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Cardiovascular Health Update

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We at Foxhall Internists want to offer our patients some information, both basic and new, in this first issue of our new newsletter, *Update*.

We're going to concentrate on heart disease because of its significant health impact and the enormous amount of new information on the subject.

The same risk factors, cautions, and encouragements apply to the more general topic of atherosclerosis (cardiovascular disease). Atherosclerosis causes clogging of arteries in the heart (coronary artery disease), carotid arteries (stroke and transient ischemic attacks, or TIAs), and more distant arteries (claudication, or pain in the leg while walking).

Matters can get fairly confusing with "break-throughs" published almost daily. We hope to sort out some of this for you and put it in perspective: What makes good sense? What's optional? What may be excessive?

Of course, we are covering large topics in a limited space; specific issues should be addressed with your physician.

We hope, however, that this information is useful in helping you to analyze your lifestyle and prompting you to make changes to improve your health. Fortunately the problem has never been more preventable.

Tests for Cardiovascular Risk

Many tests are used to assess cardiovascular health.

Basic Blood Tests

A blood sample is taken to check blood chemistry, blood sugar, total cholesterol and other blood fats, including HDL and LDL cholesterol fractions.

Advanced Screening Tests

C-reactive protein (CRP), a protein produced by the liver, is present during

episodes of acute inflammation. Recent studies suggest that CRP may be elevated in heart attacks. The role of CRP in coronary artery disease remains unclear. It is not known whether it is merely a marker of disease or whether it plays a role in causing atherosclerotic disease. Many consider elevated CRP to be a positive risk factor for coronary artery disease.

During the past few years, elevated blood levels of homocysteine (a sulfur-containing amino acid)

have also been linked to increased risk of premature coronary artery disease, stroke, and thromboembolism (venous blood clots), even among people with normal cholesterol levels. Fortunately, an increased intake of B vitamins, including folate, B-6, and B-12 lowers the level.

NMR cholesterol sub-fraction determination uses magnetic resonance imaging to analyze blood plasma. Radio signals indicate the particle size distribution of the sub-classes of HDL, LDL and

VLDL. Certain combinations of specific particle sizes have been linked to the risk of heart disease.

C-Reactive Protein

- Low risk: <1
- Intermediate risk: 1-3
- High risk: >3

Homocysteine

- Ideal: <9.0
- Normal: 9.0-13.7
- High: >13.7

Heart Blood Supply Tests

- Exercise treadmill test
- Stress echocardiogram
- Nuclear medicine stress test

Other Tests of Heart Risk

- Heart scan for coronary calcium
- Angiogram
- Abdominal ultrasound for aortic aneurysm

Assessing Risk for Heart Disease

The good news about heart disease is that many of the physical conditions that predispose individuals to develop heart disease, or to manifest symptoms early in life, are controllable.

Underlying risk factors

Obesity: Excess weight raises LDL cholesterol and depresses HDL cholesterol. Extra weight also increases the risk of diabetes and the metabolic syndrome. For information about calories expended

during exercise, nutrition, and caloric content of food: www.caloriesperhour.com.

Body Mass Index (BMI) is a measure of total body fat related to the risk of disease and death. For further information about BMI: www.nhlbisupport.com/bmi.

Lack of Exercise: Before starting an exercise program, a visit to your doctor for cardiac risk factor screening, a blood pressure check and a cardiovascular exam is a good idea.

Poor Diet: A diet rich in calories, saturated fat, and cholesterol predisposes to

heart disease. Conversely, a diet high in fruits, vegetables, and fiber is associated with a 40-to-50% reduction in coronary artery disease. A prudent amount of alcohol can reduce cardiovascular risk by 30%.

Major risk factors

Smoking: The likelihood of a heart attack is increased sixfold in women and threefold in men who smoke a pack per day or more compared with those who never smoked. The excess risk of death from coronary artery disease drops by 50% the first year of abstinence

and continues to decline.

Diabetes: Those with diabetes and those with only mild blood sugar elevation are at increased risk.

High Blood Pressure: An ideal blood pressure is best. As it increases above normal so does the risk.

Family History: This is particularly noteworthy if a mother or sister had coronary artery disease before age 65 or a father or brother before age 55.

High LDL Cholesterol: LDL cholesterol below 100 is

usually the ideal, but a lower goal may be important for those with cardiovascular disease or numerous risk factors.

Low HDL Cholesterol: Men should have values greater than 50; women's values should be greater than 60.

