



Foods That Combat Aging

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Foods That

COMBAT

AGING

The Nutritional
Way to Stay Healthy
Longer

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INTRODUCTION

Getting older sure beats the alternative, so the saying goes, but must we have such a gloomy, defeatist attitude about aging? Absolutely not! In fact, there are many things you can do *right now, every day*, to help minimize the effects of aging while you grow older.

There's no denying it: growing older is a natural part of the life cycle. From the moment you were conceived, you began to age. The years keep passing, and there's no turning back. The secret is in how you make the journey, and a big part of the trip involves food. You can make nutrition and lifestyle choices that promote health, longevity, and vitality, or those that make you feel, look, and act old. The choice is up to you.

Some older men and women proudly proclaim that they are having the best times of their lives, that they can finally do things when, how, where, if, and with whom they want. For them, and indeed for the majority of people, the older years can mean a chance to travel, explore new hobbies, go back to school, volunteer for a favorite cause, even start a new career.

Yet our negative and fearful attitudes about getting older are grounded in some real concerns, and one of the main ones is this: Will we be physically, mentally, and emotionally capable of enjoying the decades of life ahead of us? This is a legitimate question, and one that you as an adult, *regardless of your age*, should think about and address now to help make the most of your older years.

Foods That Combat Aging can help you make positive food and nutrition choices that combat aging every day and help you maintain health, vitality, and a positive attitude that helps you enjoy life. The great thing about making food choices that help fight aging is that you get several chances every day to make a positive impact on your health and your fight against aging. And if you make a not-so-great selection or two once in a while, you know that you can go right back to making great choices at your next meal!

SIGNS AND SYMPTOMS OF AGING

Hair turns gray, energy flags, fine wrinkles appear, and house keys get misplaced a little more often—these are just a few indications of growing older. Everyone ages differently; the number of signs and symptoms, their severity, when they appear, how they respond to our attempts to reduce or eliminate them—all of these factors and more should be considered when you talk about aging and how to combat it. The list of changes associated with aging is a long one, but here is a representative look.

- General decrease in energy level and a tendency to tire easily
- Decreased memory

- Decreased sex drive
-
- Abdominal obesity and an inability to lose weight
 - Some hearing loss, especially for higher frequencies
 - Development of arthritis: affects about one-third of men and one-half of women
 - Loss of lean muscle tissue
 - Development of insulin resistance
 - Changes in bowel function
 - Changes in hair color and volume
 - Tendency to sleep more lightly and to experience less rapid eye movement (REM) sleep
 - Reduction in muscle strength
 - Reduction in bone density
 - Reduction in reaction time
 - Reduction in levels of antibodies (and thus ability to fight off infections)
 - Reduction in levels of most hormones

There is much you can do to reduce, compensate for, or slow the progression of many of these and other physical and metabolic changes that occur with aging. One of the most important things you can do is harness the power of anti-aging nutrition, which we do in two ways in this book. One is through the convenient anti-aging nutrition counter offered in the second part of this book. The other is through a discussion of the dietary steps and other actions that complement any nutritional efforts you take in your fight against aging. Let's look at some of these other approaches, along with a discussion of how wise food and supplement choices can help you *fight aging now!*

FIGHT AGING NOW

You are fortunate to live in a time when the field of anti-aging medicine has become a vital and increasingly well-researched area of medicine. Health-care practitioners who are involved in anti-aging medicine are excited by the forward-thinking nature of this new approach, which involves helping people take the steps necessary to maximize quality of life in their later years. Basically, anti-aging medicine is concerned with three concepts.

- **Prevention:** taking steps to prevent the development of diseases and ailments associated with growing older. Proper nutrition is a key element of prevention.
- **Integration:** combining the best of both worlds—conventional and alternative/complementary medicine—to achieve anti-aging goals.
- **Holism:** recognizing and treating people as whole beings composed of many integrated parts that work together. Thus an anti-aging approach to arthritis of the hip addresses all the factors that have an impact on arthritis, including diet, exercise level, social needs, stress management, emotional health, supplementation, and pharmaceuticals.

EAT FOR LONGEVITY

Three or more times a day, you have a chance to fight aging with food! Your food choices are one of the most important ways you impact your health, and so it's vitally important that you understand the basics behind what makes certain foods good partners in the fight against aging. We say "partners" because although healthy food choices are key purely on a nutritional level, they also work hand-in-hand with other factors in the effort to ward off aging, namely, exercise, stress management, supplementation, and hormone balancing. In this book we focus on nutrition, but in this chapter we also explain the relationship between wise food choices and these other factors that impact aging.

BE SUGAR SMART

This section could be called "Be Carb Smart," but we want to impress upon you that when we talk about carbohydrates, we're really talking about sugars. That's because *all carbohydrates are broken down (metabolized) into simple sugars*. Therefore, because sugars are the bottom line when it comes to carbohydrates and their metabolism, we think it's important to begin there.

Once you see the connection between carbs and aging, you'll never look at carbs quite the same way again. Here's the story.

