

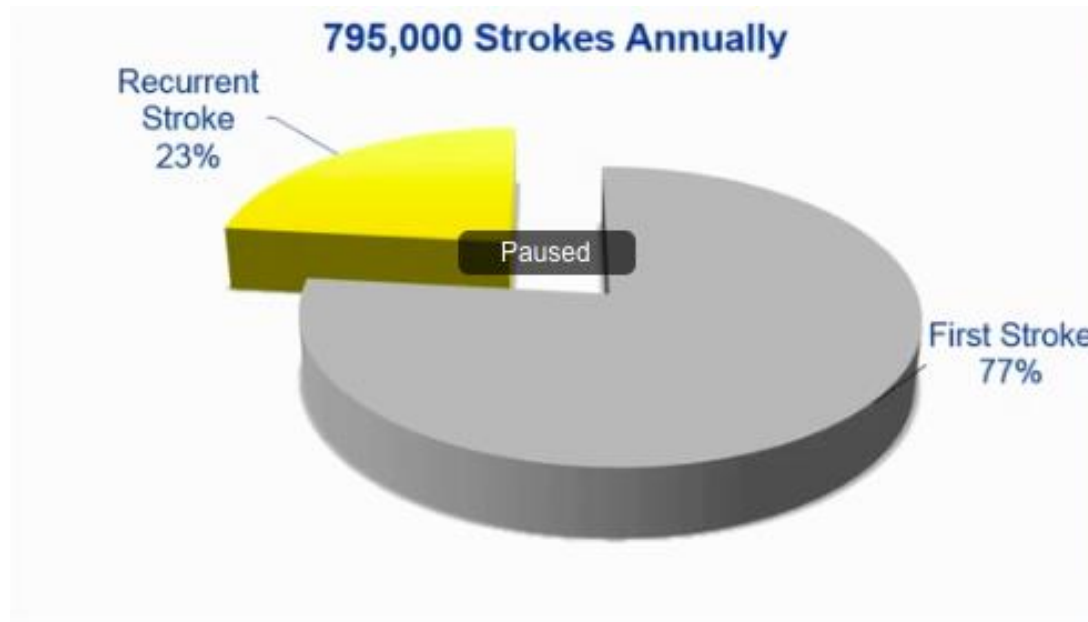
Prevention of Stroke Lifestyle Contributions

Esther Rawner MD

Medical Director of Stroke Services at
Northwest Hospital

Stroke in USA

- 795,000 new and recurrent strokes occur in the US annually



Goal of Acute Ischemic Stroke Care

33

Treatment goals

To reverse brain ischemia before it cause permanent brain injury

To prevent stroke in evolution and recurrence

To optimize the patient's medical condition and prevent the common medical sequelae that occur after stroke or after a stroke intervention

To optimize functional recovery after the residual permanent injury that has occurred

Therapeutic strategies

Recanalization, esp. thrombolysis

Antithrombotic agents

Homeostasis of the brain

Early rehabilitation

Long Term Stroke Treatment

- Antithrombotic therapy
- Statin therapy
- Diabetes control
- Blood Pressure control
- Smoking cessation
- CPAP for Sleep Apnea
- Diet – Healthy Eating
- Exercise

