WHY PROBIOTIC GUMMIES

SHOULDN'T BE IN YOUR
NEW PRODUCT LINEUP

And The Secret To Making Them Work!

A special report from Deerland Probiotics and Enzymes
How often do you get a chance to ride not just one - but two enormous waves when it comes to market growth? Probiotic gummy supplements offer you this rare opportunity.

According to Nutrition Business Journal, probiotics topped all supplement category growth by a long shot with a growth of 17% between 2015 and 2016. Almost double the rate of growth for the second fastest growing category!

And when it comes to gummies, consumers are chomping down on this new delivery system with gusto. In 2016, the gummy supplement market brought in a staggering $2.68 billion. And Transparency Market Research projects that the global market for gummy vitamins will rise at a steady CAGR of 5.2% from 2017-2025 to reach $4.1 billion in 2025.

Combining these two - probiotics with the gummy delivery system - is a match made in supplement marketing heaven.

“People love to chew; it’s in our genes,” notes Paul Breslin, professor of nutritional sciences at Rutgers University and researcher at the Monell Chemical Senses Center in Philadelphia. This almost primitive urge explains in part why people love gummies.

For when you combine this “dynamic experience”, as Mr. Breslin describes it, with a delightful flavor, you’ve got a guilt-free treat that more and more people are looking for in their nutritional supplements.

But pleasure isn’t the only factor ... According to a 2013 consumer survey conducted by the Council for Responsible Nutrition, an estimated 30% of adults have a hard time swallowing pills. Susan Drexler, 53, suffered from this problem until she sampled her daughter’s gummy vitamins. This shift opened the doors to better nutrition for her. As she reported to the New York Times, because of the combination of yumminess and easy delivery, “I take them more consistently.”

Difficulty swallowing or dysphagia increases with age, explains Dr. Chandra M Ivey, MD, director of laryngology, voice and swallowing disorders at Columbia Doctors Eastside in NYC. With an aging population driving the demand for functional foods and supplements worldwide, this is no small factor in considering delivery systems.

And the data bears this out. Given the choice between a hard-to-swallow pill or a chewy, fruity, delightful treat, more adults are going gummy.
ADULTS ARE GOING GUMMY ...

*Nutrition Business Journal* reported in 2016 the majority of gummy sales – a whopping 65% - were adult gummies, not kids gummies.8 A Mintel study found nearly 37% of vitamin users age 18+ have used a gummy/soft chew format and an additional 35% would be interested in this.9 In a proprietary consumer survey conducted in 2016, 29% of adults said they would prefer a gummy form of supplements if it was available. For the millennials surveyed, the gummy was their number one preference when it comes to supplements.10

Because of this rising excitement about gummies, retailers are stocking their shelves with them. And manufacturers are finding all kinds of formulas to insert into this delivery system – from beauty actives to heart health nutrients.

But as the trends indicate, perhaps no formula has as much potential for sales as probiotics and gut health formulas.

THE MICROBIOME HAS GONE MAINSTREAM

“Probiotics have truly arrived,” reported George Paraskevakos, executive director of the International Probiotics Association (IPA) from the 2017 Expo West.11 From the aisles of Wal-Mart to the shelves at Whole Foods, consumers are looking for new ways to incorporate these “microwarriors” into their nutrition.

“The rapid growth of the global probiotics market is due to increased interest in functional foods, as well as rising incidence of digestive and gastrointestinal disorders,” according to Rosanna Pecere, executive director of IPA Europe.12

Market researchers, the Sterling-Rice Group, concur, adding that people are going a step further and linking gut health to overall health. They also point to the explosion of research supporting probiotic health claims as a big factor in the microbiome boom. As Mr. Paraskevakos notes, “We have gone from maybe 500 published articles, studies, technical papers, and other research [on probiotics] to a time when a quick search on PubMed will yield...15,000 different published materials.” He points out that much of this science is working its way into the public domain thanks to popular icons like Dr. Oz.13

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8 NBJ State of the Industry: 20th Annual NBJ Summit
9 Olivo
10 Santa Cruz Nutritional Power Point Presentation.
But even though they know the benefits, many people still don’t take as much as they think they should get. According to Nutrition Business Journal, 42% of consumers want MORE probiotics in their diet (up 12% from 2008).\(^\text{14}\)

The more people learn the fine science behind probiotics, the more they understand that supplementation cannot be sporadic. Regular supplementation is critical for shifting their gut ecology and keeping it in the healthy zone.

By offering probiotics in a tasty and convenient format – like gummies – you make life so much easier for people trying to stay healthy. They don’t need to find a glass of water. They don’t have to worry about refrigeration.

And best of all, they don’t have to wrinkle their nose and hold their breath. They can enjoy downing these helpful bacteria as a guilt-free treat.