Carbs come in two forms: simple or refined, and complex. Simple sugars include table sugar and natural sugars found in fruits, honey, and milk. Refined carbs are in white flour, white rice, baked goods, and refined pasta. Simple/refined sugars not only get stored as fat if you eat too much of them, but they also cause blood glucose levels to rise. Elevated blood glucose levels, especially chronically, can lead to insulin resistance (when the body cannot produce enough insulin or cannot adequately use the insulin it does produce) and eventually result in diabetes and its many complications, including heart disease, kidney disease, nerve disorders, and blindness.

But the link between carbs and aging is this: high blood glucose (sugar) levels accelerate aging through a process called glycation. Glycation is a natural occurrence in which glucose molecules and certain fat molecules interact with and attach to protein molecules, forming AGEs—advanced glycation end-products—and damage the protein. Wrinkling of skin is one example of what glycation can do, as collagen and other proteins in skin are damaged by glucose. Although glycation occurs in everyone, it speeds up when there's a lot of glucose present. The rest of the bad news is that glycation is not reversible, so the goal is to prevent it as much as possible. How do you do that?

What You Can Do Now

You can be sugar smart and keep your blood glucose levels in a healthy range (ideally, a fasting glucose level that is less than 100 mg/dL). Since carbohydrates are a key energy source, you need to provide your body with the best fuel in the form of smart carbs—complex carbs rather than simple ones. Complex carbs are more complicated in structure and are generally higher in nutritional value than simple carbs. A diet that includes a moderate amount of carbs (about 50% of total caloric intake), mostly the complex type, can help keep blood glucose levels in check, as complex carbs generally cause a moderate increase in blood glucose levels while simple ones cause a sharp, rapid (and unhealthy) rise.

Another factor to consider is the glycemic index, which is a gauge of how quickly foods convert into glucose. Foods with a low value (generally 50 or lower) convert into glucose more slowly, which keeps blood glucose levels more balanced throughout the day and thus helps fight aging. Here are some smart carb tips, followed by a sample glycemic index.

- Choose brown or wild rice instead of white rice.
- Substitute whole-wheat or other whole-grain breads, rolls, and bagels for their white flour cousins.
- Include one to two servings (½ cup per serving) of beans daily: lima, butter, white, pinto, black, soy, kidney, or garbanzo.
- Choose yams or sweet potatoes instead of white potatoes.
- Include one serving of oatmeal or all-bran cereal daily.
- Choose whole fresh fruits for dessert.

- Choose a whole-grain pasta (wheat, spelt, buckwheat, rye) instead of white pasta.
- Significantly reduce or eliminate white sugar and white sugar products from your diet.
- If you use fruit juices or fruit products, choose unsweetened varieties: unsweetened apple sauce, juices and nectars, canned or jarred fruits (in natural juices only).

GOOD FAT/BAD FAT

It's become common practice to classify fat into two categories—"good" and "bad"—to make it easier to identify which ones you should include more of in your diet and which ones to reduce or avoid. Certainly when we talk about fighting aging, we want to optimize the benefits of good fats and minimize the damage from the bad ones.

First you should understand that "fat" comes in four main types: saturated, polyunsaturated (which includes omega-3 and omega-6), monounsaturated, and trans fats. Fat is essential for life: most of the body's organs—especially the brain—could not function without it. But "essential" does not mean you need large amounts of it. Although the Dietary Guidelines recommend Americans consume 20 to 35 percent of their calories from fat, the lower end of that range is much healthier and realistic given that the majority of people in the United States are overweight or obese and that diseases associated with high-fat intake (e.g., heart disease, stroke, some cancers) are responsible for the majority of disease-related deaths.

"Good fats" include monounsaturated fats and omega-3 fatty acids, a type of polyunsaturated fat. These fats typically are not listed on nutrition labels and so information about their values in foods is usually not readily available. You can calculate the amount of good fat in a product by subtracting the sum of bad fats from the total fat value. The resulting number is a fairly accurate idea of the amount of good fat in the product, although the figure may also represent some of the polyunsaturated fat called omega-6, which is sometimes good and sometimes bad. In the nutrition counter in this book, we provide values for total fat, bad fat, and good fats.

Although fats can have many negative effects on your health and contribute to aging, they also have many anti-aging benefits if you eat the right ones. That's why it's important to eat a balanced amount of good and bad fats. What does that mean? Your intake of bad fats should be less than 10 percent of your total caloric intake, and your intake of good fats should be at least 15 percent to 20 percent of your total caloric intake. Based on a 2,000-calorie per day diet, less than 200 calories should come from bad fats, and 300 to 400 should come from good fats. You should remember that all fats provide 9 calories per gram, which is more than twice as much as the calories supplied by carbohydrates and protein (4 per gram). So if you order a fast-food fish sandwich that has 15 grams of saturated fat and 2 grams of trans fat, you've nearly reached your daily limit for bad fats with one food item alone ($9 \times 17 = 153$ g).

