

SPORTS & LIFESTYLE

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NUTRITION NEWSLETTER

Immunity
focus





Immunity & active nutrition market trends

In the current environment there is growing interest in products for immunity. This is not just the result of Covid-19, but also the increasing prevalence of lifestyle-related diseases.

In this newsletter, we will show how functional nutrition can help boost the body's immune and anti-oxidant systems, improving its defences against external threats and producing the antibodies necessary for a healthy life.

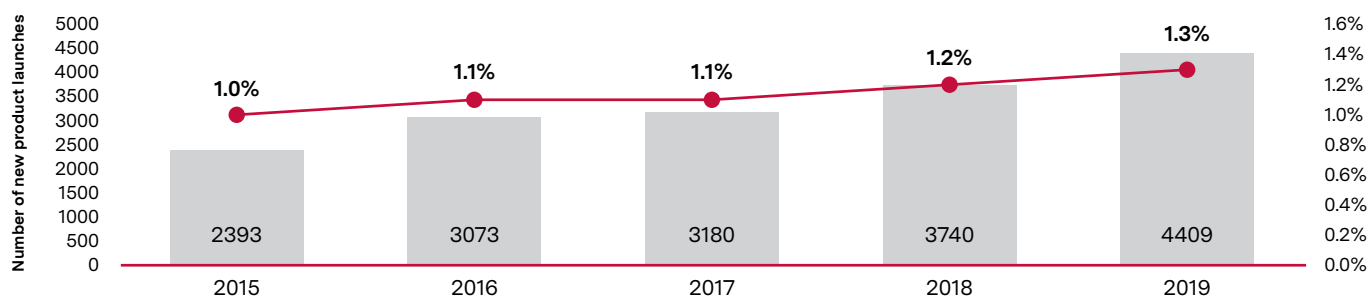
Immune system

The immune system is our protection against threats such as bacteria, viruses and parasites. It is composed of many different networks of cells, organs, proteins and tissues. Once a specific antigen is identified, immunoglobulins acting as antibodies lock onto it and then summon other cells to kill it.¹

Nutrition to boost immunity

Nutrition plays a central role in immunity - one which goes far further than taking vitamins in the flu season. Studies² have shown that deficiencies in zinc, selenium, iron, copper, folic acid, and vitamins A, B6, C, D, and E can alter immune responses. Furthermore, many herbs have been proven to be beneficial to the system. Echinacea, for example, can help fight influenza viruses.

As consumers become savvier, there are positive impacts on the food and nutrition industries. As Innova Market Insights³ has reported, there is growing interest in products targeting immune health: in Europe, 2019 saw a 52.3% increase in launches of new food and beverage products with an immune health claim. Globally, the sports nutrition category led the way with a 34.5% increase in product launches targeting immune health. The global growth for all categories per year can be seen in the graph below:

