



American Institute
for Cancer Research

STAYING LEAN FOR CANCER PREVENTION

Healthy Living for Cancer Prevention



Our Vision

The American Institute for Cancer Research (AICR) helps people make choices that reduce their chances of developing cancer.

Our Heritage

We were the first cancer charity:

To create awareness of the relationship between diet and cancer risk

To focus funding on research into diet and cancer prevention

To consolidate and interpret global research to create a practical message on cancer prevention

Our Mission

Today the American Institute for Cancer Research continues:

Funding research on the relationship of nutrition, physical activity and weight management to cancer risk

Interpreting the accumulated scientific literature in the field

Educating people about choices they can make to reduce the chances of developing cancer

AICR is part of the World Cancer Research Fund global network, which consists of the following charitable organizations: The American Institute for Cancer Research (AICR); World Cancer Research Fund (WCRF UK); World Cancer Research Fund Netherlands (WCRF NL); World Cancer Research Fund Hong Kong (WCRF HK); World Cancer Research Fund France (WCRF FR); and the umbrella association, the World Cancer Research Fund International (WCRF International).

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AICR's Recommendations for Cancer Prevention have been simplified into three guidelines, which explain how the choices you make about food, physical activity and weight management can reduce your chances of developing cancer.

AICR Guidelines for Cancer Prevention



Choose mostly plant foods, limit red meat and avoid processed meat.

Be physically active every day in any way for 30 minutes or more.

Aim to be a healthy weight throughout life.

**And always remember –
do not smoke or chew tobacco.**

AICR is part of the WCRF global network

Staying Lean for Cancer Prevention



Maintaining a healthy weight throughout life may be one of the most important ways to protect against cancer. That's the number one finding of the report, *Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective*, published by the American Institute for Cancer Prevention and its affiliate, the World Cancer Research Fund in the U.K.

A panel of 21 world-renowned expert scientists analyzed approximately 7,000 studies on diet, physical activity and body weight in relation to cancer to produce the AICR/WCRF report.

After examining data from more than 400 studies, the panel found the evidence convincing that body fat increases risk for cancers of the pancreas, colorectum, breast (postmenopausal), endometrium and kidney and for adenocarcinoma of the esophagus. It cited evidence that it probably increases risk for cancer of the gall bladder.

The panel found this evidence so strong that it concluded that body fat is a primary cause of cancer, perhaps only less important than smoking.

As a result, AICR's third major guideline is: **"Aim to be a healthy weight throughout life."**

This brochure will explain why this is an all-important step for good health and suggests what you can do to make it possible for yourself.

Next, determine your waist measurement because where you carry your extra weight affects your cancer risk too. Fat around the middle especially creates conditions that promote the growth of cancer cells.

To measure your waist, place the tape measure just above your hip bone and encircle your bare abdomen with it snugly, but not tightly. Exhale normally before you measure.

High risk for women is a waist measurement of 35 inches or more, but anything above 31.5 inches can increase risk.

High risk for a man is a waist measurement of 40 inches or more, but anything above 37 inches can increase risk.

Weight Control Is All about Energy Balance

In this context, the word energy does not refer to how peppy or lethargic you feel. Rather, “calories,” are a measure of energy. If the calories you eat are equal to the calories you use up, you have achieved energy balance and your weight will stay the same. On the other hand, if you consume more energy through food and drink than your body burns, you’ll gain weight. And if you burn up more energy than you take in, you will slowly begin to lose weight.

Today more Americans are overweight or obese than ever before. In our society, it is all too easy to eat large portions of calorie-laden foods – fast food, desserts, snack foods – and use up fewer calories than people did decades ago. We drive instead of walk, work in offices instead of fields or construction sites, watch TV instead of playing games outdoors or even strolling. We use labor saving devices like washing machines and spend endless hours in front of a computer.

