

## Chapter 3

# *Nutrition*

*A healthy diet teamed up with regular exercise and no smoking can eliminate 80 percent of heart disease and 70 percent of some cancers.*

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### THE ROLE OF NUTRITION IN WELLNESS

From detoxification we move forward into nutrition, the second of the four pillars of wellness. Exercise and mind-body health, which we'll discuss in the next two chapters, are the other primary factors that can directly enhance your health and longevity.

The quality and quantity of scientific information on diet and health has grown enormously over the last two decades. Most doctors have had little or no training in nutrition in medical school, and only recently have medical students been exposed to evidence of the vital role that nutrition plays in our health. Other than the oxygen you inhale, the only other source of healthy input for your body comes from what you eat and drink.

When we talk about nutrition, we are including *macronutrients* (protein, carbohydrates, and fats) and *micronutrients* (vitamins and minerals). Both types of nutrients—and water, of course—are essential for life and health. Let's begin by taking a brief look at each of these elements of nutrition.

### Macronutrients

#### *Protein*

The word protein comes from the Greek *proteios*, meaning primary. Our bodies are composed chiefly of protein; specifically twenty-two amino acids that are required to build all the proteins necessary for humans. Of these, fourteen can be produced by the body (nonessential) while eight (essential) must be obtained from food. A food source in which all eight essential amino acids are present is called a complete protein and includes cheese, eggs, fish, meat, (organic) milk,

nuts, poultry, soybeans, and yogurt. In this chapter, you'll learn why protein is the most neglected nutrient and why it should compose up to 30 percent of the calories you ingest each day.

### ***Carbohydrates***

Carbohydrates are the most common source of energy in the diet. However, not all carbohydrates are created equally. There is a significant difference between *unrefined* (healthy) carbohydrates, such as fruits, vegetables, and whole grains, and *refined* (unhealthy) carbohydrates, such as bleached flour, white rice, and sugar. Refined carbohydrates generally rank on the high end of the glycemic index (see Appendix C), which signals rapid spikes in blood sugar and insulin levels, followed by an equally precipitous decline, and leading to rebound cravings for even more carbs.

A significant number of people have, or develop, an exaggerated insulin response to refined carbohydrates. Many researchers believe this vicious cycle is responsible for much of today's epidemic of obesity and cardiovascular disease in the United States. Whenever possible, select foods with a lower glycemic index to avert the refined carbohydrate trap and preserve the health of your insulin receptors. In this chapter, we'll show you how to team up healthy unrefined carbohydrates with fat and protein to blunt your appetite, manage your weight, and enhance health.

### ***Fats***

Fats contain twice the energy of proteins and carbohydrates per unit weight and are essential for proper nutrition. Fatty acids are the building blocks of fat and come in three types: saturated, monounsaturated, and polyunsaturated.

The problem with fat is not that we eat it at all, but that we eat too much of the wrong kind. Where we get into trouble with fats is through the process known as hydrogenation. Partially hydrogenated fats start life as polyunsaturated oils, which are then hardened into solid fats, such as margarine and shortening, when hydrogen is bubbled into them. The end result is stable fats with a long shelf life, which is why these are the fats you see on the labels of most packaged baked goods, cookies, crackers, french fries, frozen convenience foods, microwave popcorn, pancake mixes, salad dressings, and so on. In fact, these so-called killer fats are believed to be in 75 percent of all foods consumed by Americans today. Such fats, which create an unhealthy ratio between omega-6 and omega-3 fatty acids, the two main types of polyunsaturated fats, are now thought to trigger inflammatory processes and cause free-radical damage to cell membranes. Later in this chapter, we'll show you how to strive for a 2:1 to 4:1 ratio of omega-6 to omega-3 fats in your diet.



Your overall fat intake should not exceed approximately 30 percent of the total calories you ingest, and saturated fat should make up less than 10 percent of this total. To make this happen, it is important to increase your awareness of poly- and monounsaturated fats, which are found in avocados, flaxseed, nuts, olive oil, and salmon. Table 3.1 shows you which fats are considered healthy.