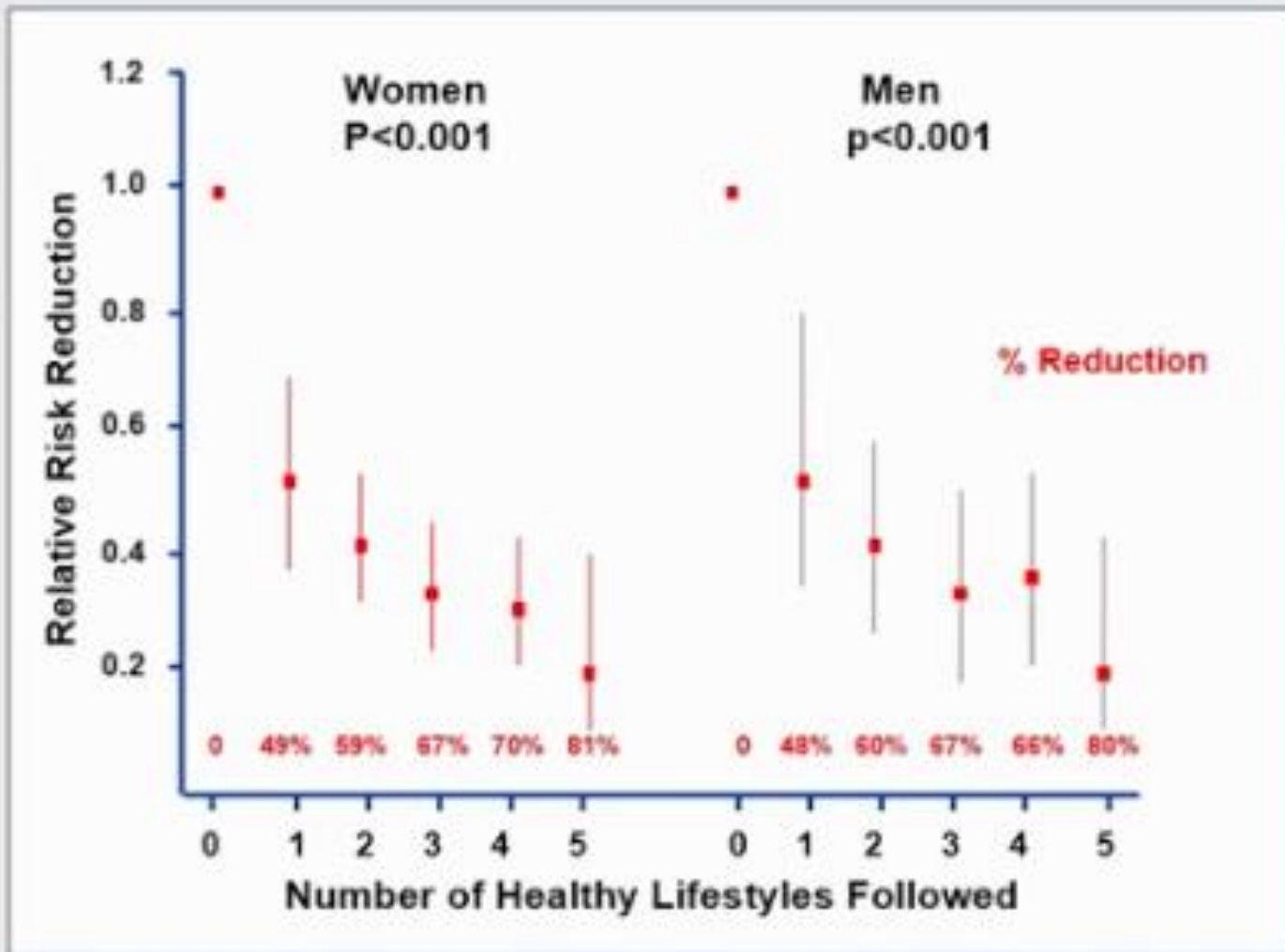
I need to start eating more healthy, but first I need to eat all the junk food in the house so it's not there to tempt me anymore.



Lifestyle Reduces the Risk of Stroke

- 43,685 men, Health Professionals Follow-up Study
- 71,243 women, Nurses Health Study
- 5 Lifestyle factors
 - Not smoking
 - Healthy diet
 - At least 30 min per day of moderate or vigorous physical activity
 - Optimal weight (BMI < 25kg/m²)
 - 1- alcoholic drink/day for women, 1-2 for men

Lifestyle Reduces the Risk of Stroke



Exercise



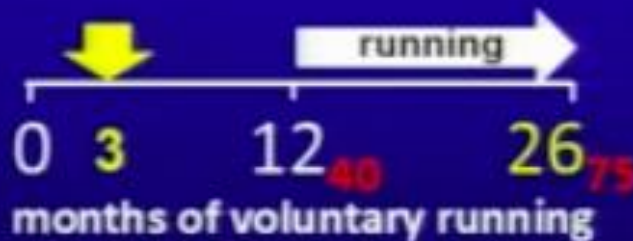
Regular aerobic exercise?



Known to:

- maintain eNOS/ NO
- ↓ oxidative stress
- ↓ inflammation
- ↓ markers of aging

Seals 2014, Thijssen 2016, Howard 2015



Exercise

- Exercise is defined
 - at least
 - Doubling your resting heart rate
 - For 30 minutes
 - Every other day



START MOVING

The risk of heart disease doubles in inactive people versus people who get regular exercise. Aerobic activity, like running, swimming, jump roping and biking, are good choices for reducing the risk of heart disease.

Exercise

- Moderate Intensity
 - Walking briskly, slow bicycling, tennis (doubles), ballroom dancing, general gardening.
- High Intensity
 - Race walking, jogging, running, swimming laps, tennis (singles), aerobic dancing, fast bicycling, jumping rope, heavy gardening, hiking uphill.

**DID YOU
KNOW**

A 154-pound person
can burn
460 calories
in an hour

just by

**WALKING
BRISKLY.**

Exercise

“Aging and metabolic syndrome are independent predictors of poor pial collateral status in patients with AIS”

Menon, Sohn et al 2013

“Aging has detrimental effect on leptomeningeal collaterals in ischemic stroke”

Arsava, Topcuoglu et al 2014

(age and admission NIHSS correlate with CTA collaterals)

Healthy Eating



What is Food

- “Any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth.”
 - Nutritious food, “provides those substances necessary for growth, health, and good condition.”



Why Do We Eat?

- Fuel
- Hungry
- Nutrition
- Obligation
- Stress
- Habit
- Boredom



Healthy Eating

- **Overall Recommendations**
- Eat a micronutrient dense but macronutrient wise diet
 - Macronutrients include carbohydrates, protein and fat and provide energy (calories)
 - Micronutrients include vitamins and minerals and are generally calorie free
- Go to the library/bookstore and get a book with recipes to try
- Look for a blog with recipes you like (Pinterest is a great way to save recipes for later)

Healthy Eating

- Each additional one serving of fruit and vegetable per day was associated with a **6%** lower risk of ischemic stroke.

