

A New Scientific Theory

Of

Aging and Reverse Aging

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Preface

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. And the real good news is that you can stop this downhill trend!

Some of mankind's greatest discoveries are profoundly simple. I sincerely hope that you will enjoy this booklet.

In Health,

Sang Y Whang
August 2005

Introduction

I am not a medical doctor nor a biologist. I am an engineer, scientist and inventor. I invented some 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 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 it went down bothered me. I wondered whether 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. Today, over 90,000 copies are in circulation. Not only that, it is translated into many languages by inspired volunteer translators. Reverse Aging is available in Chinese, Spanish, Polish, German and Japanese. Other languages are forthcoming.

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.

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Chapter 1

How we Age

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

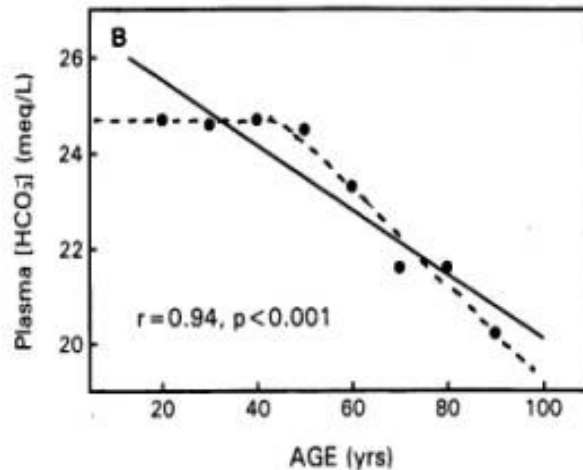


Figure 2, graph B of Journal of Gerontology: BIOLOGICAL SCIENCES, 1996, Vol. 51A, No. 1, B91 - B99, by Dr. Lynda Frassetto, UCSF

(Dotted line added by Sang Whang)

A noticeable decline begins at the age of 45 and, by age 90, we lose 18% of the bicarbonates in our blood to maintain a balanced blood pH, resulting in the elimination of acidic waste in the human body.

The reduction of bicarbonates 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, kidney stones, etc.

When the body lacks bicarbonates, blood is rendered incapable of neutralizing such poisonous acids as uric acid, phosphoric acid,

sulphuric acid, etc. 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.

The whole world accepts the diminishing of bicarbonates and the accumulation of acids in our bodies as the inevitable result of aging.

I discovered that the diminishing of bicarbonates in the blood is not the *result* of aging, but the very *cause* of aging.

If we can find ways to replenish bicarbonates, like recharging a battery, we don't have to get old. (More about replenishing bicarbonates in the blood in chapter 5)

Getting back to Dr Frassetto's research, the turning point of age 45 is the average age when symptoms of diabetes, arthritis, hypertension, osteoporosis, cancer, etc., start to appear. **Cancer cells are acidic while healthy cells are alkaline.** Cancer cannot develop

In an alkaline environment; however, the lack of bicarbonates creates an acidic environment, thus creating a breeding ground for cancer. More bicarbonates in the body will prevent, but not necessarily cure, cancer.

The two major categories of diseases are contagious diseases and acid-induced adult degenerative diseases. Medical science excels in treating the first category but poor 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.

In Reverse Aging, I discuss the various kinds of acidic waste and acid-induced diseases. Since then I have learned that they are the result of bicarbonate deficiency. In chapter 4, we will study the caused of bicarbonate reduction and the sources of acid production in our body.

Chapter 2

Foods and Special Diets

We think of diet for good health, but we don't even know what's in the foods. An absolute majority of our foods (about 98%) 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 are alkaline minerals and acid minerals, such as potassium, sodium, calcium, magnesium, iron, sulfur, chlorine, iodine, etc. Depending on which minerals are more predominant, we classify; **There isn't any so-called "alkaline food" that does not produce net acidic waste, because 98% of the foods produce acidic waste.** We are fighting a losing battle to neutralize acidic waste in the body by sticking to a so-called "alkaline diet"; 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.**

In discussing health, we usually think of diet and exercise. Diet is the most confusing voo-doo science, and no two diet experts agree with each other. The reason is very simple: all diet experts miss the contribution of 98% of the foods.

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

Ingesting sodium bicarbonates (baking powder) does not add bicarbonates to the blood, because the hydrochloric acid in the stomach breaks up the sodium bicarbonates into water, carbon dioxide and sodium salt. It is exactly like ingesting carbonic acid and sodium salt.