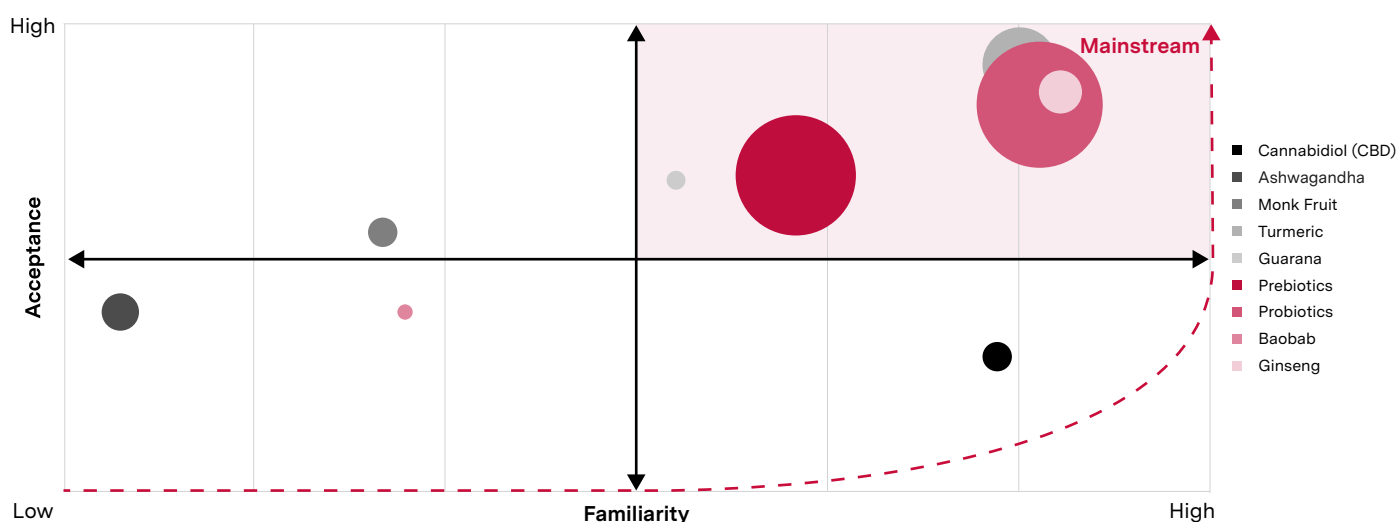


Graph 1: Number of new F&B launches tracked featuring an immune health claim and share as percentage (%) of total Food & Beverage (Global)

Three areas of particular interest are:

1. **Vitamins/Minerals:** which represent 39% of all immune health supplement launches.
2. **Probiotics:** (living microorganisms which improve the immune system, for example by interacting with gut mucosa) Probiotic supplement launches tripled between 2015 and 2019, with a 17% increase in new products targeting gut health and the immune system.
3. **Natural Boost:** 2019 saw a 15.5% increase in new product launches of botanical and herbal supplements with an immune health claim.

Research⁴ shows that consumers recognise many ingredients for immune health, and their consumption has increased over the past year:



Graph 2: Consumer acceptance of and familiarity with selected ingredients used in immune health products (Global, 2019).

Prinova offers a variety of ingredients and added-value solutions to help you formulate products for the immune system. We will now review a number of these on-trend ingredients.





Vitamin D for immunity support

The vitamin and mineral claims on products influence the purchasing decisions of three in five consumers. Fourteen per cent of new product launches with an immune health claim also have a “vitamin and mineral-fortified” claim and this number grows to 39% in the supplements category.³

Fat-soluble vitamin D plays a role in modulating the immune system due to its effect on innate immune cells (such as monocytes and macrophages).⁵ Immunity is enhanced by the production of endogenous antimicrobial peptides in monocytes, increasing their activity. Vitamin D has been shown to modulate immunity by inhibiting the production of cytokines, IL-2 and INF- γ .

Prinova offers Vitamin D3 and D2 in different potencies:

D3:	D2:
1 Million IU/g (Cholecalciferol) in oil (Corn, MCT, Sunflower Oil).	1 Million IU/g (Ergocalciferol) in oil (Corn, MCT, Sunflower Oil).
100.000 IU/g (Cholecalciferol) powder, water-dispersible.	100.000 IU/g (Ergocalciferol) powder, water-dispersible.

Prinova's European-produced Vitamin D3 and D2 products offer many benefits, including water-dispersibility and temperature-stability. They are also nanoparticle-free & our D2 is vegan source of vitamin D.

Furthermore, they meet all the highest regulatory standards worldwide and can be used in a range of different applications, including:

- Infant Nutrition
- Supplements
- Dairy
- Beverages
- Oil Fortification
- Functional Nutrition
- Nutraceuticals
- Cereals



Immunity formulations from Prinova

Prinova's bespoke premixes can help you create your next winning product.
Here are some examples of our standard premixes for immune health:

Basic -

Mix 5.5g sample with 200ml of water & shake well.

