Nutritional Outlook
March 2019
Vol. 22, No. 2

Healthy Product Services Directory

Beauty
Blood Sugar Support
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Brain Health
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Energy and Sleep

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"It’s Time"

When FDA Commissioner Scott Gottlieb, MD, announced in February that the agency intends to “strengthen” dietary supplement regulations, those I interviewed reacted with a sense of calm and—dare I say it—optimism.

This is not necessarily the reaction one might expect when the FDA commissioner starts talking about “taking a close look at our organizational structures, processes, procedures, and practices in order to modernize our oversight of dietary supplements.” After all, the dietary supplement industry has been extremely protective of the Dietary Supplement Health and Education Act (DSHEA), which Congress passed in 1994. This primary law governing supplements ensures that supplements are not regulated like pharmaceuticals; they do not, for instance, require premarket approval from FDA before going to market. DSHEA has allowed dietary supplement companies to ably bring products to market and ensures that, for the most part, consumers can readily access and purchase supplements. In the dietary supplement industry, any talk about making changes to DSHEA is not made lightly.

In his February speech, the commissioner pointed out how vast the dietary supplement industry has become since DSHEA took effect in 1994. In the 25 years since, the U.S. supplements market has grown from a $4 billion entity comprising 4,000 products to a $40 billion industry comprising anywhere from 50,000 to 80,000 or more products, Gottlieb said. “I’m concerned that changes in the supplement market may have outpaced the evolution of our own policies and our capacity to manage emerging risks,” he said. In his speech, Gottlieb announced a few key actions FDA has taken so far as the agency starts down the path of strengthening supplement regulations. Read more about those actions on page 12.

Gottlieb pointed to the growing number of adulterated and misbranded products on the market, which, he said, “creates new potential dangers,” necessitating FDA to take a fresh look at its abilities to regulate the market. And while that all sounds very dark, those I interviewed for this article sounded guardedly optimistic, for reasons discussed below. I spoke to Steve Mister, president and CEO of the Council for Responsible Nutrition (CRN), as well as attorney Scott Bass of Sidley Austin LLP, who helped craft DSHEA in the 1990s.

Both pointed out that Gottlieb opened his speech by calling dietary supplements “a routine part of the American lifestyle.” Not only that, Gottlieb, who is also a physician, affirmed—as he has in the past—that he is a supplement user himself. To CRN’s Mister, “The thing that struck me most about this statement was the amount of effort that was put into actually recognizing the value of supplements. I’m not sure I can remember an FDA commissioner being so positive about this marketplace...For me, that was a pleasant surprise.”

Most strikingly, however, both Mister and Bass agreed with the commissioner about the need to determine whether or not DSHEA should be amended for today’s modern market.

According to Mister, “It’s not unusual for FDA to come back and revisit something after 25 years. Certainly there are changes. When DSHEA was passed, there was no Internet, and there was no e-commerce, and now that is a prominent part of the industry. We need to be sure that FDA has both the resources and the tools to deal with online claims with e-marketing, which makes it very easy for companies to come into our space.”

Discussions about changing DSHEA—or, what some call “DSHEA 2.0”—have been circulating within the industry for years. For the most part, however, in public statements most industry leaders have focused on stating the need for FDA to enforce existing supplement regulations more fully. Gottlieb’s statement, however, has put the topic of modernizing DSHEA front and center.

Bass said that he and others who helped craft DSHEA have generally taken the position in the past “that DSHEA shouldn’t be touched because of concerns that it is a very well-written law. The house is sturdy, and you don’t need to change it to effect certain upgrades.” However, he says, “I think what you’re seeing is that nobody’s saying that right now. I think everyone agrees with FDA that things have changed, and they’re now willing to take a responsible position...”

For now, it’s unknown what kinds of changes FDA will end up enacting down the road. As such, the consensus in industry is to withhold judgment...and to stay calm.

“I am not suggesting that we’re going to just accept everything that comes out, but until we see the proposals, I think it’s a mistake to express all sorts of alarm and concern,” said Mister. “We might find that we agree with the agency.” The devil, he said, is always in the details. Mister added, “There are some things that I’m sure industry will want to bring to the table that we’d like to see changed. So, is there a willingness to have a discussion about the things we think need to be changed?”

Bass indicated the industry’s willingness to listen—“with safeguards.” He said: “You still want the same safeguards that there is no premarket approval.” But ultimately, he said, “I think there’s a feeling that it’s time and that so many of us now believe that DSHEA 2.0 is a viable objective if it can be passed in a way that doesn’t take away the freedoms that were won in DSHEA.”

For now, industry and FDA are tentatively on the same page. Said Bass: “I think we are all joined in a common purpose of finding an improved regulatory scheme.” The most optimistic end scenario could be a safer, better marketplace for dietary supplements, which benefits all of us who consume dietary supplements—industry members, regulators, and everyone in between.

Jennifer Grebow
Editor-in-Chief
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U.S. Food and Drug Administration Commissioner Scott Gottlieb, MD, announced new efforts by the agency to reform FDA’s oversight of dietary supplements. In a February 11 statement, the commissioner expressed concern that the immense growth of the dietary supplement market since the passage of the primary law governing supplements, the Dietary Supplement Health and Education Act (DSHEA), 25 years ago may have outpaced the evolution of FDA’s policies and hindered the agency’s capacity to manage emerging risks from bad actors.

“Th e opportunity to strengthen the framework that governs dietary supplements couldn’t come at a more pivotal time. On the one hand, advances in science and the growth and development in the dietary supplement industry carries with it many new opportunities for consumers to improve their health,” stated Gottlieb. “At the same time, the growth in the number of adulterated and misbranded products—including those spiked with drug ingredients not declared on their labels, misleading claims, and other risks—creates new potential dangers.”

Gottlieb had hinted back in December 2018 that FDA would be reevaluating dietary supplement oversight when he announced the agency’s formation of a new Dietary Supplement Working Group. Now, the commissioner says the agency is opening discussions about the possibility of changes to supplement laws.

Whether or not any changes are made to existing dietary supplement regulations remains to be seen, but FDA has effectively opened communication on that front. Said Gottlieb: “We’ll engage a public dialogue around whether additional steps to modernize DSHEA are necessary. We’ve heard from stakeholders who want to open such a dialogue. While the FDA is committed to leveraging its existing resources and authorities to the fullest extent possible, we believe there may be value in a broader public conversation about whether certain changes to the law might be helpful. We believe there may be opportunities to modernize DSHEA for the future, while preserving the law’s essential balance.”

The main goals of FDA’s new plan, said Gottlieb, are to protect the public through more effective communication about adulterated products on the market, effectively evaluate the safety of dietary supplement products without hindering innovation, and develop new enforcement strategies. While the announcement was short on details, Gottlieb did outline several important steps that FDA will take to meet its policy goals.

For example, in its efforts to improve communication with consumers, FDA is developing a new rapid-response tool to alert the public of what products and ingredients to avoid. In the meantime, however, FDA has kicked off its new efforts by sending out 12 warning letters and five online advisory letters to companies selling dietary supplements. 

**FDA to Strengthen Oversight of Dietary Supplements**
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FDA also wants to encourage the submission of more New Dietary Ingredient (NDI) notifications. Gottlieb said the agency is continuing to develop guidance for NDI notifications and that it is planning to update its compliance policy regarding NDIs. FDA will be holding a public meeting to receive feedback from industry stakeholders. “We’ll look to address other challenges that may act as barriers to dietary supplement innovation and safety, including issues such as what the right incentives might be for establishing dietary supplement exclusivity, and the scope of permitted dietary ingredients,” said the commissioner.

Another major part of Gottlieb’s announcement was FDA’s formation of a Botanical Safety Consortium, a public-private partnership combining scientists from the industry, academia, and government to promote advances in evaluating the safety of botanical ingredients and mixtures for dietary supplements. “This group will look at novel ways to use cutting-edge toxicology tools, including alternatives to animal testing, to promote the goals of safety and effectiveness we share with consumers and other stakeholders,” said Gottlieb. The ultimate goal of the consortium is to help FDA keep up with the technological advancements of the dietary supplement industry.

Educational organization the American Botanical Council (ABC; Austin, TX), said that its own chief science officer, Dr. Stefan Gafner, is now a member of the Botanical Safety Consortium’s steering committee. The Council for Responsible Nutrition (CRN; Washington, DC) said its senior vice president of scientific and regulatory affairs, Duffy MacKay, ND, is also a member of the committee.

ABC noted: “The consortium, a private-public partnership which was formed in September 2018, is tasked to develop new, non-animal assays to evaluate the safety of dietary ingredients in the areas of liver toxicity, genotoxicity, reproductive and developmental toxicity, cardiotoxicity, and systems toxicity. The development and validation of these assays are intended to help industry members avoid having to perform animal studies, and to put tools at their disposal that are more predictive about the safety of ingredients than some of the currently used tests.”

Gottlieb also hinted at the potential that FDA will eventually enact a mandatory dietary supplement product listing in its efforts to modernize DSHEA. “[A mandatory listing requirement] could also help facilitate efficient enforcement of the law and establish new mechanisms to identify bad actors who put the public at risk and undermine consumer confidence in the entire industry,” said Gottlieb. “We’re interested in hearing other ideas our stakeholders may have, and not just those limited to changes to the law, so we can go about the task
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of regulating this space in a way that reflects where the industry is today and continue to safeguard consumers’ ability to access safe, compliant dietary supplements for the next 25 years.”

In large part, Gottlieb used the announcement to express a willingness to work with and listen to industry stakeholders in FDA’s efforts to ensure what he called a “flexible” regulatory framework that allows the agency to “adequately evaluate product safety while also promoting innovation.”

Initial response to Gottlieb’s announcement from industry trade groups was generally supportive, with industry leaders likely reserving judgement until more facts are revealed. Trade groups such as the Natural Products Association (NPA; Washington, DC) and CRN encouraged FDA to continue focusing on increasing enforcement of bad actors.

“We also applaud Dr. Gottlieb’s enthusiasm for rooting out bad actors who put consumers at risk by spiking products with unapproved ingredients or drugs and commend the enforcement actions initiated today to address this critical problem,” said Steve Mister, CRN president and CEO, in a press release. “We welcome additional enforcement actions to bring to justice those who would cynically trade on the halo effect of responsible industry to make a quick buck while ignoring the safety and health of consumers. We again call on Congressional appropriators to allocate to FDA the funding required to adequately police this important and growing regulatory beat and for FDA and other federal entities to follow through on tough enforcement.”

Daniel Fabricant, PhD, president and CEO of NPA, also welcomed greater enforcement to root out bad actors, but defended the safety of the dietary supplement industry. “We look forward to working with FDA on modernization, but what consumers need is action,” said Fabricant in a press release. “We encourage the FDA to use the current tools it has at its disposal to protect consumers from companies selling illegal products masquerading as nutritional supplements. The U.S. has the safest nutritional supplements in the world because of collaborative efforts between our industry and federal regulators, and we are confident that collaboration will continue.”

Michael McGuffin, president of the American Herbal Products Association (AHPA; Silver Spring, MD), underlined the importance of protecting consumer safety as well as consumer access to supplements.

He said: “As we celebrate in 2019 the 25th anniversary of the passage of DSHEA, AHPA shares Commissioner Gottlieb’s vision, as articulated in today’s press release, of finding the right balance between preserving consumers’ access to lawful supplements, while also protecting the public from unsafe and unlawful products and holding accountable companies that are not in compliance with the law. AHPA has previously communicated specific suggestions for regulatory improvements to FDA and we look forward to a robust and transparent discussion on how best to serve Americans who include supplement products in their families’ healthcare choices.”

The American Botanical Council shared its thoughts in a member advisory, stating: “ABC welcomes the efforts by the FDA to help enhance product quality and to remove adulterated and illegal products from the market.”

[News Article Sentinels]
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Cannabidiol (CBD) sales are in a strange place. While a newly inked U.S. Farm Bill removes industrial hemp and its derivatives from a list of federally controlled substances, CBD sold as a food or dietary ingredient is still prohibited under federal law. And yet, the market is flush with companies selling CBD foods and dietary products.

Why are companies selling CBD products when federal law prohibits it?

It’s a matter of selective enforcement, says Justin Prochnow, attorney at Greenberg Traurig LLC (Denver). “To date, the FDA has sent out approximately 20–25 warning letters and, in every instance, the FDA addressed unauthorized disease claims in addition to taking the position that CBD is a non-permissible ingredient,” Prochnow told Nutritional Outlook. For many CBD manufacturers, the potential financial gains are worth what seems like minimal risk, so long as products aren’t making disease claims.

FDA Commissioner Scott Gottlieb hinted at a potential legal path for CBD in a statement published on the same day as the Farm Bill’s passage in December. The situation looked even more promising in January when Oregon Senators Ron Wyden and Jeff Merkley wrote to Gottlieb and FDA urging the agency to change federal CBD regulations for foods, beverages, and supplements in order to “give U.S. producers more flexibility in the production, consumption, and sale of hemp products.”

For now, though, all industry can do is wait and hope for a new legal development, or proceed with risk.

The Council for Responsible Nutrition (CRN; Washington, DC), which represents dietary supplement product manufacturers across the U.S., has made legal opinions on CBD available to its members, but it’s not outright encouraging companies to get in the business of CBD. “We aren’t making recommendations to our members about what they should do,” CRN president Steve Mister told Nutritional Outlook. “They have to make their own business decisions as to how much tolerance for risk they have in the marketplace.”

Many CBD product manufacturers are taking the risk by entering the marketplace now. With that risk, they have a chance to build profits and brand following before there’s extra competition. Let’s look at some of the product platforms they’re using.

Gummies

In the dietary supplement space, gummies are arguably the biggest rival to traditional tablets and capsules. They’re a fun way to consume ingredients like vitamins, minerals, and omega-3s. We expect gummies would be just as popular in a growing CBD marketplace.

CV Sciences recently unveiled PlusCBD Oil Gummies. This launch and the pioneering work in the area of CBD product safety was enough for Nutritional Outlook to name...
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the company its best brand of 2018. One fruit slice–shaped gummy promises 5 mg of CBD, which also happens to be the suggested serving size. The gummies are currently available in cherry mango and citrus punch flavors, sugar-coated or uncoated.

CV Sciences CBD products also include balms, tinctures, and olive oil made with hemp-derived CBD.

**Snack Foods**

CBD foods are rare right now, perhaps because it’s easier to fly low with products that more closely resemble dietary supplements. Nonetheless, Weller is taking a strong position as a CBD food company. Its flagship products are coconut bites that resemble granola clusters in texture.

Weller snacks are sold in original, dark chocolate, and caramel flavors, and their recipes are gluten-free, dairy-free, and vegan. A suggested serving size of 5 bites yields 25 mg of hemp extract or 5 mg of hemp extract per bite. The company chose to label guaranteed content of “hemp extract” rather than of CBD. In a responsible touch, Weller’s FAQ site encourages consumers to try out the suggested serving size and adjust accordingly.

Weller products are only available at the company’s online retail store. But who knows? We might one day see Weller snacks lining shelves at supermarkets and convenience stories.

**Condiments**

Extreme portability is a feature of many on-the-go health products, including Alto, a startup brand of CBD-infused honey, salt, and olive oil packets that can be added to food.

Each box features 10 Alto packets containing 5 mg of active cannabinoids each. Are you seeing a trend here? A serving size of 5 mg appears to be the industry standard for CBD content (or at least hemp extract content) across the board.
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Alto is focused on retail for now, but the company hopes to partner with hotels and restaurants in the future. The company’s founder says its packets will soon be available in single-packet format and that we can “expect to see these CBD-infused singles at some wonderful cafes, hotels, spas, social clubs, and restaurants.” Expect Alto to also launch an oil spritz and a pet supplement in 2019. Another player worth checking out in this very niche condiments category is Cured, with its CBD-infused spices.

**Beverages**

In recent months, we’ve seen a notable uptick in CBD beverage launches. GT Living Foods, famous for its Synergy kombucha drinks, recently announced a line of CBD-infused sparkling waters. The startup company Recess is getting into the same sparkling water category, with the clean package design pictured below. Ready-to-drink CBD teas and coffees have also been emerging in the CBD beverage space.

With all the water-based CBD drinks that are coming out, some wonder just how potent they all may be. After all, cannabinoids are traditionally understood as being oil soluble, not water soluble.

A Canadian company known as Sproutly Canada wants to capitalize on this matter. It says it has a patented process that provides “the only true water-soluble cannabis solution” available. According to Sproutly, its water-extracted cannabis solution can help beverage makers ensure product potency and retain subtle flavors that would otherwise be destroyed using harsher extraction processes.

Numerous CBD drink makers are already touting water-soluble solutions on their product websites.

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Tea Bags

Another company going the way of extreme portability is Buddha Teas. While CBD ready-to-drink beverages are plentiful in the marketplace, Buddha Teas stands out as a rare purveyor of single-use CBD tea bags.

