

# A Harvard Medical School Special Health Report

*A guide to*

# Men's Health *Fifty and Forward*



## **In this report:**

How to reduce your health risks, from heart disease to dementia

Advice about eating better

Ways to build exercise into your life

How to (finally) kick the smoking habit

Simple tips for easing joint pain

The latest treatments for prostate diseases

**SPECIAL BONUS SECTION:**  
10 steps to a longer and healthier life

**MEN'S HEALTH:  
FIFTY AND FORWARD**  
**SPECIAL HEALTH REPORT**

**Medical Editor**

Anthony L. Komaroff, M.D.  
*Simcox-Clifford-Higby Professor of Medicine,  
Harvard Medical School*

**Executive Editor**

Anne Underwood

**Writer**

Ann MacDonald

**Copyeditor**

Robin Netherton

**Creative Director**

Judi Crouse

**Production Manager**

Lori Wendin

**Illustrators**

Scott Leighton, Michael Linkinhoker

**Published by Harvard Medical School**

Anthony L. Komaroff, M.D., Editor in Chief  
Edward Coburn, Publishing Director

*In association with*

**B**elvoir Media Group, LLC, 800 Connecticut Avenue, Norwalk, CT 06854-1631. Robert Englander, Chairman and CEO; Timothy H. Cole, Executive Vice President, Editorial Director; Philip L. Penny, Chief Operating Officer; Greg King, Executive Vice President, Marketing Director; Ron Goldberg, Chief Financial Officer; Tom Canfield, Vice President, Circulation.

Copyright ©2013 by Harvard University. Written permission is required to reproduce, in any manner, in whole or in part, the material contained herein. Submit reprint requests in writing to:

Harvard Health Publications  
10 Shattuck St., 2nd Floor, Boston, MA 02115  
617-432-1485 Fax: 617-432-4719

**Web Site**

For the latest information and most up-to-date publication list, visit us online at [www.health.harvard.edu](http://www.health.harvard.edu).

**Customer Service**

For all subscription questions or problems (rates, subscribing, address changes, billing problems) call 877-649-9457, send an email to [HarvardProd@StrategicFulfillment.com](mailto:HarvardProd@StrategicFulfillment.com), or write to Harvard Health Publications, P.O. Box 9308, Big Sandy, TX 75755-9308.

**Ordering Special Health Reports**

Harvard Medical School publishes Special Health Reports on a wide range of topics. To order copies of this or other reports, please see the instructions at the back of this report, or go to our website: [www.health.harvard.edu](http://www.health.harvard.edu).

For bulk rates, corporate sales and licensing:

Belvoir Media Group  
Attn: Harvard Health Publications  
P.O. Box 5656  
Norwalk, CT 06856-5656  
email: [licensing@belvoir.com](mailto:licensing@belvoir.com)

ISBN 978-1-61401-040-1

The goal of materials provided by Harvard Health Publications is to interpret medical information for the general reader. This report is not intended as a substitute for personal medical advice, which should be obtained directly from a physician.

# Contents

**Reduce your risks while building benefits . . . . . 2**  
What you can't control . . . . . 2  
What you can control . . . . . 2

**How to sidestep major illnesses . . . . . 3**  
Heart disease . . . . . 4  
Stroke . . . . . 9  
Lung cancer . . . . . 11  
Prostate cancer . . . . . 11  
Colorectal cancer . . . . . 12  
Chronic obstructive pulmonary disease . . . . . 12  
Alzheimer's disease . . . . . 13  
Diabetes . . . . . 14  
Influenza and pneumonia . . . . . 15  
Accidents . . . . . 16  
Chronic kidney disease . . . . . 17

**SPECIAL BONUS SECTION:  
10 steps to a longer and healthier life . . . . . 18**

**Tackling disorders before they become disabling . . . . . 31**  
Osteoarthritis . . . . . 31  
Lower back pain . . . . . 33  
Heart failure . . . . . 34  
Depression . . . . . 36  
Anxiety . . . . . 37  
Osteoporosis . . . . . 38  
Hearing impairments . . . . . 39  
Age-related macular degeneration . . . . . 40  
Cataracts . . . . . 42  
Diabetic retinopathy . . . . . 42

**Managing problems unique to men . . . . . 44**  
Benign prostatic hyperplasia . . . . . 44  
Erectile dysfunction . . . . . 47  
Chronic prostatitis . . . . . 47  
Low testosterone . . . . . 49

**Resources . . . . . 50**

**Glossary . . . . . 51**



Harvard Health Publications  
HARVARD MEDICAL SCHOOL

*Trusted advice for a healthier life*

Dear Reader,

If you are 50 or older, you have reached middle age—a time of life that is often presented negatively in popular culture. How often have you heard the phrase “midlife crisis”? But when it comes to health, middle age can be a time of opportunity.

After all, middle age is a natural time to take stock of your life choices—including those that affect your health. By this point, it’s likely that you’ve received one or more health wake-up calls. With age, joints start to ache, and blood pressure tends to rise. You may have lost a friend or loved one. Mortality is no longer an abstract concept.

Of course, we all die eventually—but why hurry the process? What I ask my patients is: Why not instead do everything in your power to lengthen your life and improve your level of functioning? The diseases that are the top killers of men—including heart disease, diabetes, and chronic respiratory problems—are usually the result of poor lifestyle choices such as eating unhealthy foods, not getting enough physical activity, and smoking cigarettes. By improving these habits, you can often reduce your suffering dramatically and maybe avoid these diseases altogether.

Skeptical? Many men are. But consider a few facts. Walk briskly for a half-hour a day, five days a week, and you will cut your risk of diabetes by one-third. If you give up smoking today, and manage to keep it up, you will cut your risk of heart disease by half by this time next year. That’s not sanctimonious moralizing; it’s advice that has been validated by thousands of scientific studies.

By now I hope you want to learn more. That’s why I’ve reviewed the latest research to put this report together. In these pages, you will learn more about how to improve your odds of living longer and living well. The report is not intended as an exhaustive tome on disease and treatments. Rather, it’s meant to empower you by alerting you to the most common conditions that start affecting men in midlife, and giving you enough information so that you can make lifestyle choices—and have conversations with your doctor—that improve your health going forward.

A lot of my middle-aged male patients assume that their past lifestyle choices have already sealed their fate, and that it’s too late to benefit from lifestyle changes. That’s simply not true. Research has shown that our bodies have powerful recuperative powers. You really can change your fate by choosing how you live the last half of your life. Maybe you can make “middle age” a new beginning.

Sincerely,

A handwritten signature in black ink that reads "Anthony L. Komaroff". The signature is written in a cursive, slightly slanted style.

Anthony L. Komaroff, M.D.  
*Medical Editor*

# Reduce your risks while building benefits

**W**hat if men approached their health at midlife the way that financial experts advise them to plan for retirement? Some of the same rules apply. Take a close look at where things stand now, and then take steps to protect your future. If you've taken risks, it is time to start reducing them and instead invest in ways that are likely to pay benefits in the future.

So how do you start investing wisely in your health? First, acknowledge what you can't control. Then put your energies into changing what you can—for the better. This report is intended to provide information about both approaches as it covers the diseases and conditions that most often jeopardize the lives—and quality of life—in men who are middle-aged and older. Although the report covers a variety of conditions, certain themes appear again and again.

## What you can't control

Even though you can't change the following factors, you can take them into account while determining your risk for certain conditions. Knowing your risks may help motivate you to make the changes that you can.

■ **Age.** As people grow older, their bodies undergo gradual physical changes that are normal and inevitable. Cells, for example, may become damaged by random genetic mistakes that occur as cells divide and DNA is improperly copied. Although your body has many built-in repair systems, sometimes these also break down, and over time the cellular damage accumulates.

■ **Family history.** When an immediate family member—a parent or a sibling—develops a problem such as heart disease or cancer, it could mean that you are at risk as well. Shared genes explain some of this risk, but so do shared lifestyles, such as the food you eat and how active you are.

## What you can control

It may surprise you to know that what you can control often affects your health much more than the factors you can't control. For all the media coverage of new genetic discoveries, for example, the old tried-and-true advice about diet and exercise matters more in the end. There's a saying, "Genes load the gun, and lifestyle pulls the trigger." In other words, you can avoid activating many disease-promoting genes if you adopt healthy habits. Moreover, you can amplify the benefits of "good genes" with positive lifestyle choices.

Here are some of the most important things to consider as you look at the health investments you want to make going forward.

■ **Whether you smoke.** About one in four American men smokes cigarettes, pipes, or some other form of tobacco. If you are one of them, kicking the habit is the single most important thing you can do to improve your health. (For motivation and tips about how to do so, see "Kick the smoking habit to the curb," page 18.)

■ **What you eat.** Consuming a healthy diet on a regular basis is one of the best ways to reduce your risk of heart disease, diabetes, and some of the most common cancers. (For tips on how to eat better, see "Improve your diet," page 21.)

■ **How much you move.** Get active, live longer. Not only that, but live better. Study after study has linked greater amounts of physical activity to improved health. (For more on why boosting your activity levels pays off, see "Become physically active," page 19.)

Intrigued? Turn to the next chapter and start evaluating your own health portfolio so that you can start making wise investments in your health.

# How to sidestep major illnesses

Once you reach your 50s, the wear and tear of life has probably begun to make itself apparent in the form of an aching back or knees. You may have already had a significant health scare, such as a diagnosis of diabetes, heart disease, or cancer. All of a sudden, you may be paying a lot more attention to your health than you used to. But even in midlife, your body remains resilient.

Statistics from the Centers for Disease Control and Prevention (CDC) show that the leading causes of death in men change with age. But though certain killers—including heart disease, cancer, chronic respiratory diseases, and diabetes—consistently rank

in the top 10 once a man hits midlife (see Figure 1, below), many of these deadly threats are years in the making, attributable to lifestyle choices like what you eat, how often you exercise, and whether you smoke. Once you start to modify these risk factors, you can usually lower your chances of suffering these diseases or at least reduce their severity.

This section of the report will briefly describe the top causes of death for men in midlife and beyond, the factors that put you at risk, and the most important steps you can take to reduce your risks.

Then it's up to you to make changes, starting today, to improve the chances that you will live well into old

**Figure 1: Leading causes of death in men by age**

This diagram shows the top 10 causes of death (expressed as a percentage of total deaths) in men at different ages. You can see how the risk of the three leading killers for all ages combined—heart disease, cancer, and unintentional injuries—changes with age by following the red, yellow, and pink boxes. Chronic lung diseases include asthma and chronic obstructive pulmonary disease (COPD), of which the two main types are chronic bronchitis and emphysema. Septicemia refers to blood infections.

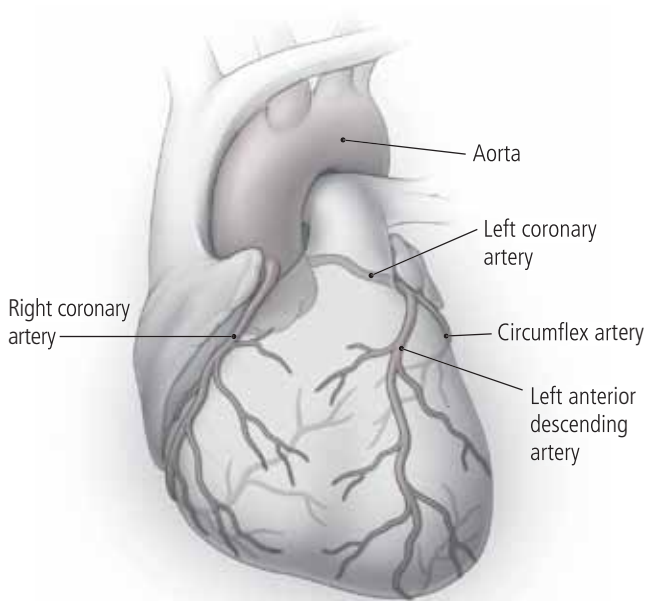
AGE	35–44	45–54	55–64	65–74	75–84	85+
<b>1</b>	Unintentional injuries 23.7%	Heart disease 23.4%	Cancer 32.0%	Cancer 34.4%	Heart disease 26.7%	Heart disease 32.4%
<b>2</b>	Heart disease 16.5%	Cancer 22.4%	Heart disease 25.8%	Heart disease 25.0%	Cancer 26.3%	Cancer 15.6%
<b>3</b>	Cancer 11.5%	Unintentional injuries 12.1%	Unintentional injuries 5.0%	Chronic lung diseases 7.2%	Chronic lung diseases 7.8%	Stroke 6.1%
<b>4</b>	Suicide 10.7%	Suicide 5.4%	Chronic lung diseases 4.1%	Stroke 4.1%	Stroke 5.4%	Chronic lung diseases 5.9%
<b>5</b>	Homicide 4.7%	Chronic liver disease 5.0%	Diabetes 3.7%	Diabetes 3.7%	Diabetes 3.0%	Alzheimer's disease 5.0%
<b>6</b>	HIV/AIDS 4.1%	Diabetes 3.0%	Chronic liver disease 3.4%	Unintentional injuries 2.5%	Alzheimer's disease 2.9%	Influenza and pneumonia 3.8%
<b>7</b>	Chronic liver disease 3.5%	Stroke 2.9%	Stroke 3.3%	Kidney disease 1.9%	Influenza and pneumonia 2.4%	Kidney disease 2.7%
<b>8</b>	Diabetes 2.4%	HIV/AIDS 2.4%	Suicide 2.4%	Influenza and pneumonia 1.5%	Kidney disease 2.3%	Unintentional injuries 2.5%
<b>9</b>	Stroke 2.3%	Chronic lung diseases 1.9%	Kidney disease 1.5%	Chronic liver disease 1.5%	Unintentional injuries 2.3%	Diabetes 2.2%
<b>10</b>	Influenza and pneumonia 1.0%	Viral hepatitis 1.7%	Septicemia 1.3%	Septicemia 1.4%	Parkinson's disease 1.8%	Parkinson's disease 1.6%

age. Lifestyle changes really matter. They are more powerful in protecting you against all of these killer diseases than any medicine yet invented or discovered.

## Heart disease

Heart disease is the umbrella term for a variety of problems that affect the heart or cardiac blood vessels. More than one in three men have some form of heart disease, and about one in four men will eventually die from it. Yet while heart disease remains the leading cause of death in America, there is reason for hope. In the past decade, deaths from heart disease have fallen by an astounding one-third. This shows that improvements in prevention and treatment may help you live longer—provided you pay attention to reducing your risk factors and improving your lifestyle.

**Figure 2: The coronary arteries**



It's often said that the heart is the size of your fist, but it's actually closer to the size of two fists. The aorta, the body's largest blood vessel, is almost the diameter of a garden hose. A network of coronary arteries, each about as thick as a strand of spaghetti, emerges from the aorta. These arteries branch into smaller and smaller vessels that eventually penetrate the heart muscle, supplying it with oxygen and nutrients. This illustration shows the main coronary arteries (for simplicity's sake, the veins are not pictured). The lighter-shaded vessels represent those that wrap around the back of the heart.

## Coronary artery disease

The most common type of heart disease in the United States is coronary artery disease. As the name implies, it affects the coronary arteries, the main vessels that supply the heart with blood. The right and left coronary arteries are like rivers that snake along the surface of the heart, branching into progressively smaller channels that carry blood to heart cells (see Figure 2, at left).

The blood supply to the heart carries energy to the heart muscle cells—primarily in the form of oxygen and sugar. The blood also carries away the waste material produced by the heart cells. So anything that reduces the heart's blood supply can cause trouble.

The most common cause of a diminished blood supply is atherosclerosis, a buildup of fatty plaque that can narrow the coronary arteries or any of their branches. The term atherosclerosis combines two Greek words, *athere* (porridge) and *sclerosis* (hardening)—a reflection of the fact that artery walls become filled with soft, mushy deposits (called plaques) that eventually make the artery hard, stiff, and narrow. Researchers used to compare plaque in a coronary artery to a blockage plugging up a pipe, as if heart disease were nothing more than a plumbing problem. But now we know it's much more complicated. Coronary artery disease results from a complex interplay between abnormal blood cholesterol levels, plaque development in the arteries, and the body's defensive immune system response.

The process begins when the inner lining of an artery is injured by something—perhaps high blood pressure, or smoking, or possibly an infection. Cholesterol also plays a role. It comes in two basic forms: low-density lipoprotein (LDL) particles that deliver cholesterol to cells throughout the body, and high-density lipoprotein (HDL) particles that soak up excess cholesterol and carry it back to the liver for disposal. The body needs both LDL and HDL cholesterol to function well, but if LDL levels rise too high or HDL levels fall too low, excess LDL cholesterol settles in artery walls.

This triggers a response from the body's immune system, normally a defender against foreign invaders. The immune system perceives LDL cholesterol deposits in an artery wall as so abnormal that it sends white

blood cells and other inflammatory cells rushing to the scene. The white blood cells gobble up the LDL to entrap it, but in the process become engorged with fat. Some of the fat-laden cells may become mired in the wall, where many die, spilling their contents into the plaque. The immune system also creates a cap made of fibers over the part of the plaque that pushes into the middle of the artery. To make matters worse, because the LDL hasn't been eliminated, the inflammatory process inside the plaque persists. The inflammation tends to weaken the fibrous cap over the plaque.

Over time, some of these plaques may grow so large that they almost completely block the artery. When plaques partially occlude a coronary artery, the diminished blood flow—called ischemia—can impair the heart's pumping ability and interrupt its normal rhythm. A partial or temporary interruption in blood supply, causing mild ischemia, injures the heart muscle and can produce chest pain (angina). When the blood flow is completely blocked or interrupted for a prolonged time, the result is a heart attack, or myocardial infarction (see Figure 3, page 6).

Most heart attacks, however, are not caused by large plaques blocking a blood vessel. Instead, roughly three of every four heart attacks are caused when a plaque ruptures. Smaller plaques can be as dangerous as large plaques. In fact, they may be even more dangerous, since they have thin, underdeveloped caps that rupture more easily. The inflammation within them weakens the fibrous cap. Suddenly the cap breaks apart, spilling its fatty contents into the artery. A blood clot forms, and blood flow in the artery stops. When a small plaque ruptures, normal blood flow through an artery can suddenly change to no blood flow through the artery.

Doctors never used to understand how it was that someone could run a marathon, and then a few days after the race suddenly drop dead from a heart attack. The explanation was simple: a small plaque ruptured a few days later.

### Other types of heart disease

Coronary artery disease can also lead to other heart problems. Although not as common as coronary artery disease, they can still become deadly.

Heart failure occurs when the heart can't pump sufficient blood, producing shortness of breath, fatigue, and fluid accumulation (for more information, see "Heart failure," page 34). Abnormal heart rhythms (arrhythmias) can cause palpitations, shortness of breath, and fainting. Cardiac arrest—when the heart suddenly stops, usually because of an electrical disturbance in the heart—suspends both consciousness and breathing and is fatal without immediate, appropriate medical care.

A number of factors interact to increase your risk of heart disease (see Table 1, page 8, to calculate your own risk). Some of the risk factors discussed next also contribute to metabolic syndrome (see "Metabolic syndrome in men," below).

### Risk factors

■ **Age.** The risk of developing heart disease or its complications increases with age. For example, more than four in five people who die from heart attacks are over age 65. In men, heart attack risk begins to mount after age 45.

■ **Family history.** Men who had a parent who developed heart disease before age 55 are at higher risk than others of developing heart disease themselves. Inherited genes may contribute to the risk, but shared lifestyle factors—such as diet or levels of physical activity—probably also contribute. Thus family history does not mean destiny. Men with a family history of heart disease should be alert for symptoms and try to keep other risk factors under control.

### Metabolic syndrome in men

About 35% of American men have metabolic syndrome, a constellation of factors that increases the risk of developing diabetes and heart disease. Any man with three or more of the following meets the diagnostic criteria for metabolic syndrome:

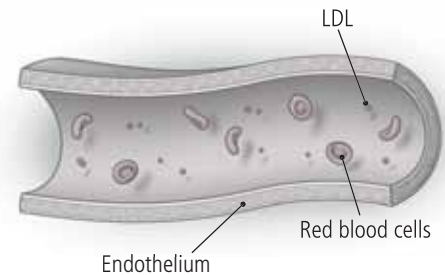
- waist size greater than 40 inches
- blood pressure that is 130/85 mm Hg or higher
- HDL cholesterol that is less than 40 mg/dL
- triglyceride level that is 150 mg/dL or higher
- fasting blood glucose level that is 100 mg/dL or higher.

## Figure 3: From healthy artery to heart attack

Heart attacks can result from a buildup of fatty plaque that blocks the arteries. But more often, they occur when a plaque in the artery wall suddenly ruptures, spilling cholesterol into the artery and causing a clot to form. Chronic, low-grade inflammation, which damages the inner lining of the arteries, is a major culprit in making a plaque more likely to rupture.

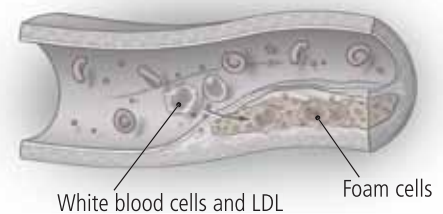
### Stage 1: Excess LDL passes through the artery

Cholesterol travels in the bloodstream within spherical particles called lipoproteins. About two-thirds of blood cholesterol is in the form of low-density lipoprotein (LDL), often called “bad” cholesterol, because excess LDL leaves the blood and lodges in the artery walls. The higher your LDL, the greater your risk for atherosclerosis. “Good” cholesterol, or high-density lipoprotein (HDL), carries cholesterol away from the arteries to the liver, where it’s eventually eliminated from the body via the digestive tract. HDL also helps keep blood vessels dilated and fights inflammation, minimizing blood vessel injury caused by LDL.



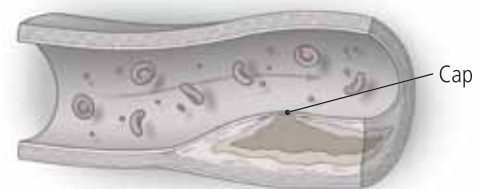
### Stage 2: Plaque builds up and the artery narrows

LDL cholesterol lodges in the artery wall, where it triggers a harmful sequence of events. Any injury to the inner layer of cells lining the artery (caused by high blood pressure, smoking, or diabetes, for example) speeds this process. White blood cells arrive on the scene and engulf LDL cholesterol in the artery wall. These cells then enlarge and transform into fat-laden foam cells.



