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# Chapter 1: What is Anti Aging?

Today most of us view aging as an evil that we cannot avoid. In reality aging is a natural process. All living things on this planet age and die. We define aging according to what we believe it to be. In short aging and anti aging is defined by one's outlook. With this in mind, there are many advocate groups that have their own definitions of what anti aging is.

For the medical and scientific community anti aging refers to the process of slowing, reversing or preventing the aging process altogether. From a medical/scientific approach anti aging is seen thru scientific and medical means. Currently the medical and science community is approaching anti aging in terms of detecting, preventing and treating diseases that age us. They feel that as the body breaks down and systems work less effectively aging sets in.

There is also the aesthetic community who sees anti aging as a physical process based on one's looks. They view aging as the decline of one's youthful appearance and physical vitality. Aging is defined by this group as how many wrinkles a person has on their face and how saggy their bodies are.

Regardless of definitions, anti aging has become a big business. Today one can pay their way to stay young thru endless products and programs geared to keeping us as youthful as possible. This includes the plastic surgeons that can cut the evidence of age away or inject it away to make one look younger. Unfortunately anti aging remedies like surgery and spas are geared towards those with money. The average working person on a meager salary cannot afford it. For them maintaining their youth as such would be a luxury. They cannot pay for the expensive treatments, diets and plastic surgery to keep

them looking like they were when they were 20.

What is the working or poor persons alternative? Well, for those of us who aren't rich we have to consider diet, exercise and a healthy lifestyle to help us fight aging. We have to try and eat the best we can on our budgets and exercise ourselves to stay young. The question becomes can we fight the clock. Right now in reality there is no magic cure against aging.

The medical experts across the board do all agree that the best weapon one can use to fight the aging process is diet and exercise. How one eats and how much one exercises has a lot to do with how quickly they age. Eating healthy definitely slows down the onset of disease. For example, diets low in saturated fat is definitely a defense against cardio-vascular diseases which conversely age the body. We also know that exercise gives us many benefits including physically looking better.

Although there is no fountain of youth, anything that can lengthen one's life span is definitely anti-aging since we all have to die. Anti-aging starts from the inside out. What we put into our bodies help us feel and ultimately look a certain way. Knowledge is power. So in retrospect whatever we learn to keep us healthy is the key to living long and staying young.

We must also remember our genetics have a lot to do with how we age. Chances are if your parents and grandparents look young as you get older probability has it that you will too. It's just that simple. But, we can also help our genetics by taking care of our bodies from the internal to the external we are given. That is the best weapon against aging. Eating right, keeping our weight in check, getting enough exercise, staying out of the sun, stimulating our minds and

resting are all the tools to ant-aging that we have the power to do something about.

## Chapter 2: What happens to us as we age?

The body is made up of millions of cells. Everyone knows that fact regardless of how one defines the aging process. However, there are two schools of thought as to why we age.

The first school of thought says we are all preprogrammed to age. The second school says that the aging process occurs because of the cellular damage we go thru over time. I would say that aging is a result of both things. We are preprogrammed as living beings to grow and age through our DNA. As we grow and change thru time our structures are affected by damage which exacerbates the aging process. In truth, no one knows the real reason why aging occurs. But, science can see certain reactions that occur in the body based on growth. The changes that influence our growth and maturation process also creates aging.

I am not a scientist; but from my research I tend to agree with the scientists who believe in the “free radical” theory of why we age. The theory of free radicals was brought to light by a Dr. Denham Harman. His idea is that the body ages based on the culmination of reactions caused by molecules that are really toxic to the system called “free radicals”. Free radicals in simple terms are oxygen molecules in the body that cause damage. The premise is that it is free radicals that cause disease, aging and ultimately death. He also proves in his theory that free radicals come from two sources internally as produced as cellular bi products and from external sources (environmental) like cigarette smoke.

Endogenous free radicals are those which are produced in the body. They are produced by in the body 4 ways:

- 1. From normal metabolism of oxygen requiring nutrients**
- 2. Secondly thru the white blood cells which destroy parasites and bacteria by using oxidants thus exposing the cells and tissue to oxidants which are free radicals**
- 3. Thirdly the cellular components that produce peroxide which escapes periodically and wrecks havoc on the cells**
- 4. Fourth is the enzyme in cells called cytochrome which has oxidant by products.**

Exogenous products that cause oxidants and free radicals from environmental causes. These include air pollution and other factors in one's environment that create toxicity in the body.

It is the combination of the external and internal free radical attacks that cause us to age because of the damage it creates. Although we cannot irradiate aging altogether there is something we can use to fight the effects of free radicals. The weapon is called Antioxidants. Using antioxidants (nutrients that fight free radicals) help combat this aging monster. We can get antioxidants thru the foods we consume and supplements. Antioxidants seek out and destroy free radicals. They also repair the damage that free radicals cause.

At this point I would like to briefly discuss actually what happens to our bodies physically as we age. This is a chart of physiological changes that naturally occur not including disease. Here it goes:

- 1. Heart- as the heart ages its walls thicken in response to the thickening of the arteries. The pumping rate decreases because of the physical thickening that occurs**
- 2. Immune system- as people get older their T cells take a longer time to replenish as does their response thus breaking down the immunity we**

**have**

- 3. Arteries- get thicker as we age making circulation and pumping of blood more difficult**
- 4. Between the ages of 20 and 70 our lung capacities decrease by 40 percent**
- 5. Brain- the connection between neurons decrease, it is not known why; also the brain mass decreases in size and the covering membrane thins**
- 6. Kidneys- become less efficient in removing waste from the body**
- 7. Bladder- Bladder capacity declines and the bladder itself tends to atrophy causing incontinence**
- 8. Body Fat and Aging- Body fat increases until middle age then it starts to saturate the body**
- 9. Muscle – by the age of 70 our muscle strength can decline as much as 20 percent although it has been proven that exercise slows this down**
- 10. Bone- By as young as 35 our bones start to lose density- exercise can help prevent this from occurring**
- 11. Sight - Many by the age of 40 start having difficulty seeing details.**
- 12. Hearing- As we age we lose the ability to hear certain frequencies**

Although the things listed above happen sooner or later to all of us there are things we can do to improve how we age. Most of it begins with changes in our lifestyles. Incorporating Antioxidants thru foods and supplements is necessary as part our nutritional regimens to combat the free radicals that attack us daily. By exercising we can decrease our bone and muscle loss. By limiting or excluding saturated fats we can protect our heart and arteries from diseases



which age those organs and can kill us. And finally by keeping our brains sharp, with mental fitness we can fight the loss of our cognition. It has also been shown that positive thinking extends life for 7.5 more years. So if you are positive and want to stay youthful you can make changes to help the process.

## Chapter 3: Anti Aging and Antioxidants

We hear a lot of talk these days about antioxidants. But what exactly are antioxidants? Antioxidants are chemicals that protect our cells from damaging oxygen molecules that roam freely called free radicals. Free radicals are formed when food and other elements are broken down in our bodies particularly in the cells. Antioxidants are obtained thru nutritional sources such as foods and vitamin supplements.

It is believed when free radicals are unaddressed in the body they damage the cell walls, genetic material within the cells and other cell structures. If we take antioxidants then we have a better chance of destroying them and the effects they cause on our bodies. Many of the damaging effects caused by free radicals lead us to premature aging. Premature aging is things like diseases and illness. It is also manifested physically like wrinkles and sagging skin.

Although the body does produce some anti oxidant enzymes, we absorb them minimally. This is why we have to supplement in addition to what our bodies produce to get enough to fight the free radicals. Our bodies produce the antioxidants Superoxide Dismutase (SOD), Glutathione Peroxidase, and Catalase. These three body produced antioxidants are also sold as supplements for us to take to make sure we get enough in our bodies to fight free radicals. In addition to the ones our bodies produce it is found that some vitamins and minerals also work as antioxidants in our bodies. There are also herbs that have antioxidant properties as well.

As we grow older our needs for antioxidants grow also. Hormones, Vitamin Supplements and Herbs are all used to combat free radicals. The best source of antioxidant though is thru diet. Fruits and

Vegetables rich in color are the best source of antioxidants. The deeper the color the more antioxidant it has.

Here is a list of the major Antioxidant Vitamins and Minerals that combat anti aging:

### **Vitamins**

1. Vitamin A (Beta Carotene)
2. Vitamin B-1 (Thiamine)
3. Vitamin B-2 (Riboflavin)
4. Vitamin B-3 (Niacin)
5. Vitamin B-6 (Pyridoxine)
6. Vitamin B-12
7. Vitamin C (ascorbic acid)
8. Vitamin D
9. Vitamin E
10. Vitamin K

### **ANTIOXIDANT NUTRIENTS**

11. Bioflavinoid

### **CAROTENE and CAROTENOIDS**

12. Carotene and Cartenoids
13. BetaCarotene

### **FLAVINOIDS**

14. Flavinoinds

### **OTHER ANTIOXIDANT NUTRIENTS**

15. Alpha Lipoic Acid
16. Lutein
17. Glutathione
18. L-Glutathione
19. Selenium

## **MINERALS**

20. Magnesium
21. Chromium
22. Zinc

These are the major warriors in the vitamin and mineral nutritional war against anti aging. Whichever ones you cannot get in your foods for whatever reasons, they are available as food supplements. Like any other vitamin I would consult with my health care professional first to make sure I can take these nutrients as supplements listed above for my anti aging regimen.

## Chapter 4: Anti Aging - Vitamins and Minerals

As we age we need to increase our nutritive value intake because our bodies decrease in the ability to process nutrients as effectively. By increasing the nutrients we ingest particularly antioxidants we can better fight the changes that occur as we age. We are also able to fight the changes that are detrimental to us through the free radicals that bombard our systems.

It should be noted that not all Vitamins are antioxidants.

Antioxidants are those vitamins that help decrease the probability of cellular damage from free radicals that are precursors to aging. But, to get the most out of antioxidants one should take the maximum doses of an antioxidant. This enables us to have the best chances of preventing diseases and maintaining an optimum state of health for as long as possible.