A box of Buddha Tea features 18 tea bags containing 5 mg of CBD each. For now, the company is sticking to conventional tea flavors, including a chamomile blend, green matcha, peppermint, and turmeric and ginger.

In an effort to ensure the effectiveness of its CBD, Buddha Tea distinguishes its brand by using a water-soluble CBD solution in all of its products.

Coffee Pods

If you thought CBD spices were novel, Diamond CBD might get even more credit for its CBD-infused coffee pods that launched at the end of 2018. Made using a universal K-cup design, each coffee pod promises 25 mg of CBD at a cost of less than $5 per cup of brewed coffee.

Diamond CBD’s pods are available in coffee, decaf coffee, black tea, and green tea units. Combined with the introduction of CBD-infused roasted coffee beans by another company, called SteepFuze, it seems the future of coffee could be very much in cannabis.

Creams and Cosmetics

As consumers increasingly associate cannabinoids with pain relief, whether through personal experience or from shared anecdotes, a market for topical applications is sure to follow. A number of creams, balms, and other topical products now feature CBD and are actively sold in public health stores. Some refer to research on cannabis and pain relief while others are promoting hemp oil for its other potential nutritious or functional properties.

One such company is Leading Edge Pharmas. The company recently added a new pain relief ointment to its Cannavera line of topical pain-relief creams, sprays, and oils that features the company’s patent-pending Silvidiol liposomal technology. According to the company, this technology ensures penetration of the skin and targeted release of the active ingredients.

While scientists have warned that research on cannabinoids for topical use is lacking, that isn’t stopping numerous companies from launching related products. There’s perhaps no greater testament to the newfound marketability of hemp and CBD than its use in Kush Mascara.

A LOOK AT LEADING HEALTH CATEGORIES

Beauty
Blood Sugar Support
Bone Health
Brain Health
Digestive Health
Energy and Sleep
Heart Health
Immune Health
Joint Health
Sports Nutrition
Weight Management

ALSO: SERVICES

Manufacturing
Packaging
Equipment
The beauty-from-within market is growing up—and we, the people, have never looked better as a result. Consumer awareness of the connection between beauty and overall health gets stronger each year. The notion that consuming nutrients that are good for the body in a nutricosmetic can help bolster skin, hair, and nails is no longer novel. Today, “beauty” is a whole-body concept that goes far beyond the superficial.

“Within the last few years, [the concept of] ‘beauty + wellness’ has merged and expanded its multichannel presence across the mass retail, prestige and clean beauty, and natural health categories,” says beauty market expert Paula Simpson, founder of Nutribloom Consulting. She contrasts today’s situation with how nutricosmetics originally started out, when they were “found mainly within the professional channels such as the spas and medical spas, and [were] more focused on skin and antiaging claims.”

These days, companies are looking to create multifunctional products that address emotional and physical well-being, including stress and lack of sleep, as well as appearance, she says. Outward beauty is just an added benefit of a good-for-you diet. “Marketing claims have also become multifunctional and positive to embrace aging and vitality, with supportive beauty benefits,” Simpson says. Products that aid the consumer on many lifestyle fronts, instead of making “solely beauty-focused claims,” are more appealing to today’s consumer, she adds.

No one is happier to see the healthy-lifestyle-and-beauty movement spreading en masse than beauty guru Bobbi Brown, the world renowned makeup artist, best-selling author, and expert speaker whose eponymous cosmetics brand was acquired by The Estée Lauder Companies in 1995. It was at The Estée Lauder Companies where Brown, as chief creative officer of Bobbi Brown Cosmetics, would see the brand grow into a billion-dollar business. Brown made her name as an artist who celebrates natural beauty. Her focus on colors that complement a consumer’s own skin tone stood out in its time. Brown’s latest endeavor since leaving Bobbi Brown Cosmetics in 2016 is EVOLUTION_18 by Bobbi Brown, a line of “lifestyle-inspired wellness products” launched last year. This year, she also launched the website justBobbi.com, which focuses on beauty, wellness, and other topics.

“There are two large movements happening in makeup right now,” Brown tells Nutritional Outlook. “The first is a very made-up look with lots of foundation and contouring, etc. I do not like this look and have never done this kind of makeup. It’s not my aesthetic. On the flip side, women are also becoming extremely conscious about what they are putting in their bodies and on their skin. The ‘clean’ movement inspires me. I like the idea of a woman who takes care of herself and doesn’t need a lot of makeup on her face.”

Keena Roberts, senior consumer health analyst at market research provider Euromonitor International, says, “Consumers continue to look for products that support ‘beauty from within’ and ‘health as the new wealth,’ seeking to optimize their natural beauty rather than apply products to cover blemishes or enhance features.”

Brown says she’s happy products promoting this attitude are readily available to customers today. And, indeed, consumers do have access to “beauty + wellness” products...
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wherever they shop these days. Euromonitor’s Roberts notes the “growing interest in consumable beauty supplements, not just online but in traditionally solely cosmetic outlets like Ulta and in beauty aisles in pharmacies like Walgreens and CVS.”

Brown believes that direct-to-consumer brands will see sales continue to grow. “Further to this, I think clean brands that are available at mass, or ‘masstige’ prices, will be at the forefront of [the beauty category],” she says.

Nutribloom’s Simpson says 21st-century health topics such as the benefits of Ayurvedic medicine, personalized nutrition, and a healthy microbiome will drive the beauty market. These three topics “are bringing forth ingestible and topical beauty and wellness-focused brands to market,” says Simpson. So are 21st-century worries over environmental toxins. Simpson notes: “There is a steady category growth of anti-pollution products as consumers seek to protect themselves from the effects of pollution.”

Another driver is the growing science around nutricosmetics. “Stronger clinical evidence around the pathophysiology of skin aging and the positive impact that nutrition/targeted nutrients may have on delaying skin aging and improving overall skin health improve consumer confidence,” Simpson says. However, she cautions, marketers might want to be careful about how they deliver information to the consumer. Simpson notes that one pitfall companies should steer clear of is showing too much clinical data at consumers in lieu of making an emotional connection with them.

“Shift away from science and expert-driven and overcomplicated stories,” she advises. “I love to read the latest in research and science, but this should be marketed to the consumer differently. You have to relate to the wants and needs of the consumer within your market; embrace them with your story versus informing or advising. Once you embrace them, their loyalty will motivate them to learn more around the science and credibility behind the brand.”

The power of celebrity marketing cannot be ignored, either, especially when it comes to the topic of beauty. Euromonitor’s Roberts points to the example of Sugarbearhair’s Hair Vitamins. The bear-shaped nutricosmetic supplements containing biotin, folic acid, and vitamin C were promoted, in an impressive show of social media might, by such influencers as Kylie Jenner, Vanessa Hudgens, and Khloe Kardashian. Roberts says Sugarbearhair exemplifies the fact that “very popular single-positioned supplements are capitalizing on social media and celebrity endorsements to gain traction.”

In terms of ingredients, what are consumers looking for? Namely, ingredients that are sustainably and naturally derived, Simpson says. “Reading the finer details of a label—such as active and non-active ingredients, purity, sustainability, quality, and cruelty-free standards—of a brand is an important driver of consumer purchases today,” she says.

“Consumers are watching today more than ever what they ingest, expose, and apply on their bodies.”

Heidi Rosenberg, senior public relations counsel for marketing, branding, and public relations firm BrandHive (Salt Lake City, UT), agrees that sustainable and ethical sourcing is key today. “The beauty industry as a whole is using more eco-friendly packaging, including containers that are refillable and recyclable and made with more glass and recycled, natural, and plant-based materials.”

The experts interviewed in this article named which they think are standout ingredients in the beauty market in 2019 and beyond.

“One is definitely probiotics,” says Bobbi Brown. “Beauty starts in your gut. If your gut is healthy, you will have healthier, clearer skin.”

Rosenberg agrees. “Probiotics and the microbiome are hot topics in healthy aging, and many self-care and beauty brands are incorporating prebiotics and probiotics into their offerings,” she says.

Simpson also agrees that “anything around the microbiome” has potential in skin health and beauty.

Another superstar nutricosmetic ingredient that Brown, Rosenberg, and others highlight is collagen. “Collagen realized explosive growth in 2018,” says Rosenberg, noting that market researcher SPINS reported a cross-channel growth rate of 57.9% during that time, to $85.8 million in sales. “This will continue in 2019,” she says, “as consumers continue to recognize the importance of beauty-from-within and brands continue to innovate, with collagen turning up in more beverages, snacks, and protein powders.”

“There’s still huge momentum with the collagen wave,” says Lauren S. Clardy, president, NutriMarketing Business Group (Santa Rosa, CA), noting growing interest in collagen for bone and joint health and sports applications. She agrees that delivery technologies, including gummies, chocolates, chews, shots, and jellies, are also helping to increase consumers’ exposure to collagen.

Paula Simpson points to the promise of another protein, keratin, which she dubs “the new collagen on the block.” She says: “Similar to collagen, keratin is a structural protein and essential constituent of healthy skin, hair, and nails.”

Other ingredients to watch in the beauty space, says Rosenberg, are mushrooms, turmeric, kakadu plum, astaxanthin, and ashwagandha.

Experts say new research findings on both the microbiome and the endocannabinoid system will yield new opportunities for the healthy beauty market in years to come. “The endocannabinoid system is poised to emerge as a system that may prove to be as influential as the microbiome, playing a role in many healthy-aging concerns,” says Rosenberg.

To this end, an ingredient like the trending hemp cannabidiol (CBD) will likely be a growing presence in the beauty space, says Euromonitor’s Roberts. “CBD is a key driver of growth in 2019, and as more consumers become aware of its health benefits, look to see it emerge as a player to watch in the beauty space as well,” she predicts.

The opportunities are endless, Simpson says, as “new research and discoveries related to the microbiome and endocannabinoid system may help to diversify product claims, customizing and offering new and innovative ways to market beauty wellness.”
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Sugar has become a dirty word among health-conscious consumers in recent years, and perhaps with good reason. In the United States alone, the numbers associated with all forms of diabetes and high blood sugar are startling. For instance, in 2015, 30.3 million Americans, or nearly 10% of the population, had diabetes, according to the American Diabetes Association. 1.5 million Americans are diagnosed with diabetes every year, and the disease remains the seventh leading cause of death.

Additionally, a diet in which 25% or more of calories consumed are from added sugars is now associated with higher mortality from heart disease, and “excessive sugar intake” is also linked to chronic inflammation, non-alcoholic fatty liver disease, obesity, and a greater risk of certain forms of cancer.1,2

Because of these findings, the American Heart Association recommends an intake of no more than nine teaspoons of sugar a day for men, six for women and children, and zero for kids under 2. The heart association reports that Americans, on average, are currently eating about 17 teaspoons of sugar per day, while teenagers in particular eat 20.

Americans are simply eating too much sugar, it seems, and endangering their health as a result. Fortunately, this is an area in which ingredients suppliers are both seizing an opportunity and potentially making a difference in public health, by offering products that replace sugar or mitigate its effects on the human body. Among their ingredient innovations are fibers and replacement sweeteners, as described ahead.

**Fiber**

American consumers recognize fiber as a good-for-you ingredient that plays a role in both cardiovascular and digestive health. Fiber also appears to help lower the blood-glucose response after eating, particularly when it replaces some of the sugar in the food consumed.

Ingredients supplier Beneo (Mannheim, Germany) points out in a recent white paper that “the shift of focus from cutting out carbohydrates altogether to managing their release has gained traction amongst consumers over recent years,” and that these consumers “are beginning to make purchasing decisions that reflect this change of mindset.” Accordingly, the company touts the benefits of its prebiotic chicory-root-based fibers (inulin and oligofructose), which “reduce the glycemic response to foods” when they replace some of the added sugar normally found in those foods.

Likewise, ingredient company Tate & Lyle (London) is responding to consumer demand with its polydextrose products, which, when formulated into foods, lower the body’s glycemic response, as well as its soluble corn fiber products, which are associated with reduced postprandial glucose and insulin levels when they replace some of the sugar typically used in foods.
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Sweeteners/Sugar Replacements
As sugar is regarded by consumers with increasing trepidation, replacement sweeteners that are perceived as more natural and less chemical (than saccharin and aspartame) are taking its place. Product development in this category is robust, with many options now available to sugar-conscious consumers wishing to reduce their risk of disease.

Zero-calorie sweeteners include stevia and sugar alcohols, such as those offered by ingredient company Cargill (Minneapolis). Its ViaTech stevia-leaf extract andEverSweet Reb M and Reb D products are formulated into food and beverages for sweetness minus sugar and calories. Its Zerose erythritol, also zero-calorie, is a bulk sweetener often paired with high-intensity sweeteners that "is tooth-friendly, does not impact glycemic index, and has the highest digestive tolerance of sugar alcohols," according to Cargill Global Marketing Programs Manager Pam Stauffer.

Beneo, for its part, produces Palatinose (isomaltulose), which is derived from sugar beets and has "similar technological properties" as sucrose, according to product literature. "This functional carbohydrate is fully yet slowly released [into the body], and provides glucose in a sustained manner. This ensures that blood-sugar levels stay balanced," the company states. Beneo recently showcased and sampled at January’s ISM Trade Fair the first-ever toffees made with the ingredient.

Allulose is another substance—naturally found in raisins, maple syrup, molasses, and figs—which conveys sweetness with negligible calories, as is monk fruit extract, which in at least one study was shown not to raise energy intake, blood glucose, or insulin in test subjects.3

References

Maureen Kingsley is a freelance writer, editor, and proofreader based in Los Angeles. She covers a variety of industries, including medical technology, food-ingredient manufacturing, and cinematography.
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Bone Health

Vitamin D and calcium are still popular, but so are emerging contenders in this space.

By Robby Gardner

Bone health is part of the foundation of healthy aging. Understandably, many consumers have turned to dietary supplements as part of their bone health strategy. And they will continue to do so.

A number of bone health ingredients dominate the market today, from those that are well recognized to others for which recognition is somewhat new. For many of these ingredients, there’s an overlap of benefits to bone health and overall health. As knowledge grows around each of them, manufacturers, healthcare practitioners, and consumers will benefit from staying up to date.

The Usual Suspects

To no one’s surprise, vitamin D and calcium continue to reign supreme in the bone health supplements category. Nutritional Outlook caught up with the Council for Responsible Nutrition (CRN; Washington, DC), and the organization emphasized that research continues to focus on vitamin D supplementation not just for bone health, but for cardiovascular health, immune health, and various other human health factors. If negative outcomes have resulted from any of the latest research, there’s still plenty of positive outcomes to counter them.
Ongoing vitamin D deficiencies in the general population, due to diet or lack of sun exposure, as well as increased popular use of vitamin D testing, are also keeping vitamin D in the mainstream.

As for calcium, there has historically been cause for concern with occasional studies linking calcium supplementation to heart health risks. But in an interview with CRN’s Andrea Wong, vice president of scientific and regulatory affairs, Wong said, “Studies are reinforcing the safety of calcium. There was some noise a few years ago on calcium, but definitely in the last few years there have been large-scale trials with calcium supplementation, and those all showed that supplementation is safe.”

Given the historical sales trends and latest research, it’s safe to assume that vitamin D and calcium supplements won’t be going away anytime soon.

**Market Surprises?**
A look at sales data from the market research group SPINS reveals that all but three of the top 10 bone health supplement ingredients in the conventional, multioutlet retail channel saw sales declines in the 12 months ending November 4, 2018. Even vitamin D and calcium endured small sales losses. Three ingredients, however, that outperformed their previous year’s sales were magnesium, vitamin K, and collagen.

A longstanding nutrient of interest, magnesium is known to indirectly support bone health by activating vitamin D in the body. In Europe, magnesium is supported by a number of available health claims unrelated to bone health. It’s possible that magnesium’s growing reputation as an important general nutrient, and ongoing concerns about magnesium deficiencies, are contributing to magnesium’s recent success in bone health supplement sales.

Vitamin K lends much of its success to growing interest in vitamin K2, which is increasingly regarded as an important variant of vitamin K. *Nutritional Outlook* recently produced a refresher on vitamin K2 and bone health, but a lot of the latest studies are focusing on vitamin K2 for other health concerns, including eye health, heart health, skin health, and body weight.

In Japan, the fermented soy product natto is rich in vitamin K2 and popularly consumed. Western diets, however, don’t have any notable food sources of vitamin K2. They must instead rely on the conversion of vitamin K1, from foods such as leafy greens, into vitamin K2. The extra challenge makes vitamin K2 supplements worth consideration.

For what it’s worth, researchers recently discovered vitamin K2 in honey. Whether it’s of value to humans remains to be seen.

**Increasingly Plant-Based**
The health products industry is increasingly plant-based, and most markets based on animal ingredients are adapting. Even vitamin D is in the midst of its own plant-based transformation.

Vitamin D products are sold as either vitamin D2 (ergocalciferol) or vitamin D3 (cholecalciferol), with the former often sourced from mushrooms and yeast and the latter traditionally sourced from sheep’s wool. Regardless of which vitamin D is more bioavailable—which is an ongoing subject of scientific interest—there’s growing demand for animal-free vitamin D. Vitamin D3 from lichen, and maybe even seaweeds, creates even more plant-based competition in the vitamin D marketplace.

