



Slow Down the Aging Process

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Is There A Fountain Of Youth?

- No such thing as “anti-aging
- Aging is inevitable
- CAN *accelerate* or *decelerate* aging
- What you eat can have a powerful effect on how you age
- Along with exercise, avoiding toxins, reducing stress and getting quality sleep



Healthy Aging

- Aging is a lifelong process
- Aging successfully doesn't mean you have to reach a magic number – 90, 100 or beyond
- Aging successfully is keeping your health and maintaining functions such as taking care of yourself, being able to drive and living independently



Healthy Aging

- According to the Centers for Disease Control and Prevention, in 1907 only 3 million people in America were over the age of 65
- There are now **more Americans age 65 and older than at any other time in U.S. history.**
- According to a new Census Bureau report, there were **40.3 million people** age 65 and older on April 1, 2010, up 5.3% from 35 million in 2000 (**and just 3.1 million in 1900**)
- According to US Census Bureau, in 2050 about 834,000 Americans will be at least 100 years old!

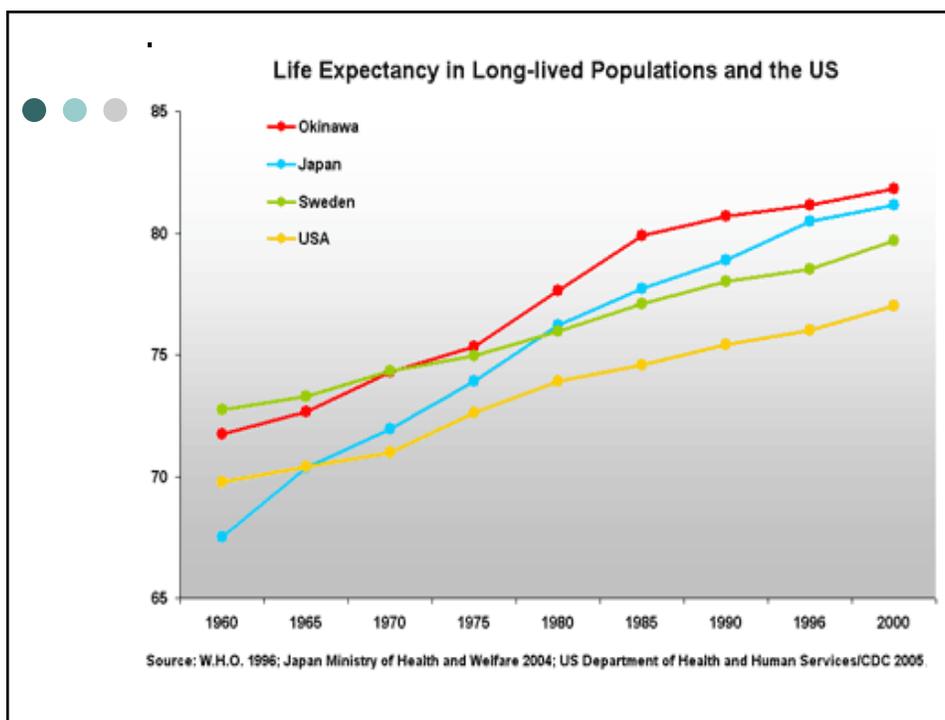


Healthy Aging

- Genes play a role in how long you'll live as well
- But may not be as large a role as you think!
- Swedish study on twins who were raised in same household vs different household
- Longevity differences are about 25-35% genetic and 65-75% environmental!

