
CHAPTER 1

A Pound of Prevention: Your Actions, Your Future

You can do much more than any doctor to maintain your health and well-being. But you have to get into the habit of health. You must have a plan. At the age of 50, individuals with good health habits can be physically 30 years younger than those with poor health habits. In other words, at age 50 you can feel as if you're 65 years old or 35 years old. It's up to you.

You'll feel better and accomplish more if you develop the habit of health. In this chapter we'll help you make the most important plan of your life, your plan for good health.

The major health problems in the United States are chronic, long-term illnesses in middle age and later, and trauma at young ages. These illnesses include heart disease, cancer, emphysema, and liver cirrhosis, and cause nearly 85% of all deaths. They also account for about 80% of all sickness in the United States. About two-thirds of cases of these illnesses can be prevented.

The illness and pain associated with disease, as well as the deaths, can be greatly reduced by a good plan for health. For example, only two years after your last cigarette you return to the normal risk level for heart attacks. After ten years you're back to nearly normal risk for lung cancer. In only a few weeks, exercise programs begin to contribute to your health and well-being. For most chronic diseases, not only can you slow the rate of progression, but you can also reverse part of the damage.

As a bonus, your plan for good health can prevent many nagging nonfatal health problems such as hernias, back pain, varicose veins, and osteoporosis. By developing the habit of health, you can reduce the amount of illness you'll have in your life. As an even bigger bonus, you'll feel much better and have more energy. Good health is its own reward.

An ounce of prevention is better than a pound of cure. Think of what a pound of prevention can do!

The Seven Keys to Health

Good news! There are only seven major ingredients in a plan for good health:

- Exercise
- Diet and nutrition
- Not smoking
- Alcohol moderation
- Weight control
- Avoiding injury
- Professional prevention

In fact, most individuals don't even need to worry about all seven areas. You're probably already a nonsmoker. Quite possibly your body weight isn't too far from where it needs to be. Probably your alcohol intake is already moderate. Probably you already do some exercise, and probably you already have some good dietary practices. Most likely you already take some measures, such as using your automobile seat belts, to reduce your chances of serious injury. And you probably work with your doctor to have some of the periodic screening tests that you need.

EXERCISE

Exercise is the central ingredient of good health. It tones the muscles, strengthens the bones, and makes the heart and lungs work better. It increases your physical reserve and your vitality. Exercise eases depression, assists the function of the bowels, leads to sound sleep, and aids in every activity of daily life. Exercise helps prevent heart disease, high blood pressure, stroke, and many other diseases.

The Three Types of Exercise

Exercise comes in several different flavors. There are strengthening exercises, stretching exercises, and aerobic (or endurance) exercises. You need to know the merits and limits of each type.

Aerobic (endurance) exercise is the key to fitness and vitality. This is the most important kind of exercise. The word "aerobic" means that during the exercise period, the oxygen (air) that you breathe in balances the oxygen that you use up. During aerobic exercise, a number of good things happen. Your heart speeds up to pump larger amounts of blood. You breathe more frequently and more deeply to increase the oxygen transfer from the lungs to the blood. Your body develops increased heat and compensates by sweating to keep your temperature normal. You build endurance.

As a result of endurance exercise, the cells of the body develop the ability to extract a larger amount of oxygen from the blood. This improves the function of all of the cells of the body. As you become more fit, these effects increase. The heart becomes larger and stronger and can pump more blood with each stroke. The cells can take up oxygen more readily. As a result, your heart rate when you're resting doesn't need to be as rapid. This allows more time for the heart to repair itself between beats.

Strengthening exercises are the traditional "body-building" exercises that build stronger muscles. Squeezing balls, lifting weights, and doing push-ups or pull-ups are examples. Strengthening exercises are only one part of a beneficial exercise program, however. These exercises can be very helpful in improving function in a particular body part after surgery (for example, knee surgery) where it's necessary to rebuild strength. They also help to strengthen your bones, since bones react to stress by becoming stronger; they can help strengthen bones even at advanced ages.

It should go without saying that you should never use anabolic steroids or any other drugs as part of a strengthening program. By so doing, you may damage your future health.

Stretching exercises are designed to help keep you loose. These are a bit more important; everyone should do some of them, but they don't have many direct effects on health. Be careful not to overdo these exercises. Toe-touching, for example, should be done gently, without bouncing. Stretch relatively slowly, to the point of discomfort and just a little bit beyond.

Stretching exercises can be of great benefit in these situations:

- If you have a joint that's stiff because of arthritis or injury
- If you've just had surgery on a joint
- If you have a disease condition that results in stiffness

There's nothing mysterious about the stretching process. Any body part that you can't completely straighten or completely bend needs to be frequently and repeatedly stretched; a good rule is twice daily. Over weeks or months, you can often regain motion of that body part.

For most people, however, stretching exercises are useful mainly as a warm-up for aerobic (endurance) exercise activity. Gently stretching before you begin aerobic exercise is important for three reasons:

- It warms up the muscles.
- It makes the muscles looser.
- It decreases the chances of injury.

Stretching again after the aerobic exercise can help prevent stiffness.

Your Aerobic Program

Aerobic exercise is important for all ages. It's never too soon to develop the habit of lifetime exercise. It's never too late to begin an aerobic exercise program and to experience the often dramatic benefits. There are, of course, a few difficulties in beginning a new exercise program. If you've been deconditioned by avoiding exercise for some time, start at a lower level of physical activity than a more active person would. You may have an underlying medical condition that limits your choice of exercises; if so, ask your doctor for advice about exactly how to proceed.

Some people worry that (1) exercise will increase their heart rates, (2) they have only so many heartbeats in a lifetime, so (3) they may be using them up. In fact, because of the decrease in their resting heart rates, fit individuals use 10 to 25% fewer heartbeats in the course of a day, even after allowing for the increase during exercise periods. Aerobic training also builds good muscle tone, improves reflexes, improves balance, burns fat, aids the bowels, and makes the bones stronger.

Other people worry about destroying their joints by too much exercise, or about sudden death while exercising. The truth is the opposite. Those who exercise have much less disability than those who don't, and the tissues around their joints become stronger. And while occasionally a person does have a heart attack during exercise, the overall chances of a heart attack are greatly decreased by aerobic exercise.

Heart Rate. Much has been made of reaching a particular heart rate during exercise, a rate that avoids too much stress on the heart and yet provides the desired training effect. Cardiologists (heart specialists) often suggest that a desirable exercise heart rate is 220 minus your age times 75%. For example, at age 40 your target exercise heart rate is $180 \times .75 = 135$ beats per minute. It can be difficult to count your pulse while you're exercising, but you can check it by counting the pulse in your wrist for 15 seconds immediately after you stop and then multiplying by 4.

As your training progresses, you may wish to count your resting pulse, perhaps in bed in the morning before you get up. The goal here (if you don't have an underlying heart problem and aren't taking a medication such as propranolol, which decreases the heart rate) is a resting heart rate of about 60 beats per minute. An individual who isn't fit will typically have a resting heart rate of 75 or so.

We generally find this whole heart rate business a bit of a bother and somewhat artificial. There really are no good medical data to justify particular target heart rates. You may wish to check your pulse rate a few times just to get a feel for what is happening, but it doesn't have to be something you watch extremely carefully. Aerobic exercise shouldn't be

"all out"; if you can't talk to a companion while you're exercising, you're probably working too hard.

Aerobic Choices. Your choice of a particular aerobic activity depends on your own desires and your present level of fitness. You should be able to grade the activity; that is, you should be able to easily and gradually increase both the effort and the duration of the exercise.

Walking gently isn't a true aerobic exercise, but it provides important health benefits. If you haven't been exercising at all, start by walking. A gradual increase in walking activity, up to a level of 100 to 200 minutes per week, usually should precede attempting a more aerobic program. First get in the habit of putting in the exercise time, then increase the effort. Walking briskly can be aerobic, but you need to push the pace quite a bit to break a sweat and get your heart rate up. Walking uphill can quite quickly become aerobic.

Jogging, swimming, and brisk walking are appropriate for all ages. At home, stationary bicycles or cross-country ski machines are good. We have seen people confined to bed using a specially designed stationary bicycle. Some individuals like to use radio earphones while they exercise; others exercise indoors while watching the evening news. Almost any activity from gardening to tennis can be aerobic, but remember that aerobic exercise can't be "start and stop." Aerobic activity can't come in bursts; it must be sustained for at least 10 to 12 minutes during each exercise period. The most recent recommendations are for 15- to 30-minute exercise periods three to seven days a week.

Cautions. If you have a serious underlying illness, particularly one involving the heart or the joints, or if you're over age 70, ask your doctor for specific advice. Advice from your doctor should always take precedence over recommendations in this book. For most people, however, a doctor's advice isn't required in order to start exercising. We recommend mentioning your exercise program to your doctor while on a visit for some other reason. A good doctor will encourage your exercise program and perhaps assist you in choosing goals and activities.

Some doctors recommend that you have an electrocardiogram (EKG) or an exercise electrocardiogram before you start exercising, particularly if you're over 50 years of age. It is difficult to see what this accomplishes because (1) gentle, graded exercise is a treatment for heart problems anyway, and (2) the test produces up to 80% "false-positive" results, suggesting that you have problems when you don't. Many doctors (including us) don't think these tests are necessary, regardless of age, unless you (the

patient) have specific, known problems. If a doctor recommends a coronary arteriogram (X-ray study of the arteries of the heart after injecting a dye into the arteries) before you begin an exercise program, you should seek a second opinion to see if this test is actually needed.

"Crash" exercise programs are always ill-advised. You have to start gently and go slowly. There's never a hurry, and there's a slight hazard in pushing yourself too far too fast. Age alone is not a deterrent to exercise. Many seniors who have achieved record levels of fitness, as indicated by world-class marathon times for their age, started exercising only in their 60s, 70s, or even 80s. Mount Fuji has been climbed by a man over 100 years of age.

Getting Started. Assess your present level of activity. This is where you start. Set goals for the level of fitness you want to achieve. Your final goal should be at least one year away, but you may want to develop in-between goals for one, three, and six months. Select the aerobic activity you want to pursue. Choose a time of day for your exercise. Develop exercise as a routine part of your day. We like to see exercise regularly performed for at least five out of seven days of the week; if you exercise all seven days, take it easy one or two days each week. Younger individuals can frequently condition with exercise periods three or four times a week. For seniors, more gentle activities performed daily are more beneficial and less likely to result in injury. You can make ordinary activities like walking or mowing the lawn aerobic by doing them at a faster and constant pace.

Start slowly and gently. Your total exercise activity shouldn't increase by more than about 10% each week. Each exercise period should be reasonably constant in effort. When you're walking, jogging, or whatever, you can use both distance and time to keep track of your progression. When starting out, it's a good idea to keep a brief diary of what you do each day to be sure you're on track. It's best to slowly increase your weekly exercise *time* to at least 90 to 100 minutes before you work to increase the *effort* level of the exercise. Get accustomed to the activity first and then begin to push it just a little bit. Again, progress slowly.

Be sure to loosen up with stretching exercises before and after exercise periods, and to wear clothing warm enough to keep your muscles from getting cold and cramping. The bottom line is patience and common sense.

Handling Setbacks. No exercise program ever progresses without any problems. After all, you're asking your body to do something it hasn't done for a while. It will complain every now and again. Even after you have a well-established exercise program, there will be interruptions. You

may be ill, take a vacation where it's difficult to exercise, or sustain an injury. There will be setbacks, but they shouldn't change your overall plan.

Common sense is the key to handling setbacks. Often you can substitute another activity for the one with which you're having trouble and thus maintain your fitness program. Sometimes you can't, and you just have to lay off for a while.

When you begin again, don't try to start immediately at your previous level of activity; deconditioning is a surprisingly rapid process. On the other hand, you don't have to start again at the beginning. The general rule is to take as long to get back to your previous level of activity as you were out. If you can't exercise for two weeks, gradually increase your activity over a two-week period to get back to your previous level.

Topping Out. After your exercise program is well established, you need to make sure that it becomes a habit you want to continue for a long time. Two hundred minutes of aerobic exercise a week (about half an hour a day) seems to give the best results. There is no medical evidence that more than 200 minutes a week is of additional value. Many people won't want to exercise this much, and that's perfectly fine. You can get most of the benefits with less activity. At 100 minutes a week, you get almost 90% of the gain that comes with 200 minutes. At 60 minutes a week, a total of one hour, you get about 75% of the benefits that you get with 200 minutes.

Exercise should be fun. Often it doesn't seem so at first, but after your exercise habits are well developed, you'll wonder how you ever got along without them. Once you're fit, you can take advantage of your body's increased reserve to vary your activity more than you did during the early months. You can change exercise activities or alternate hard exercise and easy exercise days. At that point, we hope you're a convert to exercise programs. You then can work to introduce others to the same benefits.

DIET AND NUTRITION

Diet is the second major factor for a healthy life. In general, you should move slowly in making changes from your present diet. Most people can't easily make sudden, radical changes in diet, so they may not maintain such changes. Instead, develop good dietary habits slowly over a long time span. The more changes you make, the greater the benefits. Table 1 provides guidelines for a healthy diet.

Fat Intake

Excessive total fat and saturated fat intake is the worst food habit in the typical American diet. Excessive fat intake is the major cause of atherosclerosis (hardening of the arteries' inner lining), which leads to heart

TABLE 1*Your Diet for Health*

Protein	Reduce protein intake from red meat; increase protein from whole-grain foods, vegetables, poultry, and fish.
Fat and Cholesterol	Decrease total fat intake to less than 30% of total calories. Greatly decrease the saturated fats found in whole milk, most cheeses, and red meat. Switch to vegetable oils, canola oil, soybean oil, corn oil, peanut oil, or olive oil.
Carbohydrate	Increase total carbohydrates, emphasizing whole-grain foods, vegetables, cereals, fruit, pasta, and rice; these contain "complex" carbohydrates.
Alcohol	Moderate use or less; "moderate" is approximately two drinks daily.
Fiber	Increase fiber intake, with emphasis on fresh fruits and vegetables and whole-grain foods.
Salt	Decrease to about 4 grams per day (average intake in the United States is 12 grams per day). Avoid added salt in cooking or at the table and avoid heavily salted foods, such as most snack foods. Further decrease salt intake if medically recommended.
Calcium	Standard recommendations are for at least 1,000 mg per day for men after age 65 and 1,500 mg per day for women after menopause. For reference, nonfat milk has 250 mg per glass. Use powdered nonfat milk in foods such as soup. If necessary, use calcium supplements.

attacks and strokes. The U.S. government's *Healthy People 2010* goals call for people to reduce their total fat intake to less than 30% of the total calories they consume and their saturated fat intake to less than 10%. The current U.S. average is 37% of calories as total fat and nearly 20% as saturated fat.

We think that you should try for 30% of calories as total fat but only 7% as saturated fat. Stricter diets have been shown to actually *reverse* some early artery hardening. In some cases patches on the artery walls nearly disappear. Such improvements have been seen both in monkeys given high-fat diets and then normal diets and exercise, and in X-ray studies of human hearts.

Cholesterol

An elevated serum cholesterol level is one sign warning you to reduce dietary fat. A good level is "200 or less"—that's 200 milligrams (mg) of cholesterol per deciliter (dl) of blood. Measurement of cholesterol is only a very rough guide to your dietary needs, however, and *everyone* will benefit from decreasing fat intake. The actual chemistry of fats in the body is very

complicated. The waxy white cholesterol not only comes from your diet but is also manufactured in your liver. This cholesterol production in turn is related to the various other fats in your diet. Attached to the cholesterol itself are high-density lipoproteins (HDL), which actually help prevent atherosclerosis, and low-density lipoproteins (LDL), which make heart problems much more likely. The LDL (bad cholesterol) travels "outbound" from the liver and can deposit on the inside walls of blood vessels. The HDL (good cholesterol) takes cholesterol "inbound" back to the liver for removal and can help remove plaque from arterial walls. Many laboratories measure serum cholesterol quite inaccurately. Hence, we're not enthusiastic about using serum cholesterol levels as the sole measure of your dietary needs.

You can simplify this whole complicated business by simply cutting down on the largest sources of saturated fat in your diet. Fortunately, there are easy approaches to changing saturated fat intake.

- Instead of butter, use soft or liquid **margarine**. Some evidence suggests that solid margarines are no better for you than butter.
- Use **low-fat** or **nonfat milk** instead of whole milk. The calcium and other nutrients in milk are very good for you, but the saturated fat is bad.
- With **eggs**, you just have to cut down the number per week; four eggs a week or fewer is a good ration.
- To reduce fat intake from **meats**, don't eat these foods often. A good rule for many people is to avoid having red meat two days in a row. This is easy, and it gets variety into your diet. Remember, it's really the white fat in the red meat that is the problem. Pork, bacon, hot dogs, and sausage are not colored "red" but usually contain a great deal of saturated animal fat. When you do have meat, trim the fat extensively before cooking, broil so that some fat burns or runs off, and cook the meat a little more well-done. For meat lovers, a good (and economical) practice is to buy smaller cuts of meat; surround a smaller four- or five-ounce steak with larger portions of vegetables.
- **Don't fry foods;** this usually adds saturated fat. If you do fry, avoid saturated fats such as palm oil and coconut oil; although these are vegetable oils, they're also saturated fats and bad for your arteries. Monounsaturated fats—such as olive oil, peanut oil, and canola oil—may actually be good for you.

What about other ways to lower your serum cholesterol and other fats (lipids) in the bloodstream? As we discuss later, fiber (as in vegetables, celery, apples, beans, and whole-grain breads and cereals) actually acts to

lower serum cholesterol by binding some cholesterol in the bowel before the cholesterol can be absorbed. Adequate calcium intake, needed for strong bones, also lowers blood pressure and probably the blood lipids. Your exercise program lowers your total cholesterol and also increases the good HDL in your blood. When you stop smoking, your HDL cholesterol goes up. Good health habits all seem to fit together.

Protein

What's the best protein for your diet? Probably that from whole-grain foods. Fish is excellent; you should plan at least two fish meals a week. Interestingly, the best fish for you are the high-fat fishes that live in cold water, such as salmon or mackerel. These contain a kind of fish oil that is good for your heart and actually lowers your serum cholesterol level.

Chicken and other poultry are good neutral foods. They contain less fat than red meat, though still some cholesterol; they have much less fat if you remove the skin.

The official national nutritional guidelines recommend that you substitute complex carbohydrates (such as whole-grain foods and cereals) for some of the fat and some of the protein in your diet. The complex carbohydrates are more slowly digested and provide a more even source of energy.

Salt Intake

Too much sodium (salt) in your system tends to retain fluid in your body, increasing your blood pressure and predisposing you to such problems as swollen legs. Your heart has to work harder with the increased amount of fluid volume. Thus, it's good to decrease your salt intake.

The average person in the United States takes in about 12 grams of sodium each day, one of the highest intakes in the world. Our convenience foods and fast foods are usually loaded with salt. Salt is in ketchup, in most sauces, and in hidden form in many foods. You need to read the labels to find it: look for "sodium," not "salt." The recommended amount of salt intake is 4 grams a day. You'll get plenty of salt in your food without adding more. People with problems of high blood pressure, heart failure, or some other difficulties may need to reduce salt much more radically and should discuss desirable intake levels with their doctor.

Do you have a craving for junk foods? Don't despair—there are healthy snacks! One of our favorites: popcorn, air-cooked, sprayed with butter-flavored PAM instead of butter, and sprinkled with a little Parmesan cheese. Even better, try popcorn with olive oil instead of butter, unsalted peanuts in the shell, or French bread basted with olive oil and toasted with oregano or garlic. Try low-salt whole-grain pretzels. To add flavor to foods, use lemon juice, pepper, or herbs rather than salt. There are even hot dogs without any fat or cholesterol; check the labels.

Fiber

Adequate fiber intake is important to your future health. Fiber is the indigestible residue of food that passes through the entire bowel and is then eliminated in the stool. It's found in unrefined grains, cereals, vegetables (particularly celery), and most fruits.

The beneficial effects of fiber come from its actions as it passes through the bowel. Fiber attracts water and provides consistency to the stool so that it may pass easily. The increased regularity of bowel action that results turns out to be very important; it decreases the chances of diverticulitis, an inflammation of the colon wall. Fiber also acts to decrease problems with constipation, hemorrhoids, tears in the rectal wall, and other minor problems. Finally, fiber binds cholesterol and helps eliminate it from the body.

We must emphasize that the natural-fiber approach to maintaining regular bowel movements is much better than using laxatives and bowel stimulants, which have none of the advantages of fiber. You need to get the fiber habit and to avoid the stimulant and laxative habit.

Calcium

Everybody needs enough calcium. Sufficient calcium intake is particularly important for senior men and even more important for senior women. Our national trend toward better health habits has decreased our intake of calcium-containing milk and cheese. Hence, calcium intake for many people has dropped below what is desirable, and calcium supplements are often needed.

Women over age 50 should have at least 1,500 milligrams (mg) of calcium each day, and men over age 65 at least 1,000 mg. A glass of nonfat milk contains about 250 mg of calcium. Add in the odds and ends of calcium in various foods and a typical daily intake is usually around 500 mg. Therefore, many people need some sort of calcium supplement. The most popular forms are Tums and Oscal; each tablet contains 500 mg of calcium. One or two tablets a day will usually do it.

It's important for you to remember the "calcium paradox." Just taking enough calcium in your diet doesn't really help because the extra calcium is not, for the most part, absorbed by the body. You need both to take in enough calcium and to give your body a stimulus to absorb it. Weight-bearing exercise is a strong stimulus for your body to absorb more calcium and to develop stronger bones. Exercise is for everyone. For women after menopause, estrogen supplementation also can provide a strong stimulus for absorption of calcium, and this possible treatment should be discussed with your doctor.

Diet Supplements

What about fish oil capsules? These contain the good fish oils, such as those found in salmon and mackerel, which lower the serum cholesterol

level. Five capsules are about equivalent to one serving of salmon, but they cost less than salmon. There's nothing really wrong with using them, but in general we're not much for taking pills. The capsules are big and hard to swallow.

The good effects of some vitamin supplements, particularly vitamin E, have been supported by research. We discuss these in detail on pages 55-56.

Aspirin Treatment

What about taking a tablet of baby aspirin (80 mg) every day to thin the blood? This regimen has benefits for those at increased risk for heart attacks, but *don't do it instead of changing your diet*. Even very small doses of aspirin thin the blood and prevent clots in the arteries and veins, but these same doses can result in excessive bleeding. Studies of regular aspirin use have shown a decrease in the number of heart attacks, but this was partly compensated for by increases in other diseases, including hemorrhagic strokes. We believe that this regimen is good but should be undertaken only after discussion with your doctor, and generally not by those below age 40 or 50.

