

# IS YOUR HEART at risk?

## A frank guide to cholesterol

by **Dr. David Hepburn**

**H**AVE YOU, as a patient, ever been concerned that maybe, just maybe, your doctor is not really a doctor? Certainly many of my patients have. Next time, just before your “doctor” asks you to perform some undignified neurological test like sticking out your tongue and wiggling your ears while dancing the Macarena, test him out. Mention the word “Framingham”.

If the guy in the white coat responds with a blank stare you’d best make a run for it, he’s either a fraud or the Dickie Dee ice cream guy stopped by to sell the doctor a Rainbow Rocket. But if he recoils in fear to a distant corner of the room, adopts the fetal position and starts rocking back and forth, then rest assured you are in good hands. He’s a real doctor having medical school flashbacks. A doctor may not remember which of the kids in the waiting room are his own. He may forget the name of the thingamajiggy in the back of your throat or what vital organ he just removed from your body, but the word Framingham, heard in every second class in medical school, he’ll always remember.

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### **Framingham**

In 1948, the small town of Framingham, Massachusetts was selected to undergo the most important study in the history of medicine. Five thousand adults from this town were enrolled into the “Framingham Study”. These subjects were poked, prodded and probed over their entire lifetime in order to determine the risk factors for what was starting to become a common condition, heart disease. In 1971 another 5,000 Framinghamites, offspring of the original five thousand, were also recruited into this ongoing study. Much of what we know today about cardiovascular disease stems from this town. We’ve learned, among many other things, that the main risk factors for cardiac disease



are smoking, high blood pressure, diabetes and high cholesterol.

**Q: So, is cholesterol bad, doctor?**

A: No, cholesterol is good. In fact your body actually makes its own cholesterol, which it uses in the manufacture of cell membranes and big fat fun hormones.

Q: So are you saying that cholesterol is good then, doctor?

A: No, cholesterol is bad. Cholesterol and blood mix like mosquitoes in a nudist colony. They don't. So, the cholesterol needs some little boats called lipoproteins to ferry itself about the blood stream.

There are "Lousy" LDL boats and "Healthy" HDL boats, all carrying the cholesterol riders to their various destinations. The lousy LDL ferries are full of nasty wee fat passengers that have all gorged themselves on the Sunshine Smorgasbord Special. These boats have bumper stickers that read "I Brake For Plaques". The healthy HDL boats with little bumper stickers that read "I Break Plaques" run around and try and undo the damage done by the LDL. It is the ratio of HDL to LDL that makes a huge difference in whether or not your coronary arteries block off. By taking a blood test, we can determine if you have enough good boats to offset the bad guys. If you don't, then according to the fine folks of Framingham, you have one of the major risk factors for heart disease.

**Q: What about genes?**

A: Don't wear 'em.

Q: No, I mean can I inherit high cholesterol?

A: As a matter of fact Q, you can. If for example your mother died at age 12, your dad at age six and all your family reunions are held in the cardiac ward (and you were christened Angie O'Plasty) then you should check your LDL and HDL levels. One in every 500 people have mutations in

their LDL receptor genes that predispose them to high cholesterol.

Q: So maybe I should cut down on my cholesterol ingestion doc.

A: No, in fact it's the ingestion of saturated fats that you should cut down on in order to lower your cholesterol. That means the beef and butter (dairy) fats. Food containing predominantly unsaturated fats like fish and poultry can actually lower your bad cholesterol. The other key is to get your HDL boats way up in numbers. This is best done through exercising.

**Q: What about drugs?**

A: No thanks.

Q: Er...what I mean is... can drugs lower your LDL or raise your HDL?

A: A class of drugs called statins helps lower the LDL (and some even raise the HDL).

Q: Are statins the only drug available?

A: No, other drugs like bile acid sequestrants and fibrates can also be taken.

Q: Who should take these drugs?

A: Most type-2 diabetics who are at high risk of having a vascular event should consider cholesterol-lowering treatment. Like you for example Q. Your test results are back and I'm sorry to tell you that you have type-2 diabetes, sometimes referred to as diabetesity.

**Diabetesity?**

"Which means I'm simply a sweet plump guy, right?"

