


REVERSE
AGING



HANDBOOK
BY SANG WHANG



Reverse Aging addresses the various kinds of acidic waste and acid-induced diseases. It has become evident that these diseases are the result of bicarbonate deficiency. This handbook examines the causes of bicarbonate reduction and the sources of acid production in our body.

One of mankind's universal desires is to live a healthy and long life. We spend fortunes to extend our life and maintain good health.

We also spend an enormous amount of time researching the causes of aging and ways of reversing the aging process. All the theories on aging are complicated and not easy to understand.

The aim of this booklet is to present a simple scientific explanation of aging and an equally simple scientific method to reverse the aging process *without any diet or exercise*. For those of you with an intelligent and open mind, you will have no difficulty understanding this and may wonder why this simple fact was not known to mankind, until the 21st century.

We work very hard only to arrive at the average age of 45 when our physical bodies start to deteriorate and nothing seems to help. You will discover the scientific reasons for these phenomena in the following pages. The good news is that you can stop this downhill trend!

Some of mankind's greatest discoveries are profoundly simple. May God bless you and give you the wisdom to use the information in this booklet to your benefit.

In Health,

Sang Whang

Founder, Alkalife

Introduction

I am neither a medical doctor nor a biologist. I am an electrical engineer, scientist and inventor. I invented cornea measuring devices, multi-focal soft contact lenses, electronic filters, high speed modems, among other things.

In 1986, at the age of 55, I was suffering from high blood pressure and was taking blood pressure pills for it. I bought a water ionizer that electrically splits regular tap water into alkaline water and acid water. I was told that drinking alkaline water may lower my blood pressure.

To make a long story short, in six weeks, I was able to stop taking the blood pressure pills. Initially, I was very happy; however, not knowing why the blood pressure went down bothered me. I wondered if it could have been psychological, or a short-term phenomenon, or that it may be doing some long-term damage with negative side effects.

This prompted me to research why my blood pressure was normalized by simply drinking alkaline water. This research led me to the discovery of the human aging process and its reversal. This is not a medical discovery, but a scientific discovery.

In 1990, I wrote *Reverse Aging*¹. Today, over 250,000 copies are in circulation. Not only that, it is translated into many

languages by inspired volunteer translators. *Reverse Aging* is available in Chinese, Spanish, French, Polish, German, Japanese, Korean, Italian and Dutch.

In the past 15 years, I have discovered more new facts and invented several products to help improve our health. The purpose of this booklet is to present the new findings and products in a condensed form.

How We Age

Medical science has discovered that as we age, we lose bicarbonate (HCO_3^-) in our blood, and bicarbonate keeps the blood alkaline. Please refer to Dr. Lynda Frassetto's graph² below.

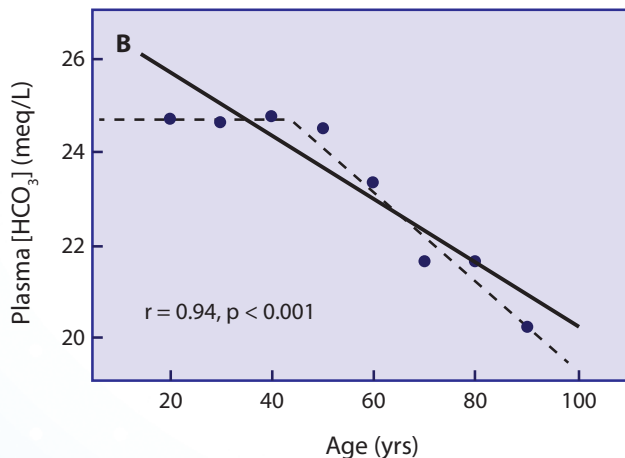


Figure 2, graph B of Journal of Gerontology: BIOLOGICAL SCIENCES, 1996, Vol. 51A. No. 1, B91-B99, by Dr. Lynda Frassetto, UCSF

Dotted line added by Sang Whang

Medical science has discovered that as we age, we lose bicarbonate in our blood, and bicarbonate keeps the blood alkaline.

The diminishing of bicarbonate in the blood is not the result of aging, but the very cause of aging.

A noticeable decline begins at the age of 45, and by age 90, we lose 18% of the bicarbonate in our blood. Bicarbonate is the alkaline buffer that neutralizes acid in our blood to maintain a balanced blood pH, resulting in the elimination of acidic waste in the human body.

