Mediterranean Diet Basics

Steven Lalevich, RD
What is a Mediterranean Diet?

- Based on traditional diets of cultures around the Mediterranean Sea
- Lower risk of heart disease, obesity and other chronic diseases
- May promote longevity and healthy aging
- Key characteristics:
  - Whole plant foods
  - Olive oil
  - Seafood
  - Wine
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Whole Plant Foods

- Base of the pyramid
- Includes
  - Whole fruits
  - Vegetables
  - Whole grains
  - Beans and legumes
  - Nuts and seeds
  - Herbs and spices
Fruits & Vegetables

• Choose a variety of colors for most nutritional benefit
  • **Red**: Beets, Red cabbage, Cherries, Cranberries, Red grapes, Red peppers, Pomegranates, Strawberries, Tomatoes, Watermelon
  • **Green**: Green beans, Broccoli, Brussels sprouts, Lettuce, Kale, Collard greens, Spinach, Green grapes, Honeydew, Kiwi
  • **Orange/Yellow**: Apricots, Squash, Cantaloupe, Mangoes, Oranges, Peaches, Pineapple, Pumpkin, Corn, Sweet potatoes
  • **Blue/Purple**: Blackberries, Blueberries, Eggplant, Figs, Plums, Purple grapes
  • **White**: Cauliflower, Garlic, Onions, Mushrooms, Potatoes
Simple ways to eat more fruits and vegetables

• Fruits
  • Eat fruit for dessert instead of sweets
  • Add fresh, frozen, or dried fruit to hot cereal
  • Add frozen fruit to a smoothie

• Vegetables
  • Make vegetables the focus of lunch and dinner – fill half your plate with vegetables
  • Have a salad for lunch – add protein to make a balanced meal
  • Wash and cut vegetables in batches so that you always have some on hand
  • Add a handful of leafy greens to a smoothie
Whole Grains

• Whole grains include nutrient-rich germ and bran
  • Fiber
  • Vitamins & Minerals
  • Phytochemicals

• For each serving of whole grains consumed per day
  • Overall mortality decreases by 5%
  • Cardiovascular disease mortality decreases by 9%

• Choosing whole grains in place of refined grains reduces risk of:
  • Diabetes (21-30% less)
  • Heart disease (25-28% less)
  • Stroke (30-36% less)

healthy.iu.edu
Simple ways to eat more whole grains

• Choose whole grain versions of foods you eat regularly
  • Whole wheat pasta
  • Brown rice
  • Whole grain cereals
  • Whole grain bread

• Check the first ingredient and look for the word “whole”
  • Whole wheat flour
  • Whole oats
Beans & Legumes

- Inexpensive, versatile, and nutritious
  - Protein
  - Fiber
  - Vitamins and minerals
- May help to reduce
  - Blood sugar
  - LDL cholesterol
  - Triglycerides
  - Blood pressure
Simple ways to eat more beans and legumes

- Add beans to a salad
- Add beans to pasta dishes
- Add whole beans or mashed beans to a wrap
- Dip vegetables in hummus
- Use quick-cooking dry beans, such as lentils
- Use canned beans to quickly add protein to any meal
Nuts & Seeds

• Nutrients:
  • Unsaturated fats
  • Fiber
  • Vitamin E
  • Protein

• As part of a Mediterranean diet, nuts may help to:
  • Reverse metabolic syndrome
  • Reduce abdominal obesity

• Despite being high in calories, nut intake is associated with lower BMI.
Nuts & Mortality

• Nut intake decreases risk of death from all causes
  • Once per week: 11% reduction
  • 2-4 times per week: 13% reduction
  • 5-6 times per week: 15% reduction
  • 7 or more times per week: 20% reduction
Simple ways to eat more nuts and seeds

• A handful of nuts or seeds makes a healthy snack
• Combine with dried fruit to make trail mix
• Add nut butter (peanut, almond, etc.) to:
  • Whole grain bread
  • Oatmeal
  • Smoothie
Olive Oil

• Nutrients
  • Monounsaturated fat
  • Polyphenols

• Types of Olive oil
  • Extra virgin: superior taste, lower acidity
  • Virgin: good taste, moderate acidity
  • Refined (light/pure): less flavor, less acidity, less polyphenols, more heat-stable
Health Effects of Olive Oil

• As part of a Mediterranean diet, olive oil may help to:
  • Reverse metabolic syndrome
  • Reduce abdominal obesity
  • Reduce elevated fasting glucose

• Polyphenols in olive oils may:
  • Improve blood pressure
  • Decrease inflammation
  • Improve antioxidant function
Choosing olive oil

• Some olive oils may be adulterated or mislabeled
  • Some olive oil found to contain cheaper oils, such as soybean oil
  • Some found to contain chlorophyll (color) and beta-carotene (flavor)
  • Olive oils labeled “Extra Virgin” tested to actually be only “Virgin”
  • “Italian” olive oils may be produced in other countries and imported to Italy