Healthy Aging

- Some of the most compelling findings on diet and aging come from research of long-lived people around the world
- Eating habits of 2 cultures – the European countries that border the Mediterranean Sea and the Okinawans of Japan offer lessons on how to dine well and live longer



● ● ● | Healthy Aging

- More people in Okinawa reach 100 than anywhere else on earth
- Okinawans average life expectancy – 81 (highest on earth)
- Typical menus in both Okinawa and the Mediterranean include lots of fruits, vegetables, and legumes
- Limited dairy and red meat
- Healthy fats



● ● ● | Healthy Aging

- Some foods and beverages contain powerful substances called **phytonutrients** that some researchers believe are capable of unlocking the key to longevity
- Phytonutrients are members of the antioxidant family
- Antioxidants gobble up free radicals
- Free radicals are oxygen molecules that play a role in onset of heart disease, cancer, Alzheimer's, etc

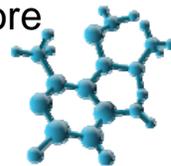
● ● ● | Healthy Aging

- Many longevity experts agree that free radicals are the main culprit involved in damaging our bodies as we age



● ● ● | Free Radicals

- Free radicals are **oxygen molecules with one or more unpaired electrons**
- Some have an extra electron or more than one extra electron without a partner
- Some are missing one or more electrons



Free Radicals

- Oxygen molecules zip around in the body trying to steal an electron from, or donate an electron to, another molecule to satisfy or neutralize its charge
- Once it does that – the other molecule becomes a **free radical** in turn
- Cascade of free radicals . . .
- Free radicals highly reactive – damage from this process called *oxidation or oxidative stress*
- Cause tremendous damage to the body

Free Radicals



- Free radicals damage DNA
- Experts say DNA in each cell in body can take a damaging hit from free radicals 104 times a day!
- Oxidized cholesterol – cause plaque
- Damage structure and function of tissues
- Cause everything from wrinkles to heart disease

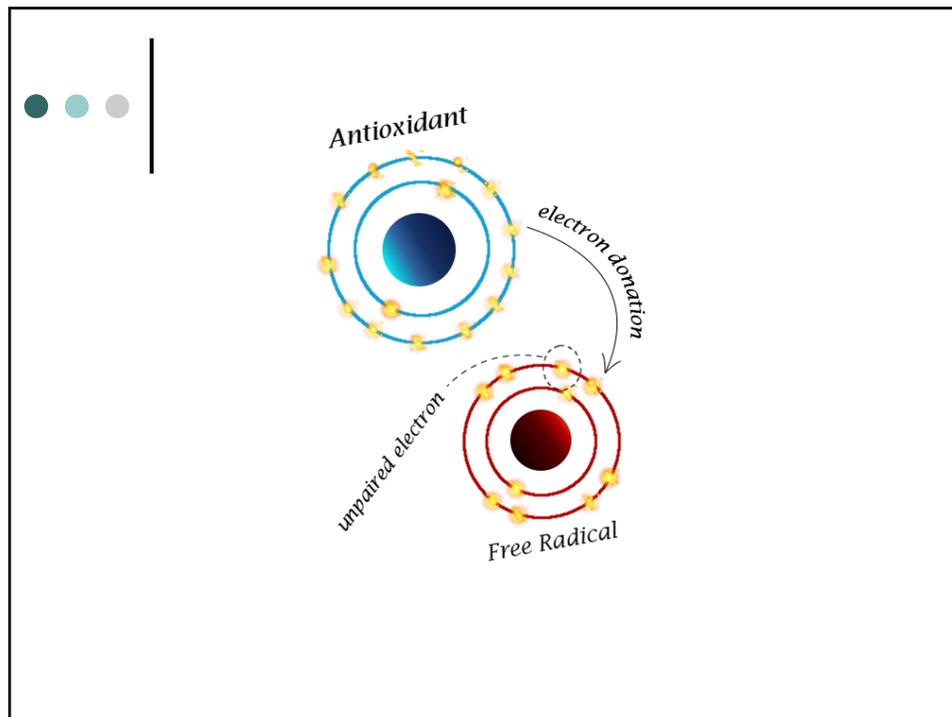
Free Radicals

- Fortunately – body has built-in system for neutralizing free radicals so they cause less damage
- Apple
- Think of cells throughout body like apple slices



Free Radicals

- We get old because we fall apart, cell by cell.
- One way to look at ageing is to think of it as **rusting or oxidizing**, a damaging process.
- The free radicals that oxidize our body's molecules include fats, heavy metals and numerous other chemical compounds we breathe, eat and drink.
- If free radicals reach the DNA of our cells, the damage is cumulative and significant.



