The Official Guide to Reversing the Aging Process. Rashnya Herbs, Alchemy & Taoist Longevity Secrets

Exploring scientifically proven formulas that extend lifespan, increase energy and achieve lasting health as well as Taoist Longevity Philosophy

Scott Rauvers

Scott Rauvers

Published by Mr.Scott Rauvers. Founder of the Institute for Solar Studies on Behavior and Human Health

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Many anti-aging books are just glorified cookbooks, this book advocates the anti-aging lifestyle.

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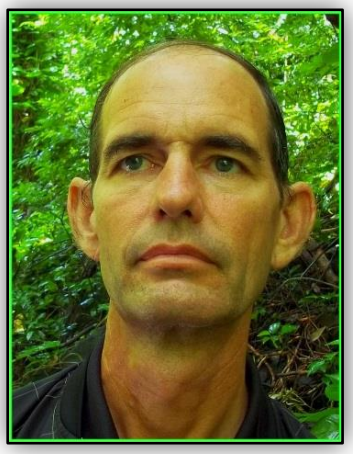

A special thank you to the fans of the previous books on anti-aging!!

Scott Rauvers. Author

This is book 5 in our anti-aging series and will be the last for many years to come. Hence this book consists of more then 500 pages that put all the latest anti-aging studies into clear perspective.

Most importantly, remarkable anti-aging breakthroughs have occurred just during the last 5 years. This edition summarizes all that material, making it conveniently available in an easy to understand format for our readers.

Dedication

This book is dedicated to Lao Tzu (Laozi),
one of the original founders of Taoism

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About the Author

This text is written by Scott Rauvers, founder of the Solar Institute. Scott studied gerontology, writing, golf and art at Weber State University in Utah and is a published author having written more than 2,000 pages on anti-aging medicine spanning 4 books the past decade.

This unique manuscript is written in such a way that many of the cryptic medical terms used in peer reviewed published papers are easily understood so anyone with a standard education can understand what the scientific jargon actually means in plain English.

Anti-Aging Breakthroughs Occur on an Almost Daily Basis

My last book on anti-aging, published in 2016, was intended to be the last and final book on anti-aging, however just the last 3 years has seen some of the most dramatic anti-aging discoveries ever published, many of which now extend lifespan in animal studies 60% or more. This book alone contains more than 10 substances that extend lifespan more than 60% and one that extends lifespan 475%!. Today science has a more complete understanding of the aging process, more than at any other time in human history, making this book one of the best on anti-aging find anywhere.

Can Aging be Reversed?

The data is slowly accumulating where just during the past three years over 10 published research papers have shown studies where age related diseases have been successfully reversed. This trend is expected to double or even triple during the next decade as more and more information underlying the specific causes of aging is uncovered. Below is a list of the following papers where age related diseases have been successfully reversed -

Reversing the Cardiac Effects of Sedentary Aging in Middle Age. A Randomized Controlled Trial. Implications For Heart Failure Prevention. Erin J. Howden et al. Jan 2018.

Age-related defects in short-term plasticity are reversed by acetyl-L-carnitine at the mouse calyx of Held. Singh M. et al. July 2018.

Reversal of age-related cognitive impairments in mice by an extremely low dose of tetrahydrocannabinol. Sarne Y. et al. Jan 2018.

Senolytic drugs reverse damage caused by senescent cells in mice. July 9, 2018. NIH.gov

Spermine and spermidine reversed age-related cardiac deterioration in rats. Zhang H et al. May 2017.

Resistance Exercise Reverses Aging in Human Skeletal Muscle. Simon Melov et al. May 2017.

Histone deacetylase inhibitors reverse age-related increases in side effects of haloperidol in mice. Montalvo-Ortiz JL et al. Aug 2017.

Researchers find clue to repair of aging DNA. April 4, 2017. NIH.gov

Nicotinamide mononucleotide supplementation reverses vascular dysfunction and oxidative stress with aging in mice. Natalie E. de Picciotto. et al. Mar 2016.

Coenzyme Q10 and a-tocopherol reversed age-associated

functional impairments in mice. Ritu A. Shetty et al. Oct 2015.

Reversing age-related decline in working memory. Mendelsohn AR and Larrick JW. Oct 2011.

Antioxidants reverse age-related collateral growth impairment. Miller SJ et al. Sept 2010.

Exercise training reverses the age-related decline in tyrosine hydroxylase expression in rat hypothalamus. Tümer N et al. Sept 1997.

Oral Mg(2+) supplementation reverses age-related neuroendocrine and sleep EEG changes in humans. Held K et al. July 2002.

Omega-3 fatty acids reverse age-related decreases in nuclear receptors and increase neurogenesis in old rats. Dyall SC et al. Aug 2010.

Could Flavanols Reverse Age-Related Memory Decline? November 4th, 2014 by Dr. Francis Collins. NIH Director's Blog.

Reversal of aging by NFκB blockade. Adam S. Adler et al. 2008.

Age-related changes in LTP aznd antioxidant defenses are reversed by an alpha-lipoic acid-enriched diet. McGahon BM et al. Nov 1999.

Antioxidants Reverse Age-Related Collateral Growth Impairment. Steven J. Miller et al. Feb 2010.

4-OHT

A study found that mice given 4-OHT for 4 weeks exhibited a reversal of many aspects of the aging process. The mice exhibited various rejuvenated tissues had longer telomeres and gave birth to larger litters (Aspects of Aging Might Be Reversed. December 6, 2010. Harrison Wein, Ph.D. NIH.gov).

So the evidence continues to grow that the causes of aging can be reversed.

Introduction

his latest edition explores alchemical techniques, Taoist longevity principles, longevity herbal formulas and the latest scientific studies on anti-aging and connects them all into a common theme. I have also not overlooked the very best Ayurvedic Rashayana Herbs used in Ayurvedic anti-aging medicine, including recently released scientific studies confirming their powerful effects on extending human lifespan. And for vegetarians like myself, I have included studies showing plant based herbal alternatives to fish, allowing one to obtain an abundance of omega 3's without negatively impacting the fish population.

Also included in this edition are 5 of the best anti-aging formulas devised during the last decade that revitalize the body overnight and increase one's energy. These special formulas can be found in the Chapter titled: The Five Longevity Formulas.

In order to connect the main theme underlying anti-aging medicine that circulates throughout the anti-aging literature, I spent the better part of 2018 reviewing almost every published paper available on longevity. It was only after examining such a huge amount of scientific information that the underlying theme revealed itself to me. This theme is present in the ancient texts on Alchemy, explaining why a specific substance added to wine allowed one to live indefinitely and why the alchemical formula known as St. Germain, allegedly extends lifespan due to its exerting unique effects in the colon and the liver, which in turn affect bile acids.

This book has been written so one can not only make their own anti-aging herbal formulas, but also to gain a better understanding of why and how anti-aging substances work with

one another to cause anti-aging effects to take place..

I was able to access many of the anti-aging formulas shown in this book due to the fact that more and more farmers cultivating anti-aging herbs now have access to the Internet. Hence, once many herbs that extend lifespan which were previously inaccessible or hard to obtain are now available from rural regions.

The Right Detoxification Method and the right Foods are the Fountain of Youth

It takes discipline and dedication in order to make this a reality. In an excellent article written by Karyn Calabrese in October of 2015 at karynraw.com, she states that she detoxes her body a minimum of four times per year, with each changing season. Her diet consists of raw living foods. The amazing part is she is 68 years old and she looks like a person in her mid-40's. Well known raw foodist advocate Dr. Gabriel Cousens is also biologically young due to his unique diet. The picture on the right was taken in 2007 when he was about 64 years old. Dr. Cousens was born in 1943. This young biological age is a constant theme in people who follow anti-aging diets and will be explored in great depth in this edition showing at least 3 other people whose body structure appears as if they are in their mid-40's yet they are over 60 years of age.

PAF Theory

In this text I also reveal the theory of PAF. PAF is short for Probiotics and Flavonoids. Flavonoids are one of nature’s most powerful antioxidants. Whenever Flavonoids and Probiotics combine with each other, they exhibit potent life extending effects which are experienced throughout the body as more

energy and increased cognitive functioning. Throughout this book, I shall show numerous scientific studies confirming that this combination greatly extends lifespan.

The highest amounts of flavonoids in foods are found in parsley, followed by oregano, celery, saffron, dill, fennel, and Tasmanian pepper. In spices, the highest amounts are in cloves and dill. Spices that contain Quercetin include: cardamon, coriander, caraway, black pepper, oregano, basil, dill, allspice, onion, parsley and red pepper (Antioxidant Activity of Spices and Their Impact on Human Health: A Review. Alexander Yashin et al. Sept 2017).

Quercetin Synergy (Low Concentrations of Quercetin and Ellagic Acid Synergistically Influence Proliferation, Cytotoxicity and Apoptosis in MOLT-4 Human Leukemia Cells–Susanne U. Mertens-Talcott . et al. Aug 2003).

Flavonoids as Metal Chelators

Throughout this text, you will find three major sub-headings stating that substances that chelate metals also have extremly powerful anti-aging effects. To summarize, any substance that chelates metals exhibits potent life extention properties. It just so happens that flavonoids function as antioxidants mainly by chelating metal ions. (Hajji et al., 2006; van Acker et al., 1998; Afanas'ev et al., 1989; Brown et al., 1998; Fiorani et al., 2002; Mira et al., 2002; Fernandez et al., 2002; Kostyuk et al., 2001; Moridani et al., 2003,; De Souza and De Giovani, 2004; Anafas'ev et al., 2001 and Tang et al.,2004).

For example soybeans contain an abundance of flavonoids and research studies have shown that when they are combined with probiotics that it enhances the flavonoids in the soy (Flavonoid bioconversion in Bifidobacterium pseudocatenulatum B7003: A potential probiotic strain for functional food development. Diana Di Gioia et al. March 2014).

When one fully understands PAF theory and its simplicity, it removes the confusion and frustration to find the simplest and most powerful life extension formulas, allowing one to devise numerous anti-aging formulations for themselves. **The PAF theory I believe is one of the much sought after themes as to understanding the combination of substances responsible for extending lifespan.**

Recombination

This is one of the phases of Alchemy where a substance is broken down entirely into an ash type form and than re-combined with the original substance. This process can be found in greater detail in my book The Official Guidebook of How to Make Tinctures and Alchemy Spagyric Formulas. This same process can be applied to enhance the anti-aging effects of foods, herbs or formulas.

For example grape juice contains anthocyanins. Studies have shown that pretreatment of grape juice before consuming a substance that contains an abundance of anthocyanins results in an increase in the bioavailability of the anthocyanins **(Anthocyanidins and anthocyanins: colored pigments as food, pharmaceutical ingredients, and the potential health benefits. Hock Eng Khoo et al. Aug 2017)**. For example try drinking grape juice and then take butterfly pea or elderberry (which contain anthocyanins). Than do it again just taking the butterfly pea or elderberry. You will notice a big difference.

Probiotics

Yogurt contains probiotics which synergize with certain strains of probiotic bacteria to help make SCFA (short chain fatty acids) in the gut. Flax seeds contain an abundance of omega 3's which enhance SCFA production. Hence adding yogurt to flax seeds greatly enhances the Probiotics of the yogurt.

Acetic Acid

The mushroom Reishi contains acetic acid. When acetic acid is combined with Reishi, it extends lifespan. A study concluded that a mixture of acetic acid and Reishi possesses a combined effect that is 30% to 40% greater than either substance used by itself. (The lifespan-promoting effect of acetic acid and Reishi polysaccharide. Chuang MH et al. Nov 2009).

Acetic acid is found in lemon, apple cider vinegar and vinegar. As an interesting side note, the substances citric acid, phosphate and calcium carbonate improve the bioavailability of uranium in soils (Phytoremediation Strategies for Remediation of Uranium-Contaminated Environments: A Review. Piyush Malaviya & Asha Singh. Oct 2011).

Fermentation Boosts Acetic Acid

When onions are fermented, their lactic acid and acetic acid levels increase **(Microbial diversity and flavor formation in onion fermentation. Cheng L et al. Sept 2014)**. ω-3 PUFA's (Omega-3 polyunsaturated fatty acids) boost Acetic Acid levels (Effects of the combination of w-3 PUFAs and proanthocyanidins on the gut microbiota of healthy rats. Ramos-Romero S et al. Jul 2017).

Citric Acid and Micro-Bacteria

Park et al. (2011) investigated the antimicrobial effects of lactic, acetic and citric acids on E. coli found in red apples and lettuce by dipping them in a 1% solution. The study found that the best results were obtained with the lactic and acetic acids.

Dragon fruit, durian, ginger, guava, papaya and star fruits produce antimicrobial substances such as hydrogen peroxide, propionic acids and lactic which help reduce pathogenic bacteria and pathogenic fungi (Probiotic isolates from unconventional sources: a review. Pairat Sornplang and Sudthidol Piyadeatsoontorn. Jul 2016).

Summary
Acetic Acid exhibits considerable anti-microbial effects. This abilty for it to inhibit bad bacteria may be responsible for its lifespan extension effects.

In studies conducted by Sengun and Karapinar in 2004, they used lemon juice and vinegar (which contains an abundance of acetic acids) in the ratio of 1:1 as a washing mixture for inhibiting the bad bacteria S. Typhimurium in carrots. They found that the rinse significantly reduced the negative microorganisms.

In another study, the bacteria S. Typhimurium on rocket leaves that were treated with vinegar showed a reduction in the bad bacteria. And in a recent study, S. Typhimurium on broccoli was effectively inhibited using a 2% acetic acid solution (Antimicrobial treatments of broccoli Quality Assurance and Safety of Crops & Foods).

Summary
Organic acids are very effective at inactivating the bad bacterias S. Typhimurium and L. monocytogenes. These organic acids may also be inhibting disease causing bacteria in the body, which may explain its lifepsan lengthening properties. Hence substances that preserve foods can be used to identifiy substances that extend lifespan.

Sulforphane
Broccoli contains the detox substance sulforphane which synergizes with the longevity substance Salicin. Salicin is found in broccoli **(Implementation of longevity-promoting supplements and medications. Alexander Vaiserman and Oleh Lushchak. July 2017)**. Hence adding 2 drops of willow tree bark (contains Salicin) extract to a sulforphane capsule greatly enhances the effects of detoxification after taking it.

Roobios Tea

Roobios tea contains caffeic acid and Guarana contains an abundance of caffeic acid. Hence adding between 3 and 5 drops of Guarana extract to Roobios Tea enhances its effects.

Summary

Combining the right substances in the right doses is the simplest way to make anti-aging formulas. By identifying the main substances in an anti-aging food and adding an extract of that substance to the anti-aging food, it greatly enhances the anti-aging effects of that food. You can find out what a food or substance is made out of by doing an Internet search using the terms **composition of _____ or components of _____ or constituents of _____ or phytoconstituents from** _____. The website phenol-explorer.eu/ also shows the composition of substances in many foods. Use the above examples as a guide when seeking to make your own longevity formulas and anti-aging food combinations.

Gut Micro flora Exhibit Lifespan Extending Effects

When researchers fed flies the herbal supplement Triphala and combined it with probiotics, they discovered that it **prolonged their lifespan by 60%**. It also protected them against chronic diseases commonly associated with aging and Triphala also contains an abundance of citric acid (Natural medicaments in dentistry. Dakshita J. Sinha and Ashish A. Sinha Apr 2014), (Longevity extension in Drosophila through gut-brain communication. Susan Westfall et al. May 2018),

Another example are the flavonoids kaempferol and quercetin which exhibit antibacterial properties. When these are also combined with probiotics, powerful beneficial synergy takes place. An example being red wine (a probiotic) with quercetin (a

flavonoid) which have potent microbiobal properties as shown in the Bald's Salve Study where the combination killed methicillin-resistant S. aureus (MRSA) **(A 1,000-Year-Old Antimicrobial Remedy with Antistaphylococcal Activity. Freya Harrison et al Aug 2015), (Studies on Modulation of Gut Microbiota by Wine Polyphenols. Montserrat Dueñas et al. Jan 2015)**. And recently some resveratrol supplement manufacturers are including quercetin in their resveratrol supplements to create a synergistic formula.

In another example quercetin at a dose of only 0.1% reduced the life span of 'shorter living' males. However when blackcurrant juice extract that contained an abundance of flavonoids was added, it significantly prolonged the life span of the 'older dying' females (Quercetin, flavonoids and the life-span of mice. Jones E et al. 1982). Quercetin is a flavonoid (Alexander Victor et al. Dec 2016).

The Real Facts about Colloidal Silver

Years ago colloidal silver was hailed as a miracle substance on the Internet. To date, scientific studies have found that colloidal silver solutions do not exhibit antimicrobial effects. Hence colloidal silver's antimicrobial potency is false and is not recommended as an antiseptic (Colloidal silver as an antimicrobial agent: fact or fiction? Van Hasselt P et al. Apr 2004).

The Slow Bioavailability of Quercetin

Quercetin intake is inversely associated with coronary heart mortality in Dutch elderly men. A study found that after the men ate fried onions containing quercetin that it took up to 16 hours for the quercetin to become fully absorbed by the body. The study concluded that quercetin from onions is absorbed slowly throughout the day, which increases the antioxidant capacity of blood plasma (Absorption and disposition kinetics of the dietary antioxidant quercetin in man. Hollman PC et al. 1996).

Onions have also been shown to improve cognitive function and prevent dementia in elderly people (A randomized, double-blind, placebo-controlled study evaluating the effects of quercetin-rich onion on cognitive function in elderly subjects. Mie Nishimura et al. 2017).

Further Reading

Anticancer Potential of Quercetin: A Comprehensive Review. Abdur Rauf et al. July 2018

Anticancer Efficacy of Polyphenols and Their Combinations. Aleksandra Niedzwiecki et al. Sept 2016.

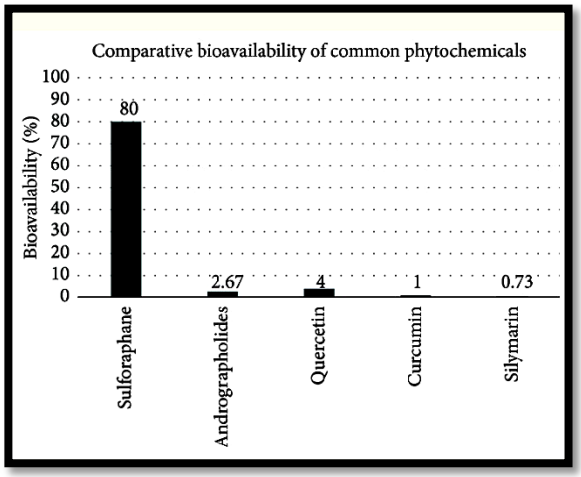
Quercetin Foods

Quercetin is found in berries, greens, tomatoes, broccoli, onions and tea leaves (Implementation of longevity-promoting supplements and medications. Alexander Vaiserman and Oleh Lushchak. July 2017). Other foods that contain quercetin include: Wines, Cocoa Chocolate, Black Elderbery, Apples, Oregano, Capers, Clove, Onions and Lovage (phenol-explorer.eu/ Quercetin), (Molecular Targets Underlying the Anticancer Effects of Quercetin: An Update. Fazlullah Khan et al. Aug 2016).

Cyanidin-3-sambubioside is a anthocyanin found in black elderberry extract that binds to the influenza virus (Bioavailability of Dietary Polyphenols and Gut Microbiota Metabolism: Antimicrobial Properties. Laura Marín et al. Feb 2015), (Pelargonidin-3-O-glucoside and its metabolites have modest anti-inflammatory effects in human whole blood cultures. Anna M. Amini et al. Oct 2017).

Speaking from personal experience, I make an extract from the Lovage plant as Lovage contains extremely high amounts of bioavailable quercetin. Querctin that is bioavailable is also found in abundance in onions. Also I have used elderberry extract for years and have never caught the flu.

Why Substance Bioavailabilty is Key



The more fully absorbed a substance is able to be absorbed by the intestine (rate of bioavailability), the more effective it is, and also less of the substance can be used. For example buying a sulforphane supplement and making an extract goes much further and is better absorbed by the body, than just taking the sulforphane capsules.

The absorption of Quercetin into the body is significantly enhanced when taken with a high-fat (17%) diet (Guo et al., 2013; Lesser, Cermak, & Wolffram, 2004) or alcohol (Dragoni, Gee, Bennett, Valoti, & Sgaragli, 2006), or with nondigestible oligosaccharides (Matsukawa et al., 2009), Bioavailability of Quercetin in Humans with a Focus on Interindividual Variation. A. Filipa Almeida et al. Mar 2018). The following image below shows that sulforphane is much better absorbed than many longevity substances.

The bioavailabilty of arabinosides and galactosides of cyanidin is 10 times higher than found for other berry juices, which can range from 0.08% for blood orange juice (Giordano et al. 2007) to 0.2% for red grape juice and red wines (Frank et al. 2003) and 0.4% for black currant juices (Bitsch et al. 2004).

Reference

Sulforaphane and Other Nutrigenomic Nrf2 Activators: Can the

Clinician's Expectation Be Matched by the Reality? Christine A. Houghton et al. Jan 2016.

Further Reading
Pinto beans are a source of highly bioavailable copper in rats (Saari JT et al.2006).

Summary
The bioavailability of a substance plays a key role in its effectiveness. Probiotics and flavonoids synergize with one another due to the flavonoids strengthening the prebiotics which causes an increase in lifespan.

Combining Dasatinib with Quercetin extends lifespan 36%
A combination of Dasatinib (an anti-cancer drug) and quercetin increased post-treatment survival time by 36% and reduced mortality 65%. What is even more interesting is that the combination reduced inflammation, frailty, osteoporosis and cardiovascular disease **(Fisetin is a senotherapeutic that extends health and lifespan. Yousefzadeh MJ et al. Oct 2018)**. Dasatinib is used to treat some forms of leukemia (Dasatinib - clinical trials and management of adverse events in imatinib resistant/intolerant chronic myeloid leukemia. Monika Conchon et al. 2011).

Onion happens to be an anti-cancer food (Onion and garlic use and human cancer. Galeone C et al. Nov 2006).

Scientific Studies conducted upon the St. Germain Formula
When we explore Alchemy, as we shall do with great detail in a later chapter, we come across the St. Germain Formula which was conceived by an Alchemist. Two independent research studies examined the main herbs in the St. Germain formula, which contains elderberry and fennel as the main ingredients and found that it increased creatine levels (creatine enhances neuro-cognition), increased testicle size and increased the number of

white blood cells (which enhance the immune system). Studies have found that creatine exhibits neuroprotective effects (Creatine in mouse models of neurodegeneration and aging. Klopstock T. et al. May 2011).

White blood cells strengthen the immune system and are made in the bone marrow. They help the body fight infections as well as other diseases. It is also interesting to note that Probiotics will react with creatine by lowering creatine levels, especially as creatine levels rise in the body due to kidney disease (The effects of a probiotic on blood urea nitrogen and creatinine concentrations in large felids. McCain S et al. Sept 2011).

Studies have recommended that vegetarians take more creatine when exercising as it enhances muscle mass due to the low amount of protein in vegetarians' diets. This has resulted in vegetarians gaining more muscle mass when including creatine in their workouts (Effect of creatine and weight training on muscle creatine and performance in vegetarians. Burke DG et al. Nov 2003), (Vegan diets: practical advice for athletes and exercisers. David Rogerson. Sept 2017), (Creatine supplementation with specific view to exercise/sports performance: an update. Robert Cooper, et al. Jul 2012), (Changing to a vegetarian diet reduces the body creatine pool in omnivorous women, but appears not to affect carnitine and carnosine homeostasis: a randomised trial. Blancquaert L et al. Apr 2018).

Studies have also found that when vegetarians take creatine that it enhances their memory (The influence of creatine supplementation on the cognitive functioning of vegetarians and omnivores. Benton D and Donohoe R. 2011), (Oral creatine monohydrate supplementation improves brain performance: a double-blind, placebo-controlled, cross-over trial. Caroline Rae, et al. Oct 2003).

St. Germain Study References

Randomized clinical trial of a phytotherapic compound containing Pimpinella anisum, Foeniculum vulgare, Sambucus nigra, and Cassia augustifolia for chronic constipation. Paulo D. Picona et al. 2010.

Estudo de Toxicidade Pré-Clínica de Fitoterápico contendo Pimpinella anisum, Foeniculum foeniculum, Sambucus australis e Cassia angustifolia. Fernanda Bastos de Mello et al. Dec 2006.

The St. Germain Oatmeal Formula

There is a simple recipe that was allegedly conceived by St. Germain that included oatmal and a lemon. The St. Germain oatmeal formula, surfaced around the 1700's, which also happened to be a time that alchemy was very popular. Out of all foods that generate AGE's **oatmeal is at the bottom of the list, as a food that exhibits very small amounts of AGE's**. See the chapter titled How AGE's Contribute to the Aging Process for an in-depth explanation on how AGE's impact lifespan.

How to Make the St. Germain Oatmeal Formula

Obtain pure oatmeal, not the packaged instant oats, but the self-serve organic type found in natural health food stores. Pour over the oatmeal warm or cool alkaline water such as spring water. Do not overheat the mixture. Next add between 1 and 2 tablespoons of juice and one raw organic egg yolk from a large organic egg. Mix this together and add one large teaspoon of raw honey. Speaking from personal experience, if you cook oatmeal without lemon, it takes much, much longer for the oatmeal to become soft. If you add between 1 and 1.5 tablesppons of lemon juice to hot water than pour the hot water over the oatmeal, the oatmeal becomes soft and is ready to eat immediately. This soft texture of the oatmeal makes it extremely easy for the body to digest.

1 cup of oatmeal

Energy	150
Protein	7.00
Total lipid (fat)	3.00
Carbohydrate, by difference	25.00
Fiber, total dietary	6.0
Sugars, total	1.00
Minerals	
Calcium, Ca	20
Iron, Fe	2.70
Magnesium, Mg	80
Phosphorus, P	250
Sodium, Na	0
Zinc, Zn	1.50

Reference
USDA Branded Food Products Database

Oatmeal helps the body make acetic and Butyric Acids
If a person eats oatmeal, the oats are fermented in the colon, which causes the the formation of short chain fatty acids (SCFAs) which contain the beneficial acids acetic, propionic and butyric. Oatmeal also yields higher amounts of butyric acid compared to other forms of fiber **(Oat Beta-Glucan: Its Role in Health Promotion and Prevention of Diseases. Cheickna Daou and Hui Zhang June 2012)**. The outermost layer of the oat kernel is edible and rich in soluble fiber. This layer is called beta-glucan which is a natural polymer comprised of individual glucose molecules (Casterline and others 1997).

What does GI Mean?
GI is short for The Glycemic Index (GI). It represents a ranking of the amount of carbohydrates in foods and how those foods affect blood glucose levels. For example, a food with a glycemic index number of 28 boosts blood sugar 28%. However if the food has a glycemic index of 100, its impact on the body is just like pure glucose, which is why frutose corn syrup is one of the worst foods you can eat, as it has an extremely high GI index. As a general rule, many low-GI foods contain an abundance of fiber. Carbohydrates with low GI values (55 or less) are more slowly digested and absorbed causing a reduced rise in blood glucose. This is good because it allows the body to fully make use of the food. If the GI index of a food is high, it is not fully absorbed into the body and causes more of a burden on digestion which in turn affects the immune syatem and enhances one's risk of contracting diabetes. This has been confirmed in a large scale study where women who ate high glycemic index foods had a higher risk of contracting diabetes (Glycemic Index Carbohydrates Associated With Risk For Developing Type 2 Diabetes In Women. Science Daily. Science Daily, 27 November 2007), (Glycemic Index, Glycemic Load, Carbohydrates, and Type 2 Diabetes. Darren C. Greenwood et al. Nov 2013).

Why Fasting Increases Blood Sugar

If a person has not conducted a fast in some time, they will find that after approximately 12 to 20 hours they will exhibit an increase in their blood sugar. This is a normal process because as a person fasts, their insulin levels begin dropping because some of the stored sugar in the liver begins flowing into the blood. The more sugar your liver has the larger the release and the higher the increase / time blood sugar levels rise. To summarize, your body moves sugar from your liver into your blood when fasting.

Out of the many foods, Oatmeal contains a medium GI Index (rise in blood sugar). Wouldn't it be great to lower it even further so that the impact on blood sugar reduced? A study has found that adding citric acid to a meal lowers the GI Index of a higher GI index food. Citric acid is found in lemon juice or vinegar, which both have very low GI indexes. Limes, Grapefruit and Apricots have some of the lowest GI Indexes (Metabolic effects of low glycaemic index diets. Gabriela Radulian, et al. Jan 2009).

In another study researchers found that a reduction in glycemic response occured when soluble fiber was added to the diet (Soluble fibers from psyllium improve glycemic response and body weight among diabetes type 2 patients, Ayman S. Abutair et al. Oct 2016).

Certain fats such as those found in Olive oil can also slow the conversion of starch to sugar, further lowering the glycemic index. Olive oil consumption has been assoiated with a lower risk of type 2 diabetes **(Olive oil in the prevention and management of type 2 diabetes . L Schwingshackl, et al. Apr 2017)** and polyphenols, which are abundant in apples, could be used as a dietary therapy for preventing or managing of Type 2 diabetes (Polyphenols and Glycemic Control. Yoona Kim, et al. Jan 2016).

Apple Polyphenols

Apple polyphenols are dose dependant, exhibiting significant lifespan extension effects, however excess amounts can cause a

dramatic reduction in lifespan (Apple polyphenols extend the mean lifespan of Drosophila melanogaster. Peng C et al. Mar 2011).

Other people have found that adding cottage cheese or whey protein powder while eating pie or cake slows the release of sugars into the blood stream due to the proteins in the cottage cheese and whey protein powder. Another trick is to eat an apple with 1 tablespoon of almond butter which increases the protein content, thus reducing the rise in blood sugar. Also as a side note the variety of oats matters. For example try to avoid the quick oats brand of oatmeal as it does not have as much soluble fiber.

Getting back to the uniqueness of this text, it also includes more than 30+ substances proven to extend lifespan 20% or more including one of the more recent discoveries that Lithocholic acid, a bile acid substance produced in the colon, **extends lifespan 100%** (**Current Perspective in the Discovery of Anti-aging Agents from Natural Products**. Ai-Jun Ding et al. May 2017).

Further Reading

Bile acids in the fountain of youth. Gerardo Ferbeyre. Jul 2010.

Bile acids extend longevity beyond calorie restriction. Antoine E. Roux and Pascal Chartrand Jul 2010.

Lithocholic Acid Significantly Improves the Survival of Drosophila Melanogaster. Stefanie Staats. July 2018.

Yes 100%, that is how close we are getting to achieving extremely long lifespans. Hence a lifespan of 125 years or much longer with individuals living in perfect health will become commonplace by 2090. While the study involved yeast, it shows the clear connection that bile acids play a major role in extending lifespan and this will be shown in greater detail later on. Yest is used in

anti-aging studies because of its strong similarity to human cells **(Approaches to study yeast cell aging and death. Mario G. Mirisola et al. Feb 2014)**. Hence, an amazing and incredible adventure awaits those seeking the path to human longevity.

The Discovery of the Substance that Increases Lifespan 475%

A research study conducted approximately 2 years ago screened a number of extracts, looking at which ones extended the lifespan of yeast. The study found that an extract named PE21 was the most potent longevity-extending substance. It increased the mean and maximum lifespan of yeast by 475% and 369%, respectively. PE21 consisted of an extract of the bark of Salix alba (the white willow tree) which contains the anti-inflammatory substance Salicin in low doses. Willow bark extract is used in one of the 5 longevity formulas which will be shown later on in this book (Willow species and aspirin: different mechanism of actions.Vlachojannis J et al. Jul 2011).

Aspirin's Effects are Dose Dependant

Studies have found that high doses of aspirin were associated decreases in its efficiency and that low aspirin doses (92%), showed significant reductions in cardiovascular events (Anti-platelet therapy: cyclo-oxygenase inhibition and the use of aspirin with particular regard to dual anti-platelet therapy. Timothy D Warner, et al. Oct 2011). Note: Gallic Acid reacts with Aspirin.

As just mentioned asprin is a dose dependant substance. However when asprin is combined with pinene, it significantly enhances GSH levels and increases cell survival by protecting them against aspirin-induced oxidative stress (Potential protective effects of alpha-pinene against cytotoxicity caused by aspirin in the IEC-6 cells. Bouzenna H et al. Sept 2017).

Further Reading

Dose-dependent effect of aspirin on the level of sphingolipids in human blood. Knapp M et al. 2013.

Nordihydroguaiaretic acid and aspirin increase lifespan of genetically heterogeneous male mice. Strong R et al. Oct 2008.

Aspirin inhibits oxidant stress, reduces age-associated functional declines, and extends lifespan of Caenorhabditis elegans. Ayyadevara S et al. Feb 2013.

Aspirin extends the lifespan of Caenorhabditis elegans via AMPK and DAF-16/FOXO in dietary restriction pathway.Wan QL, et al. May 2013.

Enhanced Longevity by Ibuprofen, Conserved in Multiple Species, Occurs in Yeast through Inhibition of Tryptophan Import. Chong He, et al. Dec 2014.

Impacts of metformin and aspirin on life history features and longevity of crickets. Harvir Hans et al. Apr 2015.

Aspirin increases metabolism through germline signaling to extend the lifespan of Caenorhabditis elegans. Xiao-Bing Huang et al. Sept 2017.

Human and Animal Aspirin Studies

In a large scale study that took 4 years and involved 19,114 elderly people, the participants who took a daily dose of aspirin experienced a slight protective effect against heart attacks and coronary heart disease. Because aspirin makes blood platelets less sticky and thins the blood, those who took aspirin were also more prone to bleeding. The primary cause of death of the people who took aspirin was due to cancer (Effect of Aspirin on Cardiovascular Events and Bleeding in the Healthy Elderly. New England Journal of Medicine, 2018. John J. McNeil et al., 2018), (Effect of Aspirin on Disability-free Survival in the Healthy Elderly. John J. McNeil et al. 2018), (Effect of Aspirin on All-Cause Mortality in the Healthy Elderly. John J. McNeil et al. 2018).

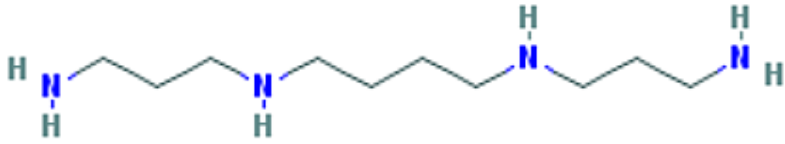
Conclusion

The study showed that aspirin reduced mortality from cardiovascular problems. The problem with this study is that it focused on people over 60 years of age that adhered to a standard diet. Studies have shown that vegetarians live on average 12% longer than meat eaters, primarily due to a lower risk of cardiovascular disease **(Dr. Michael J. Orlich et al. Oct 2014)** and cancer (Reduced cancer risk in vegetarians: an analysis of recent reports. Amy Joy Lanou and Barbara Svenson Dec 2010).

Because the previous study showed that the people who took aspirin died from cancer, vegetarians would more than likely receive a major benefit from taking aspirin.

Spermidine and Lifespan

A substance which exhibits similar effects to aspirin is Spermidine **(Spermidine delays aging in humans. Frank Madeo et al. Aug 2018)** which has been shown to significantly extend lifespan (Cardioprotection and lifespan extension by the natural polyamine spermidine. Tobias Eisenberg et al. Nov 2016). Pictured below is the molecular symbol for Spermidine.



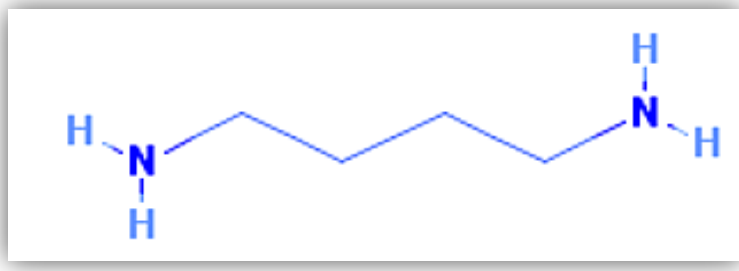
Putrescine

Putrescine is a naturally occurring polyamine that includes spermidine and spermine **(Raina A and Janne J. Jun 1975)**. Excess levels of manganese can contribute to excessively high levels of Putrescine which can cause multiple neurological disorders such as brain damage with epilepsy and depression that leads to suicide

(Putrescine as indicator of manganese neurotoxicity: Dose-response study in human SH-SY5Y cells. Jolyn Fernandes et al. Apr 2018).

