

The Anti-Inflammatory Mediterranean Diet

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Inflammation: Underlying cause of chronic illness

- Cardiovascular disease
- Cancer
- Neurodegenerative disease
- Autoimmune disease
- Type 2 Diabetes
- Obesity
- Alzheimers
- Asthma

4 Stages of Disease

- Wellness
- Silent Chronic Inflammation (can go on for years)
- Disease
- Chronic Disease

Silent vs Classical Inflammation

- Classical inflammation hurts – red, irritated, inflamed
- Silent inflammation - chronic, low-level inflammation– no pain
- Inflammation without overt pain
- At cellular level
- Can linger for years, if not decades, until organ damage emerges

What is Inflammation?

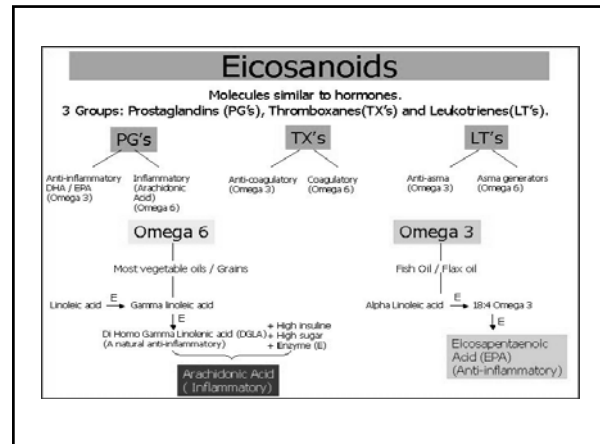
- Mediated by eicosanoids
 - Prostaglandins, leukotrienes, thromboxanes
- Usually associated with pain
- Treated by drugs that alter eicosanoids: aspirin, NSAID's, COX-2 inhibitors, Steroids

Indicators of Silent Inflammation

- Being overweight, obese
- Sleep deprivation
- Constantly fatigued
- Carbohydrate craving

Fat

- The type of fat you eat has direct effect on what kind of inflammatory markers your body produces
- Fats are the building blocks of **eicosanoids**



Good Eicosanoids

- Act as vasodilator (open up blood vessels)
- Enhance immune system
- Decrease inflammation
- Decrease pain
- Increase oxygen flow
- Increase endurance
- Dilate airways

Bad Eicosanoids

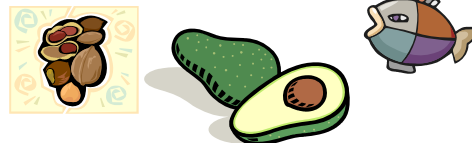
- Act as vasoconstrictors (constrict blood vessels)
- Suppress immune system
- Increase inflammation
- Increase pain
- Decrease oxygen flow
- Decrease endurance
- Constrict airways (asthma)
- Increase cellular proliferation (cancer)

Eicosanoids

- In order to make more good eicosanoids and less bad eicosanoids to avoid disease, we need to eat the correct fats
- Good fats: Omega 3 fats, Monounsaturated fats
- Bad fats: Saturated fats, Trans fats

FAT IS GOOD!!

- Depending on what kind....
 - Omega 3 fatty acids (fish oils)
 - Monounsaturated fats (canola and olive oils, nuts and nut oils, avocado)



FAT IS BAD!

- Saturated/Trans:
beef and other animal fats, dairy

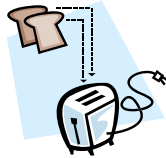


Reduce Omega 6s

- Omega-6 fatty acids:
- Margarine
- Corn oil, cottonseed oil, grapeseed oil, peanut oil, safflower oil, sesame oil, soybean oil, sunflower oil, partially hydrogenated oils
- Any product with long shelf life (crackers, pastries, chips)

Reduce Omega 6

- Make your own salad dressing using EVOO (monounsaturated) or walnut oil (Omega 3)
- Use EVOO or nut oil with herbs on vegetables instead of margarine
- Use peanut or almond butter on toast instead of margarine



Reduce Omega 6/Increase Omega 3

- Strive for Omega 6: Omega-3 ratio of 2:1 (usual SAD (Standard American Diet) 16:1)
- Eat more oily fish: salmon, trout, herring, sardines, tuna (no more than 2x/week)
- Eat 1-2 Tbsp ground flaxseed daily
- Eat small servings walnuts/pumpkin seeds

Studies on Fish Oil

- Eating fish as little as once a week reduces the risk of sudden death in men
- Eating fish twice a week reduces CHD risk in women
- Fish intake reduces Alzheimer's risk