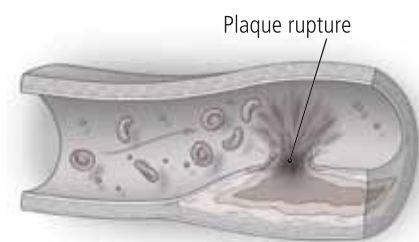
### Stage 3: A fibrous cap tops the plaque

As foam cells die, they release soft, fatty gruel that provokes further inflammation. Smooth muscle cells in the artery wall enlarge and multiply, forming a cap over the whole mess and adding to the bulk of the plaque.



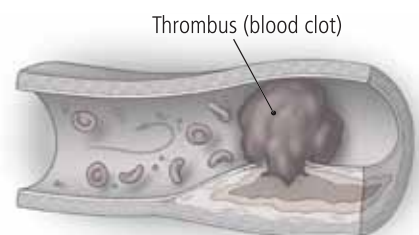
### Stage 4: The plaque ruptures

Large plaques block blood flow more than small plaques, but they tend to be covered by thick, fibrous caps that can resist breaking apart. Smaller plaques may be too small to block blood flow, but still can be dangerous, as they are active, dynamic lesions teeming with inflammatory cells. And they sometimes have very thin, underdeveloped caps that rupture easily. About three of every four heart attacks occur because of plaque rupture.



### Stage 5: A clot blocks the artery

Once a plaque ruptures, a protein called tissue factor is released into the bloodstream, where it attracts platelets. The platelets stick to the disrupted plaque, triggering proteins in the blood to start clotting. The result is a thrombus—a clot of red blood cells, platelets, and other material—that completes the blockage and prevents blood from reaching the heart cells downstream. Deprived of blood and oxygen, a portion of the heart muscle dies.





■ **Ethnicity.** African Americans, Mexican Americans, Native Americans, native Hawaiians, and some Asian Americans are all more likely than other Americans to develop heart disease. Researchers are still trying to determine how much of the risk stems from genetics and how much from shared lifestyle factors.

■ **Unfavorable cholesterol profile.** The National Cholesterol Education Program (NCEP), a division of the National Heart, Lung, and Blood Institute of the National Institutes of Health (NIH), has published guidelines defining healthy and risky blood levels of cholesterol (see Table 2, page 23). Nearly 15 million men—about 10% of the male population—have high total blood cholesterol (240 mg/dL or greater). The NCEP recommends keeping total cholesterol levels below 200.

Although total cholesterol is a good place to start gauging your heart disease risk, pay close attention to your LDL and HDL levels. The higher your “bad” LDL cholesterol, the greater your chances of having a heart attack. With “good” HDL cholesterol, the reverse is true. The more HDL in your bloodstream, the lower your heart attack risk. Findings from the Framingham Heart Study (a long-running landmark study of factors contributing to heart disease) and elsewhere suggest that every one-point rise in HDL lowers this risk by 2% to 3%.

■ **High blood pressure.** About one in three men has high blood pressure (hypertension), which over time can damage the inner lining of blood vessels throughout the body. High blood pressure can both cause and result from heart disease. As vessels become stiffened with atherosclerosis, they are less able to dilate in response to the body’s demands for an increased blood supply, and blood pressure rises.

The Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure has established guidelines for monitoring blood pressure to determine whether it is normal or elevated (see Table 3, page 24). The first and higher number (systolic blood pressure) represents the pressure each time the heart pumps. It shows how hard the heart works to push blood through the arteries. The second and lower number (diastolic blood pressure) represents the pressure each time the heart relaxes and refills with blood. It shows how forcefully arteries are

being stretched most of the time. If either your systolic or diastolic pressure is high, you have hypertension.

■ **Smoking.** About one in five American men smokes cigarettes, indirectly hurting his heart. That’s because cigarette smoke and other forms of tobacco damage the blood vessels in addition to the lungs. People who smoke have two to four times as great a risk of developing heart disease. About one in three “smoking-related” deaths is actually from heart disease. Secondhand smoke is also dangerous: nonsmokers who inhale others’ smoke at home or at work increase their heart disease risk by 25% to 30%.

However, the damage caused by smoking is reversible. Within a year of quitting, former smokers have half the risk of heart disease as smokers. Fifteen years after people stop smoking, they have the same risk of heart disease as people who never smoked.

■ **Diabetes.** About eight million American men (5% of the male population) have been diagnosed with diabetes, and another four million have the disease but don’t know it. Although diabetes is fundamentally a disorder of the way the body is able to use blood sugar (glucose), it also damages blood vessels. At least 65% of people with diabetes will die from heart disease, stroke, or some other blood vessel disorder—a death rate that is two to four times that of the general population. Diabetes can also cause chronic kidney disease, which, in turn, can increase the risk of heart disease even more.

■ **Overweight and obesity.** Roughly two-thirds of adult men are overweight or obese (see Table 4, page 25). Every pound a man gains above a healthy weight makes his heart work harder. Extra weight also increases blood pressure and wreaks havoc with blood cholesterol. Packing on pounds in the abdomen (producing a top-heavy “apple shape”) is more dangerous to the heart than adding pounds below the waist (the “pear shape”). That’s because fat, once thought to be nothing more than a calorie storehouse, is biologically active. Abdominal fat, particularly the visceral type that surrounds vital organs, produces hormones and chemicals that can wreak havoc with blood pressure, blood sugar, and other factors that affect heart health.

■ **Sedentary lifestyle.** Only about one in four American men engages in enough physical activity

to meet the minimum federal recommendations (see “Become physically active,” page 19). All that sitting is putting their lives at risk. A sedentary lifestyle roughly doubles the risk for heart disease, making it as risky as smoking, high cholesterol, or high blood pressure. Regular physical activity prevents heart disease. Exercise burns body fat and raises HDL cholesterol levels.

It also lowers triglycerides, blood sugar, and blood pressure. Moreover, it helps alleviate mental stress, which can be a trigger for heart problems.

■ **Psychological factors.** Your mental health can also affect your risks. Consider the following:

- **Stress.** This can raise blood pressure, reduce blood flow to the heart, decrease the heart’s pumping ability,

**Table 1: What’s your 10-year risk of heart disease?**

Although it’s impossible to predict your exact risk of a heart attack, this calculator, developed by researchers with the Framingham Heart Study, can give you a broad idea of how you fare. To use it, add up the number of points that apply to you. Then locate your score below. Note that a 3% risk means that three out of 100 people with the same risk profile will have a heart attack in the next 10 years.

Age	Points	Systolic blood pressure (if you are not being treated for hypertension)	Points	Interpreting your score		
30–34	0	less than 120	–2	Total points	10-year risk of cardiovascular disease	Vascular age (years)
35–39	2	120–129	0	–3 or below	Less than 1%	Under 30
40–44	5	130–139	1	–2	1.1%	Under 30
45–49	6	140–149	2	–1	1.4%	Under 30
50–54	8	150–159	2	0	1.6%	30
55–59	10	160+	3	1	1.9%	32
60–64	11	<b>Systolic blood pressure</b> (if you are under treatment for hypertension)	<b>Points</b>	2	2.3%	34
65–69	12	less than 120	0	3	2.8%	36
70–74	14	120–129	2	4	3.3%	38
75+	15	130–139	3	5	3.9%	40
<b>Total cholesterol</b>	<b>Points</b>	140–149	4	6	4.7%	42
less than 160	0	150–159	4	7	5.6%	45
160–199	1	160+	5	8	6.7%	48
200–239	2	<b>Do you smoke?</b>	<b>Points</b>	9	7.9%	51
240–279	3	No	0	10	9.4%	54
280+	4	Yes	4	11	11.2%	57
<b>HDL cholesterol</b>	<b>Points</b>	<b>Do you have diabetes?</b>	<b>Points</b>	12	13.2%	60
less than 35	2	No	0	13	15.6%	64
35–44	1	Yes	3	14	18.4%	68
45–49	0			15	21.6%	72
50–59	–1			16	25.3%	76
60+	–2			17	29.4%	80+
				18+	Above 30%	80+

## ► How to reduce your risk of heart disease

- ✓ Kick the smoking habit to the curb (see page 18).
- ✓ Keep your blood pressure within healthy limits (see page 24).
- ✓ Keep your cholesterol in check (see page 23).
- ✓ Become physically active (see page 19).
- ✓ Improve your diet (see page 21).

trigger abnormal pumping rhythms, and activate the blood's clotting system and its inflammatory response.

- **Depression.** The relationship between depression and heart disease is a two-way street. Depression doubles the risk of developing heart disease, while heart disease triples the likelihood of depression. It's not clear why the two are so intertwined. One theory is that people with depression are less likely to exercise, eat right, or take medications, leading to heart disease. Another theory is that depression disrupts the stress response system, increasing risk of heart disease.
- **Hostility and anger.** The hard-driving, competitive "Type A" personality was once thought to put people at risk for heart disease. But the most recent research suggests that the real culprits are anger and hostility. People who are habitually angry are two to three times as likely to have a heart attack or other cardiac event as others.
- **Social isolation.** People who live alone are significantly more likely to have a heart attack or die suddenly from one than those who live with someone. The impact may be psychological, but it could also be physical: people who live alone are more likely than others to smoke, become obese, and have unhealthy cholesterol levels. On the flip side, older adults with a strong network of friends are significantly less likely to die over a 10-year period than those with a smaller network of friends.

## Stroke

If your body has a master organ, it's the brain. But to do everything it does—think, see, hear, smell, feel, move your body—it must have a steady supply of

oxygenated blood. To maintain this supply, multiple blood vessels snake into and around the brain, ensuring that even if a blood vessel becomes narrowed or damaged, alternate delivery routes still exist (see Figure 4, page 10). When the blood supply is interrupted in spite of this, a stroke—sometimes called a "brain attack"—occurs.

Nearly 90% of strokes are ischemic strokes, meaning that they occur after a blood clot blocks an artery supplying the brain with oxygen. If the blood supply is interrupted only temporarily, so that symptoms go away in less than a day, it's called a transient ischemic attack (TIA), or a warning stroke (so called because many people who have a TIA will go on to have a full stroke).

About one in 10 strokes is a hemorrhagic stroke, in which a blood vessel in the brain bursts. Not only are brain cells deprived of the blood supplied by the vessel, but surrounding tissue is also damaged, as leaking blood irritates neurons and creates pressure on the brain.

Although men are less likely than women to have a stroke, and less likely to die from one, it remains a significant health threat. Each year, about three million American men have a stroke. Men account for 40% of the people who die from stroke.

Following are the major factors that increase your chances of having a stroke. Although you can't change some of these risk factors, you can reduce your risk by following the same advice as for improving your heart health.

### Risk factors

- **Age.** The older a man is, the greater his risk of stroke. The odds of having a stroke more than double

## ► How to reduce your risk of stroke

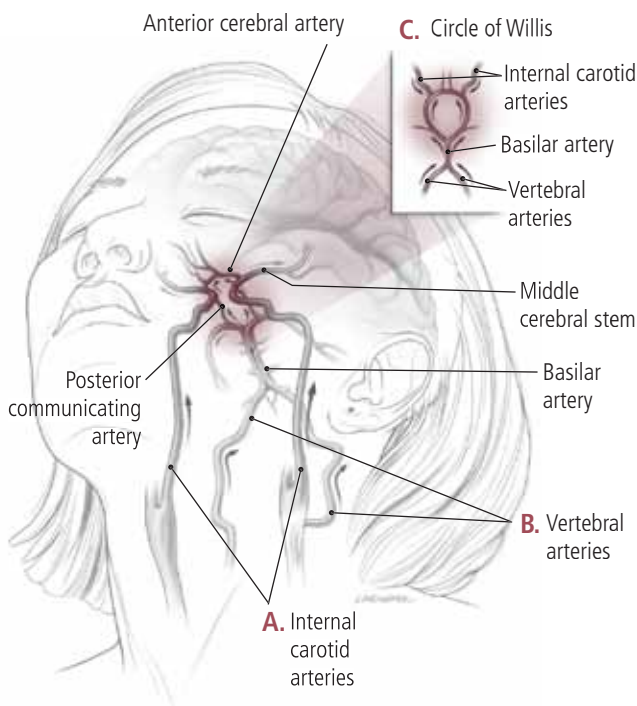
- ✓ Keep your blood pressure within healthy limits (see page 24).
- ✓ Keep your cholesterol in check (see page 23).
- ✓ Kick the smoking habit to the curb (see page 18).
- ✓ Watch your weight (see page 25).
- ✓ Become physically active (see page 19).

every 10 years after age 55. More than two-thirds of strokes involve people over 65.

■ **Family history.** Having a close relative with heart disease or a history of stroke increases your own stroke risk. Genetic factors influence blood clotting and the development of high blood pressure or atherosclerosis, all of which affect the risk of stroke. Aneurysms and arteriovenous malformations, two conditions that cause hemorrhagic strokes, clearly have a genetic basis. But genes are not the sole explanation for the increased risk of stroke. Relatives may also share eating habits and other behaviors that can promote strokes.

■ **Ethnicity.** Race is another risk factor. African Americans, for example, are almost twice as likely to suffer a stroke as whites. The relative importance of genes versus lifestyle in causing this increased risk is uncertain.

## Figure 4: Your Brain's Blood Supply



There is more than one arterial pathway that supplies your brain with the all-important blood it needs. Your brain has four main arteries delivering blood: two internal carotid arteries (A) and two vertebral arteries (B). If one of these becomes narrowed or blocked, your brain may be able to get the blood it needs via one of the other arteries connected by the circle of Willis (C), which links the four arterial pathways (see inset).

■ **Previous stroke or TIA.** Anywhere from 5% to 14% of people who have one stroke will have another within a year. And up to 40% of people who have had a TIA will go on to have a stroke at some point.

■ **Heart problems.** About 3% to 4% of people who have a heart attack go on to have an ischemic stroke. People with atrial fibrillation, a type of abnormal heartbeat, are also at increased risk of stroke.

■ **High blood pressure.** Left untreated, high blood pressure damages the blood vessels so much that it is the one of the leading risk factors for all sorts of strokes, roughly doubling your lifetime risk. Fortunately, treating high blood pressure, or avoiding it in the first place, helps bring this risk back down.

■ **Smoking.** Smoking doubles the risk of ischemic stroke and quadruples the risk of hemorrhagic stroke. Smoking also contributes to many of the other stroke risk factors: it raises blood pressure, reduces the level of beneficial HDL cholesterol, damages the protective lining of the blood vessels, and makes blood more prone to clot. Exposure to other people's tobacco smoke also substantially increases the risk of stroke.

■ **Unfavorable cholesterol profile.** Abnormal cholesterol levels—in particular, high LDL—increase your risk of stroke, even if you have no other risk factors for heart disease. At the same time, lowering your LDL helps to reduce your risk of stroke.

■ **Physical inactivity.** Lack of exercise, which is directly linked to an increased risk of heart disease, also contributes to obesity and other risk factors for stroke. The benefits of exercise include making blood less likely to clot, controlling weight, lowering blood pressure, and increasing levels of protective HDL cholesterol.

■ **Obesity and overweight.** Being overweight increases stroke risk as well as risk for heart disease. Excess pounds strain the entire circulatory system and predispose you to other stroke risk factors such as high blood pressure, high cholesterol, and diabetes.

■ **Diabetes.** If you have diabetes, your odds of having an ischemic stroke are several times greater than those of people without the disease. Diabetes increases the tendency of the blood to form clots, which can dam up the arteries.

■ **Excess alcohol.** Moderate alcohol consumption (an average of one to two drinks a day for men) may lower the risk of ischemic stroke—the most common kind of stroke—just as it lowers the risk of heart disease. This may be because alcohol inhibits blood clotting and raises protective HDL cholesterol. However, any amount of drinking doubles or quadruples the risk of having the much less common hemorrhagic stroke. And heavy drinking can cause heart rhythm disturbances and boost blood pressure, thereby increasing the likelihood of a stroke.

## Lung cancer

Lung cancer is the leading cause of cancer death in men, claiming about 87,750 lives a year—about one in three of the deaths from cancer. Fortunately, both the likelihood that men will develop lung cancer and the chance they will die from it have been declining over the past 20 years, largely because the number of men who smoke has dropped during that period.

### Risk factors

■ **Tobacco smoke.** Cigarettes, cigars, and other tobacco products contain more than 7,000 chemicals; at least 69 of these are known to cause cancer. Small surprise, then, that exposure to tobacco smoke is the leading risk factor for lung cancer. Men who smoke, for example, are 23 times as likely as those who don't to develop lung cancer. Exposure to secondhand smoke, whether at home or at work, can also increase risk of lung cancer.

■ **Radon.** In North America and Europe, the second leading risk factor for lung cancer is radon, a radioactive gas that comes from the natural breakdown of uranium in soil, rock, and water and seeps into buildings. The Environmental Protection Agency recommends testing for radon and installing a reduction system when levels are above 4 picocuries/liter.

■ **Environmental toxins.** Exposure to asbestos, toxic chemicals, certain metals (such as chromium or arsenic), and even air pollution have all been implicated in lung cancer development.

■ **Genetics.** As with other types of cancer, people who have a family history of lung cancer may inherit genes that increase their own susceptibility.

### How to reduce your risk of lung cancer

- ✓ Kick the smoking habit to the curb (see page 18).
- ✓ Test your house for radon and take steps to reduce it if necessary.
- ✓ Avoid exposure to environmental toxins if at all possible.

■ **Medical history.** People who have had tuberculosis may be at increased risk.

## Prostate cancer

Prostate cancer is the second most commonly diagnosed cancer in men in the United States and the second leading cause of cancer death. About 241,740 men are diagnosed with prostate cancer each year, and 28,170 die of it. Fortunately, more than 90% of prostate tumors are detected before the cancer has spread—so most men can expect to survive the disease. Moreover, prostate cancer death rates have been decreasing since the mid-1990s.

### Risk factors

■ **Age.** The risk of prostate cancer increases with age. The average onset is at age 70, and about 97% of cases occur in men over age 50.

■ **Family history.** A man who has a father, brother, or son with prostate cancer has two to three times the risk of developing the disease as a man whose first-degree male relatives don't have the disease.

■ **Race.** African American men have the highest rate of prostate cancer. Asian American and Hispanic

### How to reduce your risk of prostate cancer

There is no proven way to prevent prostate cancer, but you can reduce risk factors related to lifestyle—and improve your chances of survival at the same time—by taking the following steps:

- ✓ Improve your diet (see page 21).
- ✓ Watch your weight (see page 25).
- ✓ Become physically active (see page 19).
- ✓ See your doctor for routine “maintenance” checks (see page 29)

men are less likely to have the disease than white men. One reason may be that African American men have somewhat higher blood levels of the male hormone testosterone, which stimulates the growth of prostate cancer cells.

■ **Diet.** How diet influences risk isn't entirely clear, but studies have found associations between prostate cancer and the consumption of certain types of foods. For example, men who eat a lot of red meat or high-fat dairy products seem to have a higher risk of the disease. Some studies have also found that high levels of calcium (much more than what is in the average diet) seem to raise the risk. Conversely, foods rich in lycopene (tomatoes, pink grapefruit, watermelon, papaya) may reduce the risk of prostate cancer.

■ **Obesity.** Obesity seems to increase risk of developing aggressive prostate cancer. One potential explanation is that obesity leads to increased levels of insulin in the blood. This hormone (which enables cells in the body to use blood sugar for energy) may also act as a growth factor that promotes out-of-control cell growth in cancer.

## Colorectal cancer

Colorectal cancer is the third deadliest cancer in men, responsible for about 26,470 deaths a year. Most colorectal cancers arise from abnormal lesions on the intestinal lining called adenomatous polyps. The progression from precancerous polyp to full-blown cancer takes about 10 to 15 years, possibly even longer. The incidence of colorectal cancer has been falling for the past two decades, probably because of the increased use of screening tests to detect precancerous polyps (see Table 5, page 30 for screening options).

### Risk factors

■ **Age.** Slightly more than 90% of colorectal cancers occur in people ages 50 and older.

■ **Medical history.** Men are at increased risk of colorectal cancer if they have had precancerous polyps removed during a colonoscopy or have an immediate family member (parent, sibling, or child) who has had colorectal cancer. Risk is also increased by certain inherited genetic mutations, particularly

### ► How to reduce your risk of colorectal cancer

- ✓ Undergo periodic screening for colorectal cancer (see Table 5, page 30).
- ✓ Limit consumption of red meat and processed meats (see "Improve your diet," page 21).
- ✓ Kick the smoking habit to the curb (see page 18).

those that cause Lynch syndrome (also known as hereditary nonpolyposis colorectal cancer) and familial adenomatous polyposis. Chronic inflammatory bowel disorders, such as ulcerative colitis or Crohn's disease, also increase risk of colorectal cancer.

■ **Diet.** Men who consume a lot of red or processed meats and drink a lot of alcohol increase their risk of colorectal cancer. Low intake of fruits and vegetables may also contribute to risk.

■ **Smoking.** Men who are longtime smokers increase their risk of colorectal cancer. For example, one study found that people who smoked for at least 40 years were 30% to 50% more likely than nonsmokers to develop colorectal cancer.

■ **Other factors.** Lack of physical exercise, obesity, and type 2 diabetes also raise your chances of developing colorectal cancer.

## Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) affects the lungs and makes it hard to breathe. There are two main types of COPD: chronic bronchitis, in which the airways (bronchial tubes) in the lungs swell and fill with mucus, and emphysema, in which tiny air sacs (alveoli) in the lungs are destroyed. COPD develops gradually over many years of exposure to irritants (most often cigarette smoke).

An environmental irritant can damage the cells that line the airways and can cause changes in the glands and cells that normally produce small amounts of mucus to lubricate the airway walls. In response, the body unleashes a flood of inflammatory cells, which start a chemical cascade that further damages the air-

## ► How to reduce your risk of COPD

- ✓ Kick the smoking habit to the curb (see page 18).
- ✓ Reduce your exposure to environmental toxins and fumes.

ways and degrades lung tissue. The inflammatory cells infiltrate the walls of the airways and trigger the production of mucus, leaving less room for air to pass. They also prompt the release of enzymes that eventually break down the lung tissue. By the time symptoms such as coughing and wheezing develop, much of the lung tissue may be lost.

