

Isn't meat acid forming?...

and what about dairy?...

or eggs?...

Regulating pH
THE REAL STORY

Christine Cronau

Disclaimer

All the information contained within this publication are of the nature of general comment only, and are not in any way recommended as individual advice. The intent is to offer a variety of information to provide a wider range of choices now and in the future, recognising that we all have widely diverse circumstances and viewpoints. Should any reader choose to make use of the information contained herein, this is their decision, and the author and publishers do not assume any responsibilities whatsoever under any conditions or circumstances. It is recommended that the reader obtain their own independent advice.

FIRST EDITION 2013 Purple lotus Publishing

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission from the publisher.

Published by Purple Lotus Publishing
Email: purplelotuspublishing@inet.net.au

CONTENTS

Why balance pH?	4
Why I wrote this book	4
What is pH?	5
pH imbalance—a real health issue	6
alkalising—the real story	21
Are alkaline diets the answer?	21
Isn't meat acid-forming?	21
How is protein alkalising?	24
Acids are essential for pH balance	26
What about alkalised water?	26
Breathing	27
How to balance pH	29
LCHF and pH regulation	31
Coffee and alcohol?	33
Testing pH	34
References	35

WHY BALANCE PH?

Why I wrote this book

Balancing pH is one of *the* most important things we can do for our health. In fact, it is so important that an imbalance of pH is generally the underlying cause of all degenerative disease—and also causes weight gain.

When people are struggling with their weight loss and they see so many others sharing their LCHF (low carb, high fat diet) weight loss stories, they often write to me and ask why they are not losing weight. pH imbalance is one of the *biggest* factors that can prevent weight loss.

In addition, there are some huge myths circulating about pH and alkaline diets. Most people have heard claims that meat, eggs, and cheese are "acid-forming" and that they should be limited to maintain a healthy pH. This is a colossal myth. I explain why this is incorrect, and why in fact quality protein from animal products are essential for maintaining healthy pH.

What is pH?

pH is an abbreviation for potential hydrogen. When we measure pH, we are measuring the concentration of hydrogen ions. A pH reading of 7.0 is neutral. If the pH is above 7.0, it is alkaline; it has a lower concentration of hydrogen ions, and is oxygen rich. If the pH is below 7.0, the fluid is acidic; it has a higher concentration of hydrogen ions, and is deprived of oxygen. The lower the reading, the more oxygen deprived.

This is why an imbalance in pH leads to disease. For our cells to function correctly, they need adequate oxygen.

Human blood has a very small range of pH. If our body cannot maintain blood pH within the appropriate range, we die. The range is between 7.3 and 7.45. In order to keep us alive, our body has buffering systems in place to ensure our blood does not become acidic. Within that range, however, blood that is on the lower end of the spectrum of 7.3 carries around 65% less oxygen than blood operating at a pH of 7.45!

The pH of our extracellular fluid can range much more, and will become extremely acidic on a typical western diet, which lowers our blood pH to the lower end of the spectrum, and severely restricts the amount of oxygen transported to our cells.

Ideally, we want our blood pH to be at the higher end of the range; around 7.4. And, we want our saliva pH to be 7.0 or slightly alkaline (slightly above 7.0). Urine pH in a healthy person will always be slightly more acidic, so saliva is the more accurate way to test pH levels.

pH can be tested with simple testing kits. Litmus papers are the most common test, and contain a strip of yellow paper treated with a lichen dye, which reacts to differently to alkaline and acid solutions. However, litmus papers are not the most accurate indicator of how acidic or alkaline a solution is. Dual pad test strips are much more accurate and easier to read. They are harder to find, so we sourced some good ones and have them for sale on the website:

christinecronau.com/ph-test-strips.

pH imbalance—a real health issue

Why is it important to maintain an acid/alkaline balance? pH imbalance is the precursor for most modern chronic disease. Here are the reasons why.

If the body is in an acid state, and unfortunately most people are in an acid state due to our modern diet, then our metabolism changes; from an aerobic metabolism to an anaerobic metabolism. An aerobic metabolism uses fats as its primary energy source. When we become anaerobic, we undergo a major metabolic shift and start burning sugar for energy.

Contrary to popular belief, burning sugar for energy is not our natural state, and we only do it when we have too much of it. It really is our body's emergency response. If we keep eating excess sugar and carbohydrate, we become permanent sugar-burners.

Weight gain

I post weight loss success stories regularly on facebook; amazing results following LCHF. Here are just a few of the most recent examples. Kimberly lost 131 kilos (288 pounds) in 8 months. Chris lost 42 kgs (92 pounds) in 9 months. Ty lost 32.6 kilos (72 pounds) in under 4 months. Rachel lost 45 kilos (100 lbs) in 12 months and said, "Your book changed my life last year."

Every time I write about these success stores, there are always a few people who comment and say, "Why am I not losing weight?" It must be extremely frustrating to see all these weight loss stories and be stuck. I am about to release an ebook to address this problem, but the *biggest* problem is often acidity.

In addition to changing our metabolism, pH imbalance causes acidic waste to be stored in fat cells, which causes weight gain.

Dr Lynda Frassetto, researcher and professor of Medicine and Nephrology at the University of California San Fransisco, found that because of the sheer amount of acid waste our bodies are forced to deal with, they end up stockpiling it in our adipose (fatty) tissue. We do this to protect our vital organs from degradation and failure. Our fat is literally saving our organs.

This is why some people have trouble losing weight, even if they are doing everything else "right."

And, just a quick note that toxins are also stored in fat cells, which makes it very difficult to lose weight if we are using face creams, soaps, beauty products and cleaning products that are full of toxins. Here is some information about healthier alternatives: christinecronau.com/skincare.