Given these conditions, it is difficult to maintain a healthy weight. But that doesn’t mean we should just give up and get fat. The stakes are too high. It’s not just a matter of feeling less attractive; it has to do with succumbing to a variety of chronic diseases including cancer. Nor do our weight problems mean we should experiment with trendy diets that call for

extreme calorie deprivation and radically unbalanced meals. The expert panel found convincing evidence that two sensible steps are key to managing weight:

Limit energy-dense foods and avoid sugary drinks.

Aim to get 60 minutes or more of moderate activity, or for 30 minutes or more of vigorous activity, every day.

Research shows these steps are an effective way to stop weight gain, and this fits well with common sense. Limiting energy-dense foods, as we shall see, reduces energy intake. Being more active increases energy expenditure. These two steps re-adjust your energy balance so weight gain stops and you slowly begin to shed pounds.

The Evidence on Weight Gain

Popular diet books have proposed a variety of causes for overweight and obesity and so have offered a variety of strategies for managing weight. Eating more meat with saturated fat, eliminating all carbohydrates and limiting intake to one food (such as cabbage or grapefruit) are just some of the more infamous strategies proposed.

In fact, the evidence to support such theories is limited or nonexistent. Existing evidence suggests that more familiar strategies, such as substituting vegetables and fruit for more energy-dense foods and increasing physical activity, are the most effective ways to stop weight gain.

The panel found the evidence convincing that sedentary behavior increases risk of weight gain and physical activity reduces it.

The panel found the evidence that energy-dense foods probably increase the risk of weight gain and low-energy-dense foods decrease it.

Specifically, the panel found the evidence that traditional fast foods, sugary drinks and television viewing probably also increase the risk of weight gain.

Limiting Energy-Dense Foods

The term “energy density” describes how the caloric content varies among the same size portions of different foods. Foods that are energy-dense have a high concentration of calories per bite. In low-energy-dense foods, the calories are diluted by water and often fiber, so there are fewer calories in the same size bite.

If your objective is to stop weight gain without going hungry, energy density is a useful concept. Let’s say you usually take 20 bites of food before feeling full. If you choose energy-dense foods, those 20 bites will deliver a hefty load of calories before you feel satisfied. If you choose low-energy-dense foods, the same 20 bites will deliver fewer calories but the same sense of satisfaction. That means you can stop weight gain without suffering hunger pangs.

The most obvious energy-dense foods are fatty meats and full-fat dairy products. Another overlapping category is highly processed foods. Food processors want products that ship well, have a long shelf life, are easy to use and entice with intense flavor. To achieve that they often dry out foods, pulverize or remove their fiber, cook them in fats, and/or add sugar and fat. Think what happens to a potato as it is processed into a potato chip.

Low-energy-dense foods in contrast tend to be juicy or moist. They often have a high percentage of fiber, which retains their natural water content. Most



vegetables, fruits and legumes are easily recognized low-energy-dense foods.

To limit the amount of energy-dense foods in your diet, you can make several types of changes in the food you regularly choose to eat.

- Trade full-fat foods for low fat versions. Always choose meat dishes, cheeses and other dairy products that are lower in fat.
- Substitute low-energy-dense foods for high. Choose a salad with low-fat dressing instead of macaroni and cheese, or chunks of fresh fruit instead of French fries. The object is to increase the proportion of low-energy-dense foods to energy-dense foods in every meal you eat.
- Finally, you can add low-energy-dense ingredients to your favorite recipes. For instance, add nonstarchy vegetables, such as broccoli, zucchini, mushrooms or spinach to lasagna or pasta dishes. The object is to increase the proportion of low-energy-dense foods in everything you eat.

Energy Density Food Categories

Very Low-Energy-Dense Foods	Includes most fruits and vegetables, skim milk and broth-based soups.
Low-Energy-Dense Foods	Includes many cooked grains, breakfast cereals with low fat milk, low fat meats, beans and legumes, low fat mixed dishes and salads.
Medium-Energy-Dense Foods	Includes meats, cheeses, high fat mixed dishes, salad dressings and some snack foods.
High-Energy-Dense Foods	Includes crackers, chips, chocolate candies, cookies, butter and oil, bacon, full fat mayonnaise.

