Nutrition Related Diseases (Foods II)

Health Stations

Exercising Your Heart

Using the timer or a clock, find your pulse in your wrist or neck and count the beats for 15 seconds. Record below:

_____ (beats in 15 seconds) x 4 =_____beats per minute

Look at the chart in your station and determine your fitness rating. My fitness rating is:_____

Your heart rate is an indication of the affect physical activity is having on your heart. Your heart rate or pulse is the number of times your heart beats per minute.

A resting heart rate is the speed at which your heart muscle contracts when you are sitting quietly. Improved cardiorespiratory fitness results in a slower heart beat.

The heart is a strong muscle. Lie your other muscles, your heart needs exercise. For good exercise, your heart needs to beat faster than its resting rate. However, it should not beat so fast that it is unsafe. Try to exercise in a safe target heart rate zone. This is 60-90% of your maximum heart rate.

What does your heart rate or pulse indicate?

How do you make exercise good?

Jump rope for 90 seconds. Take your pulse again for 15 seconds immediately after jumping. Record below:

_____ (beats in 15 seconds) x 4 = _____ beats per minute

Figure target heart rate zone:
220- _____ (your age) x 0.6= _____
220- _____ (your age) x 0.9= _____

Your target heart rate zone is _____ - _____ beats per minute. Did you do it? _____

Heart Attack

As a group sort out the risk factors for heart disease into two piles. One you have control over and one you have no control over. List below:

Factors I can change	Factors I have no control of
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	

Take your blood pressure and record here:_____

Abnormally high blood pressure or hypertension is a heart-health risk factor. It involves an excess force on the walls of the arteries as blood is pumped from the heart. A normal blood pressure reading is 120/80.

Hypertension affects 20-25% of the adult population in the US. People with hypertension have a reading of 140/90 or higher. High blood pressure is a strong indicator of coronary disease.

Doctors cannot cure high blood pressure. However, some people can control it through diet, exercise and stress management. Doctors often prescribe medication for people who have trouble controlling their blood pressure.

Why is high blood pressure a heart-health risk?

What is considered normal blood pressure?_____

How can you control high blood pressure?

Do you think your blood pressure is high?_____

HEIGHT, WEIGHT, BONE SIZE, EYES AND GENETICS

1. My height is _____' _____"

2. My weight is _____. I need about _____ calories per day.

3. Circle the best answer: I am… a) Too thin b) Normal c) A bit "fuzzy"

4. How did I do on my eye exam?

_____

5. Circle your bone size: Small Medium Large

6. Which of these situations are genetic?

_____

7. Which part of *me* is by choice?

_____

8. Can I change my genetics?

_____

Can I change my physical choices?

_____

My Family Tree Health Record

Mom's Dad

Health Problem: _____

_____

Mom's Mom

Health Problem: _____

_____

Dad's Dad

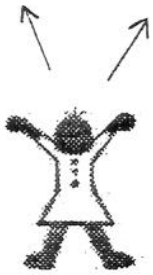
Health Problem: _____

_____

Dad's Mom

Health Problem: _____

_____



My Mom

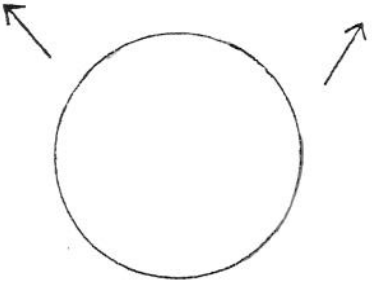
Health Problems: _____

_____

My Dad

Health Problems: _____

_____



Name some genetic strengths that my family has:

_____

_____

_____

_____

ME: _____

Health Problems: _____

Name some diseases you are at risk for:

_____

_____

_____

_____

_____

Foods I Should Eat: _____

Foods I Should AVOID: _____

Station # 3: Nutrition related diseases:

1. Take a look at your family tree and list the health problems that could arise:

2. Under each health problem list the foods that you could eat under each health problem to help prevent the health problem.

3. Diabetes:

   What is it?

   What causes it?

   How food may help:

   Under food arsenal list a food you would eat in each category:

   a. Complex Carbohydrates; _____
   b. Dietary fiber: _____
   c. Magnesiam: _____
   d. Monosaturated fat _____
   e. Vitamin C: _____

4. Osteoporosis

   What is it?

   What causes it?

   How food may help?

   Under food arsenal list a food you would eat in each category:

   a. Calcium; _____
   b. Isoflavones; _____
   c. Lignans; _____
   d. Vitamin C; _____
   e. Vitamin D: _____
   f. Vitamin K: _____

5. Cancer

What is it?

What causes it?

How food may help:

Under food arsenal list a food you would eat:

a. Allium Compounds; _____
b. Anthocyanians: _____
c. Beta-carotene; _____
d. Catechins; _____
e. Flavonoids; _____
f. Folate; _____

6. Heart disease

What is it?

What causes it?

How food may help:

Under food arsenal list a food you would eat:

a. Soluble fiber; _____
b. Folate: _____
c. Monosaturated fat: _____
d. Omega-3 fatty acids; _____
e. Soy protein: _____

7. Anemia

What is it?

What causes it?

How food may help?

Under food arsenal list a food you would eat

a. Folate
b. Iron
c. Vitamin B_{12}
d. Vitamin C

Station #4: Stress

Directions: read the poster and answer the following questions:

1. Research shows unchecked stress leads to:
   a.
   b.
   c.
   d.
2. To reduce stress doesn't have to cost money, you can:
   a.
   b.
   c.
   d.
3. List why the following helps with stress:
   a. Focus & finish, Why?
   b. Take a news break, Why?
   c. Shhhhh, Why?
   d. Laugh it up, Why?
   e. Meditation, Why?
   f. Breathe deep, Why?
   g. Take a vacation, Why?
   h. Adopt a pet, Why?
   i. Tune in, Why?
   j. Rub it out, Why?
   k. Get your sleep, Why?
   l. Don't take the bait, Why?
   m. Think positively, Why?

Nutrition and Stress:

4. What happens when you skip a meal?
5. Name foods with folic acid:
   a.
   b.
   c.
   d.
6. Get your dairy; milk is very _____ activating, it contains _____ which helps you think _____ and _____.
7. Vitamin C helps you from getting _____ and also thinking and maintain _____.

8. Four sources of Vitamin C are:
   a.
   b.
   c.
   d.
9. What happens when you eat refined sugar?
   a.
   b.
   c.
   d.
10. How does sleep help you?
   a.
   b.
   c.
11. Name a sleeping producing food >_____
12. Name 2 sleep inhibiting foods:
   a.
   b.
   These are foods high in _____.
13. List what the B Vitamins do for the body:
   a. Convert carbs and protein into _____ _____.
   b. Helps your body _____ and repair brain _____.
14. What helps wake you in the morning? _____. But in the evening to help you sleep eat _____.
15. Name the 4 quick fixes for fighting stress
   a.
   Why does this help?
   b.
   Why does this help?
   c.
   Why does this help?
   d.
   Why does this help?
16. Name 5 coping strategies from the list that you use or would be willing to use to cope with stress:
   a.
   b.
   c.
   d.
   e.

17. What is stress?

18. Name the 3 types of stress
    a.
    b.
    c.
19. How is stress good for you?

20. How is stress bad for you?

21. List the 5 ways to control stress:
    a.
    b.
    c.
    d.
    e.
22. List the 4 ways that proper nutrition can be evaluated
    a.
    b.
    c.
    d.
23. Our supermarkets are filled with processed foods, they contain:
    a.
    b.
    c.
    d.
24. Name 4 supplements for stress:
    a.
    b.
    c.
    d.
25. Exercise strengthens all the _____ of the _____ it also stimulates the _____ and lymphatic _____. Exercise has been known to be a _____ reliever through activity the body can remove _____ from the tissues and fill them with _____ nutrients. The mind also has time to _____ from mental _____ and _____.

*Name*_____ *Period*_____ *Class #*_____

What's My Stress Level?

Sometimes stress is a good thing, sometimes it is bad. Below, you will find a list of situations that may cause stress for you. If you have experienced any of the things listed below during the past year, place a check mark next to that number.

_____ 1. Moved to a new school.
_____ 2. Had trouble with the police.
_____ 3. A family member was seriously ill or injured.
_____ 4. Parent or guardian lost or changed his/her job.
_____ 5. Improved your grades.
_____ 6. Got a failing grade.
_____ 7. Had more arguments with your parents.
_____ 8. Had fewer arguments with your parents.
_____ 9. Parents were divorced or separated.
_____ 10. A close friend or family member died.
_____ 11. Made a new set of friends.
_____ 12. Became involved in an athletic team, dance club, music lessons, gymnastics, etc.
_____ 13. Had a major injury or personal illness.
_____ 14. Got suspended from school.
_____ 15. Had a problem getting along with one or more of your teachers.
_____ 16. Always had to look "just right" before going any place.
_____ 17. Worried a lot about your school work.
_____ 18. Wished you had more friends.

Almost all teens cope with some of the situations listed above. However, if you have checked more than six things, you may have more stress than is healthy for you. You may feel very distressed and have only one or two things checked. Everyone is different. If you are feeling depressed, have low self-esteem, steady headaches, or other physical pains, you may want to talk to someone. These symptoms can all be caused by excess stress. A counselor or other adult you trust may be able to help you resolve some of the stress and/or frustration you are feeling.

What are 3 ways I use to relieve STRESS:

1.
2.
3.

Name 1 "New" way I can relieve STRESS:

1.

WILL YOU LIVE TO BE 100?

LONGEVITY QUIZ	SCORE
1. Do you smoke or chew tobacco, or are you around a lot of secondhand smoke? Yes (-20) No (0)	
2. Do you cook your fish, poultry, or meat until it is charred? Yes (-2) No (0)	
3. Do you avoid butter, cream, pastries, and other saturated fats as well as fried foods (e.g., French Fries)? Yes (+3) No (-7)	
4. Do you minimize meat in your diet, preferably making a point to eat plenty of fruits and vegetables, and bran instead? Yes (+5) No (-4)	
5. Do you consume more than two drinks of beer, wine, and/or liquor a day? (A standard drink is one 12-ounce bottle of beer, one wine cooler, one five-ounce glass of wine, or one and a half ounces of 80-proof distilled spirits.) Yes (-10) No (0)	
6. Do you drink grape juice regularly? Yes (+3) No (0)	
7. Do air pollution warnings occur where you live? Yes(-4) No(+1)	
8. a) Do you drink more than 16-ounces of coffee a day? Yes (-3) No (0) b) Do you drink tea daily? Yes (+3) No (0)	
9. Do you take an aspirin a day? Yes (+4) No (0)	
10. Do you floss your teeth daily? Yes (+2) No (-4)	
11. Do you have a bowel movement less frequently than once every two days? Yes (-4) No (0)	
12. Have you had a stroke or heart attack? Yes(-10) No (0)	
13. Do you try to get a suntan? Yes (-4) No (+3)	
14. Are you more than 20 pounds overweight? Yes (-10) No (0)	
15. Do you live close to other family members (other than your spouse and dependent children) that you can and want to drop by spontaneously? Yes (+5) No (-4)	
16. Which statement applies to you? a) "Stress eats away at me. I can't seem to shake it off." Yes (-7) b) "I can' shed stress." This might be by praying, exercising, meditating, finding humor in everyday life, or other means. Yes (+7)	
17. Did both of your parents either die before age 75 of non-accidental causes or require daily assistance by the time they reached age 75? Yes (-10) No (0) Don't know (0)	
18. Did more than one of the following relatives live to at least age 90 in excellent health: parents, aunts/uncles, grandparents? Yes (+24) No (0) Don't know (0)	
19. a) Are you a couch potato (no regular aerobic or resistance exercise)? Yes (-7) b) Do you exercise at least three times a week? Yes (+7)	
20. Do you take vitamin E (400-800 IU) and selenium (100-200 mcg) every day? Yes (+5) No (-3)	

After completing a study of 150 centenarians, Harvard Medical School researchers Thomas Perls, M.D., and Margery Hutter Silver, Ed.D., Developed a quiz to help you calculate your estimated life expectancy.

Five nutritional ways to prolong my life:

1.
2.
3.
4.
5.

SCORE

STEP 1: Add the negative and positive scores together. Example: -45 plus +30= -15. Divide the preceding score by 5 (-15 divided by 5= -3).

STEP 2: Add the negative or positive number to age 84 if you are a man or age 88 if you are a woman. (Example: -3 + 88 = 85) to get your estimated life span.

THE SCIENCE BEHIND THE QUIZ

Question 1 Cigarette smoke contains toxins that directly damage DNA, causing cancer and other diseases and accelerating age.

Question 2 Charring food changes it's proteins and amino acids into heterocyclic amines, which are potential mutagens that can alter your DNA.

Question 3, 4 A high-fat diet, and especially a high-fat, high-protein diet, may increase your risk of cancer of the breast, uterus, prostate, colon, pancreas, and kidney. A diet rich in fruits and vegetables may lower the risk of heart disease.

Question 5,6 Excessive alcohol consumption can damage the liver and other organs, leading to accelerated aging and increased susceptibility to disease. Moderate consumption of grape juice may lower the risk of heart disease.

Question 7 Certain air pollutants may cause cancer; many also contain oxidants that accelerate aging.

Question 8 Too much coffee predisposes the stomach to ulcers and chronic inflammation, which in turn raise the risk of heart disease. High coffee consumption may also indicate and exacerbate stress. Tea, on the other hand, is noted for its significant antioxidant content.

Question 9 Taking 81 milligrams of aspirin a day (the amount in one baby aspirin) has been shown to decrease the risk of heart disease, possibly because of its anticlotting effects.

Question 11 Scientists believe that having at least one bowel movement every 20 hours decreases the incidence of colon cancer.

Question 12 A previous history of stroke and heart attack makes you more susceptible to future attacks.

Question 13 The ultraviolet rays in sunlight directly damage DNA, causing wrinkles and increasing the risk of skin cancer.

Question 14 Being obese increases the risk of various cancers, heart disease, and diabetes. The more overweight you are, the higher your risk of disease and death.

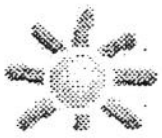
Question 15,16 People who do not belong to cohesive families have fewer coping resources and therefore have increased levels of social and psychological stress. Stress is associated with heart disease and some cancers.

Question 17,18 Studies show that genetics plays a significant role in the ability to reach extreme old age.

Question 19 Exercise leads to more efficient energy production in the cells and overall, less oxygen radical formation. Oxygen (or free) radicals are highly reactive molecules or atoms that damage cells and DNA, ultimately leading to aging.

Question 20 Vitamin E is a powerful antioxidant and has been shown to retard the progression of Alzheimer's, heart disease, and stroke. Selenium may prevent some types of cancer.

Adapted from Living to 100: Lessons in Living to Your Maximum Potential at Any Age (Basic Books, 1999) by Thomas Perls, M.D., and Margery Hutter Silver, Ed.D., with John F. Lauerman.



Acid / Alkaline Balance

Take a pH test strip and put it on your tongue. It will turn a *new* color after just a few seconds. Use the chart to describe your color here: _____

Where do <u>you</u> fall on the pH chart? ACID or ALKALINE
List some foods that would help your body become slightly alkaline._____

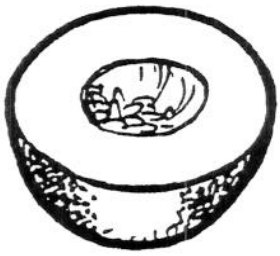
List some foods (acid causing) that you should limit to avoid the onset of some of these diseases:_____
_____
(ie.) Have you ever noticed it is easy to get sick after holidays or times when you have eaten too much sugar?

Adequate Calcium intake with certain foods is one of the best ways to keep your system balanced.
LIST SOME OF THE HIGH CALCIUM FOODS THAT BALANCE YOUR ACID/ ALKALINE LEVEL:_____

_____

List some of the civilizations that live extremely long lives with almost no disease:_____
_____

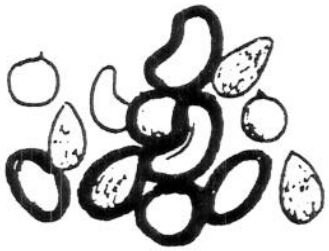
Why do they live <u>so</u> long?_____
RESPONSE PARAGRAPH_____
_____
_____
_____



CANTALOUPE

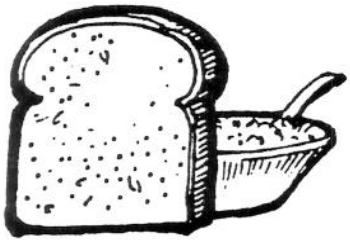
STRAWBERRIES

LOW CAL MILK



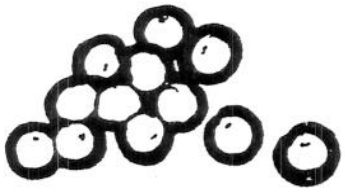
Mixed Nuts

Garlic



WHOLEWHEAT PRODUCTS

BROCCOLI



Blueberries

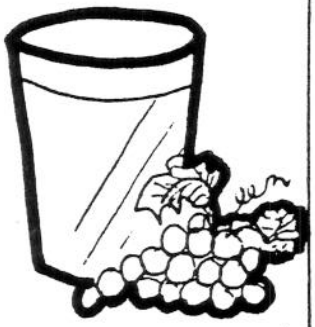
Very Nutrient Dense

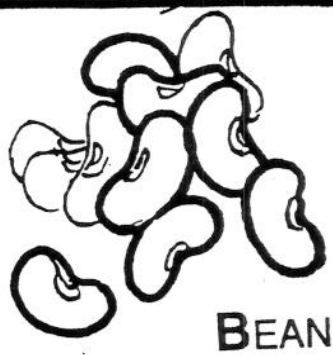
16 Best Foods

1. Color those foods that you eat regularly.
2. A food that I will eat more of is:

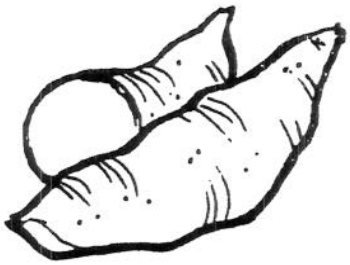
ORANGES

Grape Juice





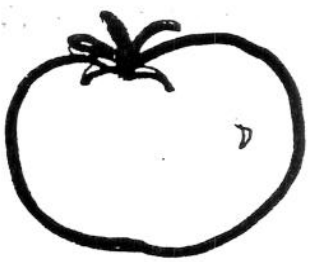
BEANS



SWEET POTATOES

OATS

Salmon



Tomatoes

SPINACH

HEALTH FAIR ASSESSMENT

1. My overall health is...? (One Paragraph)

2. The diseases I am at risk for are...? (One Paragraph)

3. Name eight specific ways I can prevent these diseases from happening to me.

A.
B.
C.
D.
E.
F.
G.
H..

4. Two new things I have learned today :

A..

B.

10 Leading Causes of Death

1. Heart Disease *	29%
2. Cancers*	26%
3. Accidents	12%
4. Stroke *	5%
5. Lung Disease*	4%
6. Pneumonia/Flu	3%
7. Diabetes*	3%
8. Aids	2%
9. Suicide+	2%
10. Homicide+	2%

* Nutrition Diseases account for more than 2/3 of all deaths in the United States.

+ Excessive alcohol consumption usually plays a part.

Blood Pressure:

The force your ♡ must exert to pump your blood through your veins & arteries

Eating Well

1. Protein

Power for a Healthy Heart

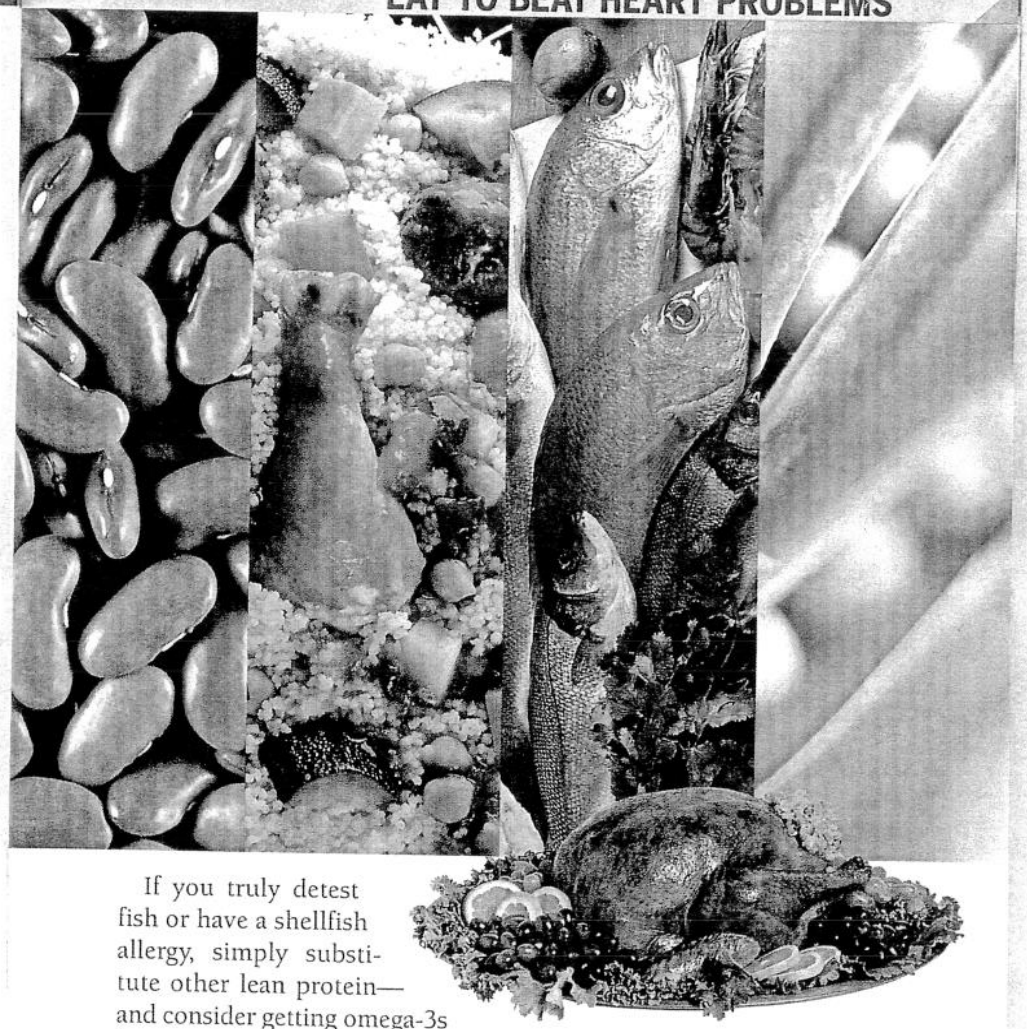
No food group offers more versatile protection from the heart attackers than protein. Lean beef and pork are packed with B vitamins that lower homocysteine, an amino acid in the blood that promotes cardiovascular disease. Fish delivers omega-3s that keep heart rhythm steady and discourage blood clotting. Skinless chicken and turkey are low in artery-clogging saturated fat, and their protein keeps food cravings (and the risk of overeating) at bay. Beans—legumes such as chickpeas, black beans, and kidney beans—are not only rich in high-quality proteins, but are also one of nature's richest sources of soluble fiber, which whisks cholesterol out of your body and helps hold blood sugar levels steady too.