- ## Antioxidants
- Free radical damage – oxidation
 - Antioxidants – “against oxidation”
 - Antioxidants circulate in body and break chain reactions of free radicals robbing or donating electrons to or from other molecules

● ● ● | Antioxidants



- Antioxidants offer up their own electrons to the roving bands of free radicals
- When dietary antioxidants give up electrons – they don't become free radicals themselves – they remain harmless



● ● ● | Antioxidants

- Body needs antioxidants ALL DAY LONG
- Important to take in antioxidants continually
- Antioxidants: Vitamins A, C, E, and minerals that support body's antioxidant enzymes
- Plant chemicals phytochemicals
- Important that they come from FOODS!



Antioxidants

- Supplements are **supplemental** to the diet
- Haven't identified everything in fruits and vegetables
- Hundreds of compounds in fruits/vegetables/whole grains
- Classic example: Large Finnish study male smokers who took beta-carotene supplements (vitamin A precursor) actually increased their risk for lung cancer

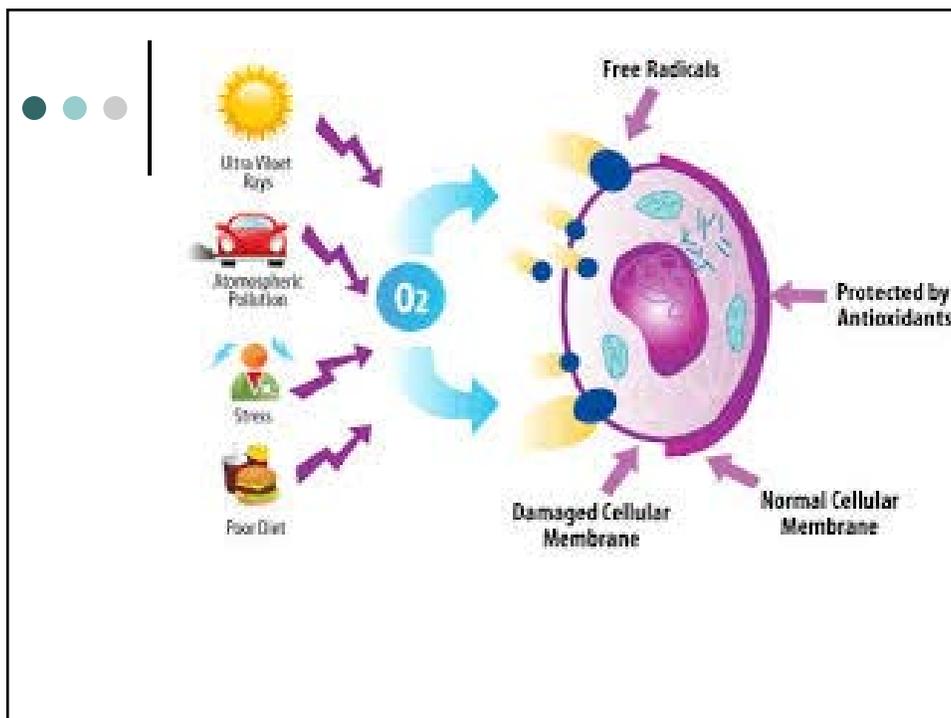
BROCCOLI						
alanine	chlorophyll <i>a</i>	glutamic acid	linolenic acid	palmitic acid	selenium	tri-terpenes
alpha-carotene	chlorophyll <i>b</i>	glycine	lutein	pantothenic acid	serine	tryptophan
alpha-tocopherol	copper	histidine	lycopene	phenolic acid	sodium	tyrosine
anthocyanin	coumarins	indoles	lysine	phenylalanine	starchyose	valine
arginine	cryptoxanthin	iron	magnesium	phosphorus	stearic acid	water
ascorbic acid	cystine	isoleucine	manganese	potassium	sucrose	xanthophylls
aspartic acid	flavonoids	isothiocyanates	methionine	proline	sulfides	zeaxanthin
beta-carotene	folate	leucine	monoterpenes	raffinose	sulfoxide	zinc
calcium	fructose	lignin	niacin	riboflavin	thiamin	
cellulose	glucose	linoleic acid	oleic acid	s-methyl-l-cysteine	threonine	