Harper, Beyond the Mediterranean Diet: the Role of Omega-3 Fatty Acids in the Prevention of CAD, Prev Cardiol, 2003

Morris, Consumption of fish and n-3 fatty acids and risk of Alzheimer dz., Arch Neurol, 2003

Fish Oil Supplement

- Fish
 - Contamination with PCB, dioxin, and Hg
- Ultra-Refined EPA/DHA Concentrates
 - Removal of PCB's and other toxins
 - Can be used in high doses
 - EPA + DHA = 1,000 mg – 4,000 mg per day
 - Healthy: 1,000 mg day
 - High Triglycerides: 2,000 – 4,000 mg day
 - High Blood Pressure: 2,000 mg day
 - High Cholesterol: 2,000 mg day
 - BiPolar disorder: > 10 g day in studies

What is an anti-inflammatory Mediterranean diet/lifestyle?

- Lose fat
- Eat small meals that consist of whole foods
- Have protein at every meal but reduce red meat and dairy (Avoid charred, overcooked foods)
- Cold water fish (salmon, mackerel, sardines, herring)
- Eat primarily fruits and vegetables
- Leafy green vegetables, nuts, flaxseeds or oil
- Take your fish oil

Anti-inflammatory Lifestyle

- Exercise
- Whole foods diet
- Quit smoking
- Weight loss
- Stress management
- Treatment of depression
- Social support



Mediterranean Dietary Pattern

- An abundance of foods from plant sources – fruits, vegetables, potatoes, breads and whole grains, beans, nuts and seeds
- Emphasis on a variety of minimally processed, seasonally fresh and locally grown foods
- Olive oil as the principal fat, replacing other fats and oils
- Total fat ranging from less than 25% to more than 35% of total calories with saturated fat no more than 7%

Mediterranean Dietary Pattern

- Daily consumption of low to moderate amounts of cheese and yogurt
- Twice-weekly consumption of low to moderate amounts of fish and poultry
- Zero to 4 eggs per week
- Fresh fruit as typical daily dessert; sweets (usually made with honey) and saturated fat consumed no more than a few times per week
- Red meat consumed a few times per MONTH

Mediterranean Dietary Pattern

- Moderate consumption of wine, normally with meals, about 1-2 glasses per day for men and 1 glass per day for women



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: 3-5 servings per day
- Whole grains: 3-5 servings per day
- Pasta: 2-3 servings per week

Anti-inflammatory food guide pyramid

- Beans and legumes: ½ - 2/3 cup cooked at least 3 times a week
- Vegetables: 4-6 servings per day (3 cups)
- Fruits: 3-4 servings per day (2 cups)
- Nuts: 1 oz at least 5 times a week
- Water: throughout day



Mediterranean Diet

- Based on diets of Italy, Greece, France, Spain & other Mediterranean countries
- More tolerable than low fat diets and associated with improved long term weight loss (McManus 2001)
- Risk reduction of death from CAD compared to usual AHA diet (Trichopoulos et al, 2003)

Research

- Greater adherence to the Mediterranean diet was significantly associated with a 25% reduction in total mortality and a 33% lower mortality from coronary heart disease (CHD) after 3.7 years of follow up.
- 1,302 people diagnosed with CHD – adherence to the Mediterranean diet was associated with a 27% lower mortality rate and 31% fewer deaths from CHD among people with preexisting heart disease after 3.7 years of follow up

Metabolic Syndrome/Diabetes

- Research found Mediterranean diet significantly reduced C-reactive protein and insulin resistance in people with metabolic syndrome compared with a low-fat diet
- Greater adherence to the Mediterranean diet was associated with a 35% reduction in the risk of type 2 diabetes after 4.4 years of follow up
- 25% lower risk of being hypertensive and a 36% greater probability of having blood pressure controlled

Metabolic Syndrome/Diabetes

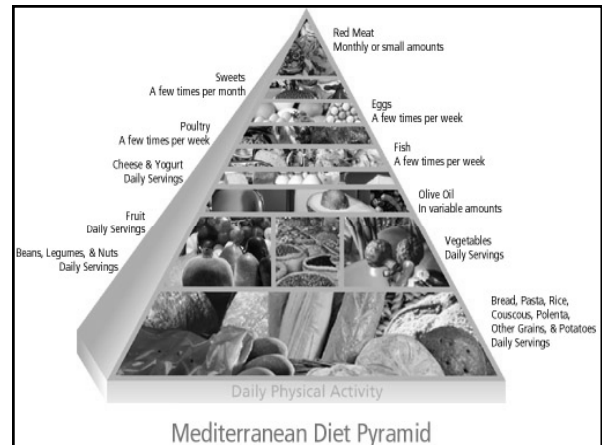
- Mediterranean dietary pattern may be more appropriate than a low-fat diet for people with metabolic syndrome, type 2 diabetes and insulin resistance
- Mediterranean diet has a positive effect on serum insulin, glucose, lipid levels as well as other metabolic factors that increase risk of CVD

Mediterranean Diet

- Diabetes prevention – 215 type 2 diabetics followed either low-fat or Mediterranean diet
- After 4 years only 44% of Mediterranean group needed diabetes medication – 70% of low-fat eaters did
- Mediterranean dieters also lost more weight

What about weight gain?