On the menu:
Fish, chicken, turkey, lean red meat, pork, beans (legumes)

Servings per day:
3

Serving size:
Fish, poultry, meats: 3-4 ounces; beans: 1 cup as a main dish, ½ cup as a side dish

Seafood The healthiest seafood for your heart are cold-water ocean fish, because they are so rich in omega-3 oils. The most popular of these fish are salmon and tuna; other choices include mackerel, herring, and anchovies. Your goal is to get three to four servings of these fish a week. And while other seafood might not have as many omega-3 oils, pretty much all are terrific sources of protein. So if sautéed sole or shrimp appeals to you more than salmon, by all means choose it.



If you truly detest fish or have a shellfish allergy, simply substitute other lean protein—and consider getting omega-3s from walnuts, ground flaxseed, or fish-oil capsules if you can.

Meat Beef and pork deserve a place in your heart-healthy eating plan. Both meats have gotten a healthy makeover to meet modern tastes: Beef is 27 percent leaner today than 20 years ago; pork has 31 percent less fat. In one National Institutes of Health study, volunteers who ate lean red meat five to seven days of the week had the same slight improvements in cholesterol—bad LDLs dropped 2 percent, good HDLS rose 3 to 4 percent—as those who stuck with chicken and fish.

2. Good Fats

Better Than Low-Fat

Don't keep spreading saturated-fat-laden butter, or crunching on snacks packed with artery-damaging trans-fatty acids. Instead, use fruity olive oil on crusty bread and fresh veggies, and snack on almonds. Countless studies have shown that these cornerstones of the Mediterranean diet protect your heart. That's why nuts, olive oil, and heart-healthy canola oil, which contains some omega-3 fatty acids, are high on our list of what you should eat.

On the menu:
Olive oil, canola oil, nuts

Servings per day: 1-3 of each

Serving size: ½-1 tablespoon of oil; 1 ounce of nuts

All three are rich in monounsaturated fats. Eat them in place of saturated fats and they'll lower LDLs, slightly increase HDLs, and reduce triglycerides. While you need to keep saturated fats low, monounsaturated fats can make up 20 percent of your daily calories. Just keep portions small because oils, nuts, and nut butters are full of calories. A little goes a long way.

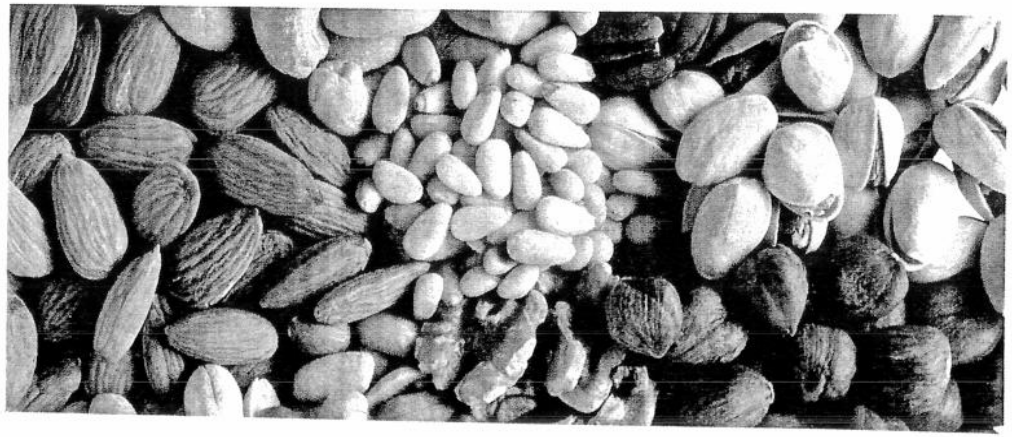
Here's how to re-balance your fat budget.

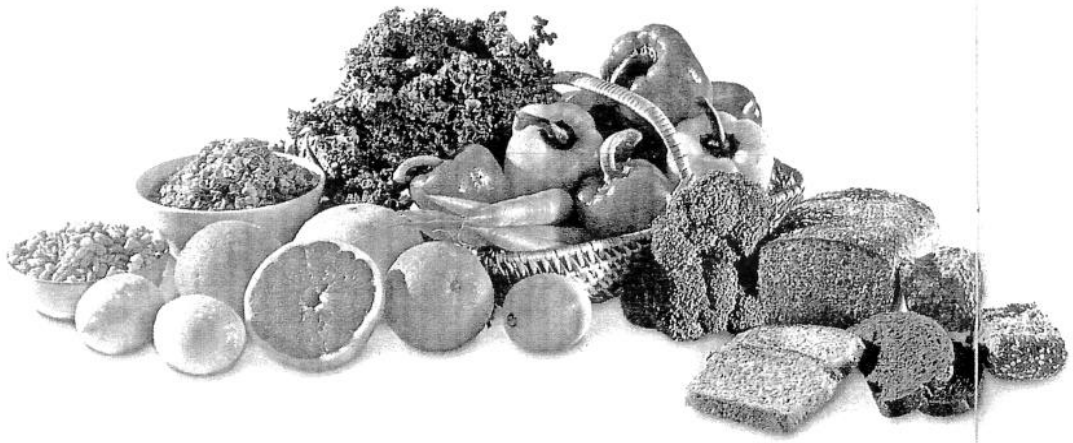
Say no to saturated fats. Remove skin from chicken and turkey before eating. Trim excess fat from all meats. Choose mayonnaise and salad dressings with no more than 1 gram of saturated fat per tablespoon (look for versions made with canola oil, often at health-food stores). Replace heavy cream in recipes with condensed skim milk. Instead of butter, bake and cook with canola or olive oil—generally, you can use one-fourth less oil than the amount of butter called for in the recipe (for example, instead of one tablespoon of butter, use three-fourths of a tablespoon of oil in a muffin recipe). If you must have butter, whipped varieties tend to have around 30 percent less saturated fat.

Banish trans fats. Eat only packaged snacks and baked goods with no partially hydrogenated fats or oils on the ingredient list. Switch to a trans-fat-free margarine or use olive oil instead.

Pump up the monounsaturated fats. Invest in an olive-oil sprayer to give toast and veggies a light, flavorful coating in place of butter or margarine. Make olive and canola oils your first choice for salad dressings, marinades, and cooking. (Other oils have lower levels of heart-healthy monos.) Try olive oil for scrambling eggs, browning stew or soup meats, or sautéing vegetables.

Good-bye, Mr. Chips. Monounsaturated fats in nuts (and omega-3s in walnuts) make these delicious nuggets the perfect heart-healthy snack. To guard against overeating, put one serving in a bowl, put the container back in the cupboard, then enjoy. Choose unsalted varieties to help control blood pressure.





3. Fruit and Vegetables

Nature's Cholesterol Cure

Our ancestors filled their bellies with wild produce, and medical researchers suspect that our bodies evolved to expect big, daily doses of the antioxidants, cholesterol-lowering phytosterols, and soluble fiber found in fruits and vegetables. Without fruits and vegetables, heart risk rises. Yet most of us get four produce servings a day or less. Here are ways to increase your total to nine a day.

On the menu:
Any and all produce

Servings per day:
3-4 of fruit,
4-5 of vegetables

Serving size:
1 medium fruit; 1 cup raw, cooked, canned, or frozen fruit or vegetables; 6 ounces 100 percent fruit or vegetable juice; 1 cup raw leafy greens; ¼ cup dried fruit

Take a juice break. Sip 100 percent orange juice or Concord grape juice as one of your daily fruit servings. Mix juice concentrate with olive oil for a sweet salad dressing.

Whirl up a blender drink. Toss frozen strawberries, orange juice, and a banana, pear, or pitted nectarine into the blender for a triple serving of fruit, smoothie-style. Add plain yogurt and a sprinkling of wheat germ or ground flaxseed and you've got breakfast.

Chop early, grab often. Buy an extra cantaloupe or small watermelon, cube the fruit, and keep in a container in the refrigerator for an easy, antioxidant-rich snack.

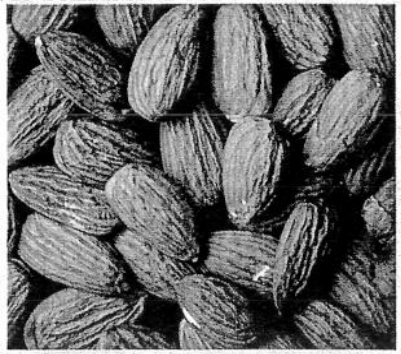
Put fruit and veggies in easy reach. Keep a bowl of cherry tomatoes and a bowl of bananas or apples on the kitchen counter. If you see them, you'll eat them.

Redefine fast food. Supermarkets have great salad bars and a huge selection of bagged salad greens. In 15 minutes, you can grab a bag of baby spinach or chopped romaine and a container of tomatoes, sliced carrots, mandarin orange slices, chopped nuts, and a sprinkle of raisins from the salad bar. You've got five produce servings right there.

Obey a new second-helpings rule. Allow yourself to take second helpings only of vegetables at dinner. You'll save fat calories, and boost fiber intake.

Eat the rainbow. From blueberries to carrots, tomatoes to pineapple, have as many different-colored fruits and veggies each day as possible in order to get the widest variety of nutrients.

Tuck in extras. Keep a bag of pre-grated carrots in the fridge to toss into soups, stews, casseroles, sauces, tuna fish salad, even muffins. Add extra frozen veggies to soups and stews.



Workday Snacks

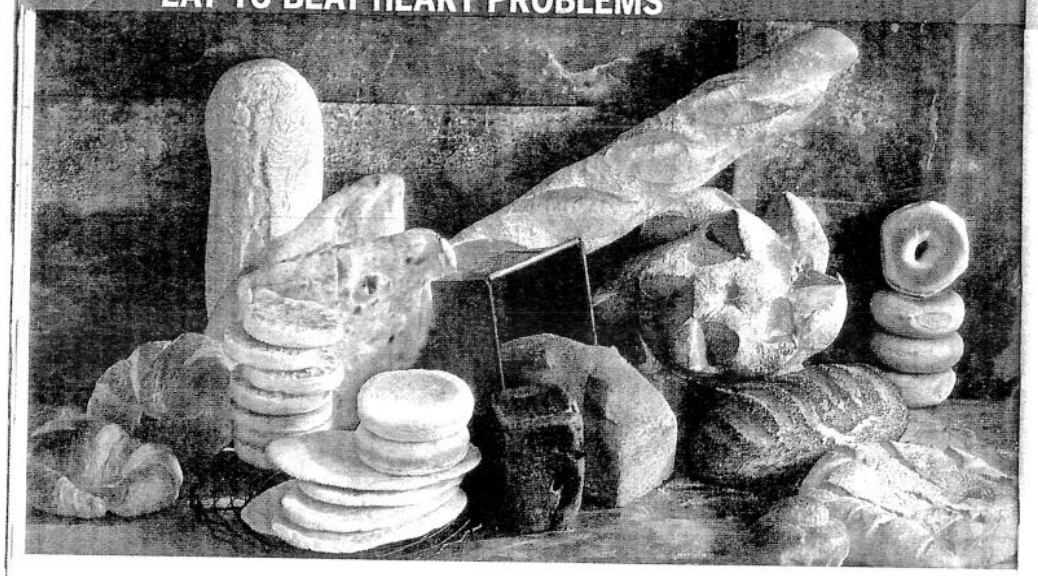
Resist the candy machine!

Instead, stash these sweet, savory, crunchy—and heart-healthy—munchies in your desk drawer, briefcase or bag, or office fridge.

- Nuts: Fill small ziplock bags with 1-ounce portions—24 almonds, 14 walnuts, 18 cashews, 50 pistachios (in the shell).
- Dried fruit: Bag up ¼-cup portions of raisins, apricots, or cranberries.
- Single-serve fruit: Canned fruit in its own juice or light syrup is available in pull-tab cans or plastic containers with pull-off lids.
- Crunchies: Bring along whole-grain, trans-fat-free crackers.
- Cool treats: Pack a lunch-sized cooler bag with fresh fruit, low-fat yogurt, string cheese or mozzarella sticks, single-serve cans of Concord grape juice.

Wash, blot, don't peel.

Cut your risk of food poisoning by washing and blotting dry all produce. Then eat the produce, skin included—it's full of fiber, and the fruit or vegetable flesh just below it contains extra nutrients.



4. Whole Grains

Count These Carbs In

On the menu:
Whole-wheat bread, brown rice, whole-wheat pasta, whole-wheat couscous, whole-grain and high-fiber cereals including oatmeal

Servings per day:
2-4

Serving size:
1 slice of bread; ½ cup rice, pasta, barley, or couscous; 1 cup dry cereal; ½ cup cooked cereal

Simply eating a high-fiber, whole-grain breakfast could cut your heart-attack risk by 15 percent; switching completely from refined to whole grains could cut risk 30 percent. That's the power of whole grains. These natural nuggets are filled with vitamin E and a wealth of heart-protecting phytochemicals, plus insoluble fiber to help digestion. Some, such as barley and oatmeal, also have cholesterol-lowering soluble fiber.

Think fiber in the morning. Here's new motivation for breakfasting on oatmeal or a high-fiber cereal: Every gram of soluble fiber you add to your diet cuts your LDLs by approximately 2 points. From raisin bran with 8 grams per serving to super-charged fiber cereals with as many as 14 grams, there are lots of cholesterol fighters in those boxes in the cereal aisle. One bowl a day could lower your LDLs significantly.

Boil once; freeze the leftovers. Brown rice, barley, and bulgur are delicious. But cooking times may exceed the food-prep minutes in your weekday schedule. Cook up a big pot on the weekend, and freeze extras in single-meal portions. Microwave to defrost as needed. Add to ground poultry for extra body when making meat loaf or burgers.

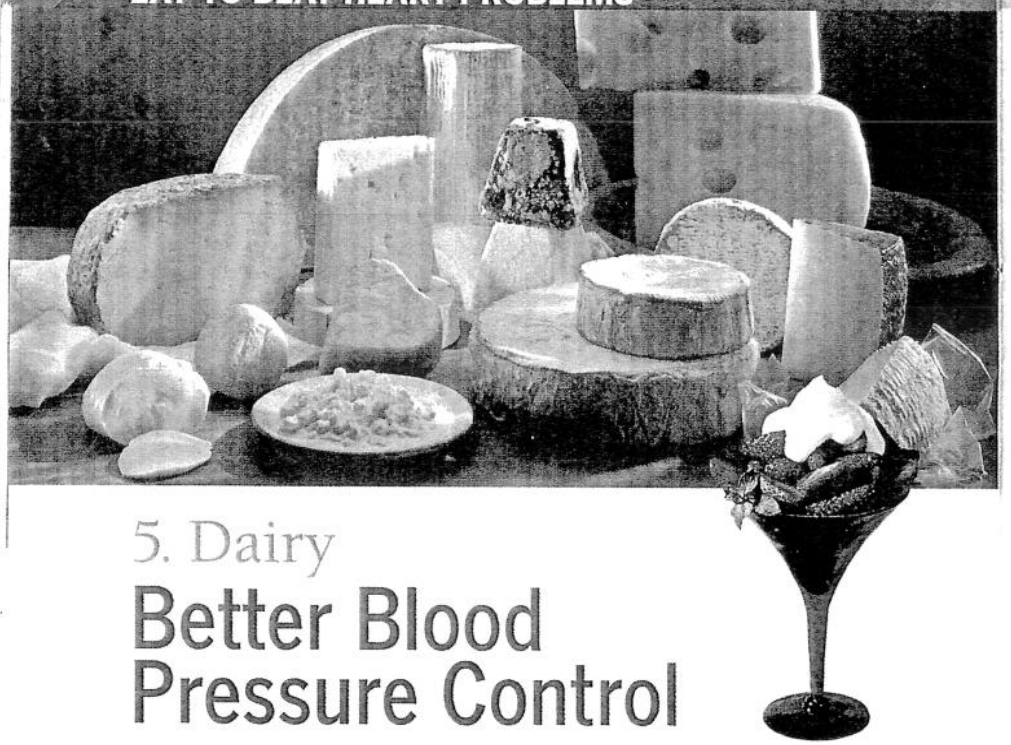
Bakers: Mix in the whole grains. Try replacing half of the white flour in your favorite muffin, pancake, or waffle recipe with whole-wheat flour.

Use the rule of 3. Breads with "whole wheat" leading off the ingredient list, and with 3 grams of fiber per serving, are more likely to be truly whole grain. Substitute whole-wheat toast for bagels and low-fat, multigrain muffins for pastries. Make sandwiches with whole-grain breads or rolls.

Heart-Smart Toppings

For both flavor and health, add these to your cereal, sauces, soups, salads, stir-fries, or roasts.

- Ground flaxseed: The richest plant source of heart-protecting omega-3 fatty acids. Buy pre-ground or milled flax and store in the freezer, or look for a "flax mill" loaded with flaxseeds at your local kitchen store. Add 1-2 tablespoons to food.
- Chopped nuts: Add 1-2 tablespoons to cereal, salads, or fruit for extra fiber and monounsaturated fat. (Walnuts also provide omega-3s.) Chopped nuts keep fresh longer in your freezer.
- Wheat germ: A terrific natural source of vitamin E, an antioxidant that may discourage artery-clogging plaque. Add 1-2 tablespoons per serving to cereal and baked goods. Store in fridge or freezer for freshness.
- Cinnamon: Just ½ teaspoon per day can help control blood sugar and lower cholesterol. Sprinkle on coffee, cereal, and fruit salad.
- Grated ginger: A powerful antioxidant. Add to meat dishes, fruit, and desserts. Keep a ginger root in the freezer and grate what you need. You can also use powdered ginger.
- Chopped garlic: This popular flavoring may lower cholesterol. Add to salad dressings, meat dishes, veggies, and sauces. Store pre-chopped garlic in the fridge or freezer.



5. Dairy

Better Blood Pressure Control

Putting milk on your morning cereal, eating a cup of yogurt as a mid-afternoon snack, and sprinkling grated low-fat cheese on your chili at dinnertime could turbo-charge your heart-healthy routine. Adding dairy to your diet boosts your intake of calcium, a mineral vital for healthy blood pressure. In the landmark study called Dietary Approaches to Stop Hypertension, a healthy diet that included low-fat milk products cut blood pressure levels as effectively as drugs. Researchers suggest that dairy's calcium and protein work with the magnesium, potassium, and fiber in fruits, veggies, and whole grains to better regulate blood pressure.

On the menu:
Low-fat or fat-free milk, yogurt, cheese

Servings per day:
2-3

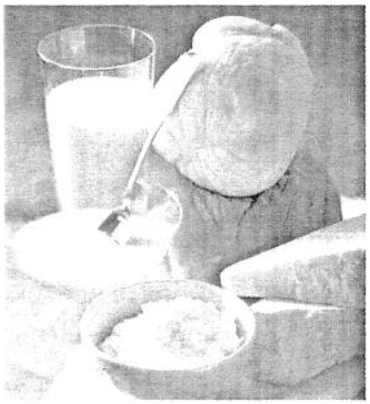
Serving size:
8 ounces of milk (1 cup); 1 ounce low-fat, low-sodium cheese; 1 cup yogurt

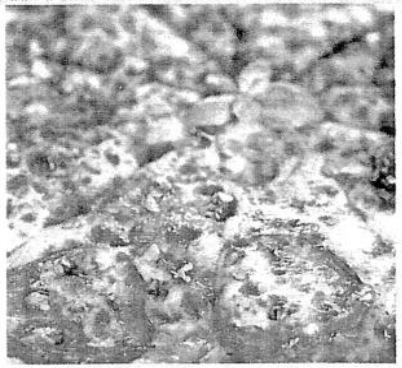
Ease into fat-free. If you drink whole milk or reduced fat (2 percent) milk, switch to low-fat for a while, then try fat-free. Or, use fat-free in cereal and soups, where the flavor difference is less noticeable; stick with low-fat in your coffee, hot cocoa, and when you want a cold glass of milk.

Add fruit. A cup of yogurt topped with chopped fruit and a tablespoon of nuts makes a filling snack or light meal. Try banana slices with vanilla yogurt and a dusting of cinnamon, or sliced strawberries with strawberry yogurt and a topping of chopped walnuts.

Replace the water. Instead, use milk when cooking oatmeal or soups that can be served creamed.

Top it with cheese. An ounce of grated, low-fat cheese is delicious melted on bread, or over chili or beans.





Perfect Pizza

For a guilt-free, heart-smart version of pizza, try these.

RESTAURANT Ask for half the cheese, double the sauce, and all the veggie toppings—on a thin crust.

HOMEMADE Create individual, gourmet pizzas with whole-wheat pita bread, topped with sauce, pre-cooked veggies (use up leftovers!), fresh basil, oregano, crushed black pepper, minced garlic, fresh tomatoes. Top with part-skim mozzarella.

Best Vending Machine Picks

SNACK Salted nuts plus unsweetened iced tea. The sodium's high, but the portion size is usually small and you get protein, fiber, and HDL-pampering healthy fats. The tea has zero calories and is packed with artery-guarding antioxidants.

EMERGENCY MEAL An energy bar and low-fat milk or orange juice. The calories in an energy bar can rival those in a candy bar, but you also get protein, healthy fats, vitamins, and minerals. The milk provides calcium, and the orange juice gives you vitamin C.

Taking Our Pulse

The PARADE/Research!America Health Poll

Americans are increasingly aware of the importance of taking preventive measures to ensure heart health, according to the latest poll by PARADE and Research!America, a nonprofit public-education and advocacy group that promotes medical research. The poll was conducted by the Charlton Research Co.

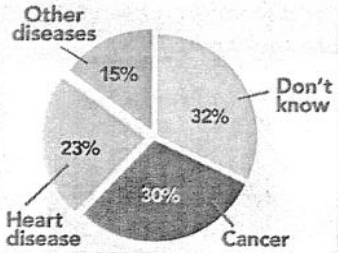
What Americans Know About Heart Disease

What disease is the most common cause of death in the U.S.?

