

CARDIOVASCULAR HEALTH



FUNCTIONAL
INGREDIENTS

MINI-GUIDE



Cardio category keeps pumping along

8 ingredients to differentiate new product development efforts

Someone has a heart attack in the United States every 34 seconds. Heart disease is the leading cause of death for both men and women in this country, [according to the Centers for Disease Control.](#)

[By 2020, it will be the leading cause of death throughout the world.](#) A public that's increasingly aware of cardiac risk continues to turn to the heart-health market, where *Nutrition Business Journal* analysts forecast sales to reach \$2.455 billion in 2014, a 3.6 percent increase over last year.

Sales will continue to pump steadily over the next few years, though more like a resting heartbeat compared with 2011 and 2012, when growth was around seven percent. But remember, growth of supplement sales overall has slowed, thanks to headlines questioning efficacy of multivitamins and omega-3s. In 2012 and '13, overall supplement sales advanced 7.9 percent and 7.5 percent,

respectively. *NBJ* estimates suggest that this year, [the growth rate will slow to about 6.9 percent, and hold flat from there.](#) Still, data suggests the heart health market to climb to \$3.277 billion by 2020.

Our aging, increasingly ailing population fuels the demand, says Rick Kaiser, Vice President, Sales and Marketing at Natreon, Inc., pointing to increased incidences of conditions such as hypertension and





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elevated cholesterol. But it's not just greying boomers who should be concerned. [Half the victims of sudden cardiac death in the United States are under the age of 65.](#)

Today, a broader swath of consumers is thinking about preventive options where heart health is concerned. The cardio consumer is "no longer just the natural products consumer, but mass market shoppers as well," says Eric Anderson, Senior Vice President of Global Sales and Marketing, NattoPharma USA, Inc. People continue to hunt for products that provide multiple benefits, he says, "reserving their dollars for products that deliver on multiple fronts."

Among the options, companies are beginning to differentiate product formulations and marketing for diverse demographics. "There are products for 'adults over 50,' or 'senior women.' It's no longer one-size-fits-all," says Dan Murray, Vice President of Business Development for Xsto Solutions.

INGREDIENT SOLUTIONS

Fish and animal oils remain on top, with \$585 million in sales this year. [Twenty-eight percent of all American adults aged 55 and older take omega-3s.](#) However, as reports in the past year harpooned the positive effects of omega-3s, consumers turned up their noses at fish oil and krill oil, two primary sources of the fatty acid. A study linking fish oil to prostate cancer may have hit even harder. Meanwhile, [more suppliers are solving sourcing challenges with single-celled algae sources like](#) Xsto Solutions, with GMO-free almegaPL and ALgatrium DHA, made from sustainable microalgae.

"The public needs to hear more positive stuff about omega-3s and they're not getting it," [Adam Ismail, executive director of the trade group GOED Omega-3, told newhope360.com.](#) "It's a problem that's solvable, because we as an industry can ban together to develop a public information campaign."





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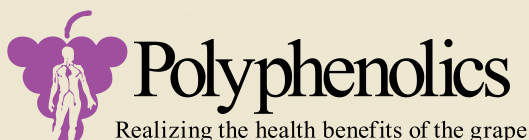
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(U.S. Patent 7,767,235 B2)
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(U.S. Patent 8,075,929 B2)
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There's a lot of good news to share. The U.S. and Canadian governments selected omega-3s (and vitamin E) as nutrients worthy of the in-depth review process for establishing a Dietary Reference Intake (DRI). Currently, there's no DRI for long-chain omega-3 fatty acids. "Establishment of a DRI for omega-3s will be a huge step forward for consumers, health care providers and manufacturers," [said Will Black, Vice President of Marketing for DSM Nutritional Products, North America](#). Today, even without a DRI, according to a survey commissioned by Schiff Nutrition, three-quarters of cardiologists who recommend supplements for heart health say that if they had to choose one dietary supplement to specifically support cardiovascular health, [they would choose omega-3 fatty acids](#). New research supports their choice. A multi-ethnic study, published in the *Journal of the American Heart Association*, suggests that [omega-3s not only reduce cardiac threats, but do so significantly—by 51 percent or more](#).

The antioxidant co-Q10 falls in right after fish and animal oils; it had the second highest sales in 2014, with numbers growing nearly nine percent over last year to reach \$429 million. Sales of maligned-by-the-media multivitamins still grew by two percent to reach \$297 million. B vitamin sales grew 7.7 percent over last year, far slower than the 24 percent growth between 2011 and 2012, but still reaching \$239 million in sales, slated for \$278 million in 2015 according to *NBJ* analysts. Plant oil sales grew about six percent over last year's numbers with \$138 million in sales. And, vitamin E sales grew by about two percent, to reach \$107 million in sales.

