

# AU InforMed

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## A Focus on Cholesterol...

September is  
National Cholesterol Education  
Month



### ABOUT CHOLESTEROL – What you should know....

#### Why is cholesterol important?

- High cholesterol levels are a major risk factor for developing heart disease, the number one killer of both men and women in the U.S.
- Too much cholesterol causes build-up in the arteries called plaques. Over time this results in your arteries hardening, losing their elasticity and narrowing. When blood flow is impeded, enough blood and subsequently oxygen cannot reach your heart. When the flow is completely obstructed, a heart attack occurs.
- Everyone greater than 20 years of age should have their cholesterol checked every 5 years.

#### What can a fasting lipid test tell you? What do your cholesterol numbers mean?

- *Total cholesterol*
- *LDL “bad” cholesterol*—the main source of plaques and blockages
- *HDL “good” cholesterol*—prevents accumulation of cholesterol in arteries
- *Triglycerides*—another form of fat found in the blood

#### What do your cholesterol numbers mean?

TotalCholesterol Level	Category
<200 mg/dL	Desirable
200-239 mg/dL	Borderline high
240 mg/dL and above	High

LDL Cholesterol Level	Category
<100 mg/dL	Optimal
100-129 mg/dL	Near optimal/above optimal
130-159 mg/dL	Borderline high
160-189 mg/dL	High
190 mg/dL and above	Very high

HDL Cholesterol Level	Category
<40 mg/dL	Low

Triglyceride Level	Category
150-199 mg/dL	Borderline high
>200 mg/dL	High

#### What is your risk for developing heart disease?

- The more risk factors and the higher your LDL, the greater the chance of developing heart disease.

## What affects cholesterol levels?

- Non-modifiable risk factors—increased age, male gender, and heredity (family history, race, etc.)
- Modifiable risk factors—tobacco use, high blood pressure, physical inactivity, obesity, diabetes, and certain medications (e.g. beta blockers, progestins, loop diuretics, thiazide diuretics, glucocorticoids, protease inhibitors, mirtazapine, anabolic steroids, azole antifungals, interferons, bile acid resins, and isotretinoin)
- Other contributing factors—stress and alcohol



## What are my goals of therapy?

- Treatment is directed by the amount of risk each person has.
- If 2 or more risk factors are present, a risk score is calculated using scoring tables.
- The combination of medical history, number of risk factors, and risk score determine your treatment regimen and goals.
- The primary goal of treatment is to lower LDL. After LDL goal is reached, other cholesterol components may be targeted.

## Treating high cholesterol:

- Therapeutic Lifestyle Changes (TLC) are recommended for everyone.
  - TLC diet
  - Weight loss
  - Exercise—physical activity for 30 minutes everyday or on most days can raise HDL and lower LDL
- Drug therapy options
  - Statins—lowers LDL
  - Bile acid sequestrants—lowers LDL
  - Nicotinic acid—lowers LDL, increases HDL
  - Fibric acids—lowers LDL, increases HDL
  - Cholesterol absorption inhibitors—lowers LDL

1. American Heart Association. Cholesterol statistics. [Accessed 24 Aug 2006]. Available at: <http://www.americanheart.org/presenter.jhtml?identifier=4506>.
2. NHLBI National Cholesterol Education Program. High blood cholesterol what you need to know. [Revised Jun 2005][Accessed 24 Aug 2006]. Available at: <http://www.nhlbi.nih.gov/health/public/heart/cholesterol/wyntk.pdf>.
3. National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of high Blood Cholesterol in Adults (Adult Treatment Panel III): Final Report. *Circulation* 2002;106:3143-3421.
4. Grundy SM, Cleeman JI, Baird Merz CN, Brewer HB Jr, Clark LT, Hunninghake DB, Pasternak RC, Smith SC Jr, Stone NJ. Implications of recent clinical trials for the National Cholesterol Education Program Adult Treatment Panel III Guidelines. *Circulation*. 2004;110:227-239.
5. Dipiro JT, Talbert RL, Yee GC, Matke GR, Wells GR, Posey LM. *Pharmacotherapy*. 6<sup>th</sup> ed. New York: McGraw-Hill. 2005.

## FROM THE MEDICAL LITERATURE....

### **Policosanol—A *SWEET* Deal???**

A dietary supplement composed of a mixture of long-chain primary alcohols, policosanol, can be derived from a variety of sources (sugarcane, yams, rice bran, wheat germ, beeswax) and is available over-the-counter. Numerous studies, published by a single Cuban research group, have reported the benefits of policosanol, extracted from sugar cane wax, over statins in lowering cholesterol. German investigators conducted an independent, multi-center, randomized, double-blind, placebo-controlled trial on 143 patients with hypercholesterolemia or combined hyperlipidemia. During a 6 week run-in phase patients received placebo and a controlled diet. Upon completion of this phase, patients were randomized to receive placebo or Cuban sugar cane-derived policosanol 10 mg, 20 mg, 40 mg, or 80 mg daily for 12 weeks. The primary outcome measured in this study was a dose-dependent reduction in LDL-C. At 12 weeks of treatment, patients randomized to



policosanol 10 mg to 80 mg experienced a 2% to 9% reduction in LDL; however, this was not statistically significant. No significant differences were found between treatment groups in total cholesterol, HDL, VLDL, triglycerides, lipoprotein A, ratio of total/LDL or LDL/HDL. During the study, policosanol was well-tolerated without significant adverse effects, even at higher doses. This study concluded that policosanol is no better than placebo at achieving lower lipid levels but was still found to be safe for patients. Some other natural products commonly used to treat and/or prevent elevated cholesterol levels include soy protein, plant stanols and sterols, omega-3 fatty acids, soluble fiber, red yeast rice, and garlic.