Putrescine production takes place in the bacterias lactobacillus acidophilus, Lactobacillus casei and Streptococcus faecium which are found in fermented cheese (Polyamines in foods: development of a food database. Mohamed Atiya Ali. et al. Jan 2011).

The highest levels of Putrescine are found in the following foods - Sour milk followed by sauerkraut, swiss cheese, Herrgårdsost cheese, oranges and orange juice, grapefruit juice, soy sauce, and soy miso (Polyamines in foods: development of a food database. Mohamed Atiya Ali, et al. Jan 2011). Pictured below is the molecular symbol for Putrescine.



Further Reading

Putrescine as a source of instant energy in the small intestine of the rat. Bardócz S et al. 1998.

Chapter 1. Resilience and its role in Longevity

ivilizations rise and fall, sometimes taking with them certain foods, lifestyles and herbs. Resilience is key to enduring these 'drought' periods that impact civilization. This means having knowledge of the overall theme that is responsible for extending the human lifespan is key to a long life. Also as one lives longer, changes take place in the processing and availability of supplements and the environments that grow certain herbs change due to climate change and civilization's encroaching impact upon the environment. One needs to be able to rapidly adapt in order to pursue a lifestyle of longevity.

Summary

Aging and illness come from one's inability to adapt to changes in environment and life, which may also contribute to elevated cortisol levels and un-necessary emotional stress. Hence one should strive to maintain balance and exercise resilience when and where necessary (The effect of cortisol on emotional responses depends on order of cortisol and placebo administration in a within-subjects design. Michelle M. Wirth et al. Aug 2012).

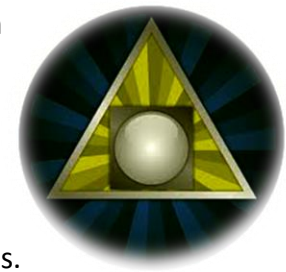
Longevity via Taoism

The ancient Taoists gained immortality through exercise, diet, meditation and breathing. Healthy aging to them was recognizing that a positive attitude, self-knowledge and adhering to spiritual practices kept disease at bay, significantly improving their chances to live a long, healthy life (Spirituality in Traditional Chinese Medicine. Lin Shi et al. Dec 2012), (A Review Focused on the

Psychological Effectiveness of Tai Chi on Different PopulationsLong Zhang et al. Jul 2011).

Alchemy as a Path Towards Longevity Resilience

The original alchemists brought us today's chemistry and developed the perfect anti-aging medicine, a red powder that was easily transportable, did not spoil for long periods of time and by adding just a few mustard sized grains to red wine would keep the body in perfect health indefinitely **(The Book of Aquarius: Alchemy and the Philosophers' Stone. June 2011. Anonymous author)**. This allowed the alchemist to spend only a few days every few months or so to make a large batch which would last for months. This is the ultimate example of longevity resilience. Many of the successful alchemists of the past posed as doctors and distributed the red powder disguised in wine which acted as a medicine and healed sick people.



When a piece of the philospher's stone was wrapped in wax and added to molten lead, after approximately 20 minutes it turned the lead to gold due to its ability to readily penetrate the lead. Lead is so dense it is used as a shield against radiation. Lead is also found in wines, being the older the wine, the more lead it may contain. This is due to the brass implements used in the wine making process (Lead in wine. Kaufmann A. May 1998).

Quercetin undergoes an interesting reaction when it encounters metals in the body, it removes lead from the hippocampus region of the brain **(Quercetin relieves chronic lead exposure-induced impairment of synaptic plasticity in rat dentate gyrus in vivo. Hu P et al. July 2008).** Other substances, proven to extend lifespan such as N-acetylcysteine, α-lipoic acid, vitamin C and vitamin E also remove lead from the body (Toxicity of lead: A review with recent updates. Gagan Flora et al. June

2012), (Vitamin C modulates lead excretion in rats. Hoseob Lihm et al. Dec 2013), (Quercetin Protects Mouse Brain against Lead-Induced Neurotoxicity. Chan-Min Liu et la. Jul 2013).

Summary
Substances that chelate lead extend lifespan.

Lead Causes Oxidaive Stress
Oxidative stress is one of the primarly factors associated with aging and lead has been shown to contribute to oxidative stress **(Oxidative Stress in Lead and Cadmium Toxicity and Its Amelioration. R. C. Patra, et al. Mar 2011)**.

Hence, taking substances that remove lead from the body at various times can help reduce the body's exposure to oxidative stress. Considering lead accumulation in the body has a seasonal cycle, with the body holding more lead during late summer, this would be the best time of year to detox the body of lead (Seasonality and trend in blood lead levels of New York State children. Valerie B Haley and Thomas O Talbot. Jun 2004).

Further Reading
Chelation: Harnessing and Enhancing Heavy Metal Detoxification—A Review Margaret E. Sears. Apr 2013.

Deldar K, Nazemi E, Balali Mood M, et al. Effect of Coriandrum sativum L. extract on lead excretion in 3–7 year old children. Journal of Birjand University of Medical Sciences. 2008;15:11–19.
Radioprotective and Antioxidant Effect of Resveratrol in Hippocampus by Activating Sirt1. Jianguo Li, et al. Apr 2014.

Chronic administration of quercetin prevent spatial learning and memory deficits provoked by chronic stress in rats. Mohammadi HS et al. Aug 2014.

Protective effects of onion-derived quercetin on glutamate-mediated hippocampal neuronal cell death. Eun-Ju Yang et al Oct 2013.

Cognitive-Enhancing Effect of Quercetin. Napatr Sriraksa. et al. July 2011.

Quercetin prevents chronic unpredictable stress induced behavioral dysfunction in mice by alleviating hippocampal oxidative and inflammatory stress. Mehta V et al Mar 2017.

The Book of Aquarius

Another discovery during my research is the **Book of Aquarius**, reputed to have been written by a modern day alchemist that explains the entire process of how to make the much sought after red powder. Many of his discoveries coincide with my own anti-aging research discoveries. I personally can vouch for the information in the Book of Aquarius as I spent 2015 and 2016 reviewing the best published books on Alchemy. When I say that the information is valid, I mean that it contains the very best snippets of all the best pieces of the great alchemical writings all assembled into one complete book. The book of Aquarius surfaced a few years ago online as a free book and was eventually picked up by a major publisher. The book can still be read for free online. The best part of the book of Aquarius is it shows the underlying anti-aging theme. I firmly believe that the red powder when mixed with wine for anti-aging purposes, is no longer necessary, as all one needs to know is the proper substance(s) that is compatible with red wine and it may already exist today as a pharmaceutical or supplement.

Summary

No other book has the best Ayurvedic, Taoist, Alchemical and scientifically proven longevity substances all in one convenient

easy to access text, making it a very unique guide for anyone seeking to live not just a long life, but to understand the fundamental mechanisms that goven longevity.

Further Reading

Ayurvedic Alchemy. Therapeutic potentials of metals in ancient India: A review through Charaka Samhita Galib. Mayur B e et al. June 2011.

John Dee and the Alchemists: Practicing and promoting English alchemy in the Holy Roman Empire. Jennifer M. Rampling. Sept 2012.

Seventeenth-century experimenta, magisterial formulae and the 'animal alkahest': new documents found in Royal Society archives. Ana Maria Alfonso-Goldfarb, et al. June 2015.

Chapter 2. The Biochemical Reactions Responsible for Aging in the Body

Before we dive down on into anti-aging studies, one needs to know what causes aging.

Free Radicals

The concept of free radicals was devised during the 1950's by Harman suggesting that the cause of aging was due to damage from reactive oxygen species (**ROS**), now called the oxidative stress theory of aging **(Vadim N. Gladyshev. Feb 2014)**. This reaction takes place when the body's antioxidant system becomes overwhelmed by excessive reactive oxygen species (ROS), resulting in what's called oxidative stress, which is one of the prime factors responsible for the aging process **(Oxidative stress: adaptation, damage, repair and death. B. Halliwell and J. M. C. Gutteridge. 1999, pp. 284–330)**. In nature, one of the few animals that is resistant to ROS is the Naked Mole Rat. This makes it immune to age-related diseases such as neurodegeneration, cancer and cardiovascular disease (The Naked Mole-Rat Response to Oxidative Stress: Just Deal with It. Kaitlyn N. Lewis et al. Oct 2013).

Free radicals are highly reactive molecules which cause a chemical reaction resulting in oxidation in our cells. Our cells make proteins called antioxidants which "quench" these free radicals which keeps our cells rejuvenated and healthy. This is why the herb Cynomorium Songaricum extends lifespan due to the herb's ability to quench free radicals **(Hsin-Ping Liu et al. July 2012)**. Other substances that quench free radicals include astaxanthin, resveratrol and gallic acid (Ingvild Paur et al. 2011), (Janina Dose et al. Jan 2016).

When one has an over-abundance of heavy metals in the

body, it can act as an amplifier for the free radicals, causing the free radicals to use these miniature metals a source of fuel, which causes a chain reaction (the Fenton reaction), much like fire utilizes oxygen for fuel. This damage also affects our DNA and lipids **(Metals, toxicity and oxidative stress. Valko M et al. 2005)**. Over time cellular functioning begins a gradual decline, leading to advanced deterioration and eventually death. This is why an overabundance of the heavy metals mercury and cadmium can accelerate the aging process, causing an increase in one's risk of suffering from hypertension, coronary heart disease, vascular disease and myocardial infarction (Metal pollutants and cardiovascular disease: mechanisms and consequences of exposure. Solenkova NV et al. Dec 2014). Gingerol has been shown to markedly decrease senescence in vascular smooth muscle cells (Zhou et al. 2014).

Further Reading

Blood levels of lead, cadmium, and mercury in the elderly living in institutionalized care in the Czech Republic. Rambousková J. et al Oct 2014.

Because oxygen is the main food source of free radicals, the opposite is true. Honey that was discovered in Ancient Egyptian tombs is still edible thousands of years later because it contains very little oxygen. Honey contains approximately 17% water which is much lower than that of bacteria or fungi.

Why Antioxidants Defeat the Aging Process

Antioxidants play a key role in defeating the aging process **(Effects of antioxidant supplementation on the aging process. Domenico Fusco et al. Sept 2007)**. Studies conducted on drosophila and mice that were engineered to make extra amounts of the antioxidant enzymes superoxide dismutase and catalase in their bodies exhibited an increase in their lifespan (Extension of mouse lifespan by over expression of catalase. Samuel E. Schriner and Nancy J. Linford June 2006), (Kabil H et al. Apr 2007).

Other reserach studies confirm that enhancing SOD levels leads to a direct increase in lifespan. For examples enhancing SOD levels in fruit flies extended their lifespan up to 48% (FLP recombinase-mediated induction of Cu/Zn-superoxide dismutase transgene expression can extend the life span of adult Drosophila melanogaster flies. Sun J, Tower J. Mol Cell Biol. 1999 Jan; 19(1):216-28), (Shilpa Rawal et al. May 2014), (Ectopic expression of catalase in Drosophila mitochondria increases stress resistance. Mockett RJ et al. Free Radic Biol Med. 2003 Jan 15; 34(2):207-17).

The right amount of exercise also increases the superoxide dismutase enzyme in the body **(Powers SK et al. Dec 1993)**. This is why exercise prolongs lifespan, especially after age 40 (Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis. Steven C. Moore et al. Nov 2012).

Antioxidants Reverse Age-Related Changes

When aged Mongolian gerbils were fed N-tert-butyl-phenylnitrone (PBN) for two weeks researchers discovered that it reduced the amount of protein carbonyls in their brains as well as improved their physical functioning typical of young animals. These changes ceased after taking the PBN treatment, possibly due to the reduced ability of their bodies to dissolve proteins from food **(Protein oxidation and aging. I. Difficulties in**

measuring reactive protein carbonyls in tissues using 2,4-dinitrophenylhydrazine. Cao G and Cutler RG. Jun 1995).

In a similar study mice (17.5 months) fed a high-CoQ diet (2.81 mg/g) for a period of 15 weeks showed improved performance in the Morris water maze test and exhibited reduced protein oxidative damage (Coenzyme Q10 supplementation reverses age-related impairments in spatial learning and lowers protein oxidation. Ritu A. Shetty et al. Nov 2012).

And when doses of Coenzyme Q10 (390 mg daily) were given to 5 patients who exhibited cancer remission, they went into complete remission. Complete remission in response to high doses of Coenzyme Q10 for other types of cancer such as small cell bronchogenic carcinoma has been demonstrated by Folkers et al (Clinical Response of Metastatic Breast Cancer to Multi-targeted Therapeutic Approach: A Single Case Report. Christian Meiners et al. Mar 2010).

Coriander as an Antioxidant

An extract made from Coriander leaf has been shown to enhance antioxidant enzymes (Sreelatha et al., 2009, (Anilakumar et al. 2010), (Cioanca et al. 2013; Ramkissoon et al. 2013).

Herbs that Boost Superoxide Dismutase Levels

Aronia (A Reum Jo and Jee-Young Imm Aug 2017), Gingko (Zhao M et al. Jan 2014), Hericium Erinaceus Bull (Liu et al 2001b). Salvia Miltiorrhiza (Jianqing Liu et al. Dec 2014), Black tea extract (Peng C. Dec 2009) and Curculigo Orchioides (Ramchandani D et al. Dec 2014) have been shown to boost Superoxide Dismutase (SOD) and Catalase levels as well as ginsenosides (Kim DW et al. Dec 2003), which are found in abundance in ginseng. Rosemary has been found to enhance superoxide dismutase levels in diabetic rats that underwent endurance exercise (Nazem F et al. June 2015). Anthocyanins, which exist in abundance in mulberry extend lifespan and enhance SOD when administered in a dose dependant manner (Effects of anthocyanins derived from Xinjiang

black mulberry fruit on delaying aging. Jiang Y. July 2010). Phyllanthus amarus has also been shown to significantly boost SOD levels (Impact of Phyllanthus amarus extract on antioxidant enzymes in Drosophila melanogaster. N. Manasa and J. S. Ashadevi. Dec 2015). EGCG, found in green tea, apples, blackberry and carob also boosts low SOD levels in human skin (Implementation of longevity-promoting supplements and medications. Alexander Vaiserman and Oleh Lushchak. July 2017), (Effect and mechanism of epigallocatechin-3-gallate (EGCG) against the hydrogen peroxide-induced oxidative damage in human dermal fibroblasts. Bing Feng et al. Nov 2012). Eucommia bark increases Superoxide dismutase (Eucommia ulmoides oliver leaf extract increases endogenous antioxidant activity in type 2 diabetic mice. S. A. Park, et al. Medicinal Food, vol. 9, no. 4, pp. 474–479, 2006).

Green Tea and Exercise Prevent Diabetes
Could it be that healthy SOD levels prevent diabetes? A study released in April of 2012 concluded that a combination of exercise and green tea may represent a practical approach to preventing pre-diabetes or diabetes (A Review of the Hypoglycemic Effects of Five Commonly Used Herbal Food Supplements. Ruitang Deng. Apr 2012).

The Yang-Tonifying Herbal Medicine Cynomorium Songaricum
This herbal formula has been shown to exhibit a 61.8% increase in catalase activity (The Yang-Tonifying Herbal Medicine Cynomorium songaricum Extends Lifespan and Delays Aging in Drosophila. Hsin-Ping Liu, et al. June 2012).

Who wants to Live Longer by Always Being Hungry?
While calorie restriction reduces cardiovascular diseases and extends lifespan **(The effect of retarded growth upon the length of life span and upon the ultimate body size. 1935. McCay. CM et al. June 1989)** over the long term it can lead to anorexia and a

feeling of a loss of energy due to the body having less carbohydrates, proteins and fat. This may seem an unpleasant experience for some and I tend to agree. However what if one could adjust their diet by imposing minor dietary restrictions that mimic calorie restriction?

Studies conducted on crickets raised from birth found that dietary restriction extended their longevity by 210 % (Lyn et al. 2012). (Baur et al. 2006; Burkewitz et al. 2014).

Grandison et al. (2009) discovered that dietary restriction extended the life span of Drosophila with a reduction in reproduction as a side effect. However this was overcome by supplementing their diets with the amino acid methionine. Ingram et al. (2006) has done considerable reserach on identifying agents that mimic dietary restriction so that one can obtain the benefits without drastic dieting.

Mimicing Caloric Restriction

The best method would be to take a supplement or extract that exerted effects upon the body similar to caloric restriction. It just so happens that aspirin mimics caloric restriction **(Aspirin Recapitulates Features of Caloric Restriction. Federico Pietrocola. et al. Feb 2018)** as does resveratrol (Resveratrol as a calorie restriction mimetic: therapeutic implications. Jay H. Chung et al. Aug 2012), (A Low Dose of Dietary Resveratrol Partially Mimics Caloric Restriction and Retards Aging Parameters in Mice. Jamie L. Barger et al. June 2008).

More Aspirin Animal Studies

Studies by Hochschild (1971) discovered that aspirin increased the longevity of adult Drosophila by 27 % in males and 18 % in females.

The average lifespan of a cricket is 4.5 months (136 days). Aspirin has been shown to enhance the lifespan of crickets up to 257 days with the oldest male crickets taking high aspirin achieving life extension of 194%. The oldest living cricket reached

an age of 194 days by taking high dose aspirin and another cricket lived to 187 days taking low dose aspirin. The study also found that the greater longevity was associated with a slower rate of growth, delayed maturation and that the females grow slower (Life History Features and Aging Rates: Insights from Intra-specific Patterns in the Cricket Acheta domesticus. Janice Lyn. et al. Feb 2012).

Low doses of aspirin have been found to increase disease fighting white blood cells (Effects of aspirin on the number of peripheral white blood cells and spleen eosinophils in guinea-pigs. Drenka Turjacanin et al. Jan 2010).

Further Reading

Low-dose aspirin (acetylsalicylate) prevents increases in brain PGE2, 15-epi-lipoxin A4 and 8-isoprostane concentrations in 9 month-old HIV-1 transgenic rats, a model for HIV-1 associated neurocognitive disorders. Helene C. Blanchard et al. Jan 2015.

Combining Salicylic Acid with Aspirin

The willow tree contains an abundance of Salicylic acid which is commonly used to make aspirin. Studies show that combining aspirin with salicylic acid extends male lifespan by 18% and female lifespan by 42% (Impacts of metformin and aspirin on life history features and longevity of crickets: trade-offs versus cost-free life extension? Harvir Hans et al. Apr 2015).

Summary

Substances that mimic caloric restriction exhibit cardio protective effects, which in turn lengthen lifespan. Salicin is the main component in aspirin which extends the lifespan of yeast 475%. Salicin has been shown to significantly increase the survivorship as well as maximal life span in crickets when given in low doses yielding mean longevity 234% of controls. Aspirin's longevity

effects in humans may be related to diet, nutrition and lifestyle.

Substances that contain aspirin (salicin)
Grapes, broccoli, blueberry, meadow sweet, willow bark, cauliflower, eggplant, kiki and (Implementation of longevity-promoting supplements and medications. Alexander Vaiserman and Oleh Lushchak. July 2017).

Further Reading
Resveratrol and aspirin eliminate tetraploid cells for anticancer chemoprevention. Delphine Lissa et al. Feb 2014.

Mechanisms underlying caloric restriction and life span regulation: implications for vascular aging. Zoltan Ungvari et al. June 2008

Resveratrol May Replace Aspirin As Heart Protector; Longevinex® First Branded Resveratrol Pill Successfully Tested During Experimental Heart Attack. Mar 2010.

Effects of Longevinex (modified resveratrol) on cardio protection and its mechanisms of action. Mukherjee S. et al. Nov 2010.

Modified resveratrol Longevinex improves endothelial function in adults with metabolic syndrome receiving standard treatment. Fujitaka K et al. Nov 2011.

Effect of Resveratrol-Based Nutritional Supplement on Choroidal Thickness: A Pilot Study. Wang S et la. Oct 2016.

Is SC100 the Ultimate Antioxidant?
A research study looked at mixtures of medicinal herbal extracts that had a long history of clinical success in Chinese and Indian

traditional medicine and looked at the effects the herbs had on a person's longevity genes. The research study found that a combination of four herbal extracts exhibited synergy, making their anti-aging effects more effective than any single substance or any other combination of substances tested, resulting in a 50% increase in lifespan (Herbal supplement extends life span under some environmental conditions and boosts stress resistance. Villeponteau B. et al. Apr 2015).

The study named the newly discovered combination SC100. One of the herbs is Pterocarpus marsupium bark. This bark is also called Indian Kino Tree which is abundant in the resveratrol analog pterostilbene. Pterostilbene is thought to be **stronger than resveratrol** in reversing cognitive deficits in aged rats **(Low-dose pterostilbene, but not resveratrol, is a potent neuromodulator in aging and Alzheimer's disease. Jaewon Chang. Oct 2011)**. Pterostilbene is found in abundance in grape juice, sphaerophysa salsola, the kumandu shrub, rheum palmatum, blueberries, cranberries, red grapes, heartwood, peanuts, anogeigsus, acuminata, narra tree and rheum rhaponticum.

Study Conclusions

The study concluded that SC100 exhibits strikingly divergent effects on the life span of Drosophila under various test conditions. In high stressful environments that cause short life spans, SC100 increased the mean and maximum survival times. The study also found very long mean life spans consisting of more than 70 days occurred in Drosophila in vials that housed 25 flies per vial under ideal low stress conditions. Hence, the study suggests that the number of files housed together impacts lifespan.

To date, it is very rare for a combined herbal formula to exhibit a 50% increase in Drosophila maximum life span. Hence the effects of SC100 on the maximum life span of Drosophila are very impressive. In summary, SC100 slowed the rate of aging in

Drosophila and acts as a powerful antioxidant.

SC100's Impact Upon Humans

Research is starting to show the benefits of a low stress life and the length of time a person lives. Leading a lifestyle of reduced stress or managing stress appropriately and utilizing stress resistance methods act as valuable interventions that extend life span. Hence the longevity effects of SC100 may not work if one has an overly stressful job, does not get enough sleep, or makes unhealthy lifestyle choices. The results from this study also show that a long-lived subpopulation could benefit substantially from SC100 supplementation due to the longevity effects, especially if the subjects have learned to manage their stress in their lives.

Grape Juice and Resveratrol

A substance found in grape juice is the natural resveratrol glycoside polydatin which has been found to extend lifespan 62.1% (Probing the anti-aging role of polydatin in Caenorhabditis elegans on a chip. Wen H et al. Jan 2014).

Pterocarpus marsupium bark consists of the resveratrol analog marsupsin, which has been shown to be comparable to the anti-diabetic drug metformin which significantly lowers blood glucose levels in hyperglycemic rats. As a side note, substances that are related to resveratrol show significant life-extension effects. For example polydatin, which is a natural resveratrol glycoside, has been found to extend the lifespan of worms up to 62.1%. Polydatin can be found in abundance in grape juice **(Wen H et al. Jan 2014)**.

Getting back to the SC100 study. The third herb used in the SC100 formula is Pine Bark Extract (PBE), which has been purified to 85% proanthocyanidins (also called condensed tannins). PBE is a substance that is very good for the body's arteries. The fourth herbal extract in the formula SC100 consists of L-Theanine. Theanine is a neuroprotective amino acid found in abundance in green tea. It readily crosses the blood-brain barrier and has a

structure similar to glutamate (a neurotransmitter related to memory) **(Kakuda T. Dec 2002)**. Studies have also found that Theanine facilitates neurogenesis in the hippocampus regions in rats, leading to enhanced memory, as well as reduces the shortened life span and learning impairment of older mice exhibiting stress (Takeda A et al. Oct 2011). SC100 also contains the herb astragalus, which has numerous studies showing it is good for white blood cells.

Further Reading

Daily oral intake of theanine prevents the decline of 5-bromo-2'-deoxyuridine incorporation in hippocampal dentate gyrus with concomitant alleviation of behavioral abnormalities in adult mice with severe traumatic stress. Takeshi Takarada et al. Mar 2015.

Antioxidant Effects of KPG-7

KPG-7 is a commercial herbal supplement consisting of rosmarinus officinalis (from rosemary), curcuma longa, foeniculum vulgare, thymus vulgaris (thyme), vitis vinifera (polyphenol), silk protein, eleutherococcus senticosus and taraxacum officinale. The herbal combination was found to exhibit antitumoral, antioxidant and anti-inflammatory bioactivities (Effect of Antioxidants Supplementation on Aging and Longevity. Izabela Sadowska-Bartosz and Grzegorz Bartosz. March 2014).

Interesting Facts about Resveratrol
Resveratrol and vitamin E decrease ROS (2)
Increases expression of the anti-aging gene Klotho (3)
Reduces hypertension and lowers blood pressure (4)
Prevents metastasis and tumour growth in the lungs (5)
Increases the body's zinc levels (6)
Exhibits Neuroprotection properties (7)

Is found in abundance in Michigan blueberries (8)
Protects human cells from severe heat stress (9)
Is closely related to the substance Pterostilbene which is used to treat several age-related diseases (10)
Is found in abundance in Japanese Knotweed.
Japanese Knotweed is called polygonum cuspidatum and the plant species is related to FO TI (11)
Is isolated from the roots of polygonum cuspidatum which has been shown to prevent lung tumours (12)
Lowers blood pressure and reduces hypertension (13)

Polygonum Cuspidatum

Resveratrol is found in the roots of polygonum cuspidatum (Effects of Polygonum Cuspidatum Containing Resveratrol on Inflammation in Male Professional Basketball Players. Hoda Sadat Zahedi et al. Apr 2013).

When polygonum cuspidatum is combined with hawthrone berry it exhibits extremly powerful anti-atherosclerosis activity. Atherosclerosis is a term used to represent the condition of the body's arteries (Clinical study on treatment of carotid atherosclerosis with extraction of polygoni cuspidati rhizoma et radix and crataegi fructus: a randomized controlled trial. Liu LT et al. Mar 2014).

Both Resveratrol and Polygonum cuspidatum also exhibit anti-hiv activity (Anti-HIV activities of the compounds isolated from Polygonum cuspidatum and Polygonum multiflorum. Lin HW et al. 2010).

Quercetin Inhibits Atherosclerosis

Throughout this book we will show that substances that prevent atherosclerosis (the body's blood vessels that carry blood) play a very important role in longevity. A study found that Quercetin

reduced suseptibilty to LDL by 50% due to the quercetin binding to the LDL particles. (LDL) is short for Oxidized low-density lipoprotein which is a harmful cholesterol that is produced in the body when normal LDL cholesterol becomes damaged by chemical interactions with free radicals. The study concluded that dietary consumption of red wine or quercetin ihibits the development of atherosclerotic lesions due to its ability to reduce LDL oxidation (Reduced progression of atherosclerosis in apolipoprotein E-deficient mice following consumption of red wine, or its polyphenols quercetin or catechin, is associated with reduced susceptibility of LDL to oxidation and aggregation. Hayek T et al. Nov 1997).

The natural biflavonoid from Garcinia kola seeds called Kolaviron was shown to protect against the oxidation of lipoproteins suggesting kolaviron may protect against atherosclerosis (Synthetic and natural iron chelators: therapeutic potential and clinical use. Heather C Hatcher et al Nov 2013).

Further Reading

Salidroside (from rhodioa rosea) Decreases Atherosclerotic Plaque Formation in Low-Density Lipoprotein Receptor-Deficient Mice. Bu-Chun Zhang et al. Oct 2010.

SOD Levels Vary According to Environment and Lifestyle

The body makes more white blood cells during winter **(Bian Liu and Emanuela Taioli. Nov 2015) i**n order to fight off microbes that cause the flu virus and other viral diseases. For example antioxidant enzymes in the honey bee (Apis mellifera) are higher during the bee's active pollination season which takes place from August to September. This is due to the fact that the bee's excess activity that time of year from collecting nectar causes a natural increase in their SOD levels. The extra activity is due to higher levels of sustained flight activity during August and September

which causes a higher demand of oxygen that elevates their production of SOD enzymes. The human body makes more superoxide dismutase when exercising (Rigorous exercise training increases superoxide dismutase activity in ventricular myocardium. Powers SK et al. Dec 1993).

Niyogi et al. found that barnacle (Balanus balanoides) generate above average levels of antioxidant enzymes in their digestive glands during the pre-monsoon period or summer which gradually decrease towards winter.

Mud crabs (Scylla serrata) exhibit a similar cycle with higher oxidative stress occuring during summer season, which is a time that the salinity and temperature of the lagoons are higher compared to other times of the year.

In mammal studies, summer heat stress causes elevated oxidative stress and a decrease in antioxidant enzymes (Association between heat stress and oxidative stress et al. Jul 2016), (Impact of the Egyptian summer season on oxidative stress et al. Jun 2018).

In rats, antioxidant actvity peaks during summer (Circaannual changes in antioxidants and oxidative stress in the heart and liver in rats. Belló-Klein A et al. Jun 2000).

Summary

The antioxidant system in invertebrates adapts to different strategies in order to regulate their antioxidant defences according to season which is dependant upon ecological demands/environment.

Further Reading

An Overview of Seasonal Changes in Oxidative Stress and Antioxidant Defence Parameters in Some Invertebrate and Vertebrate Species. Gagan Bihari Nityananda Chainy, et al. Apr 2015.

Circaannual changes in antioxidants and oxidative stress in the

heart and liver in rats. Belló-Klein A et al. 2000 Jun; 126(2):203-8.

Seasonal superoxide overproduction and endothelial activation in guinea-pig heart; seasonal oxidative stress in rats and humans. Konior A et al. J Mol Cell Cardiol. 2011 Apr; 50(4):686-94.

When one recognizes that good health is truly a great blessing, one is much less likely to come down with illness..... and when one recognizes that an anti-aging diet and longevity lifestyle are also a blessing, one's body begins reflecting their true biological age, rather then their actual physical age, which is one of the greatest blessings of all.

Chapter 2. References. Nutrition Tips and Interesting Facts

1 – Avicenna. Al-Qanun Fil-Tibb. New Delhi: Jamia Hamdard; 1998.
2 – Protective effect of resveratrol and vitamin E against ethanol-induced oxidative damage in mice: biochemical and immunological basis. Das SK et al. Feb 2010.
3 – Resveratrol increases anti-aging Klotho gene expression via the activating transcription factor 3/c-Jun complex-mediated signaling pathway. Hsu SC et al. Aug 2014
4 – The effect of resveratrol on hypertension: A clinical trial Marios Theodotou et al. Dec 2016
5 – Resveratrol Prevents Tumor Growth and Metastasis by Inhibiting Lymphangiogenesis and M2 Macrophage Activation and Differentiation in Tumor-associated Macrophages. Kimura Y et al. May 2016
6 – The effect of dietary zinc - and polyphenols intake on DMBA-induced mammary tumorigenesis in rats. Barbara Bobrowska-Korczak et al. Apr 2012
7 – Neuroprotective abilities of resveratrol and other red wine constituents against nitric oxide-related toxicity in cultured hippocampal neurons Stéphane Bastianetto et al. Oct 2000
8 – Resveratrol in raw and baked blueberries and bilberries. Lyons MM et al. Sept 2003
9 – Resveratrol induces the heat-shock response and protects human cells from severe heat stress. Putics A et al. Jan 2008
10 – Effect of resveratrol and pterostilbene on aging and longevity. Li YR et al. Jan 2018
11 – The Repeated Administration of Resveratrol Has Measurable Effects on Circulating T-Cell Subsets in Humans. J. Luis Espinoza et al. May 2017
12 – Effects of Resveratrol against Lung Cancer: In Vitro and In Vivo Studies. Michael Yousef et al. Nov 2017.

Resveratrol isolated from Polygonum cuspidatum root prevents

tumor growth and metastasis to lung and tumor-induced neovascularization in Lewis lung carcinoma-bearing mice. Kimura Y. et al. June 2001.

Chapter 3. Are Immortals Already Living Amongst Us?

If indeed the incredible legends of the ancient alchemists are true, the theme that underlies longevity would be present in people who have already exceeded the maximum known human lifespan.

A greatly extended lifespan is no longer science fiction. Recent history is filled with examples people who lived 130 years or more. Many of these people watched their civilizations rise and fall, along with the records of their dates of birth, making their birth dates hard to verify, leaving only first hand accounts passed down from generation to generation to verify their claims. If we look further back in history, during biblical times, people routinely lived 1,000 years or more.

Li Ching Yuen

On May 6th, 1933 on page 13 of the New York Times an article was published about the super-long life of Mr. Li Ching Yuen. The article stated that Wu Chung-chieh, professor of Chengdu University, uncovered in his investigation Imperial Chinese government records dating back from the year 1827 congratulating Mr. Li Ching-Yuen's 150th birthday. Further investigation revealed documents congratulating him on his 200th birthday in the year 1877. The New York Times article can still be read today verifying the authenticity of the story.

Mr. Li Ching Yuen's diet consisted of the herbs FO TI, Goji

Berries, Gotu Kola, Ginseng and Rice Wine. Red wine is a probiotic that contains numerous microorganisms that benefit gut micro flora (García-Ruiz A et al. Dec 2014), (Determination of wine microbiota using classical method, polymerase chain method and Step One Real-Time PCR during fermentation process. Kačániová M et al. 2012).

A Research Study examining FO TI's Effects on Lifespan

The majority of studies on FO Ti are about its neurocognition enhancing / strengthening abilities, with almost no studies on lifespan. After extensive research I was only able to uncover just one study of the effects of FO TI on lifespan.

The study was published in April 1988 and involved birds. The study found that Japanese quails fed low doses of FO TI lived on average 89 days longer than the control group (Effect of Polygonum multiflorum [Fo-ti] on the life-span and lipid metabolism in senile Japanese quails. Zhong Xi Yi Jie He Za Zhi, Wang W, Wang JH, Shi TR. 1988 Apr;8(4):223-4, 1988).

It is important to note here that low doses of FO TI work best, as large doses of FO TI have been shown to contribute to liver damage **(Liver Damage Associated with Polygonum multiflorum. Xiang Lei et al. Jan 2015)**.

From my experience, using between 8 and 10 fingernail sized pieces of dried FO TI bark added to water and made into a tea works extremely well. Any more than this and the effects overwhelm the liver. You can really feel the effects on the liver if you take too much.

Zaro Agha

Zaro was born in 1774 in Turkey and died on June 30, 1934. Researchers discovered that **Zaro Agha had a 90-year old son** in 1918 (born in 1828), which was proven with birth registration records **(Ali Yavuz Karahan and İbrahim Batmaz. 2015-03-21)**.

This means Zaro had a son when he was 144 years old. When Zaro Agha died in 1934, he was at least 130 years old. However other sources say he was in fact 157 years old when he died. Zaro stated to reporters that he **ate no bread or meat,** took long walks and ate yogurt and cumin seed (Nigella Sativa), which is a probiotic, and did not even need glasses up until the time of his death (Maria Kechagia et al. Jan 2013).

It is alleged that Zaro never age meals late and that studies have found that having a late supper disturbes the body's postprandial serum glucose profiles the following morning (Effects of a late supper on digestion and the absorption of dietary carbohydrates in the following morning. Yukie Tsuchida et al. May 2013).

References

Zaro Agha, The legendary Kurdish super centenarian. Ali Yavuz Karahan and İbrahim Batmaz. 2015-03-21

World's oldest man dead. (1934, June 30). The Advertiser (Adelaide, SA: 1931 – 1954), p. 21. Article 35117181.

Facts about Bread

Many studies published during just the last 5 years have done excellent research into bread's effects upon the body. While bread is important for growing children, once a person reaches adulthood, it appears to contribute to a number of health issues. For example, white bread contains wheat gluten proteins which contribute to Coeliac disease, which is an autoimmune condition that affects the small intestine. This condition causes a lack of bioavailability of nutrients, fatigue, abdominal pain, weight loss,

vomiting and diarrhea **(P. R. Shewry and S. J. Hey. March 2016)**. Studies also confirm that white bread contributes to obesity **(Serra-Majem L and Bautista-Castaño I. April 2015)** and that processed foods, including bread, can **increase cancer risk by 10%** (Thibault Fiolet, et al. Feb 2014).

