

Chapter 1

Mapping the Heart Land

In This Chapter

- ▶ Picturing your heart
 - ▶ Quantifying heart disease and tracking the stats on heart attacks
 - ▶ Setting a sensible strategy to cut your personal risk
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Hear disease is America's number one health killer; it's ahead of every type of cancer combined and every infectious and degenerative disease. Heart attack is the most common form of heart disease, and one significant risk factor for heart attack is high cholesterol or, more specifically, a high level of certain kinds of *low-density lipoproteins* (LDLs) — the “bad” fat and protein particles that ferry cholesterol into your arteries.

If you already know all this introductory stuff, feel free to skip Chapter 1 and head right into Chapter 2 where I describe cholesterol's dual nature (yes, cholesterol has two sides).

But, then again, this chapter does lay out a statistical picture of heart disease and heart attack and explain the role cholesterol plays in placing you at risk. In fact, come to think of it, this chapter is a darn good intro to *Controlling Cholesterol For Dummies*, 2nd Edition.

No surprise there!

Ladies and Gentlemen, Meet Your Heart

Your heart is a pretty spectacular organ — a four-chambered, hollow muscle right smack in the middle of your chest. The heart's job is to pump the blood that carries life-giving oxygen and other nutrients to every body tissue. To show how this works, the clever *For Dummies* artists have drawn a cross section of your heart in Figure 1-1 tracing the path of blood flowing in and out and in and out and in . . . you get the idea.

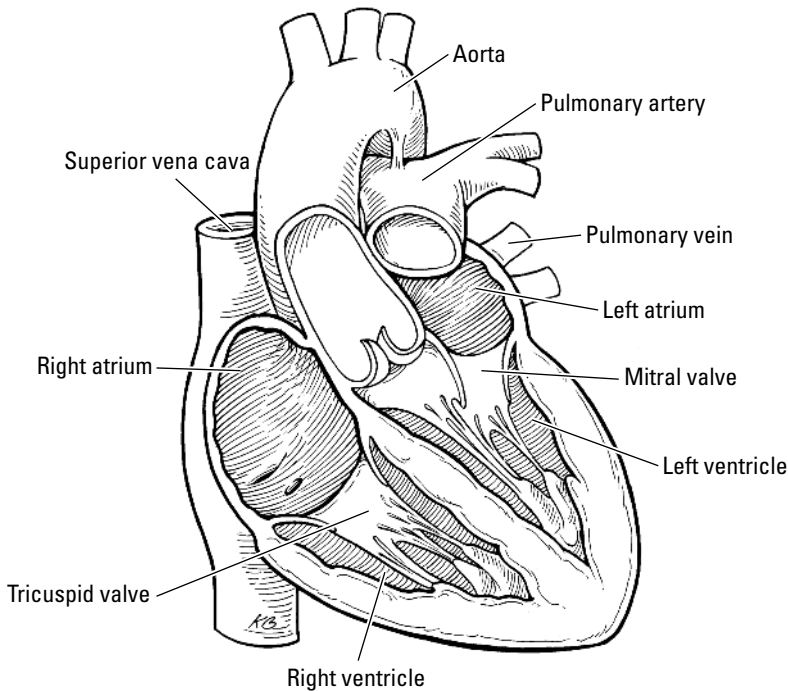


Figure 1-1:

The heart:
Looks
nothing like
what you
drew in 4th
grade,
does it?



Every second of every minute of every hour of every day, blood flows out from your heart to carry oxygen and other nutrients to every tissue and organ in your body, and then comes back to your heart to pick up more oxygen and nutrients. In other words, blood *circulates*, which is why your heart and the vessels through which blood travels are called the *circulatory system*.

The best way to explain this process is to begin at the beginning, the point at which blood flows back from your body, into your heart:

1. **The blood enters your heart from the superior *vena cava*, a large vein that opens into the *right atrium*, the first chamber of your heart.**



Yes, the *vena cava* and the right atrium are on the left side of the picture above. In this picture, you're looking at the front of the heart as it sits in the chest of the person to whom it belongs. If he were to turn around so that you were looking at him from the back, the *vena cava* and the right atrium would be in the correct position, on the right side of his body. Got it? Good. Onward.