BLACK PEPPER		
beta-caryophyllene	linolenic acid	piperonal
cadinene	magnesium	potassium
calcium	myristic acid	phytosterols
dietary fiber	niacin	riboflavin
dihydrocarveol	oleic acid	sodium
iron	palmitic acid	thiamin
lauric acid	phosphorus	water
linoleic acid	piperidine	zinc

Antioxidants

- Inexplicable synergy of Mother Nature's antioxidants that are naturally found in food
- Sum is larger than their individual parts


$$1+1=3$$





Add Up Your Antioxidants

- Fruits and Vegetables have an ORAC score
- **ORAC – Oxygen radical absorbency capacity**
- Indicates a food's ability to neutralize cell-damaging free radicals in a test tube or lab measurement
- Preliminary research indicates may act same way in our bodies



ORACs



- Federal government estimates Americans consume 4,000 to 5,000 ORAC units per day
- Equal to 2 ½ servings of fruits/vegetables
- Research estimates people need 12,000 to 13,000 daily ORAC units to effectively squelch free radicals!



ORAC Studies

- Antioxidant power of blood raised 25% after consuming 1 ½ cups strawberries, 1 ¾ cup cooked spinach
- 2 glasses red wine daily - 30% increase in total plasma antioxidant capacity
- Cardiac study – 6 oz pomegranate juice each day for 1 year – 130% increase in total antioxidant status as well as decrease in blood pressure
- 4 cups black tea for 4 weeks – increased antioxidants by 33%



ORACS

- Beans, small red dry ¼ cup 9,378
- Blueberry, wild ½ cup 6,314
- Red wine 6 oz 4,585
- Prunes ¼ cup 3,646
- Artichoke hearts, ½ cup 3,592
- Cloves ½ tsp 3,144
- Green tea 1 cup 2,951
- Turmeric ½ tsp 1,593



Okinawa study

- 7 servings of fruits/vegetables each day
- 7 servings grains – rice, wheat noodles
- 2 servings of soy
- Fish several times per week
- Minimal meat and dairy foods
- Practice – 80% full
- Eating mindfully, daily ritual



Calorie Restriction

- Studies also starting to show that just **cutting back on calories** may reduce number of free radicals that your body churns out and help you live longer
- Body produces free radicals as part of the digestion process
- In nature, smaller animals live longer
- Weight loss lessens inflammatory markers - CRP

● ● ● | Calorie Restriction

- As we age, calorie needs drop
- As we age body loses lean body mass (muscle) – metabolism lowers
- Easier to gain weight – extra weight increases chances of developing heart disease, diabetes, high blood pressure, etc
- Imperative to pack diet with nutrient dense foods: vegetables, fruits, whole grains
- Increase protein
- Limit less-healthy treats “empty calories”

● ● ● | Inflammation



- Another factor of aging is chronic inflammation
- The “Evil Twins” of aging: oxidative stress and chronic inflammation
- Food can be either pro-inflammatory or anti-inflammatory



Inflammation

- When inflammation is an on-going process in the body, it can lead to disease
- Many illnesses – including heart disease, many cancers and Alzheimer's disease – are influenced in large part by chronic inflammation
- Immune system becomes off balance and persists unnecessarily in its efforts to repair the body and repel pathogens



Inflammation

- Prolonged inflammatory process results in damage to healthy tissue
- Stress, lack of exercise, genetic predisposition and other lifestyle factors can all promote inflammation
- Poor diet is the main contributor