Speaking from personal experience, when I gave up bread and pastries more than 10 years ago after reading about what bread does to the body, my physical energy soared, which was an added plus.

Further Reading

Consumption of Whole-Grain Bread and Risk of Colorectal Cancer among Norwegian Women (the NOWAC Study). Toril Bakken et al. Jan 2016.

Effect of bread gluten content on gastrointestinal function: a crossover MRI study on healthy humans. Coletta M et al. Jan 2016.

Warning: bread may be harmful to your health. Zone JJ and Hull CM. July 2004.

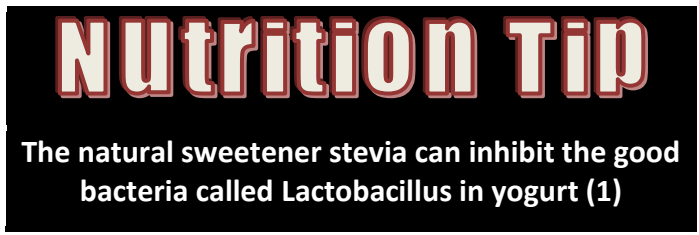
Bread and Other Edible Agents of Mental Disease. Paola Bressan and Peter Kramer. March 2016.

Jackson J., Eaton W., Cascella N., Fasano A., Warfel D., Feldman S., et al. . (2012b). A gluten-free diet in people with schizophrenia and anti-tissue transglutaminase or anti-gliadin antibodies. Schizophr. Res. 140, 262–263.

Hemmings W. A. (1978). The entry into the brain of large molecules derived from dietary protein. Proc. R. Soc. Lond. B. Biol. Sci. 200, 175–192. 10.1098/rspb.1978.0014.

Shirali Farzali Muslimov

Another super centurion that lived to 160 years of age (The Guinness Book of Records, 1974) and had his lifespan verified by his passport was Shirali Farzali Muslimov who came from a village famous for having an above average level of super centurions. His diet consisted of yogurt fruits, vegetables, whole grain bread, chicken broth and low-fat cheese, which is a probiotic **(Maria Kechagia et al. Jan 2013)**. The village he lived in was famous for their yogurt, thought to be the key to their longevity. Research studies looking at Lactobacillus in the cheese from the region where Shirali lived found it showed good probiotic potential (Saeed Mojarad Khanghah and Khudaverdi Ganbarov. April 2014).



Antonio Todde

The Guinness Book of World Records stated that Antonio Todde, an Italian shepherd who lived in Tiana Sardina, died a few weeks before his 113th birthday. Relatives said Todde attributed his longevity to drinking a glass of **red wine** every day.

Foods that Contribute to Healthy Lactobacillus Levels

Taking foods high in the proper starch is one trick to enhance Lactobacillus. Potato flakes enhance Lactobacillus levels as well as

short-chain fatty acids (SCFA's) (Feeding potato flakes affects cecal short-chain fatty acids, micro flora and fecal bile acids in rats. Han KH et al. Jan 2008).

Cocoa Enhances Lactobacillus Levels and Short Chain Fatty Acids

Cocoa is one substance that not only tastes delicious, but is also good for you. How cool is that? This just goes to show that healthy food does not have to taste bad.

When pigs were fed cocoa powder for 4 weeks they demonstrated an increase in their polysaccharide-fermenting bacteria which produce SCFAs (Short Chain Fatty Acids), which also improves glycemic levels. Other benefical bacteria that was enhanced by the cocoa powder was Bifidobacteriales-Bifidobacteriaceae which also exhibits an anti-obesity effect (The Effect of Feeding Cocoa Powder and Lactobacillus rhamnosus on the Composition and Function of Pig Intestinal Microbiome. Gloria I Solano-Aguilar et al. Feb 2018).

Lactobacillus levels can also be enhanced by taking a combination of the herbs Astragalus and Elderberry (Astragalus Root and Elderberry Fruit Extracts Enhance the IFN-β Stimulatory Effects of Lactobacillus acidophilus in Murine-Derived Dendritic Cells. Hanne Frøkiær et al. Oct 2012).

Using Lactobacillus for treating Diarrhea

A daily administration of probiotic-zinc combination containing Lactobacillus rhamnosus and zinc enriched yeast was found to be effective in treating diarrhea and associated symptoms (Evaluation of a diet containing probiotics and zinc for the treatment of mild diarrheal illness in children younger than one year of age. Shamir R et al. Oct 2005).

Further Reading

Plant extract enhances the viability of Lactobacillus delbrueckii subsp. bulgaricus and Lactobacillus acidophilus in probiotic nonfat

yogurt. Minto Michael et al. Dec 2012.

The Vegetarian Diet and Lifespan

We covered earlier that Zaro was a vegetarian and it seems that almost on a daily basis new studies appear showing that excessive meat consumption is detrimental to good health. Does history offer any clues that being vegetarian extends lifespan? Let's examine the early history of man and look for any clues.

Why did Lifespans Shrink after the Great Flood?

There are 2 main theories

1 - Change of Diet. Before the great flood, people were vegetarian (Genesis 1:29) (Daniel 1:8–16) and after the great flood they began eating meat (Genesis 9:3).

2 - Genetic Mutation. Noah and his wife had no more sons after the great Flood (Genesis 10), leaving between six to eight people to repopulate the entire earth after the great flood. Hence the three men Shem, Ham, and Japheth (and their wives) inherited their genes from the same two parents. So several generations later these genes begin proliferating, leading to shorter lifespans. If in fact the great flood was only limited to a small region of the earth, than change of diet may be the reason for shorter lives. After the great flood, people still averaged a lifespan of approximately 440 years.

Name	**Age**	**Biblical Reference**
Arphaxad	**438**	Genesis 11:12–13
Shelah	**433**	Genesis 11:14–15
Eber	**464**	Genesis 11:16–17

The garden of Eden followed a similar course. Adam and Eve were physically immortal, but after being banished from the garden, they lost their immortality and saw marriages between people that were close relatives.

Summary

The eating of meat and the loss of many alleles from the gene pool due to the large numbers of people who perished in the flood may be responsible for the shorter lifespan experienced today.

Red Wine and Lifespan

As we covered earlier, The Guinness Book of World Records stated that Antonio Todde, an Italian shepherd who lived in Tiana Sardina, died a few weeks before his 113th birthday. Relatives said Todde attributed his longevity to drinking a glass of red wine every day. So what is so special about red wine?

Amino Acids Vary in Wines by Region

The next research study must have been fun to do, with never a boring moment after opening so many wine bottles! The study looked at wines from various regions around Greece and found that red wines from Crete contained the most amino acids, followed by wines from the Peloponnesos region. The excessive amino acids were due to the fact that the soil in Crete contains an abundance of nitrogen (Primary amino acid composition and its use in discrimination of Greek red wines with regard to variety and cultivation region. E. Bouloumpasi, et al. 2002).

Probiotics Help the Body Produce Amino Acids

Our bodies make amino acids from specific foods we eat. Probiotics also assist in this process. One study found that probiotics enhanced the stomach's ability to synthesize amino acids **(Evelien P. J. G. Neis et al. Apr 2015)** and that when the

herb thyme was combined with probiotics that it caused an increase in the essential amino acids (Alfaig E et al. Dec 2014).

Now that we know that Probiotics is what is causing these people to live extremely long lives, let's next examine the two-way relationship between probiotics and wine.

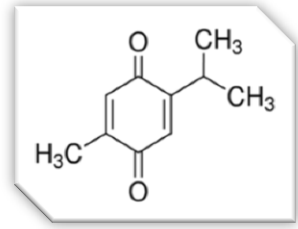
Probiotics and Lifespan

There is already solid scientific evidence that Probiotics, which is found in abundance in yogurt extends lifespan **(Facundo Rodriguez Ayala et al. Mar 2017)**. For example a study revealed that a mixture of Probiotics and Prebiotics in a formula known as **Triphala increased the lifespan of male drosophila by 60%** (Longevity extension in Drosophila through gut-brain communication. Susan Westfall, et al May 2018).

Lifespan and Environment

If one were to research lifespans according to region, one would discover that each specific geographic region contains anti-aging substances unique to that region. Zaro lived in Turkey which has a lot of Cumin Seed and Yogurt. Turkey also happens to have an above average concentration of Boron in its soil which is why Turkish women have extraordinary low levels of cervical cancer **(Lara Pizzorno Aug 2015)** and boron rich diets have been associated with a decreased risk of lung cancer **(Lara Pizzorno Aug 2015)**. Boron is also used to treat lung cancer **(Alberti D et al. Apr 2015)** as well as strengthen the bones **(Newnham R.E. 1994)** and boron has been shown to extend lifespan by 9.5% (Environ Health Perspect. 1994 Nov;102 Suppl 7:45-8. Effect of dietary boron on the aging process. Massie HR).

Cumin Seed (Nigella Sativa) as a Protector and Antidote for Industrial Toxins



One of the main substances in cumin seed (N. sativa) is **Thymoquinone** (TQ) , which has recently been shown to act as an antidote to natural toxins absorbed by the body, including mycotoxins and endotoxins. Thymoquinone has been shown to activate NRF2, which is a key part of the anti-aging process which I shall show in detail later on (Therapeutic Potential and Pharmaceutical Development of Thymoquinone: A Multitargeted Molecule of Natural OriginSameer N. Goyal, et al. Sept 2017).

Speaking from personal experience, I have found early spring to be the best time to take cumin seed. It just happens that Airborne Particulate Matter exhibits a peak during winter (The Effect of Seasonal Variations in Airborne Particulate Matter on Asthma-Related Airway Inflammation in Mice. Jun Kurai. et al. Jun 2016).

Broccoli sprouts have also been found to enhance the detoxication of some airborne pollutants (Rapid and Sustainable Detoxication of Airborne Pollutants by Broccoli Sprout Beverage: Results of a Randomized Clinical Trial in China. Patricia A. Egner et al. Aug 2015).

Selenium also has detoxification properties (Selenium detoxification of heavy metals: a possible mechanism for the blood plasma. Kern L et al. July 1984).

Further Reading

Anti-Aging Effect of Nigella Sativa Fixed Oil on D-Galactose-Induced Aging in Mice. Mahdieh Jafari Shahroudi, et al. Mar 2017.

The Major Compounds in Cumin Seed –
The major phenolic compounds in Black Cumin Seed (N. sativa) are thymoquinone (13,7%), carvone (0.9%), thymol (0.33%), r-cymene (37,3%), carvacrol (11,77%), t-anethole, longifoline and 4-terpineol (The Protective Effects of Nigella sativa and Its Constituents on Induced Neurotoxicity. Mohammad Reza Khazdair. Oct 2015).

Cuimn seed contains many anti-aging substances that will be covered in greater detail later on. These substances include: Chlorogenic acid, Caffeic acid, Coumaric acid, **Ferulic acid**, Cinnamic acid, Elagic acid and Quercetin (Nutraceutical properties of cumin residue generated from Ayurvedic industries using cell line models. K. B. Arun et al. Oct 2016).

Further Reading
Ferulic acid reverses depression-like behavior and oxidative stress induced by chronic corticosterone treatment in mice. Zeni ALB et al. Sept 2017.

Jeera Water
This is a popular detox drink that consists of 1 spoon full of cumin powder taken with a glass of lukewarm water and to drink it on an empty stomach, leaving a 30 minute gap between meals. The antioxidants in Jerra water flush toxins from the body. Adding lemon juice and cinnamon can provide an extra boost as it enhances functioning of the liver.

NRF2 and Detoxification
As will be shown in the forthcoming chapter titled: Anthocyanins and their Anti-aging Effects, NRF2 is a detox mechanism which exists in many of the best anti-aging foods, herbs and substances **(Nrf2, a master regulator of detoxification and also antioxidant, anti-inflammatory and other cytoprotective mechanisms, is raised by health promoting factors. Pall ML and Levine S. Feb**

2015). Both cumin seed and sulforphane, happen to be some of nature's best detoxes and which both extend lifespan as shown in great detail throughout this book. Does this mean the key to longevity is to take the right substances that detox the body? Studies have shown that a expression of multiple detoxification enzymes exhibit a relatively modest effect on longevity and that proteins may contribute to toxins. Methods that defeat protein toxicity and accelerate aging will be covered in-depth in the Chapter titled: How to Slow Aging caused by Proteins.

Further Reading

Mechanisms of toxicity. Gregus Z. In: Klaassen CD, editor. Casarett and Doull's Toxicology: The Basic Science of Poisons. 7th ed. New York: McGraw-Hill Medical; 2008. pp. 45–106.

Thymoquinone restores liver fibrosis and improves oxidative stress status in a lipopolysaccharide-induced inflammation model in rats. Asgharzadeh F et al. Nov 2017.

Thymoquinone reduces spinal cord injury by inhibiting inflammatory response, oxidative stress and apoptosis via PPAR‐γ and PI3K/Akt pathways. Yinming Chen et al. Apr 2018.

Thymoquinone and curcumin prevent gentamicin-induced liver injury by attenuating oxidative stress, inflammation and apoptosis.Galaly SR. et al. Dec 2014.

Research shows that certain environmental toxins have been prevented by cumin seed due to **Thymoquinone**. These toxins include include the metals lead, aluminium, mercury and cadmium, the pesticides propoxur, acetamiprid, imidacloprid, chlorpyrifos and fenitrothion and the solvents and detergents CCl4, toluene, ethanol and nitrilotriacetate and environmental pollutants such as DEP and BPA.

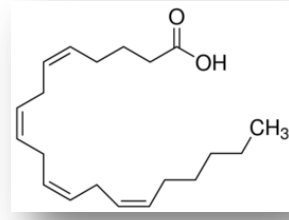
Cumin seed has also been shown to protect vital organs such

as the liver, blood, brain, lung, kidney, heart, gastrointestinal, and reproductive systems against chemical toxins (Black Seed (Nigella Sativa) and its Constituent Thymoquinone as an Antidote or a Protective Agent Against Natural or Chemical Toxicities. Alireza Tavakkoli et al Winter 2017).

Summary

Cumin Seed (N. sativa) exhibits protection against industrial toxins and pollutants either natural or man made.

Arachidonic acid as a Detoxification Substance



In the body arachidonic acid is made after consuming foods that contain linoleic acid, which is than converted by the body into arachidonic acid. Studies confirm that arachidonic acid protects the body against against alloxan-induced cytotoxicity (**Protective action of arachidonic acid against alloxan-induced cytotoxicity and diabetes mellitus. Suresh Y and Das UN. Jan 2001)**. Eucalyptus also reduces Alloxan (Oral administration of Eucalyptus globulus extract reduces the allo xan-induced oxidative stress in rats. Ahlem S et al. Sept 2009).

What is Alloxan?

Alloxan destroys the insulin-producing pancreatic cells via oxidative stress. Studies have found that when the pancreas is "detoxed", that it considerably exetends lifespan (Evaluation of pancreatic proteolytic enzyme treatment of adenocarcinoma of the pancreas, with nutrition and detoxification support. Gonzalez NJ, Isaacs LL. 1999).

The plant Gymnema sylvestre, used to treat alloxan, is a plant with potent anti-diabetic properties and it also controls obesity

when taken as a tea (Gymnema sylvestre: A Memoir. Parijat Kanetkar et al. Aug 2007), (Combined effects gymnema sylvestre and glibenclamide on alloxan induced diabetic mice. N. Sharma et al. Jan 2014).

Summary

Arachidonic acid may be a potent detoxification substance.
Further studies are needed to confirm this theory.

Cumin Seed and Bile

Studies have found that cumin stimulates the flow of **bile (Platel and Srinivasan, 2000b)**. Also cumin exhibits a profound influence on bile acid output, allowing bile secretion to be as high as 70 per cent over the control group when taken orally in single doses.

Cumin seed contains 33% p-cymene and 26.8% thymol as well as trace amounts of limonene, carvacrol and cineole **(S. Bourgou et al. Apr 2010),** all of which are anti-aging substances that will be covered in greater detail later on in this text. Plants such as Melaleuca viridiflora contain 45% cineole and thyme contains 60% carvacrol **(Sandy van Vuuren. May 2017).** A research study conducted by Platel and Srinivasan (2004) found that thymol prompted the secretion of bile acids in rats.

Further Reading

Beneficial effects of thyme oil on age-related changes in the phospholipid C20 and C22 polyunsaturated fatty acid composition of various rat tissues.Youdim KA and Deans SG. Apr 1999.

Effect of thyme oil and thymol dietary supplementation on the antioxidant status and fatty acid composition of the ageing rat brain. Youdim KA and Deans SG. Jan 2000.

Spices that Stimulate Bile Flow

A research study found that cumin, ajowan and fennel act as digestive stimulants causing an almost doubling of bile production

with Curcumin (found in turmeric). The spices fenugreek and cumin seed stimulated the most bile production with fenugreek showing the strong action followed by curcumin. Other spices that stimulate bile production include fennel, mustard and asafetida. The spices cumin, piperine, ginger, ajowan, coriander and asafetida decreased food transit time by 24-31 per cent, with ginger, cumin seed and ajowan showing the shortest times. This is beneficial because it reduces the stomach's burden of digesting food.

Reference

Digestive stimulant action of spices: A myth or reality? Kalpana Platel et al. June 2004.

In another study a combination of the spices Coriander (39%), Red Pepper (20%), Onion 20%, Turmeric (10%), Black Pepper (5%), Cumin (5%) and Ginger (1%) produced an 74 per cent higher bile acid secretion rate and also enhanced digestive enzymes up to 40% more than the control group (Digestive stimulant action of three Indian spice mixes in experimental rats. Kalpana Platel. Et al. 2002)**.**

Further Reading

Bile acids, chaperones, and mammalian longevity. Krøll J. April 2012.

Gender-Divergent Profile of Bile Acid Homeostasis during Aging of Mice. Zidong Donna Fu. Et al. Mar 2012.

Mr. Li Ching Yuen lived in a region where the herbs FO TI, Ginseng and Goji berry were easily available and Goddard Ezekiel Dodge, who is another centurion I shall discuss later in this book, had easy access to Olive Oil in the city of San Francisco. Goddard Ezekiel Dodge's diet will be examined in greater detail later on.

Hence it is a matter of knowing what types of herbs and foods exhibit anti-aging properties in any given region and knowing how to prepare and consume them in order to bring out their anti-aging properties.

Studies on Ginseng's Role in Extending Lifespan

Elderly rats fed Korean red ginseng tea showed significantly less oxidative damage (Panax ginseng reduces oxidative stress and restores antioxidant capacity in aged rats. Ramesh T, Kim SW et al. Nutr Res. 2012 Sep; 32(9):718-26).

In another study a supplement known as CVT-E002, which is extracted from North American ginseng, extended the life span of both juvenile and infant mice that had leukemia with the doseage being dose-dependent (20 mg/day) (Extract of North American ginseng (Panax quinquefolius), administered to leukemic, juvenile mice extends their life span. Miller SC et al. J Complement Integr Med. 2011 Jan; 8).

Ginseng Synergy Improves Skin Appearance

A randomized, double-blind, placebo-controlled study combined Red ginseng root extract with Torilus fructus and Corni fructus. The study found that it improved facial wrinkles and increased collagen levels in human skin (So SH, et al. (2009). J Med Food, 12: 1252-1259).

Further Reading

Effects of American ginseng (Panax quinquefolius) on neurocognitive function: an acute, randomised, double-blind, placebo-controlled, crossover study. Andrew Scholey et al. Jul 2010.

Ginseng: An Nonnegligible Natural Remedy for Healthy Aging. Yang Y et al. Dec 2017.

Skin Ageing: Natural Weapons and Strategies. Ivana Binic et al. Dec 2012.

Shengmai (a traditional Chinese herbal medicine) for heart failure. Zhou Q et al. Apr 2014.

Chapter 3. References. Nutrition Tips and Interesting Facts

1 - The influence of stevia glycosides on the growth of Lactobacillus reuteri strains. Denina I et al. Mar 2014.

The remaining pages are exerpts from other chapters of the book -

Resveratrol and Physical Exercise

Resveratrol has been recommended for those who practice extreme exercise such as endurance athletes (Impact of resveratrol on exercise performance: A review et al. Sept 2018).

A study involving men and women aged between 65 and 80 years of age that took resveratrol and exercised, showed significantly improved mean fiber area and total myonuclei (the nucleus of muscle cells) by 45.3%. The study concluded that resveratrol combined with exercise may reverse sarcopenia (muscle loss) (Resveratrol Enhances Exercise-Induced Cellular and Functional Adaptations of Skeletal Muscle in Older Men and Women. Stephen E Always. et al. May 2017).

Also the substance found in green tomaotes known as tomatidine, has also been found to improve muscle function in aged muscles as well as significantly extend lifespan and as well as promote mitochondrial health (Tomatidine enhances lifespan and healthspan in C. elegans through mitophagy induction via the SKN-1/Nrf2 pathway. Fang EF et al. 2017).

Another study found that resveratrol and piperine supplementation combined with low-intensity exercise training increased forearm skeletal muscle capacity (Influence of exercise training with resveratrol supplementation on skeletal muscle mitochondrial capacity. Kristine R. Polley et al. July 2015).

People who engage in less than three hours of aerobic exercise per week and take resveratrol may not receive any significant effects according to a study (Resveratrol supplementation does not augment performance adaptations or fibre-type–specific responses to high-intensity interval training in humans. D. Trisha et al. 2014).

Hence resveratrol appears to work well in extreme cases where the body needs recovery and for exercises that help re-build muscle.

How to Build More Muscles While Sleeping

The synthesis of muscle protein rates are governed by amino acid availability. When protein is taken before going to bed it has much better bioavailability and stimulates muscle protein synthesis rates and when this regime is applied during prolonged periods of resistance exercise training, taking the proper amino acids before bed causes gains in muscle mass and strength. Studies show that at least 40 g of protein is necessary for proper muscle synthesis during sleep, and that exercising prior to going to bed allows the amino acids to be better absorbed (Jorn Trommelen and Luc J. C. van Loon Nov 2016).

How to enhance the Bioavailability of Resveratrol

The bioavailability of resveratrol in supplement form is reduced by the amount of fat in the diet, but not by quercetin or alcohol. Trans-resveratrol 2000 mg taken two times a day is well tolerated with diarrhoea as a side effect. The absportion of Trans-resveratrol is enhanced when taken with a standard breakfast and not with a high-fat meal (Steady-State pharmacokinetics and tolerability of trans-resveratrol 2000 mg twice daily with food, quercetin and alcohol (ethanol) in healthy human subjects. la Porte C et al. Jul 2010).

Further Reading

Enhancing the bioavailability of resveratrol by combining it with piperine. Johnson JJ et al. Aug 2011.

Resveratrol improves cognition and reduces oxidative stress in rats with vascular dementia. Xingrong Ma, et al. Aug 2013

Curcumin and Resveratrol as Promising Natural Remedies with Nanomedicine Approach for the Effective Treatment of Triple Negative Breast Cancer. Amol Shindikar et al. May 2016.

Leucine and Reservatol

Leucine enhances reserveratrol's ability to activate SIRT1, SIRT3 and AMPK which help defeat aging (Regulation of SIRT1 in aging: Roles in mitochondrial function and biogenesis. Yuan Y et al. Apr 2016), (Alkylresorcinols activate SIRT1 and delay ageing in Drosophila melanogaster. Yasunari Kayashima et al. Mar 2017), (SIRT1 in the brain—connections with aging-associated disorders and lifespan. Fanny Ng et al. Mar 2015).

Other SIRT1 activators include Grape Seed and Black Tea. Black Tea contains the anti-aging substance Thioflavin T, which is a potent inhibitor of amyloids that cause Alzheimer's (Grelle G et al. Dec 2011).

Leucine also synergizes with resveratrol (Synergistic effects of leucine and resveratrol on insulin sensitivity and fat metabolism in adipocytes and mice. Bruckbauer A et al. Aug 2012).

Ernestine Shepherd the 73 year old body builder

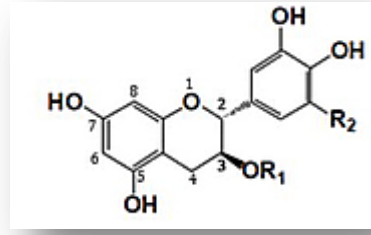
Ernestine Shepherd holds the world record for the oldest competing bodybuilder. Her body looks like a mid-40 year old, yet she is over 73 years of age. Her daily diet consists of 10 scrambled egg whites 16 oz of water and 1 handful of walnuts. She also sips 4 bottles of liquid egg whites throughout the day. Her diet contains an extreme amount of leucine (Prevention Magazine Documentary. The Remarkable Story of Ernestine Shepherd). Guinness Book of World Records).

Egg whites, laid by the humble hen, contain an abundance of leucine, as well as isoleucine and valine as well as an abundance

of branched amino acids and aromatic amino acids. Research studies conducted on people who consumed a lot of leucine discovered that leucine enhanced the density of their skeletal muscles **(Effects of Egg White Protein Supplementation on Muscle Strength and Serum Free Amino Acid Concentrations. Azumi Hida et al. Oct 2012)**. Excess branched chain amino acids may increase one's risk of dementia (Branched-chain amino acids and Alzheimer's disease: a Mendelian randomization analysis. Susanna C. Larsson and Hugh S. Markus. Oct 2017).

The Catechins in Wines prevent Atherosclerosis

A study looked at the phenolic compounds quercetin, catechin and resveratrol in red wine and their effects upon early atherosclerosis in hamsters. The study found that quercetin spared liver glutathione peroxidase activity. The study concluded that quercetin, catechin and resveratrol prevented the development of atherosclerosis (Dietary wine phenolics catechin, quercetin, and resveratrol efficiently protect hypercholesterolemic hamsters against aortic fatty streak accumulation. Auger C et al. Mar 2005).



The molecular symbol for catechin is shown above.

Further Reading

Catechin in human plasma after ingestion of a single serving of reconstituted red wine. Bell JR et al. Jan 2000.

Epigallocatechin Gallate (EGCG) Is the Most Effective Cancer Chemopreventive Polyphenol in Green TeaGuang-Jian Du. et al.

Nov 2012.

Chapter 4. References. Nutrition Tips and Interesting Facts

1 - Effects of Luteolin and Quercetin in Combination with Some Conventional Antibiotics against Methicillin-Resistant Staphylococcus aureus. Muhammad Usman Amin et al. Nov 2016.
2 - Encapsulation of the flavonoid quercetin with an arsenic chelator into nanocapsules enables the simultaneous delivery of hydrophobic and hydrophilic drugs with a synergistic effect against chronic arsenic accumulation and oxidative stress.Ghosh S et al. Nov 2011.

Interactions Of Quercetin uranium Complexes With Biomembranes And DNA. zur Erlangung des akademischen Grades. M.Sc. Enas Mohammed Hassan Attia. July 2014.

3 - Evaluation and management of lead exposure. Hwan-Cheol Kim et al. Dec 2015
4 - Oral administration of quercetin inhibits bone loss in rat model of diabetic osteopenia. Liang W et al. Nov 2011
5 - Protective effect of quercetin against oxidative stress caused by dimethoate in human peripheral blood lymphocytes. Bochra Gargouri et al. Aug 2011
6 - Dietary Flavonoid Quercetin Stimulates Vasorelaxation In Aortic Vessels. Nicholas K.H. Khoo, et al. Apr 2010
7 - Mechanisms of Neuroprotection by Quercetin: Counteracting Oxidative Stress and More. Lucio G. Costa et al. Jan 2016
8 - Quercetin, flavonoids and the life-span of mice. Jones E, Hughes RE. 1982
9 - Quercetin regulates hepatic cholesterol metabolism by promoting cholesterol-to-bile acid conversion and cholesterol efflux in rats. Zhang M et al. Mar 2016

10 - The flavonoid quercetin ameliorates liver damage in rats with biliary obstruction. Peres W et al. Nov 2000
11 - Manganese supplementation enhances the synthesis of glycosaminoglycan in eggshell membrane: a strategy to improve eggshell quality in laying hens. Xiao JF. et al. Feb 2014
Dietary supplementation with sodium bicarbonate improves calcium absorption and eggshell quality of laying hens during peak production.
Jiang MJ
12 - Quercetin as a fluorescent probe for the ryanodine receptor activity in Jurkat cells. Baran I et al. Aug 2013
13 - Luteolin as an anti-inflammatory and neuroprotective agent: A brief review.Nabavi SF et al. Oct 2015
14 - Luteolin, a flavonoid with potentials for cancer prevention and therapy. Yong Lin et al. Nov 2008
15 - Luteolin, a flavonoid with potentials for cancer prevention and therapy. Yong Lin et al. Nov 2008
16 - Dietary luteolin attenuates chronic liver injury induced by mercuric chloride via the Nrf2/NF-?B/P53 signaling pathway in rats. Haili Zhang et al. Apr 2017
17 - Luteolin Reduces Alzheimer's Disease Pathologies Induced by Traumatic Brain Injury. Darrell Sawmiller et al. Jan 2014
18 - Effects of Luteolin and Quercetin in Combination with Some Conventional Antibiotics against Methicillin-Resistant Staphylococcus aureus. Muhammad Usman Amin et al. Nov 2016
19 - Synergistic activity of luteolin and amoxicillin combination against amoxicillin-resistant Escherichia coli and mode of action. Eumkeb G et al. Dec 2012
20 - Flavonoids from Halostachys caspica and their antimicrobial and antioxidant activities. Liu H et al. Nov 2010
21 - Ginkgo biloba extract and neural regeneration. Mar 2012. Neural Regen Res. 2012 Mar 25; 7(9): 719.
22 - The total antioxidant content of more than 3100 foods, beverages, spices, herbs and supplements used worldwide

Monica H Carlsen et al. Jan 2010
23 - Antioxidant and Anti Aging Assays of Oryza sativa Extracts, Vanillin and Coumaric Acid. Wahyu Widowati et al. Jul 2016
24 - Storage of Fruits and Vegetables in Refrigerator Increases their Phenolic Acids but Decreases the Total Phenolics, Anthocyanins and Vitamin C with Subsequent Loss of their Antioxidant Capacity. Joseph H. Y. Galani. et al. Jul 2017
25 - Higher bioaccessibility of iron and zinc from food grains in the presence of garlic and onion. Gautam S et al. Jul 2010
26 - A comparison of essential oils obtained from lavandin via different extraction processes: Ultrasound, microwave, turbohydrodistillation, steam and hydrodistillation. Périno-Issartier S. et al. Aug 2013
27 - Synergistic antioxidant activity of green tea with some herbs. Dheeraj P. Jain et al. Jan 2011.

Chapter 6. How Acetic Acid Extends Lifespan

Acetic Acid

Acetic Acid is one easily overlooked substance in the field of anti-aging medicine. It is often taken for granted as it is found in numerous everyday kitchen items such as vinegar in a 3–5% concentration **(Antibiofilm Properties of Acetic Acid. Thomas Bjarnsholt et al. July 2015)** and apple cider vinegar which contains 5% acetic acid (Antimicrobial activity of apple cider vinegar. Darshna Yagnik et al. Jan 2018).

Acetic acid exhibits potent antimicrobial effects and is used to treat wounds where antibiotics have failed **(Antibiofilm Properties of Acetic Acid. Bjarnsholt T et al. July 2015)**. It is also interesting to note that a common folk remedy for cancer involves a combination of apple cider vinegar mixed with blackstrap molasses. Apple cider vinegar enhances Butyric acid levels in the stomach, which is vital for good stomach micro flora.

Goji Berries contain 48.33% acetic acid **(Juanfang Lua et al. International Journal of Food Properties. 2017)** and Vinegar, which contains up to 20% acetic acid has been shown to increase mean lifespan by up to 23.0% in C. elegans. It is interesting to note that Sauerkraut has been suggested as a probiotic. Sauerkraut is cabbage that has been soaked in vinegar (Tiago Touret et al. Sept 2018).

Taxifolin (Dihydroquercetin) is a very potent flavoniod that has been proven to increase lifespan 51.0% **(Current Perspective in the Discovery of Anti-aging Agents from Natural Products. Ai-Jun Ding et al. May 2017).** Taxiflolin and is found in vinegar, cherry liqueur and wines (Antioxidant and iron-chelating properties of taxifolin and its condensation product with glyoxylic acid. Victoria S. Shubina and Yuri V. Shatalin et al. Mar 2017).

Quercetin also chelates iron (Iron chelation by the powerful antioxidant flavonoid quercetin. Leopoldini M. et al. Aug 2006).

Flavanones absorb light between between 270 and 295 nanometers with 288 nm for naringenin and 285 nm for axifolin **(Chemistry and Biological Activities of Flavonoids: An Overview. Shashank Kumar and Abhay K. Pandey. Oct 2013)**. Taxifolin is also found in French maritime bark, milk thistle, tamarind seeds and onions (Dihydroquercetin: More than just an impurity?. Weidmann AE June 2012).

Chapter 6. References. Nutrition Tips and Interesting Facts

1 - Clearance of Free Silica in Rat Lungs by Spraying with Chinese Herbal Kombucha Nai-fang Fu et al. June 2013.

2 - Theobromine and the pharmacology of cocoa. Smit HJ 2011. Safety assessment of kola nut extract as a food ingredient. Burdock GA et al. Aug 2009

Kola nut: so much more than just a nutDawn Starin. Dec 2013.

Remineralization of artificial enamel lesions by theobromine. Amaechi BT et al. Apr 2013.

3 - Photobiology of vitamin D in mushrooms and its bioavailability in humans. Keegan RJ et al. Jan 2013.

Chapter 7. The Super-centurion Diet

The foods ate by super-centurions yields valuable clues as to why they lived so long. In this chapter we shall examine the foods they ate in greater detail.

The Diet of Mr. Li Ching Yuen
Goji Berries, Ginseng and Rice Wine. Both resveratrol and red wine have antibiotic properties. (Antimicrobial Effects of Ginseng. Kachur K and Suntres ZE. Dec 2016).

Ginseng Synergizes with the Antibiotics Kanamycin and Cefotaxime to destroy pathogens Staphylococcus aureus (MRSA) (Sung WS and Lee DG. Aug 2008).

Heat Increases the levels of Antioxidants in Goji Berries
A research study that made Goji Berry Tea (infusion) found that the antioxidants in the Goji Berry increased as the temperature increased, yielding three times as many antioxidants at 100 °C, compared to 60 °C. The antioxidants also remained constant for about 150 minutes. Levels of polyphenols, polysaccharides and carotenoids also increased with higher temperatures. It is interesting to note here that when Lemon Essential Oil is heated to a temperature of about 30 °C it yields higher amounts of Limonene and that Goji Berry contains Limonene (Juanfang Lua et al. International Journal Of Food Properties. 2017).

Goji Berries also contain 48.33% acetic acid (Juanfang Lua et al. International Journal of Food Properties. 2017). Goji berry has also been shown to affect iron and zinc levels in the body (Study on the composition of Lycium barbarum polysaccharides and its effects on the growth of weanling mice. Zhang M. April 2002).

Speaking from personal experience, Goji Berry extracts / tinctures made with alcohol do not stay fresh for long periods of time and are some of the most perishable extracts. Hence, making

goji berry tea works best. You can learn how to make your own extracts in my book How to Make Tinctures, Extracts, Flower Essences and Homeopathic Remedies. Hence, if one wants to preserve Goji Berry, purchasing goji berries and making them into teas is the best way to gain maximum antioxidant levels. FO Ti also exhibits this same fragility. Purchasing dried FO TI root and breaking off a few pieces and making a tea works extremely well. Both these methods allow one to keep the substances a long time and to extract the nutrients upon demand when necessary.

Goji Berries Examined In-Depth

Goji Berry contains 0.5% of the water soluble precursor 2-O-β-D-Glucopyranosyl-L-ascorbic acid (AA-2βG), which is simliar to that of fresh lemons (Yoshiko Toyoda-Ono, et al. March 2004) (Zhang Z et al. May 2011).

Glucopyranosyl-L-ascorbic acid is hydrolyzed into ascorbic acid (Vitamin C) which creates a significantly longer lasting type of vitamin C in the body. To put it simply, glucopyranosyl is a form of vitamin C that contains glucose which breaks down to highly bioavailable ascorbic acid (pure vitamin C).