Chapter 3

Exercise

Next to diet, we think of exercise to improve our health. Exercise helps to 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 help.

Over-exercise can create excessive 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 break away from time to time to diffuse lactic acid. If he had ample amounts of bicarbonates in his blood, lactic acid attacks would have been reduced.

During exercise, blood pressure can be extremely high momentarily. If we had clots and debris floating around in the blood vessels, there is the risk of a stroke caused by high blood pressure clogging up critical blood vessels with these clots and debris. **Plenty of bicarbonates will lower the risk of clots and debris accumulation.**

When we over-exercise or pull a muscle, we burn nutrients so fast that the blood cannot carry away the waste products fast enough, this creates an acidic pool. Unfortunately, acidic pools clog up capillaries surrounding them and prevent acid wastes from coming out. The spot is hot at the beginning, but as time goes by, blood circulation stops and the temperature decreases and pain sets in.

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

Chapter 4

Why Do We Lose Bicarbonates?

Alkaline buffer, bicarbonate (HCO_3^-) is usually mated with alkaline minerals; for example, KHCO_3 , NaHCO_3 , $\text{Ca}(\text{HCO}_3)_2$ or $\text{Mg}(\text{HCO}_3)_2$, 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:

$\text{NaOH} + \text{H}_2\text{CO}_3 + \text{H}_2\text{O}$ (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.

What is happening is that in the long run, we have more acidic elements entering the bloodstream. Blood does its best to reduce acid by exhaling CO_2 from H_2CO_3 and urinating acid through the kidneys. It is a delicate balancing act to maintain blood pH. Survival is the human body's top priority.

It is our lifestyle: diets, stressful routine, polluted environment, “push-to-the-limit” personality, etc., that creates more acid in the blood, which in turn taxes the alkaline buffer. The worst kind of food that taxes bicarbonates is acidic soft drinks. I don't believe in the exclusion of any food, but I make an exception when it comes to man-made soft drinks.

We are born with highly alkaline elements in our body. According to Dr. Frassetto's research, the body doesn't seem to lose any bicarbonates until age 45. However, it is my humble opinion that our decline starts early and doesn't appear until age 45 because of the saturation phenomenon.

Depending on our lifestyle, we can delay the onset of the downward dive or slow down the slope of the decline. However, **we cannot stop the eventual decline of bicarbonates in the blood by any diet and exercise regiment 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. After 10 years of study, he noticed a marked decline of bicarbonates in the blood of those workers in the polluted factory³⁾. Yes, pollution, stress and depression all tax the bicarbonates supplies in our blood. **There is no question that smoking also destroys bicarbonates.**

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

Chapter 5

How to Recharge Bicarbonates to the Blood

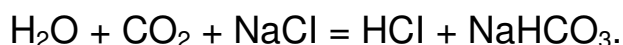
Good news! There are 2 methods to replenish bicarbonates to the blood: drink high pH alkaline water and/or take enteric-coated alkaline mineral pills.

5.1) Alkaline Water

Water Ionizers were developed in Japan over half a century ago, and since then, the Japanese have been drinking alkaline. Despite existing clinical research data from Japan, the US remains ignorant of alkaline water's health benefits. The drug industry is largely to blame for this, since it doesn't generate any financial gains from water ionizer sales.

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 MDs are not scientists, they do not understand how alkalinity works, especially when it pertains to the human stomach. Most MDs believe that stomach acid will destroy alkalinity.

To the best of my knowledge, the first publication of the subject of adding bicarbonates to the bloodstream through drinking alkaline water is on my Website⁴⁾, www.alkalife.com, technical article #3 "Alkaline Water and Stomach Acid". **In a nutshell, when we drink high pH alkaline water, the pH of the stomach goes up too high, inducing the stomach to produce more hydrochloric acid.** The process of hydrochloric acid production is:



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, thereby the more bicarbonates are added to the blood. This is how we add bicarbonates. The higher the water pH, the more hydrochloric acid will be produced. (Please read article #26 on my Website for more details.)

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 pH value of the alkaline water. One of the problems with water ionizers is that the pH value of the alkaline water is very much dependent on the alkaline mineral content in the original tap water.