Chronic infections

In addition, acid stress also has major health implications. We get less oxygen to our cells, which creates a diseased environment, and an inability to heal effectively. Some people find that they are always sick, or certainly sick more than they should be. This is another symptom. Low oxygen levels lead to chronic infections and poor healing.

Connective tissue breakdown

In addition, we start to literally degenerate. I once heard a great naturopath giving a speech about pH, and he said, "Have you ever felt like you are falling apart?" Of course there was a resounding "yes" in the audience. He said, "Well, you kind of are."

We often attribute many of our ailments to ageing, but most are not due to ageing at all.

Being in an acid state leads to connective tissue breakdown, which causes sports injuries, joint issues, prolapses, hernias, gum disease, receding gums, bleeding gums, back pain and injuries to spinal discs (discs are held together by connective tissue), arthritis, immunodeficiency, premature ageing, and more.

Candida and H Pylori

An acid system also becomes a breeding ground for Candida, fungus, and other parasites such as H Pylori. Opportunistic organisms like these thrive in an acidic, low oxygen environment. And because 85% of the immune system is located in the gut wall, it is essential to maintain healthy gut bacteria for good health. Many conditions arise because of imbalanced gut flora, some of which are mentioned below.

Food poisoning and bacterial infections

Why are some people more susceptible to food poisoning? Healthy gut flora protects against invading viruses and other nasties. The friendly bacteria in the gut produce natural antibiotics such as acidophilun, acitolin, lactocitin, bacteriolocin, lactolin, which prevent bacterial growth in the intestine, including e.coli. The friendly bacteria also stimulate production of lymphocytes, which help fight viruses and prevent bacterial infections; they even prevent cancer growth. And, these natural antibiotics also protect us from food poisoning. If salmonella is present in a food we ingest, for example, these natural antibiotics prevent its growth. Like Louis Pasteur himself said, "It is not the germs we need to worry about. It is our *inner terrain*."

Heartburn

pH imbalance also causes GERD or heart burn. Contrary to popular belief, heartburn is *not* caused by too much acid in the stomach, and in fact is usually caused by too little acid in the stomach. As we get older, we produce less hydrochloric acid, which is often when heart burn symptoms start occurring. The problem is not too much acid.

The real problem with heart burn comes from dysfunction with the lower esophageal sphincter; the valve that is supposed to prevent stomach acid from rising into the esophagus. Because pH imbalance leads to infestation of *Candida*, yeasts, and other bacteria such as *H pylori*, the byproduct of these bacteria is intestinal gas, and the added pressure causes the valve to open when it shouldn't. And, reducing stomach acid increases the levels of these bad bacteria, which usually makes the problem worse, even though symptoms may be controlled. And, reducing stomach acid causes many other health issues, such as digestive issues and difficulty absorbing nutrients.

The best way to treat the problem is to eliminate the pathogens, and one way of doing that is to increase production of hydrochloric acid in the stomach by consuming acids, such as lemon, lime, and apple cider vinegar. In addition, quality unprocessed Himalayan salt is full of the chloride needed to make hydrochloric acid. And, of course, the other essential factor is to balance pH.

Autoimmune disease

In addition, poor gut health often results in very serious conditions such as autoimmune diseases, including Multiple Sclerosis and other serious forms of autoimmune issues. As Dr McBride, a Russian neurologist and founder of the GAPS (gut and psychology syndrome) protocol, says:

"People with abnormal gut flora do not digest and absorb their food properly, so they develop multiple nutritional deficiencies; their immune system is starving..."

At the same time, a river of toxicity is flowing from the gut into the bloodstream of these people, because all those pathogenic microbes sitting in their gut flora are converting the food that comes along into hundreds and hundreds of very toxic substances.

The immune system gets quite a lot of this toxicity. We have a poor immune system—it is malnourished; it is intoxicated; it is unbalanced, and, at the same time, it is challenged with a huge amount of work to do. Of course, it cannot function properly. Of course, it cannot react appropriately to various things. Autoimmunity is the result of that."

As you could imagine, the problem is exacerbated even more if we have a high toxic load in our system. Mercury in our teeth (especially on a low fat, low protein diet, because fats and proteins help protect us from toxins), and the myriad of chemicals in perfumes, conventional hand soaps, moisturisers, other beauty and cleaning products.

Fatigue

Inadequate oxygen that results from acidity also leads to fatigue. In many cases, this becomes chronic fatigue or fibromyalgia. Cells need good oxygen levels to produce adequate energy.

Most people now have varying degrees of fatigue. Normally, it is attributed to working too much and our modern, busy lifestyle. While it is true that we tend to overwork ourselves, fatigue is not something we should be experiencing.

This is why farmers who haven't bought into the low-fat craze often work well into their ninety's and beyond. As they age, their bodies are still functioning well, and go on producing the energy they need. This is in direct contrast to most older people these days, who have severely impaired mobility, very little energy, and often severe osteoporosis and other degenerative conditions.

I have heard many stories, but this one in particular illustrates the point beautifully. One of my readers, Gerry, sent it to me:

"We were dairy and beef farmers, and I'll never forget a grizzly old geysir standing up at a meeting called to start the fighting fund against all the negative publicity meat and butter were getting back in the mid 60's, and he said, 'I've been eating all the meat, eggs and dairy I could fit in me guts for 90 years, and I'll outlive most of you young buggers in this room.' He lived to almost 100, and died when he rolled a tractor down a slope."