Naming the blood vessels

Blood vessels are grouped according to the job they perform in your body, which means they're grouped in terms of whether they carry blood *to* your heart or *away* from your heart. This list explains how the groupings work:

- ✔ **Veins:** Blood vessels that carry blood toward your heart. The word *vein* comes from *vena*, the Latin word for hollow.
- ✔ **Venules:** Small veins.
- ✔ **Capillaries:** Teensy, little veins that connect arteries to veins right under the skin. When blood flows into your capillaries, the red liquid under the skin gives you a rosy glow — a blush.
- ✔ **Arteries:** Blood vessels that carry blood away from your heart. The word *artery*

comes from *arteria*, the Latin word for windpipe.

- ✔ **Arterioles:** Very small arteries.

I have no idea why the person who named the blood vessels picked a word that means hollow for veins and a word that means windpipe for arteries. If it were up to me, I would've used a word that means "bring to" for veins, and a word that means "go away from" for arteries.

In fact, the words *afferent* (from the Latin *ad* = toward and *ferro* = carry) and *efferent* (*ferro* plus the Latin *ex* = away) are used to describe, respectively, nerves that carry impulses to or away from the central nervous system. Maybe whoever named the blood vessels picked *veins* and *arteries* because *afferent* and *efferent* were already taken. Works for me.

2. From the right atrium, blood spills down through a one-way "trapdoor" called the *tricuspid valve* and into the *right ventricle*.
3. When the right ventricle contracts (squeezes together), the blood is sent out of your heart through the *pulmonary artery* and into your lungs where it picks up a plentiful supply of oxygen.
4. The newly oxygenated blood flows back into your heart through the *pulmonary vein* into the *left atrium*.
5. Then the blood spills down through a second one-way trapdoor called the *mitral valve* and into the *left ventricle*.
6. When the left ventricle contracts, blood is pushed up through the large artery called the *aorta* and out into your body.

In real life, as opposed to a drawing, the right atrium and the left atrium receive blood simultaneously from the vena cava and the pulmonary vein respectively. The right and the left atria (plural for atrium) contract simultaneously to send blood down through the tricuspid valve and the mitral valve respectively. And the right and left ventricles contract simultaneously to push blood up into the pulmonary artery and the aorta respectively. All this without missing a beat. Hey, I told you this was a spectacular organ!



Talking heart disease

The phrase *cardiovascular disease* (CVD) means “all medical conditions affecting the heart and blood vessels.” CVD includes heart attack, high blood pressure, stroke, rheumatic heart disease, congenital defects, and congestive heart failure.

Coronary artery disease (CAD) or *coronary heart disease* (CHD) means “conditions affecting the heart and its major blood vessels” — heart

attack and *angina pectoris* (chest pain due to narrowed blood vessels).

Myocardial infarction (*myo* = muscle, *cardio* = heart, *infarction* = blockage) is the formal name for a heart attack. The name pretty much describes what happens, but you can read all the truly excruciating details in Chapter 2.

Attack of the Killer Heart Disease

Heart disease is the leading killer of Americans, and heart attacks are the most common form of heart disease. But you don’t have to take my word for it. Many U.S. government agencies, including the Centers for Disease Control and Prevention and the National Center for Health Statistics, have piled up a ton of stats and translated all the numbers into dozens of charts to show exactly how lethal heart disease can be.

Heart disease versus everything else

First things first. Table 1-1 lists the ten leading causes of death in the United States for 2004. See what’s in first place? Check it out. **Note:** Stroke, a form of cardiovascular disease known medically as *cerebrovascular disease*, is counted as a separate category.

Table 1-1 Ten Leading Causes of Death in the U.S. in 2004	
<i>Condition</i>	<i>Number of Deaths</i>
Heart disease	654,092
Cancer (all kinds)	550,270
Stroke	150,147

<i>Condition</i>	<i>Number of Deaths</i>
Chronic respiratory disease	123,884
Accidents (unintentional injuries)	108,694
Diabetes	72,815
Alzheimer's disease	65,829
Influenza/pneumonia	61,472
Kidney disease	42,762
Blood poisoning	33,464

Source: Arialdi M. Minino, Melonie P. Heron, Betty L. Smith, *Deaths: Preliminary Data for 2004*, *National Vital Statistics Reports*, 54, 19, June 28, 2006.