There are certain vitamins that are essential to us to help us fight the detriments of aging. These as I have stated previously are primarily known as antioxidants. Antioxidants are found in the rich colored fruits and vegetables. The deeper the color of the fruit or vegetable the more antioxidants are present.

In terms of how much of a particular vitamin or antioxidant to take; one needs to consider certain factors in relation to the proper dosage considered right for them. One has to take in account if they are getting their nutritive optimum amounts of vitamins and antioxidants through their diet. If not, do they need supplements? There are governmental guidelines that have been established to supposedly meet the nutritional needs of men and women for optimum health. They are called the Recommended Daily Allowance. Unfortunately the reality is that the RDA or Recommended Daily Allowance that is

set by the US government generally does not meet the needs of the average person. Those levels set by the RDA are based on person who is in optimum health, not overweight and has no medical problems. Most people do not fit into the modality of who is likely to meet the physical requirements set by the RDA. It is a fact that most women in their dietary intakes don't even meet the RDA for Vitamins, B, E, Calcium, Magnesium and Zinc. The same goes for adult men who don't meet the RDA standard for zinc and Magnesium. Basically what this boils down to is if you don't eat five fresh fruits and vegetables a day you won't meet the RDA requirements. Statistically fewer than 29% of people eat 5 of either fruits or vegetables daily. Even more shocking is the fact that 20% don't eat any type of fruit or vegetables daily at all. To top it off the RDA does not meet the requirements needed for anti aging. If your goal is RDA amounts of nutritional value then your anti aging needs won't be met nutritionally. The RDA does not consider the optimum amounts of nutritional intake for anti aging at all. It is only for baseline nutritional standards based on young healthy individuals. One can intake the nutritional amounts within the RDA requirements and can take a blood test showing normal amounts of base levels of various nutrients in the blood. But, these baseline amounts are not effective for anti aging purposes. As we age our bodies require more nutritional supplementation to keep it functioning at a healthy level. As we age our level of absorption decreases so we have to have more to absorb to make up for what is not being taken in nutritionally. This does not mean eating more. This means eating foods that have more nutritional value as in vitamin rich antioxidants to fight the detriments of aging.

There are reasons why people need to take vitamin supplements in addition to their dietary intake based on a regular diet. The vitamins in the amount of food you intake based on a normal diet doesn't

come close to doses necessary for the benefits of anti aging purposes. When I say normal diet; this is based on the average diet of 50% fruits and vegetables, 25% protein and 25% fat. Those percentages do not merit anti aging benefits nutritionally in and of themselves. Therefore they must be supplemented. You would have to eat a pound of sardines to get 30 mg. Of Co Q-10 daily and who is going to do that realistically? Let's look at each of the major antioxidant vitamins and what they do for us.

### *Vitamins*

**Vitamin A(Retinol)/Beta Carotene-** Vitamin A as Retinol is a fat soluble vitamin. It is necessary for vision, eyes, skin formation, bone growth and the mucus membranes. Vitamin A is found in animal protein sources such as liver, eggs and dairy produce.

#### Good Sources of Vitamin A

Food/100 grams	Amount in ( $\mu\text{g}$ ) $\mu$ = one millionth, 0.000001
Lambs Liver	17300
Chicken Liver	9700
Cod Liver Oil	1800
Butter	887
Double Cream	654
Cheddar Cheese	363
Egg	190

Vitamin A(Retinol) sources contain a lot of saturated fat so need to be consumed in moderation. This is why supplements are so important. Plain Vitamin A sources can build up toxic levels in your liver. The recommended dosages for Retinol A is 5,000IUs to 10,000IUs. More than that tends to cause side effects. Some of the side effects include jaundice, blurred vision, appetite loss, diarrhea and muscle weakness.

Vitamin A/Beta Carotene acts as antioxidant to scavenge free radicals. Vitamin a as Beta Carotene is classified as a Carotenoid. A Carotenoid is a category of those substances that have a pigment responsible for the colors red, orange, yellow and green in both fruits and vegetables. The deeper the color the more vitamin properties the fruit or vegetable has. Beta Carotene converts to Vitamin A when consumed in ample quantities. Other Carotenoid anti oxidants include: cryptoxanthin, alpha-carotene, zeaxanthin, lutein, and lycopene. The difference with this other Carotenoids is that they do not convert to Vitamin A in the body like Beta Carotene.

### Good Sources of Beta Carotene

Food 100 gr	Amount (µg)	Retinol Equivalent(µg)
Carrots	8118	1353
Baked Sweet Potatoes	5130	855
Swiss Chard	4596	766
Chilli Peppers	4110	685
Capsicum	3840	640
Spinach	3840	640
Mango	1800	300

The recommended dosage from the Alliance of Aging Research for BetaCarotene is 10mg(17,000IU) to 30(50,000 IU) mg. daily for antioxidant benefits. One cup of carrot juice equals 24.2 mg and one medium sweet potato equals 10. Remember heavy cooking destroys Beta Carotene. Beta Carotene should be consumed with meals if you are taking a supplement because it fat soluble.

**Vitamin C:also known as Ascorbic Acid-** is a water soluble anti oxidant. We human beings have to obtain Vitamin C from external sources because our bodies don't produce it. It helps keep our immune systems healthy. Vitamin C helps in the building of healthy



connective tissue, bones and teeth. It also increases white cell levels in the elderly. It is key in the healing of wounds and fractures and helps us absorb iron. Nobel Peace Prize Winner Dr. Linus Pauling swore by it. He lived to 93. He accredited his longevity to Vitamin C. He was a firm believer that consuming Vitamin C added 12 to 18 years to a persons life span. He conducted a study to verify his theories by giving 300 mg of Vitamin C a day to 11,000 men and women. (300 mg of Vitamin C is equal to 5 servings of fruits and vegetables a day). The results added up to 6 years life extension in the men and 2 years in the women. It also reduced the groups amount of cardio-vascular diseases tremendously.

Vitamin C regenerates our Vitamin E intake and glutathione. Vitamin C for anti aging purposes is best taken 2 to three times daily because the kidneys excrete it out very quickly. Ideal intakes should range from 100-1000 mg per daily dose although the RDA is 75 mg for women and 90mg for men. For smokers the RDA recommended dose they take is 125mg daily. Vitamin A is found in topical applications as an aid to sun blocking. It is said to help us fight skin damage caused by the sun and X-rays/radiation by protecting against UV rays. Side effects from large doses are usually bouts with diarrhea, heart burn and stomach upset. That is why it comes in an “Ester” form for less stomach irritation. Below is listed some good sources of Vitamin C:

### Good Sources of Vitamin C

Food 100 g	Amount(mg)
Guava	230
Chili Peppers	120-225
Capsicum	120-140
Strawberries	77
Papaya	60
Lightly boiled brussels sprouts	60

Kiwi Fruit	59
Red Cabbage	55
Oranges	54
Lightly boiled broccoli	44

Vitamin C is found also in fruits and vegetables that are red. Those like the one's included in the chart as well as tomatoes.

**The B Vitamins-** The B Vitamins are a group that consists of 8 vitamins called the “B Family”. They are called B complex. The human body relies on all 8 to function properly.

1. **B-1(Thiamine)** essential for mental functioning and cell growth, water soluble, the body cannot store B-1, In terms of food over cooking or processing it destroys its properties. Good sources of B-1 include, yeast, sunflower seeds, peanuts dried whole spaghetti.
2. **B-2(Riboflavin)** necessary for cell growth and releases energy, water soluble and the properties are destroyed by over processing and over cooking. Food sources include: yeast, some meat, some dairy and tomato sauce.
3. **B-3(Niacin)** is primary in cells functioning properly and for the reduction of cholesterol. It is water soluble but over 3 grams a day can cause liver and kidney damage as well as dilation of blood vessels. Food sources include yeast extract, Lean meats, Tuna and peanuts
4. **B-5 (Pantothenic Acid)** breaks fat down so it can convert to energy and is needed for Vitamin D, hormones and RBC synthesis
5. **B-6 (Pyridoxine)** converts amino acid to protein and synthesizes enzymes as well as prevents heart disease. High levels of B6 over 50 mg a day can cause nerve damage. Food sources include, Dry lentils, Salmon, Squid, Turkey, Lean Beef, Walnuts and Baked Potatoes.
6. **Biotin**-breaks down fat, carbohydrates and protein into energy

7. **Folic Acid** – enables cell growth and cell division ; It also prevents birth defects and heart disease
8. **B-12 (Cobalamine)** Makes red blood cells, converts fat, carbohydrates and protein into energy and helps prevent heart disease

Most people get adequate amounts of B Vitamins from the foods they eat with the exceptions of B-12 and Folic Acid. Statistically over 24% of seniors between 60-69 are deficient in those two vitamins. It is shown as they reach 80 the statistics rise to 40%.

The main cause for this is as we get older the intrinsic factor that we secrete for absorbing Vitamin B decreases. Also lack of B-12 causes a type of senility that resembles Alzheimer. Vitamin B-12 is only found in animal food sources like fish, chicken and dairy.

Vegetarians have to take supplements if they eat no dairy because they can become B-12 deficient as well. B-12 deficiency can result in developing pernicious anemia. Over the age of 50 it is recommended that their B-12 intake is supplemented. For anti aging purposes the ideal dosage is 500mcg to 1000mcg daily. The average Multivitamin has 6mcg the minimal to help prevent B-12 deficiency.

**Folic Acid-** metabolizes a chemical in the body called homocysteine. When homocysteine levels are too high you run the risk of heart attacks. Less than 350 mcg daily increases the chances of high levels of homocysteine. The other thing about folic acid is that the less folic acid is in the blood the more constricted the arteries are. Most Americans over the age of 50 get less than 130 mcg daily of folic acid. It is also a fact that smokers need folic acid three times as much as non smokers do to combat the damage caused by smoking.

Depression is also associated with those whose folic acid levels are low. People with low levels of folic acid get relief with as little as 400mcg daily. Good sources of B-12 include lean meat and some sea foods.

