Statistically Americans are more likely to die from heart disease than any other illness. This is a result of our nagging inability to eliminate cardiovascular heart disease. While this is a frightening statistic, it belies the significant knowledge and advances made by medical researchers in the past several decades with respect to heart health and longevity. Much of this knowledge has been gained in the area of cholesterol or blood lipid profiles and the good news is, it appears to be a health factor we can positively influence with a reasonable amount of effort. By working with your health care provider you can improve your long-term chance of avoiding heart disease.

According to the American Heart Association, there are over 100 million American adults who have total blood cholesterol values above 200 mg/dL (i.e., higher than desirable) and about 37 million Americans with total cholesterol levels of 240 mg/dL or above, a level considered too high. Given that research has consistently shown that elevated cholesterol levels can cause coronary heart disease (CHD), these figures are far from encouraging.

Within this enormous population of Americans with high cholesterol there are different categories or sub-groups of severity. Those individuals with a total cholesterol of greater than 240 mg/dL may need an immediate and dramatic reduction in triglycerides and low density lipoprotein (LDL cholesterol) just to avoid a sudden and debilitating heart attack. Various surgical procedures and prescription drugs have proven effective and beneficial for this population set.

Fortunately, the second and larger population set of Americans is considered only “borderline high” and they are not in a critical state. This second group is said to be abnormally high because they are above the “optimal range” according to NCEP, a division of the National Institute of Health. They have either slightly high LDL or perhaps they have a low level of HDL (high density lipoprotein), the “good cholesterol.” People in this group have an excellent opportunity to influence their heart health and longevity before resorting to prescription drugs (or surgery). Your health care provider can assess your heart health and determine if you need to be concerned about your cholesterol levels.

When working to influence your cholesterol levels positively, the initial steps for heart health involve proper diet and exercise. While everyone agrees that diet and exercise are a “step in the right direction,” compliance can be difficult, especially during the summer vacations and the holiday season. Even with compliance to a proper diet and exercise, benefits often fall short of final objectives. Researchers note that with diet and exercise, cholesterol levels often improve during periods of weight loss but level off when weight loss subsides. In one 1996 study, researchers observed a 6 percent decrease in total cholesterol and a 6 percent decrease in LDL cholesterol following an eight-week period on the American Heart Association Step One diet.

Beyond diet and physical activity, a beneficial consideration is taking a nutritional supplement that promotes heart health. While there are many new supplements and supplement combinations targeting cardiovascular health, one of the most effective and well researched supplements is the simple vitamin niacin. You may know it as vitamin B3 or nicotinic acid and it is found in foods as common as brewer’s yeast, whole grains, enriched flour and cake mixes. The complaint about niacin is the all too common niacin flush.

Flushing is described as a warm and sometimes itching sensation felt on a person’s skin after taking large doses of plain or immediate release niacin. It is a result of increased circulation on the surface of the skin and often causes a brief redness of skin color, hence the name flushing. Despite the temporary discomfort, flushing is not harmful and subsides within 20 to 60 minutes for most people. Unfortunately, the annoying flush keeps many people from taking niacin on a regular basis.

In response to the challenge of niacin flushing, formulation specialists have created various technologies to slow the digestion and absorption of the niacin tablet. By slowing the delivery of the niacin, the body absorbs it gradually over several hours and avoids the sudden surge of niacin that causes the flush. Of all of the technologies available, time-released or sustained-release tableting appears to allow you to get the best of both worlds—a niacin supplement that won’t make you flush.

Among the best and most researched technologies is a wax-matrix formulation of sustained-release niacin developed in Oregon. This wax-matrix preparation has now been verified in numerous clinical trials. In one of the early clinical trials, the wax-matrix formulation showed a remarkable 13 percent reduction in total cholesterol, a 31 percent increase in HDL, “good cholesterol,” and a 32 percent decrease in the total cholesterol to HDL ratio. A follow-up study at the University of Minnesota showed a 19 percent decrease in LDL, a 13.3 percent increase in HDL and 19.4 percent decrease in the total cholesterol to HDL ratio, on a dose of 1500 mg sustained-release niacin per day.

Another study in a Russian population observed a 14 percent reduction in total cholesterol and an 18 percent reduction in LDL cholesterol with the wax-matrix formulation. Most trials evaluate between 1,000 and 1,500 mg per day, taken over the course of the day in 500 mg increments.

