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## COVER STORY

### A Natural Anti-Cholesterol Dietary Supplement

#### POLICOSANOL

Heart attack and stroke have been associated with high levels of a type of cholesterol known as low-density lipoprotein (LDL) (“bad” cholesterol) and low levels of high-density lipoprotein (HDL) (“good” cholesterol). Reversing these trends can lower the risk for these and other artery-related diseases.

Policosanol is a supplement that can normalize cholesterol as well or better than drugs, without side effects.(1) Efficacy and safety have been proven in numerous clinical trials, and it has been used by millions of people in other countries. Policosanol can lower LDL cholesterol as much as 20% and raise protective HDL cholesterol by 10%. This compares favorably with cholesterol-lowering drugs which have the drawback of side effects such as liver dysfunction and muscle atrophy. Policosanol is free of these side effects.

Policosanol works by blocking the synthesis of cholesterol. It does not inhibit the HMG-CoA enzyme like the “statin” cholesterol-lowering drugs, but it may inhibit a different enzyme. Its exact mechanism is not known.

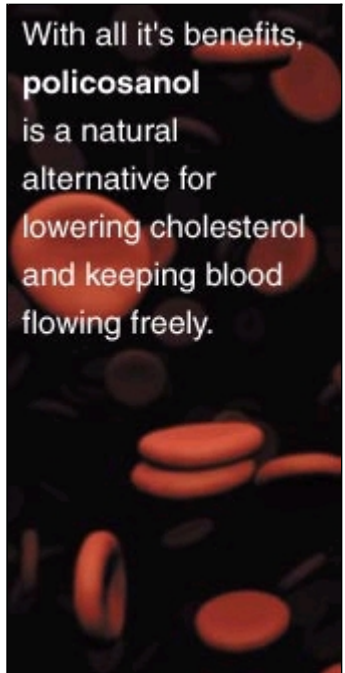
What makes policosanol exciting is that it has other actions against heart disease in addition to lowering cholesterol. Like statin drugs, policosanol helps stop the formation of artery lesions.(2) This was proven in studies on rabbits fed a diet designed to create high cholesterol:

“In most policosanol-treated animals, atherosclerotic lesions were not present, and in others, thickness of fatty streaks had less foam cell layers than in controls.”(3)

One of policosanol’s important actions is to inhibit the oxidation of LDL.(4) Oxidized LDL is dangerous. It promotes the destruction of blood vessels by creating a chronic inflammatory response. Oxidized LDL can also provoke metalloproteinase enzymes.(5) These enzymes promote blood vessel destruction, partly by interfering with HDL’s protective effect. Studies show that rats treated with policosanol have fewer foam cells, reflecting less inflammatory response causing less blood vessel destruction.(6,7)

Another action of policosanol is to reduce the proliferation of cells. Healthy arteries are lined with a smooth layer of cells so that blood can race through with no resistance. One of the features of diseased arteries is that this layer becomes thick and overgrown with cells.

As the artery narrows, blood flow slows down or is blocked completely. Policosanol was tested for its ability to stop the proliferation of these cells.(8) According to the results, policosanol’s ability to stop cell overgrowth “is in agreement with the antiproliferative effects reported for other lipid-lowering drugs, such as most of the statins.”(9)



With all its benefits,  
**policosanol**  
is a natural  
alternative for  
lowering cholesterol  
and keeping blood  
flowing freely.



Policosanol is a natural supplement made from sugar cane.

Policosanol also inhibits the formation of clots, and may work synergistically with aspirin in this respect. In a comparison of aspirin and policosanol, aspirin was better at reducing one type of platelet aggregation (clumping together of blood cells). But policosanol was better at inhibiting another type. Together, policosanol and aspirin worked better than either alone.(10,11) A related effect is that significant reductions in the level of thromboxane occur in humans after two weeks of policosanol.(12) Thromboxane is a blood vessel-constricting eicosanoid produced by platelets. (Note: eicosanoids are powerful chemicals created in cells that can do things like create fever to kill infections, make blood vessels in lungs expand so you can breathe, and reduce inflammation. The body could not function without eicosanoids. Problems arise when eicosanoid reactions are disrupted by drugs, disease, poor diet and other factors that interfere with their natural balance).

