

Co-located with:

Health ingredients Europe



2020 shifts in the demand for health ingredients



1-3 December 2020

Frankfurt, Germany



Contents

troduction - State of the market	3
hole dieł approach	4
istest rising functional categories	7
mune support	. 7
ootlight on Covid-19 and immune support	. 9
ealthy bones and joints	. 11
gestive health	. 13
nergy 2.0	14
daptogens	15
ev takegways	17



Innovation at the heart of Europe: **Revealing the** trends of tomorrow



1-3 December 2020 Frankfurt, Germany

30 November -2 December 2021

Paris, France

JOIN US www.figlobal.com/fieurope

(informa markets

Introduction - State of the market

The health and wellbeing market for foods, beverages and supplements is not only about preventing or treating certain health conditions, but also about staying in good health. Eating a healthy diet, coupled with being physically fit, has always been a basic tenet of survival, but the rise of social media over the past ten years has increased the visibility of those who take this more seriously than most, encouraging an increasing number of people to question their idea of healthy living.¹

The concept of 'food as medicine' has also gained ground in recent years, with many consumers preferring to take care of their health by choosing foods and ingredients that they consider beneficial. The question of which foods and ingredients is highly dependent on a number of factors, including life stage, income, education level, underlying health conditions and history of family illness, among others.²

For instance, lifestyle and dietary changes that bring benefits for the brain are credited with cutting dementia rates by up to 15% a decade over the past 30 years, despite fears that the number of people living with dementia is set to increase as the population ages,³ while someone working in an unstable job or with precarious access to healthcare facilities might have a special interest in foods to boost immunity.⁴ Medical conditions like diabetes, high cholesterol, joint pain and loss of mobility, stress, high blood pressure, and digestive complaints are also strong drivers for consumers to change their dietary habits.⁵

It is difficult to pin down the exact size of the health and wellbeing market as it relates to food and nutrition because it overlaps with many other market segments, including personal care, wellness tourism, preventative and personalised medicine and public health. However, in 2017, the Global Wellness Institute (GWI) valued the healthy eating, nutrition and weight loss portion of the wellbeing market at \$702.1 billion and estimated its average annual growth at 4.1%.⁶

This report examines some of the main forces driving the market for foods and ingredients for health and wellbeing, some of the most popular whole diet approaches to improving and maintaining health, as well as the biggest functional food categories and important ingredient trends.



Whole diet approach

While some consumers are drawn to particular ingredients to address specific health concerns, a more holistic approach that takes the entire dietary pattern into account is crucial for overall health and wellbeing. This could mean cutting back on ingredients like saturated fat, added sugar and salt, or consuming more vegetables and whole grains, but global experts broadly agree on what constitutes a healthy diet.

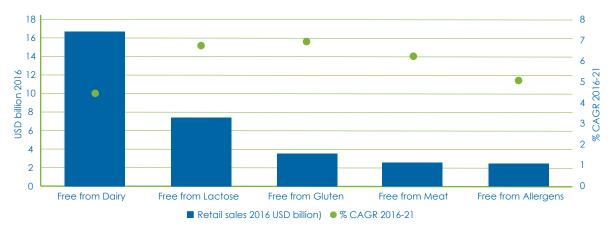
Among the most popular diet plans, keto, paleo and low-FODMAP diets are among those to have gained attention in recent years and may offer benefits for some people. But when it comes to the best diet for overall health and wellbeing for the general population, the Mediterranean diet takes the top spot, according to U.S. News and World Report's annual ranking.⁷

The Mediterranean diet has been linked with a host of benefits, including improved cognitive health, protecting against type 2 diabetes, heart disease, osteoporosis, depression and even some cancers.⁸ Characterised by a high intake of fruit, vegetables, olive oil, fish, nuts, whole grains and legumes, while limiting meat, researchers continue to explore which compounds may be responsible for its many benefits, such as certain fatty acids and polyphenols.⁹ This diet also offers producers the opportunity to address many of the mental health and wellbeing concerns in the more senior age groups.¹⁰



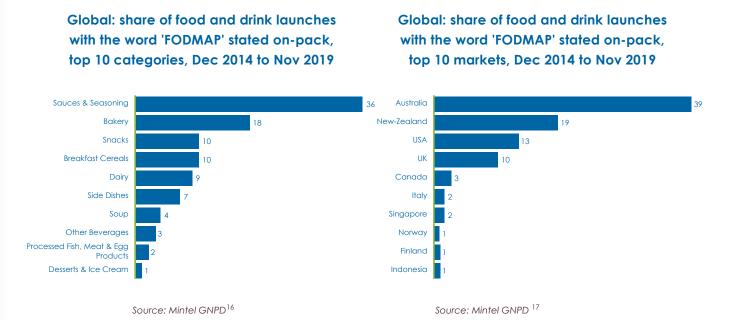
Source: Mintel GNPD¹⁰

Free-from foods also have seen increased demand in consumers' search for health and wellbeing, whether or not they suffer from an allergy.¹¹ Such foods include dairy-free, gluten-free and lactose-free, but often overlap with other diet plans, such as keto and paleo. And free-from foods are often associated with gut health, as certain ingredients are thought to trigger digestive complaints in some people. These might include lactose, gluten or FODMAPs (Fermentable Oligo-, Di-, Mono-saccharides And Polyols), for example.