Nearly half (47%) of those polled named heart disease as the leading cause of death, while 33% said cancer. In reality, cancer surpassed heart disease as the No. 1 killer of Americans under 85 (98.4% of the population) for the first time in 2002. The drop in deaths from heart disease can be attributed in part to fewer smokers, better surgical techniques and improved drugs.

Have you and your doctor ever discussed how to keep your heart healthy?

Nearly 65% said they have had such a conversation.



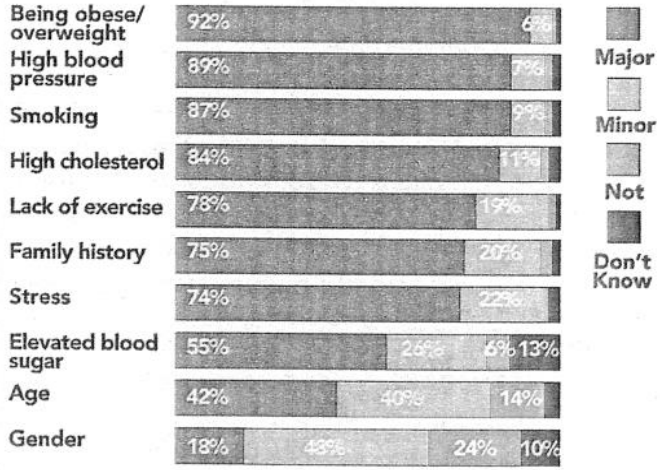
What disease or condition do you believe we have made the most progress in preventing, treating and curing?

Most of those polled were unaware that research has made significantly more progress preventing and treating heart disease than other diseases. Cardiovascular disease is the only group of diseases for which the mortality rate has decreased dramatically in the last half-century; in many cases, research has turned it from a killer into a chronic disease or found ways to prevent it altogether.

Have you changed your own behaviors in an effort to lower your risk of developing heart disease?

Although 73% replied that they had changed their behavior, obesity—a major risk factor—has increased in the United States. Still, the numbers reflect that many Americans are making lifestyle changes.

Risk factors are behaviors or conditions that make it more likely for a person to develop a disease. Which of these is a risk factor for heart disease?



Clearly, Americans recognize the major risk factors for heart disease.

Our poll of 1000 people, representing a cross-section of Americans, has a sampling error of ±3.1%.

For more results of this poll, visit www.researchamerica.org on the Web.

The Year Of The Heart

Are you at risk for heart disease? Would you know what to do if you were?

Although there now are effective ways to strengthen a damaged heart, preventing or delaying heart disease should be our top priority—for heart trouble is still one of the major killers in our country. Most risk factors for heart disease can be controlled, but too many of us continue to ignore them. We lead lives that foster unhealthy hearts. And while many Americans try to stay fit, millions of others don't, often because they don't know how.

That's why **PARADE and the American Heart Association have designated 2005 The Year of the Heart.** On these pages you will find the first in a series of special sections we'll publish this year devoted to your heart's health. "We have the research and the knowledge," says AHA President Alice Jacobs. "We know that there are simple steps you and your family can take to reduce your risk. We hope that you will make 2005 *your* Year of the Heart."

It is essential to know what to do if you are vulnerab to heart disease—and to do it, even if it means changing you Controlling the important risk factors can make a big diff

Heart Healt Starts With Yo

By Dr. Isadore Rosenfeld

REMEMBER WHEN CARDIOLOGISTS used to focus on treatment—for an acute heart attack, or heart failure, or a serious rhythm abnormality, or a heart-valve problem. While therapy is still critical and constantly improving, there has been a great deal of recent emphasis on prevention. And it is paying off. Last month, it was announced—for the first time ever—that the number of deaths from heart disease for Americans under age 85 is now less than those from cancer. Mortality from both diseases is falling, but more so from heart disease than from cancer. However, says the AHA, deaths from all cardiovascular diseases (heart disease but also stroke and blood-vessel problems) still outnumber cancer deaths. Now, more than ever, we must take advantage of what we know to keep the numbers falling.

Your Job: Control the Risk Factors

Prevention is more than wishful thinking; its effectiveness is documented by facts and figures. We really can avoid premature heart disease by teaching our kids the right lifestyle in their early years. Doctors are emphasizing to premenopausal women—long considered resistant to heart disease—how to modify the risk factors already present that may give them heart trouble later in life. When we discharge cardiac patients from the hospital, whether after a heart attack or cardiac surgery, we not only prescribe the medications they need to control their symptoms but also teach them what to do to lessen the likelihood that their problem will recur.

Eliminating or modifying the risk factors that we always knew contributed to atherosclerosis (hardening of the arteries) has had a measurable impact. The only factors we are not able to influence are genetic vulnerability, gender and aging. You can't choose your ancestors or (yet) alter your genes. But if you malize high blood p vated cholesterol le blood sugar, lose weig larly, you can improve have the numbers to prove it! So here's w

Stop smoking. More than 440,000 year from smoking-related illnesses, acco for Disease Control and Prevention. Ciga

Normalizing a high blood pressure greatly reduces the risk of both stroke and heart attack.

Deaths from heart diseas the decline, thanks to m advances in treatment a prevention. But more ca

COVER ILLUSTRATION BY JIM DOWDALLS/PHOTO RESEARCHERS

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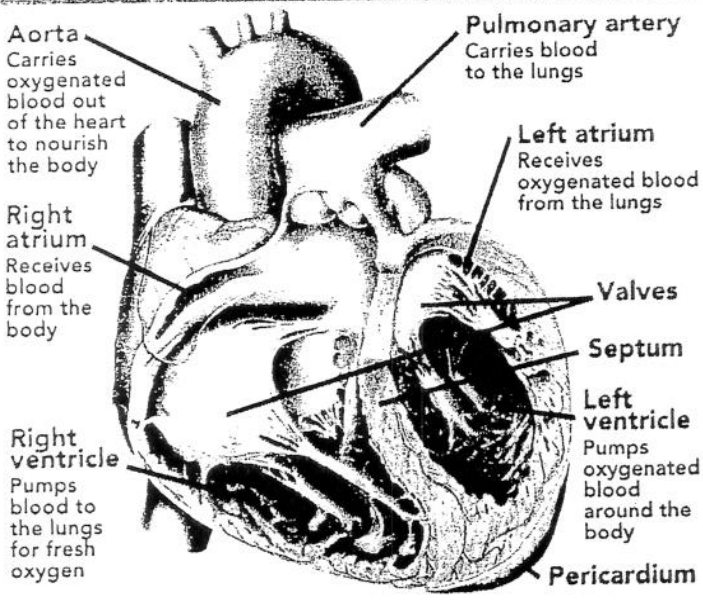
PHOTO BY STOCKBYTE/MEDIA BAKERY (MODELS POSED FOR ILLUSTRATIVE PURPOSES ONLY). OPPOSITE PAGE: ILLUSTRATIONS BY MEDICAL ART SERVICE/PHOTO RESEARCHERS

The Heart, How It Works—and What Can



A NETWORK OF CORONARY ARTERIES located on the heart's surface (left) delivers fresh blood to the heart muscle. *Coronary artery disease* refers to the buildup of plaques in these arteries, narrowing them (angina pectoris) or blocking them completely and causing a heart attack.

The Heart's P

Although the heart is a single organ, it is compos

The heart muscle pumps blood out of the heart to nourish every other organ of the body.

Coronary arteries deliver blood to the heart muscle.

Valves (two on each side of the heart) direct blood flow in and out of the heart and among its four chambers: two upper (atria) and two lower (ventricles).

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Heart Trouble. *The term "heart trouble" c depending on which part of the heart is affected. T*

■ **Coronary artery disease.** See "A Network of Coronary Arteries" at left.

■ **A weakened heart muscle.** Causes include a previous heart attack that leaves less healthy tissue to contract; long-standing, untreated high blood pressure, which can strain the heart muscle, forcing it to work harder to get blood into the arteries; a long-standing valve disease, which affects blood flow, enlarging and weakening the various

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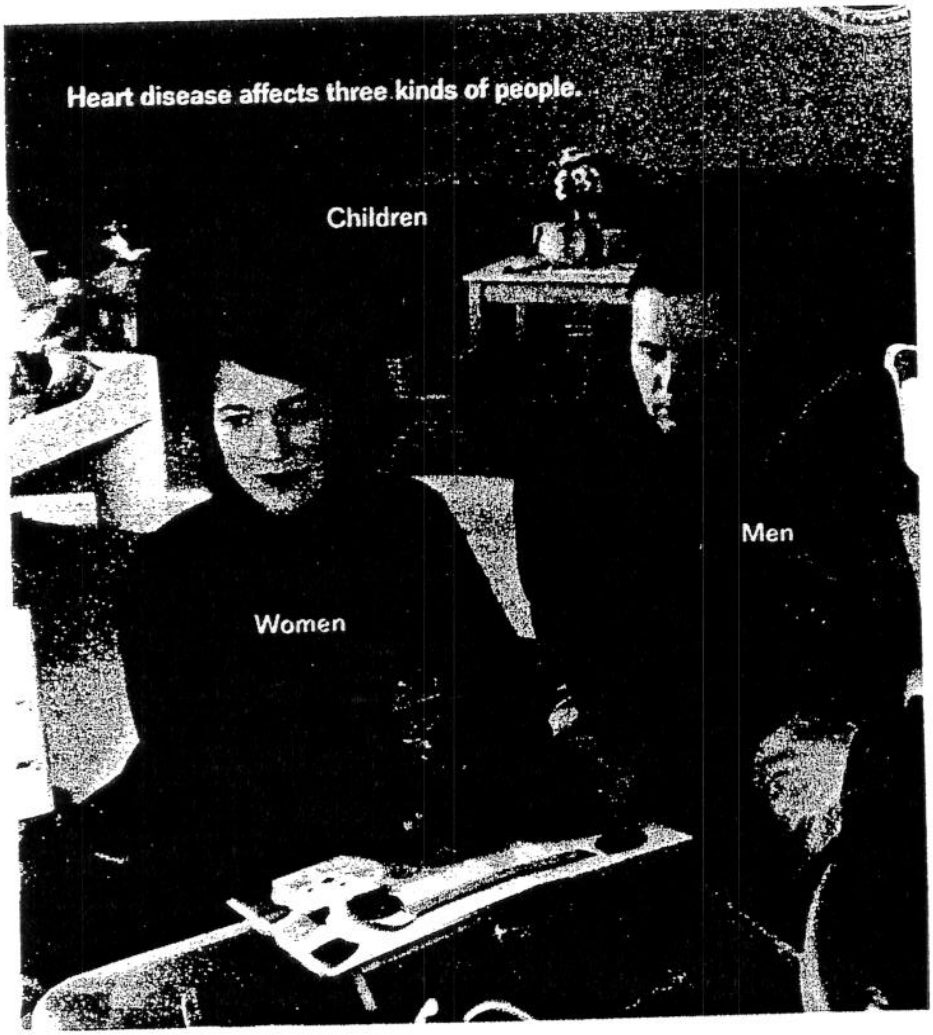

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were common with the older drugs. Normalizing blood pressure greatly reduces the risk of both stroke and heart attack by slowing down the formation of arterial plaques that narrow the blood vessels everywhere in the body—especially in the brain, heart, kidneys, eyes and legs.

Control your blood sugar. Almost 80% of people with diabetes die of some form of heart or blood-vessel disease. That risk can be reduced by keeping sugar levels as close to normal as possible. We also now have identified a condition called prediabetes. Millions of people whose blood sugar is only slightly elevated can be protected from developing the full-blown disease—and its life-threatening complications—by losing weight, exercising and, if necessary, taking oral medication to lower their blood sugar.

To lose weight, calories in should be less than calories out. That means exercising to burn the calories you do consume.

Lose weight. Excess weight is the most difficult risk factor to control, as evidenced by all the diets and "miracle pills" that come and go. Despite Atkins, South Beach, Beverly Hills, Scarsdale and all the other diets that have hit the best-seller lists, the old reliable formula still holds: Calories in should be less than calories out. That means eating less (fewer "calories in") and exercising to burn the calories you do consume (more "calories out").

But exercise, good for both the mind and the body, must be done on a regular basis, not just when you feel like it. It doesn't need to be exhausting or unpleasant. Choose the kind that you enjoy and set aside a minimum of 30 minutes a day on most days of the week to do it.

Here's the bottom line: Cardiovascular diseases remain the No.1 cause of death in this country. Thanks to modern advances in prevention and treatment, they really don't have to be. You don't have to go it alone. Heart health should be a joint venture with your doctor, who is best suited to help you.

PARADE Health Editor Dr. Isadore Rosenfeld is a former member of the advisory panel to the U.S. Secretary of Health and Human Services. He also is the author of nine best-selling books. His latest is "Dr. Isadore Rosenfeld's 2005 Breakthrough Health" (Rodale).

If You Think You're Having a Heart Atta

Some heart attacks are sudden and intense—the kind you see in everyone immediately knows what the problem is. But most real start slowly, with mild pain or discomfort. Often the patient isn't and may wait too long before seeking help.

Warning Signs

Here are some of the signs that can mean a heart attack is happening:

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that either persists or comes and goes. It can be a sensation of pressure (like someone sitting on your chest), squeezing, fullness or pain.
- **Discomfort in other areas of the upper body.** There may be pain or discomfort in one or both arms, the back, neck, jaw or stomach.
- **Shortness of breath.** A feeling of being unable to catch your breath may accompany the chest discomfort or occur without it.
- **Other warning signs** may include breaking out in a cold sweat, nausea or light-headedness.

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American Heart Association

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If You Think You're Having a Heart Attack

Some heart attacks are sudden and intense—the kind you see in the movies, where everyone immediately knows what the problem is. But most real-life heart attacks start slowly, with mild pain or discomfort. Often the patient isn't sure what's wrong and may wait too long before seeking help.

When a heart attack strikes, call an ambulance. Paramedics save lives.

Warning Signs

Here are some of the signs that can mean a heart attack is happening:

- **Chest discomfort.** Most heart attacks involve discomfort in the center of the chest that either persists or comes and goes. It can be a sensation of pressure (like someone sitting on your chest), squeezing, fullness or pain.
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- **Shortness of breath.** A feeling of being unable to catch your breath may accompany the chest discomfort or occur without it.
- **Other warning signs** may include breaking out in a cold sweat, nausea or light-headedness.

What To Do

❑ **Get to a hospital right away.** If you or someone you are with has chest discomfort, especially with one or more of the other warning signs of a heart attack, don't wait longer than five minutes before calling for help.

❑ **Phone 911.** This is almost always the fastest way to get lifesaving treatment. The emergency medical services (EMS) staff can arrive as much as an hour sooner than someone traveling to the hospital by car. The paramedics on the staff are trained to revive someone whose heart has stopped.

❑ **If you can't reach the emergency medical services,** have someone drive you to the hospital right away. Do not drive yourself.

For More on Heart Health

American Heart Association

Learn and Live

Visit *www.americanheart.org* to learn about the American Heart Association's Go Red for Women campaign, which encourages women to protect their heart health. You'll also find learning tools and more on prevention, diagnosis and treatment of heart disease. Or call 1-888-AHA-2222. And visit *www.parade.com* for more on The Year of the Heart.

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Startion #2

Height, Weight, Bone size

1. Weigh yourself and write down.
2. Have a partner measure you on the growth chart.
3. Determine your bone size with the charts
4. Check your eyes with a partner. The tape is 10 feet away from the chart and your should be able to see the bottom row if you have perfect eyesight.
5. Answer the questions about your genetics or inherited traits.

YOU ARE DONE! QUIETLY WAIT UNTIL THE BELL RINGS AND MOVE TO THE NEXT STATION.

Median height and weight and recommended energy intake, 10th edition RDAs

Category	Age (years) or condition	Weight (kg)	Weight (lb)	Height (cm)	Height (in)	REE* (kcal/day)	Average energy allowance (kcal) Multiples of REE	Per kg	Calories Per day†
Infants	0-0.5	6	13	60	24	320		108	650
	0.5-1	9	20	71	28	500		98	850
Children	1-3	13	29	90	56	740		102	1300
	4-6	20	44	112	44	950		90	1800
	7-10	28	62	132	52	1130		70	2000
Men	11-14	45	99	157	62	1440	1.70	55	2500
	15-18	66	145	176	69	1760	1.67	45	3000
	19-24	72	160	177	70	1780	1.67	40	2900
	25-50	79	174	176	70	1800	1.60	37	2900
	51+	77	170	173	68	1530	1.50	30	2300
Women	11-14	46	101	157	62	1310	1.67	47	2200
	15-18	55	120	163	64	1370	1.60	40	2200
	19-24	58	128	164	65	1350	1.60	38	2200
	25-50	63	138	163	64	1380	1.55	36	2200
	51+	65	143	160	63	1280	1.50	30	1900
Pregnant	1st trimester								+0
	2nd trimester								+300
	3rd trimester								+300
Lactating	1st 6 months								+500
	2nd 6 months								+500

*Resting energy expenditure (REE); calculation based on FAO equations and then rounded. This is the same as RMR (resting metabolic rate).
†Figure is rounded.

1983 Metropolitan Life Insurance Company Height-Weight Table*†

Height Ft	Height In	WOMEN Frame* Small	Medium	Large	Height Ft	Height In	MEN Frame* Small	Medium	Large
4	10	102-111	109-121	118-131	5	2	128-134	131-141	138-150
4	11	103-113	111-123	120-134	5	3	130-136	133-143	140-153
5	0	104-115	113-126	122-137	5	4	132-138	135-145	142-156
5	1	106-118	115-129	125-140	5	5	134-140	137-148	144-160
5	2	108-121	118-132	128-143	5	6	136-142	139-151	146-164
5	3	111-124	121-135	131-147	5	7	138-145	142-154	149-168
5	4	114-127	124-138	134-151	5	8	140-148	145-157	152-172
5	5	117-130	127-141	137-155	5	9	142-151	148-160	155-176
5	6	120-133	130-144	140-159	5	10	144-154	151-163	158-180
5	7	113-136	133-147	143-163	5	11	146-157	154-166	161-184
5	8	126-139	136-150	146-167	6	0	149-160	157-170	164-188
5	9	129-142	139-153	149-170	6	1	152-164	160-174	168-192
5	10	132-145	142-156	152-173	6	2	155-168	164-178	172-197
5	11	135-148	146-159	155-176	6	3	158-172	167-182	176-202
6	0	138-151	148-162	158-179	6	4	162-176	171-187	181-207

*Based on a weight-height mortality study conducted by the Society of Actuaries and the Association of Life Insurance Medical Directors of America, Metropolitan Life Insurance Medical Directors of America, Metropolitan Life Insurance Company, revised 1983.
†Weights at ages 25 to 59 based on lowest mortality. Height includes 1-in heel. Weight for women includes 3 lb. for indoor clothing. Weight for men includes 5 lb. for indoor clothing. (See Chapter 8 for controversy surrounding the use and misuse of this table over the years and Appendix L for determination of frame size.)

To refine and define theoretical weights, researchers added frame size as a factor. The sizes are categorized into three groups:- Small frame, medium frame and large frame. The reason for this is that bone structures vary in size and density from person to person. Equally men and women have different structures. Bone mass and muscle mass all play a part in determining your optimal weight. There are two simple methods of

determining frame size:-

Measuring the circumference of your wrist. This is by far the easiest.
Measuring the breadth of your elbow. This is a bit more difficult but gives a wider range of results for accuracy.

Female Wrist Measurements			
	Height less than 5' 2" (Less than 155cms)	Height 5' 2" - 5' 5" (155cms - 163cms)	Height over 5' 5" (More than 163cms)
Small	Less than 5.5" (140mm)	Less than 6.0" (152mm)	Less than 6.25" (159mm)
Medium	5.5" - 5.75" (140 - 146mm)	6" - 6.25" (152 - 159mms)	6.25" - 6.5" (159 - 165mm)
Large	over 5.75" (146mm)	over 6.25" (159mm)	over 6.5" (165mm)

Male Wrist Measurements	
	Height over 5' 5" (over 163cms)
Small	5.5" - 6.5" (140 - 165mm)
Medium	6.5" - 7.5" (165 - 191mm)
Large	More than 7.5" (191mm)

Female Elbow Measurements Medium Frame			
Height Ft and In	Elbow Breadth Inches	Height cms	Elbow Breadth mm
4' 10" - 4' 11"	21/4" - 21/2"	146 - 148	57 - 64
5' 0" - 5' 3"	21/4" - 21/2"	150 - 158	57 - 64
5' 4" - 5' 7"	23/8" - 25/8"	160 - 168	60 - 67
5' 8" - 5' 11"	23/8" - 25/8"	170 - 178	60 - 67
6' 0" - 6' 4"	21/2" - 23/4"	180 - 190	63 - 70

Male Elbow Measurements Medium Frame			
Height Ft and In	Elbow Breadth Inches	Height cms	Elbow Breadth mm
5' 2" - 5' 3"	21/2" - 27/8"	155 - 158	64 - 73
5' 4" - 5' 7"	25/8" - 27/8"	160 - 168	67 - 73
5' 8" - 5' 11"	23/4" - 3"	170 - 178	70 - 75
6' 0" - 6' 3"	23/4" - 31/8"	180 - 188	70 - 79
6' 4" - 6' 7"	27/8" - 31/4"	190 - 198	73 - 83

To measure your elbow:-

Stand up. Extend your arm forward so that it is horizontal and parallel to the ground. Turn your hand so your palm is uppermost. Bend your elbow so your forearm is at 90º to the ground. Use the forefinger and thumb of your other hand to locate the narrow part of your elbow joint. Use your same forefinger and thumb as a gauge to determine your elbow breadth by measuring the gap between them with a ruler or tape measure. Compare the value with the tables below.