Anti-inflammatory food guide pyramid

- www.drweil.com
- Healthy sweets – sparingly: dried fruit, dark chocolate, fruit sorbet
- Red wine: optional, no more than 1-2 glasses per day (1 for women, 2 for men)
- Supplements: daily multivitamins
- Tea: 2-4 glasses/day
- Healthy herbs and spices: unlimited

● ● ● | Anti-inflammatory food guide pyramid

- Other Protein: 1-2 servings/**week** animal protein
- Cooked Asian Mushrooms: Unlimited
- Whole soy foods: 1-2 servings per day
- Fish and Seafood: 2-6 servings per week
- Healthy Fats: 5-7 servings per day
- Whole grains: 3-5 servings per day
- Pasta: 2-3 servings per week

● ● ● | Anti-inflammatory food guide pyramid

- Beans and legumes: 1-2 servings per day
- **Vegetables: 4-5 servings per day**
- **Fruits: 2-4 servings per day**
- Water: throughout day
- SERVING of vegetable is ½ cup cooked or 1 cup raw or 6 oz vegetable juice
- SERVING of fruit: 1 medium piece or 1 cup (berries, grapes, etc.) or 6 oz juice or 2 tablespoons dried fruit





Omega-3-Fats

- Maintain cell membranes so they are effective barriers – allow water and nutrients in and keeping toxins out
- Protect skin against sun damage
- Anti-inflammatory!
- Oily fish
- Sardines
- Flaxseed
- Walnuts
- Seniors who eat fish at least once a week may cut Alzheimer's risk in 1/2



Balance of Omega 6 to Omega 3

- Body requires both – both are polyunsaturated fats
- Must be provided by the diet
- Both are related to inflammation
- Diet that **minimizes inflammation** will help reduce aging changes in our skin
- Should be consumed in a ratio of 4:1 Omega 6 to Omega 3 to control inflammation



Omega 6

- Pro-inflammatory in high amounts
- Plentiful in diet
- Especially in processed foods
- Corn oil, safflower oil, sunflower oil, soybean, cottonseed oil peanut oil
- Salad dressings, bread, crackers, cookies, etc
- Need to decrease intake. Currently ratio of Omega 6 to Omega 3 is about 20:1
- Should be ratio of 4:1



Fish Oil Supplements

- Two omega-3 fatty acids – eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) found to help lower triglycerides, reduce blood clotting and decrease inflammation
- AHA: healthy people should get about 1 gram per day of EPA and DHA
- High triglycerides: 2-4 grams per day (under care of health care provider)
- Fish oil supplements – quality matters
- Omacor/Lovaza – prescription fish oils