Largely due to the misguided belief of the past two decades that *all* fats are bad for us, most of our bodies are now starving for omega-3 fatty acids, a type of polyunsaturated fat that increases healthy cholesterol and decreases triglycerides. Americans consume only about 120 milligrams of omega-3 fats per day, in contrast to the average Japanese who consumes a whopping 600 milligrams daily, primarily from fish, tofu, and seaweed. It's no coincidence that the Japanese who follow a traditional Japanese diet have far lower rates of arthritis, cancer, and heart disease than we Americans do.

**TABLE 3.1. Healthy Fats**

Monounsaturated	Polyunsaturated
Avocado oil	Black currant oil
Nut oils (almonds)	Borage oil
Olive oil	Flaxseed oil
	Pumpkin-seed oil
	Walnut oil

Healthy omega-3 fatty acids can be challenging to work into your diet because there are few natural sources. These include dark green leafy vegetables, flaxseed, hemp, tofu, and pumpkin-seed and walnut oils. Certain fish are also rich in omega-3 fatty acids, but the Cadillac of all omega-3 oils is found in coldwater fish, especially wild salmon. That's because these fish convert the main omega-3 building block, alpha-linolenic acid, into two highly beneficial end products for your health: eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). Fish has all the protein of beef and less than half the fat (see Table 3.2 on page 48).

Remember to choose healthy fish and not unhealthy fish. What do we mean by this? Although heavy metal toxicity can come from dental mercury amalgams, as we discussed earlier, a greater source of mercury comes from the fish we eat. The chain of events works something like this. The burning of coal in the world creates an industrialized waste that ascends into the atmosphere. Mercury residues are formed there, and when it rains, the mercury falls back to the earth and into our streams, lakes, rivers, and oceans. Much of this organic mercury is then taken up by algae, which is, in turn, eaten by small fish. Bigger fish eat the small fish, with the result that the highest mercury concentrations are found in the largest fish, such as shark, swordfish, tilefish, and tuna, to mention a few. Even grouper and large Pacific halibut contain high levels of mercury, as do all freshwater fish, also a major problem.

So, not all fish are healthy. In a Finnish study, cardiologists showed that men

**TABLE 3.2. Levels of Omega-3 Fatty Acids in Fish**

Type of Fish	Omega-3 grams per 4-oz serving	Type of Fish	Omega-3 grams per 4-oz serving
Sardines	5.5	Pollack	0.6
Chinook (king) salmon	3.6	Crab	0.5
White (albacore) tuna	2.6	Ocean perch	0.5
Sockeye salmon	2.3	Shrimp	0.5
Mackerel	1.8–2.6	Halibut	0.4
Herring	1.2–2.7	Scallop	0.4
Rainbow trout	1.0	Cod	0.3
Squid	1.0	Flounder	0.3
Striped bass	0.9	Lobster	0.3
Whiting	0.9	Sole	0.3
Mussel	0.8	Clam	0.2
Channel catfish	0.7	Haddock	0.2
King crab	0.6	Northern pike	0.2

who ate freshwater fish had higher levels of toxic metals in their bodies than those who didn't, with subsequent higher coronary artery disease. The study also revealed that heavy-metal contamination was much worse in freshwater fish than in the saltwater varieties. The same is true in this country. Farmed freshwater fish not only contain higher quantities of heavy metal residues, such as mercury, but also contain insecticides and pesticides as well. We recommend using great caution when eating any farm-raised fish because it can also contain toxins from chemical residues, such as dioxin and petrochemicals.

Small migratory fish, such as Atlantic halibut, cod, and wild salmon from the Aleutian Islands in Alaska, are the healthiest fish around. For shellfish, the best choice is scallops. Remember, fish does contain healthy omega-3 essential fatty acids that will protect your body from oxidative stress (free radicals), but you must choose wisely.

## **Micronutrients**

### ***Vitamins***

Vitamins are essential for the proper regulation of metabolism as they control the way in which ingested foods are assimilated and distributed throughout the body. Most vitamins must be obtained from the diet or from supplements. For example,



while most animals make some of their own vitamin C, humans must get vitamin C from the diet, as we are unable to synthesize it. Eating a variety of raw fruits and vegetables is your best bet, since boiling vegetables destroys most vitamins and the rest of them are dissolved in the water, which is usually tossed away. The next best option is lightly steaming or low-fat stir-frying vegetables to preserve vitamin content. Table 3.3 below lists our recommended minimal daily doses for many of the essential vitamins and the foods in which they are found.