Drugs to Lower Cholesterol

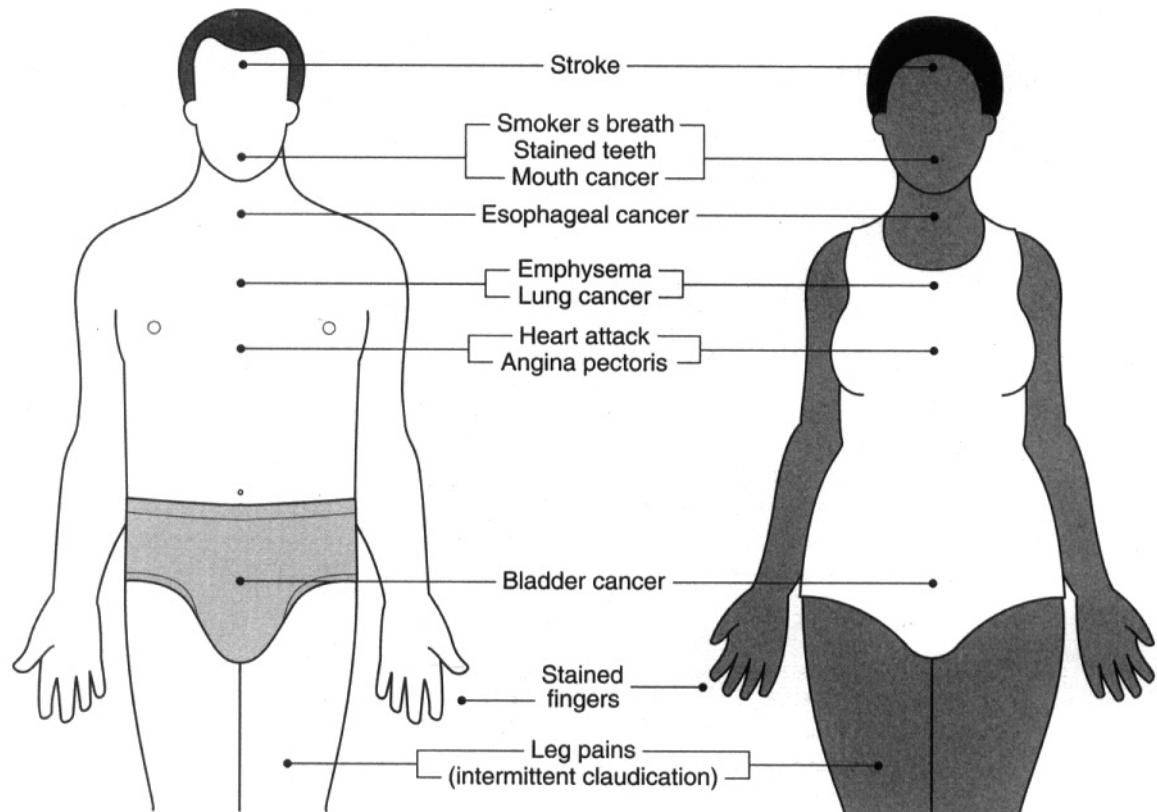
The same recommendation holds for newer cholesterol-lowering drugs, such as lovastatin or provastatin, as well as the older ones like niacin and cholestyramine. We recommend that you discuss such medications with your doctor if you continue to have high LDL cholesterol levels and if you're in one of the following groups:

- You've already had a heart attack.
- You have a very high cholesterol level, over 260 mg/dl total cholesterol or over 180 mg/dl LDL cholesterol.
- You have a family member who had an early heart attack (before age 40).

Nevertheless, try your diet and exercise program first, second, and third. Medication is the fourth step, if your doctor agrees.

NOT SMOKING

Cigarette smoking kills over 300,000 people in the United States each year. Think of it as two fully loaded 747s crashing each day. Lung cancer and emphysema (chronic lung disease) are the best known and among the most miserable outcomes. However, smoking causes atherosclerosis to develop faster, and that problem affects smokers whether or not the other diseases mentioned occur. Atherosclerosis results in heart attacks and strokes, angina pectoris (heart pains), intermittent claudication (leg pains), and many other problems. Pipe and cigar smoking don't have the pulmonary (lung) consequences that cigarette smoking does, but can lead to cancer of



Smoking. The damage occurs at many sites throughout the body.

the lips, tongue, and esophagus. Nicotine in any form has bad effects on the small blood vessels and thus increases your chance of heart attack.

It's never too late to quit. Only two years after your last cigarette, your risk of heart attack returns to average. It has actually decreased substantially the very next week! After only two years, there's a decrease in lung cancer risk by perhaps one-third, and after ten years the risk is back to nearly normal. The development of emphysema is stopped for many people when they stop smoking, although this condition doesn't actually reverse. Most people who quit smoking will enjoy major health benefits the rest of their lives.

Moreover, you'll notice at once that your environment has become more friendly when you're not a smoker. A lot of the daily hassles that impair the quality of your life go away when you stop offending others by this habit.

Here are some tips for quitting:

- Decide firmly that you really want to do it. You need to believe that you can. Set a date on which you will stop smoking. Announce this date to your friends. When the day comes, stop.
- You can expect that the physical addiction to nicotine may make you nervous and irritable for about 48 hours. After that, there's no further physical addiction. There is, of course, the psychological craving that sometimes lasts a very long time. Often, however, this craving is quite short.
- Reward yourself every week or so by buying something nice with what would have been cigarette money.
- Combine your stop-smoking program with an increase in your exercise program. The two changes fit together naturally. Exercise will take your mind off the smoking change, and it will decrease the tendency to gain weight in the early weeks after you stop smoking; this weight gain is the only negative consequence of stopping smoking.

The immediate rewards of not smoking include better-tasting food, happier friends, less cough, better stamina, more money, fewer holes in your clothes, and membership in a larger world. If you have children, you become a better role model for them.

Many health educators are skeptical about cutting down slowly and stress that you need to stop completely. We don't think this is always true. For some people, rationing is a good way to get their smoking down to a much lower level, at which point it may be easier to stop entirely. For example, the simple decision not to smoke in public can help your health and decrease your daily hassles. To cut down, keep in the cigarette pack only those cigarettes that you'll allow yourself that day. Smoke the cigarettes only halfway down before extinguishing them.

Many good stop-smoking courses are offered through the American Cancer Society, the American Lung Association, and your local hospital. Most people actually don't need these, but if you do they can help you be successful. Try by yourself first. Then, if you still need help, there's a lot of it around.

Nicotine chewing gum or nicotine patches can help some people quit, and your doctor can give you a prescription and advice. Don't plan on this as a long-term solution because the nicotine in the gum or patch is just as bad for your arteries as is the nicotine in cigarettes.

Your decision to stop smoking is one example of your ability to make your own choices. If you're trapped by your addictions, even the minor

ones, you can't make your own choices. Victory over smoking improves your mental health, in part because it is difficult. Winning this fight can open the door to success in other areas.

ALCOHOL MODERATION

Excessive alcohol intake is a serious problem for some people in every age group. Drinking too much leads to depression, danger, and disease. Among the potentially fatal complications are:

- Damage to the liver
- Delirium tremens (the DTs) from alcohol withdrawal
- Car, motorcycle, or domestic violence in which alcohol plays a role

There are many other problems that aren't fatal but that decrease the quality of your life. A drinking problem makes a person dependent on the next drink, interferes with emotions and thinking, and burdens loved ones, diminishing everyone's quality of life.

Fortunately, alcoholism is a disease from which many people recover, although recovery is a lifelong process. There are about a million recovered alcoholics in the United States, and between half and three-quarters of the people who attempt rehabilitation succeed. Among some highly motivated groups, the success rate is much higher. For example, more than 90% of physicians and airline pilots who go into highly structured, monitored programs stay in recovery. Success depends on personal characteristics, early treatment, the quality of counselors or of a support program, access to the right medical services, and the strong support of family, friends, and coworkers.

We discuss the warning signs and treatment of alcoholism on page 284. Please refer to this section if you have any questions about your drinking. Usually this problem gets too little attention too late. Be alert for alcohol-related problems in family and friends, express your concerns to them, and cooperate in helping them establish a program for alcohol control or elimination. You can save their lives, and perhaps even save your own.

WEIGHT CONTROL

Excessive body weight compounds many health problems. It stresses the heart, the muscles, and the joints. It increases the likelihood of hernias, hemorrhoids, gallbladder disease, varicose veins, and many other problems. Excess weight makes breathing more difficult. It slows you down, makes you less effective in personal encounters, and lowers your self-image. You snore more if you're overweight. Fat people are hospitalized more frequently than people with normal weight; they have more heart

burn, more surgical complications, more cases of breast cancer, more high blood pressure, more heart attacks, and more strokes.

Weight control is a difficult task. Think of "weight control" as "fat control," and it will fit in well with your other good health habits. For most of us, the problem and the solution are personal, not medical. (Excess weight is very seldom due to thyroid disease or other specific illness.) As with the other habits that change health, management of this problem begins with recognizing that it is a problem. Weight control requires your continued attention. There are genetic factors that act to make weight control very difficult for some. For those of us with a potential problem, we must have lifelong vigilance.

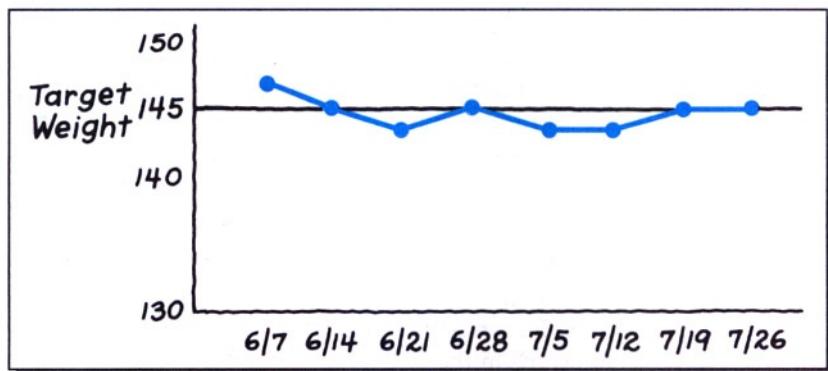
Increasingly, exercise is recognized as an important key to weight control. Part of every weight-control program should be an exercise program. Obesity isn't just the result of overeating; obese people, when studied carefully, are found to move around less and therefore to burn too few calories. There's nothing very mysterious about calories. Thirty-five hundred calories equals about one pound (450 g). If you take in 3,500 calories fewer than you burn, you lose a pound. If you take in 3,500 calories more than you burn, you gain a pound.

There are two important phases to weight control: the weight-reduction phase and the weight-maintenance phase. Surprisingly, the **weight-reduction phase** is the easiest. Here, the method you use to lose weight doesn't matter too much, although you should check with your doctor if you plan to lose a large amount of weight unusually quickly. You want to be sure that the diet you intend to follow is sound. Complex carbohydrates are important to most sound diets. During the weight-loss stage, many of your calories are provided by your own body fat and protein as they're being broken down and burned as fuel; thus, you need less fat and less protein in your diet during this period. Weight-loss diets usually have a gimmick of some kind that encourages you and helps you remember the diet, and there are dozens of books available with "secret" tips.

Remember that weight loss is naturally slow; even a total fast will cause weight loss of less than one pound a day. More rapid changes in weight are generally due to loss of fluid. The first few days of a diet often give you a false sense of accomplishment as you lose fluid. Then, when the rate of weight loss slows, you may think that the diet has failed. You have to be patient with this weight-loss phase.

Most people have some success in losing weight. If you set a target, tell people what you're trying to do, and stick with the effort for a while, you can probably lose weight. One pound a week is a reasonable goal. This requires elimination of the equivalent of one day's food each week.

The **weight-maintenance phase** involves staying at the desirable weight you've achieved. This is more difficult, and it requires continual



attention. Weigh yourself regularly and record the weight on a chart. Draw a line at three pounds over your desired weight and maintain your weight below the line, using whatever method works best for you. Keep exercising. Accept no excuses for increasing weight; it's easier and healthier to make frequent small adjustments in what you eat than to try to counteract binges of overeating with crash diets. Keep yourself off the dietary roller coaster. Failure at weight maintenance accounts for most diet failures.

AVOIDING INJURY

Each year more than 400,000 Americans are killed or maimed as a result of preventable traumatic injury. More than half of all deaths before age 45 are due to injury! Yet somehow we all think that it can't happen to us. When a loved one, friend, or neighbor is killed or crippled, or when we read about tragedies in the newspaper, we tend not to associate them directly with our own lives. Because we get away with so many risky behaviors, we tend to feel immune from such "bad luck" ourselves. True, there are some unavoidable risks. But we can avoid 90% of our risk by our own actions.

Seat Belts

Automobile seat belts reduce death and injury by 75%—but only when people wear them! Wear seat belts all of the time, whether you're a driver or passenger. Strap the little kid into a secure infant car seat. Air bags are great, but you still need to buckle the belt. All the time. Thousands of people, mostly children and young adults, die or suffer severe head injuries because they neglected to wear a helmet while bicycling, motorcycling, or skating. Wear one!

Seat belt and helmet use symbolize the other healthy actions you can take to avoid injury. This simple and easy-to-achieve habit greatly reduces

health risks, and adopting the habit means that you've thought ahead, considered the probabilities and the risks, and taken action to preserve your future health. The same kind of thinking will help you reduce other risks. Studies show that people who always use their seat belts have also lowered their risks in other areas. They're less frequently smokers, for example, and they're less likely to drink and drive.

Impairment

The other extremely important preventable contribution to automotive injury is from alcohol or, less frequently, from impairment by other drugs. Often it seems the intoxicated driver survives intact, while passengers or innocents in the other car suffer. Your primary responsibility to yourself and those around you is not to drive when under the influence. You can wreck your life, not just your car. We believe, however, that responsibility extends to passengers as well. Don't ride with an impaired driver under any circumstances. Walk, call a cab, or go with someone else. Before a party appoint a "designated driver" whose responsibility it is to stay sober. Hide the car keys from someone who has had too much to drink.

Water

Drownings are also usually preventable. Watch the kids whether they are in a pool, a lake, or the sea. Wear life preservers on small boats. Don't go boating with an impaired captain, and don't be one yourself. Don't dive into hard objects or shallow depths. Watch out for the undertow. Use common sense.

Fire

Fires are usually preventable tragedies. They're started by overloaded electrical systems, faulty heaters, smoking in bed, hot ashes in garbage cans, careless use of fireworks, playing with matches, inadequate fireplace screening—all avoidable hazards. Fires have an even better chance to hurt people when there are no smoke alarms or no fire extinguishers. Having well-placed and functioning smoke alarms in your home is another proof that you're thinking ahead, considering probabilities and risks, and taking action to protect your future.

Falls

Most broken bones are caused by falls, and most falls are preventable. Clutter in the home, nothing to hold on to in the bathroom, poor lighting, wrong shoes, careless use of ladders, unsteady walking because of alcohol or other drugs—all are causes.

Firearms

Gunshot wounds are a major cause of death in our society, especially among young people. Adolescents with thoughts of suicide are much more

likely to succeed in killing themselves if there is a gun available. Criminals, especially in the illegal drug trade, often use guns without regard for whom they injure. Use common sense to protect yourself from crime. Take extreme care in using and storing firearms. Lock ammunition securely away from the firearm.

PROFESSIONAL PREVENTION

Most prevention is personal. But, to take care of yourself, you'll sometimes require professional help. Medicine in recent years has been oriented to "cure" rather than to "prevent," even though most of the greatest medical successes, such as eradication of smallpox and control of paralytic polio, have been achieved through preventive measures. We doctors have been crisis-oriented: our approach has been to wait for a consequence to appear and then to try to treat it.

Today doctors are becoming more interested in preventive medicine. The most important part of prevention, developing good health habits, has been discussed and is your personal responsibility. But the idea of preventive medicine also includes the following five strategies that involve health professionals, and it's important to understand both the strengths and the limitations of these strategies:

- The checkup or periodic health examination
- Screening for early problems
- Early treatment for problems
- Immunizations and other public health measures
- Health risk appraisal

Periodic Checkups

The "annual checkup" is still recommended by some schools, camps, employers, and the army. However, doctors seldom go to each other for routine checkups. Checkups don't detect treatable diseases early with any regularity, and they may raise false confidence; that is, they may encourage the false belief that if you're regularly checked you don't need to concern yourself as much about developing good health habits.

Your primary interest is in finding conditions about which something can be done, and for this the checkup is unfortunately not very useful. If you use the techniques described above to reduce your health risks, and if you attend to new symptoms as discussed in Part II of this book, you'll gain few advantages from an annual "complete checkup."

Are "complete" checkups ever worthwhile? Yes. The first examination by a new doctor allows you to establish a relationship with him or her. Increasingly, the periodic checkup is being used not as much for the

detection of disease as for the opportunity to counsel the patient about poor health habits, so that patients can do a better job of personal disease prevention. We applaud this change and look to doctors to further refine their skills at influencing their patients to take care of themselves.

Screening for Early Problems

Although complete checkups may offer limited benefits, periodic screening tests in several specific areas are important. Try to arrange these tests when you visit your doctor for another reason so as not to require a special trip.

- **High blood pressure** is a significant medical condition that gives little warning of its presence. During adult life, it's advisable to have your blood pressure checked at least every year or so. This measurement can easily be done by a nurse, physician's assistant, or nurse's aide, but a doctor's visit isn't required. If high blood pressure is found, a doctor should confirm it and you should carefully attend to the measures needed to keep it under control (see *High Blood Pressure*, page 274).
- If you're a woman over age 20, you should have a **Pap smear** taken every year or so. Some authorities now recommend beginning annual Pap smear testing at the age of first sexual activity, decreasing its frequency to every three to five years after the first three tests are negative, and again increasing the frequency to every one or two years after age 40. This test detects cancer of the cervix, the portion of the womb (uterus) that protrudes into the vagina. In early stages this cancer is almost always curable. See Chapter 11, "Women's Health," page 293, for more information.
- Women over age 25 should practice **breast self-examination** monthly. Any suspicious changes should be checked out with a doctor; the great majority of breast cancers are first detected as suspicious lumps by the patient. Women with large breasts can't practice self-examination with as much reliability as other women and may wish to discuss other screening procedures with their doctors. We recommend **mammography** as a yearly screening procedure for women after age 50, and others believe screening should start at age 40. Women who have already had a breast tumor should follow their doctors' recommendations. Women with a strong history of breast cancer in their family should begin mammography screening by age 40. See pages 290-291.

The importance of these few examinations is underscored by their availability as a public service, free of charge, at many city and county clinics. The United States Preventive Services Task Force consists of the

TABLE 2*Recommended Adult Screening Procedures*

<i>Procedure</i>	<i>Recommendation</i>
Pap smear for cervical cancer (women)	Annually for 3 years starting at age 21, or when sexual activity begins, whichever is earlier. If these first 3 tests are negative, every 3 years from then on.
Fecal occult blood tests for colorectal cancer	Annually after age 50.
Sigmoidoscopy for colorectal cancer	Every 3 to 5 years after age 50. If a parent or sibling has had colon cancer, air-contrast barium enema and sigmoidoscopy every 3 to 5 years after age 40.
Breast cancer screening (women)	Monthly self-examination. Yearly physician examination after age 40. Annual mammography after age 50, or after age 40 if mother or a sister has had breast cancer.
Serum cholesterol and triglyceride screening	Cholesterol measured at intervals of 5 or more years up to age 70. Screening serum triglyceride is now controversial and currently <i>not recommended</i> .
High blood pressure screening	Recommended, incidental to other health-care services (no special visit is needed).
Diabetes screening	Glucose tolerance test or glycosalated hemoglobin test recommended for pregnant women between the 24th and 28th week of gestation, or women with diabetes in their family who are planning to become pregnant. Otherwise <i>not recommended</i> .
Asymptomatic coronary artery disease screening	Screening with exercise stress testing <i>not recommended</i> .
Lung cancer screening	Screening <i>not recommended</i> .
Osteoporosis screening	Screening <i>not recommended</i> .
Prostate screening	PSA test <i>not recommended</i> .

leading experts on the science of screening procedures. Its recommendations are summarized in Table 2 and closely parallel our views about screening.

The value of other screening tests is more dubious. Some doctors believe that routine glaucoma tests, tests for blood in the stool after age 30, and regular sigmoidoscopy after age 50 are worthwhile, and others don't.

Many news stories have suggested that screening with prostate specific antigen (PSA) determinations, with or without digital rectal examination, revolutionizes the outlook for prostate cancer and promises to save many men's lives. Unfortunately, there's no convincing evidence that this screening improves the outlook for prostate cancer.

Early Treatment

An effective health maintenance strategy includes seeking medical care promptly whenever an important new problem or finding appears. For example, you should seek medical attention without delay if you notice one of the following symptoms:

- A lump in your breast
- Unexplained weight loss
- A fever for more than a week
- Coughing up blood

These symptoms don't always represent true emergencies, but they do indicate a need for professional attention. Most times, nothing will be seriously wrong; on other occasions, however, an early cancer, tuberculosis, or other treatable disease will be found. You always need to carefully consider how to respond to some change you've noted in your body.

The guidelines in Part II of this book can help you select those instances in which you should seek medical care. In most cases, you can take care of yourself with home treatment. However, you must respond appropriately when professional care is needed.

To ensure timely treatment, you need to have a plan. Think things through ahead of time.

- Do you have a doctor?
- If you need emergency care, where will you go? To an emergency hospital? To the emergency room of a general hospital? To the on-call physician of a local medical group?
- If you're not sure what to do after consulting this book, who can you call for further advice?
- Have you written down the phone numbers you need?

Only rarely will you need emergency services. But the time that you need them is not the time to begin wondering what to do. If you have a routine problem that requires medical care, where will you go? Is there a nearby doctor? Who has your medical records? Chapter 13, "Working with Your Doctor and Your Health Care System," will help you answer these questions. Plan ahead.

TABLE 3A

Immunization Schedule—Children

Vaccine	Age (months)								Age (years)		
	Birth	1	2	4	6	12	15	18	4–6	11–12	14–16
Hepatitis B	Hep B-1								Hep B		
Diphtheria, tetanus, and pertussis			Hep B-2		Hep B-3			DTaP or DTP	DTaP or DTP	Td	
<i>Hemophilus influenzae</i> type B			DTaP or DTP	DTaP or DTP	DTaP or DTP	HIB	HIB	HIB			
Poliovirus		Polio	Polio	Polio	Polio				Polio		
Measles- mumps- rubella					MMR				MMR	MMR	
Chicken pox (varicella)					Chicken pox				Ch. pox		

Range of acceptable ages for vaccination Vaccines may not be needed; check with your doctor

Adapted from the Centers for Disease Control, United States Public Health Service

Immunizations

Immunizations have had far greater impact on health in the developed nations than all of the other health services put together. Only a few years ago smallpox, cholera, paralytic polio, diphtheria, whooping cough, and tetanus killed large numbers of people. These diseases have been effectively controlled by immunization in the United States and in most other developed nations. Smallpox has been eradicated from the entire world, and there's no longer any need for smallpox immunization. An incredible success story!

Unfortunately, many Americans have become lax about childhood immunizations. As a result, there has been a resurgence of measles,

TABLE 3B*Immunization Schedule—Adults*

<i>Schedule/Frequency</i>	<i>Vaccine</i>
Every 10 years	T(d) adult tetanus, diphtheria
Over age 65/once	Pneumococcal
Over age 65, or with chronic illness such as lung disease/yearly	Influenza (flu)

mumps, and rubella. You and your children can reap the benefits of immunizations while minimizing their risk by following the recommendations in Table 3A on page 25.

Keep a record of your immunizations in the back of this book. Don't allow yourself to be reinoculated just because you've lost records of previous immunizations. If you haven't had a tetanus shot for ten years or so, ask for a booster shot while visiting the doctor for another reason. You can save future trips to the doctor by being protected for the next ten years.

In general, don't seek out the optional immunizations. Flu shots, for example, are only partially effective and often cause a degree of fever and aching; they're recommended only for the elderly and for those with severe major diseases. We recommend that the optional immunizations (including pneumonia and flu, Table 3B, above) be taken only on the recommendation of your doctor. They have a definite role for some people, but not for all.

Health Risk Appraisal

Your future health is largely determined by what you do now. Your lifestyle and your habits have a dominant influence on how healthy you are, how healthy you'll be, how much time you'll spend in hospitals, and how rapidly you'll "physiologically" age.

Recently techniques have been developed for mathematically estimating your future health risks, and these techniques are variously termed "health risk appraisal," "health hazard appraisal," or "health assessment." You complete a questionnaire or otherwise provide information about your lifestyle and health habits. Your responses are mathematically combined to estimate your likelihood of developing major medical problems such as heart disease and cancer. Other estimates such as your "physiologic" age also may be calculated. These techniques form an increasingly important part of comprehensive health education programs such as Healthtrac, Senior Healthtrac, and Informed Choice. They also have a potentially large role in helping you shape your own personal health program.

You should know several things about health risk appraisals:

- The results are only estimates. Even though they're based on the best medical studies, data are incomplete and may not apply equally to all populations. In general, the estimates may be accurate to within 10 to 20%. Think of health risk scores as similar to IQ or achievement test scores; they're approximately correct but not exact.
- The predictions are only averages. Some people will do better than the tests predict and others worse.
- Any single assessment represents you at one point in time, but your actual risks depend on the changes you make and your average lifetime health habits as well. Regular repeated assessments can reveal your current status and the benefits you've achieved through lifestyle changes.
- A good health risk appraisal should be based only on those relatively few risk factors that are scientifically well established and associated with major health problems. These include cigarette smoking, exercise, automobile seat belt use, helmet use, alcohol intake, obesity, dietary fiber, salt, fat intake, blood pressure, cholesterol levels, and stress level.
- The health risk assessment itself provides no health benefits unless it results in changes in your health-related behaviors, and the risk assessment might even frighten you unnecessarily. Therefore, these assessments are best used as part of a program that not only identifies risk but also educates you, motivates you for change, provides suggestions and recommendations, and reinforces positive changes.