Source: Euromonitor ¹²

Low-FODMAP is a dietary pattern intended to address digestive discomfort caused by irritable bowel syndrome (IBS), thought to affect as many as one in seven people worldwide.¹³ Based on research from Monash University in Melbourne, Australia, IBS sufferers are advised to follow the low-FODMAP diet for two to six weeks to allow the gut to heal, before returning to their usual eating habits, while avoiding specific high-FODMAP foods.¹⁴ Results from randomised clinical trials suggest this approach is effective for three-quarters of those with IBS.¹⁵



The current popularity of both paleo and keto diets warrants a mention.¹⁸ Paleo diet principles involve avoiding grains and other foods that would not have been available to our Palaeolithic ancestors, while the keto diet is based on the idea of restricting carbohydrates while boosting fats, to encourage the body to use energy from fat instead of glucose from carbohydrates for weight loss.

Those manufacturers offering 'paleo-friendly' products often overlap with other dietary categories, such as gluten-free and raw diets, but the keto diet is currently much more popular. According to Google Trends data, worldwide searches related to the paleo diet peaked in January 2016, while those related to the keto diet peaked three years later. Both diets inspire innovations especially within the snacks market, bringing on-the-go convenient solutions.



Source: Mintel GNPD ¹⁹

Made by True, The Cape Town Classic Biltong comprises air dried and thin cut beef with salt, pepper and coriander. The meat snacks are said to be super tender, tasty, and provide 30% more protein than leading jerky.²⁰



Source: Mintel GNPD ²³

Catering to this specific diet is Rhythm Sea Salt Organic Cauliflower Bites. The keto-friendly bites are made from cauliflower, high oleic sunflower oil and are a good source of fibre and vitamins C and K. Each bag provides 6g of net carbohydrates.²⁴





Source: Mintel GNPD ²¹

Paleonola Dark Chocolate Sea Salt Grain Free Protein Bar is said to be made with real food and simple ingredients, including quality protein and cage free egg whites, and provides 9g protein. It is free from grain, oats, dates, brown rice syrup and sugar alcohol.²²

Source: Mintel GNPD $^{\rm 25}$

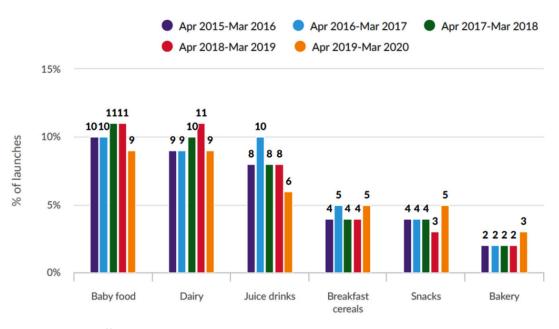
This particular product, like many Keto-friendly items, does not contain sugar or gluten, and promotes its 'good fats', in this case coconut oil MTCs (medium-chain triglycerides).²⁶

Fastest rising functional categories

Functional foods are those that contain ingredients that offer health benefits beyond their nutritional value. The market for such foods is expected to grow at an average annual rate of 7.9% to 2025, according to a recent report from Grand View Research. ²⁷ Among the biggest health categories are those for immune support, healthy bones and joints, digestive health and improved energy levels, according to the Kerry Health and Nutrition Institute. ²⁸

Immune support

Products for immune support are among the most sought-after functional foods and ingredients and including nutrients with approved health claims is a popular strategy. According to Mintel the most popular food categories having claims related to immune health, for the past 5 years, are baby food, dairy and juice drinks.²⁹



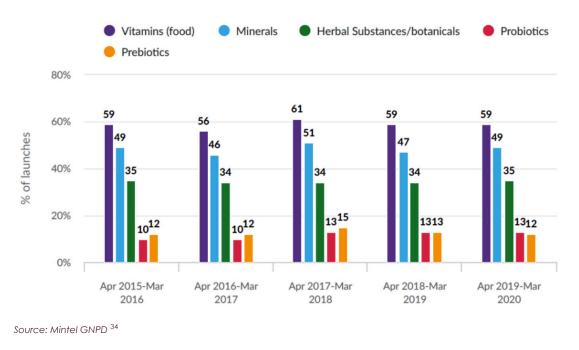
Global: % of launches claiming immunity as a funtional benefit, by catergory, April 2015 - March 2020

