**Cholesterol**

Cholesterol is a natural fatty substance found in all human cells (and animal cells) and in the bloodstream. It is necessary for normal cell membrane function, used in forming some hormones and forms bile acids that are needed to absorb nutrients from food. Cholesterol is only a problem when you have too much in the blood stream and high levels accumulate in the artery walls. This causes deposits called plaque that narrow and damage the artery walls. High cholesterol can be caused by a poor diet, lack of exercise and/or inherited tendencies. Abnormal levels lead to development of coronary and peripheral artery disease which increases risk of heart attacks and stroke. By knowing your cholesterol numbers you can begin to take steps to bring your cholesterol levels to a healthier range if needed which is why periodic screenings are important.

Total cholesterol is an important measure of all cholesterol (good and bad) in your blood. It is helpful to look at each component separately to understand where improvements might be needed.

**Lifestyle Recommendations for Specific Cholesterol Problems**

**Elevated LDL**

LDL cholesterol (“bad” cholesterol) plays a major role in plaque formation. Keeping LDL at the desirable level helps prevent plaque buildup and narrowing of arteries throughout your body, reducing your risk for heart attack and stroke.

- Enjoy foods with less saturated fat, trans fat and cholesterol
- Enjoy consuming more fiber rich foods
- Exercise regularly
- Lose weight
- Increase plant sterols/stanols
- Eat nuts (preferably raw)

**Low HDL**

HDL cholesterol (“good” cholesterol) picks up the extra bad cholesterol in your blood and takes it back to your liver for removal. A low HDL level is a risk factor for developing heart disease.

- Quit smoking
- Exercise regularly
- Lose weight
- Eat fish
- Eat nuts (preferably raw)
- Enjoy foods with less saturated fat, trans fat and cholesterol

**Elevated Triglycerides**

Triglycerides normally provide your body with energy but high levels are thought to cause hardening and thickening of the arteries that lead to stroke, heart attack and heart disease.

- Enjoy foods and drinks with less concentrated sweets and starches
- Consume more fiber rich foods
- Use alcohol in moderation
- Lose weight
- Exercise regularly
- Eat fish
- Lower abnormal glucose levels
- Choose foods with less saturated fat, trans fat and cholesterol

**Pre-Diabetes**

Pre-diabetes is a condition where blood sugar is above normal but not high enough to be classified as diabetes. There are usually no symptoms. Lifestyle changes can reverse this trend and reduce your chances of developing diabetes and heart disease.

- Exercise regularly
- Lose weight
Lifestyle Recommendations In Detail

**Enjoy foods with less saturated fat, trans fat and cholesterol**

Choose the kinds of fats that are heart protective. Substitute with monounsaturated and polyunsaturated fats.

- Up to 25-35% of your diet may be fats but it needs to be healthy fat.
- Ideally, up to 20% from monounsaturated fat like olive oil, canola oil, peanut oil, nuts and avocados, no more than 10% from polyunsaturated fats like corn oil and safflower oil, less than 7% from saturated and less than 1% from trans fat. (*AHA Diet and Lifestyle Recommendations revision 2006*)

**Hypertension (high blood pressure) and Pre-hypertension**

Blood pressure measures the force exerted on your artery walls as your heart pumps blood through your body. Slightly elevated blood pressure is called pre-hypertension and elevated blood pressure is called hypertension. Both put you at higher risk of heart attack, stroke and heart failure. Both usually have no symptoms.

- Exercise regularly
- Lose weight
- Eat a healthy diet
- Quit smoking

- Consider the DASH diet
- Use alcohol in moderation
- Choose foods with less sodium

For more information, visit: American Heart Association www.heart.org or National Heart Lung and Blood Institute www.nhlbi.nih.gov/health/index.htm

**Enjoy consuming more fiber rich foods**

Dietary fiber includes all parts of plant food that your body can't digest or absorb. Fiber has two categories: fiber that does not dissolve in water (insoluble fiber) and fiber that does dissolve in water (soluble fiber). Both types of fiber have important health benefits, but soluble fiber in particular helps prevent heart disease by lowering cholesterol.

- Soluble fiber reduces LDL. Soluble fiber is found in oats (as in oatmeal), beans (such as chili or black bean soup), peas (split pea soup), many fruits (apples, pears, prunes), vegetables (brussel sprouts, carrots), psyllium (such as *Metamucil*), and barley (found in some vegetable soups and can be added to stews). Soluble fiber can decrease LDL by 5-7% and reduce total cholesterol by 2-3%.
- Eat nuts (preferably raw). It is believed they are heart protective and lower LDL. A handful of nuts (*walnuts, almonds, peanuts, pecans*) a day improve LDL to HDL cholesterol ratio. Limit to a handful because they are high in calories.