- Mediterranean diet was NOT associated with greater weight gain or greater risk of developing obesity in 7,368 male and female subjects in research studies during a 2.3 year follow up
- Greater adherence to the Mediterranean diet was associated with a lower likelihood of becoming obese among overweight subjects in the study



Mediterranean Diet

- Decreases practically every heart-disease risk factor:
- High blood pressure
- Cholesterol
- Triglyceride levels
- C reactive protein
- Research: 605 patients with first heart attack followed diet for 4 years – 50-70% lower risk of having second heart attack, angina or stroke

Mediterranean Diet

- Reduced Alzheimer's risk
- JAMA – eating Mediterranean diet cut risk of developing Alzheimer's disease by 40%
- People who added exercise to diet – 60% less likely to get Alzheimer's



Mediterranean Diet

- Meta-analysis in British Medical Journal
- 9% reduction in death from heart disease, cancer, Parkinson's and Alzheimer's
- Other studies – Mediterranean diet lessens the inflammation and pain of rheumatoid arthritis and cuts risk of getting Lou Gehrig's disease

A word about...

- Glycemic Index (rate of absorption of glucose)
- Glycemic Load (ratio between GI and CHO content)
- www.glycemicindex.com

Carbohydrate Confusion

High carb diets increase insulin:

- constant hunger
- increased fat accumulation
- increased inflammation

Low-carb diets increase cortisol

- Brain requires adequate blood glucose
- increased cortisol
- increased inflammation

Slow Carbs

- Carbohydrates that digest more slowly
- Whole grains
- Fruits/vegetables
- Beans/legumes
- Yogurt (Greek)
- Approximately 40 % of calories
- 1200 calories day: 120 grams per day
- 1500 calories day: 150 grams per day

High Glycemic Load Foods Increase:

- Inflammation
- Risks of heart disease, diabetes
- Examples include:
 - White bread, glucose (GI= 100)
 - Potatoes, white rice
 - Pastries, white flour
 - Sweets, carbonated soft drinks

Lower GI/GL reduces risk

- Examples:
- Whole grains
- Fruits
- Vegetables
- Legumes
- Or...mixing high GI/GL foods with those with lower GI/GL





Foods to decrease inflammation

- **BEANS**
- Pinto, navy, Great Northern, lima, garbanzo(chickpeas), black beans, lentils, green beans, sugar snap peas, and green peas
- **BLUEBERRIES**
- Purple grapes, cranberries, boysenberries, raspberries, strawberries, currants, blackberries, cherries, and all other varieties of fresh, frozen, or dried berries
- **BROCCOLI**
- Brussel sprouts, cabbage, kale, turnips, cauliflower, collards, bok choy, mustard green, Swiss chard
- **OATS**
- Wheat germ, ground flaxseed, brown rice, barley, wheat, buckwheat, rye, millet, bulgur, wheat, amaranth, quinoa, triticale, kamut, yellow corn, wild rice, spelt, couscous
- **ORANGES**
- Lemons, white, and pink grapefruit, kumquats, tangerines, limes
- **PUMPKIN**
- Carrots, butternut squash, sweet potatoes, orange bell peppers

Foods to decrease inflammation

SALMON

- Alaskan halibut, canned albacore tuna, sardines, herring, trout, sea bass, oysters, and clams

SOY

- Tofu, soymilk, soy nuts, edamame, tempeh, miso

SPINACH

- Kale, collard, Swiss chard, mustard greens, turnip greens, bok choy, romaine lettuce, orange bell peppers

TEA – GREEN OR BLACK

TOMATOES

- Red watermelon, pink grapefruit, Japanese persimmons, red-fleshed papaya, strawberry, guava

TURKEY

- Skinless chicken breast

WALNUTS

- Almonds, pistachios, sesame seeds, peanuts, pumpkin, and sunflower seeds, macadamia nuts, pecans, hazelnuts, cashews