#### Drug interactions

As for interfering with other heart medication, policosanol doesn't appear to cause any problems. Adverse reactions do not occur with blood thinners or beta-blockers, except that policosanol may enhance the blood pressure-lowering effect of propranolol.(13) No direct studies have been done combining policosanol with other drugs. However, during clinical trials policosanol was given to people taking calcium antagonists, diuretics, vasodilators, NSAIDs, meprobamate, thyroid hormones, digoxin, anticoagulants, ulcer drugs, neuroleptics, antidepressants and anxiolytics (anti-anxiety drugs) without any problems.(14)

#### Highlights of clinical trials

Policosanol has undergone as many clinical trials as most drugs. In studies on people with high cholesterol at high risk of heart disease, policosanol lowered LDL cholesterol 20% in 6 to 12 weeks at 10 mg/day. Total cholesterol was reduced 15%, and HDL increased 7%-28%. Taking 20 mg/day reduced LDL about 28%, total cholesterol about 20%, and elevated HDL 7%-10%. Triglycerides don't respond to policosanol.

The 10 mg dose has undergone long-term testing (2+ years), with no ill effects reported. The 20 mg dose (and higher) is still undergoing long-term trials. (Note: as in most trials of cholesterol-lowering drugs, policosanol was tested in conjunction with a low-cholesterol diet).

Policosanol holds its own against statin drugs. LDL and total cholesterol lowering is similar, with policosanol performing better on elevating HDL. In a side-by-side comparison study from Chile, for example, 10 mg of policosanol reduced LDL 24% compared with 22% for lovastatin (Mevacor) at 20 mg, and 15% for simvastatin (Zocor) at 10 mg. This is similar to findings in other studies.(15)

A combination of policosanol and gemfibrozil (Lopid) works better than either by itself, according to one study.(16) Another study combined policosanol with bezafibrate, a cholesterol- and fibrinogen-lowering drug. Policosanol dramatically enhanced the ability of bezafibrate to lower LDL and total cholesterol.

In a study involving over 3000 people taking policosanol, only 26 dropped out because of side effects. The side effect complained of most frequently was weight loss. (Average time in the study 2.5 years).

In short-term, placebo-controlled trials, complaints of side effects from the placebo exceeded those for policosanol in every category except abdominal pain (which was reported equally in both). Policosanol appears to have good side effects rather than bad ones.

One of the noted side effects of the large study above was that people taking policosanol had significantly lower rates of hospitalizations in special care units. Serious coronary events were reduced in the people taking policosanol compared to placebo.

#### Non-toxic

Policosanol is a natural supplement made from sugar cane. The main ingredient is octacosanol. Octacosanol is an alcohol found in the waxy film that plants have over their leaves and fruit. The leaves and rinds of citrus fruits contain octacosanol, and so does wheat germ oil. Caviar, which reportedly has health benefits, contains high amounts of octacosanol.

Octacosanol is a "long chain fatty alcohol" (similar to cholesterol which is also an alcohol). Policosanol is a combination of octacosanol and several other long chain fatty alcohols — hence the name "poli"-cosanol. Keeping octacosanol together with other naturally-occurring fatty alcohols makes it more stable. There is evidence that octacosanol also works better when it's combined with other fatty alcohols.

#### Benefits of Policosanol

- Lowers cholesterol without life-threatening side effects
- Elevates HDL better than most statin drugs
- Inhibits the formation of lesions in arteries
- Keeps LDL from oxidizing

Fatty alcohols are converted to fatty acids, and vice-versa. The beneficial fatty acids in fish, for example, are made from octacosanol and other long chain fatty alcohols. Fatty alcohols are required for the synthesis of myelin, the insulation around nerves, as well as other important bio-substances in the body.

