

# Acid/Alkaline: The Marriage of Science and Macrobiotics

Bob Ligon

## Overview

Current macrobiotic theory views health primarily from the macro-view, i.e., balancing "energies" of diet, lifestyle, emotions and many other variables using the relativistic concept of yin and yang. The acid/alkaline approach adds the examination of body fluid chemistry to macrobiotic theory and explores how that fundamental micro-scale activity influences health.

Acid/alkaline theory suggests that certain minerals in the blood and body fluids are pivotal in maintaining health or creating disease. Furthermore, it is the quantity of these minerals and the body's ability to maintain their concentration in the body fluids that make the difference between degeneration and creating good health.

The key concept in this theory is: If acid production and/or accumulation of toxins in the body fluids is greater than the body's capability to neutralize those acids or eliminate those toxins, then a gradual devitalization of fluids, cells, tissues, and organs will take place and will be accompanied by "symptoms" and eventually disease.

## The Nuts and Bolts

Let's back up a bit and fill in some of the details.

*First of all, what do I mean by acid/alkaline?*

Acid/alkaline is a condition of a fluid measured by its pH or percentage of hydrogen ions. Water, considered neutral, has a pH of 7.0 (on a scale of 0-14, 0 is the acidic direction, 14 is the alkaline direction). A healthy blood pH is around 7.45 (slightly alkaline), whereas a blood pH of 6.9 (too acidic) can create the conditions for a coma to occur, and a pH of 7.9 (too alkaline) can create the conditions for a seizure. For optimum health the body fluids need to remain in a slightly alkaline condition.

*How then is acid produced in the body?*

1. Acid compounds are natural byproducts of metabolism, that is, the oxidation of nutrients in the cells produces lactic acid, sulfuric acid, phosphoric acid, and other acids. Too-fre-



photo by Kathy Ligon

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quent strenuous exercise, which accelerates metabolism and the production of acid, can cause excess acid to accumulate. Excess here is the important idea. Exercise is fine and very beneficial, but excess exercise that results in fatigue and chronic soreness may be causing acid accumulation.

2. Carcinogens in the environment can cause acid production and accumulation. Here carcinogen is defined as any substance or influence that can create an acid condition. Some examples

are: air/water pollution or contamination, food contamination including any chemical additives or preservatives used in growing or processing, and excess radiation exposure from radiation therapy, X-rays, microwave ovens, televisions, or computer monitors.

3. Another source of acid production/accumulation that plays a major role for many people is stress and emotions. If stress and extreme emotions are not constructively dealt with, the body remains in a "fight or flight" state of readiness in anticipation of trauma. This state effectively stimulates some organs and inhibits others such that acids are not neutralized and eliminated. Much more could be said on this issue, but suffice it to say that stress and emotions have a profound impact on acid/alkaline conditions in the body and in turn on health in general.

4. Respiration is responsible for eliminating nearly 70 percent of body waste products, one of which is carbonic acid, a compound that is created when carbon dioxide is produced from cell metabolism. So, inadequate breathing, specifically not exhaling completely to eliminate carbon dioxide and reduce carbonic acid in the body fluids, can contribute to acid accumulation.

5. Finally, a major cause of acid accumulation is weak kidneys. In terms of body chemistry, the minerals phosphorus (P), nitrogen (N), and sulfur (S) are the primary acid-forming minerals. The primary alkaline-forming minerals are sodium (Na), calcium (Ca), magnesium (Mg), and potassium (K). One of the functions of the kidneys is to sample the blood as it circulates through the kidneys and determine how much of these minerals are needed by the body. Then the kidneys either reabsorb minerals that are needed, or excrete in the urine minerals and waste products that are not needed. When the kidneys become weak due to unhealthy lifestyle or diet, carcinogenic exposure, or other degenerating influence, they can't do this task of reabsorbing the minerals that the body needs. Thus, alkalizing minerals that are needed to help neutralize acid compounds in the body fluids are lost through the urine and the body fluids progress toward a more acidic condition.

### Don't Worry – Be Happy

*But then how are acids regulated in the body?*

1. There are several ways beginning with the kidneys. As described above, by reabsorbing alkalizing minerals, healthy kidneys help to neutralize acids in the body and eliminate them by way of the urine.