Osteoporosis, tooth decay, and gallstones

And, this is a big one. Our bodies have buffering systems in place to try and keep the body at the correct pH. One of the extreme buffering systems (when our body is continually acid) is to pull phosphate from the bones. Of course, when we do that, calcium comes with it. Not only does this weaken our bones, but when the phosphate is used as a buffer, the calcium is left as free calcium. If calcium is not bound (free calcium), it calcifies things! Why is this a problem? It calcifies arteries, heart valves, and create stones in unwanted places like the gall bladder and kidneys.

This is also why acid stress causes tooth decay. Dentists often say that sugar causes tooth decay, and in a way, they are right, but not in the way they think. Excess sugar consumption creates an acid system, which pulls calcium from the teeth. And, whenever we have tooth decay, it is an indication we are also losing calcium from our bones. And, think about how scary that is. This means our young children are losing calcium from bones from a very early age.

The good news is that it is easy to fix. I grew up riddled with cavities and ended up with a mouth full of fillings. Interestingly, we had very little access to sugar growing up, but we were extremely poor, so our diet was mostly carbohydrate. We were lucky to have a few boiling chickens on Sunday between the nine of us. And, too many carbohydrates equals too much sugar; carbohydrates are converted to glucose in the body.

I continued getting more fillings into adult-hood. I have now been sugar free for over 13 years, and in that time, I haven't had a single filling. And, my children have also never had a filling.

Premature ageing

And, being over-acid causes premature ageing. There are many reasons we are ageing faster now than ever before in history, and the biggest is acid stress.

One culprit is a lack of fat in the diet (the cell membrane is around 50% saturated fat; if we don't eat enough fats, we can't keep the cell membrane strong, which means we can't keep the cell hydrated). The other culprits are sugar and vegetable oils. Acid stress from too much sugar destroys collagen (which is one of the reasons for connective tissue breakdown), and vegetable oils damage the cell membrane, which dehydrates cells.

In addition, acid stress causes free radicals to be produced faster, and slows antioxidant activity, which results in much higher rates of oxidative stress.

And, this also causes premature ageing.

Inflammation and heart disease

Too much acid causes inflammation, which then leads to chronic disease including heart disease, cancer, arthritis, colitis, pancreatitis, hypertension, and more. As I mentioned above, the free calcium that results from an over-acid system causes calcification of arteries and heart valves, which is a direct path to heart disease. I won't discuss every disease caused by acidity in detail, but hopefully this is enough to show how important balanced pH is. However, it is worth a detailed explanation of just one more. Cancer.

Cancer

Once we understand how cancer forms and replicates, then it can become more straightforward to treat if it has not progressed too far. And, prevention is also straightforward. This is often hard to hear, especially for those who have undergone painful and traumatic cancer treatments, or for loved ones who have lost their dear ones to cancer. But, the more we spread the word, the more we can prevent tragic loss in the future.

A high carbohydrate Western diet makes the body extremely acidic. And, an acidic environment is conducive to tumour cell invasion and metastasis in cells. An acidic environment is a breeding ground for yeast and fungus, and their waste products are extremely acidic, which causes further acidity. In fact, cancer cells are very similar to yeast and fungi; actually, most of them *are* yeast and fungi, which is why an acidic environment offers the perfect environment for a cancer to start. Cancer specialist and researcher Dr Simoncini says, "Cancer is a mycosis; the bacterial organism is *Candida Albicans*...All solid cancer and malignant tumors are white in color. The white color is the *Candida*."

Research shows that increasing the pH into a slightly alkaline range causes cancer cell mitosis to cease and reduce the life of the cancer cell.

Alkalisating the body increases the oxygen levels, which is intolerable to cancer. Once the pH is slightly above 7.4, the cancer cell becomes dormant. If the body can be alkalisated to an even higher number of 8.5, the cancer cells die. 8.5 is not the ideal pH for long term health, however, reaching this level for a defined period is beneficial for killing cancer cells.

Stronger alkalisers can be used for short periods (3 months or so); for example, Alkala N, which is a combination of sodium bicarbonate, sodium citrate, and potassium bicarbonate. These products can interfere with digestion so are best taken well away from meals. And, they should only *ever* be used when absolutely necessary and very short term, because long term use discourages the pancreas from producing its own bicarbonate. By far the best way to alkalise is to encourage the body to alkalise itself, which is explained in detail later.

There are many claims that a strict, vegan, juicing diet cures cancer. These regimes do have some success because they alkalise the body, and acidity is part of the problem when it comes to cancer. However, a vegan diet is deficient in nutrients necessary for healing, so a better strategy is to use a ketogenic diet while also alkalising the body.

Not only does alkalising the body kill the cancer, it also kills the associated fungus. Killing the fungal overgrowth associated with cancer can also be boosted by taking therapeutic doses of coconut oil (3 to 4 tbsp a day); a powerful anti-fungal. Doses need to be increased slowly to avoid an upset stomach.

Dr Simoncini uses specific medical protocols and injects the cancers with sodium bicarbonate, and his protocols are listed on the internet so they can be shown to doctors treating cancer. To read more about Dr Simoncini's ground breaking research, refer to curenaturalcancro.com.

In addition, when it comes to treating cancer, there are also a few other things I must mention. Research shows that cancer feeds on sugar.

Dr Thomas Seyfried says, "Cancer is not a collection of unrelated diseases that each need to be treated individually, cancer is one disease—a mitochondrial disease—and diseased mitochondria prefer glucose and glutamine for fuel. Healthy cells with healthy mitochondria are flexible and can adapt to just about any fuel source, but not cancer cells. In fact, the majority of cells in our body function best when they burn fat for energy. Cancer cells are bad at burning fat, because fat burning requires respiration, which requires healthy mitochondria."

Take away the sugar, including all foods converted to glucose in the body, even fruit, and the fuel for the cancer is removed. It is literally starved. It is important to note that the cancer will attempt to stay alive; which means very strong sugar cravings are likely.