Adapted from *Volumetrics* by Barbara Rolls, Ph.D., and Robert A. Barnett, HarperTorch, 2000.

The New American Plate

Energy-dense foods are clearly linked to weight gain. A good way to reduce the amount of energy-dense foods in your meals is to follow AICR's New American Plate eating plan. The New American Plate is not a quick fix diet. Rather, it is a style of eating that provides delicious, satisfying meals that help you control your weight and protect yourself against chronic diseases such as cancer. It focuses your attention on two simple concepts: proportion and portion size.

Proportion

Take a look at your plate at dinner tonight. The traditional American plate contains a large piece of meat and a big helping of buttery, mashed potatoes or French fries, which barely leave room for a teeny, tiny serving of some green vegetable such as peas or green beans. The proportions are all wrong. The low-energy-dense vegetables have been crowded off the plate.

You can correct the proportions of food on your plate by following a simple rule of thumb: $\frac{2}{3}$ (or more) vegetables, fruits, whole grains and beans to $\frac{1}{3}$ (or less) lean meat and low fat dairy. To ease into the New American Plate, reduce your portion of meat to 3 ounces cooked. Then fill the plate with a whole grain such as brown rice or a less well known grain like kasha or bulgur, and your favorite vegetables. To reach $\frac{2}{3}$, you may have to serve two vegetables at one meal – say, carrots and broccoli. That may seem strange to some people, but it is an extraordinarily good idea. Two vegetables will fill you up without loading you down with calories; at the same time they will supply the phytochemicals believed to bolster your body's defenses against cancer.

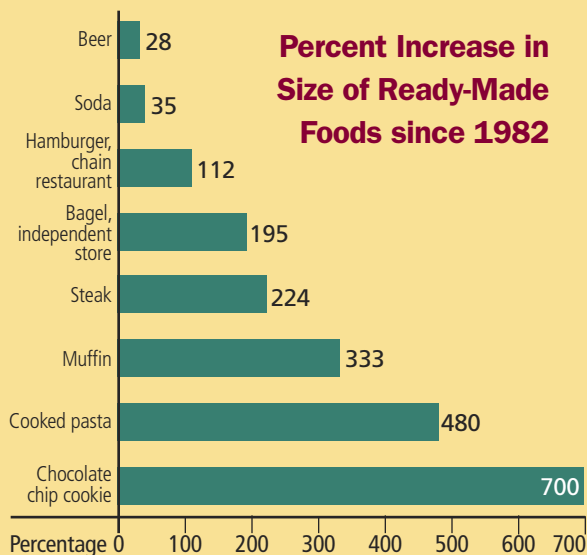
Portion Size

Once you have taken care of the proportion of foods on your plate, there is another important consideration: the size of the portions on that plate. Oversize portions have become a standard marketing ploy in this country, and we have let these large portions spill over onto our dinner plates and lunch boxes. The chart shows the

percentage increase in size of ready-made foods since 1982.

These huge increases would be funny if it weren't for their dire effect. A chocolate chip cookie the size of a frisbee can easily undo all your positive efforts to eat more healthfully.

Again, start by looking at your plate. Does it hold a lot more food than it used to? If so, the thing to do is maintain that $\frac{2}{3}$ to $\frac{1}{3}$ proportion, but reduce portion size all around. Do it gradually. Reduce each portion by one quarter. You'll soon get used to eating slightly smaller amounts. After all, it is merely a matter of bringing our meals back to normal. In a short time, you'll wonder how you ever managed to down so much extra food.



The information in this chart is adapted from the American Public Health Association © 2002, *American Journal of Public Health*, February 2002, Vol. 92, No. 2, p. 247.

To sum up, preparing healthy meals based on low-energy-dense foods can be reduced to a simple rule of thumb with one footnote. **Fill your plate $\frac{2}{3}$ (or more) with vegetables, fruits, whole grains and beans and $\frac{1}{3}$ (or less) with animal protein.** If that in itself doesn't stop weight gain, maintain the $\frac{2}{3}$ to $\frac{1}{3}$ proportion, and gradually reduce the size of your portions. Eating the New American Plate and increasing your physical activity is the route to effective weight management.

