

Risk Factors and the Management of High Cholesterol

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IT'S HOW MEDICINE SHOULD BE®

1. Know Your Risk of Having Heart Disease

- CHD in first-degree relatives (man < 55 years, woman < 65 years)
- Age
- Gender
- High cholesterol
- High blood pressure
- Smoking
- Diabetes
- Obesity
- Physical Inactivity
- Stress
- Depression

2. Know Your Numbers

- Weight, body mass index
- Blood pressure
- Blood sugar (glucose)
- **Cholesterol**
 - **Total, LDL, HDL, triglycerides**

What's Cholesterol Got to Do With It?

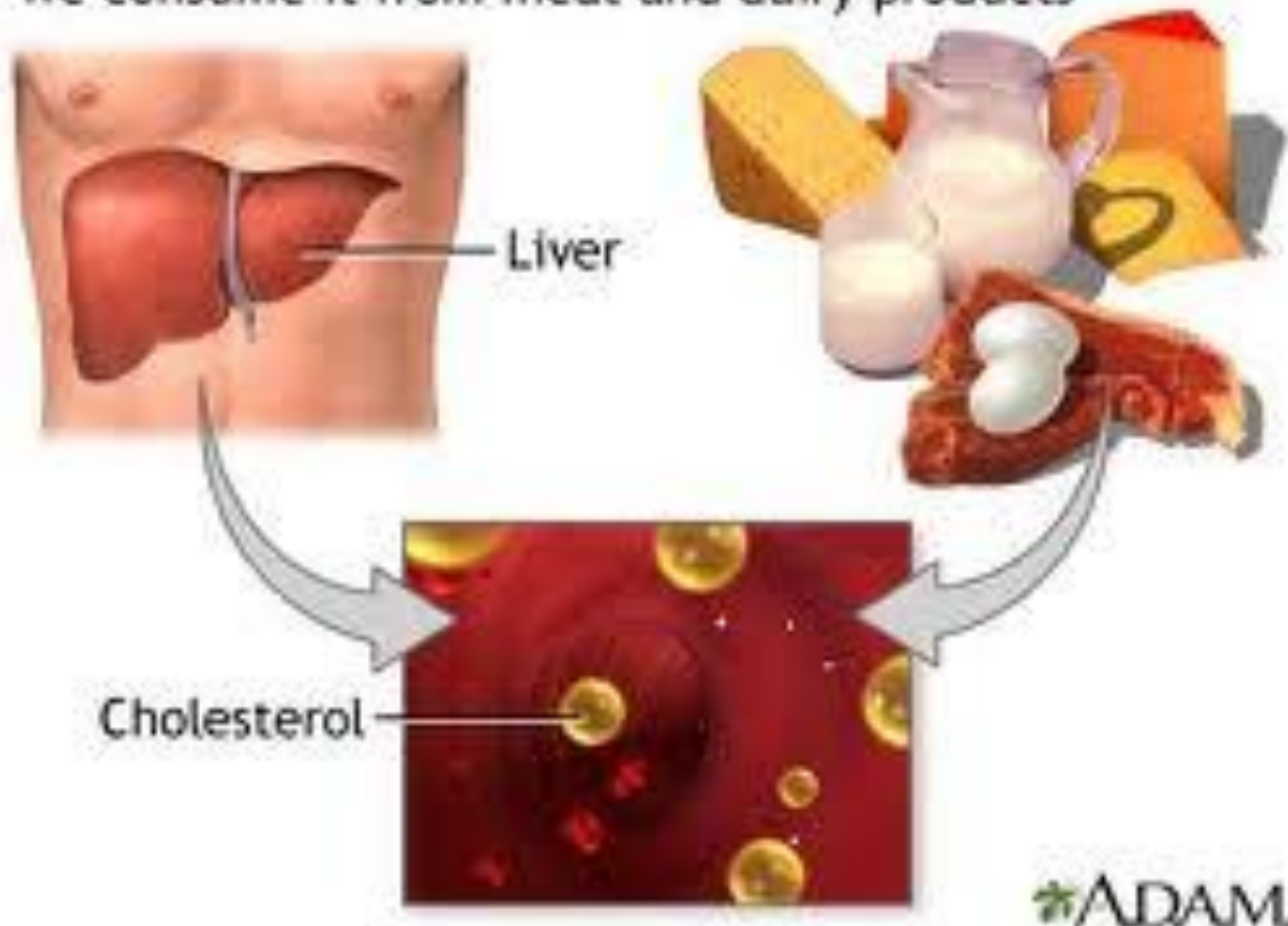


New York Times Magazine Sunday, January 27, 2008

What Is Cholesterol?

