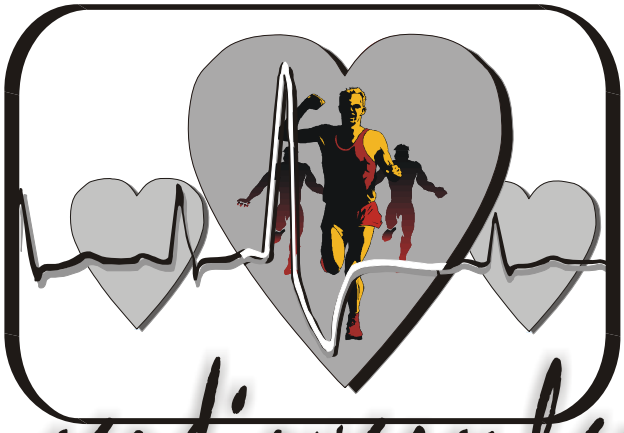


cardiovascular health

Facts:

- Heart disease is the #1 Killer in the United States.
- Since 1983, more women have died from heart disease than men.
- The majority of risk factors can be affected through lifestyle behaviors.

2004 Heart/Stroke Statistics

Coronary Heart Disease

- Each year about 1.2 million Americans have a first or recurrent coronary attack. One third of these patients die – 250,000 of them before they reach a hospital. Coronary heart disease is the nation's number one killer.
- Nearly 7 million living Americans have survived a heart attack (myocardial infarction) and more than 6 million others suffer from angina pectoris (chest pains). Some 350,000 new cases of angina occur each year.

Stroke

- Each year about 700,000 people suffer first or recurrent strokes in the United States. About 282,000 of these die, making stroke the third leading cause of death in this country.
- About 4.4 million U.S. stroke survivors are alive today, many of them with permanent stroke-related disabilities.
- Women account for more than 6 in 10 stroke fatalities.

Metabolic Syndrome

- People with the metabolic syndrome are at increased risk for developing diabetes and cardiovascular disease (CVD), as well as higher mortality from CVD and many other chronic diseases.
- Metabolic syndrome is defined as three or more of the following abnormalities:
  - Waist circumference greater than 40 inches for men and 35 inches for women.
  - Serum triglyceride level of 150 mg/dL or higher.
  - High-density lipoprotein (HDL) cholesterol level less than 40 mg/dL in men and 50 mg/dL in women.
  - Blood pressure of 130/85 mm Hg or higher.
  - Fasting glucose level of 100 mg/dL or higher.
- An estimated 50+ million Americans have the metabolic syndrome.
- The age-adjusted prevalence of the metabolic syndrome for adults is 23.7 percent.

Atherosclerosis

- "Hardening of the arteries," as the disease is sometimes called, is the primary cause of many of the 636,000 deaths that occur annually from coronary heart disease and stroke.
- About 20% of American adults (almost 38 million people) have cholesterol levels of 240 mg/dL or higher – the point at which it becomes a high risk factor associated with atherosclerosis.

High Blood Pressure

- One in 3 Americans has high blood pressure.
- Of all people with high blood pressure, 30% are unaware of it, and only 34% are receiving adequate treatment for it. More than 36% of hypertensive Americans are not receiving any type of therapy.
- About 20% of high blood pressure cases stem from unknown causes, but the condition is easily detectable and most cases can be controlled with proper treatment.
- The direct and indirect costs due to high blood pressure now exceed $100 billion each year.

Tobacco

- An estimated 25.5 million men and 21.5 million women – representing more than 43% of the adult U.S. population – put themselves at increased risk of heart attack and stroke by smoking cigarettes.

- Some 4.5 million adolescents age 12–17 are also smokers, and smoking is on the increase among American teenagers.

Physical Inactivity

- Studies continue to show that 60% or more of American adults did not achieve the recommended amount of physical activity (30 minutes or more of vigorous physical activity at least 3-4 days per week).