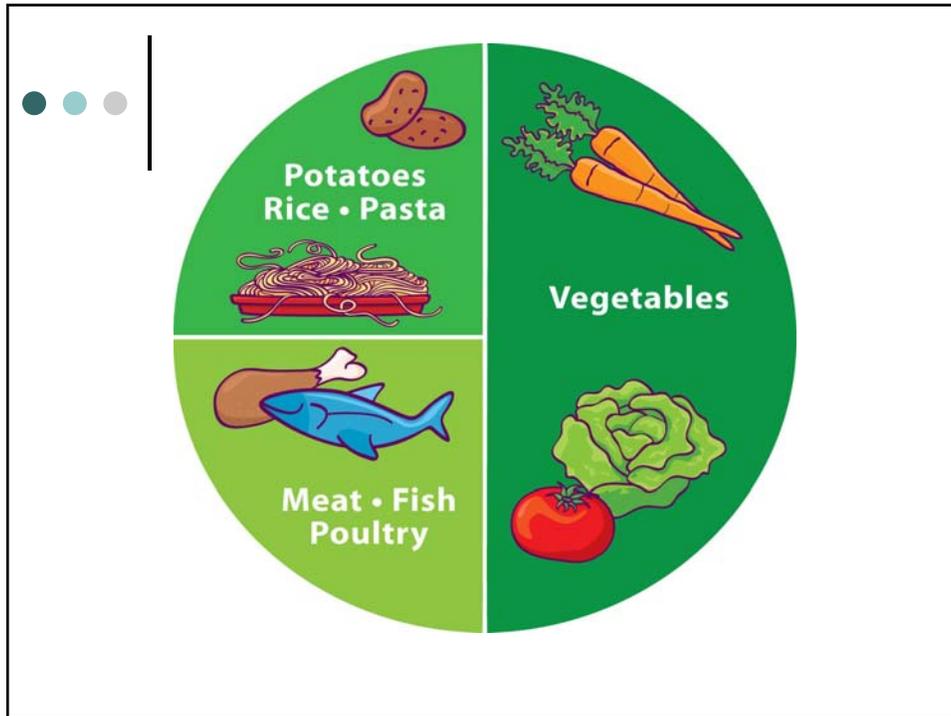
Menu for Staying Young

- Choose foods that are anti-inflammatory and rich in antioxidants
- Focus on plants: fruits and vegetables contain a wide range of healthy antioxidants and anti-inflammatory compounds
- Studies: people who eat diets high in fruits/vegetables – lower risk of heart disease, high blood pressure, cancer, diabetes, plus better memory and eyesight



Vegetables/Fruits

- Aim for a variety of colorful produce
- Fill at least 1/2 of your plate with vegetables and fruits
- Choose a rainbow of colors: dark leafy greens (kale/spinach), deep yellow and orange (sweet potatoes, yellow bell peppers), red (tomatoes, strawberries) and blue and purple (grapes and blueberries)
- Enjoy at least 5-8 servings per day



● ● ● | Vegetables/Fruits

- **What does 8 servings a day look like?**
- Breakfast: 6 oz. low-sodium V-8 and an orange
- Lunch: 2 cups salad and an apple
- Snack: 1 cup baby carrots/cherry tomatoes
- Dinner: 1 cup broccoli

An illustration of various vegetables including a red bell pepper, asparagus, and broccoli, set against a light green background.



Choose the Right Fats

- Eating good fat is important for health
- Essential fatty acids
- Fat-soluble vitamins A, D, E, & K
- Reduce saturated fats found in animal foods
- Steer clear of trans fats (found in margarine and processed foods)



Choose the Right Fats

- Get omega-3 fats in foods like fatty fish (salmon, trout, sardines, herring, tuna), flaxseed, and walnuts
- Fats that are good for the heart as well as the brain: nuts, avocado, seeds, EVOO
- Fats in fish can help reduce risk of dementia and Alzheimer's disease
- Both Okinawan and Mediterranean diets contain high levels of omega-3s
- Aim for 2-3 servings of oily fish per week



Choose the Right Fats

- Use EVOO or almond or walnut oil to make salad dressings
- For neutral flavor use expeller-pressed, organic canola oil
- Avoid most margarine, vegetable shortening, all partially hydrogenated
- Include nuts, avocado, nut butters, salmon, sardines, herring, trout



Hold the Sugar!



- Baked goods and white bread, white pasta, crackers and sugary drinks score high on the glycemic index (GI)
- Body quickly digests high-GI foods and converts them to sugar – triggers insulin release – upping risk of diabetes and other age-related conditions
- *Sugars cause chemical reactions in body that promote inflammation!*

● ● ● | **Hold the Sugar**



- Advanced glycation end products or AGEs
- AGE – created when blood sugar – glucose – becomes attached to proteins
- Becomes glycated
- Changes structure and function of protein
- Causes proteins to cross-link with each other
- Contributes to wrinkles, brown spots

● ● ● | **Hold the Sugar**



- AGEs linked to cataracts
- Damage cartilage in joints
- Osteoarthritis
- Arteries stiffen – heart disease
- Cause cells in immune system to release chemicals that initiate inflammation