(Joshiipura KJ et al. Fruit and vegetable intake in relation to risk of ischemic stroke. JAMA 1999;282(13))



Family and Food

- Stroke survivors often do not prepare their own meals
- 80% of the food we consume is eaten with someone else there
- Family support can sink or swim a dietary change
- Advocating for a change at the group/family level could provide health for all

So you want to eat clean?



With so much conflicting information out there, how do you know what healthy eating really looks like? Let's clear up some of the myths about eating clean.

What does healthy eating look like?



VEGETABLES



FRUITS



WHOLE GRAINS

Myth

Only fresh fruits and vegetables are healthy.

Fact

A healthy diet can include fresh, frozen, canned and dried produce.

Myth

All processed foods are bad and full of chemicals.

Fact

Most foods you see at the grocery store have been processed in some way. Processed foods that don't have a lot of added sugar or sodium can be a part of a healthy diet. Think: baby carrots, whole grain bread, plain yogurt, or chopped nuts!

Healthy Eating TIPS

- ✓ Select canned and frozen fruit and vegetables without salty sauces or sugary syrups.
- ✓ Drain and rinse canned products to get rid of some of the additives like salt and sugar.

Healthy Eating

- Daily servings of soda
 - Increase the risk of ischemic stroke
 - 13% increase per serving per day of sugar-sweetened soda
 - 7% increased risk of ischemic stroke per daily serving of low-calorie soda.

Healthy Eating Vegetables

- “Eating the rainbow” ensures a healthy compliment of micronutrients
- A raw salad for lunch every day is a great way to up veggie intake
- Green veggies like kale and broccoli are nutritional powerhouse



Healthy Eating Fruit

- Try to stick with those fruits that are in season as they will be cheapest
- Fruits are higher in calorie than veggies so they might need to be minimized
- Fruits can be a great dessert option

Healthy Eating **TIPS**

- ✓ Prepare food at home to control what is added.
- ✓ Bring out the natural flavors in foods by using healthier cooking methods like grilling, braising, roasting, searing, and sautéing.
- ✓ Add flavor with delicious herbs, spices, black pepper and citrus juices instead of sugar, salt and unhealthy fats.

Healthy Eating Beans

- Beans are a cheap!
- Great source of both protein and fiber
- They can be canned (black, pinto, white, kidney, etc)
- They can be frozen (edamame)
- They can be dried (all of the above)



Healthy Eating

Nuts

- Seeds are the nutrient powerhouse for a budding plant and are among the most micronutrient dense foods out there
- Nuts provide a great source of magnesium
- Great nut choices include walnuts, almonds, pecans, and cashews (roasted without salt)
- Great seed choices include chia, flax, pumpkin, hemp, sunflower, and quinoa

Fats/Oils

- Fat is an important part of the diet
- Great oils include olive, coconut, and flax
- Consider adding avocado



FATS

THE GOOD THE BAD & THE UGLY

✓ GOOD

Monounsaturated & Polyunsaturated Fats

- Can lower bad cholesterol levels
- Can lower risk of heart disease & stroke
- Can provide essential fats that your body needs but can't produce itself

SOURCE

Plant-based liquid oils, nuts, seeds and fatty fish

EXAMPLES



Oils (such as canola, olive, peanut, safflower and sesame)



Avocados



Fatty Fish (such as tuna, herring, lake trout, mackerel, salmon and sardines)



Nuts & Seeds (such as flaxseed, sunflower seeds and walnuts)

✗ BAD

Saturated Fats

- Can raise bad cholesterol levels
- Can lower good cholesterol levels
- Can increase risk of heart disease & stroke

SOURCE

Most saturated fats come from animal sources, including meat and dairy, and from tropical oils

EXAMPLES



Beef, Pork & Chicken Fat



Butter



Cheese (such as whole milk cheeses)



Tropical Oils (such as coconut, palm kernel and palm oils)

✗ UGLY

Hydrogenated Oils & *Trans* Fats

- Can raise bad cholesterol levels
- Can lower good cholesterol levels
- Can increase risk of heart disease & stroke
- Can increase risk of type 2 diabetes

SOURCE

Processed foods made with partially hydrogenated oils

EXAMPLES



Partially Hydrogenated Oils



Some Baked Goods



Fried Foods



Stick of Margarine

American Heart Association
Recommendation

Eat a healthy dietary pattern that:

Includes
good fats

Limits
saturated fats

Keeps trans fats as
LOW as possible

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Baked Goods



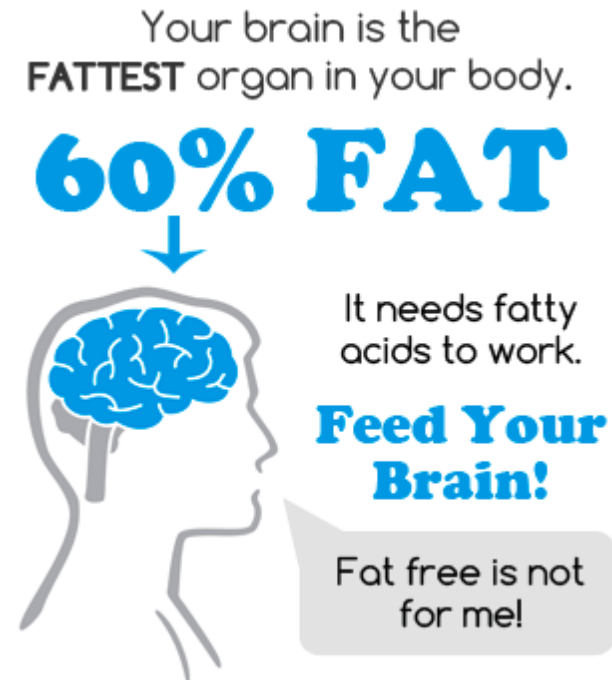
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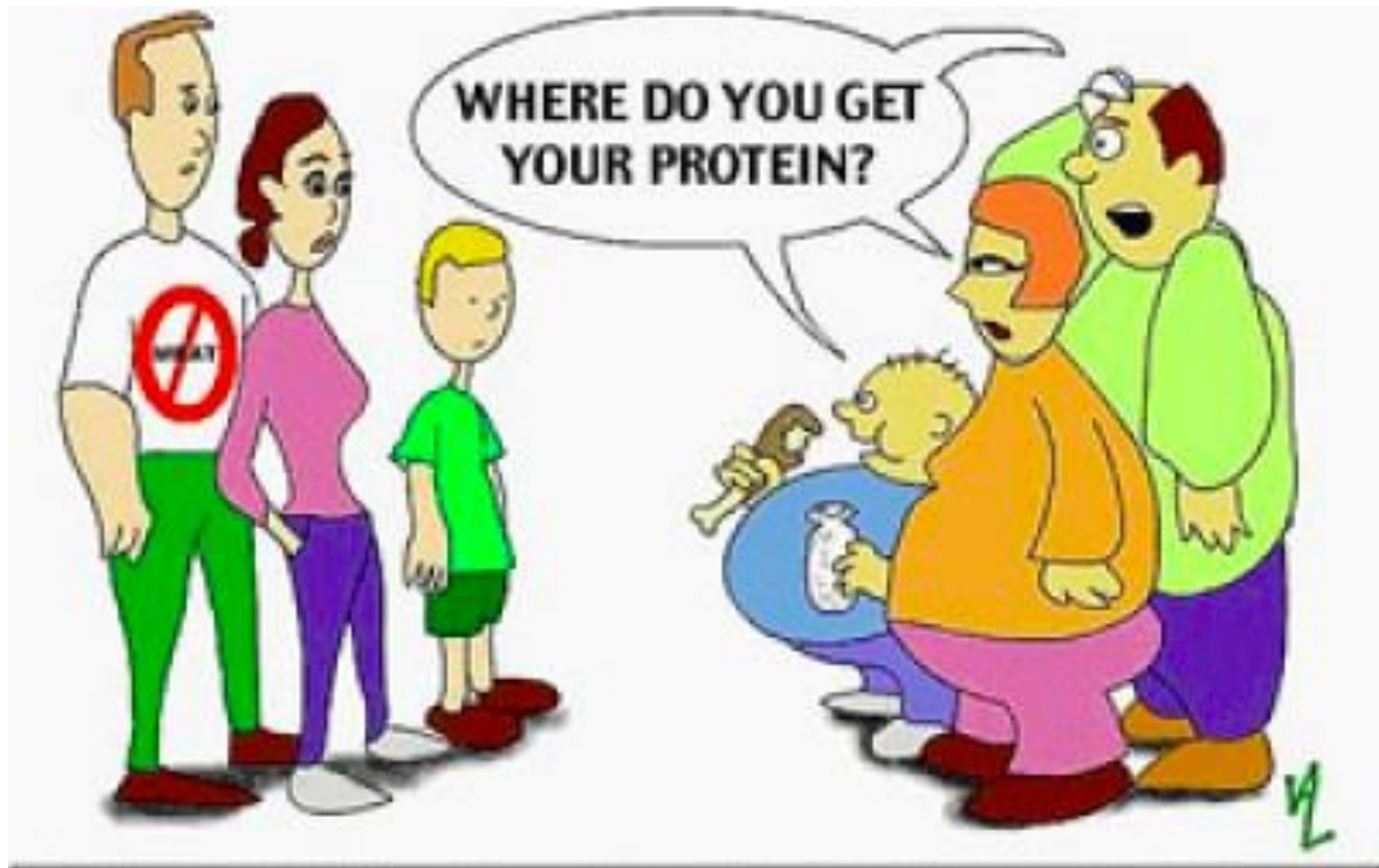
Stick of
Margarine