- As many as 250,000 deaths a year in the United States – about 12% of total deaths are attributed to a lack of physical activity.

- The relative risk of coronary heart disease associated with physical inactivity ranges from 1.5 to 2.4 – comparable to that for high blood pressure, high cholesterol, or cigarette smoking.

Overweight/Obesity

- Nearly two-thirds of adults (20+ years) in the United States are overweight or obese. Below is the breakdown by ethnicity and gender:

Men		**Women**	
Black (Non-Hispanic)	62%	Black (Non-Hispanic)	78%
White (Non-Hispanic)	70%	White (Non-Hispanic)	57%
Mexican American	74%	Mexican American	71%

- Each year an estimated 400,000 adults in the U.S. die of causes related to obesity.

- The prevalence of overweight children (ages 6-9) increased from 9% to 31% compared with data from 1963-1968.

Diabetes Mellitus

- Sixty-five to seventy-five percent of people with diabetes die of some form of heart or blood vessel disease.

For more information about heart disease and stroke or about these statistics,
contact your local American Heart Association or call 800-AHA-USA1 (800-242-8721)
or visit the AHA's website at *http://www.americanheart.org*.

Risk Reduction Check List for Heart Attack and Stroke

What You Can Do on Your Own:

☑ **Don't smoke cigarettes** – They're the world's No. 1 preventable cause of serious illness such as heart disease, stroke, lung cancer and emphysema.

☑ **Be physically active** – Regular exercise that builds endurance helps control blood pressure, reduces cholesterol levels, aids in weight control and reduces your risk of developing diabetes.

☑ **Eat healthy foods** – Foods high in total fat, saturated fat and cholesterol contribute to atherosclerosis, a primary cause of heart attack and stroke. Too much salt can cause high blood pressure in some people.

☑ **Watch your weight** – Obesity has recently been added to the American Heart Association's list of major risk factors.

☑ **Avoid excessive alcohol** – One or two drinks a day may help increase "good" HDL cholesterol, but heavy drinking can contribute to high blood pressure and heart disease.

What You Can Do With Your Doctor's Help:

☑ **Have regular checkups** – A medical exam can pinpoint major risk factors – such as smoking, excess weight and elevated cholesterol or blood pressure – and your doctor can offer help in combating them.

☑ **Control your cholesterol** – Cholesterol is a natural substance found in all living tissue, but when too much of it builds up in your arteries – either because of a high-fat diet or hereditary genetic factors – it can be dangerous. A simple blood test can show the level of cholesterol in your blood. If it's too high, dietary changes, exercise, weight loss, and/or drug therapy can bring it down to a safer level.

☑ **Keep tabs on your blood pressure** – Even if it's less than 130/85, have it checked at least every two years. If it's above 130/85, have it checked annually or according to your doctor's recommendations.

☑ **Keep diabetes in check** – If you have an inherited tendency toward diabetes, your risk of heart attack and stroke is automatically increased. But your doctor can detect diabetes or a pre-diabetic condition and prescribe a program to minimize the risk. It may include exercise and drugs as well as diet changes and weight control.

Risks You Can't Control

☒ **Heredity** – Some families have a higher-than-normal genetic risk of heart attack and stroke. Black and Hispanic Americans are more likely than whites to have high blood pressure, and they tend to have strokes earlier in life and with more severe results. If you've inherited higher risks, it's more important than ever to reduce those risks you CAN control.

☒ **Gender** – Before menopause, women have a much lower death rate from heart attack than men. Women's risk rises sharply after menopause, probably because of hormonal changes, but it still remains lower than men's in the same age group.

☒ **Age** – The risk gradually increases as people age, but this doesn't mean that younger people are immune. About one in six heart attack deaths and one in eight stroke deaths occur before age 65. Advanced age is a powerful predictor of increased risk of heart attacks or strokes.