One doctor who suffered with cancer and was given three months to live (not by one doctor, but three different doctors) tried the ketogenic diet (extremely low carbohydrate diet—no sugars, including natural sugars), and the cancer was completely eliminated.

A diseased cancer cell is unable to use ketone bodies (the byproduct of a fat burning state) for energy. Cancer cells can only use glucose for energy. Take away the glucose and the cancer starves.

And, after being on a ketogenic diet for a significant time period (6 to 12 months), once natural sugars and carbs are re-introduced into the diet as part of a general low carb, high fat diet, most people will naturally remain in that ketogenic, fat-burning state. I have been in a fat-burning state for the last 13 years.

In addition, there are a few more things worth mentioning. Vitamin deficiencies increase risk of cancer. Studies show that adequate vitamin D levels can decrease general instances of cancer by up to 77%, and instances of breast cancer by up to 90%. E-cadherin is a substance that holds cells together. With vitamin D deficiency, the cell structure is unable to keep its integrity, which forces cells to multiply.

This cell proliferation can end up out of control, which can result in cancer. In those who already have cancer, replenishing the E-cadherin (by getting adequate vitamin D) can help stop the cancer. The majority of Australians are vitamin D deficient even though we live in one of the sunniest parts of the world. For more information on how much vitamin D we should be getting, and how to get it, read *The Fat Revolution*.

Vegetable oils are also strongly linked to cancer. These oils are normally rancid, heat damaged and full of free radicals. Processed vegetable oils are also full of Omega-6 fats. We are meant to eat Omega-6, but the balance of fats these days is skewed; most people have far more Omega-6 than they need, and far less Omega-3 than they need. In addition, vegetable oils are stored in our tissues where they oxidise and damage our cells and their capacity to produce energy.

They also block cells' ability to produce the enzymes needed for digestion, thyroid function, clot removal and immunity. Excessive consumption of vegetable oils has been linked not only to increased cancer risk, but also heart disease, liver and lung damage, reproductive issues, stunted growth, weight gain, reduced learning capacity, premature ageing, inflammation and digestive issues.

The free radicals produced during processing and cooking are extremely dangerous in the body because they attack cell membranes, red blood cells, and DNA and RNA strands, which trigger mutation in our tissue, blood vessels and skin. This process results in premature ageing (the mutations in the skin), tumours and cancers (mutations in the tissues and organs) and, a buildup of plaque (mutations in the blood vessels).

The key factors that can assist with healing cancerous growths include alkalising the body to 8.5 for a period (which kills the cancer), eliminating fungus with coconut oil therapy, removing all forms of sugar for a period (which starves the cancer), and avoiding the things that cause cancer in the first place; excess sugar, grain and vegetable oils. In addition, plenty of sunlight to optimise vitamin D levels.

The devastating effects acidity

I have a dear friend who is 50. Actually, I only recently learned she was 50; I honestly thought she was much older. She is only seven years older than I am. But, she is a classic case of an acidic system. She can barely walk from osteoarthritis. She has bone spurs and osteoporosis. Her nails are deformed from severe fungal infection (this comes from the internal Candida). She is heavily wrinkled, and has severe chronic fatigue. All of these are the byproduct of acidity.

If you think osteoporosis is a disease caused by not enough dairy, think again. We are pulling calcium from our bones! This is why we have an epidemic of osteoporosis. And if we are throwing calcium tablets in on top of it, we are adding fuel to another fire. Without a correct diet, we cannot get calcium where we need it, and it also builds up where it shouldn't be; heart valves and other places where it is dangerous for it to be. Vitamin K2 is an essential vitamin, which guides calcium to the right places such as bones and teeth. Not only that, it cleans the buildup of calcium from the places it is damaging, such as arteries. And, we have virtually eliminated vitamin K2 from our diet.

Why? This essential nutrient is found in the foods that have been demonised by conventional wisdom. Butterfat, egg yolk, and soft cheeses such as brie, camembert, and gouda are its best sources. My friend is vegetarian, and I have been able to convince her to eat more protein and fat, but the conventional messages are so ingrained. I once suggested eating camembert. She said, "I love it, but it is so high in fat." If only people really understood what these low-fat diets are really doing to us.

ALKALISING—THE REAL STORY

Are alkaline diets the answer?

Most of us have heard of alkaline diets. While most of them can temporarily balance pH, they are often extremely misguided with their information and understanding of how different foods act within the body—and, they remove many essential foods from the diet. So, while they may alkalise, they will eventually compromise good health, and also undermine the body's ability to balance pH in the long run.

A typical alkalising diet advises us to eat more fruit and vegetables, and drastically reduce or eliminate sugar, caffeine, meat, milk, eggs, wheat, and alcohol. The theory is that animal proteins, sugar, caffeine, and many grains are acidic. While some of those assumptions are correct, many are incorrect, and damaging to health.

Isn't meat acid-forming?

One of the biggest misconceptions about animal proteins is that they are acid forming. This is something we often see in the media, and one of the favourite arguments for LCHF skeptics.

Here are just a few of the headlines that I have seen over the years:

- How too much cheese and meat can make your body dangerously acidic
- Why Eating Meat and Cheese Is Making Your Body Dangerously Over-Acid Leading To Sickness and Disease Including Diabetes and/or Cancer!
- Acids from meat and cheese are linked to higher diabetes risk
- Grains, fish, meat, poultry, shellfish, cheese, milk and salt all produce acid

But, people making these arguments do not understand body chemistry, and the mechanism for acid forming in the body. Why do people claim meat is acid forming? Meat is naturally slightly acid, around 5.5.

