



Sports & Lifestyle Nutrition Newsletter

NOOTROPICS FOCUS

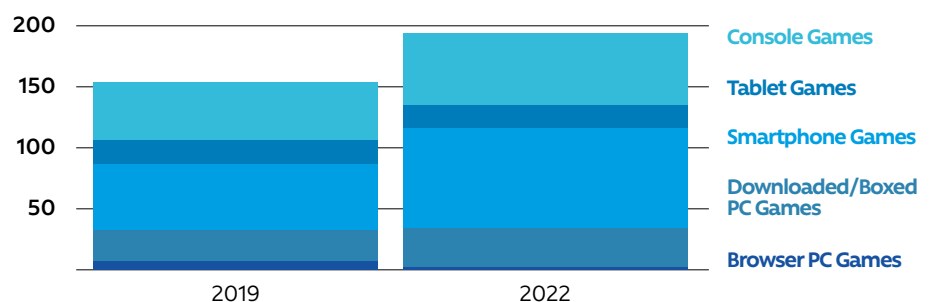


NOOTROPICS: BRAIN-BOOSTING SUPPLEMENTS

Nootropics are supplements that help to improve mental functions such as focus and memory. They usually combine ingredients that work in synergy to enhance cognitive performance, reduce stress and fatigue, and deliver improvements in mood and productivity. They are popular among a number of demographic groups, including busy professionals, students, athletes and, increasingly, gamers. In this newsletter, we explore the potential offered by the last of these and showcase nootropic product concepts for gamers that incorporate botanical extracts, vitamins and minerals.

GAMERS: A KEY TARGET MARKET

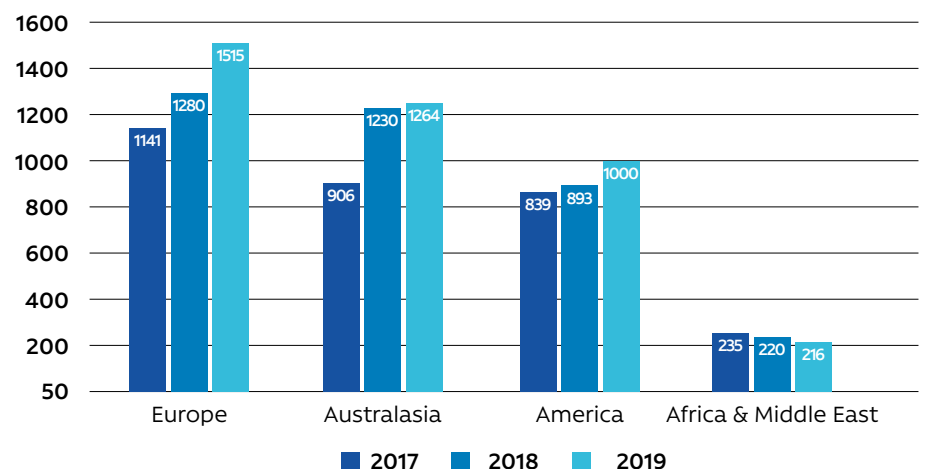
Video gaming and nootropics are both enjoying a rich period of growth. It's forecast that the global gaming industry will be worth nearly \$200bn by 2022¹. The competitive eSports sector, meanwhile, is growing in value by 26.7% annually and is set to be worth \$1.1bn in 2020:



Graph 1: eSports individual segment value per billion US\$.

At the same time, demand for products with nootropic benefits is rising sharply². Between 2015 and 2019, the number of nootropic product launches increased by an average of 70% per year globally:

Experts say nootropics are on track to continue enjoying major growth as more consumers prioritize enhanced mental agility. Gaming and eSports are key drivers of this trend, since brain-boosting supplements can enhance several cognitive functions that may improve gaming performance.³



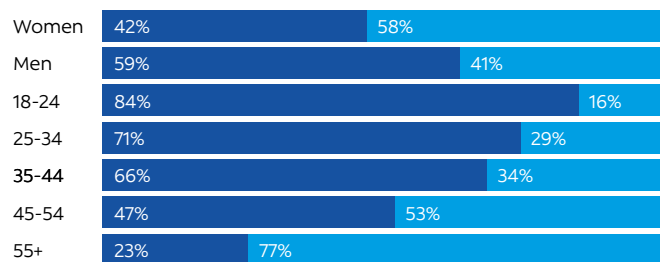
Graph 2: Nootropics product launches growth per year and region.