Fish

- It has great protein and great fat
- Salmon and tuna are packed with the best fats
- Tilapia and other white fish are an excellent protein
- Wild Salmon and Sardines have the least amount of mercury



Meats and Dairy



Meat and Dairy

- Avoid
 - Processed meats and cheeses
 - Fast food
- Moderate amounts
 - Meat
 - Eggs
 - Chicken
 - Dairy
 - Yogurt – Greek or kefir
 - Quality Cheese
 - Greek feta (goat or sheep)
 - Real parmesan
 - Swiss cheese

Other Protein

◆ LEGUMES ◆



Tempeh

◆ cooked ◆ 1 cup ◆ 31g ◆



Lentils

◆ cooked ◆ 1 cup ◆ 18g ◆



Edamame

◆ cooked ◆ 1 cup ◆ 17g ◆



Adzuki Beans

◆ cooked ◆ 1 cup ◆ 17g ◆



Navy Beans

◆ cooked ◆ 1 cup ◆ 15g ◆



Kidney Beans

◆ cooked ◆ 1 cup ◆ 15g ◆



Pinto Beans

◆ cooked ◆ 1 cup ◆ 15g ◆



Chickpeas

◆ cooked ◆ 1 cup ◆ 15g ◆



Lima Beans

◆ cooked ◆ 1 cup ◆ 15g ◆



Black-eyed Peas

◆ cooked ◆ 1 cup ◆ 13g ◆



Tofu

◆ firm ◆ 4 ounces ◆ 11g ◆



Green Peas

◆ cooked ◆ 1 cup ◆ 9g ◆

Other Protein

◆ NUTS ◆



Peanuts

◆ 1/4 cup ◆ 9g ◆



Almonds

◆ 1/4 cup ◆ 8g ◆



Cashews

◆ 1/4 cup ◆ 5g ◆



Brazil Nuts

◆ 1/4 cup ◆ 5g ◆

Other Protein

◆ GRAINS ◆



Seitan

◆ 3 ounces ◆ 21g ◆



Buckwheat

◆ 1 cup ◆ 21g ◆



Bulgur

◆ 1 cup ◆ 13g ◆



Wheat Germ

◆ 1 cup ◆ 12g ◆



Amaranth

◆ cooked ◆ 1 cup ◆ 9g ◆



Quinoa

◆ cooked ◆ 1 cup ◆ 8g ◆



Oatmeal

◆ cooked ◆ 1 cup ◆ 6g ◆



Millet

◆ cooked ◆ 1 cup ◆ 6g ◆



Barley

◆ cooked ◆ 1 cup ◆ 4g ◆



Brown Rice

◆ cooked ◆ 1 cup ◆ 5g ◆

Other Protein

◆ SEEDS ◆



Hemp Seeds

◆ 3 Tablespoons ◆ 11g ◆



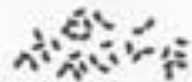
Pumpkin seeds

◆ roasted ◆ 1/4 cup ◆ 8g ◆



Sunflower Seeds

◆ roasted ◆ 1/4 cup ◆ 6g ◆



Chia Seeds

◆ 2 Tablespoons ◆ 5g ◆



Flax Seed

◆ 1 Tablespoon ◆ 2g ◆

Other Protein

◆ VEGETABLES ◆



Spinach

◆ cooked ◆ 1 cup ◆ 5g ◆



Corn

◆ cooked ◆ 1 cup ◆ 5g ◆



Collard Greens

◆ cooked ◆ 1 cup ◆ 4g ◆



Broccoli

◆ cooked ◆ 1 cup ◆ 4g ◆



Mushrooms

◆ cooked ◆ 1 cup ◆ 4g ◆



Brussel Sprouts

◆ cooked ◆ 1 cup ◆ 4g ◆



Asparagus

◆ cooked ◆ 1 cup ◆ 3g ◆



Artichoke

◆ cooked ◆ 1/4 cup ◆ 4g ◆



Potato

◆ cooked ◆ 1 cup ◆ 3g ◆



Kale

◆ cooked ◆ 1 cup ◆ 2g ◆

Other Protein

◆ OTHER ◆



Nutritional Yeast

◆ 3 Tablespoons ◆ 12g ◆



Spirulina

◆ 2 Tablespoons ◆ 8g ◆



Goji Berries

◆ cooked ◆ 1/4 cup ◆ 4g ◆



Chlorella

◆ 2 Tablespoons ◆ 2g ◆

Grains

Refined Grains vs. Whole Grains

Refined White Grains Cause:

- Food Addiction & Cravings
- Weight Gain
- Type 2 Diabetes
- High Blood Pressure
- Blood Sugar Spikes
- Inflammation
- Acne, Eczema, Psoriasis, Edema
- Allergies
- Behavior Issues, Depression, Mental Illness, Mood Swings, Emotional Problems, Difficulty Concentrating
- Hyperactivity
- Bloating
- Bone Loss