So what are some of the benefits of eating a balanced amount of good and bad fats?

- They help the body absorb the fat-soluble vitamins (A, D, E, and K). This ability

declines with aging.

- They make you feel fuller, which helps you resist the temptation to eat between meals and before bed.
- They help keep the brain healthy. The brain is composed of 60 percent fat, and if you deprive your body of a sufficient amount of good dietary fats, symptoms associated with aging, such as poor concentration, faulty memory, and reduced acuity, are likely to occur and with greater severity.
- They help keep the immune system operating optimally so it can fight off infection, promote wound healing, and reduce the risk of cancer.
- Age-related changes to skin, hair, and nails can be reduced.
- Fats help the gastrointestinal system avoid constipation, bloating, and other digestive problems that are common as we age.
- A small amount of saturated fat is needed by the liver to manufacture cholesterol, which the body uses to produce hormones. Restoration of declining hormone levels, which occurs with age, is an important factor in the fight against aging (see “Balancing Hormones”).
- Fats help maintain a healthy nervous system.

Good sources of monounsaturated fats and omega-3 fatty acids include olive oil, avocados, salmon, walnuts, herring, and olives.

Bad Fats

Bad fats include saturated fat, which is most often found in animal products, including meats, poultry, fish, and dairy products, as well as some tropical oils, such as palm and coconut; and trans fat, an artificial fat created when an unsaturated fat is bombarded with hydrogen atoms, resulting in a partially saturated fat.

Bad fats contribute to aging in a big way, namely:

- Saturated fats increase the amount of “bad” cholesterol (low-density lipoprotein, LDL) in the bloodstream, which causes heart disease, atherosclerosis, and restricted blood flow.
- Saturated fats are associated with insulin resistance, a leading cause of diabetes.
- Both saturated fat and trans fat are associated with an increased risk of colon cancer.
- Eating trans fat doubles the risk of heart attack by increasing the levels of LDL cholesterol, decreasing the levels of HDL (high-density lipoprotein) cholesterol (the “good” cholesterol), and promoting the formation of blood clots, all of which increase the risk of heart attack and stroke.
- Trans fat increases triglyceride levels, which increases the risk of developing blood clots.
- Trans fat causes inflammation of blood vessels by increasing levels of C-reactive

protein, which in turn increases the risk of heart disease.

- Liver function, the immune system, and reproductive function are all harmed by the consumption of trans fat.

What You Can Do Now

A diet high in saturated and trans fat is associated with elevated blood cholesterol levels which can result in heart disease and other serious medical conditions. The nutrition counts in this book can help you identify the amount of bad fats in foods so you can make healthier choices. You can also reduce the amount of bad fats in your diet if you:

- eat more fruits, vegetables, and whole grains.
- choose non-fat and low-fat dairy products.
- remove the skin from poultry.
- steam and sauté foods rather than fry them.
- limit meat consumption to lean cuts while avoiding organ meats.
- regularly substitute plant protein for animal protein (e.g., beans, peas, lentils, tofu, tempeh).
- read ingredient labels and avoid foods that contain trans fats, which appear as “partially hydrogenated vegetable oil,” “hydrogenated oil,” or “margarine.” Baked goods, crackers and cookies, processed and frozen dinners, fried foods, and margarines typically contain trans fats.

MAKE FIBER YOUR FRIEND

Remember when the word “fiber” used to make people snicker and look embarrassed? People aren’t snickering anymore, because they’re learning just how important fiber is and how getting enough of it can not only make you feel better, but live healthier, longer.

Fiber is a calorie-free nutrient that is necessary for maintaining regular bowel movement, controlling cholesterol and blood glucose levels, and helping with weight loss or maintenance. It has been shown to help reduce the risk of colon cancer, one of the primary causes of cancer death in the United States.

Fiber is present in food in two forms: soluble fiber, which is a sticky type found mostly in beans, dried peas, oats, nuts, seeds, and most fruits, such as apricots, bananas, grapes, and citrus. Soluble fiber is responsible for normalizing blood glucose levels and reducing cholesterol levels in the blood. Insoluble fiber is coarse and helps promote intestinal regularity. It is found mainly in vegetables, bran cereals, wheat bran, whole-grain cereals, and pears.

What You Can Do Now

Most adults consume about half of the recommended amount of fiber, which is 38 grams

for males 19 to 50 years of age and 25 grams for women of the same age. It is important to get the recommended amount of fiber daily to help prevent age-related diseases, such as heart disease, diabetes, and atherosclerosis, and to help maintain skin health. Here are a few tips on how to increase your fiber intake. The nutrition counter in the back of the book also contains information on fiber content of more than 3,000 foods.