The reduction of bicarbonate limits the ability of the blood to manage the acid waste produced by our cells. Blood must maintain a pH of 7.365. In order to survive, the body cleverly converts non-neutralized liquid acids into solid acids such as cholesterol, fatty acid, uric acid, phosphate, sulfate, urate, and kidney stones, among other things.

When the body lacks bicarbonate, blood is rendered incapable of neutralizing such poisonous acids as uric acid, phosphoric acid, and sulfuric acid. The body then robs calcium from the bones to form urate, phosphate, sulfate, etc. When acid waste is transformed to a solid form such as kidney stones, this is the human body's means of survival.

Everyone accepts the diminishing of bicarbonate and the accumulation of acids in our bodies as the inevitable result of aging.

The diminishing of bicarbonate in the blood is not the *result* of aging, but the very *cause* of aging. If we can find ways to replenish bicarbonate, like recharging a battery, we don't

45

*the average age
when symptoms
of acid-related
degenerative
diseases start
to appear*

have to get old. (More about replenishing bicarbonate in the blood later).

According to Dr. Frassetto's research, the turning point of age 45 is the average age when symptoms of diabetes, arthritis, hypertension, osteoporosis, cancer and other acid-related diseases start to appear. Cancer cells are acidic while healthy cells are alkaline. Cancer cannot develop in an alkaline environment. However, the lack of bicarbonate generates an acidic environment, thus creating a breeding ground for cancer. More bicarbonate in the body will prevent but not necessarily cure cancer.



98%

*of our foods is made
of carbon, nitrogen,
hydrogen and oxygen*

The two major categories of diseases are contagious diseases and acid-induced adult degenerative diseases. Medical science excels in treating the first category but has poor results in the latter because acid accumulation does not show up in X-rays. By the time the symptoms become so pronounced that they can be detected by X-rays, it is usually too late.

Reverse Aging addresses the various kinds of acidic waste and acid-induced diseases. It has become evident that these diseases are the result of bicarbonate deficiency. This handbook examines the causes of bicarbonate reduction and the sources of acid production in our body.

Foods and Special Diets

We consider diet as it relates to good health, but fail to understand the basic elements of foods. About 98% of our foods is made of carbon, nitrogen, hydrogen and oxygen. Only protein contains nitrogen. These elements are the energy-giving elements of foods. They give us energy by burning with oxygen.

After burning, they become acidic waste, such as acetic acid, cholesterol, lactic acid, fatty acid, carbonic acid, uric acid, nitro-oxide, and ammonia.

The remaining 2% of the foods consists of alkaline

minerals and acid minerals, such as potassium, sodium, calcium, magnesium, iron, sulfur, chlorine, and iodine. Depending on which minerals are more predominant, a food is perceived as alkaline or acidic. No “alkaline food” exists that does not produce net acidic waste, because 98% of foods produce acidic waste. It is impossible to neutralize acidic waste in the body through “alkaline diet” alone. It will only create a nutritional deficiency problem because we are not eating a balanced diet.

Eat everything in moderation and do not exclude any food. There is no medicine for nutritional deficiency.

When considering health, we usually think of diet and exercise. Diet is a nebulous approach to wellness, and often diet experts disagree with each other. The reason is very simple: all diet experts miss the net acidic contribution of 98% of foods.

None of the diet programs -- vegetarian diets, vegan diets, raw food diets, macrobiotic diets, low-carb diets -- adds bicarbonates to the blood.

Consuming sodium bicarbonate (baking powder) does not add bicarbonates to the blood because hydrochloric acid breaks up sodium bicarbonates into water, carbon dioxide



The most important thing to note is that no exercise adds bicarbonates to the bloodstream.

and sodium salt in the stomach. It is exactly like ingesting carbonic acid and sodium salt.

Exercise

Exercise is also considered a major factor for improving our quality of health. Exercise helps burn calories and discharges acidic waste through perspiration. It also tones muscles and helps build a lean and muscular body.

Exercise is good for health if done in moderation. The notion of “push to the limit” and “no pain, no gain” can do more damage than good.

Excessive exercise can create too much lactic acid, which is a result of insufficient oxygen. In some people, lactic acid can bring about exercise-induced asthma. Even Mr. Lance Armstrong, with a larger heart, has to rest from time to time to diffuse lactic acid. Lactic acid attacks would have been reduced if he had ample amounts of bicarbonate in his blood.