When ascorbic acid and 2-glucoside are combined with one another it significantly promotes liver regeneration (L-Ascorbic Acid- and L-Ascorbic Acid 2-Glucoside Accelerate in Vivo Liver Regeneration and Lower Serum Alanine Aminotransaminase Activity in 70% Partially Hepatectomized Rats. Mitsutoshi Kimura et al. 2014).

Goji Berry Synergy

In studies conducted on mice, when they were given goji berry juice with raspberry and blueberry juices, the size of their spleen increased compared to the control group **(Chao et al. 2004)**. This effect gave the mice an increased ability to fight disease. This effect was not observed when the mice were given only pure

wolfberry juice.

As a side note, both 2-O-β-D-Glucopyranosyl-L-ascorbic acid and zeaxanthin are ROS scavengers making Goji Berry an extremly powerful antioxidant. Goji Berry has also been shown to increase Superoxide Dismutlase and Glutathione Peroxidase levels **(GPx; Amagase, Sun, and Borek 2009)**. This was confimred in a study of people who consumed goji berries and were aged between 64 and 80 yeas of age. The study also found that the participants exhibited a 65% decrease in lipid peroxides and also found that the participants exhibited elevated Superoxide Dismutase levels (Biomolecular and Clinical Aspects of Chinese Wolfberry. Chapter 14. Peter Bucheli et al. Boca Raton (FL): 2011).

It is interesting to note that high vitamin C levels interferre with selenium in the body **(Ip C July 1986)** and that low selenium levels in babies can cause hair loss (Daniells S and Hardy G. Nov 2010).

A Method to Preserve the Anti-aging Substances of the Goji Berry

The Nestlé Research Center in Lausanne Switzerland developed the product Lacto-Wolfberry. The process consists of milling the goji berry fruit in milk or in a milk protein-containing solution than separating the insoluble fibers to create an aqueous suspension and then finally drying the suspension in order to obtain a powder (the drying part is optional). Studies have found that Lacto-Wolfberry has a profile close to fresh wolfberry fruit and has a good shelf life.

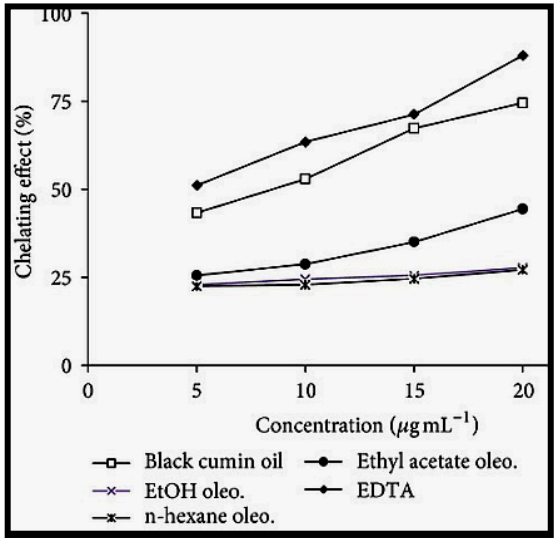
In a clinical study by Benzie et al. (2006) the researchers found that the bioavailability of zeaxanthin from Lacto-Wolfberry was three times higher than that from wolfberry powder. The substance Zeaxanthin is concentrated in the central macula of the eye. Hence goji berries are extremly good for the eyes. (Chapter 14. Biomolecular and Clinical Aspects of Chinese Wolfberry. Peter Bucheli et al. 2011).

Further Reading

Intake of a milk-based wolfberry formulation enhances the immune response of young-adult and aged mice. Vidal K et al. Feb 2010.

Cumin Seed Cautions

In one incident a man had been taking a teaspoon of cumin seed every day for 8 months on a row and had contracted pneumonia. This may or may not have been due to a reaction with the foods he was eating, the quality of the cumin seed or his lifestyle. However caution should still be used when using cumin seed oil (Exogenous lipoid pneumonia caused by Nigella sativa oil – A case report. K. Bouti et al. Oct 2013).



Speaking from personal experience, I find taking cumin seed oil from late winter into early spring each year, which is the time of year most bad bacteria is in the environment, works well to keep the immune system strong and healthy. As covered earlier, winter is the time of year the body accumulates more lead and studies have found that cumin seed is a metal chelator (pictured above) , whose metal chelation effects are dose dependant. The picture on the aforementioned page shows the metal chelating abilty of black cumin seed.

Reference

Composition, In Vitro Antioxidant and Antimicrobial Activities of Essential Oil and Oleoresins Obtained from Black Cumin Seeds (Nigella sativa L.)Sunita Singh et al. Oct 2013.

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Chisan, a combination of Schisandra, Rhodiola and Eleutherococccus (Siberian Ginseng) improves patients with acute non-specific pneumonia (Impact of Chisan (ADAPT-232) on the quality-of-life and its efficacy as an adjuvant in the treatment of acute non-specific pneumonia. Narimanian M et al. Nov 2005).

The 1,288 Year Old Germinating Lotus Seed

Hydrophobic Surfaces Repel Water

Hydrophobic substances contain a very thin layer around them that repels water, taking away dirt when water drips over them, keeping the surface of the substance very clean, which reduces its being attacked by fungi, mold and unhealthy bacteria. Hydrophobic materials are commonly used for oil removal from water Hydrophobic substances include Chicory, Linalool, **Cranberry, Oregano**, Rosemary and Rhodia Rosea.

A study found that lambs that grazed on chicory had fewer infections compared to lambs grazing upon rye grass and white clover. This may be due to chicory's hydrophobic properties which also reduces the ability of bad bacteria to cling to teeth (The

consequences of short-term grazing of bioactive forages on established adult and incoming larvae populations of Teladorsagia circumcincta in lambs.Tzamaloukas O et al. Mar 2005), (Effects of maternal protein nutrition and subsequent grazing on chicory (Cichorium intybus) on parasitism and performance of lambs. Kidane A et al. Apr 2010).

The citrus substance limonene, proven to protect the brain, is also extremely hydrophobic and lithocholic acid is also hydrophobic **(Goldberg AA et al. Jun 2010)** and Acetic acid also exhibits hydrophobic properties (Antibiofilm Properties of Acetic Acid. Thomas Bjarnsholt et al. July 2015).

The Hydrophoic Surface of the Lotus Seed

Shen Miller grew a lotus seed aged 1,288 years old **(Exceptional Seed Longevity and Robust Growth: Ancient Sacred Lotus from China. J. Shen-Miller et al Nov 1995)**. The lotus seed was found to contain the substance methyltransferase which is found in large amounts in our brain. Studies have found that mice with prostate cancer which were treated with the DNA methyltransferase inhibitor 5-aza-2 showed dramatically extended survival times (Inhibition of DNA methyltransferase activity prevents tumorigenesis in a mouse model of prostate cancer. McCabe MT et al. Jan 2006).

The Biofilm Properites of Gallic Acid

Gallic acid prevents the formation of biofilms by various forma of bacteria. Research studies found that when biofilms were applied to S. aureus, E. coli, P. aeruginosa and L. monocytogenes that a signifincant 70% reduction in biofilm activity took place. Gallic acid also inhibits the bacterial growth of Streptococcus mutants (Bioavailability of Dietary Polyphenols and Gut Microbiota Metabolism: Antimicrobial Properties. Laura Marín et al Feb 2015).

Nutrition Tip

Out of thousands of fruit fly longevity studies conducted by Dough Sketchy, the hydrophobic fruit Wax Gourd was the one that extended lifespan the most (5)

Facts about Hydrophobic Substances

Greatly reduces the ability for dirt to cling to it. Saponins possess hydrophobic properties. Saponins are steroids which dissolve in the water creating a stable lather frothy type substance which makes an effective cleaner. Citrus contains an abundance of Saponins which is why there are so many citrus cleaning products (Determination of Saponin Content of Various Parts of Six Citrus species. Chinelo A. Ezeabara et al. Jan. year unk). Lithocholic acid (LCA) is also hydrophobic (John E. Eaton et al. Dec 2013).

The Hydrophobic Substance Vitexin

Mung bean (Vigna radiata) extract has been scientifically proven to extend the lifespan of fruit flies between 29% and 70%. The study found that the two main concentrated substances in the Mung Beans that extended lifespan were Vitexin and Isovitexin (It Is Not Just Folklore: The Aqueous Extract of Mung Bean Coat Is Protective against Sepsis. Zhu S et al. Oct 2012).

It appears that the reason for this is due to the Vitexin having hydrophobic properties. A study found that Vitexin exhibited antibiofilm activity against the bacteria P. aeruginosa and suggested that vitexin be used as a new antibiofilm agent against pathogenes (Manash C. Das et al. Mar 2016).

Further Reading

Lifespan Extending and Stress Resistant Properties of Vitexin from Vigna angularis in Caenorhabditis elegans. Eun Byeol Lee, et al.

Nov 2015.

Summary
Substances exhibiting hydrophobic properties have antimicrobiobal effects due to their ability to inhibit dirt to cling to surfaces. Hence, hydrophobic substances not only keep surfaces clean, but also preserve them. This reduces the ability of bacteria to cause infection, thus prolonging lifespan.

Interesting Facts about Limonene
Pine needles contain linalool (24.47%), limonene (17.01%) and anethole (14.57%) which exhibits free radical scavenging that is comparable to commercial phenolic compounds in biological systems (6)
Inhibits lung cancer (7)
High amounts of limonene damage DNA as can naringin, thymol and ursolic acid carvactrol (8)
Protects against oxidative stress (9)
Gathers in the liver, kidney, and blood (10)
Displays anti-biofilm potential against Streptococcus (11)
When combined with Aminoguanidine, blocks AGE Glycation up to 90% (12)
Exhibits synergy with berberine (13)
Dissolves cholesterol gallstones (14)
Is found in Lippia spp (lemon bush), exhibiting 100% protection against the yellow fever mosquito (15)
Found in abundance in lemon, oranges, carrots, coffee, meat, and spices (nutmeg) (16)
Significantly boosts GABA levels (17)
Enhances grip strength, which weakens as one grows older (18)
Found in trace amounts in rosemary, black cumin seed oil and fennel seed (19)

Low levels of limonene extend lifespan, however how excessive amounts are detrimental to lifespan (20)
When blue and red light are shone upon perilla plants their levels of limonene increases (21)

Why Vitexin Extends Lifespan

As shown near the beginning of this book, in order to turn lead into gold, a small piece of the philosopher's stone had to be wrapped in a ball of wax before throwing it into the molten lead in order to avoid it being instantly vaporized. Most foods we eat are immediately degraded by our gut bacteria in the intestine and reduced to form O-glucuronides and O-sulfates in the liver. However certain substances such as vitexin, orientin, homoorientin, and isovitexin are poorly absorbed upon their way to the lower stomach, thus reaching the colon intact. Once they are in the colon, they turn into small metabolites and yield very few metabolites in the blood and urine. After being absorbed in the colon they are changed by the liver and returned to the gut by enterohepatic recirculation (The Reciprocal Interactions between Polyphenols and Gut Microbiota and Effects on Bioaccessibility. Tugba Ozdal et al. Jan 2016).

Summary

Vitexin undergoes a unique transformation by gut microbacteria due to its ability to remain intact until it reaches the colon. This transformation does not take place in many foods because the transformation does not take place due to most foods being broken down on its way to the colon.

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Resveratrol acts as an estrogen receptor (ER) agonist in breast cancer cells stably transfected with ER alpha. Levenson AS et al. May 2003

Resveratrol modulates the inflammatory response via an estrogen receptor-signal integration network. Jerome C Nwachukwu et al. Apr 2014

Resveratrol, a polyphenolic compound found in grapes and wine, is an agonist for the estrogen receptor. Gehm BD et al. Dec 1997

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Zeng WC. et al. Jul 2012

Protective effect of pine (Pinus morrisonicola Hay.) needle on LDL oxidation and its anti-inflammatory action by modulation of iNOS

and COX-2 expression in LPS-stimulated RAW 264.7 macrophages. Yen GC

Evaluation of In Vitro Antioxidant Activity of the Water Extract Obtained from Dried Pine Needle (Pinus densiflora). Joo-Shin Kim. Jun 2018

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Jie Bai. et al. Nov 2015
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Levels and Behavior of Rats. Wenjun Zhouet al. Aug 2009
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Chapter 8. Why Plant Defense Substances Extend Lifespan

In nature, the survival of the fittest depends upon who has the skills and resources and how they use those skills to rapidly adapt to an evolving environment (resilience). Over time animals and plants have developed specific mechanisms that help them adapt to changes in their environment as well as avoid would be predators.

Research is discovering that substances secreted by plants which have been exposed to an environment of stress have potent anti-aging properties. This could be an environment consisting of insect attack or extreme temperatures.

Ribosome-inactivating proteins as Plant Defense Mechanisms
The plant defence known as Ribosome-inactivating proteins is also called RIP's (a rather fitting name for the poor insects who encounter it). RIP's are used by plants for defense against insect attacks and pathogens. RIP's are antifungal, antiviral, antibacterial and insecticidal. They exist in various species of bacteria, trichosanthin, camphor, barley (Hordeum vulgare), luffins and saporin (from soapwort, S. officinalis (The Plant Ribosome-Inactivating Proteins Play Important Roles in Defense against Pathogens and Insect Pest Attacks Feng Zhu et al. Feb 2018).

The substance citronella, which is a powerful insect repellent, contains an abundance of terpens which act as an insect repellent **(Edmund J. Norris and Joel R. Coats. Jan 2017)**. Another example is melatonin, which is produced in plants as a defense against oxidative stress **(Ricardo Bisquert, et al. Feb 2018)**. Melatonin has been shown to reduce DNA damage due to its ability to upregulate antioxidant enzymes and reduce the oxidation of lipids (Melatonin enhances DNA repair capacity possibly by affecting genes involved in DNA damage responsive pathways. Liu R et al.

Jan 2013).

Melatonin Foods
Olive oil, Walnuts, Tomatos, Wine and strawberries (Implementation of longevity-promoting supplements and medications. Alexander Vaiserman and Oleh Lushchak. July 2017).

Cool Temperatures and Lifespan
As shown in an earlier chapter, grapes grown in different environments had different levels of amino acids. The same is true with temperature. Grapes that contain above average levels of resveratrol are grown in calcareous soils with low nitrogen and high potassium rates and under **cooler** climatic conditions **(Improvement of Healthy Properties of Grapes and Wine with Specific Emphasis on Resveratrol. Luigi Bavaresco et al. July 2011)**. Grapes grown at above average elevations also produce more anthocyanins and tannins (Exploring High Altitude Viticulture. Ted Rieger. Vineyard and Winery Management. 2007).

Decreased tempearture is associated with higher altitude which has been shown to trigger shifts in the phenolic composition of Arnica (Temperature is the key to altitudinal variation of phenolics in Arnica montana L. cv. ARBO. Albert A et al. May 2009).

This same effect may be occurring in the immune systems of people who live at high altitudes, by causing their bodies to

produce more T-cells which boosts their immune system. For example people who live in the Colorado counties Clear Creek Eagle, Gilpin, Grand, Jackson, Park and Summit all live at elevations ranging between 5,000 and 9,000 feet. These people have some of the longest lifespans in the United States **(Time Magazine. Where You Will Live the Longest. September 2006)**. And the Old Tjikko spruce tree which is **over 9,550 years old**, lives at an altitude of 2,985 feet. A carbon dating survey conducted in April 2008, confirmed this amazing tree to be over 9,550 years old. The tree is pictured in the following photograph.

Further Reading

Being cool: how body temperature influences ageing and longevity Gerald Keil, et al. April 2015.

Considerations on Temperature, Longevity and Aging. Bruno Conti June 2009.

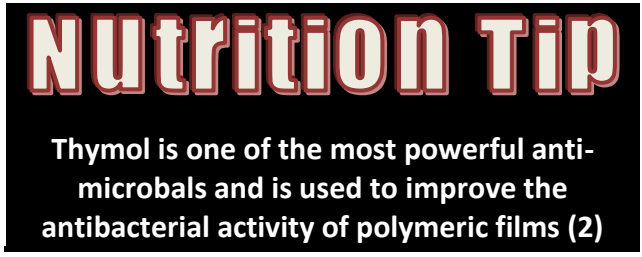
Fennel and Anise

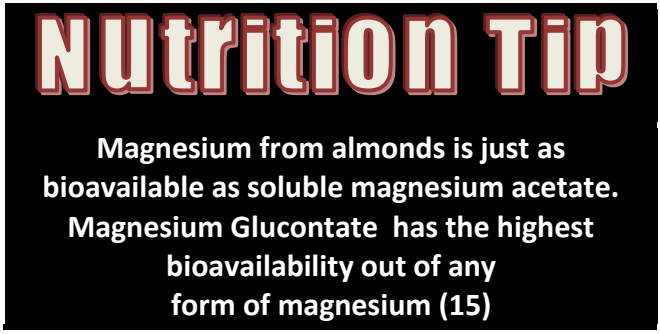
Once again, the spices fennel an anise appear, reinforcing the theme of longevity that spices are powerful anti-aging substances. The herbs fennel seed, cumin, rosemary, basil, ocimum selloi and oregano belong to the Lamiaceae family of plants and are used to kill or repel insects **(Padilha de Paula J et al. Oct 2003)**. Fennel and Ansie, which are both components of the St. Germain formula, contain an abundance of **Antheole**, which to date is one of the most **powerful natural**

insect repellents ever discovered, on par with DEET **(Repellency of cassia bark, eucalyptus, and star anise oils and their major constituents to Leptotrombidium pallidum (Acari: Trombiculidae), (Shin EH et al. May 2013)**. The only reason it is not used as an insect repellent is because it evaporates extremely fast when applied to the skin. The study also found that the substances cinnamaldehyde, cassia bark oil, and star anise oil **exhibited significantly more potent repellency than DEET.**

Other natural insect repellents include - Thymol, Pinene, **Limonene**, Coriander and Camphor **(Plant-based insect repellents: a review of their efficacy, development and testing. Marta Ferreira Maia and Sarah J Moorec. March 2015)**. As will be shown later on, both **Limonene** and **Pinene** are two of the most powerful anti-aging substances and are found in Cumin and Celery.

As just shown, cooler temperatures extend lifespan and as will be shown in a forthcoming chapter, heat stress actually reduces lifespan. It is rather interesting to note that fennel has been shown to reduce heat stress in studies conducted on hens (Effect of Fennel used as a Feed Additive on The Egg Quality of Laying Hens Under Heat Stress. H Gharaghani et al. Jun 2015), (Hormetic Modulation of Aging and Longevity by Mild Heat Stress. Suresh I. S. Rattan. May 2006).





Why Barks and Plant Skins Contain more Nutrients
Because the outer structure of skins, bark or even bean hulls are exposed to the environment they gradually build up a resistance to disease and fungal attacks due to harsh environmental extremes. This in turn causes anti-aging substances to form themselves in the bark, peel, skin or bean hull. Hence, you will find the most powerful anti-aging substances in the peels of pomegranate, apple peels, grape skins and in the barks of the magnolia and pine trees.

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Chapter 9. Instant Energy without Sugar. The Yogurt Plant and HN019

Now that we know Probiotics extend lifespan, with so many types of probiotic supplements on the market today how do you know which ones are the best? The purpose of this chapter is to answer that question.

HN019

The name may sound to some like some new model number for a luxury car, however HN019 is a man made probiotic (really a prebiotic because it is a dry powder) that has been scientifically studied and proven to greatly boost lactobacillus and bifobacteria levels in the colon.

Reference

The Effect of Bifidobacterium animalis ssp. lactis HN019 on Cellular Immune Function in Healthy Elderly Subjects: Systematic Review and Meta-Analysis. Miller LE. Et al. Feb 2017.

This is a major discovery because lactobacillus and bifobacteria are some of the best bacteria that are beneficial for the colon, which in turn extend lifespan. Hence, taking HN019 with yogurt generates a very powerful non-sugar energy boost for the body. Speaking from personal experience, I have found that in only minutes after taking HN019 with yogurt, that it causes me to experience a tremendous increase in physical energy. It also enhances feelings of well being, probably because Probiotics has been found to relieve depression **(Effect of Probiotics on Depression: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Ruixue Huang, et al. Aug 2016)**. This is pretty remarkable in that it exerts all these effects without

sugar or artificial caffeine. HN019 is commonly found in some probiotic supplements, but not all of them. So when shopping for a probiotic supplement, it is key that the label says that it contains HN019 on its label. As of 2018, the **Now Foods Clinical GI Probiotic** capsule contains HN019. When added to the original Yogurt Mix formula it generates considerable synergy.

The Yogurt Mix Formula

This formula comes from my book: Living Healthy Beyond 120, A Centurion's Plan for Longevity by Scott Rauvers. This is an excellent detox formulation that is mixed into yogurt and eaten in the late afternoon. It also increases the probiotics in the yogurt, contributing to a strong immune system and healthy digestive system.

1. 1/2 Alpha Lipoic Acid & N Acetyl Cyeteine capsule or 1/4 Teaspoon (optional as flax seeds exhibit similar effects due to their high Lipoic Acid levels so you can add flax seeds to the yogurt)

2. 1/2 Teaspoon of Cumin Seed

3. 1.5 Teaspoons of Jigoulan Herb (or ginseng)

4. 2 Teaspoons of Cinnamon Powder

5. 1/2 Teaspoon of Astralagalus Herb

6. 200 mg of Vitamin B6

7. Now Foods Clinical GI Probiotic Capsule (these capsules contain the probiotic HN019 proven to enhance the immune system in older people.

Further Reading

L-carnitine and alpha-lipoic acid improve age-associated decline in mitochondrial respiratory chain activity of rat heart muscle.

Sethumadhavan and Chinnakannu P. Jul 2006.

Now before we examine the yogurt plant, let's take a look at some of the best foods that are good for enhancing the health of the micro flora in the colon.

Bifobacteria

This is a beneficial bacteria that helps keep colon microflora in good shape. Bifidobacteria produce short chain faty acids and linoleic acids, and at birth the human gut contains 90% bifibobacteria with higher proportions of bifidobacteria being found in centenarians compared to younger elderlies (Gut Bifidobacteria Populations in Human Health and Aging. Silvia Arboleya et al. Aug 2016).

The right fiber foods will also replenish bifobacteria levels. These types of fiber include: Inulin Fructans which greatly boosts bifobacteria levels as well as FOS, GOS, pterocarpus and blueberries. Oligosaccharides strongly enhance bifidobacteria.

Further Reading

Effect of supplementation of micronutrients and phytochemicals to fructooligosacchaides on growth response of probtiocs and E. coli.

Bifidobacterium Synergy

Lactoferrin enhances Bifidobacterium levels **(Petschow BW et al. June 1999)** and Arabinoxylan oligosaccharides found in wheat bran have been shown to significantly enhance bifidobacteria **(François IE et al. May 2014)**. Arabinoxylan oligosaccharides (AXOS) are prebiotic carbohydrates that enhance bifidobacteria (Audrey Rivière et al. Jan 2014).

Bifidobacteriums anti-fungal properties are so strong that when guinea pigs were given Lactoferrin, it resulted in curing their

dermatophytosis (fungal infection of the skin) (Lactoferrin given in food facilitates dermatophytosis cure in guinea pig models. Wakabayashi H et al. Oct 2000).

Additional Sources of Bifidobacteria - Wild blackcurrant extracts (Molan et al. 2010), apple juice (Sembries S et al. 2006), lowbush wild blueberries (Lacombe et al 2013), Resveratrol (Larrosa et al 2009) and oatmeal (Different Oat Ingredients Stimulate Specific Microbial Metabolites in the Gut Microbiome of Three Human Individuals in Vitro. Pieter Van den Abbeele et al. Oct 2018).

Studies by Slavin (Apr 2013) found wheat dextrin, psyllium, bananas, inulin, oligofructose, FOS (most effective at 5–8 g per day) and Jerusalem artichoke, being the strongest stimulated Bifidobacteria growth (Fiber and Prebiotics: Mechanisms and Health Benefits. Joanne Slavin. Apr 2013)

Other Bifidobacteria sources include: slippery elm, licorice root, coffee, cocoa, (Prebiotic Potential of Herbal Medicines Used in Digestive Health and Disease. Christine Tara Peterson, PhD et al. Jul 2018), (Chocolate, gut microbiota, and human health. Nabil Hayek. Feb 2013), (Impact of coffee consumption on the gut microbiota: a human volunteer study. Jaquet M et al. Mar 2009), (Gum arabic establishes prebiotic functionality in healthy human volunteers in a dose-dependent manner Wim Calame et al. 2008).

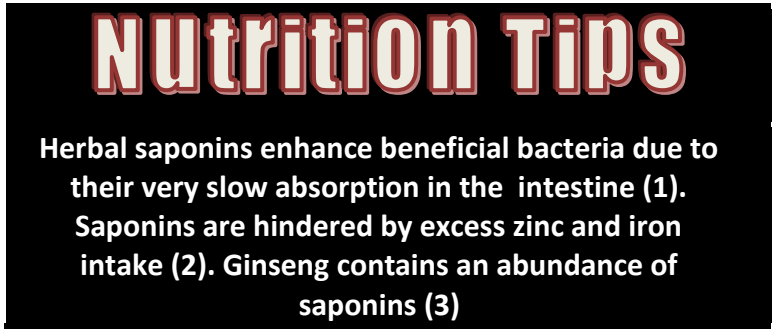
Nuts decrease Bifidobacteria levels Both walnuts and almonds decrease Bifidobacterium levels (Almond Consumption and Processing Affects the Composition of the Gastrointestinal Microbiota of Healthy Adult Men and Women: A Randomized Controlled Trial. Hannah D. Holscher et al. Jan 2018).

Further Reading

Effect of Probiotics Supplementation on Bone Mineral Content and Bone Mass Density. Kolsoom Parvaneh et al.

Effective Lactobacillus plantarum and Bifidobacterium infantis encapsulation with chia seed (Salvia hispanica L.) and flaxseed (Linum usitatissimum L.) mucilage and soluble protein by spray drying. Bustamante M1 et al. Feb 2017.

Bifidobacteria or Fiber Protects against Diet-Induced Microbiota-Mediated Colonic Mucus Deterioration. Schroeder BO. et al. Jan 2018.



Salacia Reticulata. The Yogurt Plant

Now maybe you don't want to have to go out and buy yogurt or prebiotoic supplements or you are in a region where refrigeration is scarce, especially if you travel a lot. One alternative to an expensive probiotic is to utilize an extract proven to have probiotic effects. Now there are extremely few extracts scientifically proven to boost gut micro flora. However one rare study has uncovered such a plant. The plant is called **Salacia Reticulata**. An in-depth research study found that an extract of Salacia Reticulata

regulated intestinal immunity due to its ability to alter the intestinal flora in rats (A subchronic oral toxicity study of Salacia reticulata extract powder in rats. Yuriko Oda et al. 2015)

Studies of the Effects of Salacia Reticulata on Humans
Another study decided to take a look at an extract of Salacia Reticulata and its effects upon humans. The study enrolled a group of healthy males aged between 50 and 60 years with mildly reduced immunity, and after giving them Salacia Reticulata, found that it induced changes in their intestinal microbiota, improved their T-cell proliferation index as well as other immunological indices which decline with age. It also elevated expression levels of their immune-relevant genes. As far as gut micro flora was concerned, the study came to the following occlusions after taking Salacia Reticulata:

>> **Bifidobacterium** stomach microflora exhibited an increase of 36.2% (a substantial increase)

>> **Lactobacillales** stomach microflora exhibited an increase of 11.7% (a substantial increase)

>> A decrease of the gram positive bacteria Clostridium. (Clostridium is a bad bacteria responsible for age related diseases such as botulism and diarrhea in the human body)

The study came to the conclusion that Salacia Reticulata positively changes the gene expression of a person's peripheral blood cells and the proportion of intestinal microbiota, shifting it towards a younger phenotype. In simple summary, it enhanced the body's immune system which is weekend as one ages. This makes sense because the majority of the body's immune system is located in the gut (The stomach in health and disease. R H Hunt, et al. Sept 2015).

Reference

Improvement in Human Immune Function with Changes in Intestinal Microbiota by Salacia reticulata Extract Ingestion: A Randomized Placebo-Controlled Trial. Yuriko Oda et al. Dec 2015.

This is a significant breakthrough study because Bifidobacteria decreases with age **(Age and disease related changes in intestinal bacterial populations assessed by cell culture, Hopkins MJ et al. 2001 Feb)** and having such a convenient, cost effective method to keep gut micro flora healthy is vital to any one pursuing a lifestyle of longevity.

Further Reading

Orally Administered Salacia reticulata Extract Reduces H1N1 Influenza Clinical Symptoms in Murine Lung Tissues Putatively Due to Enhanced Natural Killer Cell Activity. Gustavo A. Romero-Pérez. Mar 2016.

TH1 and TH2

Besides probiotics increasing TH1 and reducing TH2 **(Min Tan et al. Dec 2011),** Salacia Reticulata, has also been shown to increase Th1 levels in the body **(Oda Y et al. Feb 2011)**. This means an extract of Salacia Reticulata would be valuable as an exercise recovery substance and may synergize with lemon verbena which is also taken as an exercise recovery supplement (Buchwald-Werner S. et al. Jan 2018).

What are Th1 & Th2?

Th1/Th2 is a measurement of the health of the immune system. In most cases, a shift towards Th2 means the body is more susceptible viruses and bacteria. A study found that a Th1/Th2 immune imbalance occurred at least 1 week after completion of a marathon, which puts one at an increased risk of upper

respiratory tract infections which are common in many extreme athletes or anyone that practices strenuous exercise (Effects of strenuous exercise on Th1/Th2 gene expression from human peripheral blood mononuclear cells of marathon participants. Lianbin Xiang et al. Aug 2014).

Summary
You get all the benefits of a probiotic at a fraction of the price and without the large amount of protein found in yogurt by using Salacia Reticulata to replenish healthy levels of gut micro flora.

Yogurt Plant Synergy Formula
This makes a great probiotic for travelling. Just add it to any plain yogurt sweetened with honey.

3 drops of astragalus extract
4 drops of elderberry extract
5 drops of Salacia Reticulata (yogurt herb) extract
2 drops of Hawthorne berry extract

Now let's next briefly cover one of the most abundant substances found in grapes and wine, Anthocyanins.

Chapter 9. References. Nutrition Tips and Interesting Facts

1 - Triterpenoid herbal saponins enhance beneficial bacteria, decrease sulfate-reducing bacteria, modulate inflammatory intestinal microenvironment and exert cancer preventive effects in ApcMin/+ mice. Chen L et al. may 2016.
2 - The effect of three types of saponin on iron and zinc absorption from a single meal in the rat. Southon S et al. may 1998.
3 - Chemical diversity of ginseng saponins from Panax ginseng. ? Byong-Kyu Shin et al. Oct 2015.

Chapter 10. Anthocyanins and their Anti-aging Effects

If you have ever spilled a glass of red wine on a white pair of slacks, you know that the pants are ruined forever. This is because red wine is one of nature's most penetrating dyes. The red dye in red wine is due to the substance known as Anthocyanins.

Anthocyancins are part of the flavonoid class and the more broadly known group called polyphenols. The word anthocyancins comes from the Greek work Anthos, which means flower and the word kyanos which means blue dye. Anthocyanins are often used as synthetic dyes and natural colorants for many industrial applications and are found in abundance in elderberries and grape juice. The majority of anthocyancins are lost during food processing and anthocyanins have powerful antioxidant properties (Kähkönen MP and Heinonen M Jan 2003).

Anthocyanins exert their lifespan extension effects by stimulating the NRF2 pathway **(Modulation of Nrf2-dependent gene transcription by bilberry anthocyanins in vivo. Kropat C et al. Mar 2013)** and their bioavailability is enhanced when one first drinks grape juice or consumes red grape skins before taking consuming anthocyancins (Bioavailability of anthocyanidin-3-glucosides following consumption of red wine and red grape juice. Frank T et al. May 2003).

Cyanidin-3-sambubioside is a anthocyanin found in black elderberry extract that binds to the influenza virus (Bioavailability of Dietary Polyphenols and Gut Microbiota Metabolism: Antimicrobial Properties. Laura Marín et al. Feb 2015), (Pelargonidin-3-O-glucoside and its metabolites have modest anti-inflammatory effects in human whole blood cultures. Anna M. Amini et al. Oct 2017).

Cyanidin-3-glucoside Strengthens Bones
Cyanidin-3-glucoside was found to be a potent therapeutic agent or preventive for the bone-related diseases rheumatoid arthritis, osteoporosis and periodontitis (Dual Role of Cyanidin-3-glucoside on the Differentiation of Bone Cells. Park KH et al. Dec 2015).

What is Nrf2?
Nrf2 is a genetic pathway which activates more than 200 genes related to detoxification **(Qiang Ma Dec 2015)** and is the master redox switch and the gatekeeper of species longevity and guardian of health (Christine A. Houghton et al. Jan 2016).

Mice with short lifespans exhibit less Nrf2 activity, which decreases with age. Increased Nrf2 signaling reduces the rate at which a person ages, prolonging their life span. **(Kaitlyn N. Lewis et al. March 2015)**. Substances that stimulate Nrf2 – quercetin **(Cong Zhang et al. Oct 2017)**, selenium **(Zhang C et al. Oct 2017)** and goji berries (Jiang Cheng et al. Dec 2014), (Lycium Barbarum: A Traditional Chinese Herb and A Promising Anti-Aging Agent. Yanjie Gao et al. Dec 2017).

Nrf2 Activators
Sulforaphane (the strongest), caffeic acid phenethylester from the bee product propolis (which also has antibiotic properties), cinnamic aldehyde (found in cinnamon bark) and bardoxolone methyl (Judy B. de Haan. Nrf2 Activators as Attractive Therapeutics for Diabetic Nephropathy. Diabetes, Vol. 60, November 2011), (Caffeic acid phenethyl ester activation of Nrf2 pathway is enhanced under oxidative state. Kim H. et al. Dec 2013).

Important Note - Excessive Nrf2 stimulation can increase one's chance of pancreatic cancer or cause the body to develop a resistance to drugs and antibiotics, which is why when the body is sick, it is best to reduce antioxidant intake as well as herbal

supplement formulas (Novel drug therapy kills pancreatic cancer cells by reducing levels of antioxidants. Strategy based on mimicking the suppression of antioxidant-promoting NRF2. Science News. July 2016).

Further Reading
Role of NRF2 in protection of the gastrointestinal tract against oxidative stress. Akinori Yanaka. May 2018.

The following substances have also been shown to activate NRF2:
Curcumin (Curcumin upregulates Nrf2. Liu z et al. Feb 2016), Carnosol, Quercetin, Vitamin D, Kale, Resveratrol and Bardoxolone Methyl (a synthetic analogue of oleanolic acid) (Sulforaphane and Other Nutrigenomic Nrf2 Activators: Can the Clinician's Expectation Be Matched by the Reality?Christine A. Houghton et al. Jan 2016),

Other substances include: Cocoa **(Dietary cocoa protects against colitis-associated cancer by activating the Nrf2/Keap1 pathway. Pandurangan AK et al. Dec 2014),** Magnolia Officinalis **(Magnolia officinalis (Hou Po) bark extract stimulates the Nrf2-pathway. Rajgopal A et al. Dec 2016),** Glycyrrhiza Uralensis **(A protective mechanism of licorice (Glycyrrhiza uralensis): isoliquiritigenin stimulates detoxification system via Nrf2 activation.Gong H et al. Dec 2014)**, Thymoquinone (found in black cumin seed) significantly increases Nrf2 **(Thymoquinone attenuates brain injury via an antioxidative pathway in a status epilepticus rat modelYi-ye Shao et al. 2017)**, Hydrogen sulfide **(The gasotransmitter hydrogen sulfide induces nrf2-target genes. Hourihan JM et al. Jan 2013)**, Tangluo Ning Formula **(Mechanism of Tang Luo Ning effect on attenuating of oxidative stress et al. Yang X. et al. Nvo 2015)**, oleanic acid **(Oleanolic Acid Activates Nrf2. Scott A. Reisman et al. Apr 2010)**, green tea extract **(Protective effect of epigallocatechin-3 -gallate (EGCG) via Nrf2 pathway. Rattiyaporn Kanlaya et al. Jul 2016)**, luteolin **(The**

dietary flavone luteolin epigenetically activates the Nrf2 pathway. Zuo Q. et al. Aug 2018), olive oil and wine **(Modulation of Nrf2 by Olive Oil and Wine Polyphenols and NeuroprotectionMiriam Martínez-Huélamo et al. Sept 2017)**, ginseng **(Protective effects of ginseng on neurological disordersWei-Yi Ong et al. Jul 2015)**, kiwi fruit (which also contains vanillin) **(Actinidia callosa peel (kiwi fruit) ethanol extracts protected neural cells apoptosis induced by methylglyoxal through Nrf2 activation.Lee CC et al. Feb 2014)** and carnosol (found in rosemary) (Rosemary Extracts Upregulate Nrf2, Sestrin2, and MRP2 Protein Level in Human Hepatoma HepG2 Cells. Xiao-pei Tong et al. Feb 2017).