(If your elbow breadth is less than those in the table for a specific height, you are small framed. Similarly, if your elbow is bigger than those in the table, you are large framed)

Station #3

MY FAMILY TREE

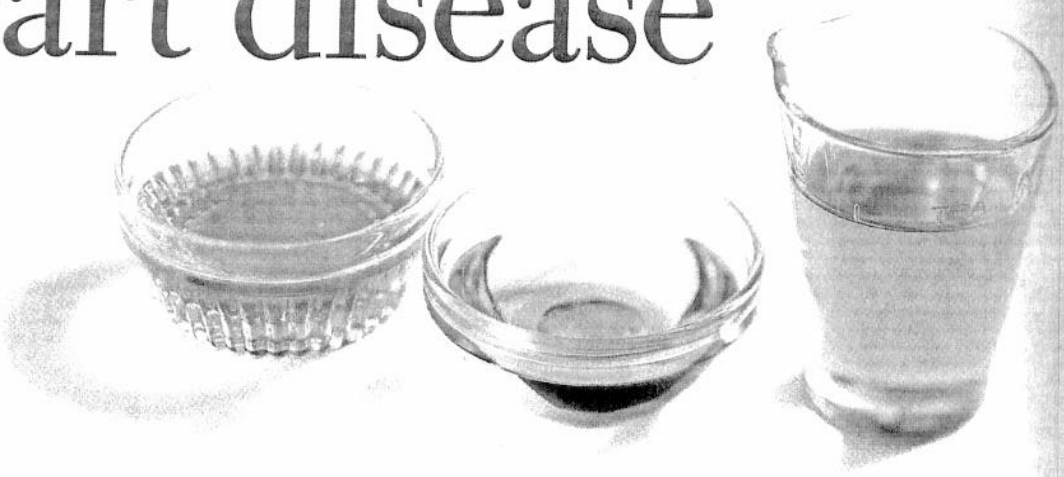
1. **Fill in and color your family tree.**

2. **What diseases seem to be hereditary in your family? What strengths do you have?**

3. **Use the disease reports and list a few foods or habits that can reduce <u>your</u> risk of getting the diseases that seem to plague your family members. Write them along the bottom of your paper.**

Complete the stress test on the next page!

heart disease



recipe rx

what it is

The leading cause of death in developed countries, heart disease is actually atherosclerosis—an accumulation of fatty plaque deposits along the inside of artery walls. The plaques impede blood flow throughout the body's blood vessels, and when a delicate artery in the heart clogs and deprives the organ of oxygen and nutrients, a heart attack occurs.

what causes it

Heart disease is typically caused by factors related to lifestyle, such as high blood pressure, high cholesterol, obesity, inactivity, stress, and smoking. Declining estrogen levels, diabetes, family history, elevated levels of blood lipids called triglycerides, oxidative damage from free radicals, and increased age also contribute to heart disease.

how food may help

Consuming a low-fat diet with unsaturated fat from olive oil, nuts, and fatty fish can significantly improve cholesterol levels. Fatty fish are also rich in **omega-3 fatty acids,** which have shown promise in reducing the risk of death from certain types of heart attack. Olive oil and nuts are especially good sources of **vitamin E,** which may inhibit the oxidation of LDL cholesterol, a critical factor in the formation of artery-clogging plaque. **Monounsaturated fat** is also beneficial to heart health.

Consuming plenty of **vitamin C** may protect against heart disease by scavenging harmful free radicals, strengthening blood vessels, and possibly regulating blood pressure. **Flavonoid** phytochemicals are thought to enhance the antioxidant actions of vitamin C, and numerous studies link flavonoids in fruit, vegetables, tea, and red wine to protection against heart attacks. The actions of these powerful antioxidants may delay the breakdown of artery-clogging cholesterol that contributes to heart disease. Researchers believe a unique

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flavonoid in tomatoes, called **lycopene,** may prevent atherosclerosis by preventing harmful LDL cholesterol from being oxidized. One study of over 1,000 middle-aged men from 10 European countries found those who had the most lycopene in their diet reduced their risk for heart attack by half.

Potent **sulfur phytochemicals** in garlic and the onion family may protect against cardiovascular disease. Research suggests that regular garlic consumption may inhibit, and even shrink, fatty plaques in the arteries. Some experts recommend a half to 1 clove per day.

Mounting data link elevated levels of the amino acid homocysteine to clogged arteries and heart disease. **Folate,** a key B vitamin, appears to team up with **vitamins B_6** and **B_{12}** to lower homocysteine levels. According to one study, when participants adopted a diet high in folate, average homocysteine levels dropped by an impressive 7%. Tuna, avocados, and potatoes provide generous amounts of vitamin B_6; poultry and seafood are rich in vitamin B_{12}.

A diet rich in soy foods and soluble fiber has been shown to improve heart health by reducing harmful LDL cholesterol. **Soy protein** (25g per day), the **soluble fiber** in oats (beta-glucan), beans, and soluble fiber from psyllium seed husk and flaxseed are especially beneficial.

Because high cholesterol is a major cause of atherosclerosis, and high blood pressure contributes to heart disease, refer to *pages 180–183* for dietary advice on managing these conditions.

recent research

In a small clinical trial, researchers found that eating a bowl of oatmeal after a meal high in saturated fat significantly protected blood vessels from the harmful effects of the fat. The oatmeal prevented the restricted blood flow in arteries that is typical after a high-fat meal and is a symptom of heart disease. The soluble fiber in oats is believed to slow the absorption of fat into the bloodstream, as well as suppress cholesterol absorption in the digestive tract.

your food arsenal

foods	nutrient	health benefits
beans carrots oats	soluble fiber	Soluble fiber is especially beneficial for improving cholesterol levels, which lowers the risk for developing atherosclerosis.
asparagus lentils	folate	Folate helps reduce levels of homocysteine, an amino acid linked to heart disease.
avocados olive oil	monounsaturated fat	Because they are not easily damaged by oxidation, these fats are less likely to promote clogged arteries and should replace saturated and trans fat whenever possible.
fatty fish flaxseed shellfish	omega-3 fatty acids	These heart-healthy fats may reduce the risk for heart attack by reducing blood clotting, lowering levels of harmful triglycerides, and decreasing the risk for irregular heartbeat.
soy foods	soy protein	Numerous studies have confirmed that 25g of soy protein per day can improve cholesterol levels, lowering the risk for cardiovascular disease.

anemia

recipe rx

what it is

Anemia is a fairly common condition that results when the body doesn't have enough iron to produce the hemoglobin (the blood's oxygen-carrying protein) needed to make red blood cells. Proper production of red blood cells helps to supply and transport oxygen to the body's tissues and organs. If your cells don't have a normal supply of oxygen, you feel tired and weak, symptoms associated with iron deficiency anemia (the most prevalent type of anemia), which is a reversible condition. In addition to iron deficiency anemia, there are folate deficiency anemia, pernicious anemia, and more rare types of anemia such as aplastic anemia, hemolytic anemia, thalassemia, and sickle cell anemia.

what causes it

Iron deficiency anemia can result from either an iron-poor diet (more often found in vegetarians), intestinal problems that interfere with proper iron absorption, or blood loss (from an acute incident, such as a hemorrhage; from benign causes, such as hemorrhoids or menstruation; or from gastrointestinal bleeding). Young children and premenopausal women are at highest risk for developing iron deficiency anemia. Pregnancy can also increase the risk for anemia because the iron requirements of the fetus can potentially deplete the mother's stores of the mineral.

how food may help

To produce red blood cells, the body requires, among other nutrients, iron, folate, and vitamin B_{12}. For iron deficiency anemia, you can help build up your iron stores by eating foods rich in either "heme" or "nonheme" **iron.** Heme iron, which is absorbed by the body more effectively than nonheme iron, is available in meat, poultry, fish, and shellfish. Interestingly, heme iron promotes the absorption of nonheme iron from other food when eaten at the same time. It is important for vegetarians to eat ample amounts of nonheme iron (found in

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certain plant foods) along with foods rich in vitamin C, which improves nonheme iron absorption. To enhance your iron stores, cook in iron pots and pans.

Vitamin C also improves **folate** absorption, which is important in managing folate deficiency anemia. Folate is required for the body's metabolism of amino acids, as well as for the formation of healthy red blood cells. Foods rich in this important B vitamin should be consumed on a regular basis, because folate is water-soluble and the body cannot store a lot of it.

Vegans and vegetarians may be at risk for developing pernicious anemia, which results from a chronic lack of **vitamin B_{12}.** It may also be useful to eat foods rich in **beta-carotene,** since this carotenoid is converted in our bodies to **vitamin A,** which may help to mobilize stored iron from the liver. Foods rich in **vitamin B_6,** which assists in the formation of hemoglobin, are also beneficial. Make sure you consult a physician before you embark on a nutritional plan to correct your anemia.

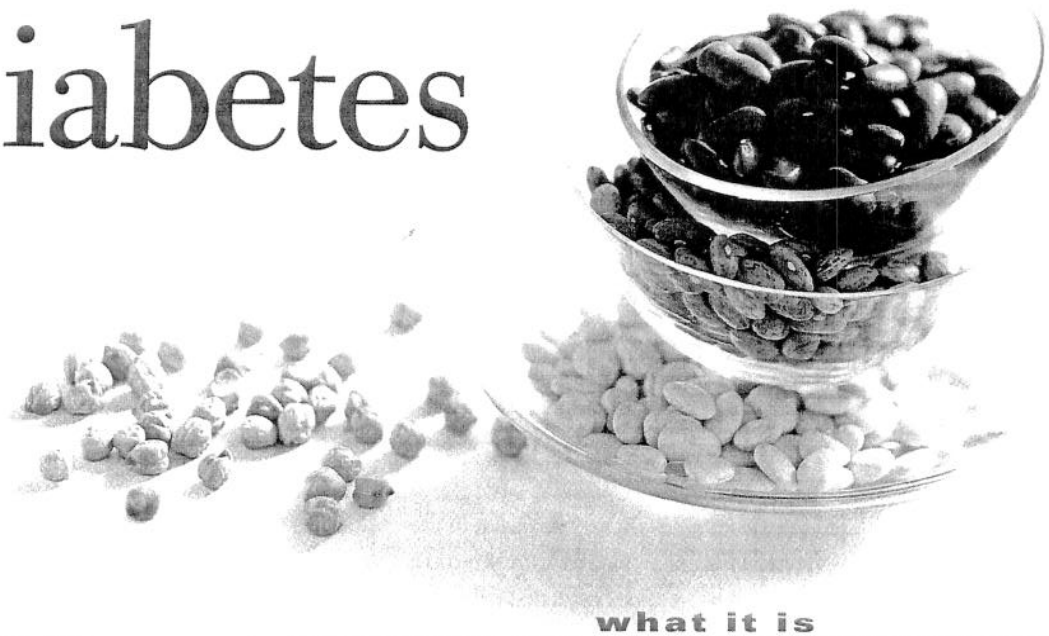
foods to avoid

Note that some foods contain substances that may reduce your body's ability to absorb iron: tannic acid in tea, calcium phosphate in dairy products; oxalates in spinach, rhubarb, Swiss chard, and chocolate; and phytates in bran, peas, seeds, and soybeans. All of these may hinder the entry of iron into your digestive system. A high-fiber diet in general may act as an iron inhibitor.

your food arsenal

foods	nutrient	health benefits
asparagus **black-eyed peas** **chicory** **lentils** **pinto beans**	folate	Folate, along with other nutrients, is important for the manufacture of red blood cells. Adequate intake of this vital B vitamin can also help to prevent development of a type of anemia called folate deficiency anemia. Alcoholics and people with poor diets are at risk for developing this type of anemia.
amaranth **clams** **oysters** **quinoa** **tofu**	iron	Iron is required for the formation of hemoglobin, which carries oxygen in red blood cells to organs and tissues. Fatigue, weakness, and tiredness associated with iron deficiency anemia are due to insufficient red blood cells and the resulting inadequate distribution of oxygen to the cells.
clams **mackerel** **nonfat plain yogurt** **sardines** **trout**	vitamin B_{12}	Required for the production of red blood cells, this vitamin may help to prevent the onset of a type of anemia that is often found in strict vegans or people whose general diet is poor and lacking in variety.
broccoli **citrus fruit** **peppers** **strawberries**	vitamin C	Folate and iron are best absorbed from plant sources when accompanied by a source of vitamin C.

diabetes



recipe rx

what it is

Diabetes is characterized by high levels of glucose (a simple sugar that all cells require for energy) in the blood, the result of an impairment in the secretion and/or the action of insulin (the hormone required to utilize glucose). There are two forms of diabetes, Type 1 and Type 2. Type 2 is the more prevalent form of diabetes and is responsible for about 90% of cases. As opposed to Type 1 diabetes, which is usually diagnosed in childhood or adolescence, Type 2 diabetes generally afflicts adults; hence, it is also referred to as adult-onset diabetes. Type 2 diabetes develops gradually and usually affects people over the age of 40 who tend to be obese. Symptoms of diabetes mellitus (the full name of both types of the disease) include frequent and excessive urination, excessive thirst, weight loss, fatigue, and increased hunger, as well as recurring infections, such as urinary tract and vaginal yeast infections. Complications associated with either type of diabetes include cardiovascular disease, nerve damage, vision loss, and kidney disease.

what causes it

Diabetes is a complex disorder, the cause of which is not clearly understood, though genetic factors may play a role in both types of diabetes. In Type 2 diabetes, in addition to a genetic component, metabolic disturbances and obesity have both been implicated in its onset. Numerous studies show that obesity not only promotes the development of diabetes but it also furthers the progression of heart disease. Pregnant women can develop gestational diabetes, placing them at higher risk for developing diabetes later in life. In the less common form of diabetes, Type 1, the immune system mistakenly attacks the body's insulin-producing cells, resulting in insulin deficiency.

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how food may help

Before embarking on any type of nutritional plan, people with diabetes need to carefully review any dietary decisions with their health-care provider. Each person's diet needs to be individually tailored to accommodate insulin needs.

Foods high in **complex carbohydrates** tend to be digested at a rate that allows glucose to be released gradually into the bloodstream, which helps in maintaining normal glucose levels.

The importance of **dietary fiber** lies in its ability to slow the absorption of glucose and promote satiety (feeling full), which is helpful for weight loss. **Soluble fiber** also helps to decrease serum cholesterol levels, which is important since many people with diabetes are at an increased risk for developing coronary vascular disease.

Researchers speculate that a low serum **magnesium** level may possibly be a predictor of Type 2 diabetes. Note that foods rich in magnesium, such as rice and whole grains, tend also to be rich in fiber.

Eating heart-healthy foods such as those rich in **monounsaturated fat** is also helpful, particularly when they replace artery-clogging saturated fats.

Because people with diabetes often suffer from vascular problems, a **vitamin C**-rich diet will help to protect veins and connective tissues. Vitamin C also acts as an antioxidant, which is important because some studies show that free-radical oxidation may play a role in the damage to tissues caused by diabetes.

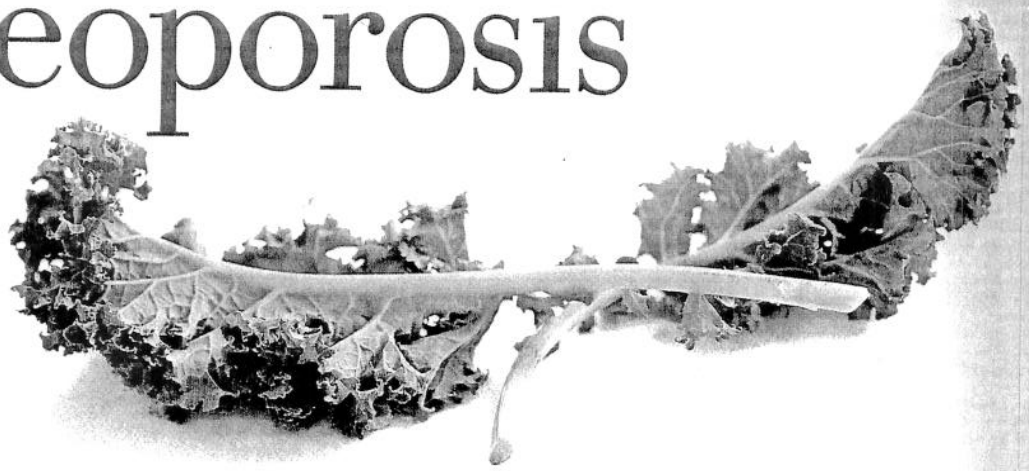
recent research

A recent study shows that dietary fiber may help to lower glucose levels in people with Type 2 diabetes. Researchers studied the effects of two types of diets on 13 patients with Type 2 diabetes. Each participant was administered a diet containing a moderate amount of fiber (8g of soluble fiber and 16g of insoluble) for six weeks, followed by a high-fiber diet (25g of soluble fiber and 25g of insoluble fiber) for another six weeks. The researchers compared the effects of both diets and found that for patients with Type 2 diabetes, a high-fiber diet helps to stabilize blood sugar by slowing the absorption of glucose.

your food arsenal

foods	nutrient	health benefits
beans **potatoes** **rice** **whole grains**	complex carbohydrates	Complex carbohydrates are digested slowly and release glucose gradually into the bloodstream, helping to maintain normal glucose levels.
asparagus **beans** **lentils**	dietary fiber	Soluble fiber may help to decrease serum cholesterol levels as well as glucose levels, and it also helps to prevent weight gain.
amaranth **brown rice** **sunflower seeds**	magnesium	A low serum magnesium level may possibly be a predictor of Type 2 diabetes. Foods rich in magnesium tend also to be rich in fiber.
avocados **canola oil** **nuts** **olive oil**	monounsaturated fat	These beneficial fats may help to lower blood glucose levels and, when replacing saturated fats, are also helpful in managing heart disease and maintaining weight levels.
bell peppers **broccoli** **citrus fruit**	vitamin C	Vitamin C helps to protect connective tissues and veins; many people with diabetes suffer from vascular problems.

osteoporosis



recipe rx

what it is

Aptly named for the Latin phrase "porous bones," osteoporosis is a debilitating, progressive skeletal disease that silently robs bones of their mineral density and strength. More than 25 million Americans, mostly women, are afflicted with or are at high risk for this bone-thinning disease, which leads to fractures and collapsed vertebrae.

what causes it

A lack of hormones (usually estrogen), exercise, and/or calcium may deplete bone mass and impair bone structure, weakening bones. Estrogen levels decline after menopause, leaving women, particularly those who are small-boned or underweight, with a heightened risk for the disease. An unbalanced diet, genetic predisposition, steroid use, cigarette smoking, and low testosterone levels (in men) may also contribute to the disease.

how food may help

A lifelong, high-quality diet rich in **calcium** nourishes and strengthens bones. Most of the body's calcium is stored in the skeleton, where this mineral provides a sturdy foundation for bone tissue. Consuming plenty of calcium throughout childhood and early adulthood helps build peak bone mass, which may offset bone loss later in life. During adulthood, daily calcium intake may bolster bone density.

A variety of nutrients in foods—including **isoflavone** and **lignan** phytoestrogens, and **vitamins C, D,** and **K**—help promote bone strength as well, staving off fractures. The trace mineral **manganese,** plentiful in pineapple, is thought to improve the body's absorption of other bone-building minerals. Animal research suggests that **omega-3 fatty acids,** especially those found in fatty fish—such as salmon, herring, and tuna—may stimulate the growth of new bone protein, an important structural element in bone tissue.

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Because elevated levels of homocysteine have been implicated in osteoporosis, the B vitamins **folate, B_6,** and **B_{12}** may be useful by converting this amino acid to a less harmful substance. Lentils and greens are high in folate, bananas and rice contain vitamin B_6, and fish and poultry are good sources of vitamin B_{12}.

Evidence is accumulating that a diet rich in fruits and vegetables may protect against osteoporosis. Observational studies indicate that men and women who consume the most fruits and vegetables have higher bone-mineral density, an important defense against fractures. Well-known bone-building vitamins and minerals are plentiful in produce, and even **potassium** and **magnesium** in fruits and vegetables may preserve bone strength. Research links these minerals to a slower decline in bone-mineral density. Foods rich in potassium may also help reduce high blood pressure, which scientists believe promotes calcium excretion, thus raising the risk for the bone-thinning disease.

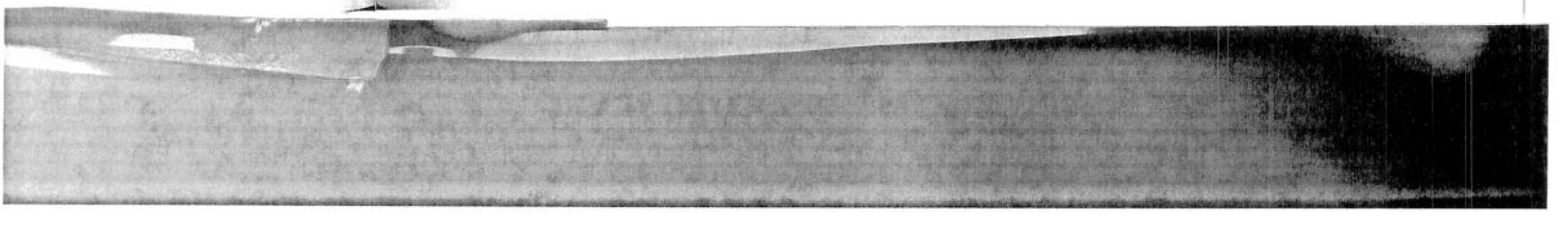
Eating **plant protein** (in vegetables, soy foods, and grains such as quinoa) instead of animal protein, and consuming a diet that is not excessive in protein, is recommended because preliminary research suggests that animal protein and an overabundance of protein in general may raise the risk for osteoporosis-related fractures.

recent research

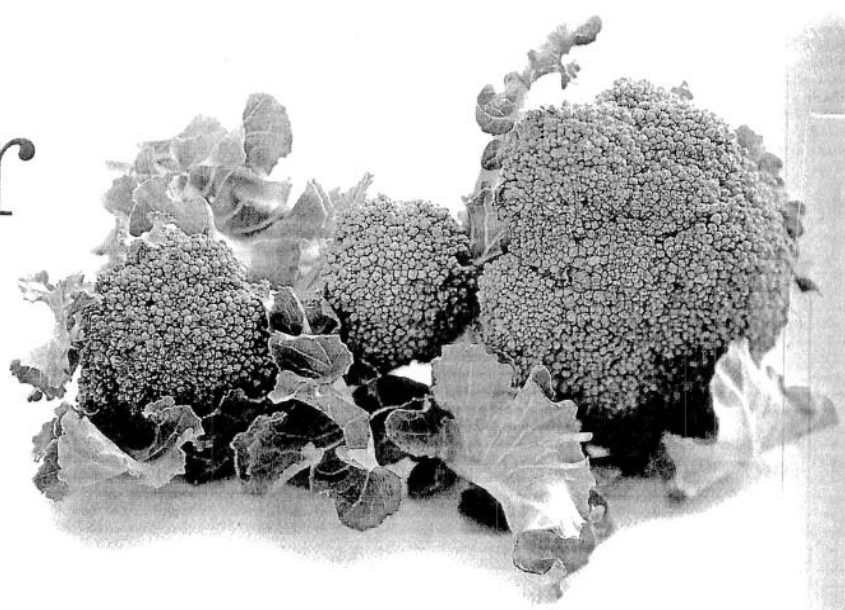
A large-scale, 10-year study of middle-aged women found that participants with the highest vitamin K consumption from foods had a 30% reduced risk for hip fracture. The richest sources of dietary vitamin K include kale, brussels sprouts, lettuce, broccoli, and spinach. Kale is a leading source of the bone-strengthening vitamin, providing about 550mcg in just 1 cup of raw greens.

your food arsenal

foods	nutrient	health benefits
cooking greens **dairy products**	calcium	The cornerstone of healthy bones, calcium raises bone density, an important measure of how well bones resist fractures.
lentils **soy foods**	isoflavones	Researchers believe these estrogenlike compounds promote bone density. Studies indicate isoflavones may conserve bone mass, particularly during perimenopause and menopause.
flaxseed	lignans	A study of healthy postmenopausal women (not on hormone replacement therapy) suggests that flaxseed, which is high in lignans, may retain bone mass, elevate antioxidant status, and help prevent urinary loss of calcium.
berries **citrus fruits** **peppers**	vitamin C	In addition to enhancing bone density, vitamin C helps form the connective tissue (collagen) matrix that holds bones together.
dairy products **fatty fish**	vitamin D	Necessary for optimal calcium absorption, vitamin D enhances bone strength.
kale **spinach**	vitamin K	This vitamin may strengthen bone by stimulating osteocalcin, a protein essential for bone strength.



cancer



recipe rx

what it is

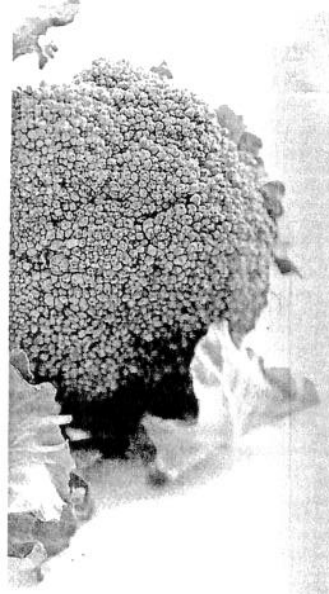
Cancer is a group of more than 100 related diseases caused by an abnormal proliferation of cells that divide continuously. This unregulated cell growth may spread and invade normal tissue, creating malignancy, which can invade surrounding tissues and may spread further. Cancer can strike at any age and can develop in any part of the body. After cardiovascular disease, cancer is the second leading cause of death in the United States.