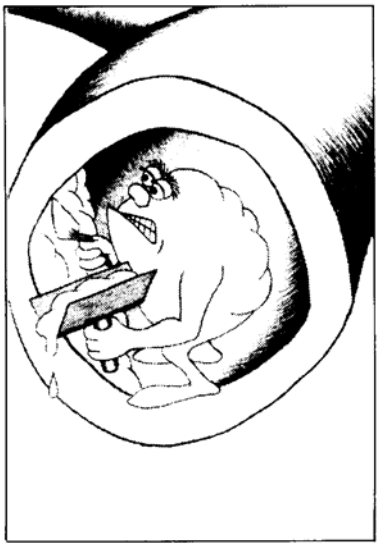
Cholesterol Consciousness

What Cholesterol Does To Your Heart

The whole issue of cholesterol can be very confusing. You may have heard that some cholesterol is good for you while other cholesterol can be harmful, but you may not know which is which. You may have been told that too much dietary cholesterol increases your risk for heart disease, but you may not know how. You can improve your cholesterol consciousness by learning about what cholesterol is, where it is found, and what it actually does to your heart.

What is Cholesterol?

Cholesterol is a **lipoprotein** - a fatty substance in the blood that is coated with protein. The body itself manufactures about 1,000 milligrams of cholesterol daily, to form hormones, cell membranes, and other body substances. Dietary cholesterol is not essential for health, and can actually be harmful. There are several different types of cholesterol, but the two most important **are LDL (low-density lipoprotein)** and **HDL (high-density lipoprotein).** LDL has a thin protein layer and tends to deposit itself on the walls of the blood vessels, while HDL has a thick protein layer and actually removes cholesterol from the bloodstream.



LDL "bad" cholesterol deposits itself on arterial walls.

HDL "good" removes cholesterol from the bloodstream.

Cholesterol and Atherosclerosis

Excess cholesterol and other fats can build up on the inner walls of blood vessels - a condition known as atherosclerosis.

These fatty build-ups can restrict, and in some cases totally block, the flow of oxygen-rich blood through the blood vessels. When atherosclerosis occurs in the blood vessels that nourish the heart (**coronary artery disease**), chest pain and heart attack can result.

Cholesterol Measurement

The only way to determine whether you have too much cholesterol in your bloodstream is to have a laboratory blood test performed. This test will measure how many milligrams of cholesterol are present in a deciliter of blood. Depending on age, total cholesterol over 200 mg./dl. is considered to be undesirably high. If your total cholesterol level is elevated, your physician may ask that further testing be done to find out the percentage of LDL to HDL. (Remember, LDL deposits itself on arterial walls, HDL removes cholesterol from the blood-stream.) Knowing all the numbers and your ratio can give you a better understanding of your overall risk.

Cholesterol Control

In most cases, a cholesterol/fat reduced diet and regular physical exercise can help lower cholesterol in the blood. Some people, however, require cholesterol-lowering drugs to keep their cholesterol within safe levels. The best advice for all of us is to reduce our intake of dietary cholesterol and fats, to exercise vigorously 3-5 times a week, and to have our cholesterol levels checked regularly.

Reproduced from Kopy Kit, Parlay International, 1989. Edited, September 2000.

How Much Cholesterol Is Too Much?

- More than 50 percent of middle aged Americans have serum cholesterol levels above 200 mg/dL, a level above which the risk of coronary heart disease begins to rise sharply. Most heart attacks occur in individuals with cholesterol levels between 210-265 mg/dL. Statisticians have determined that the risk of heart attack begins to rise when the levels of blood cholesterol exceed 150 mg/dL. When the levels of blood cholesterol top 200 mg/dL the risk climbs markedly.