Convenient as vitamin D supplements are, home cooking is still a viable way to get vitamin D in the diet. Fish and culinary mushrooms can be good sources, but it’s important to recognize that certain cooking methods can degrade vitamin D more than others, as a new study shows. Consumers and food providers should stay in the know.

**Collagen Success**
Opposite plant-based ingredients is collagen, an animal-derived protein that’s making gains in dietary supplements. According to SPINS tracking, collagen sales rose a staggering 66% in the mainstream bone health channel last year, but the boost in collagen sales is happening across multiple other channels.

“We see a proliferation of collagen in the marketplace because it’s a component of so many parts of the body, so it could have benefits for other things beyond bone health,” says Andrea Wong. Collagen is finding its way into beauty products and joint health products, to name a few non-bone sectors, and it’s even finding its way into sports nutrition studies.

Once again, a general health halo may be benefiting sales in the bone health market specifically.

**Avoiding the One-Size-Fits-All Rule**
Best practices in dietary supplements include labeling products for recommended serving sizes and daily values based on industry standards and research. However, it’s important to recognize that consumers will have different needs depending on diet, age, gender, and even environmental factors.

Bone health supplements are not exempt to this unwritten rule. In the case of vitamin D and calcium, these ingredients are essential to human health, but consumer needs vary (especially from supplements). While mandatory labeling is important and rules must be abided, manufacturers can do well by reminding consumers to consult with their healthcare practitioners before just consuming a bone health dietary supplement as the label indicates.

A t universities, hospitals, and R&D labs the world over, scientists are fast at work trying to bring about nothing less than the end of aging. And with lifespan-extension experts like British geneticist Aubrey de Grey proclaiming that "the first person to live to 1,000 has already been born," it would appear that they’re making headway.

But if you have trouble remembering where you put your car keys now, imagine trying to find them when you’re pushing 150. For the more that medicine and technology advance the cause of longevity, the more “the biological systems with which we were born get placed under increasing levels of stress,” says Daniel A. Porada, founder and CTO, Synapse (Atlanta).

That stress can take a debilitating toll, especially on what’s arguably the most important biological system we’ve got: the central nervous system and its starring organ, the brain. So with more of us living longer—and exposing our brains to ever more stress in the process—it now more than ever becomes imperative that consumers emphasize preserving their healthful mental faculties,” Porada says. “As a professor and good friend of mine at Columbia once said, ‘What’s the good in keeping the body around for longer if the mind isn’t there to enjoy it?’”

Brain Buzz
That’s a question more consumers seem to be asking, as anecdotal evidence shows interest in brain health buzzing.

Notes Porada, “Organic search volumes for terms like mental performance and brain health have been on a steady and precipitous climb since we first started laying the groundwork for Synapse in 2016.” Further, he’s been “quite frankly pleasantly surprised” by the heightened interest he’s noticed among even the lay public in cognitive-care practices like meditation and mindfulness.

Also not to be dismissed is the popularity of products like Bulletproof Coffee—made with grass-fed butter and medium-chain triglycerides, and purported to sharpen the mind—and of supplementation with brain-boosting mushrooms, both of which Porada thinks reflect consumers’ willingness to take charge of their cognitive health in ways they might not have considered before, including through dietary supplementation.

Supplements Make Sense
And why not? Supplements should support brain health, given that the brain is an organ just like any other, right?

Porada certainly wagers so. “I think consumers are starting to gain a better understanding that despite its apparent complexity and exceptional role in creating and defining one’s reality, the brain is subject to medical and nutritional interventions just the same as something like the liver or heart,” he says. “This is an extremely encouraging sign for this space and for the state of overall brain health.”
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Indeed, a report by Allied Market Research calculates the value of the global brain health supplements market at $3.194 billion in 2016, and anticipates that to climb to $5.813 billion by 2023, at a CAGR of 8.8% from 2017 to 2023.2

Room to Grow
Such growth, in both market share and product availability, has been “incredible to witness” in the three years since Porada and his partners founded their company, he says, adding that “the category has grown from mainly pills and powders found on niche websites to include recognizable products available in traditional retail environments: Brain Juice, FocusAid, and now Synapse.”

Donnelly L. McDowell, senior associate at law firm Kelley Drye & Warren LLP (Washington, DC), sees things similarly. “There are certainly more brain health supplements derived from different sources than before,” he says. “There are also more supplements that are labeled and marketed with more specific claims—concentration, memory—rather than being marketed simply through general brain health claims.”

Yet there’s still room to grow. “I think it’s safe to say that nutritional interventions in the service of brain health are still in their nascent stages,” Porada observes, “and many of the newer ingredients and techniques are still being researched and validated.”

Aging in a Toxic Environment
That research will continue as long as consumer demand warrants it. And with data from the United Nations’ “World Population Prospects: the 2017 Revision” indicating that the population aged 60 and older will more than double by 2050 and more than triple by 2100—rising from 962 million in 2017 to 2.1 billion in 2050 and 3.1 billion in 21003—there should be no shortage of consumers for whom brain-support supplementation might be a wise idea.

“As the baby boomer generation gets older, many are looking for new ways to maintain mental sharpness and concentration,” McDowell says. Thus, he sees the brain health market charting “a bit of a chicken-or-egg” course in which demand for brain-support products spurs scientific innovation, and innovation attracts more consumers to the category. “Companies were already investing in developing and testing supplements for maintaining mental acuity and other brain health measures,” he notes, “but market forces have probably accelerated those investments even more.”

So, too, should the realization that we’re aging in a cognitive atmosphere that doesn’t exactly foster enduring mental acuity. “Our environment and lifestyles are playing more of a role in how our brains function,” says Caspar A. Szulc, president and cofounder, Innovative Medicine (Long Island City, NY),
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Attorney Donnelly L. McDowell sees more supplements “labeled and marketed with more specific claims—concentration, memory—rather than being marketed simply through general brain health claims.”

Keep It Simple
So what will the future of brain-support supplementation look like? For one, it’ll depart from earlier crash-and-burn formulas that provided quick stimulation but yielded little long-term improvement. “It’s one thing to take a capsule and feel better while the brain continues to deteriorate,” Szulc says. “It’s another to identify the reasons why the brain deteriorates and give people the nutrients that can address and provide long-term prevention, health, and also optimization of the brain.”

Porada’s advice is to keep the message—however scientifically complex it may be—simple and digestible—at least for now. “You’ll notice that [mushroom product brand] Four Sigmatic doesn’t go into detail explaining the pro-serotonergic effects of cordyceps, which at this point in the lifecycle of these kinds of products would go over most consumers’ heads,” he says. “The focus is all around the product’s natural origins and the feeling it generates, and I think that’s going to be how these products will be marketed until generally available consumer knowledge catches up.” Which he has no doubt it will.

Speaking of natural, Lauren S. Clardy, president, NutriMarketing Business Group (Santa Rosa, CA), believes that “natural bio-actives and botanicals are the smart ‘new’ class of nootropics”—cognition-enhancing substances—and have gained popularity especially because smart drugs garnered so much negative press. They offer similar benefits to pharmaceuticals, but in a less extreme, more balanced manner.

She’s putting her money on Ayurvedic herbs like bacopa, ashwagandha, and tulsi for achieving “a variety of endpoints in the cognitive space,” she says, and she’s intrigued by “unique alternative delivery technologies that have launched, including coffee chews and direct-to-mouth—DTM—product delivery.” Think Pixie Stix.

Special Delivery
Elyse Lovett, marketing manager, Kyowa Hakko USA (New York City), also sees approachable delivery as a linchpin to the category’s success. “We see a huge amount of interest in the functional food and beverage spaces for specialty products marketed in the cognitive health space,” she says. “For example, I love the innovation on the functional beverage side of brain health, with clean-label products out there that deliver functional benefits and taste great.”

And don’t assume that the only receptive audience for these products is collecting Social Security. “We’re seeing a boom of younger Millennials demanding cognitive health products made from science-backed ingredients that go beyond just brain health,” Lovett says. And they do so for a passel of reasons: sports performance, active lives, the stress of parenting, even winning at e-sports, as is the draw for the emerging “gamer” demo. “Millennial and Gen Xers are looking for products that help support these lifestyle choices, meeting focus, attention, and mental energy needs,” Lovett says.

Play It Safe
Even as brands try to meet all these needs, they should remain mindful of the potential controversy that brain-support ingredients can court.

“From a safety standpoint,” McDowell says, “I wouldn’t say that brain health supplements are of any more or less interest to regulators than others.” But when it comes to brain-health claims, “We’ve seen a number of enforcement and litigation matters by the FTC and state AGs,” he says.

“Part of this is attributable to regulator concerns about populations seen as vulnerable and thus more susceptible to misleading claims,” he continues. For example, FTC, under its former chair, Edith Ramirez, “was very clear in taking a harder look at product claims that appeared to target the elderly or non-English-speaking community,” McDowell says. And just this February, FDA Commissioner Scott Gottlieb, MD, announced the agency’s latest spate of warning letters sent to companies making unproven product claims to prevent, treat, or cure Alzheimer’s disease.

Adds Porada, “Offering people unapproved ingredients whose safety hasn’t been determined is a sure way to discredit all companies operating in the mental performance and brain health space and set the whole industry back,” he says.

But it’s by no means an inevitability. And the sector holds undeniable promise. After all, who wouldn’t want to support their brain? Says Szulc, “Your brain is the CEO of your body. It’s probably the most important organ that you have.”

References
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Consumer interest in digestive health is not just limited to dietary supplements; it’s also expanding in food and beverage. Today, consumers have multiple avenues through which to pursue gut health. In fact, the digestive health category is constantly “reinventing itself as new science and products appear,” explains Joana Maricata, market research manager for New Nutrition Business (London). “It’s a space where opportunities flourish, and that’s because [gut health] connects to a strong ‘feel the benefit’ proposition for consumers. Everyone can feel improvements in their digestive health, and that keeps people motivated.”

While digestive health presents businesses with a great deal of opportunity, the sheer variety of products now focusing on the gut may be confusing to consumers. A recent survey from New Nutrition Business shows that consumers are largely confused about what is good for their digestive health. This is particularly true in the case of foods. For example, when New Nutrition Business asked 3,000 people from the UK, Australia, Spain, Brazil, and the U.S. to rank some common foods as good or bad for their digestive health, 23.4% of respondents cited sauerkraut and fermented vegetables as bad for their digestive health compared to 15.8% who said those foods were good for them.

According to the survey 76% of respondents found messages about diet and health to be confusing, and when asked where they get information on the subject, 58% said they looked online and read blogs, while only 28% said they consulted a nutritionist. Indeed, changes in official dietary guidelines over the past 15 years have sowed distrust among consumers, says New Nutrition Business, creating a diverse set of ideas about diet and health overall. This survey suggests that there needs to be better and more consistent outreach to consumers in terms of education.

Probiotics
Dietary supplements are not immune to confusion either. For instance, while probiotic is the most recognizable digestive-health supplement term, says New Nutrition Business, with over 80% of surveyed consumers across the markets saying they recognize the term and with 30%-50% of surveyed consumers claiming to use probiotic supplements, there is, nevertheless, a great deal of variation within the probiotic category that can make things a bit hard to understand, including variations in probiotic strains, dosages, and formats.
And the probiotic industry only continues to evolve, with options for consumers expanding further. Continued research in the area of digestive health will both improve our understanding of probiotic strains and also change how products are formulated. For instance, while supplementing with probiotic strains of bacteria such as *Lactobacillus* and *Bifidobacteria* has been rather ubiquitous over the years, more supplements and functional foods are beginning to incorporate spore-forming bacteria such as *Bacillus coagulans*, which may improve not only the types of products on the market—since spore-formers can often be used differently in manufacture—but also improve the diversity of the microbiome.

Kiran Krishnan, chief scientific officer of practitioner-positioned brand Microbiome Labs, talks about the microbiome. "Everyone has a different microbiome, but there are certain universal features within the microbiome that seem to hold true across the board: 1) That diversity is important, and 2) That there are certain keystone strains that hold up the microbiome and provide significant benefit and protection against chronic illness to the host." When Krishnan talks about diversity, he’s referring to not only the large number of different bacteria, but also the uniformity, or balance, in numbers across the microbiome.

Keystone strains such as *Akkermansia muciniphila* and *Faecalibacterium prausnitzii* play an important role in our health, says Krishnan. "There are literally hundreds of studies on *Akkermansia*, and it is inversely correlated to everything in the cardiometabolic realm," he explains. "So, if you have high levels of *Akkermansia*, you are protected against diabetes, obesity, heart disease, all of the things that fall under cardiometabolic syndrome."

"*Faecalibacterium prausnitzii* is inversely correlated with all sorts of inflammatory conditions, including Crohn’s disease, ulcerative colitis, and colorectal cancer," Krishnan continues. "Studies show when you have high levels of that organism, it protects against all of these inflammatory dysfunctions in the gut which lead to inflammatory dysfunctions in the body, like autoimmune disease."

When it comes to spore-forming bacteria, Microbiome Labs manufactures a product that contains five *Bacillus* spores that work together to "recondition" the gut. "We just submitted a study for publication showing that in as little as three weeks, the spores can increase diversity of the rest of the microbiome by over 40%," explains Krishnan. "They are acting as the gut police, reading the microbial environment, and if they find overgrown or problematic bacteria, they will sit next to them, produce up to 25 different antibiotics, bring those bacteria down, and produce a number of other prebiotic and postbiotic compounds to increase the growth of other commensals. So, what we’re seeing is a significant increase in diversity and uniformity in the gut when you add the spores..."
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into the system. And then we’re seeing huge increases in these keystone strains.”

A better understanding of the microbiome and how specific bacteria can influence our health is crucial for moving the category forward, says Lauren S. Clardy, president, NutriMarketing Business Group (Santa Rosa, CA). “Certainly, the media bringing the microbiome to the forefront, elucidating gut health as playing a key role in chronic disease, has helped the market innovate and accelerate,” she explains. “Conditions associated with gut dysbiosis have been correlated to obvious links like Crohn’s disease and irritable bowel syndrome to Parkinson’s disease, various spectrum disorders, chronic fatigue syndrome (CFS), and allergies. The state of our nutrition and food intake and the influence it has on us, based on our microbiota, is fascinating, and we are still in the early stages.”

One health condition to keep an eye on is “leaky gut syndrome,” which Clardy says will gain traction in the media. “This term, recognized as increased ‘intestinal permeability,’ is a disorder in which gaps in your intestinal walls start to slacken,” she explains. “This allows bigger proteins, molecules, and substances, such as undigested food particles, to pass through the intestinal walls into your bloodstream. Studies have shown that increased intestinal permeability or leaky gut may be linked to several chronic and autoimmune diseases, including diabetes and irritable bowel syndrome.”

Krishnan agrees. “Leaky gut is quickly becoming an accepted condition. The term leaky gut has been mentioned in numerous large-scale studies published over the last few years. And as researchers use the term more in papers, it becomes more understood—and, of course, more accepted as a condition,” he explains. “Consumer awareness has certainly increased...There are a lot of well-penetrated web personalities that are using the term leaky gut, and, as you know, if things are drawing attention on social media, it’s really pushing the awareness.”

“Prebiotics are going to play a very significant role in the overall health of the microbiome,” says Microbiome Labs’ Kiran Krishnan. Prebiotics While probiotics have dominated the conversation around gut health for years, prebiotics are now moving their way into the spotlight.
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Interest among health practitioners and consumers is certainly high, says Krishnan, whose company recently released a prebiotic product of its own. “Even before we launched our product, we were getting lots of requests from both doctors and consumers I end up coming in contact with for advice on prebiotics,” he states. “It is becoming clear that prebiotics are going to play a very significant role in the overall health of the microbiome.”

Microbiome Labs’ prebiotic product focuses on oligosaccharides, which Krishnan says provide more precise and targeted support of the growth of keystone bacteria. “The first prebiotics your microbiome encounters from mother’s milk are oligosaccharides,” he explains. “Our ancestors got a significant intake of oligosaccharides. They ate roots and tubers and foraged for fruits and nuts and so on, all of which contained high levels of fructo-oligosaccharides and xylo-oligosaccharides.”

Oligosaccharides are highly complex carbohydrates that survive digestion long enough to get to the large intestine, where they can be consumed by healthy bacteria such as Akkermansia and Bifidobacteria. Other types of prebiotics that have less complexity may feed bad bacteria in addition to good bacteria, in the small intestine, potentially exacerbating problems, Krishnan says. This where having personalized knowledge of one’s microbiome may come in handy.

Fact is, consumers are motivated to learn more about their health, and now the resources exist for them to do so privately. Services like 23andMe are not just giving consumers ancestry results; they help consumers learn which diseases they are genetically predisposed to be at risk of, and motivate consumers to adjust their lifestyles accordingly. Similar services exist for the microbiome as well. One such service is the Swedish-based firm Carbiotix, which provides affordable monthly microbiome testing and gives subscribers a personalized soluble fiber recommendation as well as a tier that provides a customized soluble fiber supplement.