Source: Mintel GNPD ³⁰

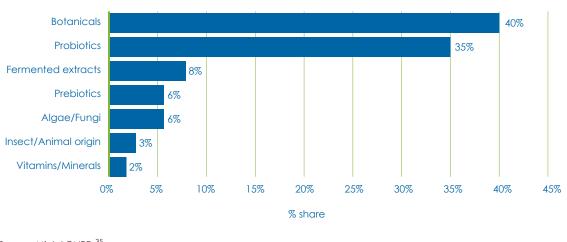
A wide range of vitamins and minerals is backed by strong evidence to help support a healthy immune system, and in their quest for health and wellbeing, immunity is one of the most important areas for consumers when it comes to functional foods and supplements.³¹ However, while a broad range of ingredients has good scientific backing for their contribution to a healthy immune system, there remains significant interest in newer and often less well-proven ingredients, including ayurvedic herbs, mushrooms, apple cider vinegar and probiotics, among others.³²

The most popular ingredients and products for immune support are vitamins and minerals, followed by botanicals, according to Mintel. However, in terms of patented inventions, botanicals are by far the most cited ingredients for claiming to have immune health benefits.³³

Global: % of immunity-enhancing food, drink and healthcare products launches that contain vitamins, minerals, herbal substances/botanicals, probiotics and prebiotics, April 2015 - March 2020



Batanicals are the most frequent ingredients cited in food & drink patens to support immune health.



Global: % share of patent inventions based on immunity-enhancing ingredients, published between 2010-19

Source: Mintel GNPD 35

In terms of marketing strategies, several nutrients have the backing of the European Food Safety Authority (EFSA) when it comes to general immunity claims, meaning that they help ensure the immune system works normally when consumed in sufficient quantities.³⁶ These include vitamins A, B6, B9, B12, C and E, and the minerals zinc, copper, iron and selenium. For all of these nutrients, EFSA considers that a cause and effect relationship has been established between dietary intake and their contribution to the normal function of the immune system.³⁷ Other promising nutrients, including probiotics, have not been successful in convincing EFSA of their efficacy for immune support.³⁸ Nevertheless, many studies have linked increased gut microbial diversity with improved immune regulation,³⁹ and pre- and probiotic-containing products continue to be a major part of the market for immune support.⁴⁰

For food and beverage manufacturers, one approach to immunity positioning is to take advantage of immunity-related health claims by fortifying products with approved nutrients – including in combination with other ingredients, such as herbs and probiotics. Danone reformulated its Actimel probiotic drinking yoghurt, for instance, with vitamins B6 and D in some countries after these nutrients gained EFSA approval for immune benefits.⁴¹ Other popular product formats include soft drinks and teas,⁴² as well as fortified breakfast cereals.

			k healthcare launche claims, by region, Ap	r 2015-Mar 2020)
61				9%	6%
					070
inter a second	Europe	Asia Pacific	North America	Latin America	Middle East & Africa

Source: Mintel GNPD 43

Global insights

Quality insights - innovations - connecting people working on food ingredients and their applications



Spotlight on Covid-19 and immune support

The Covid-19 outbreak has prompted a surge in demand for foods and supplements associated with immune support.⁴⁴ Vitamin C supplements have been particularly sought after, with regional authorities in the Philippines distributing the vitamin to school children,⁴⁵ for example, and supermarket chains in Singapore and China have seen sales increase up to five-fold in February alongside sales of other products associated with immunity, such as Traditional Chinese Medicines and herbal remedies.⁴⁶

In addition, the Chinese government, in conjunction with dairy industry organisations, has underlined its advice that residents should consume the equivalent of 300 grams of liquid milk each day in the hope of improving immune health during the pandemic.⁴⁷ According to the guideline document, average per capita Chinese milk consumption is equivalent to just 24.7 grams per day, and many residents are at risk of nutrient deficiencies that could be addressed by higher milk intakes, including for protein, calcium, vitamin A, vitamin D, magnesium, potassium, iodine, and zinc. It also suggests consuming dairy products fermented by lactic acid or containing pre- and probiotics to improve gut health and cites research into various protein ingredients found in milk for their role in proper immune function.

Other ingredients reportedly seeing increased interest during the pandemic include beta-glucans, a component of dietary fibre found in grains like oats and barley as well as in algae, yeasts and fungi.⁴⁸

Although no quantity of any vitamin or food is able to fight off Covid-19 once a person has been exposed to the virus, good nutrition can help support the normal role of the immune system, meaning it has the tools it needs to respond appropriately.⁴⁹ People suffering from nutritional deficiencies are more likely to suffer from complications from any infection or illness, and poor nutrition is one factor among many that could contribute to an impaired immune response.⁵⁰

Food and supplement manufacturers must take extra care that their products do not make any unapproved implied health claims when it comes to immunity, particularly as regulators worldwide have cracked down on such claims. The US Food and Drug Administration⁵¹ and European Food Safety Authority⁵² are among those to have issued warnings to manufacturers making false claims in relation to the novel coronavirus. GOED, a trade organisation representing the global omega-3 industry, also has warned its members against making claims regarding immunity, whether in general, or specifically referring to Covid-19.⁵³

Euromonitor International has predicted that soft drinks with an immune support positioning are likely to see a longer-term boost as a result of the outbreak, alongside shifting consumer attitudes toward health and wellness.⁵⁴