- If your cholesterol levels are high, then look at your LDL cholesterol values. Levels of LDL cholesterol below 100 mg/dL are considered optimal. Values between 100 and 129 are near optimal, while values between 130 and 159 are borderline high. Those above 160 are considered high. A lack of HDL is also a risk factor. HDL should be at least above 40 and if it reaches above 60, risk is decreased. Another way to determine your risk of developing heart disease is to look at the ratio of LDL cholesterol to HDL cholesterol. The table below gives an indication of relative risks from data collected by the Framingham Heart Institute:

Gender	Risk of Developing Coronary Artery Disease	LDL/HDL	Total Cholesterol/ HDL
Men	½ average	1.00	3.40
	average	3.55	4.97
	2X average	6.25	9.55
	3X average	7.99	
Women	½ average	1.47	3.30
	average	3.22	4.44
	2X average	5.03	7.05
	3X average	6.14	

As you can see, there are two versions of the cholesterol ratio. Be sure you know which one your doctor (or lab) has used.

How Can You Lower Your Cholesterol Levels?

A diet high in saturated fat (animal fat, palm oil, coconut oil) and cholesterol has been shown to raise the level of cholesterol in the blood. You can distinguish saturated from unsaturated fat because unsaturated fat is usually liquid at room temperature and saturated (animal fat) is solid at room temperature. Reduction of cholesterol levels can be accomplished in many individuals through the reduction of cholesterol and saturated fat in the diet. Generally accepted dietary goals include:

- Reducing the total fat intake from the average of 42% of total calories to below 30%.
- Reducing saturated fat intake from the average 16% of total calories to 10% – this has been found to be one of the most significant factors.
- Adjusting mono-unsaturated and polyunsaturated fats to 10% each of the total calories.
- Decreasing cholesterol intake to less than 300 milligrams per day (foods high in cholesterol are: egg yolks, dairy products, red meats).
- Increasing carbohydrate intake from the average of 46% of total calories to 55%, with an increase of fiber and complex carbohydrates from the average 22% to 48% of the total calories.

All of these changes can be made with relatively modest alterations in your diet. These changes include increasing the amounts of fresh vegetables, fresh fruits, breads, pasta, grains, poultry and fish (some seafood is high in cholesterol, e.g., shrimp and lobster) while decreasing your intake of egg yolks, fatty meats, whole milk products, butter, and cheese.

Exercise and Cholesterol Levels

Does exercise improve blood cholesterol levels?

Exercise of an aerobic nature, such as running, brisk walking, cycling, cross-country skiing and other endurance sports, can play a positive role in your cholesterol profile. Endurance sports have been shown to raise the levels of the HDL cholesterol (good cholesterol). Studies have shown that as little as ten miles of running per week helps individuals control or lose weight, and losing weight has been shown to positively affect cholesterol levels. Training intensities must be equal to or greater than 60% of your maximal heart rate to get beneficial changes in your lipids and lipoproteins. It has become increasingly apparent that both a diet low in saturated fat and an aerobic exercise program contribute to improving blood cholesterol levels and may ultimately reduce the risk of heart disease.

Bloodwork Results
FAA Center for Management and Executive Leadership
4500 Palm Coast Parkway S.E.
Palm Coast, FL 32137-8007
386-446-7202

Name:

Date: **Result Number:** **Class:**

Facility:

Your Levels		
Cholesterol: *	**Desirable Level**	**< 200 mg/dl**
	Borderline High	**200 – 239 mg/dl**
	High Level	**≥ 240 mg/dl**
HDL:	**Coronary Heart Disease**	
	Increased Risk	**< 40 mg/dl**
	Average Risk	**40 – 59 mg/dl**
	Decreased Risk	**≥ 60 mg/dl**
LDL:	**Optimal**	**< 100 mg/dl**
	Near Optimal	**100 – 129 mg/dl**
	Borderline High	**130 – 159 mg/dl**
	High	**160 – 189 mg/dl**
	Very High	**≥ 190 mg/dl**
VLDL:	**Normal**	**≤ 30 mg/dl**
	When triglycerides are ≤ 400 mg/dl, VLDL can be calculated as triglycerides/5.	
Chol/HDL:	**Primary Goal**	**≤ 5.0**
	Optimal	**≤ 3.5**
Triglycerides:	**Normal**	**< 150 mg/dl**
	Borderline-High	**150 – 199 mg/dl**
	High	**200 – 499 mg/dl**
	Very High	**> 500 mg/dl**
Glucose:	**Expected Range**	**65 – 99 mg/dl**
	Prediabetes	**100 – 125 mg/dl**
	Diabetes	**≥ 126 mg/dl**