- Choose whole-grain breads, rolls, and pastas instead of those made with white flour.
- When appropriate, eat the skins of fruits and vegetables. Buy organic produce when possible, and always thoroughly wash produce before eating it.
- “Sneak” extra fiber into your diet: sprinkle a tablespoon of wheat germ on your cereal, choose granola for a snack instead of chips, add flax seeds and kidney beans to your salad.
- Choose bean dip instead of those made with sour cream. Serve the dip with raw vegetables instead of chips.
- Include one serving of beans, lentils, or split peas per day. These can be in chili, soups, stews, salads, or as a side dish.
- Include one serving of oatmeal, all-bran, or another high-fiber cereal per day.

CALCIUM

There’s no bones about it, you need adequate amounts of calcium to keep your bones healthy. Calcium is especially critical for bone health, and for the 44 million Americans for whom osteoporosis is a major health threat. The National Institutes of Arthritis and Musculoskeletal and Skin Diseases reports that 10 million Americans already have osteoporosis and 34 million more are at increased risk for the disease. Of special concern is the fact that 50% of women and 25% of men older than 50 will experience an osteoporosis-related fracture during their lifetime, contributing to the more than 1.5 million osteoporosis-related fractures that occur each year. Osteoporosis can also cause pain and limit mobility and thus have a negative impact on the quality of life.

Calcium is essential for more than bone health. This mineral also protects against colon cancer, is key to dental health, aids in the production of energy, and is critical for heart and nerve function.

National surveys show that many Americans consume less than 50% of the calcium they need. Because calcium needs change over a lifetime, many people forget to ensure they are getting enough of this critical mineral. As people age, the body becomes less efficient at absorbing calcium, and this problem is compounded by the fact that many older adults take medications that can impair calcium absorption. The need for more calcium also kicks in for both older men and women who are postmeno-pausal.

What You Can Do Now

According to the Institutes of Medicine, the recommended daily intake of calcium for both men and women is 1,000 mg daily for adults 31 to 50 years, and 1,200 mg for those older than 50. Vitamin D is essential for calcium absorption, so try to get 400 to 600 IU (international units) per day up to age 70, and up to 800 IU if you are 70 or older. Here are some ways to ensure you get enough calcium.

- Dairy foods can be a good source of calcium, but they also contain a lot of protein (see warning in bullet below). If you eat dairy products, include low-fat varieties.
- Many non-dairy foods are also very good sources of calcium, including dark green, leafy vegetables such as bok choy, spinach, broccoli, and kale; sardines (with the bones) and salmon; tofu; and almonds.
- Calcium in orange juice? You bet! Many foods are now fortified with calcium, including many brands of orange juice, cereals, breads, soy milk and soy cheese.
- Moderate your protein intake. A diet that contains excess protein (many Americans consume too much protein, especially from animal sources) can contribute to the development of osteoporosis, because when excess protein leaves the body it often carries calcium with it. The World Health Organization recommends 0.45 grams of protein per kilogram (2.2 lbs) of ideal body weight per day, while the U.S. RDA recommends 0.8 grams as the maximum. Thus, if your ideal weight is 130 pounds, your minimum protein intake should be 27 grams and the maximum, 48 grams.

ADD ANTIOXIDANTS

Some of the most powerful weapons you have against aging are antioxidants—certain vitamins, minerals, and enzymes that take on free radicals and combat the extensive harm they can cause to the body. Some common and powerful antioxidants include vitamin A, C, E, B6, and B12, beta-carotene, and folic acid. Other potent antioxidants include phytonutrients, which are special chemicals found in plants.

As your body metabolizes food through a process known as oxidation, it also produces nasty byproducts called free radicals. Free radicals are unstable molecules that can cause significant damage to the body's tissues and contribute to aging (including wrinkled skin) and certain diseases, such as diabetes, Alzheimer's disease, stroke, macular degeneration, and heart disease. Thus one goal of an anti-aging food plan is to include lots of antioxidants.

One important thing to remember about antioxidants is that they work best as a team. Consuming many antioxidants is much more effective than using just one. One of the best ways to get a wide variety of antioxidants is to eat many different fruits and vegetables, which are naturally rich in antioxidants.

What You Can Do Now

- Eat about nine servings of fruits and vegetables daily. The 2005 US Dietary Guidelines recommend 5 to 13 servings daily, with the numbers adjusting according to the total number of calories consumed. Nine servings are recommended for a 2,000 calorie per day diet.
- • When you want something sweet, reach for a piece of fruit. Or try some variety: slice up a fresh apple and pear, add some orange or tangerine slices, a handful of berries, and squeeze some lemon juice on the mixture. This is a great snack, dessert, or a complement to your breakfast.
- Introduce more vegetables into your menu by adding chopped favorites to stews, soups, or stir-fry.
- Include a salad on your menu every day, and be creative. Try several different types of lettuce and spinach as your base, and then add shredded carrots, radishes, daikon, and red cabbage, toss in cooked string beans and peas, brighten it with chopped beets and avocado slices, and top it off with chopped walnuts and slices of red onion.
- Stuff vegetables with vegetables! Acorn and butternut squash, green and red peppers, large tomatoes, and cabbage leaves can be stuffed with a mixture of steamed and seasoned vegetables mixed with brown rice, barley, or beans.