Healthy bones and joints

Ageing populations and changes in lifestyle, such as obesity and lack of physical activity, are likely to drive increased prevalence of bone and joint problems, according to the World Health Organization.⁵⁵

Glucosamine and chondroitin have dominated the market for joint health supplements for years,⁵⁶ but a new wave of ingredients is emerging, including collagen peptides, turmeric (curcumin), green lipped mussel extracts, and various anti-inflammatories such as the botanical ingredient Boswellia serrata and pine bark extract.⁵⁷ For strong bones, consumers are moving beyond mainstay nutrients like calcium and vitamin D to prevent bone loss, and are looking for novel ways to preserve bone density, especially into old age. ⁵⁸

Collagen peptides – otherwise known as hydrolysed collagen – are among those ingredients attracting the most attention for joint and bone health⁵⁹. Nathan Gray is Science & Technology Director at the Trust Transparency Center and leads its Collagen Stewardship Alliance, which aims to dispel confusion around collagen ingredients. According to Gray:

"The most-complete research on collagen focuses on joint health. Going to the early 1990s, studies have linked collagen supplementation with reduced symptoms of arthritis. Research suggests that taking hydrolysed collagen reduces joint pain after exercise and boosts the density of your cartilage, making joints more flexible."

Globally, the collagen market is projected to reach \$7.5 billion by 2027. 60



Source: Mintel GNPD 61

Anlene Chocolate Powdered Milk Drink has been reformulated with a new formula that is specially developed for adults of all ages. It contains vitamins B2, B6, B12, C, D and E, magnesium, zinc and collagen which is a main component of cartilage found in the joints and a good joint cartilage is important to support smooth and flexible movement.⁶²

Gray cites studies suggesting potential for collagen peptide supplementation in reducing the pain of osteoarthritis,⁶³ improving joint pain after exercise,⁶⁴ and increasing bone density in postmenopausal women.⁶⁵ However, the researchers in each case acknowledged that study sizes were too small to be conclusive and called for further research.

Turmeric – and curcumin more specifically – also has gained a lot of traction in the bone and joint health space for its purported anti-inflammatory effects, especially for the relief of joint pain. On average, about 3% of turmeric powder is curcumin and other curcuminoid compounds (80% curcumin, 18% demethoxycurcumin and 2% bisdemethoxycurcumin),⁶⁶ which are promoted as responsible for turmeric's health benefits. Most commercially available extracts are sold with a standardised curcuminoid content of 95%.⁶⁷

A recent meta-analysis concluded that several randomised controlled trials support turmeric extracts for alleviating joint pain, but noted that more, larger studies were needed to draw any definitive conclusions.⁶⁸



Source: Lipton 69

Send in the soothing with Lipton Terrific Turmeric herbal tea featuring turmeric, ginger & orange. For centuries, the Ayurvedic tradition has praised Turmeric for its role in aiding digestion and supporting joint movement.⁷⁰





Source: Rebbl 71

Revitalizing and body-harmonizing, Turmeric Golden-Milk is soulfully crafted with coconut-milk, turmeric, ginger, and forest honey.⁷²

The market for bone and joint health supplements is projected to grow at a CAGR of 6.6% from 2019 to 2025, according to Mordor Intelligence,⁷³ and there may be additional opportunities in convenient, on-the-go formats, such as gummies, tasteless powders that dissolve in foods and beverages, shots and single-serving size sticks.⁷⁴



Digestive health

Probiotics have been the star ingredients in the digestive health category for more than a decade, and the market continues to grow, even in Europe,⁷⁵ where they have been denied any approved health claims.⁷⁶ More recently, prebiotics have come to the fore, with the message of providing food for 'friendly bacteria' – i.e. probiotics. However, as researchers' understanding of the microbiome has increased, so has the number of potential candidates for effective gut health ingredients.



Paul Cotter is Head of Teagasc's Food Biosciences Department and a Principal Investigator with APC Microbiome Ireland. According to Cotter;

"Fermented foods are attracting renewed interest in the Western world and have been consistently consumed at high levels in other parts of the globe. Fermented foods and fermentates – powdered ingredients made from fermented products – are among the most interesting products from a digestive health perspective. Many such foods possess multiple benefits including containing health promoting strains, prebiotics and postbiotics."

Fermented foods that have started to enter the mainstream now go far beyond yoghurts, to include fermented vegetables like sauerkraut and kimchi, fermented soy products like Japanese natto and Indonesian tempeh, and the fermented tea kombucha. The range of more specialist fermented products, like fermented juices, protein and cereal products is steadily expanding in specialist channels.⁷⁷



Source: Mintel GNPD ⁷⁸

Shimmy Shimmy Coconut Coconut Kefir Water is described as a fresh, unique mix of pure coconut water fermented and fizzing with active and gut balancing good bacteria which has over eight billion probiotics.⁷⁹

However, Cotter warned that mass production of fermented foods presents challenges when it comes to delivering real benefits to the general public. Cotter said;

"Some of the attributes of artisanal fermented foods are not always translated when such foods are mass produced. Research needs to focus increasingly on scaling up in a manner that ensures such benefit s are retained." According to a recent report from BIS Research, the global market for fermented foods has entered its main commercialisation phase, and is set for strong growth to 2023, particularly in Europe, with Germany and the UK leading the way in new market opportunities.⁸⁰

Glenn Gibson, professor of Food Microbiology at the University of Reading, corroborates that probiotics and prebiotics still hold the greatest potential for improved digestive health.