This is not only a resource for consumers, however; Carbiotix is a way to accumulate longitudinal data about changes in the microbiome with soluble fiber as an intervention tool. The company will continue to offer the affordable as well as higher-cost comprehensive tests as an engine of information generation as it moves into therapeutics development, making licensing deals with pharmaceutical and nutraceutical companies.

“This engine of information generation can be there to leverage and amplify the efficacy of those therapeutics that have been developed because if you could utilize fiber more efficiently, then obviously fiber consumption can lead to even more benefits,” says Kristofer Cook, CEO of Carbiotix.

This all points to a promising future for microbiome research and digestive health supplements, which will be able to better address underlying causes of digestive health problems.
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It’s not surprising that in modern culture’s frequently interrupted, digitally focused, multitasking way of life, two of the most common personal-wellness complaints are sleep deprivation and low energy. The two go hand in hand, of course.

As market researcher SPINS noted in its “Top 10 Trend Predictions for 2019” report: “From daily caffeine consumption to excessive screen time and prolonged exposure to blue light waves that suppress the release of the important sleep hormone melatonin, it comes as no surprise that many consumers have difficulty sleeping,” with the unfortunate side effect of low daytime energy levels. “A growing number of consumers have already begun to establish new habits...and to seek out new products to help them relax, unwind, and get a good night’s rest,” the report continues. This year, the firm expects this particular health focus will become even more prominent than it already is, “answered by innovative ingredient combinations and new delivery methods coming to market.”

To combat low daytime energy, “consumers are looking for solutions that go beyond the instant-energy solutions of the past, and turning toward foods and supplements that help to increase focus and optimize body energy,” says Heidi Rosenberg of BrandHive, an advertising and public-relations agency that specializes in branding for dietary supplements, functional foods, and healthy beverages. She cites adaptogens as one solution.

On the other hand, energy drinks remain popular, particularly those with label claims of low or no sugar and featuring coffee and other trending flavors. Ahead are some trends and product updates for these two complementary categories of better sleep and greater energy.
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Two of the most common personal-wellness complaints are sleep deprivation and low energy.

Spray Yourself to Sleep
"Sleep supplements are already moving beyond the traditional forms of pills and herbal tinctures," SPINS reports. Some creative new delivery formats have recently hit the market, including Garden of Life’s mykind Organics Sleep Well R&R spray, which consumers spray directly into their mouths. The product incorporates the amino acid L-theanine and such herbs perceived to increase sleepiness as lemon balm, hibiscus, and chamomile.

Not Quite a Food; Not Just a Supplement
SPINS notes several sleep products that straddle the categories of supplements and functional foods and beverages. Dream Dust by Moon Juice is one. The product is a blend of jujube fruit, chamomile, and adaptogenic herbs formulated to be stirred into a warm beverage, such as dairy or nut milk. Its understated marketing includes the promotion of a "recipe" for a Dream Dust–based nighttime tonic.

Another product that seems to defy fitting neatly into a single category is Brahmi Ghee from Pure Indian Foods. A blend of cultured, grass-fed, organic ghee (clarified butter) and organic Brahmi (Bacopa monnieri), this “herbal ghee” is not intended for cooking but for blending into warm water and drinking one to two times per day. The product’s Bacopa monnieri ingredient is said to enhance both memory and sleep.

A Patch for Sleep
Transdermal delivery of sleep-promoting ingredients is yet another trend spotted recently by SPINS. The topical patch from Patch MD, for instance, delivers melatonin, magnesium, valerian, hops, and 5-HTP to reduce jet lag and facilitate sleep.

Two body lotions, Osimagnesium’s Good Night Body Lotion with melatonin and magnesium and Organica’s Dream Lotion with essential oils, are also marketed as transdermal sleep aids.

Adaptogens for Energy?
An adaptogen, a term coined more than 70 years ago, is “a substance that theoretically ‘adapts’ to what your body needs and helps protect against various stressors,” according to a recent story in The New York Times (June 2018) on adaptogens’ growing popularity. BrandHive’s Rosenberg cites them as an energy trend, explaining that these plants are gaining recognition for providing energy when it is needed.” Adaptogens are typically herbs, many used in Ayurvedic, Chinese, and Nordic traditional medicine, with the purported benefits of adrenal-gland support, stress reduction, and regulated hormone response. Among the better known adaptogenic herbs are ashwagandha, Rhodiola rosea (also known as arctic root or golden root), and schisandra.

Adaptogenic Products
Moon Juice’s Brain Dust and Power Dust claim to harness the power of adaptogenic herbs, including ashwagandha, rhodiola, and cordyceps. The products are intended to be mixed into smoothies, coffee, matcha, and other beverages and, like Dream Dust, seem to straddle the line between supplement and functional food.

Also straddling this line is Four Sigmatic’s innovative blend of instant coffee and adaptogenic herbs (holy basil, ashwagandha, Siberian ginseng), which is mixed with hot water for a morning beverage. The brand also sells mushroom-coffee pods, a cordyceps elixir, and a mushroom lemonade.

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The heart health category remains important to the dietary supplement industry because it includes a stable of products that have proven efficacy and consistent usage. Ingredients such as omega-3 fish oils and coenzyme Q10 (CoQ10) remain among the top-selling dietary supplement ingredients not only in the heart health category, but in the supplements market overall.

According to SPINS, in the heart health category—specifically in the U.S. conventional, multi-outlet channel—fish oil concentrates were the number-one-selling ingredient during the 52 weeks ending November 4, 2018, followed by psyllium and CoQ10. In the U.S. natural channel, CoQ10 was the top seller, followed by fish oil concentrates, garlic, and red yeast rice.

Despite impressive sales of some of these heart health ingredients, especially in the mainstream space (where, for instance, U.S. sales of fish oil concentrate for heart health totaled a whopping $161 million last year), sales growth for many major ingredients in the heart health market has been slowing, according to SPINS. Fish oil concentrate sales declined 13.5% in the multi-outlet channel last year (although they did rise 7.4% in the much smaller natural channel). CoQ10 sales in the multi-outlet channel fell only 3.3% in the multi-outlet channel and by only 0.9% in the natural channel, staying relatively stable. Ahead, we take a look at a few category leaders.

**Omega-3s**

These fish oil numbers are consistent with other market research, according to Chris Gearheart, director of member communications and engagement for the Global Organization for EPA and DHA Omega-3s (GOED; Salt Lake City). “GOED’s most recent Ingredient Market Report corroborates a possible decline in U.S. fish oil sales. In 2017, at least, demand for EPA and DHA raw material in the U.S. appeared to be flat or slightly declining,” he explains to Nutritional Outlook.

However, U.S. sales are only part of the picture, and sales figures are looking rather positive in other parts of the world. “In contrast, demand for EPA and DHA is growing in volume and value in multiple Asian markets, especially...
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CoQ10 is a well established and well recommended nutrient by cardiologists, particularly prescribed to patients on statins because statin drugs reduce the amount of naturally occurring CoQ10 in the body, and CoQ10 is crucial for producing cellular energy not only for the heart but for other bodily functions.

"Because of CoQ10’s ubiquitous role at the human cellular level, the ingredient plays an important role in benefitting many areas of the body," explains Scott Steinford, president of the CoQ10 Association. "Virtually every cell of the human body utilizes CoQ10 to convert energy. Therefore, the need for CoQ10 is present in every organ. Deficiencies or inefficiencies from CoQ10 depletion are caused by aging, disease, and normal reduction of CoQ10 production through our lifetime. CoQ10 has been studied to benefit numerous areas of the body, from oral health to skin health as well as many other health concerns."

Considering these benefits, CoQ10 may get a boost, among other ingredients, as more consumers become aware of mitochondrial health, cellular energy, and its connection to our health and aging, according to SPINS. The market researcher pegged mitochondrial health as one of the 10 market trends to watch in 2019, in its “Top 10 Trend Predictions for 2019” report.

"In terms of consumer awareness, the mitochondria’s connection to health is entering an important educational growth phase. This is similar to recent increased awareness of the endocannabinoid system, and, in some ways, it appears to be reminiscent of early-stage trends related to the microbiome from around 15 years ago," SPINS said. "The microbiome, endocannabinoids, and mitochondria are all important systems of the human body, and together they contribute to a more holistic understanding of health and wellness."

A related product also ranked in the top 10 of cardiovascular ingredients in the multi-outlet channel, according to SPINS, is ubiquinol, the reduced form of CoQ10. Although ubiquinol was only the seventh-highest-selling ingredient in the multi-outlet channel, its sales in that channel did increase by 27%

Ubiquinol became commercially available in 2007. It is a relatively new ingredient compared to CoQ10, which has been on the market for over 50 years. CoQ10 converts to ubiquinol in the body, and therefore ubiquinol sellers tout claims of better absorption, which, in addition to the ingredient’s relative novelty among consumers, may contribute to its spike in sales. However, CoQ10 still has more clinical support and a larger share of the market.

Though at times used interchangeably and at other times as competing products, CoQ10 and ubiquinol each have a role to play in the body, meaning that there is room in the heart health category for both. "The two forms do have distinct functions in the body," says Steinford. "They actually act as redox pairs with the ability to recycle each other as needed. This is important because ubiquinone—meaning the conventional form of CoQ10—is essential for life, and the body cannot survive without the energy it provides, so its life-sustaining energy must be protected and maintained. This is where ubiquinol steps in to recycle and maintain ubiquinone stores, serving as a defense system with other antioxidants to also protect the body from free radicals, super-oxides and the effects of aging."

Psyllium
Soluble fiber is also worth keeping an eye on in the heart health category. According to SPINS data, psyllium sales have been thriving. In the conventional, multi-outlet channel last year, psyllium sales increased 3.5% to total $143 million—taking the number two spot and bumping CoQ10 down to number three. This may hint at an increased interest in the role soluble fiber plays in heart health, with ingredients such as oat having a lot of recognition as a food and functional as an ingredient.

In 2017, for example, Naturex (now a subsidiary of Givaudan; Vernier, Switzerland) acquired Swedish Oat Fiber, which specializes in oat bran and oat beta-glucan, a soluble fiber. Their Sweat Bran ingredient comes in various concentrations to support different applications such as bakery and beverage, targeting functional foods.

"If you have 3 g beta-glucan a day for a month, you lower your cholesterol by at least 20%," says Jette Bergwall, development director, oat global business for Naturex. "That is a health claim approved by FDA. It’s a health claim in Europe as well, approved by EFSA, and it’s approved by many countries all over the world where we’ve applied for health claims."

Looking Ahead
While many of these ingredients are on a stable or slightly delayed trajectory, don’t count out the heart health category as an area of potential promise, especially as the population of aging adults continues to grow. As recently as last year, the U.S. Census Bureau predicted that the number of older people in the U.S. will outnumber the number of children for the first time in history. By 2030, the bureau notes, 1 in 5 U.S. residents will be of retirement age. The time to address potential new customers is now, and the market is backed by some solid ingredient science that hopefully will see this category thrive in years to come.
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Immune Support

Immune-support supplements are gaining popularity with consumers of all types.

BY KIMBERLY J. DECKER

In our fast-paced culture, few traits earn more praise than an almost superhuman ability to get stuff—a lot of stuff—done without hitch. At the same time, few forces are more expert at piercing those pretentions than the latest cold, flu, or other bug to lay us out flat.

That’s why immune-support supplements are perennial winners with consumers of all types—superhuman and otherwise. According to data from market research firm SPINS, products with a cold-and-flu focus racked up almost $1.13 billion in total conventional multi-outlet retail sales during the 52 weeks ending November 4, 2018—a jump of 15% over the previous year.

Such growth is hardly lost on Lisa C. Buono, client insights principal, health care vertical, IRI (Chicago). She’s noticed “much more chatter” about the immune system and its role in health writ large, and she cites growing interest in products like Airborne and Emergen-C as “a strong indicator that the masses are getting the message.” What message? “It’s a good idea to help head health troubles off at the pass through prevention.”

Ounce of Prevention

Keena Roberts, senior consumer health analyst, Euromonitor International (Chicago), agrees. Immune support, she says, is “hugely popular, especially in the wake of the severe flu season in 2014 and 2015.”

It may be getting even more popular as researchers progressively untangle the relationship between our physical wellbeing and the strain of modern life. “Consumers are busier and more stressed than ever,” Roberts says, “but they’re also very aware of the detrimental health effects that can occur as a result of stress. They want to be proactive and responsible for their health, but without disrupting their lifestyles.”

It’s all of a piece with the burgeoning “self-care” movement that consumers are embracing less as an indulgence of the privileged than as a crucial step toward fostering overall health.

IRI has surveyed consumers about self-care several times over the past five-and-a-half years, Buono says, and the insights thus gleaned suggest that the current trend is “vastly different from what we saw, say, a generation ago, where the approach was...
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more weighted toward problem/solution and treatment," she says. With prevention and promotion now at the fore, consumers are ready to invest in what Buono describes as "a robust immune system."

**Looking Out for Number One**

Kimberly Weld, vice president of North American operations, Swisse Wellness (San Diego, CA), also believes consumers are looking at immune health with enlightened eyes—"taking into consideration not just what tablet they can take, but how their overall lifestyle affects their ability to stay well," she says. "I think we'll see a larger focus on everything from good sleep to stress management as part of holistic immune support."

And the movement already disregards demographic boundaries. "This seems to be important to people of all ages and generations," Buono observes. Among more mature consumers, she says, self-care's emphasis on proactive prevention "is key to postponing or warding off entirely the diseases of aging: arthritis, cardiovascular disease, etc."

It's also key to maintaining a healthy pack-ebook, which Buono wagers is "probably the biggest driver" behind mounting engagement with self-directed immune support. Healthcare costs keep rising, she says, which compels consumers to "actively try to stay out of our expensive system and manage many of their ailments on their own. This is definitely one reason we're seeing an increasing sense of ownership and accountability on consumers' parts regarding their health."

**Asserting Ownership of Health**

As consumers are learning, dietary supplements are among the most affordable, accessible, and sustainable means of asserting that ownership.

"There's so much that consumers are doing to boost immunity," Buono says, "including eating a better diet with more fruits, vegetables, and immune-boosting ingredients, and getting more sleep. But that's still a struggle, judging from the popularity of OTC sleep aids and supplement sleep formulas."

Indeed, even the health-aware among us sometimes need a boost. As Samantha Cassetty, registered dietitian and an advisory board member at supplements brand OMG! Nutrition (New York City), acknowledges, "A diet based on whole foods, with limited processed foods and added sugar, can be a very powerful support for immunity and protection against unhealthy aging. However, many Americans fall short of their needs."

For example, Cassetty says that up to 80% of Americans aren't getting sufficient quantities of magnesium, which can strengthen immunity by buffering stress and promoting restorative sleep. Supplements—like the packets of powdered magnesium OMG! Nutrition markets—help fill the gap and shore up immunity with little extra effort on busy consumers' parts.

So supplements promise to be "a pretty big" factor in the immune-support equation going forward, Buono says. Even better, "The very action of using supplements seems to breed further improvement in health habits."

**Ingredients to Watch**

As for which supplements consumers will turn to, the mix comprises both the tried-and-true and newer options heretofore little associated with immune health.

"The immune category used to be as simple as vitamin C, zinc, and Echinacea," Weld says, "all put together in different proportions with slightly different variants. But over the years, the market's evolved to include amazing ingredients like elderberry and Manuka honey—items that have been used to support immunity for ages but that hadn't gained widespread popularity in the U.S."

Roberts goes so far as to call elderberry "the ingredient of 2019: Consumers know and trust it, there's clinical evidence to support its efficacy, and it's tasty. So adherence rates are high, especially for children." (Nutritional Outlook recently named elderberry one of its Ingredients to Watch in 2019.)

She's also keeping her eye on mushrooms, which she thinks have "tremendous market potential in the coming years." Why? "Consumers are learning more about the health benefits associated with various cordyceps species, and companies are innovating new forms to make mushroom supplements easy to add to a consumer's daily routine."

**Take It Easy**

Which makes a world of difference in gaining consumer buy-in for immune-support products. "Delivery systems are absolutely top of mind for everyone in the category," Weld says. "But new ways of creating value for consumers don't end with how the product is consumed. The product also needs to fit the consumer's lifestyle. That may mean something that's vegan, low sugar, or TSA compliant and easy to travel with. Along with branching out from a solid-dose culture, we need to factor in how consumers want supplements to fit their lives and develop them accordingly."

Perhaps that explains the continuing appeal of gummies, which Roberts says "remain a popular format for immune defense since they're so easy to take, and especially because they're appealing to children—and immune-support supplements for children are a key growth category in this space."

Cassetty notes that the evolution of probiotics to include a wider range of strains and delivery methods—not just refrigerated dairy but shelf-stable cereals, granola bars, and more—has helped make it a significant player in the immune-health arena. "The majority of our immune system is hosted in our gut," she notes, which is "home to trillions of bacteria that make up our microbiome. The science of the microbiome and of probiotics is driving innovation in this field."

