

Foods, Herbs and Pharmaceuticals that Extend Lifespan

**A summary of over
200 research studies
proven to lengthen
lifespan**

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Founder of www.ez3dbiz.com

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During the last 6 years of writing longevity nutrition books, Scott has made available various herbal formulations such as Scott's SOD Booster and Mighty Brain Lightning. He has made these and other formulas available for free on his website which can be found by visiting the address below:

www.ez3dbiz.com

This book is part of our ongoing series about longevity using Nutraceuticals. Other books published by the Institute of Solar Studies on Behavior and Human Health include:

- 1. Released August 2013 - Anti Aging Nutrition Secrets. The Fountain of Youth Seekers Guide to Longevity-**
- 2. Released August 2013 - A Centurion's Toolbox for Longevity Living Beyond 120 - 2nd Edition**
- 3. Released Late-December 2012 - How to Make and Sell Your Own Aromatherapy and Herbal Products**
- 4. Released Mid-December 2012 - How to Sell Your Homemade Products Online**
- 5. Released November 2012 - Solar Visualization Tools for Health and Prosperity**
- 6. Released July 2012 - The Emerald Tablets: The Keys of Life and Death by Thoth the Atlantean**
- 7. Released September 2012 - Living Healthy Beyond 120, A Centurion's Plan for Longevity**

- 8. Released May 2014. - Solar Flares and Their Effects upon Human Behavior and Health.**
- 9. Revised December 2016. The Complete Guide to Natural Toothache Remedies and Re-mineralization.**
- 10. Revised October 2016. - The Official Guidebook of How to Make Tinctures and Alchemy Spagyric Formulas .**
- 11. Released April 2015. - The Any Climate Survival Guidebook. Maintain Resilience in Rain, Snow or Desert**

You may preview the first 3 chapters of any of these books by visiting:

<http://www.ez3dbiz.com/library.html>

This book is dedicated to those seeking not only to live longer, but to reveal the scientifically proven formulas and methods that allow people to live longer.

This book is a great research reference tool for those seeking combinations, herbs or techniques that extend lifespan. Almost all information provided in this book is backed up by solid scientific studies and published papers.

This information in this book contains foods, herbal formulations, and nutraceuticals scientifically proven to lengthen lifespan.

A Heartfelt Dedicated Thank You to all the scientific longevity researchers who willingly shared their knowledge by contributing their results and findings, making this book possible.

A special thank you to longevity researcher Mr. Doug Skrecky for sharing his hundreds of research studies on longevity with us all.

**Use The Convenient Reference Located At The
Back Of This Book To Match the Life
Extending Properties Of The Herbs,
Pharmaceuticals And Foods
Found In This Book**

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Introduction

Written by famed longevity researcher Mr. Scott Rauvers, whose 5 books on anti-aging have spanned the globe, creating momentum in the anti-aging revolution, Scott's 6th book has been written for those seeking herbs, foods and pharmaceuticals, including their combinations that extend lifespan. A significant portion of this book is dedicated to stem cell herbal formulas scientifically proven to extend lifespan.

This book is an excellent and valuable resource for longevity researchers who wish to make their own life extension formulas. The majority of the substances and their combinations shown in this book include full scientific references and documentation, allowing the reader to further explore the life extension properties of each study described. For quick and easy reference, the end pages of the book include a detailed index listing all the herbs, foods and pharmaceuticals mentioned therein.

For those seeking substances that extend lifespan and return good health to the elderly, this book lists the substances that achieved the best results, all on a single page summary for quick reference.

There is no complicated, coded scientific mumbo jumbo in this book. All the scientific translation has been done for

the reader, making it easier than ever to pursue a longevity lifestyle.

Whether you are an anti-aging scientist or just interested in living a long and healthy life, this book can supply you with all the information you will ever need.

Why Death is Bad and Living is Good

Let's explore the myth that we as a species should only accept a lifespan of between 70 to 120 years. The most common questions about extending life organically are displayed below in Q & A format.

1. Won't longer lifespans threaten Medicare, Social Security and Pensions?

Over the long term they will unless changes are made. Human lifespans have gradually been rising for most of this century. Average American lifespans have increased by 29 years since the year 1900. Since that time Governments and the medical industry have adjusted to it without any major burdens.

It is a fact that today's elderly make up the vast reasons for doctor's visits. If we as a society don't find ways to treat the illness aging causes, we will have a large portion of old and frail people. The solution to this is to avoid doctor's offices filled with the elderly and instead keep them youthful, knowledgeable and productive.

This makes sense to solving the aging crisis. People that live longer would also be more productive to society. Without the burden of age related illnesses the economy and healthcare would benefit tremendously. This gives sound reason to the myth that it is immoral to suppress life extending technology, based on protecting the status quo.

As a person ages, they acquire more knowledge, experience, wisdom and skills.

2: Is aging a prerequisite to life?

Some ocean species which were around before the great flood such as rockfishes, lobsters, some tortoises and some trees and plants do not appear to age. This could mean that after the great flood earth's climate and magnetic field were altered in such a way it reduced the lifespan of land animals including man.

3. Who would want to live forever?

People leading healthy fulfilling lives want more of it. Those welcoming death are victims of the gradual aging process whose lives become unbearable toward the end of their life. The goal of longevity scientists is to reverse those gradual side effects of aging. If anyone enjoys a fulfilling lifestyle, why would they ever want it to end?

4. Won't life extension increase population and tax our planet's resources?

Since the start of the Industrial Revolution, people with their own depopulation agenda have screamed doom and gloom about limited resources. In fact since their deaths, the exact opposite has occurred. Population has increased by 740% and the standard of living has soared. This is because as life expands and grows, the brainpower needed to solve overpopulation and crowding automatically presents itself.

In fact if immigration is factored out, industrialized countries are experiencing population declines. There also exist vast open regions such as Africa, Australia and Antarctica, once made uninhabitable due to climate are now made suitable for living through new technologies and climate change. The cost of

rearing a cow and slaughtering it was a huge drain on local resources. In a few years we will be able to make a hamburger at 1\10th the cost of rearing a cow, all made possible by growing beef in the lab.

As the population continues to expand, more people born with the abilities to develop better technologies for more plentiful and cheaper food, pure air and clean water, clean abundant energy and affordable housing will present their solutions to science. People with the abilities to solve these problems are the result of an ever expanding population. As technology continues to grow it not only extends lives, but makes it more livable for growing populations.

When depopulationists tell people that they should die so they can 'make room' for more people, it is like trying to drain the ocean of its minerals. The minerals in the ocean exist to support life and it is nature's purpose to grow. History is starting to show this line of thought is narrow minded and purely selfish thinking on behalf of some people. Some people fail to see the long term benefits of extending lifespan for the human population.

5. Some of my friends have religious beliefs that a long life is selfish and against god's divine universal plan.

It was god's plan before the flood for people to live hundreds of years. Your friends have a choice to live or die. If they chose to ignore life extension technologies, why would you let them drag you along? As life goes on we meet new people who become new friends, and a few of these become close friends. How many new friends could be made in several more lifetimes? People get over emotionally draining situations and discover new ones afterward a period of turmoil. Emotional loss and

heartbreak always heal. As your newfound recovery proceeds you will discover lots of interesting new people in this world who would love to know you.

6. Modern technology is the only way to extend life.

It is a fact, back in biblical times, the average lifespan was 700 years. If we can combine diet, changes to our genes that contribute to longevity and health along with the same atmospheric and mesio-magnetic conditions that existed before the great flood and generate these conditions in regions where population centers are, we will have suitable conditions to extend lifespans.

7. Why haven't universities or the medical establishment declared a Manhattan style project on aging?

Aging gradually sneaks up on us. Because aging is not treated as a disease, the time factor between research and results gradually ignores the real discoveries. Take carnosine for example, before resveratrol, it was the number 1 longevity supplement. When resveratrol came on the market it overlooked the power of carnosine and studies are now showing excess resveratrol causes cancer and only works best when taken with the right diet.

8. Won't extreme life extension technologies only be for the rich?

History has shown that any new technology is always expensive, especially if it has not been in the marketplace long enough to prove itself. Since the year 2000 industrialized society has been undergoing a 50% annual deflation factor or less for many new technologies. Over the years this trend has

been growing. The manufacturing of new technologies is becoming automated, allowing them to be more affordable and faster at a faster pace. Once a technology has progressed through its second stage, (expensive and rare) it becomes available to many more people and it tends to have proven itself. By the third stage they they're almost free. The current rate of time from unaffordable to inexpensive is an average of 8 to 10 years. As the pace of technology quickens, this will change to the following:

- Ten years from now - five years.
- Twenty years from now - two years.

9. Won't people grow bored if they live a long time?

The World Bank reports that poverty in Asia has been cut in half just over the last 10 years alone. Part of this is largely due to information technologies. At the current rate of progress, it will be slashed 90% or more during the next decade. And this is not only isolated to Asia, but the trend is also spreading worldwide.

A longer lifespan will afford us the opportunity to spend quality time with our children's great, great grandchildren. New knowledge acquired through education will allow us to go back to school to studying something we really love. Haven't you already noticed the range of topics in education has kept pace with lengthening lifespan?

Anyone with an open-ended future would never have time to be bored. Most people who are bored are lazy or want to exploit others because they fail to see life as a growing and learning

experience.

10. Doesn't the bible state it is against the will of God's divine plan to alter nature?

Was it God's intention to create mankind with a mind able to enjoy the richness and fulfilling experiences of life, and then frustrate him with a short lifespan? Over the years breakthroughs in aging have given man the ability to successfully extend lifespan. Why would God have given us these tools without wanting us to use them? Wouldn't God take pleasure in seeing us choose life? Would this not than be a sin for us to suppress life-extending technologies?

If humanity decided to just follow nature's will, we wouldn't have all the medical miracles we take for granted today. Laser surgery, antibiotics, organ transplants, just to name a few all came from seeking solutions to where nature wanted to follow its course of entropy (nature follows the law of ever creating destruction).

Just remember, it was Mother Nature who spawned polio, smallpox, leprosy, the black plague, cancer and more. For intelligent beings that want to responsibly evolve, indefinite life becomes part of the natural order of further progress.

11. Wouldn't stopping the process of aging extend the years of being frail and sickly?

Research has shown that people spend more on hospital bills during the last year of their lives compared to what they spent on hospital visits the rest of their years combined. Nobody wants to spend years in a boring, meaningless nursing home. Age reversal is all about transforming the elderly into a youthful

state of health and well being. Resetting the biological clock, while the chronological clock is ticking, is key to solving the aging process.

12: Shouldn't we use our resources more wisely, instead of just finding a cure for old age?

As covered earlier, as a population expands, there will always be people born along with that expansion that can solve overpopulation, more electrical energy etc, now just think how we could double the pace of finding solutions to mankind's problems by extending the lifespan of our oldest people.

Knowledgeable human beings are the ultimate resource. Elderly people are the most knowledgeable people we will always have. If they chose to continue to remain productive, their knowledge and resources can be effectively channeled into solving numerous problems once deemed impossible. Problems such as worldwide hunger, energy shortages, overpopulation, access to good education and the diffusing of conflicts, both local and international.

Estimates show that our earth can accommodate approximately 12 billion people before becoming overburdened. People with knowledge, brains and resources can expand on existing technologies such as mile high buildings (Frank Lloyd Wright designed one in 1956 that could have housed all of downtown Chicago), seabed farming, mining asteroids, clean energy-saving technologies and more. Not to mention the coming technologies still to be explored such as nanotechnology and genome engineering.

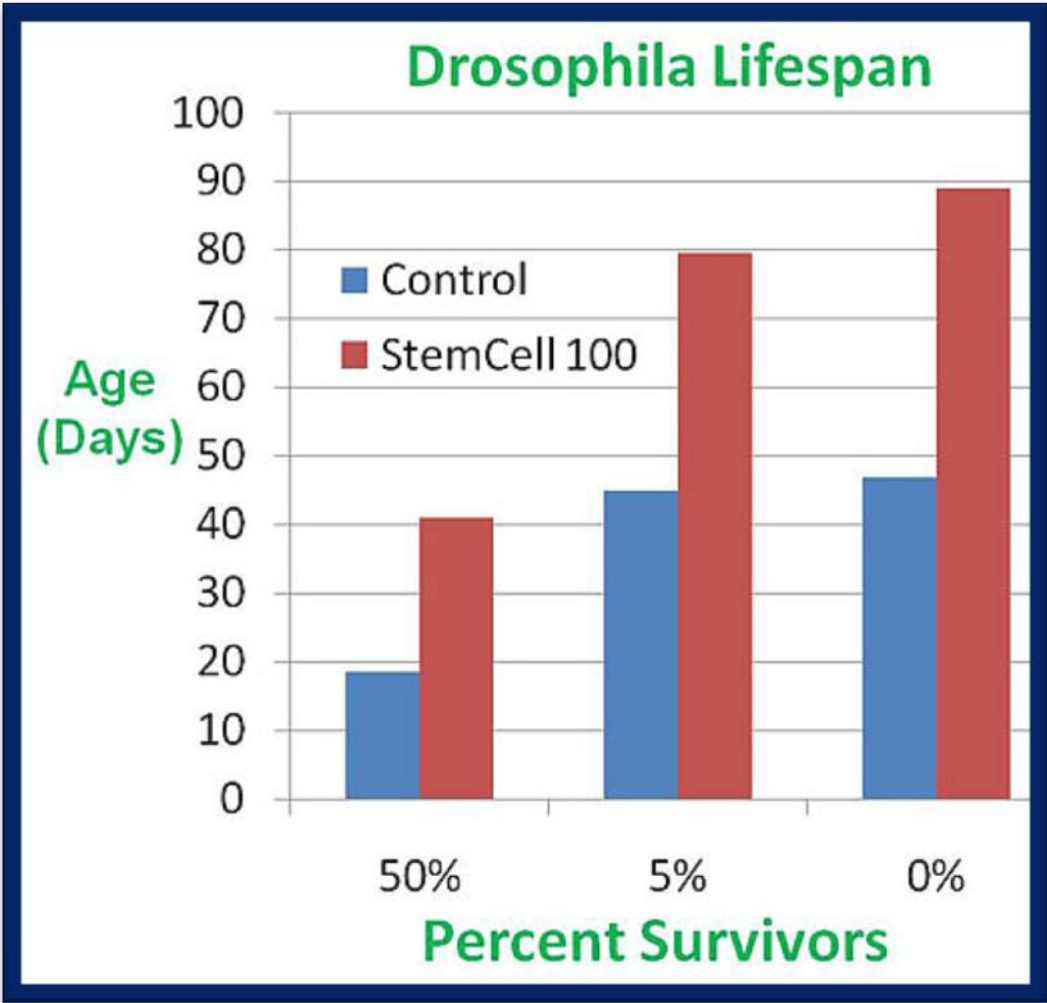
13. We as a species can't even find the cure to common cancers, how do we expect to solve the riddle of aging?

The riddle of aging may not be as complex as it seems. For example there is some evidence to suggest humans could once produce their own vitamins C, like many animals do today. Thousands of years ago this gene that produced vitamin C suddenly turned itself off and nobody knows why. If we can figure out a way to turn this gene back on it would be a tremendous leap forward in age reversal genetics.

As a result of technology, biological problems that once took years to solve, now take just 45 minutes or less with the aid of a computer. Today we already know how to lengthen lifespans up to twenty years in humans using low-tech lifestyle modifications. Recent giant computational and technological leaps continue to give us the tools to make reversing the process of aging a reality. These information and technology tools will continue to grow in speed with the exponential growth of the human population as a whole.

So in conclusion, delaying life contributes to a delay in human progress.

Before we examine stem cell herbal formulas and how they extend lifespan, let's take a look at just one stem cell supplement today that has shown lifespan extension properties. **Stemcell100.com** lists a product called StemCell 100 that uses herbs to extend lifespan. Their test results are as follows:



The ingredients of StemCell100 include the following:
Astragalus, Blueberry flavonoids, Oligo-proanthocyanidins

(OPCs), L-Theanine, Genistein, Harataki Extract, Resveratrol Analogs, He-Shou-Wu, Schisandra Berry, Drynaria Rhizome and BioPerine. So we can see that the majority of the ingredients in this stem cell life extension formula contain herbs. This is proof that a stem cell based herbal formula can extend lifespan. As of January 2016, it has a 4 out of 5 star rating on Amazon.com.

Basics of Stem Cell Reproduction via Nutraceuticals. A simplified explanation.

Many of us are familiar with the concept of how stem cells are being used to grow new organs for the body. But did you know that stem cell growth can also be accomplished by certain herbal formulations to rebuild bones and extend lifespan? This book will not cover the organ growing stem cell technology, but will instead cover herbal formulas scientifically proven to grow new stem cells in the body and lengthen lifespan. Many of these formulas help contribute to bone growth and loss of bone is one of the major factors of aging. It has been my experience from using a herbal formulation I developed that boosts stem cells that I have much more endurance, more flexible and stronger bones and a stronger immune system from using a stem cell based formula derived from herbs and combined with Carnosine, which I discuss in further detail, along with the formula in Chapter 2 of this book.