• California produced olive oils are a safe bet
• Choose oil in a dark container to ensure freshness
• Look for PDO (protected designation of origin) or PGI (protected geographical indication)
• Check for dates (use by date and/or harvest date)
Simple ways to eat more olive oil

• Make your own salad dressings and sauces with olive oil
  • Olive oil and vinegar
  • Sofrito sauce: tomatoes, onions, olive oil, and herbs/spices

• Use olive oil in cooking
  • Refined for high-heat cooking
  • Extra virgin or virgin for low-to-moderate heat cooking

• Add olive oil to bread or toast instead of butter
Fish & Seafood

• Nutrients
  • Omega-3 fats
  • Protein
  • B vitamins
  • Important minerals: selenium, zinc, iodine

• Fatty fish are particularly high in omega-3 fats
  • Salmon
  • Sardines
  • Tuna
  • Mackerel
Benefits of omega-3 fats

- Omega-3s are an essential fat, but Americans don’t eat enough
- Important for multiple health functions
  - Brain: memory, cognition, mood
  - Heart: may reduce risk of cardiovascular disease
  - Inflammation: may help to reduce systemic inflammation
- In order to get enough omega-3s
  - Eat seafood at least twice per week OR
  - Consider taking fish oil supplement

healthy.iu.edu
Seafood intake heart disease risk

- Nurses’ Health Study (84,688 female nurses, from 1980 to 1994)

<table>
<thead>
<tr>
<th>Fish Intake</th>
<th>Risk Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once a month</td>
<td>--</td>
</tr>
<tr>
<td>1-3 times per month</td>
<td>21%</td>
</tr>
<tr>
<td>Once per week</td>
<td>29%</td>
</tr>
<tr>
<td>2-4 times per week</td>
<td>31%</td>
</tr>
<tr>
<td>5 or more times per week</td>
<td>34%</td>
</tr>
</tbody>
</table>
Omega-3 fats

• Plant-based ALA
  • Alpha-linolenic acid (ALA)
  • Flaxseeds, walnuts, canola oil
  • Not readily converted to active form

• DHA/EPA
  • Docosahexaenoic acid (DHA)/Eicosapentaenoic acid (EPA)
  • Best source is seafood
  • WHO recommendations: 300 to 500 mg DHA/EPA per day
## Amount of omega-3s in seafood

<table>
<thead>
<tr>
<th>Seafood</th>
<th>Omega-3 content (3 oz portion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light tuna, canned</td>
<td>200 to 500 mg</td>
</tr>
<tr>
<td>Albacore tuna, canned</td>
<td>500 to 1,000 mg</td>
</tr>
<tr>
<td>Wild Planet Albacore Tuna</td>
<td>2,000 mg</td>
</tr>
<tr>
<td>Wild salmon</td>
<td>500 to 1,000 mg</td>
</tr>
<tr>
<td>Sardines</td>
<td>500 to 1,000 mg</td>
</tr>
<tr>
<td>Trout</td>
<td>500 to 1,000 mg</td>
</tr>
<tr>
<td>Pollock</td>
<td>200 to 500 mg</td>
</tr>
<tr>
<td>Shrimp</td>
<td>Less than 200 mg</td>
</tr>
<tr>
<td>Cod</td>
<td>Less than 200 mg</td>
</tr>
</tbody>
</table>
Seafood and mercury

• General guidelines for choosing fish with less mercury:
  • Choose smaller fish over larger fish
  • Choose wild-caught over farm-raised

• Fish with highest mercury content:
  • Swordfish
  • King Mackerel
  • Tilefish
  • Shark

• Risk of mercury toxicity from seafood may be overstated
  • Only one study has demonstrated toxicity from seafood intake (pilot whale)
  • Mercury binds with selenium in seafood and is excreted
Selenium and Mercury Content of Seafood