### Risk factors

■ **Smoking.** About 85% to 90% of men who develop COPD are long-term smokers. In addition, men who smoke are 12 times more likely to die from COPD as men who do not smoke.

■ **Other irritants.** Exposure to secondhand smoke, air pollution, and workplace fumes, chemicals, or dust also increase risk of COPD.

■ **Personal medical history.** Severe or chronic respiratory infections during childhood can increase risk of COPD.

■ **Genes.** An inherited condition known as alpha-1-antitrypsin (A1AT) deficiency can cause emphysema by disabling a gene that normally helps protect lung tissue from damage.

## Alzheimer's disease

Men are less likely than women to develop Alzheimer's disease, but that is only because they tend to die younger. Alzheimer's, a degenerative brain disorder, becomes more common with age. About five million Americans over age 65 have Alzheimer's, and one-third of them—about 1.8 million—are men. Alzheimer's not only affects a man's quality of life, but can also end it: according to the CDC, the disease ranks as the fifth most common cause of death in men 85 and older.

It's not clear why Alzheimer's develops. According to the leading theory, small fragments of soluble beta-amyloid protein in the brain may be the toxic factor,

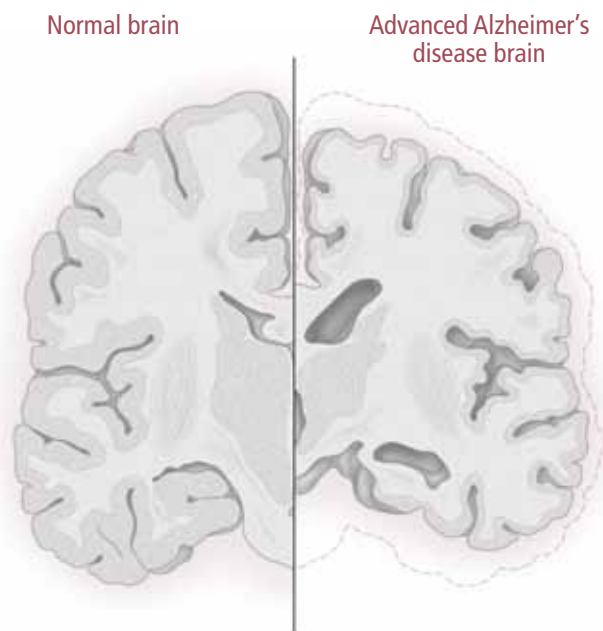
as well as another protein called tau; these trigger a series of biochemical events leading to the death of neurons. Two telltale signs of the disease are plaques made of beta-amyloid and neurofibrillary tangles made of tau—abnormalities seen with a microscope when examining the brain during an autopsy.

Whatever the cause of Alzheimer's, the results are clear. The brain gradually loses cells (neurons) and the connections (synapses) between neurons that enable memory and other mental functions. Levels of brain chemicals known as neurotransmitters, which carry complex messages among billions of nerve cells, also decrease. In advanced Alzheimer's disease, the dramatic loss of neurons causes the brain to shrink (see Figure 5, below).

### Risk factors

■ **Age.** One in eight people ages 65 and older has Alzheimer's, and nearly half of those ages 85 and older

**Figure 5: Brain changes in Alzheimer's disease**



The massive loss of brain cells that occurs in advanced Alzheimer's disease causes the brain to wither and shrink, as shown in these crosswise slices through the middle of the brain between the ears. In the Alzheimer's brain, the outer layer (cortex) shrivels up, damaging areas involved in thinking, planning, and remembering. The hippocampus, a structure that plays a vital role in memory formation, is one of the hardest-hit areas.

## ► How to reduce your risk of Alzheimer's

- ✓ Keep your blood pressure within healthy limits (see page 24).
- ✓ Keep your cholesterol in check (see page 23).
- ✓ Watch your weight (see page 25).
- ✓ Avoid diabetes (see "How to reduce your risk of diabetes," page 15).
- ✓ Wear a helmet while riding a bike or playing football or soccer.

have the disease. Risk usually rises after age 65 and doubles every five years thereafter.

■ **Family history.** People who have a parent or sibling with Alzheimer's are more likely to develop the disease than other people. If more than one immediate family member is affected, then the risk increases even more.

■ **Genetics.** One form of the apolipoprotein E (APOE) gene has been linked to late-onset Alzheimer's (diagnosed at age 60 or older). The APOE gene comes in three versions (alleles), numbered 2, 3, and 4. People who inherit one copy of APOE4 are at increased risk of Alzheimer's, while those who inherit two copies are at even greater risk—but having this form of the gene does not necessarily mean that Alzheimer's will develop. Experts estimate that the APOE4 allele accounts for 20% to 25% of late-onset Alzheimer's. In 2013, researchers linked also a gene called TREM2 to Alzheimer's disease. Although scientists are still trying to determine what the gene does, they believe it helps activate immune system cells that clean up plaque deposits. When the gene is mutated, plaque deposits accumulate.

Far less common is a form of early-onset familial Alzheimer's disease that usually affects multiple generations, with symptoms developing before age 60. This type of Alzheimer's is caused by mutations in three genes: the amyloid precursor protein gene, presenilin 1, and presenilin 2. All three genetic mutations increase the production of beta-amyloid, which is deposited in the plaques found in Alzheimer's disease.

■ **Cardiovascular problems.** High blood pressure, high cholesterol, obesity, and smoking—all risk

factors for heart disease and stroke, because they harm the blood vessels—can also increase risk of Alzheimer's.

■ **Diabetes.** People with diabetes, either type 1 or type 2, have a greater risk of Alzheimer's disease. In fact, type 2 diabetes, which is often linked to obesity and lack of activity, appears to double or triple the odds of developing Alzheimer's disease. The underlying problem may be a deficiency or dysfunction of insulin, the hormone that enables cells in the body to use blood sugar.

■ **Head injury.** Boxers sometimes develop a form of dementia marked by microscopic changes in the brain that resemble those seen in Alzheimer's disease—especially the presence of neurofibrillary tangles. This condition, now known as chronic traumatic encephalopathy, causes symptoms such as memory problems and marked shifts in behavior and personality. Similar lesions have now been identified in football players and other athletes who sustain multiple (even if mild) concussions and in combat veterans who have suffered head injuries. Although researchers are still trying to connect the dots, evidence is growing that head injuries may cause brain damage that results in Alzheimer's.

## Diabetes

Blood sugar (glucose) is the fuel that the body uses for energy. Diabetes develops when the body's ability to turn glucose into energy breaks down and blood glucose levels rise to dangerously high levels. Over the past few decades, diabetes has become one of the most common chronic conditions in the United States. About 13 million American men—nearly 12% of those 20 and older—have diabetes. Left untreated or poorly managed, diabetes can lead to serious long-term complications, including kidney failure, amputation, and blindness. Diabetes also increases a man's risk for heart disease, stroke, and Alzheimer's disease, and it ranks as the sixth leading cause of death for men ages 65 and older.

There are two types of diabetes. About 5% to 10% of people are diagnosed with type 1 diabetes, which develops after the body's immune system mistakenly destroys cells in the pancreas, so that this organ can



no longer produce the insulin necessary to metabolize blood sugar. This form of the disease usually develops before age 20.

Far more common—and preventable—is type 2 diabetes, which affects more than 90% of people with diabetes. It tends to occur in adults rather than children and teenagers, although lately factors such as the increase in obesity have put young people at greater risk.

Type 2 diabetes takes years to develop (and reducing risk factors can generally prevent it). The process begins when cells of the body become less responsive to insulin. To keep blood sugar levels under control, the pancreas compensates by pumping out more insulin. At first, blood sugar levels stay within a normal range. But for some, the insulin-producing cells eventually fail to keep up with the increased demand. As a result, blood sugar levels rise, resulting first in a problem known as pre-diabetes and finally progressing to diabetes.

### Risk factors for type 2 diabetes

■ **Age.** Because the disorder usually comes on gradually, diabetes is still most likely to develop after age 40. In people ages 65 and older, about one in four people has the disorder.

■ **Genes.** Researchers have identified many genes that increase the risk of developing diabetes, but most contribute only a small amount of risk. Lifestyle factors are much more important.

■ **Obesity or overweight.** Diabetes is sometimes referred to as “diabesity”—and for good reason. At least eight of 10 Americans who develop type 2 diabetes are overweight or obese. People who are overweight are seven times as likely to develop diabetes as someone in the normal weight range; people who are obese are 20 to 40 times as likely to do so. The distribution of body fat also seems to be particularly important. People who tend to store fat in the abdominal area are more likely to become diabetic than those who put it on around the hips.

■ **High blood pressure.** Risk rises when blood pressure is 140/90 mm Hg or higher or when people need to take medications to control their blood pressure.

■ **Sedentary lifestyle.** Exercise helps the body keep blood sugar levels stable. Physical inactivity, on the other hand, increases risk of developing diabetes.

### ► How to reduce your risk of type 2 diabetes

- ✓ Watch your weight (see page 25).
- ✓ Boost your activity level. Regular exercise protects you, even if you don't lose weight (see “Become physically active,” page 19).
- ✓ Improve your diet (see page 21).

■ **Pre-diabetes.** This state is defined by fasting blood glucose levels of 100 to 126 mg/dL or two-hour glucose tolerance test levels of 140 to 200 mg/dL.

■ **Medications.** Some drugs can increase insulin resistance or decrease insulin secretion. Either way, the result is higher levels of blood glucose. These medications include corticosteroids, used to treat asthma and inflammation; diuretics and beta blockers, used for high blood pressure; and atypical or second-generation antipsychotics, used for schizophrenia and other mental health problems. In addition, hormone therapy for prostate cancer and HIV treatments (which redistribute body fat) can also precipitate diabetes in people who are susceptible.

## Influenza and pneumonia

Influenza (flu), pneumonia, and other infectious diseases once ranked as the leading causes of death in the United States. That changed during the 20th century, as a combination of public health measures and medical advances reduced exposure to infectious microbes and improved the chances of survival in people who became infected. But infectious diseases—particularly the flu and pneumonia—still pose a threat, ranking as the seventh leading cause of death in men ages 65 and older.

Flu is caused by a highly infectious respiratory virus, usually spread from one person to the next when the infected person coughs or sneezes. (Droplets containing the flu virus can travel as much as six feet, so you don't need to be standing right next to someone to become infected.) It's also possible to become infected after touching a contaminated surface such as a doorknob. In healthy people, flu can hit with a wallop, causing fever, chills, fatigue, maybe a headache, muscle aches, or sore throat. In the elderly or people

## ► How to reduce your risk of flu or pneumonia

- ✓ Get vaccinated (see Table 5, page 30).
- ✓ Wash your hands or use hand sanitizers frequently throughout the day.
- ✓ Kick the smoking habit to the curb (see page 18).
- ✓ If you do get the flu, see your doctor so you can get prompt treatment and avoid having it turn into pneumonia.

with other medical conditions, flu can be deadly. One of the challenges in fighting flu is that viruses reproduce so rapidly that they can quickly develop resistance to drugs and vaccines. That's why the flu shot has to be reformulated every year.

Pneumonia also develops because of a respiratory infection, although the cause can be a virus, bacteria, or even an inhaled chemical. There are two main types of pneumonia. Viral pneumonia is caused by respiratory viruses such as the flu virus. Bacterial pneumonia can be triggered directly by any one of dozens of bacteria, or it may emerge as a complication of flu or another viral infection. However it develops, pneumonia causes fever, chills, cough, and difficulty breathing—and sometimes death, especially in the very young or old and those with other medical conditions.

### Risk factors

■ **Age.** Although flu and pneumonia can infect anyone, infants and young children and people ages 65 and older, are more at risk for complications.

■ **Smoking.** Smokers are more likely to get the flu and pneumonia than nonsmokers, probably because smoking damages the lungs and leaves them more vulnerable.

■ **Medical conditions.** A variety of medical conditions can increase susceptibility to flu and pneumonia. These include cancer, immunosuppressive disorders, and drug therapy that can suppress the immune system; neurological conditions such as Parkinson's disease or stroke that affect swallowing; chronic lung conditions such as asthma or COPD (see "Chronic obstructive pulmonary disease," page 12) that damage

the lungs; and other serious diseases such as diabetes or heart disease.

■ **Close quarters.** Viruses are particularly easy to spread from one person to another. For this reason, flu and pneumonia are easily spread in workplaces, hospitals, and nursing homes.

## Accidents

Accidents rank as the leading cause of death in men right through the mid-40s, but even in men 50 and older, such "unintentional injuries" (the term the CDC uses) are among the top 10 causes of death. Three types of accidents—motor vehicle accidents, poisoning, and falls—accounted for about three-quarters of all accidental deaths.

■ **Motor vehicle accidents.** Although motor vehicle crashes remain the leading cause of unintentional injury in men, the death rate has declined by about one-third over the past decade. It's not clear why this is so, but better safety features in cars and increased use of seatbelts may have contributed.

■ **Poisoning.** Deaths due to accidental poisoning have nearly doubled in men in the past decade. Although people tend to equate poison with noxious chemicals, prescription drug overdoses have emerged as the most common source of deadly poisonings since the 1990s.

■ **Falls.** This type of injury can become more catastrophic with age and ranks as the third leading cause of accidental death in men.

## ► How to reduce your risk of an accident

- ✓ Don't drink excessively and drive (see "Alcohol in moderation," page 26).
- ✓ Buckle up when you drive, and practice commonsense precautions, such as driving within the speed limit and not using your cellphone.
- ✓ Tell your doctor about all the medications you are taking, so you can avoid accidental drug interactions or overdoses.
- ✓ Remove tripping hazards such as loose rugs at home, and ensure that you have proper lighting so you can see obstacles clearly.

## Chronic kidney disease

As part of the urinary tract, the kidneys help remove wastes from your bloodstream. But these two fist-sized organs are powerful system managers as well: they keep your body's blood pressure, fluids, and minerals balanced and functioning properly, and they eliminate waste material.

There are many different causes of chronic kidney disease. Most of them damage the tiny blood vessels inside the kidney that are essential for the kidney's normal function. Anywhere from 20 to 26 million Americans—about one in 10—have some form of chronic kidney disease, although many are not aware of it.

Chronic kidney disease progresses slowly, over years and even decades, and there are usually no symptoms in the early stages. Even when symptoms such as fatigue, increased urination, and decreased appetite do occur, they may be so vague that their significance is unrecognized. As a result, many people do not discover they have chronic kidney disease until it becomes severe. Diagnosis is usually made on the basis of a urine or blood test.

When the kidneys start to fail, levels of certain waste materials build up in the bloodstream, marking the onset of chronic kidney disease. These abnormally high levels of wastes can cause many symptoms, including fatigue, weakness, and difficulty thinking. In addition, the buildup of fluid can cause swelling of tissues throughout the body.

Fortunately, there are steps you can take to protect your kidneys. The first step is simply recognizing the risk factors for chronic kidney disease.

### Risk factors

■ **Diabetes.** About 40% of people with diabetes eventually develop chronic kidney disease. Over the long term, high blood sugar levels damage blood vessels in the kidneys, impairing their ability to properly filter blood and expel wastes—a condition known as diabetic nephropathy.

### How to reduce your risk of chronic kidney disease

- ✓ Keep your blood pressure within healthy limits (see page 24).
- ✓ Improve your diet (see page 21).
- ✓ Become physically active (see page 19).
- ✓ Watch your weight (see page 25).
- ✓ Keep your cholesterol in check (see page 23).

■ **High blood pressure.** Nearly 30% of people with high blood pressure have chronic kidney disease. Hypertension injures blood vessels in the kidneys, impairing their ability to process blood and filter wastes efficiently. Then, as kidney function is weakened, the kidneys become less able to regulate blood pressure, setting off a vicious cycle that inflicts still greater damage.

■ **Age.** Anyone over 60 is at higher risk for developing chronic kidney disease, because kidney function tends to diminish with age.

■ **Family history.** If any of your grandparents, parents, or siblings has been diagnosed with chronic kidney disease, you are at increased risk yourself. African Americans, Hispanic Americans, Native Americans, Asian Americans, and Pacific Islanders are all more likely than other ethnic groups to develop chronic kidney disease—in large part because people in these ethnic groups are also more likely to develop diabetes and hypertension.

■ **Other risk factors.** Atherosclerosis (clogging of the arteries) damages the kidneys by impairing blood flow and destroying blood vessels. AIDS, lupus, and other immune system disorders can all damage the kidneys enough to cause chronic kidney disease. So can bacterial infections of the kidneys. Finally, regular and prolonged use of medications, particularly painkillers, can damage the kidneys significantly by causing a condition known as analgesic nephropathy. Particularly harmful is combining painkillers that contain aspirin, acetaminophen, and ibuprofen. ♥

# 10 steps to a longer and healthier life

**R**isk reduction has a lot in common with one-stop shopping: It's possible to reduce your risks of many major degenerative diseases at once by following the advice below.

## **Kick the smoking habit to the curb**

If you don't smoke, don't start. And if you do smoke, try to kick the habit. It may take a few tries and a lot of determination, but the effort will be worth it. Smoking causes about 440,000 deaths in America each year—more than those attributable to alcohol, cocaine, heroin, homicide, suicide, car accidents, and fire combined. In addition, secondhand smoke causes nearly 50,000 deaths in the United States each year.

Many longtime smokers think there is no point stopping because their bodies are already irreparably damaged. Wrong. Your body starts fixing the damage soon after you take that last puff. Within 12 hours after you stop smoking, your blood transports oxygen more efficiently. By the end of the first week, your circulation improves. By the one-month

mark, your lungs are functioning more efficiently.

If you can keep it up, the benefits increase even more. Every day you can beat the smoking habit is one that increases the odds you will live a longer and healthier life. Here are a few examples of the benefits you can anticipate:

**A healthier heart.** A year after you quit smoking, your risk of heart disease is half that of a current smoker. After 15 years, it is the same as a nonsmoker's.

**Better breathing.** About a month after you quit smoking, the cilia (the hairlike structures that line your airways) begin to recover and remove more mucus from your system. At first you will cough up mucus, which cleans your lungs and reduces the chance of infection. Soon you find yourself coughing less. Sinus congestion, fatigue, and shortness of breath also decrease. It takes longer to

reduce your risk of lung cancer, but after 10 years, it is half that of a smoker's.

**Erectile function.** Smoking slows blood flow to the penis. Since an erection depends on a good blood supply, smoking can make it difficult for a man to get or keep an erection (erectile dysfunction). Stop smoking, and your erections will likely improve: current smokers are almost three times more likely to experience erectile dysfunction than former smokers and nonsmokers. Men who smoke are also more likely to be infertile than nonsmokers.

**Preserved vision.** Two leading causes of vision loss in older adults—cataracts and macular degeneration—are more common in smokers. Quit smoking, and you can reduce your risk of these problems.

## **How to kick the habit**

There are some tried-and-true ways to kick the smoking habit. Keep in mind that it often takes smokers several attempts before

they succeed. To increase your odds of success, find ways to fine-tune the approach below to suit your own life. You really can succeed; there are more former smokers in the United States today than there are smokers.

**Set a quit date.** You might plan to quit on a special day, such as a birthday or the American Cancer Society's Great American Smokeout, scheduled for the third Thursday of each November. Try to avoid stressful periods, such as an approaching work presentation, and avoid holidays if you are likely to be invited to smoke-filled parties.

**List your motivations.** Write down your reasons for wanting to quit. This list will come in handy whenever you feel discouraged or have an intense craving for cigarettes.

**Deal with withdrawal symptoms.** Nicotine in tobacco is addictive, and the withdrawal process can be extremely unpleasant, causing insomnia, irritability, headaches, and restlessness. Nicotine replacement therapy is one way to help ease withdrawal. Multiple options exist, including nicotine patches, gum, nasal sprays, inhalers, and lozenges. If this approach doesn't work, ask your doctor about medications to ease withdrawal, such as varenicline (Chantix) or bupropion (Zyban).

**Avoid triggers.** Any addiction is learned, in that the brain comes to associate certain sights, smells, and



Thinkstock Images

situations with an addictive drug. That's why it's important to identify environmental triggers that make you want to smoke and avoid them until you feel stronger. Skip the after-office drink at the bar, for example, if your co-workers like to step outside for a smoke.

**Find a new habit.** We now know it's not enough to "just say no" to an addictive drug like tobacco. Say yes to something that's healthier. Try joining a gym or going on a bicycle ride, for example, to release tension. Over time, as the nicotine withdrawal subsides, you may find that these healthy habits will help you to truly kick the smoking habit.

## Become physically active

The thought of building more activity into your day may feel like one more bothersome task, but in time you may find that you enjoy exercise and even look forward to it. If you need some moti-

vation, keep in mind that physical activity helps your body function efficiently. Data from the Framingham Heart Study found that, in men over age 50, those who engaged in regular moderate exercise lived roughly a year longer than those who were sedentary, while those who had high levels of physical activity lived nearly four years longer.

The reasons for that longer life probably have something to do with the multiple health benefits of regular physical activity, including the following:

**A healthier heart.** People who are the most physically active are only half as likely to develop heart disease as those who are the most sedentary. And the benefits accrue in a dose-response manner: the more physically active you are, the lower your risk for heart disease. Regular physical activity raises healthy HDL cholesterol levels,

reduces unhealthy LDL cholesterol and triglycerides, lowers blood pressure, burns body fat, and lowers blood sugar levels—all of which helps the heart. Following a heart attack, an exercise-based rehabilitation program can reduce the likelihood of dying from heart disease by one-third.

**Brain protection.** The heart-healthy effects of exercise keep blood vessels throughout the body healthy and help reduce the risk of stroke. Several studies suggest that exercise might also help ward off Alzheimer's disease and other forms of dementia. For example, one study of people ages 65 and older found that those who exercised more than three times a week had roughly half the risk of dementia as their sedentary peers. Another study, of people ages 50 and older who reported memory problems but did not have dementia, found that those assigned to an exercise program (at least three times a week, 50 minutes at a time) showed small improvements in mental ability by the end of 18 months.

