

Achieving the Perfect Balance of Formula, Flavor, and Function in Nutritional Gummies

INSIGHTS AND GUIDELINES FOR
GUMMY INNOVATORS

 FlavorSum

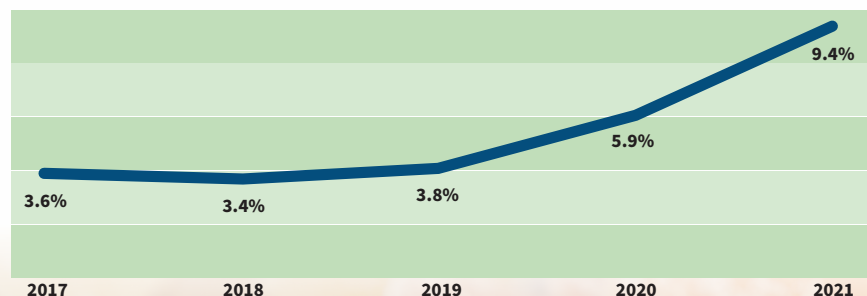


Introduction

Although people turned to indulgent, comforting foods in the past few years, they also adopted behaviors like improving fitness, getting rest, and caring for their mental and digestive health. Most people surveyed recently by McKinsey & Co agree that focusing on healthier eating and nutrition remains an ongoing priority.

Consumers want creative and reliable solutions that deliver health and wellness benefits, and more than 3 in 10 North Americans are turning to supplements more often for support. With their fun, tasty, and portable format, gummies offer an exciting way to accomplish these goals. Launches of gummy supplements are ramping up, and the segment represents more than 9% of the total supplement category.

**Development of Gummy Supplements
as a Percentage of Supplements Category**



Innova Market Insights, Global

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What's Fueling Growth in the Nutritional Gummy Market?

The lines between health and indulgence are blurring across the food and beverage landscape. Consumers no longer need to sacrifice taste to address their wellness needs. And, with 35% of consumers reaching for healthier candy alternatives more often, gummies can easily align with evolving wellness expectations and behaviors. The global gummy market — valued at \$16.28b in 2020 — is expected to expand rapidly, with estimates of as much as 12.6% compounded annual growth rate (CAGR) through 2028. North America leads the global presence with 29% of the market. So, what is driving this growth?

Rise of Health and Wellness

According to research company, The NPD Group, more consumers are putting a magnifying glass up to their personal health picture. 'U.S. consumers' attitudes and behaviors around health and wellness are shifting from diets and "can't haves" into whole-body health and lifestyle changes they feel will be long-lasting.' With that enhanced focus comes higher expectations for everything people consume. According to a recent FlavorSum study, almost two-thirds of American consumers and three-fourths of Canadian consumers actively look for functionality in purchased foods and beverages. Gummies are a delicious way to meet wellness goals, whether it's fewer negatives, like sugar, or added health benefits like vitamins.

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Appeal to a Variety of Ages

Children respond happily to gummy snacks' taste, bright colors, and fun shapes. The appeal of gummies extends to supplements, with Mintel reporting that 36% of U.S. parents rate the gummy format as a purchase driver when buying children's over-the-counter remedies. But older consumers also pick the chewy format as a more enjoyable experience for health and wellness delivery. Adults already represent 80% of the gummy vitamin market.

Increase in Pill Fatigue

Around 38% of American adults have difficulty swallowing pills, and gummies are a fun alternative to the mainstay pill format for health remedies. Developers are offering more health and wellness benefits in the gummy format, and consumers are receptive. In 2021, about 4 in 10 U.S. consumers said they prefer taking vitamins, minerals, or supplements in gummy form.



Gummies 101: Formulating Basics

A standard gummy formulation includes five key ingredients:



The gummy production process usually begins by adding a hydrated gelling agent, such as hydrocolloid like pectin or gelatin to a hot sugar slurry. Producers cook the mixture to the targeted temperature or Brix, then add flavor, color, acidulants, and functional ingredients before depositing the gummy mixture into molding equipment to set.

Gelling Agents

When kicking off any gummy project, start by selecting your desired texture and the gelling agent that will support that texture. Gelling agents give gummies the specific (and familiar) chew that drives the eating experience. Choosing a gelling system is essential because each option provides unique, non-duplicative textures. Some common gelling agents are gelatin, pectin, and starch.

Sugars and Sweeteners

After confirming the gelling system and preferred texture, the next step is identifying sweetener ingredients that will deliver on product nutritional or labeling goals. The decision about whether to create a full sugar gummy or something with a 'reduced sugar' claim, such as 'no added sugar,' carries significant implications for the finished product. A sugar reduction claim can present challenges in traditionally sweet products like gummies. When selecting a sweetener solution, consider its impact on crystallization, texture, moisture retention, and sweet taste delivery.

Acidulants:

Acidulants such as citric or malic acid are typically added to gummy formulations to enhance flavor, texture, and perceived sweetness. Acidulants also directly drive the pH of the finished product, which can be critical for a gummy formulation where pH impacts gelling.