What Are Mesenchymal Stem Cells?

Mesenchymal stem cells are found in our bone marrow, circulating blood, and fat cells. These cells repair and replace damaged tissue. Our body depends on these adult stem cells in the bone marrow to repair damage and stay healthy. This vital role they play is one of the greatest health discoveries of modern times. It is a fact that if you don't get enough minerals in your diet, your body starts pulling minerals out of your bones, which is why if you can keep your bones strong and healthy as your age increases, you offset the aging process. Scientific studies have proven that the number of mesenchymal stem cells diminish in bone marrow as a person ages and is one of the causes for aging. Other stem cells are also used to grow new organs. However as just mentioned we won't discuss this in detail in this book because the purpose of this book is using herbs and their combinations that promote Mesenchymal Stem Cells (bone marrow) for longevity.

The decline of adult stem cells in our body leads to irreversible damage in virtually any body part, causing tissue breakdown, aging and a loss of long term health. Without a resupply of constant adult stem cells, good health is compromised.

Let us examine the growing research showing that adult stem cell release rates decline as we age:

- **35 years - the stem cell release rate drops by 45%**
- **50 years - the stem cell release rate drops by 50%**
- **65 years - the stem cell release rate drops by 90%** (*At this age we have just 10% of adult stem cells circulating in our blood. This is what makes us vulnerable to infection and osteoporosis*)

When we are born we have an adult stem cell circulation of 100%. This is the reason children's bones heal so rapidly when they are broken. Their fresh supply of adult stem cells are released into their blood stream to create the physical healing and regeneration whenever an injury occurs. Have you ever noticed how long it takes for a cut or bruise to heal now compared to when you were a teenager?

Taking stem cell formulas is the best way to optimal health levels for the long term. The good news is it is never too late to combat the process of aging. The optimal recharging window starts closing at around age 43, and may take longer to get to optimal levels if you start natural stem cell nutrition therapy if you are older.

How Does an Increase in Mesenchymal Stem Cells Lead to Enhanced Physical Health?

Much scientific interest centers on the cell's ability to divide or self-renew forever. This helps generate the necessary cell types needed for tissue and organ repair.

Mesenchymal stem cells are being used clinically to treat many diseases. These include cancers, autoimmune diseases such as multiple sclerosis, anomalies including sickle cells anemia, lupus and arthritis and immunodeficiencies. They have even successfully been used on pets and animals.

Mesenchymal stem cells are the ones we want to have plenty of if we wish to offset the aging process. In clinical trials mesenchymal stem cells showed success treating patients for Parkinson's disease as well as spinal cord injury. The FDA also just approved a study to treat juvenile diabetes in human patients by Harvard Medical School, using adult stem cells.

What the Experts have to Say

One of the leading experts in mesenchymal stem cell science is Dr. David A Prentice, Ph.D., who is a professor at Indiana University School of Medicine. In 2003 his detailed paper to the President's Council on Bioethics stated:

“Adult stem cells have significant capabilities for repair, growth, and regeneration of damaged cells as well as tissues in the body. It is akin to a built-in maintenance

crew or repair kit that needs only activation and stimulation to accomplish this repair of damage. It is the direct stimulation of adult stem cells within tissue that may be the easiest, safest and most efficient way to stimulate tissue regeneration. ”

If we examine the above wording closely we can see that by using herbs as the means to stimulate and activate adult stem cells in the body is probably one of the best ways to help regenerate tissue safely and cost effectively.

Herbal Methods to Stimulate Mesenchymal Stem Cell Growth to Prolong Lifespan

Because bone loss is related to aging, if we can prevent the loss of bone as we age, lifespan is significantly enhanced. The most efficient way of doing this is through natural herbal stem based therapies. There are already scientific studies confirming that healthy bones extend lifespan.

The Link Between Foods That Keep Bones Healthy And Longevity

For those of you familiar with the fruit fly longevity research of Doug Skreky, White Gourd was a record setter in longevity/lifespan.

Research Pages of White Gourd on Life Span:

To locate the research papers on White Gourd, enter into any Internet search engine the following term: **83'rd update on fly longevity experiments + white gourd**

Or you may enter into any Internet Search engine, the key words **White Gourd + Doug Skrecky** to get the above links White Gourd is a member of the melon family, which includes the fruit Cantaloupe. Cantaloupe has been proven to boost the body's SOD levels. SOD is one of our body's most powerful antioxidants. Cantaloupes are also an excellent source of polyphenols, a class of plant antioxidants that play a confirmed role in **increasing bone density** by boosting the production of osteoblasts. **In a study titled:** Herbal Cocktail Ka-Mi-Kae-Kyuk-Tang Stimulates Mouse Bone Marrow Stem Cells, the formula includes approximately 18% White Gourd.

So if we connect the dots, we can confirm that **foods that enhance long life**, such as White Gourd (*as proven in fruit fly experiments*), also may be **foods that keep the bones in excellent shape**.

The composition of Ka-mi-kae-kyuk-tang, (KMKKT) is shown below:

Oriental herb/ingredients.....Country of origin%..... Grams

Benincasa hispida, also called **white gourd**, winter gourd (seed)
China 30 17.24 grams

Bletilla striata (root and tuber) China 15 8.62 grams

Tulipa edulis, also called *Amana edulis* (stem tuber) Korea 15 8.62 grams

Panax ginseng (root) Korea 15 8.62 grams

Phaseolus angularis, also known as azuki bean or aduki (seed).

Azuki Beans can be bought canned in health foods stores or raw, and are easy to sprout. Korea 30 17.24 grams

Zanthoxylum piperitum, also called *Zanthoxylum piperitum*, the Japanese pepper or Japanese pricklyash (seed) Korea 12 6.9 grams

Patrinia villosa, also called *patrinia* (root) China 15 8.62 grams

Astragalus membranaceus (root) Korea 15 8.62 grams

Angelica gigas Nakai (root) Korea 12 6.9 grams

Asini gelatinum Korea 15 8.62 grams

Reference for above:

Study Title: Herbal cocktail ka-mi-kae-kyuk-tang stimulates mouse bone marrow stem cell hematopoiesis and janus-activated kinase 2/signal transducer and activator of transcription 5 pathway. Study conducted by **The College of Oriental Medicine, Kyung Hee University, Seoul, South Korea**

Researchers: Am J Chin Med. 2011;39(6):1235-52. Lee JE1, Seo I, Jeong SJ, Koh W, Jung JH, Kwon TR, Lee HJ, Han I, Lee HJ, Lee EO, Kim SH, Jung HJ, Lu J, Kim SH. Full study available online at:

<http://www.ncbi.nlm.nih.gov/pubmed/22083993>

This proves that foods that enhance bone stem cell growth also significantly extend lifespan.

If we examine people throughout history who used methods to rebuild their bones, we come across the story of Mr. Li Ching-Yuen who allegedly lived to 256 years. He practiced the exercise known as Bagua Zhang (also called Pa-kua chang). Bagua Zhang has been shown to strengthen the tendons/ligaments and bones. Here is a quote from the Bagua Zhang blog:

"strengthens the bones that supports the tendons and the quantity of bone marrow is increased to keep the bone alive"

Source:

<http://bloguazhang.blogspot.com/>

Mr. Li Ching-Yuen also attributed his long life to eating the herb FO TI. According to the English-Chinese Rare Chinese Materia Medica, the soybean-prepared ho-shou-wu is used as a tonic for nourishing the hair and strengthening the bones and muscles.

Source: *Zhang Enquin (ed. in chief), English-Chinese Rare Chinese Materia Medica, 1990 Publishing House of Shanghai College of Traditional Chinese Medicine, Shanghai.*

An internet search for the term: **fo ti + he shou wu polygonum multiflorum root** lists numerous chinese herbalists and

practitioners using FO TI for strengthening the bones. Now, getting back to Bagua Zhang. It is described as the Internal Energy Art of Seeking Stillness Within Movement and is also known by many names. It involves **circle walking**, or "turning the circle" as part of its movements. Many Chinese exercises that involve circle walking have been proven to create strong, flexible and healthy bones. After performing Bagua Zhang for a number of weeks, people have reported significant reductions in internal stress. There are a few experts alive today who have perfected this art. Mr. Bruce Frantzis is one and has developed a course on this exercise and it can be found at:

<http://www.energyarts.com/bagua-zhang-training>

Watch an excellent video of Bagua Zhang in Practice. You Tube Video Title: **Bagua Sun Style**

<http://www.youtube.com/watch?v=wNLw6HukK24>

Recommended Book:

Baguazhang: Emei Baguazhang Theory and Applications (*Chinese Internal Martial Arts*). ISBN: 0940871300. Includes translations from Sun Lu Tang's "The Study of Bagua Fist" (pp. 112-132). Currently 5 star rating on Amazon

Scientific Studies Proving Mesenchymal Stromal Cells Prolong Lifespan

Now let's look at the scientific studies

In a study titled: **Mesenchymal stromal cells prolonged the lifespan in rats**, which was performed at the Institute of

Experimental Medicine, Academy of Sciences of the Czech Republic, Prague, Czech Republic, researchers proved that mesenchymal stromal cells do indeed prolong the lifespan of rats. [1]

In a second research study concluded and published in 2011, mice transplanted with mesenchymal stem cells lived longer. ***“Aging female mice were transplanted with mesenchymal stem cells from aged or young male donors. We find that transplantation of young mesenchymal stem cells significantly slows the loss of bone density and, surprisingly, prolongs the life span of old mice”*** [2]

Now I firmly believe that certain herbal combinations can also increase mesenchymal stem cells without the need for transplantation. Let's explore the scientific evidence first before asking the question ***“Why Don't Pharmaceutical Companies Make And Sell Herbal Based Stem Cell Formulas?”***

The 3 best herbal formulas scientifically proven to increase mesenchymal stem cells (or bone marrow) are Ka-Mi-Kae-Kyuk-Tang, Juzen-Taiho-To (extract TJ-48,]) and Bo-Jung-Bang-Dock-Tang as well as the herbs Epimedium, Astragalus and Dammarane Sapogenin (a concentrated form of ginseng). Let's review the scientific literature:

A research study confirmed that the herbal cocktail called ka-mi-kae-kyuk-tang stimulated mouse bone marrow stem cells. [3]

Ka-mi-kae-kyuk-tang is made up of the following:

Phaseolus Angularis (17.2%), Bletilla Striata (8.6%),
Zanthoxylum Piperitum (6.9%), Angelica Gigas (6.9%)
Benincasa Hispida (17.2%), Tulipa Edulis (8.6%), Asini
Gelatinum (8.6%), **Astragalus** Membranaceus (8.6%), Panax
Ginseng (8.6%) and Patrinia Villosa (8.6%).**[3.1]**

And another herbal cocktail formulation called Bo-Jung-Bang-Dock-Tang (also known as BJBDT) significantly increased expression of cytokines interleukin (IL)-3, stem cell factor (SCF) **[4]**. BJBDT is composed of the following ingredients as well as their major constituents:

Dioscorea batatas Decaisne 12 g (high in Allantoin), Panax ginseng C. A Mey. 9 g (high in ginsenoside Rb1), Poria cocos Wolf 9 g, Astragalus membranaceus Bunge 12 g (high in Formononetin), Dolichos lablab Linne 9 g (high in Naringin), Polygonatum sibiricum Delar 9 g (high in Diosgenin), Atractylodes japonica Koidzumi 9 g (high in Atractyloside) and Coiz lacryma-jobi Linne 12 g (high in Friedelin). **[4.1]**

Another formulation proven to increase mesenchymal stem cells is a mixture of Vitamin D3, Blueberry, Carnosine and Green Tea **[5]** (*ingredients of which I use in my carnosine mix which we will go into more detail later on*).

In another research study scientists found that the effects of Panax ginseng increased mice embryonic stem cells into cardiac-like cells. **[6]**

And the extract known as Dammarane Sapogenin, which is a highly concentrated extract of ginseng, was found to be a potent human stem cell-stimulating factor. [7]

When we next examine the single herbs we find that the natural bone building herb Epimedium promoted bone formation, inhibited adipogenesis of mesenchymal stem cells and reduced bone marrow fat deposition. [8]

And the herb Astragalus demonstrated in scientific experiments to boost stem cell activation as well as extended the lifespan of mice by 33% or more. [9]

Besides this book you are reading, another book that covers all natural stem cell regenerative therapies is called **Stem Cells, Cancer Stem-Like Cells, and Natural Products** by Georg Thieme Verlag KG Stuttgart, Thomas Efferth. Department of Pharmaceutical Biology, Institute of Pharmacy and Biochemistry, Johannes Gutenberg University, Mainz, Germany. The book lists numerous scientifically validated stem cell enhancing herbs and combinations such as Curcumin, Pomegranate, Lupeol, Grapholide and more. The link below gives an excellent review of the book, as well as more information on additional natural stem cell enhancers including resveratrol.

<https://www.thieme-connect.de/ejournals/html/10.1055/s-0031-1298540>

So we can see in conclusion that the right herbs or herbal

combinations can promote mesenchymal stem cell growth.

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JANG Yu-Sung¹, LEE Eun-Ok¹, LEE Hyo-Jung¹, LEE Hyo-Jeong¹, KIM Kwan-Hyun¹, WON Sook-Hyun¹, LEE Jae-Dong¹, AHN Kwang Seok¹, AHN Kyoo Seok¹, KIM Jung-Hyo², YU Young-Beob³ & KIM Sung-Hoon^{1†}
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Corresponding address, Xue-fei Rui^{1,2*}, Chun-Jun Sheng¹, Wen-Jun Li¹, Xiao-Yun Cheng¹, Navina Priya Jhummon¹, Yong-Chun Yu¹, Shen Qu¹, Ge Zhang⁴, Ling Qin⁴

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Red Ginseng Extract Facilitates the Early Differentiation of Human Embryonic Stem Cells into Mesendoderm Lineage

Yoon Young Kim,¹ Seung-Yup Ku,^{1, 2*} Zev Rosenwaks,³ Hung Ching Liu,³ Sun Kyung Oh,^{1, 2} Shin Yong Moon,^{1, 2} and Young Min Choi¹

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Acute Treatment With Herbal Extracts Provides Neuroprotective Benefits in In Vitro and In Vivo Stroke Models, Characterized by Reduced Ischemic Cell Death and Maintenance of Motor and Neurological Functions.

Yuji Kaneko,^{1,*} David J. Eve,^{1,*} SeongJin Yu,^{*} Hideki Shoji,^{*†} Eunkyung Cate Bae,^{*} Dong-Hyuk Park,^{*‡} Bill Roschek, Jr.,[§] Randall S. Alberte,[§] Paul R.

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Why Don't Pharmaceutical Companies Make And Sell Herbal Based Stem Cell Formulas?

Just as many people are discovering for themselves that for every pharmaceutical prescription there is a herbal formula or food combination that given enough time can be almost just as effective and without harmful side effects. Stem cell herbs and combinations are no exception. The large pharmaceutical conglomerates don't tell people about these natural alternatives because **food combinations and many herbal formulas can't be patented**. So there is no profit in it.

Simply Put

If a pharmaceutical company can patent a pill or drug that has the same beneficial healing effects as herbs they can make billions of dollars.

The Ingredients in the Carnosine Regenerative Restoration Mix

This is a herbal formula designed to enhance Mesenchymal stem cells that we will cover in Chapter 2 of this book, and I

give the formula away for free at no charge to the reader. But first I want to cover FO TI, also called He Shou Wu. Besides being used to naturally return hair color from grey to the body's original hair color, many other people have benefited from its other multiple healing uses.

The Story of How FO TI was Accidentally Discovered

Even though there are many legends surrounding this unique herb, I will list one of the most popular stories associated with it. He Tien Er (who later became known as Neng Zi) was born impotent and had turned to drinking wine to ease this pain. When he was 58, he returned home drunk one night and became overcome by sleep while outside. When he awoke, he noticed in the distant field two shoots of climbing plants. They stood about 3 feet apart. He thought this to be strange and thought that this plant was "speaking to him" of the love between a man and woman. This was because the appearance of the plant was twisted upon itself.

He then dug out the roots of the plant and then asked the people in the nearby village and wilderness the name of the plant, however, no one was able to tell him. When he dried the root in the sun, a man living nearby approached Tie Ner and stated: "*You are impotent, and you are old and childless. This climbing plant did strike you as peculiar did it not? Surely its purpose is to serve you as a divine drug. Why not eat it?*" Tien Er then made a fine powder and drank it with some wine. Several days later, he suddenly felt unburdened and strong.