### THE CHALLENGE WITH PROBIOTIC GUMMIES

However, as beautiful as pairing probiotics with gummies may seem, not all is as rosy as the market projections indicate. For combining these two come with some particular challenges . . .

Probiotics are not the easiest ingredients to deal with. Live organisms, they are sensitive to heat, pH, moisture, and oxygen. Even in a simple delivery form like capsules, these tiny bacteria are a beast to manage in order to maintain a steady colony forming unit (CFU) count over time.

So when you consider the heat and moisture of the gummy manufacturing process, you’ve got a tall order to fill. Add in the gummy flavor criteria as well, it becomes even more complicated. Probiotics can sometimes carry a slightly bitter taste.

Fortunately, this challenge is a manageable one. Manufacturers have successfully produced probiotic gummies by making shifts in the gummy “kitchen”, adjusting temperature controls and moisture ratios. And with the help of new taste-masking technologies, carefully selected flavors and sweeteners, they’ve been able to overcome the sometimes off-setting taste of probiotics.

Finally, manufacturers have made strategic use of specialized probiotic strains. The probiotic bacteria *Bacillus subtilis*, is one of these unique probiotic bacteria.

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DE111 viability is maintained under temperatures up to 100°C for up to 5 minutes.

**DE111 Temperature Stability**

DE111 viability is maintained in a gummy for a period of 18 months, stored at room temperature.

**DE111 Gummy Shelf Stability**

First identified in 1915, *B. subtilis* is a normal resident of the human gut. It has been widely used since the 1940’s to support digestive and immune health.

Unlike most probiotic bacteria, *B. subtilis* forms a tough spore under harsh conditions. These spores protect the microbe from heat and acidity, until it can reach an ideal environment for germination, like the human gut.

“I have been researching and working with probiotics for more than 15 years. And *B. subtilis* DE111 is really an exciting breakthrough,” notes Deerland Probiotics and Enzymes’ Vice President of Science and Technology, Dr. John Deaton. “Until we developed these tougher, spore-producing probiotics, many delivery systems and markets were out of our range. Finally we can bring these helpful microbes into whole new formulations like gummies. Consequently, we can make probiotics more available to more consumers who never would have considered them before.”

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Delight consumers with a probiotic gummy

For decades, we all accepted the idea that the better something was for you, the worse it would taste. Maintaining a good diet took will power and grit. Those days are gone. Now we have the know-how to make nutrition enjoyable. So consumers don’t end up with bottles full of good intentions sitting in their cupboards, unused and never purchased again. People know how important nurturing their microbiome with probiotics is. The market is huge and increasing rapidly on a global basis. By introducing probiotics into the gummy delivery system, manufacturers can meet this demand with a delicious and efficacious new way.

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JOHN DEATON, PH.D.
VICE PRESIDENT OF SCIENCE & TECHNOLOGY,
DEERLAND PROBIOTICS AND ENZYMES

B. SUBTILIS VS. B. COAGULANS

B. subtilis isn’t the only spore-producing probiotic. *Bacillus coagulans* also forms spores and has proven health benefits. The two can complement each other nicely in a formulation. However, there are certain advantages to *B. subtilis* DE111.

**B. subtilis DE111**

In its raw material state, DE111 has a lower percentage of vegetative or non-spore cells (2% vs. 5-10%). This means a higher percentage of cells will make it through stresses like heat or pH in the manufacturing process or in the stomach.

The optimal temperature for DE111 to grow matches that of the human body, 37°C.

DE111 becomes active in the gut in 24 hours, one-half to one-third the time it takes *B. coagulans* to become active.

DE111 can withstand a larger range of temperatures and pH levels.
3 WAYS TO MAKE PROBIOTIC GUMMIES EVEN MORE APPEALING!

1. Organic and non-GMO certifications

2. Proprietary flavors and/or shapes for a unique product

3. Special multi-active formulations for sports nutrition, digestive health, brain boost, immune support and more
ABOUT DEERLAND PROBIOTICS AND ENZYMES

Deerland Probiotics and Enzymes has been providing high quality, science-backed supplement formulations to the nutritional industry since 1990. Developed and researched over the course of 10 years, Deerland Probiotics and Enzymes’ strain of *Bacillus subtilis*, DE111®, is self-affirmed GRAS, non-GMO Project verified and approved for sale in Canada with a Natural Product Number and non-novel food status. Its genome has been sequenced and uploaded into the National Institute of Health’s genetic database. DE111® has also undergone 30+ safety and efficacy tests. Three clinical trials support its use for digestive health, blood cholesterol and glucose health, regularity and sports performance. Additional clinical trials are currently underway.

Deerland Probiotics and Enzymes works closely with its partners to ensure successful product development and production at every stage through research, customization, product formulation support and custom manufacturing.

For more information about Deerland Probiotics & Enzymes DE111® and gummy manufacturing, please contact us.

800.697.8179 | info@deerland.com