We're enthusiastic about the growing role of health promotion programs that focus attention on prevention of disease and about the use of good health assessment tools. Well-designed programs are already having a large effect, decreasing human illness. As a bonus, they also reduce medical care costs.

The Power of Prevention: How It Works

Now you can put together a master plan for illness prevention. The plan is simple. First, you need to prevent the fatal illnesses mentioned at the beginning of this chapter. Second, you need to prevent the nonfatal illnesses.

Table 4 summarizes the ways that you can substantially reduce risks for 24 serious and very common conditions. You may be surprised to learn

TABLE 4*Your Master Plan for Preserving Your Health*

	<i>Exercise</i>	<i>Diet and Nutrition</i>	<i>Not Smoking</i>	<i>Alcohol Moderation</i>	<i>Weight Control</i>	<i>Avoiding Injury</i>
POTENTIALLY FATAL DISEASE						
Heart Attack and Stroke	X	X	X		X	
Lung Cancer			X			
Breast Cancer		X			X	
Colon Cancer	X					
Mouth Cancer			X			
Liver Cancer			X	X		
Esophageal Cancer			X	X		
Cervical Cancer						
Emphysema			X			
Cirrhosis		X		X		
Diabetes	X	X			X	
Trauma				X		X
NONFATAL DISEASE						
Osteoarthritis	X				X	
Hernias	X		X		X	
Hemorrhoids	X				X	
Varicose Veins	X		X		X	
Thrombophlebitis	X		X		X	
Gallbladder Disease		X			X	
Stomach Ulcers		X	X	X		
Dental Problems		X	X			
Osteoporosis	X	X				
Falls and Fractures	X	X				X

TABLE 4*Your Master Plan for Preserving Your Health*

	<i>Treat High Blood Pressure</i>	<i>Screening Tests</i>	<i>Estimated Risk Reduction</i>	<i>Notes</i>
POTENTIALLY FATAL DISEASE				
Heart Attack and Stroke	X		70%	Diet: low in saturated fat and salt, high in fiber; vitamin E and aspirin as advised
Lung Cancer			90%	Smoking causes nearly all cases
Breast Cancer		X	50%	Screening: self-examination, annual doctor's exam, mammography
Colon Cancer		X	50%	Aspirin or similar drugs as advised. Screening: colonoscopy, fecal blood tests.
Mouth Cancer			90%	Smoking (pipes and cigars) causes nearly all cases
Liver Cancer			50%	Alcohol causes many cases
Esophageal Cancer			50%	Smoking causes many cases
Cervical Cancer		X	90%	Screening: Pap smears
Emphysema			90%	Smoking causes nearly all cases
Cirrhosis			90%	Alcohol, together with poor nutrition, causes nearly all cases
Diabetes			50%	Much diabetes occurring late in life can be prevented entirely
Trauma			75%	Failure to wear seat belts and drunk driving are the largest factors
NONFATAL DISEASE				
Osteoarthritis			50%	You can prevent the disability, not necessarily the arthritis
Hernias			50%	Poor muscle tone, a big belly, and coughing are a bad combination
Hemorrhoids			50%	Sitting around while overweight causes much of the problem; hygiene is also important
Varicose Veins			50%	Inactivity lets the fluid drop to the lowest point; using leg muscles helps blood flow in legs
Thrombophlebitis			50%	The factors for this condition can also cause blood clots in the legs
Gallbladder Disease			40%	Dietary fat and obesity are the causes in many cases
Stomach Ulcers			70%	Also be aware that aspirin and other drugs can cause stomach problems
Dental Problems	X		80%	Diet: low in sugar. Screening: dental checkups. Brush and floss.
Osteoporosis			50%	Diet: high in calcium. Exercise: weight-bearing. Estrogen and other drugs may help.
Falls and Fractures			50%	Keep your body and bones strong; make your environment friendly

how many different health problems can be prevented. If you do everything right to reduce your risk for individual conditions, you can reduce your risk for all diseases combined by about 70%. That's the power of prevention!

THE HABIT OF HEALTH

An old joke maintains that everything pleasurable is either illegal, immoral, or fattening. This is exactly the wrong idea. Health is pleasurable; ill health is miserable. Good health habits have their own immediate reward. If changing your behavior for health is making you feel less well, you're doing something wrong. Exercise makes you feel better. Good diets make you feel better. Avoiding nicotine makes you feel better. Having a good body weight makes your life activities easier and more pleasurable.

Much of what's written about healthy behaviors makes the whole process seem mysterious and complicated. The supermarket tabloids are always reporting some new threat to your health. There is indeed a long list of possible threats to health, but trying to keep track of them all overlooks two important facts. First, these threats often aren't adequately proven. Second, even if they do prove to be true, they aren't that important. For instance, barbecued foods may pose cancer-causing risks, and we suggest moderating the amount of barbecued foods you eat—but only if you eat such meals more than 30 times a year. Many people find a benefit in controlling caffeine intake, particularly in the evening, but this is a minor problem compared with drinking alcohol.

Here we've tried to emphasize only the important and the proven. As we said before, only seven or fewer areas require your attention.

- **Exercise:** work up to a regular aerobic (endurance) exercise program
- **Diet and nutrition:** especially cut down fat
- **Not smoking**
- **Alcohol moderation:** no more than two drinks a day
- **Weight control:** maintain a healthy weight instead of losing and gaining
- **Avoiding injury:** exercise your common sense
- **Professional prevention:** work alongside your doctor

CHAPTER 2

Your Home Pharmacy

You can prepare for most minor illnesses by keeping a few remedies and supplies in your home. To save money, buy only the items you will need often, and buy the inexpensive brands. The table on page 32 lists the products we recommend that you keep on hand. You can do almost all the home care described in this book with these items.

This chapter discusses dosages and side effects of some common medicines. Keep these points about drugs in mind:

- Always read the manufacturer's information for every product because that information can change. Talk to your doctor or pharmacist if you have questions.
- Medications eventually go bad, so you should replace them at least every three years. Check your medicine cabinet; you may find items that have expired or that you don't need.
- Keep all drugs out of reach of children. No bottle is totally childproof.
- All drugs can cause side effects, even when you use them properly. Many common medicines have unavoidable side effects, such as drowsiness.
- Don't assume that a drug is safe just because it doesn't require a prescription. Misusing over-the-counter drugs can be dangerous.
- The drugs in this chapter may relieve symptoms, but they aren't cures. If you can get along without drugs, you're usually better off.
- For most medicines, different brands are available. Look for the one with the best price. A brand-name drug is not necessarily better than a less costly generic or off-brand drug.

Hundreds of over-the-counter medicines are available at your supermarket or drugstore. For most medicines, several nearly identical products exist as competing brands. This has posed a problem for us in organizing

YOUR HOME PHARMACY

TABLE 5 *Home Pharmacy*

<i>Page</i>	<i>Medication or Tool</i>	<i>Use</i>
ESSENTIAL		
p. 34	Bandages and Adhesive Tape	To close and protect minor wounds
p. 36	Antiseptic Cleansers (3% hydrogen peroxide, iodine)	To cleanse minor wounds
p. 37	Thermometer	To measure body temperature
p. 38	Pain and Fever Medications (acetaminophen, aspirin, ibuprofen, naproxen, or ketoprofen)	To relieve pain, to lower fever
p. 41	Antacids (nonabsorbable)	To relieve upset stomach
p. 43	Skin Soothers (baking soda)	To treat skin irritation and soak wounds
RECOMMENDED FOR FAMILIES WITH SMALL CHILDREN		
p. 43	Syrup of Ipecac	To induce vomiting in cases of poisoning from drugs or plants
See p. 39	Liquid Acetaminophen	To relieve pain and fever in young children
See p. 39	Acetaminophen Rectal Suppositories	To relieve fever in small children who can't keep down other medicine
OPTIONAL		
p. 44	Antihistamines and Decongestants	To treat allergy symptoms
p. 45	Nose Drops and Sprays	To treat runny nose
p. 46	Cold Tablets	To treat cold symptoms
p. 47	Cough Syrups	To treat coughing
p. 48	Laxatives	To treat constipation
p. 49	Diarrhea Remedies	To treat diarrhea
p. 49	Sodium Fluoride	To prevent dental problems
p. 50	"Artificial Tears" Eye Drops	To treat irritated eyes
p. 51	Zinc Oxide	To treat hemorrhoids
p. 52	Antifungal Preparations	To treat skin fungus
p. 52	Hydrocortisone Cream	To treat rashes
p. 53	Sunscreen Agents	To prevent sunburn
p. 53	Wart Removers	To remove some warts
p. 54	Elastic Bandages	To treat sprains and strains

this chapter. If we discuss drugs by chemical name, the terms are long and confusing; if we use brand names, we may appear to favor a particular product when there are equally satisfactory alternatives. We decided to give you some clues to reading the list of ingredients on the package so that you can figure out what the drug is likely to do. We don't list all available drugs, but we do mention some representative alternatives. The brand names listed in this chapter are vigorously marketed and should be available almost everywhere. They aren't necessarily superior to alternatives containing similar formulas that aren't listed.

Bandages and Adhesive Tape

Purpose

To close and protect minor wounds. Bandages really don't "make it better." Sometimes it's better to leave a minor wound open to the air than to cover it. Still, a home medical shelf wouldn't be complete without a tin of assorted adhesive bandages. To fashion larger bandages, you also need adhesive tape and gauze. Bandages are useful for covering tender blisters, keeping dirt out of wounds, and keeping the edges of a cut together. They have some value in keeping the wound out of sight and thus are of cosmetic importance.

Dosage

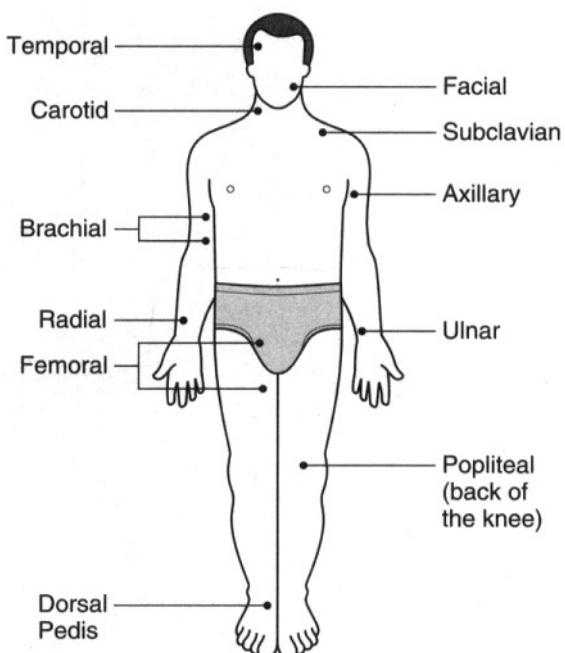
For smaller cuts and sores, use a bandage from the tin. Leaving the bandage on for a day or so is usually long enough; change the bandage daily if you wish to keep the wound covered longer. For cuts, apply the bandage perpendicular to the cut, and draw the skin toward the cut from both sides to relax skin tension before applying the bandage. The bandage should then act to keep the edges together during healing. For larger injuries, make a bandage from a roll of sterile gauze or from sterile 2"x2" (5x5 cm) or 4"x4" (10x10 cm) gauze pads, and firmly tape it in place with adhesive tape. Change the bandage daily. If you see white fat protruding from the cut, see your doctor.

Side Effects

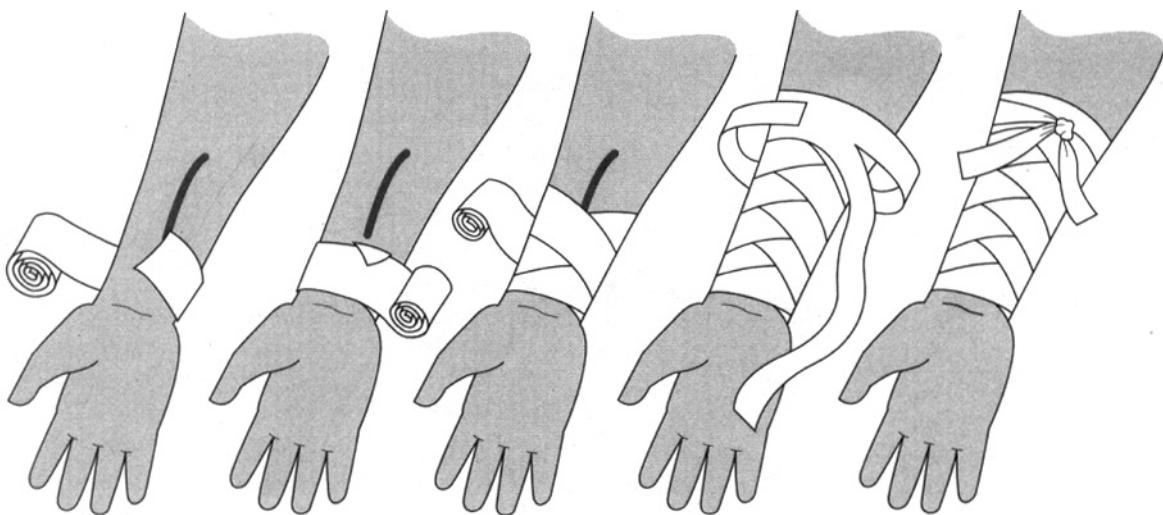
If the wound isn't clean when you cover it with a bandage, you may hide a developing infection from early discovery. Clean the wound with antiseptics and keep it clean.

Change the bandage if it becomes wet. Some people are allergic to adhesive tape and should use nonallergenic paper tape. If adhesive tape is left on for a week or so, it will irritate almost anyone's skin, so give the skin a rest.

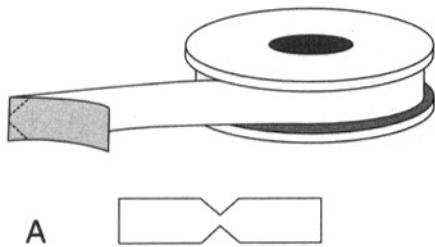
Some people leave a bandage on too long because they're afraid of the pain as they remove it—particularly if their hairs are stuck to the tape. For painless removal, apply nail polish remover to the back of the adhesive tape and let it soak for five minutes. This will dissolve the adhesive and release both the skin and hair.



Pressure points. If a bandage doesn't stop a person's wound from bleeding, slow the flow of blood to that part of the body by squeezing on a pressure point. Choose the nearest pressure point between the wound and the person's heart. The most commonly used pressure points are **inside the upper arm** and **inside the thigh**.



Wraparound bandage. This type of bandage makes a neat, long-lasting wrap for a large wound. It is easier to tape the end of the bandage, but if you have no tape you can tie the bandage as shown.



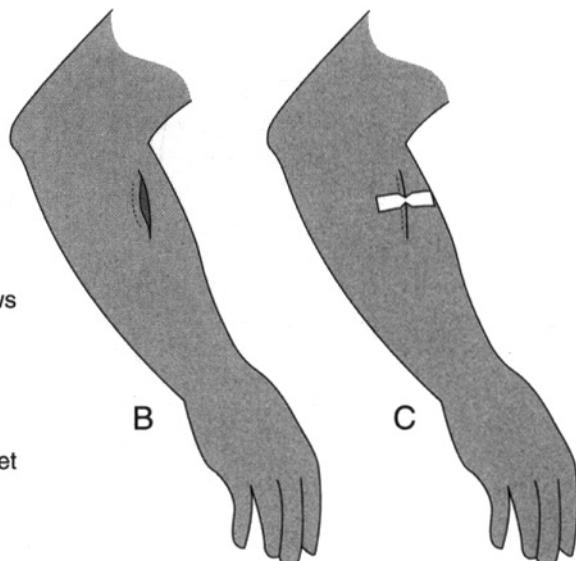
Butterfly bandage. This type of bandage allows a short, shallow wound to heal quickly.

(A) Fold a length of adhesive tape in two and snip off the folded corners.

(B) Make sure the wound is clean and that one edge is not lying over the other.

(C) Tape the wound together so that its edges meet and the narrow part of the bandage lies over the cut.

Use this only in the first six hours after injury; otherwise bacteria may grow in the wound.



Antiseptic Cleansers

Purpose

To cleanse minor wounds.

A dirty wound often becomes infected. If dirt or foreign bodies are trapped beneath the skin, they can fester and delay healing. Only a few germs are introduced at the time of a wound, but they may multiply to a very large number over several days. An antiseptic removes the dirt and kills the germs. A solution of 3% hydrogen peroxide, which foams and cleans as you work it into the wound, is a good cleansing agent, and iodine is a reasonably good agent with which to kill germs. A strong baking soda solution will draw fluid and swelling out of a wound and will act to soak and clean it at the same time.

Most of the time, the solutions' cleansing action is more important than germ killing because many preparations (Listerine, Zephiran, Bactine, etc.) really aren't very good at killing germs. Antibiotic creams (such as Bacitracin and Neosporin) are expensive, usually unnecessary, and of questionable effectiveness. First-aid sprays are a waste of money.

You must give scrupulous attention to the initial cleaning of a wound and scrub out any embedded dirt particles. Do this even though it hurts and bleeds. For small, clean cuts, use soap and water followed by iodine and then soap and water again. Betadine is a nonstinging iodine preparation. For larger wounds, use hydrogen peroxide with vigorous scrubbing.

Dosage

Most hydrogen peroxide is sold at the 3% strength. Don't use a hydrogen peroxide solution stronger than 3%, such as that used for bleaching hair. Pour the solution on the wound and scrub with a rough cloth. Wash it off and repeat. Continue until you can see no dirt beneath the level of the skin. If you can't get the wound clean, go to a doctor.

Iodine is painted or wiped onto the wound and the surrounding area. Wash it off within a few minutes, leaving a trace of the iodine color on the skin.

To soak a wound in a baking soda solution, use one tablespoon (15 ml) in one cup (250 ml) of warm water. If a finger or toe is injured, you can place it in the cup. For other wounds, soak a washcloth with the solution and place over the wound as a compress. Generally, a wound should be soaked for five to ten minutes at a time, twice a day. If the skin is puckered and "waterlogged" after the soak, it has been soaked too long. You can place cellophane or plastic wrap over the cloth compress to retain heat and moisture longer.

Side Effects

Hydrogen peroxide is safe to the skin but can bleach hair and clothing, so try not to spill it.

Iodine can burn the skin if left on full strength, so be careful. Iodine is also poisonous if swallowed; keep it away from children. Some people are allergic to iodine; discontinue use if you get a rash.

Baking soda is completely safe as long as it's used on the skin, not swallowed.

Thermometer

Purpose

To measure body temperature.

Fever is an important clue in diagnosing illness, and a very high body temperature may lead to problems. The best places to measure body temperature are the rectum and the mouth. Rectal temperatures are about 0.5°F (0.25°C) higher than oral (mouth) temperatures and usually reflect the body's condition more accurately. Oral temperature can be affected by hot or cold foods, routine breathing, and smoking.

Thermometers are designed in different ways to make taking oral and rectal temperatures easier. Generally, oral thermometers have a longer bulb at the business end, providing a greater surface area for a faster reading. Rectal thermometers may have a shorter, rounder bulb to facilitate entry into the rectum. The mercury in a mercury thermometer can be poisonous if the thermometer breaks.

Rectal thermometers are best for young children because it's hard for them to hold an oral thermometer under the tongue. Lubricants, such as Vaseline, can make

inserting rectal thermometers easier. Place the child on his or her stomach and hold one hand on the buttocks to prevent movement. Insert the thermometer an inch or so (2–3 cm) inside the rectum. The reading will begin to rise within seconds. Remove the thermometer when the mercury is no longer rising, after a minute or two.

You can take oral temperature with a rectal thermometer after sterilizing it for five to ten minutes in a 10:1 water:bleach solution. This will require a longer period in the mouth than an oral thermometer to achieve the same degree of accuracy. Oral thermometers can also be used to take rectal temperatures, but we don't recommend using them in children because of their shape.

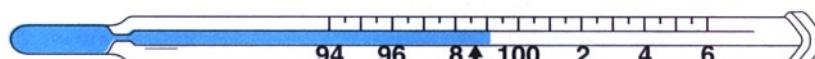
Electronic thermometers, including those that take temperatures from the ear, have the advantage of quicker readings, which is useful for younger children. They're more expensive than mercury thermometers, but safer. Contact thermometers—strips of plastic held against the forehead—aren't as accurate.

Side Effects

The mercury in older thermometers is poisonous, so care should be taken not to bite down while having an oral temperature taken.

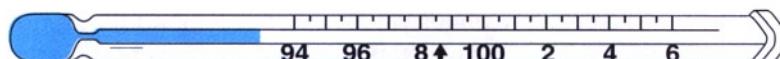
Oral thermometer.

Note the long, thin bulb. In this example the mercury needs to be shaken down toward the bulb before use.



Rectal thermometer.

The rounded bulb makes it easier to put into the rectum. This drawing shows a thermometer ready to use, its mercury shaken down.



Pain and Fever Medications

Purpose

To relieve pain and to lower fever. Sometimes, to help relieve itching.

There are five major over-the-counter drugs that do these tasks: acetaminophen, aspirin, ibuprofen, naproxen, and ketoprofen. Acetaminophen is the safest; the other four can cause severe or even fatal bleeding of the stomach, although only rarely if just a few tablets are taken. On the other hand, acetaminophen doesn't reduce inflammation; aspirin, ibuprofen, naproxen, and ketoprofen do, if taken in substantial dosage. These four drugs should not be used to treat fever in children because of the risk of Reye syndrome, a rare but serious problem of the liver and brain. Ibuprofen and naproxen are better than the others for relief of menstrual cramps.

In high doses ketoprofen appears to be more toxic than the four main drugs, so use it sparingly. Do not exceed the recommended dose.

Some pain reliever makers conceal the key drug in the pain relief medication somewhere in the fine print under "active ingredients," and refer obliquely to the amount of analgesic, or pain reliever, present in each tablet. It's often surprisingly hard to find out what is in the drug from the box. There are really only five drugs, but many manufacturers. Each company wants its product to seem unique in a crowded marketplace, so companies develop many minor variations on a similar theme and try to develop distinctive advertising.

For example, Excedrin is half aspirin and half acetaminophen. Excedrin Extra Strength

adds caffeine to the mix; this improves pain relief but may make you jittery. Some pain relievers include other ingredients. For example, an antacid may be added (as in Bufferin) in an attempt to cut down on stomach distress. Other than these variations, there's little medical reason to prefer one product over another in most cases. If you like a particular formulation, use it. If you want to save money, read the labels carefully and look for the best buys.

On some pain reliever bottles you may see the initials U.S.P., which stand for "United States Pharmacopoeia." Although not an absolute guarantee that the drug is the best, it does mean that the drug has met certain standards in composition and physical characteristics. The same is true of the designation N.F., which stands for "National Formulary."

Finally, remember that acetaminophen, ibuprofen, naproxen, and ketoprofen are available by doctor's prescription at up to twice the strength of the nonprescription formulas. If you have the stronger type of one drug in your medicine cabinet, don't confuse it with the weaker over-the-counter formula. And don't combine them unless your doctor concurs.

ACETAMINOPHEN

Usually, this should be your first choice because of its greater safety. Acetaminophen is available in several brand-name preparations (Tylenol, Dafitil, Liquiprin, Tempra, etc.). In the British Commonwealth, it's known as paracetamol. Acetaminophen is a good choice for adults because of its safety, and it's our first choice for children and teenagers. It's slightly less predictable than aspirin, somewhat less powerful, and doesn't have the anti-inflammatory action that makes aspirin

valuable in treatment of arthritis and some other diseases. On the other hand, it doesn't cause ringing in the ears or upset stomach, common side effects with aspirin. Nor can it cause Reye syndrome, a rare but serious potential side effect of aspirin when taken by children with chicken pox or the flu.

Dosage

Acetaminophen is used in doses identical to those of aspirin. For adults, two 325 mg tablets every three to four hours is standard. In children, 65 mg per year of age every four hours is satisfactory. There's never a reason to exceed these doses because there's no additional benefit in taking higher amounts. Like aspirin, acetaminophen comes combined with other ingredients in products that offer little advantage over acetaminophen.