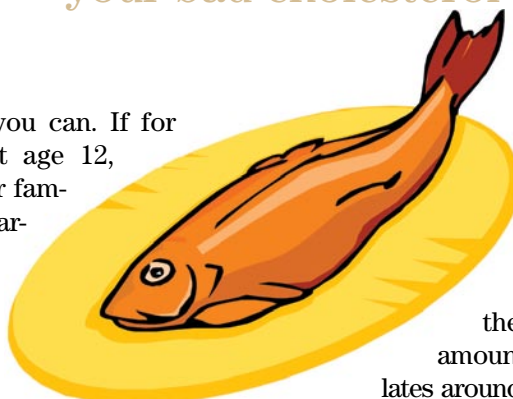
Q inquires, his chins resting on a flabdomen the size of Mt. St. Helens, the early years.

A: It means you have diabetes caused by obesity. Your blood sugars are high and you have the girth of one about to give birth. You are a waddling time bomb for a massive heart attack.

Q: But I don't eat that much sugar.

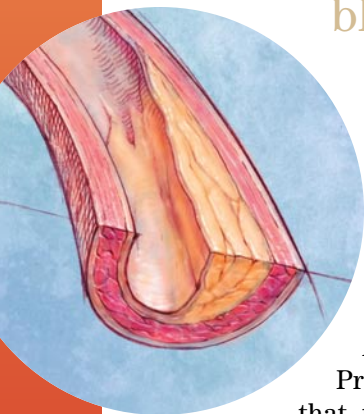
A: Well first of all your risk of developing diabetes is not necessarily a matter of eating sugar or not. Even though the average North American consumes 155 pounds of sugar per year, 151 of those at Easter, eating sugar is not the cause of diabetes. Rather, the large amount of adipose tissue (fat) that accumulates around our vital organs is the main cause of

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diabetes, hence the term diabetes. An alarming and dismaying epidemic of diabetes is overtaking our nation: about 7% of our society over the age of 20 may be diabetic with close to half of those unaware that they have this disease. Years ago few diabetics were obese, now an astounding 80 to 90% of all type-2 diabetics are obese.

As LDL cholesterol increases, fat plaques are laid down inside the wall of the blood vessel



### Type 2 Diabetes and Statins

Previous thinking was that if you were a type-2 diabetic but had normal cholesterol there was no need to lower cholesterol. But the Canadian Diabetes Association, in their 2003 Clinical Practice Guidelines recommended that type-2 diabetics at risk for vascular disease should have their cholesterol lowered even if it's at normal levels. The Heart Protection Study, for example, is one of several studies that showed a significant reduction in major cardiovascular "events" among those taking a statin regardless of what the initial cholesterol level was! Keep in mind that in the medical world an "event" is not a fall fair or a space shuttle launch but rather something nasty like a heart attack, stroke or federal election.

### What's happening inside?

One of the most important ways to prevent heart attacks and strokes is to take care of the inner lining of blood vessels, known as the endothelium. As "Lousy" LDL cholesterol increases, ugly fat plaques are laid down inside the wall of the blood vessel. The diameter of the tube through which blood flows decreases as the cholesterol plaques build.

If the lining of the vessel is fragile (as it is in diabetics) then these plaques burst

## DIABESITY? WHAT'S THAT?

Diabetes means you've got type-2 diabetes and you're overweight. Which means you're at risk for:

- 1 Heart attack and stroke. Diabetes is not a sugar disease, it's a cardiovascular disease.
- 2 Premature aging. Diabetes causes premature cell death, also known as aging.
- 3 Kidney failure
- 4 Heart failure
- 5 Blindness, too much sugar cane in the blood can lead to too many white canes in the hand
- 6 Nerve pain

and a clot forms at the site of this endothelial rupture. The clot narrows or even totally blocks an already narrowed blood vessel. The clot is a killer. It damns blood flow to the brain or heart muscle and within minutes you join the myriads of North Americans in this era who are victimized by cardiovascular disease.



### How can I know?

Most of us have no idea just what state our arteries are in, how close we are to having a cholesterol plaque rupture or whether or not a large clot will form at the rupture and end our season. But we do have hints as to how close we are to a major cardiovascular event. What is your blood sugar, your blood pressure, your cholesterol levels, your nicotine level?

### The last straw

So if you have type-2 diabetes and are not lowering your cholesterol, ask your doctor if you should be treated. Of course before you discuss it, look around for Rainbow Rockets. 🍬