**TABLE 3.3. Vitamins—Benefits, Sources, and Recommended Doses**

Vitamins	Benefits	Sources	Recommended Daily Dose
Vitamin A and beta-carotene	Growth, especially skin, hair, nails, teeth; healthy condition of mucous linings and membranes; maintenance of glandular activity; resistance to infection	Carrots; fish-liver oils; liver; parsley, spinach, and other green vegetables; sweet potatoes	5,000 IU
Vitamin B <sub>1</sub> (thiamine)	Appetite; growth; digestion and assimilation; muscle tone; nervous system; normal red-blood count; protein, carbohydrate, and fat metabolism; vitality	Beans; brewer's yeast; grains; nuts; soybeans; wheat germ	1.5 mg
Vitamin B <sub>2</sub> (riboflavin)	Breakdown of fatty acids; cell respiration; control of infection; healthy eyes; nerve tissues	Beans; brewer's yeast; dried milk; fruits, grains; green vegetables; liver; wheat germ	2 mg
Vitamin B <sub>6</sub> (pyridoxine)	Enzyme and brain; enzyme system; nervous system and brain; protection from infection; protein and fat metabolism	Avocados; bananas; bran; Brewer's yeast; green leafy vegetables; pecans; wheat germ	2 mg
Vitamin B <sub>12</sub> (cobalamin)	Enzymatic process; prevention of anemia; production and regeneration of blood cells	Brewer's yeast; dark green leafy vegetables; nuts	300 mcg
Vitamin C	Appetite; defense against bacterial toxins; glandular activity; growth, especially teeth; protection of vascular system; tissue respiration	Brussels sprouts; citrus fruits; green vegetables	200 mg
Vitamin D	Bones, teeth, tissue; regulation of blood calcium	Sunshine; butter and dairy products; egg yolk; salmon; tuna	800 IU
Vitamin E	Circulation; keeps red blood cells from being destroyed; sexual glands and reproductive skin	Eggs; milk; corn, peanut, sunflower-seed oils; wheat-germ oils; green vegetables; wheat germ; whole grains	200 IU
Folic acid	Healing; prevention of infection; protein metabolism; red blood cells; RNA and DNA	Cheese; eggs; liver; orange juice; oysters; sunflower seeds	800 mcg

Reference: Zone Café

## Minerals

Minerals such as sodium (table salt) and potassium are needed in relatively large amounts; others, like copper and chromium (trace minerals), are necessary in much smaller amounts (see Table 3.4 below).

Sodium is an important mineral found mainly in body fluids. One teaspoon of salt provides 2 grams of sodium. The average person consumes between 3 and 7 grams daily, mostly from salt already present in food. About 30 percent of those with high blood pressure are salt-sensitive and should eat a diet low in salt (less than 2.3 grams per day). It is important to read the labels and learn how much sodium, and what other ingredients, have been added to packaged foods.

**TABLE 3.4. Sodium Content of Foods**

Low-Sodium Foods	mg per 100 grams	Moderate-Sodium Foods	mg per 100 grams	High-Sodium Foods	mg per 100 grams
Apples	1	Milk	50	Salmon, canned	521
Asparagus	1	Light meat chicken	70	Graham crackers	686
Grapefruit	1	Dark meat chicken	90	Cornflakes	914
Pineapple	1	Eggs	118	Potato chips	1,000
Egg noodles	5	Celery	125	Cured ham	1,310
Shredded wheat	10	Tomato juice, canned	200	Processed cheese	1,450
Raisins	12	Cottage cheese	404	Sauerkraut	1,750
Sweet potato	16			Bacon	1,957
Broccoli	19			Olives, green	2,018

Commonly needed minerals are listed in Table 3.5 on page 51, with their benefits for the body, their dietary sources, and the recommended doses.

## Water

The human body is close to 90 percent water, and its total body weight is 70 percent water. We rely on water for digestion, cooling, waste elimination, and to help circulate nutrients to every cell in the body. The exact amount of water required will depend on the type of food you eat, the air temperature, humidity, the amount of exercise you do, and your individual metabolic rate. We recommend a minimum of 6–8 glasses of water per day.