Colors:

Color is an essential component of any food or beverage, as it offers cues about the finished good's characteristics, such as label cleanliness, taste, and target audience. Colors can affect label claims, so it's key to confirm the priority of any color-related claims, such as 'no artificial colors.' The color of the gummy base can also influence the volume and type of added color needed to achieve the end goal.

Flavors:

Last but certainly not least for the consumer experience is the gummy flavor. As they say, taste is king! In 2021, 90% of gummies/jellies in North America were flavored, with fruit flavors owning about 80% of the category. Flavors not only drive the taste experience of the finished product but can also provide masking or enhancing qualities to support the removal or addition of ingredients. Like colors, flavors also impact label claims depending on the solution, so establishing labeling goals early in the development process will guide formulation decisions.



How Can Formulators Infuse Function into Gummies?

What does functionality really mean?

Although functional foods have no regulatory standard of identity in the U.S. or Canada, various organizations have outlined definitions that are becoming mainstream, such as:

- “Foods that provide health benefits beyond basic nutrition.” (International Food Information Council 2004).
- “Any modified food or food ingredient that may provide a health benefit beyond that of the traditional nutrients it contains.” (The Food and Nutrition Board of the National Academy of Sciences 1994)

A wide range of subcategories exists within the functional gummies space, including:

- Vitamins/Minerals
- Botanicals/Herbals Supplements
- Hair, Skin, & Nails
- Melatonin
- CBD & Cannabis

Each functional pathway features unique formulation considerations that developers must address to deliver the functionality and taste consumers expect.



How is formulating a nutritional gummy different than a standard gummy?

Formulating a gummy with added nutritional ingredients generally follows the same process as a traditional gummy confection, with some tweaks and considerations to incorporate the functional component. Fortunately, the gelling structure in gummies often holds active ingredients very well, eliminating the need for an additional emulsifying or stabilizing solution.

While the processes for developing a gummy confection and a nutritional gummy are quite similar, functional ingredients can carry other implications such as:

- **The set temperature of the gelling system:** The temperature at which gummies set must also support the added functional ingredients and other components (like flavor and color). For instance, a gelling system that requires a higher set temperature may negatively affect heat-sensitive active ingredients.
- **Use of additional emulsifiers to enhance homogeneity:** The functional ingredients (or color or flavor) may lead developers to incorporate some portions of the formulation as emulsions to ensure they homogeneously combine into the slurry.
- **Regulatory requirements:** Some functional ingredients have restrictions for usage level and combination with other ingredients. Working closely with regulatory support (whether an internal team or through vendors) can help ensure brand compliance.
- **Color and flavor delivery:** Many active ingredients, such as elderberry, carry colors and flavors. Formulators must decide whether a natural color and flavor are ideal or if incorporating elements to mask or complement the natural look and taste aligns with brand goals.

What are the Regulatory Considerations in Nutritional Gummies?

With labeling and nutritional claim errors the number one reason for product recalls, developers must be meticulous about regulatory compliance. Fortunately, the Food and Drug Administration (FDA) in the U.S. and the Canadian Food Inspection Agency (CFIA) thoroughly outline guidance for manufacturing and labeling products.

Some functional gummies, such as sugar-free formulations, can follow the labeling requirements and guidelines for food. Sugar claim guidelines in the United States (FDA) and Canada (CFIA) are as follows:

- Sugar-Free: Less than 0.5g per serving
- Reduced/Less Sugar: At least 25% less sugar than an appropriate reference food
- No/Without Added Sugar: No sugar or sugar-containing ingredient is added during processing

Labeling regulations are distinct from food for nutritional gummies with ingredients aligned with dietary supplement criteria. For the U.S., the FDA's code of federal regulations (CFR) and dietary supplement labeling guide offer direction for the manufacturing, packaging, and labeling of nutritional supplements. A dietary supplement bears or contains one or more of the following dietary ingredients:

- A vitamin
- A mineral
- An herb or other botanical
- An amino acid
- A dietary substance for use by man to supplement the diet by increasing the total dietary intake
- A concentrate, metabolite, constituent, extract, or a combination of any ingredient mentioned above

For proper labeling of dietary supplements, formulators must include the following details to comply with their regulating bodies:

- Statement of identity
- Net quantity of contents statement
- Nutrition labeling
- Ingredient list
- Name and place of business of the manufacturer, packer, or distributor

Labeling can be complex and pose a variety of challenges. Working with vendors and suppliers who can support regulatory compliance helps ensure product launch success!



How Can Developers Boost Nutritional Gummy Formulations with Flavor?

Gummy candy has a long history, first launching in British confectionery stores in 1864. Germany's Hans Riegel introduced gummy bears in 1922 and opened a U.S. manufacturing facility in 1982. The sweet, indulgent treat's longevity and popularity help increase palatability and likelihood of trial when gummy offerings include functional benefits.

