Does the Alkaline Diet Cure Cancer?

Is it true that cancer can't survive in an alkaline environment?

June 20, 2017 By Danielle Penick

The first time I heard about the alkaline diet was during my first year as an oncology dietitian. A patient of mine who worked as a pool cleaner asked me if it could cure him of his cancer. Balancing the pH of a pool is crucial for keeping it clean, he told me, and he regularly added different products to the pools that he treated to get the pH just right to prevent the development of unwanted bacteria or algae. He told me he was taking a number of liquid supplements and eating baking soda to change the pH of his body in addition to changes in his diet as he heard cancer couldn't survive in an alkaline environment. So the idea that balancing the pH of the body to make it more alkaline in order to cure his cancer seemed to make sense to him. My first inclination was to ask him to hold off on his supplements and baking soda, as I thought they might have negative effects on his kidneys (back to this later), and then I started my research.

One of the biggest proponents of the alkaline diet was a naturopathic doctor named Robert O. Young. He wrote the book pH Miracle in 2002, and after this first book, he wrote a series of follow-ups that explained how the alkaline diet could treat diabetes, osteoporosis, obesity, and more. He believed that an acidic environment in the body caused disease and that an alkaline (or basic) diet was the only way to fix this. Soon, the alkaline diet was getting endorsements from celebrities, including Gweneth Paltrow, Victoria Beckham, and Kate Hudson.

The prescribed ratio for the alkaline diet is 80% "alkaline-forming foods" and 20% "acid-forming foods." The alkaline forming foods Young promoted were fruits and vegetables, except cranberries, prunes, and plums. Grains were identified as "slightly acid forming," and the highest acid-forming foods were meat, fish, dairy, sugar, salt, alcohol, and anything that contained caffeine.

When you break it down, the alkaline diet sounds reasonable. It's hard to argue with a diet that encourages eating more fruits and vegetables and less sugar, alcohol, and meat. But, the details do matter.

After meeting with my pool-cleaning patient, I went home and cracked open my human physiology book, which I hadn't looked at since college. The pH scale ranges from 0 to 14, with 7 being neutral, anything less than 7 being acidic, and anything over 7 being basic (aka, alkaline). Every organ in the body has a different pH range needed for the organ to function and pH values vary greatly within the body. Some organs are acidic and some are alkaline. This was my first clue that

shifting the body's pH one direction or another might not be a good idea. Your stomach, for example, is highly acidic (a pH of 1.5-3.5) because hydrochloric acid is needed to break down food. Your blood pH has a slightly alkaline pH within a very narrow range (7.35–7.45). A change in blood pH anywhere outside of this will cause you to end up in the hospital extremely sick and likely you will end up on dialysis or life support. Even if you could change your diet to shift your blood pH, it might not be a good idea. Which brings me to my next point.

You can't change most of your body's pH with diet—the exception is your urine and saliva. Your body tightly regulates the pH in every organ, whether using secretions from your stomach, gallbladder, liver, or kidneys. Any rise or fall in pH sets off a chain reaction that your body quickly works to correct. One of the primary ways that your body regulates blood pH is by excreting acids into your urine, which makes your blood more alkaline. This causes your kidneys to work extra hard to produce bicarbonate ions that neutralize acids in your blood. The respiratory system is also involved, as bicarbonate ions from the kidneys bind to acids in the blood and form carbon dioxide, which you must then exhale. If you eat too many acidic foods (or too many alkaline foods), your body will recalibrate to balance your pH to keep you alive.

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People on the alkaline diet will tell you that you can change your body's pH, and they have measured it using pH strips. This is actually partially right. When they test pH, they test pH inside their mouth and in their urine. From what we know about pH regulation in the body, we know that urine pH can change if the kidneys are working to regulate blood pH. Urine pH is also influenced by many other factors other than diet, such as medications or diseases. Mouth pH changes

depending on your age as well as any recent food you've consumed, which again makes sense why it can be detected with pH strips. So measuring pH in one part of your body like your mouth or in your urine is not indicative of your entire body or blood pH or your overall health.

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So far, well-designed clinical trials demonstrating benefits of the alkaline diet are lacking. The most comprehensive review available on the relationship between diet induced acidosis and cancer concluded that there is no direct link. Even if we did assume that food could dramatically alter the pH value of the blood or other tissues, cancer cells are not restricted to acid environments. Tumors do grow faster in acidic environments, but these tumors create the acidic environment themselves. Also, acids aren't always bad. Some of the most important building blocks of life come from acids: amino acids, fatty acids, and even DNA (deoxyribonucleic acid).

After reviewing this information, I checked back in with my pool-patient. Since my last check-in, his kidney labs were getting worse with each visit, and the doctor was growing concerned. Soon, the patient experienced acute kidney failure, which we determined was likely caused by the alkaline supplements and baking soda the patient was taking. Begrudgingly, the patient agreed to stop taking these supplements. After a few weeks, his kidney labs improved and he was feeling much better. I know that treating his cancer by changing his body's pH made sense to him—it worked for his pools, of course. But the same benefits do not translate when considering the physiology of our

bodies.

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So what happened to Robert O. Young, the creator of the alkaline diet? Well, he is in jail. He was charged with 18 felony counts, including practicing medicine without a license (he purchased a doctorate from a diploma mill, though he did have a legitimate master's degree). He would tell his patients to stop receiving chemo and then charge them a whopping $50,000. He promoted his diet and other treatments on notions that are not compatible with scientific understandings of nutrition and disease. Eventually, this bad advice got him into legal trouble.

The alkaline diet is healthy because it's based on real and unprocessed foods, but it has absolutely nothing to do with being acidic or alkaline. If you want to follow the diet, you can and if you choose to, you will probably eat better. But unfortunately it's not a magic cure. I do not recommend taking any alkalinizing supplements or baking soda, as these can cause acute or chronic kidney failure like what happened with my pool-cleaning patient. Eating better food is always the safest way to improve health benefits.

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