Side Effects

People seldom experience side effects from acetaminophen. If you suspect a side effect, call your doctor. A variety of rare toxic effects have been reported, but none are definitely related to the use of this drug. A truly major overdose can cause liver failure, particularly in children, and this can be fatal. Keep the bottle where children can't get at it. If you abuse alcohol, severe liver toxicity can occur at as little as 4,000 to 6,000 mg a day. Never exceed 4,000 mg per day under any circumstances.

LIQUID ACETAMINOPHEN FOR SMALL CHILDREN

Most pediatricians never recommend aspirin for the small child, because of the possibility of Reye syndrome. If the child can't keep acetaminophen down because of vomiting, call your doctor for advice; acetaminophen

rectal suppositories, which require a prescription in many places, may work better.

Dosage

Liquid acetaminophen comes in varying concentrations, so read the label on your bottle for the correct dosage. In general, use a dropper to give 65 mg of acetaminophen for every year of the child's age up to age 10 every four hours. From noon to midnight, awaken the child if necessary. After midnight the fever will usually break by itself and become less of a problem, so if you miss a dose it's less important. But check the child's temperature at least once during the night to make sure. Remember, acetaminophen lasts only about four hours in the body, and you must keep repeating the dose or you'll lose the effect.

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDs)

ASPIRIN

Expensive aspirin preparations may use coated tablets for easier swallowing or they may dissolve faster, but this usually doesn't make them more effective than cheaper brands.

If an aspirin bottle contains a vinegary odor when opened, the pills have begun to deteriorate and should be discarded. Aspirin usually has a shelf life of about three years, although shorter periods are sometimes quoted.

Dosage

In adults, the standard dose for pain relief is two tablets taken every three to four hours as required. The maximum effect occurs in about two hours. Each standard tablet is 5 grains, or

325 mg. If you use a nonstandard concoction, you'll have to do the arithmetic to calculate equivalent doses. The terms "extra strength," "arthritis pain formula," and the like merely indicate a greater amount of aspirin per tablet. This is medically trivial. You can take more tablets of the cheaper aspirin and still save money. When you read that a product "contains more of the ingredient that doctors recommend most," you may be sure that the product contains a little bit more aspirin per tablet; perhaps 400 to 500 mg instead of 325.

Here are some hints for good aspirin usage. Aspirin treats symptoms; it doesn't cure problems. Thus, for symptoms such as headache or muscle pain or menstrual cramps, don't take it unless you hurt. On the other hand, for control of fever, you'll be more comfortable if you repeat the dose every four hours during the day because this prevents fever from moving up and down. The afternoon and evening are the worst for fever, so try not to miss a dose during these hours. If you need aspirin for relief from some symptom over a prolonged period, check the symptom with your doctor. Relief from pain or fever is not improved if you increase the dose, and you're more likely to irritate your stomach, so take only the standard dose (650mg every four hours) even if you still have some discomfort.

To control inflammation, as in serious arthritis, the dose of aspirin must be high, often up to 16 tablets daily, and must continue over a prolonged period. A doctor should monitor such treatment; it's relatively safe, but problems sometimes occur.

Avoid using aspirin for children or teenagers with a fever because of the possibility they may later develop Reye syndrome, a potentially fatal disease of the liver and brain. We strongly recommend acetaminophen instead.

Aspirin is also used to prevent complications of high blood pressure in pregnant women and to prevent heart attacks and thrombotic strokes. The dose for this use is very low: 81 mg (one low-dose adult aspirin) every day or every other day. Ask your doctor before using it for these purposes.

Side Effects

In addition to Reye syndrome in children, aspirin can cause an upset stomach or ringing in the ears in adults and children. If your ears ring, reduce the dose.

Serious gastrointestinal hemorrhage or a perforated (ruptured) stomach can occur; aspirin more than doubles your risk of a bleeding ulcer. If your stomach is upset, try taking aspirin a half hour after meals, when the food in the stomach will act as a buffer. Coated aspirin (such as Ecotrin) can help protect the stomach. However, some people don't digest coated aspirin and so receive no benefit. Buffers are sometimes added to aspirin to protect the stomach and may help a little. If you take a lot of aspirin, you may want to ask your doctor about new prescription drugs that may be safer though more expensive.

Asthma, nasal polyps, deafness, serious bleeding from the digestive tract, ulcers, and other major problems have been associated with aspirin.

IBUPROFEN

Ibuprofen (Advil, Motrin, Nuprin, etc.) has long been used as a prescription drug for arthritis and is approved for over-the-counter use for pain and fever. Ibuprofen is about as toxic to the stomach as aspirin, and more so than acetaminophen. It doesn't cause ringing in the ears like aspirin or severe liver disease like acetaminophen (in rare cases). It appears to be almost impossible to commit suicide by

overdose with ibuprofen. But concern has been raised about kidney problems (mild and reversible), and ibuprofen is sometimes more expensive than the alternatives. It's the best over-the-counter preparation for menstrual cramps.

Dosage

Ibuprofen comes in 200 mg tablets, and the maximum recommended dose is 1,200 mg (six tablets) per day. This is about one-half the recommended dose for the prescription equivalent, but this dose is effective for minor problems and shouldn't be exceeded without a doctor's advice. Avoid use in children.

Side Effects

Gastrointestinal upset is the most frequent problem and is reason to stop or to call the doctor. Serious gastrointestinal hemorrhage or a perforated stomach can result. The rare patient with aspirin allergy may also react to ibuprofen. Read the label carefully.

NAPROXEN and KETOPROFEN

Naproxen (Naprosyn and Anaprox by prescription; Aleve over the counter) and ketoprofen (Orudis) are also available without prescription. Naproxen has a longer "half-life" than other pain relievers, so you need to take it only twice a day. It is effective against pain, fever, and inflammation. Ketoprofen is similar and does not offer any new benefits; it may be more toxic.

Dosage

Naproxen comes in 200 mg tablets. Read the label carefully. Because naproxen is slightly more toxic to the stomach than ibuprofen, don't take more than three tablets in 24 hours or more than two if you're over 65 years old. Ketoprofen comes in 12.5 mg tablets. Do not take more than six in 24 hours.

Side Effects

Stop taking the drug and call your doctor if you experience gastrointestinal upset. Avoid use in children. Do not use if there is an allergy to aspirin.

Antacids

Purpose

To relieve upset stomach.

NONABSORBABLE ANTACIDS

Maalox, Gelusil, Mylanta, Di-Gel, and Amphojel are examples of nonabsorbable antacids. They're an important part of the home pharmacy. They help neutralize stomach acid and thus decrease heartburn, ulcer pain, gas pains, and stomach upset. Because they aren't absorbed by the body, they usually don't upset the acid-base balance of the body and are quite safe.

Almost all these antacids are available in both liquid and tablet form. For most purposes, the liquid form is superior. It coats more of the surface area of the gullet and stomach than the tablets do. Indeed, if not well chewed, tablets may be almost worthless. Still, during work or play, a bottle can be cumbersome, and a few tablets in a shirt pocket or handbag may help with midday doses.

ABSORBABLE ANTACIDS

Baking soda, Alka-Seltzer, Rolaids, and Tums contain absorbable antacids. The main ingredient in these products is sodium bicarbonate (Alka-Seltzer, baking soda),

dihydroxyaluminum sodium carbonate (Rolaids), or calcium carbonate (Tums). These medicines are more powerful acid neutralizers than nonabsorbable antacids, and they come in convenient tablet form. Calcium carbonate is also an excellent source of supplemental calcium and can help prevent osteoporosis.

Reading the Labels

Nonabsorbable antacids contain magnesium or aluminum or both. As a general rule, magnesium causes diarrhea and aluminum causes constipation. Different brands are slightly different mixtures of the salts of these two metals, designed to avoid both diarrhea and constipation. A few brands also contain calcium, which can be mildly constipating.

Different products differ in taste. While there are some differences in potency, most people will ultimately select the particular antacid that has a taste they can tolerate and that doesn't upset their bowels. Keep trying different brands until you're satisfied.

Dosage

The standard adult dose is two tablespoons (30 ml) or two well-chewed tablets. Use one-half the adult dose for children ages six to twelve, and one-fourth the adult dose for children ages three to six. The frequency of the dose depends on the severity of the problem. For stomach upset or heartburn, one or two doses will often suffice. For gastritis, several doses a day for several days may be needed. For ulcers, six weeks or more may be needed, with the medication taken as frequently as every hour or so; this type of program should be supervised by a doctor.

If you wish to use baking soda as an antacid, use one teaspoon (5 ml) in a glass of water every four hours as needed—but only occasionally. Baking soda is absorbable and can upset the body's acid-base balance.

Side Effects

In general, the only problem is the effect on bowel movements. Maalox tends to loosen stools slightly, Mylanta and Gelusil are about average, and Amphojel and Aludrox (with more aluminum) tend to be more constipating. Aluminum intake has been linked to Alzheimer's disease, but this is far from certain. Adjust the dose and change brands as needed. Check with your doctor before using these compounds if you have kidney disease, heart disease, or high blood pressure. Some brands contain significant quantities of salt and should be avoided by people on a low-salt diet. Di-Gel has the lowest salt content of the popular brands.

Be careful if you take baking soda by mouth. First, there's a lot of sodium in it. If you have heart trouble or high blood pressure or are on a low-salt diet, you can get into trouble. Second, if you take baking soda for many months on a regular basis, there's some evidence that it may result in calcium deposits in the kidneys and thus cause kidney damage.

Talk with your doctor before using antacids to treat side effects of other medications, such as aspirin, naproxen, ibuprofen, or ketoprofen, as they may mask a serious problem such as ulcers.

STOMACH ACID BLOCKERS

Cimetidine (Tagamet), famotidine (Pepcid AC), ranitidine (Zantac), and nizatidine (Axid AR) are prescription drugs widely used for stomach ulcers and have been approved for over-the-counter use in lower doses to treat heartburn. Rather than neutralize stomach acid like antacids, they act to block the body's production of the acid. Most people won't need these medicines, but you can consider them if antacids aren't effective. If you take other medications, check with your doctor

before taking Tagamet; it can increase the potency of a number of other medications, including some taken for blood thinning (warfarin), asthma (theophylline), and seizures. Pepcid AC may be slightly better in this regard. Don't exceed the recommended dose.

Your doctor may recommend stronger medications, called proton pump inhibitors, if necessary.

Side Effects

There are none as long as the baking soda is applied only to the skin.

SKIN CREAMS AND MOISTURIZING LOTIONS

There's little to be said about the various artificial materials—for example, Lubriderm, Vaseline, Alpha-Keri—that people apply to their skin in an attempt to temporarily improve its appearance or retard its aging. The various claims of such products are not scientifically based, and long-term benefits have not been demonstrated.

Sometimes dry skin can actually cause symptoms, thus becoming a medical problem. Remember that bathing or exposure to detergents may contribute to the drying of skin. Decreasing the frequency of baths or showers, wearing gloves when working with cleansing agents, and other similar measures are more important than using any lotion or cream.

Moisturizing creams and lotions may make your skin feel better to you; this is the "soothing" action. Use such creams as the product labels state. They have essentially no side effects, except that some people are allergic to the lanolin in some of these products.

Skin Soothers

BAKING SODA

Baking soda (sodium bicarbonate, NaHCO_3) is a very useful household chemical. It has three principal medical uses:

- As a weak solution, it acts to soothe the skin and reduce itching; thus, it's helpful in conditions ranging from sunburn to poison oak to chicken pox. This is the usage we discuss on this page.
- As a strong solution, it will draw fluid and swelling out of a wound and will act to soak and clean the wound at the same time. (See Antiseptic Cleansers, page 36.)
- If taken by mouth, it serves as an antacid and may help alleviate heartburn or stomach upset. Because the sodium in baking soda is absorbed by the body, however, we strongly recommend using another antacid instead.

Dosage

To soothe the skin, use from two tablespoons to a half cup (30–120 ml) in a bath of warm water. Blot the skin gently after the bath and allow the solution to dry on the skin. Repeat this procedure as often as necessary.

Syrup of Ipecac

Purpose

To induce vomiting if someone has been poisoned by a plant or a drug. Vomiting will empty the stomach of any poison that has not already been absorbed. Syrup of ipecac is especially useful if you have small children.

Don't use ipecac or anything else to induce vomiting if the poison swallowed is a petroleum-based compound or a strong acid or alkali. Call the Poison Control Center immediately. See Poisoning (page 66) for more advice on poisoning.

It's far better to keep toxic chemicals out of a child's reach than to have to use ipecac. When you buy ipecac, use the purchase as a reminder to check the house for toxic materials that a child might reach; move them to a safer place. If your child does swallow something, the sooner the stomach is emptied, the milder the problem will be, with the exceptions listed above. There's no time to buy ipecac after your child has swallowed poison; therefore, you should have it on hand just in case you ever need it.

Dosage

One tablespoon (15 ml) of ipecac may suffice for a small child; two to four teaspoons (10–20ml) are necessary for older children and adults. Follow the dose with as much warm water as can be given, until vomiting occurs. Repeat the dose in 15 minutes if you haven't had any results.

Side Effects

This is an uncomfortable medication, but it's not hazardous unless vomiting causes material to be thrown down the windpipe into the lungs. This can cause pneumonia, so do *not* induce vomiting in a victim who is unconscious or nearly unconscious. Do *not* cause vomiting of volatile materials, such as petroleum compounds or drain cleaner, that can be inhaled into the lungs and cause damage.

Allergy Medications: Antihistamines and Decongestants

Purpose

To treat allergy symptoms; these agents can also reduce itching.

Allerest, Chlor-Trimeton, Sinarest, Actifed, Benadryl, Sudafed, Dimetapp, and Tavist D are among the over-the-counter drugs designed for treatment of minor allergic symptoms. They're similar to the cold compounds described on page 46, but they less frequently contain pain and fever agents like aspirin, acetaminophen, naproxen, ibuprofen, or ketoprofen. Usually these drug compounds contain an antihistamine and a decongestant agent, and sometimes acetaminophen. These ingredients can be identified from the label.

If you tolerate one of these drugs well and get relief, you may continue to take it for several weeks (for example, through a hay fever season) without seeing a doctor. However, decongestants taken as nose drops or nasal spray should be used more sparingly and only for short periods, as detailed in Nose Drops and Sprays (page 45).

Reading the Labels

The decongestant is usually pseudoephedrine or phenylpropanolamine. If the compound name is not familiar, the suffix “-ephrine” or “-edrine” usually identifies a decongestant. The antihistamine is often chlorpheniramine, diphenhydramine, or brompheniramine. If not, the antihistamine is sometimes identifiable on the label by the suffix “-amine.”

Dosage

Take according to product directions. Reduce the dose if you note side effects, or try another compound.

Side Effects

These are usually minor and disappear after the drug is stopped or decreased in dose. Agitation and insomnia usually indicate too much of the decongestant. Drowsiness usually indicates too much antihistamine. If you can avoid the substances to which you are allergic, it's far superior to taking drugs. Drugs, to a certain degree, inevitably impair your functioning.

causing the muscle in the walls of the blood vessels to shrink, decreasing blood flow, and after many applications these small muscles become fatigued and fail to respond. Finally, they're so fatigued that they relax entirely, and the situation becomes worse than it was in the beginning. This is medically termed "rebound vasodilation" and can occur if you use these drugs steadily for three days or more. Many patients interpret these increased symptoms as a need for more medication, but taking more only makes the problem worse. Therefore, *use nose drops or sprays for only three days at a time*. After several days' rest, you may use them again for three more days.

Dosage

These drugs are almost always used in the wrong way. If you don't bathe the swollen membranes on the side surface of the inner nose, you won't get the desired effect. If you can taste the drug, you've applied it to the wrong area. Apply small amounts to one nostril while lying down on that side for a few minutes so that the medicine will bathe the membranes. Then apply the agent to the other nostril while lying on that side (see diagram below). Treat four times a day if

Nose Drops and Sprays

Purpose

To treat a runny nose.

A runny nose is often the worst symptom of a cold or allergy. Because this complaint is so common, remedies are big business, and there are many advertised as decreasing your nasal drip: Afrin, Neo-Synephrine, Vicks, Sinarest, and other drops or sprays.

The active ingredient in these compounds is a decongestant drug, often ephedrine or phenylephrine. These preparations are "topical," meaning that you apply them directly to the inflamed tissue. You can then feel the membranes shrinking down and "drawing," and you will note a decrease in the amount of secretion. However, there are some problems associated with using these compounds.

The major drawback is that the relief is temporary. Usually the symptoms return in a couple of hours, so you repeat the dose. This is fine for a while. But these drugs work by



needed, but don't continue for more than three days without interrupting the therapy.

Side Effects

Rebound vasodilation from prolonged use is the most common problem. If you apply these agents incorrectly and swallow a large amount of the drug, you may experience a rapid heart rate and an uneasy, agitated feeling. The drying effect of the drug can result in nosebleeds.

Try to avoid the substances to which you're allergic rather than treating the consequences of exposure. Often, simple measures like changing a furnace filter, using a vaporizer, or using an air conditioner to filter the air can improve allergic symptoms.

Cold Tablets

Purpose

To relieve some symptoms of colds and flu.

Coricidin, Actifed, Triaminic, Contac, Dimetapp, and dozens of other products are widely advertised as being effective against the common cold. Surprisingly, many give satisfactory symptomatic relief. We don't think that these compounds add much to standard treatment with acetaminophen and fluids, but some people believe otherwise. We don't discourage their use for short periods.

These compounds usually have three basic ingredients. The most important is a fever and pain reducer: acetaminophen, aspirin, or ibuprofen. In addition, there is a decongestant drug to shrink the swollen membranes and the small blood vessels, and an antihistamine to block any allergy and to dry mucus.

Reading the Labels

The decongestant is often pseudoephedrine or phenylpropanolamine. If not, the suffix "-ephine" or "-edrine" will usually identify this component of the compound. The antihistamine is often chlorpheniramine (Chlor-Trimeton, etc.) or diphenhydramine. If not, the antihistamine is usually (but not always) identifiable on the label by the suffix "-amine."

Occasionally a "belladonna alkaloid" is added to these compounds to enhance other actions and reduce stomach spasms. In the small doses used, there's little effect from such a drug. It is listed as "scopolamine," "belladonna," or something similar. Other ingredients that may be listed contribute little. Don't use products with caffeine if you have heart trouble or difficulty sleeping.

These products take the much promoted "combination-of-ingredients" approach. As a rule, single drugs are preferable to combinations of drugs; they allow you to be more selective in treatment of symptoms, and consequently you take fewer drugs. The ingredients in combination products are available separately, and these individual products should be considered as alternatives. For example, the major ingredient in combination products is usually aspirin or acetaminophen. Pseudoephedrine is an excellent decongestant and is available without prescription in 30 mg and 60 mg tablets. Chlorpheniramine, a strong antihistamine, is available without a prescription in the standard 4 mg size. When possible, consider applying medicine directly to the affected area, as with nose drops or sprays for a runny nose.

Finally, note that the commonly prescribed cold medicines (Sudafed, Actifed, Dimetapp) are really just more concentrated and expensive formulations of the same type

of drugs that are available over the counter (often even under the same names). Is it worth a trip to the doctor just for that?

Dosage

Try the recommended dosage. If you feel no effect, you may increase the dosage by one-half. Don't exceed twice the recommended dosage. Remember that you're trying to find a compromise between desired effects and side effects. Increasing the dosage gives some chance of increased beneficial effects, but it guarantees a greater probability of side effects.

Side Effects

Drugs that put one person to sleep will keep another awake. The most frequent side effects of cold tablets are either drowsiness or agitation. The drowsiness is usually caused by the antihistamine component, and the insomnia or agitation results from the decongestant component. You can try another compound that has less or none of the offending chemical, or you can reduce the dose. There are no frequent serious side effects; the most dangerous is drowsiness if you intend to drive or operate machinery. In rare cases, the "belladonna" component will cause dry mouth, blurred vision, or inability to urinate. You may experience aspirin's usual side effects—upset stomach, ringing in the ears, or, rarely, bleeding from the stomach.

- **Expectorants** are usually preferable because they liquefy the secretions the body produces while fighting illness and allow the body's defenses to get rid of the bad material by coughing it up more easily.
- **Cough suppressants** should be avoided if the cough is bringing up any material or if there's a lot of mucus. In the late stages of a cough, when it's dry and hacking, compounds containing a cough suppressant may be useful.

We prefer cough compounds that don't contain an antihistamine, which dries mucus and can harm as much as help.

Reading the Labels

Guaifenesin (Robitussin, Benylin expectorant, Vicks, etc.), potassium iodide, and several other frequently used chemicals cause an expectorant action.

Cough-suppressant action comes principally from narcotics, such as codeine. Over-the-counter cough suppressants cannot contain codeine. They often contain dextromethorphan hydrobromide (DM), which is not a narcotic but is a close chemical relative.

Many commercial mixtures contain a little of everything and may have some of the ingredients of the cold compounds as well.

We'll discuss guaifenesin (Robitussin, Benylin expectorant, Vicks, etc.) and dextromethorphan (Vicks Formula 44, Robitussin-DM, etc.) specifically; follow the label instructions for other agents.

Cough Syrups

Purpose

Cough medication is a confusing area, with many products from which to choose. To simplify, consider two major categories:

GUAIFENESIN

Guaifenesin draws more liquid into the mucus that triggers a cough. Thus, the cough medicine liquefies these mucus secretions so that they may be coughed free. The resulting

cough is easier and less irritating. For a dry, hacking cough remaining after a cold, the lubrication alone often soothes the inflamed area. Guaifenesin doesn't suppress the cough reflex but encourages the natural defense mechanisms of the body. There's controversy over its effectiveness, but it appears to be safe. It isn't as powerful as the codeine-containing preparations, but for routine use we prefer it to prescription drugs. Pepper and garlic, not usually thought of as medicines, have a similar effect.

Reading the Labels

Guaifenesin is also available in combination with decongestants and cough suppressants; the decongestants may carry a "-PE" suffix for "phenylephrine" and the cough suppressants a "-DM" for "dextromethorphan."

Dosage

Follow directions on the label. Call your doctor if you have a sick and coughing child less than one year old.

Side Effects

No significant problems have been reported. If you use preparations containing other drugs, you may feel side effects from the other components of the combination.

DEXTROMETHORPHAN (DM)

Robitussin-DM, Triaminic-DM, Vicks Formula 44, and others contain dextromethorphan, a drug that "calms the cough center." The drug makes the areas of the brain that control coughs less sensitive to the stimuli that trigger coughs. No matter how much you use, it will seldom decrease a cough by more than 50%. Thus, you usually can't totally suppress a cough; this is actually good for you because the cough is a protective reflex. Dextromethor-

phan is best used with dry, hacking coughs that are preventing sleep or work.

Dosage

See directions on the label. Adults may require up to twice the recommended dosage to obtain any effect, but don't exceed this amount. A higher dose may produce problems, not further benefit.

Side Effects

Drowsiness is the only side effect that has been frequently reported.

Laxatives

Purpose

To treat constipation.

We prefer a natural diet, with natural vegetable fiber residue, to the use of any laxative. But if you must use a laxative, the most attractive alternative is psyllium as a bulk laxative to hold water in the bowel and soften the stool.

Metamucil, EfferSyllium, and similar preparations contain substances refined from the psyllium seed. They can help both diarrhea and constipation. Psyllium draws water into the stool, forms a gel or thick solution, and thus provides bulk. It isn't absorbed by the digestive tract but only passes through; thus, it's a natural product and essentially has no side effects. However, it doesn't always work. A similar effect probably can be obtained by eating enough celery.

Dosage

One teaspoon (5 ml), stirred in a glass of water, taken twice daily is a typical dose. A second glass of water or juice should also

be taken. Psyllium is also available in more expensive, individual-dose packets, for when you don't have a measuring spoon. The effervescent versions mix a bit more rapidly and taste better to some people.

Side Effects

If you take a bulk laxative without sufficient water, the gel that is formed could conceivably lodge in your esophagus (the tube that leads from the mouth to the stomach). Sufficient liquid will prevent this problem.

There are other laxatives, less frequently needed, which are less natural. These include fecal softeners such as Colace, Dialose, and Doxidan; bowel stimulants such as Correctol, Ex-lax, coffee, and milk of magnesia; and that old family standby, mineral oil. All are safe if used in moderation, but can lead to "laxative habit" in which they become necessary for good bowel movements.

cline, doxycycline, or others. Consult your doctor before the trip for a prescription. Sometimes you can just do this by phone.