**Vitamin D-** Vitamin D is necessary as we age to fight fragile bones and diseases like Osteoporosis and Osteomalacia. Osteomalacia is a disease characterized by bone thinning in relation to proximal muscle weakness and bone thinning that occurs in mature skeletons.

Dependent on sunlight; our skin produces Vitamin D. So supplementing D is especially important to those who don't get enough sun light. Excess amounts of Vitamin D can cause Kidney damage due to excessive calcium deposits built up in organs. By the time we reach 70 our bodies produce 40% less Vitamin D then when we were younger. Because of this fact it is recommended that as we get older we should graduate to the dose from 400IU to 600IU of vitamin D. This is how much is needed to do the same amount of work that 200IU's of Vitamin D does in our 20's.

Sources of vitamin D are dairy and fish.

**Vitamin E** - Another powerful antioxidant. It protects cell membranes against damage done to them and also repairs inactive free radicals in the body. It is used both topically and taken internally to help with photo damage to the skin caused by the sun. It is known as a good cancer fighter and fights against arteriosclerosis. Although the RDA is 25IUs, the recommended anti aging dose is 400IUs. It is fat soluble and over 800IUs can cause blood thinning. It is not recommended for people on anti coagulation therapy and doses over 3000 IU cause side effects such as headaches, high blood pressure and diarrhea.

#### Best Food sources of Vitamin E

Food 100 G	Amount (mg)
Wheat Germ Oil	136
Sun Flower Oil	49

Safflower Oil	41
Polyunsaturated Spread	38
Sunflower Seeds	38
Shelled Hazelnuts	25
Sun-Dried Tomatoes	24
Almonds	24
Cod Liver Oil	20

**Vitamin K** – is many times overlooked as one of the antioxidant vitamins. As we age certain hormones decrease while others increase. One such hormone that increases with our age Interleukin 6 is one that causes inflammation in the body. The inflammation it causes results in arthritis, diseases of the cardiovascular system and Alzheimer. It is found that Vitamin K reduces many of the diseases associated with L-6 by reducing this hormone in our body. It also regulates calcium in the blood which also helps with maintaining bones as well. We already know that Vitamin K is essential for blood coagulation. Vitamin K is found in small quantities in green leafy vegetables, the skins of fruit and in liver. There have been no set doses for this vitamin k but you can ask your healthcare provider what dose they would recommend for you. Also those on blood thinners like warfarin or heparin should not take vitamin K.

**Omega 3/Fatty Acids-** are a common group of unsaturated fatty acids. What makes them similar is they all end in a final double carbon bond. Of all the Omega 3's DHA and EPA Omega 3 are the most popular. They were discovered after a study with the Greenland Eskimos in the 1970s. It was observed that the Eskimos consume vast amounts of fish fat in their diets but do not have any evidence of cardiovascular diseases. The eskimo diet proved to reduce triglycerides and blood pressure. Heart rates were normal as well

among the Eskimo population.

In a study conducted of survivors of heart attack all 11,323 survivors had taken 1 gram of omega 3 or 300 mg of E or both. The evidence concluded it was the Omega 3 that improved their survival rate not the Vitamin E.

Omega 3 significantly reduces the possibility of coronary heart disease as well as strokes and cardiovascular disease. It decreases the chance of blood clots, decreases plaque in the arteries, helps lower blood pressure and reduces inflammatory conditions in the body. Omega 3 shows evidence of preventing and minimizing a vast array of diseases and conditions including depression.

The American Heart Association suggests that Americans consume 500mg of fish oil a day which is equivalent to 3 servings of fish. Eating fish 3 times a week will give a combined amount of 500mg of fish a day. The National Institute of Health recommends the daily dosage for fish oil should be about 650 mg. This is currently 4 times more than the average American consumes daily. Americans don't eat enough fish. Japanese intake of fish is the highest worldwide and they have the record for longevity. Depending on your health goals here are some guide lines for taking EPA or DHA:

- To maintain good health: 1.5 to 2.5 g daily
- Improve cardiovascular function: 2.5 to 5 g daily
- Improve brain function: 5 to 10 g daily
- Reduce inflammatory response: 5 to 10 g daily
- Optimum health: 5 to 10 g daily
- Treatment of neurological diseases: Less than 10 g daily

What is a good dosage depends on the person. One needs to consult their health care provider to determine what dose will meet their needs.

Standard fish capsules on the market are usually 180 mg of EPA and 120 mg of DHA per 1000 mg capsules. Regular fish capsules only provide 300mg of active EPA and DHA and not the 1.5 grams that is suggested for optimum health. Some people can't tolerate the 1.5 grams and excrete a fishy smell as a result from their skin. Higher grade quality fish oil capsules contain 360mg of EPA and 240 of DHA per 1000mg capsule. You need to take 2 capsules to get 1.1 grams of the adequate dosage for optimum health. For those who don't go for the fish oil, flaxseed has DHA and EPA at much lower doses. DHA and EPA tends to thin the blood and has the same effect as aspirin at 10 grams. It is recommended not to take any fish oil one week before a surgical procedure. if you have blood thinning issues, are on warfarin, aspirin, herbs like Ginkgo Baloba, or are taking high doses of Vitamin E then check with your Doctor first.

**CO Q-10 (Coenzyme Q-10)** - is water soluble. It is produced and found naturally in the body and in fish. It is involved in transport of electrons as well as the production of energy in the mitochondria of the cells. Aging adults are found to have 50% less of COQ-10 in their bodies than younger adults. In fact after the age of 20 our bodies don't produce it. Although the human body is the main source of this substance it can be had in small amounts in foods like organ meats such as liver, hearts and kidneys, in fatty fish like sardines, beef, soy and peanuts. Recommended doses are for anti aging purposes is 30mg especially if you are 50 and over. For people with chronic diseases the dosage is recommended at 50mg to 150mg. If you are taking 150mgs it is suggested to do so with meals for better absorption. COQ-10 is good for the heart (It fights against

congestive heart failure and like diseases), arrhythmia (irregular heartbeats), blood pressure, fights free radicals, boosts the immune system and helps with a vast amount of ailments and diseases from fatigue to Alzheimer. It is also shown to have a profound effect on weight and obesity. Thin people have larger amounts of COQ-10 in their bodies by comparison to overweight people. People who include it in their diet regimen seem to lose weight and keep it off. It is recommended to take CO Q-10 with Vitamin E, Selenium and Vitamin B because these vitamins boost and enhance its production internally.

**GLUTAMINE** - is a non essential amino acid. It is found in protein. It works as a neurotransmitter in the brain, which is necessary for the brain to function properly. It serves as an energy source for the brain. It also promotes healing and recovery. In higher quantities Glutamine functions as an antioxidant. It is found and stored in the muscles of the body. If you don't have enough you muscularly breakdown so to speak. Anti aging benefits include: boosting the immune system cellularly, it has antioxidant properties and prevents the catabolic effects of cortisol on the muscles which exasperates the aging process. Over supplementing Glutamine results in ammonia overload which is not good for the kidneys. For anti aging purposes doses range from 500mg to 2000mg. For short periods under stress one can use up to 20,000mg. When taking higher doses they can be broken up during the day.

**Lipoic Acid/Alpha Lipoic Acid** - is considered a universal antioxidant. It is water and fat soluble. It dissolves well in both. It is a catalyst that increases the potency and effectiveness of other antioxidants. It can cross the blood brain barrier where other antioxidants cannot. It also has the ability to regenerate other antioxidants like vitamins C and E, coenzyme Q10, and glutathione.



For therapeutic doses the recommended amount is 500ml to 1000ml a day.

**L-Alpha-glycerolphosphorylcholine (GPC)** - in the form of choline has been shown to protect against cognitive decline as we age. Consult your health care provider for suitable dosage recommendations.

### *Minerals*

In dietary terms minerals are inorganic substances that are necessary for the various body processes and body development. Generally speaking Minerals help as constituents of bones and teeth, function as salts to regulate body fluids and are components of enzymes and hormones. Our bodies require certain minerals to function in a healthy capacity. Excess amounts of minerals in the body can however cause negative effects and illness just as mineral deficiency can also cause problems. Good sources of dietary minerals include:

1. Dairy products and green leafy vegetables for Calcium
2. Nuts, soy beans, and cocoa for Magnesium
3. Table salt (sodium chloride, the main source), milk and spinach for Sodium
4. Legumes, whole grains, and bananas for Potassium
5. Red meat, leafy vegetables (especially spinach) for iron

**Calcium-** Surprisingly enough, most people only get half the calcium they should have daily. Calcium is important to our bone strength, smooth functioning of our muscles, and nerve action. It is also a good antioxidant against some types of cancer. It is very important as an anti age fighter because of bone density and brittleness as we age. Bone degeneration is the number one killer of women in particular. It is recommended that adults over 25 get 1000mg or 1kg daily. If you have a rich calcium diet then it is recommended to take a low dose supplement. Low dose means

between 300mg and 500mg daily. It is best to split calcium doses, toxicity results in constipation or kidney stones. It's good to drink a lot of water with calcium. You must also take Vitamin D when taking Calcium. Vitamin D absorbs calcium. Also Magnesium should be taken as well. The magnesium ratio should be 1:1 or 2:1. Calcium Citrate is the best form to consume because it absorbs the best. Calcium absorption is hindered by consuming foods high in insoluble fiber, Oxalates found in spinach, rhubarb, chard, chocolate and beetroot and tannin in tea and coffee.

### Good Sources of Calcium

Food/100g	Amount Mg
Parmesan cheese	1200
Reduced fat cheddar	840
Full fat cheddar	740
Sesame seeds	670
Steamed tofu	510
White chocolate	270
Shelled almond	240
Soya beans	240
Muesli	200
Spinach	170
Skimmed milk	120
Prawn	110
Broccoli	40

**Magnesium** - works with Calcium to keep our bones healthy. It also works with potassium to keep our hearts healthy. It is required for sodium balance also in our bodies. In fact it is the cofactor of 300 enzymes in the body so indeed it is very important in our anti-aging battle. Daily recommended doses are 320mg in females and 420mg in males. But for anti aging purposes up to 700mg does the job.