* *This number alone does not provide adequate information. This number, together with your HDL, helps determine if a complete lipoprotein profile is needed.*

Why You Ought to Know Your Triglyceride Level

You've had your total blood cholesterol checked and perhaps even your "good" HDL and "bad" LDL levels, but do you know your triglyceride level?

Blood levels of triglycerides are usually measured at the same time as cholesterol, but rarely do doctors discuss them with patients, largely because it is generally thought that triglycerides cannot affect heart health on their own. However, more evidence is coming to light that even high triglycerides by themselves can cause problems. Moreover, what's presently considered "normal" for triglyceride levels may actually be too high.

Both the American Heart Association and the National Heart, Lung, and Blood Institute's National Cholesterol Education Program stipulate that a triglyceride concentration that falls below 150 (milligrams per deciliter of blood) is normal. Levels between 150 and 199 are considered borderline high, while 200 and above is deemed high.

But in assessing the heart health of 460 middle-aged and older adults, researchers at the University of Maryland Medical Center in Baltimore found that those with triglyceride levels greater than 100 had twice the risk of those with lower levels of suffering a heart attack, dying from a heart attack, or requiring bypass surgery or another procedure to treat blocked arteries.

Insight into the potential dangers associated with high triglycerides comes from research at Chicago's Rush Medical Center. The findings there: the presence of triglycerides in the blood at levels of 190 or greater makes blood significantly more viscous. As a result of that viscosity, blood flow becomes sluggish, and less oxygen and nutrients are delivered to the heart muscle.

In addition to their own apparent adverse effects on the heart, high triglycerides often come coupled with low levels of beneficial HDL-cholesterol, which works to remove cholesterol from the bloodstream. Elevated triglycerides also frequently go hand-in-hand with a decrease in the size of LDL-cholesterol particles. That's significant because the smaller the LDL-cholesterol particles, the more susceptible they are to oxidative processes that turn them into "gunk" on artery walls, which in turn obstructs blood flow.

Getting Measured, Getting Treated

Triglyceride levels are much more variable than cholesterol levels. While cholesterol is carried through the blood with the help of fats, triglycerides *are* fats – the type in your body as well as the type in foods. Thus, a fat-rich meal is a triglyceride-rich meal and will cause a dramatic short-term jump in blood triglyceride levels. That's why it's important to fast for at least 12 hours before having blood drawn to measure triglyceride levels. In addition, it's generally advisable to get a second triglyceride test if the first is above the normal range, says Alice Lichtenstein, DSc, a heart disease researcher at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts.

If it does turn out that you have high triglycerides, which are common in obese people as well as in those with diabetes, there are many lifestyle steps you can take to lower them. Better still, experts have noted that triglycerides levels are even more responsive to lifestyle changes than blood cholesterol. Therefore, permanent adoption of triglyceride-lowering habits is likely to produce heart-healthy results.

- **Lose excess weight,** most preferably through a combination of cutting back on calories and increasing the level of physical activity at least three days a week.
- **Avoid alcohol,** or at least cut back to a very occasional drink. Even small amounts of alcohol can cause significant jumps in triglyceride levels.
- **Restrict intake of simple carbohydrates** such as table sugar, honey, molasses, and syrups. It is important to cut back on products made with these items – cakes, pastries, ice cream, cookies, soft drinks, candy, jams, and jellies. Carbohydrates – simple carbohydrates in particular – get converted to triglycerides in the liver. In fact, nutrition experts believe that the recent surge in consumption of fat-free but high-sugar dessert and snack items is at least partly to blame for elevated blood triglyceride levels in Americans.