How far do we have to drive? Buono estimates that the immune-support category is "about 20% of the way to maturity," based on the percentage of consumers she sees as espousing preventive behaviors that boost immunity. And she thinks there's still room to grow—as long as "there's greater awareness on the part of large swaths of the public that we can ingest items to help boost our immunity."

Launching better immune-support products will help the category immeasurably, particularly if the products make boosting immunity "more mainstream, easy, and fun," Buono concludes. "Right now it's still a bit of work. It needs to become as natural a part of our day as eating or sleeping. We're not there yet."

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Kimberly J. Decker writes for the food and nutrition industries from her base in the San Francisco area, where she enjoys eating food as much as she does writing about it.
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The joint health category is a healthy balance of old and new, continuing to evolve while also maintaining sales of ingredients such as glucosamine and chondroitin sulfate, which have long had a good reputation in the dietary supplement industry. According to SPINS, in the conventional, multi-outlet retail channel during the 52 weeks ending November 4, 2018, the glucosamine and chondroitin combo, and glucosamine alone, still held the number one and two spots in the joint health category—at $135 million and $39 million, respectively—despite slight, respective sales declines of 8.2% and 4.2%, compared to the previous year. The glucosamine and chondroitin combo also took the number one spot in the joint health category of the natural channel, at close to $7 million, with only a slight decline of 2.9% compared to the previous year.

Yet, newer-to-market ingredients are nipping at their heels. Turmeric is among the fastest-growing ingredients in the category. According to SPINS, in the conventional multi-outlet channel during the 52 weeks ending November 4, 2018, the glucosamine and chondroitin combo, and glucosamine alone, still held the number one and two spots in the joint health category—at $135 million and $39 million, respectively—despite slight, respective sales declines of 8.2% and 4.2%, compared to the previous year. The glucosamine and chondroitin combo also took the number one spot in the joint health category of the natural channel, at close to $7 million, with only a slight decline of 2.9% compared to the previous year.

Yet, newer-to-market ingredients are nipping at their heels. Turmeric is among the fastest-growing ingredients in the category. Already popular in the overall market mainstream, the herb is well known for its role in supporting healthy inflammation throughout the body. Research has shown that turmeric can improve symptoms of osteoarthritis, making it an important supplement for older consumers, but turmeric is seeing a lot of finished products positioned toward recovery from exercise, targeting younger, more active consumers.

“Curcuminoids provide protection from free radical damage and help to reduce inflammation,” explains Shaheen Majeed, worldwide president of turmeric supplier Sabinsa (East Windsor, NJ). “In recent clinical studies, it was shown that curcuminoids helped to decrease muscle soreness from oxidative stress and inflammation associated with continuous exercise and thus improves athletic performance and endurance.”

According to SPINS, turmeric took the number one spot in the pain and inflammation category in the natural channel last year, with stable year-over-year sales. And in the natural joint health channel, turmeric ranked number two, with sales increasing by 12.2% last year and coming in behind the number-one spot, the glucosamine and chondroitin combo. Meanwhile, in the conventional multi-outlet channel’s joint health market, turmeric ranked number three in sales, behind glucosamine-plus-chondroitin and glucosamine alone. However, turmeric was also the only ingredient in that category to experience a sales gain last year: 32.2%, to be exact. According to Innova Market Insights, globally there was a 28% increase in bone and joint products that incorporated turmeric between 2014 and 2018.

Herbs and botanicals, in general, have been making their way into the joint health category, says Innova Market Insights, whose research shows a 25% average annual growth of bone and joint supplements that used botanicals between 2014 and 2018. Other herbs, such as boswellia, tart cherry, and ginger, can also be found in joint health products whose mechanism of action is supporting inflammation, often in a post-exercise context.

Collagen is also a major force in the joint health category, ranking sixth in the joint health category in the conventional multi-outlet channel; however, because collagen straddles multiple categories, consumer attention for collagen has shifted a bit toward hair, skin, and nails. For instance, according to SPINS, while collagen saw a 25.4% decline in sales last year in the mainstream joint health category, it saw a 28.4% increase in the mainstream hair, skin, and nail category. In the natural channel joint health category, however, collagen held strong and ranked number three in sales, experiencing a 29.6% increase in year-over-year sales.
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There is no singular sports nutrition shopper today. For sports nutrition brands, this fact is as exciting as it is challenging. “There has been an interesting shift over the past half-decade,” says Cody Flynn, product manager, innovative ingredients, Prinova (Hanover Park, IL). “Sports nutrition was once driven by the bodybuilding community. As the space continues to grow, bodybuilding continues to have a smaller and smaller influence.”

If one had to categorize, for a moment, what the new sports nutrition customer is generally like, the description sounds very much like that of the general, overall health and wellness shopper—that is, a consumer seeking strategies to stay healthy throughout life. “The new buzzword for sports nutrition is ‘preventative care,’” says Flynn. “As the cost of healthcare continues to skyrocket, consumers are being more health conscious and thinking about longevity. These same brands that once targeted bodybuilders are now shifting focus to your average gym member who is focused on staying fit and healthy for years to come.”

What does this mean for sports brands? It means that the market is looking for holistic, well-rounded approaches to maintaining a healthy body, in which exercise plays only one part. As such, more companies are drawing a line between sports formulas and other areas of health that impact physical performance, including immune and brain health.

“When formulating sports nutrition products, it is important to consider the cognitive aspects, along with the physical benefits of the ingredients,” says Heidi Rosenberg, senior public relations counsel for marketing, branding, and public relations firm Brand-Hive (Salt Lake City, UT). “Minerals such as iron, zinc, and magnesium play important roles in achieving optimal physical and cognitive sports performance and are considered to have nootropic characteristics.”

Products that support sleep and recovery are also seeing growing interest from both professional and young amateur athletes, says Brian Jordan, RSCC*D, CSCS*D, technical manager at NSF Certified for Sport (Ann Arbor, MI). He notes these athletes’ “growing desire for functional foods that support sleep and recovery due in large part to the amount of travel and long competitive seasons.”

Anti-inflammatory ingredients are also a growing “buzzword” among sports shoppers, says Flynn. He thinks an ingredient like hemp-derived cannabidiol (CBD) might one day find opportunity in the sports space for this reason.

For an up-to-date look at ingredient science in the sports sphere, one need look no further than the International Society of Sports Nutrition’s (ISSN) “ISSN Exercise & Sports Nutrition Review: Research & Recommendations” report. The report, which was most recently updated last year—it’s been updated a few times since it was first published in the Journal of the International Society of Sports Nutrition 15 years ago—provides, among other information, an updated look at the science backing some of the most popular sports nutrition ingredients on the market. The report authors categorize ingredients by those considered to have “strong evidence to support efficacy” and deemed “apparently safe” to those with “limited or mixed evidence to support efficacy” and those with “little to no evidence to support efficacy and/or safety.”

Ingredients the authors considered to have strong evidence for building muscle are beta-hydroxy beta-methylbutyrate (HMB; a metabolite of the amino acid leucine), creatine monohydrate, essential amino acids (EAAs), and protein. Ingredients deemed to have strong support for enhancing exercise performance are beta-alanine, caffeine, carbohydrate, creatine monohydrate, sodium bicarbonate (baking soda), sodium phosphate, and water and sports drinks.

Ralf Jäger, FISSN, CISSN, MBA, managing member of consultancy Increnovo LLC (Milwaukee, WI) and one of the ISSN paper’s authors, highlights a few ingredients he also considers strong contenders in the sports space today.
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One of them is probiotics. What makes probiotics so promising for physical performance? Says Jäger: "New clinical studies have recently expanded the use of probiotics from digestive and immune health in athletes to improved nutrient/protein absorption"—pointing to a 2016 study he oversaw on Kerry Group's (Beloit, WI) Ganeden BC30 Bacillus coagulans GBI-30, 6086, probiotic strain—"or faster recovery and improved performance"—pointing to a blend of bacterial strains Bifidobacterium breve BR03 and Streptococcus thermophilus FP4 developed by Probiotical S.p.A. (Novara, Italy) and distributed in the United States by Ashland (Kearny, NJ) and which Jäger himself also studied in 2016.

Jäger also believes in the power of plant proteins, noting, "New studies show how to use them as effectively as animal proteins," such as through use at higher doses, the addition of digestive enzymes ("to break down complex carbohydrate structures of plant proteins") or probiotics, or through the addition of HMB ("to increase anabolic potential"). And, finally, he says ATP is supported by new science "showing it works acutely."

The ISSN authors point out how active sports nutrition science is. In their study abstract, they state: "Sports nutrition is a constantly evolving field with hundreds of research papers published annually. In the year 2017 alone, 2082 articles were published under the keywords 'sport nutrition.' Consequently, staying current with the relevant literature is often difficult." But companies try their best.

Driving Trends

Aside from keeping up with the latest sports science, marketers must also keep their eye on what’s driving consumer preferences. Sports consumers are no different from the standard consumer packaged goods customer searching for one big thing: convenience. "The millennial generation often points to snacking/eating on the go, as they do not have the time to sit down and eat a complete meal," says Prinova’s Flynn. "In terms of how this affects manufacturing, we are seeing more ready-to-mix powders in single-serving pouches as opposed to the traditional 30- and 60-serving tubs." While these single-use formats are typically more expensive for the customer, marketers can often make up for that by including more functional ingredients—ingredients that might otherwise be cost-prohibitive to include in a more price-sensitive product like a 60-serving tub.

Ready-to-drink beverages are also increasingly popular because they are convenient. Flynn says RTDs offer another benefit over "adding a powder mix to a generic shaker cup": a better branding opportunity with each RTD package, which can help grow consumer awareness.

Nutritional Outlook also asked interviewees whether any trending diets—paleo, ketogenic, and the like—are taking hold of the sports nutrition space.
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“The ketogenic diet is the frontrunner in 2019,” says Flynn. “Results typically come quickly if followed properly, which helps keep dieters motivated. Given the framework of the diet being 70%-75% calories consumed from fats, this opens the door to many new launches and product development.” This is part of the reason more consumers are looking for products with healthy fats. “Coconut oils and other tree nut oils have seen a lot of consumer interest from those trying the keto diet,” he says.

Right now, keto hasn’t really crossed too far into the sports world, Flynn says. But companies may eventually find opportunities there. “Keto is so different from other diets that you don’t see as much crossover in the sports space yet,” he notes. “The typical meal replacements and protein powders, both dairy and vegan, have been on the market for some time but don’t fit into the keto framework. This is allowing new brands to move into the space by attacking a new market.”

Engaging Consumer Tastes
The vast range of sports customers today—from the hardcore athlete to the weekend warrior and customers of all ages and genders in between—means brands often find themselves trying to please everyone.

NSF’s Brian Jordan says, “At NSF Certified for Sport, we’ve noticed an increased drive by brands to cover as many interests as possible. It’s a real balancing act as brands try to be as inclusive and reach the broadest market, while still providing products individualized to a specific audience’s needs.”

He continues: “An increasing refrain we are hearing at NSF Certified for Sport is ‘Inclusive yet Individual.’ Like a lot of industries, manufacturers of dietary supplements are striving to reach new markets while maintaining a broad base that appeals to as many people as possible. It’s a challenge that runs all the way through their business, from the experts in product development to the teams designing the packaging labels, and I expect that challenge to only grow as consumers continue to diversify themselves through education and experience.”

Flavor is a pivotal tool for reaching consumers and an especially powerful one for catering to mainstream customers. When one considers how the sports market has diversified, and about how mainstream customers may be more flavor-sensitive than a bodybuilder who, in the past, may have been more willing to trade perfect flavor for performance, it’s clear that sports formulators today have their work cut out for them in order to identify flavors that will capture new customers and retain the old ones. Flavors specialist Synergy Flavors (Wauconda, IL) quotes Mintel data noting that over 75% of consumers are influenced by flavor profile when purchasing a sports nutrition product.

To help product manufacturers “seize the opportunity to be pioneers in flavor development and stay ahead of the game in the ever-evolving sports nutrition market,” last fall Synergy released a “Flavors of the Future” report. The company said: “As part of
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our ongoing flavor exploration journey, we wanted to ensure that we uncovered the stars of tomorrow and beyond. Utilizing world-class trend data, coupled with analysis of social media, food blogs, and Google search trends, we have identified 17 flavors from North America and Latin America we anticipate to be the up and coming flavors in the sports nutrition category over the coming years.”

The company separated these flavors into four categories: 1) Emerging (“Ahead of the curve, new to consumers, and generally too novel to be on menus”), 2) Growing (“Starting to appear in food products, with potential to mainstream in the near future”), 3) Mainstream (“Regarded as normal or conventional in a segment and poised to work in sports nutrition”), and 4) Established, with Global Potential (“Well established in certain regions, with potential for global appeal”).


Alexandre Massumoto, marketing research lead at Synergy Flavors, said in a press release that some of these flavors “are so novel to the market that those product manufacturers that are considering them are true trendsetters.”

By contrast, Massumoto told Nutritional Outlook recently, “10 or 15 years ago, sports nutrition companies didn’t have many flavors in their portfolios.” Early adapters were more focused on the new kinds of products coming out, with less emphasis placed on flavor. But not so today. “Time has passed, and consumers are increasingly demanding of flavors and product tastes,” he says, especially when it comes to some of the sports performance ingredients that can have an unpleasant aftertaste.

And while, in North America at least, the three major sports flavors are basic—vanilla, strawberry, and chocolate—consumers are looking for new kinds of indulgent flavors and also more adventurous flavors, Massumoto says. The ice cream market has always been a big influencer of sports flavors, he points out. “Because ice cream is typically dairy based, and a lot of protein powders are still whey protein–based, flavors that work well in ice cream usually transfer well to instant protein powders,” he explains.

Massumoto commented on some of the flavors Synergy forecasts for the sports future. Speculoos is an ice cream and dessert flavor based on the popular biscuit from Europe, which he says some have dubbed the “new Nutella.” Taro is still a very novel flavor starting to be seen in Latin America in, for
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instance, ice cream and yogurt. Massumoto notes that taro is probably not going to be in the sports market anytime soon—not in 2019 or 2020, for example—but he says “it could be in 2021.”

In terms of fruity flavors, yuzu is a novel citrus flavor that many flavor houses pegged as a trending flavor this year. And tart cherry is seeing a resurgence in popularity as a flavor, such as in energy drinks. ”Tart cherry probably won’t work in whey-based protein, but we can perfectly see it in BCAAs or in preworkout products,” Massumoto says. Then there’s cashew. Cashew is trending as a flavor in products like ice cream and maple pecan coffee. “We understand it can be applied quite well to sports nutrition applications,” Massumoto says. (Synergy also tested these ingredients in various sports formulations to see how well they work.)

Finding the right flavor is a way to reach the right customer and also to stand out in a very crowded market. “I think creating innovative flavors for this market is certainly something that should be a priority for any brand that’s looking to the future,” Massumoto says.

**Safety, Efficacy**

Another priority for any supplement brand? Ensuring the safety of its products. To this end, Jordan says NSF International has revamped the logos for its NSF Contents Certified and NSF Certified for Sport certification programs for dietary supplements and functional foods/beverages to ensure they are even more immediately recognizable to consumers and retailers who are looking for NSF-certified products.

“The new marks we developed with feedback from current certified brand owners, dietitians, athletes, and consumers, who are all busy people looking for the most efficient way to instantly recognize the level of certification a product holds,” he says. For athletes concerned about the presence of banned substances in the supplements they take, certification adds an extra layer of security.

And, as always, efficacy is the key to success for any sports product. After all, if a consumer is going through the trouble to invest financially in products and invest in the time to train, they want to make sure the products work. “Products backed by science will be the future of sports nutrition,” says Prinova’s Flynn. 

**References**

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The correct way to use a weight-management dietary supplement is to incorporate it in one's overall weight-loss routine, which should include dietary changes and exercise. While there has always been a desire for easy solutions, more consumers now understand that a “one-pill wonder” does not exist. “Many of our consumers are well aware that there is no miracle diet pill, so they are looking for a broader approach to weight management, which includes lifestyle changes,” says Asma Ishaq, CEO of health product brand Modere Inc. (Springville, UT).

Increasingly, dietary changes play a huge part in people’s lives as they seek long-term solutions for losing weight and staying healthy. Lifestyle diets such as the Mediterranean diet, the paleo diet, and the ketogenic diet are among the most popular diets, with packaged foods actively making Mediterranean-, paleo-, and keto-friendly label claims. There is, however, opportunity here for dietary supplements to complement these lifestyle diets.