Heart disease versus heart attack

The United States isn't alone in its battle with cardiovascular disease (CVD) and coronary heart disease (CHD) — heart attack. According to the World Health Organization (WHO), CVD and CHD are the Numero Uno nasties around the globe. Grouping the rich countries, poor countries, and countries in-between, WHO statisticians discovered one common thread: Heart disease kills more people every year than any other illness or medical condition.

Table 1-2 lays out the WHO statistics for causes of death in 2002 and the predicted figures for 2005. Some points of interest in these figures are as follows:

- ✓ Yes, as you read this, 2005 is already several years in the past, and 2002 is practically ancient history. But as every math major knows, in the statistics game, several years must pass before you can gather all the numbers you need to draw a firm conclusion. Hence the lag time.
- ✓ Yes, the percentage of the world's population that succumbs to the various forms of cancer is lower than the percentage in the United States. Why? Because in many poor countries, so many infants die at birth or expire young of preventable illnesses that there are fewer people who grow old enough to develop and eventually die of illnesses of older age, such as cancer or Alzheimer's disease.

Table 1-2 The Ten Leading Causes of Death Worldwide		
	2002	2005 (projected)
Cardiovascular disease/ Coronary heart disease	7,210,000	7,570,000
Respiratory infections	3,890,000	3,680,000
Stroke	3,807,000	5,740,000
HIV/AIDS	2,760,000	8,550,000
Chronic obstructive pulmonary disease (COPD)	2,750,000	3,010,000
Causes linked to birth	2,430,000	1,780,000
Cancer (breast, colorectal, lung & throat, stomach)	2,160,000	4,050,000
Diarrheal diseases	1,540,000	1,480,000
Malaria	1,240,000	870,000
Diabetes mellitus	220,000	240,000

Source: World Health Organization, Fact Sheet #310, March 2007.

Getting to the Point of This Book

Congratulations! By plunking down some of your hard-earned cash for a copy of *Controlling Cholesterol For Dummies*, 2nd Edition, (or borrowing it from a smart friend), you've made a commitment to, well, try to control your cholesterol before it controls you.

And, by slogging your way through a discussion of how your heart works and a slew of charts with figures proving what I bet you already knew — heart disease and heart attack send a great many folks to their ultimate reward — you've shown just how serious you are about getting a handle on those nasty cholesterol numbers. As a reward, now, by gosh, you've reached the heart of the matter: cholesterol.

Why counting cholesterol numbers counts

In the past half century, literally hundreds of well-run scientific studies, run by thousands of different researchers in dozens of different countries, have shown beyond a shadow of a doubt that having high cholesterol — specifically, high levels of LDLs, particularly the smaller ones described in Chapter 2 — is a strong warning that Mr. Heart Disease and Ms. Heart Attack are lying in wait somewhere in the future. Luckily, a similar long list of studies shows that what you eat and how you live your life to stay fit and relatively trim can help reduce your risk

How to control your cholesterol risks

What you eat and drink plays an important role in controlling your cholesterol, as I explain in Part II of this book. So does maintaining a healthful weight, engaging in a realistic exercise program, and avoiding tobacco (in all its ugly forms) — three subjects covered in Part III. And if these basic first steps don't do the job, cholesterol-lowering medications, discussed in Part IV, offer yet another option.

Each of these methods for lowering your cholesterol — diet, weight control, exercise, and medicines — has its own chapter (or two or three) in this book. As a health-conscious consumer, you get to pick and choose among them — like a gourmet at a gorgeous buffet table. A low-fat, low-cholesterol buffet table, of course. After which you can relax with the grab bag of factoids and funny stuff in Part V — the well-known *For Dummies* Part of Tens.

Go for it. Your heart will thank you.