- Cholesterol is a fat-like, waxy substance made in the liver.
- The body needs cholesterol for important biological functions.
- Usually, the body makes all the cholesterol it needs.

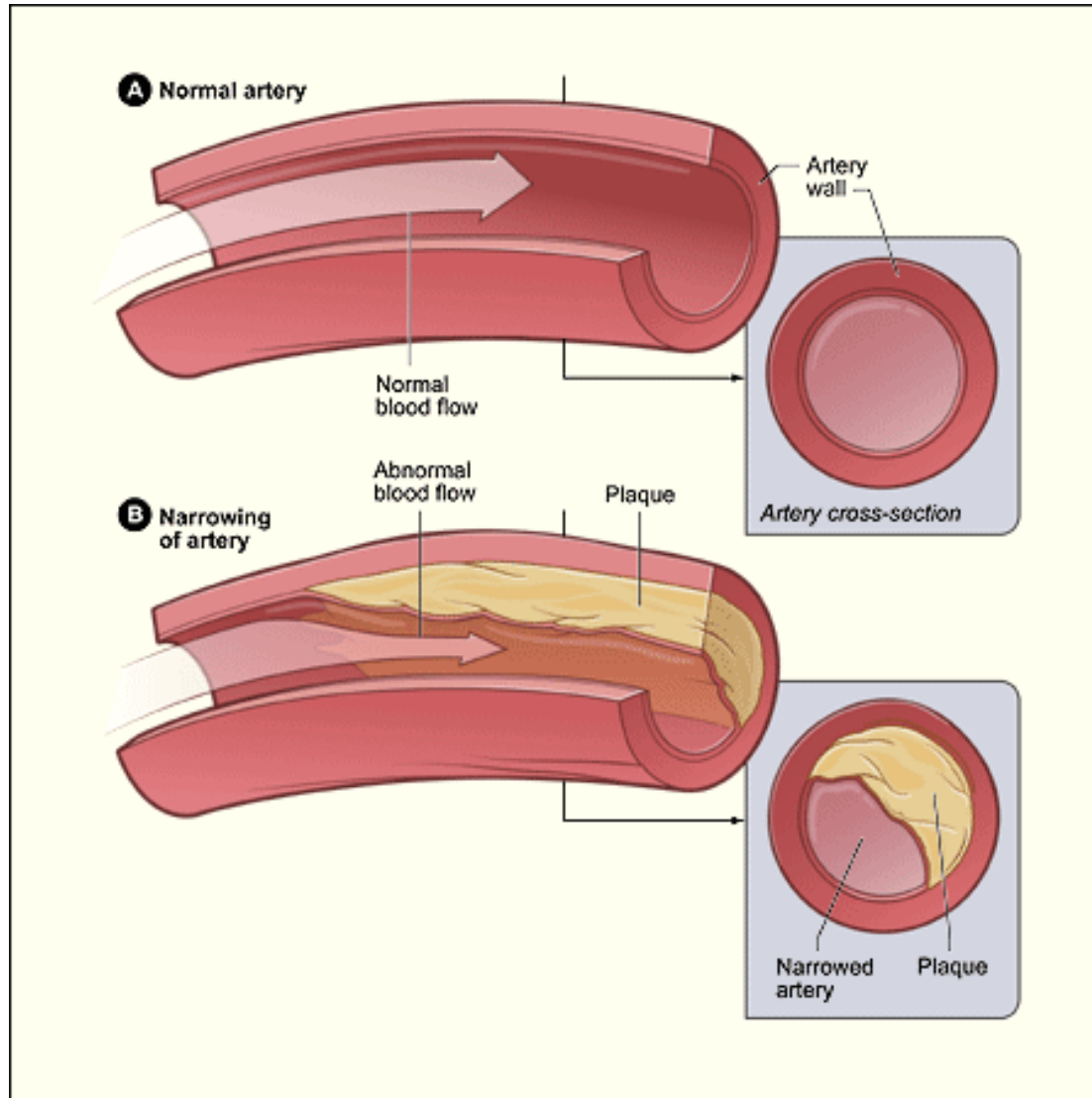
Cholesterol is produced by the liver and we consume it from meat and dairy products



