Can Altering the pH of Your Body Through Diet Be An Effective Treatment for Cancer?

A diagnosis of cancer can cause even the strongest to buckle at the knees with fear and uncertainty. Considering all of the technology, research, and money that are put forth each year in an attempt to find a cure, you would think that there would be one by now. However, this is not the case. This invisible killer seems to be claiming more and more lives than ever before. With one drug after another failing to provide positive, consistent results, and hope, maybe it is time to look elsewhere for a simpler approach; consider our diet. Researchers have found that cancer thrives in acidic environments and that consuming certain foods can create this type of environment inside our bodies. This brings us to the central question, is it possible to treat or even cure cancer by altering the body’s pH through diet?

First of all, what exactly is the relationship between pH and cancer? Researchers are beginning to find that most, if not all, cancer cells have several things in common, one of them being that they tend to have a much lower pH than that of surrounding healthy cells. The pH of a normal, healthy cell is approximately 7.4 on a scale of zero to fourteen. The scale refers to concentrations of hydrogen and hydroxide ions within the body. A greater concentration of hydrogen ions creates a more acidic environment whereas a greater concentration of hydroxide ions creates a more alkaline environment. Therefore, anything less than seven would be considered an acid and anything greater than seven would be considered a base or alkaline. Cancerous cells tend to have a pH of approximately 6.8 (Webb, 671). A difference of .6 may
not seem like much but our bodies are so sensitive and finely-tuned that even the slightest change in the body’s cellular pH can prove to be disastrous. According to Bradley A. Webb, who works in the Department of Cell and Tissue Biology at the University of California, and his colleagues, “[d]ysregulated pH is emerging as a hallmark of cancer because cancers show a ‘reversed’ pH gradient with a constitutively increased intracellular pH that is higher than the extracellular pH. This gradient enables cancer progression by promoting proliferation, the evasion of apoptosis, metabolic adaptation, migration and invasion” (671). Webb also suggests that an extremely basic or alkaline pH can promote the development of cancer but there is less scientific evidence to support this assumption. So if an increase in acidity promotes cancer growth, what causes the body to become more acidic? This is where diet comes into the picture.

It is becoming increasingly clear that the American diet, which is high in fat, sodium, refined carbohydrates and animal protein, may be adding to the increased incidence of cancer. The American Institute for Cancer Research finds that approximately one-third of all cancers are related to poor diet. The foods that we eat greatly contribute to the acidic environment in which cancer is able to grow. This is what Ian Forrest Robey, a researcher at the University of Arizona refers to as “diet-induced acidosis” (1). In his research Robey states, “[a]cidogenic dietary intake such as high protein consumption can have an immediate effect on increasing net acid production while low protein lacto-vegetarian consumption can result in significantly reduced net acid excretion” (1). Since cancer cells appear to be naturally more acidic, then, in theory, one should be able to consume foods that promote a less acidic or slightly more alkaline environment and see improvement in their disease.
We now know that diet can be a major contributor to the acidity of one’s body. It is strongly recommended by physicians that those who are at risk for or worried about developing cancer consume a well-balanced diet, high in fruits, vegetables and whole grains in an attempt to prevent the disease. However, what about those who have already been diagnosed with a form of cancer and are looking for alternative treatments? Chemotherapy and radiation can be costly and may produce extremely unpleasant side effects. Some researchers believe that a more natural approach to fighting the disease would be to consume a special diet commonly referred to as the “alkaline diet” (Schwalfenberg 1). It is hypothesized that this diet will promote a slightly alkaline environment inside the body that will stop or reverse the growth of cancer. The alkaline diet is somewhat restrictive in that it consists mainly of raw fruits, vegetables and nuts. Those wishing to reap the full potential benefits of the diet must consume no animal products and no processed or refined foods. It is believed that animal products, especially meats, and refined foods are what cause our bodies to become more acidic. Once our bodies reach a certain level of acidity, cancer cells are able to grow and thrive. In theory, this sounds fairly simple, right? It seems as though all you have to do is consume copious amount of fruits and vegetables to achieve an alkaline environment within the body and before you know it, you are cancer free.

