FOUNDATION
of the National Lipid Association

Mended Hearts®

FAQs

Expert Answers to Your Questions About **Managing Lipids to Reduce Cardiovascular Risk**

There are about 29 million Americans with total cholesterol numbers over 240 mg/dL, which increases their risk of heart disease. People with high cholesterol may need to make lifestyle changes to lower their cholesterol, and many need medications to lower their risk of heart attack and stroke. If you are prescribed medications, you should also discuss lifestyle changes, such as exercise, stress management, healthy eating, weight management, etc., with your doctor and healthcare team.

We spoke with a lipid specialist and primary care physician, Dr. James Underberg, to provide to you and your family answers to many frequently asked questions about managing your lipids and reducing your risk for heart disease.

Q What are reasons a doctor may prescribe a statin?

We start patients on statins to lower low-density lipoprotein cholesterol (LDL-C) sometimes referred to as “bad cholesterol.” Statins have been shown to reduce the risk of heart attacks and strokes. Statin use benefits most patients who are at higher risk of having a cardiovascular event, someone who has already been diagnosed with heart disease, or in some cases, people with risk factors for heart disease, such as diabetes, hypertension, inherited high cholesterol, chronic kidney disease, and a variety of other associated risk factors including elevated lipoprotein(a).

Q Why might my doctor choose to not prescribe a statin?

Statin therapy has been shown to be very effective in lowering LDL-C; however, in some patients who are at low risk for heart disease, the benefit of a statin might not be high enough to start on a medication. For those patients at low risk, lifestyle changes may be all that is needed at the time.

Making lifestyle changes can feel overwhelming, but small changes can make a big difference and are often changes you can stick to and therefore the best choice. Trying to do too much too quickly may be a recipe for failure.

Don’t give up – making changes to your routines and habits is hard and will most likely involve some failures along the way. With a heart healthy diet, reducing cholesterol and saturated fat intake, increasing exercise, maintaining a healthy weight, quitting smoking (or never starting), managing stress, allowing for the sleep your body needs, and drinking alcohol only in moderation, many people find great success in reducing their risk for heart disease.

Q Are there any negative health effects of being on statins?

There are no drugs that are side-effect free, including statins, but there are ways to manage or reduce side effects. One of the most documented complaints associated with the use of statins are related to muscle aches, or "myalgias."

It is estimated that between 5 to 10% of patients who start taking statins develop muscle-related side effects, most commonly muscle achiness, soreness, and weakness. This can feel like you went to a gym and started a new exercise program and a day or two later, when you try to put on your jacket, your upper arm muscles are sore.

This tends to affect mainly the upper arms or the thighs and is usually noticed 1 to 2 months after starting a statin. Most people report that their muscle-related symptoms go away after they stop taking their statin.

There are seven different statins, and they're all slightly different and metabolized slightly differently. Your doctor may ask you to stop your statin and try it again later, or try a different statin, to find a dose and medication that works for you. If you try different statins and have the same side effects, you may be diagnosed with a Statin-Associated Side Effect (SASE) or Statin Associated Muscle Symptoms (SAMS). Because these symptoms could be caused by increase in exercise, it is important for your healthcare team to evaluate your unique situation fully.

Q Can the use of statins cause arthritis?

No, statins do not cause arthritis. They have not been shown to cause joint pain, so if you already have a history of arthritis, it's very unlikely that statins will make your symptoms worse.

Q Can the use of statins cause liver damage?

No, statins are not associated with liver disease.

It's normal to see a slight increase in liver enzymes on your blood tests while on a statin. This is because statins, like most drugs, are metabolized by the liver. Similarly, if we measured your liver enzymes right after you drank alcohol, the liver test would show an abnormality because alcohol is metabolized by the liver.

If you have liver disease, talk to your healthcare team to be sure that everything is stable before your start taking a statin.

Q Do statins cause diabetes?

Statins do not cause diabetes. However, long-term statin use, especially at higher doses, has been associated with slight increases in blood sugar. So, while statins do not cause diabetes, they may worsen the condition of someone who is already pre-diabetic, causing them to become diabetic slightly sooner than they would have without the statin medication.

Although there might be a slight increase in blood sugar, it is important to note that taking a statin greatly reduces a diabetic patient's risk for a heart attack or stroke.

Q Can statins affect my memory?

According to many experts, statins probably do not affect memory. There are some reports to the Food and Drug Administration (FDA) of statins causing mild but reversible "cognitive defects" such as brain fog or issues with short-term memory. The FDA's recommendation is that if that happens, you should stop the statin and wait a month before trying to take it again. If those symptoms persist, then you need to see a neurologist because it's most likely not the statin causing the memory issues.

Some data suggests that people with dementia or dementia-related symptoms see an improvement in their symptoms while on statins.

Q My cholesterol raised 70 mg/dL after menopause, but my lifestyle and diet have remained the same. Why?

In some women there is an increase in cholesterol after menopause. Although we are not sure why this happens, there is speculation that as estrogen levels go down during menopause, the body tries to fix the problem. Since cholesterol is required for your body to make estrogen, making more estrogen requires more cholesterol.