During exercise, blood pressure can be extremely high at times. If there are clots and debris circulating in the blood vessels, there is risk of stroke caused by high blood pressure clogging critical blood vessels with these clots and debris. Sufficient bicarbonate will lower the risk of clots and debris accumulation.



With excessive exercise or pulled muscles, nutrients burn so quickly that blood flow cannot remove waste products fast enough. This creates an acidic pool which clogs capillaries, preventing elimination of acid waste. The area initially becomes hot, but the temperature decreases and pain sets in as blood circulation slows due to the acid blockage.

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Why Do We Lose Bicarbonates?

Alkaline buffer, bicarbonate (HCO_3^-), is usually mated with alkaline minerals: for example, potassium bicarbonate

pH

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Survival is the human
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(KHCO_3), sodium bicarbonate (NaHCO_3), calcium bicarbonate ($\text{Ca}(\text{HCO}_3)_2$) or magnesium bicarbonate ($\text{Mg}(\text{HCO}_3)_2$). Acid buffer, carbonic acid (H_2CO_3), is a combination of water (H_2O) and carbon dioxide (CO_2).

When sodium hydroxide (NaOH), an alkaline element, enters the bloodstream, the acid buffer reacts with it to lower the blood pH:

$\text{NaOH} + \text{H}_2\text{CO}_3 = \text{NaHCO}_3 + \text{H}_2\text{O}$ (sodium bicarbonate and water).

Conversely, when hydrochloric acid (HCl), an acid element, enters the bloodstream, the alkaline buffer reacts with it to elevate the blood pH:

$\text{HCl} + \text{NaHCO}_3 = \text{NaCl} + \text{H}_2\text{CO}_3$ (sodium salt and carbonic acid).

Acid buffer becomes alkaline buffer in one case and alkaline buffer becomes acid buffer in the other. They fluctuate depending upon which element, alkaline or acid, enters into the bloodstream.

This happens because we have more acidic elements entering the bloodstream. Blood helps to reduce acid through the lungs by exhaling CO_2 from H_2CO_3 and

through the kidneys by urination. It is a delicate balancing act to maintain blood pH. Survival is the human body's top priority.

It is our lifestyle: diets, stressful daily routines, polluted environments, and “push-to-the-limit” personalities that create more acid in the blood, which in turn tax the alkaline buffer. Acidic soft drinks take the biggest toll on bicarbonates. In most cases, exclusion of any food is not necessary, but man-made soft drinks is one exception.

The body is at its highest alkalinity in infancy. According to Dr. Frassetto's research, the body does not lose any bicarbonates until age 45. This is due to the saturation phenomenon.

Through lifestyle, we can delay the onset of the downward dive or slow down the slope of the decline. However, the eventual decline of bicarbonate in the blood is unavoidable through diet and exercise alone.

In our present industrial environment, pollution is known to be the cause of bicarbonate decrease. Dr. Prakova in Bulgaria studied over 100 workers in a plastic manufacturing factory with a polluted environment and compared them with office workers of the same company in a non-polluted environment. Over a 10 year period, he noticed a marked

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decline of bicarbonate in the blood of those workers in the polluted factory³. Pollution, stress and depression all tax the bicarbonate supplies in our blood. There is no question that smoking also destroys bicarbonate.

Unless we replenish bicarbonate to our blood, it will diminish regardless of what we do. It is a losing battle.

How to Recharge Bicarbonate in the Blood

Good news! There are two effective methods to replenish bicarbonate to the blood: drink high pH alkaline water and/or take enteric-coated alkaline mineral pills.

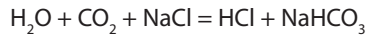
Alkaline water

Water ionizers were developed in Japan over half a century ago, and since then, the Japanese have been drinking alkaline water. Despite existing clinical research data from Japan, people in the US have not fully recognized the health benefits of alkaline water.

Fortunately, the benefits of alkalinity are being accepted not only by homeopathic and holistic doctors, but by an increasing number of mainstream doctors as well. However, most medical doctors are not scientists and do not understand how alkalinity works, especially when it pertains to the human stomach. Most doctors believe that stomach acid will destroy alkalinity.



The addition of bicarbonate to the bloodstream through drinking alkaline water is covered in Chapter 4 of the book, *I'm OK, but What Happened to My Body?*⁴ The process of hydrochloric acid production is:

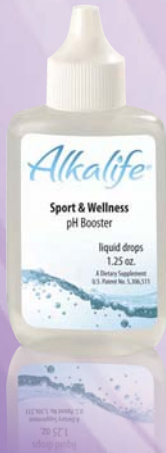


Water + Carbon dioxide + sodium salt =
Hydrochloric acid + sodium bicarbonate

Hydrochloric acid goes into the stomach and sodium bicarbonate goes into the bloodstream. The stomach cannot produce hydrochloric acid without producing bicarbonates.

