

It's the same...except different.

Here we go! It's that time of year again. The weather is cold, the food is more comforting, and we're still coming to terms with our new normal. As we collectively navigate our new way of life, we also look to old traditions to provide a bit of normalcy in our everyday routines. At the beginning of the pandemic, our lives changed a lot. Now, we're starting to see some of our pre-Covid activities return: Sports are back on, but they're in a bubble; restaurants are open, but masks are usually required; and schools are back in session—they're just online, or masked, or some hybrid version. Basically, life is the same...except different.

With this in mind, Glanbia Nutritionals has created concepts that can help consumers feel like they're getting back to their normal lives again while still providing the solutions and ingredients that are now even more important. Ingredients that focus on immunity support, weight management, and a generally healthy lifestyle are top-of-mind for consumers as we move into cold and flu season. This provides food and beverage companies the perfect opportunity to show consumers how their products can support their health.

So, while this year is indeed a bit unusual, we can take comfort in the fact that some things never change, and traditions will find a way to continue, even if they look a little different. We will indulge (a little) over the holidays, we will celebrate the end of 2020 (a lot), and we will make New Year's resolutions (that we'll TOTALLY keep).

We hope you enjoy our second edition of the Product Concept Line-Up. In it, you will find concepts that utilize Glanbia Nutritionals' ingredients and showcase how they could be used in an end application. For more information on any of the ideas you find inspirational, please follow up with your Glanbia Nutritionals account manager.

Happy Holidays, and here's to staying healthy and safe!

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Disclaimer: The following concepts are examples and for inspiration only. Further development is needed. Please reach out to your Glanbia Nutritionals account manager for more information.



Defensive Strategies

Consumers want their bodies to have as much of a defense against illness as possible, and immune-boosting food and drink products can give them a welcome advantage. Ingredients like ginger and curcumin are leading the pack in new product launches featuring an immunity claim.¹ Immunity-boosting statements are increasingly breaking out of the traditional VMS space and making their way into new delivery formats like ready-to-drink beverages, ready-to-mix smoothies, and snacks.² As consumers become more focused on their overall health and well-being, nutrition companies have an excellent opportunity to show consumers how food and beverages can provide solutions that positively impact their overall immunological health.







Convenience

Hydration

Comfort

References: Source: 1. Mintel. COVID-19: implications for immunity-boosting drinks. 2020. Source: 2. Mintel. Defend against disease with immunity-boosting products. 2019

Immunity-Boost Crystal Burst Glanbia Nutritionals Ingredients:

• **Bioferrin**®: A natural, biologically active milk protein, isolated from fresh sweet whey using advanced fractionation separation technologies.







Supporting immune health isn't just for adults. Kids and teens can also benefit from immune-boosting nutrition; however, finding ways to get these beneficial nutrients into their bodies can be half the battle! Enter the Immunity-Boost Crystal Burst concept. Kids and teens will love the unique format and popping sensation they'll experience, all while getting the immunity-boosting benefits of Bioferrin®.

Supporting Insights:

• 26% of US parents say if they were to create their ideal baby/toddler food, it would provide immune health.¹

Key Benefits:

- · Reloads immune pathways by supporting healthy immune and antioxidant functions
- Fun format for kids and teens!

Reference: 1. Mintel. A year of innovation in baby milk & food, August 2020.



Suppleme	nt Facts)
Serving size (2.3 gm)		
Amount nor coming	% Daily Value	*
Amount per serving	/o Daily Value	_
Bioferrin® (lacroferrin)	100 mg	*

Ingredients: Sugar, Lactose, Corn Syrup Solids, Sunflower Oil, Citric Acid, Natural and Artificial Flavors, CO² for PFHIX™ Activity Effects, **Bioferrin® 2000** (lactoferrin)

Allergen Information: Contains no known allergens

Immuni-Tea

Glanbia Nutritionals Ingredients:

- All N™ Off-the-Shelf Immunity Blend: This Off-the-Shelf blend has been pre-formulated with active
 ingredients, ready to use as a base for new product formulations. Our Immunity blend delivers a source of
 scientifically supported ingredients to help support immunity. This blend features the specialized active
 ingredient EpiCor®.
 - **EpiCor***: A unique and natural fermentation ingredient comprised of dozens of compounds and metabolites that work together to help support your immune system by balancing immune response. It acts like a multivitamin for your immune system.
 - CuroWhite*: A white curcumin* with milder taste and smell than traditional curcumin making it ideal for many applications such as tablets, capsules, ready-to-mix powders, and functional foods.
 - Vitamin C: Responsible for orchestrating the human immune system's function by supporting various aspects of both the innate and adaptive immune system. In humans, severe vitamin C deficiency has been associated with impairments in immunity.¹
 - **Zinc**: Essential for immunity and affects multiple aspects of the immune system³. Crucial for normal development and function of cells mediating innate immunity, neutrophils, and NK cells.²

*Curcumin: Traditionally used for Ayurvedic practices and has been demonstrated to be a potent immunomodulatory agent. Modulates the activation of T cells, B cells, macrophages, neutrophils, natural killer cells, and dendritic cells.³

References: 1. Nutrition and Immunity pp 81-102 2. Mol Med. 2008 May-Jun; 14(5-6): 353-357., 2. Am J Clin Nutr. 1998 Aug; 68(2 Suppl):447S-463S. 1. J Clin Immunol. 2007 Jan;27(1):19-35.





Inspiration:

Consumers seek immune-boosting products in new formats, and while they're open to trying new things, they still appreciate a bit of the familiar. Immunity-boosting teas can offer consumers an extra benefit in a product they've already come to enjoy.

