BURNERS**

Fermentation is a means of self-preservation for the cell. If all the glucose inside the cell had to be burnt up, the cell would overheat. By switching metabolic gears, the cell burns the glucose inefficiently, thus keeping the heat down and conserving oxygen. When a cell battles fermentation reactions for a long time, it eventually stops trying to control the waste (fermented) products. In order to save itself, it begins burning the fermented waste for fuel. The cell is trying to get rid of these waste products by burning them faster.

As a result of this accelerated activity, a number of other cell functions happen faster, too, like cell division. The new cells, however, inherit the same poor internal environment from the mother cells, and so they keep on trying to burn their way out of trouble. To burn this fast, cancer cells have to rid themselves of unnecessary options. One of these is to dedicate their energy to one fuel only. Keeping the versatility of the normal cell requires a lot of energy. The cancerous cell cannot afford to dedicate any spare energy to things that aren't immediately useful.

This (in an over-simplified nutshell) is how Warburg proposed cancer is caused. The implication of his research was that cancer growth will stop in the absence of ... (insert drum roll here) ... glucose. A very simple treatment (Kids, you can do this at home).

A number of ultra-low carb diets are spread on the internet as treatments for cancer. It is difficult getting statistical figures on their success, since no money can be made by researching them. But here's what research tells us:

- People with high blood glucose and excess fat are at much higher risk of cancer than the rest of the population.
- Treatments that block the breakdown of glucose in the cell are highly effective, even in advanced cancers.
- Cancer remedies that are mistaken for glucose by cancer cells have higher success rates and lower side effect rates than other types of cancer medicines.



- Cancer rates are higher among sedentary people than among active people (fermentation takes place when oxygen is lacking).

## POLY-UNSATURATED OILS AND CANCER

There is another dietary angle to this story. The use of poly-unsaturated oil worsens the effect of glucose on the metabolism of cells. Inside the cells, these oils are not broken down like normal fatty acids. They are reactive, meaning they destroy structures inside the cell. Their waste products leave a trail of destruction inside the cell. In other words, the cell then needs to burn more fuel to repair the damage. For this, it grabs hold of glucose, the emergency fuel source. This leads to overheating, lack of oxygen and fermentation inside the cell.

This theory also explains how xylitol can have a role to play in cancer health. Since xylitol "gets stuck" inside the cycle that burns glucose, it slows down glucose metabolism. In a healthy cell, this would force the cell to burn fatty acids instead (great for weight loss and insulin resistance). However, this option is not available to the cancer cell, which then is starved of energy and weakens. Lab studies have indeed proven the anti-cancer effects of xylitol. Studies in animals and people have, however, not been done.

## EXERCISE AND CANCER

And yet another angle: Providing oxygen to the body is important to keep cells from fermenting. Breathing while sitting is not enough. Some basic activity is needed to help you breathe deeper and oxygenate the blood better. In other words, regular exercise has cancer-preventing effects, as well as life-preserving effects in cancer. Both aspects have been indirectly proven by research. Just don't drink sugary "energy drinks" while exercising, or you will miss the point entirely.