Another benefit was that he could barely control his sexual desire. He was clearly recognizing the principles of human life! A few years later he married a widow named Cen. He continued to take the herb regularly and increased his dose to 2 qian (about 6.2 grams). After a little over 2 years had passed, all of his previous physical complaints vanished and he regained his youthful appearance and had a healthy son. Over the next 10 years he had several more sons and ascribed his blessings to the herb FO TI. He told others who asked of his health and ability to father well into old age "*This was caused by the climbing plant. When a person takes it, they can live to 160 years old or more*" Tien Er died at the age of 160, leaving behind 19 sons and daughters. His son He Yen, was also taking the herb and lived to 160. He Yen left 30 sons and daughters. Yen's son named He Shou Wu, lived to 130 also while taking this herb, and he fathered 21 children. Strangely this plant is neither listed in the old Chinese prescriptions or in the materia medicas (*The Bencao*). And from my own in-depth research study, I have found FO TI in the ancient medical texts as being used for impotence and for those who are elderly and have a lack of physical energy. From my personal experience, I have found that taking FO TI in tincture form (*especially when taken with Carnosine*) is better than as a tea or powder, as it is more rapidly absorbed into the system. An interesting fact is the plant called Banisteriopsis, which is famous for healing depression and anxiety (and used in the drink ayahuasca) is a vine. The plant FO TI is also a vine, and is one of the largest vines in the South American rainforest. Because many herbs that heal depression are linked to

longevity. Could Banisteriopsis also be a longevity plant? Also as will be shown later in this book the melon Wax gourd (*Benincasa hispida*) (*also called ash gourd, winter melon, Chinese watermelon, or white gourd*) is also a vine. Wax gourd happens to hold the world record for lifespan in fruit fly longevity experiments. So here we have 3 plants that are vines which are linked to longevity.

Another interesting fact is that some people become depressed around winter time, especially during the holiday season. By taking depression relieving substances during this time, it contributes to a longer lifespan because most herbs that relieve depression also have anti-aging properties. This means by observing and studying the trends of plants, herbs and lifestyles from late fall into early winter we can learn more about anti-aging.

Astragalus

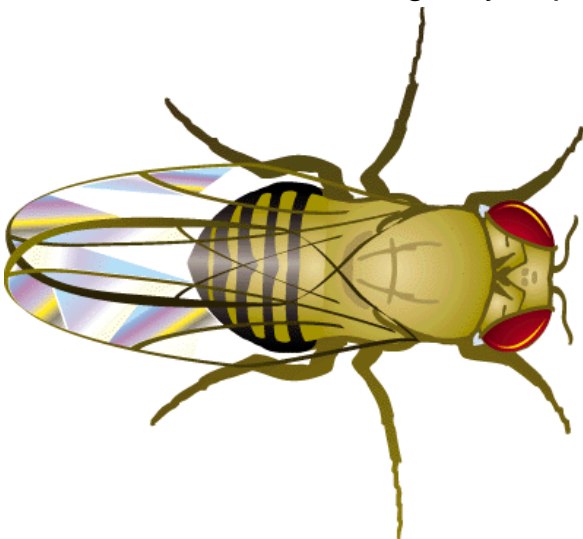
Another one of our ingredients that synergizes with Carnosine is Astragalus, which we covered earlier, showing it has been scientifically proven to boost mesenchymal stem cell growth. From my personal experience of using Astragalus, I will add 4 to 6 drops with the anti-aging carnosine mix (which we will discuss later) to give it a boost.

And as covered earlier, **Blueberry, Green Tea, Vitamin D3, and Carnosine**, have been scientifically proven to increase stem cells. These are just a few of the synergistic ingredients

that work together to naturally refill your body with stem cells, helping combat aging and improve your health.

I hope this introduction has shown that for every pharmaceutical discovery/breakthrough, nature already has a remedy that does the same thing, and many times without harsh side effects or major impacts on the environment. This is why it is key that we value, preserve and respect our forests and oceans because without them, we would all have to rely on manufactured artificially produced "alternatives" that would not make these healing combinations available to everyone, but would cause a gross imbalance of nature and industry.

We will go more into using stem cells for anti-aging in Chapter 3. First let's look at scientific studies exploring foods, herbs and pharmaceuticals that have extended the lives of mice, fruit flies and nemotodes. The following image is of a typical fruit fly, used in thousands of longevity experiments worldwide.



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Chapter 1

The researcher's world of longevity pharmaceuticals, foods and herbs

Throughout the last decade there have been vast numbers of published studies showing herbs, pharmaceuticals, foods and compounds that extend life. Some of these studies have been done on humans, but the vast majority on rats, nemotode worms (*C. Elgans*) and fruit flies. The aim of this book is to put together a complete picture of the food types, herbs and extracts with the amounts to take and seasonal times to take these foods, so that a longevity lifestyle/diet can emerge. This complete picture was made possible by summarizing over 200 in-depth published scientific research studies, many of them by leading scientific establishments on foods, extracts herbs and substances that extend lifespan in humans, mice and fruit flies. The following picture is of the Nemotode Worm *C. Elgans*, which is one of the leading biological organisms used to gauge lifespan.



This book focuses particular attention on Stem Cell Therapy and using it for Anti-Aging. Chapter 3 includes over 12 pages of what stem cells are and includes Nutraceutical combinations proven to grow new stem cells.

The Stem Cell Rebuilding Synergistic Combinations page includes the ground breaking natural stem cell formula covered in Life Extension magazine and explores synergistic techniques to enhance the effectiveness of the formula to create a simple, yet powerful stem cell anti-aging formula. Chapter 11 includes a longevity stem cell formula discovered by Thomas E. Ichim that uses ellagic acid to enhance stem cells in the body.

As stated earlier, the majority of experiments involving longevity and lifespan usually involve 3 types of animals. C. Elgans (nematode worm), Mice (also called rats) and Fruit Flies (not house flies). Other lesser known animals involve hamsters, rabbits and the yeast called *S. cerevisiae*. This is because yeast has a similar metabolism to mammals due to the basic life processes it undergoes while it ages.

Animals are used because animals have similar cellular structures and metabolisms as mammals, of which include human beings. One class of fruit flies is known as *Drosophila melanogaster*, which you will see throughout this book. Unlike humans, fruit flies have no requirement for essential fatty acids, and usually don't die of cognitive related diseases like us humans, which means some experiments that use lots of sugar on fruit flies, will not make the fruit flies fat, but in fact extend

their lifespan, whereas we know excessive sugar in humans causes obesity.

The summary of longevity becomes simple to observe by understanding 3 main categories which contribute to the 4th category, which is the renewal and repair of body tissue and bone.

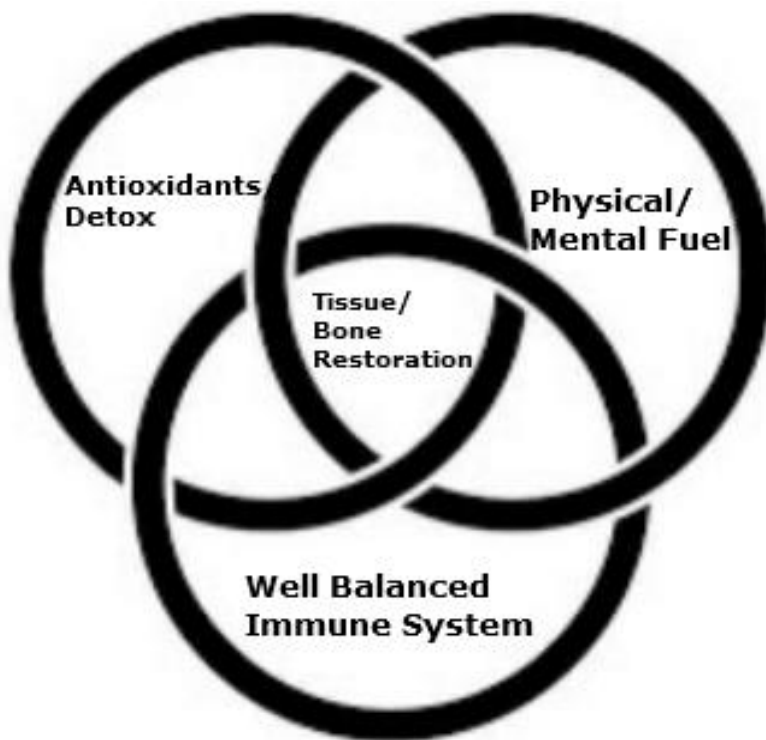
Antioxidants and Detoxification + Physical and Mental Fuel + Immune System Protection and Balance = The Rebuilding of Muscles and Bones.

Detoxification/Fasting is a major component of keeping the body free of disease and illness. By doing this you remove metals and toxins that have gathered in the tissues during the previous few months. Metal chelation substances are one way to effectively detox. This includes Vitamin C, activated Charcoal and / or Parsley which are some of the best.

My Experiences Detoxing/Fasting

When I detox, I reduce my intake of processed foods during this time and also eat more fresh foods that are in season. I usually like to take lots of spring water when doing a fast. I do this mostly during Feb/March and August/September, the time of year toxins from processed foods gather most in the tissues of the body, and the eating of junk food should be reduced. One interesting discovery after researching these substances over

the many years is when you first start taking them, they induce deep, vivid and lucid dreams. This has been an excellent way to gauge which foods are longevity substances and which are not. I have gotten the best results from Carnosine, Melatonin and Blue Cheeses.



Energy

The body requires 2 types of fuel. Energy for the brain and energy for the muscles. The body needs energy more at some times than at other times. I like to take energy boosting herbs just before exercising. Some days that may require more energy than usual. Some well-known energy boosting herbs are

FO TI and Rhodiola Rosea.

It is key that these energy boosting herbs are not taken if the body is recovering from flu or illness, or the immune system is undergoing change or re-adjusting. Excessive energetic herbs during this transition only aggravate the immune system, which is why fasting or detoxing with lots of purified water during this time, can help re-stabilize the immune system.

The fastest way to ward off flu or a cold is via a straight fast. In most cases the fast should last for no longer than 24 to 72 hours and should consist of lots of spring or other purified water, relaxation and mental healing imagery. I have got best results with eating these detox and immune boosting foods 1.5 hours apart from each other: apples, parsley, and/or grapefruit with a little bit of cod liver oil. Longevity foods and substances should always be taken in moderation. Much like excess anything contributes to health problems. Even excessive amounts of fish oil have been shown to reduce lifespan. [1]

One of the best ways to keep the body healthy via anti-aging foods is to rotate the foods eaten. Just as the body can build resistance to antibiotics, anti-aging foods also lose their effectiveness if overeaten, eventually impacting the immune system. That is why eating foods in season is one of the best ways to prevent disease. I personally take herbal anti-aging combinations which have synergy and buffering characteristics every couple of days and sometimes more during times of higher physical activity. The best way is to just listen intuitively to your body to get the best results. Taking more of the

longevity foods just as they are coming into season is one powerful way to keep the immune system strong, and this book lists seasonal foods for both north America and Australia, which can be found towards the end of this book.

An effective anti-aging herbal combination contains herbs and extracts that synergize with each other, helping to rebuild muscle and tissue rapidly overnight, while detoxifying the cells at the same time. You can literally feel the cellular rejuvenation working as you sleep and the next morning you wake up feeling refreshed and energized, rather than drained and tired.

We will first start out the first section of this book with the extracts, herbs and combinations scientifically proven to extend life the longest. 95% of the studies mentioned in this book all include scientific references to the Universities and other Institutions that did the study, so you can research further the study in more detail. Hyperlinks are also included with some of the published references for your convenience. Where possible, synergists of the longevity extracts are included, which improve bioavailability and reduce the amount necessary for beneficial effects. Also included where possible is the percentage of how long the lifespan was extended in the scientific study.

It is the scope and purpose of this book to list how much longer than normal the subject lived, and list the foods, herbs, extracts or substances used. In many cases the published paper will list the exact amounts used, temperature and dates and other finer intricate details, which we include as a reference at the end of

each chapter. Let's start first by exploring Tetrahydrocurcumin.

Tetrahydrocurcumin

Tetrahydrocurcumin is used as a preservation agent in skin care products. Tetrahydrocurcumin is a greater antioxidant than that of vitamin E. Researchers in Japan explored the potential role of green tea polyphenols combined with tetrahydrocurcumin, which increased the life spans of animals. The result was a 125.9% extended lifespan in tetrahydrocurcumin treated mice and 72.6% in polyphenols animal models. In another study tetrahydrocurcumin and green tea polyphenols, when given to mice, had an 11.7% longer average life span. [2] In a Chinese study titled: Combination of curcumin and green tea catechins prevents dimethylhydrazine-induced colon carcinogenesis (*by Xu G, Ren G, Xu X, Yuan H, Wang Z, Kang L, Yu W, Tian K.*), researchers showed that when Curcumin is combined with catechins (catechins are high in Green Tea) it produces a synergistic colon cancer-preventative effect.

Tetrahydrocurcumin is derived from Turmeric. Research has proven that Turmeric becomes synergistically active when catechins (from green tea) are added. [3] If you are allergic to ginger, you may also be allergic to turmeric. One of the best ways to use turmeric is to reduce inflammation, especially after intense exercise. It combines well with the pineapple enzyme bromelain, making a powerful workout recovery combo.

Turmeric works well also when used on the exterior of the body. When combined with olive oil, it stops dandruff and heals the scalp. Turmeric and Aloe are used to re-build and re-moisturize the skin. When turmeric is combined with resveratrol, it has been shown to be a powerful cancer destroyer as well as a potent life extension combination. Turmeric interacts with medications that slow blood clotting, which may increase the chances of bruising and bleeding. It is best to avoid taking Turmeric with Willow Bark. Turmeric also mixes well with coconut juice.

Getting back to Tetrahydrocurcumin, this substance derived from Turmeric is also added to skin care products and functions as an antioxidant which protects the lipids in moisturizers from going rancid and has more antioxidant stability than vitamin E. [4]

British researchers reported that broccoli, turmeric, green tea and pomegranate help reduce the risk of developing prostate cancer.[5] Polyphenols have powerful anti-aging traits. Many research studies have shown that Polyphenols (from green tea) boost longevity due to their ability to minimize cell stress. Some of the most powerful polyphenols come from enriched cocoa extract. These extracts work best when used in small doses. One study found that only 28% was all that was necessary in order for it to be a free radical scavenger. [6] A second study showed that a moderate amount of cocoa under normal oxygen levels increased life span, whereas at higher oxygen concentrations, life span was normal. This means taking cocoa

after exercise, as oxygen levels return to normal is beneficial. The study also found that cocoa acted as a metal chelator for removal of excess heavy metals. [7] It has also been shown to be a potential candidate for reduction of negative inflammatory responses.[8] Polyphenols are also common in the apple, with the red apples having the strongest concentrations. A study found that the unique apple polyphenol named phloridzin, when added to yeast cells allowed the cells to live an average of 2.3 generations longer than control cultures. [9] Phloridzin is heavily concentrated in apple skins and also helps suppress the process leading up to glycation (AGE Protein Crosslinking), which is a major contributor to aging. Phloridzin can be found in high levels in the following foods: Paradise Apple Species, Prune Juice, Apple Cider and Oregano. [10]

Another group of foods high in Polyphenols, are the berry family. In my previous books, I went into detail about the Goji berry and how it is a powerful anti-aging food. I believe that the reason the berry family of plants have such powerful longevity effects are due to their levels of anthocyanins. The founder of the Doyle Thornless Berry (*Thomas Earl Doyle. Born: 26 Jun 1900. Died 13 Jan 2001*), ate a lot of berries and lived to over 100 years of age. [11] At the end of this book, I list over 3 Goji Berry Synergists and 4 Goji Berry combinations that treat everything from hair loss to boosting ORAC values.

Protocatechuic Acid

One of the major antioxidant polyphenols found in green tea is Protocatechuic acid (PCA). It is a dihydroxybenzoic acid related to phenolic acids. [12] Turmeric also contains an antioxidant called protocatechuic acid and the açai palm (*Euterpe oleracea*), from which the Acai Berry is obtained contains high levels of protocatechuic acid. Protocatechuic acid also exists in skins of some strains of onion, where it acts to protect against rot. Does this mean that exposing sliced onion to open air for a few hours would increase its protocatechuic acid content? Studies are needed to confirm this.

Protocatechuic acid's longevity abilities have been proven in experiments with worms. It not only increased lifespan, but made them more healthy in the process. [13] Protocatechuic acid can also be found in *Allium*, Roselle (*Hibiscus sabdariffa*) and mushrooms such as *Agaricus bisporus* and *Phellinus linteus*.

Another longevity mushroom is Ling Zhi. In a study titled: *Ganoderma lucidum* ("Lingzhi"), a Chinese medicinal mushroom: biomarker responses in a controlled human supplementation study, by researchers, Wachtel-Galor S. and Tomlinson B., they showed that Ling Zhi possessed strong antioxidant properties.

Protocatechuic acid RDA

The University of Maryland Medical Center states that the standard dose of Protocatechuic acid should be 3 g per day if using the root and up to 600 mg three times a day of the powder. Stomach ulcers can develop after long term or excessive use.