Typically, not only does the LDL-C go up during menopause, but the HDL-cholesterol (HDL-C) also goes up. HDL-C is made primarily in the intestine. An increase in LDL-C and HDL-C after menopause is often a signal of an increase in absorption of cholesterol. While reducing dietary cholesterol will not lower cholesterol for many people, it will in someone who was a hyper-absorber of cholesterol. Postmenopausal women should reduce their intake of foods that are high in saturated fat and cholesterol.

Because of the increase in cholesterol absorption and the reduction in estrogen levels, women's risk of heart disease increases after menopause. There is a medication called "ezetimibe" that targets cholesterol absorption. Sometimes, women who are taking statins will also take ezetimibe after menopause to manage their risk for heart attack or stroke.

Q How can I increase my HDL-cholesterol? And do I not need to worry about an increase in my LDL-cholesterol if my HDL-cholesterol (the "good" cholesterol) also increased?

We do not know that HDL protects from that increase in LDL-C, so it should still be addressed with your healthcare team.

There are a lot of things that will raise HDL-C, and some of them are associated with reducing risk of heart disease. Stopping smoking and increasing your daily exercise will cause your HDL-C to go up and will reduce your risk for heart disease. But it's unclear that the benefit is related to the change in HDL-C. People do sometimes think of HDL-C as being protective, or the "good cholesterol", but the value that we measure when we measure HDL-C is not a value that actually informs us whether or not HDL-C is doing "good" or "bad" things in your body. As an example, if you increase the saturated fat in your diet, your HDL-C will go up but so will your LDL-C, and we know that increased saturated fat in the diet has been associated with higher risk for heart disease. Another example is drinking, which will raise your HDL-C. The more alcohol you drink, the higher the HDL-C will go. But only small amounts of alcohol have heart-healthy effects.

There have been some investigational medications that increase HDL-C, but they have not been proven to lower risk for heart attacks and strokes.

If your HDL-C is high, but you still have a very high LDL-C or you have diabetes or high blood pressure, those are all still considered to be independent risk factors for heart attack and stroke and should be discussed with your healthcare team.

Q Do you need LDL-cholesterol for brain function?

The best study to answer this question is the development of the fetus into a newborn, to infant, and to toddler. Our LDL-C is at the lowest when we are born, and that is when our brain function is developing at its most rapid rate. The brain is an independent entity, making all of the cholesterol that it needs on its own.

Every cell in the body makes cholesterol except for one - red blood cells. LDL does not cross what we call the "blood-brain barrier," which is the ability of systemic circulation to enter the brain. So, when you lower or raise LDL-C, it doesn't affect brain function.

Q What is Small Dense Low-Density Lipoprotein (sdLDL) and do we need it?

You can measure sdLDL with a lipoprotein test, or what some call an "advanced" cholesterol test.

Your blood stream is like water in a river. And cholesterol is a fatty, oily substance that needs to be transported around the bloodstream inside "water-loving" vehicles or particles. These particles are called Low Density Lipoprotein (LDL), High Density Lipoprotein (HDL), and very low-density lipoprotein (VLDL). They carry the cholesterol around from point A to point B, kind of like boats on a river.

We can measure these particles in number and in size. Some people have smaller sized particles. Some people have larger sized particles. But the size of the particles does not determine your risk for heart disease. However, the number of particles may! When you have smaller particles, you often tend to have more of them.

But if you have too many large particles, you may develop heart disease. And if you don't have a lot of small particles, you probably won't. In fact, patients with familial hypercholesterolemia, a genetic cause of high cholesterol, have very large, fluffy particles, and they are still at very high risk for heart disease.

Q I've been on atorvastatin (Lipitor) for about 30 years. Are there newer, more effective statins that I should consider taking instead? I also take ezetimibe (Zetia) and my LDL-C is over 70 mg/dL.

All statins are effective and safe to use, but they're all a little different. They all work by the same mechanism, but they have slightly different effects on things like the liver and kidneys, and some stay in your system longer.

Some of the older statins have to be taken in the evening. Some statins like atorvastatin and rosuvastatin can be taken at any time because they are long-acting. Of all statins, Crestor (rosuvastatin) is considered to be the strongest (or most "potent"). Atorvastatin is also very potent. Some people respond differently to one statin over another statin just because there's a slight difference in the way the medication fits in their body's metabolism.

If you are doing well on atorvastatin and it is adequately lowering your LDL-C with no side effects, it is not recommended to switch to a different statin.

One interesting thing about rosuvastatin is that there is no interaction with grapefruit juice like there is with atorvastatin. If you are a fan of grapefruit juice, then rosuvastatin might be the preferred statin for you.

Experts consider an LDL-C level of over 70 mg/dL to be a trigger (what is referred to as a "threshold") for intensifying medication in patients that have heart disease.

If someone who was at high-risk for a heart attack and/or stroke was on atorvastatin and ezetimibe (and taking both as prescribed by their doctor) and their LDL-C was still over 70 mg/dL, switching to a more potent statin (or a higher dose of your current statin), or adding additional medications may be reasonable and recommended by your healthcare team.