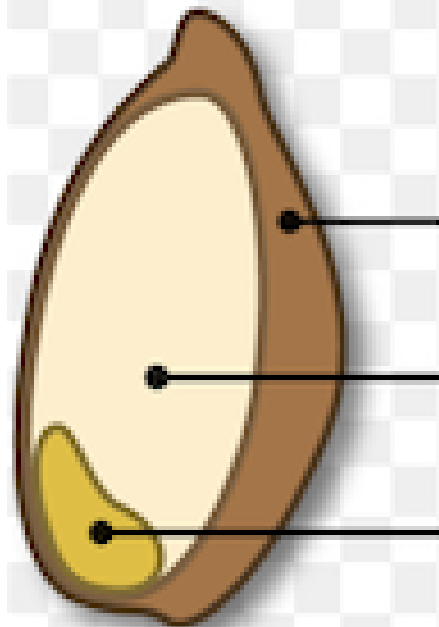
Benefits of Whole Grains:

- Fights Disease
- Lowers Total Cholesterol, LDL (Bad) Cholesterol & Triglycerides
- Reduces Risk of Cardiovascular Disease
- Aids Weight Loss
- Helps Prevent Cancer
- Provides Digestive Health
- Rich in Fiber
- Keeps You Full Longer
- Nutrient Dense Protein

Whole Grain

The Whole Grain Difference

Whole grain flours include the nutritious bran and germ of the kernel – refined flours don't.



Bran: Protective outer covering
Fiber, B Vitamins & Trace Minerals

Endosperm: Starchy inner core
Energy, Carbohydrates & Protein

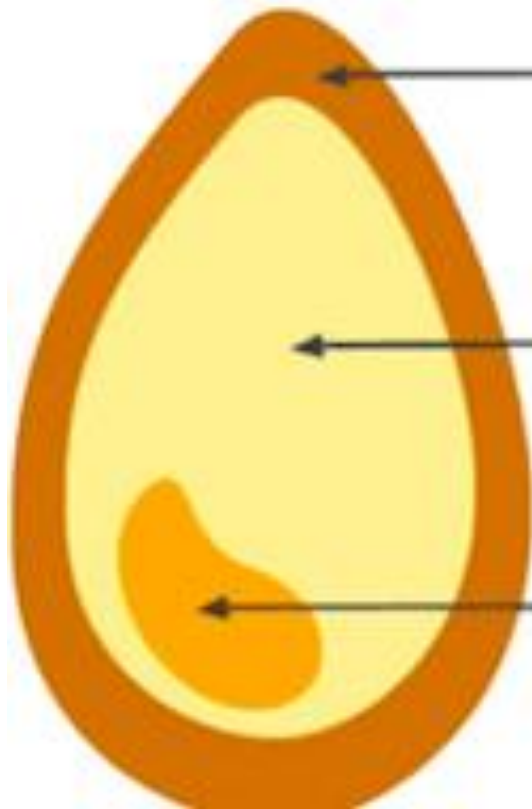
Germ: Tiny seedling inside grain
Antioxidants, Vitamin E & B

Whole Grain

Whole Grain

vs.

“White” Grain



Bran

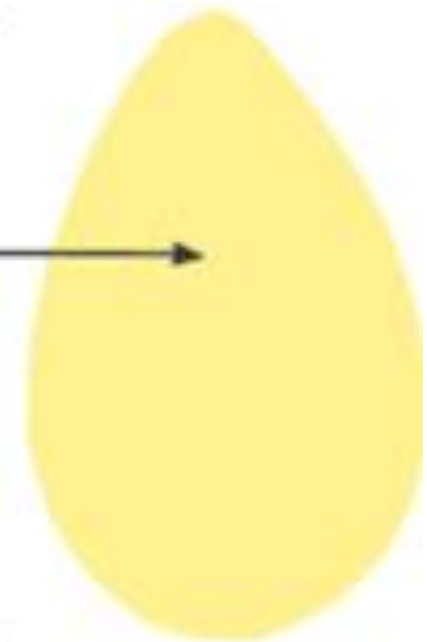
The fiber-rich outer layer that protects the seed and contains B vitamins and trace minerals.

Endosperm

The middle layer that contains carbohydrates along with proteins.

Germ

The small nutrient-rich core that contains antioxidants, including vitamin E, B vitamins and healthy fats.



Wheat-Free Grains



WHEAT BERRIES



OATMEAL



QUINOA



BROWN RICE



BUCKWHEAT



CORN



BARLEY



AMARANTH



KANIWA



FREEKEH



WILD RICE



TRITICALE



SORGHUM



BULGUR



BLACK RICE



SPELT

Alcohol

- Given availability, 5-10 % of subjects would develop profound addiction with devastating consequences for themselves, their families, and occasionally innocent strangers



Salt

- **USDA**
 - 2,300 mg per day
 - 1,500 mg per day for those over age 51 or African-Americans
- **AHA**
 - 1500 mg per day for everyone
- **US average**
 - 3,400 mg per day
- **1 Tsp = 2,300 mg**

KNOW THE SALTY 6

Common foods that may be loaded with excess sodium:

- 1 Breads & Rolls
- 2 Cold Cuts & Cured Meats
- 3 Pizza
- 4 Poultry
- 5 Soup
- 6 Sandwiches



Choose wisely, read nutrition labels & watch portion control.