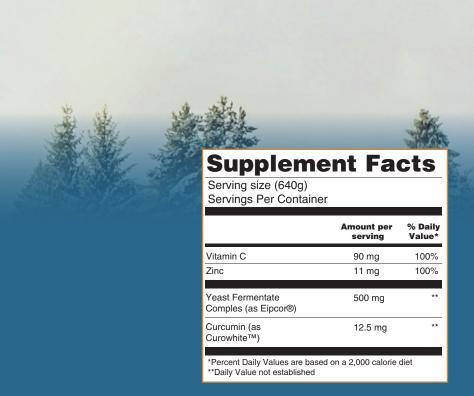
Supporting Insights:

- In the US, 53% of adults say their ideal supplement would offer immune support.1
- 63% of consumers indicate that a premium ready-to-drink tea is worth the price if it provides immunity-boosting benefits.²
- RTD tea sales have increased 26% from 2014-2019, now accounting for 77% of the overall tea market.³
- 13% of US consumers are already using functional beverages to support immune health.⁴

Key Benefits:

- · Supports a healthy immune system
- Refreshing and unique format

References: 1. Mintel. Support immune health in new ways. June 2020. 2. Mintel. Startups with a focus on immunity and health get a boost. April 2020. 3. Mintel. Tea & RTD Teas. US August 2019. 4. The Hartman Group, Functional Food, Beverages & Supplements Report, April 2020



Ingredients*: Ascorbic Acid, EpiCor® (beta cyclodextrin), CuroWhite® (hydrogenated turmeric curcuminoids [curcuma longa] root extract), Zinc Sulfate

Allergen Information: Contains no known allergens Ingredient statement reflects All N^{TM} Off-the-Shelf Immunity blend only.

My Chai Glanbia Nutritionals Ingredients:

- **ProTherma***: An agglomerated hydrolyzed whey protein designed for use in hot RTM beverage applications.
- CuroWhite[®]: A white curcumin* with milder taste and smell than traditional curcumin making it ideal for many applications such as tablets, capsules, ready-to-mix powders, and functional foods.

*Curcumin: Traditionally used for Ayurvedic practices and has been demonstrated to be a potent immunomodulatory agent. Modulates the activation of T cells, B cells, macrophages, neutrophils, natural killer cells, and dendritic cells.¹

References: 1. J Clin Immunol. 2007 Jan;27(1):19-35.





Winter brings stuffy noses and sneezes, and that's just the tip of the iceberg this year. Consumers already turn to hot beverages while they are under the weather, but cuddling up with a nice hot cup of chai tea that also delivers immune-boosting benefits and an extra boost of protein? Sign us up.

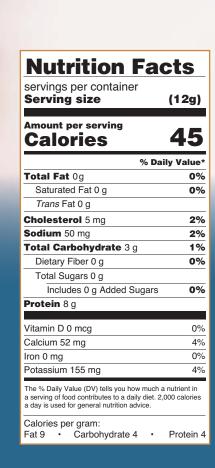
Supporting Insights:

- 35% of consumers think products that support immune health would motivate them while purchasing a nutrition or meal replacement drink.¹
- 29% of consumers have tried and liked beverages with chai tea flavoring.²

Key Benefits:

- Contains curcumin for immunity
- 8 grams of protein per serving

References: 1. Mintel. Patent insights: Boosting immune health a future focus. April 2020. 2. Mintel. Tea & RTD Tea: Incl. Impact of COVID-19. US August 2020.



Ingredients: ProTherma® (hydrolyzed whey protein concentrate, lecithin), Natural Flavors, Organic Stevia Leaf Extract, Organic Monk Fruit Extract, Curowhite® (beta cyclodextrin, hydrogenated turmeric curcuminoids [curcuma longa] root extract)

Allergen Information: Contains milk and soy ingredients



Defensive Strategies







For more information on our Defensive
Strategies concepts, ingredient solutions and
insights, please contact us at
www.glanbianutritionals.com.



Back at It

At the beginning of the Covid-19 pandemic, when shelter-in-place orders were first issued, and normal life was uprooted, we saw a steep decline in dieting. Consumers started buying more comfort foods at the store like cheese¹ (because cheese is fantastic and we fully support those that seek comfort from it) and carbs³, and people started cooking and baking more at home.¹ Jokes about putting on the "covid 19" started to pop up, and people related to each other's more indulgent diets. However, as the realization set in that this could be the new normal for quite some time, we started to see people get back at it. Diets began to rise again, and working out at home became a fun new challenge that many were willing to accept.

New diets that have emerged victorious this year include intermittent fasting, the ketogenic diet, and the rise in the flexitarian lifestyle.² To find solutions for these popular diet trends, it is crucial to understand who is following them, how they work, and why they've become so popular. We will walk you through each of these important diet trends, provide valuable insight into the consumer and their needs, and show new product concepts that solve those needs.







The Ketogenic Diet



The Flexitarian Diet

References: 1. The Hartman Group, Inc. Covid-19's Impact on Eating. 2020. 2. The Hartman Group, Inc. 3. Mintel. Nutrition Watch: Low Carb. May 2020.



Back at It

The Intermittent Fasting Diet

What is it?

It's a diet that has increased in popularity over the last few years, focusing on regularly switching between periods of eating and periods of severe caloric reduction or fasting. This diet focuses more on when you eat rather than what you eat, although it is encouraged to make healthy, well-balanced food choices during your eating periods. Zero-calorie beverages are permissible during fasting times, so coffee drinkers rejoice!

There are multiple ways to approach an intermittent fasting diet, including the following:

- The 16/8 Method: Fast for 16 hours each day also called the 7/11 method in which you eat nothing between 7 pm and 11 am every day
- The 5:2 Diet: Fast for two days per week
- Eat-Stop-Eat: Do a 24-hour fast once or twice a week
- Alternate-day Fasting: Fast every other day
- The Warrior Diet: Fast during the day, eat a massive meal at night
- Spontaneous Meal Skipping: Skip meals when convenient¹

Who is it for?

It's for adults with the willpower to do it, especially those that are looking to lose weight and increase cognitive function.²

What are the benefits?

Proponents of intermittent fasting claim the benefits include²:

- Weight Loss
- Thinking and Memory Benefits
- Heart Health
- · Increased Physical Performance
- Tissue Health

How does it work?