**Nutrition Facts**

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>Calories</th>
<th>Calories from Fat</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cup</td>
<td>110</td>
<td>% Daily Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Fat</td>
<td>2g</td>
<td>3%</td>
</tr>
<tr>
<td>Saturated</td>
<td>0g</td>
<td>0%</td>
</tr>
<tr>
<td>Polyunsaturated</td>
<td>0.5g</td>
<td>0%</td>
</tr>
<tr>
<td>Monounsaturated</td>
<td>0.5g</td>
<td>0%</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>0 mg</td>
<td>0%</td>
</tr>
<tr>
<td>Potassium</td>
<td>95 mg</td>
<td>3%</td>
</tr>
<tr>
<td>Sodium</td>
<td>280 mg</td>
<td>12%</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>22g</td>
<td>7%</td>
</tr>
<tr>
<td>Dietary Fiber</td>
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<td>11%</td>
</tr>
<tr>
<td>Soluble Fiber</td>
<td>1g</td>
<td></td>
</tr>
<tr>
<td>Insoluble Fiber</td>
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<td></td>
</tr>
<tr>
<td>Sugars</td>
<td>1g</td>
<td></td>
</tr>
<tr>
<td>Protein</td>
<td>3g</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vitamin A 10%</th>
<th>Vitamin C 10%</th>
<th>Calcium 4%</th>
<th>Iron 45%</th>
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<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

* Percent Daily Values are based on a 2,000 calorie diet. Your values may be higher or lower, depending on your calorie needs.

<table>
<thead>
<tr>
<th>Calories:</th>
<th>2,000</th>
<th>2,500</th>
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<tbody>
<tr>
<td>Total Fat</td>
<td>Less than 65g</td>
<td>80g</td>
</tr>
<tr>
<td>Sat Fat</td>
<td>Less than 20g</td>
<td>25g</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Less than 300mg</td>
<td>300mg</td>
</tr>
<tr>
<td>Sodium</td>
<td>Less than 2,400mg</td>
<td>2,400mg</td>
</tr>
<tr>
<td>Total Carbohydrate</td>
<td>300g</td>
<td>370g</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>25g</td>
<td>30g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Calories per gram:</th>
<th>Carbohydrate</th>
<th>Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat 9</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
• Insoluble fiber promotes the movement of material through your digestive tract, helps make you feel fuller when eating, which helps with weight control, and increases stool bulk. Examples of insoluble fiber include bran, nuts, whole grains, fruits and vegetables.

Exercise regularly
Thirty minutes for heart health and sixty minutes for weight loss, five days a week or more is recommended by the American Heart Association. Cardiovascular exercise is defined as any activity that uses large muscle groups (such as legs) in a continuous motion for 20-30 minutes and raises your heart rate. Brisk walking is an example. Talk to your doctor before starting any exercise program.

Lose weight
Your goal is to fall into a normal body mass index. A 10 pound weight loss (if needed) can make a significant change in your cholesterol, blood pressure and blood sugar. Losing weight can decrease LDL by 5-8%. If you want to lose weight, it is recommended that you decrease fat to 25% or less of total calories.

Enjoy foods and drinks with less concentrated sugars and starches (Particularly recommended for high triglycerides)
Simple carbohydrates such as sugar and white flour promote insulin production which increases triglycerides in some people. Avoid excess white sugar, candies, cookies, cake, white bread, white potatoes, white pasta, white rice, soda, concentrated fruit drinks, and sports drinks. Diet drinks are okay in moderation (one or two per day).

Lower abnormal glucose (blood sugar) levels
Triglyceride and glucose levels are often closely linked.
To learn more about available education and counseling programs, contact KMC Diabetes and Nutrition Center at (937) 395-8472.
For more information, visit: American Diabetes Association www.diabetes.org

Use alcohol in moderation
Alcohol raises blood pressure, so if you do choose to drink, do so in moderation. Moderation is considered:
• One drink per day for women and two drinks a day for men

Eat fish
The best source of heart healthy omega-3 fatty acids is fish. Eating fish at least 2 times per week instead of meat high in saturated fat (such as hamburger) is recommended.
• The highest levels of omega-3 fatty acids are found in mackerel, lake trout, herring, sardines, albacore tuna and salmon.
• The fat in both fish and nuts improve the total cholesterol to HDL cholesterol ratio.
• Eating fish helps lower triglyceride levels.
• Fish and shellfish are excellent sources of many other nutrients, including protein, vitamin D, vitamin A, vitamin B12, selenium and iodine.
• Some fish contain mercury. Pregnant, nursing women and small children should be cautious with mercury levels. For more information, visit: www.fda.gov/Food/FoodSafety/Product-SpecificInformation/Seafood/FoodbornePathogensContaminants/Methylmercury/ucm115662.htm.
• Other plant sources of omega-3 fatty acids include walnuts, flaxseed, soybeans and canola oil (or the oils from these foods).
• If you don’t like fish, ask your health care provider for information about omega-3 supplements.

For more information, visit: American Dietetic Association www.eatright.org
Tobacco Cessation

Tobacco use triples the risk of dying from heart disease among middle-aged men and women. Smoking increases your heart rate and blood pressure, injures your blood vessels, lowers HDL, and greatly increases your risk of heart disease. It is the biggest risk factor for sudden cardiac arrest.