The good news is that many types of cancer are highly preventable, and with early detection, a great number can be successfully treated. You can reduce your risk for developing cancer through proper medical screening, awareness of symptoms and risk factors, regular self-examination, and a healthy diet and lifestyle. Poor lifestyle decisions may play a substantial role in many cancer cases; the National Cancer Institute estimates that at least 35% of all cancers have a nutritional connection.

what causes it

The development and progression of cancer is a complex, multistep process. Cancer often takes years to develop, and is thought to occur as a result of a combination of factors, including heredity, genetic damage, environment, lifestyle, and diet. The immune system's inability to repair damage caused by outside forces such as cigarette smoke, chemicals, asbestos, radiation (X rays and ultraviolet sunlight), smog and other environmental carcinogens, as well as excessive alcohol consumption, can cause normal cells to mutate into precancerous cells. These cells, in turn, may or may not become cancer cells. Repeated exposure to free radicals can cause basic cellular damage and may induce the onset of cancer.

Foods for Colon Cancer: Whole Grains Dairy



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Cancer

how food may help

Even if you do have some of the risk factors associated with the development of cancer, you can start to tip the odds in your favor by selecting healthful foods (as well as quitting cigarette smoking and starting an exercise program). First and foremost, you should reduce dietary fat. Studies show a reduced incidence of cancer among people who eat a diet that is low in fat. Replacing saturated fats with **monounsaturated fats** such as olive oil can also protect against cancer and other life-threatening conditions; and preliminary research indicates that **omega-3 fatty acids** may provide protective effects against breast, colon, and prostate cancers by stopping cancer cell growth.

Many other compounds in foods are also under scientific scrutiny for their potential either to prevent the onset of cancer or to prevent cancerous tumors from growing. It is thought that one piece of fruit, for example, could contain *hundreds* of potentially beneficial phytochemicals. Clearly, the best way to ensure that you are benefitting from a diverse array of cancer-fighting nutrients and phytochemicals is simply to consume a large variety of fruits and vegetables.

your food arsenal

foods	nutrient	health benefits
garlic **onion family**	allium compounds	These compounds, also known as sulfur compounds, may stimulate the immune system's natural defenses against cancer, and they may have the potential to reduce tumor growth.
apples **berries** **cherries** **red grapes & wine**	anthocyanins	Anthocyanins, plant pigments classed as flavonoids, may have antioxidant potential to reduce the risk for developing cancer by neutralizing free radicals.
apricots **carrots** **sweet potatoes**	beta-carotene	Studies suggest that this carotenoid may function as a powerful antioxidant and protect cells from free-radical damage.
dark chocolate **green tea** **pomegranates**	catechins	Green tea contains EGCG, a catechin that may help to fight cancer in three ways: It may reduce the formation of carcinogens in the body, increase the body's natural defenses, and suppress cancer promotion.
apples **berries** **broccoli** **citrus fruits** **onion family**	flavonoids	Many flavonoids act as antioxidants, and some have several other biological anticancer effects, mostly related to altering enzymes of metabolism and cell growth. Flavonoids are also thought to prevent DNA damage to cells.
asparagus **beets** **lentils**	folate	This B vitamin is crucial for normal DNA synthesis and repair; low levels of folate are thought to make cells vulnerable to carcinogenesis.

continued on next page

BODYWORK

Massage therapy and bodywork are essential for stress reduction. Our specialty is relaxation. With relaxation comes the true qualities of healing. Once muscles tense up and become strained, they can not relax on their own. The only thing that will help them relax is a good massage.

The experts say, concerning stress reduction and general health;

* Have a massage and sauna bath, once a week.

* Keep your spinal nerves free to function properly by having proper bodywork on a regular basis. The Spinal Touch technique is excellent for this.

ADEQUATE REST

For every hour of stress, it takes approximately one hour of rest to change the blood chemistry back to its normal pH. If the body is not allowed to rest, 'lactic acids', which are the direct result of metabolism, can not be neutralized and may create a mild form of acidosis. When these 'toxins' are allowed to remain, they crystalize and are embedded into the tissues. It is when the body is at rest that it can begin to heal itself. So get a good nights rest, and take a few breaks during the day to give your body the chance it needs to keep up with you.

HIGHER AWARENESS OF CONSCIOUSNESS

Yoga means 'to unite', 'to bring together'. It is through Yoga and meditation that we can understand our divine relationship with the Creator. It has been said that 'when we pray we are sending our supplications to the Creator, when we meditate the Creator is sending us his responses'. *It is through this communication and awareness that we can truly find peace and happiness. It is through yoga and meditation that we can truly free ourselves of physical, mental, and emotional restrictions and limitations.* ***Genuine health can not be achieved without incorporating yoga and meditation into ones lifestyle.***

It is essential that we apply all five of these principles to our life if we want to remain stress and dis-ease free, enjoying every moment of the glorious life.

The ideas expressed herein are not prescriptions, merely the authors opinions.

For more information, and inquiries about seminars on this topic, please contact Kenny Frazier at (801) 370-7090.

Kenneth D. Frazier, LMT

Alternative Healthcare Professional

Spinal Touch ✿ Craniosacral ✿ Energy Balancing ✿ Body Balancing ✿ Nutritional Testing

Body, Mind, Spirit - Therapeutic Bodywork

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STRESS

WITHOUT DISTRESS

What Exactly is Stress?

Stress has been defined by the late Dr. Hans Selye as the "non-specific response of the body, to any demand made upon it". There are three types of stress; physical, mental, and emotional. According to Dr. Selye, regardless of all the various stressors that affect us, the body reacts exactly the same way to each.

Is Stress *Really* Harmful?

Actually, stress is indispensable to life! Every time we think or move it is stressful to our body. Does this mean that we should never think or move again? Ofcourse not! Stress is beneficial to the body and mind. Stress enables us to learn and grow - progress. We all have friends or know people who have had severe accidents and have been hospitalized for several weeks or months. What happens to them when they can't or don't use their muscles frequently? That's right, they atrophy, or lose strength. So active stress is good for us. If we fail to stress ourselves with healthy daily activities, we would soon lose our ability to even function.

Stress can become harmful, however, when it goes beyond our physical ability to deal with it. When stress is allowed to go beyond our "elastic limits", there is no doubt about it, we will surely feel the strain, somewhere! The key is to recognize these signs of stress overload, early, and take action.

What can *we* do to Control Stress?

There are five important facets which are quintessential in enabling us to control our stress. They are; nutrition, exercise, bodywork, adequate rest, and higher awareness of consciousness.

LOW STRESS NUTRITION

I don't believe in diets, and I don't believe in counting calories. I do, however, believe that what we put into our bodys, directly effects how we feel and how efficient our bodys will operate. I also believe that many have weight problems because of overeating way to often, and poor food choices. Proper nutrition can be evaluated through these four elements;

1.) The quality of foods eaten.
2.) The quantity of foods eaten.
3.) The nutritional concentration of foods eaten.
4.) The digestibility of foods.

Our supermarkets are filled with processed foods, containing refined sugars, preservatives, additives, and chemicals. The more we deviate from consuming natural whole foods, the more stress we put on the body. Furthermore, if we want our bodys to perform like indy cars, we'd better use racing fuel. Unfortunately, over time our soils have become depleted of nutrients, thereby decreasing the nutritional value of even whole foods.

Nutritional supplementation (vitamins, minerals) is necessary for all, to ensure the bodys proper nutritional requirements are met, and exceeded.

Vitamin Supplementation for Stress

* High Quality Multi-Vitamin
* Drink plenty of quality water (gallon/day)

Plus;

* Vitamin C with bioflavanoids
* Vitamin A (water soluble)
* High Potency B complex (non-yeast source)
* Vitamin E (water soluble)
* Essential unsaturated fatty acids
* Manganese and Magnesium
* Calcium

EXERCISE

It is important to remember that every muscle in the body should be used at least once each day to help it remain healthy. This includes the brain! Exercise strengthens all the cells of the body. It also stimulates the circulation and lymphatic system. Unlike the circulatory system, the lymphatic system does not have a pump and therefore relies on movement, and the contraction of muscles to flow. Exercise has also been shown to be a stress reliever. When involved in an enjoyable cardiovascular activity, the body is able to remove 'toxins' from the tissues, and fill them with oxygen and nutrients. The mind also has time to rest from mental stressors and recuperate with oxygen rich blood and nutrients. Exercise just feels good.

STRESS AND DISEASE

Numerous studies have shown that excessive stress is associated with a wide spectrum of diseases both physical and psychological. People with high life-change scores on the Holmes-Rahe Social Readjustment Rating Scale, it has been found, are more likely to develop heart attacks, ulcers, diabetes, leukemia, or infections, or to die suddenly. They are also more apt to have accidents or athletic injuries, be hospitalized for schizophrenia or depression, show neurotic symptoms, or attempt suicide. Holmes and Rahe have also found that people are far more likely to become ill the year following a divorce, and that ten times as many widows and widowers die the year following their spouse's death as do others in the same age group.

LIFE CHANGES. Among the most significant and stressors are major changes for better or worse in the pattern of people lives. Dr. Thomas H. Holmes of the University of Washington, Seattle and Dr. Richard H. Rahe of the San Diego Naval Health research Center compiled a checklist of forty-three typical life events ranging in university from the death of a spouse to taking a vacation. They then asked hundreds of people of all ages and from all walks of like to assign a numerical rating to these events on a scale of 1 to 100 with marriage arbitrarily set at 50 according to the amount of adaptation and adjustment they felt each event demands the resulting Social Readjustment Rating Scale is shown in Table.

Homes and Rahe administered this scale to thousands of U.S. Navy officers and men serving aboard ships where their environments and daily routines were fairly constant. The researchers found that the higher a man's score the more likely he was to become ill. Men with scores below 150 remained in good health. Of those with scores between 150 and 300 about half became ill. And of those with scores over 300, some 70 percent became sick.

Social Readjustment Rating Scale

Rank	Life Event	Value
1	Death of Spouse	100
2	Divorce	73
3	Marital Separation	65
4	Jail term	63
5	Death of close family member	63
6	Personal injury or illness	53
7	Marriage	50
8	Fired at work	47
9	Marital reconciliation	45
10	Retirement	45
11	Change in health of family member	44
12	Pregnancy	40
13	Sex Difficulties	39
14	Gain new family member	39
15	Business Readjustment	39
16	Change financial state	38
17	Death of close friend	37
18	Change to different type of work	36
19	Change in number of arguments with spouse	35
20	Mortgage over $10,000	30
21	foreclosure of mortgage or loan	30
22	Change in responsibilities at work	29
23	Son or daughter leaving home	29
24	Trouble with in-laws	29
25	Outstanding personal achievement	28
26	Wife begin or stop work	26
27	Begin or end school	26
28	Change in living conditions	25
29	Revision of personal habits	24
30	Trouble with boss	23
31	Change in work hours or conditions	20
32	Change in residence	20
33	Change in schools	20
34	Change in recreation	19
35	Change in church activities	19
36	Change in social activities	18
37	Mortgage or loan less than 10,000	17
38	Change in sleeping habits	16
39	Change in number of family get togethers	15
40	Change in eating habits	15
41	Vacation	13
42	Christmas	12
43	Minor violations of the law	11

To determine your stress score, add up the number of points corresponding to the events you have experienced in the past 12 months

1.	Death of a close family member	100
2.	Death of a close friend	63
3.	Divorce of parents	65
4.	Jail term	63
5.	Major personal injury or illness	63
6.	Marriage	58
7.	Getting fired form a job	50
8.	Failing an important course	47
9.	Change in health of a family member	45
10.	Pregnancy	45
11.	Sex problems	44
12.	Serious argument with a close friend	40
13.	Change in financial status	39
14.	Change in academic major	39
15.	Trouble with parents	39
16.	New girlfriend or boyfriend	37
17.	Increase in work load at school	37
18.	Outstanding personal achievement	36
19.	First quarter / semester in college	36
20.	Change in living conditions	34
21.	Serious argument with an instructor	30
22.	Getting lower grades than expected	29
23.	Change in sleeping habits	29
24.	Change in social activities	29
25.	Change in eating habits	28
26.	Chronic car trouble	26
27.	Change in number of family get-togethers	26
28.	Too many missed classes	25
29.	Changing Colleges	24
30.	Dropping more than one class	23
31.	Minor traffic violations	20

TOTAL STRESS SCORE _____

THE STRESSER'S DIET

(This is a JOKE!)

Breakfast

1/2 grapefruit
1 piece whole-wheat toast
8 oz. skim milk

Lunch

4 oz. lean broiled chicken
1 cup steamed lima beans
1 Oreo cookie
Herb tea

Midaftemoon snack

Rest of the package of Oreo cookies
Quart of rocky-road ice cream
Jar of hot fudge sauce

Dinner

2 loaves garlic bread
Large mushroom and pepperoni pizza
Large pitcher of beer
3 Milky Ways
Entire frozen cheesecake, eaten directly out of the freezer

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4 QUICK FIXES FOR FIGHTING STRESS

TIP NO. 1: Breathe. We Mean It.

"When you're under stress, you tend to take quick shallow breaths from the chest," explains Evelyn Fleischman, a Berkeley, California-based shiatsu massage therapist. "Breathing properly for a few minutes, from your abdomen, can actually relax you." (You can tell you're breathing superficially, Fleischman says, when your belly flattens and your chest expands as you inhale.)

When you realize you're getting tense, simply concentrate on breathing slowly for a few minutes. Imagine that your abdomen is like a balloon; when you inhale, it inflates. Then exhale slowly, and try to expel the air directly from your diaphragm. The bonus to breath work? It's a relaxation technique that's easy to do anywhere.

TIP NO. 2: Treat Your Toes

Tension is something you can tackle from the bottom up. Tired, aching feet affect your entire physique.. The next time your dogs are barking, kick off your shoes and give yourself a massage.

Start by rubbing your thumb up and down your sole, from the heel to the ball of your foot. Then, massage across the sole in the other direction—as if you're trying to widen your arch. Finally, press down on the ball of your foot, and stretch out your toes by gently pulling them apart. Even after a few minutes, your feet will feel refreshed.

TIP NO. 3: Twist and Shout

The act of turning your upper body into a twist can release tension in muscles, stretch your spine and stimulate your circulation. The result: a restored sense of relaxation. This move is particularly effective because the shoulders, back and neck are the body parts most likely to be affected by stress.

Sit on the edge of your chair, feet planted on the ground. Place your right hand on your left thigh, reaching toward the outer side of your knee and exhale, puffing air out of your chest. Then inhale and twist your lower back, using your free hand to grab the top of the chair over your right shoulder. Exhale when you untwist, and repeat the stretch on the opposite side. You can do this exercise anywhere and reap all its de-stressing benefits without leaving your chair.

TIP NO. 4: Drink Up

Stress can take its toll in different ways, but one that tops the list is exhaustion. On mornings when it seems impossible to rise and shine—or when you're on your way home to family responsibilities, here's a simple solution: slugging down a glass of orange juice.

Aside from being packed with vitamins, O.J. is a natural energizer. It boosts your blood-sugar level and can help you get going in the morning. In addition, keep a bottle of water nearby at all times. It's easier than you think to get dehydrated, and that can affect you both physically and mentally.

[ideas adapted from: www.womenswire.com/work/takefive/tip 1.html]

Positive Stress Reducers

Directions: Circle the actions or activities listed below that you think would work for you in reducing stress, and add others you think might work

1. Recognize and identify what is causing you stress.
2. Change your daily routine. Try something new.
3. Learn and practice relaxation skills.
4. Watch your weight and diet.
5. Exercise regularly.
6. Get enough sleep.
7. Develop more interests, activities and relationships.
8. Set reasonable personal expectations and goals.
9. Learn to say "No" (politely) when you don't want to or feel you shouldn't do things.
10. Learn to accept things you can't change or have no control over.
11. Don't blame other people for your problems. Be in control of your own life.
12. Don't procrastinate. Do things when they should be done.
13. Do volunteer work.
14. Avoid unnecessary competition. Don't compare yourself to others all of the time.
15. Choose friends who enjoy things you enjoy.
16. Look for the humor in stressful situations.
17. Write down the things that frustrate you, then identify ways to reduce the frustration or stress.
18. Talk to someone about your stressors.
19. Pick an activity you enjoy doing and do it when you feel distressed.

Examples: 20. Music (certain kinds)
21. Relaxation Exercises
22. _____
23. _____
24. _____
25. _____

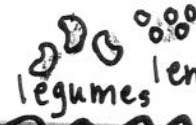
NUTRITION and

DON'T SKIP MEALS:

When you skip meals your blood sugar level plummets causing — Depression, nervousness, forgetfulness, confusion nightmares and more!

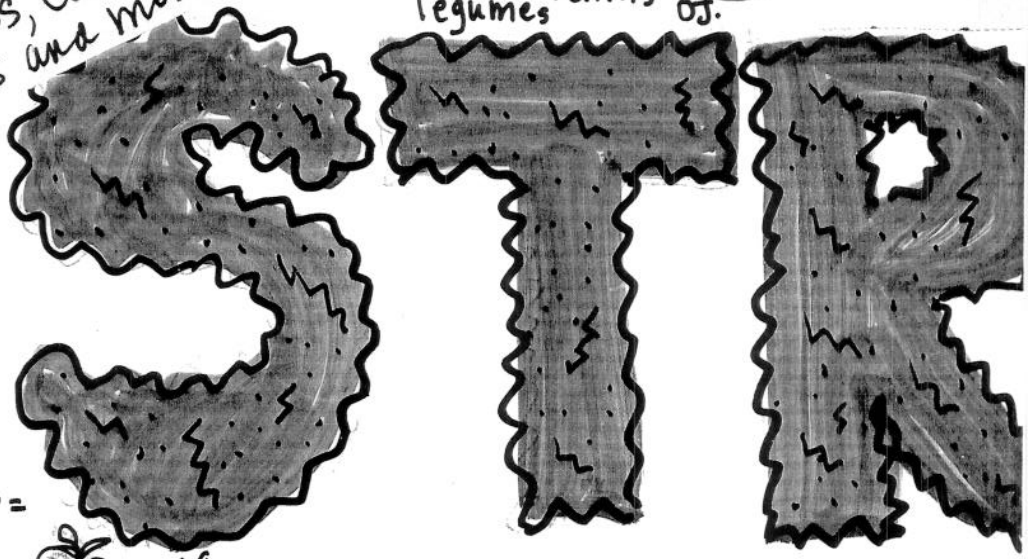
INCREASE F

Sources:



Resear
discover
depress
had l

enough = VITAMIN C



When you eat refined sugar, your blood sugar Level rises so rapidly and the extra insulin Causes a SURGE of energy – this does such A quick and efficient job that your blood sugar Then spirals downward causing depression!

* Years of these ↑ and ↓ = Diabetes

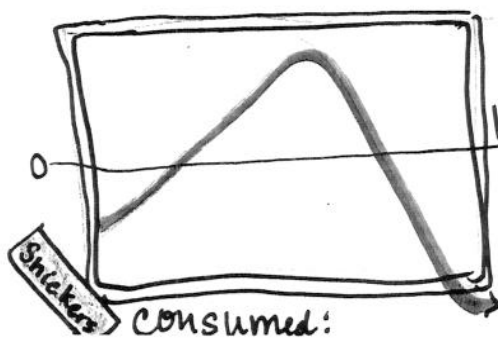
GET ENOUGH SLEEP 2222...

REDUCE SUGAR:

energy ~ this does such a quick and efficient job that your blood sugar then spirals Downward causing depression!

*Your brain depends on sleep to rejuvenate and repair tired cells and keep stress low.