"The large body of scientific evidence exists for pro- and prebiotics, so conditions like gastroenteritis, Inflammatory Bowel Diseases, Irritable Bowel Syndrome (IBS) cardiometabolic health, cognitive function and mineral bioavailability can be better managed," he said.

Energy 2.0

The energy category is still dominated by sugary, caffeine-boosted drinks,⁸¹ but a new breed of energy products is starting to make headway, as millennial consumers in particular seek more natural, clean label products to help them in their work and leisure time.

In Mintel's most recent executive summary on energy drinks,⁸² senior beverage analyst Caleb Bryant wrote;

"Sugar-free and fitness-focused energy drinks are thriving as consumers want beverages that provide a big boost without the sugar. Energy drink brands have enjoyed fairly consistent year-over-year growth; however, waning interest in energy drinks among Gen Z is a long-term issue brands need to address."

Artificial ingredients are a big part of the problem for these consumers in particular, as market research from Mintel suggests a majority of consumers across Europe would like to see energy drinks made with natural ingredients.⁸³ And in Germany, for instance, 41% of consumers said they would pay more for drinks made with only natural energy boosters in a 2015 survey.⁸⁴

Such ingredients could include natural caffeine sources, such as green tea, yerba mate, green coffee bean extract and guarana, which respond to interest in natural ingredients while still increasing alertness, as well as other ingredients for natural energy, such as ginseng, B vitamins and baobab fruit pulp.⁸⁵

However, a new approach to energy has emerged; products for better sleep and relaxation have also started to gain traction, as more consumers recognise that proper rest is crucial to balance the energy equation. Increasingly, energy is not about creating a quick-acting, fast-burning buzz, but rather about optimising energy levels for every task. Thus, nootropics – ingredients and products for brain health – have become an important market, valued at \$1.96 billion globally in 2018 and expected to grow at a CAGR of 13.2% to reach \$5.32 billion by 2026.⁸⁶



Source: Mintel GNPD 87

Shine+ Extra Strength Wild Tropical Flavoured Nootropic Drink is said to fuel and sharpen the mind. It is made from at least 93% Australian ingredients and natural nootropics including ginkgo biloba, turmeric, green coffee bean, L-theanine and green tea. This vegan and low sugar product contains no artificial sweeteners, preservatives and gluten. ⁸⁸

These cover products that claim to improve cognitive function in many ways, including memory enhancement, mood and depression, focus and attention, sleep and recovery, and anxiety, but there is significant overlap with the energy market.⁸⁹ Consumers are turning to more natural solutions for energy itself, but also for relaxation as the opposite side of the same coin, or to improve focus at times when they feel they need to avoid an afternoon slump and remain productive at work, for example.



Source: Mintel ⁹⁰

VitaMe Unwind Litchi-Mint Flavoured Nutrient Enriched Water is a low calorie, nonalcoholic and non-carbonated water-based drink designed for anti-stress, mood elevation and as a sleep aid. This ready to drink product contains I-theanine, chamomile extract, zinc, multivitamins and fructose, is free from artificial colourings, flavourings and preservatives, and is said to help soothe nerves.⁹¹

Natural ingredients of interest include pine bark extract,⁹² lion's mane mushrooms, which have been studied for their potential anti-fatigue effects,⁹³ and the antioxidants in cocoa, known as flavanols. The latter have been in the spotlight for their brain health potential for a number of years, and the strength of the evidence for their efficacy is arguably stronger than for many other ingredients.

For manufacturers looking to introduce nootropic products to the market, the delivery format is also important. Taste is a primary consideration for any food or beverage, but many nootropic manufacturers stumble in developing a truly healthy product that is not high in caffeine or sugar.⁹⁴

Adaptogens

Apart from ingredients for specific health categories, ingredients referred to as adaptogens are also on the rise, referring mainly to botanicals and fungi that are thought to help the body adapt to demands placed on it by internal and external stressors. The theory is that they work with the adrenal glands in their response to stress, to help everything from the immune system to the mind to energy levels.⁹⁵

Proponents suggest certain adaptogens are better suited to certain desired effects, with Asian ginseng,⁹⁶ holy basil,⁹⁷ and ashwagandha,⁹⁸ recommended for long-term stress, ginseng and rhodiola for physical stamina and sexual health,⁹⁹ and schisandra,¹⁰⁰ for gastrointestinal problems. Small studies have also linked reishi, cordyceps and lion's mane mushrooms to immune response.¹⁰¹

Such ingredients are emerging as an important area for premium teas,¹⁰² often alongside other botanicals and in adaptogenic blends, or with CBD oil and ayurvedic ingredients.