Beverage Calories Can Add Up

When the expert panel advised people concerned with stopping weight gain to limit energy-dense foods, they made separate reference to avoiding sugary drinks. It isn't particularly helpful to think of beverages in terms of energy density. They don't fill you up and signal your brain to stop drinking. (Milk is an exception because it contains protein and fat.) In fact, it is because most drinks don't fill you up that the panel's recommendation is simply "avoid sugary drinks." For most of us that means cutting way back on sugary sodas and fruit drinks (not fruit juice), which comprise 10 percent of Americans' daily calories. Your best beverage choices for weight control are water and unsweetened tea and coffee.



Physical Activity for Weight Control

By choosing more low-energy-dense foods and avoiding sugary drinks, you take the first step toward effective weight management. You reduce the amount of energy you take in. The second step, according to AICR, is to increase physical activity, which is to say, to increase the amount of energy you burn. These two steps together can tip your energy balance and stop weight gain.

Your body burns energy all day – when you're walking, talking, driving, working on a computer and even sleeping. You burn the most energy for things you're not even thinking about – breathing, maintaining a normal body temperature, circulating blood and other functions just to stay alive. This is your basal metabolic rate, and for most people, it accounts for 60 – 75 percent of the total energy they use. Second, a tiny amount of energy is used up during the digestion of food.

The third way to burn energy is the one area where we have significant control. That's physical activity – walking, jogging, biking, swimming, cutting grass, cleaning house and anything else that makes us move.

The evidence that physical activity protects against weight gain, overweight and obesity is convincing. But in modern society, physical activity does not come easily for many people. Urbanization and advancements in technology have brought us machines to do the work we used to do by hand, along with sedentary jobs and inactive forms of recreation like watching TV. All of this means that we now have to make a special effort to build physical activity into our lives.

What counts as physical activity?

Anything that makes you move counts, not just those things you do in a gym or through a sport. AICR recommends that you start with 30 minutes a day of moderate physical activity, which will lower your cancer risk. Then, gradually build up to 60 minutes or more of moderate physical activity,

or 30 minutes or more of vigorous physical activity every day to help prevent weight gain as well. Any increased physical activity is beneficial, so take a look at your activity level now and find ways to step it up. Before starting a new program, get approval from your doctor.

Moderate activity will get your heart pumping faster and your breathing a little heavier, but you'll still be able to carry on a conversation. Here are some examples of moderate activity.

- Walking at a brisk pace of about 3.5 miles per hour (a mile will take about 17 minutes)
- Yoga (actively changing poses)
- Bicycling leisurely
- Dancing moderately
- Swimming slowly
- Gardening
- Vacuuming and other household chores

You may want to start with the goal of 30 minutes of brisk walking or other moderate activity. Find 10 or 15 minutes here and there during your day, and the task is not so monumental. Walk or bicycle to a neighbor's house instead of driving. Park at the far end of the parking lot. Take a break from the computer and walk around either inside or outside. Pass up the elevator in favor of the stairs. Turn on some energizing music to help you pick up the pace during household chores. As your fitness level improves, challenge yourself to do more until you're reaching 60 minutes every day.

Vigorous activity pumps the heart even faster. You'll likely start to sweat and feel out of breath. You might be able to speak some, but long conversations will have to wait. Here are some examples of vigorous activity.

- Jogging and running at 5 or more miles per hour (a mile will take 12 minutes or less)
- Tennis, racquetball, basketball, soccer and other team sports
- Aerobic exercise classes or using cardiovascular gym equipment (stair climber, stationary bike, etc.)

- Hill walking
- Fast swimming
- Fast dancing

The amount of energy you burn during any activity depends on the duration and intensity of that activity. To burn more calories, you can work harder or longer or both. To make vigorous activity a regular part of your life, choose an activity you enjoy and look for opportunities to carve out time, even if that means setting the alarm clock for a bit earlier or delegating some of your obligations to someone else in the family.