SLEEP PRODUCING FOODS →



Consumed:

SLEEP INHIBITING FOODS

(these foods have tyrosine = wakes you up)

(high Protein foods: ALONE)

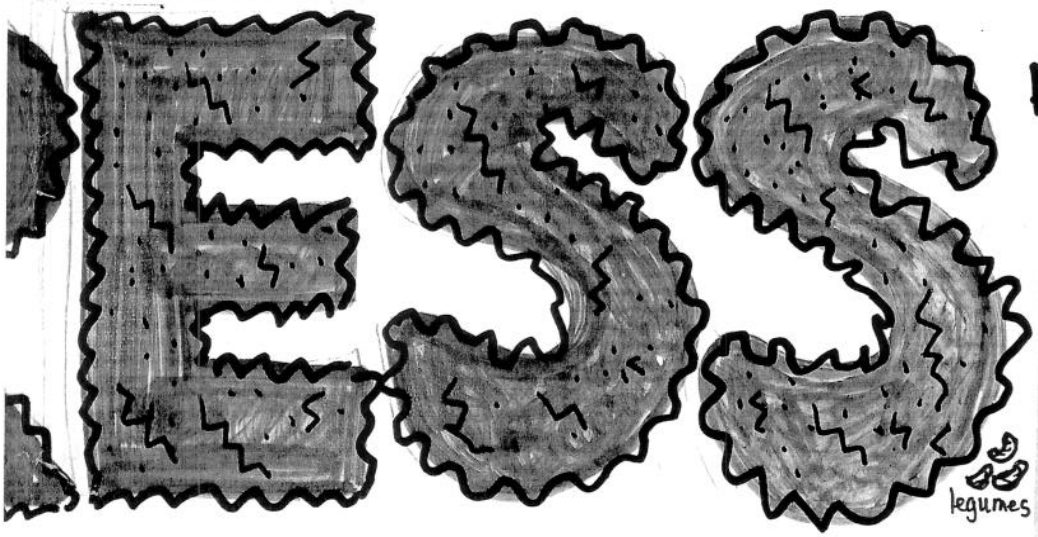
cerea

GET YOUR DAIRY:

Milk is very brain activating... it contains Tyrosine which is *BRAIN ACTIVATING* It also contains DOPAMINE and NOREPINEPHRINE which helps you think CLEARLY and QUICKLY

FOLIC ACID:

...rchers have ...ed that ...sed patients ...ow FOLATE LEVELS...



Adequate MAGNESIUM:

Helps nerve and muscle function and bone growth. Eat nuts, meats, leafy vegetables, whole grains, beans and legumes.

INCREASE 'B' VITAMINS:

B^1, B^2, B^3, B^{12} These vitamins help your body convert carbs and protein into mental energy. B^{12} helps your body manufacture and repair brain cells.

This vitamin helps to keep you from getting fatigued. It also helps you think and maintain memory.

ADEQUETE PROTEIN:

FOR BRAIN FUNCTION -

In the MORNING eat TYROSINE: it wakes you up!

In the EVENING eat TRYPTOPHAN: it makes you sleepy

SLEEP INDUCING FOODS:

Station #5

Will You live to be 100?

1. Do the "Will you live to be 100 quiz"

2. Compare your answers to that of your group.

3. Write 5 nutritional practices that you can implement that will prolong your quality of life. Write them above the "score" area on your quiz.

Read the information on Acid/Alkaline. Take a pH test strip and test your pH level. **Complete the worksheet!**

Acid Alkaline Balance in the Body

Your body thrives on **BALANCE**. When your body is able to remain balanced it is happy and healthy. The chemical pH of the body is balanced between **acidic & alkaline.**

The Optimal range for the body's pH is 7.0 to 7.5
This is slightly on the **Alkaline** side.

People with Diabetes have an **acidic pH** in their body
People who are terminally ill also have an **acidic pH**

Diseases and germs thrive in an **acidic pH** environment
To the contrary diseases and illness cannot live and reproduce
In an **alkaline** environment.

Certain foods can make our system become **alkaline or acidic**. Notice the yellow chart.
Many foods and beverages that we commonly consume everyday are **very acid** forming:

1. Soda pop
2. Chocolate
3. White flour
4. Coffee
5. Sugar
6. High protein diets
7. Other foods that we would consider HEALTHY like eggs, pasta, and oatmeal....

THESE FOODS OVER A PERIOD OF YEARS **IF NOT *BALANCED* BY PLENTY OF ALKALINE FOODS** WILL SLOWLY DETERIORATE OUR BODY AND OUR ORGANS AND WE WILL AGE AND DEVELOP DISEASES.

THE TRICK IS TO EAT MORE OF THE ALKALINE FORMING FOODS... THESE WILL BALANCE OUR BODY'S pH and keep us younger and disease resistant!
(see Alkaline forming food list)

* Most Vegetables are alkaline forming ... another reason to eat your veggies!

EXAMPLE: It has been discovered that there are many civilizations in the world that live to a very healthy old age and are almost completely disease free. These groups of people are the : **HUNZA'S** OF PAKISTAN, THE **VILCABAMBAS** OF ECUADOR, THE BAMA'S OF CHINA, THE **AZERBAIHJANS,** THE **ARMENIANS**, THE **TIBETAN'S** AND THE **TITICACA'S** OF PERU. To this list we can add the **Okinawan's** of Japan.

All of the above cultures, disease *virtually does not exist.* Almost no cancer, no heart disease, no Alzheimers,no arthritis etc.... these cultures have no mental disorders and no doctors. They also live decades longer than we do in the North America and their aging process is dramatically slower. The common denominator is that their water is *loaded* with mineral nutrients from melting glaciers high in the mountains and from the disintegrating coral reefs on Okinawa. These sources are FULL OF **CALCIUM**. GETTING PLENTY OF CALCIUM IS A VERY GOOD WAY TO KEEP YOUR BODY FROM GETTING TOO ACIDIC and keeping your alkaline balance at it's best!

ACID / ALKALINE FORMING FOODS

<< Back to Referring Page

MOST ALKALINE	MORE ALKALINE	LOW ALKALINE	LOWEST ALKALINE	FOOD CATEGORY	LOWEST ACID	LOW ACID	MORE ACID	MOST ACID
Baking Soda	Spices / Cinnamon	Herbs (most)		SPICES / HERBS	Curry	Vanilla	Nutmeg	Pudding / Jam / Jelly
Sea Salt			Sulfite	PRESERVATIVES	MSG	Benzoate	Aspartame	Table Salt (NaCl)
Mineral Water, Herb Teas, Lemon Water	Kambucha	Green or mu tea	Ginger Tea	BEVERAGES	Tea, Kona Coffee	Alcohol Black Tea	Coffee	Beer Yeast / Hops / Malt, Soft Drinks
	Soy Sauce	Apple Cider Vinegar	Umeboshi vinegar	VINEGARS	Rice Vinegar	Balsamic Vinegar		White Acid Vinegar
Stevia	Maple Syrup, Rice Syrup		Raw Honey, Raw Sugar	SWEETENERS	Honey/Maple Syrup	Stevia	Saccharin	Sugar / Cocoa
Umeboshi plums		Sake	Algae, blue-green	THERAPEUTICS		Antihistamines	Psychotropics	Antibiotics
Lemons, Watermelon, Limes, Grapefruit, Mangoes, Papayas	Dates, Figs, Melons, Grapes, Kiwi, Apples, Pears, Raisins		Oranges, Bananas, Cherries, Pineapple, Peaches, Avocados	FRUITS	Plums, Processed Fruit Juices		Sour Cherries, Rhubarb	Cranberries, Prunes
Lentils Brocoflower	Kohlrabi Parsnip /	Potato / Bell pepper	Brussel sprout	BEANS	Spinach Fava beans	Split pea Pinto beans	Green pea Peanut	Soy Bean Carob
Seaweed Onion / Miso	Taro Garlic Asparagus	Mushroom / Fungi Cauliflower	Beet Chive / Cilantro	VEGETABLES LEGUMES PULSES	Kidney beans Black-eyed peas	White beans Tempeh Navy / Red	Snow pea Legumes (other)	

Daikon / Taro root Sea vegetables Burdock / Lotus root Sweet potato / Yam	Kale / Parsley Endive / Argula Mustard green Ginger root Broccoli	Cabbage Rutabaga Salsify / Ginseng Eggplant Pumpkin Collard green	Celery Okra / Cucumber Turnip greens Squashes Lettuces Jicama	ROOTS	String / Wax Zucchini Chutney Rhubarb	beans Aduki beans Lima or mung beans Chard	Carrots Chick-pea / Garbanz	
	Grapefruit Cantaloupe	Lemon	Orange Apricot	CITRUS FRUITS	Coconut Guava	Plum	Crabberry	
Lime Nectarine Persimmon Raspberry Watermelon Tangerine Pineapple	Honeydew Citrus Olive Dewberry Loganberry Mango	Avocado Blackberry Cherry Peach Papaya	Banana Blueberry Pineapple juice Raisin, Currant Grape Strawberry	FRUITS	Pickled fruit Dry fruit Figs Persimmon juice Cherimoya Dates	Prune Tomatoes	Pomegranate	
Olive Oil	Flax Seed Oil		Canola Oil	OILS	Corn Oil			
				CEREALS				
				MEATS	Gelatin / Organs	Lamb / Mutton	Pork / Veal	Beef
				GAME	Venison	Boar / Elk	Bear	Pheasant
				FISH / SHELL FISH	Fish	Shell Fish / Mollusks	Mussels / Squid	Lobster
				FOWL	Wild Duck	Goose / Turkey	Chicken	
			Oats 'Grain Coffee' Quinoa Wild Rice	GRAINS CEREAL GRASS	Triticale Millet Kasha Amaranth Brown Rice	Buckwheat Wheat Spelt / Teff / Kamut / Farina / Semolina	Maize Barley groats Corn Rye Oat Bran	Barley

			Japonica Rice			White Rice		
Pumpkin Seed Hydrogentated Oil	Poppy seed Cashews Chestnuts Pepper	Primose Oil Sesame Seeds Cod Liver Oil Almonds Sprouts	Avocado oil Seeds (most) Coconut oil Olive oil Linseed / Flax oil	NUTS SEEDS / SPROUTS OILS	Pumpkin seed oil Grape seed oil Sunflower oil Pine nuts Canola oil	Almond oil Sesame oil Safflower oil Tapioca Seitan or tofu	Pistachio seed Chestnut oil Lard Pecans Palm kernal oil	Cottonseed oilmeal Hazelnuts Walnuts Brazil nuts Fried foods
	Breast Milk		Ghee (clarified butter)	PROCESSED DAIRY	Cream / Butter	Cow Milk	Casein, milk protein, cottage cheese	Processed Cheese
		Almond Milk		NON-DIARY	Rice Milk	Soy Cheese	Soy Milk	
		Human Breast Milk		COW / HUMAN	Yogurt	Aged Cheese	New Cheeses	Ice Cream, Homogenized Milk
		Quail Eggs	Duck Eggs	EGGS	Chicken Eggs			

Note that a food's acid or alkaline-forming tendency in the body has nothing to do with the actual pH of the food itself. For example, lemons are very acidic, however the end-products they produce after digestion and assimilation are very alkaline so lemons are alkaline-forming in the body. Likewise, meat will test alkaline before digestion but it leaves very acidic residue in the body so, like nearly all animal products, meat is very acid-forming.

* Some foods/beverage may fall under more than category depending on the source

Acid / Alkaline Balance

Over acidity, which can become a dangerous condition that weakens all body systems, is very common today. It gives rise to an internal environment conducive to disease, as opposed to a pH-balanced environment which allows normal body function necessary for the body to resist disease. A healthy body maintains adequate alkaline reserves to meet emergency demands. When excess acids must be neutralized, our alkaline reserves are depleted leaving the body in a weakened condition.

The concept of acid alkaline imbalance as the cause of disease is not new. In 1933 a New York doctor named William Howard Hay published a ground-breaking book, *A New Health Era* in which he maintains that all disease is caused by **autotoxication** (or "self-poisoning") due to acid accumulation in the body:

Now we depart from health in just the proportion to which we have allowed our alkalies to be dissipated by introduction of acid-forming food in too great amount... It may seem strange to say that all disease is the same thing, no matter what its myriad modes of expression, but it is verily so. William Howard Hay, M.D.

More recently, in his remarkable book *Alkalize or Die* (see recommended reading), Dr. Theodore A. Baroody says essentially the same thing:

*The countless names of illnesses do not really matter. What does matter is that they all come from the same root cause...**too much tissue acid waste in the body!***
Theodore A. Baroody, N.D., D.C., Ph.D.

Understanding pH

pH (potential of hydrogen) is a measure of the acidity or alkalinity of a solution. It is measured on a scale of 0 to 14—the lower the pH the more acidic the solution, the higher the pH the more alkaline (or base) the solution. When a solution is neither acid nor alkaline it has a pH of 7 which is neutral.

Water is the most abundant compound in the human body, comprising 70% of the body. The body has an acid-alkaline (or acid-base) ratio called the pH which is a balance between positively charges ions (acid-forming) and negatively charged ions (alkaline-forming.) The body continually strives to balance pH. When this balance is compromised many problems can occur.

It is important to understand that we are not talking about stomach acid or the pH of the stomach. We are talking about the pH of the body's fluids and tissues which is an entirely different matter.

Test Your Body's Acidity or Alkalinity with pH Strips

It is recommended that you test your pH levels to determine if your body's pH needs immediate attention. By using pH test strips, you can determine your pH factor quickly and easily in the privacy of your own home. If your urinary pH fluctuates between 6.0 to 6.5 in the morning and between 6.5 and 7.0 in the evening, your body is functioning within a healthy range. If your saliva stays between 6.5 and 7.5 all day, your body is functioning within a healthy range. The best time to test your pH is about one hour before a meal and two hours after a meal. Test your pH two days a week.

Urine pH

The results of urine testing indicate how well your body is assimilating minerals, especially calcium, magnesium, sodium and potassium. These are called the "acid buffers" because they are used by the body to control the acid level. If acid levels are too high, the body will not be able to excrete acid. It must either store the acid in body tissues (autotoxication) or buffer it—that is, borrow minerals from organs, bones, etc. in order to neutralize acidity.

Saliva pH

You'll also want to test the pH of your saliva. The results of saliva testing indicate the activity of digestive enzymes in your body, especially the activity of the liver and stomach. This reveals the flow of enzymes running through your body and shows their effect on all the body systems. Some people will have acidic pH readings from both urine and saliva—this is referred to as "double acid."

Keeping the Balance Right for Excellent Health

Your body is able to assimilate minerals and nutrients properly only when its pH is balanced. It is therefore possible for you to be taking healthy nutrients and yet be unable to absorb or use them. If you are not getting the results you expected from your nutritional or herbal program, look for an acid alkaline imbalance. **Even the right herbal program may not work if your body's pH is out of balance.**

What Causes Me to be Acidic?

The reason acidosis is more common in our society is mostly due to the typical American diet, which is far too high in acid-producing animal products like meat, eggs and dairy, and far too low in alkaline-producing foods like fresh vegetables. Additionally, we eat acid-producing processed foods like white flour and sugar and drink acid-producing beverages like coffee and soft drinks. We use too many drugs, which are acid-forming; and we use artificial chemical sweetners like NutraSweet, Equal, or aspartame, which are extremely acid-forming. One of the best things we can do to correct an overly-acid body is to clean up the diet and lifestyle.

Most people who suffer from unbalanced pH are acidic. This condition forces the body to borrow minerals—including calcium, sodium, potassium and magnesium—from vital organs

and bones to buffer (neutralize) the acid and safely remove it from the body. Because of this strain, the body can suffer severe and prolonged damage due to high acidity—a condition that may go undetected for years.

Mild acidosis can cause such problems as:

- Cardiovascular damage, including the constriction of blood vessels and the reduction of oxygen.
- Weight gain, obesity and diabetes.
- Bladder and kidney conditions, including kidney stones.
- Immune deficiency.
- Acceleration of free radical damage, possibly contributing to cancerous mutations.
- Premature aging.
- Osteoporosis; weak, brittle bones, hip fractures and bone spurs.
- Joint pain, aching muscles and lactic acid buildup.
- Low energy and chronic fatigue.

A recent seven-year study conducted at the University of California, San Francisco, on 9,000 women showed that those who have chronic acidosis are at greater risk for bone loss than those who have normal pH levels. The scientists who carried out this experiment believe that many of the hip fractures prevalent among middle-aged women are connected to high acidity caused by a diet rich in animal foods and low in vegetables. This is because the body borrows calcium from the bones in order to balance pH. — *American Journal of Clinical Nutrition*

Acid-Alkaline Balance and Your Health

by Virginia Worthington, ScD

Many healers are concerned with the level of acidity or alkalinity of the body, from orthodox medical doctors to alternative practitioners like cancer doctor Emanuel Revici, controversial test developer Dr. Carey Reams or the sleeping prophet Edgar Cayce. When these different healers speak about acid-alkaline balance in the body, what do they mean? Why is this important? And how do nutrition and lifestyle affect acid/alkaline balance? Our purpose here is to explore this topic and to answer some of these questions, particularly as it relates to the research of Dr. Weston Price.

First, let us define the terms acidity and alkalinity and get familiar with some basic chemistry. In terms of chemistry, when one talks about acidity or alkalinity, one is talking about hydrogen. An acid is a substance that releases hydrogen into a solution and an alkali or base is one that removes hydrogen from a solution. The amount of free hydrogen is measured on a scale ranging from 1 to 14, called pH, that denotes the exact level of acidity or alkalinity. A pH value below 7 is considered acid and above 7 alkaline.

Inside the human body, the acid-alkaline balance is important since many functions in the body occur only at a certain level of acidity or alkalinity. Many enzymes and chemical reactions in the body work best at a particular pH. A small change in pH can have a profound effect on body function. For example, muscle contractibility declines and hormones like adrenaline and aldosterone increase as the body becomes slightly more acid. In addition, different parts of the body have different levels of acidity and alkalinity. Some of these are shown in Table 1. It should be noted that while there can be a wide range of pH values for the saliva and urine, the value for the blood is maintained within narrow bounds.

REGULATION OF ACID-ALKALINE BALANCE

Because of the importance of the acid-alkaline balance in the blood and tissues, the body has a number of mechanisms for regulating this balance (1) (2). These mechanisms are shown in Table 2.

Many body functions are involved in the regulation of acid-alkaline balance including respiration, excretion, digestion and cellular metabolism. In the blood stream, there are substances known as buffers that act chemically to resist changes in pH. The most important of these compounds in the blood are bicarbonate, albumin, globulin and hemoglobin. Other regulation of blood pH is done chiefly by the lungs and kidneys.

The lungs aid in acid-alkaline regulation by removing carbon dioxide from the blood. Carbon dioxide combines with water in the body to form carbonic acid, so that removing carbon dioxide is equivalent to removing acid. Respiratory rates can vary depending on the acidity of the body, speeding up under acid conditions to remove carbon dioxide and reduce acidity and slowing down under alkaline conditions to retain acids and reduce alkalinity.

The kidney also responds to the pH of the blood. If the blood is too acid, the kidney excretes extra hydrogens into the urine and retains extra sodium. Phosphorus in the form of phosphate is required for this exchange. The body obtains this phosphorus from bone if

it is otherwise unavailable. When the bloodstream is extremely acid, the kidney uses a different method and excretes ammonium ions, which contain four hydrogens, into the urine. When the body is too alkaline, the process is reversed, and hydrogen is retained.

In the digestive process, acid-alkaline balance is affected by the secretions of the stomach and the pancreas. These secretions are absorbed into the bloodstream and affect the rest of the body. When food is eaten, the stomach secretes hydrochloric acid. In response to this acid, the pancreas secretes bicarbonate which neutralizes the stomach acid so that pancreatic enzymes can work properly. Normally, after eating, there are transient changes in blood pH, known as the acid and alkaline tides, that correspond to the stomach and pancreatic secretions. Usually the pH of the blood quickly returns to normal. However, if digestive secretions are out of balance, then the whole body can be affected. Some physicians, like Dr. William Philpott, feel that insufficient secretion of pancreatic bicarbonate is a major cause of over-acidity in the body. Other digestive problems that affect the body's pH are diarrhea, which results in a loss of bicarbonate, and vomiting, which results in a loss of acid.

Just as the pH of the bloodstream is kept under tight control, the acid-alkaline environment inside the cells is also regulated so that it remains within narrow bounds. One way that this regulation occurs is by pumps in the cell membrane that cause hydrogen to enter or exit from the cell. Many of these pumps require phosphorus and magnesium to function so that micronutrient nutrition is a factor affecting acid-alkaline balance. Another way that cells regulate the pH inside the cell is by changing the chemical reactions that occur so that more or less hydrogen is produced (1).

SYMPTOMS OF OVER ACIDITY OR ALKALINITY

When the blood is too acid, symptoms include drowsiness, progressing to stupor and coma. Acute acidosis can result from kidney or lung problems, dehydration, ingestion of certain drugs, diabetes or diarrhea, and is treated by giving an alkaline solution such as bicarbonate of soda. A particular form of acidosis is ketosis that occurs in diets high in fat and lacking in carbohydrates, as well as in conditions of diabetes or starvation, when the body burns fats rather than carbohydrates. However, when normal quantities of fat are consumed in a diet containing carbohydrate, the fats cause no problems in acid-alkaline balance for the majority of people.

When the blood is too alkaline, symptoms include cramps, muscle spasms, irritability and hyperexcitability. Acute alkalosis may be caused by impaired kidney function, hyperventilation, use of diuretic or steroid drugs, vomiting or gastric drainage. Acute alkalosis is treated by giving an acid solution such as ammonium chloride or by breathing expired carbon dioxide from a paper bag (3).

HOW BODY pH IS MEASURED

Most of what is known and used clinically relates to the acidity and alkalinity of the bloodstream, since it is possible to measure the pH of blood and difficult and sometimes impossible to measure the pH of other tissues. Medical doctors typically try to determine the acidity or alkalinity of the body and its cells by analyzing the blood. Some of the elements in blood that are measured are sodium, potassium, chloride, carbon dioxide and bicarbonate. A number known as the anion gap can be calculated using the sodium,

chloride and bicarbonate measurement. The anion gap, along with the other values, are used to assess the acidity or alkalinity of the body tissues (1).

Alternative practitioners may use systems developed by Carey Reams, Harold Hawkins or Emanuel Revici. All three measure urine pH plus other factors to assess metabolism. Drs. Reams and Hawkins also measured saliva pH. None of these systems claims that internal pH can be determined by saliva or urine pH alone. As we saw earlier, the kidney has several methods for disposing of excess acid, and each has a different effect on the urine pH. Similarly, the saliva pH is affected by bacteria and other microbes in the mouth so that saliva pH is not a reliable indicator of the internal environment. Nonetheless, Dr. Reams felt that saliva pH reflected the strength of digestive fluids (4) (5) (6).

NUTRITION AND ACID-ALKALINE BALANCE

Before World War II, there was considerable interest in how the food we eat affects the acid-alkaline balance of the body. While today the subject is not receiving much attention in orthodox circles, many alternative practitioners place considerable stress on the acid-base balance characteristics of various diets. In spite of a certain amount of ongoing debate, it is generally acknowledged that the food that is eaten is a major source of acid and alkali for the body (7).