One of the best dietary sources of Magnesium is cocoa powder which has 500mg per 100 grams. Seeds and nuts such as almonds, hazelnuts cashews, peanuts and shredded wheat are also good sources. It is found that those that eat nuts 5 times a week cut their risk of heart attack in half compared to those that don't. Heavy alcohol consumption hampers magnesium absorption. On the other hand, too much magnesium in the diet hampers calcium absorption. It is advised not to take magnesium without supervision of a doctor if you have kidney or heart issues.

**Potassium** – no human being can live without potassium. It is a key ingredient in our cellular functioning. Everything involving a cell from its membrane to the functioning of the mitochondria cannot take place without potassium. The ideal anti aging range of potassium for humans is 5:1. Most people only get one tenth of that. If you are on a good anti aging diet with 5 fruits and vegetables daily chances are you are fine, but most people do not eat 5 fruits and vegetables a day. Potassium also regulates body fluids and the heart (its beating), the nerves, as well as blood pressure. I had a Potassium deficiency last year and I thought I was going to have a heart attack. My symptoms were very bad chest pains and also bouts of light headedness. The doctor was amazed that I didn't fall out somewhere. A simple blood test determined it. He prescribed me a medical dose and I was fine in a few weeks. A daily intake of about 3,500 milligrams is needed. The RDA for Potassium is 3.5 grams per day. Consult your physician for recommendations that are right for you.

**Selenium-** is an essential trace mineral. A powerful antioxidant, Selenium is a building block for other antioxidants primarily glutathione peroxidase, which is an antioxidant enzyme that neutralizes free radicals. Selenium protects us from aging prematurely, from some cancers and from heart disease. It works with vitamin E to help our bodies control a hormone like chemical

called prostaglandins. Selenium aids in growth, fertility and thyroid function. It also helps with healthy skin and hair. In excess amounts it can cause toxicity. Toxicity of selenium includes hair and nail loss, nerve damage as well as hindering copper absorption. Good sources of Selenium are in grains, sunflower seeds, meat and seafood especially tuna, swordfish. Garlic also is a good source for selenium. Brazil nuts contains about 100mcg of selenium due to the soil. For anti-aging benefits doses should be between 75mcg to 200mcgs per day.

**Zinc** - Zinc is a mineral that is produced in our bodies by the thymus gland. This gland is responsible for T-cell production. As we age the gland shrinks. T-cells lymphocytes are crucial in our immunity by fighting infections in our bodies. Our B-cells cannot make antibodies properly without T cells. Zinc can be found in meats and in some seafood (oysters especially) and poultry. Cereals, nuts and seeds have high zinc contents but many times the fiber in these foods prevent proper absorption. 15mg to 30mg is enough to preserve the immune system against aging but those 70 years and older may require up to 50mg under doctor supervision. Smoking and alcohol consumption hinders the absorption of zinc also. Excessive Zinc can hamper iron and copper absorption. A white blood cell test can give you an idea of what state your immune system is in.

**Chromium-** is a trace mineral, found in certain foods in low doses. Chromium comes in form called Chromium Picolinate. It reduces insulin and blood sugar levels. It promotes the rise of DHEA which is an anti-aging hormone. With the increase of DHEA insulin decreases in the blood levels. With each 10 years we live our chromium levels decrease. The anti aging dose for chromium is 200mcg daily. Without enough chromium in our systems our insulin and sugar levels rise giving way to diabetes and also heart disease.

Eating 30% sugar in our diets tend to make us lose chromium in our bodies as opposed to eating 10% sugar. Good food sources for chromium include: broccoli, barley, liver, lobster tail and mushrooms. The best type of chromium is chromium picolinate because it is readily absorbed in that form in the body. Some researchers say for anti aging purposes 400mcg of Chromium picolinate is the best dosage.

# Chapter 5: Anti Aging and Hormones

Just as there are different systems that make up the human body, each of the systems age as we do. This is true for our hormonal system. As we age our hormones changes, which also contributes to the aging process. Hormonal health has to be addressed in an anti aging regimen like any of the other issues that we address in aging/anti aging health issues. Here are some questions you could ask yourself to gauge if you are in optimum hormonal health or in declining hormonal health.

## 15 Signs of Declining Hormonal Health

1. Are you experiencing mood swings
2. Are you quick to anger
3. Do you find it difficult to fall asleep or sleep in general
4. Are you less interested in Sex
5. Is it hard for you to concentrate
6. Are you frequently cold or feel sick often
7. Is your total blood cholesterol over 240
8. Is your HDL under 50
9. Do you have high blood pressure
10. Do you have saggy appearing skin on your neck and face
11. Do you have trouble exercising
12. Is your grip weaker than it used to be
13. Is your endurance less than it has been in the past
14. Is you breathing labored from rigorous exercise
15. Are you age 45 or above

It is advised that if you answer yes to more than half of the questions you may want to consult an anti aging Doctor to see if you should consider hormone replacement. Hormonal replacement can be done orally through prescription, bought over the counter, or in more

severe cases given in shots by a doctor. Hormone replacement has proven that it helps in the fight of anti aging and longevity. An example of this is estrogen given to post menopausal women that has cut their chances of heart attack and stroke in half thus prolonging their life. Hormones are not all peaches and cream they are also given the reputation of causing cancer and other side effects. When considering hormonal therapy for anti aging purposes you have to research the hormone you are considering to use and to weigh the pros and cons of that hormone against the current state of your health. If your health is affecting you to the point where your quality of life is compromised then hormonal replacement may be right for you.

**hGH/Human Growth Hormone** - is the hormone that is excreted by the pituitary gland. hGH is a protein molecule comprised of 191 amino acids and one single polypeptide acid. Its production in the human body peaks during adolescence when growth really occurs in vast amounts. Every 10 years after that growth spurt HgH decreases in production by 14 percent in human bodies. It still remains abundant in the gland but is no longer secreted for a reason that is still not known to science. The body needs hGH to repair cells. It is found that caloric restriction in diet, testosterone and estrogen levels, high doses of amino acids (L-Arginine, Glutamate, Lysine) vigorous exercise and high increases in calcium stimulate its release. All of these things mentioned are anti aging approaches.

In 1989 a double blinded study was conducted by a Dr. Daniel Rudman. The study was conducted on men between the ages of 61 and 73. Some of the men had deficiencies in GH. The study showed that GH showed signs of age reversal. The GH used in the study was a recombinant DNA that the men were injected with. The findings were released in 1990 in the New England Journal of Medicine. The results were:

1. Lean Body Mass +8.8%

2. Bone Density +1.6%
3. Adipose Tissue (Fat) Mass -4.4
4. Skin Thickness from 4 sites +7.1%

What this meant in terms we can understand is the men in the studies skin was thicker, the muscles were bigger, age related stomach fat was disappearing, lost bone from the spine was restored. This study concluded that using hGH for 6 months reversed aging by 10 to 20 years effecting lean muscle mass and adipose(fat) tissue.

After the age of thirty muscles in the human body start to atrophy, partially from genetics, partially from under use. Every 10 years after 30 years of age and on 5% of our body mass is replaced with fat tissue. By the time we reach 70 years old we go from 80/20 percent lean to fat ratio to 50/50 fat ratio. Fatty tissue is the culprit in aging because it is related to cardiovascular problems as well as loosing lean muscle mass. When we lose lean muscle mass we lose energy, strength and mobility which are all key factors in aging.

Symptoms of hGH deficiency in adults include

1. Anabolic tone: increased body fat as opposed to lean muscle, reduced skeletal muscle strength, reduced performance in exercise, increased abdominal fat
2. Bone loss as osteopenia, increase in LDL (bad cholesterol) decrease in HDL (good cholesterol)
3. Thinning hair and skin, decrease in organ size, lack of collagen and hair and nails grow less
4. Mental changes in terms of energy, sexual desire, emotional instability, memory loss and problems concentrating.

In addition to fat loss, some other positive effects of hGH include wrinkle reduction, hair growth, muscle gain, increased brain function sex drive, vision, immune function and lower cholesterol.



This hormone is given to patients under the care of a Doctor via injections .

**SECRETAGOGUES** - are precursors to the Growth Hormone. They stimulate the growth hormone to be secreted. They are polyamino acid chains that cause the body to naturally produce GH. These are orally taken as opposed to the hGH shots.

**Amino Acids** – that stimulate the growth hormone are known as provocateurs. They are consumed in large doses to stimulate the growth hormone. The primary amino acids are:

1. Glutamine
2. Arginine
3. Lysine
4. Ornithine

Glutamine is the most abundant in the body. It is considered a conditional amino acid because it is not necessarily synthesized under duress. Traditionally it was used as an immune system strengthener. Anti aging doses are 50 mg twice a day. As a powerful antioxidant some take 3gm to 4 gm up to four times a day. Its anti aging benefits include:

1. Improved immunity
2. Prevents daily oxidative damage caused by stress
3. Prevents the catabolic effect of Cortisol
4. Causes GH release/ it has been shown that two grams of Glutamine affects a four fold of GH
5. Improves the Kidneys

**Lysine** – is an essential amino acid. It affects bone function, height and genital function. The recommended way to take it is One gram on an empty stomach either one hour before bed or before exercising.

**Ornithine** - is a non essential amino acid. It increases the effectiveness of Arginine. The dosage recommended is 1 gram before bed. 2 to 5 grams cause diarrhea.

**Progesterone** - is a steroid hormone that counters the effects of estrogen, primarily in post menopausal women. It is available in many forms oral, topical, natural or synthetic. Natural progesterone has less side effects. Progesterone has many functions. It is known to prevent endometrial cancer, promotes the breakdown of fat, normalizes blood sugar, zinc and copper and stimulates GH as well.