Why is meat acid? It is full of *amino acids* and *fatty acids*! We are meant to consume these types of acids. In fact, I am sure most people have heard the term *essential amino acids* and *essential fatty acids*.

Let's divert to something even more acid. Lemons, limes, and apple cider vinegar. These are around 2.0 on the pH scale, so extremely acid. Why do we not see headlines that lemons are acid forming? All three of these produce bicarbonate in the body, so they are acid when they go in, but are alkalising to the body. This promotes healthy bacteria growth, and prevents overgrowth of bad bacteria and yeast.

Here is a slightly technical description if you would like one. Otherwise, skip to the next paragraph. Citric acid (lemons and limes) enters the stomach, and then the duodenum, which stimulates production of secretin hormone, which then stimulates the pancreas to release bicarbonate into the small intestine along with protease enzymes. Lemon juice in particular is more dramatic in its alkalising effects. Much of the citric acid in the lemon is converted to potassium citrate, which is the strongest alkaline buffer. The bicarbonate produced from this type of acid is absorbed into cells, which then alkalises the body.

What about sugar and grain? These are also mild acids, but they *produce acid* in the body, so they are acid forming. The acid status of a food going in is irrelevant. What happens in the body is the important part.

Vegetables are alkaline, which is why green drinks are popular on alkaline diets. They are alkaline when they go in and they stay alkaline, so vegetables are no problem.

Coffee and alcohol *are* acid forming. Before you get too alarmed and think you can never have a drink again, or never enjoy your morning coffee, our body has a natural buffering system against acids and can deal with a certain amount. The problem arises when it is overloaded constantly with acid-forming foods. A typical western diet is high in carbohydrate, and loaded with other acid-forming foods, which cannot be buffered by the body. In a healthy person, a LCHF diet with the occasional coffee, or even morning coffee if everything else is spot on, or an occasional night out will not affect pH balance. But, it is best monitored to see if the body is being overloaded.

And, what about animal protein? Meat, eggs, and other animal proteins are mild acids when they are eaten, but they are *alkalising* to the body!

How is protein alkalising?

I often explain the meat and animal protein myth in my talks, and one question I am often asked is "how does protein alkalise?" The answer is not as simple as the one for lemons and limes. It is a complicated process, but here is a basic summary of how it works. It is slightly technical, but if you would like to have a basic understanding, here it is.

pH balance is maintained by excreting acids using either the lungs or the kidneys. When too many acids are present, and enough cannot be excreted, then we become acidic. Proteins act like a sponge for non-volatile acids (acids that can't be excreted by the lungs).

Most non-volatile acids are excreted in the urine, by the kidneys. To excrete acids, the kidneys excrete hydrogen ions, but cannot excrete them all, so they concentrate them, but *can only* do so with adequate protein intake. In addition, a high sugar diet interferes with the kidney's ability to concentrate hydrogen ions.

As proteins are metabolised (especially glutamine), they produce ammonia, which picks up hydrogen ions and concentrates them as ammonium, for example, urea, and then excretes them. This process allows the kidneys to excrete *ten* times more hydrogen than it could otherwise—this is how protein acts like an acid 'sponge.'

Eggs, whey, and animal protein are very high in glutamine, which is why eating eggs and meat for breakfast is extremely beneficial for balancing pH.

The kidneys also metabolise glutamine to bicarbonate, which also regulates pH. So, contrary to popular belief, protein metabolism increases the amount of acid secreted *and* also the amount of bicarbonate produced— protein intake *alkalises* the body.

This makes adequate protein intake is essential to regulating pH. Protein levels can be checked in a blood test. Albumin levels need to be 4.2 mg/dl or higher for optimal health. The A/G ratio needs to be 1.6 or higher.

Standard alkalising diets focus on eliminating meat, fish and grain because they contain acids, and recommend consuming foods rich in alkalising minerals. However, a diet eliminating animal proteins leads to deficiencies, which eventually undermines the body's capability to maintain healthy pH. Meat has been the most demonised as acid-forming, but it provides protein, zinc and phosphorus, which are all needed to balance pH. The fat soluble vitamins in quality butter, organ meats and shellfish maintain the health of the lungs and kidneys, which are both integral for regulating pH balance.

The true key to alkalising and maintaining pH balance is to eat a LCHF diet, which contains both acid *and* alkaline foods.

Acids are essential for pH balance

Hopefully, you can now see why many of the alkalising diets are misguided. Consuming acids does not create acidity in the body. In fact, we need to consume certain acids to stay alkalised. The following acids are all beneficial for balancing pH:

- Citric acid (lemons and limes)
- Lactic acid (cultured foods, including dairy)
- Malic acid (apple cider vinegar and apples)
- Acetic acid (apple cider vinegar and regular vinegar)
- Alpha-keto-glutaric acid (glutamine from protein metabolises to this acid).

What about alkalised water?

While we do want to alkalise the body, simply using alkalisers like alkaline water and sodium bicarbonate creates another problem. Taking supplements like these without stimulating our pancreas to produce its own bicarbonate prevents the body from working properly, and effectively turns our natural alkalising system 'off'. It also creates other issues, such as lower levels of proteases essential for protein absorption. After extended periods, the body must revert to obtaining amino acids from its own connective tissue. This is because when we stimulate our own pancreas to produce bicarbonate, the pancreatic enzymes necessary for protein absorption are released at the same time.

Strong alkalisers can be used temporarily in the cases of cancer or other serious conditions where alkalisation needs to be done quickly, but long term use is not beneficial for good health.

Breathing

In addition to the acids excreted by the kidneys, the other major organ involved in pH regulation are the lungs. In addition, increasing circulating oxygen also alkalises the body.