American Heart Association | American Stroke Association

life is why™

Healthy Eating Styles

- **DASH** – Dietary Approach to Reduce Hypertension.
 - Has been clinically proven to reduce blood pressure.
- **Mediterranean** – Dietary approach that focuses on healthy eating and living
 - Has been clinically proven to reduce heart attacks and strokes.

DASH Diet Plan

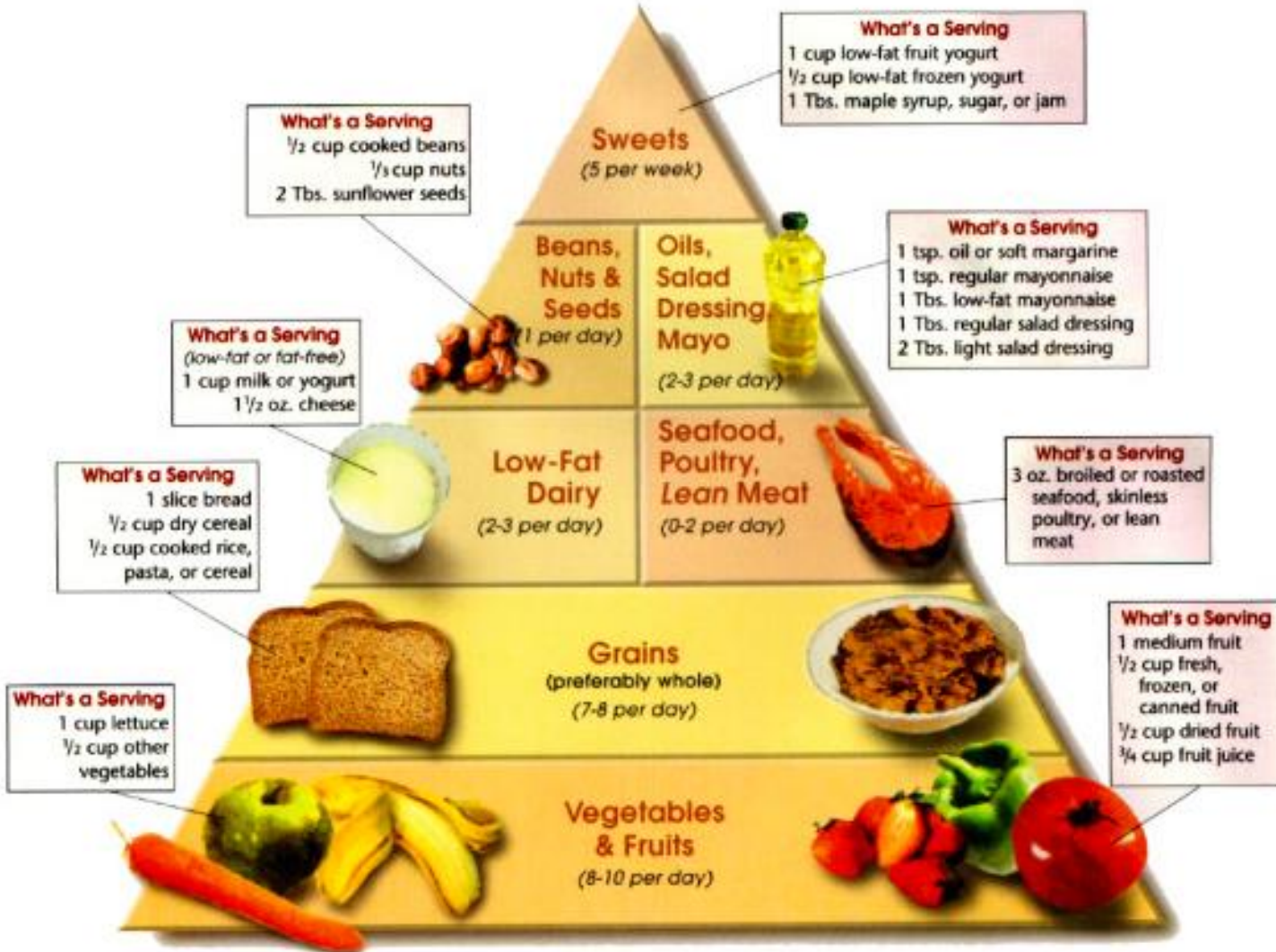
- It allows you to safely reduce your blood pressure by one point in only 2 weeks.
- The goal of the DASH diet is to lower your sodium more than your typical diet
 - Standard DASH – allowed to consume up to 2,300 mg of sodium daily
 - Lower Sodium DASH – allowed to consume up to 1,500 mg of sodium daily

DASH Diet Plan

- Vegetables, fruits, and low-fat dairy products with moderate portions of whole grains, nuts and lean proteins.