Choose the Right Carbs

- 1200 calories – <120 grams carbs
- 1500 calories – <150 grams carbs
- 2000 calories – <200 grams carbs
- Majority from whole grains (not whole wheat flour products) like brown rice, quinoa, barley, oats, corn, beans, winter squash and sweet potatoes
- Reduce bread, chips, pretzels, crackers
- Cook pasta al dente and eat in moderation
- Avoid products made with HFCS



Choose the Right Protein

- 1200 calories – 60 to 80 grams/day
- 1500 calories – 75 to 100 grams/day
- 2000 calories – 80 to 120 grams/day
- Less if you have liver or kidney problems or autoimmune disease
- Decrease animal protein, except fish
- Eat more vegetable protein – beans, soy beans



Choose the Right Fiber

- 25 to 40 grams per day
- Eat fruit – especially berries – vegetables, beans/legumes and whole grains
- Blueberries improved recall & coordination in Tufts animal research
- Whole-grain cereals with at least 5 grams fiber per serving



The Right Phytonutrients

- To get maximum natural protection against age-related diseases eat a variety of fruits and vegetables
- Choose from all part of the color spectrum: berries, tomatoes, orange and yellow fruit, dark leafy greens
- Choose organic whenever possible
- Environmental Working Group: “the dirty dozen”



The Right Phytonutrients

- Eat cruciferous – cabbage family – vegetables regularly: cabbage, broccoli, cauliflower, Brussels sprouts
- Include soy foods in diet
- Drink tea – especially green and white
- If you drink alcohol, use red wine preferentially: 1-2 glasses per day
- Enjoy plain dark chocolate in moderation: 70% cocoa content



Pomegranate juice



- Pomegranate has previously been linked to the prevention of heart disease and stress relief but now researchers from the Probelte Bio Labatory in Spain have found that the fruit juice also slows down the natural oxidation ('wear and tear') of DNA.

Free Radicals

- During the study, scientists used a potent new type of pomegranate extract including the skin, pith and seeds of the fruit.
- The 60 participants were asked to take the extract for 30 days in the form of a pill.
- The results found a significant decrease in a marker associated with cell damage, that disrupts brain, muscle, liver and kidney functions, as well as causing ageing.

Green Tea



- Green tea has all sorts of health benefits including the ability to quell inflammation with its strong antioxidants.
- Chronic inflammation has a part in diabetes and other diseases.
- In addition, researchers have found that green tea can inhibit oxidative stress and the potential inflammation that might result from it.



Olive Oil



- Studies have shown that olive oil's strong antioxidants may help prevent age-related diseases.
- In addition, the low rates of heart disease and cancer on the Greek island of Crete are attributed in large part to olive oil's monounsaturated fats.



Fish



- Studies have even shown that people who eat loads of fish live longer.
- One study of middle-aged American men found that those who ate fish two to three times per week boasted a 40 percent lower mortality rate than those who did not.



Orange Colored



- Orange veggies such as carrots, pumpkin and squash are packed with alpha-carotene.
- Studies show that people whose blood levels measured highest for alpha-carotene were least likely to die of cancer, heart disease or any other cause over an 18-year period.



The Right Supplements

- If you are not eating oily fish at least twice a week: 1-2 grams fish oil (EPA + DHA)
- MV/M for your age/sex
- Vitamin C: 500 mg per day
- Vitamin E: 400 IU mixed tocopherols



The Right Supplements

- Vitamin D3 – get levels checked. 1,000-5,000 IU per day
- CoQ 10 – 60-200 mg per day. Powerful antioxidant.
- If you are not regularly eating ginger and turmeric consider taking in supplemental form
- Turmeric may reduce incidence of Alzheimer's disease. Protects against brain oxidation



Sleep



- Skin cells divide during the night, replenishing collagen and repairing the day's damage
- Sleep regulates hormones that suppress appetite and metabolize fat
- Research Columbia University: 6 hours or less a night – 23% more likely to be obese than people who slept 7-9 hours
- 5 hours or less – 50% more likely
- 4 hours or less – 73% more likely