However, Karen Collins, a registered dietician for the American Institute for Cancer Research disagrees:

…no solid research supports such claims [that regulating pH can treat cancer]. There is no single measure of body pH, because our blood, mouth, urine and stomach all differ in acidity somewhat. Food choices may affect the pH of the urine, though research is not consistent even on that. Although it’s true that our body needs to
maintain its pH within a relatively narrow range, we have many intricate body systems to take care of it without any effort on our part. Unless someone has kidney disease that prevents their system of acid–base regulation from working, you can forget about body pH. (2)

A majority of the research supports this same conclusion. It seems as though the whole idea of altering pH is much more complex than simply changing the diet. Furthermore, very few if any, studies have been done that actually produced results that support the use of the diet.

This brings us to yet another issue, which is the alkaline diet itself. As mentioned previously, this diet consists mainly of fruits, vegetables and little else. During their battle with cancer, patients’ caloric need will increase because of the energy being used to fight the disease. A diet that consists of only fruits and vegetables, no matter what its impact on cellular pH, will not provide the energy needed. According to the Cancer Treatment Centers of America:

Good nutrition is essential to keep you strong—to increase the chance that your cancer treatment goes uninterrupted. Your body needs more "fuel" than normal during this time, because it needs to repair from the effects of cancer treatments, such as surgery, radiation therapy and/or chemotherapy. If you are unable to consume the fuel you need, your body will soon draw upon what it has stored—fat and protein. (1)

The insufficient calorie intake coupled with cutting out entire food groups, such as animal products may also cause vitamin and mineral deficiencies. These deficiencies may even cause the cancer to progress faster than it normally would.

Not only does the alkaline diet have the potential to result in malnutrition but cancer patients may have a difficult time tolerating the food to begin with. Some types of cancer and
cancer treatments significantly decrease the patient’s appetite and/or ability to eat. The National Cancer Institutes state that, “[w]hen the head, neck, esophagus, stomach, or intestines are affected by the cancer treatment, it is very hard to take in enough nutrients to stay healthy” (1). This means that anyone affected by the aforementioned cancer types may not be physically able to consume the raw fruits and vegetables that the alkaline diet calls for. It may even be necessary for some patients to be fed through a stomach tube depending on the severity of their cancer or treatments. This would completely eliminate the alkaline diet as a treatment option for a whole group of cancer patients.

This raises the question of whether or not a special diet has any place at all in the treatment of cancer. Gerry K. Schwalfenberg, a researcher at the University of Alberta does not support the idea of using the alkaline diet alone as an effective cancer treatment. He does, however, believe that when paired with chemotherapy, it may help the drugs to target the cancerous cells more efficiently. “It has been suggested that inducing metabolic alkalosis may be useful in enhancing some treatment regimes by using sodium bicarbonate…Extracellular alkanization by using bicarbonate may result in improvements in therapeutic effectiveness [53],” (Schwalfenberg 5). However, this brings us back to the issue of malnutrition. As mentioned earlier, cancer patients need an increased amount of calories and nutrients, especially during chemotherapy treatments. The alkaline diet simply cannot provide the necessary nourishment that the patient needs. This leads to the conclusion that even when paired with chemotherapy, the alkaline diet will most likely not be effective.

As Schwalfenberg suggested, sodium bicarbonate, also known as baking soda, has an alkalizing effect and was tested for its effectiveness as a supplement to chemotherapy. Test
subjects would ingest a solution of sodium bicarbonate and water prior to chemotherapy treatments. However it comes as no surprise that this study did not yield any significant results for reasons N. Raghunand, a researcher at the Johns Hopkins School of Medicine, explains:

A problem in these protocols is poor patient compliance, with chronic bicarbonate ingestion. Clinical metabolic alkalinization with bicarbonate will be most successful if it is administered acutely, viz. shortly prior to the time of chemotherapy. Hence, experiments are underway to determine the time course of alkalinization and whether acute, intermittent alkalinization is as effective, compared to chronic bicarbonate administration. (1010)

Technically speaking, this would be a method of altering pH through diet, but not a very palatable one.

So where does this leave us? Much of the research that has been conducted thus far seems to point to the same conclusion: a strictly alkaline diet will most likely not be an effective cancer treatment. In fact, an alkaline diet can leave you even weaker and less able to fight off the cancer because of the few calories that it provides. Reducing the acidity of cancerous cells through the use of diet may be a useful supplement to chemotherapy in targeting the cells, but more research needs to be done before it can be deemed successful, leading to the conclusion that perhaps the best treatment for cancer is not a restrictive, vegetarian diet that alters pH with little scientific evidence to support it, but rather taking all possible steps, such as a balanced diet and exercise, to prevent the disease in the first place.
Works Cited


Robey, Ian Forrest. "Examining the relationship between diet-induced acidosis and cancer."