Making sure you are taking your medications as prescribed is just as important as making sure that you're on the right medications. Ezetimibe is very well-tolerated. It's not as potent as statins but it works well when combined with statins, so it's usually the next recommended medication after statins.

Q Most heart-healthy diets emphasize green leafy vegetables, but I am on a blood thinner called warfarin, so I am supposed to avoid leafy greens. Should I eat substitutes for Vitamin K or will this lower the effect of my blood thinner?

Vegetables such as mushrooms, squash, and artichokes are good options that are heart-healthy and lower in vitamin K than leafy green vegetables. Speak with your healthcare team about potential drug interactions and visit the Foundation of the NLA's registered dietitian Lipid Specialist directory at LearnYourLipids.com to learn more!

Q Should I be concerned about statins' effect on creatine kinase (CK) levels if I am a runner?

CK is an enzyme produced by skeletal muscle and the heart. Anytime we injure our muscles, whether with "good" tears in the muscle while safely exercising or through unintentional injuries, CK levels go up. Every time those muscles tear, there is a slight release of the CK enzyme into the bloodstream.

Statins also increase CK and they are more likely to increase CK in people doing things that increase CK. If you're a marathon runner, a professional athlete, or someone who works out all the time, you're probably going to have higher CK levels on average than someone who doesn't. And a statin added onto that might increase your CK levels even more.

But asymptomatic increases in CK are not associated with adverse outcomes with statins. There is a very rare side effect with statins called "rhabdomyolysis" where independent of exercise, statins can cause severe muscle breakdown, which leads to kidney disease. Because this is so rare, most healthcare professionals do not monitor CK levels in their patients on statins.

Talk to your healthcare team if you are planning to participate in a marathon run, as they may consider it reasonable to skip your statin for the day before and during the marathon.

Q My lipid panel has improved on statins, but my triglycerides are rising, despite limiting sugar, added sugars, and saturated fat. What changes should I make?

Although we think of triglycerides as "fat," saturated fat is usually not the most common cause of elevated triglycerides. Simple sugars are converted into triglycerides so they more commonly can increase triglyceride levels. However, people who have inherited defects that cause high triglycerides are more sensitive to saturated fat.

Alcohol can increase triglyceride levels. Estrogen can also increase triglyceride levels. There are also a variety of medications that that are associated with higher triglyceride levels, including beta blockers, certain blood pressure medications, diuretics, and some acne medications including Accutane.

A high triglyceride level is a risk factor for heart disease, so speak with your healthcare team about your daily routine and medications and ways in which you may be able to lower your triglycerides.

Q Other than statins, are there any other cholesterol drugs that lower inflammation and c-reactive protein (CRP)?

When you add ezetimibe to statins you may see a further reduction in CRP.

A new medication called Bempedoic Acid also lowers CRP. Whether that is a beneficial effect of the medication has not yet been determined. While the medication has been proven to lower LDL-C, there has not yet been a clinical trial studying its effects on risk for heart attack and stroke.

Q An 80 mg dose of Lipitor only costs a little more than the 40mg dose. If I'm prescribed 40 mg/day, can I cut my 80 mg tablets in half to save money?

Yes, there is no reason why you can't split your statin tablets in two.

Q Should I take dietary supplements as part of a heart-healthy diet?

Be cautious when purchasing dietary supplements. Supplements are not regulated by the FDA, so ingredients and effects marketed on a product's label may not be validated. If available to you, discuss your options with a registered dietitian or your doctor.

Q I tolerate my statin well and my LDL-C has been reduced to 60 mg/dL, but my doctor says I still have plaque in the arteries around my heart. Why?

If you have pre-existing plaque in the arteries around the heart, you are at increased risk for having a heart attack and stroke. Taking a statin and lowering your LDL-C level below 70 mg/dL reduces the risk of having heart attack and stroke.

However, that risk reduction probably relates to stabilizing existing plaque and not making any current plaque go away. When someone has a heart attack, existing plaque in the artery ruptures through the artery wall and the plaque spills into the artery and is taken to the narrowest part of the artery where it creates a blockage. These blockages are what cause a heart attack, or in the case of a blockage traveling to the brain, a stroke.

Stopping the plaque from rupturing, or stabilizing the plaque, is what statins do and is the key to preventing heart attacks and strokes. Sometimes in doing this, statins make the plaque in the arteries denser and convert it from what is called "soft plaque" to harder or "calcified" plaque.

Some doctors will order a coronary calcium scan before starting you on a statin to see if you already have preexisting hard plaque in the arteries around your heart. This is because statins can increase coronary calcification, meaning that plaque becomes more stabilized and less likely to rupture. In these cases, if the plaque is stable, your healthcare team's goal will be to stabilize the plaque and not necessarily get rid of existing plaque. There is some evidence that decreasing LDL-C levels to below 40 mg/dL can lead to regression of plaque, but there isn't evidence showing that patients experiencing plaque regression (getting rid of existing plaque) are at a lower risk for heart attack and stroke.

Q If I have a high coronary artery calcium (CAC) score, should I stop taking calcium supplements?

Oral calcium supplementation does not cause coronary calcification. Note that calcium supplements should be taken with Vitamin D.

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