NUTRITIONAL INFORMATION	PER SERVE	%NRV
L-Glutamine	3000 mg	-
Vitamin C (as Ascorbic Acid)	1000 mg	1,250.00 %
N-Acetyl L-Cysteine	400 mg	-
Zinc (as Zinc Oxide)	20 mg	200.00 %
Vitamin E (as dl- α -Tocopheryl Acetate)	8 mg TE	66.67 %
Copper (as Copper Gluconate)	1 mg	100.00 %
Vitamin A (as Retinyl Acetate)	500 mcg RE	62.50 %
Selenium (as Sodium Selenite)	35 mcg	63.64 %
Vitamin D3 (as Cholecalciferol)	10 mcg	200.00 %

- NRV not established

Ingredients:

L-Glutamine, Ascorbic Acid, N-Acetyl L-Cysteine, Orange Flavouring, Vitamin E (as dl- α -Tocopheryl Acetate), Zinc (as Zinc Oxide), Acids: Citric Acid, Malic Acid, Sweetener: Sucralose, Colour: Beta Carotene, Copper (as Copper Gluconate), Vitamin A (as Retinyl Acetate), Selenium (as Sodium Selenite), Vitamin D3 (as Cholecalciferol).

CLAIMS:	USPs:
Vitamin A, C, D, Copper, Selenium & Zinc contribute to the normal function of the immune system.	Comprehensive formulation containing vitamins and minerals to support immune function.
Vitamin C contributes to maintenance of normal immune system function during and after intense physical exercise.	L-Glutamine to support the intestinal immune system.
	N-Acetyl L-Cysteine to aid glutathione production, leading to antioxidant effects.

Premium -

Mix 6g serving size with 200ml of water & shake well.

NUTRITIONAL INFORMATION	PER SERVE	%NRV
L-Glutamine	3000 mg	-
Vitamin C (as Ascorbic Acid & Acerola Extract)	1000 mg	1,250.00 %
N-Acetyl L-Cysteine	400 mg	-
Saberry™	100 mg	-
Elderberry Extract	50 mg	-
Calcium (as Aquamin F™ mineral complex (Red algae Lithothamnion sp))	32 mg	4.00 %
Zinc (as Zinc Oxide)	20 mg	200.00 %
Vitamin E (as dl- α -Tocopheryl Acetate)	8 mg TE	66.67 %
Magnesium (as Aquamin F™ mineral complex (Red algae Lithothamnion sp))	2.2 mg	0.59 %
Copper (as Copper Gluconate)	1 mg	100.00 %
Vitamin A (as Retinyl Acetate)	500 mcg RE	62.50 %
Selenium (as Selenium SeLECT™)	35 mcg	63.64 %
Vitamin D3 (as Cholecalciferol (Vegan))	10 mcg	200.00 %

- NRV not established

Ingredients:

L-Glutamine, Ascorbic Acid, N-Acetyl L-Cysteine, Orange Flavouring, Vitamin E (as dl- α -Tocopheryl Acetate), Zinc (as Zinc Oxide), Acid: Citric Acid, Acerola Extract, Saberry™ (Emblica officinalis Extract), Aquamin F™ (Lithothamnion sp), Acid: Malic Acid, Sweetener: Sucralose, Elderberry Extract, Colour: Beta Carotene, Copper (as Copper Gluconate), Vitamin A (as Retinyl Acetate), Vitamin D3 (as Cholecalciferol), Selenium (as Selenium SeLECT™).

CLAIMS:	USPs:
Vitamin A, C, D, Copper, Selenium & Zinc contribute to the normal function of the immune system.	Comprehensive formulation containing vitamins, minerals and berry extracts to support immune function.
	Vitamin C from acerola.
	L-Glutamine to support the intestinal immune system.
Vitamin C contributes to maintenance of normal immune system function during and after intense physical exercise.	N-Acetyl L-Cysteine to aid glutathione production, leading to antioxidant effects.
	Berry complex of Saberry™, acerola extract & elderberry extract to give a strong antioxidant profile.
	Aquamin™ to aid digestive health and hydration by providing a plant based source of calcium, magnesium & 72 trace minerals.
	Suitable for vegans.





