



## Cholesterol Statins –v– L-Arginine

### **And the Winner Is...**

In 1997, Dr Rainer H Boger and his colleagues at the Hanover Medical School in Germany decided to perform a side-by-side comparison of oral L-Arginine versus Lovastatin in the lowering of cholesterol. Lovastatin (trade name: Mevacor) was the first approved medication in the so-called statin class, potent cholesterol-lowering chemicals being increasingly recommended as a treatment for all elevated levels of cholesterol.

Indeed, by the time Dr Boger's experiment, many physicians had come to accept the fact that the statins were the new gold standard against which all other cholesterol-lowering medicines must be measured. Few expected L-Arginine to come close to Lovastatin's effectiveness.

An animal "model" often used to study atherosclerosis is the rabbit because its blood vessels, like ours, respond to a high-fat diet by forming deposits of cholesterol plaque inside the artery walls. Dr Boger and his colleagues fed their test animals a 1 percent cholesterol diet for four weeks, then followed this with a 0.5 percent cholesterol diet for twelve more weeks. This may not sound like all that much cholesterol, but it is easily enough to promote significant plaque formation in rabbits over a relatively short time period.

Though all the rabbits received the same food, they didn't all get the same beverage. Here Boger divided them into three groups. The first group received plain drinking water. The second drank water laced with Lovastatin. And the third got water containing dissolved L-Arginine.

As expected, the rabbits who received no treatment showed significant atherosclerotic plaque in vital arteries, including the carotoids that supply the brain and the aorta that supplies the body. Moreover, their artery walls had noticeably thickened, narrowing the inside diameter of these vessels. Finally, these "plain water" rabbits also suffered an impaired ability to make nitric oxide from ADNO. The bottom line: these test subjects were well on their way to obstructive artery disease.

Also as expected, the group of rabbits receiving lovastatin-laced water along with their high-cholesterol diet did enjoy some significant protection. Specifically, these animals showed less plaque formation in their brain and heart arteries, less thickening in vessel walls, and less degradation of ADNO production.

What was surprising, however, was the effectiveness of L-Arginine at fostering the same changes Lovastatin had brought about. Indeed, oral L-Arginine didn't just measure up to the gold standard – ***it exceeded it.***



The study, which was published in the August 1997 issue of *Circulation*, the official journal of the American Heart Association, concluded that "lovastatin had a weaker inhibitory effect on carotid plaque formation and aortic artery intimal (vessel wall) thickening than L-Arginine"

Equally provocative was the researchers' finding that L-Arginine seemed to inhibit so-called oxygen free radicals, the much publicized biochemical bogeymen that wreak such havoc on living tissues unless they're neutralized by antioxidants. Lovastatin, on the other hand, not only didn't inhibit oxygen free radicals, it even seemed to **energize** them. The study adds a definite spot of tarnish to the miracle drug's halo, intimating that even as it works to cure heart disease with its right hand, a statin drug may be tacitly encouraging other kinds of damage with its left hand.

When you factor in recent research suggesting that the high-priced statin drugs can promote side effects in people that range from cognitive impairment to cancer, <sup>(2)</sup> the Arginine Solution emerges as an even more attractive option for controlling cholesterol and its health consequences.

### **What's Up, Doc?**

At this point, you may be saying "Okay, so maybe arginine works on rabbits – but I'm not a rabbit! What about people?"

For obvious reasons, doctors can't intentionally set out to induce atherosclerosis in people just to see if arginine can help them. What researchers can do is to look at patients who already suffer high cholesterol and atherosclerosis and see what effect, if any, arginine has on their condition. Consider just three of the studies published in top medical journals that have addressed precisely this question:

***The New England Journal of Medicine*** reported in 1993 that patients with advanced atherosclerosis of the lower limbs as well as hypertension and elevated serum cholesterol were given intravenous arginine on each of seven consecutive days. The infusion rapidly lowered plasma cholesterol levels for up to twelve hours. The authors concluded that the observed effect was due to the conversion of arginine to nitric oxide. <sup>(3)</sup>

***The Lancet*** also recently reported a clinical effort at the Utrecht University Hospital in the Netherlands to reverse cardiovascular disease in patients diagnosed with elevated cholesterol. Patients with advanced vascular disease were taken off drugs prescribed to lower their serum cholesterol levels for a period of two weeks. After that time, and compared to a control group, they already showed a significant impairment of the ability of the endothelium to produce nitric oxide and dilate the small arterial blood vessels. The drug treatment was reinstated and the difference between the patients and the control group disappeared after three months. Then the patients were taken off the drugs again, and both they and the control subjects were given an intravenous infusion of arginine. Arginine infusion had about the same effect in the patient group as did the cholesterol lowering drugs. <sup>(4)</sup>



In a study conducted at Sinai Hospital in Baltimore and published in the *Journal of Parental & Enteral Nutrition*, healthy elderly patients were given seventeen grams of oral arginine per day for two weeks. This decreases total cholesterol and LDL without also reducing the "good" HDL cholesterol. The bottom line: The patients enjoyed a significant improvement in their lipid profile. And despite the relatively high dosage, no adverse side effects were observed. <sup>(5)</sup>

These and a growing body of other human and animal studies continue to strengthen the case for ADNO as a potent cholesterol lowering supplement. But please do not misunderstand our intentions in relating this information. If a doctor has already prescribed medication, **don't** unilaterally stop taking it and make a switch to arginine. **Do** however discuss the growing evidence for arginine with your health care provider to see if adding it as a complement to your current treatment makes sense in your situation.

We believe a conservative dose of three to six grams of oral arginine daily will lower your cholesterol and, prevent it conversion into a particularly dangerous "oxidized" form that contributes so substantially to plaque. In some cases, taking oral arginine regularly may let you eventually lower the statin dose and perhaps go off it altogether.

And if your cholesterol is not yet elevated to the point where you need medication, the Arginine Solution can help you to stay that way. Earlier in this book, we revealed the way ADNO can treat or prevent high blood pressure. In the next chapter we describe the deleterious heart changes untreated hypertension can cause over the years. In this chapter, we will look at ADNO's beneficial effects on another key element in cardiovascular diseases: atherosclerosis, commonly known as hardening of the arteries.

If this deleterious process occurs in the slender but vital arteries that supply your heart muscles with oxygen and nutrients, it can lead to the aptly named CAD, or coronary artery disease, which greatly ups your risk of a heart attack. If the carotid arteries supplying your brain harden, you become vulnerable to a brain attack, that is, the most common kind of stroke. Though these two atherosclerosis-related catastrophes are the most feared by many patients, hardening arteries elsewhere in the body can lead to other physical problems with sometimes devastating consequences, as someone who suffers the pain of peripheral artery disease – the result of hardening of the arteries that supply the calves, thighs, hips, and feet – can tell you.

Though all these conditions occur in different parts of the body, they all have one causative factor in common: the narrowing of vital arterial vessels by atherosclerotic plaques.



## References

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