Policosanol is very safe. When rats were given 1724 times what a human would take, no toxicity occurred.(17) Monkeys and dogs have also been given high doses of policosanol long-term without toxicity.(18) No cancer has ever resulted in rodents given large amounts for extended periods or time, nor does policosanol appear to interfere with drug metabolism (it doesn't affect the liver's cytochrome p450).

#### Exercise enhancement

In studies dating back to the 1960s, octacosanol has shown its ability to enhance endurance and oxygen utilization during exercise. Research shows that octacosanol is taken up by muscles.(19) It appears that muscles store octacosanol and convert it to an energy source. Energy mobilization and metabolism are enhanced by octacosanol. When octacosanol is first given, most of it goes to the liver, but after three days of treatment, it starts accumulating in muscle.(20)

In studies from Japan, octacosanol caused rats to be more active and exercise more. It also increased their endurance. When people with heart disease are given 10 mg/day of policosanol, aerobic capacity and oxygen uptake increase, and ischemia decreases. Improvement on treadmill exercise-ECG tests occurs after treatment with policosanol. These results in heart patients confirm studies in healthy people undergoing exercise programs who were also able to increase reaction time and strength with octacosanol.

#### Libido enhancement (maybe)

Unlike cholesterol-lowering drugs that can induce impotency, policosanol may have a libido-enhancing effect. Studies in male rats show that policosanol increases sexual activity without increasing testosterone. The same results appear to be true for monkeys, but the studies are too few to be definitive. Unfortunately, very high amounts of policosanol had to be taken to get these effects. However, the bright side is that when policosanol is taken at recommended doses, it doesn't interfere with a person's sex life, which gives it an advantage over many cholesterol-lowering drugs.

#### Other conditions respond to policosanol

Policosanol has been tested in postmenopausal women at risk for heart disease, people over 60 years old, and people with intermittent claudication (blockage of arteries, usually in the lower extremities). All showed good results. In studies on postmenopausal women, policosanol (10 mg/day) reportedly reduced total cholesterol by 17% and LDL by 25%. HDL increased 28%. These results are similar to those reported in people over 60 who took 10 mg/day of policosanol. In studies on people with intermittent claudication, policosanol (20 mg/day) reduced lameness and increased the distance a person could walk. The percentage of serious complications in the policosanol group was 9.7% compared to 38.7% in the group getting a placebo. This significant reduction in intermittent claudication-induced complications indicates that policosanol exerted beneficial effects beyond cholesterol modulation.(21)

Total cholesterol levels should be kept below 200 mg per deciliter of blood. Cholesterol levels above 240 are especially dangerous. The dosage for policosanol is 5-20 mg/day. It can be taken with other drugs, and seems to enhance the effects of statin drugs, especially in conjunction with aspirin. No serious side effects have ever been reported for this cholesterol modifying supplement. Although it shows benefits for cholesterol, LDL and HDL, policosanol doesn't appear to affect triglycerides. Serum triglyceride levels may be lowered by other supplements such as fish oil. One of the very striking benefits of policosanol is that it not only lowers LDL, it keeps it from oxidizing. This and other actions of this natural product give it potential as the number-one choice for people with artery disease—or those who want to prevent it.(22-23)

Purchase POLICOSANOL from LEF

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- Enhances the benefits of exercise
- Reduces complications in people with artery diseases
- Reduces thromboxane which promotes inflammation
- Doesn't interfere with sex life

#### Thyroid, Cholesterol and Soy Protein

If you have stubborn cholesterol, you may have low thyroid. Studies show that even mildly reduced thyroid can cause elevations in cholesterol that respond to treatment with T4. Elevated homocysteine is also associated with low thyroid. In a study on people without thyroid glands, stopping thyroid therapy resulted in a 100% increase in cholesterol and a 27% increase in homocysteine. Within four to six weeks after reinstating therapy, both returned to normal. Diets based on animal protein (casein) raise cholesterol and lower thyroxine in animal experiments compared to a plant-based diet (soy protein). Isolated soy protein can lower cholesterol and raise thyroid when added to an animal protein diet.

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