Some confusion in terminology has resulted because of the way that the discussion evolved. In investigating how different foods might affect the acid-alkaline balance, various foods were burned to ash in the laboratory, and the pH of the resulting ash was measured. These foods were then classified as acid, alkaline or neutral ash foods as shown in Table 3 (8).

In addition, various alternative practitioners such as Edgar Cayce and Bernard Jensen have referred to acid and alkaline-forming foods, based on the reaction of foods in the body. These categories are shown in Table 4 (9).

The terms acid or alkaline ash and acid and alkaline forming are often used interchangeably, but as can be seen from these tables, the terms are not always synonymous.

Using the more scientific definitions, alkaline ash foods are those that contain large quantities of magnesium, calcium, potassium and/or sodium, minerals that form alkaline compounds. Most fruits and vegetables are considered alkaline. Acid ash foods are those that contain chloride, phosphorus, or sulphur, minerals that form acid compounds. These acid ash foods include meat, fish, poultry, legumes and grains, which all contain high levels of phosphorus, and mustard and eggs, which contain sulphur. In addition, the fruits, plums, prunes, cranberries, rhubarb and sour cherries are also acid-forming since they contain either oxalic or benzoic acid, organic acids which are not completely broken down in the body (5) (7) (8).

Individual digestion and metabolism also plays a role in determining whether a food leaves an acid or alkaline residue. For example, certain foods containing organic acids, such as citrus fruits and tomatoes, which normally leave no acid residues, may be incompletely metabolized in some people and are acid-forming for these individuals. This is quite frequently the case where stomach acid is low or thyroid activity is subnormal (5).

There are other metabolic and life style factors which affect the acidity of the body and the reactions of foods. Infection, smoking and alcohol consumption tend to make the body more acid (5) (10). Conversely, exercise will tend to make the body more alkaline, but if continued beyond a comfortable level it can become acid forming, as lactic acid levels build up (1) (5). Furthermore, the dietary content of trace elements also affects acid-alkaline balance. Adequate magnesium and phosphorus are necessary for cellular pumps. Zinc is necessary both for secretion of acid in the stomach and for excretion or retention of acid by the kidney. In addition, many other nutrients, the B vitamins as an example, are necessary to completely oxidize carbohydrates and fats.

It has been recommended by Edgar Cayce and others that the diet be comprised of 80% alkaline forming foods and 20% acid-forming ones. In more practical terms, the recommendation was four vegetables and two fruits to one starchy food and one protein food (9). It is not clear whether these proportions apply for all people. By contrast, Dr. Weston Price found that the traditional diets of the healthy primitives he studied were higher in acid ash foods than in alkaline ash foods. (See From the Archives, page 10.) The traditional diets were higher in minerals than the more processed modern diets. (11). Dr. Price's research confirms the importance of nutrient-dense, unrefined, properly prepared foods.

Moreover, genetic differences may play a role in what constitutes an appropriate balance in the diet. For example, it is known that Eskimos handle fats far more efficiently than other populations and do not suffer from ketosis from very high fat consumption as other groups do (12). The fact that Cayce's recommendations seem at odds with those of Dr. Price can be explained by the fact they were aimed at a different population group, living in a different climate with a different level of activity.

In people of European descent in the U.S., manipulation of the acid or alkaline nature of the diet has been used along with other measures to treat disease conditions, particularly dental caries. Dr. Harold Hawkins, a professor of dentistry at the University of Southern California in the 1940s, studied the effects of foods on the pH and mineral content of the saliva, urine and bloodstream. Dr. Hawkins found that the pH and mineral composition of the saliva and urine were affected by diet, but that the pH of the bloodstream was more influenced by digestion and other metabolic and lifestyle factors.

As a result of his studies over many years, Dr. Hawkins was able to construct a diet that was adequate for most people and to treat those with dental problems and other disease conditions using primarily diets adjusted to balance saliva and urine chemistry. Like Dr. Price, Dr. Hawkins stressed the importance of animal protein and whole grains along with adequate fat and vegetable intake (5).

CONCLUSION

The acid-alkaline balance is an important factor in the health and functioning of the body. Diet is one factor that influences acid-alkaline balance both through the acid or alkaline forming nature of the foods that are eaten and through the nutrient content which affects metabolism. Nutrient rich traditional diets provide the essential factors necessary for excellent metabolism, good acid-alkaline regulation and optimal health.

Editor's Note: A number of alternative practitioners today advocate a diet based primarily on fruits and vegetables, one that minimizes "acid-forming" foods such as meat, fish and grains. While the inclusion of fruits and vegetables in the diet is important for many reasons, including the fact that these foods provide alkalinizing minerals, for most people it is not necessary to minimize acid ash foods such as meat and whole grains in order to maintain acid-base balance. In fact, a diet in which these acid ash foods are absent can lead to deficiencies which undermine the body's ability to maintain the proper blood pH. Meat and other animal foods provide protein, red meats provide zinc, and meat and properly prepared whole grains provide phosphorus, all of which are needed for the regulation of acid-base balance. Fat soluble vitamins found in organ meats, shellfish and good quality butter help maintain the health of the lungs and kidneys, the two prime organs involved in acid-base regulation. Weston Price's research indicates a nutrient-dense diet that supplies both alkaline-ash and acid-ash minerals in liberal amounts is key to the health of the entire organism, including the complex systems that regulate acid-base balance.

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TABLE 1. pH of Various Body Tissues (1) (12)

TISSUE	pH
Skeletal muscle	6.9 - 7.2
Heart	7.0 - 7.4
Liver	7.2
Brain	7.1
Blood	7.35 - 7.45
Saliva	6.0 - 7.4
Urine	4.5 - 8.0

TABLE 2. Factors Regulating Acid-Alkaline Balance in the Body (1)

In the blood:	Inside cells:
Bicarbonate Amino acids Albumin Globulin Hemoglobin	chemical reactions generating or consuming hydrogen entry or exit of hydrogen from the cell via pumps or diffusion

TABLE 3. Acid, Alkaline and Neutral Ash Foods (8)

Acid Ash Foods	Alkaline Ash Foods	Neutral Ash Foods
bread (grains)	cheese	arrowroot
cake	cream	butter
cereal	most fruit	candy
mayonnaise	jam	coffee
cranberries	milk	cornstarch
plums	almonds	lard
prunes	chestnuts	margarine
meat	coconut	vegetable oil
Brazil nuts	molasses	postum
walnuts	most vegetables	white sugar
peanuts		syrup
legumes		tapioca
corn		tea

TABLE 4. Acid and Alkaline Forming Foods (9)

Acid Forming Foods	Alkaline Forming Foods
All meat, poultry, eggs, and seafood	All fruits except those noted above
All foods made from cereal grains including breads, breakfast cereals, crackers, pasta and rice	All vegetables except beans, peas and lentils
Fat including salad oil, butter, margarine, lard etc.	Dairy products including milk, buttermilk, cheeses and yoghurt
Legumes including beans, peas, lentils and peanuts	
Fruits containing benzoic or oxalic acid including prunes, plums, cranberries, rhubarb and sour cherries	
Chocolate	
Coffee, tea and most soft drinks	
Sugar, syrup	
All true nuts	

Station #6

Research has pinpointed 16 exceptionally nutrient dense foods that you should consume on a regular basis. Taste some of them while completing the instructions on the worksheet.

FOOD IS THE BEST MEDICINE, AND THE **BEST** FOODS ARE THE **BEST** MEDICINES...

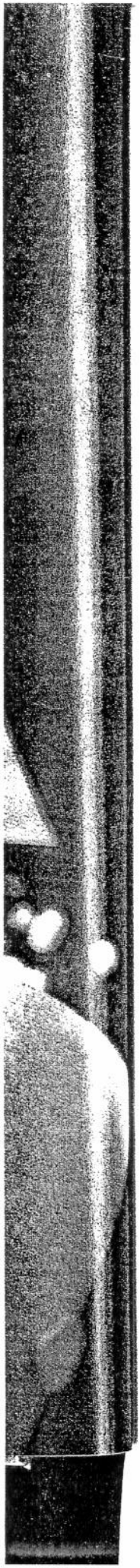
*Hippocrates 460 B.C. *

16 Best ...

1. Look at the pictures On the reverse side are the nutrients in them.

2. Color the ones you eat regularly

3. Write down at least (1) vitamin or phytochemical in each and tell what it does.



whole grains

The nutritious germ and bran layers of a whole grain are packed with phytochemicals and insoluble fiber. Whole grains—barley, oats, rye, and wheat—are linked to a lower risk for cancer, cardiovascular disease, and diabetes.

what's in it

beta-glucan Experts believe that about 1 to 1½ cups of cooked oatmeal or about 1 cup of cooked oat bran, both rich in soluble beta-glucan fiber, may help to reduce total cholesterol by as much as 5%. Barley also has beta-glucan fiber.

complex carbohydrates These substances may be why one study found that 1 cup of barley improved memory function in healthy elderly adults. Indigestible oligosaccharide carbohydrates may help prevent cancer, cardiovascular disease, and diabetes.

flavonoids These antioxidant compounds in the bran and germ may help to prevent cancer, diabetes, heart disease, and vision loss.

gluten A protein found in barley, oats, rye, and wheat, gluten is not recommended for people with celiac disease.

lignans Estrogenlike substances found in the bran and germ layers, lignans may lower cholesterol and help inhibit the damaging effects of estrogen, protecting against breast cancer.

phytic acids These compounds may protect against free-radical cell damage and may slow starch digestion, thus helping to stabilize blood-sugar levels.

plant sterols These substances may help reduce total and LDL ("bad") cholesterol by binding it in the digestive tract.

saponins Oats are an especially good source of these substances, which may bind cholesterol and interfere with cancer growth.

selenium Barley is an outstanding source of this antioxidant mineral, which partners with vitamin E to fight damaging free radicals. (A half cup of barley provides 38mcg of selenium, which is 54% of the Daily Value.)

vitamin E This antioxidant may help to prevent cancer, heart disease, skin disorders, and vision loss. Wheat germ is an exceptionally concentrated source. (Just a quarter cup provides about 25% of the Daily Value.)

maximizing the benefits

Cook these grains in a minimum of water and only until tender; overcooking will diminish the nutrient content.

add more to your diet

- Cook cracked wheat or soften bulgur (precooked cracked wheat) in boiling water. Use in salads, pilafs, stuffings, soup, salads; or add to a meatloaf as a meat extender.
- Cook whole wheatberries or rye berries until soft, and fold into homemade whole-wheat bread dough.
- Substitute barley for rice in a rice pudding recipe (the cooking times will be longer for barley).
- Toast oat groats (this brings out flavor), then grind them to make a flour. Use the toasted oat flour to make cookies and cakes.
- Coat fish fillets or chicken cutlets in egg whites, dip into wheat germ, and sauté until crisp and cooked through.
- Cook old-fashioned rolled oats until soft, then puree. Use to replace some of the oil in salad dressings.
- Add wheat germ to homemade pizza doughs and savory pie doughs.

tomatoes

Heartily indulge in phytochemical-rich tomatoes (as well as tomato products), because the nutrients in this vegetable seem to work in concert to protect against cancer (particularly prostate cancer), clogged arteries, and skin ailments.

add more to your diet

- Cook fresh tomatoes with sugar, cinnamon, and orange zest for a sweet and savory jam.
- Combine tomato juice and carrot juice and chill. Serve as a refreshing summer soup garnished with chopped tomatoes and a dollop of yogurt.
- To give a nutritional boost to savory soups, replace half of the water with tomato or tomato-vegetable juice.
- Make a quick sauce for pasta salad: Combine tomato paste, tomato juice, olive oil, balsamic vinegar, and chopped fresh basil, mint, or parsley.
- Brush bread with olive oil and garlic, top with tomato paste and broil. Top with chopped fresh tomatoes.

what's in it

beta-carotene This bioactive pigment may help to prevent acne, certain forms of cancer (stomach, pancreas), and vision loss.

caffeic and ferulic acid These anticancer chemicals may help enhance the production of the body's cancer-fighting enzymes.

chlorogenic acid Found in greatest amounts in freshly picked tomatoes, this compound may be cancer-protective by inhibiting environmental toxins such as nitrosamines in cigarette smoke.

lutein and zeaxanthin These carotenoids present in tomatoes may team up to help prevent vision loss and possibly cancer.

lycopene Abundant in red tomatoes, this pigment may be a stronger antioxidant than beta-carotene and may prevent cell damage that leads to heart attacks and cancer. One study found that men who consumed lycopene-rich diets cut their heart attack risk in half, and several studies indicate lycopene may protect against prostate cancer. Tomato juice is a particularly concentrated source of lycopene.

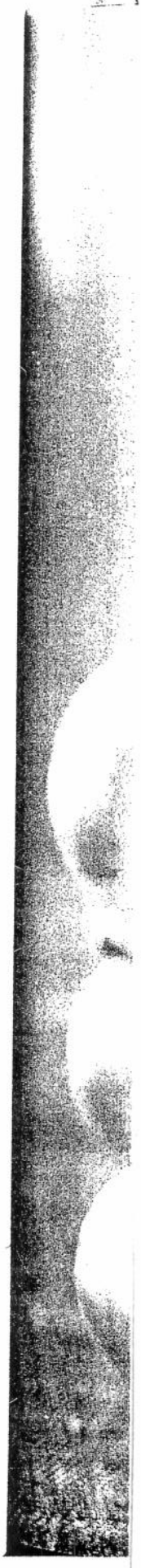
vitamin C Present mainly in the jellylike substance around tomato seeds, vitamin C may protect against heart disease, respiratory infections, skin cancer, and vision loss.

maximizing the benefits

Lycopene is best absorbed from concentrated forms of tomatoes, such as tomato paste, juice, ketchup, sauce, and soup. The more concentrated the tomato source, the more concentrated the lycopene. Heat and oil enhance absorption of lycopene and **beta-carotene,** though some **vitamin C** is lost.

health bites

Lycopene-rich food may protect against prostate cancer. In a six-year study of 48,000 men who consumed 10 or more servings (1 cup of tomato juice is a serving) per week of tomato products, participants experienced a 45% reduction in prostate cancer.



garlic

The medicinal application of garlic goes back as far as 1500 B.C., when the ancient Egyptians recommended it for a host of ailments, including heart disease, wounds, tumors, parasites, and headaches—some of the benefits modern science has also attributed to garlic.

what's in it

ajoenes Ajoenes may be responsible for garlic's antithrombotic (anticlotting) actions, and possibly may have antifungal activity.

allicin Allicin has antibacterial properties (it is also responsible for garlic's pungent smell) and is released when garlic is crushed or cut, producing numerous sulfur compounds.

allyl sulfides Believed to inhibit tumor growth, these sulfur compounds block the damaging effects of carcinogens and promote cancer cell apoptosis (cell death).

sulfur compounds These compounds, including ajoenes and allyl sulfides, may possess anticarcinogenic, anticlotting, antifungal, and antioxidant effects. Sulfur compounds also promote the activity of glutathione, a substance that may inhibit carcinogens.

maximizing the benefits

To activate garlic's full nutritional power, after chopping or crushing it, let the garlic stand for 10 minutes before cooking it. The brief standing period allows allicin and its potent derivatives to be activated.

add more to your diet

- Finely mince several cloves of garlic and stir into reduced-fat sour cream. Serve as a dip for crudités.
- Roast whole, unpeeled cloves of garlic in olive oil. The garlic will get soft and creamy and can be spread on bread.
- Make a garlic-walnut sauce for pasta: Combine equal amounts of peeled garlic cloves and walnuts, a little olive oil, and fresh lemon juice, and puree until smooth. Toss with hot pasta.
- For appetizer nuts: Mince garlic, sauté in olive oil, and toss with toasted walnuts and almonds. Sprinkle with a bit of salt.
- In a blender, puree garlic, yogurt, and fresh cilantro for a savory drink.
- Chop garlic and stir into bread, biscuit, or savory pie doughs. Or try it in corn muffins, and serve with savory soups and stews.

health bites

What's all the stink about? When garlic is digested, a portion of the sulfur compounds enters the bloodstream and is subsequently exhaled from the lungs or eliminated through the pores when we sweat. This is the price we pay to reap the benefits of the "stinking rose." And since the human nose can detect less than one part of these sulfur compounds in one billion parts of exhaled air, it's no wonder that garlic breath is so noticeable. Eating parsley might help to reduce these unpleasant odors, possibly because of its chlorophyll.

citrus fruits

Far from lightweights when it comes to nutritional power, citrus fruits have an abundance of vitamin C, potassium, pectin, and phytochemicals that may benefit numerous conditions, including allergies, asthma, cancer, cataracts, heart disease, stroke, and the common cold.

add more to your diet

- After juicing citrus fruits, pop the empty "shells" into the freezer and you'll have zest when a recipe calls for it.
- Combine orange or tangerine juice with seltzer for a healthy soda.
- Add grated orange or lemon zest to tea bread and cookie recipes.
- Substitute citrus juice for vinegar in your favorite salad dressing.
- Stir a healthy amount of lemon juice and honey into tea for a soothing drink.
- Add orange, tangerine, or grapefruit segments to a green salad.
- Sprinkle grapefruit halves with brown sugar and broil for a quick dessert.
- For a tropical fruit salad: Toss sliced bananas, strawberries, kiwifruit, and mango in orange juice.

what's in it

beta-cryptoxanthin A carotenoid in oranges and tangerines, beta-cryptoxanthin may help prevent colon cancer.

hesperidin This flavonoid is found in the zest (the thin, colored portion of the citrus peel) of oranges. Hesperidin may have anti-inflammatory and cholesterol-lowering effects.

limonene Found mainly in the zest of lemons, limes, and tangerines, limonene may help prevent cancer.

naringin A flavonoid found in white grapefruit, this compound may protect the lungs against environmental toxins such as air pollution and cigarette smoke.

nobiletin This flavonoid, found in the flesh of oranges, may have anti-inflammatory actions.

folate This B vitamin is instrumental in the prevention of certain birth defects, and may also play a role in battling heart disease.

tangeretin This flavonoid, found in tangerines, has been linked in experimental studies to a reduced growth of tumor cells.

maximizing the benefits

Don't spend too much time removing the pith (the spongy white layer between the zest and the pulp), because a good amount of the fiber and phytochemicals, particularly the flavonoids, are found both in the pulp and the pith. Freshly squeezed citrus juice also has more nutrients than frozen or bottled juices.

health bites

In something known as "the grapefruit effect," compounds in grapefruit juice can increase blood levels of certain drugs, leading to dangerous side effects. If you are taking medication, it would be prudent to ask your physician if you should be avoiding grapefruit juice.

onion family

All members of the onion family—onions, chives, leeks, scallions, and shallots—are noted for their powerful phytochemicals and healthful fiber, which may protect against cancer, cardiovascular disease, and constipation.

add more to your diet

- Cook sliced red onions in olive oil over low heat with a sprinkling of sugar until the onions are very tender, sweet, and golden brown. Use as an accompaniment to meat, fish, or poultry, or as a sandwich relish.
- Stuff large, cored red onions with a seasoned rice mixture and bake as you would stuffed peppers.
- Make an onion pizza: Omit the tomato sauce and top a pizza shell with grated cheese and cooked onions and scallions.
- Add cooked onions, scallions, or cooked diced leeks, along with chopped dill, to homemade bread doughs.
- Stir sautéed leeks and scallions into mashed potatoes.
- Make a salad dressing: Cook chopped onions until meltingly tender, then steep in vinegar. Whisk olive oil into the onion mixture to make a vinaigrette.
- Core apples, stuff with cooked red onions, and bake until tender. Serve as a side dish with meat or poultry.

what's in it

diallyl sulfide Most abundant in onions but also found in other members of the onion family, this cancer-protective phytochemical appears to increase levels of cancer-fighting enzymes, particularly in the stomach. In Vidalia, Georgia, where large amounts of onions are consumed, the death rate from stomach cancer is significantly reduced, and diallyl sulfide intake is thought to be a factor.

fiber The onion family is a source of both insoluble and soluble fiber, which may confer protection against constipation, hemorrhoids, high cholesterol, and possibly weight gain.

fructooligosaccharides (FOS) Shallots are a significant source of FOS, the indigestible carbohydrates that encourage growth of beneficial bacteria in the colon.

kaempferol This anticancer substance, found in leeks, may help to block the development of cancer-causing compounds.

lutein and zeaxanthin Present in the green tops of leeks and scallions, these pigments work together to help prevent cell damage that may lead to vision loss and cancer.

quercetin Found in red onions, this antioxidant has shown promise (in laboratory studies) in inhibiting growth of breast, blood, and skin-cancer cells and in helping prevent cardiovascular disease.

maximizing the benefits

High-heat cooking significantly reduces the benefits of **diallyl sulfide.** Fresh, raw onion has the most health benefits, and mincing (even chewing) the onion helps to release the phytochemical power.

health bites

Population-based studies have found a significantly reduced risk for lung cancer among people who eat quercetin-rich foods, such as red onions. Studies also show that quercetin is better and more efficiently absorbed from onions than from other foods.

berries

Tiny powerhouses of nutrition, berries are bursting with healthy compounds, including folate, fiber, and phytochemicals, which may help improve memory and reduce the risk for developing heart disease and cancer.

add more to your diet

- Do as the Italians do, and stir strawberries into savory rice dishes, such as pilaf or risotto. Stir in chopped strawberries just before serving.
- Make your own cranberry sauce and use it in place of jam.
- Add berries to tossed green salads. Or make an all-berry salad and dress it with a lemon vinaigrette.
- Add fresh or frozen cranberries to soups and stews.
- Make a quick dessert "pizza": Spread sweetened ricotta cheese over a flour tortilla, spoon berries on top, and bake in a 400°F oven for 10 minutes, just until hot.
- Use berries as the basis of spicy salsas, chutneys, or relishes.

what's in it

anthocyanins These natural plant pigments in berries function as powerful antioxidants, which sweep out harmful free-radical molecules, preventing them from wreaking havoc on your body.

ellagic acid Ellagic acid is believed to be effective in neutralizing carcinogenic agents. Blackberries, raspberries, and strawberries appear to be particularly good sources of this compound.

kaempferol A flavonoid found in berries, kaempferol is believed to inactivate carcinogens. Kaempferol may also help to reduce LDL ("bad") cholesterol.

quercetin This well-studied flavonoid is thought to play numerous roles, including the ability to protect against heart disease, cancer, and possibly cataracts; it may also alleviate symptoms of allergies and asthma.

tannins Tannins (also known as proanthocyanidins) in cranberries may prevent bacteria from attaching to the urinary tract. How they do this is currently under investigation. Blackberries are also rich in tannins.