1. Berthold HK, Unverdorben S, Degenhardt R, Bulitta M, Gouni-Berthold I. Effect of policosanol on lipid levels among patients with hypercholesterolemia or combined hyperlipidemia: A randomized controlled trial. *JAMA*. 2006 May 17; 295 (19): 2262-2269.
2. Natural Medicines Comprehensive Database. Electronic edition. Stockton (CA): Therapeutic Research Faculty. c1995-2006. Accessed 2006 Aug 28.

## **HEALTHY LIVING...**

### **The SKINNY on interpreting FAT contents**

Starting January 2006, the FDA mandates that food labels list the amount of trans fat in addition to the normally stated saturated fat and cholesterol. Interpreting this new information is vital for both consumers and healthcare providers. Trans fat is formed during the food process of hydrogenation. It is used to solidify foods, give them more shape, and prolong shelf life. Previously, consumers were only informed of the saturated fat and cholesterol contents of foods. While saturated fat is consumed more frequently, 4 to 5 times as much as trans fat, both types raise LDL cholesterol levels similarly. The more elevated LDL “bad” cholesterol is, the greater the risk for developing coronary heart disease. Saturated fats are found in animal products, full-fat dairy products, and tropical vegetable oils. Trans fat is also found in some of these items but can also be found in some margarine, baked goods, fried foods, and other processed foods made with partially hydrogenated vegetable oils. High cholesterol content foods include organ meats such as liver, egg yolks, full-fat dairy products and shrimp. Individuals can use the percentage daily values (%DV) to interpret saturated fats and cholesterol but there is no %DV available for trans fat. The FDA recommends combining the grams (g) of saturated and trans fat then choosing the lowest combined amount. Foods containing the lowest %DV of cholesterol should be chosen over foods with a higher content.

While mandating label changes is a step in the right direction, the next avenue for lowering the incidence of dyslipidemia would be for governmental regulations addressing the food industry’s role in reducing the content of trans fat in foods. Success with this has been seen in Denmark and other European nations without significant changes in food quality, cost, or accessibility. With the new regulations, knowing the contents of saturated fat, cholesterol and now trans fat will allow consumers to make a more informed decision when choosing appropriate foods for maintaining a healthy heart.

1. FDA/Center for Food Safety & Applied Nutrition/Office of Nutritional Products, labeling, and Dietary Supplements. Trans fat now listed with saturated fat and cholesterol on the nutrition facts label. 16 Jan 2004. [Updated 1 Jan 2006][Accessed 24 Aug 2006]. Available at: <http://www.cfsan.fda.gov/~dms/transfat.html>.

<b>Nutrition Facts</b>	
Serving Size 1 cup (228g)	
Servings Per Container 2	
Amount Per Serving	
Calories 250	Calories from Fat 110
% Daily Value*	
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 1.5g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A	4%
Vitamin C	2%
Calcium	20%
Iron	4%

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

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

- NHLBI National Cholesterol Education Program. Questions and answers about the new food label: saturated fat, trans fat, and cholesterol. [Accessed 24 Aug 2006]. Available at: [http://hp2010.nhlbihin.net/cholmonth/q\\_a.htm](http://hp2010.nhlbihin.net/cholmonth/q_a.htm).
- NHLBI National Cholesterol Education Program. Know your cholesterol numbers—know your risk—give yourself some TLC. [Accessed 24 Aug 2006]. <http://hp2010.nhlbihin.net/cholmonth/index.htm>.
- Mozaffarian D, Katan MB, Ascherio A, Stampfer MJ, Willett WC. Trans fatty acids and cardiovascular disease. *N Engl J Med*. 13 Apr 2006. 354;15:1601-13.

**For more information on Cholesterol check out these helpful resources...**

- As a national voluntary health agency, the **American Heart Association** strives to reduce disability and death from cardiovascular diseases and stroke. Educational materials regarding National Cholesterol Education Month are available for consumers and healthcare professionals. For more information about the organization and the available resources for providers and consumers visit: [www.americanheart.org](http://www.americanheart.org)
- Healthy cooking...*Low-Fat, Low-Cholesterol Cookbook* includes delicious recipes to help lower your cholesterol. To learn more, refer to American Heart Association. *Low-Fat, Low-Cholesterol Cookbook*. 3<sup>rd</sup> ed. New York: Clarkson Potter; 2004.
- The **American Diabetes Association** is the nation's leading nonprofit health organization providing diabetes research, information and advocacy. Visit [www.diabetes.org](http://www.diabetes.org) for more information.
- The homepage of the **National Heart, Lung, and Blood Institute** can be accessed at [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov). As part of the U.S. Department of Health and Human Services and the National Institutes of Health, the NHLBI plans, conducts, fosters, and supports an integrated and coordinated program of research and educational activities. The **TLC diet** is available from the NHLBI website at <http://www.nhlbi.nih.gov/cgi-bin/chd/step2intro.cgi>. Other resources promoting National Cholesterol Education Month are also available from the homepage.



**Other Important Dates in September:**

- Labor Day – 4<sup>th</sup>
- National Alcohol and Drug Addiction Recovery Month
- Ovarian Cancer Awareness Month
- National Sickle Cell Month
- Reye's Syndrome Awareness Week – 18<sup>th</sup> -24<sup>th</sup>
- Prostate Cancer Awareness Week – 19<sup>th</sup> -25<sup>th</sup>

**The last “dose”...**

Live as if you were to die tomorrow.  
Learn as if you were to live forever."  
—Mahatma Gandhi [1869 – 1948]



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