Further Reading

Nrf2 as a target for prevention of age-related and diabetic cataracts by against oxidative stress. Xiu-Fen Liu et al. Jul 2017

Activation of Nrf2 by Toxic Bile Acids Provokes Adaptive Defense Responses to Enhance Cell Survival at the Emergence of Oxidative Stress. Kah Poh Tan, et al. 2007.

Modulation of Nrf2 by Olive Oil and Wine Polyphenols and Neuroprotection. Martínez-Huélamo M et al. Sept 2017.

MTOR Inhibitors

Besides NRF2, MTOR Inhibitors are in the class of the top 2 that extend -lifespan. The discovery of MTOR came from studying the anti-fungal, anti-cancer and antibiotic substance **rapamycin** which was discovered in Rapa Nui (better known as Easter Island) in 1975 **(Charles Betz and Michael N. Hall Nov 2013)**. MTOR is stimulated by nutrients and inhibited by stress. This ensures that cells grow only during favorable conditions. Rapamycin has been shown to extend lifespan **(Simon C. Johnson et al. Jan 2013)**, Rapamycin fed

late in life extends lifespan in genetically heterogeneous mice (David E. Harrison. et al. Jul 2009), (Transient rapamycin treatment can increase lifespan and healthspan in middle-aged mice. Alessandro Bitto, et al. Aug 2016).

Curcumin is one of the most potent MTOR Inhibitors **(CS Beevers et al. 2013)**. Additional MTOR Inhibiting substances include EGCG **(GS Van Aller et al. 2011)**, Berberine / Metaformin **(CF Chang et al. 2016)**, Reishi **(IJ Suarez-Arroyo et al. 2013)**, Pomegranate **(N. Banerjee et al. 2013)**, Quercetin **(A Bruning et al. 2013)**, Milk Thistle **(M Gharagozloo et al. 2013)**, Grape Seed **(S Shrotriya et al. 2015)**, Carnosine **(Z Zhang et al. 2014)**, anthocyanins **(Anthocyanins target AMPK/mTOR and AMPK/Wnt pathways in exerting anti-tumor effects in colon cancer or hepatocarcinoma cells. Lee Yun-Kyoung, et al. Apr 2010)** and olive oil (Olive Oil-derived Oleocanthal as Potent Inhibitor of Mammalian Target of Rapamycin: Biological Evaluation and Molecular Modeling Studies. Mohammad A. Khanfar et al. Nov 2015).

Vitamin D3 is also an MTOR synergist (Combined therapeutic application of mTOR inhibitor and vitamin D3 for inflammatory bone destruction of rheumatoid arthritis. Tae-HwanKim et al. 2012).

Studies of Anthocyanins and Lifespan

A research study found that the anthocyanins in black mulberry fruit were responsible for prolonging the lifespan of Drosophila and that it enhanced SOD levels. The study also found that the effects were dose dependant (Effects of anthocyanins derived from Xinjiang black mulberry fruit on delaying aging. Jiang Y. July 2010).

Throughout the scientific literature, elderberry is dominant in containing above average levels of anthocyanins, however Wu et al. discovered that Aronia melanocarpa (choke berry) contains more anthocyanins / antioxidant capacity compared to the berries Ribes grossularia (gooseberry) and Sambucus nigra (elderberry).

Aronia is also unique in that it also contains above average levels of proanthocyanidins (condensed oligomeric flavan-3-ols) when included in a study involving 99 common plants (Cranberry anthocyanin extract prolongs lifespan of fruit flies. Wang L et al. Exp Gerontol. 2015 Sep; 69():189-95).

Cranberry, blueberry and black rice anthocyanins have been shown to successfully lengthen the life span in longevity studies conducted on flies (Effects of aronia extract on lifespan and age-related oxidative stress in Drosophila. melanogaster. A Reum Jo and Jee-Young Imm. Aug 2017).

Cyanidin 3 Glucosides and Cyanidin 3 Galactoside
These anthocyanins are highly water soluble thus giving them their enhanced bioavailability. Cyanidin 3 Galactoside is even better absorbed when combined with the substance apoferritin **(Anthocyanin Absorption and Metabolism. Senem Kamiloglu et al. Sept 2015)**. When participants consumed an anthocyanin-rich elderberry extract **(de Ferrars et al., 2014)** and bilberry-lingonberry puree **(Nurmi et al., 2009)**, the substances vanillic acid (VA), caffeic acid, syringic acid and ferulic acid were identified in their serum (The pharmacokinetics of anthocyanins and their metabolites in humans. R M de Ferrars, et al. Jun 2014).

Strawberries contain Cyanidin 3 Galactoside **(Sona Skrovankova et al. Oct 2015)**. In the colon, ferulic acid is produced by microbiota via vanillin (Bioavailability of Dietary Polyphenols and Gut Microbiota Metabolism: Antimicrobial Properties. Laura Marín et al Feb 2015).

Foods that contain Cyanidin 3 Glucoside
Peony, Acai, black rice, bayberry fruit, honeysuckle. 3 Glucoside is found in abundance in black elderberry, blackberries, purple corn, black soybeans, olives and apple pulp, which also contains chlorogenic acid.

References

(Cyanidin-3-O-β-glucoside Purified from Black Rice Protects Mice against Hepatic Fibrosis. Xinwei Jiang et al.2015), (The Safety and Pharmacokinetics of Cyanidin-3-Glucoside after 2-Week Administration of Black Bean Seed Coat Extract in Healthy Subjects. Sangil Jeon et al. Aug 2012), (Isolation of cyanidin 3-glucoside from blue honeysuckle fruits. Chen L. Nov 2013), Cyanidin-3-Glucoside-Rich Extract from Chinese Bayberry Fruit. Chong-Det al. Mar 2012), (Anthocyanin-rich black elderberry extract. Farrell N. et al. Apr 2015), (Polyphenol Changes during Fermentation of Naturally Black Olives. Concepción Romero et al. Mar 2004), (Dietary cyanidin 3-glucoside from purple corn. Petroni K. et al. May 2017), (Polyphenols profile and antioxidant activity of skin and pulp of a rare apple from Marche region (Italy). Giovanna Giomaro, et al. Jul 2014), (Cyanidin-3-glucoside, a natural product derived from blackberry, exhibits chemopreventive and chemotherapeutic activity.Ding M et al. Apr 2006), Cyanidin-3-glucoside derived from black soybeans ameliorate type 2 diabetes. Matsukawa T et al. Apr 2015), (Chemical taxonomy of the Xibei tree peony from China by floral pigmentation.Wang LS. Feb 2004).

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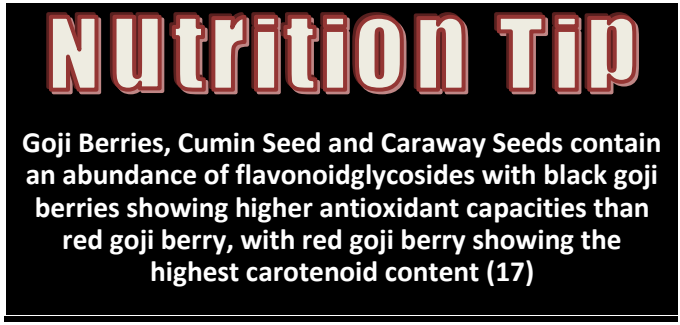
Cyanidin-3-glucoside increases whole body energy metabolism by upregulating brown adipose tissue mitochondrial function.You Y et ak, Nov 2017 ***(protection from obesity)***.



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2 - Monochromatic light increases anthocyanin content during fruit development in bilberry. Laura Zoratti, et al. Dec 2014.
3 - Bioavailability of anthocyanidin-3-glycosides following consumption of elderberry extract and blackcurrant juice. Bitsch I et al. May 2004.
4 - Bioavailability and Biokinetics of Anthocyanins From Red Grape Juice and Red Wine. Roland Bitsch et al. Dec 2004.
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7 - Anthocyanidins and anthocyanins: colored pigments as food, pharmaceutical ingredients, and the potential health benefits. Hock Eng Khoo et al. Aug 2017
8 - Anthocyanidins and anthocyanins: colored pigments as food, pharmaceutical ingredients, and the potential health benefits. Hock Eng Khoo et al. Aug 2017
9 - Effects of four different cooking methods on anthocyanins, total phenolics and antioxidant activity of black rice. Surh J and Koh E. Dec 2014.
10 - Chemical Composition and Nutritive Benefits of Chicory (Cichorium intybus) as an Ideal Complementary and/or Alternative Livestock Feed Supplement. Ifeoma Chinyelu Nwafor et al. Dec 2017

Protective Role of Ternatin Anthocyanins and Quercetin

Glycosides from Butterfly Pea (Clitoria ternatea Leguminosae) Blue Flower Petals against Lipopolysaccharide (LPS)-Induced Inflammation in Macrophage Cells. Nair V, et al. Jul 2015

Cuminum cyminum and Carum carvi: An update. R. K. Johri. Jun 2011

11 - Effect of Anthocyanin Supplementations on Lipid Profile and Inflammatory Markers: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Komal Shahcorresponding and Pratik Shah et al. Apr 2018

12 - Dietary anthocyanins as nutritional therapy for nonalcoholic fatty liver disease. Valenti L et al. 2013
13 - Looking for the physiological role of anthocyanins in the leaves of Coffea arabica. Domingues Júnior AP et al. Aug 2012
14 - Anthocyanins Function as Anti-Inflammatory Agents in a Drosophila Model for Adipose Tissue Macrophage Infiltration. Alice Valenza et al. Mar 2018
15 - Anthocyanidins and anthocyanins: colored pigments as food, pharmaceutical ingredients, and the potential health benefits. Hock Eng Khoo et al. Aug 2017

Antioxidative and Cardioprotective Properties of Anthocyanins from Defatted Dabai Extracts. Hock Eng Khoo et al. Oct 2013.

16 - Anthocyanins and Human Health: An In Vitro Investigative Approach. Mary Ann Lila Dec 2004

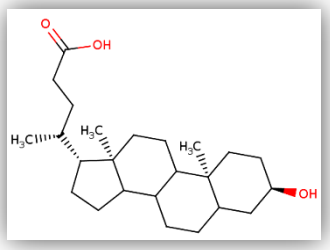
17 - Comparative studies on phenolic profiles, antioxidant capacities and carotenoid contents of red goji berry (Lycium barbarum) and black goji berry (Lycium ruthenicum) Tahidul Islam et al. Jun 2017

Evaluation of phenolic profile and antibacterial bioactivities of Nigella sativa L. seed extracts. Rana Keyhanmanesh et al. June 2017

HPLC-MSn identification and quantification of flavonol glycosides in 28 wild and cultivated berry species. Mikulic-Petkovsek M. et al. Dec 2012.

18 - Apple phytochemicals and their health benefits. Jeanelle Boyer and Rui Hai Liu et al. May 2004
19 - The Occurrence, Biosynthesis, and Molecular Structure of Proanthocyanidins and Their Effects on Legume Forage Protein Precipitation, Digestion and Absorption in the Ruminant Digestive Tract. Arjan Jonker and Peiqiang Yu. May 2017.
20 – Procyanidin Oligomers Selectively and Intensively Promote Proliferation of Mouse Hair Epithelial Cells In Vitro and Activate Hair Follicle Growth. Tomoya Takahash et al. Mar 1999.

Chapter 11. The Life Extending Effects of Lithocholic Acid



Let us now return to the health promoting power of the micro flora in our gut. The effects of the St. Germain formula target the colon, which is a region of the body where a lot of heat accumulates. In TCM, heat rises to upper regions of the body where excess amounts contribute to disease and illness. Our colon just may be the region of the body we need to look after a little more if we want a long life. After all, numerous scientific studies confirm that probtiocs, which is abundant in yogurt, extend lifespan. So what if we could narrow down the specific substances that the colon uses to extend lifespan? Let's dive into the data and uncover some clues.

Lithocholic Acid

In reviewing the anti-aging literature for colon / stomach substances that extend lifespan, we come across the substance called Lithocholic acid, **scientifically proven to extend lifespan 100%** in S. cerevisiae (Ai-Jun Ding et al. May 2017).

Lithocholic acid is **a major bile acid** excreted by mammals which has detergent like properties which allows it to easily dissolve fats allowing them to be completely absorbed by the intestine. Lithocholic acid also enhances the immune system (Lithocholic acid controls adaptive immune responses by inhibition of Th1 activation through the Vitamin D receptor. Thijs W. H. Pols et al. May 2017).

Lithocholic acid has been shown to selectively target and kill neuroblastoma cells, while sparing neuronal cells and is cytotoxic

to malignant cells, when used at the proper concentrations, with excessive amounts contributing to Cytotoxicity (Lithocholic bile acid selectively kills neuroblastoma cells, while sparing normal neuronal cells. Goldberg AA et al. Oct 2011) .

Bile Acids and Butyric Acid are associated with Longevity

A group of researchers examined the amount of **bile acid**, acetic acid, **butyric** and short chain fatty acids in a group of centurions in China. The study discovered that the total content of these acids **was significantly higher compared to the non-centurion group** and that their butyric acid levels were higher due to their consumption of high dietary fibers. The study concluded that increases of short chain fatty acids and bile acids have a positive impact on longevity and health of centenarians (Nutrient Intake Is Associated with Longevity Characterization by Metabolites and Element Profiles of Healthy Centenarians. Da Cai et al. Sept 2016).

Further Reading

Bile acid: a potential inducer of colon cancer stem cells. Lulu Farhana, et al. Dec 2016.

Summary

People who live past 100 years of age have healthier levels of bile acids, most likely due to their diet.

SIRT1 and Bile Acids

SIRT1 is an enzyme that deacetylates proteins which lengthens lifespan. Hence when protein is properly assmiliated into the body it helps strengthen the immune system (Akiko Satoh. et al. Sept 2013). SIRT1 controls liver regeneration via regulating bile acid (García-Rodríguez JL et al. May 2014).

What Exactly is Bile?

Bile acids are cholesterol-derived molecules that have detergent-

like properties. This allows them to enhance the body's absorption of dietary lipids and fat-soluble vitamins in the small intestine. This is why cholic and chenodeoxycholic bile acids are used for increasing the body's absorption of lipids and to improve liver functioning (Mechanisms Underlying the Anti-Aging and Anti-Tumor Effects of Lithocholic Bile Acid. Anthony Arlia-Ciommo. et al. Sept 2014).

Once a bile acid has been synthesized from cholesterol, it is then conjugated with taurine or glycine which than transforms it into a new substance that is impermeable to cell membranes (Alan F. Hofmann, MD. Dec 1999). **The majority of bile is made in the liver** which is than stored in the gall bladder. Bile is a key component for the proper digestion of foods and more specifically fats. Bile behaves much like adding a special ingredient to food that enhances the bioavailability of the nutrients.

Intensive studies conducted on bile acids found that chenodeoxycholic acid, deoxycholic acid, dehydrocholic acid and hyodeoxycholic acid extended lifespan (Anthony Arlia-Ciommo. et al. Sept 2014) and the administration of cholic bile acid to the food of wild-type mice has been shown to stimulate the transcription of many xenobiotic detoxification genes (Amador-Noguez D et al. Dec 2004), (Amador-Noguez D. Aug 2007)

Bile Acids Prolong Lifespan

A group of researchers found that increased bile acid levels were responsible for the longevity of a special breed of long-lived Ghrhrmutant mice. These are mice that do not secrete growth hormone. The study found that the prime mechanism for their increased bile acid levels was due to elevated **xenobiotic metabolism** via the nuclear receptor farnesoid X receptor. The purpose of the hormone receptor Farnesoid-X receptor is to regulate the homeostasis of bile acids and protect the liver. (Long-lived dwarf mice: are bile acids a longevity signal?. David Gems. Aging Cel. 2007).

As just stated, bitter tasting herbs and substances have a cleansing action by drying dampness and clearing heat. Yellow herbs like Coptidis Rhizoma affect the stomach and spleen and their roots which are yellow in color, clear damp heat through eliminative action. Hence, Coptidis Rhizoma has been used in TCM for promoting a healthy digestive and microbial environment, especially in cases where immune support is indicated.

Further Reading

Synergetic cholesterol-lowering effects of main alkaloids from Rhizoma Coptidis in HepG2 cells and hypercholesterolemia hamsters. Kou S et al. Life Sci. 2016 Apr 15; 151():50-60.

Coptis Rhizome Combinations

A study found that combining astragalus and berberine with coptidis rhizoma enhanced glucose up-take, cell differentiation and PPARgamma mRNA expression **(Wang SH et al. Oct 2004)**. To put this in plain English, it enhanced energy levels in the body (Effect of Astragalus polysaccharides and berberine on carbohydrate metabolism and cell differentiation. S. H. Wang et al. 2004)..

Speaking from personal experience, after taking a tea made with a piece of coptis rhizome (which contains berberine) the size of half a fingernail, I have noted a tremendous increase in physical endurance.

Other studies have found that a combination of astragalus root, siberian solomonseal rhizome and coptis root lower blood sugar (Experimental research of combination of astragalus root, siberian solomonseal rhizome and coptis root was found to exert Vascular-protective effects and increase SOD levels. Y. G. Song. 2002).

A combination of Rhizoma Coptidis, Radix Astragali, and Radix

Rehmanniae was found to repair and protect the pancreas (Effect of san huang compound on metabolism of glucose and lipid in type II diabetes mellitus rats. Xu Nn et al. 2008).

Steamed Rice Wine with Rhizoma Coptis

A formula consisting of Rhizoma Coptidis (Jiu Huang Lian) that was steamed with rice wine was found to be successful for treating diabetes. Researchers found that the formula contributed to a significant increase in glutathione levels and superoxide dismutase levels which are both powerful age reversal factors and that it also reduced oxidative stress and ROS (A traditional Chinese medicine JiuHuang Lian (Rhizoma coptidis steamed with rice wine) reduces oxidative stress injury in type 2 diabetic rats. Li JC et al. Sep 2013).

Why Bitter Substances Lengthen Lifespan

In a research study titled: Bitter Taste Receptor Polymorphisms and Human Aging that was published by Daniele Campa and colleagues on November 2nd, 2012, the study stated the following "We considered to investigate the possible association between bitter taste and longevity. Using tagging approaches, we looked at the associations between longevity and genetic variation at three bitter taste receptor genes in 941 people ranging from ages 20 to 106 in the South of Italy. We discovered that that polymorphism rs978739 (located near the TAS2R16 gene) shows significant associations ($p = 0.001$) with longevity."

To put this simply this specific gene that enhances lifespan is bitter tasting.

Further Reading

Bitter Taste Receptor Polymorphisms and Human Aging. Daniele Campa et al. Nov 2012.

Coptidis Rhizoma is Highly Bioavailable
Extracts of Coptidis Rhizoma have been shown to be better absorbed than that of berberine, most likely due to the presence of naturally occurring proteinaceous nanoparticles found within the plant **(Bing-Liang Ma, et al. Jan 2016)**. If you have ever handled dried Coptidis Rhizoma, it has a smooth powdery feel, similar to rough chalk and if you boil it in water, it rapidly disintegrates creating an extremely vibrant and deep yellow color. If you soak it in cool water or alcohol, it takes an extremely long time to dissolve. Hence it is very heat sensitive. The yellow color of Coptis Rhizome is largely due to its high alkaloid content which is why it has been used as a dye.

A research study found when Coptis Root was taken at the dose of 3.76 g/kg it caused injuries to the lungs and liver, due to disturbances in gut microbiota (Fan-Cheng Meng et al. Mar 2018).

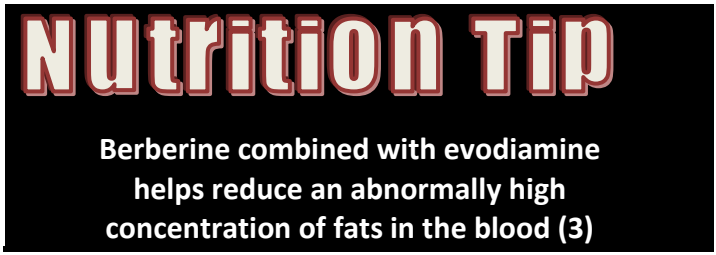
Further Reading
Water Decoction of Coptidis Rhizoma Prevents Oxidative Damage in Erythrocytes of MiceY. Xu. et al. Jun 2013.

Analgesic effect of Coptis chinensis rhizomes (Coptidis Rhizoma) extract on rat model of irritable bowel syndrome.Tjong Y. et al. Apr 2011.

Coptidis Rhizoma as a treatment for Aging
The main substances found in Coptidis Rhizoma have also been found to exert beneficial effects on many aging-related diseases (Rhizoma Coptidis and Berberine as a Natural Drug to Combat Aging and Aging-Related Diseases via Anti-Oxidation and AMPK Activation Zhifang Xu et al. December 2017).

Summary
Coptidis Rhizoma has potential to be a powerful herb to include to one's anti-aging arsenal, and when combined with exercise, may

exhibit potent life-extension properties.



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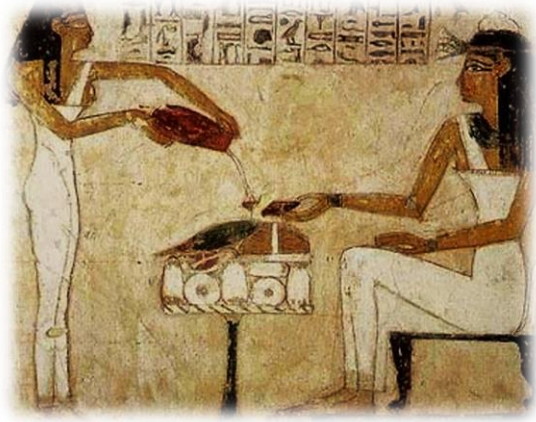
8 - Evaluation of Estrogenic Activity of Licorice Species in Comparison with Hops Used in Botanicals for Menopausal Symptoms. Atieh Hajirahimkhan et al. Jul 2013
9 - Effect of Aqueous and Alcoholic Licorice (Glycyrrhiza Glabra) Root Extract Against Streptococcus Mutans and Lactobacillus Acidophilus in Comparison to Chlorhexidine: An In Vitro Study. Sunil Lingaraj Ajagannanavar et al. Aug 2014
10 - Combination of Nigella sativa with Glycyrrhiza glabra and Zingiber officinale augments their protective effects on doxorubicin-induced toxicity in h9c2 cells. Azar Hosseini et al. Dec

2014
11 - Daily Liquorice Consumption for Two Weeks Increases Augmentation Index and Central Systolic and Diastolic Blood Pressure. Miia H. Leskinen et al. Aug 2014
12 - Antioxidant activities of licorice-derived prenylflavonoids. Hyo Jung Kim et al. Dec 2012
13 - An evaluation of the impact of aloe vera and licorice extracts on the course of experimental pigeon paramyxovirus type 1 infection in pigeons. D Dziewulska et al. Nov 2017.

Chapter 12. Ancient Uses of Bile Acids

The early Egyptian civilization was one of the longest lived civilizations in known history (from approximately between c. 3000 BCE and c. 1000 BCE). This gave them ample time to experiment with numerous substances, perfect their use and document their formulas and methods.



As covered in the previous chapter, bile has similar properties to dye, allowing it to penetrate deeply. Bile has such deep penetration properties that ancient texts mention it as a use for using bile to inscribe writings and artwork upon hard surfaces or to dissolve metals.

Dyes are easily taken up by tissues because of the structure of the dye which exhibits affinity. Affinity describes attractive forces that bind the dye to tissues. This chemical bond is formed via electrostatic attraction which occurs between two oppositely charged ions.

Dyes have the ability to penetrate deeply and cover a very wide surface area. If any of you reading this have ever used lampblack, a substance commonly used by artists, you know that even a pinhead sized amount covers an extremely large surface area. The food dye known as brilliant blue G has been found to restore function and diminish cell death after stretch injury in rat spinal cords (P2X7 receptor inhibition improves recovery after

spinal cord injury.Wang X, et al. Aug 2004). Other dyes include: black walnut, aloe vera, syrian rue, spirulina, butterfly pea (enhances GABA) and the mineral manganese, which accumulates in the body's lymph nodes. If you have ever rubbed raw aloe from a very old aloe vera plant onto your body, you will see a deep rich purple dye emerge. Aloe vera is one of the most powerful healing plants that is used to treat cancer and has many other numerous healing properties and the orange-colored pigment, Fucoxanthin, which extends lifespan 33.0% in D. melanogaster and in C. elegans 14.0% can be found in edible brown algae such as wakame (Fucoxanthin increases lifespan of Drosophila melanogaster and Caenorhabditis elegans. Lashmanova E et al. Aug 2015).

Linseed oil

Linseed oil comes from flax seeds (which contains vitexin). Like flax seed, linseed oil is abundant in terpenes and is commonly used to preserve wood as it **penetrates extremely deep into the wood**, binding to the cellulose and preserving it for generations. Now let's take a look at how the ancient Egyptians utilized bile.

The following quote is from one of the four books of Pseudo-Democritus, also known as The Physika et Mystika. Recipe 10, (on page 91 of Martelli's translation).

"Whiten Cyprian Cadmia (the cadmia being forced out of its ores). Next make it yellow using **calf bile**, or castor oil, or terebinth resin, or **egg yolks** (substances that make it yellow). Next place this upon silver. It will turn gold by means of the gold and of the ferment of gold. For nature always conquers nature."

The Leyden and Stockholm Papyri Papers

The Leyden and Stockholm Papyri is an ancient Egyptian manuscript. In the writings there are numerous references to using bile to write gold letters on Papyri. Combinations are as

follows; 1 - Saffron and tortoise bile. 2 – The flower of cencos, the white of egg mixed in a shell, white gum, and bile of tortoise with the bile of a calf serving for color. 3 – To write on highly polished marble, papyrus or parchment combine Celandine, 1 part; pure resin, 1 part; golden-colored fragile arsenic, 1 part; pure gum; **bile of a tortoise**, 1 part of liquid part of **eggs**, 5 parts; take 20 staters by weight of all these materials dried; then throw in 4 staters of saffron of Cilicia. Is to be used on papyrus, parchment and highly polished marble. 4 -Vinegar and Verdigris and oil, verdigris and **calves' bile**; these shall form emerald.

In some countries today Tortise Bile is used for improving vision and for treating Infectious eye diseases (Q-H Wang and Martin C Carey. Aug 2014).

Reference

The Leyden and Stockholm Papyri. Earle Radcliffe Caley. 2008.

Chapter 13. Hydrogen and Lifespan

The form of hydrogen that is produced by the body as a byproduct of cellular waste is hydrogen peroxide, which is a byproduct of the cell's metabolism. This type of hydrogen peroxide is bad, because it is a waste product.

Pure hydrogen that is not a product of waste is extremely good for the body and only during the last few years have we discovered its extremely powerful healing and anti-aging effects. For example one can find numerous folk remedies used for years which consists of drinking food grade hydrogen peroxide in order to detox the body and strengthen the immune system and a scientific study has shown that food grade hydrogen peroxide

exhibits neuroprotection Therapeutic potential of targeting hydrogen peroxide metabolism in the treatment of brain ischaemia. Marta Armogida et al. Jun 2012), (Hydrogen Peroxide In The Treatment Of Lupus Vulgaris And Tuberculous Abscess. Charles Herbert Gunson. Feb 1902).

Deuterium Extends Lifespan

The substance Deuterium is very close to the structure of hydrogen, being one of two stable isotopes of hydrogen. Deuterium levels naturally decline as yeast grows older **(Can heavy isotopes increase lifespan? Studies of relative abundance in various organisms reveal chemical perspectives on aging. Xiyan Li and Michael P. Snyder)** and the human body naturally absorbs and retains heavy isotopes of oxygen and hydrogen **(Deuterium exchange in humans: effect of gender, body composition and age. Goran MI et al. 1992)**.

A research study found that yeast that were given deuterium exhibited longer lifespans **(Shchepinov MS et al. 2007)**. High doses of deuterium are well tolerated well in biological systems and do not appear to do serious harm to basic biological activities **(Xiyan Li and Michael P. Snyder Aug 2016)** with deuterium being used to shrink tumors **(Gyongyi Z et al. 2013), (Naturally occurring deuterium is essential for the normal growth rate of cells. Somlyai G et al. Feb 1999)**. Deuterium extends longevity or improves certain health aspects in fruit flies, rodents, and humans, however, dosages of 50% or more (heavy water) or more shorten lifespan. This has been ameliorated by temperature elevation from 10°C to 30°C, which exhibited a protective effect of fruit flies living in hot conditions (**Deuterium Depleted Water Effects on Survival of Lung Cancer Patients and Expression of Kras, Bcl2, and Myc Genes in Mouse Lung. Zoltán Gyöngyi et al. Feb 2013)**. Hence the beneficial effects of heavy water are more pronounced with rising temperature, suggesting Deuterium protects against heat stress. Also deuterated lipids show great promise in protecting cells from ROS damage (Can

heavy isotopes increase lifespan? Studies of relative abundance in various organisms reveal chemical perspectives on aging. Xiyan Li and Michael P. Snyder. Aug 2016).

Further Reading

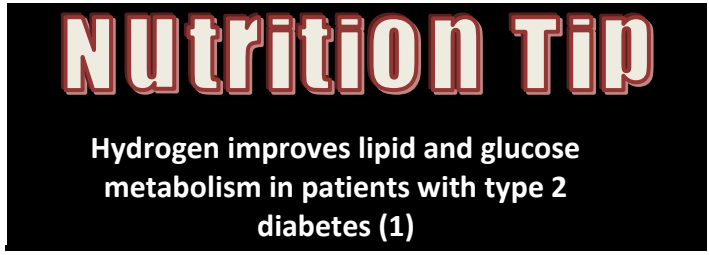
Anti-aging effects of deuterium depletion on Mn-induced toxicity in a C. elegans model. Daiana Silva Ávila et al. Apr 2012.

Deuterium-depleted water inhibits human lung carcinoma cell growth by apoptosis. Feng-Song Cong et al. Mar 2010.

Yeast longevity promoted by reversing aging-associated decline in heavy isotope content. Xiyan Li and Michael P. Snyder. Feb 2016.

Hydrogen Extends Lifespan

When one examines the published literature regarding hydrogen and lifespan, much of which has been published only within the last few years, it shows that the health effects of hydrogen on the body are remarkable.



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3 - Molecular hydrogen: a therapeutic antioxidant and beyond. Lei Huang. Dec 2016
4 - Molecular Hydrogen: New Antioxidant and Anti-inflammatory Therapy for Rheumatoid Arthritis and Related Diseases. Toru Ishibashi. Oct 2013
5 - Hydrogen saline offers neuroprotection by reducing oxidative stress in a focal cerebral ischemia-reperfusion rat model. Ying Liu. et al. Jul 2011
6 - Hydrogen gas reduces hyperoxic lung injury via the Nrf2 pathway in vivo. Kawamura T et al. May 2013
7 - Hydrogen gas improves survival rate and organ damage in zymosan-induced generalized inflammation model. Xie K et al. Nov 2010
8 - Pilot study: Effects of drinking hydrogen-rich water on muscle fatigue caused by acute exercise in elite athletes. Kosuke Aoki, et al. Jul 2012
9 - The evolution of molecular hydrogen: a noteworthy potential therapy with clinical significance. Brandon J Dixon et al. May 2013
10 - Hydrogen gas alleviates oxygen toxicity by reducing hydroxyl radical levels in PC12 cells. Junchao Yu. et al. Mar 2017
11 - Hydrogen-rich water for improvements of mood, anxiety, and autonomic nerve function in daily life. Kei Mizuno et al. Jan 2018
12 - Hydrophobic molecules slow down the hydrogen-bond dynamics of water. Bakulin AA. et al. Mar 2011
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Chapter 14. How AGE's Contribute to the Aging Process

Throughout the normal course of aging environmental factors contribute to the process of aging the most (oxidative stress, UV radiation etc.). However if you want to really accelerate the process of aging in your body, foods that contain an abundance of AGE's will do the trick.

AGE's are divided into two categories -

1 – Consuming uncooked foods that naturally exhibit a high level of AGE's.

2 - Consuming foods cooked at extremely high temperatures which increases the levels of AGE's. Many of these are processed / packaged foods.

Many AGE's act as Metal Chelators (Chelating Activity of Advanced Glycation End-product Inhibitors. David L. Price. et al. Oct 2001).

Removing Metals from Wine Extends its Lifespan
Oxygen enters wine through the cork, which then interacts with the iron in the wine causing a chain reaction that results in disagreeable tastes and smells. Two types of metals that contribute to oxidation in wine are iron 2 and iron 3. When researchers added iron 2 and iron 3 chelators to wine which included bipyridine, ferrozine, ethylenediaminetertraacetic acid and phytic acid, they discovered that it enhanced the oxidative stability of the wine. This allowed the wine to retain its aroma and taste for a longer period of time (Effect of metal chelators on the oxidative stability of model wine. Kreitman GY et al. Oct 2013).

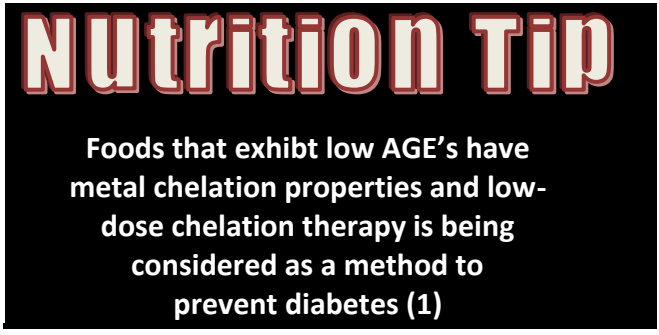
Further Reading

Chelating Activity of Advanced Glycation End-product Inhibitors. D.L. Price et al. Jan 2002.

What are AGE's?

AGE is short for the term AGE Glycation which is the result of protein bound carbonyl groups that form substances called advanced glycation end products which occur when foods are cooked at high temperature. The high temperatures form the compounds known as carcinogens which are also known as advanced glycation end products (**AGE's**). AGE's in foods cause unnecessary inflammation and oxidative stress in the body and have been linked to the recent epidemics of diabetes and cardiovascular disease **(Jaime Uribarri. et al. June 2010)**. This excessive heat also causes the proteins in the food to be mal-absorbed in the stomach. This causes the body to experience extra oxidative stress and inflammation.

Dr. Joanna Budwig discovered that the fatty substances in tumors found on her patients contained polymerized fats that were of marine animal origin. These polymers were found to occur when highly unsaturated fish and whale oils were heated to very high temperatures, which commonly occurs in the manufacturing of margarine.



The 3 main Stages of Age Glycation

During early stages of protein glycation, rutin, luteolin and quercetin exhibited significant inhibitory activity. As the middle stage approahced, rutin and luteolin developed a more significant inhibitory effect and towards the last phase of age glycation, luteolin was the most potent inhibitor of both the subsequent cross-linking of proteins and AGEs formation (Inhibitory effect of naturally occurring flavonoids on the formation of advanced glycation endproducts. Wu CH and Yen GC. Apr 2005).

AGE's Contribute to Eye Disorders

Advanced glycation end products have been implicated in vision loss, causing macula degeneration, cataract formation, diabetic retinopathy and glaucoma (Emerging role of advanced glycation-end products (AGEs) in the pathobiology of eye diseases. Kandarakis SA et al. Sept 2014).

If the method used to cook food is what's called 'dry heat', it will promote the development of AGE's up to **100-fold**. Hence potato chips are some of the worst foods containing extraordinary large amounts of with the highest AGE's.