**Estrogen** - represents a family of female steroidal hormones. It is often used for mood swings and hot flashes associated with menopause. It is available like Progesterone, natural, synthetic, oral or topical. Other benefits include preventing rapid bone density after menopause, preventing heart disease, controlling LDL cholesterol, improving body composition, protecting against Alzheimer and also stimulating GH.

**Testosterone**- this is the strongest stimulant of GH. It is a male hormone that is found in both males and females. Testosterone is what gives us a sex drive. It decreases with age starting in the 40's. Testosterone replacement therapy in men is similar to that of the estrogen and progesterone replacement in women. For men TRT

(Testosterone Replacement Therapy) renews their strength, improve their balance, raises blood cell count, increases sexual desire, lowers LDL and Cholesterol and helps in male bone loss. There are side effects associated with TRT. It increases Prostate Specific Antigen and raises hematocrit. TRT is given either as injections muscularly or as suppositories or even as patches that are put on the scrotum, orally in capsules or even lozenges.

**DHEA (Dehydroepiandrosterone)** - is a steroid that is released from the adrenal glands. It is the most prevalent of all the steroids in the body. DHEA helps with the production of testosterone, estrogen, progesterone and corticosteroids. Just like GH, DHEA declines as we age. By the time one is 65 year old 10 to 20% of that made when we were 20 years of age is produced by our bodies. DHEA is comparable to GH but is a less expensive alternative. It is shown to fight obesity, cancer, help the autoimmune system, anti stress, anti infections and an all round anti aging weapon. Daily doses range from 25 to 50mg daily with intermittent resting periods in between taking the steroid.

**Melatonin** - is produced by the pineal gland. It is a very strong antioxidant. The pineal gland is the brain's time keeper so to speak. It acts as a clock to our circadian rhythms. Melatonin is released every night as part of our bodies to help with our recuperation from being fatigued and to induce sleep. Dosage may vary depending on the person. Low doses of .3mg to 1mg can decrease the time it takes to fall asleep and get an improved sleep time . For others they require up to 60mgs for it to kick in. The normal recommended dosage is 0.5mg to 1mg before bed to start. If you decide to increase the dose do it in increments of 5mg to 10mg per day as needed. Warnings include not recommended for pregnant or nursing mothers,

children, women trying to conceive, people on prescribed steroids, those with mental illness, allergies or immune system cancers such as lymphoma.

To conclude hormones are a vital component in the battle against aging. As we age our hormone levels decrease creating hormone deficiencies. Our hormones have to be balanced for us to have optimum health. I don't necessarily think one has to get hormone replacement to handle a depleting hormonal system. Natural hormonal supplements do the job along with diet and exercise. For example diet and exercise are very important because they work synergistically with hGH to promote its secretion. Studies show that athletes produce hGH well into their 70's due to their levels of exercises and their diets. The use of supplements, vitamins and hormone replacement all help in the secretion of hGH.

Diets to promote hGH secretion should include 50 to 60% of their carbohydrate intake from fruits and vegetables. Complex carbs are preferred as fruits and vegetables as opposed to potatoes and rice. Proteins should account for 20 to 30% of one's dietary intake and last 10 to 20% fat. These percentages are representative of food amounts necessary to promote hGH secretion in the body.

## **Chapter 6: Anti Aging and Herbs**

Now days many people look to alternative medicine to find solutions to various health issues and illnesses including anti aging. They want solutions without taking things that have terrible consequences and side effects as unfortunately many medications have. Some prescription drugs to help fight aging have side effects that are quite serious. So as a result many people are looking for more natural methods to attain their anti aging goals. This is where herbs enter the anti aging arena.

Although herbs are called natural, one has to know what herb to take and how to take them because they can have side effects as well. Even with this in mind there are many herbs and herbal remedies that are quite safe to use and still render positive results. Basically what herbs do for anti aging purposes is assist in circulation, aid in digestion and help to absorb necessary nutrients to help with the anti aging process. Anti aging herbs assist in blood flow thru the blood vessels which bring oxygen and nutrients to the needed area to help reverse some of the damage caused by aging. Herbs can also help to stimulate and rejuvenate cells which is key in making cells healthier and thus helps slow down the aging process.

### **Ginkgo/Ginkgo Biloba/Maidenhair Tree -**

(is used as a prescription drug in France and Germany for symptoms associated with memory deterioration.)

- Properties: Ginkgo Biloba is a bittersweet, astringent herb that dilates the bronchial tubes, blood vessels and controls allergic responses. The leaves stimulate the circulation and the seeds have anti-fungal and antibacterial effects.

- It's basically used internally for a wide variety of things including: asthma, allergic inflammatory responses, senile dementia, to aid in mental alertness, improving memory, circulatory complaints and varicose veins.
- The leaf extract has shown good results in combating various symptoms of cerebrovascular insufficiency, as well as dementia, such as memory loss, disturbed concentration, dizziness, mood swings and Morbus Alzheimer.
- Some studies have also shown the extract to be effective in treating tinnitus.
- The leaves are used to stabilize an irregular heartbeat and the seeds are useful for coughs with thick phlegm and urinary incontinence.
- Since Ginkgo Biloba improves blood flow, and especially microcirculation, it is helpful to increase blood flow to the genitals by stimulating the action of the endothelium derived relaxing factor and appears to be very effective in the treatment of erectile dysfunction caused by a lack of proper blood flow to the genitals.
- The seeds are used in Chinese medicine and work on the "Lung" and "Kidney" meridians and are used for asthmatic disorders.

Because of its property of dilating the blood vessels, it has been shown to improve vascular dilation of the peripheral circulation. It also slows down Alzheimer.

Dosages to protect functions are 30mg 1 to 2 times a day and to improve symptoms up to 3 times daily. It takes from 4 to 8 weeks to see an improvement in symptoms but if the dosages stop then the symptoms come back. Although considered safe, side effects include upset stomach, headaches and elderly patients have complained of dizziness on dosages up to 120 mg daily. Ginkgo has a blood thinning effect so consult your doctor if you have blood clotting issues or disorders.

**Gotu Kola-Indian Pennywort/*Centella Asiatica*** - Long considered traditionally in India as an herb that rejuvenates the brain nerves and cells. Gotu Kola was used by the Indians in India traditionally for intelligence and memory while keeping senility and aging at bay. Two studies done in India one in 1972 and one in 1988 stated that using Gotu Kola with retarded Indian children improved their mental abilities as well as their patterns of behavior. Gotu Kola is also an alternative medicine for wounds that heal slowly, improving circulation, boosts skin health and longevity. It is used both internally and externally.

**Internally:** Taken internally it appears to exert its anxiolytic and anti-stress activity by depressant action on the central nervous system (CNS), involving an increase in the concentration of GABA (gamma-aminobutyric acid) in the brain.

- Improves circulation in veins as well as capillaries.
- Stimulates hair and nail growth,
- Increases vascularization of connective tissue.
- Helpful in treating arthritis.

Furthermore, Gotu Kola also is helpful to minimize varicose veins, as it appears to enhance blood flow, increasing the tone of the connective tissue sheath that surrounds the veins, and helps to maintain the suppleness of the veins. As well as:

1. Increasing the tensile integrity of the dermis (strengthens the skin).
2. Helps improve liver function.

**Gotu Kola can be used externally for:**

- wound healing eczema
- stretch marks
- psoriasis

- promoting skin health
- thread veins
- varicose veins and improving circulation in general
- strengthening the arteries and veins

Gotu Kola is generally taken internally in capsule form in 600mg capsules three times a day. It can be taken as a tea as one teaspoon of the herb dried per cup or mixed with water and applied to the skin.

**Milk Thistle-(*Silybum Marianum*)** - Is primarily liver specific. It affects the liver membrane by altering it to prevent toxins from entering. It stimulates the liver to produce new cells and is a liver specific antioxidant.

It is also beneficial when used:

- to minimize the side effects of cancer chemotherapy
- In mushroom poisoning, it reactivates the protein synthesis in the liver which is blocked by amanitin and other mushroom toxins.
- In gall bladder diseases, dyspeptic complaints, jaundice, hepatitis and cirrhosis
- was used originally to stimulate the milk of lactating mothers (thus the name milk thistle)

One of the best-documented forms of Milk Thistle on the market is a single dose of 140 mg of Silymarin in 175 mg of Milk Thistle Seed Extract, taken two to three times a day.

**Black Cohosh-(*Cimicifuga racemosa*)** - In addition to other female issues Black Cohosh is used for hot flashes and moods associated with menopause. It is also used to treat arthritis and rheumatism. Black Cohosh is found to be effective in helping to lower both blood pressure and cholesterol. Excessive intake however may cause



nausea and vomiting. In 1986 FDA report warns that Black Cohosh causes potentially hazardous side effects, including dizziness, diarrhea, vomiting, tremors, depressed heart rate and miscarriage. More than 5g of the herb can be toxic. In some countries use of Black Cohosh is restricted. It is suggested that the daily dose should be taken as a liquid extract (40 to 60 percent alcohol) which is equal to 40mg of dried Black Cohosh root. Black Cohosh should not be confused with Blue Cohosh.

**Saw Palmetto (*Serenoa repens*)** - is used for improving sex drive and libido as well as prostate problems primarily Benign Prostatic Hyperplasia. Benign Prostatic Hyperplasia is a condition by which the prostate grows and becomes enlarged. It is a condition that affects 50% of men over 50 years of age. The growth narrows the urethra passage, causing painful urination, hesitation and straining in urination, dripping after urination and always feeling like you have to urinate. The use of Saw Palmetto has been documented and backed by more than 2 dozen controlled studies mainly in Europe. In the US the first Study done with Saw Palmetto was published in 1999. The study used 44 men with BPH (Benign Prostatic Hyperplasia) who were either given 320 mg daily of Saw Palmetto or a placebo. Out of the men on Saw Palmetto their prostate tissue shrank from 17.8% to 10.8%. After the study 19 of the 21 men on the herb continued to use it and the ones that were on the placebo started to use it as well. Dosage recommendations are a dose of one to two times a day of Saw Palmetto equaling 320 mg. (Women are encouraged to take Saw Palmetto to enlarge their breasts).