YOGURT

- Kefir



WILD SALMON

- **Lowers the risk of heart disease and cancer.**
- **The more omega-3 fish oils you eat; the lower your blood pressure**
- **In one study eating the oil in fish cut cancer incidence by over 60%**
- **Studies suggest that fish consumption is associated with a lower risk for depression, violent behavior, Alzheimer's disease, Attention Deficit Disorder, Atrial fibrillation.**
- **TRY TO EAT Wild salmon, halibut, sardines, etc. 2 to 4 times per week**



WALNUTS

- **A handful a day can cut your risk of cardiovascular event by as much as 51%**
- **Two tablespoons of peanut butter 5 times/week cuts risk of type II diabetes by 20%**
- **Along with tea, the easiest way to improve your heart**
- **TRY TO EAT a handful of nuts, five times a week**
- *** Skip the salt and added oils**

WALNUT SIDEKICKS

- Almonds
- Pistachios
- Sesame Seeds
- Peanuts
- Pumpkin and Sunflower Seeds
- Macadamia Nuts
- Pecans
- Hazelnuts
- Cashews



Anti-inflammatory Antioxidants

- Antioxidants: fresh fruit, vegetables, herbs and spices
- Antioxidants help neutralize free radicals - cell damaging molecules
- We create free radicals all day long

Salicylic Acid

- Aspirin is a synthetic derivative of willow bark and salicylic acid is the active component of willow bark
- Aspirin reduces risk of heart attacks and strokes by preventing platelets from clumping, reducing blood clots
- Foods high in salicylic acid: berries, prunes, broccoli, spinach, chili peppers, cinnamon, ginger, nutmeg basil, raisins, grapes whole grains, sage
- Strawberries have ability to inhibit cyclo-oxygenase or COX much like aspirin and ibuprofen

Ginger

- Has been shown to lessen pain of knee osteoarthritis when taken in purified, standardized supplement form
- Can act as a blood thinner
- Powdered dry ginger – one to two capsules (500-1000 mg) twice a day



Turmeric

- Sometimes called curcumin, turmeric is a mustard-yellow spice from Asia
- Main ingredient in curry
- Scientific studies show turmeric may help suppress inflammatory body chemicals
- 400-600 mg of turmeric extracts 3 times per day
- Look for standardized for 95% curcuminoids

Boswellin

- Used in Ayurvedic medicine
- May be especially useful for inflammatory conditions such as fibromyalgia

Zyflamend

- Herbal remedy by New Chapter
- Combination of herbs such as holy basil, turmeric, rosemary, green tea, oregano, ginger, etc.
- Used in research studies at Columbia University
- One tablet twice a day

Red Wine



- Lowers inflammatory substances
- Long associated with lowered risk of heart attack and stroke – so called “French Paradox”
- Also contains polyphenols and flavonoids with antioxidant properties
- No more than 1 drink per day for women, two per day for men

Isoflavones

- Soy beans, tofu and soy products – powerful inflammation fighters
- Great source of protein without pro-inflammatory components of red meat
- Red meat high in arachidonic acid, a type of fatty acid that increases inflammation

10 Foods to Avoid –

- Donuts
- White Bread
- Bread with < 3 grams fiber/ slice
- Soda
- Stick Margarines
- White Pasta
- Full Fat Dairy
- Movie Theatre Popcorn
- Luncheon Meats
- Sugar Coated Cereal



Nightshade Family

- potatoes (not sweet potatoes)
- tomatoes
- eggplant
- sweet and hot peppers (including paprika, cayenne pepper and Tabasco sauce)
- ground cherries
- tomatillos and tamarillos
- garden huckleberry and naranjillas
- pepinos and pimentos

Nightshade Family

- No foods have been definitively shown to cause or exacerbate arthritis in most individuals. The effect of foods on arthritis symptoms vary greatly from person to person. It is an individual decision whether or not to avoid nightshade vegetables.
- Some people say it helps a lot, others say not at all. No firm scientific evidence

Summary

- Over all, when you are choosing anti-inflammatory foods to help reduce your inflammation and pain, choose fresh foods instead of heavily processed foods. Here are some tips:
- Breakfast could be oatmeal served with fresh berries and walnuts, with a cup of soy milk.
- Snack on whole fruits, nuts, seeds, and fresh vegetables throughout the day instead of cookies and candy.
- Eat more fish and less fatty red meat.
- Stay away from deep fried foods and bake or stir fry your meals instead.
- Choose green, orange, and yellow vegetables for your side dishes.
- Drink plenty of water and vegetable juices, herbal teas and green tea

Mediterranean Diet

- Newsletter – Fresh Fridays – Free
- Mediterraneanmark.org
- Recipes & research on the diet



■ **Let's Get
Cooking!**