COOK TO FIGHT AGING

It's not always *what* you eat as much as *how* you prepare it that can make a difference when it comes to aging. Remember when we talked about glycation and AGEs under "Be Sugar Smart"? AGEs are formed in the presence of high temperatures and without water, as in foods that are fried, baked, grilled, broiled, or microwaved. Thus fried foods (e.g., French fries, deep-fried fish, and vegetables), grilled chicken, baked bread, broiled steaks, fried eggs, and microwaved potatoes all contain AGEs. Although it isn't possible to completely avoid AGEs (remember, the body produces them naturally as well), you can do some things to significantly reduce your exposure to them.

What You Can Do Now

- When having fish, try poaching or steaming.
- Meats can be stewed, stir-fried, or made in a slow cooker.
- Limit the number of high-temperature foods you eat per week. If you currently eat such foods at least once a day, gradually reduce that number to once or twice a week at most.
- Steam, boil, or stir-fry vegetables, or use a slow cooker.
- Add more fresh and raw fruits and vegetables to your diet.
- • Marinate foods in olive oil, mustard, garlic, lemon juice, dry wine, or cider vinegar, which reduces the formation of AGEs.

CALORIE RESTRICTION

An increasing number of studies indicate that calorie restriction extends life in both animals and humans. Studies, beginning with the first one done at Cornell University in 1935, show that the lives of many different animals can be extended 30 to 40 percent and that age-related illnesses can be delayed when their caloric intake is restricted. Today, organizations such as the American Diabetes Foundation, the National Institutes for Health and Aging, and the American Heart Association are all doing research into calorie restriction and its impact on health.

According to a study published in the *Journal of the American Medical Association*, people who followed a calorie-restricted diet for six months experienced a 24 to 25 percent decrease in body fat, a decrease in DNA damage (which occurs with aging and contributes to disease processes such as cancer), and reduced both core body temperature and fasting insulin levels—two indicators of longevity. Overall, the changes experienced by the people on a calorie-restricted diet suggest that long-term calorie restriction may extend lifespan.

What You Can Do Now

Does calorie restriction mean you have to starve if you want to live longer? Not at all. The idea behind calorie restriction is to follow a low-calorie diet but to eat nutrient-rich foods—that is, you make every calorie count! Here are some tips on how to do it.

- Include lots of high-fiber vegetables in your diet, and eat them raw when feasible.
- Focus on monounsaturated fats and omega-3 fatty acids rather than saturated and/or trans fats.
- Choose lean animal protein (including egg whites) and especially plant-based protein, which is typically much lower in fat than animal protein. Beans, legumes, tofu, and tempeh are protein-rich plant sources.
- Choose whole, fresh fruits rather than fruit juices, which are higher in calories and sugar and have less fiber than whole fruits.
- Choose whole-grain breads, cereals, and pasta rather than those made with refined flours.
- Avoid sugar and sugary foods, processed foods, and fried foods.

Experts and those who follow a calorie restrictive approach emphasize that it is a lifestyle, not a fad diet or a short-term approach. You can learn more about calorie restriction for longevity in the “References” section at the end of this book.

EXERCISE

Wait, don't turn the page just because you see the “E” word. Study after study shows similar results: if you want to slow the aging process, you need to exercise. In a study of nearly 100,000 people, researchers found that those who exercised regularly lived longer than those who did not. In another study, researchers found that those who exercised regularly had a lower risk of heart disease and stroke. So, if you want to live longer, start exercising today!

thousand men ages 20 to 82 who were followed for about five years, for example, researchers found that physically unfit men who subsequently got in shape had a 44 percent lower death rate than those men who remained inactive.

Do you think you're too old to exercise? Nonsense! In a study published in the *Journal of Aging and Health* (2006), researchers reported on the exercise activities of 64 men and women ages 66 to 96 who lived in an independent living facility. The volunteers were divided into three groups: a walking group, a resistance training group, and a control group (no exercise). At the end of the sixteen-week study, the investigators found that the volunteers in both of the exercise groups enjoyed better body strength, flexibility, and agility, even in areas that were not trained, than the non-exercise group. These improvements typically translate into people being able to take better care of themselves and to live longer, healthier, more fulfilling lives. The study findings suggest that exercise in older people may provide more overall health benefits and less exercise-specific advantages than in younger people, which translates into a great deal for older adults.

What You Can Do Now

Before you start any exercise program, you should check with your doctor to make sure you choose the safest and most efficient type and intensity of exercise program for you. Moderate, regular (30 to 45 minutes, five to six days per week) exercise is the general prescription to combat aging. Remember the list of signs and symptoms of aging mentioned earlier in the book? Exercise helps fight many of them. For example, regular exercise helps improve heart and lung function, increases bone density, reduces body fat, improves muscle strength, improves the ability of the body to utilize insulin, reduces blood pressure, alleviates stress, improves mood, enhances sex drive and sexual function, and reduces joint pain.