**TABLE 3.5. Minerals—Benefits, Sources, and Recommended Doses**

Minerals	Benefits	Sources	Recommended Daily Dose
<b>Calcium</b>	Acid/alkaline balance; bones and teeth; coagulation of blood; enzyme stimulation; heart and nerves; skin tone; vitamin metabolism	Cheese; green vegetables; milk products; oranges	1,500 mg for women; 500 mg for men
<b>Chromium</b>	Helps protein and fat metabolism; important for control of blood sugar	Meats; whole grains; wine and beer	120 mcg
<b>Copper</b>	Conversion of iron into hemoglobin; red blood cells	Broccoli; garlic; leeks; parsley; radishes	2.0 mg
<b>Iodine</b>	Circulation; oxidation of fats and proteins; prevention of goiter; size and activity of thyroid gland	All sea plants; iodized or sea salt; seafood; spinach	150 mcg
<b>Iron</b>	Blood cells; hemoglobin; liver; oxygen transmission; tissue respiration	Beans; blackstrap molasses; bran; dried apricots; eggs; grains; liver meats; nuts	18 mg (for children and premenopausal women)
<b>Magnesium</b>	Heart rhythm; lung tissues; nervous system; stimulation of enzymes; structure of bones; relaxation	Almonds; bran; cabbage; lettuce; spinach; tomato; wheat germ	400 mg
<b>Manganese</b>	Nervous system; red blood cells; tissue respiration	Vegetable foods which contain iron	1–2 mg
<b>Potassium</b>	Cell activity; counteracts constipation; elasticity of muscle tissues; purification of blood in kidneys	Cabbage; celery; kale, lettuce; tomatoes	1–2 g
<b>Selenium</b>	Antioxidant that decreases risk of free-radical damage to blood vessel walls	Tortilla chips; Brazil nuts; tuna	100 mcg
<b>Zinc</b>	Circulation; healing; normal growth; preventing high blood pressure; sexual development; tissue respiration	Brewer's yeast; eggs; liver; oatmeal, oysters; pumpkin and sunflower seeds; wheat germ	15 mg

## FOOD IS POWERFUL MEDICINE—A DIETARY FEAST FROM A TO Z

Once food (protein, carbohydrates, and fats) is broken down into its basic components (amino acids, glucose, and fatty acids) and sent to the bloodstream, it has a more powerful impact on your body and your health than any drug your doctor could ever prescribe.

As we have pointed out, Americans are still much more likely to die of lifestyle-related diseases, such as cancer, diabetes, heart disease, and strokes, than people who live in Third World countries; the reason is largely due to what we put on our plates. Numerous studies reveal that people who live in less affluent countries, with diets rich in unprocessed whole grains and plenty of fresh fruits and vegetables, have much lower rates of cancer and heart disease than those in the wealthier, more advanced nations because, as we have learned, these foods generally have a protective effect against our so-called diseases of civilization.

Scientists are increasingly finding health-enhancing chemicals in fruits, vegetables, herbs, and such common spices as garlic and turmeric. These protective compounds are called *phytonutrients*, and many of them are powerful antioxidants. Here is an A-to-Z sampling of some of the best and tastiest out there—a bounty of health for you, ready for the plucking.

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### APPLES

Key ingredients pectin and quercetin act to:

- Lower cholesterol;
- Protect against cancer;
- Protect against heart disease.

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### BERRIES

Key ingredients anthocyanin, ellagic acid, and pectin act to:

- Benefit vision;
- Protect against cancer;
- Lower cholesterol.



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## CARROTS

Key ingredients alpha-carotene, beta-carotene, calcium, and pectate act to:

- Protect against cancer;
- Protect against heart disease;
- Protect against stroke.

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## DARK-GREEN LEAFY VEGETABLES (such as spinach and kale)

Key ingredients folic acid, lutein, and alpha-lipoic acid act to:

- Prevent macular degeneration;
- Help protect against heart attack;
- Protect against cancer.

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## ECHINACEA

Key ingredients of complex polysaccharides act as:

- Immune stimulants;
- Anti-inflammatories;
- Antiviral/antibacterial agents.

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## FRUITS, CITRUS (grapefruits, oranges, lemons, limes, tangerines)

Key ingredients d-limonene, flavonoids, lycopene, and vitamin C act to:

- Decrease cholesterol;
- Protect against cancer;
- Protect against cardiovascular disease.

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## GARLIC

Key ingredients ajoene, selenium, and sulphur compounds act as natural antibiotics and antifungals, and also act to:

- Prevent blood clots and heart disease;
- Protect against cancer.