While the cholesterol results from this form of niacin are
Inositol Hexanicotinate
The flush-free impostor of niacin

Short cuts to challenging problems rarely work and often lead to disappointment. This is clearly the case with marketers of products touted as “No-Flush” or “Flush-Free” Niacin. With close to 100 clinical trials, it is well documented that high levels of nicotinic acid can be significantly beneficial in maintaining optimum cholesterol levels. The challenge is, when not formulated into a slow-release or sustained-release product, plain niacin causes flushing, the sensation of warmth and tingling or blushing on the skin.

While the niacin flush is not harmful, it is uncomfortable, and therein lies the marketing dilemma. Some supplement manufacturers have added value to plain niacin by formulating it in a slow release tablet. Others have unfortunately sought a short cut to the flushing problem by substituting it with inositol hexanicotinate (INH), a distantly related but totally different compound of nicotinic acid. The wonderful but misleading marketing story goes like this; niacin, or nicotinic acid, is chemically bound to an inositol molecule and following ingestion, the nicotinic acid is slowly released to gradually deliver niacin into the bloodstream. However, the mountain of clinical data from the 1990s supporting the cholesterol benefit of niacin was gathered using nicotinic acid and not INH. Marketers of INH often cite the nicotinic acid literature when promoting their finished supplement and label the product as “No-Flush Niacin,” but rarely will the true distinction be made between these two products except on the supplement facts panel. More importantly and convincingly, to date there are no randomized controlled trials showing any dose of INH to exert any direct heart disease risk reduction or elevation of HDL cholesterol, two metabolic trademarks of “regular” niacin.

The real disappointment comes when consumers, who intended to purchase a supplement based on good science, ultimately conclude that “niacin really didn’t do anything.” In fact, clinical studies using nicotinic acid have shown reductions in LDL by as much as 54 percent and increases in HDL by as much as 45 percent. The science behind INH does not compare and does not support an interchangeable role with nicotinic acid and to promote it as such is misleading and damaging to the industry.

impressive, it’s the low rate of flushing that makes this formulation an option to consider for those with borderline high cholesterol. Other niacin product formulations can reduce the incidence of flushing but it is important to verify the delivery and eventual benefit of the supplement. Some products may be promoted as non flushing but they may not have the same benefit as plain or sustained-release niacin.

Another important issue to consider is making sure the ingredient label states niacin or nicotinic acid. Some products are promoted or labeled as niacin but are really compounds of niacin-like products. While these compounds may have nutritional value, they have not been tested for cholesterol as often as niacin and may not provide the same benefits. The ingredient section will indicate the source of the raw ingredient. As an example, niacinamide is great for multi-vitamins but offers no cholesterol benefit.

A December 2003 article published in the Annals of Internal Medicine tested numerous retail niacin products. The researcher, Dr. C. Daniel Meyers, tested the actual content of niacin (as nicotinic acid) in the collection of products. He concluded that no-flush (inositol hexanicotinate) preparations contained no free nicotinic acid, while the sustained-release niacin products did contain free nicotinic acid. Since we know that nicotinic acid has clinical evidence to support health cholesterol levels, it is important to keep in mind what type of niacin product you are buying. When it comes to no-flush (inositol hexanicotinate), you may be purchasing a product that doesn’t flush but also has no impact on healthy cholesterol levels.

Final Thoughts
One word of precaution. Some studies have shown that taking sustained release niacin can negatively impact the liver. Most of these issues were with people consuming more than 2000 mg/day of time released niacin. The potential for negative effects on the liver rises with the increase in dose. At 500–1500 mg/day, the incidence is low, but it is still recommended that you consult and inform your health care provider when using a sustained release niacin product.

As a dietary supplement, niacin plays an important role in protein, carbohydrate and fat metabolism. As a nutritional approach to cholesterol management, niacin is a safe, inexpensive and effective product to help promote good cholesterol levels, which is why it has been researched in so many human trials. Fortunately there is much that can be done to reduce your risk of heart disease. So why not consult with your health care provider about how niacin may offer an alternative nutritional approach to improve cholesterol and triglycerides levels for optimum heart health.

References
2. American Heart Assoc. Ibid.

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