vitamin C Among other functions, this important vitamin helps to strengthen the immune system and protect connective tissue. Strawberries and cranberries are good sources of vitamin C.

maximizing the benefits

Cooking does not seem to destroy **ellagic acid** in berries. However, it will destroy some of their **folate** and **vitamin C**.

health bites

Animal studies conducted at Tufts University show that blueberries help to prevent and also reverse age-related memory loss. Though the specific substance in blueberries has not yet been identified, scientists speculate that the overall antioxidant power of the fruit protects brain cells from free-radical harm.

melons

The subtle scent of these fragrant fruits belies the muscularity of their nutritional powers. Melons—from cantaloupe to watermelon—may help prevent acne, cardiovascular disease, certain cancers, respiratory illness, and vision loss.

what's in it

beta-carotene Because of its orange hue, cantaloupe is the best melon source of this healthful orange-yellow pigment, which may protect against acne, certain forms of cancer, and vision loss. (One cup has 3mg of beta-carotene, 38% of the day's supply.)

lycopene Studies link a lycopene-rich diet with a low risk for heart disease and cancer, particularly prostate cancer. One cup of watermelon is a particularly good source of this antioxidant pigment, which lends reddish color to watermelon flesh.

pectin The soluble pectin fiber in melons (about 0.4g per cup) helps to lower cholesterol.

potassium Cantaloupe and honeydew are especially good melon sources of this vital mineral, which is linked to lower blood pressure and a reduced incidence of heart disease and stroke. (One cup of these melons has about 360mg, or 12% of the Daily Value.)

vitamin C Melon is a good source of this antioxidant vitamin, which may enhance the immune system and may be beneficial for respiratory infections. Cantaloupe and honeydew are particularly high, with an average of 50mg per cup.

zeaxanthin A vital component in the retina of the eye, this carotenoid helps to shield against damaging ultraviolet radiation, protecting against vision loss. Honeydew is the best melon source of zeaxanthin.

add more to your diet

- Serve watermelon wedges with slices of feta cheese.
- Puree honeydew with fresh lime juice, honey, and mint, and chill. Serve as a dessert soup.
- Make a salad with cut-up plum tomatoes, cantaloupe, and cubes of mozzarella cheese, and toss with a balsamic vinaigrette.
- Freeze chunks of assorted melon, then puree to make a sorbet.
- Make a fresh melon salsa with cantaloupe or honeydew, chopped fresh basil, lemon or lime juice, and pickled jalapeños. Serve with fish or chicken.
- Add small chunks of cantaloupe to tomato sauces.
- Garnish hot tomato soup with a chilled, diced cantaloupe or honeydew.

maximizing the benefits

To best preserve nutrient content, buy melons whole (some markets offer halves, quarters, or cubes). Certain nutrients, especially **vitamin C,** are diminished by exposure to the air.

health bites

An excellent choice for weight loss, these nutrient-dense (and water-dense) fruits average 50 calories and 0.5 grams of fat per cup of cubes and provide ample fiber and just enough sweetness to satisfy the appetite.

spinach

Popeye's favorite food is not a great source of iron, but it *does* have a tremendous wealth of disease-fighting carotenoids and phytochemicals that team up with vitamins to help protect against cancer, high cholesterol, and vision loss.

add more to your diet

- For a quick soup, puree steamed spinach with garlic and yogurt and top with scallions.
- Steam spinach, then puree with parsley and lemon juice, and use as a sauce for chicken or pasta.
- Steam spinach with mint and thinly sliced scallions, and stir into mashed potatoes.
- Make a spinach pesto: Puree raw spinach with almonds, garlic, olive oil, and Parmesan cheese. Toss with pasta and chickpeas.
- Make a spinach salad dressing: Steam spinach and puree along with parsley, basil, and garlic. Whisk in olive oil and lemon juice.

what's in it

beta-carotene A half cup of cooked spinach provides 4.4mg, which is close to a full day's supply of this antioxidant. Beta-carotene may help to protect against cancer and macular degeneration.

folate Two cups of raw spinach provide 116mcg of folate, almost a third of your daily requirement for this B vitamin, which helps protect against anemia, birth defects, and possibly heart attacks.

lutein and zeaxanthin Spinach is a rich source of these two carotenoids, which may work together to help prevent macular degeneration and possibly cataracts and colon cancer.

oxalates Oxalates inhibit absorption of calcium and iron from spinach. Spinach and other foods high in oxalates are not recommended for people with gout and certain types of kidney stones.

plant sterols Researchers believe these plant substances may help to prevent cancer and high cholesterol.

vitamin C This antioxidant vitamin may help to prevent macular degeneration, osteoarthritis, and stroke.

maximizing the benefits

Serve spinach either raw or cooked, but avoid overcooking. To preserve loss of water-soluble **B vitamins,** steam or stir-fry spinach. Cooking helps to convert **protein, lutein,** and **beta-carotene** in spinach into more bioavailable forms. To enhance **carotenoid** absorption, eat spinach with some heart-healthy fat.

health bites

Phylloquinone is the most common form of vitamin K found in green vegetables and is particularly high in dark greens, such as spinach. Vitamin K is necessary for proper blood clotting and possibly may play a role in preserving bone health. However, if you are on blood-thinning medications, consult with your physician before consuming vegetables high in vitamin K. High amounts may interfere with the anticlotting action of the medication.

beans

A nourishing and hearty source of non-animal protein, beans may help reduce LDL ("bad") cholesterol levels, stabilize blood sugar, and help control weight. They may also prevent certain types of birth defects and cancer.

add more to your diet

- You don't have to rely on canned beans (which are usually very high in sodium) for convenience. Just plan ahead a bit: Cook up a big batch of beans, then freeze in small batches.
- Puree cooked beans with herbs and spices and use as a topping for pizza in place of tomato sauce.
- Make a pasta sauce by pureeing cooked beans and garlic with broth and herbs, such as oregano or cumin.
- Instead of mayonnaise, make a sandwich spread of pureed beans, lemon juice, and some tomato paste.
- Puree cooked white beans and use them in place of pumpkin puree in a pumpkin pie.
- Use seasoned bean puree as a filling for deviled eggs or stuffed mushrooms.

what's in it

complex carbohydrates By making you feel full more quickly, beans are a perfect food for people who are trying to control weight. Complex carbohydrates in beans also make them a great choice for people who want steady, slow-burning energy.

folate Essential for proper development of the fetus, folate also helps reduce risk for heart disease by lowering homocysteine, an amino acid linked to the development of the condition.

insoluble fiber Beans are high in this beneficial fiber (1 cup of cooked beans has nearly 8g), which helps to prevent constipation by moving food through your system more quickly.

lignans Lignans are under review for cardioprotective and anti-cancer benefits, especially for prostate and breast cancer.

protease inhibitors Protease inhibitors are being investigated for their potential to stop normal cells from becoming cancerous.

saponins These compounds may prevent cancer cells from multiplying, and they may also lower LDL cholesterol.

soluble fiber An important factor in lowering LDL cholesterol, soluble fiber may reduce heart disease risk. Fiber in beans also helps reduce blood-glucose levels, making this food a good choice for those with diabetes.

maximizing the benefits

The gas-causing culprits in beans are carbohydrates called oligosaccharides. Some theories suggest that presoaking beans, and then discarding the soaking water before cooking them, will get rid of some of the oligosaccharides..

health bites

A serving of beans will satisfy your appetite more than most foods. The rich fiber content fills your stomach and causes a slower rise in blood sugar, staving off hunger for longer and providing a steady supply of energy.

nuts

Energy-packed and protein-rich, nuts may also lower the risk for cancer and cardiovascular disease. In addition to the nutrients listed below, nuts are an excellent source of the cardio-protective amino acid, arginine, and also offer B vitamins.

what's in it

alpha-linolenic acid (ALA) Found in walnuts, this omega-3 fat may alleviate arthritis and lower risk for heart attack and stroke.

ellagic acid Walnuts are an especially good source of this antioxidant compound, which may inhibit the growth of cancer cells.

plant sterols Especially rich in pistachios, plant sterols help defend against certain forms of cancer and cardiovascular disease.

potassium High in pistachios (1 ounce provides 10% of the Daily Value), potassium may lower blood pressure and stroke risk.

resveratrol Found in peanuts, this phytochemical may prevent cancer, high cholesterol, and stroke.

saponins These cancer-fighting phytochemicals may boost immunity and promote healthy levels of blood sugar and cholesterol.

selenium Brazil nuts are extraordinarily rich sources of this powerful antioxidant, which helps to prevent cancer, certain eye disorders, and heart disease. (A half ounce of Brazil nuts has 420mcg, or about 600% of the Daily Value.)

vitamin E Nuts are one of the best food sources of this antioxidant vitamin, which may help prevent cardiovascular disease and cataracts. (Almonds and hazelnuts contain the most, with 34% of the Daily Value per ounce.)

add more to your diet

- Sauté finely chopped nuts in olive oil along with bread crumbs and toss with freshly cooked pasta.
- Make your own nut butters: Place nuts in a food processor and process until pureed; add salt if you like.
- Toast and finely chop nuts, sweeten with maple syrup, and use as a topping for ice cream or frozen yogurt.
- Stir peanut butter into stews or curries to help enrich and add flavor.
- Use finely chopped nuts as a coating for pan-fried fish fillets or poultry cutlets.

maximizing the benefits

Refrigerate or freeze nuts to prevent their oils from going rancid. To enhance the flavor of nuts, toast them in the oven for 5 to 10 minutes, or until fragrant.

health bites

Often maligned for their fat and calorie content, nuts have been redeemed by research, which touts their phytochemicals and heart-healthy monounsaturated fat. Studies show that when nuts are eaten in place of unhealthy saturated and trans fats, cholesterol levels improve and the risk for clogged arteries is slashed.

fatty fish

High in omega-3 fatty acids, fatty fish—salmon, fresh tuna, herring, mackerel, sardines, and lake trout—are important heart-healthy sources of protein, vitamins, and minerals. Fish enhance health in impressive ways.

what's in it

iron Mackerel and sardines are a good source of this vital mineral, which provides oxygen to blood and prevents anemia.

niacin Fish contain this B vitamin, which helps to release energy from carbohydrates.

omega-3 fatty acids Two main omega-3 fatty acids in fish, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), are linked to the prevention of asthma, depression, heart disease, high blood pressure, psoriasis, and rheumatoid arthritis.

protein Without the harmful saturated fat found in other high-protein foods, fish is an excellent source of quality protein.

tyrosine This amino acid is involved with the synthesis of neurotransmitters in the brain and may promote mental health.

vitamin B_6 Fish are a decent source of this vitamin, which may help to maintain a healthy immune system and improve mood.

vitamin B_{12} Salmon, mackerel, and fresh tuna are good sources of this vitamin, which is required for healthy blood cells. It also helps the central nervous system to function properly.

vitamin D This bone-healthy vitamin is found in only a few foods, and salmon and mackerel are top sources.

add more to your diet

- Chop pickled herring and toss with chopped walnuts, beets, diced apples, and a lemon vinaigrette.
- Puree canned tuna with cooked white beans and lemon juice and use as a sandwich spread.
- Poach fresh salmon, flake, and fold into reduced-fat sour cream along with capers and dill. Serve on crisp toasts or thick cucumber slices.
- Mash canned sardines into mashed potatoes. Shape into patties and broil.
- Puree tuna along with plain nonfat yogurt, a little mayonnaise, and fresh lemon juice and use as a sauce for cold poached chicken.
- Make fresh fish salads using citrus segments and/or citrus vinaigrettes.

maximizing the benefits

It is best to cook fish, since the heat will destroy parasites and potentially harmful microorganisms in raw fish. Canned **salmon** and **sardines,** with the bones, are a good source of calcium.

health bites

Fish are so beneficial for cardiovascular health that the American Heart Association recommends eating two 6-ounce servings of fatty fish weekly to help lower the risk for death from heart disease.

broccoli

One of the most studied of vegetables, broccoli's impressive status as a super-food is the result of its high level of phytochemicals and their potential to mobilize the body's natural disease-fighting resources.

add more to your diet

- Many recipes call for broccoli florets, but the stalks are delicious, too. With a paring knife, peel the stalks, then thinly slice crosswise.
- Puree cooked broccoli along with milk and seasonings, and serve as a soup. Top with grated Parmesan, if you like.
- Combine chopped, cooked broccoli and softened cream cheese and spread on flour tortillas or lavash bread. Top with sliced turkey and roll up.
- Puree cooked broccoli along with olive oil, garlic, and crushed red pepper flakes and use as a sauce for pasta.
- Make a broccoli slaw: Shred raw broccoli, toss with shredded carrots, and season as you would a coleslaw.

what's in it

beta-carotene This powerful antioxidant may help to neutralize cell-damaging free-radical molecules.

calcium Broccoli is a good nonfat, nondairy source of this bone-nourishing mineral.

dithiolethiones These anticancer agents may help to stimulate the antioxidant glutathione, a cancer-protective compound.

folate This B vitamin may help to reduce the incidence of cancer and certain birth defects. It may also help to control levels of homocysteine, an amino acid linked to heart disease. (One cup of cooked broccoli has 78mcg of folate, about 20% of the Daily Value.)

glucosinolates Once ingested, the glucosinolates in broccoli break down into various healthful compounds, including indoles, sulforaphane, and isothiocyanates, all of which may be cancer-fighters.

indoles These compounds are thought to provide protection against hormone-related cancers, such as breast and prostate cancers.

insoluble fiber This type of fiber helps food move faster and with greater bulk through the digestive tract, promoting regularity.

isothiocyanates By stimulating the body's production of its own cancer-fighting enzymes, isothiocyanates may neutralize potential cancer-causing substances. These phytochemicals also may combat carcinogens in smoke.

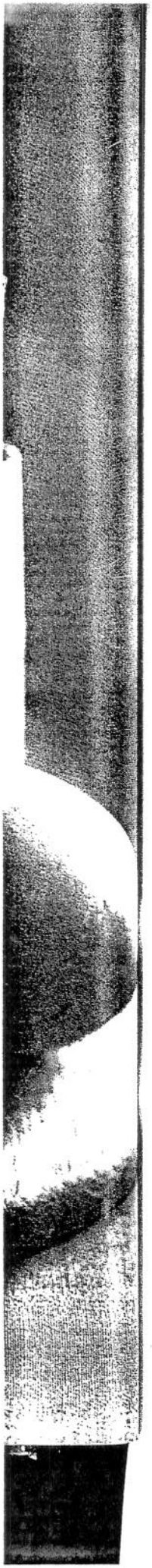
lutein This carotenoid may prevent colon cancer and certain eye diseases.

potassium Broccoli is a rich source of this mineral, which may help lower the risk for stroke and high blood pressure. (One cup of cooked broccoli has 456mg of potassium, or 15% of the Daily Value.)

sulforaphane This powerful phytochemical may increase the activity of cancer-fighting enzymes in the body, as well as reduce tumor formation.

maximizing the benefits

Cooking broccoli with a lot of water can diminish broccoli's **glucosinolates, folate,** and **vitamin C.** Steam, microwave, or stir-fry it instead.



sweet potatoes

Vibrantly colored with carotenoids and filled with fiber, sweet potatoes are one of the most nutrient-dense vegetables. These roots may help prevent cancer, degenerative eye disease, depression, and heart disease.

what's in it

beta-carotene Sweet potatoes are an exceptionally rich source of this plant pigment (one sweet potato has 187% of the recommended intake for beta-carotene). Beta-carotene may help to prevent certain cancers (stomach, pancreas, mouth, and gums) and macular degeneration.

caffeic acid This phenolic compound shows promise in fighting cancer and the AIDS virus.

chlorogenic acid Preliminary studies suggest this anticancer phytochemical may help detoxify harmful carcinogens and viruses.

insoluble fiber When eaten with its skin, a sweet potato is an excellent source of insoluble fiber, which may help to prevent constipation, diverticulosis, hemorrhoids, and weight gain. (A medium sweet potato provides over 2g of insoluble fiber.)

lutein and zeaxanthin These two carotenoid pigments lend bright orange color to sweet potatoes and may help to protect against atherosclerosis, certain types of cancer, and eye diseases.

pectin About half of the fiber in sweet potatoes is soluble pectin fiber, which may control cholesterol.

plant sterols These cholesterol-lowering compounds may reduce cancer risk by binding carcinogenic agents in the digestive tract.

potassium This heart-healthy mineral, found in abundance in sweet potatoes (397mg per potato), is associated with lower blood pressure and a lowered risk for heart disease, kidney stones, and stroke.

vitamin B_6 Sweet potatoes provide good amounts of B_6, which may help to prevent heart disease, stroke, depression, and insomnia.

vitamin C Plentiful in sweet potatoes, vitamin C may help to bolster immunity and wound healing, as well as prevent degenerative eye conditions.

maximizing the benefits

Eat sweet potatoes with their skin to get more **beta-carotene** and **fiber.** Baking or broiling enhances beta-carotene and sweetens the potato as its starches turn to sugar.

add more to your diet

- Mash sweet potatoes with maple syrup for an unusual dessert.
- Make sweet potato chips: Thinly slice sweet potatoes, drizzle with olive oil, and bake in a 400°F oven until tender.
- For a twist on mashed potatoes, use half sweet potatoes and half regular all-purpose potatoes.
- Add slices of cooked sweet potatoes to savory sandwiches.
- Mash cooked sweet potatoes with grated Parmesan cheese and use in place of half the cheese in lasagna.
- Substitute mashed sweet potatoes for pumpkin in pies.
- Shred raw sweet potatoes and use in place of shredded carrots in cakes, muffins, and tea breads.
- Make a sweet potato salad: Cook sweet potatoes and while the potatoes are still warm, peel and cut into chunks. Toss in a dressing of lime juice, olive oil, minced scallions, curry powder, and salt.

dairy

Packed with nourishing minerals, vitamins, and protein, low-fat dairy products (milk, cheese, and yogurt) and eggs may help provide protection against osteoporosis, insomnia, and headaches and may also boost the immune system.

add more to your diet

- Whenever possible, opt for high-flavor, low-fat cheeses such as Parmesan, feta, or goat cheese: A little will go a long way.
- Use buttermilk to make a salad dressing: Whisk mustard and just a touch of oil into buttermilk.
- Try making your own flavored yogurt cheese: Place plain yogurt in a fine-meshed sieve set over a bowl. Refrigerate for at least 8 hours or overnight until quite thick. Fold in either sweet or savory flavorings, such as jams, fruit purees, roasted garlic, or herbs.
- Marinate chicken breasts in a mixture of yogurt, cumin, coriander, and curry powder. Bake in the marinade.
- Substitute yogurt for all or part of the mayonnaise in a potato salad.
- Mash potatoes with yogurt, buttermilk, or a little reduced-fat sour cream instead of butter.

what's in it

probiotics Probiotics are beneficial bacteria (friendly flora) found in active-culture yogurts, kefir (a fermented milk product), and acidophilus milk. Probiotics may help to improve immune function and prevent and manage yeast infections.

calcium This bone-preserving mineral is vital for all people at all stages of life. Inadequate intake of calcium can result in osteoporosis, a dangerous bone-thinning disease that can lead to fractures and spinal deformities.

lysine Preliminary studies suggest that foods high in this amino acid—including eggs, cheese, and milk—may help to reduce the severity of cold sores.

phosphorus Instrumental in forming bones and teeth, phosphorous also builds muscle and is important for metabolic activity.

potassium This mineral is linked to a reduction of blood pressure and risk for stroke.

riboflavin This B vitamin releases energy, maintains healthy red blood cells, helps create hormones, and may help prevent migraines.

tryptophan Drinking a warm glass of milk before you go to bed may help to prevent insomnia because tryptophan, an amino acid in milk and other dairy foods, is converted into serotonin, which promotes a relaxed mood. Note that eating foods rich in complex carbohydrates (pasta, beans, rice) can help to enhance proper absorption of tryptophan.

vitamin B_{12} Dairy foods and eggs are good sources of this vitamin, which is essential for neurological function and red blood cell formation.

vitamin D Most milk in the United States is fortified with vitamin D, which enhances absorption of calcium, helping to prevent osteoporosis and bone fractures. Egg yolks are one of the few natural sources of vitamin D. Generally, cheeses and most yogurts are not fortified with this important vitamin.

maximizing the benefits

To reap the most benefits from the **probiotics** in yogurt, be sure to check that the yogurt contains "active" or "live" cultures.

grapes

Nature's jewels, grapes contain phytochemicals that may help to reduce risk for heart disease, cancer, and strokes. Studies also indicate that in addition to grapes, [redacted], grape juice, and raisins are also rich in disease-fighting compounds.

add more to your diet

- Stir halved seedless grapes into chicken, beef, or fish stews.
- Chop red grapes and combine with honey, fresh lemon juice, chopped red onion, and minced parsley, and use as a relish for meat or poultry.
- Cook dried fruits such as apricots and raisins in purple grape juice until tender, then puree and use as an all-fruit spread.
- Prepare hot mulled grape juice or wine: Add cinnamon sticks, whole cloves, allspice berries, and whole black peppercorns to grape juice and cook over low heat until warm and fragrant.
- Finely chop grapes and toasted walnuts, stir into Neufchâtel cream cheese, and spread over flour tortillas. Add watercress and sliced turkey or chicken and roll up for a sandwich wrap.

what's in it

anthocyanins Laboratory studies suggest that these pigments in red and purple grapes may suppress the growth of tumor cells.

ellagic acid This phenolic acid in grapes (and other berries) is thought to protect the lungs against environmental toxins.

flavonoids Grapes contain high levels of these heart-healthy antioxidant pigments, which may have the ability to prevent blood from clotting. Both red and purple grape juice are rich in flavonoids, which may help to prevent LDL ("bad") cholesterol from attaching to artery walls and creating blockages that can lead to heart attacks.

pectin This soluble fiber may help to lower LDL cholesterol.

quercetin A flavonoid linked to a reduced risk for cancer development, quercetin may also reduce clotting in blood vessels, and offer relief to people with respiratory ailments.

resveratrol This phytochemical, found in the skin of grapes, has been linked to the ability to fight cancer. It is also being studied for cholesterol-lowering effects and its ability to help prevent strokes.

maximizing the benefits

To reap the full benefits of grapes, it is best to select red or purple varieties, which seem to contain the highest concentrations of healthful compounds.

health bites

Though the French eat a high-fat diet, they have a low incidence of heart disease, a phenomenon called the "French Paradox." The conjecture is that flavonoids in red wine may protect against damage to arteries. The same heart-healthy benefits may also apply to unfermented grape juice: A recent study showed that consuming 10 to 12 ounces of purple grape juice a day could substantially reduce the risk for heart disease.