SHIFTING DEMOGRAPHICS

Gaming has always been seen as an effective way to reach young male consumers. But as the market has matured, its demographic profile has shifted away from the stereotypical teenage gamer to include older consumers with more disposable income. Greater numbers of female consumers are taking up gaming, too. In a survey for The Grocer magazine, conducted by Harris Interactive, 42% of UK women said they played video games.¹

Do you ever play video games?

■ Play Games ■ Don't Play



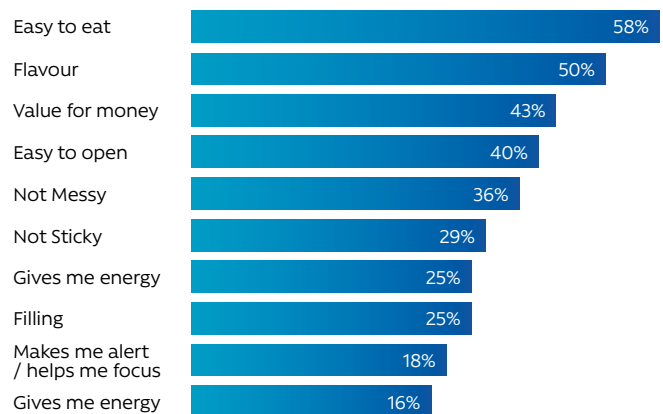
Graph 3: Gaming stretches across genders and age groups

FORMAT MATTERS

According to The Grocer's survey, as many as 35% of UK gamers said they buy food and drink specifically for playing video games, rising to 55% for gamers aged 18 to 24. These consumers say they are looking for easy-to-eat products such as snacks, gummies and beverages. Energy is a benefit that is particularly sought-after. Gamers tend to prefer products that are non-messy and won't leave sticky residues on controllers and keyboards.

Nootropic supplements are in a strong position to capitalise on demand among gamers for convenient, non-messy products. At present, most nootropics are sold as capsules, tablets and soft gels.¹ However, brain-boosting ingredients are also easy to integrate into other convenient formats, including sachets, effervescent tablets and beverages (i.e. canned energy, nootropic drinks).

% Who said these factors are important to them



Graph 4: Top 10 factors gamers look for when choosing food & drink

FORMULATING FOR GAMERS

The choice of natural ingredients with brain health benefits continues to grow and this is a dynamic field of research. Well established nutrients in the brain health space include Omega-3 fatty acids, B vitamins and plant extracts.

The latter are becoming more prominent as consumer preferences continue to shift towards nootropic ingredients of a more natural origin. On-trend ingredients

in this space include ginkgo biloba, ashwagandha, ginseng, resveratrol and green tea. Analysis by Innova Market Insights shows that in brain health launches, the use of ginkgo biloba rose by 21% between 2014 and 2018.

Curcumin has also recently gained a strong following. In 2018, curcumin was officially established as a nootropic following the publication of a University of California (UCLA) study that showed significant improvements in memory for subjects who took curcumin supplements for 18 months. Brain imaging revealed that curcumin had

lowered levels of amyloid and tau in study participants, the two proteins involved in Alzheimer's disease.

Resveratrol is also attracting more interest, with numerous trials and publications supporting its use in nutritional supplements to promote healthy ageing – including cognitive wellbeing. Nootropic botanicals are often combined to create a synergistic effect. For example, bacopa (for memory) and rhodiola (for focus) are two ingredients that can work well together in supplements.



PREMIXES FOR GAMERS

Prinova offers bespoke premixes that make it easy to create winning nootropic supplements for gamers. Here, we showcase a selection of concepts.

POWDER COGNITION BLEND - IDEAL FOR CAPSULES

Nutritional Information	Per Serve	%NRV
L-Choline Bitartrate	250 mg	-
Shagandha™ (2.5% Withanolides)	250 mg	-
N-Acetyl L-Tyrosine	200 mg	-
L-Theanine	200 mg	-
Bacopin® (20% Bacosides)	150 mg	-
Rhodiola Rosea Extract (3% rosavins, 1% salidroside)	100 mg	-
Ginkgo Biloba Extract (24% flavoglycosides, 6% terpene)	100 mg	-
Vitamin C (as Ascorbic Acid)	80 mg	100.00 %
Magnesium (as Magnesium Oxide)	56.25 mg	15.00 %
Vitamin B3 (as Niacinamide)	32 mg	200.00 %
Vitamin B5 (as Calcium D-Pantothenate)	12 mg	200.00 %
Zinc (as Zinc Citrate)	10 mg	100.00 %
Iron (as Ferrous Fumarate)	3.5 mg	25.00 %
Vitamin B2 (as Riboflavin)	2.8 mg	200.00 %
Vitamin B6 (as Pyridoxine Hydrochloride)	2.8 mg	200.00 %
Vitamin B1 (as Thiamine Hydrochloride)	2.2 mg	200.00 %
Vitamin B9 (as Folic Acid)	400 mcg	200.00 %
Iodine (as Potassium Iodide)	150 mcg	100.00 %
Selenium (as Selenium SeLECT®)	110 mcg	200.00 %
Vitamin B7 (as Biotin)	100 mcg	200.00 %
Chromium (as Chromium Chloride)	40 mcg	100.00 %
Vitamin D3 (as Cholecalciferol)	10 mcg	200.00 %
Vitamin B12 (as Cyanocobalamin)	5 mcg	200.00 %