Fasting helps regulate insulin, which is the hormone correlated with weight gain and fat storage. When the body goes without food for a prolonged time, it runs out of sugar to burn and starts burning fat.²

Supporting Insights:

- According to Google Trends Year in Search 2019 review, intermittent fasting was the top diet trend searched for in 2019. Fasting for dietary purposes is nothing new, but intermittent fasting has recently gained attention and curiosity, due in part to its popularity with celebrities.³
- 35% of consumers view intermittent fasting as very or somewhat healthy.³
- Those who fast tend to complain most about a lack of energy.⁴
- After reducing carbs (think Keto) and dairy elimination (think flexitarian), intermittent fasting is the most common type of eating approach in the US in 2019.⁵

Our Take:

Intermittent fasting is a rapidly growing diet trend in the US with no signs of slowing down. It's trendy, it's effective, and most importantly, it's seen as a healthy and sustainable lifestyle change. Exploring new ways to assist those who have adopted this eating approach to reach their goals and provide them with options that can help replenish some of the nutrient loss during fasting times can give brands a unique relationship with this growing consumer group.

Key Areas of Focus:







Satiety

Replenishment

Fasting

References: 1. Healthline Online. 6 Ways to Do Intermittent Fasting. 2020. 2. Johns Hopkins Medicine. Intermittent Fasting: What is it, and how does it work? 2020. 3. Mintel. Consumer Approach to Nutrition. US January 2020. 4. Mintel. Dive into the latest diet trends. September 2019. 5. The Hartman Group, Inc. Food Culture Forecast: Tapping Into Personalized Nutrition. September 2019.

Fast Asleep

High Protein Cookies

Glanbia Nutritionals Ingredients:

- BarPro® 291: A partially hydrolyzed milk protein isolate with enhanced functional characteristics designed for extending the shelf life of nutrition bars. Its unique combination of milk proteins and peptides minimizes bar hardening.
- Crunchie[™] Milk Protein Crisps: High protein crisps made with milk protein and rice starch delivering superior texture and flavor to enhance texture and crunch in food applications.
- OatPure™ Jumbo Oats: De-hulled, heat-treated oat groats which are steamed and flaked, offering good
 grain integrity. They are more robust, less likely to crumble in an application, and have better adhesion and
 binding properties than regular oat flakes.
- PepForm® Tryptophan: A sleep aid with proven next day cognitive benefits that helps promote the body's
 natural melatonin without the addition of hormones, in a more soluble and bioavailable way. Pepform
 Tryptophan uses our PepForm® technology, which binds free-form amino acids to peptides isolated from
 whey resulting in significant improvement to the solubility and utilization of amino acids.
- OptiSol® 3000: A patent-pending ingredient for use in egg replacement. OptiSol 3000 is intended to be used as an ingredient in baked goods. As such, it is not considered ready-to-eat.





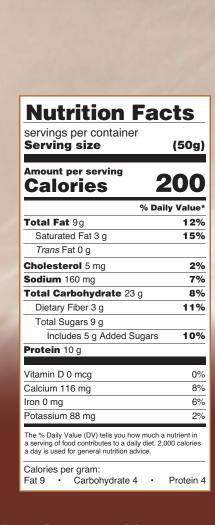


Inspiration

Fight the midnight snack craving with a high protein cookie before bed that helps keep you fuller, longer. Extra perk: the tryptophan aids in a night of restful sleep so that you can wake up feeling rested and ready to start your day! Even if you can't eat for another 8 hours...

Key Benefits:

- 10 grams of protein per serving
- Tryptophan has been proven to calm the nervous system, promoting a more restful sleep
- Shelf-stable soft-baked cookie
- Superior texture and flavor



Ingredients: Wheat Flour, Vegetable Fat, Brown Sugar, Chocolate Chips (sugar, chocolate, cocoa butter, milkfat, soy lecithin, natural flavors), BarPro® 291 (partially hydrolyzed milk protein isolate), Crunchie™ Milk Protein Crisps (milk protein concentrate, rice starch), Soluble Tapioca Fiber, OatPure™ Jumbo Oats (gluten-free oats), Vegetable Glycerine, PepForm® Tryptophan Peptides (whey peptides, L-tryptophan), OptiSol® 3000 (milled flaxseed, whey protein concentrate), Natural Flavors, Sunflower Lecithin, Salt, Baking Soda, Sucralose

Allergen Information: Contains milk, soy, and wheat ingredients

The Long Haul

Hunger Battling RTM

Glanbia Nutritionals Ingredients:

• SatieTein™: A milk protein concentrate ultra-filtered from Grade A milk. It has unique functional attributes that promote slow digestion and has been instantized for excellent dispersibility.







Inspiration

There's a saying in the intermittent fasting community: "Before you fast, eat something that will last." Okay, we made that up, but we're pretty sure it's a good rule of thumb! This delicious chocolate shake features SatieTein™, the hunger-battling protein-enhanced for a slow rate of digestion allowing for a 45% longer satiety time compared to casein.¹ This shake is sure to make fasting a little easier to get through.

Key Benefits:

- · 25 grams of protein per serving
- Low carb
- · Hunger battling milk protein concentrate that will keep you feeling fuller for longer
- · Excellent source of calcium

Reference: 1. Glanbia Nutritionals study. Data on file.