One of the most common complaints about exercise is that it's boring, and boredom quickly leads to non-compliance. But exercise can be much more interesting if you add variety, and variety begins with a three-part approach to anti-aging exercise: stretching, aerobic training, and strength/resistance training. There are dozens of excellent books that contain suggestions and instructions in each of these categories. Always check with your doctor first, however.

- **Stretching.** It's important to maintain flexibility, and stretching is a great way to do it. Every exercise session should include stretching, but don't start your sessions with a stretch! Warm up your muscles first with five or ten minutes of moderate activity such as brisk walking. Stretching cold muscles can result in injury. After you do your aerobic and/or resistance training, then take five minutes to stretch again. Many yoga poses are excellent ways to stretch and stay flexible.
- **Aerobic training.** Choose from activities that fit your interest and abilities, such as brisk walking, jogging, swimming, biking, tennis, racquetball, jazzercise, or use exercise equipment such as a stationary bike, treadmill, rowing machine, or stair stepper. Begin and end each 20 to 30 minute aerobic session with five minutes of stretching, and strive for five sessions per week. Talk to your doctor about the best training program for you.

- **Strength/resistance training.** Strength training helps you build and maintain muscle strength, as well as helps lower blood sugar levels, maintains bone density, reduces cortisol (a stress hormone) levels, strengthens ligaments and tendons, and increases the production of testosterone (read more about the importance of this hormone in “Balancing Hormones”). Two or three 10-minute sessions of strength or resistance training per week is usually recommended.

Other ways to avoid boredom include exercising with a friend or in a group, exercising to music or while watching TV or a video, and alternating your activities. Having a dog that needs to be exercised is a good way to get you out of the house. Don't have a dog? Offer to walk or jog with a neighbor's dog.

BRAIN EXERCISES

Your brain may not be a muscle, but you can work it like one to help prevent memory loss and other cognitive difficulties associated with aging. As your brain ages, it loses the ability to fight against substances and processes that can harm it, including free radicals and inflammation. Aging brain cells also gradually stop communicating with each other, which affects memory and thought processes. Research shows that B vitamins, including folic acid and niacin, are critical as low levels of this vitamin group are associated with a decline in brain function. Studies also show that a high-fat diet is bad for memory and learning, and that a low-calorie diet helps preserve them.

What You Can Do Now

Along with wise dietary choices, you can keep your brain cells in shape by challenging them daily: do crossword and word puzzles, study a new language or take a class in something that challenges you intellectually, join a book discussion group, volunteer for a cause you believe in, help teach illiterate children to read, attend lectures offered in your community, read a variety of newspapers and magazines from around the world on the Internet, or keep a daily journal.

Although it's not clear exactly how much brain exercises can prevent memory loss and other cognitive difficulties, the results of several large studies provide much promise. In the landmark Nun Study from the 1980s, researchers tested the cognitive ability of 100 nuns who had written their autobiographies fifty years earlier. The scientists found that those who had lower language abilities were at greater risk for Alzheimer's disease. Another study of more than 800 Catholic clergy found that reading newspapers and engaging in other brain-stimulating activities reduced the risk of Alzheimer's disease.

Don't wait. Stimulate those brain cells today!

BALANCING HORMONES

As you age, your body's biochemistry changes, and one of the most significant changes is the

decline in the levels of hormones that have a major impact on aging. Specifically, those hormones are the sex hormones—estrogen, progesterone, and testosterone—as well as the mother of all these hormones, DHEA, and a few others, including melatonin, thyroid, and growth hormone.

One of the primary roles of hormones is to transmit messages to the body's cells so they can perform their various functions. Hormone levels begin to decline when people are in their twenties, which means the amount of information that is shared among the cells declines as well. Because hormone levels typically fall slowly, the impact of their decline often isn't felt until people reach their forties or fifties. That's also about the time that women experience another hormonal change—menopause—and men also have a decline in sex hormone production, known as andropause. All of these hormonal changes taken together are associated with symptoms of aging and also increase your chances of developing disease and infection.

Anti-aging medicine promotes hormone balancing using bio-identical hormone therapy as a way to fight aging. The concept is simple: take hormone supplements that are similar to the ones your body produces—not artificial or synthetic hormones—as a means to restore and maintain your levels to where they were when you were in your twenties. Achieving healthy levels and balance of hormones slows the aging process and promotes health and well-being. Generally, hormone balancing offers the following benefits.

- Helps prevent bone loss and osteoporosis.
- Promotes muscle strength and tone.
- Enhances heart functioning.
- Helps maintain a healthy immune system.
- Improves the texture, tone, and elasticity of the skin.
- Improves sexual function and desire.
- Helps maintain mental functioning.
- Promotes tissue repair and regeneration.
- Improves mood and emotional stability.
- Helps keep blood pressure and cholesterol levels down.

What You Can Do Now

Hormone balancing is not an approach you should take on your own: you will need tests to determine your hormone levels and a professional to customize your hormone restoration program. Although most of the hormones are available over the counter, a few require prescription (testosterone, thyroid) from your physician. A physician should also reevaluate your hormone levels yearly and make any dose adjustments as needed.