For consumers, functionality decisions center on the needed support from the gummy, such as stress relief, sugar reduction, or bone health. Adding functional benefits to gummies is more complex for formulators. Functionality in food and beverage occurs through two main pathways: reducing or removing less favorable ingredients and adding beneficial active ingredients. Whether formulating a standard gummy candy or a chewy nutritional supplement, the flavor is essential to the eating experience. But with enhanced gummies, the flavor can play a dual role – delivering delicious taste and supporting the added functionality.

Removing Ingredients

Sometimes delivering functionality means removing unwanted ingredients, such as sugar or animal-based products. When removing these ingredients, developers can leverage additional solutions to achieve the desired taste experience. These new ingredient solutions may carry off notes that conflict with the finished product. In this case, flavors can work to mask these unwanted notes or deliver complementary flavor notes.

Adding Ingredients

Challenges when incorporating ingredients like vitamins, minerals, or other functional elements into a gummy formulation center around balancing the distinct taste profile of the additives. Flavors can add taste while masking undesirable notes through specific flavor technology or leveraging complementary flavor profiles.



What are the Flavor and Functional Trends in Nutritional Gummies?



Top Growing Positionings in Gummy Supplements

Immune Health

Skin Health

Energy & Stamina

Children

Digestive/Liver Health

Bone Health

Health/Wellness

Heart Health

Insomnia

Mental Acuity

Weight Management

Oral Health

Joint Health

Eye Health

Top Growing Flavors in Gummy Supplements

Strawberry

Orange

Red Raspberry

Berry

Lemon

Peach

Fruit

Cherry

Red Apple

Mango

Blueberry

Tropical Fruits

Elderberry

Red Grape

Innova Market Insights. 2019-2021. Global.

Outside of the top five global growing flavors, fruit, cherry, peach, mixed berry, and mango topped the charts for North America.

Pairing Flavor Families with Function in Nutritional Gummies

FlavorSum's proprietary research offers additional insights into the flavor families North Americans link with specific functionality in nutritional supplements.

Immunity	Hearth Health	Hair/Skin Nail Health	Anti-Inflammatory	Brain Health	Pain Relief	Joint Health	Anti-Aging	Relaxation	Alertness
Citrus	Spice	Botanical	Tropical	Tropical	Indulgent	Spice	Tropical	Tropical	Indulgent
Tropical	Tropical	Spice	Spice	Spice	Simple Sweet	Citrus	Berry	Fruit	Spice
Berries	Citrus	Indulgent	Melon	Berry	Spice	Berry	Fruit	Citrus	Botanical
Fruits	Melon	Fun	Indulgent	Fruit	Botanical	Tropical	Citrus	Melon	Simple Sweet
Melon	Indulgent	Melon	Fruit	Melon	Melon	Melon	Melon	Spice	Berry
Spice	Botanical	Tropical	Citrus	Indulgent		Indulgent	Spice	Berry	Tropical
Botanical	Berry	Citrus	Botanical	Botanical		Botanical	Botanical	Botanical	Melon
Indulgent	Fun	Berry	Berry	Citrus			Indulgent	Fun	Fun

 **Berry** (strawberry, raspberry, blackberry, blueberry)

 **Fruit** (pear, peach, apple, cherry)

 **Citrus** (lemon, orange, lime, grapefruit)

 **Melon** (watermelon, honeydew, cantaloupe)

 **Simple sweet** (e.g., chocolate, vanilla, honey)

 **Tropical** (pineapple, mango, banana)

 **Fun flavors** (cotton candy, tutti frutti)

 **Indulgent** (cheesecake, cookie, fudge, caramel, gingerbread, coffee)

 **Spice** (mint, cinnamon, ginger, cardamom)

 **Botanical** (lavender, hibiscus, matcha)



Finding Your Formula for Success with Nutritional Gummies

Final Thoughts:

Shifting consumer behaviors and expectations about nutritional solutions create ample innovation opportunities for gummy formulators. With their fun, familiar, and portable format, gummies shine as a delivery system for health and wellness. Gummy brands striving to create loyal customer bases can stand out by offering unique functionality and flavor offerings.

If you need support as you kickstart your next gummy project and need a trusted flavor partner, reach out to the FlavorSum. We offer an extensive assortment of flavor solutions, applications, and regulatory support to meet your taste and label claim needs.

About FlavorSum:

FlavorSum helps growing food and beverage companies in the U.S. and Canada go to market quickly and cost-effectively. Our solutions help you deliver great-tasting products that inspire loyalty among today's consumers. FlavorSum Access is our digital platform that enables you to order samples, access technical documentation, check inventory levels, and manage formulation information. FlavorSum Collaborate provides you with online or on-site interaction with our experts in formulation, applications, regulatory compliance, production, and operational efficiency. FlavorSum Discover is a subscription-based research service that provides monthly predictive insights on emerging market and consumer trends.



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