**Hawthorn (*Crataegus spp.*)** - is a herb that is used to improve peripheral circulation and to stabilize the heart rate, blood pressure as well as coronary heart flow. It is also an antioxidant and diuretic. Hawthorn is used internally for:

1. circulatory disorders and most heart problems, and especially if you have a feeling of tightness or pressure in the heart area
2. It is also helpful in restoring high blood pressure to normal, and combined with Ginkgo Biloba to boost cerebral circulation and improving memory.

Doctors prescribe Hawthorn in Germany as part of their treatment plan for diminished heart function in its early stages of congestive heart failure, for angina pectoris, and for help in long-term recovery from heart attacks. Hawthorn also helps to reduce pressure or anxiety in the heart area, age-related heart problems not requiring digitalis, and mild forms of arrhythmia. Controlled clinical studies from 1981 to 1996 have been published particularly one using the extract in over 800 patients with nearly every patient showing clinical effectiveness. The studies have shown that Hawthorn helps the heart perform more efficiently by increasing the blood supply to the actual heart muscle which in turn strengthens its contractions. This enables the heart to pump more blood to the rest of the body and to dilate the vessels. Hawthorn has also been shown to improve circulation to the extremities by helping to decrease arterial resistance. There have been no reported side effects or contraindications with the use of Hawthorn. Hawthorn has to be used for at least 6 weeks to affect a visible change. Doses range from 160mg to 900mg daily under the guidance of a doctor.

**Green Tea-(Camellias Sinensis)** - Green tea is one of those herbs that is a powerful antioxidant both internally and externally. It helps maintain the cellular DNA and the integrity of cell membrane structurally. Also thru years of study and research it is been found that green tea inhibits the growth of undesirable cell colonies (ex. types of cancer).

What makes green tea so potent is antioxidants called polyphenols or catechins and flavonols. Green tea contains several catechins. One catechin that is in Green Tea EGCG (Epigallocatechin gallate) is by far the strongest. As an antioxidant EGCG functions 25% to 100% times stronger than Vitamin C and E. A cup of green tea has 10 to 40mg of polyphenols. Its effect is greater than one serving of broccoli, carrots, spinach or strawberries. Green teas antioxidant properties scavenge free radicals which protects against oxidation damage which make it a great anti aging weapon. Today there are many products on the market that contain green tea which can be taken internally as well as externally. Green tea in addition to its anti oxidant properties also reduces the risk of heart attack by protecting the blood vessels to the brain and heart.

It is also used to speed up the metabolism to help burn calories. Green teas do contain caffeine so those on a caffeine restricted diet should consult their doctor and limit their intake. It is believed if you are in optimum health then one cup a day should not affect you adversely. If you have cardiovascular disease or high blood pressure you should avoid caffeine anyway.

In terms of anti aging, herbs are a relatively safe natural method to include in one's regimen. The use of herbals can be an effective supplement to vitamins, exercise and diet in the fight against aging and things that cause premature aging.

## **Chapter 7: Diet and Anti Aging**

A key factor to fighting aging and having a chance at longevity is thru diet. Eating the wrong foods or foods that offer no nutritional value ultimately help create illnesses and chronic conditions that shorten our lives. A diet that isn't healthy creates oxidation which creates free radicals. It creates excess fat that is stored in the body and increases the insulin load and sugar imbalances in the blood.

When we eat properly we help to reverse the negative effects of incorrect eating habits. All we have to do is change some of our bad eating choices to healthier ones and that can save our lives and help us stay young. This then becomes for many people a task of changing habits and lifestyle choices to affect a better diet as a way of life for anti aging purposes.

The first consideration of a healthy anti aging diet is to make sure that our caloric intake is the right amount for our body type. The right amount of calories for our body type ensures our body to function at its optimum level. You want to have enough calories to have your system function to the best of its ability without over burdening it with toxins that create problems. When we intake more calories than we need our bodies have to work too hard to break down the food we ingest and the rest gets stored as fat. Think of your body as a fine car. It needs the best fuel to keep it running at its optimum level. If you keep feeding yourself junk and food that creates imbalances thru toxins, eventually like a car engine that is not using the best fuel, it breaks down for good. This is because it falls eventually due to the strain to keep working under duress. A bad diet stresses our bodies until it eventually gives out.

The other issue in an anti aging diet is controlling the calories but not starving the body. Less calories does not mean less nutritional value intake. It means what you put in your mouth has to count in terms of nutrition and in caloric value. Anti aging diets are about

taking foods in your body that lead you to having longevity. Its dietary and lifestyle habits that enable this. It's also about minimizing the calories to make what you put in your body count the best. Less amounts of food put less strain on the system to break them down and conserves your body longer.

Like with any diet we need to know what ones ideal weight is.

The ideal weight particularly in places like the good old US are based on statistics that few live up to. They are based on 20 year old healthy prototypes. What one needs to focus on is that we are all unique and these types of tools are generalized guidelines so we can gauge where we are in the scheme of things. We also have to take into account our body types and if we have medical conditions that affect our weights. The statistics DO NOT take those factors into consideration at all. Of course if one has a medical condition that is the first consideration regardless of what the statistics say about ideal weight as with the fact that we cannot change our bone structures.

In general there are two weight categories used to determine if we are at a healthy weight that meets our criteria:

1. Ideal body weight.
2. Target anti-aging weight.

Because our topic is anti aging we will focus on weight according to anti age targets and benefits. To determine one's ideal anti aging target weight goes as follows. For females, you start with the premise that your ideal weight is 100 pounds plus 5 pounds for every inch over 5 feet. So ideally if you are 5feet 5inches you would start with 100 plus 25 equaling 125. You add or subtract to that number based on your bone structure. Big bones add a few pounds small

frames subtract or stay at the ideal weight. Now once you get the first weight number you subtract 10% to 15% of that number and that is your target anti aging weight. So that 125 pounds now becomes 112 to 118 pounds. (My opinion this is too thin, but this is how it's done)

If you are a man the same idea applies to calculate your ideal anti aging target weight. The difference is you start with 106 pounds and add 6 for every inch over 5 feet. You add 3 to five pounds depending on your frame size. So if you are 5feet 10inches, your ideal body weight would be 166 pounds subtracting the 10 to 15% gives you 149 to 157 pounds.

Most people according to these calculations are 10 to 20% over their ideal weight. In this case you have to still lose 5 to 10% more to be at your target anti aging weight. In general the rule of thumb is you have to burn 1200 calories extra per week to lose one pound of excess weight. Most diets say you have to decrease 500 calories per day for 7 days to lose one pound a week which is considered within normal weight loss range. This does not include the exercising factor which also increases the amount of weight that can be lost on top of caloric reduction. You have to keep in mind that it took years to become over weight and it takes time to lose it. It does not happen overnight. Quick fixes may have quick results but most of those quick fixes also have quick rebounds where the person ends up heavier than where they started.

Once you reach your target weight you want to maintain it by staying on a diet that does not exceed between 1500 and 2000 calories and continue to exercise. That's the only formula, there is no magic bullet. When you are on a diet you want to make sure that you are getting the proper nutrients so you want to take supplements.

Anti aging diets consist of foods rich in anti oxidants and low in saturated fats. This translates to lots of dark and bright colored fruits and vegetables, grains, legumes and foods that have omega 3 fatty acids. That's the anti aging diet in a nutshell. Anti aging diets are also good for reducing the risk of heart disease and for preventing cancer. It also means no or limited processed foods. Foods are primarily fresh not frozen. It includes high fiber foods as well.

Anti aging diets focus on antioxidant foods because they are the ones that promote the reduction of free radicals in the body and help heal the damage caused by free radicals. As we age our metabolism, body systems and organs become less effective so we want to intake foods that decrease the stress on our bodies which help make these things last longer. It is oxidative stress that causes the most damage in our bodies and ages us quicker. Currently there are no governmental guidelines as to how many anti oxidant foods one should consume on a daily basis as part of our food pyramids. Here is one chart of the foods that rank as 20 of the highest in anti oxidants:

<b>RANK</b>	<b>FOOD</b>	<b>SERVING SIZE</b>	<b>ANTIOXIDANT CAPACITY</b>
<b>1</b>	<b>Small Red Bean</b>	<b>½ cup Dry Beans</b>	<b>13727</b>
<b>2</b>	<b>Wild Blueberry</b>	<b>One Cup</b>	<b>13427</b>
<b>3</b>	<b>Red Kidney Bean</b>	<b>½ cup Dry Beans</b>	<b>13259</b>
<b>4</b>	<b>Pinto Bean</b>	<b>½ cup Dry Beans</b>	<b>11864</b>
<b>5</b>	<b>Blueberry</b>	<b>1 cup Cultivated Berries</b>	<b>9019</b>
<b>6</b>	<b>Cranberry</b>	<b>1cup Whole Berries</b>	<b>8983</b>
<b>7</b>	<b>Artichoke Hearts</b>	<b>1 cup cooked</b>	<b>7904</b>
<b>8</b>	<b>Blackberry</b>	<b>1 cup</b>	<b>7701</b>
<b>9</b>	<b>Prune</b>	<b>½ cup</b>	<b>7291</b>
<b>10</b>	<b>Raspberry</b>	<b>1 cup</b>	<b>6058</b>
<b>11</b>	<b>Strawberry</b>	<b>1 cup</b>	<b>5938</b>

12	Red Delicious Apple	1	5900
13	Granny Smith	1	5381
14	Pecans	1 ounce	5095
15	Sweet Cherry	1 cup	4873
16	Black Plum	1	4844
17	Russet Potato	1 cooked	4649
18	Black Beans	½ cup dry beans	4181
19	Plum	1	4118
20	Gala Apple	1	3903

Natural antioxidants are in foods like fruits, vegetables, legumes and nuts. The best way to ensure that you are getting these foods high in anti oxidants is to incorporate them daily into your diet.