The Herbal Combination Yunnan Degao

The next item we shall explore is a Chinese herbal combination shown to exert powerful longevity results. It is known as Yunnan Degao which extended the lifespan of fruit flies 124%. Yunnan Degao comes from a food prepared by the Yunnan Delin Hai Biological Sci-Tech Co., Ltd in China. The ingredients are as follows: Solomon's seal (Also called FO TI or He Shou Wu), Fu Ling (also called Poria), Chinese wolfberry (also called Goji Berry), Chinese Yam, Longan Meat, walnut kernel, apricot kernel (high in Laetrile) and chrysanthemum flower. From my years of researching longevity herbal combinations, Fo Ti, Goji Berry, Walnuts, Apricot Kernels and Chrysanthemum Flower are some of the most potent anti-aging herbs available. These can be mixed with Chinese Licorice or Poria to increase the absorption of the herbs into the body.

Goji Berry, Chrysanthemum flower and Chinese Yam are used together in some tinctures to improve vision and Goji Berry and nicotinamide are used together for skin repair and healing. Goji

Berry synergizes with the Citrus Compound Bergamot. Goji is also sometimes mixed with grapefruit.

One interesting thing is chrysanthemum flower improves blood circulation to the capillaries in the brains of the elderly. In Chinese medicine it is used to remove wind and heat from the body. Chrysanthemum is also used in many Chinese longevity herbal formulas.

Chrysanthemum flower and green tea synergize together. Wolfberry, Chrysanthemum and Rehmannia are a powerful 3 way synergy. Hawthorn fruit, lotus and chrysanthemum flower are used to treat headache, dizziness, dysphoria, insomnia, and induce dreamful sleep. Chrysanthemum and Hawthorn berry synergize together and are used in a tea combination. So in closing, we can see that the Yunnan Degao combination works together to form powerful synergy that helps create powerful anti-aging effects on the body. This is unique because many anti-aging compounds if taken excessively can impair the immune system, the Yunnan Degao combination, due to its high berry and flower content make it more appropriate for longer term use, although you may need to take more than an average extract.

Fungi and Mushrooms that promote Longevity

I have extensively covered the mushroom Reishi in my previous books and its connection to longevity. Let's take a closer look at the scientific documentation confirming this. One of the best parts about Reishi is its ability to boost memory. In China, Reishi mushroom is also known as the immortality mushroom.

An extract from Reishi Mushroom extended the lifespan of male fruit flies by 42.32% at a dose of 80 mg/ml. For female fruit flies it was 29.24% at the dose of 5 mg/ml. [14]

Another study showed a combination of Shitake Mushroom and Almond Mushroom extracts extended the lifespans fruit flies by 40.51% and 6.03%, and 32.13 and 2.69% [14]

There was also an extract from the Jelly Ear mushroom (*A. auricula*) which extended the lifespan of male fruit flies by 31.41% at a dose of 5 mg/ml and female flies by 16.85% at a dose of 20 mg/ml. [14]

I can personally testify from taking Reishi Mushroom for the past 5 years (which I synergize with other herbs), that Reishi is a remarkable mushroom for increasing endurance and enhancing memory. Experience over the years has also taught me that some of the most successful anti-aging compounds are mushrooms and fungi.

A good synergist for longevity mushrooms is acetic acid,

especially when combined with Reishi Mushroom [15]. Acetic Acid is readily available in high doses in apple cider vinegar and balsamic vinegar. Acetic Acid is used to extract anthocyanins from plants. Anthocyanins are one of the most potent anti-aging substances ever discovered. We will explore the properties of anthocyanins in a later chapter. As will be covered later in this book, experiments with balsamic vinegar extended the lifespan of fruit flies when used with potassium. This is because acetic acid depletes potassium levels.

In a research competition in La Jolla, CA, mushroom extracts, including Reishi, fractions of Chang-Chih (*A. camphorata*), and lion's mane (*H. erinaceus*) caused significant increases in lifespan, ranging from 25% to 35%. Synergy was obtained when acetic acid and RF-3 (reishi) were combined with lifespans extending up to 40%. [16]

Longevity Mushroom Synergists

A popular tincture consists of Red Reishi Mushroom, Distilled Water and Apple Cider Vinegar and is used as an energy enhancer.

Foods high in Acetic Acid: Apple Cider Vinegar, Wine, Distilled White Vinegar, Pickles and pickled foods such as Sauerkraut.

The Amazing Longevity Properties of Common Beer Yeast

This next study covers beer yeast. Beer yeast is in the same category as Malt, Nutritional Yeast and Brewer's Yeast. Yeast are starters used to begin fermentation to make beers, bread or other foods. Foods that have undergone complete fermentation include wine, pickles and yogurt. These happen to all be all longevity foods. I conclude that fermentation creates a beneficial form of super microorganism, that acts as a natural antibiotic to rid the body of harmful microorganism, which is what is responsible for extending lifespan.

A research study found that up to a 41% extended lifespan was obtained with a mixture of Isolated Soy Protein and Beer Yeast.[17] The best results were obtained with ordinary beer yeast.

Rapamycin

Our next study involves Rapamycin. Rapamycin is used as an immunosuppressant drug to prevent rejection in organ transplantation. A study showed that Rapamycin extended the lifespan in eukaryotes. It also has been shown to be of significant healing benefit to those with autism, cancer and Alzheimer's. A 2009 study showed mice fed rapamycin had increased lifespans of between 28% and 38%. Treatment began in mice aged 20 months which is equal to 60 human years.[18] An in-depth scientific study showed that feeding

rapamycin to *Drosophila* (fruit flies) produced an extended lifespan. [19]

What makes Rapamycin particularly interesting is that when it was fed to older mice, it still had longevity benefits. Usually reversing the effects of aging is much harder once a person passes 43 years of age, so Rapamycin shows significant promise in treating advanced levels of age related problems.

Where does Rapamycin Come From?

Rapamycin was first discovered in the soil on Easter Island in



1970. Rapamycin is produced by soil bacteria called *Streptomyces hygroscopicus*. Rapamycin is also called Sirolimus. Large doses of sirolimus lowers the body's ability to fight infection and disease. As long as you follow the rule of taking longevity substances in moderation, than your risk of developing infection or certain types of cancer are greatly reduced. So Rapamycin should be used in moderation as a

longevity supplement.

Rapamycin is available only by prescription in the United States. It is currently marketed under the name Rapamune by Pfizer.

Epithalamin

Next let's explore Epithalamin. Epithalamin is a preparation that produces peptides that affect the pineal gland. It was discovered by Vladimir Dilman of St. Petersburg Russia. Epithalamin has been shown to increase melatonin production in animals and acts very similar to Melatonin. Tests have been conducted on both rodents and humans showing its effects. It synergizes with Melatonin, fights free radicals, has shown potential to fight cancer, reduces injury from x-rays, restores fertility in rats, and lowers cholesterol. Tests showed that it has significant effects on lipid peroxide oxidation, boosted melatonin production and also boosted Superoxide Dismutase activity in males of *D.melanogaster* by 41%.[20] Another independent study also verified the effects by decreasing mortality by 52% in *D. melanogaster*, by 52% in rats and by 27% in C3H/Sn mice. [21]

Melatonin

Melatonin is also a powerful free-radical scavenger and wide-

spectrum antioxidant. It was discovered in 1993. Because melatonin has similar effects to Epithalamin, here are a list of herbs and foods high in melatonin: St. Johns Wort, Sweet Corn and Oats. The Herb Huang Qin, which is also called Skullcap (also called Scutellaria or milk-vetch root) contains one of the highest levels of Melatonin in the herb family (*up to 7.11 mg/g*), followed by Fever Few. Huang Qin is a genus of the herb astragalus and happens to be used in many skin moisture products to rejuvenate the skin. Huang Qin is used in Chinese medicine to raise the Yang Qi of the Spleen and Stomach, thus helping to relieve fatigue. Chasteberry or chasteberry tea has been shown to help stimulate melatonin production in the body, especially during the morning. Melatonin levels can also be increased from foods we eat, such as banana or pineapple.

The Longevity Extract EGB761

Next let's look at the substance identified as EGB761. EGB761 is an extract obtained from Ginkgo. Ginkgo is commonly used to keep the mind sharp and boost memory. In an in-depth scientific study, a flavonoid of EGB761 called tamarixetin, extended the median life span of *C. Elegans* by 25% and also increased resistance to oxidative and thermal stress by 33% and 25%. [22] Ginkgo synergizes with Ginseng and Bacopa and is sometimes combined with Melatonin to protect the brain against beta-amyloid, one of the causes of alzheimer's. In an in-depth study, Ginkgo partially reversed memory associated diseases in rats. [23] And in another study using spin-trapping

measurement (a measurement of the power of antioxidant compounds) EGB761, extracted from Gingko, protected the cells against free radicals. [24]

Spermidine

Spermidine naturally declines as a person grows older, however it can be re-introduced through eating foods high in Spermidines. Spermidine is created in the body by Putrescine, occurring through a reversible metabolic process and protects proteins from structural damage by AGE precursors (cross linking effect of aging). Carnosine, a substance we shall cover later on, also has protective effects on vital proteins and is also a major longevity substance. Another substance that has been found to protect proteins from oxidation is the substance Vanillin, commonly extracted from the Vanilla Bean. We shall cover Vanillin more in depth in a later chapter.

Spermidine is a rather interesting substance, because it is found in the Japanese food Natto, which is a type of fermented soybean. Natto is available in many Korean and Japanese Supermarkets. Some well-known health food stores such as Whole Foods sell a fermented soybean liquid called Bio K, which is made of fermented soybeans.

Spermidine is in the Polyamine category of substances, which include putrescine and spermine. From my personal experience of consuming Natto over the past decade, I always use it when

I feel cavities coming on, because it is a super concentrated source of Vitamin K2, which helps quickly remineralize teeth. In a scientific study using Spermidine, it prolonged the lifespan of *C. elegans* and *Drosophila* by 15% and 30%. [25] In another study, Spermidine was shown to reverse arterial aging by increasing the bioavailability of Nitric Oxide (a substance that helps move nutrients through the arteries) [26]. Another in-depth study involving thousands of people from 35 Asian countries, showed that people with a high intake of Spermidines in their diet have longer lifespans. [27]

Spermidine can be found in the following foods: Dry Soy Beans, Natto, Blue Cheese, Green Peas, Corn, Pumpkin, Swedish Hard Cheese and Shell Fish. Spermine is also found in high levels in Pork and Turkey. Closely related to Spermidines are the class of Polyamines, which are often found close together. We shall briefly cover these next.

Polyamines

Polyamines are a cool food group, because you can eat a lot of these foods and they have less side effects than other longevity foods. Only recently manufacturers have started combining probiotics with Polyamines. The result has been a Soy Yogurt shown to raise polyamine levels. Polyamine levels can be boosted by probiotics, especially the strain *Bifidobacterium animalis subsp. lactis* LKM512. [28] [29]. In a study, mice fed high levels of polyamine had lifespans significantly higher than the control groups. [30].

Phenformin

Next we shall examine the substance phenformin. Phenformin is an antidiabetic drug. It was banned in the U.S. after people started suffering from induced lactic acidosis. As of 2013, it is available in Brazil, Uruguay, Italy, China, Greece, Portugal and Poland. Phenformin has been shown to extend the mean life span of mice by 21.1%, with a maximum lifespan of 26%. [31] It has also shown remarkable cancer fighting properties. In another in-depth study, Phenformin showed remarkable activity in lowering the blood glucose levels and lowered cholesterol and total lipid levels. [32] When Phenformin was combined with buformin, it boosted lifespan 1.22-fold and decreased tumors by 49.5%. [31] When combined with metformin, it reduced blood sugar and body weight of those with diabetes. [33]

A substance in the same class as Phenformin is phenytoin (sometimes called diphenylhydantoin or dilantin), which has also been shown to extend lifespan. Phenytoin has been renowned for its negative side effects and in high doses has been shown to cause brain damage. In a control study, Mice treated with phenformin had an extended lifespan of 21.1%. [31] Phenytoin is not banned in the U.S. and is available by prescription, due to it being used to treat epileptics.

It is interesting to note that substances that treat epilepsy, such as the anticonvulsant compounds trimethadione, ethosuximide, and 3,3-diethyl-2-pyrrolidinone, which are used to treat absence seizures in humans have shown potential to also delay

vertebrate aging. [34]

In closing, it is rather interesting that the herb Skullcap, which has been used for hundreds of years as a nerve tonic, and recently as treatment for epilepsy and lowering blood sugar levels, is starting to show through recent studies as having significant anti-aging and lifespan extension properties. This is due to its high levels of baicalin and wogonin, Skullcap is showing good promise as an anti-aging substance. [35] Skullcap is also used to help boost memory and blood circulation to the brain. It has also been suggested as a helpful form of cancer treatment.

Excess Iron Accumulation and Shortened Lifespan

Iron, especially if taken in excess, has an ability to stay in the body and build up over time. Iron is effective for red blood cells and other vital functions, but excess amounts that accumulate in the tissues can cause "rust" leading to disease. Studies have now verified that removal of excess iron prolongs lifespan. This is why many natural foods contain iron chelating substances called oxalates contained within them. Spinach, one of the longevity foods contains high levels of oxalates, suggesting that this food not be over eaten. Another substance called Swedish cocoa (a polyphenol) has been shown to inhibit iron absorption up to 90%.

Besides Tea, IP6 rice bran extract also removes iron quickly

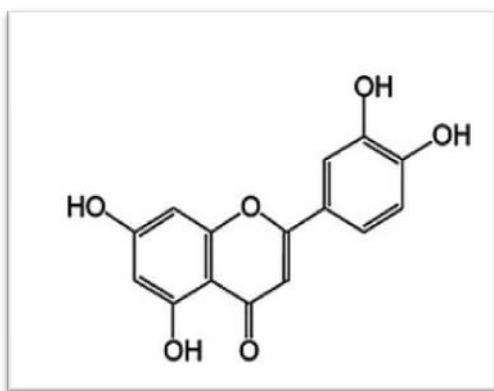
from the body. Brands with a reputation for quality are Cell Forte or Jarrow brand of IP6 and Coffee. Early in the 19th century there was a procedure called "bloodletting" which was supposed to heal the body if the person was ill. Because blood contains the highest amounts of iron in the body, this may have been a way to remove excess iron. Today the practice is known as phlebotomy, which has been shown to lower excessively high iron levels in the blood.

The life span of *Drosophila* was found to be prolonged by as much as 21.4% when it consumed Dietary tea (*Camellia sinensis* from tea) extracts which were discovered to inhibit the age related accumulation of excess iron. This study showed that life span was shown to be directly proportional to how much iron was accumulated in the body in studies involving mice and men.[36]

Qucertin

Our next substance is Qucertin. Greek medicine states that herbal tea made from caper root and/or young shoots is beneficial against rheumatism. It also has been used to treat strangury and inflammation, which is why taking capers after exercise works well to reduce inflammation in the muscles. Qucertin is one of my personal favorites. After a particularly long exercise workout or bike ride I take Capers, which are one of the foods highest in Qucertin and 1 vitamin C capsule, which helps reduce inflammation of the muscles. This instantly

provides a refreshing, rejuvenation feeling and helps to soothe sore, tired aching muscles. Qucertin should be taken with care, especially when using the extracts, as some people may suffer a severe reaction from taking the extracts, but not when taking foods high in Qucertin. Onion is also high in Qucertin, which can also be added to capers to create a powerful natural anti-inflammatory after intense physical exercise. Qucertin is found in foods high in polyphenols, apples being a common source. The following image is the symbol for Qucertin.



Let's take a look at scientific studies involving Qucertin which is a flavonoid. Flavonoids are found in teas and are also known as Vitamin P. In a scientific study, **quercetin increased chronological life span by 60%.**[37] This ranks in the top 10 substances that prolong lifespan. I believe that because herbs and extracts that reduce inflammation also are strong anti-aging candidates, Qucertin makes it a perfect longevity substance. When Qucertin is mixed with a berry called blackcurrant juice extract (high in flavonoids), it has been shown to significantly

prolong the life span in female mice.[38].

In another study, Quercetin from onion peels was shown to have high antioxidative activity, with the quercetin derivative quercetin 3-O-d-glucopyranoside, having stronger antioxidant activity than normal quercetin. [39] 3-O-d-glucopyranoside is found in the extreme longevity super foods Purple Corn (and purple corn seeds) and Black Rice, which we will go into more in-depth later on in this book. Because Quercetin works well at fighting inflammation, a research study showed that it offered protection from thermal stress and prolonged the lifespan of a nematode up to 16%. [41]

Quercetin Synergy

Plants high in Saponins boost the absorption of Quercetin. Salicin from which aspirin comes from (found in the bark of the willow tree) synergizes with Quercetin.