ATTAPULGITE

Diasorb, Rheaban, and similar medicines contain a mineral called attapulgite. This ingredient has a gelling effect that helps form a solid stool.

Dosage

Follow the directions on the label. For children below age three, call your doctor to ask for the correct dosage. In general, more severe diarrhea is treated more vigorously, whereas minor problems require less medicine.

Side Effects

None have been reported.

BISMUTH SUBSALICYLATE (PEPTO-BISMOL)

Dosage

Follow label directions. For children below age three, call the doctor for dosage.

Side Effects

Bismuth may cause a temporary, harmless darkening of the tongue and/or stool.

Diarrhea Remedies

Purpose

To treat diarrhea.

For occasional loose stools, no medication is required. A clear liquid diet (for example, water or ginger ale) is the first remedy for any diarrhea; it rests the bowel and replaces lost fluid. When diarrhea persists, products with kaolin, pectin, or bismuth are often helpful. If these don't control the diarrhea, stronger agents containing substances such as paregoric may be prescribed. Long-term or severe diarrhea may require the help of a doctor and antibiotic treatments.

To Prevent "Traveler's Diarrhea."

It's best to use antibiotics, such as tetra-

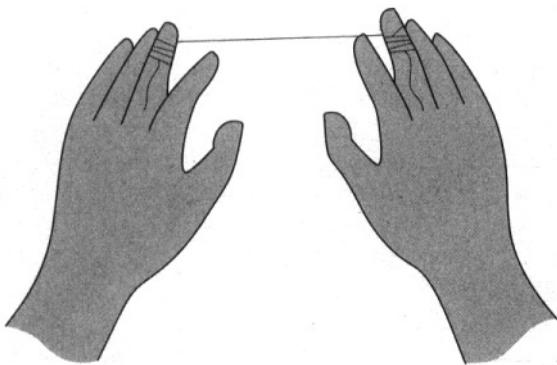
Sodium Fluoride

Purpose

To protect teeth from decay.

Take care of your teeth; they help you chew. There's good evidence that preventive measures can save teeth. Brush your teeth with a toothpaste that contains fluoride as

recommended by your dentist. Many doctors feel that daily flossing is the most important way to prevent adult tooth decay. Adult tooth loss is usually due to plaque buildup, gum disease, and bone loss. Water jets (such as Water Pik) remove food products from between the teeth, but they're less effective than proper flossing.



Dental floss. Wrap floss around your two middle fingers. Use your index fingers to guide the floss into the spaces between your teeth. This way you don't need to wrap the floss tightly. Rub the floss up and down against the teeth's surfaces.

SODIUM FLUORIDE SUPPLEMENTS

If your water supply is fluoridated, your fluoride intake is adequate and you don't need to supplement your diet. The ground water in many areas is naturally fluoridated. Find out if your water is fluoridated; your local health department usually has the answer. If it isn't fluoridated, it's important for you to supplement your children's diet with fluoride. All authorities agree that fluoride is needed through age ten, and probably longer. Adults probably don't require dietary fluoride, although painting teeth with sodium fluoride paste by the

dentist is felt to be helpful, as is use of a fluoride toothpaste. Fluoride is effective in preventing tooth decay in persons of all ages.

Dosage

Fortunately it's relatively easy to supplement with fluoride when the water supply isn't treated. Buy a large bottle of soluble fluoride tablets. Most tablets are 2.2 mg and contain 2 mg of fluoride; the rest is a soluble sugar. If the water supply has low fluoride content, children under the age of three need approximately 0.25 mg per day, ages three to six need 0.5 mg, and ages six to ten need 1 mg. With partially fluoridated water, check doses with your dentist. The tablets can be chewed or swallowed. They may also be taken in milk; they don't alter its taste. In states where fluoride is available only by prescription, request a prescription from your doctor or dentist on a routine visit.

Side Effects

Too much fluoride will mottle the teeth (make gray spots) and won't give them additional strength, so don't exceed the recommended dosage. At the recommended dosage, there are no known side effects; fluoride is a natural mineral present in many natural water supplies.

"Artificial Tears" Eye Drops

Purpose

To treat irritated eyes.

The tear mechanism normally soothes, cleans, and lubricates the eye. Occasionally, the environment can overwhelm this mecha-

nism, or not enough tears may flow. In these cases the eye becomes "tired," feels dry or gritty, and may itch. A number of compounds that may aid this problem are available.

There are two general classes of eye preparations. One class contains compounds intended to soothe the eye (Murine, Prefrin, etc.). Added to these compounds may be decongestants that shrink blood vessels and thus "get the red out" (Visine, Murine Plus, Visine LR). Their capacity to soothe is debatable. The use of decongestants to get rid of a bloodshot appearance is totally cosmetic. It's even possible that such preparations interfere with the normal healing process, so we don't recommend them.

The other class of preparations makes no claims of special soothing effects and contains no decongestants. Their purpose is to lubricate the eye, to be "artificial tears." These are chemical solutions similar to those of the body, so that no irritation occurs. Ophthalmologists prefer such preparations for minor eye irritation. Murine Lubricating Eyedrops is one example.

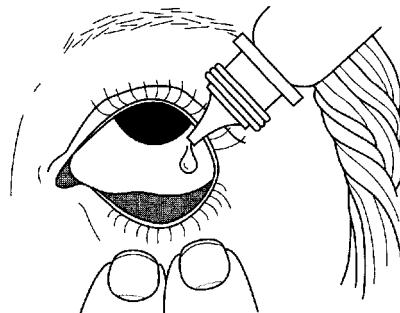
Dosage

Use as frequently as needed in the quantity required. You can't use too much, although usually a few drops give just as much relief as a bottleful. If you have a constant problem of dry eyes, check it out with your doctor because it may indicate an underlying problem. Usually the symptom of dry eyes lasts only a few hours and is readily relieved. Too much sun, wind, or dust usually causes the minor irritation.

Side Effects

No serious side effects have been reported. Visine and other drugs containing decongestants tend to sting a bit.

None of these drugs treats eye infections or injuries or removes foreign bodies from the eye. In Part II, "Common Problems," we give instructions for more severe eye complaints (pages 128-137).



Inserting eye drops. Gently pull down the lower lid. Drip the solution into the sac formed by the lid, not on the eyeball itself. Blink a few times.

Zinc Oxide

Purpose

To treat hemorrhoids.

Zinc oxide powders and creams soothe the irritated area while the body heals the inflamed vein. They also help toughen the skin over the hemorrhoids so that it's less easily irritated. Many people get relief with Preparation H, Anusol, or others, but these offer little advantage.

Reading the Labels

We don't advocate the use of creams that contain ingredients identified by the suffix "-caine" because repeated use of these local anesthetics can cause further irritation.

Dosage

Apply as needed, following label directions. Don't trap bacteria beneath the creams; apply them after a bath when you have carefully cleaned and dried the area. Remember to clean the area thoroughly with soap and water each day.

Side Effects

Essentially none.

Dosage

For athlete's foot, use as directed on the label. For other skin problems, selenium sulfide is effective. It's available by prescription in a 2.5% solution but also over the counter in a 1% solution as Selsun Blue shampoo. Use the shampoo as a cream and let it dry on the skin; repeat several times a day to compensate for the solution's weaker strength.

Side Effects

There are very few. Selenium sulfide can burn the skin if used to excess, so decrease application if you notice any irritation. Selenium may discolor hair and will stain clothes. Be very careful when applying any of these products around the eyes. Don't take them by mouth.

Antifungal Preparations

Purpose

To treat fungus infecting the skin, mouth, throat, and vagina.

Fungal infections of the skin usually aren't serious, so treatment isn't urgent. In general the fungus needs moist, undisturbed areas to grow and will often disappear with regular cleansing, drying, and application of powder to keep the area dry. Clean the area twice daily.

If you need a medication, there are effective nontoxic agents available. For athlete's foot, try one of the zinc undecylenate creams or powders, such as Desenex. In difficult cases, tolnaftate (Tinactin, etc.) and clotrimazole (Lotrimin, etc.) are useful for almost all skin fungus problems, but they are more expensive.

Miconazole (e.g., Monistat 7) is effective and safe for yeast infections (candida monilia) of the mouth, throat, and vagina. If you experience no relief after a week, see the doctor.

Hydrocortisone Cream

Purpose

To temporarily relieve skin itching and rashes such as poison ivy and poison oak.

Brand names of over-the-counter hydrocortisone cream include CaldeCORT, Cortizone-10, and Benadryl Itch Relief Cream. These are strong, local anti-inflammatory preparations. Used for a short period, these creams are safe and almost totally nontoxic. They'll clear up many minor rashes, but they "suppress" a condition rather than "cure" it.

Dosage

Rub a very small amount into the rash. If you can see any cream remaining on the skin, you've used too much. Repeat as frequently as needed, which often is every two to four hours.

Side Effects

Over the long term, these creams can cause skin atrophy (thinning of the skin), so limit their use to a two-week period. Beyond this time, check with your doctor. Theoretically, these creams can make an infection worse, so be careful about using them if it is possible the "rash" might be infected. Don't use these creams around the eyes, and don't take them by mouth.

look for the non-water-soluble products if you plan to be in and out of the water.

Dosage

Apply evenly to exposed areas of skin as directed on the label.

Side Effects

Very rare skin irritation and allergy have been reported.

Sunscreen Agents

Purpose

To prevent sunburn.

Dermatologists continually remind us that sun is bad for the skin. Exposure to the sun accelerates skin aging and increases the chance of skin cancer. Advertisements, on the other hand, keep extolling the virtues of a suntan. As a nation, we spend much of our youth trying to achieve a pleasing skin tone, disregarding the later consequences.

Sunscreen agents can prevent burning but allow you to be in the sun. If your skin is unusually sensitive to the sun's effects, it's best to block the rays; this is achieved with a strong sunscreen agent, like Presun, or any PABA-containing agent with a high sunscreen number. The rating numbers on the label are a good guide to the blocking power of the different agents. The higher the number, the better the blocking power. Suntan lotions that aren't sunscreen agents block relatively little solar radiation.

The length of time an agent stays on the skin is important. Even the strongest cream or lotion won't help after it has washed off, so

Wart Removers

Purpose

To remove some warts.

Warts are a curious little problem. The capricious way in which they form and disappear has led to countless myths and home therapies. They can be surgically removed, burned off, or frozen off, but they'll also go away by themselves or after treatment by hypnosis. Warts are caused by a virus and are a reaction to a minor local viral infection. If you get one, you're likely to get more. When one disappears, the others often follow. The exception is plantar warts, on the sole of the foot, which won't go away by themselves and sometimes not even with home treatment; the doctor may be needed.

Over-the-counter chemicals, such as Compound W and Wart-Off, are moderately effective for treatment of warts. They contain a mild skin irritant. By repeated application they slowly burn off the top layers of the wart and eventually the virus is destroyed.

Dosage

Apply repeatedly, as directed on the product label. Persistence is necessary.

Side Effects

These products are effective because they are caustic to the skin. Be careful to apply them only to the wart, and be very careful around your eyes or mouth.

most important function of these bandages is to remind yourself that you have a problem so that you're less likely to reinjure yourself.

Dosage

When wrapping with the bandage, start at the far end of the area to be bandaged and work toward the trunk of the body, making each loop a little looser than the one before. Thus, a knee bandage should be tighter below the knee than above, and an ankle bandage should be tighter on the foot than on the lower leg. Many people think that because a bandage is elastic it must be stretched. That's wrong. The stretchability is to allow the person to move. Simply wrap the bandage as you would a roll of gauze.

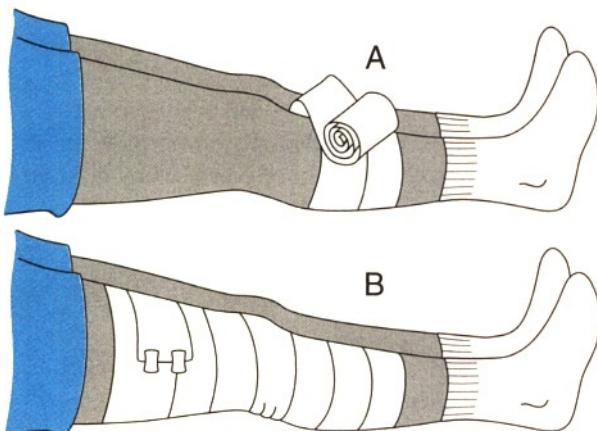
Continue using the bandage as support well past the time of active discomfort to allow complete healing and to help prevent reinjury; this usually takes about six weeks. During the latter part of this period, you can stop using the bandage except during activities that will likely stress the injured part. Remember that reinjury is still possible while these bandages are being used.

Elastic Bandages

Purpose

To treat sprains and similar injuries.

Any family periodically needs elastic (Ace, etc.) bandages. You'll probably need both a narrow and a broad width. If problems recur, the one-piece devices designed specifically for knee and ankle are sometimes more convenient. All these bandages primarily provide gentle support, but they also act to reduce swelling. The support given is minimal, and it's possible to reinjure the body part despite the bandage. Thus, an elastic bandage isn't a substitute for a splint, a cast, or a proper adhesive-type dressing. Perhaps the



Wrapping an elastic bandage.

(A) Start wrapping the bandage on the far side of the joint (in this case, the knee). Don't stretch the bandage as you wrap.
(B) Wrap past the joint, firmly at first then more loosely the farther up you go. Use the clips that come with most elastic bandages to fasten the loose end.

Side Effects

The simple elastic bandage can cause trouble when it is applied too tightly. Problems arise when circulation in the limb beyond the bandage is impaired. The bandage should be firm but not tight. The limb shouldn't swell, hurt, or be cooler beyond the bandage. The skin shouldn't have any blue or purple color.

- **Vitamin C:** A Canadian study indicated that people over age 55 who took vitamin C supplements (at least 300 mg daily for five years) have a 70% lower risk for eye cataracts, but most other studies of a variety of conditions have been disappointing or have shown only minor benefit.

- **Vitamin D:** Most pediatricians recommend vitamin D supplements for infants who are breast-feeding.

- **Vitamin E:** Several studies now suggest that vitamin E supplements (400 International Units [IU] or more per day) may reduce the risk of heart disease by as much as one-half by preventing the oxidation of LDL cholesterol. The Canadian study that looked at vitamin C supplements and cataracts also investigated vitamin E supplementation (400 IU daily) and found a 50% lower risk of cataracts.

- **Folic acid:** Several studies have demonstrated that the use of a folic acid supplement (1 mg per day) before and during early pregnancy greatly reduces the risk of severe defects of the nervous system in the baby. With vitamin B₆ and B₁₂, folic acid may reduce the chances of a heart attack by reducing blood levels of homocysteine.

- **Multivitamins and minerals:** One study suggested that the use of a multivitamin and mineral preparation by healthy adults over 65 reduced the number of illness days by more than half. This supplement contained vitamin A, beta-carotene, thiamine, riboflavin, niacin, vitamin B₆, folic acid, vitamin B₁₂, vitamin C, vitamin D, vitamin E, iron, zinc, copper, selenium, iodine, calcium, and magnesium. The amount of each vitamin or mineral was similar to the

Vitamin Preparations

The use of vitamin supplements has always been controversial. In the past there was theoretical reason to believe that supplements might have benefits; there were also good reasons to believe that these benefits might only be theoretical. Classic diseases of vitamin deficiency (scurvy, beriberi, pellagra, etc.) are rare and occur only in people whose diets are inadequate in virtually every respect, or who have diseases or take medications that interfere with natural vitamins. Most past research on vitamin intake studied diet only and didn't directly address the issue of supplements to the diet. This research suggested that a well-balanced diet should provide adequate amounts of vitamins and minerals.

On the other hand, it's now known that there are specific situations in which vitamin supplements are appropriate. There are good studies indicating that supplements may be useful in individuals with "average" diets outside the special circumstances mentioned above. Here's a summary of current information on vitamin supplements.

- **Vitamin A:** Multiple studies of prevention of a variety of conditions have been inconclusive.

current recommended daily allowances except for beta-carotene and vitamin E, which were above the usual recommended allowances.

The use of vitamin supplements for purposes other than those indicated above is entirely optional. They're unlikely to cause problems when taken in reasonable dosages, but consider the cautions listed below. If you do buy vitamins, the cheaper "house" brands usually are of similar quality to those that are heavily advertised.

Dosage

Multivitamin preparations usually contain the current recommended daily allowance of each vitamin. Other dosages are indicated above.

Side Effects

Vitamin A, vitamin D, and vitamin B₆ (pyridoxine) can cause severe problems when taken in excessively large doses. Large doses of vitamin C have been reported to be associated with kidney problems in rare instances. Other vitamins have not been as well studied, but serious side effects appear to be very rare.

PART II

*Common
Problems*

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CHAPTER 3

Emergencies

Emergencies require prompt action, not panic. What action you should take depends on the facilities available and the nature of the problem.

If there are massive injuries or if the victim is unconscious, you must get help immediately. Go to the emergency room if it is close. Have someone call ahead if you can.

If you can't reach the emergency room quickly, you can often obtain help by calling an emergency room or the rescue squad. Calling for help is especially important if you think that someone has swallowed poison. Poison control centers and emergency rooms can often tell you over the phone how to counteract the poison, thus beginning treatment as early as possible.

The most important thing is to *be prepared*. Work out a procedure for medical emergencies. Develop and test it before an actual emergency arises. Know the best way to reach the emergency room by car. If you plan emergency action ahead of time, you'll decrease the likelihood of panic and increase the probability of receiving the proper care quickly.

CALL AN AMBULANCE?

An ambulance isn't always the fastest way to reach a medical facility. It must travel to both your location and back and often isn't twice as fast as a private car. If the victim can readily move or be moved and a private car is available, use the car and have someone call ahead.

On the other hand, the ambulance brings with it a trained crew who know how to lift a victim to minimize the chance of further injury. Intravenous fluids and oxygen are usually available; splints and bandages are provided; and in some instances, lifesaving resuscitation may be employed on the way to the hospital. Thus, care by ambulance attendants may most benefit a person who:

- Is gravely ill
- May have a back or neck injury
- May be having a heart attack
- Is short of breath

In our experience, ambulances are too often used as expensive taxis. An ambulance may be needed more urgently at another location, so use good judgment in deciding to call for one. Your community's EMT (emergency medical technician) program can be a great resource; use it wisely.

Emergency Signs

The decision charts for the common problems covered in Part II of this book assume that no emergency signs are present. *Emergency signs overrule the charts and dictate that you must seek medical help immediately.* Be familiar with the following emergency signs.

Major Injury

Common sense tells us that a person with a broken leg or large chest wound deserves immediate attention. Emergency facilities exist to take care of major injuries. They must be used promptly.

Possible Neck or Spinal Injury

Do not move the patient before skilled help arrives unless absolutely required. Injury can be made worse if the patient is moved before being adequately splinted.

No Pulse or Breath

Someone whose heart or lungs aren't working needs help right away. Call for help. If you know CPR (cardiopulmonary resuscitation), start it after you call for help or direct someone else to call. If the person is choking, see Choking (page 62).

Unconsciousness

The person who is unconscious needs emergency care immediately.

Bleeding That Can't Be Stopped

Most cuts will stop bleeding if pressure is applied to the wound. This is the most important part of first aid for such wounds.

Unless the bleeding is obviously minor, a wound that continues to bleed despite the application of pressure requires attention in order to prevent unnecessary loss of blood. The average adult can tolerate the loss of several cups of blood with little ill effect, but children can tolerate only smaller amounts, relative to their body size.

Stupor or Drowsiness

A decreased level of mental activity, short of unconsciousness, is termed "stupor." A practical way of determining if the severity of stupor or drowsiness needs urgent treatment is to note the victim's ability to answer questions. If the victim is not sufficiently awake to answer questions concerning what has happened, then urgent action is necessary. Children are more difficult to judge, but the child who cannot be aroused needs immediate attention.

Disorientation

In medicine, disorientation is described and measured in terms of time, place, and person—that is, according to whether the person can answer these questions correctly:

- What is the date?
- Where are we?
- Who are you?

A person who doesn't know his or her identity is in more trouble than a person who doesn't know where he or she is, and that person is in more trouble than a person who can't give the correct date.

Disorientation may be part of a variety of illnesses and is especially common when the person has a high fever. The person who previously has been alert and then becomes disoriented and confused deserves immediate medical attention.

Shortness of Breath

We discuss shortness of breath more extensively in its own section (page 240). As a general rule, emergency attention is needed if the person is short of breath even though resting. However, in young adults the most frequent cause of shortness of breath at rest is the hyperventilation syndrome, which is not a serious concern (page 278). Nevertheless, if you can't confidently determine that shortness of breath is due to the hyperventilation syndrome, then the reasonable course of action is to seek immediate aid.

Cold Sweats

As an isolated symptom, sweating isn't likely to be serious. It's the normal response to elevated temperature. It's also the natural response to stress, either psychological or physical. Most people have experienced sweaty palms when "put on the spot" or stressed psychologically.

In contrast, a "cold sweat" in a person complaining of chest pain, abdominal pain, or lightheadedness indicates a need for immediate attention. It's a common effect of severe pain or serious illness. Also, sweating may occur with breaking a fever, and this kind of sweating is usually not serious.

Severe Pain

Surprisingly, severe pain by itself rarely determines if a problem is serious and urgent. Most often, pain is associated with other symptoms that indicate the urgency of the condition. The most obvious example is pain associated with major injury—like a broken leg—which itself clearly requires urgent care.

The severity of pain is subjective and depends on the individual; often the magnitude of the pain is altered by emotional and psychological factors. Nevertheless, severe

pain demands urgent medical attention, if for no other reason than to relieve the pain.

Much of the art and science of medicine is directed at the relief of pain, and the use of emergency procedures to secure this relief is justified even if the cause of the pain eventually proves to be minor. However, the person who frequently complains of severe pain from minor causes is in much the same situation as the boy who cried "wolf"; calls for help will inevitably be taken less and less seriously by the doctor. This situation is a dangerous one, for the person may have difficulty obtaining help when it is most needed.

EMERGENCY FIRST AID

We haven't tried to teach complex first-aid procedures such as CPR (cardiopulmonary resuscitation) in this book. To use such procedures correctly, you need hands-on instruction and practice. Community organizations such as the American Red Cross and the American Heart Association offer training in these procedures. We urge you to take these classes.

Choking

Your dinner companion can't breathe, can't talk, and is turning blue. He's gasping for air and puts his hand to his throat. These signs tell you he's choking. Do you know what to do?

Choking on a foreign object, usually food, is all too common. The most frequent setting for choking in adults is the evening meal, often in a restaurant or at a party. This situation increases the risk of choking in several ways: First, the victim is likely to have been drinking alcoholic beverages, and this may slow the reflexes that normally keep food from going down the wrong way. Second, the victim is likely to be distracted from the business of eating by conversation or entertainment. Finally, this is the time that solid meats such as steak are most commonly eaten, and these meats are usually the culprits in adult choking.

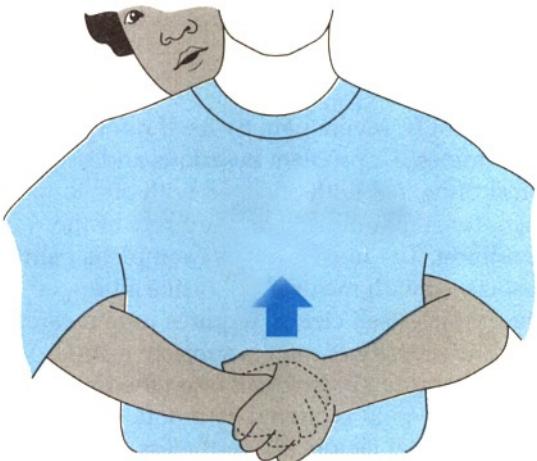
Children stick a much wider variety of objects into their mouths, are likely to do so at any time of the day or night, and are much less likely to complicate the situation with alcohol. Nevertheless, a child is still most likely to choke on food. The most likely foods are hot dogs, grapes, peanuts, and hard candy.