<table>
<thead>
<tr>
<th>BEST CHOICES</th>
<th>GOOD ALTERNATIVES</th>
<th>AVOID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arctic Char (farmed)</td>
<td>Basa/Pangasius/Swai</td>
<td>Cod: Pacific (Japan &amp; Russia)</td>
</tr>
<tr>
<td>Bass: Striped (US hook &amp; line, farmed)</td>
<td>Cod: Pacific (US Trawl)</td>
<td>Crab: Canned (imported)</td>
</tr>
<tr>
<td>Catfish (US)</td>
<td>Crab: Blue &amp; King (US)</td>
<td>Crab: Red King (Russia)</td>
</tr>
<tr>
<td>Clams, Mussels &amp; Oysters</td>
<td>Grouper: Black &amp; Red (US)</td>
<td>Lobster: Spiny (Belize, Brazil, Honduras &amp; Nicaragua)</td>
</tr>
<tr>
<td>Cod: Pacific (US hook &amp; line)</td>
<td>Halibut (US Pacific gillnet &amp; trawl)</td>
<td>Mahi Mahi (Ecuador)</td>
</tr>
<tr>
<td>Perch: Yellow (Lake Erie wild, US farmed)</td>
<td>Lobster (Bahamas &amp; US)</td>
<td>Orange Roughy (imported)</td>
</tr>
<tr>
<td>Rockfish (US)</td>
<td>Mahi Mahi (Ecuador &amp; US)</td>
<td>Salman: Atlantic (Medit. Sea)</td>
</tr>
<tr>
<td>Salmon (AK)</td>
<td>Salmon: CA, OR &amp; WA wild</td>
<td>Sardines: Atlantic (Medit. Sea)</td>
</tr>
<tr>
<td>Sardines: Pacific (Canada &amp; US)</td>
<td>Scallops (wild)</td>
<td>Sharks</td>
</tr>
<tr>
<td>Scallops (farmed)</td>
<td>Shrimp (Canada &amp; US wild, Ecuador farmed)</td>
<td>Shrimp (imported)</td>
</tr>
<tr>
<td>Seaweed (farmed)</td>
<td>Snapper (US)</td>
<td>Squid (imported)</td>
</tr>
<tr>
<td>Trout: Rainbow (US farmed)</td>
<td>Squid (US)</td>
<td>Swordfish (imported)</td>
</tr>
<tr>
<td>Tilapia (Ecuador &amp; US)</td>
<td>Swordfish (US)</td>
<td>Trout: Lake (Lake Michigan)</td>
</tr>
<tr>
<td>Trout: Albacore/White canned (Canada &amp; US troll, pole)</td>
<td>Tilapia (China &amp; Taiwan)</td>
<td>Tuna: Albacore/White canned (except Canada &amp; US troll, pole and US longline)</td>
</tr>
<tr>
<td>Tuna: Skipjack/Light canned (FAD free, US troll, pole)</td>
<td>Trout: Lake (Lakes Huron &amp; Superior)</td>
<td>Tuna: Bluefin</td>
</tr>
<tr>
<td>Tuna: Albacore/White canned (US longline)</td>
<td>Tuna: Albacore/White canned (imported troll, pole and US longline)</td>
<td>Tuna: Skipjack/Light canned (imported longline and purse seine)</td>
</tr>
<tr>
<td>Tuna: Yellowfin (US troll, pole)</td>
<td>Tuna: Yellowfin (imported troll, pole and US longline)</td>
<td>Tuna: Yellowfin (except troll, pole and US longline)</td>
</tr>
<tr>
<td>Whitefish: Lake (Lake Michigan trap net)</td>
<td>Whitefish: Lake (Lake Erie)</td>
<td></td>
</tr>
<tr>
<td>Whitefish: Lake (Lakes Huron &amp; Superior)</td>
<td>Whitefish: Lake (Lake Michigan gillnet)</td>
<td></td>
</tr>
</tbody>
</table>

Start with “Best Choices” then check the other columns—your favorite seafood could be in more than one.

**Best Choices**
Buy first, they’re well managed and caught or farmed in ways that cause little harm to habitats or other wildlife.

**Good Alternatives**
Buy, but be aware there are concerns with how they’re caught or farmed.

**Avoid**
Take a pass on these for now, they’re overfished or caught or farmed in ways that harm other marine life or the environment.

Visit us online or download our app for a full list of our recommendations.
Omega-6 to Omega-3 ratio

• Ratio may help to guide intake recommendations
  • Omega-6 and omega-3 fats compete within the body
  • Excessive omega-6 intake may cause conditional omega-3 deficiency

• Omega-6 sources
  • Vegetable oils (corn, soybean, safflower, etc.)
  • Nuts
  • Meat

• American diet contains 14-25 times more omega-6 than omega-3
• Optimal omega-6:omega-3 ratio is around 2:1 to 4:1
Omega ratio in Mediterranean diet

• High omega-3 intake
  • Daily intake of fish and seafood (DHA/EPA)

• Low omega-6 intake
  • Olive oil (monounsaturated fat) in place of vegetable oils (omega-6 fat)
  • Low intake of processed foods containing vegetable oils
  • Low intake of high-fat meats
Omega-3 testing

• Omega-3 Index or Omega Score
  • Home finger stick test
  • Includes omega-3 index/score and omega 6:3 ratio

• Discounted omega-3 index available through Seafood Nutrition Partnership
  • [www.seafoodnutrition.org](http://www.seafoodnutrition.org)
  • Take the Healthy Heart Pledge and get omega-3 index for $29.95
Simple ways to eat more seafood

• Pack shelf-stable options (canned/pouched) for lunch:
  • Add to a salad
  • Add to a sandwich

• Rinse pre-cooked frozen shrimp and add to:
  • Salad
  • Pasta
  • Rice

• Add seafood to eggs or egg salad

• Use avocado, Greek yogurt, or olive oil in tuna salad recipes
Wine

• Moderate alcohol intake
  • Raises HDL (good) cholesterol
  • “Thins” the blood – prevents blood clots
  • May decrease risk for heart disease
  • Shown to lower heart attack risk by 30 to 35

• All types of alcohol have same effects

• Moderation is the key:
  • Women: No more than one drink per day
  • Men: No more than two drinks per day
What is a drink?