- NRV not established

Ingredients:

L-Choline Bitartrate, Shagandha™ (Ashwagandha Extract), N-Acetyl L-Tyrosine, L-Theanine, Bacopin® (Bacopa Monnieri Extract), Iron (as Ferrous Fumarate), Rhodiola Rosea Extract, Ginkgo Biloba Extract, Magnesium (as Magnesium Oxide), Vitamin C (as Ascorbic Acid), Zinc (as Zinc Citrate), Niacin (as Niacinamide), Vitamin B5 (as Calcium D-Pantothenate), Vitamin B7 (as Biotin), Vitamin B9 (as Folic Acid), Vitamin D3 (as Cholecalciferol), Iodine (as Potassium Iodide), Vitamin B6 (as Pyridoxine Hydrochloride), Vitamin B12 (as Cyanocobalamin), Vitamin B2 (as Riboflavin), Vitamin B1 (as Thiamine Hydrochloride), Selenium (as Selenium SeLECT®), Chromium (as Chromium Chloride)

Claims:

- > Pantothenic acid contributes to normal mental performance.
- > Iron, Zinc & Iodine contribute to normal cognitive function.
- > Iron, Vitamins B2, B3, B5, B6, B12, C & Magnesium contribute to the reduction of tiredness and fatigue.
- > Zinc & Vitamin B2 contribute to the maintenance of normal vision.
- > Vitamins B1, B2, B3, B5, B6, B12, C, Iodine & Magnesium contribute to normal functioning of the nervous system.
- > Vitamins B1, B3, B5, B6, B7, B12, C & Magnesium contribute to normal psychological function.
- > Selenium, Vitamin C & Zinc contribute to the protection of cells from oxidative stress.

USPs:

- > Comprehensive, non-stimulant formulation that can be taken at any time throughout the day.
- > Scientifically formulated to provide long lasting energy for body and mind.
- > Formulated with ingredients known to boost productivity, energy and focus.

ALL-ROUND POWDER FORMULATION FOR GAMERS - FLAVOURED

Nutritional Information	Per Serve	%NRV
Cognition & Focus Blend		
N-Acetyl L-Tyrosine	1000 mg	-
Taurine	1000 mg	-
Acetyl L-Carnitine	500 mg	-
Alpha GPC	300 mg	-
Bacopin® (20% Bacosides)	250 mg	-
L-Theanine	200 mg	-
Natural Caffeine Anhydrous	100 mg	-
Ginseng Extract (20% Ginsenosides)	100 mg	-
Eye Health Complex		
ZeaLutein™ (1% Zeaxanthin, 5% Lutein, 2% Piperine)	100 mg	-
Vitamin E (as dl-α-Tocopheryl Acetate)	12 mg TE	100.00 %
Zinc (as Zinc Citrate)	10 mg	100.00 %
Hydration Blend		
Coconut Water Powder	250 mg	-
Sodium (as Sodium Chloride)	150 mg	-
Potassium (as Potassium Chloride)	100 mg	5.00 %
Magnesium (as Tri-Magnesium Citrate)	56.25 mg	15.00 %
Calcium (as Calcium Carbonate)	50 mg	6.00 %
Energy Support Blend		
Vitamin C (as Ascorbic Acid)	100 mg	125.00 %
Vitamin B3 (as Niacinamide)	16 mg	100.00 %
Vitamin B5 (as Calcium D-Pantothenate)	6 mg	100.00 %
Vitamin B6 (as Pyridoxine Hydrochloride)	1.4 mg	100.00 %
Vitamin D3 (as Cholecalciferol)	10 mcg	200.00 %
Vitamin B12 (as Cyanocobalamin)	2.5 mcg	100.00 %