Age: Men over 45 and women over 55 are at increased risk.

Male Sex: Middle-aged men are at greater risk than women.

Calculate your heart risk: <http://bin.nhlbi.nih.gov/atpi/i/calculator.asp>

Update

High Blood Pressure

High blood pressure, or hypertension, increases the chances of heart attack, stroke, kidney disease and heart failure. Fortunately, lifestyle changes can often lower blood pressure or bring it within normal limits. We currently use the following ranges for blood pressure:

Optimal Blood Pressure:

Top number (systolic) less than 120
Bottom number (diastolic) less than 80

Normal Blood Pressure:

Less than 130 systolic
Less than 85 diastolic

High Normal Blood Pressure

130-139 systolic, or
85-89 diastolic

Hypertension:

Greater than 140 systolic
Greater than 90 diastolic

Remember: these are averages. An isolated reading that is elevated may not represent a problem as long as most of your blood pressure readings are normal. Many people have readings that are high in a doctor's office but normal elsewhere ("white-coat hypertension"). This is less a cause of concern than a persistently high blood pressure. For those with varying blood pressure, it may be useful to keep a diary with measurements from a portable blood pressure cuff or from readings at the pharmacy or grocery store.

What to Do

- Aim for optimal weight and exercise
- Avoid salty foods, such as snacks, chips, pretzels,

- nuts, ham, salami, ketchup, pizza, canned soup, bacon and soy sauce
- Limit alcohol to two drinks per day or less for a man and one drink or less for a woman
- Maintain an adequate intake of dietary potassium. Good sources include: citrus juices, cereals, lentils, potatoes, raisins and spinach

When blood pressure fluctuates greatly and the reason is unclear, a 24-hour blood pressure monitor can often settle the issue. Average readings over an entire day may demonstrate a satisfactory blood pressure that simply jumps up when checked occasionally. If natural methods fail, medication may lower blood pressure to safe levels.

Vitamins, Supplements & Aspirin

Start with the basics: A diet with five or more servings of vegetables or fruit per day. This diet provides many vitamins, as well as fiber.

Vitamins

We recommend one generic multivitamin per day, mostly for the beneficial effect of folate, B6 and B12 on homocysteine (see "Tests for Cardiovascular Risk"). The effect of vitamin D on bones and the possible effect of vitamin B12 on neurologic disease in the elderly offer an additional incentive for a single multivitamin. In certain individuals, additional folate is also advisable.

Supplements

We do not generally recommend taking more than one multivitamin. Specific problems with high-dose supplements include:

- Increased risk of bleeding in individuals on blood thinners taking high doses of vitamin E.
- Increased risk of cancer in smokers taking high doses of beta carotene.

An average of one gram of fish oil (omega-3 fatty acids) daily seems to offer some cardiac protection. We recommend a 3-ounce serving of fatty fish such as salmon, herring, or trout at least twice weekly. Fish oil capsules are appropriate for some individuals.

Aspirin

Aspirin can reduce the incidence of heart attack and stroke. Whether the benefit outweighs the risk of increased bleeding associated with aspirin in individual situations should be discussed with your physician.

Lifestyle Changes

Possible Anticipated Gains

Overweight	1.5 systolic/1 diastolic drop for every 2 pounds lost
Excessive salt intake	4 systolic/2 diastolic drop with less salt
Poor diet	11 systolic/6 diastolic drop with an excellent diet
Lack of exercise	13 systolic/8 diastolic drop with ½ hour daily exercise

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Weight & Diet

As most of you know, excess weight is a major health problem in the United States. It may soon replace smoking as the primary cause of preventable death. 65% of Americans are overweight.

Why is it so serious?

- Obesity raises blood pressure and increases the risk of diabetes
 - Triglycerides, cholesterol and other blood fats usually increase with weight and poor diet
 - HDL ("good") cholesterol falls as weight rises
- All the above are associated with heart disease and many medical problems.

Are you at risk?

Generally you are at risk if your waist circumference is more than 40 inches for a man and more than 35 inches for a woman. Most people have a good sense if they are overweight. To calculate your body mass index (BMI):

- Divide your weight in pounds by your height in inches squared; then multiply by 703
- Check this government website to calculate your BMI: www.nhlbisupport.com/bmi
- BMI Categories:
Underweight: <18.5
Normal: 18.5-24.9
Overweight: 25-29.9
Obesity: 30 and above

What is the Metabolic Syndrome?