Foods high in Quercetin include: Capers, Red Onions, Buckwheat Tea, Apples and the Sophora Japonica Flower (Also Known As Huaihua) Contain Quercetin. Other foods include Cocoa, Elderberries, Dried Mexican Oregano and Cloves. [40] In red onions, quercetin is concentrated in the outermost rings and also in the part closest to the root. Herbs and spices highest in quercetin from highest to lowest: lovage, dock like sorrel and dill.

In closing, there are many conflicting studies showing quercetin extends lifespan, however I believe it is due to these factors: Not testing it when inflammation is present, over use, poor quality of extracts or foods or improperly combining it with certain foods. I believe that a vegetarian diet and exercise, combined with small amounts of quercetin are actually responsible for producing the longevity effects.

From my years of experience, I much prefer to take the quercetin found in foods, especially considering that taking the supplement form in large doses can cause overdoses or negative reactions. Like green tea, quercetin should be taken in moderation, especially after intensive exercise for fast recovery. Also when you take a food high in Quercetin, the body is able to better pass excess amounts out of the body safely, compared to a supplement. This is always a good rule to follow. If you don't want to overdose on a supplement, take a food highest in the vitamin or mineral you are seeking and your chances of overdosing are greatly reduced.

Probiotics

Next we shall cover probiotics. In all my years of anti-aging research, I have found probiotics to be one of the more powerful anti-aging strategies. Yogurt and Kefir, which are high in Probiotics are one of the most simplest and powerful anti-aging foods. I believe this is the case because over 70% of our immune system is in our stomachs. If the right bacteria, such as

Lactobacillus Rhamnosus is present, it stops the bad bacteria in the gut from multiplying and weakening our immune systems. This is why laughter is one of the best medicines because it causes your stomach muscles to relax.

One of the stars of good gut bacteria is the strain known as Lactobacillus rhamnosus, found in yogurt, it was shown to have significant anti-inflammatory properties. In one of numerous scientific studies on this strain, C. elegans fed a strain of Lactobacillus rhamnosus had their lifespan extended up to 20%. The good thing about yogurt is you can eat a lot of it, and not have to worry about too much of an allergic reaction. Lactobacillus rhamnosus has also been found to reduce diarrhea and boost immunity in the urinary tract. Speaking from personal experience, I eat more yogurt during early summer and early winter, times the immune system needs it most.

Food Sources of Lactobacillus Rhamnosus

The healthy strain of Lactobacillus rhamnosus can be found in yogurt, kefir, fermented milk, pasteurized milk, and semi-hard cheeses such as provolone and parmesan cheeses. It is also found in pickles, sauerkraut and other fermented foods. The food yogurt is also high in the amino acids Lysine, Leucine, Valine and Proline.

Lactobacillus Rhamnosus Synergists

Ginseng has been shown to be a *Lactobacillus rhamnosus* synergist.[43] Another probiotic synergist is oligofructose which also synergizes with inulin. [44] To boost the good bacteria in yogurt, add Chicory Root or Inulin powder to your yogurt. Inulin comes from Chicory Root. Foods high in Inulin include: Chicory, Jerusalem Artichoke, Garlic, and Leeks.

In closing, there is a wealth of information connecting probiotics with longevity, so I will keep it simple. Speaking from my own personal experience over the years, I have achieved the best results from combining yogurt with certain amino acids as well as honey. This provides a 2 fold effect. Honey, due to its boron content, increases the amount of calcium absorption into the bones of the body when taken with yogurt. Amino acids have a tendency to synergize with the amino acids in yogurt. I usually take the amino acids before sleep, after having the yogurt for dinner. More of this will be covered later in the book.

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Chapter 2

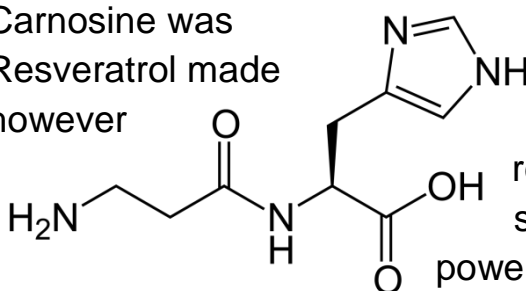
The Miraculous Muscle and Tissue Building Effects of Carnosine

What is Carnosine?

This next chapter is devoted to the amino acid Carnosine. Carnosine is one of the most water-soluble nitrogen amino acids (much like B vitamins are extremely water soluble). It is a dipeptide combined of two amino acids named alanine and histidine. Foods highest in alanine: Raw seaweed, Egg Whites and Egg White dried powder and Tuna.

What is Carnosine and How does it Work to Lengthen Lifespan?

The following image is the chemical composition of carnosine. Carnosine was drowned out by the noise Resveratrol made when it entered the market, however Carnosine is still highly regarded as an anti-aging substance. Carnosine is a powerful antioxidant, due to its ability to prevent age related accumulation of free radicals. It is a dipeptide (a small molecule with two amino acids) consisting of histidine and beta alanine. The remarkable fact



about Carnosine is it continues to work preventing oxidative damage even after the cellular molecules are attacked. It also prevents destructive effects of oxidized chemicals, such as malondialdehyde, which are associated with brain cell death in many neurodegenerative disorders including Alzheimer's and Parkinson's.

One of the most important features of carnosine is its ability to interfere with proteins. Especially the reactions between glucose and oxygen, the main two that contribute to inflammation and aging. One of the more promising aspects of Carnosine is its ability to mitigate inflammatory effects of viral infections, including influenza.

Because of all these beneficial biochemical reactions, carnosine shows great promise as a possible life span extender. This unique multi-level action allows carnosine to target the causes of aging in the brain, heart, skin and other organ systems. Experiments on animals including rats and fruit flies, showed it extended life span. Carnosine has also been shown to extend lifespan in human tissue in culture.

Carnosine declines with age and is produced in the skeletal muscle and central nervous system and is highly concentrated in the body at high levels in the Quadriceps. Carnosine was discovered by the Russian chemist V.Gulevich, who also discovered carnitine. It has strong antioxidant properties and also helps slow down the cross linking of proteins that cause aging (Glycation). It also helps remove toxic metals from the

body. It has shown promise in reducing cataracts and is used to moisturize the skin due to its unique ability to protect important proteins. It has also shown promise in treating children who have autism.

In a famous 6 month study on Carnosine by Professor Wang, a clinical study of 96 patients with cataracts, treatment with carnosine showed a success rate of 80% in dissolving advanced senile cataracts. In another study the success rate was 100% in patients who had mild to moderate cataracts. This has been a key repetitive pattern in anti-aging substances, that they also dissolve cataracts. This is an important key factor to look for when identifying anti-aging substances, herbs and compounds. One such herb is eyebright, which is used in an anti-aging skin cream and is available as a tea. Other things to look for are the ability to fight inflammation and relieve depression. Anyway, back to topic. Carnosine has been shown to increase the Hayflick limit (the number of times human cell population divides until cell division stops) and help reduce the shortening of telomeres.

Carnosine Helps Preserve Bones

In an issue of cell biochemistry and function, mice that were injected with carnosine for 5 days had reduced damage to bone marrow, caused by the chemotherapy drug cyclophosphamide. Name of Study: **Chemoprotective effects of carnosine against genotoxicity induced by cyclophosphamide in mice**

bone marrow cells. Researchers: Naghshvar F, Abianeh SM, Ahmadashtafi S and Hosseinimehr SJ. The published study can be found online at:
<http://www.ncbi.nlm.nih.gov/pubmed/22535690>

How Much Carnosine is Recommended for Best Results?

Many people think they get enough Carnosine from eating meat; however a study showed that after obtaining 250 mg of carnosine from eating a 7 oz. hamburger, the Carnosine had completely cleared itself from the volunteer's blood within 5 to 6 hours. The recommended daily allowance for Carnosine is 1,000 mg daily, which can be obtained with a good Carnosine Supplement .

Carnosine comes in many varieties, and until the explosion of interest in Resveratrol, Carnosine was the most sought after longevity supplement. However, due to its continued success as an anti-aging amino acid, interest is starting to return to this remarkable amino acid. It is key to purchase Carnosine that is of good quality, and you will know you have the right brand by the results you experience, or you can look for reviews online from reputable websites and see what others have shared about their experiences.

Why Carnosine Outperforms Resveratrol

If you are interested in maintaining healthy tissues and muscles into advanced age, Carnosine is the supplement to have. This is because when combined with green tea, catechins, vitamin D(3) and blueberry, carnosine has been shown to be one of the most simplest combinations to grow stem cells (which we shall go into more detail later on in this book). [1] In a study on animals, Carnosine was found to boost lifespan up to 50%. [2]

This new science of building stem cells naturally is known as regenerative medicine, which is technology that is on the horizon consisting of methods that are non-invasive, allowing us to end the pain, suffering and excessive sums of money using surgery to treat age related problems. In a study titled: Protective actions of green tea polyphenols and alfacalcidol on bone microstructure, researchers at Texas Tech University Health Sciences Center in Lubbock, Texas discovered that a combination of green tea polyphenols and alfacalcidol (A form of Vitamin D) increased bone microstructure density and strength.

Unlike Resveratrol, which performs best by itself, Carnosine synergizes well, especially with herbs and substances that enhance protein synthesis, allowing for a more thorough and lasting tissue rebuilding. By using synergy with Carnosine, we can use less and increase its effectiveness. Synergy, when properly used, also increases the bioavailability or absorption of the Carnosine. The key is to know which herbs or foods and

how much to create the proper synergy. Much like gunpowder requires the proper ingredients, if we want to maximize the anti-aging effects of Carnosine, we need to know the right ingredients.

One of the amino acids that acts very similar to Carnosine is Proline. It also shows similar synergistic effects. In a study of a mixture of lysine with ascorbic acid, proline, arginine and green tea extract, results showed that it strongly suppressed the growth of tumors, all without adverse effects, showing excellent anticancer activity. [3]

The Cost of Carnosine

As the many numerous and beneficial effects of Carnosine continue to become more widely well known, the price will hopefully continue to decline. From my experience, living in Los Angeles, a bottle costs up to \$50.00 at whole foods (as of 2015), a natural health supermarket. However, thankfully a store called Vitamin Shoppe has it for about \$15.00 a bottle (*for 30 capsules*), so if you look hard enough, you can find it for a good price.

Vegetarians are at Risk of Premature Aging due to lack of Carnosine in the Diet

Scientific studies have shown that vegetarians in particular have low levels of Carnosine in their bodies. Vegetarians are also lacking in vitamin B12, which makes vegetarians prone to suffering anemia (a lack of energy).

A paper recently published in the journal Mechanisms of Aging and Development in October 2005 titled, "Glycation, ageing and carnosine: Are carnivorous diets beneficial?" showed that vegetarians live shorter lives than usual because their diets are deficient in Carnosine. Carnosine is critical to preventing lethal glycation reactions in the body. {a}

What is Glycation?

Glycation is when glucose binds to the body's proteins, altering them and making them non-functional. Glycation is the mechanism that stops the cells in the body from maintaining their elasticity. One of the major signs of glycation is wrinkled skin. Simply put, think of an old rubber band that loses its elasticity, this is much like the elasticity in our body's cells. Meat happens to be high in Carnosine, a proven anti-glycation nutrient.

If a vegetarians diet is high in junk food, or contains a lack of vital nutrients, glycation will cause destruction in the person's arteries, resulting in a loss of elasticity, hypertension, and atherosclerosis. Glycation also contributes to cataracts, cancer and Alzheimer's disease. All these are really the signs of

general aging in the body.

There are 2 major scientific published studies proving that vegetarians have higher levels of advanced glycation in their blood compared to those who eat meat.{b} {c} This is because an exclusively vegetarian diet would lack carnosine, nature's most potent anti-glycating agent.

Excess meat eating is also bad for health as numerous scientific studies have proven, however, you can have the best of both worlds. By being vegetarian and getting the proper doses of Carnosine and vitamin B12 in your diet, you have more energy and avoid aging prematurely.

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Carnosine, A Scientifically Proven Missing Vital Link in the Diet of Vegetarians

Because Carnosine is a special energy builder and is found in high levels in meats, new vegetarians don't get enough of it, and could be one of the main reasons recent vegetarians complain of a lack of energy, especially if they are just starting out to become vegetarians. I know, this was one of the first things I successfully overcame at first. I would take care of my energy needs by eating cottage cheese, however during Summer, cottage cheese for some reason does not agree with me, so the Carnosine fills in what I miss when I don't get cottage cheese. I also eat raisins or cranberries daily as an energy source. I love Carnosine because I get the same energy supply, without the dark side of meat proteins or sugary chocolate. Once you have been vegetarian for a number of years, the lack of energy goes away. This lack of energy at first can be shortened if you supplement your diet with the right foods while just beginning to be a vegetarian.

Numerous studies are now showing that excessive meat consumption can contribute to negative long term health consequences. It is a fact that vegetarians don't suffer heart attacks. This is because the proteins in meat have been scientifically proven to clog arteries, due to their inability to become completely dissolved by digestion. [4]

It is key to get adequate amounts of Carnosine in the diet if you are vegetarian. There are studies showing that rats fed purely vegetarian diets were stunted in growth, compared to rats fed

an omnivorous diet.[5] Also in this study, life span was prolonged by intermittent fasting of rats fed an omnivorous diet compared to rats fed a vegetarian diet. This is most likely due to the lack of B12 and Carnosine in the diet of the Vegetarian rats.

A lack of Vitamin B12 has also been linked to brain shrinkage, especially if the person is older. The minimum RDA of B12 is 180-200 nano-grams a day. B12 is very unique in that the only organisms capable of producing it are yeast, algae and mold. No plant or animal can produce it. It can be found in high levels in salmon and sardines.

To date, the best Carnosine Synergists I have discovered include: Brewer's yeast, Mulberry, Spirulina, Astragalus (responsible for protein synthesis), Alanine (found in Spirulina), Docosapentaenoic acid (found in Cod Liver Oil or flax seeds), Vitamin D3 (high amounts can be found in Cod Liver Oil) and foods high in anthocyanins, especially the anthocyanin named 3-O-glucoside, which we shall cover later on. Wakame seaweed is high in Fucoidan which has been proven to boost mesenchymal stem cell growth.

Foods highest in Alanine include: Raw Seaweed, Egg White, Spirulina, Tuna and Pumpkin Seeds. (Source: NutritionData.com)

My experiences using Carnosine

I have had the opportunity of working with carnosine for the last 2 years testing synergists and finding the dosages that were right for me. I have received the best results taking it before going to sleep or at the early stages of a flu or cold. This is because Carnosine works from the inside out. It works with the good bacteria in the stomach. The immune system of the stomach is most active between the hours of 10 p.m. and 2 a.m., going to work, cleansing and re-strengthening the body.

The Anti-Aging Carnosine Mix Formula

An excellent formula for boosting the immune system and increasing energy levels and for developing strong and flexible bones, this formula is best taken before going to bed at night with honey and spring water. I have also had good results taking it with a pinch of Cayenne Pepper.

- **Just under 1/2 Teaspoon of Carnosine**
- **1/4th Teaspoon of Brewer's Yeast**
- **Just under 1/2 of 1/2 of 1/4th Teaspoon of Spirulina**
- **1/2 of 1/2 of 1/4th Teaspoon of Stevia Herb (*Not the Processed Stevia Powder*)**
- **1/2 of 1/2 of 1/4th Teaspoon Mulberry Extract (from a capsule)**

This formula is mixed and combined into an ordinary capsule, which you can make with a capsule making machine. If you want to grind the herbs up yourself, use a mortar and pestle and grind them as finely as possible, than add the contents to a strainer and gently shake the strainer over an open plastic bag or jar to get the smoothest powder. You can also put together the raw herbs in a kettle, tea bag or container and allow to “steep” for 5 to 10 minutes, than strain and drink. Other times I will add 4 drops of Nettle tincture or 4 Drops of Ormus to the mix for synergy. I have had best results adding between 6 and 9 drops of Astragalus tincture while taking the Anti-Aging Carnosine Mix Formula.

Best results are obtained by taking 2 capsules before going to bed with 1 or 2 Vitamin D3 Gel Capsules (***Not the D3 powder***), and 1 Tablespoon of Honey. Drinking Green tea 30 to 20 minutes before taking the formula can also help boost results, although it may be harder to fall asleep, so it is best to take the green tea if taking the formula during the daytime. If you notice any sensitivity or reaction, then take 2 capsules every 2 days with a 1 day break every few days for best results.

Sometimes if you have stopped taking it for a while taking only half a capsule per day combined with 5 to 8 drops of astragalus tincture works well.

The reason D3 gel caps are recommended and not the vitamin D3 powder, is because Vitamin D3 powder can cause a "mystery itch" under the eyelids when used with this formula.

Vitamin D3 Gel caps cannot be incorporated into this capsulated formula, so D3 gel caps must be separately taken for best results.