Nutrition Fac	ets	
servings per container		
Serving size	(35g)	
Amount non coming		
Calories 1	10	
% Daily Value*		
Total Fat 9g	0%	
Saturated Fat 0 g	0%	
Trans Fat 0 g		
Cholesterol 15 mg	5%	
Sodium 140 mg	6%	
Total Carbohydrate 3 g	1%	
Dietary Fiber 1 g	4%	
Total Sugars 1 g		
Includes 0 g Added Sugars	0%	
Protein 25 g		
Vitamin D 0 mcg	0%	
Calcium 656 mg	50%	
Iron 1 mg	6%	
Potassium 286 mg	6%	
The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.		
Calories per gram: Fat 9 • Carbohydrate 4 •	Protein 4	

Ingredients: SatieTein® (milk protein concentrate), Cocoa (processed with alkali), Natural Flavors, Gum Blend (cellulose gum, xanthan gum, carrageenan), Salt, Sucralose, Acesulfame Potassium, Soy Lecithin

Allergen Information: Contains milk and soy products

Break-the-Fast

Sea Salt Caramel Chocolate Crisp Bar

Glanbia Nutritionals Ingredients:

- Crunchie[™] Milk Protein Crisps: High protein crisps made with milk protein and rice starch delivering superior texture and flavor to enhance texture and crunch in food applications
- BarFlex® 191: A partially hydrolyzed whey protein isolate with enhanced functional characteristics designed to extend a nutritional bars' shelf life. The patented process delivers a unique combination of whey proteins and peptides designed to minimize bar hardening.
- **BevWise**® **I-300W**: A patent-pending ingredient designed for intermediate pH ready-to-drink beverage systems providing a smooth, clean flavor.
- BarPro® 585: An rBST-free milk protein isolate, ultra-filtered from Grade A milk.
- EdiSparklz™ Edible Glitter: Edible glitter flakes are used for toppings and inclusions. EdiSparklz can be used in a wide range of applications and are available in several different varieties, depending on your application.







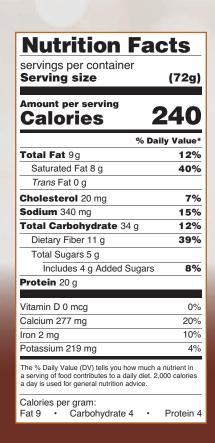
Inspiration

After a long fast, it can be tempting to eat anything in your path. However, intermittent fasting is most effective when healthy, well-balanced food is consumed during your periods of eating. Providing some sweet relief that is still packed with good stuff is a great way to help curb those cravings without breaking the rules.

Key Benefits:

- 20 grams of protein per serving
- Low sugar
- 11 grams of fiber
- Clean flavor, crunchy texture, fun visual!

Reference: 1. Johns Hopkins Medicine. Intermittent Fasting: What is it, and how does it work? Retrieved September 2020.



Ingredients: Dark Chocolate Coating (maltitol, palm kernel oil, whey protein isolate, cocoa powder, soy lecithin [an emulsifier]), Crunchie™ Milk Protein Crisps (milk protein concentrate, rice starch), Soluble Corn Fiber, BarFlex® 191 (partially hydrolyzed whey protein isolate), Chicory Root Fiber, Protein Caramel (sugar, corn syrup, BevWise® I-300W [whey protein isolate, phosphoric acid], water, butter, salt), Vegetable Glycerine, Tapioca Syrup, Cocoa Powder, BarPro® 585 (milk protein isolate), Natural Flavors, EdiSparkIz™ Edible Glitter (hydroxypropyl methylcellulose, propylene glycol, mica-based pigment, yellow 5, red 40, yellow 6, blue 1), Sea Salt, Stevia

Allergen Information: Contains milk and soy ingredients



The Intermittent Fasting Diet







For more information on our Intermittent
Fasting Diet concepts, ingredient solutions
and insights, please contact us at
www.glanbianutritionals.com.



The Ketogenic Diet

What is it?

The Ketogenic diet, or Keto diet, focuses on a high-fat, low-carb diet while also concentrating on providing adequate protein. Those following the Keto diet are challenged to eat less than 50 grams of carbs per day or eat a diet that is about 70% fat, 20% protein, and 5% simple carbs and non-starchy veggies.

Who is it for?

The Keto diet is an excellent fit for consumers interested in a weight loss regimen rather than a long-term lifestyle change. This diet tends to be most popular with the Gen X crowd.¹ There are different ways to approach the Ketogenic Diet, including:

- The standard ketogenic diet (SKD) is a very low-carb, moderate-protein, and high-fat diet. It typically contains 75% fat, 20% protein, and only 5% carbs. This approach is the most standard version, the most recommended, and the most researched.
- The cyclical ketogenic diet (CKD) involves periods of higher-carb refeeds, such as 5 ketogenic days
 followed by 2 high-carb days.
- The targeted ketogenic diet (TKD) allows you to add carbs around workouts.
- The high-protein ketogenic diet is similar to a standard ketogenic diet but includes more protein. The
 ratio is often 60% fat, 35% protein, and 5% carbs.²

What are the benefits?

The most widely accepted benefit of the Keto diet is weight loss.

How does it work?

When you severely cut back on carbs, your body does not have enough glucose for energy, so the body burns fats and proteins instead. When your body starts burning fat and protein rather than glucose, it goes into "ketosis", hence the Ketogenic diet. During ketosis, your body breaks down fat and protein for energy and results in weight loss.

Supporting Insights:

- Since 2018, sports nutrition & supplement product launches with a Keto indication on pack have more than doubled³
- 12% of consumers have tried a low carb diet over the past 12 months, with Gen X-ers the most interested in this type of diet.⁴
- In the US, 56% of consumers who are limiting their sugar intake are doing so because of future health concerns.⁵
- 18% of US consumers are interested in following the Ketogenic diet.6
- "The high-fat content of the keto diet is one element of its popularity. Full-fat, more indulgent foods made with ingredients like cheese or cream allow consumers to treat themselves without compromising their weight management efforts."
- 1/3 US consumers indicate that ketogenic is an important feature when choosing sports nutrition products.⁸

Our Take:

Keto has been all the rage over the last few years but has lost a bit of traction to new rivals such as intermittent fasting and the rise of the flexitarian diet. While its popularity has slowed a bit, it remains one of the top diets in the US, with many viewing it as an accessible and easy diet to follow. A good old fashioned low carb, high-fat diet will always appeal to some consumers who can't bear the thought of giving up their comfort foods like meat and cheese (did we mention we get it? cheese is incredible). Finding ways to help them do this in a more nutritious, convenient, and delicious way will help brands connect with this consistent consumer group.