2. The skin, sometimes referred to as the third kidney, also eliminates acids by way of perspiration.

3. The lungs through respiration and the elimination of carbon dioxide help to reduce acid levels in the body fluids.

4. Also the liver, by the production of sodium-rich (alkalizing) bile helps to maintain an alkaline condition.

5. A biochemical property of the body fluids known as the "blood buffer system" maintains the alkalinity of the body fluids by pulling alkalizing minerals (sodium and calcium mostly) from the blood, tissues, and bones, and then combining them with acid compounds to neutralize them so they can be safely eliminated. You can see how over a long time, the persistent loss of sodium (a primary mineral related to immune system function) and calcium (needed for strong bones and teeth)

could create conditions for the occurrence of infections (including AIDS) and osteoporosis and dental caries.

6. As stated before, constructive management of stress and emotions are essential to controlling the acid/alkaline condition of the body fluids. Even if great care is taken in all other areas of health, if emotions and stress are not managed constructively, healing and the degree of health that is experienced will be limited. The mechanism of how this happens is rather complex, but here I will limit comment to saying that managing stress and emotions constructively can have a very alkalizing effect on body chemistry.

7. Food selection and preparation has an enormous influence on the acid/alkaline condition of the body. More on this later.

### The Implications – Macrocosm

*So what then are the implications to personal health of acid/alkaline?*

Let's view the body through two lenses: First, a lens giving us the macrocosmic view, a view that encompasses body fluids, cells, tissues, and organs, all of which have an interdependent relationship. The quality of the body fluids (acidity/alkalinity) determines the quality of the cells since nutrients and waste products are borne to and away from the cells by the body fluids. In turn, the quality of the cells determines the quality of the tissues since the cells taken together form the tissues. And the quality of the tissues determines the quality of the organs since the organs are comprised of tissues. And to come full circle, the organs determine the quality (acidity/alkalinity) of the body fluids since the organs are responsible for producing the quality of the body fluids.

So if for any reason, the organs begin to malfunction, or the body fluids become acidic, be it due to unhealthy diet, lifestyle, or toxic exposure, this interdependent

relationship is affected. That is, if the organs begin to malfunction, the quality of the body fluids declines (acid accumulates), then the quality of the tissues declines, then the quality of the cells declines, and then the quality of the organs further declines creating a spiral of degeneration affecting these four key areas of the body.

Conversely, if the organs begin to heal due to changes in diet, lifestyle, or some other healing activity, the spiral of degeneration can reverse and become a spiral of regeneration, that is, the organs become stronger yielding higher quality (more alkaline) body fluids, higher quality cells, tissues, organs and so on. In my experience, this is one of the real causes for optimism in using macrobiotic diet and lifestyle principles. It is this type of rebuilding healing that macrobiotic practices support and promote very well.

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## The Implications – Microcosm

Let's look through another lens, this one a microscopic lens giving us the microcosmic view taking us inside the cells. Imagine a tissue sample at the end of a capillary. Here you would see a very small blood vessel and a few cells. Also, you would see three distinct fluids: One fluid of course would be the blood, a second would be the fluid that circulates around the cells, and the third would be the fluid inside the cells. As the body becomes saturated with acid compounds, acid accumulates in the blood.

At this stage of accumulation, it is suggested that mild symptoms such as colds, sore throats, minor aches and pains, mild infections, minor skin problems, and sleep disturbances might occur. These conditions are often treated with over-the-counter medications and life goes on. If, however, the underlying causes of acid accumulation are not addressed the progress of acid accumulation continues.

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*There are no taboo foods according to macrobiotic principles, but each individual must decide the frequency of consumption and the quantity of food that is appropriate.*

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Next, after some period of time, the fluid between the cells in a particular area of the body begin to accumulate acid compounds. This particular area represents a toxic dump ground which the body has selected to store the acid accumulation. At this stage, mucus accumulations may become more condensed, infections

may become chronic, and stones, cysts, and benign tumors may form. These conditions also have associated medications and treatments so that they are not viewed as serious, and life goes on.

In the extreme, the acid accumulation penetrates inside the cell. (The implication I am about to present is not scientifically "proven". It seems plausible to me, and I offer it for your consideration, but I can make no claim at this time as to its scientific or medical authenticity.) When the fluid inside the cell becomes acidic, it interferes with DNA's activity and one of two events might occur. First, the DNA is destroyed resulting in the death of the cell. Dead cell material then becomes a waste product increasing the acidity of the surrounding fluid. Or, the DNA's ability to do its job is damaged causing the cell to mutate or transform. Without intact DNA a cell loses the information needed to direct reproduction and other life functions. What remains is the primitive life-force that only knows reproduction as fast and as far as possible – in short, a cancer cell.