The results are enhanced when taken with compatible foods. The best foods to take within 2 hours of taking this formula include: sardines or anchovies. Other compatible foods include: chicken soup, azuki beans, eggplant, parmesian or provolone cheeses and black olives. Taking vitamin e, zeolite or benodite clay the following morning also adds to the beneficial effects. This is because carnosine removes toxins from your body as you sleep and the zeolite or edible bentonite clay flushes them from your body the following morning. Below is a picture of a capsule machine, which you can find at a good health food store. Capsule machines come in 2 sizes. Size 0 and size 00.



A Stronger Version of the Anti-Aging Carnosine Mix Formula

For those of you wanting a stronger formula, I will list the following formula. However, be forewarned that those with skin sensitivity may find the Lemon Verbana a bit too strong, so the formula should be used sparingly.

1/2 Teaspoon of Carnosine

Just over 1/4 Teaspoon of Spirulina

1/2 of 1/2 of 1/4th Teaspoon of Stevia Herb (Not the Processed Powder Type)

1/2 of 1/2 of 1/4th Teaspoon of Green Tea Powder

1/4th Teaspoon of Brewer's Yeast

1/4th Teaspoon of Astragalus Herb or take the formula with 8 drops of Astragalus tincture extract.

1/2 of 1/2 of 1/4th Teaspoon of Lemon Verbena Herb (optional)

Lemon Verbana is an especially interesting herb, because not only does it contain Benfotiamine, a stem cell boosting substance, it has also been scientifically proven to reduce oxidative stress, and increase recovery from intense exercise. Another interesting fact is that when lemon verbena is combined with the amino acid Theanine, it has been shown to produce brainwaves in the alpha wave region. Alpha brainwaves have been shown to increase creativity. (*Please see additional references at the end of this chapter for scientific studies on Lemon Verbana and recovery from exercise and as*

a powerful antioxidant).

Speaking from personal experience, after taking the carnosine formula, sometimes I usually follow this up with the SOD mix the next morning. The SOD mix is shown below. One day I decided to take a break from taking carnosine. I stopped taking carnosine for 3 weeks at the start of the winter season. What happened was my body had a shortage of Vitamin E, which I was able to rapidly replenish by taking 2 teaspoons of wheat germ and sesame seeds once per day. So it appears that carnosine may be somehow interacting with Vitamin E and if you stop taking carnosine after a number of years, you may need to replenish your vitamin E levels. This shortage could also be due to the cooler weather, which draws moisture out of the body faster than usual and Vitamin E helps keep moisture in the skin.

The SOD Formula Mix (*SOD is short for Superoxide Dismutase*)

This is a great formula to help raise energy levels, relieve constipation and promote overall wellness. It is based on the ability to raise the body's Superoxide Dismutase levels naturally. Take the SOD mix with food during mid morning or just before or after a workout. To help increase absorption of the contents in the formula, take it with 2 Cod Liver Oil Capsules. The formula is shown on the next page.

Just under 1 1/2 Teaspoons of Brewer's Yeast

Just under 1 tsp Bromelain

Just under 1/2 Teaspoon of Ashwagndha

Just over 1/4 Teaspoon of Cumin Seed

Just over 1/4th Teaspoon FO-TI

Just under 1/2 of 1/4th Teaspoon of Milk Thistle

Just under 1/4th Teaspoon of Creatine

Just over 1/2 of 1/4th Teaspoon of Reishi

Just over 1/2 of 1/4th Teaspoon Ginger

Just over 1/2 of 1/2 of 1/4th Teaspoon Grapeseed

Just over 1/4 Teaspoon of Burdock

Just over 1/2th of 1/4th Teaspoon Cordyceps

Just under 1/4th Teaspoon Jiaogulan

Just over 1/4th Teaspoon Basil

***Optional:* Just under 1/2 of 1/4th Teaspoon of Hawthorne berry**

***Optional:* Just under 1/4th Teaspoon Roobios Tea**

***Optional:* Little over 1/2 of 1/2 of 1/4th Teaspoon Oolong**

The Amino Acid Carnosine and Tooth Health

Because herbs and foods that heal teeth are similar to longevity herbs and foods, I want to cover carnosine and tooth health here. Carnosine has been used to heal gum Infections. I personally have noticed after taking the Carnosine Anti Aging Formula shown earlier that I have stronger teeth and gums. This could also be from taking Vitamin D3, which synergizes with the Carnosine, because Vitamin D3 builds strong, healthy bones.

Interesting facts about carnosine include:

Carnosine has been made into Nasal Sprays, which allow faster absorption into the body.

Doctors recommend taking carnosine with CQ10, which can be obtained from Sardines.

When carnosine is made into a nasal spray, it allows for a more effective absorption of the carnosine into the body.

Carnosine has been made into skin patches, which are used by athletes.

The absorption of Carnosine is increased when Grain Alcohol or Vodka is included, making it especially effective when taken with an alcohol based tincture. As a scientific study showed that

Vodka at the rate of 80mg to 200mg of Carnosine increased the absorption of Carnosine absorbed by the body.

Because of this fact, I have had great success combining tinctures, which are made from Vodka or 180 proof Everclear and taking them with Carnosine. Good combinations include: Nettle and Vanilla Bean Tinctures. Vanilla is especially good because contains the anti-aging compound Vanillin, which increases the absorption of the Carnosine into the body. I personally use 180 proof Everclear to make my Vanilla Bean Tinctures.

Compatible Foods to Take with the Anti-Aging Carnosine Mix Formula

Mulberry, plain honey and vitamin D3 Gel Caps seem to synergize well with this formula. Also plain yogurt sweetened with raw honey and Organic Stevia that has a pinch of cinnamon, garlic powder and 2 tablespoons of flax seeds taken within 2 hours works well.

The second formula consists of purple taco shells (sometimes called blue taco shells), Sardines with Brown Rice and French Lintels, or Sweet Corn, or Spinach which can be bought together in the store in cans or you can sprout or cook them yourself. A small amount of Garlic powder is added to the sardines. This combination works very, very well, as the brown rice increases the absorption of the nutrients in the beans. The

sardines are high in DMAE and the purple taco shells are very high in anthocyanins, especially the 3-O-glycoade anthocyanin. The reason garlic is used in both these meals is because garlic will circulate longer in the body than most vitamins, so when the carnosine is introduced later, it creates a beneficial reaction.

Additional foods to take with this formula are: Cooked Brown Rice and Cooked Lentils, 3 to 5 Black Olives and Parmesan cheese go especially well with this formula. Parmesan cheese is high in butyric acid and olives are high in vanillin.

Additional Instructions: Do not overuse. Overuse may contribute to less effectiveness. Do Not use if nursing or pregnant. Overuse may result in pre-mature fatigue and rapid weight loss. Best taken before going to sleep.

From my experiences with this formula just before going to bed at night the next morning I wake up feeling extremely refreshed, re-energized and I can feel the newly rebuilt muscles and tissues, it works so well.

With the synergists just discussed (mulberry, astragalus etc.) you can use less and get the same effects, and in some cases even better results. It works especially well taken on a Friday or Saturday night, or the day before you take a day of rest. This is because on days you get more rest, if you increase your intake of nutrients, your body re-builds itself quickly and more efficiently, than on days you are working, as excessive work, stress and/or exercise quickly drain the body of nutrients.

Speaking from personal experience of using carnosine, I have also noticed a major increase in my ability to maintain a longer level of concentration when taking carnosine, as well as reduced eyestrain. One of the major synergists with carnosine is the anthocyanin named cyanidin 3-glucoside, which has significantly more antioxidants than blueberries. [6] Before we go further we have to understand what Anthocyanins are, which we shall explore next.

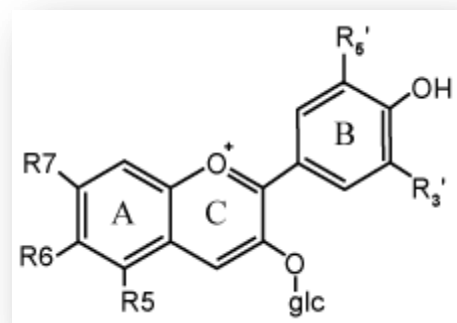
As mentioned earlier, during summer, when I reduce my intake of cottage cheese and other energy proteins, I will take slightly more carnosine to increase my energy. Also at the start of winter, taking St. Johns Wort works well to resupply lower levels of melatonin and to help remove winter depression, which can happen during winter time. Banisteriopsis in extract or tincture form also works well at the start of winter, especially when taken with passionflower tincture or dark cacao chocolate, in order to activate the MAO inhibitors in the Banisteriopsis. This is because Banisteriopsis is an effective depression buster and a great alternative to pharmaceuticals. Dr Jacques Mabit researched using Banisteriopsis to treat depression and discovered that one-third of his patients who begin using Banisteriopsis were cured through using it in an ayahuasca drink. Further research revealed a success rate as high as 70% for patients completing the full treatment.

What are Anthocyanins?

An Anthocyanin is a highly soluble compound that produces the purple color in flowers, foods and plants. Although this has yet to be confirmed, there is the possibility that anthocyanins are responsible for making the leaves turn their bright yellow orange, red and tan colors during the start of the fall season. Because they are superabsorbent, due to their tiny molecules, upon entering the body, anthocyanins are rapidly metabolized and excreted into bile. Bile is a detoxifying agent that metabolically breaks down fats from food.

In a study titled: Anthocyanin absorption and antioxidant status in pigs by Walton MC, Lentle RG, Reynolds GW, Kruger MC, McGhie TK, the study stated that the anthocyanins reached a peak in 4 hours after being injected.

Below is an image of the anthocyanin chemical structure.



Anthocyanins concentrate themselves most in purple colored

foods. Purple wheat for example has been shown to extend the lifespan of worms up to 10.5%. [7] Many flowers, herbs, plants and foods high in anthocyanins, naturally have a deep violet or purple color. Plants also produce anthocyanins as a way for providing protection from insect attack. Many anthocyanins turn red when exposed to acidic conditions and turn blue when exposed to an alkaline environment, making them a great way to test for PH levels.

We can think of Carnosine as the ingredients for new muscle tissue and Anthocyanins as the tiny nanobots that get down into the tiny spaces. Anthocyanins are known for their ability to inhibit alpha-glucosidase activity, which naturally reduces blood glucose levels, especially after starch-rich meals. Anthocyanins are starting to show promise in prevention of neurodegenerative and cardiovascular diseases, especially inflammation, obesity and cancer.

Anthocyanins. How They Can Be Used To Test For Acidity Or Alkaline PH.

One of the foods highest in anthocyanins is cabbage. When cabbage leaves are boiled, anthocyanins are extracted. Anthocyanins can also be extracted using citric acid from apple cider or lemon juice, which is why the Carnosine formula just mentioned, contains 1 drop of Apple Cider Vinegar. When anthocyanins are added to an acid such as lime or lemon juice, it turns bright pink. If it is a neutral substance such as Gatorade,

then it will turn the liquid reddish-purple and if the liquid is an alkaline solution, then the color will turn green. Because the color pink (or indigo) is close to the color purple (or violet) in the spectrum of colors, it proves that anthocyanins react, or become more concentrated in a slightly acidic medium, which is the same as our stomachs. Our stomachs need a slightly acidic PH in order for nutrients to be properly absorbed into our bodies. Another interesting observation is Lime Juice is high in citric acid. When a drop of lime juice is added to a food high in anthocyanins, such as the juice of *Clitoria ternatea*, (butterfly-pea), it turns it to a deep purple, because its acidity has been increased. Citric acid is also used as a medium to extract anthocyanins from plants and foods.

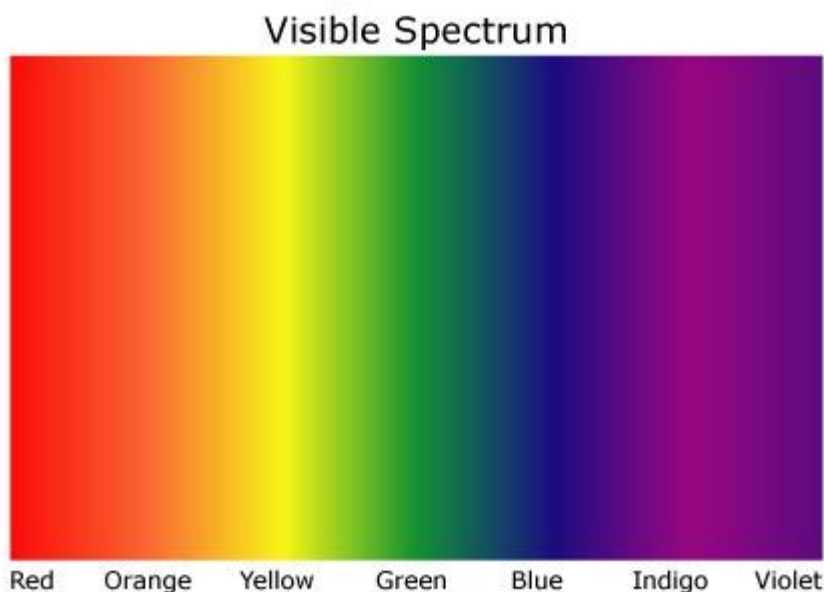


Fig 2

A study titled: Improved stability of chokeberry juice anthocyanins by cyclodextrin addition and refrigeration (by

researchers Howard LR, Brownmiller C, Prior RL and Mauromoustakos A) demonstrated that slightly acidic PH levels increased the stability of the anthocyanins in chokeberry juice.

Citric Acid Synergy

Citric Acid is sometimes made from Orange Peels. The amino acid lysine synergizes with citric acid. In a study titled: Determination of synergistic effects of polymethoxylated flavone extracts of Jincheng orange peels (*Citrus Sinensis* Osberk) with amino acids (by researchers Xiaolin Yao, Xiaoyun Xu, Gang Fan, Yu Qiao, Shaoqian Cao and Siyi Pan) they demonstrated that a mixture of citric acid and lysine were highly synergistic. The combination used was 120 µg/mL citric acid 42 µg/mL of lysine (or roughly 2:1)

Foods highest in Anthocyanins from highest to lowest include: Chokeberry, Purple Corn (and purple corn seeds), Eggplant, Blueberries, Blackberries and Raspberries and Cherries. In the food groups, berries contain the second highest level of anthocyanins. Here they are from highest to lowest: Crowberrys, Blueberries, Blackberries, Strawberries, Elderberries, Cranberries and Bilberries. [7] The Colombian Andes berry (*Rubus* berries) is also high in Anthocyanins.

Researchers at the Horticultural Sciences Department of Texas A&M University discovered that the anthocyanin content of purple corn was much higher than fresh blueberries.

One of the more concentrated sources of Anthocyanins are blue-green algae, especially if it comes from volcanic regions, or areas where it was grown in a nutrient rich environment. Blue-green algae is high in a pigment called pigment Phycocyanins. Certain algae absorb light in a specific wavelength. Phycocyanins absorb orange and red light (620 nm). They do this due to some of them living at extreme water depths, where light is scarce. Spirulina also happens to be an algae.

Citric Acid works good on its own. Taking too much citric acid will cause rapid weight loss due to fat being burned too fast.

Species Of Plants That Contain Anthocyanins

Plants include: The water Lilly (*Nymphaea marliacea*) which has 3 types of anthocyanins and is one of the rare species of Lilly that includes Gallic acid. *Clarkia elegans*, *Linaria alpina*, Garden Pea, *Salvia Horminum*, *Viola odorata*, Corn- flower, *Lobelia Erinus*, *Myosotis sylvatica*, *Delphinium Ajacis*, *Campanula medium* and *Aquilegia vulgaris* (Columbine).

Anthocyanin Synergy

Anthocyanin synergists include the Tart Cherry, one of the

berries that contains one of the broadest range of polyphenols, gallic acids and other unique antioxidants. Because Anthocyanins such as blueberries synergize with carnosine, they promote stem growth.

Tart Cherry has also shown significant stem growing promise. [8] Another well-known berry is Strawberry, which has shown synergism with Riboflavin. [9] And sucrose has also shown synergistic properties with strawberries. [10]

Anthocyanin Bioavailability And Absorption

Synergists also help improve absorption. One of the most common ways of this is via bacteria. Usually the good bacteria in yogurt can assist bioavailability, especially with Carnosine and anthocyanin substances. One substance mentioned earlier is cabbage. When strawberries were eaten with medium to large doses of steamed red cabbage, it has been shown to increase anthocyanin absorption. [11]. What is most interesting in this study is that there was no overdose tolerance, or a saturation point, as is often the case where if specific nutrients are overeaten it causes the absorption of nutrients taken with it to decrease. In the case of cabbage, medium to large doses were required to boost the bioavailability of anthocyanins, possibly due to the cabbage acting as a type of “buffer”, allowing more room for the anthocyanins to gather. I believe that the best synergists for anthocyanin bioavailability are cherry, followed by elderberry and pomegranate, which as

we shall cover later, were found to make fruit flies live 3 times longer than average. Other berries that synergize well to increase anthocyanin uptake include: Blueberry and Raspberry. A good combination is Eggplant and Red Cabbage or Purple Corn and Eggplant. We shall cover why Eggplant builds stem cells later on.