Key Areas of Focus







Grass-Fed

High Fat

Convenience

References: 1. The Hartman Group, Inc. Food Culture Forecast: Tapping Into Personalized Nutrition. September 2019. 2. Healthline Online. The Ketogenic Diet: A Detailed Beginner's Guide to Keto. 2020. 3. Innova database, November 2020. 4. The Hartman Group Inc. Food Culture Forecast 2019. 5. Mintel. Nutrition Watch: Low Carb. May 2020. 6. Mintel. A year of innovation in meal replacement drinks. February 2020. 7. Mintel. Keto diet can shape dairy NPD. September 2019.

Keto Grass Fed Tahitian Vanilla R/TM

Glanbia Nutritionals Ingredients:

- All N™ Keto Grass-Fed Blend: A blend specially designed to deliver nutrients essential to support the Ketogenic diet featuring:
 - Truly Grass Fed® Whey Protein A source of 100% grass-fed whey protein containing levels of immune-boosting bioactive compounds.
 - BevFlax™ XtraSmooth A source of protein, fiber, and ALA Omega-3 with excellent stability and a smooth mouthfeel.
 - CarbOUT® Flavor Natural flavor and masker system that improves flavor and masks protein and fat off-notes while reducing carbs 50-100% and increasing protein 10+%.







Keto-friendly product launches are still on the rise, and consumers embrace the fact that previously off-limits food choices like full-fat foods, especially dairy and more specifically grass-fed products, are now encouraged¹ allowing brands to stand out with sourcing claims.

Key Benefits:

- · Grass-fed
- High in fat
- 11 grams of protein per serving

Reference: 1. Mintel. Keto diet can shape dairy NPD. September 2019.



Ingredients: All N™ Keto Grass-Fed Blend (whey protein isolate, MCT oil powder [MCT oil, gum acacia], milled flaxseed, natural flavor, lecithin), Natural Flavors, Gum Blend (guar gum, gum acacia, xanthan gum), Salt, Stevia Leaf Extract, Monk Fruit Extract

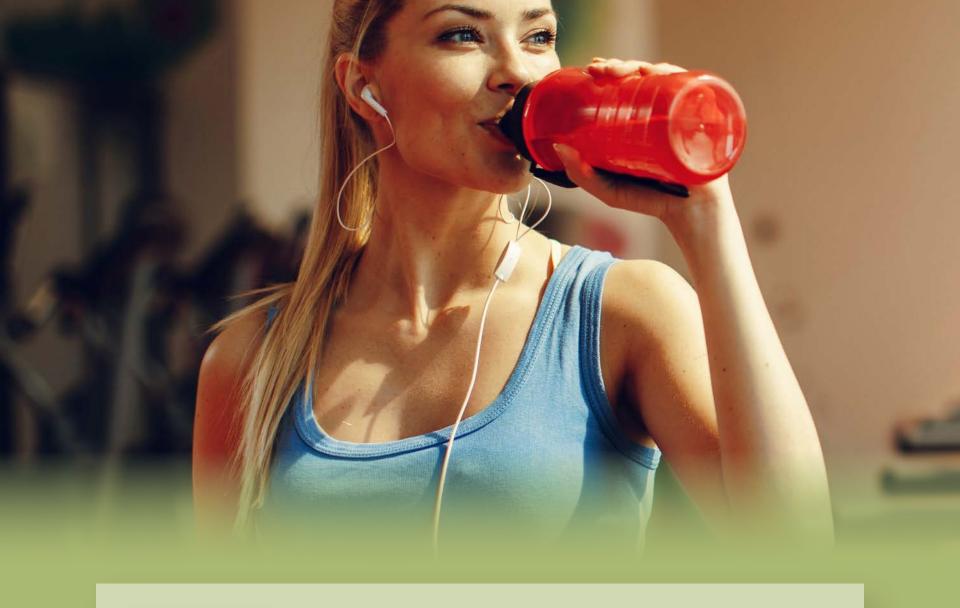
Allergen Information: Contains milk ingredients

Keto Shake

Glanbia Nutritionals Ingredients:

• Optisol® 1007: A superior heat stabilizing whey protein concentrate for cleaner label neutral pH beverages.





This is basically Keto in a shake, and convenience is still a massive focus for consumers. Knowing that a product will provide a quick nutritional solution for their day is top of mind, and a delicious ready-to-drink shake is an excellent way for the Keto dieter to get the nutrients they need no matter where their day is taking them!

Key Benefits

- 75% fat, 20% protein, and 5% carbohydrates ratio
- Clean Label
- No added sugars



Ingredients: Water, OptiSol® 1007 (concentrated whey protein), High Oleic Sunflower Oil, Cocoa (processed with alkali), MCTs, Gellan Gum, Carrageenan, Salt, Stevia, Monk Fruit Extract

Allergen Information: Contains milk and sunflower oil ingredients

Keto On-the-Go Keto On-the-Go Keto Mini Bars

Glanbia Nutritionals Ingredients:

• BarFlex® 192: A premium, non-fat whey protein isolate derived from sweet dairy whey. The whey proteins have been extracted in a highly purified, undenatured form using membrane technology. BarFlex 192 is uniquely designed to provide improved functionality in nutrition bars and protein-fortified cereal and granola bars.







Consumers continue to seek smaller, more portable on-the-go options. This trend is affecting both retail and foodservice innovation this year.¹ Portion control as a weight management tool is also expected to increase in popularity as maintaining a healthy weight continues to be a focus on how to live a healthy lifestyle. Products with perceived weight management benefits continue to gain traction.²

Key Benefits:

- 73% calories from fat
- 20% calories from protein
- Only 2 net carbs
- 15 grams of protein

References: 1. Food Business News, Slideshow: Bite-size is big in food innovation, 2020. 2. Food Business News, Weight management may help against the worst of COVID-19, 2020



Ingredients*: Peanuts, Palm Kernel Oil, Dark Chocolate Confectionery Coating (maltitol, palm kernel oil, whey protein isolate, cocoa powder [processed with alkali], soy lecithin), BarFlex® 192 (whey protein isolate), Natural Flavors, Salt

Allergen Information: Contains milk, soy, peanuts ingredients



The Ketogenic Diet







For more information on our Ketogenic Diet concepts, ingredient solutions and insights, please contact us at www.glanbianutritionals.com.