Source: Mintel GNPD ¹⁰³

GT's Living Foods Alive Maté Mint Adaptogenic Tea is made with whole ingredients, including reishi, chaga and turkey tail mushrooms, and is described as an alive, earthy, lightly sparkling tea with adaptogenic properties to recenter the mind, restore the body and revitalize the spirit.¹⁰⁴



Source: Mintel GNPD 105

Healthy Coffee Guy Calm Ground Decaf Coffee is described as a scientifically formulated, medium roasted and decaffeinated coffee made with natural relaxing adaptogens including ashwagandha and L-theanine to relax the mind and the body.¹⁰⁶



Source: Atlas Bars 107

Keto-friendly and low-carb, Atlas Protein Bars also contain an adaptogen blend of ashwagandha extract and maca root powder.¹⁰⁸

According to Transparency Market Research, adaptogens could reach a market value of about \$23.4 billion by the end of 2030,¹⁰⁹ with particular potential in premium beverages, teas, trail mixes and lattes.

Key takeaways

- Experts rate the Mediterranean diet as the world's healthiest dietary pattern. It could be especially alluring for the elderly looking to maintain their cognitive and cardiovascular health
- Free-from diets are growing fast, including for people without food allergies
- Products for immune support are among the most sought-after functional foods and ingredients, and including nutrients with approved health claims is a popular strategy
- Collagen peptides and turmeric extracts are among the biggest up-and-coming ingredients for joint and bone health
- Probiotics, prebiotics and fermented foods still hold the greatest potential for improved digestive health
- The energy market is evolving to include products that improve focus and sleep quality
- For energy, global consumers are shifting toward natural, caffeine-free, low-sugar products

The information provided here was compiled with due care and up to date to the best of our knowledge on publication.



Sources

- ¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6064151/
- ² https://www.eufic.org/en/healthy-living/article/the-determinants-of-food-choice
- ³ https://www.alzheimersresearchuk.org/international-
- research-shows-dementia-rates-falling-by-15-per-decadeover-last-30-years/
- ⁴ https://nutrition.org/the-role-of-nutrition-in-supporting-theimmune-system-relative-to-coronavirus-covid-19/
- ⁵ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4814348/
- ⁶ https://globalwellnessinstitute.org/press-room/statisticsand-facts/
- ⁷ https://health.usnews.com/best-diet/best-healthy-eatingdiets
- ⁸ https://www.health.harvard.edu/blog/adopt-a-mediterranean-diet-now-for-better-health-later-201311066846
- °https://www.researchgate.net/publication/335548583_
- The_Mediterranean_Diet_a_Rich_Source_of_Angiopreventive_Compounds_in_Cancer
- ¹⁰ https://clients.mintel.com/trend/dive-into-the-latest-diet-tr ends?fromSearch=%3Ffreetext%3DMediterranean%2520d iet
- ¹¹ https://blog.euromonitor.com/bright-future-for-free-fromfood-movement/
- ¹² https://blog.euromonitor.com/bright-future-for-free-fromfood-movement/
- ¹³ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4367204/
 ¹⁴ https://www.monashfodmap.com/ibs-central/i-have-ibs/ starting-the-low-fodmap-diet/
- ¹⁵ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4918736/
- ¹⁶ https://clients.mintel.com/trend/allergies-and-intolerances-free-from-dieting-trends?fromSearch=%3Ffreetext%3Dfr ee%2520from
- ¹⁷ https://clients.mintel.com/trend/allergies-and-intolerances-free-from-dieting-trends?fromSearch=%3Ffreetext%3Dfr ee%2520from
- ¹⁸ https://www.ucihealth.org/blog/2018/01/fad-diets
- ¹⁹ https://clients.mintel.com/report/a-year-of-innovation-insalty-snacks-fruit-mixes-2020?fromSearch=%3Ffreetext%3D paleo
- ²⁰ https://clients.mintel.com/report/a-year-of-innovation-insalty-snacks-fruit-mixes-2020?fromSearch=%3Ffreetext%3D paleo
- ²¹ https://www.gnpd.com/sinatra/recordpage/7590525/? utm_source=fed_search
- ²² https://www.gnpd.com/sinatra/recordpage/7590525/? utm_source=fed_search
- ²³ https://clients.mintel.com/report/a-year-of-innovation-insalty-snacks-fruit-mixes-2020?fromSearch=%3Ffreetext%3D paleo
- ²⁴ https://clients.mintel.com/report/a-year-of-innovation-insalty-snacks-fruit-mixes-2020?fromSearch=%3Ffreetext%3D paleo
- ²⁵ https://clients.mintel.com/innovative-product/glanbia-sslimfast-keto-peanut-butter-cup-fat-bombs
- ²⁶ https://clients.mintel.com/innovative-product/glanbia-sslimfast-keto-peanut-butter-cup-fat-bombs
- ²⁷ https://www.grandviewresearch.com/press-release/global-functional-foods-market
- ²⁸ https://khni.kerry.com/trends-and-insights/ten-key-healthand-nutrition-trends-of-this-year/