In a study examining the AGE's in 549 foods, **oatmeal happened to be one of the foods with the lowest AGE's** [(1)]. In other words, when oatmeal was cooked, it resulted in some of the lowest AGE's out of all 549 foods tested. Extraordinary high levels of AGE's were found in beef steak and fried bacon due to these foods containing excessive proteins. It must have been fun to study and eat all the foods during the research study!

AGEs lodge themselves in the body's tissues contributing to enhanced health problems such as diabetes, cataracts, neurodegenerative diseases, including Alzheimer's disease and atherosclerosis (Advanced Glycation End Products and Diabetic Complications. Varun Parkash et al. Feb 2014).

One of the major contributors to AGE Glycation are the long-lived collagen proteins lysine and arginine **(Varun Parkash et al. Feb 2014)**. Hence, proteins exist as a double edged sword depending upon how they are processed. Arginine exhibits a 26.98% increase in oxidative stress protection **(Heran Ma et al. Sept 2016)**. However it is when the amino acid is heated to high temperatures that it causes damage to the body due to the long-lived proteins changing their structure due to the excessive heat.

Oatmeal Reduces Anxiety

When people were given an oral supplement consisting of lysine and arginine in the 1:1 ratio, they experienced a significant reduction in anxiety caused by cognitive stress as well as exhibited decreased levels of salivary cortisol (Enhanced cortisol levels are a result of aging. Oral treatment with L-lysine and L-arginine reduces anxiety and basal cortisol levels in healthy humans. Smriga M et al. Apr 2007).

Further Reading

Long-term Chamomile (Matricaria chamomilla L.) treatment for generalized anxiety disorder: A randomized clinical trial. Jun J Mao et al. Oct 2016.

Foods with an exact 1:1: Arginine / Lysine Ratio

Asparagus, mayonnaise, oat flakes, vegetarian vegetable soup, beet greens, endive, leeks and pumpkin. **Foods with a close 1:1 ratio of Arginine / Lysine Ratio include**: cooked lima beans, egg yolk, okra, broccoli, collards, strawberries and carrots (Stem Cell Rejuvenation Center, LLC. Peace Wellness Center, PLLC. What foods are high in lysine and low in arginine).

A study looked at the effects of grape seed extract on the reaction of lysine as bread was being baked [(2)]. The study found that when the grape seed extract was added to the bread before baking, it

caused up to a 50 % reduction in the cross-linking of the bread proteins, which contribute to AGE Glycation. The study found that the strong antioxidant activities of the proanthocyanidins and the catechins in the grape seed extract may have contributed to the reduction of AGE's forming as the bread was baked [(1)].

It is also interesting to note that AGE's can hinder the strength of anti-bacterials. For example the antibacterial strength of lactoferrin is hindered in the presence of AGE's (Antibacterial activity of lysozyme and lactoferrin is inhibited by binding of advanced glycation-modified proteins to a conserved motif. Li YM et al. Oct 1995).

Lactoferrin, which is found in breast milk, binds to iron and extends lifespan 26.6%. It shows stronger effects than vitamin C as well as reduces paralysis (A nutritional supplement containing lactoferrin stimulates the immune system, extends lifespan, and reduces amyloid β peptide toxicity in Caenorhabditis elegans. Patricia Martorell et al. July 2016). Lactoferrin is added to infant formula, drinks, fermented milks, cosmetics, pet-care supplements, chewing gums, and toothpastes (Patricia Martorell et al. July 2016).

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1 - Advanced Glycation End Products in Foods and a Practical Guide to Their Reduction in the Diet. Jaime Uribarri, et al. July 2013

2 - Advanced glycation End-products (AGEs): an emerging concern for processed food industries. Chetan Sharma et al. Aug 2015.

Substances that Defeat AGE's

A lab looked at the required concentrations necesary to defeat AGE's and found that quercetin exhibited the greatest inhibition

and that the lowest concentration required to defeat AGE's was found in the Tibetan herbal medicine Padma (Inhibitory actions of selected natural substances on formation of advanced glycation endproducts and advanced oxidation protein products. Ewa Grzebyk and Agnieszka Piwowar et al. Sept 2016).

There are very few packaged / processed foods in the supermarket today that any real nutrient value. The few exceptions are yogurt, kefir, cacao chocolate, pickles and sauerkraut.

Excessive AGE's Reduce Wound Healing

If the body is suffering from an external topical wound, one of the best ways to acclerate healing of the wound is to avoid foods that contain abundance of AGE's (The effects of advanced glycation end products (AGEs) on dermal wound healing and scar formation: a systematic review. Lennert Van Putte et al. Dec 2016), (Soft-tissue wound healing by anti-advanced glycation end-products agents. Chang PC et la. Apr 2014)., (Advanced glycoxidation products and impaired diabetic wound healing. Peppa M. et al. Aug 2009).

Grilled Meat and Cancer Risk

A research study found that polycyclic aromatic hydrocarbons (PAH's) formed when meat was grilled due to the smoke resulting from incomplete combustion of fat which dripped onto the fire. The study stated that PAHs cause changes in DNA that increase the risk of cancer Effects of grilling procedures on levels of polycyclic aromatic hydrocarbons in grilled meats. Lee JG et al. May 2016).

In summary, meat does not directly contribute to cancer. The risk of cancer becomes greater due to high temperatures the meat experiences which produces carcinogens. If the meat is cooked on a bar-b-que, besides PAH's, another substance produced is

benzapyrene whicih also enhances one's risk of cancer, most notably colorectal cancer (Dietary benzo[a]pyrene intake from meat and the risk of colorectal cancer. Tabatabaei SM et al. Dec 2010), (Dietary exposure estimation of benzo[a]pyrene and cancer risk assessment. Lee BM and Shim GA. Aug 2007), (Smoked food and cancer. Fritz W and Soós K. 1980).

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Chelation: A Fundamental Mechanism of Action of AGE Inhibitors, AGE Breakers, and Other Inhibitors of Diabetes Complications. Ryoji Nagai et al. Feb 2012

2 - Colic management: an interview with Professors Staiano and Miele
Annamaria Staiano and Erasmo Miele. Jun 2016.
3 - Antioxidant and Antibacterial Activity of the Beverage Obtained by Fermentation of Sweetened Lemon Balm (Melissa officinalis L.) Tea with Symbiotic Consortium of Bacteria and Yeasts. Velicanski AS et al. Dec 2014

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4 - Chemical composition and antimicrobial activity of the essential oil from leaves of Algerian Melissa officinalis L. Fahima Abdellatif et al. Jul 2014
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Siyavash Joukar and Haleh Asadipour. May 2015
7 - Anti-Stress Effects of Lemon Balm-Containing Foods. Andrew Scholey et al. Oct 2014
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9 - Anti-Stress Effects of Lemon Balm-Containing Foods. Andrew Scholey et al. Oct 2014
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Chen Y et al. Feb 2017
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16 - Repellent activities of essential oils and monoterpenes against Culex pipiens pallens. Choi WS et al. Dec 2002
17 - Study of anticandidal activity of carvacrol and eugenol in vitro and in vivo.
Chami N. et al Apr 2005.

Chapter 15. How to Slow Aging caused by Proteins

Early on in my anti-aging research studies I came across the problem of proteins. They are needed by the body for muscle growth and energy, however they also are one of the prime causes of aging, especially when taken in excess amounts. Many of these proteins are found in meats and some nuts.

Having been a semi-vegetarian for over 15 years and when I say semi, I mean on occasion I will have sardines or oysters, being able to compensate for the lack of animal protein by taking herbs and herbal formulas (the Carnosine mix formula) that create energy in the body rather than protein has worked extremely well for me. Also practicing QI Gong energy generation exercises has been extremely helpful.

I understand that the body needs protein. However, research has proven that protein, especially protein from meat causes diabetes and heart problems if taken in excess **(Unprocessed Red and Processed Meats and Risk of Coronary Artery Disease and Type 2 Diabetes. Renata Micha, et al. Dec 2013), (Red meat consumption and risk of heart failure in male physicians. A Ashaye et al. Aug 2010)**. Also excess protein in the body, especially some proteins that have been cooked, are not able to be properly digested, which in turn weakens the body's immune system and excess amounts of even healthy proteins such as the protein in nuts contribute to problems **(Impact of Dietary Protein Concentration and Quality on Immune Function of Cats. Nadine Paßlack et al. Jan 2017)**.
Today's top anti-aging researchers know this and are working on a pill or enzyme (pepsin for example is one enzyme that dissolves proteins) that you could take before eating which would greatly reduce the effect protein has on the body's aging process. For

example, pineapple, which contains an abundance of pepsin has been suggested as a method to digest fish **(Prawang T et al. 2002)**. The top portion of the stomach produces a form of pepsin to help digestion, which declines after a person reaches approximately 70 years of age (Didier Rémond et al. May 2015).

Protein Glycation

Protein glycation occurs via the generation of free radicals via the autoxidation of glucose glycated proteins and via an interaction with AGEs via cell surface receptors (referred to as RAGE) (Natural products as anti-glycation agents: possible therapeutic potential for diabetic complications. Elosta A et al. Mar 2012).

Chapter 17. Sulforaphanes. The Deeply Penetrating Detoxer

The ability of the body's cells to remove / detox waste(s) from them slows as the body ages. A temporary "flush" of these toxins once or twice a week with the right formula can help the cells detoxify much more efficiently. While there are many substances that detox the body, the main drawback is their inability to be properly absorbed and completely metabolized by the body.

One substance that is extremely easily absorbed into the body is Sulforaphane which is found in abundance in broccoli and 3 day old sprouted broccoli as well as cauliflower **(Bioavailability of sulforaphane from two broccoli sprout beverages: Results of a short term, cross-over clinical trial in Qidong, China Patricia A. Egner et al. Mar 2012), (Sulforaphane and TRAIL induce a synergistic elimination of advanced prostate cancer stem-like cells. Sabrina Labsch et al. May 2014)**. Sulforaphanes are much better absorbed into the body than polyphenols and are easily destroyed by cooking or high temperature which is why they are best taken as a supplement. Speaking from personal experience, I have found that making an extract out of a sulforaphane supplement works extremely well. It is rather interesting to note here that the substance hydrogen sulfide has been found to alleviate postharvest senescence of broccoli, meaning that it preserves the broccoli and that hydrogen sulfide extends lifespan 75% and regulates SIR-2.1. Hence further research studies may find that hydrogen sulfide enhances the bioavailability of sulforaphane even further. **(Hydrogen sulfide increases thermotolerance and lifespan in Caenorhabditis elegans. Dana L. Miller and Mark B. Roth. Dec 2007), (Hydrogen Sulfide Alleviates Postharvest Senescence of Grape by Modulating the Antioxidant Defenses. Zhi-Jing Ni, et al. Aug 2016)**.

Sulforaphane also activates NrF2 (Sulforaphane and Other Nutrigenomic Nrf2 Activators: Can the Clinician's Expectation Be Matched by the Reality? Christine A. Houghton, et al. Dec 2015).

Sulforaphane also has the rare ability to target malignant cancer stem cells, which are almost imposible to access using conventional cancer treatments (Sulforaphane and related mustard oils in focus of cancer prevention and therapy. Ingrid Herr et al. Dec 2012)

Myrosinase foods boost sulforaphane absorption
Temperatures above 86 degrees farenheight destroy myronsinase so these substances should be eaten raw, steamed or lightly cooked. Myronsinase foods include white mustard, turnip, radish (contains the highest amount of myronsinase), kale, cabbage and yellow mustard, wasabi, daikon, gardencress, rapeseed and bok choy. Microwaving destroys Myrosinase (Supplementation of the Diet by Exogenous Myrosinase via Mustard Seeds to Increase the Bioavailability of Sulforaphane in Healthy Human Subjects After the Consumption of Cooked Broccoli. Olukayode Adediran et al. May 2018), (Masahiko Ishida et al. May 2014).

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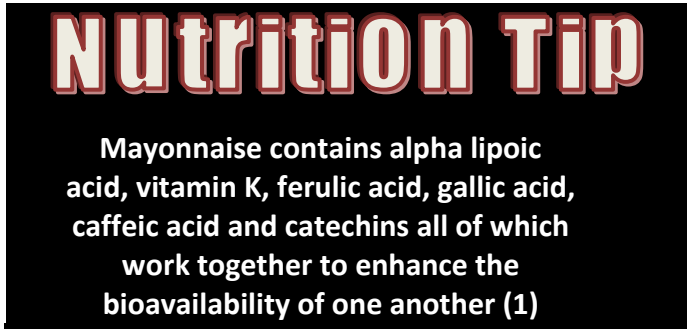
Mproving The Health Benefits Of Broccoli Through Myrosinasemaintenance. Edward Barrett Dosz. University of Illinoisat Urbana-Champaign. 2014.



Sulforphane Synergy

Because sulforaphane enhances Tau degradation through the activation of nuclear factor erythroid 2-related factor 2 (Nrf2), another substance that also does the same is cinnamaldehyde **(Hanh M. Pham et al. June 2018)**. This is why adding cinnamon with sulforaphane works extremely well. Cinnamaldehyde is the substance that gives cinnamon its odor and flavor and is found in the bark of cinnamon trees, camphor and cassia. Hence this is why cinnamon is included in the sulforaphane formula shown in this book.

Additional Sulforaphane Synergists

Benzyl sulforaphane was shown to be superior to sulforphane for the prevention and treatment of liver cancer (Benzyl sulforaphane is superior to sulforaphane in inhibiting the Akt/MAPK and activating the Nrf2/ARE signalling pathways in HepG2 cells. Ren J et al. Dec 2018).

Sulforphane combined with eugenol exhibits cytotoxicity in human cervical carcinoma cells (The Dual Antioxidant/Prooxidant Effect of Eugenol and Its Action in Cancer Development and Treatment. Daniel Pereira Bezerra, et al. Dec 2017).

Quercetin, Catechines **(Sulforaphane, quercetin and catechins complement each other. Mahesh Appari et al. Jul 2014)**, Maitaki Mushroom Extract **(The synergistic effect of a sulforaphane and maitake mushroom extract combination on the expression of the detoxifying enzymes. Grace A. Cornblatt et al. Nov 2013)**,

Maitake exhibits synergy when combined with Ashwagandha to strengthen the immune system (Immune enhancing effects of WB365, a novel combination of Ashwagandha (Withania somnifera) and Maitake (Grifola frondosa) extractsVaclav Vetvicka and Jana Vetvickova. Jul 2011).

Vitamin D **(Synergistic Mediation of Sulforaphane and Vitamin D. Brianna H. Lee et al. 2018)** and Alpha Lipoic Acid

(Sulforaphane and alpha-lipoic acid upregulate the expression of the pi class of glutathione. Lii CK et al. Mar 2010), The Pharmaceutical sorafenib **(Synergistic activity of sorafenib and sulforaphane abolishes pancreatic cancer . Rausch V et al. Jun 2010)** and Isothiocyanates **(Synergistic effect of combination of phenethyl isothiocyanate and sulforaphane or curcumin and sulforaphane in the inhibition of inflammation. Cheung KL et al. 2009)**. Isothiocyanates are found in – wasabi, mustard, horseradish, radishes, Brussels sprouts, capers (which contains an abundance of quercetin), papaya seeds, watercress and nasturtiums (Dietary Glucosinolates Sulforaphane. Francisco Fuentes et al. Jan 2015).

While further research is necessary, Nictoinamide Riboside, which is a form of Vitamin D3 that shares a close relationship to niacin and is found in brewer's yeast, may also exhibit extreme synergy.

Interesting Facts about Sulforaphane
Synergizes with Quercetin and Catechins (2)
Removes constipation (3)
Protect against skin cancer and melanoma (4)
Has been found to be benefical in treating Alzheimer's Disease (5)
Sulforaphane with Reserveratrol in low amounts treats glioma. Glioma is tumor which occurs in the spinal cord and brain (6)
Sulforaphane is also very good for strengthening the gums and loose teeth (7)
Sulforaphane and Alpha Lipoc Acid activate NRF2 (8)
Sulforaphane levels increase in stored broccoli (9)
Exhibits strong radioprotective properties (10)
Dramatically reduces the incidence of colon cancer and breast cancer and exhibits multi-anti-cancer properties (11)

Reduces symptoms of Autism (12)
Reduces depression and inflammation (13)
Is seen as a very promising substance for anti-aging drugs (14)
Has a very low molecular weight (a common attribute of the most potent anti-aging substances) (15)
Allyl-Isothiocyanates (which are usd as a plant defence) which are found in Mustard Seeds, Wasabi, Cabbage and Japanese horseradish,(the best) enhance sulforaphane bioavailability (16)

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Chapter 18. Rashnya Ayurvedic Formulas and Herbs

I am sure some of you reading this have heard or read of stories of Indian holy men who live to very old ages. Yet very few people know that the secret to their advanced ages is not specific yogic exercises, but also due to certain herbs that they consume. These herbs are found in the Rashnya branch of Ayurvedic anti-aging medicine. Rashnya contains some of the most potent anti-aging herbs you are ever likely to find.This specific chapter is devoted to these types of herbs along with published studies verifying their effectiveness.

One key thing to look for in a Rashnya anti-aging herb is for herbs that keep the lungs in good health. When the lungs of the body are strong and healthy, not only does good health follow, but the body's ability to age is greatly reduced. Potent herbs that exhibit anti-aging properties strengthen and clear the lungs. Rashnya lung herbs include – Elecampane, Codonopsis, Guduchi and Platycodon. The Platycodon flower is discussed in patent #KR101658515B1 for use as an anti-aging substance.

Enter the Mysterious and Facinating World of Rashnya

Rashnya anti-aging herbal formulas have been perfected over hundreds, if not thousands of years in India. Swet Musli (Chlorophytum Borivilanum Tuberosum) is one of the most important Rashnya anti-aging herbs.

The Sweet Longevity Properties of Swet Musli

Swet Musli (Chlorophytum Borivilanum Tuberosum) is one of the most powerful longevity herbs, extending lifespan up to 41% **(Steve Thomas Pannakal, et al. July 2017)**. It also boosts hyaluronic acid levels which is a form of moisture that the skin produces which offsets wrinkles. It also contains an abundance of glycosides, saponins, starch, acetic acid and protein and is

abundant in phytochemicals and saponins which strengthen cognition. It has also been used to treat male impotency and improve sex drive, thus earning the nickname “Herbal Viagra.“

Swet Musli (Chlorophytum Borivilanum Tuberosum), contains within its structure an abundance of starch, which as shown in an earlier Chapter where rats fed cooked potatoes (retrograded starch) exhibited a high daily excretion of lithocholic acid, which extends lifespan 100%. Hence it may be that Swet Musli also helps maintain healthy levels of lithocholic acid in the body due to its high levels of starch.

One of the most remarkable things about Swet Musli is that it has been scientifically proven to be twice as powerful of reservatol, extending lifespan up to 50% **(Steve Thomas Pannakalet al. July 2017)**. If you have ever made an alcohol extract of Swet Musli, after 6 weeks it turns into the brightest golden yellow color you ever did see.

In many of the ancient chinese texts on anti-aging, they state that some elixirs that extend life consist of a deep golden yellow color, as are many of the anti-aging herbs shown in this book.

Swet Musli also greatly improves semen quality and enhances cognitive functioning which is one of the main clues that it is a powerful anti-aging herb. When Swet Musli is combined with licorice root, it greatly strengthens the lungs and clears any obstructions in the lungs, which is why licorice root inhibits lung cancer and fibro sarcomas **(Herbal medicinal plants as an anticancer agents. Polu P et al. Annals of Phytomedicine. 2015;4(1):37–45)**. It has also been used to treat rheumatoid arthritis **(Qing-Chun Huang et al. Oct 2015)**. The only herb which exerts similar properties is Gotu Kola. Herbs with properties similar to Swet Musli include – Mucuna Pruriens, Curculigo Orchioides, Astercantho Longifolia. These herbs also modulate the levels of the pituary hormones.

When licorice root is combined with Mucuna Pruriens, it significantly extends lifespan (Effect of Mucuna pruriens seed and

Glycyrrhiza glabra root extract on longevity of Drosophila melanogaster and vestigial wing mutant. Palaksha Pala et al. Feb 2015).

Further Reading

Chlorophytum borivilianum (Safed Musli) root extract prevents impairment in characteristics and elevation of oxidative stress in sperm of streptozotocin-induced adult male diabetic Wistar rats Nelli Giribabu. et al. 2014.

Iliaceae Species

Swet Musli comes from the Iliaceae family of plants which includes Lilies and tulips and the three main species - C. Arundinaceum, C. Tuberosum and C. Borivilianum. Cholorophytum Borivillianum is grown in India in the states Maharashrta and Jharkhand. The root is reputed to endow the user with youthfulness, vitality, rejuvenation and a conjugal capability, which is why it is commonly called "**white gold**" or divya Aushad. It is also used as a sex tonic to alleviate sexual disorders and is also used to treat male impotency. Speaking from personal experience, it is only one of a few herbs that gives one a youthful appearance.

More Powerful than Cholorophytum Borivilianum
C. Amaniense Engl showed a whopping 87% free radical quenching activity and exerted 30% more free radical protection than C. borivilianum. Amaniense Engl also contains an abundance of phenols, flavonoids and saponins (Comprehensive investigation of free radical quenching potential, total phenol, flavonoid and saponin content, and chemical profiles of twelve Chlorophytum Ker Gawl. species. Shweta S Shinde et al. Jan 2016).

Vayasthapana Rasayana
The Ayurvedic formula known as Vayasthapana Rasayana exhibits strong free radical quenching capacity and has been recommended in the scientific literature as an anti-oxidant to fight age-related problems (Evaluation of free-radical quenching properties of standard Ayurvedic formulation. Vayasthapana Rasayana and Sourav Mukherjee, May 2011).

Now let's take a look at some more Rashnya Anti-aging herbs and Formulas.

Guduchi Churna
Increases lifespan 85.91% (Rasayana effect of Guduchi Churna on the life span of Drosophila melanogaster. Pankaj Pathak et al. Mar 2016).

Phyllanthus Amarus (Gale of the wind)
Phyllanthus species are some of the most potent rejuvenative herbs in Ayurvedic anti-aging medicine. Extracts of Herbaceous Phyllanthus have been shown to significantly increase mean lifespan by 75% (Herbaceous Phyllanthus species extracts promotes longevity in Drosophila melanogaster. Manasa N and Ashadevi JS. Department of Zoology, Yuvaraja's College (Autonomous), University of Mysore, Mysore-570005, Karnataka, India).

Phyllanthus Amarus
This plant has also been shown to significantly enhance SOD levels (Impact of Phyllanthus amarus extract on antioxidant enzymes in Drosophila melanogaster. N. Manasa and J. S. Ashadevi. Dec 2015).

Further Reading
Phyllanthus amarus extract administration increases the life span of rats with hepatocellular carcinoma. Rajeshkumar NV et al. Nov 2000.

Penstemon debilis (Parachute penstemon or Parachute beardtongue) Increases lifespan 60.32 % (Longevity studies in Drosophila melanogaster supplemented with selected herbaceous Phyllanthus species extract).

Terminalia Chebula
Like the herb Amalaki Rasayana mentioned earlier, Terminalia Chebula has also been shown to prevent the shortening of telomeres by 40% (Cytoprotective effect on oxidative stress and inhibitory effect on cellular aging of Terminalia chebula fruit. Na M et al. Sept 2004).

Free radical tests conducted on Terminalia Chebula found that it exhibited radical scavenging activity of up to 84.64%. The study also found that Terminalia Chebula exhibited an extremely high stimulation index on human fibroblast proliferation, being more active than ascorbic acid. This is a major finding because absorbinc acid (vitamin C) is one of nature's most powerful antioxidants (In vitro anti-aging activities of Terminalia chebula gall extract.

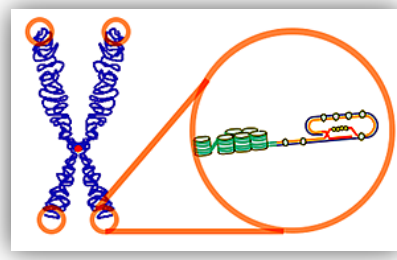
Manosroi A et al. April 2010).

Terminalia Chebula fruit has also been shown to elongate the life-span of HEK-N/F cells by 40%. (Cytoprotective effect on oxidative stress and inhibitory effect on cellular aging of Terminalia chebula fruit. Na M. et al. Sept 2004).

The link between the Resistance to Oxidative Stress and Lifespan

One of the longest lived plants, Lomatia tasmanica, has been cloning itself for 43,600 years (shown in picture on previous page). The plant is a perennial and studies show that perennial plants are more resistant to environmental stresses than annual plants. A study found that Lomatia **tasmanica exhibits enhanced resistance to oxidative stress and that this resistance to oxidative stress may be responsible for its longevity (Extreme** longevity is associated with increased resistance to oxidative stress in Arctica islandica, the longest-living non-colonial animal. Ungvari Z. et al. Jul 2011), (**Perennial Roots to Immortality**. Sergi Munné-Bosch. Feb 2014).

Excessively long Telomeres cause DNA Damage



One of the prime conditions caused by taking too much of an anti-aging substance is DNA damage and increased cancer risk. A study found that excessively long telomeres caused increased DNA damage, possibly by augmented telomere replication stress. The study concluded that excessive telomere length compromised the stability of the telomere, promoting the formation of single-stranded telomeric circles of DNA causing enhanced sensitivity of stem cells that lead to replication stress via overly long telomeres **(A balance between elongation and trimming regulates telomere stability in stem**

cells. Teresa Rivera, et al. Dec 2016). Hence, there exists a sweet spot of having telomerase that is not too short and not too long. The best rule is to take a variety of anti-aging substances spaced apart at appropriate days, as I shall shown in the forthcoming chapter titled: The 4 Main Elements.

Chapter 18. References. Nutrition Tips and Interesting Facts

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Chapter 19. The Five Longevity Formulas

The Most Promising Anti-Aging Substances

As of 2018, metformin, statins, newer generation ß-adrenergic receptor inhibitors, beta-blockers, thiazolidinediones, renin-angiotensin-aldosterone system inhibitors and anti-inflammatory medications are the most promising substances that extend lifespan (Physiological geroscience: targeting function to increase healthspan and achieve optimal longevity. Seals DR et al. J Physiol. 2016 Apr 15; 594(8):2001-24).

Statins are found in onions, oyster mushrooms, soy products, cauliflower, red yeast rice, apples and oranges (Implementation of longevity-promoting supplements and medications. Alexander Vaiserman and Oleh Lushchak. July 2017).

In the study titled Current Perspective in the Discovery of Anti-aging Agents from Natural Products that was published by Ai-Jun Ding and colleagues in May of 2017, the report stated that out of 55 substances and extracts from natural products, 8 were tested in mice, 14 in fruit fly and 29 in C. elegans. The report stated that the majority of these substances presented antioxidative activity. Among the 62 substances that were used in clinical medicine and that exhibited anti-aging activity, three of them (metformin, rapamycin and caffeine) showed anti-aging activities in three models of aging six (minocycline, phenformin, aspirin, berberine, huperzine A and vitamin E) in two aging models, two (melatonin and buformin) in rats, four (ivabradine, nebivolol, acarbose and metoprolol) in mice, 8 in D. melanogaster and 37 in C. elegans.

The five longevity formulas I am about to reveal to you are the result of experimentation over the years of formulas that rejuvenate the body. The ingredients in each formula consist of substances scientifically proven to extend lifespan and many exhibit strong synergy, allowing you to use less than is necessary. This means that the ingredients in the formula can last for literally

years. While some of these formulas have already been listed throughout this book, this chapter makes them all available in one easy to use reference.

The 5 Anti-Aging Longevity Formulas

The most powerful anti-aging substances affect / nourish three main regions of the body – The Lungs, The Brain and the Colon. Beneficial side effects from taking these formulas include stronger eyesight, an increased resistance to diabetes and a significant improvement in the bioavailability of nutrients from meals a few hours after taking the formula(s).

These formulas can be incorporated into any anti-aging plan completing one's desire for an effective and simple anti-aging strategy. If you don't want to use the formulas, this text also lists numerous single herbs and herbal formulas scientifically proven to extend lifespan in some cases up to 70% or more.

The Longevity 5 Formulas

The Carnosine Formula – Creates new physical and mental strength the following morning when taken before bedtime.

The St. Germain Formula – Immediately relieves damp and / or constipation, restores circulation and strengthens the eyes.

The Swet Musli Formula – Strengthens and clears the lungs and stimulates mental activity.

The Sulforaphane Detox Formula– Powerful detoxification at the microcellular level.

The Vitexin Formula - Protection from heat stress /

strengthens eyes – When taken before a workout, appears to cause the body to age backwards.

Of all the formulas mentioned in this chapter, the four most powerful ones that get immediate results are -

The Carnosine Formula
This is an excellent formula for boosting the immune system, increasing energy levels and for developing strong and flexible bones. The formula is best taken before going to bed at night.

Pre-Meal Combinations that will add a boost
After taking any one of the meals below, wait 45 minutes than take the formula. 45 minutes is the average length of time nutrients from foods reach their peak absorption into the body.

1- Foods that contain an abundance of niacin and melatonin. Examples include oatmeal or mushrooms.

2- A food that enhances SOD (superoxide dismutase levels) Roobios Tea (Aspalathus linearis).

3 - A food that contains an abundance of chlorophyll. Examples include Spinach or Wheatgrass.

4 – A food that is high in sugar moieties such as Grape Juice. Take this 10 minutes before the Carnosine formula.

The Carnosine Mix Formula
Add the following extracts to 1 cup of spring water (alkaline)
7 drops of Elderberry Extract (annoycians)
7 drops of Astragalus Extract (builds bones)
5 drops of Milk Thistle Extract (stimulates bile)
2 drops of Cayenne Pepper Extract (catalyst)
1 drop of limonene (antioxidant)
1 teaspoon of Brewer's Yeast (B vitamins)

As you drink the water, take the following capsules:

1,000 mg of carnosine
200mg of Grape seed Extract
1 to 2 Vitamin C Capsules
4 Cod Liver Oil Capsules (Vitamin D)
7,000 IU of Vitamin D3
5 drops of Ormus (Optional - enhances the absorption of all the aforementioned ingredients)
2 to 3 tablespoons of honey

Chapter 19. References. Nutrition Tips and Interesting Facts

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Protective Effects of 2,3,5,4'-Tetrahydroxystilbene-2-O-ß-d-glucoside on Ovariectomy Induced Osteoporosis Mouse Model. Kim SJ et al. Aug 2018
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19 - Centella asiatica in cosmetology. Wieslawa Bylka et al. Feb 2013
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Chapter 20. Anti-Aging Substances that extend lifespan 25% or more

The following substances shown in the preceding pages have been taken from an intensive study examining multiple herbs and substances that extend lifespan. The study is titled: **Current Perspective in the Discovery of Anti-aging Agents from Natural Products. Ai-Jun Ding et al. May 2017**.

Astaxanthin (an algae) - 29.0% increase in mean lifespan in C. elegans
Curcumin - 25.8% increase in mean lifespan in D. melanogaster. Notes: Curcumin at high doses exhibits cyotoxity.
Fucoxanthin - 33.0% increase in mean lifespan in D. melanogaster Notes: Fucoxanthin is an orange-colored pigment that is found in edible brown algae such as wakame.
Acacetin - 27.3% increase in mean lifespan in C. elegans.
Acetic acid (vinegar) - 23.0% increase in mean lifespan in C. elegans.
a-Ketoglutarate - 50.0% increase in mean lifespan in C. elegans. Notes: Alpha-ketoglutarate is made from the amino acids ornithine and glutamine.
Baicalein - 24.0% increase in mean lifespan in C. elegans. Notes: Baicalein is particularly effective against several cancers. Baicalein is part of the herbal known as Chinese skullcap (or Huang Qin),which also contains an abundance of melatonin.
Catalpol - 28.5% increase in mean lifespan in C. elegans. Catalpol is found in Rehmannia glutinosa.
Dimethyl sulfide - 24.2% increase in mean lifespan. Notes: Dimethyl sulfide is a metabolite of marine algae or fermentative bacteria.
Gallic acid - 25.0% increase in mean lifespan in C. elegans. Notes:

Gallic acid is found in red wines, green teas and beriberry leaves. Note: A combination of Syzygium Aromaticum and Curcuma Aromatica enhances absorption of gallic acid.
Gluconate - 22.0% increase in mean lifespan in D. melanogaster.
Hesperidin (an anti-inflammatory) - 37.0% increase in mean lifespan in S. cerevisiae. Notes: Hesperidin is found in Citrus genus.
Icariin - 20.7% increase in mean lifespan in C. elegans. Notes: Icariin is found in Herba epimedii.
Arginine amino acid - 27.0% increase in oxidative stress protection and a 370% in heat stress protection in C. elegans. Notes: Radishes contain an abundance of arginine and anthocyanins.
Vitamin E – reduced oxidative stress in aged rats and extended lifespan 23.0% in C. elegans.
Polydatin - 62.1% increase in mean lifespan in C. elegans (Probing the anti-aging role of polydatin in Caenorhabditis elegans on a chip. Wen H et al. 2014). Notes: Polydatin is found in grape juice.
Ligusticum Chuanxiong extract – significant extension of lifespan (Wang X et al. Apr 2010).
Tetra-hydrocurcumin - 28.0% increase in mean lifespan in D. melanogaster. Notes: Tetra-hydrocurcumin is found in Biotransformed metabolite of curcumin contained in turmeric of Indian curry.
Curare - 34.0% increase in mean lifespan. Notes: Curare is found in Chondrodendron tomentosum and Menispermaceae or Strychnos.
Genistein - 27.9% increase in mean lifespan. Notes: Genistein is found in Vigna angularis and soybeans.
Verminoside - 20.8% increase in mean lifespan. Notes: Verminoside is found in Stereospermum suaveolens.
Trehalose - 32.0% increase in mean lifespan. Notes: Trehalose is found in Disaccharide of glucose.
Chicoric acid - 21.0% increase in mean lifespan. Notes: Chicoric acid is found in Caffeoyl derivative.

ß-Dihydro-agarofuran-type sesquiterpenes - 38.0% increase in mean lifespan. Notes: ß-Dihydro-agarofuran-type sesquiterpenes are found in the Seeds of Celastrus monospermus.
(R)-2-Hydro-xyglutarate - 43.0% increase in mean lifespan. Notes: (R)-2-Hydro-xyglutarate is found in Oncometabolite.
Juglone - 29.0% increase in mean lifespan. Notes: Juglone is found in the roots, leaves, woods and fruits of walnut trees as well as walnut hulls.

Chapter 20. References. Nutrition Tips and Interesting Facts

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Novel biopreservatives to enhance the safety and quality of strawberry juice. B. Tomadoni et al. Oct 2015.

Chapter 21. Superfruits, Nature's Power Packed Foods

Superfruits are amazing foods that contain an above average number of life-giving nutrients. For example, many superfruits contain an abundance of proanthocyanidins, hydrolysable tannins, **anthocyanins**, courmarins, iridoids and carotenoids **(Superfruits: Phytochemicals, antioxidant efficacies, and health effects - A comprehensive review. Chang SK et al. Jan 2018)**. Because of this, only a small portion is necessary in order to reap the many nutritious benefits. The superfruits we shall cover in this chapter include: Camu Camu, Goji Berries, Acerola, Acai, Pitanga, Noni, Jaboticaba, Jambolao and Maqui.

Camu **Camu**

The camu camu fruit is one of nature's richest sources of Vitamin C. Camu camu contains the eye strengthening substances zeaxanthin, beta carotene and luteoxanthin. It also contains an abundance of **gallic acid**, vitamin C and phenolics as well as the anthocyanins Cyanidin 3 glucoside (up to 89%). Camu camu also contains all-trans-lutein and ellagic acid. (Determination of anthocyanins from camu-camu (Antioxidant and Associated Capacities of Camu Camu (Myrciaria dubia): A Systematic Review. Paul C. Langley, et al. Jan 2015), (Myrciaria dubia) by HPLC-PDA, HPLC-MS, and NMR.. Zanatta CF et al. Nov 2005).