In 1994, I invented an alkaline concentrate. Alkalife[®]. It comes in a small plastic bottle (1.2oz.) with a control tip so that putting two drops of into a 10oz glass of filtered tap water produces pH 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 very important in maintaining health.** I derived this ratio with a 200-person bio feedback test. The ratio is an important part of my patent. In 2001, Dr. Lynda Frassetto published a paper showing the proper ratio of potassium and sodium in our diet, supporting my 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 phosphates, urate, sulfate, kidney stones etc.

We now have different brands of water 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.

5.2 Alkaline Mineral Pills

5.2.1 Bicarbonate pills

Since the goal of aging prevention is to add bicarbonates to the bloodstream, and drinking water is not part of the American culture but pill popping is, I attempted to produce a bicarbonate pill. Naturally, I selected the same ratio of 75% potassium bicarbonate and 25% sodium bicarbonate. To prevent creating an alkaline shock to the blood, I mixed a time-release compound with it.

The problem with bicarbonates is that stomach acids 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 new pill is enteric-coated, not to dissolve in the stomach but only after it dissolves in the small intestines.** Enteric is normally used to protect the stomach wall from drugs' damaging effects. I use enteric coating to protect the pill from the damaging effects of stomach acid.

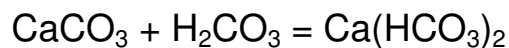
Bicarb-Balance™ is the new pill. Its patent was applied for in 2004. Compared to Alkalife®, Bicarb-Balance™ is independent of the stomach's condition in delivering bicarbonates to the blood. For example, if the stomach is in an over-acidic state, drinking alkaline water may not elevate the stomach pH 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, Bicarb-Balance™ will work more effectively.

5.2.2 Calcium pills

Kidney dialysis patients have to watch their potassium intake. Some foreign countries are so bureaucratic so that they do not allow the importation of potassium bicarbonates in pill form, for no technical, medical or biological reasons, rather only because it is stated in the

book of rules. To overcome these obstacles, I looked for calcium bicarbonate pills. To my surprise, no calcium bicarbonate is available on the market.

My next step was creating 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 bicarbonate form. However, **our blood contains plenty of carbonic acid, which dissolves calcium carbonate and converts it into calcium carbonate:**

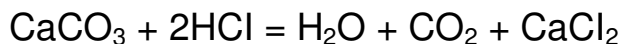


(The Columbia Encyclopedia states; “calcium carbonate is largely insoluble in water but is quite soluble in water containing dissolved carbon dioxide, combining with it to form the bicarbonate”.)

This is a safe and very beneficial form of calcium in the blood. Not only does it provide bicarbonate to neutralize acid as it enters the bloodstream, but it also delivers very active calcium back to the body.

This patent-applied pill, named ‘**e-Cal™**’, **is a win-win pill because it delivers both 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 too little calcium carbonate that dissolves in the stomach, it will become water, carbon dioxide and calcium salt (hydrochloric acid breaks down calcium carbonate):



5.3 Overview of bicarbonate deliverers

The amount of ingredients 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 considered 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, bicarbonates in our blood diminish continuously.** These products are not medicinal. They are steroid-free, non-habit forming and cause no known side effects.

All these products achieve is add bicarbonates to the bloodstream to promote the reduction of acid. Given enough bicarbonates, the intelligent human body knows what to do in improve health.

There are no approved therapeutic claims.

Customers repeatedly report health improvement with Alkalife® and Bicarb-Balance™. When we understand what bicarbonates do 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. That's why these products should not be considered as medicines to cure any diseases.

Many symptoms that doctors cannot find a cause for are commonly caused by excess acid in the body. Case in point, many of our customers have reported an improvement of fibromyalgia, migraines, depression, autism, etc. However, I do not recommend the use of my products as a remedy of these symptoms until clinical tests are done. So far, I have not been able to persuade any medical doctors to conduct clinical tests.

In the meantime, open-minded intelligent people are trying these products to improve their health, based on their scientific

understanding. Others will waste their life and health waiting for clinical test results.

Chapter 6

Other Related Scientific Topics

6.1 Pollution

There are about 75 trillion cells in the human body. These cells live on the average of only four weeks. At the end of its lifespan, the core of the cell, the gene, splits into 2 halves and each half seeks proteins and enzymes to duplicate the matching half; thus one cell becomes two identical cells.

If every cell were to duplicate, there would be 150 trillion cells in 4 weeks; however, the fact is, we still maintain about 75 trillion cells. This meant that only half of the cells regenerate and the other half degenerate.