Another anthocyanin that delivers good results is **cyanidin-3-O-beta-D-glucoside**, also simply known as 3-O-glucoside. Foods containing this in highest levels include: Blackberries, Black Soybean Hulls, Purple Corn, Chokeberry, Bilberry (including the stems and leaves of the plant), Elderberries, Acai and Blueberry. These also show stem cell building potential, as blueberry has already done. [12] An interesting fact is isoflavones, which have shown significant longevity potential in studies, is found in high levels in soybeans. Anthocyanins are extracted from the hulls of black soybeans. [13] Because anthocyanins also affect stem cell growth when combined with certain substances, this means isoflavones also affect stem cell growth. Because this is such a new discovery, research is starting to look at the properties of isoflavones and stem cell growth. [14]

Citric Acid and Longevity

As we will cover in more detail later in this book, the hundreds of fruit fly experiments performed by Mr. Doug Skrecky over a 4 year period showed that when the addition of citric acid (an

acidic substance), was added to fly food, especially the berry foods such as the elderberry or pomegranate (which contains the anthocyanin cyanidin-3-glucoside, which we shall go into more detail later on in this chapter), it boosted lifespan significantly, outliving the controls easily by a factor of 3 to 1. This I believe is due to apple cider's ability to draw out Anthocyanins from the substances and increase the digestion of the anthocyanins, especially if used with plants that have "soft" tissues, such as Mulberry or Pomegranate. Dramatic fruit fly longevity results were also obtained with rice protein. Rice protein happens to have high levels of anthocyanins. The experiment also showed that only a small amount of citric acid was all that was necessary. There happens to be a commercial drink called **Purple Corn Juice**, which includes in its formula apple cider vinegar and purple corn. People are already starting to discover its health benefits and many people are reporting how good they feel after drinking this combination.

Chlorogenic acid is another substance that has shown promise as an anthocyanin recovery agent. Chlorogenic acid helps slow the release of glucose into the bloodstream, much like Casein slows down the digestion of proteins, allowing a longer lasting protein synthesis to take place. Chlorogenic acid can be found in high levels in the following foods: Green Coffee Bean Extract, Bamboo, Peaches and Prunes. Bamboo is used in many skin moisturizers to soothe and return moisture to the skin.

Anthocyanin Stability

Because anthocyanin stability is key to getting the most out of its benefits, we shall explore further the mechanisms that help boost stability. Much like many nutrients, anthocyanins can degrade over time. Although research is yet to confirm this, substances that increase anthocyanin stability, may also create beneficial synergy in the body. One of the most remarkable substances that boosted anthocyanin stability was Rooibos Tea. This was shown to improve the stability of the anthocyanins in acai by up to 46 percent due to the high number of flavone-C-glycosides in the Rooibos. [16]

Rooibos has got to be one of the best substances known to help keep anthocyanins stable over a long period of time. Rooibos is commonly drank as a hot tea. Research has also shown that sodium benzoate, which is a widely used food preservative, can boost anthocyanin stability. In a study titled: Anthocyanin contents and the phytonutrient changes in blueberry juice by Stojanovic and Jelena, the study showed that sodium benzoate was the most effective substance for stabilizing anthocyanin levels.

Substances high in flavone-C-glycosides include: Bamboo, *Trollius chinensis* Bunge, *Ficus deltoidea* (Moraceae) (a herbal tea in Malaysia), the African Medicinal Plant *Biophytum umbraculum* and Hawthore Berry. Butterfly Pea (*Clitoria ternata*) has shown remarkable stability in its anthocyanin levels when stored for long periods, even outlasting that of grapes. As

a note, Hawthorne Berry has shown remarkable lifespan extension abilities in fruit fly longevity experiments as we will cover later on.

Covered earlier, Cyclodextrin, which is extracted from corn starch, has been shown to improve the stability of Anthocyanins. Cyclodextrin has also been shown to lower blood sugar. It has also been shown to immediately stop chronic diarrhea and constipation.

One study titled: Content levels Interaction of vitamin C and flavonoids in elderberry by researchers K. Kaack and T. Austed, showed that when ascorbic acid was added to elderberry juice it stabilized the anthocyanin content levels.

Herbs And Teas High In Anthocyanins

A U.S.D.A. study found anthocyanin levels ranging from 4.1 to 52.4 in the leaves of certain flowers and between 0.8 and 26.8 in other flowers. The highest levels were observed in tick clover (14.6) with the highest flower anthocyanin levels of 17.3 observed in the periwinkle flower. It just so happens that the leaf color of the periwinkle flower can range from a deep blue to purple. Other plants studied were jute, butterfly pea (*Clitoria ternatea*) and roselle. [17] A tea named Sunrouge tea is an anthocyanin-rich tea. [18]

The Remarkable Anti-Aging Anthocyanin - Cyanidin 3-Glucoside

Like B vitamins, Anthocyanins are water-soluble, making them highly bioavailable by the body. The longer fruit is left to ripen, the higher the levels of cyanidin 3-O-glucoside accumulate within it, perhaps due to the fermentation of the sugars. [19] This is why experiments with fruit flies showed that overripe bananas were a significant longevity food and some longevity fruits such as the Wax Gourd, increase their antioxidants when left to ripen longer than usual. One of the more important anthocyanins is cyanidin 3-glucoside which has been scientifically proven to lower blood sugar glucose levels and help with protein synthesis. This anthocyanin is present in red apples [20] and is contained in the outer levels or hulls of dark beans, especially the black bean.

Cyanidin is found in the majority of berries that have a red color, which we just covered earlier, such as blueberry, cherry, cranberry, grapes, bilberry, blackberry, elderberry, raspberry, hawthorn, loganberry, and acai berry. In fruits it is found in apples, red cabbage, plums and especially onions (red being the best). Red onion is the source of over 4 main cyanidin derivatives. [21]

According to Phenol Explorer, the top 10 foods highest in cyanidin 3-glucoside are listed in the order from highest to lowest: black elderberry (at 1315 mg/100 g) and the black chokeberry (at 876 mg/100 g). Other foods high in cyanidin 3-

glucoside include: Raw Blackberries, Sweet Cherries, Black Grapes, Red Raspberries, Raw Black Olives, Plums, Pomegranate Juice from Concentrate and Black Beans. Because this database is relatively new, purple corn was not listed. [22]

The molecule Cyanidin 3-O-glucoside also gathers and attaches itself in the seed coats of red and black kidney beans and black and yellow soybeans. If these seeds are dehulled, which often occurs during processing, the cyanidin 3-glucoside is lost.

Foods with the highest levels of the substance cyanidin 3-glucoside (also known as Chrysanthemum or Cyanidin) include: Blackcurrant pomace, Purple corn (and purple corn seeds), the flower Hibiscus sabdariffa, Chinese bayberry fruit and Elderberry.

Plants, Herbs And Teas High In The 3-Glucoside Anthocyanin

Cyanidin 3-glucoside has also been found in high levels in the following plants: Roselle plant (Roselle is a species of Hibiscus), Rhaponticum, also known as Maral Root, Asteraceae, a purple flower part of the sunflower family, smooth arrowwood fruit (also known as Viburnum dentatum), Caprifoliaceae, a pink/purple plant part of the honeysuckle family and sweet potatoes. It is also found in lower

concentrations in red raspberries, victoria plum, peaches, lychee and acai.

Hibiscus tea has good levels of Cyanidin 3-glucoside, and an excellent combination is Hibiscus tea and Elderberry.

Elderberry also combines well with Rooibos, an Anthocyanin stabilization substance. Speaking from personal experience, I have obtained the best results from Mulberry.

Japanese Knotweed (also called *Polygonum Cuspidatum*) contains 3-O-glucoside. The concentrations are highest in the aerial parts and the wood root portion. It is commonly used to make Itadori Tea, which is high in 3-O-glucoside. Japanese Knotweed also contains concentrated sources of resveratrol. This makes it an excellent way to get good levels of resveratrol without side effects, and an excellent combination is purple corn with Itadori Tea.

As stated earlier, Cyclodextrins are extracted from corn starch and have been shown to improve the stability of Anthocyanins. A Cyclodextrin is a non-reducing cyclic glucose oligosaccharides that comes from the cyclomaltodextrin glucanotransferase catalyzed degradation of starch. *Bacillus clausii* strain E16 can be used to create cyclodextrins from different types of starches such as soluble starch, cassava, sweet potato, waxy corn and corn starches. (Source: Production of Cyclodextrins by CGTase from *Bacillus clausii* Using Different Starches as Substrates.)

In simple terms, cyclodextrins have sugar type effects, which

may act as a fuel source for the cells, similar to Betaine, which is found in beet juice. Cyclodextrin has already been proven in the lab to extend lifespan, as the study titled: Function of the Niemann-Pick type C proteins and their bypass by cyclodextrin by Vance JE and Peake KB showed. Their study concluded that when NPC deficient mice (a disease causing mutations in genes) were treated with cyclodextrin, it extended their lifespan. Now in the following chapter, we shall begin to explore how to use Nutraceuticals to create new stem cells.

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Chapter 3

What are Stem Cells?

Now that we have covered the basic herbs that stimulate stem cells, we shall next explore in further detail about what stem cells are.

Stem cells are composed of biological cells, which differentiate into specialized cells by division to produce more stem cells. This chapter focuses primarily on adult stem cells, due to their ability to act as repair systems for the aging body via their unique ability to re-plentish adult tissues, especially the bones. It has been my conclusion throughout studying regenerative anti-aging compounds that when the bones are re-built, they contribute to longevity.

Adult stem cells are routinely used in bone marrow transplantation, to strengthen or add new bone. Bone marrow happens to be one of the richest sources of adult stem cells. Much of the research is based on using artificial pharmaceutical methods to enhance and encourage adult stem growth; however natural foods, extracts and herbs are starting to show the same results, if not better, in numerous independent studies concerning certain nutraceutical combinations that promote stem cell growth.

One excellent example of how stem cells can induce biological

immortality in nature is in a species of jellyfish known as The Benjamin Button of the animal kingdom (*Turritopsis dohrnii*). This jellyfish has never been observed to die, due to its unique ability to revert its biological structure back to its original stem cell formation. [1] It originated in the Caribbean, and studies in the laboratory proved that 100% of specimens reverted to their polyp stage (the ability to reverse the life cycle and grow younger). Unless a virus or predator can help control its populations, it is starting to become very common all over the world, due to its unique ability to cheat death.

The pigment Phycocyanins, which we covered earlier, has shown significant promise in growing stem cells. The species of algae from which it is found in, absorbs light in a specific wavelength, and we all know that sunshine is good for our bones, due to its ability to produce vitamin D (D3 is a stem cell builder).

Phycocyanins are found in high amounts in eggplants and the algae Spirulina. Dr. Rob Shore researched stem cell regeneration using eggplants and concluded that eggplant extract influenced significant muscle healing (anti-inflammatory properties). He discovered that an alkaloid in eggplant acts on the acetylcholine receptors enabling stem cell recruitment. He now sells it under the name: **Protein Power Mix Nighttime** Formula, used to build muscle, because it is taken before bed, which rebuilds the muscles and tissues as you sleep at night. [2] Because this is a new commercial product, no major research institutions have studied it yet, however all the

particulars of the product point to the fact that stem cell building properties exist in the formula.

The ingredients of **Protein Power Mix** are: Casein protein which digests slowly, allowing protein synthesis, Whole Grain Brown Rice, which increases the bioavailability of the nutrients, Fructose, because it is combined with slow releasing carbohydrates in this mix, sustains blood sugar levels by releasing the fructose slowly into the blood via the small intestines, Alpha Lipoic Acid, due to its antioxidant regenerative properties, increases bioavailability, Glutamine, provides a source of fuel for the brain, Eggplant extract, for rebuilding stem cells, Inulin Fiber, which can't be broken down into monosaccharides in the small intestine, which does not allow it to be absorbed into the blood stream from the small intestines, raising blood glucose levels, and Bromelain, which is an anti-inflammatory. It also contains trace minerals of Potassium, Calcium and Magnesium. Now I don't mention this as a plug for the product, just as proof of concept that the Eggplant synergizing with these ingredients boosts stem cell growth. Eggplant is also one of the foods highest in Chlorogenic acid. Chlorogenic acid, as mentioned earlier, has shown great promise as a anthocyanin stabilizing agent.

Eggplants are part of the night shade family of plants, which includes: sweet and hot peppers, potatoes, tomatoes, tomatillos, tamaros, pepinos, pimentos, cayenne peppers and paprika. As we shall cover later on, Paprika in fruit fly experiments was shown to be one of the most successful anti-

aging compounds. Cayenne pepper also happens to boost circulation in the body

While I don't want to get off topic, I want to also show that herbs high in alkaloids have extreme benefits in healing extreme chronic inflammatory disorders and rheumatoid arthritis.

Nightshade plants are high in alkaloids. As of early 2013, there has been extreme interest in using stem cell therapy to heal arthritis. So I want to list these herbs, as they may have significant stem cell regenerative ability in mammals and humans. Let's cover these next.

Stem Cell Building Substances Have Joint Anti-Inflammatory Properties

This section will briefly cover alkaloids scientifically proven to re-build stem cells. In sports, inflammation is a form of muscle recovery, muscle building or healing. It is the body's natural repair mechanism, and this is a good type of inflammation. It is the wrong type of inflammation that is dangerous, such as the inflammation caused by arthritis. This means that the "rust" is outpacing the renewal repair abilities of the body. Stem cells make up for this "gap" of repair, by re-supplying the necessary nutrients needed for repair. Thus many substances that help arthritis, are also stem cell building substances as we shall examine briefly.

Chelidonium majus (also called greater celandine; in Europe tetterwort). Chelidonine belongs to the poppy seed plant family

and has shown significant ability to regenerate stem cells in planarian flatworms. [3] Studies on mammals have yet to verify its effectiveness on mammals. Chelidonine also shows significant anti-cancer effects. It can be bought as an extract or tincture online.

Sophora flavescens, besides its anti-inflammatory, anti-arthritic [4] and anti-cancer properties, has shown outstanding potential for hair regrowth. [5]

Berberine has shown significant anti-inflammatory effects on rheumatoid arthritis. [6]

Stephania tetrandra has been shown to suppress neutrophil function in patients with rheumatoid arthritis. [7]

Rhizoma Coptidis has shown strong anti-inflammatory effects in cases of chronic inflammation. [8]

Black pepper (*Piper nigrum* and *Piper longum*) (also used to increase the bioavailability/nutrient enhance of nutrients in food) has shown strong anti-arthritic effects. [9]

Evodia Rutaecarpa, which yields small berries, is a well-known fat burner and warms the body. [10] It also has been shown to relieve arthritis. [11]

Evodia Rutaecarpa has also been shown to boost skin microcirculation and improve skin condition. It is often

combined with Algae to enhance glowing skin. It also has powerful anti-inflammatory properties. [12]

Sanguinaria Canadensis has been used by Native Americans for centuries to treat arthritis and improve respiratory conditions.

Next we are going to explore combining different substances of stem cell substances to enhance stem cell growth.

Stem Cell Rebuilding Synergistic Combinations

Now let's explore nutraceutical combinations to find the best ones that enhance natural stem cell growth. Besides the already published combination of carnosine, blueberry, green tea and vitamin D3 which was shown to boost stem cell growth, similar combinations can also be used. In the book titled *The Anti-Aging Triad* By Stephen Holt MD, [13] he reports that new bone marrow stem cells have been grown when a combination of Vitamin D3, Oleic and Linoleic Acids, blueberry extract, fucoidan and blue green algae were combined. Dr. Stephen Holt is a world renowned Professor of Medicine (Emerite). He has over 25 books to his credit and hundreds of scientific communications along with thousands of publications and citations in medical consumer and trade press publications. He graduated with Honors in 1972 from Liverpool University Medical School in England. His website is:
<http://www.stephenholtmd.com/>

Sulforaphane

Because Broccoli has shown stem cell building potential, we have to understand the molecular mechanism taking place that causes it, which is Sulforaphane. Unlike eating large doses of cabbage which boost anthocyanin intake, researchers have discovered that low doses of sulforaphane, about the amount you find in an average meal containing cabbage, stimulated the development of mesenchymal stem cells (also called MSC's, which can differentiate into bone cells) and helped existing stem cells to live longer. [14] Mesenchymal stem cells, also known as MSCs, differentiate into a variety of cell types. Some are even able to make new bone cells. In a study titled: Mesenchymal stromal cells prolonged the lifespan in rats, which was performed at the Institute of Experimental Medicine, Academy of Sciences of the Czech Republic, Prague, Czech Republic, Mesenchymal stromal cells prolonged the lifespan of rats in an in-depth research study.