From the sea: Aquamin

Seaweed⁵ is an on-trend source of vitamins, minerals and other functional ingredients and is attracting interest in the immunity space. In Asia, for example, some seaweed species have been used to address conditions such as nausea, congestion and inflammation. According to Innova Market Insights: “with a high fiber content and various antioxidant, antimicrobial and immunostimulating capacities, seaweed is a natural resource that has a huge potential to be exploited in the health & nutrition market.”

Aquamin is a marine-derived multi-mineral complex with high content of calcium and magnesium, as well as 72 other trace minerals from the cell wall of the Lithothamnion species of seaweed. Aquamin possesses unique attributes that can help maintain healthy bone formation and also enhance gut health.

A recent study⁶ demonstrated Aquamin’s effect on Inflammatory Bowel Disease (IBD) and the reduction of inflammation in the gut. The results showed a reduction in mortality and disease activity along with significant reductions in several markers of inflammation including IL-1, TNF and IL-2. This is due to Aquamin’s properties as an excellent carrier for probiotic bacteria.

To find out more about the Aquamin range click [here](#). If you would like to order a sample, click [here](#).

Sabinsa products

Prinova is the European distributor for Sabinsa's herbal extracts and nutritional ingredients. Details of the full range are available [here](#).

In the first edition of the Sports & Lifestyle Nutrition **newsletter** we listed all the benefits of Curcumin (Curcumin C3®). This is a powerful antioxidant which supports a healthy immune system and cardiovascular system. When consumed with Black Pepper (Bioperine®), its absorption is enhanced by at least 30%, and it offers benefits for memory, cognition and metabolism.

Other products in Sabinsa's range include:



Selenium SeLECT®

Containing a minimum of 40% elemental selenium⁸, Selenium SeLECT® is a bioavailable and safe form of selenium for supplements. Unlike other forms of the mineral, it is a unique single chemical entity containing integrated selenium in place of sulphur in the amino acid methionine. It is directly incorporated into proteins in the body.

Selenium is an antioxidant trace mineral and epidemiological studies⁹ have demonstrated its ability to modulate the immune system by increasing the activity of natural "killer cells". It may also stimulate the production of antibodies. Some studies go so far as to say that the "Spanish Flu" epidemic of 1918 and other violent strains of flu may be attributed to mutant viruses abetted by selenium deficiency in the body of the host. Another offering in the range is Selenium SeLECT® 5000, a triturated product with dicalcium phosphate.

To see other products from Sabinsa [click here](#). If you would like to know more or order a sample, [click here](#).



Nigellin™ BCS

Nigella Sativa¹⁰ – popularly known as 'black seed' or 'black cumin' – is a medicinal seed that is believed to have offered healing powers for over 3000 years. It contains more than 100 different chemical constituents, including carbohydrates, proteins, volatile and fixed oils and essential fatty acids. Its main active ingredient is thymoquinone, which has several medicinal properties.

Thymoquinone, together with other components, such as nigellone and alpha-hederin, has been reported⁷ to have anti-histamic, anti-eosinophilic and anti-immunoglobulin properties and to reduce proinflammatory cytokine activity, with benefits for immune system support.

To see other products from Sabinsa [click here](#). If you would like to know more or order a sample, [click here](#).





Shagandha™

Ashwagandha (*Withania somnifera*) is one of the best-known Indian botanicals and is used in Ayurvedic preparations. Recent studies⁷ have shown that bioactive molecules present in ashwagandha may modulate the immune system. One example is Withanolide A, which has an immunostimulatory activity because of its ability to augment mitogen-induced T lymphocyte proliferation.

Shagandha™ is an Ashwagandha Root Extract 2.5% designed to meet the U.S. Pharmacopoeia-National Formulary (USP-NF) monograph and verified by prominent botanical testing labs. It is ideal for endurance and pre-workout products and can help support calmness.

To see other products from Sabinsa **click here**. If you would like to know more or order a sample, **click here**.



Saberry®

Saberry® is a powerful antioxidant¹¹ from the fruit of *emblica officinalis* (*phyllanthus emblica*), popularly known as amla. It is processed in a novel way to retain the natural goodness of the fruit.