STRESS MANAGEMENT

What makes some people go to pieces when there's a two-hour traffic jam and other people take it in stride? A key element is how people decide to manage the stress, and not the fact that a stressful situation has occurred.

Your emotions and thoughts have a significant impact on your health. Stress weakens the immune system, depletes the body of nutrients, disrupts digestion, and causes organs to overwork, increasing the risk for illness and disease. Thus you may eat a nutritious diet, but if you do not manage stress in a healthy way, your body will not benefit from those positive foods. Generally, people who have learned how to manage stressful situations in a healthy way are rewarded with better overall health.

Effective stress management can and should be enjoyable, and there are many techniques you can try and incorporate into your lifestyle to help you better manage stress. Don't limit yourself to just one approach! Exercise is certainly a stress reducer, and so are meditation, tai chi, yoga, playing or listening to music, writing poetry or journaling, or watching humorous movies.

Of course, potentially stress-reducing activities alone won't help you if your attitude is negative. Nurture a positive mental attitude about life and situations as they come. It may sound simplistic, but the truth is that a simple approach is often the one that works, with practice. Only you can decide: is the glass half full or half empty? When you get up in the morning, will you look for the positive in every situation—or the negative?

FROM MARKET TO MEALS

So far we've given you a good idea of the types of foods that offer the best defense against aging and some of the other lifestyle factors that have a direct or indirect impact on those food choices. But if you want to get the most from the food you choose for yourself and your family, you need to know how to select, store, and prepare them. Certain fruits and vegetables, for example, quickly lose their nutritional value if they are stored incorrectly. Some foods, depending on how they are prepared, can accelerate the aging process. For example, deep frying nutrient-rich red onions is far from the best way to enjoy these important vegetables. Meats, poultry, and fish must be handled, stored, and prepared in specific ways to ensure you and your family remain free of food-borne illnesses. It's also important for you to understand how to read nutrition labels and ingredient panels on packaged foods so you can make the best food choices.

All this information and more is discussed in this chapter. Our hope is that you will take the guidelines offered in these pages and use them along with the information provided in the nutrition counter at the back of this book.

GO NATURAL

So far we've discussed many different foods that fight aging—foods that provide essential vitamins, antioxidants, fiber, calcium, quality protein, and good fats. But if you *really* want to reap the most benefits from these anti-aging food choices, you need to think clean—no pesticides, herbicides, hormones, antibiotics, artificial colorings, flavorings, or preservatives. On the surface that may sound like a big order, but if you take it one day at a time, even one food item at a time, before you know it you'll dramatically reduce the amount of damaging toxins you consume through food and beverages.

Experts continue to debate about the benefits of eating organic food. Many studies show, for example, that produce grown under organic conditions have higher levels of nutrients than those grown conventionally. Not every study shows the same degree of benefit, nor that all nutrients are elevated. One recent study of organic and conventional tomatoes, for example, found that organic tomatoes had higher levels of vitamin C, carotenoids, and polyphenols, but when the tomatoes were made into puree, the carotenoid levels were similar between the organic and conventional tomatoes.

A review of 41 published studies in which the nutritional values of organically grown fruits, vegetables, and grains were compared with conventionally grown items found that

overall, organic crops had 27% more vitamin C, 21% more iron, 29% more magnesium, and 14% more phosphorus. The review also stated that organic products had 15% fewer nitrates than their conventional counterparts.

Further proof comes from a study conducted by the Organic Materials Review Institute and Consumers Union, which used data from the US Department of Agriculture. The researchers found that 73% of conventionally grown foods sampled had pesticide residue compared with only 23% of organically grown samples of the same crops.

What Is Organic?

According to the US Department of Agriculture's National Organic Program, "organic food is produced by farmers who emphasize the use of renewable resources and the conservation of soil and water to enhance environmental quality... . Organic meat, poultry, eggs, and dairy products come from animals that are given no antibiotics or growth hormones." To meet the requirements to be certified organic, foods must be produced without using most conventional pesticides and fertilizers made with synthetic ingredients or sewage sludge. Ionizing radiation and bioengineering are also prohibited. A certified inspector checks organic farms to ensure the food is grown to meet USDA organic standards, and all companies that handle organic food before it reaches the marketplace must be certified as well.

Organic labeling comes in three forms. The name of the certifying agent must appear on all packages:

- **"100% Organic"**: must contain 100% organically produced ingredients, not counting added water and salt.
- **"Organic"**: must contain at least 95% organically produced ingredients, not counting added water and salt. Must not contain sulfites. May contain up to 5% non-organically produced agricultural ingredients.
- **"Made with Organic Ingredients"**: must contain at least 70% organically produced ingredients, not counting added water and salt. Must not contain sulfites. May contain up to 30% non-organically produced agricultural ingredients.