Tobacco cessation has immediate and long-term benefits by reducing risks for heart disease while improving your overall health. Your best chance at tobacco cessation is when you combine behavior therapy with use of one or more tobacco cessation products.

For more information on tobacco cessation call or visit:
- Ohio Tobacco Quit Line (1-800-Quit-Now)
- The American Cancer Society www.cancer.org
- The American Lung Association www.lungusa.org
- American Heart Association www.americanheart.org

Eat a healthy diet

Choose a diet low in fat and calories and high in fiber with plenty of fruits, vegetables and whole grains. A diet customized to your individual needs can be found at U.S. Department of Agriculture www.choosemyplate.gov

- A diet with fruits, vegetable and whole grains is higher in potassium which helps prevent and control blood pressure and also higher in fiber which helps control weight.
- Choose the kind of fats that are heart protective such as olive oil, canola oil or peanut oil.

Enjoy foods with less sodium

U.S. Dietary Guidelines Recommend:
- 1,500 mg of daily sodium for:
  - People 51 years of age or older
  - Individuals who are African-American
  - Those who have hypertension, diabetes or chronic kidney disease
- 2,300 mg of daily sodium for:
  - Those younger than 51 with no health problems

Consider a Kettering Health Network Health Improvement Program

- The LEARN® program offered by the KMC Diabetes and Nutrition Center addresses successful weight control over twelve weeks through: Lifestyle, Exercise, Attitudes, Relationships, Nutrition. To attend a free informational session call (937) 395-8472 to register.
- Kettering Weight Loss Solutions is a long term medically supervised program in conjunction with three counselors who teach lifestyle changes to attain and manage a healthy body weight and live a healthy lifestyle. For more information about Kettering Weight Loss Solutions, please call (937) 384-3883 or (937) 384-4808.
- Complete Health Improvement Program (CHIP) is a lifestyle enrichment educational program to reduce disease risk factors. Contact the Center for Heart and Vascular Health at (937) 395-8492 for more information or to enroll in the next session.
- Kettering Sports Medicine Center offers a comprehensive approach to weight management and disease management by striving to incorporate healthy nutrition and physical activity interventions into successful behavior modification strategies. Nutrition Sessions at Kettering Sports Medicine Centers are arranged at your convenience and are usually one hour in length. Please contact Cindy Cassell PhD, RD, LD at (937) 395-3924.
- The Center for Heart and Vascular Health provides screening and education programs to improve the health of your heart and arteries. Please call (937) 395-8492 for program information.
Excess Midsection Fat
Obesity means that the body contains excess fat. There are many kinds of fat, and fat is stored throughout your body. Subcutaneous fat is stored just below the skin. Visceral fat is the fat stored around the organs.

Having excess midsection fat, specifically the fat stored in your waistline (or apple shaped), increases your risk for heart disease, stroke and diabetes and can be more harmful than fat stored below the waist (pear shaped).

An indicator used for determining a person’s level of excess midsection fat is the measurement of his or her waist. To determine the level of midsection fat, measure around the waist at the top of the hip bones and across the belly button. For men, a waist circumference of 40 inches or more presents a higher risk of metabolic risk factors. The same is true for women whose waist size is 35 inches or more.

For more information on general and specific health issues, visit: Mayo Clinic www.MayoClinic.com

Improving Health Through Physical Activity
Regular physical activity has many heart healthy benefits that include:

- Reducing total cholesterol, including LDL (bad cholesterol)
- Increasing HDL (good cholesterol)
- Lowering blood pressure, both systolic and diastolic
- Reducing triglyceride levels (the amount of free fatty acid in the blood)
- Increasing the body’s ability to use oxygen, therefore allowing your body to work more efficiently
- Reducing stress
- Reducing risk of stroke
- Weight loss through burning calories

The American Heart Association recommends the following guideline for aerobic activity:

**Moderate Exercise**
- 150 minutes per week (example: 30 minutes/day; 5 days/week)

  **-OR-**

**Vigorous Exercise**
- 75 minutes per week (example: 25 minutes/day; 3 days/week)

Other important components of exercise for overall health include resistance training and stretching.
Kettering Health Network

Kettering Medical Center
(937) 298-4331

Grandview Medical Center
(937) 723-3200

Sycamore Medical Center
(937) 866-0551

Southview Medical Center
(937) 439-6000
Greene Memorial Hospital
(937) 352-2000

Fort Hamilton Hospital
(513) 867-2000

Soin Medical Center
(937) 702-4000

Kettering Behavioral Medicine Center
(937) 534-4600

Kettering Health Network Services

KMC Diabetes & Nutrition Center
(937) 395-8472

Center for Heart and Vascular Care
(937) 395-8492

Kettering Sports Medicine Center
Physical and Occupational Therapy
(937) 395-3900

Kettering Physician Network
(937) 558-3200

KHN Physician Referral
(937) 384-6950

Kettering Health Outreach
(937) 558-3988

Should you have questions or need more information, please contact our Center for Heart and Vascular Health Nurse at
(937) 395-8492.

www.ketteringhealth.org/heart