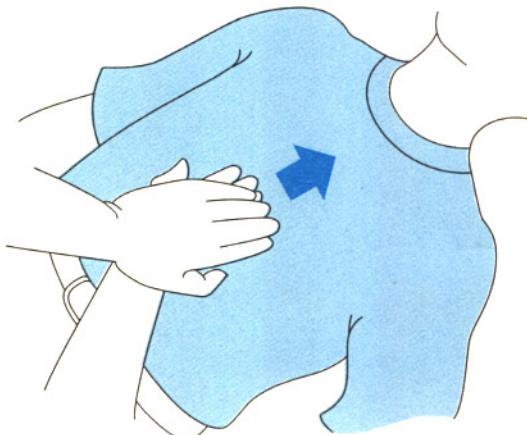
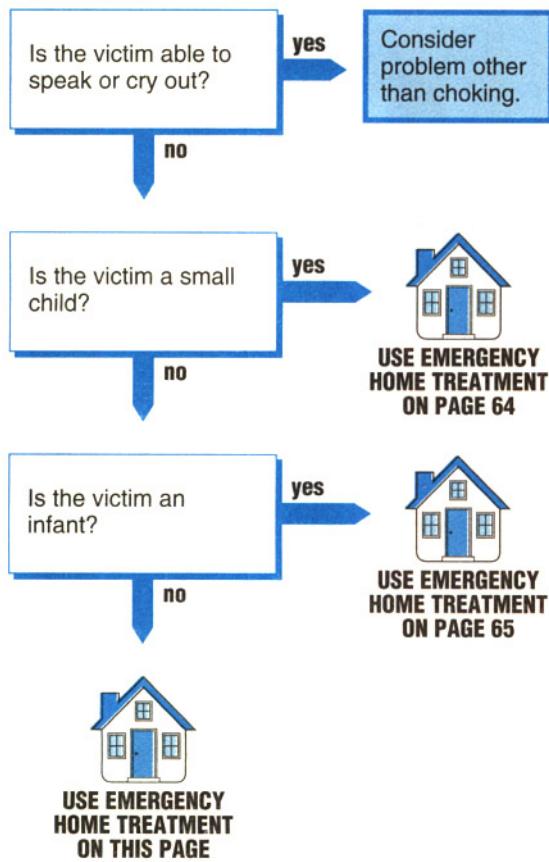
Abdominal-thrust (Heimlich) maneuver for adults. The figures show proper hand positions: (right): standing position; (far right): prone position.

HOME TREATMENT

Choking is an emergency, but emergency medical services—doctors, EMTs, ambulances, emergency rooms, hospitals—play virtually no role in its treatment. In almost every case the victim's fate will be decided by the time such help can respond. Either someone knowledgeable steps forward and relieves the choking, or there's a very good chance the person won't survive.

You can be that knowledgeable someone. The most effective way to relieve choking is with the abdominal-thrust, or Heimlich, maneuver. Pushing on the lungs from below rapidly raises the air pressure inside the lungs and behind the foreign object that is causing the choking. This results in the forceful expulsion of the object from the throat back into the mouth. Done properly, an abdominal-thrust maneuver does not pose great risk of doing harm. Still, it's not the kind of thing you want to do to someone who won't benefit from it. The most important sign that a person should be treated with the abdominal-thrust maneuver is the inability to talk. If the person in difficulty can speak, forget about the abdominal-thrust maneuver.



CHOKING**FOR ADULTS**

1. Stand behind the choking victim and place your arms around him or her. Make a fist and place it against the victim's abdomen, thumb side in, between the navel and the breastbone.
2. Hold the fist with your other hand, and push upward and inward, four times quickly.

If the victim is pregnant or obese, place your arms around his or her chest and your hands over the middle of the breastbone. Give four quick chest thrusts.

If the victim is lying down, roll the victim over onto his or her back. Place your hands on the abdomen and push in the same direction on the body that you would if the victim were standing (inward and toward the upper body).

If the victim is much taller or heavier than you, make the victim lie on the floor and use the lying-down method described above.

3. If the victim doesn't start to breathe, open the mouth by moving the jaw and tongue, and look for the swallowed object. *If you can see the object, sweep it out with your little finger. If you try to remove an object you can't see, you may only push it in more tightly.*
4. If the victim doesn't begin to breathe after the object has been removed from the air passage, use mouth-to-mouth resuscitation.
5. Call for help, and repeat these steps until the object is dislodged and the victim is breathing normally.

FOR SMALL CHILDREN

1. Kneel next to the child, who should be lying on his or her back.
2. Position the heel of one hand on the child's abdomen between the navel and the breastbone. Deliver six to ten thrusts inward and toward the upper body.
3. If this doesn't work, open the mouth by moving the jaw and tongue and look for the swallowed object. *If you can see the object, sweep it out of the throat using your little finger.* If you try to remove an object you can't see, you may only push it in more tightly.
4. If the child doesn't begin to breathe after the object has been removed, use mouth-to-mouth resuscitation.
5. Call for assistance, and repeat these steps until the object is dislodged and the child is breathing normally or until help arrives.

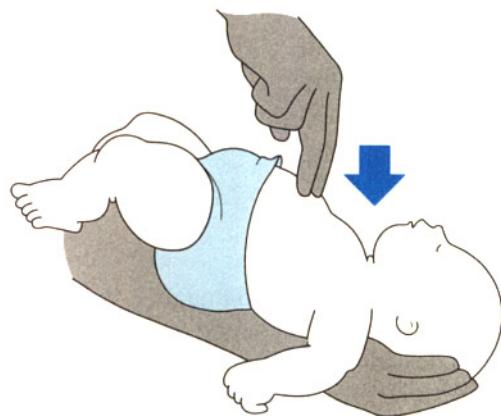
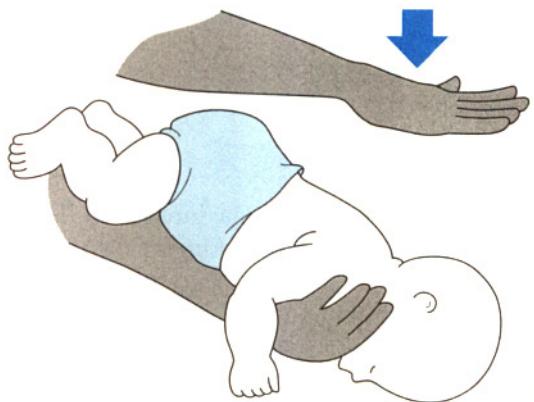


Abdominal thrust for choking children.

Place the bottom of your hand between the child's navel and breastbone. Deliver six to ten quick thrusts. If this doesn't work, go to step 3.

FOR INFANTS

1. Hold the infant along your forearm, face-down, so that the head is lower than the feet.
2. Deliver four rapid blows to the back, between the shoulder blades, with the heel of your hand.
3. If this doesn't work, turn the baby over and, using two fingers, give four quick upward thrusts to the chest.
4. If you're still not successful, open the infant's mouth by moving the jaw and tongue and look for the swallowed object in the throat. *If you can see the object, try to sweep it out gently with your little finger.* If you try to remove an object you can't see, you may do more harm by pushing it in more tightly or triggering the child's gag reflex.
5. If the baby doesn't begin to breathe after the object has been removed, use mouth-to-nose-and-mouth resuscitation.
6. Call for assistance, and repeat these steps until the object is dislodged and the baby is breathing normally.



Abdominal thrust for choking infants.
If four rapid blows to the infant's back don't work, deliver four quick thrusts to the infant's chest as shown above.

Poisoning

Although poisons may be inhaled or absorbed through the skin, for the most part they are swallowed. The term "ingestion" refers to swallowing.

Most poisoning can be prevented. Children almost always swallow poison accidentally. Don't allow children to reach potentially harmful substances like these:

- Medications
- Insecticides
- Caustic cleansers
- Organic solvents
- Fuels
- Furniture polishes
- Antifreezes
- Drain cleaners

The last item is the most damaging: drain cleaners like Drano are strong alkali solutions that can destroy any tissue they touch.

Keep all drugs in child-resistant bottles. Because there are no totally childproof bottles, keep drugs out of small children's reach. Aspirin overdoses have been responsible for more childhood deaths than any other medication.

Identifying the Problem

Treatment must be prompt to be effective, but identifying the poison is as important as speed. *Don't panic.* Try to identify the swallowed substance without taking up too much time. If you can't or if the victim is unconscious, go to the emergency room right

away. If you can identify the poison, call the doctor or Poison Control Center immediately and get advice on what to do. Always bring the container with you to the hospital. Life-support measures come first in the case of an unconscious victim, but doctors must identify the ingested substance before they can begin the proper therapy.

Many significant medication overdoses are due to suicide attempts. Any suicide attempt is an indication that the person needs help, even if he or she has physically recovered from the overdose itself and is in no immediate danger. Most successful suicides are preceded by unsuccessful attempts.

HOME TREATMENT

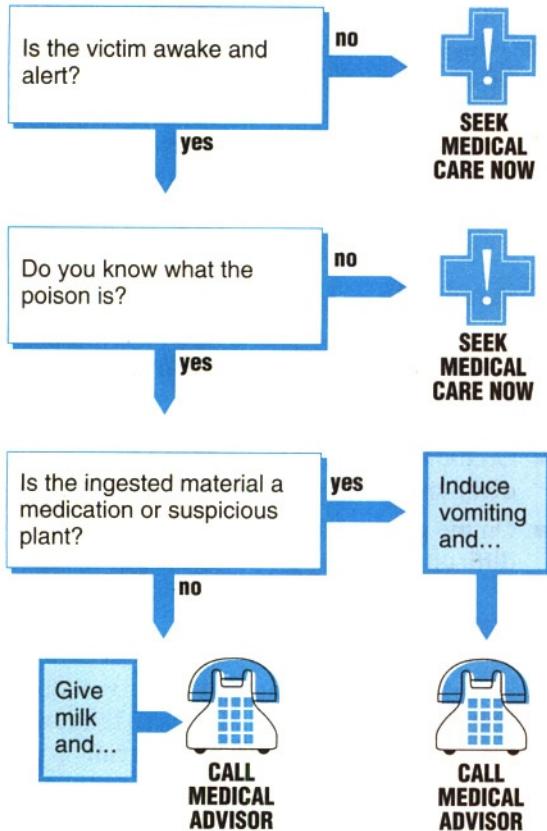
All cases of poisoning require professional help. Someone should call for help immediately. If the victim is conscious and alert and the ingredients swallowed are known, there are two types of treatment: those in which vomiting should be induced, and those in which it should not.

Do not induce vomiting if the victim has swallowed any of the following:

- **Acids:** battery acid, sulfuric acid, hydrochloric acid, bleach, hair straightener, etc.
- **Alkalies:** Drano, drain cleaners, oven cleaners, etc.
- **Petroleum products:** gasoline, furniture polish, kerosene, lighter fluid, etc.

These substances can destroy the esophagus or damage the lungs as they are vomited. Neutralize them with milk while contacting the physician. If you don't have milk, use water or milk of magnesia.

Vomiting is a safe way to remove medications, plants, and suspicious materials

POISONING

from the stomach. It's more effective and safer than using a stomach pump and doesn't require the doctor's help. Vomiting can sometimes be achieved immediately by touching the back of the throat with a finger. This is usually the fastest way, and time is important.

Another way to induce vomiting is to give two to four teaspoons (10–20 ml) of syrup (not extract) of ipecac (page 43), followed by as much liquid as the victim can drink. Vomiting usually follows within 20 minutes. Mustard mixed with warm water also works. If there's no vomiting within 25 minutes, repeat the

FOOD POISONING

Food poisoning is sometimes blamed for stomach or bowel problems that don't have any obvious explanation ("Must have been something I ate"). In reality, food poisoning due to bacteria (e.g., staphylococcus, streptococcus) is rare and causes symptoms that are seldom serious or long-lasting. Treat these symptoms as described in the appropriate sections: Diarrhea (page 246) and Nausea and Vomiting (page 244). An exception is food poisoning due to botulism, but the main symptom of that disease is paralysis, starting with the muscles of the eyes, mouth, and throat, and then involving the entire body—that's obviously an emergency!

dose. Collect what comes up so that the doctor can examine it.

Before, during, and after first aid for poisoning, contact a doctor.

If an accidental poisoning has occurred, make sure that it doesn't happen again. Put poisons where children cannot reach them. Flush old medications down the toilet.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

Significant poisoning is best managed at the emergency room. Treatment of the conscious victim depends on the particular poison and whether the person has vomited most of it back out. If indicated, the stomach will be emptied by vomiting or by the use of a stomach pump. Victims who are unconscious or have swallowed a strong acid or alkali will require admission to the hospital.

CHAPTER 4

Common Injuries

Cuts

Most cuts (lacerations) affect only the skin and the fatty tissue beneath it and heal without permanent damage. However, injury to internal structures such as muscles, tendons, blood vessels, ligaments, or nerves can bring permanent damage. Your doctor can decrease this chance. These are the signs that normally call for a cut to be examined by a doctor:

- Bleeding that you can't control with pressure—this is an emergency (page 60)
- Numbness or weakness in the limb beyond the wound
- Inability to move fingers or toes

Signs of infection—such as pus oozing from the wound, fever, or extensive redness and swelling—won't appear for at least 24 hours. Bacteria need time to grow and multiply. If these signs do appear, you must consult a doctor.

Stitches

The only purpose of stitching (suturing) a wound is to pull the edges together to hasten healing and minimize scarring. Stitches injure tissue to some extent, so they aren't recommended if the wound can be held closed

without them. Stitching should be done within eight hours of the injury. Otherwise, the edges of the wound are less likely to heal together and germs are more likely to be trapped under the skin. Stitching is often required in young children who are apt to pull off bandages, or in areas that are subject to a great deal of motion, such as the fingers or joints.

Difficult Cuts

Unless the cut is very small or shallow, call your doctor about cuts in these areas:

- On the chest, abdomen, or back
- On the face—facial wounds can be disfiguring
- On the palm—hand wounds can be difficult to treat if they become infected

HOME TREATMENT

Cleanse the wound. Soap and water will do, but be vigorous. You may also use 3% hydrogen peroxide (page 36) or a commercial antiseptic such as Merthiolate. Make sure no dirt, glass, or other foreign material remains in the wound.

The edges of a clean, minor cut can usually be held together by "butterfly" bandages or, preferably, by "steristrips"—strips of sterile paper tape (page 35). Apply either of these bandages so that the edges of the wound join without "rolling under."

Pain medication (page 38) can of course help reduce discomfort but is often not needed.

See the doctor if the edges of the wound can't be kept together, if signs of infection appear (pus, fever, extensive redness and swelling), or if the cut isn't healing well within two weeks.

CUTS

Is there a possibility of damage to major blood vessels or nerves, or is there fever, pus, or extensive redness and swelling?

yes



Can the edges of the wound be brought together easily?

no



Is the cut on face, chest, abdomen, back, or palm?

yes



See: Tetanus
Shots, p. 76

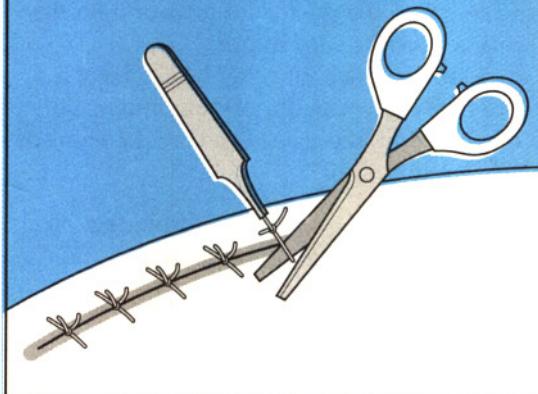
WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The wound will be thoroughly cleansed and explored to be sure that no foreign particles are left and that blood vessels, nerves, and tendons are undamaged. Since the doctor may use an anesthetic to numb the area, report any possible allergy to local anesthetics (Xylocaine, for example). The doctor will give a tetanus shot (page 76) and antibiotics if needed.

STITCHES

Your doctor will tell you when stitches are to be removed. You can often perform this simple procedure at home with a clean pair of small, sharp scissors or a fingernail clipper.

1. Clean the skin and the stitches. Sometimes a scab must be removed by soaking.
2. Gently lift the stitch away from the skin by grasping a loose end of the knot with tweezers.
3. Cut the stitch as close to the skin as possible, so that a minimum amount of the stitch that was outside the skin will be pulled through. This reduces the chance of infection.
4. Lift the tweezers to pull the stitch out.



Lacerations that may require a surgical specialist include those with injury to tendons or major vessels, especially in the hand, and those on the face.

Puncture Wounds

Nails, pins, tacks, and other sharp objects can cause puncture wounds of the skin. Since puncture wounds rarely need stitches, the important questions are:

- Are the underlying tissues injured?
- Is anything (dirt or object) left in the wound?
- Does the victim need a tetanus shot?

Most minor puncture wounds involve the extremities—arms, hands, legs, and especially feet. A deep puncture elsewhere on the body could cause internal injury that is not obvious, so call the doctor for advice. A puncture wound on the hand can be serious if it gets infected. Call the doctor for a wound on the hand unless it is very minor.

A nail, ice pick, or other large object is more likely to cause underlying injury than a narrow item like a needle. The rare signs of serious injury are:

- Blood pumping vigorously from the wound—possible injured artery
- Numbness or tingling in the limb beyond the wound—possible injured nerves
- Difficulty moving the limb beyond the wound—possible injured tendon

These symptoms require **emergency** care.

Puncture wounds can become infected, especially if foreign material remains inside—a splinter, needle, or piece of glass. See the doctor if you have any question whether the

wound is free of foreign material. Signs of infection include:

- Fever
- Extensive redness
- The formation of thick, yellowish pus
- Swelling of the area around the wound

These are signs to see a doctor and usually take 24 hours or more to develop.

HOME TREATMENT

Don't apply pressure to the wound unless it bleeds heavily or pumps in a way suggesting an artery has been injured. Let the wound bleed as much as possible to remove foreign material.

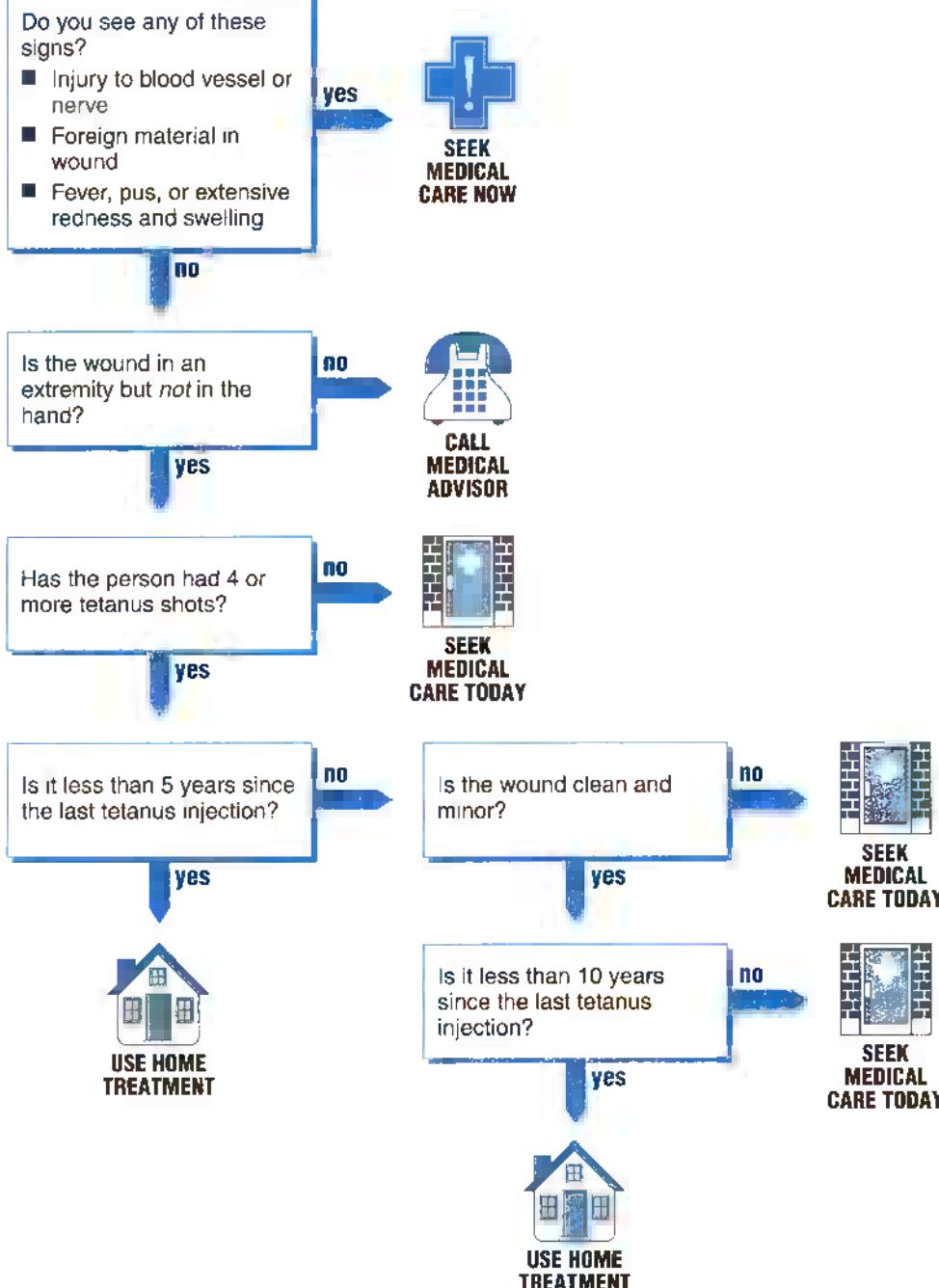
Clean the wound with soap and water or 3% hydrogen peroxide (page 36). Soak the wound in warm water or a baking soda solution several times a day for four or five days (page 36). This helps keep the skin puncture open so that germs or foreign debris can drain from it.

Seek medical care if you see signs of infection or if the wound hasn't healed after two weeks.

Make sure you are immunized against tetanus (page 25).

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will examine the wound to assess the extent of the puncture, injury to underlying tissues, and possible infection. He or she may have X-rays taken or explore the wound surgically. Be prepared to tell the doctor about possible allergies to local anesthetics, such as *Xylocaine*. Most doctors recommend home treatment. Antibiotics are rarely prescribed.

PUNCTURE WOUNDS

Animal Bites

Rabies is a very serious viral infection carried in the saliva of animals. It can be transmitted to humans through a bite or scratch. Although 3,000 to 4,000 animals with rabies are found in the United States each year, only one or two people get the disease.

A rabid animal may behave in strange ways:

- Not running from humans as you would expect
- Attacking without provocation
- Drooling or foaming at the mouth
- Walking around in the daytime if it is normally nocturnal

Avoid animals that act out of the ordinary.

The main carriers of rabies are skunks, foxes, bats, and raccoons. Rabies is less common in cattle, dogs, and cats. The disease is extremely rare in squirrels, chipmunks, rats, and mice. Cats and dogs pose the greatest risk of rabies to people because of their frequent contact with humans and the large number of bites reported each year. For the sake of your pets, your neighbors, and yourself, immunize your cats and dogs against rabies.

If you have been bitten by a wild animal, or by a dog or cat whose immunization history you don't know, call your doctor to decide whether you need antirabies treatment.

If you have been bitten by a pet dog or cat, and the animal's owner has its shots up-to-date and will observe the animal for sickness, you don't need to go to the doctor.

HOME TREATMENT

Treat animal bites as you would other wounds. Turn to Cuts (page 68), Scrapes and Abrasions (page 74), Puncture Wounds (page 70), or Tetanus Shots (page 76) for the appropriate treatment.

If a wild animal causes the bite, call animal control officials. Trying to trap a wild animal may expose you or others to additional risk.

A pet whose shots are up-to-date is unlikely to have rabies. Still, you should arrange to have the animal observed for the next 15 days to make sure it does not develop the disease. You can usually rely on pet owners to watch the animal. If the owner is uncooperative, call animal control officials. If the animal develops rabies during the observation period, bite victims must be treated immediately.

Many localities require that you report animal bites to the health department.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor must balance the remote possibility of rabies exposure with the risks of treatment. An unprovoked attack by a wild animal, or a bite from an animal that appears to be rabid, may require the rabies vaccine and antirabies serum. A bite caused by an animal that escaped may require treatment to be safe.