Incorporating 5 to 8 servings of these foods daily can make a big difference in one's longevity. Scientists have developed the method which I spoke of on the chapter of antioxidants called ORAC.

ORAC is a rating system of foods based on their antioxidants. It based on the “Oxygen Radical Absorbing Capacity”.

All foods fall into three basic categories. They are classified by the impact they have on the cellular level as inflammation. Foods are either Pro-inflammatory, Neutral, or Anti-Inflammatory. For anti aging purposes we want to consume as many Anti-Inflammatory and Neutral Foods. To slow down aging at the cellular level we need anti-inflammatory foods that are rich in anti oxidants. Foods that are classified as Pro-Inflammatory accelerate the aging process. Foods high in saturated or trans fatty acids, excessive sugars and starches spike insulin levels and trigger anti-inflammatory reactions in the body that speed up our aging process. As we grow older we are more likely to become susceptible to the effects caused by the oxidation of free radicals in the body. Oxidative stress and overload occurs cellularly and we start to break down and age. The theory is that anti oxidants and other substances like anti aging nutrients and



compounds help to ward off cellular damage and minimize the effects of the free radicals that cause us to age quicker. It is free radicals that cause wrinkles, heart disease, cancer and osteoporosis all conditions and diseases associated with aging. Stress, hormone levels and ultra violet rays also contribute to the aging process.

By adding certain foods and cutting others out we can add years to our lives by slowing down the impact of free radicals. Foods with Omega 3 fatty acids serve as a powerful anti oxidant against free radicals. Fish is considered a choice anti inflammatory food for that reason. The American Heart Association says that we should all eat fish at least 2 times a week.

As I already stressed fruits and vegetables that are deep in color and bright in color are some of the natural source of antioxidants on the planet. One should consume at least 5 servings of fruit and vegetables daily to get anti aging benefits. Whole grains particularly as soluble fiber also have phytonutrient content as well as help lower cholesterol. For anti aging purposes 3 servings of whole grains a day should be consumed.

Legumes have similar nutritional value as fruits and vegetables with relatively low calories. They should be added to the diet at least 3 to 4 times a day for anti aging purposes. Yogurt has all the benefits of other dairy products but is also probiotic. It adds healthy bacteria to the intestines. Yogurt should be added to the diet with live cultures at least for 3 servings daily.

Nuts are a good source of B vitamins which are good for the heart and brain. Nuts contain healthy fat and for that reason is also good for the collagen in the skin, it helps maintain elasticity. Nuts are high

in calories however and should be consumed in small quantities.

Water is also an essential drink that is very important in anti aging. It hydrates the skin, the internal organs, helps to flush out toxins, helps the muscles, circulation virtually everything in the body. At least 4 glasses should be consumed on top of other water based foods and drinks.

There are also other foods that are considered anti aging in character. They include Acai fruit, Allium vegetables such as garlic, leeks, scallions, chives and shallots, Barley, Green Foods like Wheat Grass, Buckwheat both the seeds and grain, Beans and Lentils, Hot Peppers, Nuts and Seeds, Sprouts, and Kefir.

Areas called Blue Zones are areas known for their longevity. Four known areas are located in Costa Rica, Sardinia, Okinawa Japan and Loma Linda California. Besides the fact that the residents of these areas live past 100 years of age they are also healthy, active and mentally alert. All 4 areas practice similar eating and lifestyle habits with the exception of Loma Linda that is totally Vegan. They consume no eggs, milk or cheese. The people in these areas restrict their caloric intake as well as do not consume processed foods, very little meat and fruits and vegetables.

So the expression we are what we eat does have some validity in retrospect. Anti aging begins on the inside with a pro-longevity program including a healthy diet. If one can actually incorporate a healthy diet into their life style then more than half the battle against aging would be won. The best way to make permanent changes is start small and keep increasing as you go along. By adding healthy foods and replacing the not so healthy foods with those that are, you are changing your diet and adding years to your life.

## **Chapter 8: Exercise and Anti Aging**

Diet and Exercise always go together as part of a healthy lifestyle. Having a healthy lifestyle helps in the battle to fight aging. Lack of exercise goes hand in hand with a relation to premature aging and illness. Besides obesity and health problems associated with being overweight; inactivity leads to muscle weakness and loss of muscle tone. One's posture and muscles deteriorate and atrophy without exercise and movement. Inactivity also causes the skin to sag. Aches and pains set in because there is less circulation with less movement. And these things just scratch the surface of how not exercising affects the body.

In 1966 a study was done at the South Western Medical School in Dallas Texas. The specimens were 5 healthy young men 20 years of Age. They were asked to spend three weeks in bed. At first they thought this was great. They loved the idea of a three week rest with no activity. But, at the end of the three weeks they were a physical mess. From just three weeks of inactivity the 5 previously fit specimens developed faster resting heart rates, higher systolic blood pressure, a drop in their hearts pumping capacity and a decrease in muscle strength. These were all classic symptoms of aging. Thus the connection between exercise and aging was apparent. The body needs exercise to be healthy and slow down the aging process. The study continued and the young men were then asked to begin an eight week exercise program. At the end of their 8 week exercise study they found themselves in better shape than before they started the first part of the program. Keep in mind that they were asked to participate because they were in good shape to begin with. With this to consider it is also clear that even older people can improve and reverse some of the aging they are experiencing with exercise just as the younger guys in the experiment did.

In a London study that was written in the January 2008 issue of Internal Medicine in London, it was found that those who enjoyed to exercise at their leisure showed slower aging signs at the cellular level. The size of their cells matched the size of people 10 years younger.

In order to receive the anti aging benefits of doing exercise one doesn't have to become an exercise fanatic. For the aging person a thirty minute walk or gardening can help tremendously. For optimum anti aging exercises a combination of aerobic activity and weight training is recommended. Strength training is crucial because it helps us maintain our balance, strength and posture. It helps maintain flexibility and fluid movement and decreases our chances for osteoporosis or arthritis.

Another very important factor is exercise helps keep older people independent. Moderate exercise plus strength training helps keep the motor functions working properly. It enables them to continue to do their chores on their own as well as decreasing the risk of falling.

Exercise helps keep our bones healthy by maintaining our bone mass and density. This helps prevent fractures, osteoporosis and osteopenia. Besides nutrition bones need the stimulation of exercise to stay healthy and strong. The average person reaches their bone peak mass by the age of 30. Weight bearing exercises help in this regard. Exercise using weights keep the bones strong. But as with any exercising program ask your doctor if that type of exercise is right for you. People with certain bone and joint conditions may increase their risk of fracture bearing weight. Also twisting and flexing for people with spine conditions may not be recommended either.

Exercising improves balance which is essential as we grow older to prevent us from having falls. Over 300,000 people end up in the hospital yearly from broken hips from falling. Hip fractures lead to immobility and lack of independence. Some older people never heal from a fall and there are percentages that die from hip fractures.

When you start any balance exercise make sure you hold on to some type of support until you feel confident with the exercise. Here are some balance exercises that you can try out.

### **Side Leg Raise**

1. Stand behind a table or chair, with feet at shoulder width.
2. Hold onto the table or chair for balance.
3. Lift your right leg to the side about 12 inches (or as far as is comfortable) while keeping your back and both legs straight. Hold for several seconds.
4. Repeat with your left leg and continue until you've done 10 with each leg.

### **Hip Flexion**

1. Stand behind a chair or table and hold on for balance.
2. Bend one knee slowly toward your chest.
3. Hold for 1 second and then lower slowly.
4. Repeat with the other leg and continue until you have done 12 lifts with each leg.

### **Heel-To-Toe**

Walk while placing the heel of one foot just in front of the toe of the other.  
Hold onto to a table or counter while trying this.

### **One Foot**

While holding onto a chair or table, stand on one foot, then switch feet.

Exercise is also good for the mind and brain. Mental fitness is very important in the fight against aging. Any type of puzzles, memory games and even counting your exercise reps all help keep your mind sharp which is very crucial. There was a study done on 5925 women who were 65 and older showing that those who had high levels of

physical activity were less likely to have a cognitive decline within a 6 to 8 year period. There was also another study done showing that men who walked less than a mile a day had a 71% risk of dementia over men who walked two miles a day. Studies have shown that those who exercise over 65 on a regular basis have less cognitive decline and also a less chance of developing Alzheimer. When we exercise we are using more than just the body. The mind makes decisions based on balance, perception and memory. All these help keep the brain functioning well.

There are many other benefits to exercise and anti aging too. Exercise helps fight fatigue, helps the sex life and helps you rest better. Doing thirty minutes of some exercise 5 times a week that also has a weight bearing portion will help you fight aging at the cellular level. It also will make you look and feel better on the physical level. So it's a win-win situation. Start slow and build up to a routine that suits you. You don't have to jog a marathon. If you don't like to exercise try some creative alternatives like dancing or yoga. You can incorporate exercise while you are on the phone (leg lifts). Try an exercise or two in between TV shows, some sit-ups at commercials or while watching TV. Exercise should fit you so you do it. That's the main thing.

## Chapter 9: Anti Aging and Skin Care

We discussed the internal issues related to aging. Now let's focus on the external. The human skin is the largest organ of the human body. Just as with free radical and oxidation on the inside, they also affect the skin. Much of the aging that occurs on our outside also has to do with our state of health and choice of lifestyle. The choices we make effect how fast our skin ages and wrinkles. There are seven common causes that affect the aging of skin.

1. **Cigarettes** - Whether you smoke or are around smokers cigarette smoke damages the skin. It has been shown that cigarette smoke dries, damages, and wrinkles the skin prematurely. Cigarette smoke depletes the body of Vitamin C. It is Vitamin C that keeps the skin plump and moist. There some health care professionals that believe cigarette smoke is as damaging to the skin as ultra violet rays.