Volatile acids are excreted by releasing carbon dioxide when we breathe. During exercise, we produce more acid, so our breathing naturally increases so we can blow off more carbon dioxide. When we sleep, we produce less acid, so our breathing slows. When our lung function is compromised in some way, then it becomes difficult to correct an over-acid system.

For most people, simply becoming more aware of their breathing is enough to regulate it. Notice whether breathing is short and quick or deep and slow. Through stress and busy western lifestyles, breathing has become shallow for most people, but it is very easy to change just through awareness, and consciously attempting to use diaphragmatic breathing.

A simple technique to improve breathing is to lay down with a heavy book placed on the belly, just under the solar plexus. Breathe deep into the diaphragm so that the book rises and falls with each breath. This activity can be done every day while watching TV and it naturally encourages deeper breathing during the day.

BreathSlim is also a simple and cheap product that can be used to improve diaphragmatic breathing. It also increases oxygen circulation and output of carbon dioxide. And, for a much more intense breathing program, the Buteyko breathing method is taught in many countries, and is extremely beneficial in correcting poor breathing patterns.

If there is a serious impediment to breathing, then more drastic measures will be needed to alkalisate the body. For most people, alkalising the body is extremely simple with a LCHF diet and plenty of lemon, lime, and apple cider vinegar. If there is a breathing impediment, then alkalising is much harder, and will require much more vigilance.

Firstly, it is important to try and fix the breathing problem as a priority. In addition, it will be essential to take much more of the lemon, lime, and apple cider vinegar.

How to balance pH

1. First thing in the morning, take a daily lemon drink (1/2 glass water with freshly squeezed lemon juice, lime juice, and 1 to 2 tsp apple cider vinegar). Use at least a 1/4 of a lemon and 1/4 of a lime. With severe acidity, increase dose and repeat during the day. 1/2 hour prior to meal time is best.

Drink the daily lemon drink with a straw to protect your teeth from the acid.

2. LCHF diet. For more information about what to include and avoid, refer to the next section.
3. Consume cultured dairy products, such as quality yogurt and cheese. Avoid dairy from the supermarket. Commercial yogurt is full of milk solids, which contain oxidised cholesterol. And, commercial cheeses are not traditionally cultured. Choose soft cheeses like brie, camambert, and gouda.
4. Ensure you eat enough protein! If you are a member of my website, you can enter your height and ideal weight into a protein calculator, which will calculate your ideal protein intake for your size. For more information, refer to christinecronau.com/why-become-a-member.
5. Mineralise the body by including quality salt, such as Himalayan.
6. Daily breathing exercises (if required).

That's it!

Digestion

Just a simple note about digestion. Most people dilute their digestive enzymes by drinking water during meals. Avoid drinking 1/2 prior to eating and at least one hour afterwards. 1.5 hours is best. Diluting digestive enzymes can cause malabsorption, weight gain, Candida and general health issues. Digestion is key to good health.

Gut flora

In addition to correcting pH, it is extremely beneficial to re-establish healthy gut flora, which can be done easily by sticking to a LCHF diet, taking coconut oil and consuming fermented foods, such as apple cider vinegar, kombucha, pickles, sauerkraut, cultured butter, quality yogurt, and more. Consuming some sort of cultured or fermented food three times a day is beneficial. This is not as difficult as it sounds. Simply taking apple cider vinegar a few times a day is a step in the right direction. Make sure it is raw and traditionally fermented; Braggs is the best brand in Australia. A therapeutic strength probiotic is useful to kick start the process. A therapeutic dose of coconut oil could range from 1 tbsp to 3 tbsp per day, however, it is best to increase dose slowly to avoid an upset stomach.

LCHF and pH regulation

Foods to include:

- Grass-fed butter.
- Coconut oil.
- Free-range eggs.
- Grass-fed meats; beef, lamb, pork, and chicken. Eat the fat and skin (rich in fat soluble vitamins A and D).
- Soft cheeses (for example, gouda, havarti, edam, brie, camembert).
- Quality yogurt and cream. Avoid commercial yogurt containing milk solids.
- Unrefined fish oil (processed and stored away from the light and heat). Melrose or Metagenics are both good brands.
- Fresh vegetables and fruit, preferably organic. No more than two serves of fruit a day.
- Home-made salad dressings (cold pressed olive oil, vinegar, or lemon and lime juice).
- Unrefined salt, such as Himalayan.
- Healthy desserts occasionally (use stevia the majority of the time. It does not act in the body as a sugar. Otherwise, use raw honey, but not more than one tsp per day).
- Fermented foods such as apple cider vinegar, kombucha, tamari, sauerkraut, fermented vegetables, quality yogurt.

Foods to avoid:

- Vegetable oils (cold-pressed olive oil, macadamia is fine).
- Deep fried foods (unless made at home with a quality oil below its smoking point).
- Margarine.
- Sugar, including unprocessed sugar, pasteurised honey, high fructose corn syrup.
- Fruit juice.
- Artificial sweeteners.
- Grains, especially wheat and wheat family (rye, barely, spelt). Buckwheat is not a grain and is a good alternative. Almond meal also a good alternative. If eating bread occasionally, Ancient Grains Sourdough. Oat bread is a better choice. Much less inflammatory and easier to digest. Ancient Grains is a good brand; it is sour-dough so easier to digest, and doesn't contain problematic ingredients such as soy flour.
- Fat-free foods.
- Ultra-pasteurised dairy products. Purchase quality organic dairy from an organic supermarket.
- Artificial food additives.
- Soy milk, soy protein powder, soy protein isolate, and other soy containing foods. Soy is healthy as fermented foods such as tamari, natto, tempeh.
- Fake meats or cheeses.
- Any products that are 'fortified.'
- Any foods that cause an allergic reaction (until gut is repaired and they can possibly be reintroduced).