The question is: 'Which cells regenerate and which degenerate?' The law of nature is such that strong and healthy cells regenerate; weak, injured, polluted, infected, damaged or dead cells degenerate. This is how health is maintained in this world of pollution, radiation, RF interference, insecticide, herbicide etc.

Since half of the 75 trillion cells degenerate in 4 weeks, we can calculate **the number of cells that degenerate every second to be over 10 million**. In other words, we can afford to lose over 10 million bad cells per second. *Eventually, these dead cells become acidic waste. If there are enough bicarbonates in our blood, the bicarbonates would simply neutralize this waste, dump it and balance and maintain our health.* If not, we become ill.

A lot of people are paranoid with pollutants and eat only organically grown foods. There is no need for that if there is ample amounts of bicarbonates in the blood.

6.2 Immune system

Contagious diseases are obviously not caused by excess acid. However, when foreign entities invade the human body, the body declares war by creating white blood cells to fight the invaders. The casualties of this war are dead cells from both sides, and they eventually become acidic waste. If there were plenty of bicarbonates in the body, they would neutralize this waste and the body would recover quickly. If not, it would suffer the effects of acid for longer duration. **Bicarbonates provide immune protection.**

6.3 Pregnancy

When a woman becomes pregnant, she loses quite a bit of alkaline minerals to the fetus. In creating mankind, God made sure that the new life gets priority in alkaline minerals. The fetus stays in the placenta for 9 months. During that time, the fetus receives nutrients through the umbilical cord for energy and growth.

When the nutrients are burnt, acidic waste is created. Since the mother's blood vessels are not connected to the fetus's blood vessels, the acidic waste made by the fetus cannot come out through the mother's urine. The fetus must discharge into the placenta and it remains there till the water breaks. For this reason, during the early stage of pregnancy, the mother's body loses a great deal of bicarbonates to the placenta, causing her own body to suddenly become acidic. Japanese doctors claim that this is the cause of morning sickness.

Pregnancy is a major cause of osteoporosis. **Women with a high level of bicarbonates in the blood may not experience severe morning sickness or suffer osteoporosis late in life.**

Chapter 7

Conclusion and Postscript

7.1 Conclusion

As we start to lose bicarbonates in our blood, around age 45, we begin to age physiologically. **This is the new theory on aging.** All we have to do to stop aging and maintain good health is to recharge bicarbonates to the blood. **This is the new theory on reverse aging.** I'm not talking about a wrinkle remover or Botox. The key ingredient of life and longevity is **bicarbonates in the blood.** I have shown you the scientific facts and reasons and some easy methods to achieve that; **it is now up to you.**

When you come across a product that people purportedly say is good for your health, **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, food supplements, vitamins, herbs, organic foods, Noni Juice, raw foods, anti-oxidants, acupuncture, magnetic devices, detoxification, chelation, oxygenated water, Pi water, massages, and saunas. They all improve health and wellbeing in some people some of the time, but none is effective in replenishing bicarbonates to the blood.

Compared to what bicarbonates do in the body, the above methods and devices only provide symptomatic relief.

7.2 Postscript

In developing these products and trying to market them internationally, I realize how great this country is. We are assumed innocent until proven guilty. In this country we can develop products without first asking for government permission. Should people be

harmful by any of these products, the government rightfully steps in to protect the public.

Some countries do not allow my products in without first proving that they will not harm the public. I am assumed guilty until proven innocent. It is very difficult to prove something that does not exist.

Furthermore, some countries ban perfectly healthy products, not because of any technical, medical or biological reasons but because certain ingredients are in some ancient regulation books as banned substances. Some countries have even tested the products to be non-toxic, yet still ban them for bureaucratic reasons.

Because of some over-zealous bureaucrats, many people in some parts of the world are denied access to means of a healthier and longer life.

In these days of the internet, we can have access to all kinds of information, some correct and some wrong. How to distinguish and use the correct information to our benefit requires wisdom. Wisdom comes from God.

May God bless you and give you the wisdom to use the information in this booklet to your benefit.

Names of Chemicals:

HCO ₃	bicarbonate
KHCO ₃	potassium bicarbonate
NaHCO ₃	sodium bicarbonate (baking soda)
Ca(HCO ₃) ₂	calcium bicarbonate
Mg(HCO ₃) ₂	magnesium bicarbonate
H ₂ CO ₃	carbonic acid
H ₂ O	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