**Better blood sugar control.** Excess weight and physical inactivity both contribute to the development of diabetes. Regular physical activity not only helps you shed pounds but also boosts sensitivity to insulin and thereby modestly reduces blood sugar levels. This can help people with diabetes better control their disease—and help those at risk avoid developing it. You don't have to do much to

reap the benefits. One study found that two-and-a-half hours of brisk walking a week cut the risk of diabetes by 30%.

**Possibly reduced risk of cancer.** Large observational studies, which follow people over time, provide some evidence that regular exercise may reduce risk of certain cancers. One review found consistent evidence that regular physical activity reduced risk for colon cancer by about 24% in men. Other research suggests that regular exercise may reduce risk of lung cancer by about 20%. There is no proof that exercise lowers the risk of developing prostate cancer—but once a man is diagnosed, physical activity can reduce the chances that it will spread.

**Stronger bones.** Although it is not as common a problem as in women, men also can develop thinning of the bones with age. Regular weight-bearing exercise can help slow this bone loss, especially when combined with calcium, vitamin D, and bone-saving medications if necessary. Putting weight on your bones—whether by walking, playing football, or lifting weights—stimulates the growth of new bone.

**Arthritis relief.** Exercise helps protect joints by reducing swelling, pain, and fatigue and by keeping cartilage healthy. Strong muscles support joints and lighten the load upon them. Exercise may limit and even reverse knee problems by helping to control weight.

**Improved sleep.** Regular aerobic exercise can improve the ability to sleep.

**Better mood.** Exercise stimulates the release of mood-elevating hormones, relieving stress and promoting a sense of well-being. In some studies, exercising regularly has helped ease mild to moderate depression as effectively as medications; combining exercise with medicine, therapy, and social engagement is even better.

**Fewer colds.** Exercise may boost your ability to fend off infections and colds. A study in Sweden, for example, found that men with the highest levels of physical activity were nearly 20% less likely to develop a cold in a four-month period than less active men. Regular exercise was particularly protective against colds for men who said they felt stressed.

### How to build activity into your life

The current federal Physical Activity Guidelines for Americans contain advice about how you can work more activity into your day—and how much activity to aim for. The recommendations vary depending on the type of activity.

**Aerobic activity.** Aerobic exercise includes any activity that gets your heart and lungs working harder, such as walking, swimming, or biking. The federal guidelines recommend that all adults aim for at least two hours and 30 minutes (150 minutes) of moder-

ate aerobic activity per week. To count toward your weekly goal, your aerobic activity should last for at least 10 minutes without stopping. So you could get 30 minutes of daily activity by taking three walks that last 10 minutes each. To improve the odds that you'll meet these goals, choose something you like, such as riding a bike or playing soccer. Or build it into your usual daily routine—for example, by walking up stairs rather than taking the elevator.

**Muscle strengthening.** Set aside time two to three times a week to do strength exercises for all the major muscle groups (legs, hips, back, chest, abdomen, shoulders, and arms). You can do this by lifting weights or using your own body as the “weight” by doing push-ups or leg lifts.

**Stretching exercises.** Throughout the week, limber up by doing gentle stretches, focusing on the major muscle groups (legs, arm, back). Take a tai chi or yoga class to learn new techniques.

**Balance exercises.** Older men at risk for falls may also want to find time to do balance exercises such as standing on one foot at a time, doing heel-toe walking, or practicing yoga or tai chi.

### 3 Improve your diet

Every year it seems another celebrity diet is being promoted on the airwaves and in bookstores. But the truth is there is no miracle food or single “healthy diet.” Instead, there

### Take a multivitamin as health insurance

A daily multivitamin is worth taking as your personal health insurance. Although not all experts agree on this matter, a multivitamin can't hurt you, and it may help make up for the vitamin deficiencies that become more common with age. Look for brands that contain plenty of vitamin D. Depending on your age, aim for 600 to 800 IU of vitamin D per day, the amount recommended to keep your bones healthy (see “Calcium and vitamin D,” page 39). Many experts recommend even more.

are many patterns of eating around the world that sustain good health. Although some components vary, here's what healthy eating plans share: lots of fruits, vegetables, and whole grains; healthy unsaturated fats from fish and plant sources; low amounts of salt; and few added sugars or unhealthy saturated fats. A healthy eating pattern also includes enough energy (calories) to fuel the body, but not so much as to cause weight gain.

One example of this type of healthy eating pattern is the Mediterranean diet, which consists mostly of plant foods (fruits, vegetables, grains, beans, nuts, and seeds); fish and poultry as the main forms of animal protein; olive oil as the principal fat, and wine taken with meals. A large Spanish study, published in 2013 in *The New England Journal of Medicine*, made headlines when it found that people at high risk for heart disease who followed a Mediterranean style diet were 30% less likely to have a heart attack or stroke or to die from heart disease than those who followed a low-fat diet. The researchers were so

impressed by the results that they stopped the study early, after just five years.

Scientific research has gradually uncovered some of the reasons that such diets are so healthy. For example, plants are abundant in antioxidants, chemicals that slow the aging process and hinder the development of cancer and heart disease. The fiber in whole grains, legumes, and fruit slows digestion, helping to keep blood sugar under control. Fiber also creates a feeling of fullness, which may help satisfy appetite and keep a healthy weight. The healthy unsaturated fats in olive oil, nuts, avocados, and fish can have anti-inflammatory effects, which may help stave off heart disease and many other conditions. Healthy eating plans also tend to exclude or at least minimize consumption of the foods that are known to cause health problems: unhealthy fats such as saturated fat found in red meat, trans fat that is found in some store-bought baked goods and fried foods, and refined carbohydrates—found in white bread and white rice and many desserts—that behave much like simple sugars in the body.

Adjusting your diet so that it bears a closer resemblance to a healthy eating pattern might take time, but it's worth it. For tips on how to do this, consult **Harvard's Healthy Eating Plate** (see **Figure 6, below**). And if you need some added motivation, here are a few of the health benefits to eating better:

**A healthier heart.** Consuming fats from healthy sources—such as olive oil or salmon and other fatty fish—helps to reduce your risk of developing heart disease or having a heart attack. On the other hand, both saturated fat and trans fat increase your risk of heart disease by raising blood cholesterol, especially unhealthy LDL cho-

lesterol and triglycerides. Even worse, trans fat lowers your levels of healthy HDL cholesterol, which helps protect against heart disease.

**Reduced risk of stroke.** The healthy fats found in fish help reduce the most common type of stroke—ischemic stroke, which is caused by blockages in the arteries to the brain. The Health Professionals Follow-up Study found, for example, that men who ate fish at least once a month were 43% less likely to have ischemic strokes compared with men who never ate fish.

**Weight loss.** A two-year randomized trial comparing low-fat, low-carbohydrate, and Mediterra-

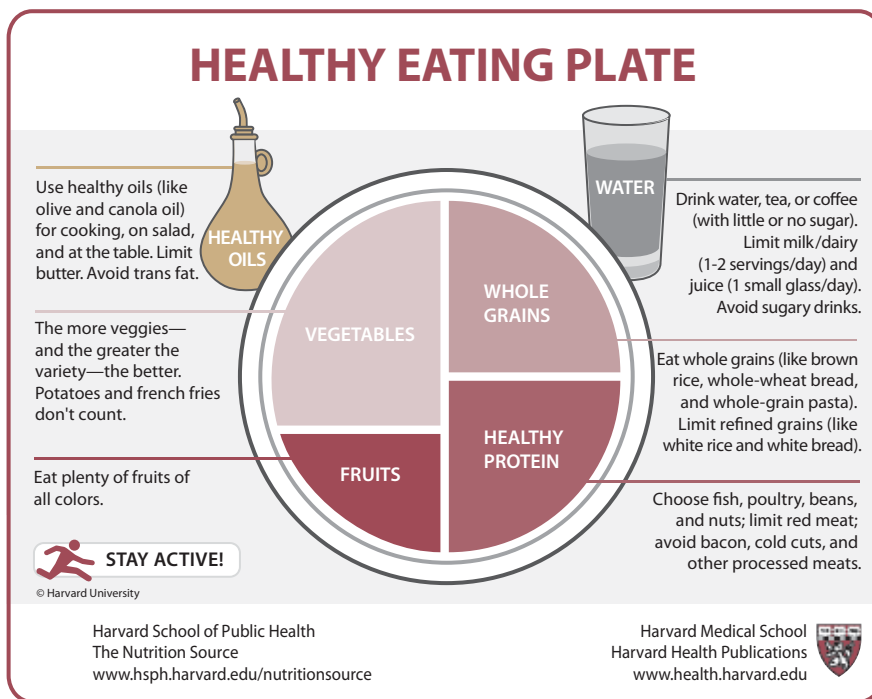
nean diets in middle-aged, mildly obese men and women found that the low-carb and Mediterranean diets resulted in greater weight loss than the low-fat diet.

**Less risk of diabetes.** Research in both men and women has consistently found that adhering to a healthy diet lowers the risk of developing type 2 diabetes—the type associated with weight gain. For example, a Spanish study found that participants who strongly adhered to a traditional Mediterranean diet were 83% less likely to develop diabetes than those following the diet least closely. And the Diabetes Prevention Program, a randomized clinical trial that compared a lifestyle intervention with medication in adults at high risk for developing diabetes found, after 10 years, that those who received counseling on how to eat healthier and exercise reduced their risk of developing diabetes by 58%. In fact, making lifestyle changes was more effective than taking the diabetes drug metformin.

**Less chance of Alzheimer's.** A study of cognitive function in 2,258 older Americans over a four-year period found a 40% reduced risk for Alzheimer's disease among those who most closely followed the Mediterranean diet.

**Lowered cancer risk.** A study by the American Cancer Society concluded that people who ate the most red meat were 30% more likely to develop colon cancer than

**Figure 6: How to eat healthier**



Sometimes a picture really is worth a thousand words. For a more nutritious diet, follow the guidelines on Harvard's Healthy Eating Plate.



those who ate little or no red meat, and those who ate the most processed meat were 50% more likely to develop colon cancer. So far, the strongest known dietary link to colon cancer is overeating—consuming more calories than you need and storing it as excess body fat.

Adhering to a healthy diet—especially avoiding red meat—may also reduce your risk of developing prostate cancer. Indeed, studies consistently show that men who live in countries where men eat a “Western” diet containing a large amount of meat have a higher incidence of prostate cancer, particularly aggressive prostate cancer. If you’ve already been diagnosed with prostate cancer, adopting a healthier diet—and particularly eating as many vegetables as possible—may reduce the risk that the cancer comes back or spreads after initial treatment.

**A longer life.** The NIH-AARP Diet and Health Study, involving nearly 400,000 men and women ages 50 through 71, found that people who most closely followed the Mediterranean diet were about 20% less likely to have died of heart disease, cancer, or any cause over a five-year follow-up period.

## 4 Keep your cholesterol in check

About 14% of Americans have cholesterol levels that are greater than 240 mg/

dL—higher than is healthy for a person’s heart. But if you take steps to reduce high cholesterol, you can bring down your chances of having a heart attack. For every 10% drop in your cholesterol level, your heart attack risk falls by 20% to 30%.

The National Cholesterol Education Program (NCEP), part of the National Institutes of Health, has created guidelines for healthy cholesterol levels (see Table 2, below). Although total cholesterol levels are important, it’s even more important to look at levels of different types of cholesterol, particularly unhealthy LDL and healthy HDL. That is why the NCEP recommends that everyone age 20 or older undergo a fasting lipid profile test (also called a

full lipid profile or lipoprotein analysis) every five years. This test measures not only total cholesterol, but also LDL, HDL, and triglyceride levels.

**Total cholesterol.** This number is the sum of cholesterol carried in all cholesterol-bearing particles in the blood, including HDL and LDL. The NCEP guidelines advise aiming for a total cholesterol level below 200 mg/dL. Reducing your total cholesterol level by 10% reduces your risk of dying from heart disease by 15%. And with lifestyle changes and current cholesterol-lowering medicines, one can reduce total cholesterol levels by much more than 10%.

**LDL.** Your particular LDL target depends on your cardiovascular health and your odds of having a heart attack in the next 10 years. (See Table 1, page 8, to determine your personal risk.)

**HDL.** Healthy HDL cholesterol lowers heart disease risk. The NCEP guidelines consider levels of 60 mg/dL or above protective against heart disease, while levels of less than 40 mg/dL are regarded as too low and increase your risk.

**Triglycerides.** The main form of stored fat—both in the food we eat and in the body’s adipose (fat) tissue—is triglycerides. In general, triglyceride levels have less impact on heart disease risk than LDL or HDL levels. The NCEP guide-

**Table 2: Cholesterol guidelines**

Total cholesterol	
Less than 200	Desirable
200–239	Borderline high
240 or higher	High
LDL cholesterol	
Less than 100	Optimal
100–129	Near optimal/above optimal
130–159	Borderline high
160–189	High
190 or higher	Very high
HDL cholesterol	
Less than 40	Low
60 or higher	Optimal
Triglycerides	
Less than 150	Normal
150–199	Borderline high
200–499	High
500 or higher	Very high
<i>Source: National Cholesterol Education Program</i>	

lines define normal fasting triglyceride levels as below 150 mg/dL.

### How to improve your cholesterol profile

You can't change your age or family medical history, both of which can affect your cholesterol levels. However, you can lose weight and boost physical activity, which will help lower your cholesterol. Probably the most important step, though, is changing the way you eat (see "Improve your diet," page 21). Pay special attention to avoiding foods that boost unhealthy LDL and those that lower healthy HDL.

■ **Focus on fats.** Avoid saturated fats, which increase unhealthy LDL levels, and steer clear of trans fats, which both raise LDL and lower protective HDL. Instead, substitute healthier unsaturated fats, which are found in fish, nuts, and vegetable oils.

■ **Choose whole grains.** Whole-grain breads, pasta, and cereal help prevent a blood sugar roller coaster and make you feel full longer. Many of these foods contain fiber that lowers LDL levels.

■ **Make other healthy choices.** Eat more fruits and vegetables, especially if you substitute these for processed foods like potato chips. And make healthy dairy substitutions: fat-free milk instead of whole milk, or low-fat yogurt instead of sugar-laden versions.

■ **Take a medication.** If lifestyle changes aren't enough to lower your cholesterol to healthy levels,

then talk with your doctor about taking a cholesterol-lowering drug. Most often, these are statins, which are by far the most effective. If you can't take a statin, other options exist.

### Keep blood pressure within healthy limits

Your blood pressure reading has two parts. The first and higher number (systolic blood pressure) represents the pressure while the heart is beating and shows how hard the heart works to push blood through the arteries. The second and lower number (diastolic blood pressure) represents the pressure when the heart is relaxing and refilling with blood between beats and shows how forcefully arteries are being stretched most of the time. If either your systolic or diastolic pressure is high, you have hypertension.

The higher your blood pressure, the greater your risk of suf-

fering a heart attack, heart failure, stroke, or kidney disease. Keeping blood pressure within normal limits, or getting treatment if your blood pressure rises too high, will improve your health. Studies have shown that treating hypertension reduces the incidence of stroke by 35% to 40%, the incidence of heart attack by 20% to 25%, and the incidence of heart failure by more than 50%.

Federal guidelines not only define normal (meaning "optimal") blood pressure as anything under 120/80 millimeters of mercury (mm/Hg), but also created another category, prehypertension, to identify people who might prevent or at least slow the onset of hypertension by adopting a healthier lifestyle (see Table 3, below).

Blood pressure usually starts rising gradually between ages 20 and 50, so all adults should have their blood pressure checked regularly. Blood pressure checks

**Table 3: Blood pressure guidelines**

The guidelines listed in this table are for adults ages 18 and older, based on the average of two or more seated blood pressure readings on each of two or more office visits.		
Category	Systolic blood pressure (mm/Hg)	Diastolic blood pressure (mm/Hg)
Normal	Less than 120	Less than 80
Prehypertension	120–139	80–89
Stage 1 hypertension	140–159	90–99
Stage 2 hypertension	160 or higher	100 or higher

*Source: Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7), December 2003.*

every two years might suffice, but if you have diabetes, chronic kidney disease, or heart disease, once a year is better.

**How to lower your blood pressure**

Lifestyle changes may be enough to lower your blood pressure if it is only mildly elevated (in the pre-hypertension category). But once people develop high blood pressure, medication is usually necessary.

■ **Eat less salt.** Salty foods can raise your blood pressure. People over age 50 and African Americans tend to be more salt-sensitive than others. Food with less salt may taste bland at first, but most people adjust to a low-salt diet with time.

■ **Get more potassium.** This nutrient, found in bananas, tomatoes, sweet potatoes, and salmon—to name just a few sources—helps to lower blood pressure.

■ **Take medication.** Blood pressure medicines include thiazide diuretics, ACE inhibitors, angiotensin-receptor blockers, beta blockers, and calcium-channel blockers. These five categories of drugs work in different ways, but are equally effective. Still, most people need to have the dosages adjusted—or need to try a new drug—before they get their blood pressure under control.

**6 Watch your weight**

Fewer than one in three American adults has a healthy weight, defined as a body mass index

(BMI) of less than 25 (see Table 4, below). The other two-thirds are overweight or obese. Successful weight loss depends on becoming more aware of your behaviors

and changing them. The effort will be worth it. Excess weight contributes to several leading causes of death—heart disease, stroke, and diabetes—as well as poten-

**Table 4: Calculate your BMI**

The body mass index (BMI) uses your weight and height to gauge whether you are normal weight, overweight, or obese. These categories were established after researchers examined the BMIs of millions of people and correlated them with rates of illness and death; those with normal BMI had the lowest rates. Obesity has been further subdivided into three classes (I, II, and III). To determine your BMI, find your height in the column on the left and then find the box to the right of it that matches your weight.

HEIGHT	BODY WEIGHT IN POUNDS				
4'10"	89–119	120–143	144–167	168–191	192+
4'11"	92–124	125–148	149–173	174–198	199+
5'0"	95–128	129–153	154–179	179–204	205+
5'1"	98–132	133–158	159–185	186–211	212+
5'2"	101–136	137–164	165–191	192–218	219+
5'3"	105–141	142–169	170–197	198–225	226+
5'4"	108–145	146–174	175–204	205–232	233+
5'5"	111–150	151–180	181–210	211–240	241+
5'6"	115–155	156–186	187–216	217–247	248+
5'7"	118–159	160–191	192–223	224–255	256+
5'8"	122–164	165–197	198–230	231–262	263+
5'9"	122–164	165–197	198–230	231–262	263+
5'10"	129–174	175–209	210–243	244–278	279+
5'11"	133–179	180–215	216–250	251–286	287+
6'0"	137–184	185–221	222–258	259–294	295+
6'1"	140–189	190–227	228–265	266–302	303+
6'2"	145–194	195–233	234–272	273–311	312+
6'3"	149–200	201–240	241–279	279–319	320+
6'4"	153–205	206–246	247–287	288–328	329+
<b>BMI</b>	<b>18.5–24.9</b>	<b>25–29.9</b>	<b>30–34.9</b>	<b>35–39.9</b>	<b>40+</b>
	<b>NORMAL</b>	<b>OVERWEIGHT</b>	<b>CLASS I OBESITY</b>	<b>CLASS II OBESITY</b>	<b>CLASS III OBESITY</b>

tially disabling ailments such as arthritis.

You don't have to lose a lot to become healthier. Even a modest weight loss of 5% to 10% of your starting weight can lead to significant health benefits. To name just a few:

**A happier heart.** Maintaining a healthy weight is one of the best ways to keep your blood pressure and cholesterol levels in the normal range. These factors, along with reduced risk of diabetes, help lower your risk of heart disease.

**Diabetes protection.** The Diabetes Prevention Program found that people who lost just 7% of their weight as well as exercising about 30 minutes a day cut their risk of diabetes by nearly 60% (see “Improve your diet,” page 21). Another study, the Look AHEAD (Action for Health in Diabetes) trial, found that people with diabetes assigned to an intervention that encouraged portion control and regular exercise lost an average of 6% of their total weight—and improved blood sugar control and blood pressure as a result.

■ **Relief from joint pain.** Weight amplifies the pressure on your joints. Every step you take places three to six times your weight in pressure on your knees and feet, since all your weight above those joints is concentrated in the small space of the joint as you shift your weight onto it. As a result, if you weigh 200 pounds, you repeatedly place 600 to 1,200 pounds of pres-

sure on your lower joints when you walk or run.

Research suggests that losing weight can help people with osteoarthritis—the type that develops with “wear and tear” over time—both reduce joint pain and improve flexibility and function. Losing 5% of your weight may be enough to produce meaningful results.

**Other benefits.** Gaining too much weight increases your chances of developing both colon cancer and prostate cancer—so maintaining a healthy weight may help you avoid these cancers. And in addition to all the physical benefits of weight loss, you can expect higher energy levels, greater physical mobility, and a better mood.

### How to lose weight

The only way to shed pounds is to consume fewer calories than you burn off. Fortunately, there are steps you can take to help you to lose weight—and keep it off.

**Set a realistic goal.** To avoid getting discouraged, start by trying to lose a reasonable amount of weight and then trying to maintain it. For many men, a realistic goal is to lose 5% to 10% of starting weight.

**Slow down.** Eat slowly and mindfully, rather than gulping food down.

**Find substitutions.** One way to cut calories is to make healthy substitutions, such as munching on carrot sticks rather than potato chips when you snack.

**Get enough sleep.** A sleep debt can lead to weight gain (see “Get a good night's sleep,” page 27).

**Boost your activity.** Remember, burning off calories is just as helpful as cutting them when it comes to weight loss. (For tips on how to get more exercise, see “How to build activity into your life,” page 20.)

### 7 Alcohol in moderation

Moderate alcohol consumption can help men reduce their risk of some of the leading causes of death, such as diabetes, heart disease, and stroke. “Moderate” means one to two drinks per day, at most. After that, harmful effects begin to accumulate. A drink is defined as 1.5 ounces of hard liquor, 4 to 5 ounces of wine, or 12 ounces of beer (see Figure 7, page 27).

Here's how moderate alcohol consumption may benefit men:

**Heart protection.** Dozens of studies have suggested that moderate consumption reduces the risk for heart disease by raising HDL (good) cholesterol, tamping down inflammation, and decreasing the risk for blood clots. Although a few studies have found that wine is more beneficial than beer or hard liquor, most have concluded that any type of alcohol in moderation may help.