- ²⁹ https://clients.mintel.com/report/patent-watch-boostingimmune-health-a-future-focus?fromSearch=%3Ffreetext%3 Dimmunity%2520boosting%2520claim
- ³⁰ https://clients.mintel.com/report/patent-watch-boostingimmune-health-a-future-focus?fromSearch=%3Ffreetext%3 Dimmunity%2520boosting%2520claim
- ³¹ https://khni.kerry.com/trends-and-insights/ten-key-healthand-nutrition-trends-of-this-year/
- ³² https://www.naturalproductsinsider.com/healthy-living/ immune-health-ingredients
- ³³ https://clients.mintel.com/report/patent-watch-boostingimmune-health-a-future-focus?fromSearch=%3Ffreetext%3 Dimmunity%2520boosting%2520claim
- ³⁴ https://clients.mintel.com/report/patent-watch-boostingimmune-health-a-future-focus?fromSearch=%3Ffreetext%3 Dimmunity%2520boosting%2520claim
- ³⁵ https://clients.mintel.com/report/patent-watch-boostingimmune-health-a-future-focus?fromSearch=%3Ffreetext%3 Dimmunity%2520boosting%2520claim
- ³⁶ https://ec.europa.eu/food/safety/labelling_nutrition/ claims/register/public/?event=search
- ³⁷ https://ec.europa.eu/food/safety/labelling_nutrition/ claims/register/public/?event=search
- ³⁸ https://ec.europa.eu/food/safety/labelling_nutrition/ claims/register/public/?event=search
- ³⁹ https://www.frontiersin.org/articles/10.3389/fimmu.2018.01830/full
- ⁴⁰ https://www.euromonitor.com/probiotics-evolution-ofdigestion-and-immune-support-probiotics-part-one/report
- ⁴¹ https://www.nutraingredients.com/Article/2012/10/15/ EU-immunity-health-claims-Reformulate-or-reposition-towin-growth#
- ⁴² https://www.euromonitor.com/infused-with-purpose-herbal-teas-and-the-pursuit-of-wellness/report
- ⁴³ https://clients.mintel.com/report/patent-watch-boostingimmune-health-a-future-focus?fromSearch=%3Ffreetext%3 Dimmunity%2520boosting%2520claim
- ⁴⁴ https://www.newhope.com/news/demand-dietary-supplements-spikes-coronavirus-spreads
- ⁴⁵ https://cebudailynews.inquirer.net/293440/doh-7-to-buyvitamin-c-supplements-for-public-school-children
- ⁴⁶ https://www.ingredientsnetwork.com/covid19-boostsimmune-support-market-news082894.html
- ⁴⁷ https://www.dac.org.cn/read/newgndt-20022610362632810758.jhtm
- ⁴⁸ https://www.foodingredientsfirst.com/news/smart-snacking-for-kids-fortified-fruit-pouches-featuring-movie-characters-unveiled.html
- ⁴⁹ https://www.ncbi.nlm.nih.gov/pubmed/9250133
- ⁵⁰ https://www.ncbi.nlm.nih.gov/pubmed/9250133
- ⁵¹ https://www.fda.gov/news-events/press-announcements/ coronavirus-update-fda-and-ftc-warn-seven-companiesselling-fraudulent-products-claim-treat-or
- ⁵² https://ec.europa.eu/info/live-work-travel-eu/consumers/ enforcement-consumer-protection/scams-related-covid-19_en
- ⁵³ https://goedomega3.com/storage/app/media/scientificreports/GOED%20Advisory%20-%20Immunity%20Claim%20 -%202020%2003.pdf
- ⁵⁴ https://www.euromonitor.com/the-impact-of-coronaviruson-soft-drinks/report