Doctors give rabies vaccine in five injections—one immediately and four over the next 28 days. The vaccine may cause local skin reactions, fever, headache, and nausea. Severe reactions are rare. The antirabies serum used today is of human origin and causes few side effects.

The doctor may give you a tetanus shot, although tetanus is rare from an animal bite. Usually you don't need antibiotics.

ANIMAL BITES

Is bite from a dog or cat with up-to-date shots, and is animal presently being observed?

no



CALL
MEDICAL
ADVISOR

yes

Is wound a cut or puncture that may require medical attention?

yes

See: Cuts,
p. 68; Puncture
Wounds, p. 70;
or Scrapes and
Abrasions,
p. 74

no



USE HOME
TREATMENT

See: Tetanus
Shots, p. 76

Scrapes and Abrasions

Scrapes and abrasions are shallow wounds. Several layers of the skin may be torn or even totally scraped off, but the wound doesn't go far beneath the skin. Abrasions are usually caused by falls onto the hands, elbows, or knees; but skateboard and bicycle riders can get abrasions on just about any part of the body. Because abrasions expose millions of nerve endings, all of which send pain impulses to the brain, they're usually much more painful than cuts.

HOME TREATMENT

Remove all dirt and foreign matter. Washing the wound with soap and warm water is the most important step in treatment. You can also use 3% hydrogen peroxide to cleanse the wound (page 36). Most scrapes will scab rather quickly; this is nature's way of "dressing" the wound. Using Mercurochrome, iodine, and other antiseptics does little good and is sometimes painful.

Adhesive bandages may be used as necessary for a wound that continues to ooze blood; they must be removed if they get wet (page 34). Antibacterial ointments (Neosporin, Bacitracin, etc.) are optional; their main advantage is in keeping bandages from sticking to the wound.

Loose skin flaps, if they aren't dirty, may be left to help form a natural dressing. If the skin flap is dirty, cut it off carefully with nail scissors. (If it hurts, stop! You're cutting the wrong tissue.)

Watch the wound for signs of infection—pus, fever, or severe redness or swelling—but

don't be worried by redness around the edges; this is an indication of normal healing. Infection won't be obvious in the first 24 hours; fever may indicate a serious infection.

Pain can be treated for the first few minutes with an ice pack enclosed in a plastic bag or towel applied over the wound as needed. The worst pain subsides fairly quickly, and acetaminophen or other pain medication can then be used if needed (page 38).

See the doctor if signs of infection appear or if the scrape or abrasion isn't healed within two weeks.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will make sure that the wound is free of dirt and foreign matter. Soap and water and 3% hydrogen peroxide (page 36) will often be used. Sometimes a local anesthetic (Xylocaine, for example) is required to reduce the pain of the cleansing process. Tell the doctor of possible allergies to such anesthetics.

An antibacterial ointment such as Neosporin or Bacitracin is sometimes applied after cleansing the wound. Betadine is a painless iodine preparation that is also occasionally used (page 36). Tetanus shots aren't required for simple scrapes, but if the patient is overdue, it is a good chance to get caught up (page 76) and avoid a future doctor visit to get the shot.

SCRAPES

Can dirt and foreign matter be removed?

yes

no



SEEK
MEDICAL
CARE NOW

Are there signs of infection, such as fever, a big lump in part of the wound, or drainage of thick, smelly pus?

yes



SEEK
MEDICAL
CARE TODAY

no



USE HOME
TREATMENT

Tetanus Shots

People may come to the doctor's office or emergency room to get a tetanus shot even though it isn't needed. This section's decision chart illustrates the essentials of the current U.S. Public Health Service recommendations. It can save you and your family several visits to the doctor. See the advice on immunizations (page 25) and Cuts (page 68).

The question of whether or not a wound is "clean" and "minor" may be troublesome. Wounds caused by sharp, clean objects such as knives or razor blades have less chance of becoming infected than those in which dirt or foreign bodies have penetrated and lodged beneath the skin. Abrasions and minor burns won't result in tetanus. The tetanus germ can't grow in the presence of air, so the skin must be cut or punctured for the germ to reach an airless location.

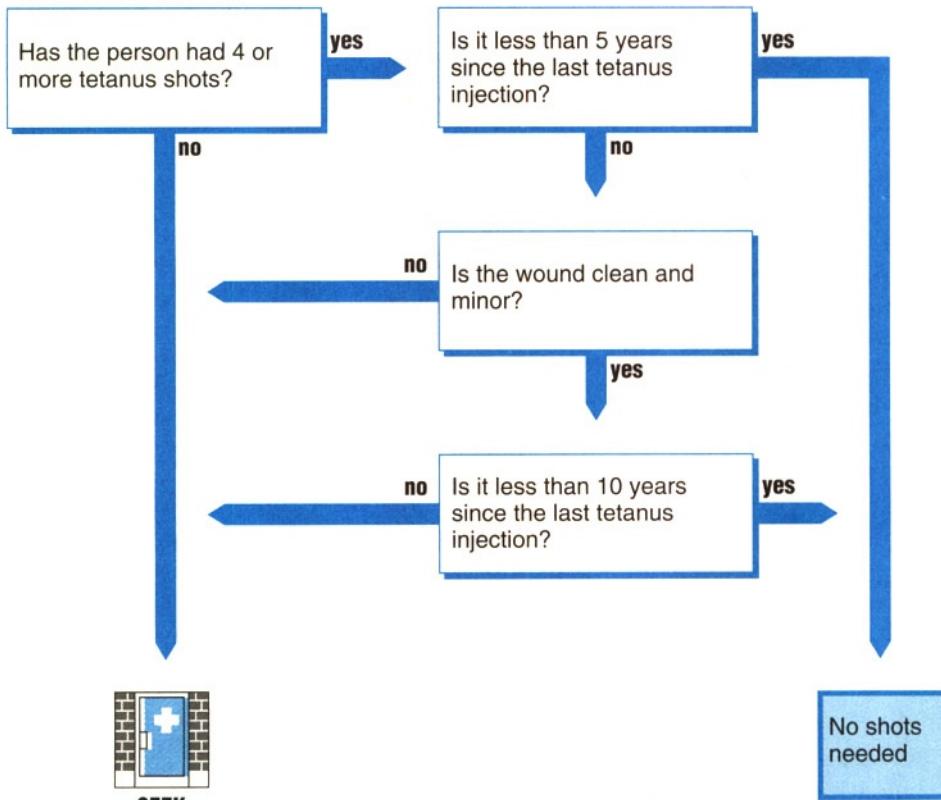
tetanus over a three-week period. This immunity then slowly declines over many months. After each booster, immunity develops more rapidly and lasts longer. If you have had an initial series of five tetanus injections, immunity will usually last at least ten years after every booster injection. Nevertheless, if a wound has contaminated material beneath the skin and isn't exposed to the air, and if you haven't had a tetanus shot within the past five years, a booster shot is advised to keep the level of immunity as high as possible.

Tetanus immunization is very important because the tetanus germ is quite common and the disease (lockjaw) is so severe. Be absolutely sure that each of your children has had the basic series of three injections and appropriate boosters. Because the immunity lasts so long, adults usually get away with a long period between boosters, but immunization of children should be "by the book."

IMMUNIZATION

If you've never received a basic series of three tetanus shots, you should see your doctor. Sometimes a different kind of tetanus shot is required if you haven't been adequately immunized. This shot is called "tetanus immune globulin" and is used when immunization isn't complete and there is a significant risk of tetanus. It is more expensive, more painful, and more likely to cause an allergic reaction than the tetanus booster. So keep a record of your family's immunizations in the back of this book and know the dates.

During the first tetanus shots (usually a series of three injections given in early childhood), the person develops a resistance to

TETANUS SHOTS

Broken Bone?

You may find it hard to tell a broken bone from an injury to soft tissues, such as ligaments and tendons. Like a sprain or a strain, fractures are very painful. In most cases, the bone fragments remain aligned after the fracture, so you can't tell by sight whether a bone is broken; usually, neither can a doctor.

Besides obvious deformity of a limb (which requires medical attention), here are some signs of a serious fracture:

- If the fracture injures nearby nerves or blood vessels, a limb can be cold, pale, or numb—signs to call the doctor.
- Paleness, sweating, dizziness, and thirst are signs of shock. The person with these **emergency signs** needs immediate medical attention (page 60).
- Sprains and other soft-tissue injuries usually allow some use of a limb, but fractures are often more disabling. While sprains and strains improve over a day or two, a broken bone may remain painful and unable to bear weight.
- Although soft-tissue injuries cause bruises under the skin, major bruising is more likely with a fracture.

Fortunately, few fractures are emergencies. In most fractures the bone pieces are in place and don't require setting. No harm is done if you wait a day or two before the doctor puts a cast on a broken arm or leg. After all, the cast doesn't cause healing; it just keeps the bones in place as they heal.

For broken ribs you can't do much more than tape and rest the affected ribs. If you

have shortness of breath after chest injury, you may have hurt a lung. See the doctor right away.

For possible skull fracture, see Head Injuries (page 86).

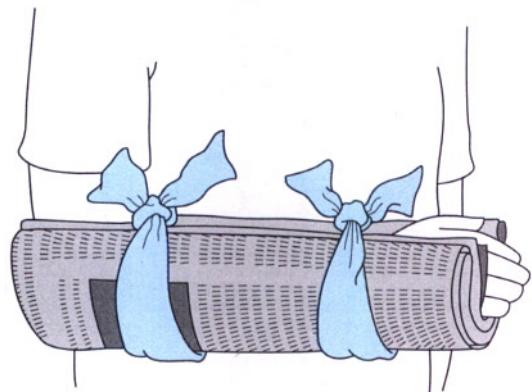
HOME TREATMENT

An ice pack on the injured area will help reduce pain and swelling. Rest and protect the limb for at least 48 hours.

Splinting an injured limb is a good way to rest the bone, especially if you are taking the person for medical care. Here are some guidelines for splinting:

- Immobilize the joints above and below the painful area. For example, to splint an injury of the lower arm, you must stop the elbow and wrist from moving.
- You can use any stiff material as a splint—a piece of wood, folded magazine, umbrella, or rolled-up newspaper.
- Don't wrap the limb so tightly that you cut off circulation.

After 48 hours of rest, carefully test the limb. See if you can use it and whether it is



BROKEN BONE?

Do you see any of these signs?

- Limb is cold, blue, or numb
- Pelvis or thigh might be broken
- Victim is sweaty, pale, dizzy, or thirsty
- Limb is crooked

yes



no

Do you see any of these signs?

- Limb that can't bear weight or be used
- A lot of bleeding and bruising in the injured area
- Fracture near a joint in a child

yes



no



painful when moved. See the doctor for any injury that is still painful.

Take acetaminophen, aspirin, ibuprofen, or naproxen for pain.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

A technician or assistant usually takes an X-ray of the injured area before you see the doctor. A crooked limb must be set, or straightened, which may require general anesthesia. The doctor may put pins in the bone during surgery to hold pieces together as they heal.



Splints. If a person may have a broken limb, it's important to keep that limb from shifting as you apply home treatment or go to the hospital. *Left:* Forearm splint made of rolled newspapers and cloths. *Right:* Splint for one leg anchored by the other leg and by a board wrapped with a towel.

Ankle Injuries

Ligaments are tissues that connect the bones of a joint to provide stability during the joint's action. When the ankle is twisted severely, either the ligaments or the bone must give way. If the ligaments give way, they may be stretched (strained), partially torn (sprained), or completely torn (torn ligaments). If the ligaments don't give way, one of the bones around the ankle will break (fracture).

Strains, sprains, and even some minor fractures of the ankle will heal well with home treatment. Some torn ligaments do well without a great deal of medical care; operations to repair them are rare. For practical purposes, the immediate attention of the doctor is necessary only when the injury has been severe enough to cause obvious fracture to the bones around the ankle or to cause a completely torn ligament. This is indicated by a deformed joint with abnormal motion.

Swelling

The typical ankle sprain swells either around the bony bump at the outside of the ankle or about two inches (5 cm) in front of and below it. The amount of swelling doesn't differentiate among sprains, tears, and fractures. The common chip fractures around the ankle often cause less swelling than a sprain. Sprains and



Ankle swelling. The highlighted area shows the ligament that gets stressed when you "turn your ankle."

torn ligaments usually swell quickly because there is bleeding into the tissue around the ankle. The skin will turn blue-black in the area as the blood is broken down by the body.

A swollen ankle that isn't deformed doesn't need prolonged rest, casting, or X-rays. Home treatment should be started promptly. Detection of any damage to the ligaments may be difficult immediately after the injury if much swelling is present. Because it is easier to do an adequate examination of the foot after the swelling has gone down and because no damage is done by resting a mild fracture or torn ligament, there is no need to rush to the doctor.

Pain

Pain tells you what to do and not to do. If it hurts, don't do it. If pain prevents any standing on the ankle after 24 hours, see a doctor. If little progress is being made so that pain makes weight-bearing difficult at 72 hours, see the doctor.

HOME TREATMENT

RICE is the key word:

- Rest
- Ice
- Compression
- Elevation

Rest the ankle and keep it elevated. Apply ice in a towel to the injured area and leave it there for at least 30 minutes. If there is any evidence of swelling after the first 30 minutes, then apply ice for 30 minutes on and 15 minutes off through the next few hours. If the ankle stops being painful while elevated, you may cautiously try to put weight on that leg. If the ankle is still painful when bearing weight, you should avoid putting weight on that leg.

ANKLE INJURIES

Is the ankle deformed or bending in an abnormal fashion?

yes



SEEK
MEDICAL
CARE NOW

no

Is either of the following present?

- Pain preventing the ankle from bearing any weight for more than 8 hours
- Tenderness on the tip or rear of either bony bump on the ankle's sides

yes



SEEK
MEDICAL
CARE TODAY

no

Has pain made weight bearing difficult for more than 48 hours?

yes



SEEK
MEDICAL
CARE TODAY

no



USE HOME
TREATMENT

for the first 24 hours. Heat may be applied, but only after 24 hours.

An elastic bandage can help but won't prevent reinjury if you resume full activity (page 54). Don't stretch the bandage so that it's very tight and interferes with blood circulation. You generally shouldn't try taping on children; if it's done incorrectly, it may cut off circulation to the foot.

The ankle should feel relatively normal in about ten days. Be warned, however, that full healing won't take place for four to six weeks. If strenuous activity, such as organized athletics, is to be pursued during this time, the ankle should be taped by someone experienced in this technique.

Pain medication (page 38) can of course help to reduce discomfort.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will examine the motions of the ankle to see if they are abnormal and may have an X-ray taken. If there is no fracture or only a minor chip fracture, it is likely that a continuation of home treatment will be recommended. For other fractures, a cast will be necessary or, rarely, an operation to put the bones back together. An operation may be required to repair a completely torn ligament.

Knee Injuries

The ligaments of the knee may be stretched (strained), partially torn (sprained), or completely torn (torn ligaments). Unlike ankle ligament injuries, torn ligaments in the knee need to be repaired surgically as soon as possible after the injury occurs. If surgery is delayed, the operation is more difficult and less likely to be successful. For this reason, the approach to knee injuries is more cautious than for ankle injuries. If there is any possibility of a torn ligament, go to the doctor.

Fractures in the area of the knee are less common than around the ankle; they always need to be cared for by a doctor.

Knee injuries usually occur during sports, when the knee is more likely to experience twisting and side contact. (Deep knee bends stretch ligaments and may contribute to injuries; they should be avoided.) Serious knee injuries occur when the leg is planted on the ground and a blow is received to the knee from the side. If the foot can't give way, the knee will. There is no way to totally avoid this possibility in athletics. The use of shorter spikes and cleats helps, but knee braces and supports give little protection.

Abnormal Motion

When ligaments are completely torn, the lower leg can be wiggled from side to side when the leg is straight. Compare the injured knee to the opposite knee to get some idea of what amount of side-to-side motion is normal. If the knee slides front to back (called "the drawer sign"), this is even more serious, since it suggests a tear of the ligament in the front

of the knee. If you think your knee motion may be abnormally loose, see a doctor.

If the cartilage within the knee has been torn, normal motion may be blocked, preventing it from being straightened. Although a torn cartilage doesn't need immediate surgery, it deserves medical attention.

Pain and Swelling

The amount of pain and swelling doesn't indicate the severity of the injury. The ability to bear weight, to move the knee through the normal range of motion, and to keep the knee stable when wiggled is more important.

Typically, strains and sprains hurt immediately and continue to hurt for hours and even days after the injury. Swelling tends to come on rather slowly over a period of hours but may reach rather large proportions. When a ligament is completely torn, there is intense pain immediately, which subsides until the knee may hurt little or not at all for a while. Usually there is significant bleeding into the tissues around the joint when a ligament is torn; swelling tends to come on quickly and be obvious, even impressive, to the eye.

The best policy when there is a potential injury to the ligament is to avoid any major activity until it is clear that this is a minor strain or sprain. Home treatment is intended only for minor strains and sprains.

HOME TREATMENT

RIP is the key word: rest, ice, and protection. Rest the knee and elevate it. Apply an ice pack, enclosed in a plastic bag or towel, for at least 30 minutes to minimize swelling. If there is more than slight swelling or pain despite the fact that the knee was immediately rested and ice was applied, see the doctor. If this isn't the case, apply the ice treatment on the knee for

KNEE INJURIES

Does the knee joint allow the leg to wobble from side to side, or is it impossible to straighten the knee?

no

yes



Is there more than mild pain or swelling associated with an athletic injury?

no

yes



Has the problem persisted for more than 72 hours?

no

yes



30 minutes and then off for 15 minutes for the next several hours. Limited weight bearing may be attempted during this time with a close watch for increased swelling and pain.

Heat can be applied after 24 hours. By then, the knee should look and feel relatively normal; after 72 hours this should clearly be the case. If not, see the doctor. Remember, however, that a strain or sprain isn't completely healed for four to six weeks and requires protection during this healing period. Elastic bandages won't prevent reinjury but will ease symptoms a bit and remind the injured person to be careful with the knee (page 54).

Pain medication (page 38) can of course help to reduce discomfort.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

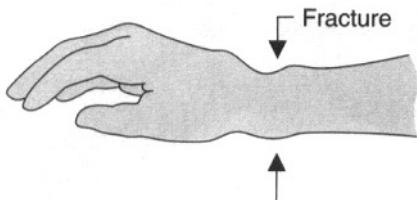
The knee will be examined for abnormal motion. A massively swollen knee may have blood removed from the joint with a needle. Torn ligaments need surgical repair. X-rays may be taken but usually aren't helpful. For injuries that appear minor, home treatment will be advised. Pain medications are sometimes, but not often, required (page 38).

Arm Injuries

The ligaments of the wrist, shoulder, and elbow joints may be stretched (strained) or partially torn (sprained), but complete tears are rare. Fractures may occur at the wrist, are less frequent around the elbow, and are uncommon around the shoulder. Injuries often occur during a fall, when the weight of the body is caught on the outstretched arm.

Wrists

The wrist is the most frequently injured joint in the arm. Strains and sprains are common, and the small bones in the wrist may be fractured. Fractures of these small bones may be difficult to see on an X-ray. The most frequent fracture of the wrist involves the ends of the long bones of the forearm and is easily recognized because it causes an unnatural bend near the wrist. Physicians refer to this as the "silver fork deformity."



Elbows

"Tennis elbow" is the most frequent elbow injury; if you think this is the problem, consult Elbow Pain (page 212). Other injuries are much less frequent and usually result from falls, automobile accidents, or contact sports. A common problem in children under five years of age is partial dislocation due to adults pulling on the arm.

Shoulders

The collarbone (clavicle) is a frequently fractured bone; fortunately, it has remarkable healing powers. An inability to raise the arm on the affected side is common; the shoulders may also appear uneven. Bandaging the arm to the chest is the only treatment required.

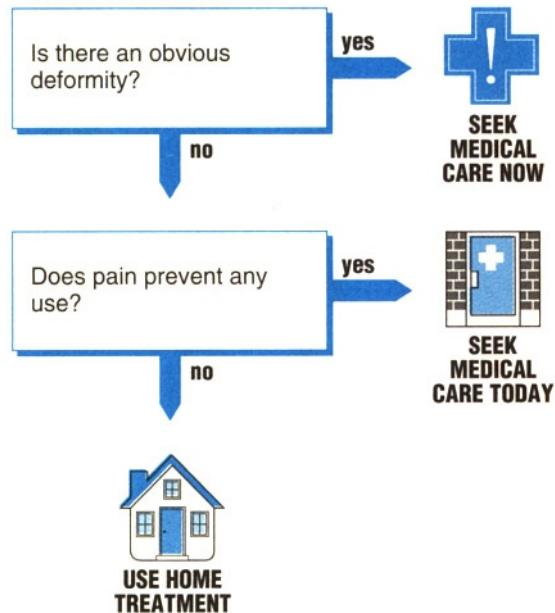
Shoulder separation, often seen in athletes, is perhaps the most common injury of the shoulder. It is a stretching or tearing of the ligament that attaches the collarbone to one of the bones that forms the shoulder joint. It causes a slight deformity and extreme tenderness at the end of the collarbone on the top of the shoulder. Sprains and strains of other ligaments occur, but complete tearing is unusual, as are fractures. Dislocations of the shoulder are rare but are best treated early when they do occur.

Severe fractures and dislocations are best treated early. These usually cause deformity, severe pain, and limited movement. Other fractures won't be harmed by delayed treatment if the injured limb is rested and protected. Complete tears of ligaments are rare; strains and sprains will heal with home treatment.

HOME TREATMENT

RICE is the key word: rest, ice, compression, and elevation. Rest the arm and apply ice wrapped in a towel for at least 30 minutes. If the pain is gone and there is no swelling at the end of this time, you can stop the ice treatment. A sling for shoulder and elbow injuries and a partial splint for wrist injuries will elevate, protect, and rest the injury while allowing the patient to move around. Continue ice treatment for 30 minutes on and 15 minutes off through the first eight hours.

Heat can be applied after 24 hours. The injured joint should be usable with little pain.

ARM INJURIES**Tying an arm sling.**

(A) Use a triangular piece of cloth (or a folded square sheet). A small folded towel adds support.

(B) Tie as shown.

(C) A safety pin will hold it securely.

(D) To add even greater security, tie another strip of cloth around the chest and arm as shown.

within 24 hours and should be almost normal by 72 hours. If not, see the doctor. Complete healing takes from four to six weeks, and activities with a likelihood of reinjury should be avoided during this time.

Pain medication (page 38) can help.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

An examination and sometimes X-rays will be performed. A cast or sling can be applied. Pain medication is sometimes given, but acetaminophen or other nonprescription medication (page 38) is usually adequate. Certain fractures, especially those around the elbow, may require surgery.

Head Injuries

The skull is a strong container that protects and carefully cushions the valuable contents inside. Head injuries are potentially serious, but few lead to long-term problems. Doctors divide head injuries into two basic types:

- Injury to the bone, skin, and other tissues of the skull
- Injuries to the brain, blood vessels, and other tissues within the skull

Treat cuts, abrasions, and other wounds of the head as you would other trauma to the skin (pages 68 and 74). See the doctor if you suspect fracture of a skull bone, or if you see blood or clear fluid in the ears or nose following head injury.

A head injury that causes concussion or loss of consciousness requires **emergency care**. See the doctor as well if there may be bleeding or severe bruising within the head, suggested by these signs:

- Loss of alertness: increasing lethargy, unresponsiveness, abnormally deep sleep, coma
- Unequal pupil size after head injury (though about one in four people has slightly unequal pupils all the time)
- Severe vomiting or “projectile vomiting,” which may be ejected several feet

In severe head injury, two or more signs are often present at once. Vomiting is usually forceful, repeated, and progressively worse.

In rare cases, slow bleeding inside the head forms a blood clot that causes chronic

headache, persistent vomiting, or personality changes months after the injury.

Careful observation is the most important part of diagnosing head injury. You can usually do this at home as well as, if not better than, a hospital staff member. A family member is more likely to pay closer attention to the person with head injury and know what is normal for him or her.

HOME TREATMENT

Stop the bleeding of skin wounds by applying pressure directly on the wound, preferably with a sterile dressing. Ice applied to a bruised area may reduce swelling, but “goose eggs” often form anyway.