Back at It The Flexitarian Diet

What is it?

Someone who follows a flexitarian diet simply tries to limit their meat intake. The reasons why flexitarians reduce their meat intake vary from health reasons to environmental and animal welfare to the desire to eat a more plant-focused diet. Flexitarians are not vegetarians or vegans. They still eat animal products, but they actively try to find ways to reduce their intake of animal-based products and often lean towards foods traditionally marketed to vegetarians or vegans.

Who is it for?

The flexitarian diet focuses on a more holistic approach to health. While weight loss is cited as a benefit to the flexitarian diet, other benefits to the diet are also significant drivers behind its popularity, including animal and environmental welfare.²

What are the benefits?

Benefits of the flexitarian diet range from health to environmental, with proponents citing the following:

- Weight Loss
- Heart Health Benefits
- Extended Lifespan
- Better for the Environment
- Easy to Follow/Less Restrictive Than Vegan/Vegetarian
- Sustainable for Long Term Results³

How does it work?

The flexitarian diet focuses on eating a more balanced diet and finding ways to incorporate more plant-based options into your everyday routine. Flexitarians focus on what to include in their diet rather than focusing on what to restrict, making it popular among those seeking a more holistic approach to their health. It follows the below guidelines:

- Eat mostly fruits, vegetables, legumes, and whole grains.
- Focus on protein from plants instead of animals.
- Be flexible and incorporate meat and animal products from time to time.
- Eat the least processed, most natural form of foods.
- Limit added sugar and sweets.³

Supporting Insights:

- The majority of consumers identify as either carnivores or flexitarians, with 48% of US consumers identifying as carnivores and 21% identifying as flexitarian.⁴
- 2 out of 10 Americans and Canadians claim to be following a flexitarian diet approach.²
- 34% of UK parents prefer baby/toddler food with a vegetarian protein source (e.g., ancient grains, seeds, pulses) to those with meat.⁵
- Of those that identify as flexitarian, 57% were women, showing that women are slightly more likely to identify as flexitarian than men.⁶

Our Take:

The flexitarian diet is one that spans generations within a family and continues to grow in popularity. Where most diets are only appropriate for adults, parents following a flexitarian diet are happy to involve their kids in the diet. When their kids are still very young, parents are looking to provide their kids with more plant-powered nutrition. This gives brands an excellent opportunity to appeal to the flexitarian parent and get kids in at an early age! Brands can integrate flexitarian products into their portfolio creatively, using more plant nutrition in their portfolio without giving up animal-based products entirely (think ½ dairy, ½ plant products.)

Key Areas of Focus:







Plant Forward

Contains Protein

Family Friendly

References: 1. Source: The Hartman Group Inc. Food + Technology 2019: From Plant-Based to Lab-Grown, June 2019. 2. Mintel. Cater to the "why" behind flexitarian eating. November 2019. 3. Healthline Online. The Flexitarian Diet: A Detailed Beginner's Guide. Retrieved September 2020. 4. Mintel, Plant-based Proteins, Sept 2019; Base: 2,000 internet users aged 18+. 5. Mintel. Flexitarian parents look for more plant-based baby food. March 2020. 6. Mintel. Plant-based Proteins. September 2019

Plant Based Mayan Chocolate Bar

Glanbia Nutritionals Ingredients:

- BarHarvest™ 800: A partially hydrolyzed pea protein with a clean flavor developed to increase chewiness, moistness, and soft texture in bars, snacks, and baked products.
- CapsiAtra®: A Dihydrocapsiate similar to the red pepper compound capsaicin, providing similar health benefits as capsaicin but without the adverse side effects like pungency.







This vegan bar not only offers the plant-forward option flexitarians crave but gives an added weight management benefit! Capsiatra® is proven to increase metabolism for weight management¹, and weight management is still an important reason for choosing the flexitarian diet ².

Key Benefits:

- 16 grams of plant-based protein per serving
- 12 grams of fiber and only 1 gram of sugar
- Gluten-free

References: 1. Inoue et al, Biosci Biotechnol Biochem.2007Feb;71(2):380-9. 2. Mintel. Cater to the "why" behind flexitarian eating. November 2019.



Ingredients: BarHarvest™ 800 (partially hydrolyzed pea protein), Soluble Corn Fiber, Almonds, Chicory Root Fiber, Vegetable Glycerine, Canola Oil, Cocoa Powder (processed with alkali), Natural Flavors, Cinnamon, Salt, CapsiAtra® (beta cyclodextrin, CH19 sweet peppers), Steviol Glycosides

Allergen Information: Contains tree nuts

Clean Label Plant-Based Kefir

Glanbia Nutritionals Ingredients:

- HarvestPro[™] Pea XtraSmooth: A clean labeled vegetable protein isolate extracted from yellow peas for use
 in beverages, baked goods, crisps, bars, cereals, and clusters.
- BevOat™: A very finely milled whole grain gluten-free oat flour that has been heat treated.







Kefir offers consumers a new way to get the probiotics they want, and proponents of kefir claim it brings with it benefits for mood, gut, and immunity. For those trying to follow a more flexitarian lifestyle, plant-based kefir can offer some of the same benefits as dairy kefir while still taking a plant-forward approach.

Key Benefits:

- The same richness and flavor as a dairy-based yogurt
- Clean label
- · 8 grams of plant-based protein per serving

Reference: 1. Mintel. What's next for fermented foods? September 2020



Ingredients: Water, Sugar, HarvestPro™ Pea XtraSmooth (pea protein), BevOat™ (oat flour), Natural Flavors, Pectin Live and Active Cultures

Allergen Information: Contains no known allergens

Plant Forward Cereal Bar for Toddlers

Glanbia Nutritionals Ingredients:

- **TruCal**® **D7:** Much more than just calcium, TruCal is a balanced source of natural milk minerals scientifically shown to support optimal bone health.
- OatPure™ Gluten Free Jumbo Oat Flakes: De-hulled, heat-treated oat groats which are steamed and flaked, offering good grain integrity. They are more robust, less likely to crumble in the application, and have better adhesion and binding properties than regular oat flakes.
- **BevChia®:** An all-natural specially milled white chia seed that has been heat-treated using our MicroSure™ Plus process. This treatment involves a minimum of 5-log validation kill step and results in the safest chia in the industry.
- CuisineFlax™ Binder: An all-natural, specially milled low-fat flax meal that is light in color. This milled flax is a raw food product and has not been heat-treated or processed to treat it for organisms of public health significance.