The key is moderation, however. Consuming more than two alcoholic beverages per day on a regular basis increases the risk of developing hypertension, while

having more than three per day raises the risk for stroke, arrhythmia, and sudden death.

**Diabetes reduction.** Moderate alcohol intake improves insulin sensitivity. Compared with men who abstain, research suggests that those who have two to four drinks per week have a 26% lower risk of diabetes. Five to six drinks per week drops the risk even more, by 33%, while seven or more weekly (that is, one or two drinks a day) cuts it by 43%.

**Less Alzheimer's risk.** One study found that people over age 65 who drank up to one alcoholic beverage a day had about half the risk of Alzheimer's disease as nondrinkers. Again, moderation is crucial. Heavy drinkers in the same study had a 22% higher Alzheimer's risk than the nondrinkers.

**Lower risk of ischemic stroke.** Moderate consumption of alcohol

lowers the risk of ischemic stroke. Although this is the most common type of stroke, keep in mind that any amount of drinking doubles or quadruples the risk of hemorrhagic stroke. (For more information, see "Stroke," page 9.)

### Advice for safe drinking

It is possible to enjoy a drink now and then—or even on a regular basis—as long as you practice moderation and take some commonsense precautions. Here are a few suggestions:

**Pay attention.** It's easy to underestimate how much you're drinking, given that some wine glasses are actually more like goblets and some beer mugs can hold two or even three bottles of beer. Try to use glasses and mugs that help you stay within the recommended limits.

**Drink socially.** Drink with friends, not alone.

**Have a drink-free day.** If you have a drink every day, try to cut back once in a while, to see if you can. (And if you can't, maybe it's time to talk with your doctor.)

**Avoid binge drinking.** Consuming five or more drinks at a time—the definition of binge drinking for men—is never advisable.

**Listen up.** Try not to get defensive if your partner or a friend suggests you reduce your drinking; maybe he or she has noticed something you haven't.

### Get a good night's sleep

The National Sleep Foundation recommends that adults get seven to nine hours of sleep a night. Yet about one in three adults gets less than that amount on a regular basis. Over time, you can build up a "sleep debt," and both your body and mind are likely to feel the consequences. By getting a good night's sleep, you may be able to avoid some of the following:

**Weight gain.** There is a "dose-response" relationship between sleep deprivation and obesity, meaning that the more sleep-deprived people are, the more likely they are to be obese. One reason is that insufficient sleep disrupts the hormones that regulate appetite. It may also be that people eat more—or eat high-fat, sugary foods—to try to keep awake when they feel tired. To make matters worse, obesity contributes to a particular type of sleep problem known as obstructive

## Figure 7: What's a standard drink?

- 1½ ounces (a jigger) of 80-proof liquor (bourbon, gin, rum, scotch, tequila, vodka, or whiskey)
- 2–3 ounces of fruit, coffee, chocolate, or other flavored liqueurs (cordials)
- 3 ounces of fortified wine (sherry, port, Marsala, or Madeira)
- 4–5 ounces of table wine
- 12 ounces of regular or light beer



## Obstructive sleep apnea

Sleep apnea is a life-threatening condition in which breathing stops or becomes shallower hundreds of times each night. By far the most common form is obstructive sleep apnea. This disorder, most common among overweight men, occurs when the upper airway is blocked by excess tissue such as a large tongue, tonsils, fatty deposits, or a floppy rim at the back of the palate. The hallmark of this condition is heavy snoring, but many snorers do not have this problem.

Untreated, sleep apnea can impair your ability to think clearly and increase the chances of a motor vehicle accident. Over time, it can also become life-threatening, leading to the development of high blood pressure, heart failure, and stroke. A *New England Journal of Medicine* study found sleep apnea doubles a person's risk of stroke over a seven-year period. Sleep apnea can wreak havoc on the cardiovascular system because the heart must work harder every time the person arouses to open his or her airway.

The disorder is twice as common in men as in women, and the chances of developing this problem increases with age. Sleep apnea affects about one in 25 middle-aged men, and about one in 10 of those older than age 65.

If you have any of the following symptoms, see your doctor for an evaluation:

- snoring (especially when loud enough to disturb your partner)
- a thick neck (for men, larger than 17 inches in circumference)
- high blood pressure
- daytime grogginess, fatigue, sleepiness.

Treatment options exist for sleep apnea. The first step is usually making one or more lifestyle changes for factors that lead to sleep apnea or can aggravate it once it occurs. These include weight loss and avoiding alcohol and other sedatives. If symptoms are moderate to severe, your doctor may recommend positive airway pressure (PAP), the use of an air-pressure device connected by a hose to a mask that covers the nose. The mask delivers air pressure that opens the airway so you can sleep more normally. And if these steps don't work, you might consider surgery—although none of the methods available are guaranteed to work, and all carry risks.

tive sleep apnea, which has its own health risks (see “**Obstructive sleep apnea**,” above).

**Diabetes.** Sleep deprivation is also associated with the development of diabetes. One study found, for example, that people who had insomnia for a year or longer and who slept less than five hours per night had a threefold higher risk of type 2 diabetes com-

pared with those who had no sleep complaints and who slept six or more hours nightly.

**Heart disease.** A number of studies have linked short-term sleep deprivation with several well-known risk factors for heart disease, including higher cholesterol levels, higher triglyceride levels, and higher blood pressure. And several large studies have sug-

gested that ongoing sleep problems may increase the risk of heart attack and stroke.

**Anxiety and depression.** Long-term sleep deprivation affects the mind. Not only are people who are running a sleep debt less able to concentrate or remember things, but they are also more likely to experience anxiety and depression. For example, one study in young adults found that people with insomnia were four times as likely as normal sleepers to develop major depression within three years.

■ **Motor vehicle crashes.** Driving while drowsy is as bad as driving while drunk. About one-fifth of injuries sustained during a car crash are attributable to sleepy drivers.

### How to get more sleep

There are many things you can do on your own to get more sleep. If these first steps don't work, ask your doctor whether a medication might be in order. Just keep in mind that most prescription sleep drugs are best for short-term treatment of insomnia. Lifestyle changes are more effective in the long run. Similarly, doctors generally advise against using over-the-counter sleep aids for a prolonged period, not only because they cause various side effects but also because they are often ineffective.

■ **Cut caffeine.** You may not realize how much of this stimulant you are ingesting every day. The effects last for hours after the last

cup. Drink less coffee, cola, and other caffeinated beverages, and consume less chocolate—especially after 2 p.m.

■ **Quit smoking.** As if you needed one more reason to kick the habit, here's one: cigarettes and other forms of tobacco act as stimulants that can keep you awake at night. (For tips on how to quit, see “Kick the smoking habit to the curb,” page 18.)

■ **Drink less.** Alcohol initially relaxes you, but may end up waking you at night because as your body metabolizes it, it can become a stimulant. In other words, a “nightcap” may help you nod off but then keep you from getting deep, restorative sleep. Decrease or even stop drinking if this is causing nighttime awakenings. And alcohol isn't the only culprit; consuming any liquids may prompt a nighttime visit to the bathroom, especially for men whose prostates have enlarged enough to impede urination (see “Benign prostatic hyperplasia,” page 44).

■ **Get active.** Exercise more during the day so that you are physically tired at night (see “Become physically active,” page 19).

■ **Establish a routine.** Going to bed and waking up at the same time will train your body to sleep.

■ **Practice good sleep hygiene.** Use the bedroom only for sleeping and sex, not for computer work, television watching, or other activities.

## Reduce stress

About one in five men says he is dealing with a great deal of stress, although the problem affects fewer men than women. Nonetheless, stress exerts an enormous mental and physical toll.

Your body reacts to stress with the same “fight-or-flight” response that originally evolved in our ancestors as a way to escape wild animals and other life-threatening situations. During the fight-or-flight response, your brain triggers a cascade of chemicals and hormones that speed heart rate, quicken breathing, increase blood pressure, and boost the amount of energy (in the form of blood sugar) supplied to muscles. All of these changes enable you to flee from an impending threat. At the same time, other changes prepare you for the possibility of wounds. For example, blood becomes “stickier” and more likely to clot, while the immune system releases inflammatory compounds in order to fight infections.

Unfortunately, the body does a poor job of discriminating between grave, imminent dangers and the less momentous, ongoing sources of stress that pervade our lives today. The fight-or-flight response may be protective in a short-term emergency, but when it is routinely switched on, the body suffers. Do you really need higher blood pressure and blood sugar on an ongoing basis? Long-term mental stress even appears to

stimulate the body's production of LDL and triglycerides.

## How to reduce your stress

You can improve your mental and physical resilience while taking steps to counter the fight-or-flight response. Here are a few quick tips:

■ **Sleep.** Lack of sleep can affect your mood, mental alertness, energy level, and physical health, making you less able to cope with stressful situations. One of the best ways to bolster your mental and physical reserves is to get enough sleep (see “Get a good night's sleep,” page 27).

■ **Boost activity.** Burn off stress with exercise (see “Become physically active,” page 19).

■ **Relax.** Learn meditation, progressive muscle relaxation, guided imagery, deep breathing exercises, or yoga.

■ **Set limits.** Try to manage your time so you can juggle work and family demands.

■ **Lighten up.** Sometimes the worst stress is self-imposed.

## See your doctor for routine “maintenance” checks

Men are less likely than women to get routine physical exams and screenings. A survey by the American Academy of Family Physicians found that 55% of men surveyed had not seen their doctor for a physical exam in the previous year, even though 40% of them had at least one chronic condition (high blood pressure,

**Table 5:** Screening tests and immunization schedule for men

TESTS/IMMUNIZATIONS	AGES 50 AND OLDER
General exam	Yearly. (Some studies have found that regular annual check-ups do not bring clear health benefits to the population as a whole, but doctors still recommend them, especially for those over 50.)
Thyroid (TSH) test	Every five years.
Blood pressure measurement	At least every two years if you have normal blood pressure; at least once per year if it is elevated or if you are at increased risk for heart disease and stroke (such as from smoking or diabetes).
Cholesterol test	Get this checked regularly; discuss with clinician, as professional recommendations vary about how often.
Bone density screen	Discuss with clinician if you are at increased risk because of previous bone fractures or other factors (see "Osteoporosis," page 38); not recommended for other men.
Diabetes screening	Discuss with clinician if you have risk factors for diabetes (see page 14), if your blood pressure is higher than 135/80, or if you use medication to control your blood pressure.
Digital rectal exam	Once a year, during a regular physical exam.
Prostate-specific antigen (PSA) test	Discuss with clinician.
Sexually transmitted infection (STI) tests	Both partners should be tested for STIs and HIV before initiating intercourse.
Mental health screening	Discuss with clinician.
Colorectal screening	Before age 75, use one of these three methods: (1) fecal occult blood test annually; (2) flexible sigmoidoscopy every five years; (3) colonoscopy every 10 years. After age 75, discuss with clinician.
Complete eye exam	Until age 54, every two to four years; from 55 to 64, every one to three years; after 65, every one to two years; or as advised by a clinician.
Hearing test	Discuss with clinician.
Mole exam	Have this done during your routine physical or separately by a dermatologist.
Dental exam and cleaning	Routinely; discuss frequency with dentist.
Influenza vaccine	Yearly.
Pneumonia vaccine	One time only, at age 65.
Tetanus-diphtheria (Td) or tetanus-diphtheria-pertussis (Tdap) booster	Get a Td booster every 10 years; substitute a Tdap booster if you are under 65 and never had one before; if you are over 65 get one booster shot of Tdap.
Herpes zoster vaccine for shingles	Once only at age 60 or later; discuss with clinician.

*Sources: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, U.S. Preventive Services Task Force.*

heart disease, arthritis, diabetes, or cancer). Nearly one-fifth of men ages 55 and over said they had never undergone screening

for colon cancer, and almost 30% said they “wait as long as possible” to seek medical attention when they are feeling sick or in pain.

Could it be that one of the biggest challenges men face in getting more healthy is—well, being a man? ♥



# Tackling disorders before they become disabling

The disorders in this section are common causes of suffering and even disability. But you can find ways to treat—or at least manage—them so they don't derail your life.

## Osteoarthritis

Osteoarthritis is sometimes referred to as the “wear and tear” kind of arthritis. It develops when cartilage between bones deteriorates. Over time, the space between bones narrows and the surfaces of the bones change shape, leading eventually to friction and joint damage (see Figure 8, at right). Osteoarthritis is the most common type of arthritis, affecting about 27 million Americans. The first symptoms usually appear during middle age. Almost everyone has some osteoarthritis by age 70.

Men are most likely to have osteoarthritis in the hips, knees, and spine. The main symptoms include joint pain and stiffness that get worse when you exercise or put weight on your joints. You may also notice that your joints are stiff when you wake up in the morning. Or you may hear a crackling or grating sound when you move the joints. Osteoarthritis is usually diagnosed on the basis of a physical exam and an x-ray of the affected joints.

### Living with osteoarthritis

Osteoarthritis can interfere with your life, making it more difficult to do activities you once enjoyed. You may find it harder to go golfing or bowling—or to keep up with your grandchildren. Fortunately, there are steps you can take to ease the pain and prevent further damage to your joints.

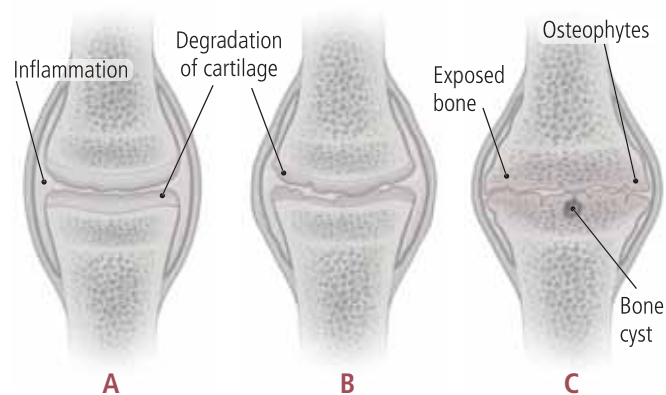
■ **Keep moving.** Physical activity not only helps maintain joint function but also relieves stiffness and decreases pain and fatigue. It can increase range of

motion, strengthen muscles, and build endurance. As little as an hour to two hours of moderate physical activity each week should start to produce results. Work with your clinician or physical therapist to develop your own exercise routine.

■ **Lose weight.** Every pound you weigh places three to six times as much pressure on your lower extremities, depending on how fast you are moving. In other words, a 200-pound man's knees and ankles are repeatedly subjected to 600 to 1,200 pounds of force during normal daily activity. Losing weight literally helps ease the pressure on aching joints.

■ **Use helpful devices.** Gadgets that make tasks easier, from jar openers to garden pruners, are available online and at hardware stores. You can also find a wide variety of splints, available by prescription and over the counter, to support your lower back, knees,

**Figure 8: Joint changes in osteoarthritis**



- The first signs of osteoarthritis are microscopic pits and fissures on the cartilage surface, which are sometimes accompanied by inflammation.
- The contours of the joint change and the cartilage thins.
- The bone surface thickens and osteophytes develop over time, while continued thinning of cartilage leaves the bone exposed. The joint space narrows until it nearly disappears.

ankles, and other joints. Or start using a cane, which can relieve pressure on hips and knees.

■ **Try acupuncture.** Based on traditional Chinese medicine, this complementary therapy is starting to gain acceptance in the West, primarily for pain relief. As you lie on a table, an acupuncturist inserts dozens of tiny needles at precise points on your body, a practice said to stimulate the flow of qi (energy) and thereby promote healing. Studies have found that acupuncture can significantly reduce pain in people with hip or knee osteoarthritis. If you are considering acupuncture, find a licensed practitioner. Keep in mind, however, that treatment isn't covered by Medicare and may not be covered by your private insurance either.

■ **Apply hot and cold therapies.** To ease your aching joints, try an old standby: a warm bath (or a shower). Another option is a hot pack or a moist or dry heating pad. Cold also may do the trick, by numbing the joint enough to subdue pain. Try gel-filled cold packs, coolant sprays, ice chips in a plastic bag, or packages of frozen peas to soothe hot, painful joints. To avoid disrupting circulation to the joint, don't leave ice packs on longer than 20 minutes.

### Drug treatment for osteoarthritis

Medication works best when combined with physical activity, weight loss, and the other strategies described above. Options include the following:

■ **Topical creams.** For mild pain relief, try creams that are applied to the skin. Products containing salicylate, such as Aspercreme or Bengay, and others containing capsaicin, such as Zostrix, are available over the counter.

■ **Pain relievers.** Although people often turn to acetaminophen (Tylenol) because it eases mild pain and is easy on the stomach, this isn't your best choice for treating osteoarthritis. It can damage your liver in high doses (particularly if you drink alcohol), and it's not as effective as some other common remedies. Nonsteroidal anti-inflammatory drugs (NSAIDs) generally work better for osteoarthritis because they reduce inflammation as well as pain. There are about 20 NSAIDs now available, including over-the-counter medications such as aspirin, ibuprofen (Advil,

Motrin), and naproxen (Aleve) as well as the prescription drugs diclofenac (Voltaren), indomethacin (Indocin), meloxicam (Mobic), and nabumetone (Relafen). But these have problems too. Because the NSAIDs, particularly aspirin and indomethacin, inhibit the enzyme that protects the stomach lining and interfere with blood clotting, they increase the risks of bleeding and gastric ulcers. Some prescription NSAIDs, particularly nabumetone, meloxicam, and diclofenac, seem to be relatively gentler on the digestive system. Some formulations, such as Arthrotec or Prevacid NapraPAC, combine an NSAID with a medication that protects the stomach.

■ **Glucosamine and chondroitin.** These chemical components of cartilage are also formulated as popular supplements for arthritis, but there is still no scientific consensus that they work. One major study, the Glucosamine/Chondroitin Arthritis Intervention Trial (GAIT), found that the answer may depend on how severe your symptoms are. Although in the average patient the supplements were no better at relieving pain than placebo, they were effective in participants who had moderate to severe pain. So if your pain is in the moderate-to-severe category, it may be worth trying a glucosamine-chondroitin combination for two to three months. If you find it eases your pain, it's reasonable to keep using it. If not, save your money.

■ **Injection therapies.** Corticosteroid injections into the joint can relieve inflammation quickly, but the relief is not long-lasting. (Some people get pain relief for only a few days, while others enjoy it for months.) It's also important to get injections no more than two to three times a year, and only when absolutely necessary, because these drugs may increase the risk of infection and can further damage the joints. Another alternative, hyaluronate (Hyalgan, Synvisc), is a synthetic version of a natural lubricant in the joint. It can be injected directly into the knee at weekly intervals for three to five weeks. However, the modest benefits experienced by some patients may not be worth the discomfort of the injections.

### Surgery for osteoarthritis

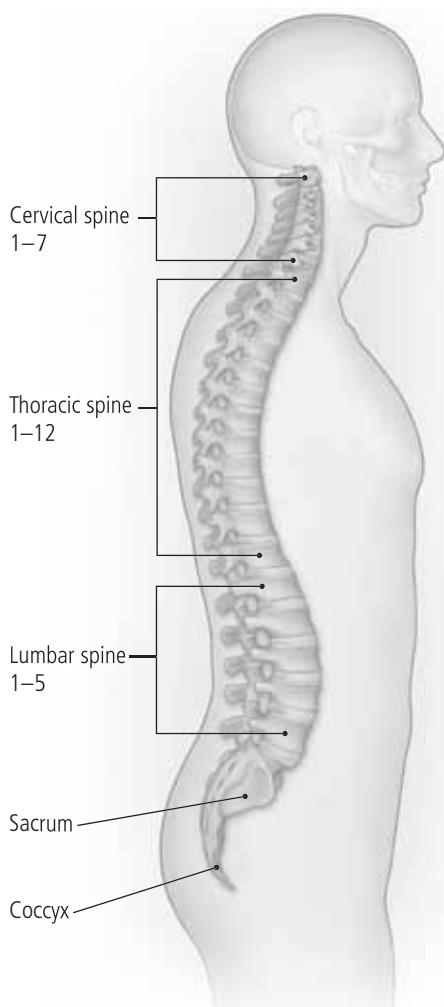
Joint surgery may help if you have severe pain from osteoarthritis that hasn't responded to other methods.

■ **Arthroscopy.** This minor surgery can usually be done on an outpatient basis. The doctor inserts an arthroscope (an instrument with a tiny light and a camera) and a variety of miniaturized surgical instruments into the joint through small incisions. If there is cartilage to repair or debris to remove, the procedure can result in mild to moderate improvement. Usually arthroscopy is reserved for the knees.

■ **Joint reconstruction or replacement.** If your joint has extensive deterioration, joint surgery can be used to correct a joint deformity, to reconstruct a diseased joint, or to completely replace a diseased joint with a prosthetic device. Long-term data from knee and hip

replacements indicate that a prosthetic joint will last an average of 10 to 15 years and should relieve your pain substantially. Moreover, thanks to improved materials, newer prostheses may last even longer. If you're considering hip or knee replacement, recovery may be prolonged, as both involve repair to weight-bearing joints. Expect to participate in weeks of physical therapy after surgery.

**Figure 9: Regions of the spine**



Your spine is divided into three regions: the cervical, the thoracic, and the lumbar. Low back pain originates in the lumbar area, which extends from the bottom of your rib cage to your sacrum (the triangular bone found between your hipbones).

## Lower back pain

As men enter middle age, they are likely to experience lower back pain at some point. With age, the bones and joints in your lower back (the lumbar spine) begin to change (see Figure 9, at left). Disks (the structures that serve as cushions between the bones in the spine) tend to wear out and sometimes become fragmented. These structural alterations may cause pain.

Back pain affects about four in five Americans at some point in their lives and is just as likely to develop in men as in women. Most cases of low back pain stem from strain or sprain due to overuse, unaccustomed activity, excessive lifting, or an accident of some kind. Less often, a nerve compression problem is to blame.

In most cases the best thing to do is to wait and see if the problem resolves on its own. If the pain does not improve after three to four days, then it's time to see a doctor. (For things you can do on your own to speed healing, see "Home remedies for low back pain," below.)