- NRV not established

Ingredients:

N-Acetyl L-Tyrosine, Taurine, Acetyl L-Carnitine, Sodium Chloride, Tri-Magnesium Citrate, L-Alpha glycerylphosphorylcholine, Bacopin® (Bacopa Monnieri Extract), Coconut Water Powder, L-Theanine, Ginseng Extract, Potassium Chloride, Calcium Carbonate, Natural Caffeine Anhydrous, ZeaLutein™, Vitamin C (as Ascorbic Acid), Zinc (as Zinc Oxide), Vitamin E (as dl-α-Tocopheryl Acetate), Vitamin B3 (as Niacinamide), Vitamin B5 (as Calcium D-Pantothenate), Vitamin D3 (as Cholecalciferol), Vitamin B12 (as Cyanocobalamin), Vitamin B6 (as Pyridoxine Hydrochloride).



Claims:

- > Pantothenic acid contributes to normal mental performance.
- > Zinc contributes to normal cognitive function.
- > Zinc contributes to the maintenance of normal vision.
- > Vitamins B3, B5, B6, B12, C & Magnesium contribute to the reduction of tiredness and fatigue.
- > Vitamins B3, B6, B12, C & Magnesium contribute to normal functioning of the nervous system.
- > Vitamins B3, B6, B12, C & Magnesium contribute to normal psychological function.
- > Vitamin C, Vitamin E & Zinc contribute to the protection of cells from oxidative stress.
- > Magnesium contributes to electrolyte balance.

USPs:

- > Comprehensive formulation that boosts productivity, physical performance, energy and focus.
- > Well balanced to ensure no crashes or jitters.
- > Includes an electrolyte blend to aid hydration and help gamers maintain peak performance.
- > Incorporates an eye support blend, ZeaLutein™, which helps protect the eyes from harmful blue light.

COGNITION GUMMIES



Nutrient (Ingredient Form Used)	Requested Nutrient Level (300mg)	%DV / %RDI
Vitamin A	200.00 µg	
L-Theanine (as L-Theanine 98%)	100 mg	N/A
Caffeine TR (as Encapsulated ActiveTR™ Natural Caffeine)	50 mg	N/A
N-Acetyl L-Tyrosine	100 mg	N/A
Vitamin B6 (as Pyridoxine HCl)	0.21 mg	15.00%
Pantothenic Acid (as D-Calcium Pantothenate)	0.9 mg	15.00%
Folic Acid (as Folic Acid PWD)	30 mcg	15.00%
Vitamin B12 (as Cyanocobalamin)	0.375 mcg	15.00%
Maltodextrin, Non-GMO	Q.S	N/A

FOCUS GUMMIES



Nutrient (Ingredient Form Used)	Requested Nutrient Level (300mg)	%DV / %RDI
Iodine (as Potassium Iodide)	22.5 mcg	15.00%
Niacin (as Niacinamide)	2.4 mg	15.00%
Pantothenic Acid (as D-Calcium Pantothenate)	0.9 mg	15.00%
Vitamin B12 (as Cyanocobalamin)	0.375 mcg	15.00%
Vitamin C (as Ascorbic Acid)	12 mg	15.00%
Zinc (as Zinc Sulfate 1H2O)	1.5 mg	15.00%
Magnesium (as AQUAMIN™ MG SOLUBLE)	56.25 mg	15.00%
Bacopin®	50 mg	N/A
Maltodextrin, Non-GMO	Q.S	N/A

NATURAL NOOTROPIC INGREDIENTS BY SABINSA

Bacopin®

Bacopin® is obtained from the leaves of the bacopa plant (*Bacopa monnieri*), a herb that is widely known for its natural memory enhancing effects. The major constituents of bacopa are bacosides, which have been found to improve cognitive function. Sabinsa's Bacopin® promotes nerve impulse transmission in the brain by helping to repair damaged neurons and inhibiting acetylcholinesterase (AChE). This facilitates enhanced attention, memory and cognitive processing, resulting in enhanced working memory.