For example, Modere’s M3 system is a group of products designed to work in tandem with a Mediterranean diet. “Studies have shown that a Mediterranean diet delivers exceptional, all-natural benefits that support cardiovascular health, may slow down age-related weight gain, and help people lose 52% more weight than an average low-fat regimen,” says Ishaq. “For best results, we encourage our consumers to ‘Take 3 and Make 3,’ meaning take the three core products included in our M3 system daily—Burn, a morning thermogenic; Sustain, an afternoon protein shake; and Sync, an evening fiber—and make at least three of these suggested

Ingredients that complement and support today’s popular diets

BY SEBASTIAN KRAWIEC, ASSOCIATE EDITOR
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lifestyle changes: cut out sugary drinks, fried foods or refined flour, white rice, and sugar; drink five 12-oz glasses of water daily; or walk at least 7,500 steps each day.

The goal is long-term support to achieve permanent weight loss. “Our belief is that weight management should be sustainable, and our products are designed to be used long term, both during and after weight loss,” says Ishaq. “For example, Trim combines conjugated linoleic acid (CLA) and [our proprietary] Collagen/Hyaluronic Acid (HA) Matrix Technology that work potently together for safe and effective weight loss and a total body transformation experience. The clinical strength, plant-derived CLA in Trim accelerates fat loss to help you lose inches during the weight-loss process and keeps you toned and sculpted when you have reached your ideal weight. The Collagen/HA Matrix Technology in Trim keeps your skin beautiful and firm both during and after weight loss, and it helps to promote joint health, which is helpful in maintaining an active lifestyle.”

Jayesh Chaudhari, senior director of research and development for supplier Prinova (Hanover Park, IL), supports a similar approach. “With increased health awareness among the millennial and Gen Z generations, who represent a large portion of the population, the most desired trends seen in the weight-management category at Prinova are the powdered drinks, sustained-release supplements, and bars made with potent blends of exogenous ketones (beta-hydroxybutyrate salts), conjugated linoleic acid (CLA), collagen, carnitine, natural caffeine, and green tea, etc.,” Chaudhari explains. “Fat-burning ingredients (spices, natural caffeine/green coffee bean extract, Coleus forskohlii extract, CLA, teacrine, capsicin, and black pepper extract) in addition to the ingredients boosting satiety (potato extract, dietary fibers) are targeted for achieving permanent weight loss.”

Fat burning, a popular function of weight-management supplements, is a primary component of the ketogenic diet, which is perhaps the trendiest diet currently. According to Google Trends, the search term “keto” reached peak popularity on January 6, 2019, based on web searches, increasing by more than half the number of “keto” searches that took place during the same time the year before. A ketogenic diet is a high-fat, low-carb diet specifically targeting 70% fat, 20% protein, and 10% carbs. “This way of eating switches your body from burning sugar and carbs as fuel to using fats as its primary energy source, and can be a total game changer for losing weight—when it’s done properly by those who can tolerate it,” explains The New York Times bestselling author Ann Louise Gittleman, PhD, who wrote Radical Metabolism.

“When it’s done properly by those who can tolerate it” is an important caveat, because a ketogenic diet promotes physiological changes in the body, which may not be good for everyone. For example, Gittleman explains that those with pancreatitis, high triglycerides, gallbladder disease (or those without a gallbladder), low blood pressure, kidney disease, multiple nutrient deficiencies, or previous weight-loss surgeries should not adopt a ketogenic diet. Proper functioning of the gallbladder and liver is paramount in life, but particularly when on a ketogenic diet, for optimal fat metabolism.

“Your liver synthesizes and secretes about a quart and a half of bile daily and then stores it in your gallbladder,” says Gittleman. “Bile is the
key to absorbing and assimilating fat as well as serving as a toxic waste dump for excess chemicals, hormones, drugs, heavy metals, and other toxins that eventually need to be eliminated from the body. Without adequate bile, your body can’t absorb fat-soluble vitamins or essential fatty acids.’

Supplements can be an important tool to support bile production. Gittleman cites choline, taurine, beet root, pancreatic lipase, ox bile, and collinsonia root as “must-have” supplements for supporting bile production. Choline, she says, supports fat digestion. Taurine helps the body bind bile and excrete chemicals detoxed by the liver, as well as promotes bile production. Beet root contains betaine, which thins the bile, preventing the formation of gallstones. Pancreatic lipase, she says, is the main digestive enzyme used to break fats down for absorption. And for those with impaired bile production, ox bile is an excellent source of bile salts. Collinsonia root, for its part, reduces the risk of constipation—which can occur during a ketogenic diet—and gallstones.

Chaudhari also points to some limitations of the diet. “[Keto] is high in saturated fats from oils (palm, coconut), lard, butter, and cocoa butter. The plan doesn’t typically differentiate the lean-protein foods from protein sources high in saturated fat, such as beef, pork, and bacon,” Chaudhari explains. “Lastly, a keto diet could result in micronutrient deficiency—such as chromium, selenium, zinc, copper, magnesium, phosphorus, and water-soluble vitamins—due to lack of consumption of vegetables, fruits, and grains.”

Supporting fat metabolism and filling any gaps in micronutrients can therefore be important ways supplements can contribute to someone’s diet and weight-loss goals. Gittleman, for example, formulated a product called Bile Builder for Uni Key Health System containing all six of her must-have bile-building ingredients.

Prinova is formulating ingredients designed for keto supplements, sports and powdered drinks, and nutrition bars. “Although there is a lack of defined regulation to claim identity of keto products, the product should encompass the effective load of exogenous ketones derived from beta-hydroxybutyrate (BHB) salts such as sodium, magnesium, calcium, and potassium; healthy fats and oils such as butter, medium-chain triglycerides (MCTs), polyunsaturated fatty acids (PUFA), olive oil, and avocado oil; and matcha,” explains Chaudhari. “Finally, some additional functional ingredients such as a black pepper extract should be included to enhance the bioavailability of the macro-ingredients.”
Imagine being a contract manufacturer in today’s dietary supplement/functional food industry and being asked to deliver all of the following, all while holding down costs and hitting shorter lead times: more customized and complex ingredient formulations and delivery systems, enhanced certifications and product testing, and increased quality, traceability, and transparency—the list goes on. Somehow, today’s manufacturers, experts in their field, are making it all work, playing an integral role in helping companies get to market faster with competitive, differentiated, high-quality products. We asked two manufacturers about the secrets to the trade.

As dietary supplement marketers and end users grow increasingly sophisticated, “cookie-cutter” products no longer cut it in this competitive market. The ability to handle customized, sometimes complicated, requests depends on the manufacturer—and even the most experienced manufacturer will face challenges trying to fulfill specialty requests while still keeping business moving.

“We’re actually known for manufacturing difficult formulas, so for us, our customers have always demanded unique, customized products,” says Eugene Ung, CEO of Best Formulations (City of Industry, CA). “With that said, it is a challenge to balance production efficiency with customized products.” For instance, contract manufacturers maintain cost efficiency by ordering raw materials in bulk and usually must meet a minimum order quantity for each ingredient; however, if a formula comprises a long list of ingredients, a manufacturer will “often be left with a significant amount of excess raw materials, which may or may not be used up before they expire.” Also, a contract manufacturer who provides many dosage forms must also invest in more varied types of testing and equipment to match. And, speaking of equipment, Ung says that contract manufacturers increasingly benefit from selecting equipment designed for easy changeovers.
Marketers should understand that the more complex their formula, the more likely they are to encounter challenges such as: 1) reduced ingredient compatibility (certain substances may not be stable when formulated together), 2) paperwork (for instance, the more ingredient certifications a client demands, the more complex sourcing becomes), and 3) supply chain challenges (when ingredients are rare and hard to find, the project obviously becomes more difficult).

Some manufacturers maintain a stable of already perfected, private-label product formulations that customers can further tweak and customize to their liking. Soft Gel Technologies (Los Angeles) is one of those manufacturers. President and CEO Steve Holtby explains the advantages of this option.

“We can assist companies with new product development from start to finish, although many customers come in with a formulation already in mind,” he says. “Our product list often serves as a springboard for ideas in creating products or line extensions of existing brands. Soft Gel Technologies is unique in that we have several exclusive branded products that can be used in formulas, and customers add synergistic ingredients to make it a custom formula. These branded products usually have scientifically researched ingredients or intellectual property (patent and/or trademark protection) surrounding the ingredients found in the formulas.” Also, he says, many of the products come with ready-to-go educational tools that companies can use in the marketing of their products.

The key to project success is good communication between client and manufacturer, Holtby says. “While many customers discuss product integrity (effective quantities of safe, clinically proven, and ethically obtained ingredients), other factors, such as product price, delivery timelines, and batch sizes, are sometimes more critical,” he points out.

Manufacturing experience—and a healthy dose of self-awareness—is also priceless. “There is no simple way to meet the varied demands of products, delivery formats, etc.,” says Ung. “You have to have a broad range of expertise, either in-house or outsourced, to support these varied requests. Perhaps the most important thing for the contract manufacturer is that they have to understand what they’re good at and what they’re not good at to manage expectations with the customer.” He adds: “Efficiency and different/challenging products don’t go well together, but it’s our job as a contract manufacturer to figure that out.”
When devising a package for a dietary supplement product, the choices can be overwhelming. What style of package should you choose? What material should it be made of, and how should it be labeled and decorated? And, importantly, does your package act as an extension and ambassador of your brand? Is it a product that customers will connect with, emotionally, right off the shelf or computer screen?

To answer these questions, it helps to hear what those who supply packaging, or who oversee branding and design, see happening in the market. Ahead, we check in with two experts.

The Foundation

Marny Bielefeldt, vice president of marketing for packaging supplier Alpha Packaging (St. Louis), discusses the most popular packaging requests her company is seeing. Her company manufactures plastic bottles and jars for nutritional supplements, sports nutrition powders, personal care products, and niche foods and condiments.

The needs of each category are slightly different, Bielefeldt says. For vitamins and minerals—particularly gummy vitamins, which are increasingly popular and “often brightly colored, interesting shapes”—the choice is often clear packaging made from polyethylene terephthalate (PET). “PET is also easily colored, so for brands that want to establish an identity through colored packaging, transparent PET hues give you the option to color the bottle but still see into the package,” Bielefeldt says.

Meanwhile, sports nutrition marketers often prefer full-body shrink-sleeved bottles. In addition, “Moisture vapor transmission rate (MVTR) is also important for powders, so you often see sports nutrition supplements packaged in high-density polyethylene (HDPE), which has better moisture barrier properties than PET,” she says.

Sustainability is also increasingly requested, with many companies looking for 100% post-consumer resins (PCR), says Bielefeldt, adding that Alpha Packaging makes bottles in food-safe PET or HDPE post-consumer resin for all of the industries it serves.

And, back to the ever-popular gummies, Bielefeldt says that in addition to commanding clear packaging, gummy supplements, as well as chewable formats, also often require wider-mouth bottles. Why? Gummies, in general, are both larger and stickier than tablets or capsules, says Bielefeldt, who explains: “That, in turn, often requires a packaging change to a container with a wider opening that allows the product to be filled faster.”

She continues: “While a lot of pills are packed in bottles with 38-mm neck diameters, gummies usually require a 45-mm or 53-mm neck—and many fillers believe they can be even more efficient with a 63-mm neck diameter.” We are currently capitalizing on that market demand by introducing a stock line of PET gummy packaging with 63-mm neck openings that work with child-resistant closures.”

In the personal care sector, Bielefeldt points specifically to hemp cannabidiol (CBD) creams and topicals as influencing packaging. “Creams and topicals are driving a trend toward straight-sided, wide-mouth jars
with very minimal, apothecary-styled labels,” she says. “With the higher price points of CBD products, there is also a desire to elevate the brand with direct screen printing on the bottles and jars in lieu of pressure-sensitive labels. This gives the products more of a high-end cosmetic skincare appearance instead of a mass-market look.”

The Branding

Speaking of looks, Yadim Medore has this advice for marketers: “On a package, simplicity and precision of communication are paramount.” Medore is the founder and CEO of strategic consulting, market research, and brand development firm Pure Branding (Northampton, MA).

Also, don’t fall prey to using the industry’s most common message—one that’s so ubiquitous that it doesn’t necessarily register as unique or noteworthy with consumers anymore. Medore explains: “If I could have a nickel for every dietary supplement brand that uses the terms science and nature together in their tagline, I’d be a rich man. Science and nature are the cost of entry for the entire category, and if you build your positioning around this, it’s meaningless.”

Instead, Medore says, “Brands need to go deeper into the brand story—meaning beyond science and nature.”

A brand’s story, as told through its packaging, needs to be carefully crafted. It should be an extension of the brand’s ethos and demonstrate what makes the brand special. For instance, Medore says, in the case of one of Pure Branding’s clients, the personalized nutrition brand Persona, “the packaging is convenient daily packs of the supplements that are right for you, each personalized with your name on it.” He says: “In this case, the packaging is actually an integral part of the brand’s benefit, essential to the overall delivery, amplifying the Persona brand and its commitment to there being ‘only one you.’”

Finally, Medore cautions, in a time when minimalistic, streamlined styling is taking over, “it’s important not to confuse transparency with simplicity, especially when it comes to package design.” Consumers, he says, want the packaging experience to go deeper than a simple, superficial design. They want transparency, and they want the opportunity to know more about the product, the company, and where ingredients come from.

“Transparency is about depth and offers opportunities to ‘dimensionalize’ the story as deep as the participant wants to go, beyond the packaging, on to the website,” Medore says. He points to Pure Branding’s landmark handling of Gaia Herbs’ Meet Your Herbs rebranding campaign years ago, which enabled customers to enter an “Herb ID” on the packaging on the company’s website to learn more about the products’ quality and purity data.
As demand for natural products increases on the consumer level, so, too, does the demand for processing and manufacturing equipment on the production level. For example, according to the market research company Frost & Sullivan (San Antonio, TX), the global food and beverage processing and packaging equipment market is expected to expand at a compound annual growth rate of 4.1% from 2017 to 2022, to reach $78.6 billion. While this is very promising growth, it is also a gauntlet, a challenge to equipment producers to ensure they continually innovate in order to compete.

It’s a challenge that’s not always easily met. “The high cost of labor in countries such as the United States, low labor retention rates, and immigration policies across different countries are anticipated to accelerate the need for innovation and equipment automation with improved functionality,” explains Arun Ramesh, team lead, agriculture and nutrition, visionary science, Frost & Sullivan. “Equipment manufacturers across different end applications have added capabilities in their existing plants to manufacture machines that cater to customer needs, through internal capacity expansion, offering end-to-end solutions with an array of machines used in the production line for processing and packaging, offering customized solutions wherever required, and by acquiring companies to gain technology competence.”

Equipment manufacturers are no strangers to their clients’ need for customization, of course. “Although these needs may be different, we wouldn’t necessarily quantify them as being more demanding,” states Ken Langhorn, technical director of Charles Ross & Son Co. (Hauppauge, NY), which specializes in mixing equipment. “Our goal has always been to meet our customer’s processing needs and to evolve by incorporating features that offer improvement and efficiency to their process. This is how we continue to advance our technology.”

That being said, the changing needs of customers can pose some challenges and does sometimes necessitate significant investment. As Ramesh pointed out, mergers and acquisitions play an important part in strengthening one’s hand, particularly when it means gaining access and expertise to new technology. The high-pressure processing (HPP) technique is one example of an emerging technology that has already grown significantly and is only expected to get bigger, encouraging investment in HPP capabilities.

“[HPP], which was used for preserving jams, juices, and beverages, is now gaining popularity given the increased preference for food safety,” explains Ramesh. “Use of HPP has expanded to almost all food products such as fish and meat, seafood, yogurt, rice cakes, salads, and grains. While global investment in HPP is still in the nascent stage, this equipment market is expected to grow significantly in the future. Research by grain producers in the U.S. and Europe shows that use of HPP breaks down the allergic protein content of grains and makes them safe for consumption.”

For example, JBT Corp. (Chicago, IL) is an equipment manufacturer actively acquiring companies to leverage technological innovation, buying up three companies in the last two years. JBT acquired Avure Technologies, and PLT International in 2017, adding capabilities in HPP, powder filling, and handling systems, and in July 2018 acquired FTNON, a leading provider of equipment and solutions for the fresh produce, ready meals, and pet food industries.

Moving forward, there are a few areas Ramesh suggests equipment manufacturers put their focus on. “Manufacturers are required to focus on the following solutions: Automated equipment, self-monitoring machines, CIP (clean in place) equipment, flexible equipment with easy changeover, inspection equipment to eliminate contamination, energy-efficient equipment, self-learning equipment, and robotics,” he states.
A look at ingredients, services, and more from today’s leading industry providers
Acadian Seaplants® is a recognized world leader in the supply of premium functional ingredients derived from cultivated and wild, sustainably-harvested marine plants.

Our products and services span the traditional to leading edge including organic, natural powders produced from wild, hand-harvested North Atlantic species such as *Ascophyllum*, *Fucus*, *Chondrus*, *Palmaria* and other seaweeds, to our unique multicolored Hana Tsunomata® sea vegetables produced in our land-based cultivation system.