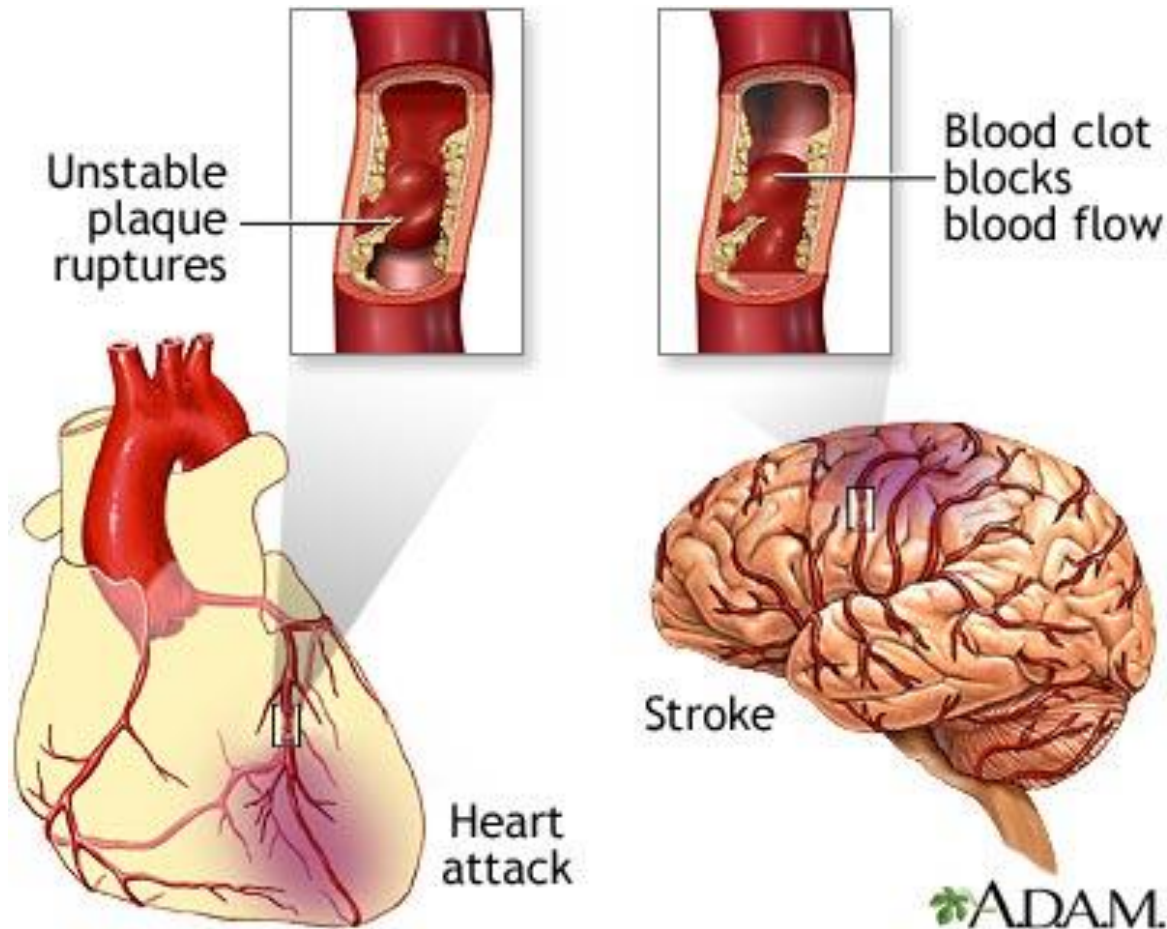
What Is Cholesterol?

- Cholesterol and other substances build up in artery walls, forming plaque.
- Plaque can narrow an artery and reduce the flow of blood in arteries that supply blood to the heart.
- Plaque that ruptures cause blood clots to form.
- If the blood clot blocks an artery that feeds the heart, it causes a heart attack.
- If it blocks an artery that feeds the brain, it causes a stroke.
- The only way to know if your blood cholesterol is at a safe level is to have a simple blood test.