Doctors diagnose back pain by asking you about your symptoms and medical history, doing a physical exam, and—if necessary—ordering x-rays and other imaging tests. Just keep in mind that such tests are usually not helpful in determining the cause of low back pain. Most people's tests show some sort of abnormal result, yet these abnormalities are seldom related to the person's symptoms. Indeed, the abnormalities may not cause any pain at all.

### Home remedies for low back pain

Depending on the source of your back pain and how severe it is, you may be able to try a few home remedies to ease the pain and then wait until your back gets back to normal on its own. Most backaches that

result from sprain or strain will get better without medical intervention. Sometimes recovery happens within days. More often, however, painful backs mend more slowly, over four to eight weeks. Although it may take longer, people with nerve compression problems (pinched nerve syndromes) often also benefit from a wait-and-watch approach. For example, 90% of people with sciatica or herniated disks will recover on their own within six months.

Here is a brief look at several options you can try at home:

■ **Cold and heat therapies.** It's best to use cold compresses or an ice pack, not heat, immediately following a back injury, since this can alleviate pain by numbing the area and prevent or reduce swelling. About 48 hours after the onset of back pain, though, applying heating pads or a hot-water bottle to your back may be more helpful. The warmth soothes and relaxes aching muscles; it also increases blood flow, which helps the healing process. Keep in mind that heat therapy is only helpful for the first week. Afterward, you may need to try something else.

■ **Limited bed rest.** Once the mainstay of treatment for back pain, bed rest has fallen out of favor. Doctors now know it's better to keep moving, so that your muscles don't become stiff. Bed rest can still be useful, particularly if your pain is so severe that it hurts to sit or stand. But try to limit bed rest to a few hours at a time, for no more than one or two days.

■ **Physical activity.** Exercise helps build strong, flexible muscles that will be less prone to injury. It can also help the healing process for an aching back, prevent problems in the future, and improve function. Work with your doctor to develop an exercise program, or seek a referral to another health professional who can. A good program typically includes the three major forms of exercise: aerobic activity, strength training, and flexibility exercises (see [“Become physically active,” page 19](#)). But don't hesitate to stop an exercise if it becomes painful. Exercise is meant to help, not hurt.

■ **Complementary therapies.** Several types of complementary therapy may be helpful for low back pain. These include acupuncture, in which therapists insert thin sterilized needles into precise points in

the body; spinal manipulation, in which chiropractors apply pressure directly to the body to correct spinal alignment; therapeutic massage to relax muscles; and movement therapies such as yoga and tai chi. Although the evidence is mixed about whether these therapies are effective, when they do work, it is often when they are combined with home remedies.

### **Medications and surgery for low back pain**

If home remedies don't work, you can try an over-the-counter medication or ask your doctor for a prescription pain reliever. For some types of back pain, surgery is an option.

■ **Common pain relievers.** Over-the-counter analgesics such as acetaminophen or NSAIDs (aspirin, ibuprofen, or naproxen) are usually all that is needed to relieve acute low back pain. The NSAIDs have an advantage over acetaminophen in their ability to reduce inflammation in strained tissues, but they also cause gastrointestinal irritation and bleeding in some people. To maximize pain control, take the medication on a regular schedule rather than only when pain flares up. Just don't overdo it. Even over-the-counter medications can be harmful if you exceed the daily recommended doses.

■ **Prescription drugs.** If your low back pain is severe (as is often the case in nerve compression syndromes), or if it becomes an ongoing problem, your doctor may prescribe stronger doses of over-the-counter medications or different classes of drugs. Options include muscle relaxants, drugs for neuropathy (a form of nerve pain), and opioid analgesics. Your doctor may also recommend injections of corticosteroids or other drugs.

■ **Surgical options.** Your doctor may recommend surgery if other methods have failed to relieve your back pain. Keep in mind that only some types of back problems benefit from surgical intervention. The operation recommended will depend on the type of back problem you have.

## **Heart failure**

Heart failure develops when the heart cannot pump enough blood to provide an adequate supply of oxy-

gen to the body's various organs. Although the term "heart failure" sounds scary—and the condition is serious—it does not mean the heart stops; it means the heart is not functioning as well as it should. Nearly six million Americans have heart failure. Roughly equal numbers of men and women have the condition, but men are more likely to die from it. Fortunately, men can improve the quality of their lives and improve their odds of living longer by taking medication and making lifestyle changes to improve their heart health.

There are two types of heart failure. The most common type is systolic heart failure, which develops when your heart muscle is not strong enough to pump (or "eject") enough blood out of the heart. Diastolic heart failure is the type that develops when your heart muscles become stiff and do not expand easily, so that your heart does not fill up with enough blood. The result of both types of heart failure is that your organs don't get enough oxygen-rich blood. Since oxygen is a source of energy, it means that the organs don't get the energy supply they need to function normally.

Heart failure develops for many reasons. The most common culprit is atherosclerosis of the heart's arteries. Untreated high blood pressure is another major contributor. Other risk factors for heart failure include those that also cause heart disease: diabetes, smoking, excess weight, high cholesterol, and consuming too much salt or unhealthy fats. In addition, heart failure may develop as a result of another medical problem, such as an overactive or underactive thyroid, severe anemia, and emphysema.

With either type of heart failure, there is a tendency for blood entering the heart to back up in the veins. As a result, fluid starts to collect in the lungs, liver, arms, and legs, often causing swelling in the ankles, legs, or lower back. The buildup of fluid in the lungs causes shortness of breath and sometimes a cough. Shortness of breath can occur even at rest, when you lie flat, so you may find yourself using extra pillows to keep your head and neck propped up. In addition, insufficient blood flow to the brain and muscles can cause weakness and fatigue.

All of the symptoms of heart failure tend to occur, or be worse, when you are exerting yourself, because your body needs more energy but is short of its normal

### ▶ Heart failure and drugs for erectile dysfunction

If you have heart failure, talk with your doctor about whether you can use a drug for erectile dysfunction (see "PDE5 inhibitors," page 47). These drugs can worsen symptoms of heart failure.

energy supply. Although heart failure usually develops slowly, sometimes these symptoms come on suddenly, after a heart attack or some other heart problem.

A doctor diagnoses heart failure after listening to your lungs and heart and asking about your symptoms. Some of the telltale signs of heart failure include "crackles" in the lungs (which the doctor can hear through a stethoscope) that indicate fluid is building up in your lungs, swollen feet and lower legs, or neck veins that are protruding. If a doctor suspects heart failure, other tests will help confirm the diagnosis. These might include the following:

- a blood test to measure levels of B-type natriuretic peptide, a chemical that increases as heart failure worsens
- an electrocardiogram (ECG), which measures the heart's electrical activity and shows whether heart-beat is normal
- an echocardiogram, which uses sound waves to produce pictures of the heart, to assess its pumping ability
- a chest x-ray to look for buildup of fluid in the lungs.

### Managing heart failure

Heart failure cannot be cured, but its symptoms can be greatly improved or managed with treatment. By making a combination of lifestyle changes and taking medications—and seeing your doctor for frequent check-ups—you will improve your chances of living longer (and better).

■ **Lifestyle changes.** To prevent further damage to your heart, it's important to do everything you can to choose heart-healthy habits. This means not smoking, boosting your physical activity, losing weight if you are overweight, and keeping your cholesterol and blood pressure within healthy ranges

(see “10 steps to a longer and healthier life,” page 18). You may also have to make changes in your diet, such as reducing salt intake, limiting alcohol, and eating healthier foods.

■ **Medications.** The medications your doctor prescribes will depend on the type of heart failure you have (systolic or diastolic) and your symptoms. The medications you take may also change over time, as symptoms change. Keep in mind that most people take two or more medications at a time to manage heart failure. Many of the medications used for heart failure include some of those also used for other types of heart disease. Options for heart failure include the following:

- **ACE inhibitors.** These blood pressure medications also help people with systolic heart failure by improving blood flow to the heart and making it easier for the heart to pump blood by widening blood vessels throughout the body. ACE inhibitors used for heart failure include enalapril (Vaseretic, Vasotec) and lisinopril (Prinivil, Zestril).
- **ARBs.** If a man is unable to benefit from ACE inhibitors, another option is an angiotensin-receptor blocker (ARB). This class includes losartan (Cozaar) and valsartan (Diovan).
- **Beta blockers.** Some of these drugs, which are used to treat blood pressure, may also help improve heart function in people with heart failure. Examples include bisoprolol (Zebeta), carvedilol (Coreg), and metoprolol (Lopressor). However, some beta blockers may worsen heart failure, so work with your doctor to find the right one.
- **Diuretics.** These medications, sometimes called water pills, increase urination and help prevent fluid retention that can cause difficulty breathing and swelling in your extremities. The diuretics used for heart failure include bumetanide (Bumex) and furosemide (Lasix). You may need to take magnesium or potassium supplements while taking a diuretic. Potassium-sparing diuretics such as eplerenone (Inspra) and spironolactone (Aldactone) are also options, especially for people with severe heart failure, but still require monitoring so that blood levels of potassium don't increase too much.
- **Digoxin.** This drug, marketed as Lanoxin, is also known as digitalis. It is usually reserved for when heart

failure symptoms are severe. The drug can strengthen heart muscle contractions and slow heartbeat.

- **Other medications.** You will likely also take one or more heart disease medications, such as a statin to lower cholesterol or a nitrate to ease chest pain.

■ **Surgical options.** When heart failure becomes severe enough to be disabling, your doctor may recommend surgery. If a coronary artery is partially or completely blocked, for example, angioplasty or bypass surgery may be necessary to reopen a pathway to the heart. If a heart valve problem is contributing to heart failure, surgery to repair or replace the valve is an option. A cardiac pacemaker can help your heart pump more efficiently. People with heart failure are at increased risk for dangerous heart rhythms. An implantable cardioverter-defibrillator (ICD) can monitor your heart rhythm and shock it back into a normal rhythm as necessary.

## Depression

Men are only half as likely as women to develop depression. About 10% to 17% of men will develop depression at some point in their lives. But when they do, it can be deadly. Men are four times more likely than women to kill themselves, and suicide consistently ranks as one of the top 10 causes of death in men, no matter what their age (see Figure 1, page 3). Making matters worse, depression is also a well-known risk factor for two other leading causes of death, heart disease and stroke.

Symptoms of depression may show up differently in men than in women. While low mood tends to be a universal symptom, men are more likely than women to lose weight, become agitated or obsessive, and to develop alcohol or drug problems when depressed. They may also develop physical problems such as headache, stomach problems, or chronic pain.

A doctor or mental health professional can diagnose depression based on symptoms. Clinicians routinely screen adults for depression by asking two standard questions: Over the past two weeks, have you felt depressed or hopeless? In the same period, have you felt little interest or pleasure in your usual activities?

## Treatment options for depression

Initial treatment of depression involves psychotherapy, medication, or both. If these fail to relieve your symptoms, electroconvulsive therapy is another option to consider.

■ **Psychotherapy.** Multiple options exist, but all aim to help you better manage the stresses that may be triggering depression. Cognitive behavioral therapy, for example, helps you recognize and correct ingrained patterns of negative thinking and behavior. Interpersonal therapy helps you identify and practice ways to cope with recurring conflicts with other people. Psychodynamic therapy focuses on how life events, desires, and past and current relationships affect your feelings and the choices you make.

■ **Medications.** Selective serotonin reuptake inhibitors (SSRIs) are most often prescribed for depression. This group includes fluoxetine (Prozac) and paroxetine (Paxil), among others. Although SSRIs cause fewer side effects than some older medications, one drawback is that they frequently dampen sexual response, delay orgasm, or lead to erectile dysfunction. (If this occurs, you can either start taking an erectile dysfunction drug, or switch to another antidepressant.) Other medication options include serotonin-norepinephrine reuptake inhibitors (SNRIs), such as venlafaxine (Effexor) and duloxetine (Cymbalta). Additional drugs with different mechanisms of action include bupropion (Wellbutrin) and mirtazapine (Remeron).

■ **Electroconvulsive therapy.** Although it has a negative image in popular culture—thanks in part to movies such as *One Flew Over the Cuckoo's Nest*—electroconvulsive therapy (ECT) remains one of the most effective treatments for severe depression, with response rates of 80% to 90% for people with major depression. The purpose of ECT is to induce a seizure, which acts as the therapeutic agent. People receiving ECT receive anesthesia before undergoing ECT and medications to ease the muscular reactions of the seizure. It usually requires six to 12 treatments over several weeks. However, ECT tends to provide relief faster than medications, making it a good treatment for severely depressed people who may be at very high risk for suicide.

## Are you at risk for suicide?

No matter what their age, men are more likely than women to kill themselves. Suicide is a particular threat, however, for white men older than 65. A number of factors raise a man's risk of suicide:

- depression, psychosis, or anxiety
- a significant loss, such as the death of a spouse or the loss of a job
- loss of social support, such as when a close friend moves away
- a personal crisis or life stress, especially one that increases a sense of isolation or leads to a loss of self-esteem, such as a separation or divorce
- an illness or medication that triggers a change in mood
- exposure to the suicidal behaviors of others, such as friends, peers, or celebrities.

If you or a loved one feels suicidal, seek help:

- Talk with your doctor or a mental health professional. Very often, treatment eases or entirely eliminates suicidal urges. In some cases, hospitalization is necessary until a sense of equilibrium returns.
- Call the National Suicide Prevention Lifeline at 800-273-TALK (8255) or a local hotline and speak with a crisis counselor.
- Discuss your feelings with trusted family members, friends, or religious advisers who can assist you in getting help.

## Anxiety

It's one thing to feel anxious from time to time, which is a normal reaction to stress or life's pressures. It's another to be disabled by it. When anxiety becomes significant enough to become a disorder, it presents in many guises. A man who experiences a panic attack, for example, may mistake the resulting shortness of breath and palpitations as a heart attack. Someone with social phobia may find it impossible to network at business meetings.

Although there are many types of anxiety disorders, they usually share several core symptoms and features, including the following:

- irrational feelings of fear, dread, or danger
- tension and worry
- physical symptoms such as agitation, trembling, nausea, hot or cold flashes, dizziness, shortness of breath, or frequent urination.

If you have these symptoms and they are severe enough to interfere with your life, see your primary care physician. A physical exam can rule out disorders with symptoms similar to anxiety, such as an overactive thyroid, as well as the overuse of substances that can cause anxiety symptoms, especially caffeine, diet pills, or decongestants. Once a physical disorder is ruled out, the doctor or a mental health clinician will diagnose anxiety on the basis of your symptoms.

### Managing anxiety

There are three primary approaches to managing anxiety. Most people need to combine these approaches for maximum effect.

■ **Psychological therapies.** These include cognitive behavioral therapy, which aims to correct ingrained patterns of negative thoughts and behaviors that can feed anxiety and make it worse. Another option is exposure therapy, in which a therapist helps you imagine or actually confront your fears. Insight-oriented therapy helps you recognize how life events, desires, and past and current relationships affect your feelings and contribute to your anxiety.

■ **Medications.** Benzodiazapenes and antidepressants are the drugs most commonly used to treat anxiety. Often they are used in combination. During the first few weeks of treatment, people may take both a fast-acting benzodiazepine and a slower-acting drug such as an SSRI. Benzodiazepines begin working immediately and are very effective, but when used for extended periods, they can cause significant withdrawal symptoms. On the other hand, SSRIs have fewer and less severe side effects, but they may take several weeks to start working. It may take some trial and error to find the right combination of drugs. Once you do, it's likely that you will take medication for an extended period (often as long as 18 months) before trying to taper it off.

■ **Complementary therapies.** Many complementary therapies you can practice on your own may help you manage your anxiety. These include deep breathing, mindfulness medication, and relaxation therapies.

## Osteoporosis

Although sometimes portrayed as a problem that affects only women, osteoporosis—a disease that weakens bones and makes them more susceptible to fractures—also develops in men. Bone is constantly undergoing a cycle of demolition (resorption) and reconstruction, but over time the balance of activity shifts so that bone demolition outpaces new bone formation. For women, the balance shifts dramatically once they hit menopause. For men, bone loss progresses more slowly—although by the time they reach 65 or 70, men lose bone as quickly as women do. Indeed, one out of four men over age 50 will break a bone that becomes weak because of osteoporosis. Hip fractures can be particularly disabling, even deadly.

Two factors make men less vulnerable than women to bone loss: young adult men have a greater bone density, and they experience a more gradual decline in sex hormone levels compared with the fairly sudden drop in female hormones that happens during menopause. Even so, as men get older, natural declines in both testosterone and estrogen levels may cause bone loss. (Although often described as a female hormone, estrogen is also found in men—albeit in lower levels than in women.) Some men are also at greater risk for osteoporosis because they have a family history of the disease or because of their ethnic background (Asian Americans and whites are more at risk than others).

Other factors that increase your risk of osteoporosis include these:

■ **Certain medications.** One of the most common causes of medication-induced osteoporosis is the use of steroids (glucocorticoids) to treat problems such as rheumatoid arthritis, other autoimmune disorders, and some cancers. Other medications that may cause this problem include androgen deprivation therapy used to treat prostate cancer, anticonvulsants (treatments for epilepsy), thyroid hormone replacement for underactive thyroid, some drugs given to organ transplant patients, and some cancer chemotherapy drugs.

■ **Heavy drinking.** Excess alcohol consumption can weaken bones. In addition, alcohol interferes with balance, making falls more likely.



■ **Weight loss surgery.** There are multiple options for weight loss surgery; when these interfere with your absorption of nutrients, your bones may suffer.

■ **Lifestyle factors.** Physical inactivity and smoking can both increase risk of osteoporosis.

Osteoporosis used to be diagnosed only after a bone fracture. For many people, that diagnosis came too late to be of much use. Today, osteoporosis can be detected earlier with a bone mineral density (BMD) test. However, there is no consensus about which men to screen and when to start. Talk with your doctor about whether you should have a BMD test if you have already had a “fragility fracture” (one that is not related to severe trauma, such as falling and breaking your arm); have one or more risk factors for osteoporosis; or take medications that increase your risk.

## Preventing and treating osteoporosis

No matter what your age, it is possible to protect your bones. The best approach involves a combination of lifestyle changes, supplements, and medication if necessary.

■ **Lifestyle choices.** Many of the tips offered in the previous section of this report will help protect your bones against further erosion. If you smoke, stop (see “[Kick the smoking habit to the curb](#),” page 18). If you’re drinking more than a moderate amount of alcohol, it’s time to cut back (see “[Alcohol in moderation](#),” page 26). You can also help your bones by doing more exercise—especially weight-bearing aerobic exercise and muscle strengthening exercises (see “[Become physically active](#),” page 19). That’s because placing pressure on your bones helps stimulate bone formation.

■ **Calcium and vitamin D.** Calcium and vitamin D work together to keep bones strong. Bones are made up mainly of calcium, and your body needs vitamin D to absorb and use this mineral. As you age, you need more of these supplements to keep your bones healthy. These are the Institute of Medicine’s recommendations for adults:

- calcium: 1,000 mg per day until age 50 and 1,200 mg per day afterward
- vitamin D: 600 IU per day until age 70 and 800 IU per day afterward.

Some experts recommend that people get even higher amounts of these nutrients, so work with your doctor to determine your own goals. Vitamin D3, or cholecalciferol, is the form most easily absorbed and used by the body, so choose a multivitamin with D3 if possible.

■ **Medications.** A class of medications known as bisphosphonates are the only prescription drugs available to treat osteoporosis in men. Bisphosphonates reduce hip, wrist, and spine fractures and cause few side effects when taken properly. This class includes two types of pills, alendronate (Fosamax) and risedronate (Actonel), and the intravenous drug zoledronic acid (Reclast). Another option is a synthetic version of parathyroid hormone—teriparatide (Forteo)—which is injected. Although other osteoporosis medications exist, they are approved only for use in women.

## Hearing impairments

Hearing loss usually comes on so gradually, over so many years, that it can be hard to realize that you don’t hear as well as you used to. Moreover, the term “hearing loss” is misleading. It implies trouble hearing all sounds, when in fact most people start off having trouble hearing just high-frequency sounds. Initial signs of trouble may include difficulty hearing over the phone or when there’s a lot of background noise. As years pass, you may find yourself increasingly asking others to repeat themselves.

Hearing loss becomes more frequent with age. About one-third of Americans ages 65 to 74 have hearing loss, while almost half of those 75 and older do. Men are about five times more likely to develop hearing loss than women. Problems with hearing can develop for many reasons, including your family history, noise exposure, infections, and chronic diseases such as diabetes, heart disease, and chronic kidney disease.

Diagnosis is usually a multistep process that can involve several health practitioners. If you notice you are having problems with your hearing, talk with your doctor to see if further evaluation is necessary. Your physician may refer you a specialist. Otolaryn-

gologists focus on problems of the ears as well as the nose and throat and are therefore commonly called “ear, nose, and throat doctors.” Otologists specialize exclusively in ear problems. Your doctor or one of these specialists may refer you to an audiologist, someone who specializes in testing for hearing loss and fitting hearing aids.

### Managing hearing loss

Depending on your test results and your medical history, your doctor or audiologist may recommend any of several solutions. If you’ve got a middle ear infection, you may need antibiotics. If your hearing loss is a side effect of a medication, switching to another drug may help. If your hearing loss is severe to profound, you may need a device surgically implanted in your ear to help you hear better. Still, for the majority of adults whose hearing loss is age-related or otherwise permanent, the only way to improve hearing is with hearing aids.

There are many types of hearing aids available now. They are smaller than in the past, with some so small that other people don’t notice them. They also are better than they used to be at tuning in on the sounds you need to hear and filtering out the noise.

One of the most confusing things about deciding which hearing aid to buy is distinguishing the terms that describe style (in the ear, behind the ear, etc.) from terms that describe the circuitry inside (digital, programmable, etc.). It’s best to rely on your clinician’s recommendations based on your own symptoms and findings from your hearing tests. Then try a suggested hearing aid on for size and comfort. Keep in mind that it may take a while to get used to the hearing aid, and sound will not be the same as that filtered by a healthy ear. Cost may also be a consideration, as hearing aids can cost anywhere from a few hundred dollars to a few thousand. Most of this cost comes out of the patient’s pocket because Medicare and most other insurance plans don’t cover hearing aids.