Figuring out a way to incorporate more nutrition into your kid's diet, especially if that kid happens to be a toddler, is a well-known pain point for most parents. An easy-to-eat, convenient bar packed with the good stuff is a welcome solution for parents who need a quick, healthy fix for their kiddos!

Key Benefits:

- Plant forward
- Convenient format
- · Packed with vitamins & minerals

Serving Size (1 Servings Per C	0,	r 1	
Amount per serving			
Calories 70	Calo	ries from	Fat 15
		% Daily	Value*
Total Fat 2 g			3%
Saturated Fat (0.5 g		3%
Trans Fat 0 g			
Cholesterol 0 r	ng		0%
Sodium 40 mg			2%
Total Carbohy	drate 1	1 g	4%
Dietary Fiber 1	g		4%
Sugars 5 g			
Protein 1 g			
Vitamin A 0%	•	Vitamin	C 35%
Calcium 10%		Iron 2%	
Vitamin D 30%	•	Vitamin	K 15%
*Percent Daily Values a Your Daily Values may your calorie needs.			
	Calories	2,000	2,500
Total Fat Saturated Fat	Less than Less than	65g 20g	80g 25g
Cholesterol	Less than	300mg	300mg
Sodium Total Carbabubdrata	Less than	2,400g	2,400g
Total Carbohyhdrate Dietary Fiber		300g 25g	375g 30g

Ingredients: Strawberry Filling (cane syrup, brown rice syrup, apple powder, rice starch, strawberries, dried cane syrup, strawberry type flavor, glycerin, pectin, water, citric acid, red cabbage extract for color), Whole Wheat Flour, All-Purpose Wheat Flour, Milk, Brown Sugar, Butter, Canola Oil, Water, Children's Bone Premix (Milk Calcium [TruCal® D7], Ascorbic Acid, Maltodextrin, Vitamin E, Vitamin D3, Vitamin K2), OatPure™ Gluten Free Jumbo Oat Flakes, Wheat Bran, BevChia® White, Glycerin, Vanilla, Baking Powder, Salt, CuisineFlax™ Binder, Cinnamon.

Allergen Information: Contains milk and wheat ingredients







Comfort & Joy

It wouldn't be the winter if the food didn't play a comforting role in our lives. Not only are holiday traditions usually a bit decadent, but the weather seems to whisper "eat something indulgent and comforting," and usually, we oblige. But let's not forget that food can be comforting, delicious, and indulgent while still being beneficial to your health. That's right! At Glanbia Nutritionals, healthy indulgence is not an oxymoron but rather a challenge we're willing to accept.







Better-For-You



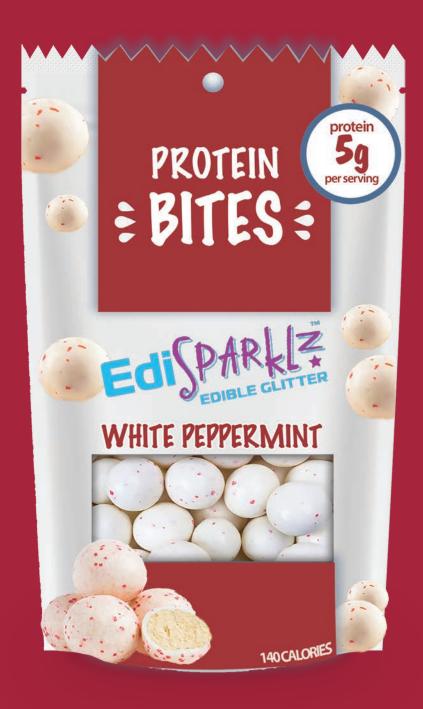
Comforting

Sparkling Protein Bites

Glanbia Nutritionals Ingredients:

- Crunchie™ Milk Protein Bites 120: Larger high protein crisps made with milk protein and rice starch delivering superior texture and flavor for a protein snack or cereal.
- EdiSparklz® Edible Glitter: Edible glitter flakes used for toppings and inclusions. EdiSparklz can be used in a wide range of applications and are available in several different varieties, depending on your application.







Inspiration:

First up, let's get in on some protein-packed holiday cheer. Extruded snacks are a go-to favorite in the snacking department, but their nutritional value is often lacking. The Crunchie™ Milk Protein Bites provides a delicious, crunchy texture enjoyed as a savory snack or a sweet holiday treat.

Supporting Insights:

• Protein content is influencing 3 out of 5 consumer's purchasing decisions globally.¹

Key Benefits:

- 5 grams of protein per serving
- Better-for-you snacking solution
- Festive, fun flavor

References: 1. Innova Database 2019



Ingredients: White Coating (sugar, palm kernel oil, nonfat dry milk, milk, soy lecithin (an emulsifier), salt, Crunchie™
Milk Protein Bites 120 (milk protein concentrate, rice starch),
Powdered Sugar, EdiSparklz™ (gum Arabic, radish juice extract (color), natural flavor, stevia extract), Water, Gum Arabic

Allergen Information: Contains milk ingredients

Protein

Peanut Butter Cups

Glanbia Nutritionals Ingredients:

BarPro® 287: A partially hydrolyzed milk protein concentrate with enhanced functional characteristics
designed to keep nutrition bars and confections soft through their shelf life.





Inspiration: Peanut butter cups are a longstanding favorite in the candy bar world. Unfortunately, they don't have a ton of redeeming qualities when it comes to nutrition facts. Until now! These peanut butter cups check all the healthy indulgent boxes. Delicious? Check. Comforting? Check. Indulgent? Oh, for sure. Healthy?