The more alkaline water we drink, the more hydrochloric acid is produced. This results in more bicarbonate in the bloodstream. The higher the water pH, the more hydrochloric acid must be produced.

All water ionizer manufacturers claim that their ionizers are better than the rest. Some of the superior properties they claim are higher ORP (oxygen reduction potential), higher surface tension, smaller molecular structure. None of these is relevant in adding bicarbonates to the blood. The only important property is a higher pH value of the alkaline water. One of the problems with water ionizers is that the pH value of alkaline water is dependent on the alkaline mineral content in the original tap water.



Alkalife® pH booster, which comes in a small plastic bottle with a controlled tip, allows the user to add concentrated drops into a glass of filtered tap water. This produces high pH (up to 10) alkaline water. Alkalife® contains 7.5% potassium hydroxide, 2.5% sodium hydroxide and 90% distilled water. The ratio of potassium and sodium in the human body is vital in maintaining health. This patented ratio is the result of a 200-person bio-feedback test. In 2001, Dr. Lynda Frassetto published a paper showing the proper ratio of potassium and sodium in our diet, supporting these findings⁵.

Alkalife® is convenient to carry and is not murky like calcium or magnesium concentrate. Potassium and sodium are stronger ORP minerals than calcium or magnesium and therefore can dissolve and kick calcium out of phosphate, urate, sulfate, kidney stones, etc.

We now have different brands of bottled water claiming all kinds of health benefits: energy water, magnetized water, oxygenated water, ozone treated water, etc. However, none of these waters adds bicarbonates to the blood. That can only be achieved with alkaline water.

Alkaline mineral pills

Bicarbonate pills

The bicarbonate pill was developed to address the need to add bicarbonates to the bloodstream, and drinking water is not part of the pill-oriented American culture. This provides a supplemental option toward the goal of aging prevention through replenished bicarbonate levels. It contains the same ratio of 75% potassium bicarbonate and 25% sodium bicarbonate. To prevent creating an alkaline shock to the blood, it is formulated in a time-release compound.

The problem with bicarbonates is that stomach acid breaks down bicarbonates into carbon dioxide, water and salt; therefore, bicarbonates will not reach the bloodstream.



Even with a slow release compound, whatever is dissolved in the stomach is wasted. For this reason, the bicarbonate pill is enteric-coated, not to dissolve in the stomach but only after it enters the small intestine. Enteric coating is normally used to protect the stomach wall from drugs' damaging effects, but in this case the enteric coating protects the pill from the damaging effects of stomach acid.

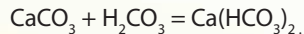
The patented bicarbonate pill product is Bicarb-Balance™. Compared with Alkalife®, Bicarb-Balance™ is independent of the stomach's condition in delivering bicarbonates to the blood. For example, if the stomach is in an over-acidic state, drinking alkaline water may not elevate the stomach pH significantly to produce hydrochloric acid, meaning no



bicarbonate will be produced. In addition, some people are unable to produce hydrochloric acid and need to take hydrochloric acid pills. Therefore, we cannot expect their stomach to produce bicarbonates. For them, the patented formula in Bicarb-Balance™ will work more effectively.

Calcium pills

Kidney dialysis patients have to watch their potassium intake. Some foreign countries do not allow the import of potassium bicarbonates in pill form, and no calcium bicarbonate pill is available on the market. To address this challenge, Sang Labs developed a calcium carbonate pill. Enteric-coated and time-release calcium carbonate powder delivered to the bloodstream may be too alkaline when it enters the bloodstream, because it is not in a bicarbonate form. However, our blood contains plenty of carbonic acid (H_2CO_3), which dissolves calcium carbonate and converts it into calcium bicarbonate:



The Columbia Encyclopedia states, "Calcium carbonate is largely insoluble in water but is quite soluble in water containing dissolved carbon dioxide, combining with it to form the bicarbonate."

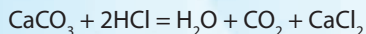
This is a safe and beneficial form of calcium in the blood.