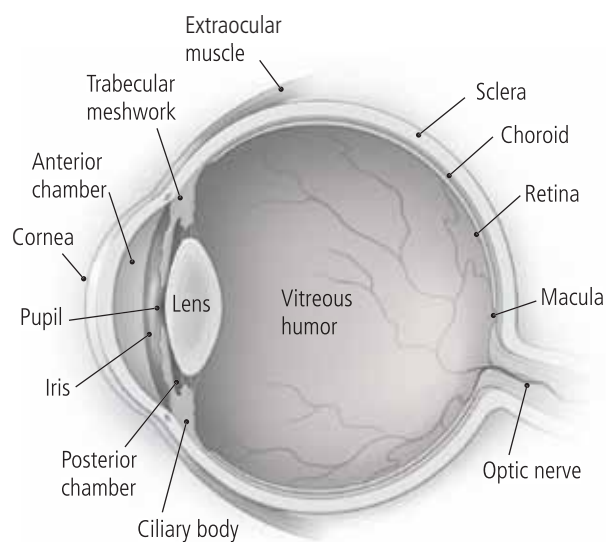
If all of this sounds daunting, take heart. Hearing aid technology has improved dramatically in the past decade. With time and patience, you may be able to find an aid that helps you to hear better.

## Age-related macular degeneration

Age-related macular degeneration (AMD) is a leading cause of vision loss in those ages 60 and older. As the name implies, it is a disorder that affects the macula, a tiny part of the retina that is responsible for sharp, central vision (see Figure 10, below). There are often no warning symptoms in the earliest stages. As the disease progresses, some people begin to notice blurring in the center of their vision. At the advanced stage, the blurred area increases, making it hard to read, write, or even recognize people. Eventually those with AMD may develop a blind spot in the middle of their field of vision that increases in size as the disease worsens.

About eight million Americans have early or intermediate AMD, and more than two million people ages 50 and older have an advanced form that is characterized by severe vision problems. About 40% of those who develop AMD are men.

**Figure 10: The inside story**



Rays of light pass through the cornea, the anterior chamber, and then through the lens, which focuses images. The lens is nourished by the aqueous humor, a clear, watery solution that circulates from the posterior chamber into the anterior chamber and helps maintain normal pressure. Light reaches the retina after it passes from the lens through the vitreous humor, a clear gel that fills most of the eyeball. The retina has light-sensitive cells that capture images, which are then sent to the brain via the optic nerve. At the retina’s center is the macula, a small region that provides sharp, central vision.

AMD becomes much more common with age. Other significant risk factors include race (white men are more likely to develop AMD than black men) and smoking cigarettes or tobacco (which doubles the chances of developing AMD).

A comprehensive dilated eye examination is necessary to diagnose AMD. The exam typically includes a visual acuity test (to assess how well you see at a distance). An Amsler grid test can detect the distorted vision typical of AMD. (During this test, you focus your eyes on a central dot on a grid that resembles graph paper. If the lines near the dot appear wavy or are missing, AMD may be to blame.) Other tests may be necessary to identify the type of AMD you have and how severe it is.

■ **Dry AMD.** About nine in 10 people with AMD have the dry type. This form of AMD begins with a breakdown or thinning of retinal tissue. As it advances, AMD causes destruction of light-sensitive (photoreceptor) cells in the macular area of the retina. Dry AMD may affect only one eye at first, causing gradual distortion of the visual field and blurring of the central sight. It is likely that the second eye is also involved, but with no symptoms. However, the second eye may worsen and show symptoms over time. Some cases of dry AMD progress to the more serious wet form of the disease.

■ **Wet AMD.** All people with wet AMD start out with the dry form. Wet AMD progresses rapidly, and vision loss can occur suddenly. Wet AMD results when abnormal blood vessels develop in the layer of cells beneath the retina and extend under and into the retina, toward the macula. These new vessels are prone to leaking fluid and blood, which injure tissue and photoreceptor cells. The outcome is scarring and marked loss of vision, usually in the center of the macula.

## Treating AMD

Treatment options depend on the type of AMD you have.

■ **Dry AMD.** The federally funded Age-Related Eye Disease Study found that it was possible to slow progression of dry AMD and preserve vision for as long as possible by taking high doses of antioxidants com-

bined with zinc and copper. The study tested daily supplements containing 500 mg of vitamin C, 400 IU of vitamin E, 15 mg of beta carotene, 80 mg of zinc, and 2 mg of copper. Although such high-dose formulations are now available over the counter, talk with your doctor about whether this regimen is right for you. The supplements are best combined with a well-balanced diet that includes leafy green vegetables and several servings of fish per week.

Because dry AMD progresses very slowly, people usually manage quite well in their daily routines even with some central vision loss. If the condition worsens, special low-vision aids—such as magnifying lenses or closed-circuit televisions that “read” regular print and then enlarge it on a monitor—can help maintain quality of life.

■ **Wet AMD.** What spurs the growth of new blood vessels in wet AMD is a natural molecule called endothelial growth factor (VEGF). In recent years, drugs have been discovered that block the effects of VEGF. These anti-VEGF drugs are injected into your eyeball with a very fine needle. Although this may sound scary, the eye is numbed first, and people say it feels like touching their eyes to find a lost contact lens. You will need anti-VEGF injections at regular intervals for anywhere from several months to several years. Three anti-VEGF drugs are FDA-approved for treating wet AMD. Doctors rarely prescribe the oldest one, pegaptanib (Macugen) because the newer drugs—ranibizumab (Lucentis) and aflibercept (Eylea)—are far more effective. A fourth drug, bevacizumab (Avastin), is FDA-approved only for treating several types of cancer but has long been used “off-label” to treat AMD, after short-term studies demonstrated its effectiveness.

Less often, laser surgery is used to treat wet AMD. In general, lasers are used only in situations where the leaking blood vessels are relatively small and located far from the central portion of the macula, or when someone cannot have intraocular injections because of an eye infection or advanced glaucoma. Another treatment that may help certain people with severe, end-stage AMD is a device called the implantable miniature telescope. The implant reduces the “blind spot” that results from severe AMD. To be considered

for the implant, you must be at least 75 years old, have end-stage AMD, and be legally blind.

## Cataracts

A cataract is a clouding of the normally clear lens in the eye. Early symptoms include blurred vision, trouble with glare, and difficulty reading even with your glasses. Eventually the opacity can become severe enough to cause a disabling loss of vision, either by distorting light rays or keeping them from reaching the retina at all. About half of all people ages 65 to 74 have cataracts; after age 75, about 70% do. Over all, more than 22 million Americans have cataracts. About 40% of those affected are men.

Cataracts become more common with age. Other risk factors include family history, eye injuries, use of certain medications (particularly corticosteroids such as prednisone), and diabetes. Several studies have linked cataracts with alcohol consumption and smoking. But even if you have smoked for many years, quitting now will help lower the chances of cataracts forming in the future. Long-term sun exposure is yet another factor; wearing sunglasses can help protect eyesight and minimize cataract formation.

A comprehensive dilated eye exam is used to diagnose cataracts. The doctor will painlessly examine the interior of your eyes with a slit lamp, to assess just how extensive the cloudy patches are. Additional examinations and tests help rule out other eye disorders.

When cataracts first develop, you may be able to take simple steps to help you see. These include making sure you have enough light to see while you work, or reducing glare by positioning a light directly behind you so that it shines on your work. Go for an eye exam and get new prescription lenses if you need them. This may delay the need for surgery for years and perhaps allow you to avoid it entirely.

### Cataract surgery

Removal of the clouded lens is the only effective cure for cataract. Cataract surgery is the most common type of eye operation performed in the United States, with nearly 3.1 million Americans undergoing the procedure each year. Once an inpatient

operation requiring up to a week of hospitalization, today cataract surgery is performed under local anesthesia on an outpatient basis and is considered one of the safest of all surgeries. Some ophthalmologists concentrate largely or exclusively on performing cataract surgery. As with most types of surgery, the surgeons who have the most experience usually have the best results.

Local anesthesia (given directly on the eye or by injection) keeps the eye comfortable. The entire procedure usually lasts less than half an hour. Most people do not have pain of any sort during the procedure. Afterward, the surgeon may cover the eye with a bandage or shield, which may be removed later that day or the following day.

The vast majority of people have an artificial intraocular lens implanted to replace the clouded lens that is removed during surgery. More than 98% of people who undergo cataract surgery have improved vision afterward, assuming they have no other limiting eye disease, and most have an uneventful recuperation. Complications, mild or severe, are extremely rare, occurring only once in several thousand operations.

## Diabetic retinopathy

People with diabetes are at risk of developing diabetic retinopathy, which occurs when abnormal blood sugar levels damage small blood vessels in the retina. Diabetic retinopathy can cause severe vision loss and even blindness. More than four million people—about one-third of those ages 40 and older who have diabetes—suffer from this ailment. The problem is as common in men as in women.

Diabetic retinopathy occurs in two stages. First, the walls of the small blood vessels become abnormal and weaken. They leak fluid into the surrounding tissue, often leaving deposits of protein and fat called hard exudates. The vessels also develop microaneurysms—tiny bulges or balloons in their walls that tend to leak red blood cells into the retina. As diabetic retinopathy progresses, the abnormal vessels begin to close, robbing the retina of its blood supply. Nerve fibers die off because of poor circulation and lack of oxygen, creating white cottony patches known as soft exudates.

In the early stages of diabetic retinopathy, there may be no symptoms. But as the problem becomes more severe, fluid may leak into the macula (the part of your retina central to vision; see Figure 10, page 40), causing macular edema or swelling. This can cause a noticeable decline in central vision, especially as the swelling increases. As diabetic retinopathy progresses to its later stage, you might notice spots that are really specks of blood floating in your vision. Although sometimes the specks will clear without treatment, see an eye care professional immediately if you notice specks obscuring your vision. Otherwise, bleeding may become more severe, and vision loss and blindness can occur.

A comprehensive dilated eye exam, enabling the eye care professional to see your retina, can detect diabetic retinopathy in the earliest stages. Prompt treatment can help prevent severe vision loss and blindness.

### **Treating diabetic retinopathy**

There is no cure for diabetic retinopathy. But you can take steps to prevent vision loss—or at least to slow its progression. Treatments include laser therapies, anti-VEGF drugs, and steroids. The choice depends on the type and extent of your disorder.

■ **Laser treatments.** During a laser procedure, your doctor identifies individual blood vessels and seals them off with the laser. This slows leakage and decreases fluid around the retina. Local anesthetics prevent any discomfort during the procedure, which typically involves 20 to 50 laser burns per eye. If macular edema affects both eyes, a second session—usually a week or so later—will be needed for the other eye.

■ **Anti-VEGF drugs.** These drugs, used either alone or in combination with laser therapy, are the best way to prevent vision loss in more advanced diabetic retinopathy. Just as in wet AMD, anti-VEGF drugs block a chemical signal that stimulates blood vessel growth.

■ **Corticosteroid injections.** These may be necessary for advanced diabetic retinopathy. Steroids can reduce retinal swelling and often improve vision, at least for a while. The benefits may disappear after one to two years, however, and there are long-term risks of steroid use, such as an increased risk of developing cataract or glaucoma. But research continues on ways to increase the duration of effectiveness and minimize side effects. ♥

# Managing problems unique to men

Most of the topics covered in this Special Health Report affect women as well as men—although sometimes in different ways or in different proportions. But some of the most bothersome health problems that start occurring in middle age are unique to men because they originate in a man's genitourinary system.

The urinary and sexual organs are located close together and share nerves and blood vessels—which helps explain why a problem in one may affect the other. If you were to look at a cross-section of a man's pelvis, you'd see the bladder located just above the prostate (a small gland that produces semen, the fluid that transports sperm). The prostate wraps around the upper part of the urethra, the tube that carries urine from the bladder out of the body (see Figure 11, at right). Nearby are the fine mesh of nerves and blood vessels that supply the penis and enable erections. The intertwined tissues help explain why certain prostate problems (and treatment of those problems) can affect urination and sexual function.

## Benign prostatic hyperplasia

As a man ages, his prostate grows larger. This natural enlargement is called benign prostatic hyperplasia (BPH). Most men experience some degree of BPH, which causes problems with urination.

Although 50% to 60% of men with BPH never develop any symptoms, others find that BPH can make life miserable. Symptoms of BPH include leaking and dribbling urine; a weak or hesitant stream; and more frequent need to urinate, especially at night.

As the prostate enlarges, it starts to press against the urethra and the bladder, like a foot stepping on a garden hose or fingers pinching a soda straw. This gradually obstructs the flow of urine, forcing the bladder to work harder to push urine through the urethra. But straining to urinate, although unavoidable, only makes matters worse. Like any muscle, the blad-

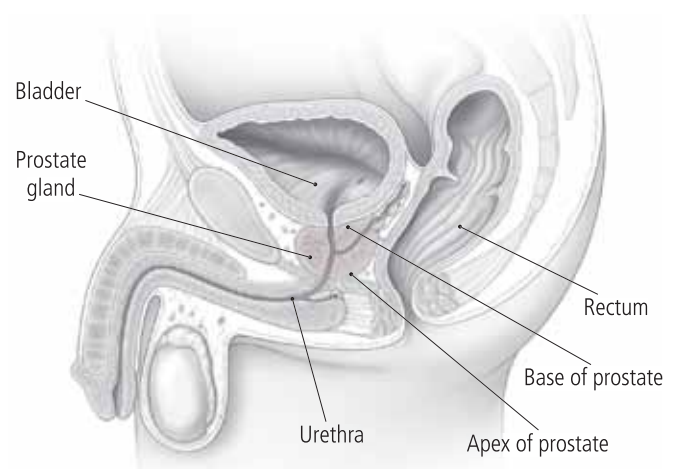
der wall becomes thicker with work. This reduces the amount of urine the bladder can hold and causes it to contract even when it contains only small amounts of urine, causing more frequent urination. Eventually, the bladder becomes so thick that it loses its elasticity and can no longer empty itself.

If you experience the symptoms of BPH, see your doctor. During an initial evaluation, the doctor will take a medical history. Expect questions about your urinary flow problems, how long the symptoms have been present, and any prior genitourinary surgery or procedures. Most likely, the doctor will also ask about your health habits and any medications that may have made the symptoms worse. You may also complete a questionnaire about your symptoms.

## Treating BPH

When symptoms are not particularly bothersome, you and your doctor may choose to do nothing other than watchful waiting, which involves regular monitoring to make sure you aren't developing any complications,

**Figure 11: Close quarters**



The male genitourinary system is tightly packed. The bladder is located just above the prostate, which is in front of the rectum. The prostate wraps around the upper part of the urethra.

but no treatment. For more troubling symptoms, most doctors begin by recommending a combination of lifestyle changes and medication. If these don't work, you can try surgery.

■ **Lifestyle changes.** Avoid drinking fluids in the evening, particularly caffeinated and alcoholic beverages. Both can affect the muscle tone of the bladder, and both stimulate the kidneys to produce urine, leading to nighttime urination. Talk with your doctor about all prescription and over-the-counter medications you take; some, such as antihistamines and decongestants, may affect urination. Your doctor may be able to adjust dosages or change your schedule for taking these drugs, or he or she may prescribe different medications that cause fewer urinary problems. When you go to the bathroom, take the time to empty your bladder completely. This will reduce the need for subsequent trips to the toilet.

■ **Medications.** The FDA has approved three types of drugs to treat BPH. Alpha blockers deal with the “going” problem—a weak or hesitant stream—by relaxing certain muscles in the prostate and urinary tract. These drugs tend to act quickly. This group of drugs includes doxazosin (Cardura), terazosin (Hytrin), alfuzosin (Uroxatral), silodosin (Rapaflo), and tamsulosin (Flomax).

- **The 5-alpha-reductase inhibitors deal with the “growing” problem**—the way an enlarging prostate puts pressure on the bladder and narrows the urethra—by reducing the size of the prostate. The 5-alpha-reductase inhibitors are dutasteride (Avodart) and finasteride (Proscar). These drugs act slowly, taking a few months to have an effect. Indeed, you may not see the maximum benefit until you've been taking the medication for six months to a year.
- **In general, alpha blockers are better at relieving urinary symptoms** such as difficult or frequent urination. But 5-alpha-reductase inhibitors have a stronger track record for reducing the chance that you'll need surgery or will experience complications, such as acute urinary retention, that occur when the prostate gland is large. With this in mind, some doctors prescribe both kinds of drugs for men with large prostates.
- **One PDE5 inhibitor, tadalafil (Cialis), normally used for erectile dysfunction,** is also FDA-approved for

use in treating BPH or the combination of erectile dysfunction and BPH. When used to treat BPH, the medication is taken at a 5-mg dose once daily—lower than the dose used for erectile dysfunction. (For more about this drug and others in its class, see “PDE5 inhibitors,” page 47.)

■ **Surgical options.** A surgical procedure called transurethral resection of the prostate (TURP) is considered the gold standard of treatment for BPH, but other options also exist.

- **TURP.** This procedure, often inelegantly referred to as the “roto-roter” technique, is an incision-free surgical procedure that cuts away excess prostate tissue with an electrical loop. TURP remains the most common form of prostate surgery and is usually more successful than medication. It relieves urinary obstruction in at least 85% to 90% of men, and the improvement is usually long-lasting. However, urinary problems can recur if the prostate tissue grows back. Not surprisingly, the younger you are, the more likely it is that you'll eventually need another treatment.

The hour-long procedure takes place in an operating room under general or spinal anesthesia. During the procedure, the surgeon uses an instrument called a resectoscope to view the prostate (see Figure 12, page 46). The surgeon threads the resectoscope through the penis to the prostate, then uses an electrical loop to cut away the overgrown tissue that's pressing against the urethra.

You may spend one to two days recovering in the hospital. While recovering, you urinate through a thin tube, or catheter, inserted into the bladder through the penis. Once home, you may have to restrict heavy physical activity for two weeks or more to prevent bleeding.

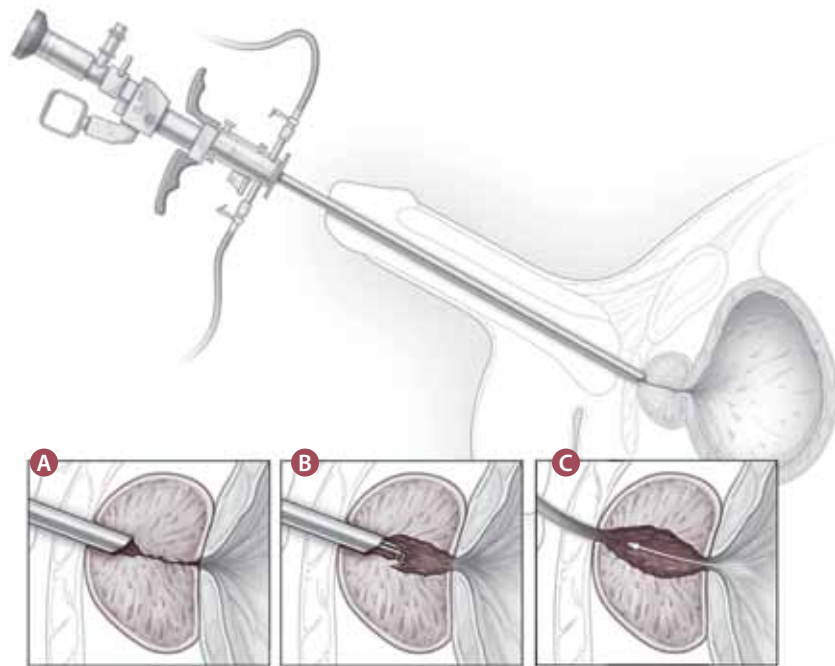
Most men who've had TURP experience retrograde ejaculation during sexual activity—that is, the semen does not come out of the penis, but instead flows backward into the bladder. This occurs because the surgery destroys the valve that would ordinarily prevent this from happening. The semen is later flushed out with the urine. While not harmful to your health, retrograde ejaculation does make it more difficult to father children, a factor that you must weigh

## Figure 12: Transurethral resection of the prostate (TURP)

During transurethral resection of the prostate (TURP), the surgeon inserts a thin tube called a resectoscope into the urethra and threads it up into the enlarged prostate (A).

The resectoscope contains a tiny camera allowing the surgeon to view the gland throughout the operation, as well as an electrical loop. The surgeon uses the loop to chip away at overgrown prostate tissue blocking the urethra (B).

After the procedure, the enlarged passageway allows urine to flow more easily (C).



when considering TURP if you have not yet completed your family. The more worrisome complications of TURP occur in about 5% to 10% of patients. These include blood loss, erectile dysfunction, urinary incontinence, infections, and complications related to the anesthesia.

- **Variations of TURP.** Several other procedures are similar to TURP but use slightly different methods of removing excess prostate tissue. Transurethral electrovaporization of the prostate (TUEVP or TVP), for example, uses a resectoscope that has a roller-ball electrode at the end. Electrical energy quickly heats, vaporizes, and cauterizes prostate tissue, minimizing bleeding. A catheter is then inserted into the bladder. Transurethral incision of the prostate (TUIP) also involves inserting an instrument into the prostate via the penis. But rather than cutting away excess tissue, the surgeon makes one or more deep lengthwise incisions in the prostate at the site of the urethral constriction. This opens the urethral passage, relieving pressure on the urethra and improving urine flow.
- **Laser procedures.** To perform a laser procedure, the surgeon begins by guiding a fiber through the ure-

thra to the prostate. This fiber conducts the laser light to the target area. Then the surgeon uses the laser to burn away tissue that obstructs the urine flow. Dead tissue that's not immediately vaporized is later expelled in the urine. This technique destroys prostate tissue with less bleeding than standard TURP. However, because tissue is vaporized, a pathologist cannot check it for cancer, as may be done with TURP.

There is no proof yet that laser procedures are any better than TURP in the long term. Research suggests that patients who have laser procedures are just as likely to experience urinary incontinence and retrograde ejaculation as are those who undergo TURP. And men who undergo laser procedures may be more likely to need additional treatment for BPH symptoms than those who undergo TURP.

■ **Other options.** Transurethral microwave thermotherapy (TUMT) uses heat to destroy prostate tissue. Transurethral needle ablation (TUNA) uses low-level radio waves delivered through twin needles to heat and kill obstructing prostate cells. A prostatic urethral stent is a small, springlike mesh cylinder inserted into the penis and positioned in the narrowed area of



the urethra. The stent is then expanded to widen the channel, relieving pressure from the prostate tissue and allowing for easier urination.