The initial observation period is crucial. Symptoms of bleeding inside the head usually appear within 24 to 72 hours after injury. Check the person every 2 hours during the first 24 hours, every 4 hours for the second 24 hours, and every 8 hours for the third day.

Because many injuries occur during the evening, the injured person will usually be asleep several hours after the accident. You can look in on the sleeping person periodically to check his or her pulse, pupils, and arousability. If the person has a minor head bump and no sign of brain injury, nighttime checking is usually not necessary.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will ask about the nature of the accident and assess the patient's appearance and vital signs. He or she will do a physical exam and check for other injuries. If internal bleeding is possible, the patient may be kept in the hospital for observation. The doctor will avoid giving drugs, such as sedatives or strong pain medication, that may hide signs.

HEAD INJURIES

Have you seen any of the following signs?

- Unconsciousness
- Victim cannot remember injury
- Seizure
- Visual problems
- Bleeding from eyes, ears, or mouth
- Changes in behavior (irritability, lethargy, sleep)
- Fluid draining from nose
- Persistent vomiting
- Irregular breathing or heartbeat
- Child under 2 years of age, or possibly being abused
- Victim under influence of alcohol or drugs

yes



**SEEK
MEDICAL
CARE NOW**

no

Is there a cut?

yes

See: Cuts,
p. 68

no



**USE HOME
TREATMENT**

Bleeding within the skull is hard to diagnose. Skull X-rays are seldom helpful. CT scans and MRIs can be helpful but are expensive and may miss early accumulations of blood. With severe injuries, the victim may require X-rays of the neck to check for possible injury to the cervical spine.

Burns

Burns are injuries caused most commonly by heat. They can also result from chemicals, electricity, or radiation.

Heat burns are ranked according to the depth of skin injury:

- **First-degree burns** are superficial, resulting in red and tender skin. They are painful but rarely serious. The common sunburn is a first-degree burn. Even when first-degree burns affect a large area of skin, they seldom result in long-term problems. Usually you don't need to see a doctor.
- **Second-degree burns** are deeper, producing blisters of the skin. Scalding with hot water or a very severe sunburn are common types of second-degree burns. They are painful and may be serious if a large area of skin is affected. However, second-degree burns rarely result in infection or scarring. See a doctor for second-degree burns covering an area larger than the hand, or affecting the face or hands. Otherwise treat the burn at home.
- **Third-degree burns** destroy all skin layers and extend into deeper tissues. They do not hurt because nerve endings have been destroyed (but they may be surrounded by a painful second-degree burn). A third-degree burn usually involves obviously charred skin. Such burns can lead to fluid loss, infection, and scarring. All third-degree burns need medical attention.

One of the most common burns is sunburn. Sunburn is preventable, by avoiding

tanning salons or prolonged exposure to the sun, and by using a sunscreen (page 53).

Sunburn is most painful 6 to 48 hours after sun exposure. Injured skin may peel three to ten days after the burn. In rare cases, people with sunburn have visual problems. If this happens, call your doctor. Otherwise you don't need to see the doctor for a sunburn unless there is very severe pain or blistering.

HOME TREATMENT

For heat burns, immediately apply cold water or ice to the affected area. This stops the burning, limits the injury, and eases pain. Cool running water is fine. Apply cold until pain is relieved, or for about an hour. But do not apply cold so long that the burned area becomes numb. Reapply cold if needed.

For sunburn, cool compresses or cool oatmeal baths (Aveeno, etc.) may be helpful. Ordinary baking soda (one-half cup in a tub of water) is just as useful.

Anesthetic creams and sprays can relieve pain, but they may also slow healing, and they can cause irritation or allergic reactions in some people. Antibiotic creams such as Neosporin or Bacitracin probably do no harm to a burn, but they won't help a lot either. Don't apply butter, cream, or ointments such as Vaseline.

Use a pain reliever (page 38).

Don't break blisters. If blisters break by themselves, leave the overlying skin in place. Keep the area clean, and protect yourself against the cause of blisters next time.

A burn that is painful for more than 48 hours requires medical attention.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will assess the size and severity of the burn and determine whether the victim

BURNS

Does the burn have
painless or charred areas?

yes



**SEEK
MEDICAL
CARE NOW**

Is this a deep, painful burn
that is extensive or on the
face and hands?

yes



**SEEK
MEDICAL
CARE NOW**

Do you see any of these
signs after long exposure
to sun?

- Fever
- Fluid-filled blisters
- Dizziness
- Difficulty seeing

yes



**CALL
MEDICAL
ADVISOR**



**USE HOME
TREATMENT**

needs antibiotics, hospitalization, or skin grafts. Pain relievers may be prescribed.

The doctor may apply a dressing and/or an antibacterial ointment. Change the dressing regularly according to directions. Check the burn often for signs of infection.

Severe burns may require hospitalization. Third-degree burns may require skin grafts.

Infected Wounds

If a wound becomes infected, bacteria can grow in the bloodstream—a serious condition that doctors call “septicemia.” This is why it’s so important to clean a wound thoroughly and keep it clean.

Normally, after skin is hurt, the body begins to heal by forming a scab. These are the signs of *normal* healing:

- The wound may seep serum, which is yellowish and clear. (People often mistake serum for pus, which is thick, smelly, and never appears on the first day or so.)
- The edges of the wound will be pink or red.
- The wound may feel warm or itch.

The normal healing time depends on the type of wound. A minor wound requires about this amount of time:

- On the face—three to five days
- On the chest and arms—five to nine days
- On the legs—seven to twelve days

Larger wounds, or those that gape, requiring new skin or tissue to grow across an open space, need more time to heal. Children heal faster than adults. If a wound fails to heal within the expected time, call the doctor.

In contrast, an infected wound may fester within the skin, causing pain and swelling. Infection usually takes two to three days to develop. If you have an infection, it’s a good idea for a doctor to examine the wound unless it is clearly minor. Sometimes a festering wound will break open and pus will drain

out. This is good, often allowing the wound to heal well.

Overall, you should see the doctor for any of the following:

- A rise in pain, redness, or swelling around the wound days after the injury
- Drainage of pus (not serum) from the wound
- Fever above 99.9°F (37.7°C) and a general sick feeling

HOME TREATMENT

Keep the wound clean. Leave it open to the air if possible. You may bandage the wound if it is oozing blood or serum, unsightly, or likely to get dirty. Since children pick at scabs, a bandage may be a good idea for them.

Change the bandage daily.

Each day gently soak and clean the wound in warm water. This will help remove debris and keep the scab soft. Watch the wound for signs of infection.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will examine the wound for infection, and an assistant will take your temperature. The doctor may sample blood or fluid from the wound for laboratory tests. The doctor may prescribe antibiotics.

If the wound is festering, the doctor may drain it with a needle or scalpel. This is not very painful and actually relieves discomfort.

For severe infections you may need to stay in the hospital.

INFECTED WOUNDS

Are any of the following present?

- Fever above 99.9°F (37.7°C) and a general ill feeling
- An increase in pain, redness, or swelling a day or more after the injury
- Thick, smelly pus draining from the wound

yes



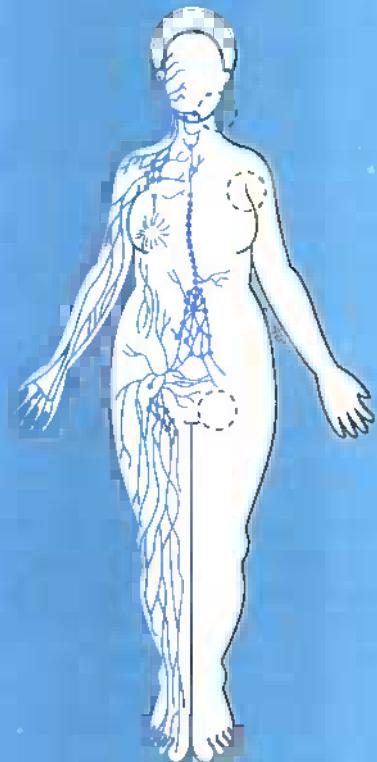
no



**USE HOME
TREATMENT**

IS IT BLOOD POISONING?

There is a folk saying that red streaks running up the arm or leg from a wound indicate blood poisoning and that the patient will die when the streaks reach the heart. In fact, such streaks are only an inflammation of the lymph channels carrying away the debris from the wound. They will stop when they reach local lymph nodes in the armpit or groin and do not, by themselves, indicate blood poisoning.



Lymph system. The left side of this figure shows the lymph channels through the body. The circles on the right side show the lymph node locations; swelling or pain in these areas can be an important symptom.

Insect Bites or Stings

Most insect bites are trivial, but some bites or stings may cause reactions. Local reactions consist of pain, swelling, and redness at the site of the bite or sting. They are uncomfortable but don't pose a serious hazard.

In contrast, systemic reactions (those that involve the whole body) may occasionally be serious and may require emergency treatment. There are three types of systemic reaction. All are rare.

- An **asthma attack** is the most common, causing difficulty in breathing and perhaps audible wheezing.
- **Hives** or extensive skin rashes following insect bites are less serious but indicate that a more severe reaction might occur if the patient is bitten or stung again.
- **Fainting** or loss of consciousness rarely occurs and suggests that the collapse is due to an allergic reaction. This is an **emergency** (page 60).

If the person has had any of these reactions in the past, he or she should be taken immediately to a medical facility if stung or bitten.

If the local reaction to a bite or sting is severe or a deep sore is developing, a doctor should be consulted by telephone. Children often have more severe local reactions than adults.

Spider Bites

Bites from poisonous spiders are rare. The female black widow spider accounts for many of them. This spider is glossy black with a body approximately one-half inch (1 cm) in

diameter, a leg span of about two inches (5 cm), and a characteristic red hourglass mark on the abdomen. The black widow spider is found in woodpiles, sheds, basements, or outdoor privies. The bite is often painless, and the first sign may be cramping abdominal pain. The abdomen becomes hard and boardlike as the waves of pain become severe. Breathing is difficult and accompanied by grunting. There may be nausea, vomiting, headache, sweating, twitching, shaking, and tingling sensations in the hands. The bite itself may not be prominent and may be overshadowed by the systemic reaction.

Brown recluse spiders, which are slightly smaller than black widows and have a white violin pattern on their backs, cause painful bites and serious local reactions but aren't as dangerous as black widows.

This book has separate sections on the bites of Ticks (page 178) and Chiggers (page 180).

HOME TREATMENT

Apply something cold, such as ice or cold packs, promptly. Delay in cold applications results in a more severe local reaction. Acetaminophen or other pain relievers may be used (page 38). Antihistamines, such as chlorpheniramine or diphenhydramine, can be helpful in relieving the itch somewhat (page 44). If the reaction is severe or if pain doesn't diminish in 48 hours, consult the doctor by telephone.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will ask what sort of insect or spider has inflicted the wound and will look for signs of systemic reaction. If a systemic reaction is present, adrenalin by injection is usually necessary. Rarely, measures to support

INSECT BITES

Has this bite or sting, or previous bites or stings, brought any of these problems?

- Wheezing or difficulty breathing
- Fainting
- Hives or skin rash
- Abdominal pain

yes



no

Is the bite from a black widow or brown recluse spider?

yes



no

Is there a severe local reaction?

yes



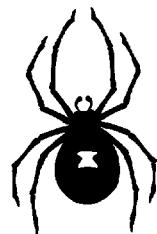
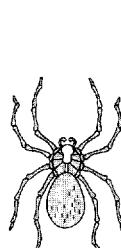
no



breathing or blood pressure will be needed; these measures require an emergency room or hospital.

If the problem is a local reaction, the doctor will examine the wound for signs of dead tissue or infection. Occasionally the wound will need to be drained surgically. In other cases pain relievers or antihistamines may make the patient more comfortable. Adrenalin injections are occasionally used for very severe local reactions.

If a systemic reaction has occurred, the doctor may give shots to try to desensitize the patient's body to the insect's poison. People with serious allergies to insect bites can buy emergency kits (such as EpiPen) to cut off systemic reactions.



Poisonous spiders. Left: Brown recluse, shown from above. Right: Black widow, shown from below. Both spiders appear at approximate actual size.

Snake Bites

North America's poisonous snakes come in two groups: coral snakes and pit vipers, which include rattlesnakes, copperheads, and cottonmouths. At least one species of poisonous snake is found in each of the contiguous United States except Maine, Delaware, and Michigan.

Of the 45,000 snake bites reported each year in the U.S., only 20% are made by poisonous snakes. Those snakes don't inject venom with every bite. All told, fewer than 20 people actually die from snake bites each year. The major damage caused by poisonous snake bites is loss of function in an arm or leg.

HOME TREATMENT

Experts agree that the most important steps for snake bites are:

1. Correct identification of the snake
2. A quick trip to the hospital

Pit Viper Bites

Most experts believe that trying to suck the venom out of the wound makes sense if you can do it within three minutes after the bite. Use a suction cup, if possible, but in emergencies you can use your mouth, quickly spitting out the venom and blood. Experts don't agree on the benefit of making cuts over the bite in an attempt to remove venom. Don't apply cold to the bite. Don't lie flat; keep the bite lower than the heart. It is helpful for the patient not to use the arm or leg with the bite and to rest, but these actions aren't as

important as getting to medical care as soon as possible.

Doctors don't agree on the use of tourniquets for pit viper bites. Tourniquets that are too tight and left in place too long may actually cause worse damage and even lead to amputation. If you use a tourniquet, follow these guidelines:

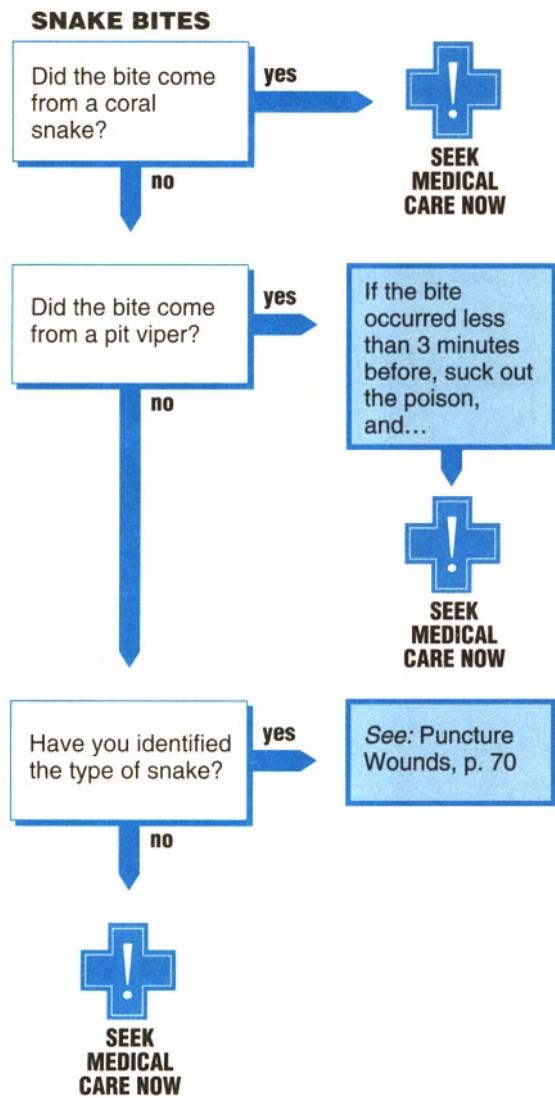
- Tourniquets are useful only on an arm or leg, not on the trunk of the body.
- Place the tourniquet four to six inches (10–15 cm) above the bite.
- Make the tourniquet snug, but not tight enough to cut off blood flow, and loosen it for at least 2 minutes every 15 minutes.

Coral Snake Bites

Neither a tourniquet nor suction is useful. It's probably good to wash the area around the wound right away. But the most important task is to find medical help as quickly as possible.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

Hospitals are equipped with antivenin kits to counteract snake venoms. The doctor will want to know what sort of snake made the bite and if the patient has ever had a bad reaction to antivenin. Further treatment will depend on the condition of the patient. As stated above, most snake bites, even from poisonous snakes, are not fatal.



Coral snakes. Coral snakes, which are poisonous, can be identified by ring pattern—red rings between yellow rings. Some nonpoisonous snakes have rings of the same colors as coral snakes—red, yellow, and black—but in a different arrangement.

Pit vipers. Top: The pit viper's "pits" are small depressions located between the eye and nostril on either side of the snake's head. Bottom: Venom glands on either side of the head (inside the mouth) create the distinctive triangular head shape the pit viper has when viewed from above.

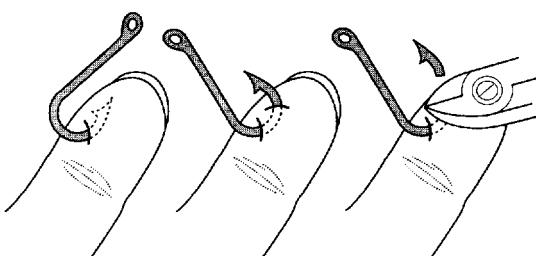
Fishhooks

The problem with fishhooks is, of course, the barb. Meant to keep the fish hooked, it has the same effect when people are caught. Nevertheless, a fishhook usually can be removed without a doctor's help, unless it is in someone's eye. *Never try to remove hooks that have actually penetrated the eyeball; this is a job for the doctor.*

The patient's confidence and cooperation are needed in order to avoid a visit to the doctor. A pair of electrician's pliers with a wire-cutting blade should be part of your fishing equipment. The advantage of the doctor's office is the availability of a local anesthetic.

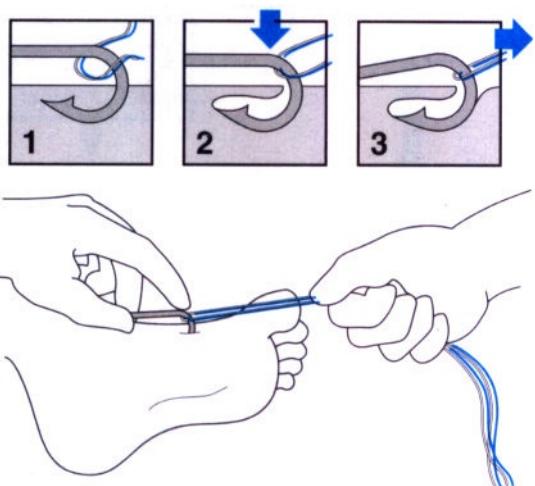
HOME TREATMENT

Occasionally, the hook will have moved all the way around so that it lies just beneath the surface of the skin. If this is the case, often the best technique is simply to push the hook on through the skin, cut it off just behind the barb with wire cutters, and remove it by pulling it back through the way it entered. This may be somewhat painful; the average child may not be able to tolerate it.



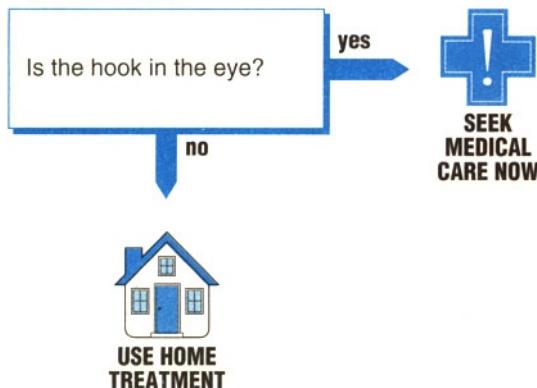
On other occasions the hook will be embedded only slightly and can be removed by simply grasping the shank of the hook (pliers help), pushing slightly forward and away from the barb, and then pulling it out.

If the barb isn't near the surface or if you don't have pliers or wire cutters, use the method illustrated below; the hook is usually removed quickly and almost painlessly.



1. Put a loop of fish line through the bend of the fishhook so that, at the appropriate time, a quick jerk can be applied and the hook can be pulled out directly in line with the shaft of the hook.
2. Holding on to the shaft, push the hook slightly in and away from the barb so as to disengage the barb.
3. Holding this pressure constant to keep the barb disengaged, give a quick jerk on the fish line and the hook will pop out.

If you aren't successful, push the hook all the way through and out so that the barb can be cut off with wire cutters.

FISHHOOKS

Be sure that the person's tetanus shots are up-to-date (page 76). Treat the wound as in the home treatment section for Puncture Wounds (page 70). If all else fails, a visit to the doctor should solve the problem.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will use one of the three methods above to remove the hook. If necessary, the area around the hook can be numbed with a local anesthetic before the hook is removed. Often, however, injecting a local anesthetic is more painful than just removing the hook without the anesthetic.

If the hook is in the eye, it's likely that the doctor will recommend the help of an eye specialist (ophthalmologist), and it may be necessary to remove the hook in the operating room.

REMOVING A SPLINTER

A splinter under the skin can often be pulled out with tweezers. If some material remains, you can usually dislodge it by picking away at the overlying skin with a clean needle. Sterilize the needle first by dipping it in rubbing alcohol or holding it in a match flame. Another option is to soak the area of skin twice a day in a cup of very warm, but not hot, water mixed with one tablespoon (15 ml) of baking soda (page 36); the splinter will probably come out by itself in a day or two. Don't let a splinter wound become infected.

Smashed Fingers

Smashing fingers in car doors or desk drawers, or with hammers or baseballs, is all too common. If the injury involves only the end segment of the finger (the terminal phalanx) and doesn't involve a significant cut, the help of a doctor is seldom needed. Blood under the fingernail (subungual hematoma) is a painful problem that you can treat.

Joint Fractures

Fractures of the bone in the end segment of the finger aren't treated unless they involve the joint. Many doctors feel that it is unwise to splint the finger even if there is a fracture of the joint. Although the splint will decrease pain, it may also increase the stiffness of the joint after healing. However, if the fracture isn't splinted, the pain may persist longer, and you may end up with a stiff joint anyway. Discuss the advantages and disadvantages of splinting with your doctor.

Dislocated Nails

Fingernails are often dislocated in these injuries. It isn't necessary to have the entire fingernail removed. The nail that is detached should be clipped off to avoid catching it on other objects. Nails will take from four to six weeks to grow back.

HOME TREATMENT

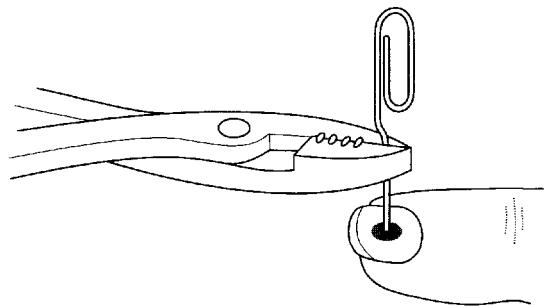
If the injury doesn't involve other parts of the finger and if the finger can be moved easily, apply an ice pack for swelling and use acetaminophen, aspirin, ibuprofen, or naproxen for pain (page 38).

Blood Under a Nail

Pain caused by a large amount of blood under the fingernail can often be relieved simply.

This home (or emergency room) remedy sounds terrible but is very simple and can sometimes save the nail.

1. Bend open an ordinary paper clip and hold it with a pair of pliers.
2. Heat one end with the flame from a butane lighter or gas stove, steadyng the hand holding the pliers with the opposite hand.
3. When the tip is very hot, touch it to the nail; it will melt its way through the fingernail, leaving a clean, small, painless hole. There is no need to press down hard. Take your time, lifting the paper clip to see if you are through the nail; usually the blood will spurt a little when you are through. Reheat the paper clip if necessary.



The blood trapped beneath the nail can now escape through the small hole, and the pain will be relieved as the pressure is released. If the hole closes and the blood reaccumulates, the procedure can be repeated using the same hole once again.

WHAT TO EXPECT AT THE DOCTOR'S OFFICE

The doctor will examine the finger. An X-ray is likely if it appears that more than the end

SMASHED FINGERS

Is the injury limited to the end section of the finger?

no



Is the end of the finger deformed?

yes



USE HOME
TREATMENT

segment is involved. If there is a fracture involving the last joint on the finger, you should expect a discussion of the advantages and disadvantages of splinting the finger. Often the injured finger is splinted by bandaging it together with an adjacent finger. If the finger is splinted, exercise it periodically to keep it mobile. Severe finger injuries may occasionally require surgery.

INGROWN NAILS

Ingrown nails can be treated at home. Cut the nail straight across so that its corner can grow outside the skin. Let the nail grow free by firmly pushing the skin back from the corner with a Q-tip twice a day. Keep the area clean. For hangnails, keep them clean. Don't chew on them.