People have been led to believe that if they simply cut out fat, they're doing all they can to improve heart health. But fat-free sweets often contain more sugar than their full-fat counterparts, which isn't doing anyone with high triglyceride levels any good. In fact, "they may cause high triglyceride levels in some people," Dr. Lichtenstein suggests.

Even complex carbohydrates such as those found in nutritionally dense whole-grain foods can keep triglycerides elevated in someone who is susceptible. For that reason, practitioners usually say that people trying to lower triglycerides should not go on an extremely low-fat, high-carbohydrate diet in which fat makes up, say, only 20% of calories. They should opt for a moderately low-fat plan in which fat makes up about 30% of calories, with less than 10% of calories coming from saturated fat.

- **Eat more fatty fish** such as bluefish, mackerel, salmon, and herring. The omega-3 fatty acids contained in several fatty fish meals a week may help keep triglyceride levels stable.

Adapted from: Tufts University Health & Nutrition Letter, July 1997

Blood Pressure

Blood pressure is essential to life. However, chronically elevated blood pressure increases your risk of developing life threatening diseases. Therefore, it is necessary to monitor your blood pressure regularly throughout life and to take the necessary steps to keep it in the normal range.

Classification of Blood Pressure (BP)

Category	Systolic Blood Pressure (SBP mmHg)		Diastolic Blood Pressure (DBP mmHg)
Normal	< 120	and	< 80
Prehypertension	120 – 139	or	80 – 89
Hypertension, Stage 1	140 – 159	or	90 – 99
Hypertension, Stage 2	≥ 160	or	≥ 100

Source: U.S. Department of Health and Human Services, National Institutes of Health, NIH Publication No. 03-5231, May 2003

What is Blood Pressure?

Your blood pressure reading contains two numbers. The first number, known as systolic blood pressure, represents the peak force exerted on the arteries when the heart contracts. The second number, known as diastolic blood pressure, represents the pressure within the arteries when the heart is at rest. Another way to think of diastolic pressure is as the resistance to blood flow in the arteries.

What is Normal Blood Pressure?

The upper limit for resting systolic blood pressure is 140 mmHg (millimeters mercury). The upper limit for resting diastolic blood pressure is 90 mmHg. It is normal for blood pressure to fluctuate during the day. Common factors that cause fluctuations include cigarette smoking, alcohol or caffeine consumption, exercise, and emotions such as apprehension and anger. Therefore, a single blood pressure reading may not be representative of your average resting blood pressure. If your blood pressure is above normal, it is recommended that you contact your physician for additional blood pressure readings and possible intervention strategies.

What is Hypertension?

When either the systolic or diastolic pressure reaches or goes above its upper normal limit at rest, the condition is known as hypertension. If hypertension is left untreated, the heart must work harder to overcome the increased resistance to blood flow in the arteries, and, therefore, the heart has difficulty pumping the blood. This will eventually lead to an unhealthy increase in the size of the heart and may result in congestive heart failure. Chronically elevated blood pressure has also been identified with increasing the chances of stroke, heart attack, kidney damage, arteriosclerosis (hardening of the arteries), and blindness (as a result of reduced blood flow).

The cause of hypertension is often difficult to determine. However, several common contributing factors have been identified, including heredity, age, race, obesity, smoking, dietary factors, sedentary lifestyle, alcohol consumption, and the inability to manage stress. You have the ability to modify many of these factors. However, even individuals who lead apparently healthy lifestyles sometimes have problems with hypertension.

How Can You Manage Hypertension?