Here again, there is cause for great optimism. Theoretically, if acid production can be reduced and the nutrients needed for cancer growth controlled (basically simple sugars and excess protein), this process of accumulation and march toward the creation of a number of disease-causing cancer cells can be slowed to the point that healing a cancer condition is possible.

Although this is theoretical and not yet medically "proven," acid/alkaline theory seems a plausible explanation of how macrobiotic dietary and lifestyle practices can be effective in coping with disease in general and cancer in particular.

## What to Do?

*So what can be done to heal according to acid/alkaline theory?*

A review of the items listed in the section "Don't Worry – Be Happy" can provide a place to start. Strengthening and supporting these body functions will help control an acid condition:

1. Strengthening the kidneys. Macrobiotic practices and remedies can be very effective: ginger compresses over the kidney area, salt baths (with a 1 percent or more salt solution, about 2 pounds in a full tub of warm, not hot water; water softener salt is OK), saunas, drinking less fluids, and barefoot walking on early morning dew (stimulating the kidney meridian) are a few to try.

2. Stimulating the skin with hot ginger towel scrubs or brushing will help the skin to eliminate waste products.

3. Taking appropriate amounts of exercise, especially outdoors, will assist the lungs in eliminating waste products and reducing carbonic acid in the body. Also, breathing exercises, chanting, singing, talking, and any kind of stretching exercises will assist the lungs in their work.

4. Supporting the liver in its role in controlling acids in the body by eating plenty of leafy greens, including the sour taste in your foods, limiting fats, oils, nut butters, flour products, and sweets, and practicing relaxation techniques that allow anger and frustration to be released constructively.

5. Enhancing the effectiveness of the blood buffer system by a diet that supplies plenty of minerals. See number 7 below.

6. Managing stress and emotions constructively. Some suggestions: relaxation and stress management techniques, meditation, visualization, yoga, prayer, massage, tender lovemaking, and learning effective communication skills. There is much to explore in this area. I encourage people to pursue whatever works for them.

7. Diet. A diet that creates the least waste products will do the most for reducing acid production and accumulation. Refer to the "Acid/Alkaline Food Classification" chart. To utilize acid/alkaline theory remember that "extreme" foods place a greater burden on the body to digest, assimilate, and eliminate. Therefore extreme yin or yang and extreme acid-forming or alkaline-forming foods may need to be carefully considered. Looking at the chart, the food categories in the center place the least burden on the body. Further out from this center, foods place a greater burden on the body to process.

I hasten to add that all foods can be eaten. There are no taboo foods according to macrobiotic principles, but each individual must decide the frequency of consumption and the quantity of food that is appropriate. Therefore, you may want to exercise good judgment based on your personal condition regarding how much and how frequently you partake of foods further from the center. Let's look at salt for example. It is an essential food, but needed in only very small amounts, therefore it is further from the center. The placement of beans further from the center may be puzzling since beans are often recommended as a regular food. Beans being fairly high in fat and protein are

considered to be rather acid-forming. According to acid/alkaline theory, people in delicate health may want to take care concerning the quantity of beans they eat, yet someone in good health who is physically active may want to eat beans often. Everyone must decide for him or herself.

### Summary and Conclusion

Acid/alkaline theory is a rewarding line of inquiry and accomplishes a marriage of traditional macrobiotic theory and Western scientific knowledge. At the heart of acid/alkaline theory is the scientific fact that blood chemistry determines cell function. If the blood is excessively acidic and the body can't neutralize and/or eliminate those acid compounds, cell function is inhibited. And when cell function is inhibited, eventually health disorders may develop.

Acid/alkaline theory then is an extension of the macrobiotic approach to health that builds on the basic concept of yin/yang. Herman Aihara discovered that a food, an action, or other influence could be classified as acid-forming and that it might be either yin or yang, and something alkaline-forming could be

yin or yang. So rather than simply considering the well-known teeter totter line of yin/yang energy of foods/activities, what emerges is a four quadrant matrix of acid-forming yin, acid-forming yang, alkaline-forming yin, and alkaline-forming yang. This matrix of analysis can give a more comprehensive view of dietary considerations. For a more detailed discussion of acid/alkaline theory, please consult *Acid and Alkaline* by Herman Aihara, G.O.M.F., 1986 or go to study with Herman Aihara at the Vega Study Center, 1511 Robinson St., Oroville, CA, 95965, 916-533-7702.

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## Acid/Alkaline Food Classification

### Acid-Forming

- Most processed/refined food
- High in fat/protein
- Animal products

### Alkaline-Forming

- Many whole foods
- Low in fat/protein
- Vegetable products