Innovation continues apace in the co-Q10 space. The lipid has some bioavailability issues, and suppliers have rushed to fill in that gap with tech advances to improve the absorption of co-Q10. More recently, the reduced form of co-Q10, called ubiquinol, has hit the market, and that boasts greater effects in limited published studies. Especially notable is that some people just cannot absorb co-Q10, and those people look to indeed benefit from the reduced form of ubiquinol.

Krill oil is related to omega-3s, though the addition of phospholipids, astaxanthin and vitamin E give



it some advantage (though the levels of the long-chain omega-3 fatty acids EPA and DHA are not as high as with fish oil and decidedly not with the high concentrates now on the market today). Neptune Technologies & Bioresources combined several of these top-selling ingredients into NKO Beat, a formulation of their NKO Krill Oil, co-Q10, Vitamin B6, B12 and folic acid. A trial showed that the NKO boosts the body's absorption of the co-Q10 by 25 percent, according to Sabrina Di Blasio, the company's marketing director. The NKO krill oil contains up to seven times more astaxanthin than other krill oils, helping provide more antioxidant support and extending the product's shelf life.

Astaxanthin, the antioxidant that makes salmon blush, did about \$2 million in sales this year, according to *NBJ* statistics. The "king of carotenoids" fights the oxidative stress and inflammation that contribute to atherosclerosis. Its antioxidant powers are 500 times stronger than vitamin E, 800 times stronger than co-Q10 and 6,000 times more potent than vitamin C, according to Janice Brown, of AstaReal, Inc., manufacturers of AstaREAL astaxanthin.

Plant sterols have a good track record in the published literature in low - ahem, in maintaining healthy LDL cholesterol levels in healthy individuals. "Pill fatigue" may lead consumers to seek more functional foods, as Europeans do, says Steven Stauffer, Protanica Business Manager at Arboris, the

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world's leading non-GMO plant sterol manufacturer, which makes its ingredients from southern U.S. pine trees. Protanica's been clinically proven to lower LDL cholesterol 11.6 percent in four weeks. It's just the latest in more than 200 human clinical trials have led to the consistent conclusion that [sterols are safe and effective in reducing blood LDL cholesterol by eight to 10 percent](#). Stauffer sees a big, untapped opportunity for the ingredient in differentiated functional food products with a heart-health halo.

Niacin, also understood as vitamin B3 or nicotinic acid, has proven over several decades of research to provide a beneficial effect on modulating abnormal cholesterol, a key indicator of cardiovascular heart disease (CHD), and improving heart health.^{1,2} NiaXtend™, a well-researched and safe niacin product now offers cholesterol benefit with significantly

reduced rates of flushing - a common complaint with Niacin supplementation.

A desirable profile is a high HDL (good cholesterol) and low LDL (bad cholesterol). Consumers have been bombarded with media about lowering cholesterol but it's important to have a healthy balance of both HDL and LDL. Triglycerides are another blood lipid and an important risk factor of heart disease. Elevated triglycerides (TG) are also associated with increased risk for CHD.³ While many supplements contribute to heart health, few products work on the entire cholesterol profile. Niacin is unique in that it benefits the entire profile.

Research on Niacin's positive benefits began in the 1950's at the Mayo Clinic. This early work on niacin was later confirmed in dozens of human trials including the large scale Framingham Study. The evidence

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WHAT IS PROTANICA®?

Protanica® is a non-GMO functional food ingredient that's clinically proven to safely reduce LDL — *in one study by as much as 11.6% in just 4 weeks!* It's 99% pure plant sterols, non-GMO Project Verified, Kosher and Halal certified, with an FDA approved health claim.

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WHY PROTANICA® IS SO IMPORTANT

Heart disease is the biggest health issue in the US and responsible for one third of all deaths in America. Medical scientists estimate that a 10% reduction in LDL cholesterol may reduce the likelihood of heart disease by 30 percent!

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was so strong the National Institute of Health (NIH) designated Niacin as a “first line therapy” for CHD. With all the positive research on Niacin there is an annoying side effect referred to as “flushing.” Flushing is the physical sensation of warmth, tingling and redness of the skin; a direct result of increased blood circulation on the surface of the skin. Even though flushing is not harmful and passes in 20 or 30 minutes, it does discourage many people from taking niacin on a regular basis.