DASH Diet Pyramid



Note: Choose lower-salt foods from all categories.

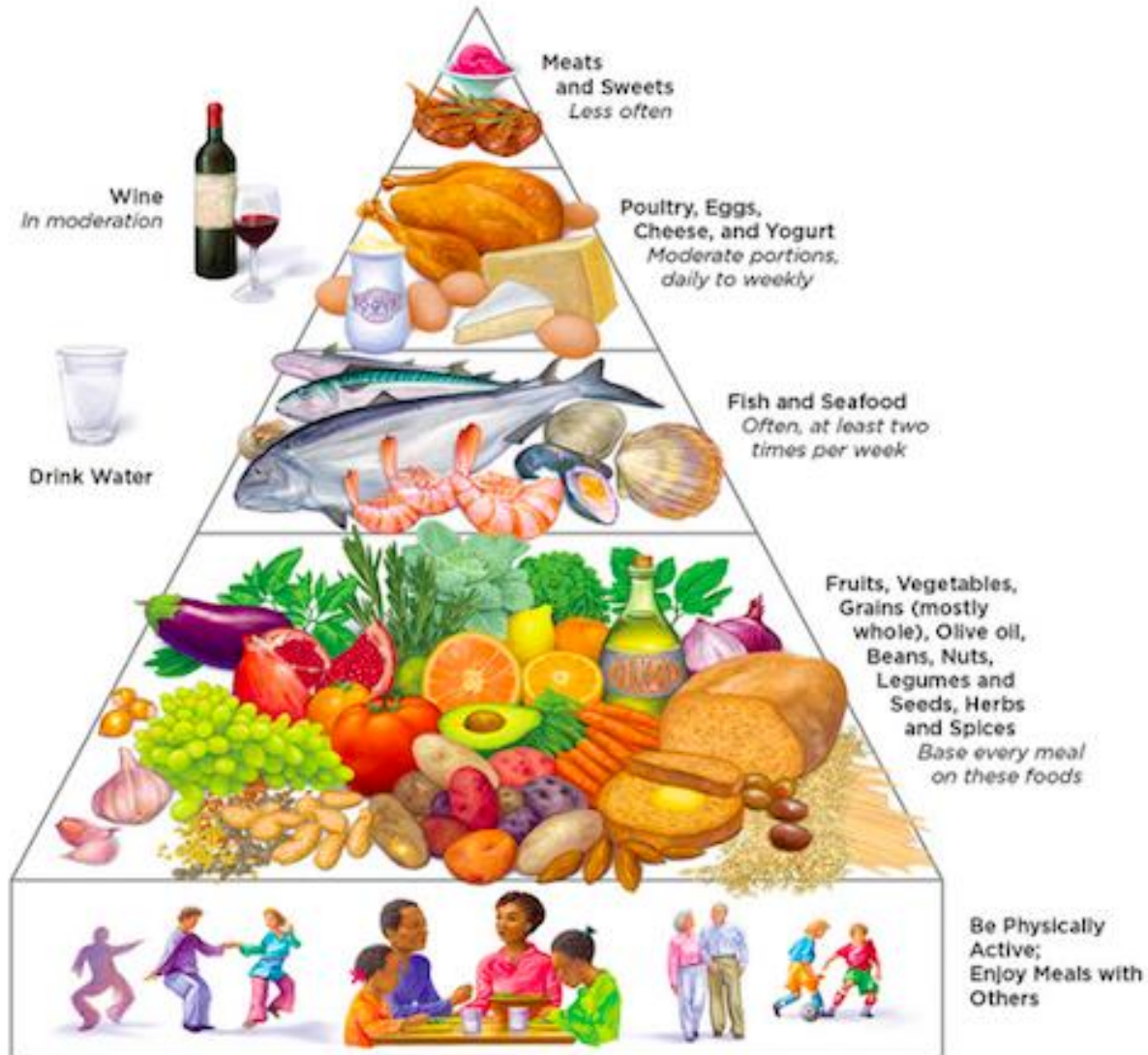
History of the Mediterranean Diet

- Keys identified the Mediterranean Diet in the 1950s and 1960s as a pattern of eating in Southern Italy
- Specifically he was interested in contrasting the diet of American businessmen with centurions

Mediterranean Diet

- Emphasis on vegetables, fruits, beans, nuts, seeds, breads, unrefined grains, and olive oil; some fish and wine
- Limited intake of meats and dairy products

Mediterranean Diet Pyramid



Mediterranean Diet Stroke Risk

	Control Advice for Low Fat (n=2450)	Mediterranean Diet with EVOO (n=2543)	Mediterranean Diet with Nuts (n=2454)
Rate per 1000 person-years	5.9 (4.5-7.7)	4.1 * (3.1-5.5)	3.1** (2.1-4.4)
Hazard ratio	-	0.67 (0.46-0.98)	0.54 (0.35-0.84)

* p=0.03

** p=0.003

Thank You

When your salad keeps making jokes...