Contact SeaPlus@acadian.ca for research supporting various functional use and benefits of marine plants.
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Products/Service
AIBMR is a scientific and regulatory consulting firm, founded in 1978. AIBMR offers key services specifically tailored to the natural products industry, including toxicology studies, GRAS Independent Conclusions, FDA GRAS & NDI Notifications, label reviews, claims substantiation, FDA & FTC compliance, and manuscript preparation & publication.

AIBMR is also an industry leader in cannabinoids, cannabis, and CBD safety assessments and regulatory status for foods and dietary supplements. In 2018, AIBMR and toxicology lab partner, Toxi-Coop, performed a landmark set of comprehensive toxicological safety assessments on a natural CBD-containing hemp oil, marking the first time in 38 years that this had been done. AIBMR then completed a GRAS Independent Conclusion for the subject of the studies, providing its first proper regulatory status in this fast-growing industry. AIBMR continues to monitor hemp regulations and the US marketplace, in general.

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Products/Service
Founded in 2003, California-based AuNutra® Industries, Inc. is a rapidly growing nutraceutical ingredient company. AuNutra® has one of the largest collections of herbal ingredients in the US focused on standardized botanical extracts. We also supply nutraceutical, functional food, cosmetic and pharmaceutical industries with herb powders, vitamins, amino acids and other nutritional ingredients.

With a commitment to always provide products with exceptional quality, all of our ingredients are manufactured under strict GMP and ISO-9001:2000 quality certifications. AuNutra® Industries, Inc is also a supplier of Kosher-certified high purity botanical extracts.

Besides a massive inventory, we have strong sourcing capabilities in locating high quality ingredients. We also conduct contract manufacturing, such as custom extraction, formulation, blending, granulation, etc.
OPTI-BIOME® Bacillus subtilis MB40® is a non-GMO, shelf stable probiotic strain. This strain is naturally protected by its spore coating, which provides resistance to pH and temperature extremes and ensures long term stability. This added feature allows you to skip the microencapsulation process, which is commonly practiced to ensure your product survives and is delivered in the proper location. These features make it an ideal probiotic ingredient for dietary supplements.

OPTI-BIOME® Bacillus subtilis MB40® may be blended with enzymes and/or other dietary supplement ingredients to produce products with a variety of claims.

BIO-CAT Microbials is a GMP certifi ed facility and a division of BIO-CAT, utilizing the latest enzyme technology in combination with microbes to produce products that are pioneering, more effective and of the highest quality for our customers’ applications.

For 30 years, OptiMSM has set the quality standard for MSM in Dietary Supplements.

OptiMSM is manufactured exclusively in the USA at Bergstrom Nutrition’s single-purpose, cGMP-compliant, ISO-registered facility to help provide essential transparency and traceability. Bergstrom uses a proprietary, multi-stage distillation process to purify OptiMSM, and every batch is third-party tested for optimal purity, quality, and consistency.

Bergstrom Nutrition continually invests in research and current studies building on MSM’s joint support benefits to extend to Immunity, Skin Care, Exercise Recovery, Sports Nutrition, and Healthy Aging.

Bergstrom is committed to exceptional customer service and helping its customers succeed by producing OptiMSM – the world’s most trusted MSM.

We don’t compromise on MSM. Neither should you.
BioCell Technology LLC

BioCell Technology is a research, product development, branding, and marketing company that manufactures innovative, science-based raw material ingredients that have applications in dietary supplements, functional foods and cosmetics. The company licenses its branded ingredients to leading consumer packaged goods companies for use in their finished products.

Introducing BioCell Collagen®. Not all Collagens are the same!

BioCell Collagen is a clinically tested dietary ingredient that promotes active joints, youthful-looking skin, and healthy connective tissues. BioCell Collagen contains a patented composition of naturally occurring hydrolyzed collagen type II, chondroitin sulfate and hyaluronic acid in a highly absorbable matrix form that has been the subject of numerous human clinical trials, including trials on safety, efficacy, and bioavailability. Learn more about the science behind the supplement that consumer look for.

www.biocelltechnology.com

Bioenergy Life Science, Inc. (BLS)

Bioenergy Ribose®. Bioenergy Ribose is the true source of sustainable, cellular energy and is crucial to the production of ATP. Bioenergy Ribose increases energy for ENDURANCE, PERFORMANCE and A HEALTHIER YOU.

Our newest ingredient, RiaGev™, is the first and only commercially available proprietary compound uniquely combining Bioenergy Ribose and a form of Vitamin B3. It is distinctly formulated to enter the salvage pathway directly to more efficiently increase nicotinamide adenine dinucleotide (NAD) in the body. RiaGev maintains and enhances mitochondrial health by boosting NAD levels and inducing the creation of new mitochondria. NAD is vital for mitochondrial health. Increased NAD and healthy mitochondria help slow the aging process, reduce age-related cognitive decline, prevent cellular damage from free radicals, create a stronger immune system, and contribute to lower cholesterol. RiaGev helps Repair, Prevent, and Rejuvenate.

www.bioenergylifescience.com
Biova

Privately held and globally distributed, Biova markets water-soluble egg membrane (WSEM) ingredients offering proven health benefits: BiovaFlex® for joint health; BiovaDerm® & BiovaBIO™ for healthy skin, both topically and through nutritional support; and BiovaPlex® for animal health. Biova’s patented water soluble process creates expanded delivery options for consumer products, including functional foods, beverages, multiple cosmetics applications and more. Biova’s ingredients can be incorporated into traditional tablets and capsules as well as gummies, chews, beverages, stick packs, chocolates, bars, powders, etc. Biova’s commitment to sustainability helps to keep over 2 billion eggshells from landfills per year. Through the removal of the membrane, the remaining eggshell is then easier to process into calcium supplementation for feed and fertilizer. Years of dedicated investment, ongoing scientific research and leading-edge technology are at the core of these all-natural, ultra-pure, nutrient-rich ingredients.

Captek Softgel International

Captek Softgel International specializes in making complex, sophisticated formulations working with difficult materials. Captek MarineGel™ exemplifies this expertise.

Captek MarineGel™ Vegetarian Softgel

- Ideal for vegetarians that want natural products to fit their healthy lifestyles.
- Captek MarineGel™ base formula free from animal derivatives, GMOs, sugar, gluten and preservatives.
- Easy to swallow, safe, and tamper evident.
- Pure, clear and elegant appearance with no taste or odor.
- Well suited for Halal or Kosher certification.
- Available in a wide variety of sizes, shapes and colors.
- Ideal for improving the bioavailability of oil soluble ingredients.
- Superior in disintegration properties to other non-animal technologies.
- Compatible with a wide range of ingredients in both oil and paste formulas.
- Stable in hot climates with no stickiness or cross-linking disintegration problems.
The majority of the neuro supportive strategies are based on the improvement of cholinergic function in the brain and one of the emerging therapeutic targets is to enhance the acetylcholine level in the brain. Standardized botanical extracts including *Huperzia serrata* (CP), *Convolvulus pluricaulis* (Shankhapushpi; SP) and *Celastrus paniculatus* (Jyotismati; JY) have been demonstrated to attenuate brain function by serving as a natural acetylcholinesterase (AChE) inhibitor and exhibited their efficacy in the management of neurological impairment & dementia. The Cepham team has developed a novel combination of CP, SP & JY named CogniUp®.

Based on our studies and published literature we found that the unique combination of CogniUp® can provide:

- Neuroprotection*
- Cognitive enhancement*
- Increased focus*

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

†This informational write-up is for professional education only. Not for consumer distribution.
Furosap® Consistent Concentration, Derived from Fenugreek†

Protodioscin is known to promote healthy testosterone levels. Furosap® contains 20% protodioscin, which has been found to promote healthy testosterone levels through its effects on testosterone-di-hydrotestosterone conversion. It appears to promote healthy production of luteinizing hormone (LH). Protodioscin delivers its hormonal effects in a balanced fashion.* Protodioscin also promotes healthy red blood cell production, which ultimately supports healthy oxygen delivery throughout the body. This combination of hormonal and circulatory effects results in support for both healthy sexual function and optimal athletic endurance.*

Patent-protected Furosap® is ideal for a variety of men’s health goals:

- Promote healthy sexual function*
- Maintain overall energy and vitality*
- Promote optimal athletic performance*
- Support healthy muscle development*
- Patent-protected process (#US8754205)
- Water soluble – Optimal bioavailability and manufacturing versatility

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

†This informational write-up is for professional education only. Not for consumer distribution.
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Products/Service
Serving all the process industries in virtually every industrialized country, Ross offers experience and production capacity that no other manufacturer of specialty mixing and blending equipment can match.

In the US, Ross operates five plants dedicated to engineering, R&D, manufacturing, and process testing. Overseas, Ross equipment is manufactured in four state-of-the-art plants in China and India.

The Ross Test & Development Center, located at the corporate headquarters in Hauppauge, NY, is the industry’s best-equipped laboratory for process testing. Hundreds of Ross customers visit the test center each year to confirm their equipment selections and optimize processes.

From single-axis to multi-axis designs, Ross control systems offer unprecedented accuracy and flexibility in the mixing and blending process.

Ross custom-fabricated storage tanks and pressure vessels are built to exacting standards at competitive prices. Build to ASME, USFDA, BISSC, API and UL code requirements, in capacities from 1 to 80,000 gallons.

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Products/Service
FrieslandCampina Ingredients supplies ingredients worldwide to the food and nutrition industries, manufacturers of infant nutrition products, and the pharmaceutical sector. For our performance and lifestyle nutrition partners, FrieslandCampina Ingredients focuses on the goodness of dairy. Our passion for dairy, creativity and entrepreneurial spirit inspires us to find the right solution, adapting the functionality of our ingredients to suit our customers’ unique application. Our goal is to bring the highest innovative, nutritional and functional value to your product.

At FrieslandCampina, we take great pride in more than 140 years of milk processing heritage. As a dairy co-operative, of 18,906 member dairy farmers in the Netherlands, Germany and Belgium, we can preserve and protect our ingredients at every step of the production chain. In other words, we keep dairy’s goodness intact from grass to glass.
Gnosis by Lesaffre – USA

Adonat® is the commercially stable form of S-Adenosyl-L-methionine (SAMe), a natural molecule recognized as the most active methyl donor produced in the human body, essential to sustain the normal function of the one carbon metabolism pathway.

SAMe is involved in more than a hundred biochemical pathways and it has been shown to have mood enhancing, hepatoprotective and pro-joint activities.

The diet cannot provide adequate quantities of SAMe; decreased or low SAMe levels in some biological fluids and tissues are associated with altered body states, often accompanied by severe physiological complications. Supplementation of SAMe has been largely evaluated with impressive literature extending back more than three decades.

Adonat® is the result of more than 30 years of expertise and owns 10 patents. The state-of-the-art industry keeps working on innovation and research and has achieved proprietary stabilization of salts and production of innovative forms of oral dosage covered by several granted patents and patent pending applications.

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Grain Processing Corporation (GPC)

Specialty Ingredients from Grain Processing Corporation

Grain Processing Corporation (GPC) provides quality ingredients for the food, beverage and nutritional industries. Our commitment to quality is second to none and is supported by the world-renowned GPC global supply and service.

Premium Maltodextrins

Providing a dependable supply of high-quality maltodextrins is a primary focus for GPC. GPC’s globally marketed MALTRIN® product line offers maltodextrins and corn syrup solids including Quick-Dispersing (QD) versions. MALTRIN® tapioca maltodextrins and tapioca syrup solids are sourced from 100% tapioca and are non-GM by origin

Specialty Starches

GPC also provides a diverse range of specialty food starches including PURE-COTE® coating/film-forming starches, INSCOSITY® instant modified starches, PURE-SET® thin-boiling starches, PURE-GEL® stabilized starches and PURE-DENT® unmodified and specialty starches.

Non-GMO Project Verified Maltodextrins, Corn Syrup Solids and Ethyl Alcohol are now available from Grain Processing Corporation.
Icon Foods

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**Products/Service**
Established in 1999, Icon Foods is a global ingredient supplier with a focus on all-natural, high-intensity sweetening blends for manufacturers. Allulose, erythritol, monk fruit, stevia and more are available in conventional and organic, in bulk or pre-blended for added cost savings. Icon Foods is your Clean Label Sugar Reduction partner, offering reformulation and R&D assistance. With co-packing capabilities, Icon’s manufacturing headquarters is in Portland, Oregon, and is SQF Level II certified, and is a certified organic facility by Oregon Tilth.

Jiaherb, Inc

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**Products/Service**
**Why Jiaherb?**
JIAHERB is the industry’s premier NSF-GMP certified manufacturer of natural ingredients. Our commitment to our customers is to provide reliable, high quality ingredients supported by our superior customer service and competitive pricing.

JIAHERB knows that the ingredients you choose to put into your products are a reflection upon your standards of quality and excellence. We guarantee our customers consistent efficacy and efficiency through fast delivery, large inventory of products, 100% traceability, complete regulatory documentation, and uncompromised service and support.
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Products/Service
KEB (Inner Mongolia Ever Brilliance Biotechnology Co., Ltd) was founded in 2000, located in Inner Mongolia. KEB is a professional manufactory focusing on developing and supplying standardized plant extracts, functional sugars, natural pigments for dietary supplements, pharmaceuticals, nutraceuticals, cosmetics, etc.

KEB achieves high vertical integration by building up own farms, R&D center, manufactory and sales team.

- The main products include UClear® (D-Mannose), ThiLiver™ (Silymarin), ECare™ (Lutein & Zeaxanthin), UltraAsta™ (Astaxanthin), Sesapower® (Sesamin & Sesamolin), EmoJohn™ (St. John’s Wort Extract) etc.
- KEB Group includes two factories, 12,000 acres of own farmland, a wholly owned subsidiary company in USA (KEB Nutraceutical USA, Inc.) and a subsidiary in Beijing (Simplex).
- KEB has a professional R&D team including Professors and PhDs, and has achieved many authorized patents and innovation awards due to the breakthrough in technology.
- KEB has superior quality control systems, and been certified by NSF-GMP, Organic (USDA and ECOCERT), IOS9001, ISO22000, Halal and Kosher etc.

Our idea is “Condensing Nature for Health.” We will always supply excellent products for our customers.

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Products/Service
For over 30 years, Jost Chemical Co. has been an FDA-registered manufacturer of high-purity mineral salts, which follows bulk pharmaceutical cGMP. Jost manufactures over 250 products including citrates, fumarates, gluconates, lactates, malates, nitrates, phosphates, sulfates, succinates and ascorbates in forms such as calcium, copper, ferrous, magnesium, manganese, zinc, potassium and sodium. Jost products meet USP/EP/ FCC/ACS requirements, are allergen and GMO-free, and are kosher and halal certified. By focusing on product quality through controlled validated processes and lot-to-lot consistency, Jost is able to manufacture products that go beyond the established high purity standards in a variety of particle sizes. Products include powders that are less than 6 microns to granular versions that are free-flowing and directly compressible. Jost also provides special packaging to meet your customized requirements.
Kyowa Hakko USA

**Products/Service**

Kyowa Hakko USA is the North & South American office for Kyowa Hakko Bio Co. Ltd., an international health ingredients manufacturer and world leader in the development, manufacturing, and marketing of pharmaceuticals, nutraceuticals, and food products. Kyowa’s primary goal is to provide health solutions that support optimal health for improved quality of life. Kyowa is the maker of branded ingredients including Cognizin® Citicoline, Pantesin® Pantethine, Setria® Glutathione, as well as Sustamine® L-Alanyl-L-Glutamine. For more information visit Kyowa-USA.com.

Mineral Logic

**Products/Service**

MLG-50™ FULVIC POWDER

Introducing the ultimate fulvic nutraceutical powder. Full of phytochemicals like polyphenols and flavonoids — highly bioactive compounds from fruit, vegetables, nuts, and seeds — with more than twice the fulvic acid potency. MLG-50 is concentrated — reducing the amount required to achieve the same dosage levels in formulations as compared to fulvic acid products derived from other sources.

- Fulvic Acid 22% LAMAR Method verified
- pH 7.0 – 9.0
- 100% water soluble.
- Pleasant taste and aroma.
- Excellent potassium to sodium ratio.
- RDI: 100 mg

Contains micronutrients: fulvic acid, minerals, trace minerals, trace elements, electrolytes, amino acids, flavonoids and additional organic acids.

Over twenty-two years of experience developing formulations for supplements, functional foods, tablets, encapsulations, beverages, cosmetics, personal care and pet products.

Our customers rely on our product for its potency, purity, stability and consistency. Please call us for a free consultation to enhance the efficacy of your product.
NP Nutra® is very proud to boast an impressive line of 22 plant-based protein ingredients aptly named Plant Protein. One of these is NutraProtein Power Blend®, a specially formulated certified-organic nutritional blend of superior plant-based protein, available in both green and chocolate flavors. In addition to organic Pea, Brown Rice, and Sachi Inchi, the blends include a selection of complementary ingredients to offset each flavor, such as hemp, wheatgrass, barley, alfalfa, cocoa, mesquite, and lucuma. The blends, very high in protein, are lightly sweetened with lo han guo, or monkfruit.