Ask your family or friends to participate. What do they enjoy? Maybe you'll find a walking partner, or perhaps you can take your family biking or skating instead of sitting in a movie theater. Weight lifting or other resistance training, flexibility and balance are also parts of a complete fitness program, so consider all types of activities and look for variety.

Finally, pay attention to your sedentary activities because they are associated with the development of obesity. AICR recommends limiting sedentary activities, especially watching television, which now accounts for a lot of our leisure time. Studies show Americans average four or more hours of TV watching a day. Activities that keep us idle are frequently associated with eating energy-dense foods like chips and sweets and drinking sugary beverages; while watching television shows, we're also viewing commercials for these types of food and drinks.



The Double Benefits of Moving More and Eating Well

Diet

By eating a diet rich in fruits, vegetables, beans and whole grains – all low-energy-dense foods – you'll be better able to manage your weight, and that means a lower cancer risk. But there is another reason to eat a plant-based diet too. These same foods are cancer-fighting foods, packed with vitamins, minerals, phytochemicals and fiber. They are perhaps the one type of food most Americans need to eat *more* of, when prepared in low fat ways.



Hundreds of phytochemicals (plant chemicals) in plant foods work together to boost our health and protect us from cancer and other diseases. There are different phytochemicals in different groups of foods, so be certain to eat a variety from each of the plant food groups. Aim for at least five servings of colorful fruits and nonstarchy vegetables and three or more servings of whole grains daily. Toss some beans and other legumes like peas into the mix too.

Fruits and nonstarchy vegetables (like greens, carrots, broccoli, cauliflower and tomatoes) likely protect you against cancers of the mouth, pharynx, larynx, esophagus and stomach. Nonstarchy vegetables may

also shield you from cancers of the nasopharynx, lung, colon, rectum, ovary and endometrium. Eating fruits may guard you from lung cancer and other cancers too. So what's your best bet? Enjoy a wide array of plant foods. Try some you've never eaten before or haven't had in a long time.

Physical Activity

Like a healthy diet, physical activity shields you from cancer in two ways. By helping you maintain energy balance, you'll control your weight and lower your risk for cancer. Research shows convincing evidence that being physically active significantly reduces risk for colon cancer and post-menopausal breast cancer. Physical activity likely protects against cancers of the endometrium, lung and prostate as well.

Activity speeds up digestion, which may lower the risk for colon cancer. And being active lowers the hormone levels that affect your risk for hormone-related cancers such as breast and endometrial cancer.

The bottom line is that a plant-based diet and being physically active are win-win situations. They work together to keep you fit, prevent weight gain, lower your risk for cancer, protect you from other diseases and overall, they can improve the quality of your life. Commit to at least one diet and one exercise change today.

At Any Weight, There's Something You Can Do

The lean individual

If you are lean today, you'll need to take precautions to stay that way. Everywhere we turn, there are too many opportunities to eat and to eat too much – school, sporting events, business meetings, the office kitchen, a hospitable friend's home, restaurants that serve super-sized portions and more.

Think about the effect life changes have on our eating habits too. Going to college, getting married, changing jobs, having children and joining new social groups all influence our food choices.

Compound this with the muscle loss and accompanying decrease in metabolic rate common once we hit our 30s, and it's clear that even slim people risk weight gain.

- Be aware of your food choices. Be sure to get mostly low-energy-dense foods. Trade sweets for fruits and second helpings of meat for second helpings of vegetables.
- Commit to daily physical activity. Look for opportunities to add steps in your day.
- Weigh yourself regularly (about once a week), and take action immediately if the scale goes up. Weight loss isn't easy, but losing 5 pounds is easier than losing 20.

Overweight or obese in middle age

For many people, weight gain is so slow and insidious – sneaky really – that they're shocked to suddenly find themselves 30 or 40 pounds overweight. You may be even more surprised if you compare yourself to others because overweight and obesity have become so common. But common does not mean healthy. Your first step is to halt the weight creep and then to focus on losing.