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## HAWTHORN BERRIES (tea)

Key ingredients flavonoids and procyanidins act as anti-inflammatories and also act to:

- Lower blood pressure;
- Protect against heart disease.

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**IPECACUANHA ROOT**

Key ingredient emetia acts as an anti-inflammatory and acts to:

- Ease indigestion;
- Protect against cancer.

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**JUICES FROM TROPICAL FRUITS** (guavas, kiwi fruit, mangoes, pineapples)

Key ingredients fiber, lycopene, many antioxidants, and vitamins E and C act to:

- Protect against cancer;
- Protect against heart disease;
- Stimulate immune system.

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**KAVA KAVA**

Key ingredient kavalactones acts to:

- Help insomnia;
- Induce relaxation;
- Reduce anxiety.

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**LEGUMES** (dried beans, lentils, peas)

Key ingredients fiber and folate act to:

- Help control diabetes;
- Lower cholesterol;
- Protect against cardiovascular disease.

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**MELONS** (cantaloupes, honeydew, watermelon)

Key ingredients beta-carotene, lycopene, potassium, and vitamin C act to:

- Help lower high blood pressure;
- Protect against cancer;
- Protect against cardiovascular disease.

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**NUTS AND SEEDS**

Key ingredients arginine, B vitamins, fiber, magnesium, selenium, vitamin C, and zinc act to:

- Balance eicosanoid hormones;



- Help with weight loss;
- Increase HDL levels;
- Protect against heart disease.

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## ONIONS

Key ingredients quercetin and selenium act to:

- Protect against cardiovascular disease;
- Protect against stomach cancer;
- Reduce risk of stroke.

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## POLYPHENOL TEAS (*Camellia sinensis*) (black tea, green tea, oolong)

Key ingredients catechins and polyphenols act to:

- Lower risk of heart disease;
- Prevent oxidation of LDL cholesterol;
- Protect against cancer.

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## QUININE (Peruvian bark)

Key ingredients alkaloids and chinchona act as:

- Antimalarials;
- Membrane stabilizers;
- Nighttime muscle-cramp relievers.

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## RED GRAPES AND WINE

Key ingredients phenolics, quercetin, and resveratrol act to:

- Prevent oxidation of LDL cholesterol;
- Protect against heart disease and blindness;
- Regulate blood flow and circulation.

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## SOY PRODUCTS AND TOFU

Key ingredients genistein, isoflavones, and phytoestrogens act to:

- Lower blood cholesterol and triglycerides;
- Prevent oxidation of LDL cholesterol and clogging of arteries;
- Protect against cancers (breast, prostate).

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**TOMATOES** (cooked with oil)

Key ingredients chlorogenic acid, lycopene, and p-coumaric acid act to:

- Decrease risk of esophageal cancer;
- Protect against cancer (prostate, cervix);
- Protect against heart disease.

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**UNUSUAL SPICES** (curry powder, turmeric)

Key ingredients curcuminoids and phenolic compounds act to:

- Benefit digestion and liver function;
- Lower cholesterol and reduce inflammation;
- Protect against cystic fibrosis.

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**VEGETABLES, CRUCIFEROUS** (broccoli, Brussels sprouts, cabbage)

Key ingredients fiber, indoles, and sulforaphane act to:

- Lower cholesterol;
- Protect against cancer;
- Protect against macular degeneration.

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**WALNUTS**

Key ingredients polyunsaturated fats and some omega-3s (EFAs) act to:

- Prevent heart disease;
- Reduce cholesterol;
- Reduce stroke risk.

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**XIAO YAO WAN** (bupleurum) (dry root, often taken as a tea [Sho-saiko-to formula])

Key ingredient *Paeonia* acts to:

- Reduce bleeding;
- Reduce menstrual cramps and pelvic pain;
- Reduce PMS symptoms.

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**YELLOW AND ORANGE VEGETABLES** (red and yellow peppers)

Key ingredients carotenoids and flavonoids act to:

- Protect against cancer;
- Protect against heart disease;
- Stimulate immune function.



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**Z**EAXANTHIN-CONTAINING VEGETABLES (beet, collard, mustard, Swiss chard, watercress)

Key ingredient zeaxanthin acts to:

- Help vision;
- Lower cholesterol;
- Prevent cancer (especially cancer of the cervix).