Coffee and alcohol?

Like I mentioned previously, both coffee and alcohol are acid forming, so are best avoided when alkalising. Once our pH is balanced, we can handle a certain amount of acid-forming foods, and the additional acids can be buffered by the body; however, it is important to keep that amount limited to maintain pH balance. Regular testing is recommended to ensure they are not affecting pH.

If you would like to have a few drinks, the best type of alcohol to consume is one low in carbohydrates, such as spirits (without mixers) or a dry red wine. My preferred drink is tequila, lime, and mineral water. The alcohol is slightly acid forming, and the lime is alkalising, so this drink is a great combination. I have noticed recently that it has also become the preferred drink for a few of the stars, for example, Kate Hudson. It is not surprising as more and more people are realising the benefits of lower-carbohydrate diets.

If not drinking alcohol, fresh lime juice in mineral water is a refreshing drink, and is also alkalising.

Testing pH

To make things easier, here is the information again on pH testing. pH can be tested with simple testing kits. Litmus papers are the most common test, and contain a strip of yellow paper treated with a lichen dye, which reacts to differently to alkaline and acid solutions. However, litmus papers are not the most accurate indicator of how acidic or alkaline a solution is. Dual pad test strips are much more accurate and easier to read. They are harder to find, so we sourced some good ones and have them for sale on the website:

christinecronau.com/ph-test-strips.

Saliva is best tested 2 hours after eating. The strips come in boxes of 100, so last a very long time, even with regular testing. Once pH is balanced, testing once a week is enough to make sure everything is still on track.

REFERENCES

Abbas, S et al (2008) " Serum 25-hydroxyvitamin D and risk of post-menopausal breast cancer--results of a large case-control study." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/17974532>. Last accessed September 2013.

Akarsu, S et al (2013). The efficacy of hyperbaric oxygen therapy in the management of chronic fatigue syndrome. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/23682549>. Last accessed January 2014.

Attia, P (2012). "How a low carb diet affected my athletic performance." Available at: <http://eatingacademy.com/how-a-low-carb-diet-affected-my-athletic-performance>. Last accessed January 2014.

Balch, Phyllis (2010). Prescription for Nutritional Healing. New York: Penguin Group.

Boscoe, F et al (2006). Solar ultraviolet-B exposure and cancer incidence and mortality in the United States, 1993–2002. Available at: <http://www.biomedcentral.com/1471-2407/6/264>. Last accessed September 2013.

Brewer, A (1984). " The high pH therapy for cancer tests on mice and humans." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/6522424>. Last accessed September 2013.

Cancer Compass (2013). "Ketogenic Diet for Cancer- Two Testimonials of Healing Cancer." Available at: <http://cancercompassalternateroute.com/therapies/ketogenic-diet-for-cancer/>. Last accessed September 2013.

Cedric, F (2007). "What is the Dose-Response Relationship between Vitamin D and Cancer Risk?" Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1753-4887.2007.tb00349.x/abstract;jsessionid=954CEA72CC3AB30B645CAE89C15E3284.f04t04>. Last accessed September 2013.

DeAnn Liska, et al (2004). *Clinical Nutrition: A Functional Approach*. Washington: Institute for Functional Medicine.

Esther, J et al (2007). "Sun Exposure and Prostate Cancer Risk: Evidence for a Protective Effect of Early-Life Exposure." Available at: "<http://cebp.aacrjournals.org/content/16/6/1283.full.pdf+html>". Last accessed September 2013.

Fantin, V et al (2006). "Attenuation of LDH-A expression uncovers a link between glycolysis, mitochondrial physiology, and tumor maintenance." Available at: <http://www.cell.com/cancer-cell/retrieve/pii/S1535610806001450>. Last accessed September 2013.

Frassetto, L (2002). "Estimation of the net acid load of the diet of ancestral preagricultural Homo sapiens and their hominid ancestors." Available at: <http://ajcn.nutrition.org/content/76/6/1308.long>. Last accessed January 2014.

Frassetto, L (2010). "Diet-induced acidosis: is it real and clinically relevant?" Available at: http://journals.cambridge.org/download.php?file=%2FBJN%2FBJN103_08%2F50007114509993047a.pdf&code=a18f7304a63f1ffd83c2e95bce65491e

Garland, C (2005). "The Role of Vitamin D in Cancer Prevention." Available at: <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2004.045260>. Last accessed September 2013.

Gillies, R et al (2009). "Bicarbonate Increases Tumor pH and Inhibits Spontaneous Metastases." Available at: <http://cancerres.aacrjournals.org/content/69/6/2260.long>. Last accessed September 2013.

Giovannucci, E et al (2006). "Prospective Study of Predictors of Vitamin D Status and Cancer Incidence and Mortality in Men." Available at: <http://jn.oxfordjournals.org/content/98/7/451.full.pdf+html>. Last accessed September 2013

Ingraham, B et al (2008). "Molecular basis of the potential of vitamin D to prevent cancer." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18034918>. Last accessed September 2013.

Johnson, Lorie (2013). "Starving Cancer: Ketogenic Diet a Key to Recovery". Available at: http://www.youtube.com/watch?v=A-_UY-WnH1k&feature=player_embedded. Last accessed September 2013.

Kresser, C (2010). "The hidden causes of heartburn and GERD." Available at: <http://chriskresser.com/the-hidden-causes-of-heartburn-and-gerd>. Last accessed January 2014.

Lappe, J et al (2007). "Vitamin D and calcium supplementation reduces cancer risk: results of a randomized trial." Available at: http://www.ncbi.nlm.nih.gov/pubmed/17556697?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_RVDocSum. Last accessed September 2013.