The Mediterranean Diet

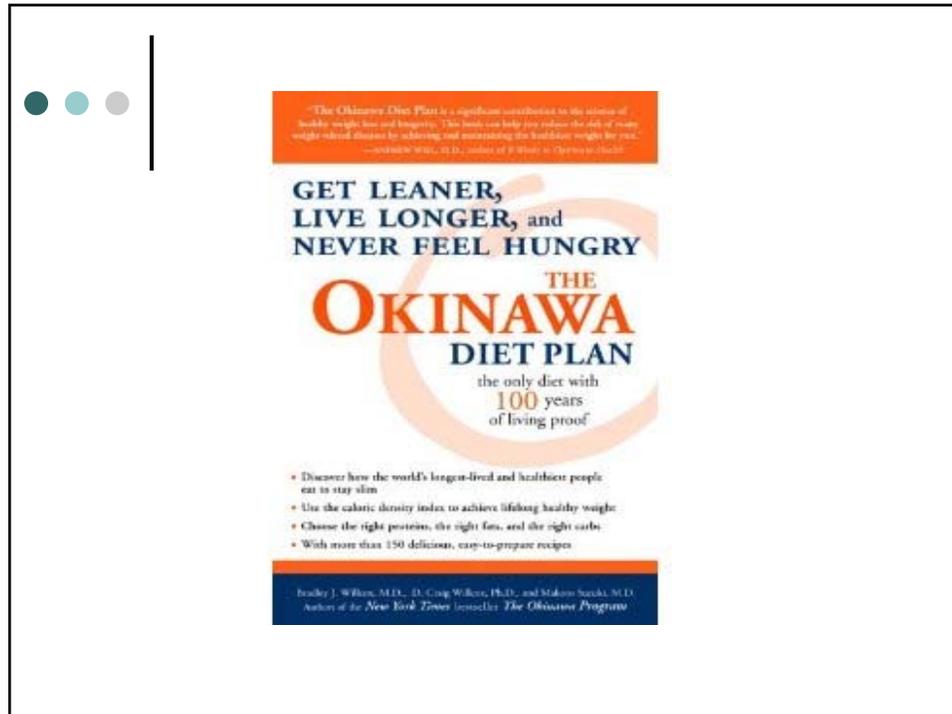
- Not a diet but a lifestyle
- Never breakfast without fruit
- No meal without vegetables
- Walk to buy fresh, whole foods
- Colorful foods, anti-oxidants
- Complex carbohydrates, whole grains, beans, legumes, nuts
- Animal protein, less than 13 oz/week
- Fish 4.5-15 oz per week



Okinawa Diet

- Not a diet but a lifestyle
- Food from the sea – fish, sea vegetables, seaweed
- 7 servings of fruits/vegetables each day
- 7 servings grains – rice, wheat noodles
- 2 servings of soy
- Minimal meat and dairy foods
- Practice – 80% full
- Eating mindfully, daily ritual





● ● ● | **Real Age Test**

- Are you biologically younger, older, or the same age as your calendar age?
[Take the free RealAge Test.](#)
- Predicts a person's true biological age
- Based on 136 factors including diet, fitness, routine, social life and stress, etc.
- Take the test at realage.com



Real Age

<u>Activity</u>	<u>Years Reduced</u>
○ Walk 30 min	1.6
○ Eat 1 oz nuts	3.3 men 4.4 women
○ Drink 8 oz tomato juice	1
○ Take an aspirin	2.2
○ Eat 1 oz of cocoa based dark chocolate	1.2



Aging Healthfully

- Aging can add richness to life
- Aging brings wisdom, depth of character, focus on what is truly important in life
- To age gracefully . . . Let nature take its course while doing everything in your power to delay onset of age-related disease
- We want to adapt to changes that time brings and to arrive at old age with minimal deficits and discomforts