Cholesterol Buildup in Artery Wall



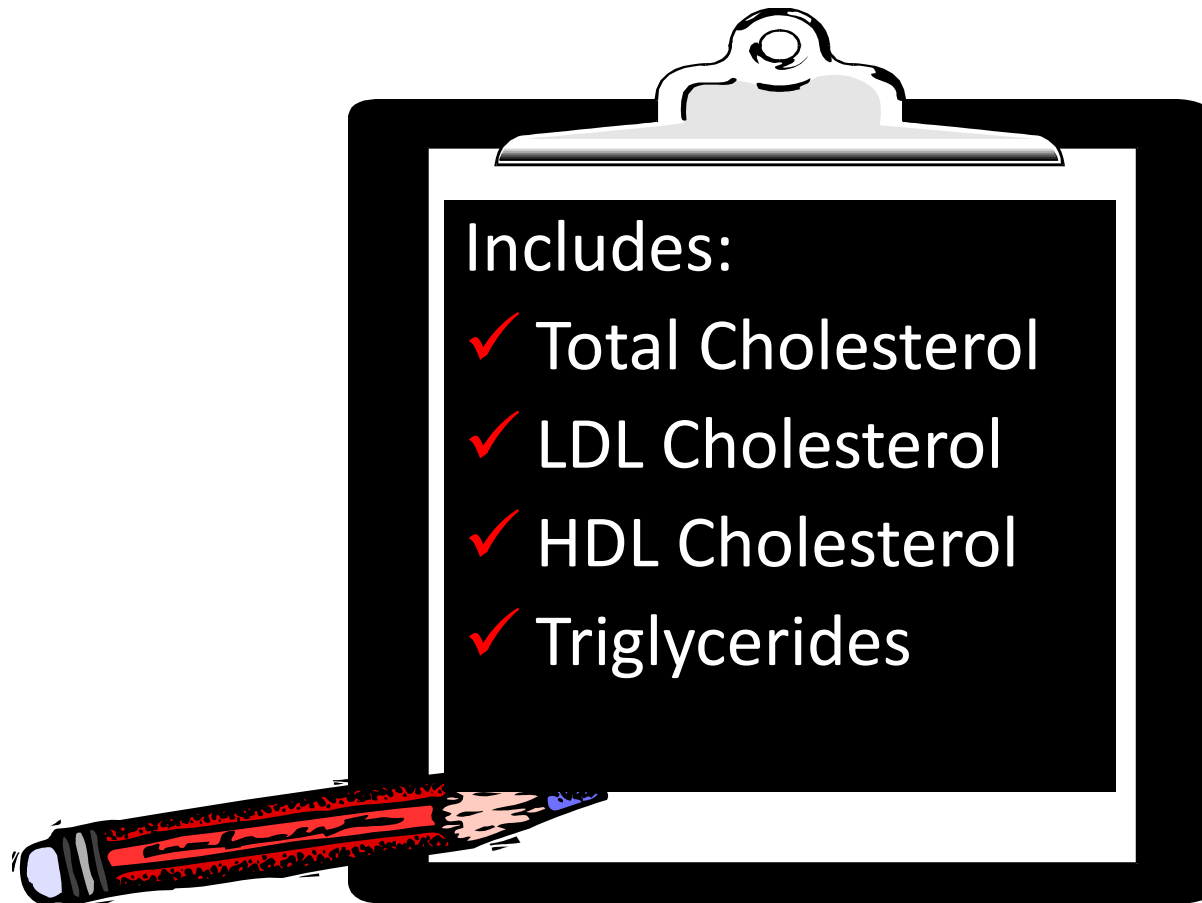
Plaque Buildup in Arteries



What does research show about cholesterol?

- The higher one's cholesterol...
 - the higher the risk of heart disease.
 - the earlier the onset.
 - the more rapid the progression.
- The risk starts at a lower level than we previously thought .
- When cholesterol is lowered through diet and/or medications, heart attacks, strokes and deaths decrease.

Lipid Profile: 4 numbers





What are the recommended levels?

- Total cholesterol Less than 200 mg/dL
- LDL cholesterol Less than 100 mg/dL
(optimal)
- HDL cholesterol 50 mg/dL or higher (woman)
40 mg/dL or higher (man)
- Triglycerides Less than 150 mg/dL

What if my cholesterol profile is abnormal?