Interesting Facts about Gallic Acid
A combination of Curcumin and gallic acid act as a powerful anti-inflammatory (1)
Catechins and Gallic Acid absorption is enhanced with grape seed extract (2)
Is found in Siberian Geranium which promotes hair growth (3)
When combined with curcumin, gallic acid exhibits a synergy, enhancing anti-oxidation (4)
Is radioprotective (5)
Has properties similar to dyes, as it deeply penetrates (6)
Gallic acid, as does Carvacrol, reduces Periapical, a form of perodontal inflammation with Carvacrol helping to repair periapical tissues (7)
Is found in Walnuts, Grape Seed Extract and Pomegranate Seed Extract, which all relieve toothache (8)
Is also found in Gingko, Marjoram, Eggplant and Chicory leaves (9)
The highest levels of Gallic Aicd are found in chestnuts followed by pomegranate, black raspberry and blueberries (10)

Bacaba, Tucumã and Inajá
Contains extremely high ORAC (antioxidant) levels (Amazonian Native Palm Fruits as Sources of Antioxidant Bioactive Compounds. Mary de Fátima Guedes dos Santos et al. Sept 2015).

Jambolao
Contains an abundance of Pinene which makes it a powerful antimicrobial substance (Syzygium cumini (L.) Skeels essential oil and its major constituent α-pinene exhibit anti-Leishmania activity through immunomodulation in vitro. Rodrigues KA. et al. 2015)

Jaboticaba
Contains an abundance of ellagic acid, gallic acid and cyaniding 3 glucoside (Lee et al. 2012;Mikulic-Petkovsek et al. 2015:Häkkinen et al. 1999;de Ancos et al. 2000;Landete 2011;Abe et al. 2012;), (Potential dietary sources of ellagic acid and other antioxidants among fruits consumed in Brazil: jabuticaba (Myrciaria jaboticaba (Vell.) Berg). Abe LT. et al. Jun 2012).

Pitanga
Contains an abundance of cyanidin 3 glucoside and quercetin Identification and Quantification of Oxidoselina-1,3,7(11)-Trien-8-One and Cyanidin-3-Glucoside as One of the Major Volatile and Non-Volatile Low-Molecular-Weight Constituents in Pitanga Pulp. Denise Josino Soares et al. Sept 2015).

Maqui
Contains an abundance of Ellagic Acid and phenolics (Detailed analyses of fresh and dried maqui (Aristotelia chilensis (Mol.) Stuntz) berries and juice. Brauch JE. et al. Jan 2015).

Acerola
Acerola juice contains more antioxidants thengrape, strawberry or apple juices (Bioactivities and Health Benefits of Wild Fruits. Ya Li et al. Aug 2016), (Acerola, an untapped functional superfruit: a

review on latest frontiers. Prakash A and Baskaran R. Sept 2018).

Goji Berry

Contains an abundance of zeaxanthin, **vannilic acid**, polysaccharides, quercein, terpinenes and courmaric acid. When taken with milk it increases zeaxanthin and antioxidant levels. It also contains **the highest ORAC values of any known superfruit**. Goji berries found in the region of Mongolia contain higher levels of **quercetin**, flavonol glycosides and kaempferol glycosides compared to goji berries grown in other regions (Bioactive compounds and antioxidant activity of wolfberry infusionYujing Sun et al. Jan 2017), (HPLC-MSn identification and quantification of flavonol glycosides in 28 wild and cultivated berry species. Mikulic-Petkovsek M et al. Dec 2012), (Superfruits: Phytochemicals, antioxidant efficacies, and health effects – A comprehensive review.Sui Kiat Chang et al. Jan 2018).

Goji berries also have been found to protect the body against oxidative damage that occurs in skeletal muscle caused by exhaustive exercise **(Niu et al. 2008), (Zhao et al. 2005)** as well as exhibit antifatigue properties (Luo, Yan and Zhang 1999).

The Super Nutrient Properties of Bamboo Salt

Bamboo salt has been shown to have up to 81.4% higher radical scavenging activities than standard salt (Kim et al. (2010), (Zhao et al. (2012), (Effect of bamboo salt on the physicochemical properties of meat emulsion systems. Hack-Youn Kim et al. Dec 2010). .

Bamboo Salt originated in Korea 1,000 years ago and was originally developed by Korean doctors and monks as a folk remedy for various illnesses. Bamboo Salt is made by

placing sea salt into cases made from bamboo trunks with 3 years of growth. After the salt is placed inside the trunks, the ends of the bamboo are sealed with yellow clay which is rich in minerals. The trunks are then placed in a pinewood log furnace for 10 hours at a temperature between 1,000 to 1,500 C. In some cases, the procedure is repeated three to nine times.

Bamboo salt has been used to treat the following – allergies, gastric ulcers, arthritis, cavities, diabetes, cancer, yeast infections, sore throats and more. Bamboo is also highly alkaline making it a super powerful way to rapidly alkalize the body.

Some people will mix Bamboo salt with Ormus in order to boost its effects. Other people are mixing bamboo salt with coffee, which may synergize with the caffeine or with kelp or seaweed foods in order to enhance the bioavailability of the iodine.

Further Reading

Anti-ageing skin effects of Korean bamboo salt on SKH1 hairless mice. Zhao X et al. Oct 2018.

Anti-inflammatory effects of bamboo salt and sodium fluoride in human gingival fibroblasts--An in vitro study. Lee HJ et al. Jun 2015.

Neuroprotective and antioxidant activities of bamboo salt soy sauce against H2O2-induced oxidative stress in rat cortical neurons.Jeong JH et al. Apr 2016

Purple bamboo salt has anticancer activity in TCA8113 cells in vitro and preventive effects on buccal mucosa cancer in mice in vivo. Xin Zhawo. et al. Dec 2012

Oral health: bamboo salt. Sidhu P et al. Jul 2014

Chapter 21. References. Nutrition Tips and Interesting Facts

1 - Combined administration of curcumin and gallic acid inhibits gallic acid-induced suppression of steroidogenesis, sperm output, antioxidant defenses and inflammatory responsive genes. Abarikwu SO et al. Sept 2014
2 - Bioavailability of gallic acid and catechins from grape seed polyphenol extract is improved by repeated dosing in rats: Implications for treatment in Alzheimer's Disease. Mario G. Ferruzzi et al. Jan 2010
3 - Hair growth-promoting effect of Geranium sibiricum extract in human dermal papilla cells and C57BL/6 mice. William A. Boisvert et al. Feb 2017
4 - Comparison and combination effects on antioxidant power of curcumin with gallic acid, ascorbic acid, and xanthone. Naksuriya O et al. Apr 2015
5 - Neuroprotective effects of oral gallic acid against oxidative stress induced by 6-hydroxydopamine in rats. Mansouri MT et al. Jun 2013
6 - Radioprotective effects of gallic acid in mice. Nair GG and Nair CK. Aug 2013
7 - Natural medicaments in dentistry. Dakshita J. Sinha and Ashish A. Sinha Apr 2014.
8 - Gallic Acid, an active constituent of grape seed extract, exhibits anti-proliferative, pro-apoptotic and anti-tumorigenic effects against prostate carcinoma xenograft growth in nude mice. Manjinder Kaur et al. Jun 2009

Ellagic Acid Protects the Brain Against 6-Hydroxydopamine Induced Neuroinflammation in a Rat Model of Parkinson's Disease. Yaghoob Farbood et al. Apr 2015

9 - Effects of flavonoid glycosides obtained from a Ginkgo biloba extract fraction on the physical and oxidative stabilities of oil-in-

water emulsions prepared from a stripped structured lipid with a low omega-6 to omega-3 ratio. Yang D et al. May 2015

Sweet Marjoram. A Review of Ethnopharmacology, Phytochemistry, and Biological Activities. Fatemeh Bina et al. May 2016

Antioxidant and hepatoprotective activities of five eggplant varieties. Akanitapichat P et al. Oct 2010

Chemical Composition and Nutritive Benefits of Chicory (Cichorium intybus) as an Ideal Complementary and/or Alternative Livestock Feed Supplement. Ifeoma Chinyelu Nwafor. Dec 2017

10 - Sensory and physicochemical characterization of juices made with pomegranate and blueberries, blackberries, or raspberries. Vázquez-Araújo L et al. Sept 2010.
11 - Effects of chicory root powder on growth performance and histomorphometry of jejunum in broiler chicks. Homan Izadi. Summer 2013.
Selective stimulation of bifidobacteria in the human colon by oligofructose and inulin. Gibson GR et al. Apr 1995

Chapter 22. How Cycles Shape the Environment

In this chapter we take a break from looking at what causes aging and instead look at the cycles that govern life. All life consists of cycles of energy which has pre-set peaks. This can show us the best hours, days and seasons to take longevity formulas and substances.

Are Circadian Rhythms Immortal?
When researchers looked at cultures of immortalized cell lines from fruit flies that had been held in the lab for more than 25 years, they discovered to their surprise that the cells still followed their circadian cycle rhythm **(The brain, circadian rhythms, and clock genes. Michael Hastings. Dec 1998)**. This shows that the influences of circadian rhythms in cells exists as an independent force separate from the whole organism.

Jet lag has an impact on our circadian rhythms due to the desynchronized rhythms that take place when one person has been in the same location for a number of weeks or years and then travels to a new location where there is a noticeable change in the hours of sunlight **(Circadian rhythms, athletic performance, and jet lag. R. Manfredini)**, Hence, this is why passionflower, which has been successfully used to counteract the effects of Jet Lag because, helps restore order to the body's circadian rhythms (Passionflower Extract Induces High-amplitude Rhythms without Phase Shifts in the Expression of Several Circadian Clock Genes in Vitro and in Vivo. Kazuya Toda, et al. June 2017).

When the body is '*going against the flow*' of environmental rhythms it can contribute to health problems. A study found that when this occurs, clock genes will exhibit low-amplitude rhythms that are associated with aging (The brain, circadian rhythms, and clock genes. Michael Hastings. Dec 1998).

This is why numerous studies have found that shift workers are more prone to obesity, sleep disorders, hypertension,

hyperglycemia and cancer **(Kazuya Toda. et al. June 2017)** and could be why passionflower is one of the most popular herbs for sleep disorders (Passiflora incarnata (passionflower) herbal tea on subjective sleep quality. Ngan A and Conduit R. Aug 2011), (Effect of a medicinal plant (Passiflora incarnata L) on sleep. Fructuoso Ayala Guerrero and Graciela Mexicano Medina. Sept 2017).

Genes and Cascadian Rhythms

Cascadian rhythums differ from circadian rhythums in that they exist as an internal clock that changes with the external environment. For example researchers found that 43% of genes in the organs of mice exhibited a cascadian rhythm that exhibited maximum activity in the organ's genes just before dawn and again at sunset **(A circadian gene expression atlas in mammals: Implications for biology and medicine. Ray Zhang, et al. Sept 2014)**. Hence we see evidence that organs are influenced by changes in the environment.

Biorhythums are another perfect example. When your physical biorhythm peaks, you can naturally go further and faster than you would be able to if your physical biorhythm was low, and when your emotional biorhythm peaks you are able to handle emotional situations better.

Further Reading

Contribution of daily and seasonal biorhythms to obesity in humans. Dominika Kanikowska et al. Jul 2014.

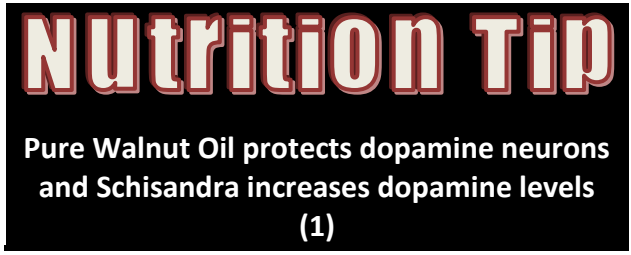
Biorhythmic Analysis to Prevent Aviation Accidents. R. K. Saket.

Levels of Serotonin and Dopamine Vary by Season

Besides our genes exhibiting a cascadian rhythum, the electrical activity of our brain exhibits variations in its activity according to season. The pineal gland causes serotonin to be made into melatonin with melatonin levels peaking during fall and winter due to the shorter hours of sunlight **(Haritou et al. Aug 2008)**. Due

to these differences in sunlight, it also causes our bodies to produce higher serotonin levels during late summer and fall **(Randy A. Sansone and Lori A. Sansone. Aug 2013)**. Dopamine levels peak during fall and winter and reach a yearly low during spring of each year, which is the same time of year suicides peak (Seasonal Effects on Human Striatal Presynaptic Dopamine Synthesis. Daniel P Eisenberg et al. May 2011), (Why Do Mania and Suicide Occur Most Often in the Spring? Chul-Hyun Cho and Heon-Jeong Lee. March 2018).

Another example where environmental influences affect the body is in the case of people who live in regions where they are exposed to higher melatonin concentrations due to the nights being longer and where winters are more extreme. These conditions enhance a person's chance of developing rheumatoid arthritis, compared to people living in southern Mediterranean countries (Therapeutic applications of melatoninIfigenia. Kostoglou-Athanassiou. Feb 2013).



Blood Pressure and Season

Blood Pressure, calorie intake and cholesterol tend to peak during both fall and winter (Winter Hypertension: Potential mechanisms. Auda Fares. June 2013).

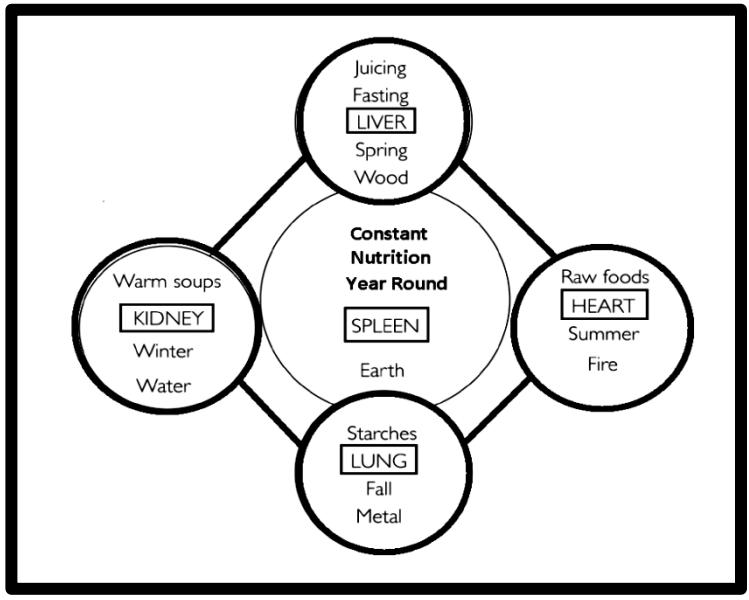
Immune System Activity and Season

In Europe during winter, the strength of white blood cells peaks during winter and spring (Seasonal Variations of Complete Blood Count and Inflammatory Biomarkers in the US Population -

Analysis of NHANES Data. Bian Liu and Emanuela Taioli. Nov 2015).

Herbs that Increase the Body's White Blood Cells

Panax ginseng, poria cocos, angelica sinensis, ligustici wallichii, atractylodes macrocephala, paeonia lactiflora, astragalus and rehmannia glutinosa (Clinical study of the use of ginseng and tang-kuei ten combination in the treatment of leukopenia. Shen R et al. Int J Oriental Med. 1997;22:30–1).



So how do we use this for anti-aging? By knowing what day of the week the body displays specific tendencies and then taking the proper anti-aging herbs one is able to utilize a simple rejuvenation strategy. One example is the 7 days and 7 grains strategy which is

commonly used as a guide for young children. Let's use this example and match it with the planet and its associated day of the week.

Monday – RICE - Cooling - Moon – Digestive System / Metabolic – Etheric / Life Body - (softest grain easiest on digestion). Silver – Genitals -
Formulas = St. Germain formula, Yogurt. Easy to digest foods. Evening – Sulforphane Detox Formula.

Tuesday – BARLEY - Air - Mars - Connective Ligaments – Nerve / Senses Ligaments and Intestines. Iron - Nervous system – Gallbladder.
Formulas = Rhodioa Rosea, Swet Musli (Chlorophytum Borivilanum Tuberosum) formula (endurance / energy) and Gingko (Neuroprotective herbs).

Wednesday - MILLET - Warming - Mercury - Overall Warming – Skin / Eyes / Hair / Teeth –. Strengthen Eyes – B. Cappi - Lungs.
Formulas = Morning = Swet Musli Formula. Evening = Sulforphane Detox Formula.

Thursday - RYE - Water - Jupiter – Detoxing of Liver / Bones / Head –– (Rye Bread relieves constipation). Tin - Water – Astragalus, Plum.
Formulas = Evening. St. Germain Formula.

Friday – OATMEAL - Fire - Venus – Improve State of Mind / Disease Resistance / Loosening Stiffness / Stamina –. Stamina – Loosening Stiffness – Copper – Kidneys - Disease Resistance.
Formulas = Evening - Carnosine Rejuvenation Formula. Elderberry (Anthocyanidins). Note: Anthocyanins have been found to induce detoxifying enzymes in cultured cells (Anthocyanins and their role in cancer prevention. Li-Shu Wang and Gary D. Stoner et al. Oct 2009).

Saturday - **CORN** - Saturn – Muscle Strength / Metabolic Will and Stimulation – (hardest grain). Build Muscles – Saturn – Lead – Spleen - Skeletal Herbs. **Formulas =** Morning = Vitexin Formula. Hawthorne Berry.

Sunday - **WHEAT** - Balancing – Sun – Organs –. Earth – Heart – Gold. **Formulas =** Mental Stimulation Herbs such as Gingko and the Swet Musli Formula.

Seasonal Anti-Aging Formulas Guide
Summer – Heat Stress – Vitexin and Orientin Formula.
Fall - Strengthen and Clearing of the lungs. The Swet Musli Formula (can also apply to early spring).

Late Summer Detox – Sulforphane Formula.

Winter – Bone Building and Circulation. Astragalus, B. Cappi and Syrian Rue. The Carnosine Formula.

Spring – Immune System – Dandelion, St. Germain, Black Cumin Seed. St. Germain Formula. The Probiotic HN019 Formula.

Spring Detox – FO TI Synergy Formula.

Enhancing Nutrient Bioavailability by Practicing QI Gong -
QI Gong anti-aging exercises such as the Emerald Tablets Exercise (see my book titled The Emerald Tablets: The Keys of Life and Death by Thoth the Atlantean) seems to boost the absorption and effectiveness of many anti-aging formulas. Speaking from personal experience I have found that if I have taken an anti-aging formula and I don't end up feeling rejuvenated or have increased energy a few hours later, it is usually because it was taken on the wrong day of the week or that I had not practiced QI Gong / Chi generating

exercises before-hand or had laxed in these practices. Hence these exercises may enhance the circulation of herbs.

Further Reading

Study Shows Tai Chi and Physical Therapy Were Equally Helpful for Knee Osteoarthritis . May 17th, 2016. NIH Health Article

Comparative effectiveness of tai chi versus physical therapy for knee osteoarthritis: a randomized trial. Annals of Internal Medicine. 2016;165(2):77-86. Wang C, Schmid CH, Iversen MD, et al.

Tai chi versus physical therapy for knee osteoarthritis [summary for patients]. Annals of Internal Medicine. 2016;165(2).

Moon in Sign	Areas susceptible to Illness	Area to Strengthen	Cautions
Aries	Head/Eyes	Kidney /Bladder	Excess Heat / Haste
Taurus	Throat/Vocal Cords	Reproductive System	Excess Cold
Gemini	Nervous System/Lungs/ Shoulders	Blood/Liver	Indoor/ Outdoor Pollution

Cancer	Stomach/Liver/ Lymphatic System	Teeth	Food Sensitivities Food or excess indulgences
Leo	Heart/Blood Vessels/	Nervous System	Excess solar UV radiation
Virgo	Colon/ Gastrointestinal Tract	Blood / Liver **Detox**. Fasting	Food Poisoning
Libra	Kidneys/Bladder/ Endoctrine System	Teeth/Ears	Stress / Allergies
Scorpio	Excretory Organs, Intestines	Ears, Throat/Upper Respiratory Tract	Burns/ Spicy/ Hot Foods
Sagitta-rius	Nervous system, hips, pelvic bones,	Teeth, Shoulders, Lungs and Arms	Hips, spleen and pelvic regions. Avoid high-fat foods or overeating

Capri-corn	Skin, Teeth, Spine, Knees. Especially fractures and slower circulation.	Stomach	Body is slightly more resistant to disease. A good time to enjoy that buffet you always wanted.
Aquarius	Eyes, central nervous system and legs.	Heart, physical exercise, mineral water, herbal infusions, plant decoctions.	traffic accidents /electrcal shocks
Pisces	Foot, toes, skin, liver and kidneys.	Bowels, reflexology	Fungal diseases and allergies, of drugs or alcohol poisoning . Limit fluid

intake.

Another guidline that can be used is to take a food or herb related to that particular constellation when the moon is in that house. For example, Leo rules the heart; therefore taking hawthrone berry when the moon is in Leo may help strengthen the heart, or when the moon is in Virgo, which rules digestion, taking the Sulforphane Detox formula shown in the longevity 5 chapter works well to detox the body.

Environment, Seasons and Constellations

Winter = cold becoming wet = Water - Scorpio, Cancer and Pisces.
Spring = wet becoming hot = Air - Aquarius, Gemini and Libra.
Summer = hot becoming dry = Fire - Sagittarius, Aries and Leo.
Autumn = dry becoming cold = Earth - Taurus, Virgo and Capricorn.

Sign	Element	Qualities	Season: North	Season: South
Aries	Fire	Hot & Dry	Hot & Wet (Spring/Air)	Cold & Dry (Autumn/Earth)
Taurus	Earth	Cold & Dry	Hot & Wet (Spring/Air)	Cold & Dry (Autumn/Earth)
Gemini	Air	Hot & Wet	Hot & Wet (Spring/Air)	Cold & Dry (Autumn/Earth)
Cancer	Water	Cold & Wet	Hot & Dry (Summer/Fire)	Cold & Wet (Winter/Water)
Leo	Fire	Hot & Dry	Hot & Dry (Summer/Fire)	Cold & Wet (Winter/Water)
Virgo	Earth	Cold & Dry	Hot & Dry (Summer/Fire)	Cold & Wet (Winter/Water)
Libra	Air	Hot & Wet	Cold & Dry (Autumn/Earth)	Hot & Wet (Spring/Air)
Scorpio	Water	Cold & Wet	Cold & Dry (Autumn/Earth)	Hot & Wet (Spring/Air)
Sagittarius	Fire	Hot & Dry	Cold & Dry (Autumn/Earth)	Hot & Wet (Spring/Air)
Capricorn	Earth	Cold & Dry	Cold & Wet (Winter/Water)	Hot & Dry (Summer/Fire)
Aquarius	Air	Hot & Wet	Cold & Wet (Winter/Water)	Hot & Dry (Summer/Fire)
Pisces	Water	Cold & Wet	Cold & Wet (Winter/Water)	Hot & Dry (Summer/Fire)

The reason we see so many air related inventions at this time in history is because we are moving out of the age of Pisces towards the age of Aquarius. Aquarius is an air sign and Aquarius represents invention / multiplication. Hence, we can expect to see more inventions of machines that take to the air. Recent examples include drones, the Airbus A380 airplane, the wing suit and do it yourself Edge-of-Space Camera kits.

The following alchemical chart gives additional details in relation to month, constellation and element.

Sign	Dates	Alchemical Theme	Element
♈ Aries	Apr 19 - May 13	Purification, Calcination	Fire
♉ Taurus	May 14 - Jun 19	Congelation, Transformation	Earth
♊ Gemini	Jun 20 - Jul 20	Fixation, Synthesis	Air
♋ Cancer	Jul 21 - Aug 9	Dissolution, Dismantling	Water
♌ Leo	Aug 10 - Sep 15	Digestion, Conversion	Fire
♍ Virgo	Sep 16 - Oct 30	Distillation, Purity	Earth
♎ Libra	Oct 31 - Nov 22	Sublimation, Transmutation	Air
♏ Scorpio	Nov 23 - Nov 29	Separation, Stillness	Water
⛎ Ophiuchus	Nov 30 - Dec 17	Unification, Wound Healing	Water/Aether
♐ Sagittarius	Dec 18 - Jan 18	Incineration, Resurrection	Fire
♑ Capricorn	Jan 19 - Feb 15	Fermentation, Illumination	Earth
♒ Aquarius	Feb 16 - Mar 11	Multiplication, Virtues	Air
♓ Pisces	Mar 12 - Apr 18	Ascension, Perfection, Christos-Sophia	Water/Aether

The Taste of Wine and Fermentative Synergy

If we look at another biodynamic calendar, one that involves the planting and harvesting of herbs, we see that the days that wine is enjoyed (Fire signs) are also the days that herbs are harvested. Because harvesting is a time of maturity and wine is also a matured substance, it may be that the properties of bacteria

responsible for fermentation are stronger during days wine tasting is more favorable.

Element- Fire: Zodiac Sign: Leo, Sagittarius & Aries. Best time to harvest. Fruit days are the most optimal wine tasting days.

Element- Water: Zodiac Sign: Cancer, Scorpio & Pisces. Plant annuals in these signs. Leaf days are not recommended for enjoying wine.

Element- Earth: Zodiac Sign: Virgo, Capricorn & Taurus. These are fertile signs and are good for growing herbs. Root days are not good days to enjoy wine.

Element- Air: Zodiac Sign: Libra, Gemini & Aquarius. Another good time for harvesting as well as cultivating. Flower days are recommended for enjoying aromatic wines.

Detoxification and the Equinoxes

It may be that detoxification works best when the sun or moon are in hot signs, as these occur more often around the equinoxes and solstices, which seems to be one of the best times of the year to detox. Speaking from personal experience, I have found detoxing between 4 to 6 weeks before the equinoxes and at times around a full moon works extremly well.

March 21st - Spring Equinox (Sun is in Aries)
Hot and Dry - Aries (fire)

September 22nd / 23rd - Fall Equinox (Sun is in Libra)
Hot / Wet - Libra (air)

December 21 - Winter Solstice (Sun is in Sagittarius)
Hot & Dry - Sagittarius (fire)

June 21st - Summer Solstice (Sun is in Cancer)
Cold and Wet - Cancer (water)

Let's now take a break from alchemy and explore how the Taoists defeat aging.

Chapter 22. References. Nutrition Tips and Interesting Facts

1 - Vitamin C attenuats the toxic effect of nutmeg on primary visual occipital cortex in rats. Salman NAAFA et al. Aug 2018
2 - Author's experience and feedback from other user's experiences.

Chapter 23. Ancient Taoist Practices for Extending Lifespan

The original Taoists were masters at perfecting health and extending lifespan and may have been where Ayurvedic anti-aging medicine originated from. There are many legends of Taoist masters living for hundreds of years. They utilized the cycles of the sun, moon and stars, drawing upon the unseen elements in the air that would nourish their bodies.

Today it is unknown exactly how many Taoists have achieved actual physical immortality. Laozi, who was the original founder of Taoism (also known as Lao-Tsu) is thought to be an immortal, as well as his spiritual descendent, Zhuangzi (Chuang Tzu). There may have existed (or may exist today) countless numbers of wandering Taoist sages and hermits who have purposely removed themselves from the temptations of human society, whose levels of realization were known only to themselves and may be among the numbers of accomplished immortals.

The Eight Immortals

The Eight Immortals that have been given special recognition throughout the Taoist literature include a select eight individuals. Some have had actual historical existences and were real people. These people were described by Zhuangzi and were born during the Tang Dynasty (618-907 CE) or Song Dynasty (960-1279 CE).

Magical and mystical tales surround these 8 figures and the mystery of these 8 make it almost impossible to distinguish historical fact from mythological stories. The fact is whether or not these individuals are regarded as historical, semi-historical, or even legendary characters, the Eight Immortals represent the powers that appear as a beneficial side effects when one has

transcended the limits of ordinary human existence by means of Taoist practices. These abilities include: the gift of healing, the ability to predict the future and extraordinary bodies that are capable of amazing physical actions and that do not show signs of aging.

The Eight Immortals. Fact or Mythology?

Zhongli Quan. Likely a mythological figure.

Zhang Guo Lao. An actual historical figure.

Han Xiang Zi. Translated as "Philosopher Han Xiang," is thought to be an actual person who existed during the Tang Dynasty and was related to a Confucian scholar.

Lu Dongbin (also spelled Lu Tung Pin) was the best known of all the immortals, and at times is referred to as their leader and was likely an actual historical figure.

Lan Caihe. Likely a mythological figure.

Taiguai Li. Translated as "Iron Crutch Li." This Immortal is ill-tempered but also benevolent to the sick and needy.

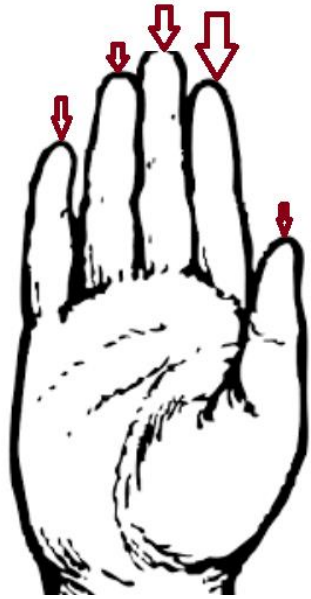
Cao Guo Jiu. An actual historical figure. The name translates to "Imperial Brother-in-Law Cao.

He Xian Gu. The only woman Immortal.

Taoist Longevity Exercises

While there are literally hundreds of Taoist longevity and QI Gong type exercises, I have chosen to stick to the main themes shown in the earliest Taoist literature which also happen to be the most simple. Let's begin with the Bone Breathing Exercise.

The Bone Breathing Exercise
This exercise is good for removing aches and pains from the body. It works especially well when conventional medicinal practices have failed and you need to get energy re-circulating in specific regions of the body again.



Place your arms on your lap with palms facing upwards.

Inhale and exhale deeply through your abdomen.

After a few breaths allow your attention to move from the tip of your index finger down towards the base of your index finger. As you exhale, feel the energy and sensations, allowing the energies to remain at the base of the finger. You may feel a slight heaviness and tingling sensation as you do so, which is normal.

Gently return your awareness back to the tip of your finger and repeat once more (for a total of two times). Next continue with the other fingers, ending with the thumb.

Next feel your awareness at the tips of all of your fingers and feel the energy settling and remaining at the base of all fingers on your hand.

Repeat the same exercise with the fingers on the other hand. After doing so, you will feel a drawing in of energy, akin to a magnetic force, which is a sign that healthy circulation is taking place. It is this circulation that is responsible for the healing and strengthening.

Next perform the same exercise going from the base of the spine to the tip top of the spine. If you like you can also perform the exercise imagining the energy flowing from the top of the bones in the neck to the base of your neck and another cycle imagining the energy flowing from top of your shoulders to the base of the shoulders.

Heart Rate Variability and QI Gong Studies

From personal experience, I have found that the Cosmic Orbit exercise I am about to share enhances heart math coherence (HRV). You can test this for yourself by practicing the cosmic orbit exercise and then testing your heart rate variability by performing Heart Math using an EM wave meter.

QI Gong Enhances Heart Rate Variability

In a study involving 77 participants, 47 of which practiced QI Gong and 30 who did not, the group that practiced 30 minutes of QI Gong (eight-form moving meditation) three times a week for 3 months exhibited significantly stronger heart rate variability and peripheral vasomotor responses compared to the control group (Qigong Effects on Heart Rate Variability and Peripheral Vasomotor Responses. Mei-Ying Chang et al. May 2014).

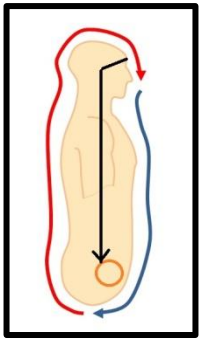
Another study found that QI Gong practitioners exhibited a stronger **kidney meridian electrical conductance (Acute Physiological and Psychological Effects of Qigong Exercise in Older Practitioners. Chun-Yi Lin, et al. Feb 2018)**. This study makes sense in the fact that the life force energy generated by QI Gong is gathered and stored in the kidneys. This is why people who are ill show lower meridian electrical conductance in their kidneys. (Lower Meridian Electrical Conductance in Patients with Cancer Who Have Poorer Nutritional Status. Ann Charis Tan et al. Feb 2015).

Substances that enhance HRV (Heart Rate Variability) –

Cacao Chocolate
10 g of dark chocolate (70% Cacao Chocolate). It takes only 10 grams of cocoa chocolate to trigger a significant increase in parasympathetic modulation and heart rate variability (A single dose of dark chocolate increases parasympathetic modulation and heart rate variability in healthy subjects. Ana Amélia Machado Duarte et al. Dec 2016)

Guarana (an antibacterial that contains an abundance of caffeine) When Guarana is combined with the flavonoid Ginseng, Vitamins B3, B6 ad zinc it improves decision-making performance and HRV for up to 1 hour (Heart Rate Variability and Cognitive Function Following a Multi-Vitamin and Mineral Supplementation with Added Guarana (Paullinia cupana). Laura Pomportes et al. Dec 2014).

Mugwort
Breathing in the smoke of Mugwort enhances HRV. Hence burning Mugwort incense sticks and practicing HRV is a powerful combo (Effects of Moxa (Artemisia vulgaris) Smoke Inhalation on Heart Rate and Its Variability. Baixiao Zhao et al. Jan 2011).



How to Perform the Life Restoring Microcosmic Orbit Exercise
Believe it or not a healthy imagination plays a vital role in this exercise. Studies now confirm that a mindfulness meditation can cause actual biochemical changes to take place in the body (Biologic effects of mindfulness meditation: growing insights into neurobiologic aspects of the prevention of depression. Simon N. Young. Mar 2011).

During this exercise the ability to kinesthetically feel the sensations in specific regions of the body is a key part of the process. Allowing yourself to become fully aware and present of these sensations in your body forms a stronger link between spirit and body. This sends electrical impulses through the peripheral and central nervous systems.
During our waking state, QI energies circulate to the groin, moving into the body and up the front side of the body and to the eyes. It than flows internally through the brain, down the cerebrospinal tract where it re-circulates from the groin.

The manifestation of the Essence that rejuvenates the body exists in the seminal fluids/seed of the genitals. The practice known as the "*backward flowing method*" uses intent and breath to circulate energy down the front, under the public bone up the spine, over the head and down the front and into a region of the body close to the genital area known as the cauldron. This flow is the direct opposite of the natural flow of energy, which if left “un-charged eventually causes aging”. This backwards flow of energy causes the energy to be redirected inwards, instead of outwards. When it flows outwards, it is lost / drained away resulting in depleted CHI. The Taoist masters were able to retain / hold this energy in the cauldron, which in turn nourished the neuro-endocrine systems of the body and kept it from '*drying out*'.

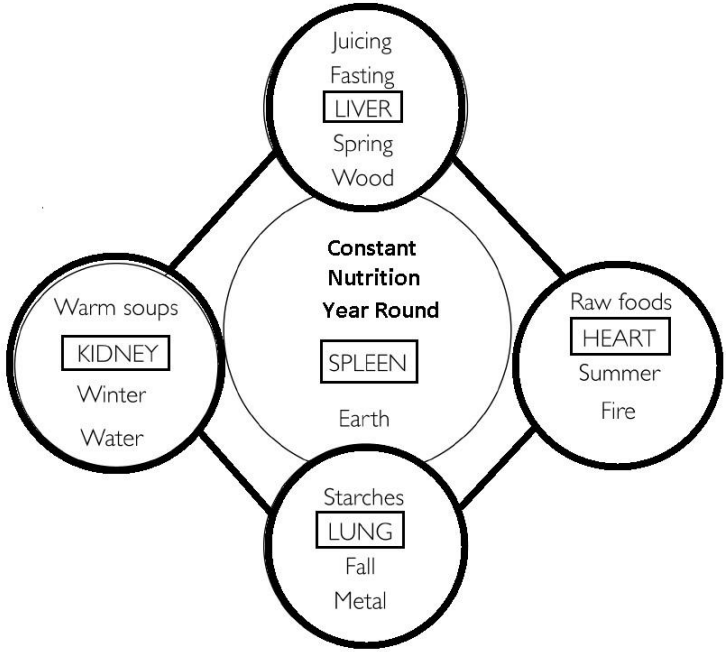
This exercise enhances the strength of the mind and generates large amounts of energy that circulate and revitalize the body via this backwards flowing action. The energy that is experienced during and after the exercise varies at times according to season, solar weather and lunar phases. Although it is not necessary, I recommend first practicing the Emerald Tablets exercise (see my The Emerald Tablets: The Keys of Life and Death by Thoth the Atlantean) for a few months before doing the Microsocmic Orbit exercise. This is because your body first has to learn to recognize the rejuvenating white light which has sensations similar to being next to a flowing stream in a cool

pristine mountain forest at high elevation. This energy is the rejuvenating energy that restores the body and erases many aches and pains.