At least 20% of Americans are genetically predisposed to a combination of overweight, elevated blood fats (triglycerides greater than 150), a low level of "good cholesterol" (HDL less than 40 in men and less than 50 in women), elevated blood pressure (greater than 130/85), and fasting blood sugar greater than 110.

Having three of these risk factors defines a person as having the metabolic syndrome, a cause of premature heart disease. Although the predisposition will always be there, weight loss

and exercise can improve all metabolic syndrome abnormalities. Medication may be necessary if abnormalities remain despite a person's best efforts.

What to Do

If you are overweight, find out if you are at risk for the metabolic syndrome by learning the levels of your blood fats and sugar (check with your doctor).

Weight Loss Plans

Individuals who are obese should plan a 10% weight loss over six months at a rate of about 1 to 2 pounds per week. This can be accomplished by eliminating 500 to 1000 calories daily through a combination of increased exercise and food restriction. For example, 300 calories of treadmill exercise and avoiding wine, snacks, and desserts would do the job for some. Those who are overweight, but not obese might aim for ½ pound per week and a 300-500 daily calorie loss.

Diets: An Overview

Innumerable benefits accrue from weight loss for those who are overweight. Each diet has something to offer. Although the food selection in some diets may not be a good idea on a permanent basis (i.e., high-fat diets), they can help you get started on weight loss. Participation in a number of diets is available online.

Diets low in carbohydrate and high in protein and fat work in three ways:

- They restrict calories
- They cause an increased level of acid in the blood causing fluid loss and dulling of the appetite and sense of taste
- The limited selection of foods induces boredom in many people, encouraging calorie restriction

More traditional diets (Weight Watchers) aim for a balanced intake of food, stressing reasonable caloric restriction and exercise.

Alternative Therapies

Medications have generally

proved a disappointment, providing an initial weight loss that is not sustained. Occasionally, however, they can be helpful. Herbal preparations should be avoided since many are stimulants that are both dangerous and ineffective.

The Basics

There's no way around less food and more exercise. Consistency is the goal, starting with a program that is followed every day without exceptions.

What to Do

Those with health problems (ie, kidney disease) should check with a doctor before serious dieting. Similarly, middle-aged and elderly people who wish to start a vigorous exercise program should see if a stress test is advisable. (We can refer you to cardiologists who perform these exams). Some high-fat diets may cause problems for those with cholesterol or triglyceride issues; consider a blood test before starting the diet.

Cholesterol & Triglycerides

Increased levels of cholesterol and triglycerides in the blood increase the risk of obstructions developing in the arteries. Such obstructions, in turn, can block blood flow to the heart or brain, increasing the risk of heart attack and stroke.

Some Basics

HDL Cholesterol

Higher levels decrease the risk of developing vascular disease. Maintaining optimal weight and a brisk exercise program raise

HDL. Women should have values greater than 60 and men greater than 50.

LDL Cholesterol

Higher levels cause more vascular disease. Diet, weight and exercise are very important. Acceptable levels depend on the number of risk factors (see below).

Triglycerides

Higher levels of triglycerides increase the risk of developing vascular disease. A fasting level less than 150 is the goal. In those who are overweight, weight reduction often offers dramatic results. Likewise,

aim for a diet low in carbohydrates and reduce alcohol consumption if excessive.

New Goals for LDL

Optimally, everyone should have LDL cholesterol levels below 100. How crucial this goal is for a particular individual depends on how many of the following risk factors are present: known vascular disease, smoking, diabetes, hypertension, obesity, family history, sedentary lifestyle, age, and male sex. For example, in middle-aged men with diabetes, hypertension, and a history of

heart attack, an LDL less than 70 would be the goal. For those with no risk factors, 130 might be acceptable, although not ideal.

New Information

Recent studies with "statin" medications suggest that vigorous lowering of LDL cholesterol by medication improves survival in people at risk. While this is true for some individuals with known heart disease or numerous risk factors, it is not true for everyone. We advise talking the matter over with your doctor.

What To Do

- Know your cholesterol and triglyceride levels, including HDL and LDL fractions, and check them periodically. The average of two fasting readings is ideal
- Assess your cardiovascular risk with your doctor. Cholesterol lowering by statin medications offers dramatic hope for people with risk factors
- More refined analysis of cholesterol sub fractions is available and may be helpful in those with particular risk factor problems