The first step in controlling high blood pressure is to work with your doctor to develop a personalized approach to hypertension management. High blood pressure can often be controlled without medication through changes in lifestyle. These changes may include smoking cessation, weight reduction, participation in an aerobic exercise program, and dietary interventions concerning the amount of fat, sodium and alcohol in your diet. If necessary, your doctor may also prescribe one of a number of different medications known to reduce high blood pressure. Adherence to your management plan is essential. Hypertension usually has no symptoms. Therefore, since most people with high blood pressure feel fine, having your blood pressure read regularly is the only way to be sure that your management plan is successful.

For more information about heart disease and stroke,
contact your local American Heart Association or call 800-AHA-USA1 (800-242-8721)
or visit the AHA's website at http://www.americanheart.org.

What is Diabetes?

Diabetes is a disease that affects the way your body uses food. Normally, your body changes sugars, starches, and other foods you eat into a form of sugar called glucose. Your body uses glucose for fuel. Glucose is carried to your body's cells by the bloodstream. Insulin (a hormone made by the pancreas) helps glucose enter your cells. There, glucose is changed into energy and used, or stored, for later use.

In diabetes, something goes wrong with this process. Food is changed into glucose, but either your body doesn't make enough insulin or it can't use the insulin correctly. Because glucose is unable to enter the cells, it builds up in the bloodstream. High blood glucose levels (high blood sugar levels) are one of the main signs of undiagnosed diabetes.

The goal of treatment for all types of diabetes is to keep blood sugar at or near normal (nondiabetic) levels. It's estimated that about 6 percent of the U.S. population – 18 million Americans – has some form of diabetes. About 6 million of these people don't know they have diabetes. The tendency to develop diabetes is believed to be genetic (something a person is born with).

Insulin-dependent (type I) diabetes occurs most often in children and young adults. It usually appears suddenly and progresses quickly. The cells that make insulin (beta cells) stop working and make little or no insulin, so people with type I must take daily injections of insulin to stay alive. (Insulin cannot be given by mouth because it would be destroyed by the body's digestive juices.) Their treatment plan also includes a meal plan and regular exercise.

Who is Most Likely To Get Diabetes?

- People who are overweight
- People with a family history of diabetes
- People who are 40 or older
- Black Americans
- Hispanics
- Native Americans

The Warning Signs of Diabetes?

INSULIN-DEPENDENT (Type I)
(symptoms usually develop rapidly)

- Frequent urination (including frequent bed-wetting in children who have been toilet trained)
- Excessive thirst
- Excessive hunger
- Sudden weight loss
- Weakness and fatigue
- Irritability
- Nausea and vomiting
- Blurred vision or any change in sight
- Drowsiness

NON-INSULIN-DEPENDENT (Type II)
(symptoms usually develop gradually)

- Any of the insulin-dependent symptoms
- Tingling or numbness in legs, feet, or fingers
- Slow healing of cuts (especially on the feet)
- Frequent skin infections or itchy skin

The exact cause of type I is not known. Viral infections may cause the disease by attacking the beta cells. Or the body's own immune system – the first line of defense against infection – may attack the beta cells. Or some combination of the two may cause the disease. Type I accounts for about 5 percent of all known cases of diabetes.

Non-insulin-dependent (type II) diabetes usually occurs in adults over 40 who are overweight, but this current epidemic includes many younger people now. Its onset is usually gradual. In fact, type II may take several years to develop. About 95 percent of all people with diabetes have type II. In type II the body makes some insulin but is unable to use it effectively. This inability to properly use insulin is often called insulin resistance. Type II can often be controlled with diet and exercise, although some people also need oral medications or insulin injections.

Gestational diabetes develops in some pregnant women but usually disappears after their babies are born. About half the women who develop gestational diabetes will later develop type II diabetes.

The American Diabetes Association (ADA) is the nation's leading voluntary health organization support-ing diabetes research and education. The Association serves the entire diabetes community through the efforts of thousands of volunteers working out of affiliates and chapters in more than 800 communities across the United States. To find your local ADA affiliate, look in the white pages of your phone book.

Source: American Diabetes Association