Chapter 24. The 4 Main Elements

It can be confusing to try to understand the entire alchemical process in any realm, so this chapter simplifies it by illustrating the 4 main elements.

In Traditional Chinese Medicine there exist 4 environmental influences that affect not only the environment, but the health of the body. These are **Wood, Fire, Metal and Water**. Roughly speaking, the process required to make the philosopher's stone utilities all 4 elements. In anti-aging medicine, we are primarily concerned with reducing excessive Fire and Water which build up and cause Steam or "Damp Heat" that rises to the upper regions of the body creating cataracts, toothaches and brain fog. The 4 ( )w.



My anti-aging research over the years has resulted in the 5 longevity anti-aging formulas shown in the chapter titled: The Five Longevity Formulas which specifically target and heal these 4 main regions of the body which keep the body in perfect health. 5 is good number to have because it allows one to rotate the formulas so one's body does not get used to the same substances. The best part about these formulas is that only a very tiny amount needs to be consumed in order to experience the longevity effects.

The Negative Effects of Excessive Damp Heat

Your living environment can also contribute to damp. For example living in the damp rainy environment of the Pacific Northwest of the United States can cause the body to experience extreme damp. If you have ever tried to cook anything outdoors when the weather is damp, you will find that the food not only stays hotter for much longer periods of time, but that the fuel used in the fire tends to stay hotter for longer periods.

Dampness creates stagnation and slows down circulation. The most powerful thing you can do to combat excess damp is to take damp relieving herbs and formulas and if a damp period of weather is beginning to end, perform moderate to heavy exercise to get circulation flowing in the body again. This will offset any viral infection that may be in its early stages resulting from the lack of circulation caused by dampness. Many herbs and formulas that remove damp also clear the eyes and contribute to clear thinking.

Summary

Substances that remove damp restore and keep the body in perfect health.

Nutrition Tip

Coriander prevents damp in the body from rising contributing to damp heat steam (1)

2 Formulas that Drain Damp
The Shi Gao formula
The Four Marvel Formula

Does Red Wine Contribute to Damp or Remove it?
Alcohol has been used in Traditional Chinese Medicine for over 4,000 years. Numerous wines exist such as strong white spirits, millet wine, medicated wines and beers.

For example, black-bone chicken wine is used for problems arising after a stroke, and epimedium wine is used for infertility and impotence. TCM also uses wine as a catalyst to enhance the potency of specific drugs. Li Shizhen wrote in his book The **Bencao Gangmu** (Compendium of Materia Medica): "*Wine is very yang in nature and pungent. It is sweet in flavor and has effects of invigorating vital function and dispersing pathogens*." Wine is also dry and hot in property and is used to expel dampness and cold.

Why Cooler Temperatures Extend Lifespan
Environments that display cool temperatures are less likely to contribute to heat stress, which accelerates aging. It is interesting to note that a diet low in calories reduces the average constant body temperature **(Lower body temperature as a potential mechanism of life extension in homeotherms (Rikke BA and Johnson TE. June 2004)** and whales have a lower body temperature (Keane et al. 2015).

In longevity experiments conducted on the wasp species Trichogramma platneri, researchers found that a 5°C drop in temperature caused them to live 72 % longer on average (The influence of hosts, temperature and food sources on the longevity of Trichogramma platneri. Entomol Exp Appl. McDougall SJ, Mills NJ. 1997;83:195–203).

As covered earlier in Chapter 7, people who live in the Colorado counties Clear Creek (5,000 feet), Eagle (6,000 feet), Gilpin (5,000 feet), Grand (6,000 feet), Jackson (7,000 feet), Park (9,000 feet) and Summit (8,000 feett) have some of the longest lifespans in the United States. Research studies have also found that an environment of 15 degrees celcius allows mice to life 15% longer (Transgenic Mice with a Reduced Core Body Temperature Have an Increased Life Span. Bruno Conti et al. Nov 2006).

This was also confirmed in studies conducted by Doug Skrecky who found that fruit flies lived longer when they were exposed to cooler temperatures **(20 Apr 2003. 85'th update wwww.cryonet.org/)**. Also plants appear to benefit from cooler temperatures as well. For example, the world's oldest living tree, the bristlecone pine tree, which is thousands of years old, lives at an elevation of between 9,800 and 11,000 feet. As shown in an earlier chapter, wines grown at high altitudes contain more reservatol, tannins and phenols compared to wines grown at lower altitudes and grapes produce extra resveratrol when grown at high altitudes (Role of the variety and some environmental factors on grape stilbenes. Bavaresco L., Pezzutto S., Gatti M., Mattivi F. Vitis. 2007;46:57–61).

Further Reading

Effects of temperature on the life span, vitality and fine structure of Drosophila melanogaster. Miquel J et al. Sept 1976.

Being cool: how body temperature influences ageing and longevity. Gerald Keil. et al. Apr 2015.

Herbs that drain damp -

The herb atractylodis rhizoma removes wind damp and common damp and atractylodes has been shown to increase telomerase activity and reduce free radicals (Anti-ageing active ingredients from herbs and nutraceuticals used in traditional Chinese medicine: pharmacological mechanisms and implications for drug discovery. Chun-Yan Shen. et al. Sept 2016).

The herb Rhizoma coptidis (Huang Lian) is used in formulas for "quenching fire, clearing damp-heat and counteracting poisons. Rhizoma coptidis is also an antibacterial and an antibiotic. Hence many antibiotic herbs also eliminate the effects of damp heat (Antimicrobial Effect of Four Alkaloids from Coptidis Rhizome. Yang Yong. et al. 2007).

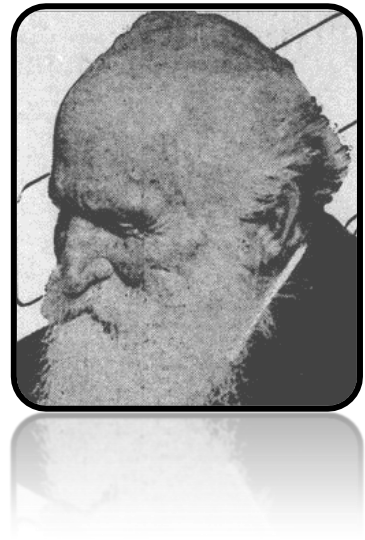
Chapter 24. References. Nutrition Tips and Interesting Facts

1 - Therapies for Damp Stagnation. The Fourth Stagnation: Damp Stagnation, Part 2. East West School of Planetary Herbology.

Chapter 27. Olive Oil and Longevity

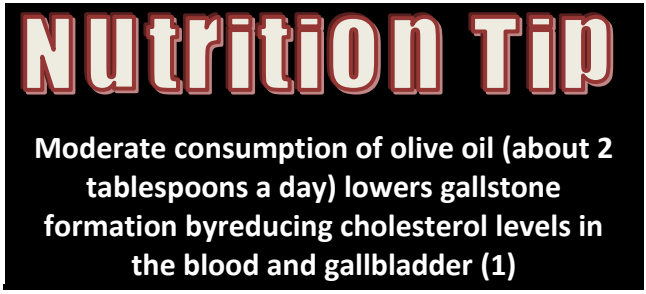
Oh what a challenge it must be to adhere to a diet that abstains from foods that accelerate aging! For example, many people enjoy potato chips, yet potato chips contain the highest AGE's out of any known food. AGE's as covered in an earlier Chapter, are a major contributor to the aging process. The secret is to keep diet as simple as possible, along with taking longevity formulas and lifespan extending herbs. Also having appreciation for one's longevity diet in that it promotes good health and a long life are key. This could be why so many supercenturians and people who are super-fit well into old age adhere to spiritual principals. Let's review the diets of some more centurions.

Goddard Ezekiel Doge Diamond



A 1913 newspaper article published by the San Francisco Call (Volume 114, Number 164, 22 November 1913) discovered that the secret of 117 year old Goddard Ezekiel Doge Diamond's long life was that he applied olive oil all over the main joints of his body before bed. He paid particular attention to the joint areas such as his elbows and knees. He also drank small amounts of Olive Oil. He stated he began this practice at around 50 years of age, rubbing olive oil over his body at least once per day, and sometimes twice. Due to this, at age 100 he was able to perform gymnastics and at 108 could ride a bike and take long walks.

Speaking from personal experience, I use olive oil that has been soaked with Gotu Kola for 30 days and rub it in once or twice a week before bed. It is best to avoid rubbing it around the lung region as excess amounts appear to make the lungs susceptible to microbiobal infection. Olive oil is also very sensitive to light, which is why it is sold in thick dark colored bottles. Olive oil also stimulates NRF2 (Modulation of Nrf2 by Olive Oil and Wine Polyphenols and Neuroprotection. Martínez-Huélamo M et al. Sept 2017).



The Numerous Anti-Aging Properties of Olive Oil

Olive oil has been used as a skin and hair cosmetic for a long time in several cultures. A study found that when olive oil was applied topically to mice that had ulcers, that it relieved the pressure and exhibited anti-inflammation effects. It also reduced oxidative damage and promoted dermal reconstruction. In burn studies conducted on rats, the topical application of olive oil healed their burns faster compared to silver sulfadiazine (Extra Virgin Olive Oil Polyphenols Promote Cholesterol Efflux and Improve HDL Functionality. Hicham Berrougui et al. Oct 2015), (Anti-Inflammatory and Skin Barrier Repair Effects of Topical Application of Some Plant Oils. Tzu-Kai Lin. et al. Dec 2017), (Spontaneous passage of gallstones after ingestion of olive oil: a case report. Koh D. Dec 1986).

Olive Oil Synergy

When olive oil is combined with buckthorn oil it enhances its

therapeudic properties (Healing effect of sea buckthorn, olive oil, and their mixture on full-thickness burn wounds. Edraki M et al. Jul 2014).

A controlled trial by Zahmatkesh et al., found that combining olive oil with sesame oil, and honey and rubbing it into burns prevented infection and that it acclerated tissue repair (Extra Virgin Olive Oil Polyphenols Promote Cholesterol Efflux and Improve HDL Functionality. Hicham Berrougui et al. Oct 2015), (Anti-Inflammatory and Skin Barrier Repair Effects of Topical Application of Some Plant Oils. Tzu-Kai Lin. et al. Dec 2017), (Spontaneous passage of gallstones after ingestion of olive oil: a case report. Koh D. Dec 1986).

Further Reading

Bioactive properties of the main triterpenes found in olives, virgin olive oil, and leaves of Olea europaea. Sánchez-Quesada C et al. Dec 2013.

Olive Oil Helps Prevent Skin Cancer

A scientific published study found that when extra virgin olive oil was applied to the skin, it reduced the incidence of skin cancer and the daily consumption of olive oil was also shown to protect DNA from oxidation (Extra Virgin Olive Oil Polyphenols Promote Cholesterol Efflux and Improve HDL Functionality. Hicham Berrougui et al. Oct 2015), (Anti-Inflammatory and Skin Barrier Repair Effects of Topical Application of Some Plant Oils. Tzu-Kai Lin. et al. Dec 2017).

This would make a great idea for olive oil based sunscreens.

Olive Pomace Oil

Olive pomace oil is a natural by-

product of the manufacturing process of olive oil. It contains minor constituents that exhibit antioxidant, antiatherogenic and antithrombotic activities when included in the regular diet (Extra Virgin Olive Oil Polyphenols Promote Cholesterol Efflux and Improve HDL Functionality. Hicham Berrougui et al. Oct 2015), (Anti-Inflammatory and Skin Barrier Repair Effects of Topical Application of Some Plant Oils. Tzu-Kai Lin. et al. Dec 2017), (Spontaneous passage of gallstones after ingestion of olive oil: a case report. Koh D. Dec 1986).

Jeanne Calment

Jeanne was born in 1875 in France and lived to over 120 years of age.

Jeanne stated she sips two tablespoons of extra virgin olive oil daily and would begin and end her meals with extra virgin olive oil. She would also smear it over the cooking pan prior to cooking. She also would rub it into her skin. Jeanne also loved chocolate and ate up to a kilogram of it every week **(Wikipedia)**. Dark chocolate contains cacao **(David L. Katz et al. Nov 2011)** and cacao extract stimulates NRF2 (Cocoa Bioactive Compounds: Significance and Potential for the Maintenance of Skin Health. Giovanni Scapagnini et al. Aug 2011), (The neuroprotective effects of cocoa flavanol and its influence on cognitive performance. Astrid Nehlig. Feb 2015), (Cocoa flavonoids protect hepatic cells against high-glucose-induced oxidative stress: relevance of MAPKs. Cordero-Herrera I et al. Apr 2015).

Further Reading

Cocoa-enriched diet enhances antioxidant enzyme activity and modulates lymphocyte composition in thymus from young rats. Ramiro-Puig E. et al. Aug 2007.

Regular consumption of a flavanol-rich chocolate can improve oxidant stress in young soccer players. Fraga CG et al. Mar 2005.

Cocoa polyphenols increase catalase, superoxide dismutase and glutathione peroxidase activities of skeletal muscles in diabetic rats. Nikolic Marina et al. Sept 2016.

Mariam Amash

Mariam was born in 1888 and died in 2012 in Israel. Mariam would drink up to 1 full glass of olive oil every day (Wikipedia).

Oleanolic Acid

Oleanolic acid is one of the main constituents of olive oil (Triterpenic content and chemometric analysis of virgin olive oils from forty olive cultivars. Allouche Y. et al. May 2009).

Oleanolic acid is also found raisins **(S. G. Damle Jun 2013)**, cranberries **(Oleanolic acid from cranberries.Wu By And Parks Lm. Oct 1953),** Cabernet Sauvignon grape skins, olive skins, natural black olives, olive pomace extracts with above average amounts being found in **grape berry wax** (Fruit cuticular waxes as a source of biologically active triterpenoidsAnna Szakiel, et al Jun 2012).

Oleanic acid synergizes with Metaformin (which is similar in structure to berberine) (Combination Therapy with Oleanolic Acid and Metformin as a Synergistic Treatment for Diabetes. Xue Wang.et al. Dec 2014)

Oregano and Cranberry inhibit Ulcers

When a combination of 25% oregano and 75% cranberry were combined with each other, the mixture was found to be superior in inhibiting Helicobacter pylori (H. pylori) which is a is a type of bacteria that can cause ulcers in the lining of the small intestine (Inhibition of Helicobacter pylori and Associated Urease by Oregano and Cranberry Phytochemical Synergies. Y. T. Lin, et al. Dec 2005).

Oregano contains eugenol which destroys numerous foodborne pathogens (Antimicrobial Properties of Plant Essential

Oils against Human Pathogens and Their Mode of Action: An Updated Review. Mallappa Kumara Swamy. et al. Dec 2016).

What is the Best Type of Olive Oil?
It is key that **cold pressed virgin olive oil** is used. This is because the other type of olive oil has been refined / processed by high heat has removed all of its nutrients which contain key anti-aging substances.

What is the lifespan of an olive tree?
The lifespan of an olive tree is measured in hundreds of years, although there are scientifically documented cases where some olive trees have **lived to more than 2,000 years of age**. As a matter of fact the renowned Olive Tree of Vouves (shown in the previous picture) is estimated to be **over 3,000 years old**.

Important Notes regarding the use of Olive Oil -

Avoid rubbing Olive Oil around the lungs region.

Use only the required 1 tablespoon of Olive Oil, as rubbing excess Olive Oil into the body creates waste as well as stains clothing. When combined / soaked with the herb Gotu Kola, the olive oil becomes thinner, allowing you to use less and cover a larger region of the body.

Do not overuse. Your body will let you know when you have used the optimal amounts.

The type of Olive Oil used must be as fresh as possible. It must be stored/kept away from direct sunlight and heat. Olive Oil that has turned rancid and that is rubbed into the body can create negative consequences, primarily weakening the immune system. Rub into body after taking any of the longevity 5 anti-aging formulas to boost the effects of anti-aging formulas.

Keeping a Daily Routine

There is one common theme that winds throughout all the lives of centurions and super centurions that we have covered in this book and that is that they have developed a set routine over the years that worked for them and stuck to it. For example, the three people mentioned earlier used olive oil on a almost daily basis and Mr. Li Ching Yuen, reputed to be a student of Daoism, stressed that he practiced Bagua Circle Walking meditation exercises (and various forms of Baguazhang) daily without fail.

Olive Oil and Bile Excretion

As shown in the chapter titled: The Life Extending Effects of Lithocholic Acid, healthy bile flow is a key factor to long lifespan. It just so happens that olive oil exerts effects on bile.

A study that involved 60 rats divided them into six groups of 10. The control group was fed a normal diet with no olive oil. The other five groups were fed lampante (lampante group) olive oils, virgin (virgin group), cholesterol (chol group), or both cholesterol and oil (chol/virgin and chol/lampante groups). After 4 weeks,

researchers found that significant antioxidant and hypocholesterolemic effects were present in the groups of rats fed the cholesterol-containing diets supplemented with both olive oils (chol/lampante and chol/virgin). They also found that the rats exhibited significant increases in their bile cholesterol and bile flow. The study concluded that bile acid concentrations were highest for the chol/lampante and chol/virgin groups and that olive oil positively affects plasma lipid metabolism and its beneficial effects are most likely due to the increase in bile flow (Effect of different olive oils on bile excretion in rats fed cholesterol-containing and cholesterol-free diets. Krzeminski R et al. Sept 2003).

Extracts and Teas

Taking an extract day after day can be a little hard on the stomach due to the alcohol or the extract aging over time and becoming less effective. One way to avoid this is to make a tea out of the formula, or keep the herbal formula sealed in an airtight container away from light and heat.

For example, a herbal extract of the St. Germain formula can keep for years without spoilage when kept in a cool dry area free of heat and the extract can keep for months.

Chapter 28. Misc Formulas and Interesting Anti-Aging Facts

This chapter contains interesting tid-bits I have picked up along the way after reviewing thousands of papers dealing with lengthening lifespan. Use these tips to add strength to your longevity lifestyle or read them for pleasure.

Protein Stability and Lifespan

As covered in the chapter How to Slow Aging caused by Proteins, the ability of the body handle digest proteins is a key part to longevity. The Ocean Quahog (bivalve A. islandica) has a remarkable lifespan. To date, it is the longest-living non-colonial animal known to science. It has a fourfold longer lifespan than humans. Its MLSP is over 500 years, compared to the human MLSP of 122 years (Gampe et al. 2010; Butler et al. 2013).

Research has found that the Ocean Quahog exhibits remarkable high protein stability. These levels of stable protein have also been found in A. islandica foot and adductor muscle. The study concluded that higher protein stability in long-lived vertebrates is responsible for the longevity of this clam as lower protein stability was found in short lived species (Pérez et al. 2009; Salmon et al. 2009; Treaster et al. 2014). The study also found that the protein stability did not change over the course of its lifetime (A. islandica) (Age-related cellular changes in the long-

lived bivalve A. islandica. Heike Gruber et al. Aug 2015).

How to make an Olive Oil Extract for Skin

One neat trick I have found to using olive oil to make an extract is after you have made an alcohol extract out of a tough herb, such as swet musli root or gotu kola, after you have strained the herbs and made your alcohol extract, keep the tough herbs and allow them to dry in the air for approximately 30 minutes to remove any remaining alcohol. Next place these herbs in a fresh glass jar and add just enough olive oil to cover the herbs. Next soak for between 14 and 30 days and then strain and use the extract only for skin. This works very well because olive oil works well to extract the nutrients from herbs that have been pre-alcohol soaked, as the herbs are no longer very tough or brittle. Gotu kola and swet musli are both herbs that are very, very good for this. Rubbing a little olive oil swet musli olive oil extract around the eyes reduces eye strain and rubbing gotu kola olive oil extract around the back upper neck and shoulders adds strength to the upper body regions, reducing neck and shoulder strain.

How to Use Aloe Vera Leaves for Burns

As this book was in its final stages for publication I was draining some high HU cayenne pepper extract using only my bare fingers. Oh my! what a mistake!. Out of the hundreds of herbal extracts I have made throughout the years cayenne pepper, was and is the only one that will leave your fingers burning for hours on end. I tried rubbing in olive oil, gotu kola and swet musli, to no avail. Luckily I have fresh aloe vera growing in my backyard, so I cut out a few leaves and rubbed into it into my hands and fingers. I did this 6 times after waiting for the aloe vera to soak in and dry. Immediately I experienced an 80% reduction in the painful burning and over the next 2 hours, rubbed it in a couple more times. After 12 hours the burning finally ceased. My goodness thank the gods for aloe vera! as it is not only a powerful anti-cancer plant, but also a powerful burn reliever. In the future I

highly advise anyone working with cayenne pepper extract to use gloves, myself included.

Carpryl Tunnel

A combination of Quercetin and Vitamin B6 can reduce / eliminate the symptoms of Carpryl tunnel, especially when the hands are rubbed with raw aloe (Carpal tunnel syndrome and vitamin B6. Milly Ryan-Harshman. Jul 2007).

A combination of Echinacea, ALA Quercetin and Conjugated Linoleic Acid relieves Carpryl tunnel (Comparison of shock wave therapy and nutraceutical composed of Echinacea angustifolia, alpha lipoic acid, conjugated linoleic acid and quercetin (perinerv) in patients with carpal tunnel syndrome. Notarnicola A et al Jun 2015).

Additional Sources of Quercetin

Dyers oak, Quercus velutina Lam, Black Oak, Horse Chestnut Tree, Garden Rue, Crimson Clover, the hulls of ground nut, Arachis hypogaea and Field Horsetail (Equisetum arvense L. or Equisetaceae) (Handbook of Natural Dyes and Pigments. Enumeration of dyes. Har Bhajan Singh et al. 2014).

Flu Protection

Protection from the Bubonic Plague

N-acetylcysteine, Ginseng and Echinacea.

References (N-Acetylcysteine: An Old Drug With VariableAnti-Influenza Properties. Tomàs Casanova and, Mutien Garigliany. 2016), (Protective Effect of Korean Red Ginseng Extract on the Infections by H1N1 and H3N2 Influenza Viruses in MiceDae-Goon

Yoo et al. Oct 2012), (Anti-viral properties and mode of action of standardized Echinacea purpurea extract against highly pathogenic avian Influenza virus (H5N1, H7N7) and swine-origin H1N1 (S-OIV). Stephan Pleschka et al. 2009).

Ampicillin or Luteolin combined with Luteolin and Amoxicillin are synergistic (Synergistic activity of luteolin and amoxicillin combination against amoxicillin-resistant Escherichia coli and mode of action. Eumkeb G. et al. Dec 2012)

Other flu fighters include: Vitamin D3 **(Vitamin D for influenza. Gerry Schwalfenberg Jun 2015)**, Elderberry **(Anti-influenza virus effects of elderberry juice and its fractions. Kinoshita E et al. Sept 2012)** and Rhodioa Rosea **(Neuraminidase inhibitory activities of flavonols isolated from Rhodiola rosea roots and their in vitro anti-influenza viral activities. Jeong HJ, et al. Oct 2009)**.

Fish oil actually can actually increase one's vulnerability to influenza type infections (Fish Oil-Fed Mice Have Impaired Resistance to Influenza Infection. Nicole M. J. Schwerbrock. et al. Aug 2009)

Coughs

A combination of A. Paniculata and Ivy/primrose/thyme relieves coughs (Herbal Medicine for Cough: A . Systematic Review and Meta-Analysis. Luise Wagner. Dec 2015).

Pneumonia

Phellodendron amurense (P. amurense) and Humulus japonicus (H. japonicus) is also used for tuberculosis **(Geon-Yeop Do et al. Feb 2017), (Screening the active compounds of Phellodendri Amurensis cortex for treating prostate cancer by high-throughput chinmedomics. Xian-Na Li et al. Apr 2017).**

Chisan, a combination of Schisandra, Rhodiola and Eleutherococccus **(Siberian Ginseng) (Impact of Chisan (ADAPT-232) on the quality-of-life and its efficacy as an adjuvant in the treatment of acute non-specific pneumonia. Narimanian M et al. Nov 2005)**.

Natural Antibacterial Defence Substances

A leaf extract of Rhododendron Aboreum and Rhododendron Campanulatum are antibacterial (Studies on Antibacterial activity of Leaf Extracts of Rhododendron arboreum and Rhododendron campanulatum. Ved Prakash et al. Apr 2016)

Ginger and Piperine destroy certain pathogegnic bacteria (Ginger: Response to pathogen-related diseasesAuthor links open overlay panel. YusongJiang et al. Apr 2018), (Inhibitory effect of piperine on Helicobacter pylori growth and adhesion to gastric adenocarcinoma cellsNagendran Tharmalingam et al. Dec 2014).

The lichen Usnea Orientalis is a very potent antimicrobiobal Antidermatophytic Activity of the Fruticose Lichen Usnea orientalis. Ashutosh Pathak et al. Sept 2016), (In vitro antibacterial activity of ethno medicinally used lichens against three wound infecting genera of Enterobacteriaceae. Pathak A et al. 2015).

Wound Healing

Ageratum Conyzoides – very good for wound healing due to its antimicrobial properties (Efficacy of Ageratum conyzoides on tissue repair and collagen formation in rats.Arulprakash K et al. Mar 2012), (Antibacterial property of crude extracts from a herbal wound healing remedy-Ageratum conyzoides, L.Durodola JI. Dec 1977), (A comparative study of the wound healing properties of honey and Ageratum conyzoides. Oladejo OW et al. June 2003).

Propolis

Propolis is one of nature's best and strongest antibacterials **(Antibacterial properties of propolis (bee glue).J M Grange and R W Davey. Mar 1990)**, being effective against the drug-resistant bacteria MSRA (Antibacterial activity of propolis against MRSA and synergism with topical mupirocin. Onlen Y et al. Sept 2007).

Propolis contains an abundance of flavonoids which destroys Candida and other fungus infections in humans and also protects against viruses (Propolis Extract for Onychomycosis Topical Treatment: From Bench to Clinic.Veiga FF et al. 2018).

Propolis exhibits synergy when combined with the antimicrobials gentamicin, netilmicin, tetracycline, clindamycin and chloramphenicol (Propolis: anti-Staphylococcus aureus activity and synergism with antimicrobial drugs. Fernandes Júnior A et al. Aug 2005).

The herbs lemon verbena and lemon grass have similar properties to propolis (Studies on the therapeutic effect of propolis along with standard antibacterial drug in Salmonella enterica serovar Typhimurium infected BALB/c mice. Preeti Kalia et al. Nov 2016).

Stevia and Brain Damage

In studies conducted on mice, the sugar substitute Stevia had been shown to alter gut microbiota, exhibt mutagenic (DNA changes) effects and cause brain damage, possibly due to its high levels of manganese. Hence excess amounts of Stevia should be avoided (Neurotropic effects of aspartame, stevia and sucralose on memory retention .Lejan Miguel Alabastro Villareal et al. Feb 2016), (Non-nutritive sweeteners possess a bacteriostatic effect

and alter gut microbiota in mice. Qiao-Ping Wang et al. Jul 2018).

Diets that are associated with an Increased Risk of Cancer

Benzapyrene and polycyclic aromatic hydrocarbons (alters DNA) are produced when dripped fat from meat that has been heated by burning charcoal drips onto the coals, greatly increasing the risk of cancer (Processed meat and colorectal cancer: a review of epidemiologic and experimental evidence. Raphaëlle L. Santarelli et al. Mar 2009), (Effects of grilling procedures on levels of polycyclic aromatic hydrocarbons in grilled meats. Lee JG et al. May 2016).

A diet rich in cold cuts, seasoned cheeses, meat and salted fish increase one's risk of gastric cancer whereas a diet containing onions, spices garlic and raw vegetables reduces one's chances of getting gastric cancer (Salt-preserved foods and risk of gastric cancer. Strumylaite L et al. 2006).

Taking too much turmeric or quercetin overburdens the kidneys. Excess amounts have been shown to be associated with an increased risk of cancer (Toxicity and carcinogenicity studies of quercetin, a natural component of foods. Dunnick JK and Hailey JR. Oct 1992).

Natural Substances used in Cancer Therapy

Apple Cider Vinegar (ACV) - is an alkaline substance as is lemon juice or vinegar. A folk remedy cancer treatment consists of blackstrap molasses at the ratio of 1 teaspoon of blackstrap molasses to 2 tablespoons of raw apple cider vinegar, which is added to 1 glass of spring or purified water. While there is no scientific evidence this works, there are numerous testimonials on the web of people who successfully used this combination and molasses has also been scientifically shown to boost testosterone levels (The effect of sugar cane molasses on the immune and male reproductive systems using in vitro and in vivo methods. Farzana Rahiman and Edmund John Pool. Oct 2016),

Vinegar has been found effective in blocking the synthesis of

NPRO, which induces cancer in the human body and a study suggested vinegar as an agent capable of preventing human cancers (Effect of esophageal cancer- and stomach cancer-preventing vinegar on N-nitrosoproline formation in the human body. Xian-Ke Guo et al. Dec 1997).

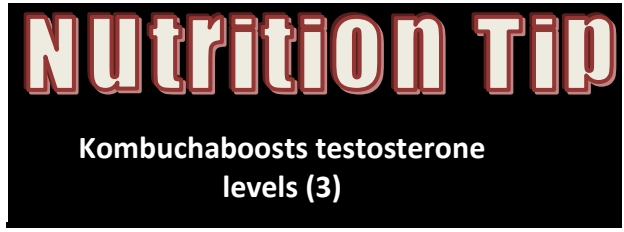
Further Reading
Effectiveness of Black Mulberry Molasses in Prevention of Radiotherapy-Induced Oral Mucositis: A Randomized Controlled Study in Head and Neck Cancer Patients. Demir Doğan M et al. Dec 2017.

Herbs and Substances for Strengthening the Bones
Equisetum species (Horsetail, family Equisetaceae) - contains an abundance of calcium and is used in the healing of the bone fractures (Anabolic therapy with Equisetum arvense along with bone mineralising nutrients in ovariectomized rat model of osteoporosis. Swati D. Kotwal and Smita R. Badole et al. Jun 2016).

A combination of organic apple juice, Vitamin C, 5 drops of Rhodioa Rosea extract and Vitamin D3 (optional). Take at 1 to 3 hour intervals with every 4th or 6th cup taking the rhodioa rosea extract. This formula also greatly enhances memory and clears / strengthens the lungs.

Rhodiola Rosea and Memory
A report in Harvard University Magazine published on October 24th, 2018 titled: **A New Plant to Enhance Memory** and written by Oset Babur, summarzied a study by 23 researchers that ferulic acid from the roots of Rhodiola rosea dramatically improved memory recall in various animals such as bees, fruit flies and mice. The study specifically found that Rhodiola may improve memory

performance in aged mice as well. (Rhodiola rosea: A Versatile Adaptogen Farhath Khanum, Amarinder Singh Bawa, and Brahm Singh), (Assessing the Quality and Potential Efficacy of Commercial Extracts of Rhodiola rosea L. by Analyzing the Salidroside and Rosavin Content and the Electrophysiological Activity in Hippocampal Long-Term Potentiation, a Synaptic Model of Memory. Wilfried Dimpfel et al. May 2018).



Natural Diabetes Management

A combination of turmeric, fenugreek, Indian gooseberry and grape seed has been found to help control type 2 diabetes (A formulation of grape seed, Indian gooseberry, turmeric and fenugreek helps controlling type 2 diabetes mellitus in advanced-stage patients . Sangeeta Banerji and Shanta Banerjee. Oct 2016).

How to Locate a Food causing an Allergy or Health Issue

Withdrawing suspect foods for 4 or more days and then gradually re-introducing them back into your diet can help identify the culprit food causing the allergy or health issue. Another clue is that if your pulse rate is above normal after eating a specific food, it means that you may be allergic to it, or that it is not good for your metabolism.

Foods that contribute to Headaches

A study done by Charring Cross Hospital found the following contributed to headaches – wheat 78%, oranges 65%, eggs 45%, coffee 40%, chocolate milk 37%, beef 35%, corn, yeast and cane sugar 3%.

Healthy Emotions maintain Healthy Body Chemistry
Distress can affect the body's chemistry the same as sugar. This type of stress reduces the effectiveness of enzymes which in turn hinders the proper digestion of food, which in turn causes less nutrients to be absorbed, which over the long term weakens the immune system. One way to keep your body chemistry balanced is by being honest about your feelings, removing stressful situations and obstacles and having love in life.

Potent Natural Formulas for Enhanced Endurance
A combination of Rhodioa Rosea and Cordyceps (Rhodiola crenulata- and Cordyceps sinensis-Based Supplement Boosts Aerobic Exercise Performance after Short-Term High Altitude Training. Chung-Yu Chen et al. Sept 2014).

A combination of Citrus Aurantium (bitter orange extract) and Lignosus Rhinocerotis (sometimes with caffeine) can be used to enhance endurance and also to recover from exercise (Herbal medicine for sports: a review. Maha Sellami, et al. Mar 2018).

Bupleurum is high in antioxidants, protects the liver, and is used to treat depression (Mun Hee Kim and Yea Hyun Leem Feb 2014), (Current Status of Herbal Medicines in Chronic Liver Disease Therapy: The Biological Effects, Molecular Targets and Future Prospects. Ming Hong et al. Dec 2015)

Muscle Strength and Exercise Recovery
Eurycoma longifolia Jack (Malaysian ginseng)
Used to enhance exercise and sports performance and treat several diseases as well as increase muscle strength (Institut Penyelidikan dan Kemajuan Pertanian Malaysia, Malaysia IPP . Herbs: the green pharmacy of Malaysia. Kuala Lumpur: Vinpress; 2000. Indu BJ, Ng LT), (The ergogenic effects of Eurycoma longifolia Jack: a pilot study (abstract 7) Br J Sport Med. 2003;37:465–466. Hamzah SYA).

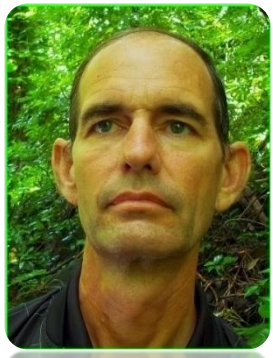
Probiotics
A probiotic has been shown to significantly increase soreness and exercise recovery for up to 72 hours (Effects of probiotic supplementation on markers of skeletal muscle damage, perceived recovery and athletic performance after an intense single leg training bout. Ralf Jäger. et al. Sept 2015).

For your convenience, this edition is available in Nook and Kindle Editions. Look for it in your favorite bookstore or order online from any reputable online bookstore.

This is book 5 in our anti-aging series and is primarily focused on the most recent research studies concerning anti-aging which has all been bound into one convenient text. To date, no other book has been able to successfully combine all the powerful anti-aging methods, herbs and recent research in one complete volume. Filled with the most ground-breaking anti-aging discoveries to date, this latest edition, includes all new referenced studies exploring the latest research on herbs, techniques and methods extending lifespan. It includes the amazing substances that extend lifespan up to 100% and 475% respectively. Included in this edition are 5 longevity formulas devised from the research of this book, as well as Rashnya Herbs, Ayurvedic Formulas, Alchemical Formulas and Taoist Longevity Exercises.

Thank you for reading another fine anti-aging text published by the Solar Institute. Use this information to supplement your longevity lifestyle and goals. The number of supercenturians is expected to double or even triple in the years ahead and having the right information can help you become part of this growing trend.

It is easy to allow one's diet, lifestyle or environment to contribute to an unhealthy lifestyle. If a person had the cure for cancer and they had the will to live, they would make immediate changes in their life without a second thought. The same is with longevity, it takes effort, will and discipline to adhere to the practices and foods that extend lifespan if one wants to live not just a long life, but a healthy one. Having the right information close at hand can greatly assist one in achieving the goal of becoming a supercenturion and now you know how it is done…….



Scott Rauvers

Author and Founder of the Solar Institute

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