Our blood contains plenty of carbonic acid (H_2CO_3), which dissolves calcium carbonate and converts it into calcium bicarbonate

e-Cal™ is a beneficial pill on two levels because it delivers calcium and bicarbonate to the bloodstream, two valuable elements we lose as we age.

Not only does it provide bicarbonate to neutralize acid as it enters the bloodstream, but it also delivers highly active calcium back to the body.

This patent-applied pill, named 'e-Cal™', is a beneficial pill on two levels because it delivers calcium and bicarbonate to the bloodstream, two valuable elements we lose as we age. Taking a regular calcium pill cannot achieve what e-Cal™ does, because (1) calcium carbonate doesn't dissolve well in water, (2) of the little calcium carbonate that dissolves in the stomach, it will become water (H₂O), carbon dioxide (CO₂) and calcium salt (CaCl₂) (hydrochloric acid (HCl) breaks down calcium carbonate):



Therefore, it will not succeed in producing the bicarbonate the body needs.

Overview of bicarbonate deliverers

The amount of minerals used for all three means of delivering bicarbonates to the bloodstream--AlkaLife®, Bicarb-Balance™ and e-Cal™ -- are so small that these products are not classified as pharmaceutical products by the FDA. They belong to the food or mineral supplement category, and are not something to be taken for a period of time and stop. They should be taken continuously, similar

to taking vitamins.

Remember, bicarbonate in our blood diminishes continuously. These products are not medicinal. They are steroid-free, non-habit forming and cause no known side effects.

The sole purpose of each of these products is adding bicarbonate to the bloodstream to promote the reduction of acid. Given enough bicarbonate, the intelligent human body knows what to do to improve health. There are no approved therapeutic claims.

Customers repeatedly report health improvement with Alkalife®, Bicarb-Balance™ and eCal™. When we understand the function of bicarbonate in the human body, it makes perfect scientific sense. However, every human being accumulates acid in different areas of the body and the reactions of adding bicarbonates to the bloodstream are also different. For this reason, these products should not be considered as medicines to cure any diseases.

Some people have reported an improvement in conditions such as fibromyalgia, migraines, depression, and autism. However, Sang Labs does not recommend the use of these products as a cure for these conditions until clinical tests are done. Many symptoms for which doctors cannot find

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Supplying oxygen without an acid reduction plan is like going into battle without an exit strategy.

a cause often relate to excess acid in the body, and these products assist the body in reducing acidic waste.

Conclusion

As we start to lose bicarbonate in our blood around age 45, we begin to age physiologically. In order to maintain good health we need to recharge bicarbonate to the blood. This is the basis for the new theory on reverse aging. This concept goes far beyond wrinkle removers or Botox. One of the key ingredients of life and longevity is bicarbonate in the blood. You have read the scientific facts and reasons and have learned some easy methods to achieve that.

When you come across products that claim to have anti-aging results, ask yourself if that product adds bicarbonate to your blood; and if so, how?

Many health improvement methods and devices are available: diets, exercise, yoga, supplements, vitamins, herbs, organic foods, antioxidants, acupuncture, magnetic devices, detoxification, massages, and saunas. They all improve health and wellbeing in some people some of the time.

Compared to what bicarbonate does in the body, the above methods are not effective in replenishing this critical element to our health and longevity. The easiest, most effective way to increase bicarbonates in the bloodstream

and restore pH balance in the body is to take alkaline supplements regularly, either in high pH water or enteric-coated tablet form.

Reverse Aging

2nd Edition, June 2012

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Paperback: \$11.95 USD

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For more information: www.alkalife.com



For more information about Alkalife pH booster drops, Bicarb-Balance tablets, e-Cal tablets and the AlkaBest water ionizer please visit www.alkalife.com

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Names of chemicals

| | |
|-----------------------------|-------------------------------------|
| HCO_3^- | bicarbonate |
| KHCO_3 | potassium bicarbonate |
| NaHCO_3 | sodium bicarbonate (baking soda) |
| $\text{Ca}(\text{HCO}_3)_2$ | calcium bicarbonate |
| $\text{Mg}(\text{HCO}_3)_2$ | magnesium bicarbonate |
| H_2CO_3 | carbonic acid |
| H_2O | water |
| CO_2 | carbon dioxide |
| NaOH | sodium hydroxide |
| KOH | potassium hydroxide |
| HCl | hydrochloric acid |
| NaCl | sodium chloride (table salt) |
| CaCO_3 | calcium carbonate |
| CaCl_2 | calcium chloride |