Liu, H et al (2010). "Fructose Induces Transketolase Flux to Promote Pancreatic Cancer Growth." Available at: <http://cancerres.aacrjournals.org/content/70/15/6368.abstract>. Last accessed September 2013.

Masko, M (2010). "Low-Carbohydrate Diets and Prostate Cancer: How Low Is “Low Enough”?" Available at: <http://cancerpreventionresearch.aacrjournals.org/content/3/9/1124.full>

McCance, Heather (2012). Understanding Pathophysiology, 4th edition. NSW: Libby Houston.

McCully K, et al (1999). "Impaired oxygen delivery to muscle in chronic fatigue syndrome." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/10545311>. Last accessed January 2014.

Mercola, J (2009). "New Model Of Cancer Development: Vitamin D is the Key." Available at: <http://articles.mercola.com/sites/articles/archive/2009/06/11/new-model-of-cancer-development-vitamin-d-is-the-key.aspx>. Last accessed January 2014.

Mercola, J (2012). "Dr. Mercola Interviews Professor Thomas Seyfried." Available at http://www.youtube.com/watch?v=A-_UY-WnH1k&feature=player_embedded. Last accessed September 2013.

Mercola, J (2013). "Ketogenic Diet May Be Key to Cancer Recovery." Available at: <http://articles.mercola.com/sites/articles/archive/2013/03/10/ketogenic-diet.aspx>. Last accessed September 2013.

Mercola, J (2013). "The Benefits of a Ketogenic Diet and Its Role in Cancer Treatment." Available at: <http://www.prostate-cancer.org.au/ketogenic-diet/>. Last accessed September 2013.

Moan, J et al (2008). "Addressing the health benefits and risks, involving vitamin D or skin cancer, of increased sun exposure." Available at: <http://www.pnas.org/content/105/2/668.full.pdf+html>. Last accessed September 2013.

Ng, k et al (2008). "Circulating 25-hydroxyvitamin d levels and survival in patients with colorectal cancer." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18565885>. Last accessed September 2013.

Nurnberg, B et al (2009) "Reduced serum 25-hydroxyvitamin D levels in stage IV melanoma patients." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/19667163>. Last accessed September 2013.

Penney, S (2013). "Acid is Stored in our Fat Cells—Scientific Study." Available at: <http://symbiosis4u.us/Redox/Science/Acid%20is%20Stored%20in%20our%20Fat%20Cells.pdf>. Last accessed January 2014.

Pilz, S et al (2008). "Low serum levels of 25-hydroxyvitamin D predict fatal cancer in patients referred to coronary angiography." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18463400>. Last accessed September 2013.

Porojncu A et al (2008). "Sun exposure and cancer survival in Norway: changes in the risk of death with season of diagnosis and latitude." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18348446>. Last accessed September 2013.

Queen, S (2013). "High Blood Pressure—Real Answers Through Diet." <http://designed2win.com/blog/?p=735>

Queen, S (2013). "In a Designed2Win Body, How Could Multiple Sclerosis Possibly Occur?" Available at: <http://designed2win.com/blog/?p=583>. Last accessed January 2014.

Queen, S (2013). "Supporting bone health." Available at: <http://designed2win.com/blog/?p=258>. Last accessed 2014.

Queen, S (2013). "The Story of Malic Acid." Available at: <http://designed2win.com/blog/?p=845>. Last accessed January 2014.

Queen, S (2013). "Vitamin K." Available at: <http://designed2win.com/blog/?p=623>. Last accessed January 2014.

Ragunand, N, et al (1999). "Enhancement of chemotherapy by manipulation of tumour pH." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/10362108>. Last accessed September 2013.

Realfarmacy (2013). "Every Cancer Can be Cured in Weeks explains Dr. Leonard Coldwell." Available at: <http://www.realfarmacy.com/every-cancer-can-be-cured-in-weeks-explains-dr-leonard-coldwell/#5leBHJklmliol2eW.99>. Last accessed September 2013).

Reichrath, J (2008). "Solar UV-radiation, vitamin D and skin cancer surveillance in organ transplant recipients (OTRs)." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18348458>. Last accessed September 2013.

Richards, B (2012). "Why Toxins and Waste Products Impede Weight Loss - The Leptin Diet Weight Loss Challenge #3." Available at: http://www.wellnessresources.com/weight/articles/why_toxins_and_waste_products_impede_weight_loss_-_the_leptin_diet_weight_1/. Last accessed January 2014.

Roby, I, et al (2009). "Bicarbonate Increases Tumor pH and Inhibits

Saad A, et al (2012). "Effect of Helicobacter pylori treatment on gastroesophageal reflux disease (GERD): meta-analysis of randomized controlled trials." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22229305>. Last accessed January 2014.

Science Daily (2006). "Attacking Cancer's Sweet Tooth Is Effective Strategy Against Tumors." Available at: <http://www.sciencedaily.com/releases/2006/06/060630094933.htm>. Last accessed September 2013.

Sieri, S et al (2013). High glyceimic diet and breast cancer occurrence in the Italian EPIC cohort." Available at: <http://www.ncbi.nlm.nih.gov/pubmed/22497978>. Last accessed September 2013.

Simoncini, T (2013). "Summary of the Sodium Bicarbonate Therapy." Available at: <http://www.curenaturalicancro.com/summary-simoncini-sodium-bicarbonate-therapy.html>. Last accessed January 2014.

Tortora, J and Reynolds Grabowski, S (1996). Principles of Anatomy & Physiology. New York: Harper Collins.

Wright, J (2013). "What REALLY Causes Heartburn?" Available at: <http://tahomaclinicblog.com/what-really-causes-heartburn/>. Last accessed January 2014.