## Erectile dysfunction

Erections depend on a complex interaction between nerves, chemical messengers like nitric oxide, and sufficient blood supply to the penis. As a man ages, and especially if he has heart disease or another problem that damages his blood vessels, he is more likely to have problems having a firm erection. Erectile dysfunction may also develop as a consequence of medications he is taking or as a result of surgery or radiation for prostate cancer. Fortunately, there are treatments that can alleviate erectile dysfunction.

To diagnose erectile dysfunction, your doctor will ask about your symptoms and do a physical exam. You will likely also fill out a questionnaire about your erectile function and answer questions about your sexual history, medical conditions, and any medications that you take. Next, your doctor may run tests to better understand what's happening physiologically.

### Treating erectile dysfunction

Medications are usually used first to treat erectile dysfunction. If these don't work, there are other options.

■ **PDE5 inhibitors.** Sildenafil (Viagra), vardenafil (Levitra), tadalafil (Cialis), and the recently approved avanafil (Stendra) belong to a class of drugs called PDE5 inhibitors. The drugs enable erections by blocking an enzyme that interferes with erection-producing chemicals. They also help increase blood flow to the penis.

All four drugs have similar effectiveness, helping 60% to 70% of men who take them. (Success rates for men with diabetes, which can damage blood vessels, may be lower.) But the drugs have differences. Tadalafil lasts about 36 hours, for example, whereas sildenafil and vardenafil last about eight hours, and avanafil lasts about six hours. Avanafil is the fastest acting, taking effect in about 15 to 30 minutes, whereas the others take 30 to 60 minutes.

Despite some impressive results, PDE5 inhibitors have their limitations. They're expensive, and some health insurance plans don't cover them or cover just a few pills per month. They shouldn't be taken more than once a

day, and you should not take these drugs if you are taking nitrates. Men who take certain alpha blockers that tend to lower blood pressure also need to exercise caution.

■ **Injections.** For men whose erectile dysfunction is related to nerve damage after a radical prostatectomy, injecting one or more prescription drugs into the penis is more effective than taking PDE5 inhibitors. There are several such drugs, all of which work by relaxing the smooth muscle tissue of the penis, permitting adequate blood flow for an erection. The only injectable drug specifically approved for erectile dysfunction is alprostadil (Caverject, Edex). Alprostadil (also known as prostaglandin E1) is a potent vasodilator; that means it widens arteries, allowing them to carry more blood. An erection usually occurs within five to 20 minutes of an injection and lasts 30 to 60 minutes. The main side effects are mild to moderate pain, bruising, or scarring.

■ **Drug pellets (suppositories).** As an alternative to injection, alprostadil is also available as tiny pellets that can be inserted into the penis shortly before intercourse. These pellets are part of a therapy called the medicated urethral system for erection (MUSE). This therapy involves inserting a pellet about an inch into the penis, using a disposable plastic applicator. From there, the surrounding tissue quickly absorbs the drug. Some men find MUSE easier to use than injections, but about 10% of men who try it find the application mildly painful, and about 3% become dizzy and develop low blood pressure. Men should not use MUSE more than twice in 24 hours.

■ **Other options.** If these initial strategies don't work, other options include vacuum pumps, which use an airtight cylinder to create a vacuum that induces an erection, and penile implants, surgically implanted devices that produce an erection.

## Chronic prostatitis

Depending on how you define the term, prostatitis affects 9% to 16% of men at some point in their lives. The term prostatitis, which means inflammation of the prostate, refers to a group of syndromes characterized by urinary problems such as burning or painful urination, urgency, and trouble voiding; difficult or painful ejaculation; and

pain in the perineum or lower back. Although it causes some of the same symptoms as BPH and can occur at the same time, prostatitis is a separate condition.

Some types of prostatitis are caused by bacterial infection. These cases are often accompanied by the classic symptoms of infection, such as fever, chills, and muscle pain, as well as by urinary problems. As a result, they are relatively easy to diagnose and treat, and they usually respond well to antibiotics. However, bacteria are responsible for only about 5% to 10% of prostatitis cases.

Most men who have prostatitis have the type known as chronic prostatitis/chronic pelvic pain syndrome. It is not clear what causes this form of prostatitis. Research suggests that chronic prostatitis may result from a cascade of interconnected events. The initiating event may be stress, an undetectable infectious agent, or a physical trauma that causes inflammation or nerve damage in the genitourinary area. Over time, this may lead to heightened sensitivity of the nervous system. If this theory is true, then chronic prostatitis is an overactive pain syndrome. What's more, some physicians and researchers are beginning to think that the condition may affect the entire pelvic floor—all of the muscles involved with bowel, bladder, and sexual function—not just the prostate gland.

No single test or diagnostic procedure can confirm a case of chronic prostatitis. If you experience urinary discomfort, like painful or burning urination or pain in the pelvic area, your doctor will start to look for signs of inflammation and infection by performing a digital rectal exam, or DRE. The DRE is usually followed by a simple urine test to check for bacteria and white blood cells, which indicate an infection. If both bacteria and white blood cells are found, your condition is probably bacterial prostatitis. If only white blood cells are discovered, which is usually the case, you may have chronic prostatitis.

### Treating chronic prostatitis

If you have chronic prostatitis, treatment is highly individual and will depend on the type of symptoms that you have. Fortunately, there are many options, and with some trial and error, you may find what works for you.

■ **Antibiotics.** The traditional view has been that unless there is evidence of bacterial infection, antibiotics are unlikely to be effective at treating chronic prostatitis. However, antibiotics sometimes work on their own in men whose prostatitis had been preceded by a urinary tract infection—presumably because undetectable bacteria might still be circulating in their blood. Taking antibiotics along with alpha blockers might reduce other symptoms of prostatitis, such as pain, inflammation, and voiding difficulties—possibly because some antibiotics also have anti-inflammatory and pain-relieving effects. But if a first course of antibiotics does not improve symptoms, then a second one is unlikely to work, so it's wise to explore other options.

■ **Pain relievers.** Hot baths or over-the-counter pain relievers can help when chronic prostatitis causes muscle tenderness or spasms. For some men, the best choice is a pain medication that also reduces inflammation, such as aspirin, ibuprofen, or another NSAID.

■ **Anticholinergic drugs.** These medications, which include tolterodine (Detrol) and oxybutynin (Ditropan), reduce the urge to urinate by decreasing bladder contractions.

■ **Alpha blockers.** These drugs relax the muscles at the neck of the bladder, easing the flow of urine. These drugs are most likely to work when the main symptom of chronic prostatitis is difficulty urinating. Choice of what alpha blocker to use may depend on side effects. Nonselective alpha blockers such as doxazosin (Cardura) and terazosin (Hytrin) must be used with care, because they can excessively lower blood pressure. Selective alpha blockers such as alfuzosin (Uroxatral) or tamsulosin (Flomax) do not lower blood pressure.

■ **Complementary therapies.** Small studies suggest that some men with chronic prostatitis may find relief from complementary therapies such as myofascial trigger point release (a form of massage) and biofeedback (a technique that helps patients become more aware of their body's signals). Although the evidence is skimpy, many patients report that the therapies are beneficial, so they might be worth trying if all else fails. One challenge, however, might

be finding an experienced and qualified provider in your area.

## Low testosterone

Testosterone is the hormone that gives men their “manly” qualities, such as a deep voice, large muscles, and facial and body hair. It stimulates the growth of genitals at puberty, plays a role in sperm production, fuels libido, and contributes to erections. It also fosters the production of red blood cells, boosts mood, helps keeps bones strong, and aids thinking ability (cognition).

Over time, however, the testicular “machinery” that makes testosterone gradually becomes less effective, and testosterone levels start to fall by about 1% to 2% a year beginning in the 40s. As men get into their 50s and beyond, they may start to have signs and symptoms of low testosterone, such as lower sex drive and sense of vitality, erectile dysfunction, decreased energy, reduced muscle mass and bone density, and anemia. Although sometimes this is referred to as “male menopause,” the medical term is hypogonadism. (“Hypo” means low functioning and “gonadism” refers to the testicles.)

Of course, it’s not simply a question of age. A man’s health also affects his testosterone levels. Obesity, diabetes, thyroid problems, and certain medications (such as glucocorticoids and other steroids) can all play a role.

A diagnosis of low testosterone is made on the basis of a physical exam, symptoms, and the results of one or more blood tests to measure levels of testosterone and other male hormones. Although testosterone levels vary, the Endocrine Society defines low testosterone as less than 300 ng/dL, measured by a morning blood test. (The timing is important because testosterone, like other hormones, responds to circadian rhythms and fluctuates at different times of the day. As a result, some men with low testosterone levels in the afternoon will have normal levels in the morning.) It’s also important to repeat the blood test if it comes back abnormal, as one-third of men found to have low testosterone on the basis of one test will have normal levels on the next test.

If your doctor diagnoses low testosterone, other tests are in order before considering testosterone replacement therapy. Because low testosterone can speed bone loss, your doctor will likely recommend a bone density test to see whether you also need treatment for osteoporosis (see “Preventing and treating osteoporosis,” page 39). Prostate cancer is another concern, as testosterone can fuel its growth. The Endocrine Society recommends against testosterone supplementation in men who have prostate cancer, have a prostate nodule that can be felt during a DRE, or have an abnormal PSA level (defined as higher than 4 ng/ml for men at average risk for prostate cancer, and higher than 3 ng/ml for those at high risk). Because testosterone replacement can also worsen other conditions, it is not recommended for men with heart failure (see “Heart failure,” page 34), untreated sleep apnea (see “Obstructive sleep apnea,” page 28), or severe urinary difficulties (see “Benign prostatic hyperplasia,” page 44).

It’s also important to understand that having a low testosterone level doesn’t necessarily mean you need treatment. But if you are having symptoms that you find bothersome, by all means talk to your doctor about your options.

### Treating low testosterone

If you and your doctor think testosterone replacement therapy is right for you, there are a variety of delivery methods to consider. Periodic blood tests may be necessary afterward, to monitor what effect therapy is having on your testosterone levels. Ask your doctor which method is best for you, what side effects you can expect, and how to take steps to protect others from exposure to testosterone. (This is a particular problem for gels.)

■ **Skin patch.** A testosterone patch (Androderm) releases small amounts of the hormone into the skin. The patch is applied once every 24 hours, in the evening.

■ **Gels.** Topical gels are spread onto the skin. Examples include AndroGel and Testim (applied to the shoulders and upper arms) and Axiron (which is applied under the arm like a deodorant). These formulations are used once a day. It is important to wash your hands carefully after applying a gel—and cover

the treated area with clothing—to prevent exposing others to testosterone.

■ **Mouth tablet.** One type of testosterone supplement, Striant, is a tablet that you attach to your gum or inner cheek twice a day. Testosterone is then absorbed through the skin.

■ **Pellets.** Another formulation, Testopel, is implanted in pellet form under the skin, usually

around the hips or backside. The pellets release testosterone slowly and are replaced every three to six months.

■ **Injections.** Various formulations of testosterone may be injected every seven to 14 days. Options include Cypionate and Enanthate. A long-acting injection is also undergoing study, but is not yet approved by the FDA ♥.

## Resources

### Organizations

#### American Cancer Society

250 Williams St., NW  
Atlanta, GA 30303  
800-227-2345 (toll-free)

TTY: 866-228-4327 (toll-free)  
[www.cancer.org](http://www.cancer.org)

This nonprofit organization provides a comprehensive range of information on scores of different cancers. It also offers support for cancer patients, survivors, and caregivers online and through 3,400 local offices.

#### American Urological Association

1000 Corporate Blvd.  
Linthicum, MD 21090  
866-746-4282 (toll-free)  
[www.auanet.org](http://www.auanet.org)

A professional association for the advancement of urologic patient care, the AUA helps physicians and patients stay current on urology research and practice. It also provides a range of services, such as publications, research, meetings, and guidance on health policy.

#### National Heart, Lung, and Blood Institute

NHLBI Health Information Center  
P.O. Box 30105  
Bethesda, MD 20824  
301-592-8573

TTY: 240-629-3255  
[www.nhlbi.nih.gov](http://www.nhlbi.nih.gov)

The division of the National Institutes of Health devoted to research in cardiovascular and pulmonary disease, the NHLBI offers up-to-date information on prevention and treatment.

#### National Institute of Diabetes and Digestive and Kidney Diseases

Building 31, Room 9A06  
31 Center Drive, MSC 2560  
Bethesda, MD 20892  
301-496-3583  
[www.niddk.nih.gov](http://www.niddk.nih.gov)

This division of the National Institutes of Health supports research, training, and education in the prevention, diagnosis, and treatment of urologic disorders, including BPH and prostatitis. The NIDDK provides a wealth of materials, including online information.

#### National Institute on Aging

31 Center Drive, MSC 2292  
Bethesda, MD 20892  
800-222-2225 (toll-free)  
TTY: 800-222-4225 (toll-free)  
[www.nia.nih.gov](http://www.nia.nih.gov)

A branch of the National Institutes of Health, the NIA offers reliable, free information on a host of late-life health issues. Publications are available on the website, or you can order them by mail or telephone.

#### Prostate Cancer Foundation

1250 Fourth St.  
Santa Monica, CA 90401  
800-757-2873 (toll-free)  
[www.pcf.org](http://www.pcf.org)

This philanthropic organization funds prostate cancer research. Its website offers general information about prostate cancer, a list of resources for patients needing financial assistance, help finding a doctor or treatment center, and support for patients, families, and caregivers.

#### Prostatitis Foundation

1063 30th St., Box 8  
Smithshire, IL 61478  
888-891-4200 (toll-free)—voicemail only  
[www.prostatitis.org](http://www.prostatitis.org)

This nonprofit organization provides information about prostatitis and sponsors research into this condition.

### Related Special Health Reports

These Special Health Reports will give you more in-depth information about some of the topics addressed in this report. You can order them online at [www.health.harvard.edu](http://www.health.harvard.edu) or by calling 877-649-9457 (toll-free):

#### What to do about Erectile Dysfunction

Michael P. O'Leary, M.D., M.P.H., Medical Editor  
(Harvard Medical School, 2011)

Treatment for ED does not begin and end with Viagra, Levitra, and Cialis. In many cases, you can ease, or even reverse, ED by making simple lifestyle changes. This report offers a comprehensive review of causes, early warning signs, and treatments for ED.

**2013 Annual Report on Prostate Diseases:** Covering advances in the diagnosis and treatment of prostate cancer, benign prostatic hyperplasia, erectile dysfunction, prostatitis, and related conditions

Mark Garnick, M.D., Editor in Chief  
(Harvard Medical School, 2013)

Most men eventually develop some type of prostate problem, and when they do there are usually no easy solutions. More than a primer on prostate conditions, the 2013 Annual Report on Prostate Diseases includes roundtable discussions with experts, interviews with patients, and the latest thinking on complementary therapies. An essential guide for understanding the controversies, avoiding common pitfalls, and making informed choices.

#### Improving Memory: Understanding age-related memory loss

Kirk R. Daffner, M.D., FAAN, Medical Editor  
(Harvard Medical School, 2012)

By age 60, more than half of adults have concerns about their memory. However, minor memory lapses that occur with age are not usually signs of a serious problem. This report helps you distinguish between the two—and take important steps to protect your memory.

### **Knees and Hips: A troubleshooting guide to knee and hip pain**

Scott D. Martin, M.D., Medical Editor  
(Harvard Medical School, 2012)

Do your knees or hips hurt? Wear and tear, injury, and simple genetic predisposition can all contribute to knee or hip pain. This report covers a wide range of knee and hip conditions and describes treatments, preventive strategies, and surgeries in detail.

### **What to do about High Cholesterol**

Mason W. Freeman, M.D., Medical Editor  
(Harvard Medical School, 2012)

This report spells out healthy, and unhealthy, cholesterol levels; explains cholesterol tests, the genetics of cholesterol, and treatments based on the latest scientific evidence. It covers the pros and cons of statins and other medications, and provides the lowdown on other substances advertised to lower cholesterol.

### **Improving Sleep: A guide to a good night's rest**

Lawrence Epstein, M.D., Medical Editor  
(Harvard Medical School, 2013)

This report describes the latest in sleep research, ways to improve sleep, as well as prescription and over-the-counter medications used to treat sleep disorders. Learn about the numerous health conditions and medications that can interfere with sleep—and what you can do to get the sleep you need for optimal health, safety, and well-being.

### **Low Back Pain: Healing your aching back**

Jeffrey N. Katz, M.D., Medical Editor  
(Harvard Medical School, 2012)

Treatment of low back pain has undergone a recent sea change, with experts now appreciating the central role of exercise and the importance of maintaining a healthy back. This report helps you understand why back pain occurs and which treatments are most likely to help.

## Glossary

**antioxidants:** Synthetic or natural substances that help protect cells and tissues in the body from the damage of free radicals.

**atherosclerosis:** The buildup of fatty deposits in the walls of arteries; the disease responsible for most heart attacks and many strokes.

**biopsy:** A procedure in which small samples of tissue are removed for analysis under a microscope.

**diastolic blood pressure:** The pressure in the arteries while the heart is refilling with blood between beats; the second and lower of the two numbers in a blood pressure reading.

**digital rectal examination (DRE):** A screening test in which the physician inserts a gloved finger into the rectum to examine the prostate for abnormalities.

**erectile dysfunction:** A more specific term for impotence that refers to the inability to have and maintain an erection sufficient for intercourse.

**fasting plasma glucose test:** A blood test that determines the amount of glucose (sugar) in the blood after an overnight fast of at least eight hours.

**high-density lipoprotein (HDL):** So-called good cholesterol particles, which circulate in your blood and ferry potentially damaging cholesterol to the liver to be broken down and eliminated from the body.

**insulin resistance:** A reduced sensitivity to insulin's action.

**low-density lipoprotein (LDL):** So-called bad cholesterol particles, which circulate in your blood and can build up on blood vessel walls.

**osteoporosis:** A bone-thinning condition that can result in bone fracture.

**PDE5 inhibitors:** Drugs that block PDE, an enzyme that breaks down erection-producing chemicals. These drugs can help a man achieve and maintain an erection.

**plaque:** Deposits of cholesterol and fatty and fibrous substances in the walls of the arteries.

**prostate-specific antigen (PSA):** A protein produced by the prostate. Elevated PSA levels may indicate the presence of cancer, benign prostatic hyperplasia, or prostatitis. A PSA test measures the level of this protein in the blood.

**risk factor:** A characteristic or feature that predisposes an individual to develop a certain type of cancer or other disease; a feature whose presence may affect prognosis.

**unsaturated fats:** These healthy fats, which are liquid at room temperature, are found in olive oil, peanut oil, and canola oil as well as fatty fish, nuts and avocados.

**saturated fat:** These fats, which are solid at room temperature, are found in meat, dairy products, and certain vegetable oils, such as palm and coconut oils. Dietary guidelines recommend limiting intake of saturated fats.

**systolic blood pressure:** The pressure in the arteries when the heart is pumping; the first and higher of the two numbers in a blood pressure reading.

**trans fats:** Processed fats that are solid at room temperature and include partially hydrogenated or hydrogenated vegetable oils and shortening. Often used in commercial baked goods. Dietary guidelines recommend avoiding trans fats.

**triglycerides:** A blood fat that can raise the risk for heart disease when elevated.



# Harvard Health Publications

*Trusted advice for a healthier life*



## Receive **HEALTHbeat**, Harvard Health Publications' free email newsletter

Go to: [www.health.harvard.edu](http://www.health.harvard.edu) to subscribe to *HEALTHbeat*. This free weekly email newsletter brings you health tips, advice, and information on a wide range of topics.

You can also join in discussion with experts from Harvard Health Publications and folks like you on a variety of health topics, medical news, and views by reading the Harvard Health Blog ([www.health.harvard.edu/blog](http://www.health.harvard.edu/blog)).

### Order this report and other publications from Harvard Medical School

online | [www.health.harvard.edu](http://www.health.harvard.edu)

phone | 877-649-9457 (toll free)

mail | Belvoir Media Group  
Attn: Harvard Health Publications  
P.O. Box 5656  
Norwalk, CT 06856-5656

bulk rate | [licensing@belvoir.com](mailto:licensing@belvoir.com)

[www.health.harvard.edu](http://www.health.harvard.edu)  
877-649-9457 (toll free)

### Other publications from Harvard Medical School

**Special Health Reports** Harvard Medical School publishes in-depth reports on a wide range of health topics, including:

- |                      |                      |                       |
|----------------------|----------------------|-----------------------|
| Addiction            | Eye Disease          | Pain Relief           |
| Alcohol              | Foot Care            | Positive Psychology   |
| Allergies            | Grief & Loss         | Prostate Disease      |
| Alzheimer's Disease  | Hair Loss (women's)  | Reducing Sugar & Salt |
| Anxiety & Phobias    | Hands                | Sensitive Gut         |
| Arthritis            | Headache             | Sexuality             |
| Back Pain            | Hearing Loss         | Six-Week Eating Plan  |
| Balance              | Heart Disease        | Skin Care             |
| Caregivers           | Heart Disease & Diet | Sleep                 |
| Change Made Easy     | High Blood Pressure  | Strength Training     |
| Cholesterol          | Immune System        | Stress Management     |
| Core Workout         | Incontinence         | Stroke                |
| Depression           | Knees & Hips         | Thyroid Disease       |
| Diabetes             | Living Longer        | Virus                 |
| Diabetes & Diet      | Living Wills         | Vitamins & Minerals   |
| Energy/Fatigue       | Memory               | Weight Loss           |
| Erectile Dysfunction | Neck & Shoulder Pain | Women's Health        |
| Exercise             | Nutrition            | Workout Workbook      |
| Exercise Your Joints | Osteoporosis         |                       |

**Periodicals** Monthly Newsletters and annual publications including:

- |                                     |                                   |                                |
|-------------------------------------|-----------------------------------|--------------------------------|
| <i>Harvard Health Letter</i>        | <i>Harvard Heart Letter</i>       | <i>Prostate Disease Annual</i> |
| <i>Harvard Women's Health Watch</i> | <i>Harvard Men's Health Watch</i> |                                |