Well, certainly healthier with an extra protein kick and only 100 calories. Finally, you can feel good about indulging in these little bite-sized pieces of bliss.

Supporting Insights:

- 60% of consumers are looking for high protein in their 'healthy' snacks.1
- 55% of consumers are looking for high fiber claims in their 'healthy' snacks.1

Key Benefits:

- 6 grams of protein per cup
- No added sugars
- Permissible indulgence

References: 1. Mintel. Better for you, Snacking. US December 2019.



Ingredients: Isomalto-oligosaccharides (tapioca), Peanut Butter, No Sugar Added Milk Chocolate Compound (maltitol, cocoa butter, whole milk powder, chocolate liquor, inulin, sunflower lecithin, vanilla powder), BarPro® 287 (partially hydrolyzed milk protein concentrate), Peanut Flour, Natural Flavors

Allergen Information: Contains peanut and milk ingredients

Healthy Indulgence Higher Protein Hot Chocolate

Glanbia Nutritionals Ingredients:

• **ProTherma***: An agglomerated hydrolyzed whey protein designed for use in hot RTM beverage applications.



Inspiration:

Winter is a time to cozy up with a blanket, your favorite book, and a nice cup of hot chocolate! While this scenario sounds pretty perfect already, it could be even better if that sweet treat had a nice protein boost to get it into the healthy indulgence club. Well, guess what? Wish, granted.

Supporting Insights:

80% of US consumers have indicated that they have purchased more indulgent treats to compensate for their reduction in spending at restaurants & food service.¹

Consumers continue to seek comfort in indulgent, sweet treats. However, they also continue to seek products that can provide some added health benefit. Therefore, sweet, comforting treats that can also provide a better-for-you claim will provide even higher consumer interest.2

Key Benefits:

- · 5 grams of protein per serving
- Heat-stable protein
- Permissable indulgence

Reference: 1. FMCG Gurus, Covid-19 Survey, July 2020. 2. FMCG Gurus. Confectionery Consumption Within the USA. October 2020.



Ingredients: ProTherma® (hydrolyzed whey protein concentrate), Creamer (coconut oil, corn syrup solids, sodium caseinate [a milk derivative], mono & di-glycerides, dipotassium phosphate and sodium silico aluminate), Cocoa Powder (processed with alkali), Evaporated Cane Juice, Natural Flavors, Sucralose

Allergen Information: Contains milk, soy and coconut ingredients



Comfort & Joy







For more information on our Comfort & Joy concepts, ingredient solutions and insights, please contact us at www.glanbianutritionals.com.

BarPro® Extruded Snacks

We have pioneered a revolutionary new way to achieve protein fortified extruded snacks and cereals

Experts in protein solutions for extruded snacks and cereals







YEARS OF EXTRUSION RESEARCH

We developed a range of proteins optimized to allow for better expansion within extruded products that help you achieve

- Starch-like textures without inclusion of high quantities of starch
- High levels of protein
- A better rate of breakdown
- No dairy off-notes

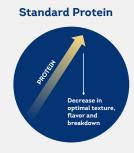
BarPro® solutions for extruded products

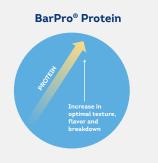
- Made with functionally optimized milk protein concentrate
 - Delivers a less chalky and powdery texture than other protein products, providing a range of exceptional textures and a hearty crunch
- Clean dairy flavor requiring no masking
- Produced in high quality manufacturing environment
- Kosher and Halal compliant

The BarPro 100 series allows you to obtain a range of textures:

SOFT MELTY GLASSY FIRM

BarPro® 100 Series (100, 110, 120) More desirable results are achieved when using our BarPro® proteins to obtain an increase in protein levels







Crunchie™ Milk Protein Crisps - for inclusions

Ideal for bar and snack inclusions, delivering exceptional texture and a hearty crunch to a product throughout shelf life, creating a delightful eating experience.

- Made with BarPro® 110 or 120
- >74% high quality milk protein for an extra protein boost
- Clean dairy flavor requiring no masking
- Visually appealing with consistent shape, size and light color appearance

Ingredients: milk protein concentrate, rice starch

Crunchie™ Milk Protein Bites - For snacks and cereal

Ideal for use as a snack or cereal, delivering exceptional texture and a hearty crunch throughout shelf life, customizable in a number of sizes, can be seasoned or coated.

- Made with BarPro® 110 or 120
- >74% high quality milk protein for an extra protein boost
- Clean dairy flavor requiring no masking
- Visually appealing with consistent shape, size and light color appearance

Ingredients: milk protein concentrate, rice starch





Crunchie™ Milk Protein Chips - for snacks

Ideal for a standalone snack chip, delivering exceptional texture and a hearty crunch throughout shelf life, can be seasoned or coated.

- Made with BarPro® 110 or 120
- >74% high quality milk protein for an extra protein boost
- Clean dairy flavor requiring no masking
- Visually appealing with consistent shape, size and light color appearance

Ingredients: milk protein concentrate, rice starch

Bioactives

We find the best solutions to address trending macro health benefits in the market

























MUSCLE SYNTHESIS



































NUTRASOL®

Glanbia Nutritionals Brings You All This and So Much More







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CUSTOM NUTRIENT PREMIXES



BIOACTIVES



PLANT-BASED NUTRITION



ASEPTIC BEVERAGE MANUFACTURING



FLAVORS



MICRONUTRIENT STRAIGHTS



WATSON EDIBLE FILMS



WATSON FUNCTIONALLY OPTIMIZED NUTRIENTS



WATSON BAKERY INGREDIENTS

OUR FULL PORTFOLIO OF SOLUTIONS WORKS
TOGETHER TO INNOVATE YOUR FUTURE PRODUCTS

See what's possible. Just add Glanbia.



For more information on Glanbia Nutritionals' solutions portfolio please visit glanbianutritionals.com.