How Sulforaphanes Are Formed In The Body

Much like the healing properties of garlic are released when you slice them fresh, when you slice fresh batches of Broccoli, Kale, Cabbage or other foods high in glucosinolates, it releases the cancer fighting compounds glucoraphanin and myrosinase. Myrosinase is an enzyme that is released when you cut the vegetables, cook them lightly or chew them, and this converts the glucosinolates into sulforaphane. Broccoli sprouts are one

of the richest food sources of glucoraphanin, which is a precursor to sulforaphane (also known as glucoraphanin sulforaphane). When broccoli sprouts are just 3 days old, they have between 10 and 100 times more glucosinolates than mature broccoli plants. Other foods high in glucosinolates include: Cress, Chinese cabbage, and cauliflower. These vegetables should be lightly steamed, if you boil them it decreases their glucosinolate content by between 18 to 59 percent.

Sulforaphanes and Gene Expression

Scientists discovered that sulforaphane, which is a glucosinolate formed when kale is chopped or chewed, alters gene expression. This specific gene that is turned on, when kale is suddenly sliced and exposed to air, clears carcinogenic substances from the body very quickly, making it an excellent food to add to your list of foods that quickly detox.

Scientists speculate that sulforaphane triggers the liver so it can produce detoxification phase II enzymes. These neutralize cancer-causing substances. Therefore, an excellent cancer fighting diet would consist of adding 3 day old freshly sprouted organic broccoli sprouts that are freshly sliced with shredded organic kale. A diet including small amounts of sulforaphane can offer protection against some kinds of cancer, especially intestinal cancer. Excessive amounts robs the body of its detoxifying capacity. Savoy and red cabbage are particularly high in the sulforaphane precursor with the highest amounts in

Savoy Cabbage. Savoy Cabbage was shown to have good longevity potential in fruit fly experiments as will be covered later in this book.

Another study found that Sulforaphane helps protect against age-related macular degeneration, which is a leading cause of blindness in those who grow old. [15]

Other researchers found that Sulforaphane stimulates the development of new mesenchymal stem cells. [16] Cabbage happens to have high amounts of Sulforaphanes, so eating more cabbage is an excellent way to keep a good supply of healthy stem cells in the body. Cabbage and broccoli have also been proven in research studies to gain more muscle tissue as a study at North Carolina State University showed.

Sulforaphane Synergy

When the pharmaceutical drug called sorafenib is combined with sulforaphane, it exhibits synergistic activity abolishing pancreatic cancer stem cell characteristics. [17]

How Fucoidan Contributes to Stem Cell Growth

Fucoidan is starting to show promise as a major stem cell catalyst, especially in bone tissue engineering. [18] Fucoidan is a sulfated polysaccharide discovered in various species of

brown seaweed and algae; including mozuku, bladderwrack, wakame, kombu, and hijiki. It is found in high concentrations in the Sea Cucumber, an animal famous for its ability to regenerate new limbs. Fucoidan is used in many commercial stem cell supplement formulas. It is also available in Capsule or Supplement form from reputable online merchants.

Another promising synergist is Vitamin MK-7 (also known as Vitamin K2 and also as Menaquinone-7). Vitamin K2 comes from the fermented soybean food called Natto. When it was combined with Vitamin D3 in a scientific study it showed significantly good results in helping strengthen bones and keeping them healthy via growing new stem cells. [19] An in-depth research study showed that MK-7 intake may help postmenopausal women prevent bone loss by reducing bone loss at the lumbar spine and femoral neck. [20]

Although no thorough scientific studies have been done on this supplement, it is worth mentioning. A supplement called StemEnhance contains a blend of 2 extracts from the algae cyanophyta *Aphanizomenon flos-aquae* (AFA). The first extract is an L-selectin ligand (a "homing receptor" for lymphocytes) and a polysaccharide extract (high in plant sugars) named Migratose. Their website states that a triple-blind study showed that consumption of the StemEnhance supplement triggered a 25% to 30% increase in the number of circulating stem cells. [21]

Varying combinations of Hawthorne berry, grape seed, cordyceps, acai berry, passion fruit, roselle, goji berry and blue

berry are used in commercial products to stimulate stem cell growth on the skin.

My Personal Research Discoveries with Stem Cell Synergists

Because I always base my observations on how quickly my body recovers from exercise, by experimenting with different herbal and amino acids before bed, especially after a heavy day of exercise, I find this helps me to intuitively listen to my body, by experiencing how fresh or drained I feel the following morning. When I get the same rejuvenative/restorative effects over and over from the same types of combinations, than I know I have hit upon an excellent recovery formula. Some examples include good results from including the foods Flax Seeds and Parmesan Cheese with the Carnosine Mix mentioned previously. Flax seeds are high in Linoleic Acid and Docosapentaenoic acid. Linoleic acid has been scientifically proven to grow new embryonic stem cells. [22]

A diet rich in Linoleic Acid has been shown to Prevent Myocardial Damage and Expand Longevity in Hamsters. [24] Parmesan Cheese is high in Butyric acid (also called butanoic acid), which has scientifically been shown to induce protein synthesis. [26] Other studies have shown it to be of considerable benefit in healing rats who underwent cardiac arrest.

Foods highest in Linoleic Acid include: Flax Seeds and Flax Oil, Chia Seeds, Walnuts, Basil, Oregano, Cloves, Grape Leaves, Marjoram, Spinach and the herb Tarragon. Additional foods include: Coffee, Safflower Oil, Grape Seed, Sunflower Oil, Poppy Seed Oil and Wheat Germ. [23]

Foods highest in butyric acid: Goat Cheeses and Goat's Milk, Parmesan Cheese, Salted Butter, Romano cheese, Ricotta Cheese, Feta and Swiss Cheese. [27]

An interesting fact is aged Parmesan Cheese contains high levels of ethanol, and ethanol is used to recover anthocyanins from plants. Ethanol is a remarkable substance known to retain moisture.

Although the research is still forthcoming, there is some possibility that Butyrate detoxifies or removes excess ammonia in the body. Other substances that also help remove ammonia from the body include the Amino acids Citrulline, Glutamine and Arginine. What is most interesting is a scientific study showed that a combination of the 2 amino acids, Glutamine and Arginine, enhanced the recovery of seriously ill patients. [28] And another study using arginine butyrate, showed it helped increase muscle tissue, reduce inflammation, myogenesis among many other benefits. [29] So it appears that arginine is a powerful butyrate synergist.

Another study showed that when Butyrate is combined with the amino acid Carnitine, it inhibits colon cancer cells. [30] And

when butyrate and Carnitine are combined with Probiotics, such as Yogurt, it has been shown to synergistically work together to reduce oxidative stress and heal inflammatory bowel disease. [31] Butyrate also synergizes well with retinoic acid, which comes from Vitamin A. Retinoic Acid has also been shown to boost Embryonic Hematopoietic Stem Cell Development. [32] Foods highest in Retinoic acid: Broccoli, kale, spinach and collard greens.

Now that we have covered the basics of Stem Cell generation, let's explore how Carnosine interacts with substances to create synergistic effects that enhance stem cell growth.

Carnosine and Stem Cell Production

Because Carnosine is such a powerful anti-aging protein, it must have Stem Cell regenerative abilities. So when we explore the Carnosine synergy further, we start to find scientific studies starting to confirm this. As of 2013, the research is still fairly new, however further studies should continue to verify this beneficial reaction.

In a study, rats fed carnosine mixed with vitamin D3, blueberry, and green tea polyphenols showed increased production of new brain cells and there was also less brain cell inflammation and/or deterioration. [33] This is due to the fact that one of the master molecules for Stem Cell production are

Anthocyanins, which D3 and Carnosine work together to activate.

In article titled Stem Cell Therapy in a Pill? published by Life Extension Magazine, reporters stated that Blueberry and Catechin increased bone marrow cell proliferation by 70%, and when carnosine and blueberry were added, the growth promotion observed was 83%. These results outperformed the expensive stem cell therapy drug called GM-CSF!43. [34]

***These scientifically published
studies demonstrate for the first time
that natural combinations can
successfully promote the
proliferation of human bone marrow
cells and human stem cells***

Now let's explore Carnosine Synergy.

Carnosine Synergism

Carnosine combined with Schizandra Berry is used as a skin moisturizer in many commercial skin care moisturizers.

Carnosine shows major synergy with DMAE. DMAE can be purchased as an extract or can be found in high levels in Sardines or Anchovies.

Carnosine combined with Rhodiola Rosea at just 1% has been shown to significantly protect the skin by enhancing its natural peptides that protect it from age. [35]

Phytoceramides may synergize with Carnosine and further research is necessary.

How DMAE Contributes To Glowing Skin And Increased Mental Alertness

DMAE has been shown to inhibit and reverse the *cross-linking* of proteins, one of the major mechanisms responsible for aging. DMAE is a precursor to acetylcholine, and is found in abundant amounts in sardines, salmon and anchovies. As mentioned earlier, DMAE shows major synergy with Carnosine.

In commercial applications, DMAE is combined with the following: Pantothenic Acid, and Vitamin B6 to help create an alert mind and with Vitamin E for use in skin moisturizers.

DMAE is commonly used to remove wrinkles when combined with sesame oil and aloe vera. It is also combined with soybean oil, alpha lipoic acid, and aloe vera gel for skin moisturizers and it is also combined with Ginkgo, Choline and/or Vitamin B12 in energy supplements.

Carnosine combined with Ginkgo, Lipoic Acid, Red Berry (such as cherries), and White Willow Bark is used to help diabetics.[36]

Carnosine combined with zinc creates Zinc Carnosine (ZnC), which is used to treat gastrointestinal problems, stomach ulcers or heal the intestine, as confirmed by a Japanese study. The study showed that out of 66 patients with H. pylori infections (gastrointestinal symptoms) 86% of the patients treated with antibiotics experienced eradication of H. pylori. However 100% of the patients who received zinc-carnosine with the antibiotics completely recovered.

Scientific Study Reference: Kashimura H, et al. Polaprezinc, a mucosal protective agent, in combination with lansoprazole, amoxicillin, and clarithromycin increases the cure rate of *Helicobacter pylori* infection. *Aliment Pharmacol Ther.* 1999, 13:483–487.

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As we can see from the references above, Zinc is a major Carnosine Synergist. This could explain why adding brewer's yeast to The Anti-Aging Carnosine Mix Formula, covered earlier boosts its results.

As I stated earlier, Carnosine works its magic in the intestines, where all healing begins, because over 70% of our immune system is in our stomachs. [37] Another stomach soothing combination is Zinc-Carnosine combined with cranberry and licorice extract which soothes and heals stomach pain or upset.

Carnosine combined with the herb Chinese licorice, grape seed extract, zinc, blueberry and picrorhiza kurroa extract is sold under the commercial name CarnoSoothe and is used for chronic stomach problems. Picrorhiza is especially interesting because it is used in combination with Milk Thistle in the ratio of 2 parts Milk Thistle to 1 part Picrorhiza as a simple liver protector and liver detoxifier.

Carnosine combined with blueberry extract, green tea extract, and vitamin D3 has shown significant anti-inflammatory actions that affect the elderly. A formulation of this synergistic blend is called NT-020. As of 2013, it is currently undergoing human clinical trials to confirm this, which has already been successfully proven in mice models.[38]

In another commercial application, Carnosine is combined with Glutathione and placed on acupuncture points using an adhesive patch placed on various parts of the body that delivers significant energy when worn. [39] One person who has publically mentioned good results from it is actress Suzanne Somers.

Carnosine, when combined with aspirin, has shown to be beneficial in dissolving cataracts. [40] Willow Bark, also used as an aspirin alternative, is high in acetylsalicylic acid. Later on as we explore further in this book, salicylic acid, which is a part of acetylsalicylic acid, has been shown to be one of the most powerful substances to extend the lives of fruit flies. Salicylic acid is also used to fight inflammation and unnecessary swelling.

Carnosine combined with Betaine (found in beet juice) has been shown to be effective in protecting the liver tissues of aged mice. [41]

Carnosine combined with DMAE is used in many anti-aging supplements.

Carnosine combined with Blue Green Algae and Vitamin E are used in skin moisturizers.

Carnosine combined with rosemary, lavender, and/or geranium are used in commercial applications as a powerful natural preservative for meats. Rosemary is one of the most powerful natural herbs used to keep meat fresh. Because of this, a combination of rosemary and lemon essential oils have shown remarkable promise in improving cognitive function in patients suffering from Alzheimer's disease. [42]

Carnosine combined with Vitamin E has been shown to decrease oxidative stress in the heart, liver and brain. [43]

Melatonin, a substance that affects the Pineal Gland, has shown significant results when combined with Carnosine. In one study it protected the liver [44] and in another study when 250 mg/kg of Carnosine was combined with 10 mg/kg of Melatonin, it provided significant protection in the liver of rats. Another study showed it effective in reducing symptoms of angina (a reduced flow of blood to the heart). [45] In many commercial supplements, Melatonin is combined with theanine to boost its absorption by increasing the ability to cross the blood brain barrier (goes directly to the brain). Theanine is found naturally in many teas and is especially high in black teas.

Foods high in Melatonin include: Sweet Corn and Oats. The

Herb Huang Qin (also called Scutellaria) contains one of the highest levels of Melatonin in the herb family, followed by Fever Few. Huang Qin, also known as milk-vetch root (Scutellaria) is a genus of Astragalus and happens to be used in many skin moisture products to rejuvenate the skin. The herb valerian boosts melatonin levels and is best absorbed when taken with hops because research shows a combination of hops extract (120 mg) and valerian extract (500 mg) helps induce peaceful sleep. Chasteberry or chasteberry tea has been shown to help stimulate melatonin production in the body, especially during the morning. Melatonin levels can also be increased from foods we eat, such as banana or pineapple.

A scientific study showed that Creatine is a carnosine synergist. [46] In the study, synergy only worked on the older rats, rather than younger ones. My experiments adding Creatine to Carnosine have not been altogether stellar, however the results may be different with humans, as this test was done on mice. We can also look for excellent Carnosine synergists by exploring the labels in popular Carnosine supplements. This we shall briefly cover in the next chapter.

Carnosine Synergists used in Supplements

Carnosine synergy has been shown to grow new stem cells, and only within the last few years have supplements become available that help nurture this new stem cell growth. Because Blueberry and Green Tea enhance stem cell growth, we can

look at stem cell supplements and see that they create synergy, increase bioavailability or are better absorbed together. This accelerates their effects and allows you to use less. The main component in Blueberry is Anthocyanin. One of the main components in Green Tea are catechins (EECG). When you combine EECG and anthocyanins, you get a major synergistic bio-organic chemical reaction. When you add Vitamin D3 (fish oil), it enhances the effects even further. Let's look at some of the supplements on the market today using carnosine synergists:

A supplement called Stem Cells Activator by SuperSmart.com lists the following ingredients in their Stem Cell Activator Capsules, Beta glucans (215 mg from oats) 150 mg, Green Tea Extract 150 mg, L-carnosine 50 mg, Astragaloside IV (from Astragalus) 20 mg, Polygonum Multiflorum extract 800 mg (also known as He Shou Wu or FO TI), Fucoidan (from Laminaria japonica) 300 mg and Blueberry anthocyanins 250 mg.

Another supplement lists the following combined with carnosine: Folic Acid, Vitamin D3, Vitamin B12, Blue Green Algae, Blueberry Fruit Extract, Flaxseed Oil Powder, Green Tea Extract, Fucoidan (from brown algae), Fucoxanthin (from brown algae) and Grape Seed Extract. This combination varies in the above ingredients, however the synergy of these extracts blend well together.

The next supplement called Super Carnosine Supplement lists

the following ingredients. Thiamine (also known as vitamin B1) 50 mg, L-Carnosine 500 mg, Benfotiamine (a derivative of vitamin B1) 50 mg and Luteolin [from orange citrus extract (fruit)] 4 mg. As we shall cover later on, extracts of citrus have extremely powerful antioxidant properties, especially in the upper region of the body.

We can also put together a food combination using the above by combining foods high in these nutrients: Spices ranked in order from highest to lowest in B1 - Dried coriander leaves, poppy seed and sage. Yeast Extract Spread is extremely high in B1, (Marmite) providing 9.7mg (647% DV) per 100 gram serving. Dried Maitiake Mushroom is highest in B1. I have also tested Poppy seeds in the Carnosine mix with good results, due to the B1, which boosts the absorption of the melatonin.

Vitamin B1 synergizes with Benfotiamine. Benfotiamine is found in onions, garlic, shallots, leeks and other plants of the allium family. I have got best results with Garlic. Luteolin is found in celery, green pepper, rosemary and oregano. Spices high in Luteolin include: Thyme and Dried Peppermint. Other spices include Lemon Verbena followed by Dried Mexican oregano. Mexican Oregano is also very high in Quercetin.

Now let's explore the process of Protein Synthesis.

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Thank you again and I wish you much luck and success in your longevity lifestyle!

Scott Rauvers

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