- Commit to life changes. It's very common to feel panic about a weight gain and attempt a fad diet to quickly shed the pounds. In the long run, it rarely works. Unbalanced or restrictive plans usually set the dieter up for failure. Feelings of deprivation lead people to give up, and weight lost unhealthfully frequently comes back with a vengeance.
- Increase the proportion of low-energy-dense foods you eat. Fill your plate with nonstarchy vegetables and snack on fruit.
- Limit traditional fast food.
- Drink water and noncaloric beverages instead of sugary drinks. Limit fruit juices too.
- Gradually increase your physical activity through sport, planned exercise or daily

activities to at least 60 minutes each day. Check with your physician first.

- Be realistic. Expect and plan for a slow and steady weight loss.

Overweight or obese for many years

You may not remember ever being thin. Or perhaps it was so many years ago that it seems unattainable now. Like many people, you may have tried one diet after another, used weight loss medications or supplements, attempted hypnosis or tried other methods. For any number of reasons, you may have been unsuccessful. Often medications, health conditions or genetics make weight loss especially difficult. In this case, AICR recommends that you prevent further weight gain and pay attention to the other guidelines for cancer prevention: healthy eating and physical activity.

- Increase the proportion of plant foods on your plate and in your overall diet. Especially increase your intake of fruit and nonstarchy vegetables.
- Cook and serve your food in low fat ways such as baking, stir-frying, steaming and sauteeing instead of frying. Instead of using high-fat cheese and cream sauces, sugar and salt, flavor your foods with herbs, lemon and other fruit juices, vinegar and mustard.
- Limit red meat and avoid processed meats.
- If you drink alcohol, limit your intake to no more than one drink per day for women and two for men.
- Develop a sustainable physical activity program. Consult your physician before you start.
- Don't smoke or chew tobacco.
- Finally, don't be surprised if your efforts at cancer prevention reward you with a gradual weight loss too.

AICR Recommendations for Cancer Prevention

1. Be as lean as possible without becoming underweight.
2. Be physically active for at least 30 minutes every day.
3. Avoid sugary drinks. Limit consumption of energy-dense foods (particularly processed foods high in added sugar, or low in fiber, or high in fat).
4. Eat more of a variety of vegetables, fruits, whole grains and legumes such as beans.
5. Limit consumption of red meats (such as beef, pork and lamb) and avoid processed meats.
6. If consumed at all, limit alcoholic drinks to 2 for men and 1 for women a day.
7. Limit consumption of salty foods and foods processed with salt (sodium).
8. Don't use supplements to protect against cancer.

Special Population Recommendations

9. It is best for mothers to breastfeed exclusively for up to 6 months and then add other liquids and foods.
10. After treatment, cancer survivors should follow the recommendations for cancer prevention.

*And always remember –
do not smoke or chew tobacco.*

Need More Help?

American Institute for Cancer Research
1759 R Street, NW, P.O. Box 97167
Washington, DC 20090-7167
1-800-843-8114 or 202-328-7744
www.aicr.org

Call The Toll-Free Nutrition Hotline

Dial 1-800-843-8114 to leave a message for a registered dietitian (who will return your call), Monday-Friday, 9 a.m.-5 p.m. Eastern Time. Or visit the AICR Hotline online at www.aicr.org.

How You Can Support Cancer Research and Education through Your Will

You can help provide for future cancer research and education through a simple bequest in your will. Consult with your attorney when first writing your will or to add a simple paragraph to your existing will. Your bequest to help in the war against cancer can be a cash amount, a gift of the remainder of your estate or a portion of the remainder after obligations to your family and loved ones are met.

Your attorney can easily help you make a bequest to the American Institute for Cancer Research (AICR). To do so, your attorney will need to know:

AICR's official name:

American Institute for Cancer Research

AICR's mailing address:

1759 R Street, NW, Washington, DC 20009

AICR's telephone number:

202-328-7744

AICR's identification:

A not-for-profit organization under Section 501(c) (3) of the Internal Revenue Code

AICR's tax-exempt IRS number:

52-1238026

For further information, contact AICR's Gift Planning Department at 1-800-843-8114.



American Institute
for Cancer Research