12 fl oz of regular beer = 8–9 fl oz of malt liquor (shown in a 12 oz glass) = 5 fl oz of table wine = 1.5 fl oz shot of 80-proof spirits ("hard liquor"—whiskey, gin, rum, vodka, tequila, etc.)

about 5% alcohol
about 7% alcohol
about 12% alcohol
about 40% alcohol

The percent of “pure” alcohol, expressed here as alcohol by volume (alc/vol), varies by beverage.

Risks of alcohol

• Heavy drinking increases risk of:
  • Heart disease
  • Liver disease
  • Mental illness

• Even moderate drinking may increase risk of:
  • Colon Cancer
  • Breast Cancer

• Alcohol consumption may interfere with sleep
  • Easier to fall asleep, but quality of sleep impaired
  • Tip: Finish drinking at least a few hours before bedtime
Mediterranean Diet Research Findings

• Reduced risk of:
  • Cardiovascular disease
  • Cancer
  • Parkinson’s disease
  • Alzheimer’s disease
  • Type 2 Diabetes

• Lowers:
  • Blood pressure
  • Blood sugar
  • Triglycerides
Mediterranean Diet & Cardiovascular Events

• Cardiovascular events include:
  • Heart attack
  • Stroke

• Mediterranean diet vs. Low-fat diet
  • Med. diet subjects had 30% greater risk reduction than low-fat diet subjects
  • Study was concluded early due to the magnitude of the results
Mediterranean Diet & Metabolic Syndrome

• Metabolic Syndrome is characterized by:
  • High triglycerides
  • Low HDL
  • High blood pressure
  • High blood sugar
  • Central obesity

• Mediterranean diet vs. Low-fat diet
  • No difference in rates of developing metabolic syndrome
  • Reversal of metabolic syndrome about 30% more likely on Med. Diet
Mediterranean Diet Study Parameters

• Olive oil: at least ¼ cup per day
• Vegetables: at least 2 servings per day
• Fruits: at least 3 servings per day
• Wine: at least 7 glasses per week
• Seafood: at least 3 servings per week
• Nuts: at least 3 servings per week
• Legumes: at least 3 servings per week
Mediterranean Diet Study Parameters

- Red meat: less than 1 serving per day
- Butter, margarine, cream: less than 1 serving per day
- Sugary beverages: less than 1 serving per day
- Sweets: less than 3 servings per week
Longevity

• Telomeres
  • Protective caps on ends of chromosomes
  • Shortening of telomeres correlates to cell aging

• Mediterranean Diet
  • Greater adherence to Mediterranean diet = longer telomeres
  • No just one component of diet, but diet as a whole
Healthy Aging

• Living to 70+ years without major health problems
• A healthy diet improves odds of healthy aging:
  • Dietary Guidelines for Americans: 34% improved odds
  • Mediterranean Diet: 46% improved odds
Why is a Mediterranean diet so healthy?

• Anti-inflammatory compounds
  • Seafood
  • Olive oil
  • Whole plant foods

• Benefits of alcohol

• Fatty acid profile
  • High omega-3
  • Low omega-6
  • Monounsaturated fats

• Macronutrient ratios
  • Higher fat
  • Lower carbohydrate

• Lack of highly processed foods
Mediterranean Diet 7-Day Menus

• Fall/Winter
  • [http://oldwayspt.org/sites/default/files/7dayAUTUMNFINAL_0.pdf](http://oldwayspt.org/sites/default/files/7dayAUTUMNFINAL_0.pdf)

• Spring/Summer
  • [http://oldwayspt.org/sites/default/files/7daySpringMedMenu.pdf](http://oldwayspt.org/sites/default/files/7daySpringMedMenu.pdf)
Additional Resources

• Oldways
  • http://oldwayspt.org/

• Monterey Bay Aquarium Seafood Watch
  • http://www.seafoodwatch.org/

• Seafood Nutrition Partnership
  • http://www.seafoodnutrition.org/
References


References


• University of Maryland Medical Center. Omega-6 fatty acids. http://umm.edu/health/medical/altmed/supplement/omega6-fatty-acids
Questions?

For additional questions, or to schedule a one-on-one nutrition counseling appointment, email: askanrd@indiana.edu