A 2009 study on mice¹² demonstrated that Saberry® has an immunomodulatory effect. The results showed a significant increase in total serum protein and serum globulin, which play a role in maintaining homeostasis, regulating inflammatory response and increasing resistance to infection.

In addition, Saberry® is a great source of vitamin C, minerals, amino acids, phyllaemblic acid and other compounds, potentially helping cells that activate immune function produce effector molecules.

To see other products from Sabinsa **click here**. If you would like to know more or order a sample, **click here**.



LactoSpore®

LactoSpore® is a versatile micro-organism (Lactic Acid Bacillus, originally known as *Bacillus coagulans*) which can assist in the maintenance of a normal, healthy gastrointestinal tract. It can also be used to help prevent irritable bowel syndrome.

LactoSpore®¹³ is a probiotic – beneficial live bacteria that line the digestive tract. They can help restore gut microbiome composition, improve nutrient absorption and support brain health. Among many other benefits, probiotics can play a role in supporting the immune system and preventing some allergies. Two studies have demonstrated that the use of lactobacillus can reduce the incidence of atopic eczema, making it useful in the management of allergic skin conditions in infants.⁷

LactoSpore® improves the immune system by interacting with the gut mucosa and mucosal immune system.⁵ Heat-inactivated Lactobacilli are reported to stimulate the functionality of macrophages. ImmunoSpore™ is the heat-inactivated form of LactoSpore® and research indicates that it offers significant immunomodulatory activity.

To see other products from Sabinsa **click here**. If you would like to know more or order a sample, **click here**.

Botanical extracts

The number of botanical and herbal supplements with an immune health claim has grown by 15.5% over the past year. Here are some of the botanical extracts Prinova offers that are targeted to immune system support. To see our full range of botanical extracts, [click here](#). If you would like to know more or order a sample, [click here](#).

Acerola

Acerola¹⁴ is a small juicy fruit which is native to Latin America and has a delicate sweet and sour flavour. This red cherry is a natural source of vitamin C, which is absorbed by the body more easily than synthetic ascorbic acid supplements. It also contains beneficial carotenoids and bioflavonoids and is high in fibre and minerals. Acerola's content of vitamin C and phytochemicals makes it a useful ingredient for the fortification of foods and beverages, as well as nutritional supplements (capsules and tablets) for the immune system.

Rosehip (Rosa Canina)

Rosehips^{15,16} are the bright scarlet fruits of a species of wild rose (*Rosa canina*) native to parts of Europe, Africa and Asia. Studies of rosehips have revealed a number of compounds that are potentially beneficial for the immune system. They contain high levels of lycopene, providing antioxidant protection, and are particularly rich in vitamin C, one of the most popular ingredients for warding off coughs and colds. Additional health benefits include improving the condition of arthritic joints and protecting the skin against free radical damage.

Spirulina

Spirulina¹⁷ is a blue-green micro-algae which grows in alkaline water and is widely used as a dietary supplement (in tablet, flake and powder form). It has a highly unusual nutritional profile with 10 times more beta carotene than carrots and 62% amino acid content. It is also the world's richest natural source of Vitamin B-12 and is high in phycocyanins, which give it its characteristic colour and affect the stem cells found in bone marrow. Several recent peer-reviewed scientific studies show Spirulina's ability to inhibit viral replication and strengthen the immune system. It is gaining increasing attention from medical scientists as a nutraceutical and a potential source of pharmaceuticals.

Elderberry

Elderberries^{18,19} are the fruit of the *Sambucus* tree, the most common type of which is the *Sambucus nigra*. These berries are a low-calorie food packed with vitamin C, dietary fibre and antioxidants in the form of phenolic acids, flavonols and anthocyanins. Black elderberry extracts and flower infusions have been shown to reduce the severity and length of influenza for hundreds of years. Teas and syrups made from the elderberry plant have been used in traditional herbal medicine to fight respiratory infections and boost immunity. Today, commercial preparations of elderberry come in various forms, including liquids, capsules and gummies.



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