CHOOSE AND USE HEALTHY FATS AND OILS

In Chapter 1 we looked at good fats and bad fats and identified what some of those fats are and the health impacts—both beneficial and damaging—of each type of fat. We also suggested some general ways you can reduce the amount of bad fat and include more healthy fats in your diet.

Now it's time to discuss more specific tips you can use when you go to the supermarket and in your kitchen.

- When choosing oils for cooking and as a condiment, look for cold-pressed oils. These oils are healthier than conventionally produced oils, which are heated,

treated with solvents, and bleached. These processes introduce toxins into the oil and also remove much of its nutritional value. Cold-pressed oils are not heated or treated, and so retain their nutritional value. They also contain a higher level of the important antioxidant vitamin E.

- Oils and fat can turn rancid very quickly if they are not stored properly. Rancid fats not only taste terrible, they are carcinogenic as well and have been linked with atherosclerosis and heart disease. The higher the percentage of polyunsaturated fat in an oil, the faster it will go rancid (see chart). To help prevent your oil from going rancid, you should: (1) Refrigerate oil once you open it. Unopened cooking oils have a shelf life of about one year. Unopened oils can be kept unrefrigerated in a cool, dark place. (2) Keep oil in a glass or metal container. If you buy it in a plastic bottle, transfer it to a more suitable container. (3) Buy only as much oil as you think you'll use within a few months' time. (4) Refrigerated oil may turn cloudy, but it will return to normal, unharmed, once it reaches room temperature.
- Avoid use of solid hydrogenated shortening (e.g., Crisco, among others).
- Not all oils are best for every use. Those best as a condiment are olive, hazelnut, sweet almond, sesame, canola, and soy. The first four are also suitable for baking and stir-fry.
- Margarine and vegetable oil spreads. By law, margarine must contain at least 80% fat. Vegetable oil spreads may be reduced-fat, reduced-calorie, or diet (these contain no more than 60% oil); light or lower-fat (contain no more than 40% oil); or fat-free (contain less than 0.5 gram of fat per serving). Both margarines and spreads are made from vegetable oils, with the healthiest ones (those highest in monounsaturated fat and lowest in saturated fat) being olive oil, flaxseed oil, hempseed oil, and canola oil.

Oil	Mono.	Poly.	Sat.
Olive	77%	9%	14%
Avocado	74%	14%	12%
Almond	73%	18%	9%
Apricot	63%	31%	6%
Canola	62%	31%	7%
Peanut	48%	34%	18%
Sesame	42%	43%	15%
Corn	25%	62%	20%

Oil	Mono.	Poly.	Sat.
Soybean	24%	61%	15%
Sunflower	20%	69%	11%
Cottonseed	19%	54%	27%
Safflower	13%	78%	9%

FRUITS AND VEGETABLES

It's no secret that fruits and vegetables are a critically important part of an anti-aging diet. After all, they are a super source of age-defying antioxidants, fiber, and other nutrients; they are low in fat and sodium, and they have no cholesterol. Add to this list the fact that there are dozens and dozens of choices from which to choose, and you can't go wrong.

Or can you? The benefits of eating fruits and vegetables are greatly diminished or eliminated if the produce isn't selected or stored properly, or if it is prepared in unhealthy ways. Although every fruit and vegetable has its own unique characteristics, here are some general guidelines for purchasing, handling, and eating produce so you can enjoy and reap the health rewards they have to offer.

- Wash all produce, whether conventionally or organically grown, just before serving or cooking, not before you store them. Cool water is all that's necessary; commercial produce washes offer little or no advantage over plain water.
- Check the PLU stickers on your produce. Conventionally grown produce has a four-digit number (e.g., 1234); organically grown, five digits prefaced by the number 9 (e.g., 91234); and genetically modified produce, five digits prefaced by the number 8 (e.g., 81234).
- Discard the outer leaves of leafy vegetables because pesticide residues tend to accumulate there.
- Use a produce brush to clean firm produce (e.g., carrots, potatoes, turnips).
- Immediately refrigerate any produce that you cut and do not plan to eat right away, as bacteria grow very quickly on cut fruits and vegetables.
- Wash fruits and vegetables that you peel (e.g., melons, oranges, pineapples) because when you cut them, your knife transfers contaminants from the peel into the pulp.
- Do not buy or use produce that is moldy, badly bruised, shriveled, or slimy. Minor blemishes are usually safe; in fact, organic produce sometimes has minor blemishes because it is not colored, waxed, or has not undergone attempts to make it look "perfect."
- Do not store fruits and greens together, because fruits give off ethylene gas, which causes greens to decay.
- Always cook dehydrated vegetables thoroughly, as they are susceptible to contamination by various microorganisms and can cause food-borne illness.
- To freeze most vegetables, steam blanch them (see blanching guidelines at <http://www.ext.colostate.edu/PUBS/FOODNUT/09330.pdf>). Blanching stops the enzymes from breaking down the nutrients in the vegetables. Cool and then store blanched vegetables in freezer bags or containers.

HOW TO READ FOOD LABELS

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