- Lifestyle measures: low fat diet, physical activity, achieve ideal weight
- Safe and effective medicines are available
- Research has clearly demonstrated that statin medications reduce the risk of heart attack and stroke
- Whether medication is required depends on a person's overall risk level
- For those who already have heart disease or are at higher risk, medications may be started immediately

Heart Healthy Diet

- Low in saturated fat (limit to $< 7\%$ of energy intake)
- Very low in trans fat (limit to $< 1\%$ of energy intake)
- Consume a diet rich in fruits and vegetables
- Choose whole-grain, high fiber foods
- Consume fish, especially oily fish, twice a week



Heart Healthy Diet

- Choose lean meats and vegetable alternatives
- Select fat-free (skim), 1% fat, and low fat dairy products
- Minimize intake of beverages and foods with added sugars
- Choose and prepare foods with little or no salt



Good Fats, Bad Fats

- Key: We all need to eat fat. Learn to replace the bad with the good.
- Saturated fats (bad!):
Mainly found in animal products (meat, dairy, eggs and seafood).
Some plant foods are also high in saturated fats such as coconut oil, palm oil and palm kernel oil.



Mmm...



Cholesterol!

Good Fats, Bad Fats

- Trans fats (bad!): Were “invented” as scientists began to “hydrogenate” liquid oils so that they can better withstand the food production process and provide a better shelf life. Trans fats are found in many commercially packaged and commercially fried foods, packaged snacks (microwave popcorn, cookies, crackers), stick margarine and some tub margarine.



Good Fats, Bad Fats

- Monounsaturated fats (MUFAs) (Good!):
Help produce healthy cholesterol levels.
Nuts (peanuts, walnuts, almonds, pistachios), avocado, canola and olive oil.
- Polyunsaturated fats (Good!):
Seafood (like salmon and fish oil),
other omega 3 fatty acids (flaxseed),
corn, soy, safflower and sunflower



Exercise, Cholesterol, and Other Benefits

- Raises HDL (good) cholesterol
- Lowers triglyceride level
- May lower LDL cholesterol
- Improves blood sugar levels
- Necessary to maintain weight loss

Physical Activity Recommendations

- Accumulate at least 150 minutes of moderate-intensity aerobic activity every week (brisk walking, gardening, yardwork, housework, climbing stairs, recreational activities)
- Or 75 minutes of vigorous physical activity every week (jogging, running)
- Physical activity may be intermittent



www.health.gov/paguidelines/toolkit

Healthy Weight Management

- Think “fewer calories in and more calories out”
- Smaller portions
- Healthy choices
- Move more





Cholesterol Altering Medications or Supplements

- Statins (lower LDL cholesterol)
- Niacin (raises HDL cholesterol and lowers triglycerides)
- Fibrates (lower triglycerides)
- Cholesterol absorption inhibitor (Zetia)
- Bile acid sequestrants (lower LDL-C)
- Fish oil (lowers triglycerides)
- Plant stanols/sterols (lowers cholesterol)



What raises LDL (bad) cholesterol?

What raises LDL (bad) cholesterol?

- A diet high in saturated and trans fat
- Too much cholesterol made by the liver or the liver's inability to clear excess cholesterol from the bloodstream
- Sedentary lifestyle



What helps to lower LDL (bad) cholesterol?

What helps to lower LDL (bad) cholesterol?

- Avoiding saturated and trans fats in the diet
- Regular exercise
- Weight loss
- Medications: statins, Zetia, bile acid sequestrants
- Plant stanols/sterols (in spread or pill form)



What lowers HDL good
cholesterol?

What lowers HDL good cholesterol?

- Smoking
- Sedentary lifestyle
- Being overweight
- Having the metabolic syndrome
- Some people have a genetic predisposition to having very low HDL cholesterol.



What helps to raise HDL (good) cholesterol?

What helps to raise HDL (good) cholesterol?

- Quit smoking
- Weight loss
- Regular exercise
- Replacing saturated fats with good fats in the diet, especially monounsaturated fats
- Medicines (niacin, fibrates, statins)

What raises triglyceride levels?



**Blood plasma
after fast**

**Blood plasma
after meal**

What raises triglyceride levels?

- High blood sugar
- Too many simple sugars in the diet
- Alcohol
- Sedentary lifestyle
- Being overweight
- Having the metabolic syndrome



What can help lower triglycerides?

What can help lower triglycerides?

- Eliminating simple sugars and alcohol from the diet
- Regular exercise
- Good blood sugar control if you have diabetes
- Weight loss
- Fish oil (by prescription or supplement)
- Medications (fibrates, niacin, statins)

Treatment to Achieve Healthy Cholesterol Levels