As with all NP Nutra® products, NutraProtein Power Blend® is validated by Triple-T Verification® clearly demonstrating the company's commitment to quality and supply chain transparency.

For over 20 years, NP Nutra® has supplied customers with the finest nutraceutical ingredients produced at approved partner facilities around the world. Go to www.npnutra.com for more information.

NSF International is the Public Health and Safety Organization,™ offering public health and safety risk management solutions to companies, governments and consumers. NSF offers a comprehensive range of services to meet the needs of the dietary supplements industry globally. Our role is to ensure product and ingredient safety, giving both industry and consumers peace of mind through facility GMP compliance, accredited product certification programs and testing services.

NSF International independently registers manufacturers as meeting GMP requirements. The program is open not just to manufacturers of dietary supplements but also to manufacturers of ingredients and raw materials, as well as distribution, warehousing and packaging companies, who want to demonstrate their commitment to public safety.

NSF maintains and helped to facilitate the development of NSF/ANSI 173, the only American National Standard for testing and certifying dietary supplements.
As a supplier of premium ingredients, Nutralliance prides itself in the ability to cater to our customer’s specific needs while maintaining focus on integrity and commitment to high quality product standards. Incorporated in 2002, Nutralliance is owned and operated by Brian Salerno, a veteran of the nutritional industry since 1989. Nutralliance is proud to be the exclusive North American distributor for three innovative and quality driven manufacturers. Advanced Organic Materials (AOM), an Argentine company dedicated to the extraction and purification of natural ingredients, is an established leader in the natural vitamin E and tocopherol markets. Bio-gen Extracts Pvt. Ltd., India, is a GMP Certified company that specializes in the production of natural carotenoids. And introducing Ildong Bioscience, a comprehensive bio corporation with patented quadruple coating technology for probiotics, focused on their contribution to the health and happiness of mankind. Ildong will further strengthen the Nutralliance product line and introduce incredible technology into the US market.

AstraGin® is a 100% natural compound composed of highly purified saponins isolated from Astragalus membranaceous and Panax notoginseng. AstraGin® holds a US patent for “Method of enhancing nutrient absorption” as well as multiple international patents.

In multiple pre-clinical studies, AstraGin® has demonstrated in more than a dozen in-vitro studies to improve the absorption of amino acids, protein, folate, peptides, glucosamine, and other nutrients in Caco-2 cell, the gold standard used by drug companies to study the absorption of new drugs.

AstraGin® has also shown in normal and TNBS-induced colitis rat models to enhance the expression levels of SGLT1 and CAT 1 in the jejunum and ileum, to increase the absorption of cationic amino acids, and to reduce the inflammation in the colon bowel wall of colitis rat.

AstraGin® is ideal for gut health formulas, sports nutrition products, and general wellness supplements.
Nutrition 21, LLC

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**Products/Service**
Nutrition 21, LLC is a leader in the nutritional supplement industry. With years of biotechnology & pharmaceutical experience, the Company’s scientific platform has created unique, patented ingredients that are both safe & clinically effective.

Nutrition 21 currently holds over 80 domestic & internationally issued & pending patents for its dietary ingredients. Many support unique claims associated with glucose metabolism, weight management, cognition, & sports nutrition, among others.

The Company’s ingredients currently include: Chromax® chromium picolinate, with clinically substantiated benefits for glucose metabolism & weight management; Velositol®, a dietary complex of amylopectin & chromium, clinically shown to double the effects of whey protein – significantly increasing muscle protein synthesis; Nitrosigine® bonded arginine silicate, clinically shown to enhance nitric oxide levels supporting mental acuity, focus & sports nutrition; and Lepidamax™, a dietary complex of Lepidium peruvianum shown to enhance cellular energy production as well as improve exercise capacity.

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**Products/Service**
Orgen-E® is part of our Orgen® brand ingredients, which are 100% USDA Certified Organic Vitamins/Minerals/Antioxidants. These are completely plant-based water extracts, so no synthetic solvents, excipients, or carriers are used. No synthetic additives are added, and no fermentation is used.

Orgen-E® is standardized for 15% Natural Vitamin E as alpha tocopherol. The remaining % is the Organic Annatto extract components, which include the naturally occurring co-factors & co-nutrients. We believe this is what helps with the stability and activity of our Organic Vitamin E – and this is shown in our 3 year shelf life stability.

This ingredient is perfect for use in Organic products, vegan/gluten free products, and really, any product that wishes to remain synthetic free while delivering a standardized dosage of Vitamin E. Check out our Behind the Science video, which explains our Organic vitamins/minerals in 2 minutes: www.organicvitamins.science
Products/Service

Pinnacle Labs International

Products/Service
Pinnacle Labs offers prompt quote turnaround times on all requests submitted via the website or through our team of product advisers, and we continue to strive to turn products around faster than any other manufacturer. We also employ the most knowledgeable and experienced customer service team who are ready and able to answer any type of nutraceutical manufacturing question. Our business understands that customers have many contract manufacturers to choose from……and that is why Pinnacle Labs is determined to deliver Smart Solutions, form a Strong relationship and make a secure commitment to a Promise you can count on.

Sabinsa

Products/Service
DigeZyme® - A Perfect Natural Multi-Enzyme Complex
Digestive enzymes are secreted in the lining of the digestive tract to facilitate the breakdown and absorption of larger food molecules. For example, amylase, protease, and lipase are responsible for the breakdown of starch, proteins, and fats, respectively. However, due to poor dietary habits, fast paced lifestyles, and excessive intake of fat and sugars, secretion of digestive enzymes may not be adequate, particularly in people who experience chronic gastrointestinal discomfort, or are aging, thus, necessitating supplementation to balance the digestive process.

DigeZyme® is Sabinsa’s unique and proprietary combination of five non-animal sourced enzymes:
• α-Amylase - Starch hydrolyzing enzyme
• Protease- Protein hydrolyzing enzyme
• Lipase- Fat hydrolyzing enzyme
• Cellulase- Cellulose hydrolyzing enzyme
• Lactase- Lactose hydrolyzing enzyme

DigeZyme offers more than just aiding proper digestion and better nutrient absorption. A clinical trial showed that 50 mg of DigeZyme thrice daily demonstrated its potential to produce more rapid recovery from Delayed Onset Muscle Soreness (DOMS) [1].

Soft Gel Technologies, Inc.

Soft Gel Technologies, Inc.® specializes in providing premium quality dietary supplements in a softgel delivery system. We are a full-service contract manufacturer dedicated to the production and marketing of branded products and custom turnkey formulations. We obtained GMP certification through the NPA/UL and NSF, including NSF’s GMP for Sport™. We are Halal certified by the ISA and are an approved foreign manufacturer by Health Canada.

Customer care shapes every department; it is of utmost importance for our customers to receive prompt and courteous service. We take the guesswork and liability out of the GMP responsibility equation by ensuring that our softgels contain the intended ingredients and are absent of contaminants. We embrace corporate transparency through our meticulous quality assurance procedures, comprehensive QC testing, and record keeping/documentation on all products for traceability purposes. We have the capacity to meet high volume demands as well as accommodate smaller jobs in a reliable manner.

Sabinsa

Promond™ - An All-Natural, Vegan, and Versatile Protein Powder

Healthy proteins from the plant world are muscling in on the massive protein powder market, offering a host of ethical, sustainable and vegan options to a wide range of athletes. But even the most veteran powdered drink consumer will tell you that some aren’t without flavor, sourcing, or other concerns. A new player to the field, Promond™ Almond Protein Powder wins the game with its easily digestible, functional, and versatile properties.

Promond is a 100% natural and vegan protein powder obtained from almonds native to the Middle East and South Asia, and is a rich source of protein, dietary fiber, and other micronutrients. Its well-balanced profile fulfills the essential amino acid requirements outlined by the WHO for adults. Actually, its amino acid profile, while similar to whey and pea protein, is especially high in glutamate, arginine, aspartate, and phenylalanine. Promond offers up to 0.5 grams of protein per serving and zero fat. Having a complete array of amino acids, including high levels of BCAAs, Promond can help in boosting pre-workout energy, reducing muscle loss, building lean muscle mass, maintaining a healthy weight, and regulating satiety.

Sabinsa

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Synergy Flavors

Synergy Flavors® is a leading international supplier of flavors, extracts and essences for the global food, beverage and nutritional industries. With over 130 years of flavoring expertise, Synergy combines a long heritage of flavor development with targeted investments in research and technology—delivering the perfect combination of ART, SCIENCE and INSIGHT enabling our customers to succeed in a rapidly changing world.

Show Your True Nature on Your Label.
Today’s consumers increasingly value and demand honesty and transparency from their food and beverage providers. Forged from this consumer demand, TRU Stories™ by Synergy was born. This clean label platform outlines Synergy’s commitment to offer a Transparent, Responsible and Unblemished (TRU) partnership where we help provide ingredients that deliver truth to our customers’ story and, ultimately, to their label.

Cleanest Label Ingredients
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- Natural Extracts
- Certified Organic Flavors

Synergy Flavors

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Stryka Botanics

Stryka Botanics takes pride in offering the highest quality ingredients to the Nutraceutical, Functional Food and Beverage industries for over 25 years. As a leading supplier of nutritional ingredients, we have positioned ourselves to provide the quality material our customers demand.

Industries we serve include:
- Pharmaceutical
- Dietary Supplement Manufacturer
- Functional Food Manufacturer
- Pet Food and Feed
- Private Label Dietary Supplement
- Cosmetic
- Nutraceutical Manufacturer

As the company has grown, we have made large investments in expanding our facility with additional equipment, inventory, and personnel to serve our clients’ needs quickly. With East and West Coast locations, we can deliver the quality products you need in a timely manner.

Stryka Botanics has an extensive product list of over 2,000 different ingredients to fulfill your material requirements. From Botanical herbal powders, extracts (standardized and ratio), vitamins, and amino acids – including Kosher Certified products – we are truly a one-stop shop. We offer high-volume discounts to save you money on your ingredient needs. Order size is never a problem. We can fill orders from the smallest quantity to the largest, and there is never a repack fee.

As a truly global organization, Stryka Botanics proudly serves North America, South America, and Europe and continues to grow its worldwide presence.

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Stryka Botanics

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Virginia Dare delivers preferred taste with two product platforms: Taste Foundations and Taste Collaborations.

**TASTE FOUNDATIONS | Extracts & Concentrates**

Our Taste Foundations platform offers premium, industry standard extracts and concentrates—vanilla, tea, coffee, and cocoa. Our legacy is vanilla production and our leadership continues with long-term grower relationships, sustainably sourced ingredients, quality control, and fair trade.

**TASTE COLLABORATIONS | Custom Taste Solutions**

Our Taste Collaborations platform encompasses custom taste solutions—flavor creation, taste refinement, product development, and health and wellness. Liquid/dry flavor creation includes sweet, spicy, sour, fruity, botanical, spice, café, and alcohol profiles. We improve and refine taste with masking, modulation, sweetness, smoothing, impact, and texture. Our technical expertise includes product development for beverages, baked goods, confections/sweets, dairy/dairy-alternatives, pharmaceuticals, and oral care products. Our health and wellness division offers complete formulation and development of functional foods/beverages (active/sports/lifestyle nutrition, protein bars/shakes, superfoods, etc).

**Vidya Herbs**

**Products/Service**

**Turmeric MicroBeadlets**

Available in conventional and organic versions, our award-winning Turmeric MicroBeadlets are the hottest new product in the herbal extract market. Created with innovative single excipient technology, these uniformly-sized encapsulated MicroBeadlets are perfect for nutraceutical and functional food manufacturing. Our most popular version has a 95% Curcuminoid content. Our MicroBeadlets are Directly Compressible, have low hygroscopicity, and are ideal for high-speed tablet manufacturing.

Gone are the days of stained equipment and dusty manufacturing facilities. Our MicroBeadlets are known for their free-flowing and low-dusting properties, which are rare qualities for a Turmeric product.

We take pride in providing the finest Turmeric with DNA/Tru-ID certification and C-14 carbon testing to ensure the quality of our Turmeric products. Also, we have full traceability from farm to finished product. Our MicroBeadlets are a novel addition to our Turmeric portfolio and are a Production Manager’s dream with their easily clean-up and short turnaround time.
The Wright Group delivers custom nutritional blends, vitamins/mineral premixes, direct compression and microencapsulated ingredients for the functional food and nutritional supplement markets. Our 100+ years of innovative expertise, accomplished R&D team, and comprehensive production capabilities allow us to provide faster lead times to successfully bring your products to market.

Product Channels:

- Microencapsulated Nutrients
- Direct Compression Granulations
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- Bakery Solutions
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Milk Money

Oat milk is the latest plant-based milk to capture consumer interest, offering accessible flavor and texture.

BY SEBASTIAN KRAWIEC, ASSOCIATE EDITOR

Many consumers are reconsidering their consumption of animal proteins and dairy on environmental, ethical, and health grounds. Cutting out dairy is often the start, and as a result, the plant-based milk industry is booming. While dairy milk’s market share is still the largest, dairy producers are aware of the competition in their aisle and are trying to protect their turf. Senators sympathetic to the dairy industry drafted legislation targeting the plant-based dairy industry, such as the Dairy Pride Act introduced by Wisconsin Democrat Tammy Baldwin in January 2017.

The bill sought to prohibit plant-based dairy products from using terminology long related to dairy, such as milk, cheese, or yogurt, arguing that these terms mislead consumers who may believe these products have the same nutritional content as dairy-based products. FDA recently expressed the same concern, opening up a public comment period to determine whether or not consumers are being misled. In the meantime, the plant-based milk industry continues to prosper, fostering competition within the category.

Rise of Oat Milk

Oat milk is the most recent plant milk to take the non-dairy category by storm, offering some advantages over the popular almond milk. Although oat milk is not particularly new to the plant-based milk category, it has only recently captured the attention of the American marketplace, and a lot of companies are just now jumping on the oat-milk train.

Oatly, a Swedish oat milk company formed in 1990, can be credited for oat milk’s rise, according Peter Truby, vice president of Elmhurst (Elma, NY). (Elmhurst is a former dairy that now manufactures a wide variety of plant milks.)

“Everyone who’s making oat milk has to give credit to Oatly for the trend,” says Truby. “Because of their strong branding and some nifty marketing, they created a trend. The trend has led not just to an interest in Oatly, but to an interest in oat milk.”

According to Nielsen, sales of oat milk grew 23% in the 52 weeks ending June 30, 2018, and at the end of 2018, demand for Oatly’s products was so high, the company suffered a supply shortage. It has since restocked and announced the construction of a new production facility in Millville, NJ, which Oatly said will increase production eight-fold.

While oat milk was gathering momentum, Elmhurst, which has been making oat milk since 2017, announced in June 2018 that it had entered into a new oat-sourcing agreement with a Manitoba, Canada–based farm, securing a consistent supply of a high-quality oat. At the beginning of 2019, Elmhurst debuted a barista version of its milked oats. Popularly termed “barista” products are designed to pair especially well with coffee drinks. Califia Farms, who also recently entered the oat milk space, also introduced a barista-blend oat milk. Another significant newcomer to the space is the Quaker Oats Company, which launched its Oat Beverage at the beginning of 2019, positioned toward heart health. And dairy-free industry giant Silk launched its Oat Yeah oat milk this January. The brand already offers almond milk, cashew milk, and coconut milk.

Oat milk’s functional similarities to milk are commonly cited as a reason for its popularity, particularly when coffee is involved. “What people are finding with oat milk is that it’s very similar to dairy milk in that it’s creamy and it’s an easy transition in terms of taste and consistency,” explains Truby. “You can use it in coffee and in a variety of other ways like dairy milk, so I think it’s a combination of that and, to be honest, a fatigue with almond milk. It’s also much more sustainable than dairy and much more sustainable than even almond milk, for which water usage is way high.”

While oat milk is already well-suited for use in coffee, the aforementioned “barista” versions of oat milk and other plant milks are popular additions to both households and coffee shops. “Most plant milks don’t do well in acidic environments or in hot, acidic environments, and they want to separate, like oil and water,” says Truby. “So, while it tastes fine, it doesn’t look appealing; it looks like it’s curdling. With our barista blend, we add one ingredient, phosphate. What phosphates do is buffer the acidity in the coffee to allow the plant milk to stay together.”

Looking Ahead

Another important trend throughout the plant milk category is the desire for unsweetened products. “There is a larger trend of people getting away from sugar, so there is a lot of traction with our unsweetened almond,” says Truby, explaining that Elmhurst will be rolling out an unsweetened version of its oat milk.

As the plant milk market matures and more consumers experiment with plant-based milk products, trends within the category are sure to shift. Almond milk still has a majority of the market share, and oat milk is trending in popularity, but with six types of plant milks in Elmhurst’s inventory alone, there are huge possibilities. Cashew milk, for example, has been simmering in popularity for a few years now and has yet to break through the same way almond or oat milk have, to Truby’s surprise. “In my opinion, it tastes the best,” he says. “I think when people finally get to cashew, they’re going to see how good it is.”
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