2. **The Sun**- By this time most of us are aware of all the information about the damaging effects the sun causes to the skin. Besides skin cancer, unprotected sun exposure causes dry leathery skin that becomes wrinkled and saggy, freckles that turn to brown sunspots and an overall old appearance. Sun damage however is avoidable and one can improve already sun damaged skin. The first step on treating sun damaged skin is to see a dermatologist to assess the damage and make sure there is no skin cancer. The dermatologist can prescribe medications to help treat the damage caused by the sun. For those that like the sun there are UVA ray protection sun products available. You want to use a sun screen that protects against both UVA and UVB rays. Choose a sun screen with a 15 or higher SPF. It should be worn all year round even on cloudy days. Clouds are not protection against Ultra violet rays.

3. **Lack of Exercise** - contributes to aging skin as well. Lack of

muscle tone and circulation creates sagging skin and cellulite.

4. **Exposure to Cold Weather** - Cold weather dries skin out. It is important to go into cold temperatures with a good moisturizer. Heated rooms also dry out the skin so use a moisturizer when indoors also. It's a good idea to use a humidifier in heated rooms to help keep your skin from drying out.
5. **Alcohol** - ages the skin by dilating the blood vessels near the skin surface thru increasing blood flow. Over time the vessels become damaged. This helps create a flushed look and broken vessels near the skins surface.
6. **Stress** - Is a big ager. Worry and stress leads to lines in the face. Over a time with constant frowning the muscles conform to that movement. It is recommended that if you are aware of your facial expressions so you can change them during the course of the day to avoid lines and wrinkles.
7. **Lack of Sleep**- When you feel tired you look drained. One of the first places lack of sleep shows up on is the face. We see dark circles under the eyes, bags under the eyes and sagging skin. Lack of sleep also causes negative thinking and depression. Research has shown that adults function best when they have 8 to 9 hours of sleep.

When looking at the skin and it's relation to aging we must consider genetics as well as environmental factors. If you ever heard the phrase, "he or she has good genes" this is what they mean. Things like "so and so doesn't age"; all these type of phrases have to do with genetics. How a person ages is determined by their genes.

There are heredity patterns in a person's lineage that predetermine how their face and body will age. Chances are if looking young runs in your family you will too, just as if people look old in your family you probably will too. Heredity signs include things like: lines and



furrows on the brows and forehead, lines and crinkles around the eyes, Deep creases along the nose and mouth, drooping eyelids, loose skin around the jawline, a tired look, the development of cellulite and male or female pattern baldness. If you see these tendencies in family members then there is a good chance you will have those tendencies as well.

In reality every one eventually ages but we all want to do it with grace. We can't control genetic factors but we can control external factors.

Beauty begins on the inside is very true. We fight aging skin also from the inside out by eating plenty of antioxidant anti inflammatory foods. Vitamins and nutrients play an important role in healthy skin. Here are some of the best Vitamins that fight anti aging and the skin.

**Vitamin A** - is used both internally and externally. Externally it is found as retinoids which are vitamin A derivatives. Retinoids are proven to reduce wrinkles, fade brown spots and smooth roughness. It is even known to help stretch marks. It stimulates cell renewal and helps increase collagen production. For skin, it is most effective when applied topically. It is best to use retinoid products at night because the sun inactivates them. Prescription retinoids work the fastest. The ones prescribed work within 4 to 8 weeks of using them. Retinoids can be irritating to the skin causing redness and scaling. When it comes to over the counter products they have retinoic acid which is a retinol conversion. To avoid irritation when starting out with retinol use it sparingly. It is best to start out first every other night building up to regular nightly use. A pea size amount is sufficient to cover your entire face. A little note: when taking internally do not take mega doses of vitamin A or you can overdose.

**Vitamin B/B3** - is called Niacinamide and is found in topical creams, lotion and serums for skin. B3 has shown to increase production of ceramides and fatty acids two main components found

in the skin's protective barrier. It helps the skin retain moisture, is a good exfoliator and good for acne. It also minimizes dark spots by inhibiting the transfer of pigment cells to the skin. It is most effective when applied morning and night. To prevent Retinoid irritations use this with it. You can mix them together in your hand and then apply to your skin.

**Vitamin C/Ascorbic acid** - is an antioxidant so it fights free radicals. In skin, free radicals help create wrinkles, sagging skin and brown spots. Vitamin C helps reverse sun damage. It is used on dark circles under the eyes as well. Vitamin C is necessary for collagen production. It also speeds healing. Used in conjunction with Vitamin E it makes the effects of Vitamin C last longer. Vitamin C esters are Vitamin C with fatty acids attached to it and are particularly effective on skin topically in this form. It is suggested that it is used daily to help with any UV rays that your sun block misses. To help make sure you receive maximum benefits from using topical Vitamin C products make sure the product has 5% and higher of Vitamin C in it. For oral dosage benefits the average dose daily is around 1250mg. Topically the skin Vitamin C are listed as either ascorbic acid or magnesium ascorbyl phosphate (the most skin friendly type). If it is with Vitamin E then it is listed as alpha-tocopherol or tocopherol acetate). The combination form is the best because it is 4 times as effective in protecting against free radicals when topically applied.

**Vitamin E/(Alpha Tocopherol)** - Also an antioxidant, has shown to scavenge free radicals. It helps rehydrate the skin, anti inflammatory, protects from sun damage, speeds healing and reduces dryness. Studies have proven that it even reduces the number of unstable molecules produced from cigarette smoke. It is good to apply before and after exposure to the sun. The best anti aging products contain at

least 1% of Vitamin E. Daily internal dose is 400mg.

**Vitamin K/(Phytonadione)** - when used topically is helpful in the repair of bruises as well as spider veins and dark circles under the eyes (which are considered a form of bruising). One of the causes of dark circles under the eyes is the leaking of fragile capillaries that seep into the skin under eyes. This is because the healing is a form of clotting which vitamin K also helps in the blood with. It is most effective when used with a product that also contains Retinol. Improvements are seen under the eyes within 4 months. Vitamin K can be applied nightly or every other night initially if it contains retinol.

**Alpha-Hydroxy Acids/Glycolic Acid and Salicylic Acid** - Exfoliates the skin. Tones the skin and reduces wrinkles as well as stimulates collagen production. Best used with a moisturizer. For external use.

**Alpha-Lipoic Acid (ALA)** - Another strong antioxidant, it can penetrate both oil and water making its penetration into the skin easy. It boosts the power of other ingredients as well particularly vitamins C and E. It is used to help eliminate fine lines. 'R-lipoic acid' powder is the best form of this for creams, you cannot add it yourself it should be listed as an ingredient. It is available both orally and topically.

**Allantoin** - is found in creams and lotions. It is an exfoliator. By exfoliating the skin it stimulates new skin growth.

**Copper Peptides** - is for topical use. Copper is an important element

in the production of collagen and elastin found in the dermis both of which decrease with aging. It is found very effective in conjunction with other substances especially with exfoliating properties. Over use can cause adverse reactions.

**Dimethylaminoethanol (DMAE)** - when used topically has been shown to improve firmness. It helps reduce protein linking in the skin which happens with aging. It too has antioxidant properties.

**Estrogen(estriol, estradiol)** - topically applied reduces wrinkles, increases skin elasticity and collagen synthesis. It is also a moisturizer. Very effective topically.

**Green Tea** - is a powerful antioxidant that helps fight the way the skin naturally reacts to UV rays. It reduces the damage of free radicals in the skin.

**Lycopene** - helps protect against sun damage. It is a carotene. It can be used both internally and externally.

As we age our skin dries, loses firmness and gets lines and wrinkles. There are many products from soap to moisturizers on the market these days to help fight aging skin. It's easier to prevent wrinkles and damage than it is to repair them once the damage is done. The best thing you can do to protect your skin is to avoid the obvious things that cause damage and premature aging. Use a sunscreen; avoid harsh substances on the skin because they strip the skin of its natural protection so it becomes hard to snap back. This includes harsh cleansers.

The more natural the ingredients the better they are for your skin. Herbal ingredients can be very effective in helping fight aging skin. Herbal antioxidants that are found in skin care products are very effective in fighting free radicals that ravage the skin. Aloe Vera is one of the best sources of alpha Hydroxy. Candula/Camomile is very soothing and encourages new cell growth. Green and White tea are

fantastic antioxidants that fight free radical skin damage. Witch Hazel is astringent that helps skin keep toned. All of the above can be put on the skin. With the exception of witch hazel all the above mentioned herbals can be taken internally as well. Oils like Hazelnut, sweet almond, apricot kernel and Olive can all be used for moisturizers.

## Chapter 10: Conclusion

Just as aging is a process, so is anti aging. Fighting the aging process involves lifestyle changes that promote longevity. This means what you eat, how often you exercise, and how you live all help fight aging. The old saying “we are what we eat” really applies in the fight against growing older. We cannot avoid aging but it doesn't have to be a horror. Now days there is enough knowledge to help maintain a youthful appearance and also stay younger internally as well. There is no magic involved. It's about making a commitment to eat and live a way that will enhance your chances of staying healthy longer which is the main consideration in anti aging.

Things like nutritional support (both food and supplements) contribute greatly to fighting free radicals, the main culprits that age us. Exercise keeps our bodies and systems flowing smoothly as well as keeping us toned. The other factor that promotes our longevity is our frame of minds. Love and happiness has been found to be very important in the longevity equation.

Many studies have been done and it has been found that people living without a partner run twice the risk of developing cognitive and mental impairment as they get older. It is found that those that are alone do better when they have a social network. Studies have shown that those that were socially active as they aged also protected their cognitive faculties more than those that were not. Point of fact; seniors that involved themselves socially and intellectually protected their cognitive and mental faculties in a larger percentage than those who were isolated and alone.

So I can conclude that eating healthy, choosing a healthy lifestyle and being in a loving relationship all contribute to longevity. Having meaningful relationships that stimulate our minds help keep us around longer. All these factors go into making us a whole healthy individual who will hopefully live a very long time. Science is

coming up with new information every day for us to live longer. It's up to us to make the right choices once we are given the information. There is enough evidence to show that if we eat right, exercise, and take care of our bodies and minds we should live long healthy lives. All one has to do is make a conscious commitment to longevity and follow the anti aging information that is given in this book as a start.