NiaXtend™ is an “extended-release” niacin product created to help reduce the incidence of flushing associated with plain niacin. In numerous clinical studies, NiaXtend™ has been shown to safely support healthy cholesterol levels, while minimizing the niacin flush. This breakthrough allows more people to supplement with niacin on a daily basis. In one clinical trial, NiaXtend showed a remarkable 13% reduction in Total Cholesterol and a 31% increase in HDL.⁵ A follow-up study at the University of Minnesota showed a 19% decrease in LDL, a 13.3% increase in HDL and 19.4% decrease in the Total Cholesterol to HDL ratio.⁷ Most trials evaluated between 1,000 and 1,500 mg per day, taken in 500 mg increments. NiaXtend™ uses a wax-matrix formulation of nicotinic acid. NiaXtend is not inositol hexanicotinate, often marketed as “Flush-Free Niacin”. No-Flush niacin products don’t test out as niacin and there is very little clinical evidence to demonstrate efficacy of these product in humans.⁶

Vitamin K2 is gaining more attention for its heart and bone health promoting powers - a one-two punch very attractive to post-menopausal women. The body needs K2 to help it properly utilize calcium. It also activates Matrix Gla Protein the most potent inhibitor of vascular calcification, i.e., hardening of the arteries.

In the famous Rotterdam study, with 4,800 people over 10 years, those with the highest K2 levels from food had 50 percent less calcification and 25 percent fewer deaths compared with those with the lowest consumption and K2 levels at therapeutic levels of only 45 micrograms/day (not milligrams). A study of NattoPharma’s MenaQ7 suggested the ingredient “not only inhibited hardening of the arteries, it made the arteries of the women in the study more flexible,”

says NattoPharma’s Anderson. “It begs the question: Are osteoporosis and hardening of the arteries simply a process of aging, or evidence of a vitamin insufficiency?”

Polyphenol research began in earnest in the early 1990s when the industry used the so-called “French paradox” as the marketing tool and primarily focused its attention on grape seed and skin extracts or red wine powder. The research surrounding grape seed extract is wide and varied with results offering promise in support of oral health, blood pressure, cancer and more. Grape seed extract industry pioneer Polyphenolics’ MegaNatural BP ingredient was used in clinical trials conducted at UC-Davis in 2006, which found that grape seed extract may be effective against high blood pressure and may help ward off the onset of Alzheimer's disease. But its counterparts, resveratrol and pterostilbene, are likely stealing all of the glory.

Exactly when, in the process of developing heart disease, people address the issue is critical. MegaNatural-BP features grapeseed-derived polyphenols that help in critical early stage of prehypertension, according to Anil J. Shrikhande, President, Polyphenolics, a division of Constellation Brands, Inc.

Resveratrol - speaking of grapes - has had a rough year. Though sales stayed steady at \$9 million, a *JAMA Medicine* study of older men in Chianti, Italy, questioned the compound’s cardio and longevity-promoting powers. Critics found the results rancid, however, [claiming the subjects’ tobacco consumption smoked out all claims](#). It was just one more instance of study-related sour grapes in a year where in spite of headlines, sales in the heart-health market continue at a steady pulse. ●

1 NCEP Website 2004 (www.nhlbi.nih.gov)

2 The Coronary Drug Project Research Group (1975). *JAMA*. 231:360.

3 National Cholesterol Education Program (2002). The Third Report of Expert Panel on Detection, Evaluation and Treatment of High Blood Cholesterol in Adults. NIH Publication No. 02-5215. Bethesda, MD. National Heart, Lung and Blood Institute. <http://www.nhlbi.nih.gov/guidelines/cholesterol/>

4 Figge, et. al., (1988) *J Clin Pharm* ;28;1136-1140

5 Keenan, et. al., (1991) *Arch Int Med* July Vol 151 Niacin Revisited.

6 Meyers, C.D. et Al., (2003) *Ann Intern Med*. 139:996



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Protanica®

Protanica® is produced by Arboris®, LLC, the world's leading non-GMO phytosterol manufacturer. Protanica®, introduced in 2014, is a supported, non-GMO Project Verified sterol product offered to North American food manufacturers and retailers looking to create differentiated, heart-healthy products. Protanica® is easily formulated into a wide array of products including: dairy and plant-based smoothies and yogurts, snack bars, spreads, baked goods and more.

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Polyphenolics is a science-driven organization dedicated to researching and developing innovative products using grape-seed-derived polyphenols. Polyphenolics manufactures and markets MegaNatural® brand patented, clinically proven, condition-specific extracts. Our primary products are MegaNatural®-BP, shown to maintain healthy blood pressure, and MegaNatural®-GL, shown to maintain healthy blood glucose levels.

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