⁵⁵ http://www9.who.int/bulletin/volumes/81/9/Woolf.pdf

- ⁵⁶ https://apnews.com/5528c08f1024486ebf2cc8619c46041c
 ⁵⁷ https://www.naturalproductsinsider.com/healthy-living/
- beyond-glucosamine-and-chondroitin-joint-health ⁵⁸ https://www.persistencemarketresearch.com/market-
- research/bone-and-joint-health-supplements-market.asp ⁵⁹ https://www.nutraceuticalsworld.com/issues/2016-03/
- view_features/breaking-into-the-bone-joint-health-markets/
- ⁶⁰ https://www.grandviewresearch.com/press-release/global-collagen-market
- ⁶¹ https://www.gnpd.com/sinatra/
- recordpage/7599143/?utm_source=fed_search ⁶² https://www.gnpd.com/sinatra/
- recordpage/7599143/?utm_source=fed_search
- ⁶³ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2764342/ ⁶⁴ https://www.ncbi.nlm.nih.gov/pubmed/18416885
- ⁶⁵ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5793325/
- ⁶⁶ https://www.ncbi.nlm.nih.gov/pubmed/17044766
- ⁶⁷ https://www.curcuminforhealth.com/faqs/
- ⁶⁸ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5003001/
- ⁶⁹ https://www.lipton.com/us/en/our-teas/lipton-terrificturmeric.html
- ⁷⁰ https://www.lipton.com/us/en/our-teas/lipton-terrificturmeric.html
- ⁷¹ https://shop.rebbl.co/collections/super-herb-elixirs/products/turmeric-golden-milk-super-herb-elixir
- ⁷² https://shop.rebbl.co/collections/super-herb-elixirs/products/turmeric-golden-milk-super-herb-elixir
- ⁷³ https://www.mordorintelligence.com/industry-reports/ global-bone-and-joint-health-supplements-market
- ⁷⁴ http://www.iontec-europe.com/2018/02/06/marketinsight-opportunities-bone-and-joint-health/
- ⁷⁵ http://internationalprobiotics.org/download/20120-03-euromonitor-ipa-european-probiotics-market/
- ⁷⁶ https://www.europarl.europa.eu/doceo/ document/E-8-2017-004201_EN.html
- ⁷⁷ https://www.ingredientsnetwork.com/the-maturing-trendfor-fermented-foods-news079656.html
- ⁷⁸ https://www.gnpd.com/sinatra/recordpage/6938051/
- ⁷⁹ Shimmy Shimmy Coconut Coconut Kefir Water is described as a fresh, unique mix of pure coconut water fermented and fizzing with active and gut balancing good bacteria which has over eight billion probiotics.
- ⁸⁰ https://www.bccresearch.com/partners/bis-marketresearch/global-fermented-food-and-ingredients-market. html#scope_data
- ⁸¹ https://www.caffeineinformer.com/the-15-top-energydrink-brands
- ⁸² https://academic.mintel.com/display/919296/#
- ⁸³ https://www.mintel.com/press-centre/food-and-drink/ half-of-europeans-want-to-see-more-naturally-flavouredenergy-drinks
- ⁸⁴ https://www.mintel.com/press-centre/food-and-drink/ half-of-europeans-want-to-see-more-naturally-flavouredenergy-drinks
- ⁸⁵ https://www.ingredientsnetwork.com/energy-drink-makers-turn-to-botanicals-for-a-more-news074228.html
- ⁸⁶ https://www.globenewswire.com/news-release/2020/02/19/1987135/0/en/Nootropics-Market-To-Reach-USD-5-32-Billion-By-2026-Reports-And-Data.html

- ⁸⁷ https://www.gnpd.com/sinatra/
- recordpage/7593273/?utm_source=fed_search ⁸⁸ https://www.gnpd.com/sinatra/
- recordpage/7593273/?utm_source=fed_search ⁸⁹ https://www.globenewswire.com/news-release/2020/02/19/1987135/0/en/Nootropics-Market-To-
- Reach-USD-5-32-Billion-By-2026-Reports-And-Data.html % https://www.gnpd.com/sinatra/recordpage/3150057/
- ⁹¹ https://www.gnpd.com/sinatra/recordpage/3150057/
- ⁹² https://www.prnewswire.com/news-releases/study-showsdaily-use-of-pycnogenol-can-improve-memory-focusdecision-making-and-mood-300023604.html
- ⁹³ https://www.degruyter.com/view/journals/jcim/10/1/ article-p253.xml
- ⁹⁴ https://www.mic.com/p/what-are-nootropics-drinks-dothey-actually-work-19428018
- ⁹⁵ https://naturalfactors.com/articles/an-in-depth-look-atadaptogens/
- % https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5628357/
- ⁹⁷ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4296439/
- ⁹⁸ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3573577/
- ⁹⁹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3861174/
- ¹⁰⁰ https://www.ncbi.nlm.nih.gov/pubmed/25862968
- ¹⁰¹ https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4684115/
 ¹⁰² https://www.specialtyfood.com/news/article/the-republic-of-tea-introduces-13-innovative-teas-at-the-2019-winter-fancy-food-show-125608/
- ¹⁰³ https://www.gnpd.com/sinatra/recordpage/6650591/ from_search/lacYe72fhG/?page=1
- ¹⁰⁴ https://www.gnpd.com/sinatra/recordpage/6650591/ from_search/lacYe7ZfhG/?page=1
- ¹⁰⁵ https://www.gnpd.com/sinatra/recordpage/7134407/ from_search/lacYe7ZfhG/?page=1
- ¹⁰⁶ https://www.gnpd.com/sinatra/recordpage/7134407/ from_search/lacYe7ZfhG/?page=1
- ¹⁰⁷ https://www.ift.org/news-and-publications/food-technology-magazine/issues/2019/december/columns/stresssoothers
- ¹⁰⁸ https://www.ift.org/news-and-publications/food-technology-magazine/issues/2019/december/columns/stresssoothers
- ¹⁰⁹ https://www.transparencymarketresearch.com/adaptogens-market.html