Shagandha™

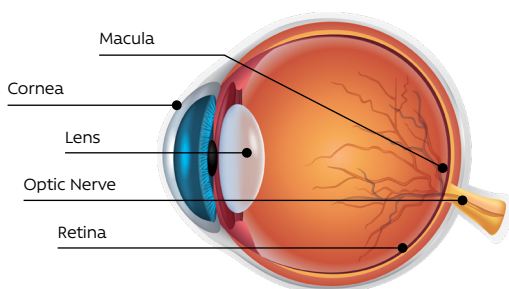
The ashwagandha plant (*Withania Somnifera*) is a small shrub with yellow flowers and is one of the most ancient herbs in Ayurveda (alternative Indian medicine). Sabinsa's Shagandha™ is an ashwagandha root extract that meets the U.S. Pharmacopoeia-National Formulary (USP-NF) monograph and is verified by prominent botanical testing labs. It is ideal for nootropic products by offering a wide range of cognitive health benefits.^{4,5,6}



Sabinsa's Curcumin C3 Complex® is an extract derived from rhizomes (roots) of the turmeric plant (*Curcuma longa*).⁷ A study with Curcumin C3 Complex, combined with a black pepper absorption booster BioPerine® showed a reduction in an important inflammatory cytokine in traumatic brain injury patients.



Containing a minimum of 40% elemental selenium, Sabinsa's Selenium SeLECT® is a bioavailable and safe form of selenium for supplements.⁸ Selenium is an antioxidant trace mineral associated with reducing mental fatigue – a benefit gamers will value highly. Unlike other forms of the mineral, Selenium SeLECT® 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.



Parts of the eye.

Serious gamers spend long periods staring at monitors, which means they are exposed to high levels of blue light. Blue light has more energy per photon of light than other colors in the visible spectrum and is more likely to cause damage when it passes through the cornea and lens and reaches the retina.⁹ Research shows that too much exposure to blue light could lead to digital eyestrain or, worse, long-term damage to the retina.

Lutein and zeaxanthin can filter harmful high-energy blue wavelengths of light and help protect and maintain healthy cells in the eyes. Of the 600 carotenoids found in nature, only these two are deposited in high quantities in the retina (macula) of the eye. Several studies¹⁰ have suggested that dietary supplementation with lutein and zeaxanthin could protect the retina and delay the progression of age-related macular degeneration.

Sabinsa's ZeaLutein™ is a brick-red coloured, proprietary composition of 1% zeaxanthin and 5% lutein. It is blended in a ratio optimized to provide maximum benefits in eye health – making it the perfect ingredient blend for supplements targeting the gaming community.

BOTANICAL BOOSTERS

Here's a guide to some of the hottest botanicals in the nootropic supplements space.

Plant-based ingredients with nootropic benefits are enjoying strong growth:

	2017	2018	2019	Growth
Caffeine	417	443	525	26%
Taurine	359	357	382	6%
Guarana & Guarana Extract	150	177	201	34%
Yerba Mate	15	26	48	220%

Yerba Mate

Sourced from the dried leaves and twigs of the *Ilex Paraguariensis* plant and used to make a traditional South American beverage that is said to have the strength of coffee, the health benefits of tea, and the joy of chocolate.^{11,12} Yerba mate is also widely used in supplements and due to its caffeine content, it can help increase mental focus and energy levels.

Ginkgo Biloba

An ancient Chinese tree which has long been cultivated for its health-promoting properties.¹³

Its main bioactive constituents are flavonoid glycosides and terpene trilactones (ginkgolides and bilobalide). The presence of these active compounds increases the blood flow to various parts of the body, especially to the brain, supporting the improvement of memory.

Rhodiola Rosea

A herb that grows in the cold regions of Europe and Asia.¹⁴ Its main active compounds – rosavins and salidroside – are found in its roots and are believed to provide anti-inflammatory and adaptogen benefits. As a result, the extract is commonly used to help the body adapt to stress and promote physical and mental performance.

Guarana (Paullinia Cupana)

An Amazonian plant that contains the highest concentration of caffeine of any wild plant.¹⁵ The active ingredient is extracted from the seeds and can help to enhance athletic performance, reduce mental & physical fatigue, and support cognitive performance including focus and mental alertness. Moreover, thanks to its tannin content, the caffeine from guarana is released slowly and in a sustained manner, avoiding a spike and sudden crash.

Ginseng

A root used for centuries in Chinese traditional medicine, which has become one of the world's most popular medicinal herbs for its energy-boosting properties.¹⁶ Ginseng may help stimulate physical and mental activity and reduce stress. Its ginsenoside content provides antioxidant and anti-inflammatory properties and could help improve brain functions.

Prinova can supply all these botanical extracts and much more to boost energy, cognition and other functions.

[Click here](#) to see the full list of botanicals available.

To discuss your requirements or to order a sample, [click here](#).

VITAMINS & MINERALS

According to data from Innova Market Insights, the use of essential vitamins and minerals in nootropic products is widespread and growing:

	2017	2018	2019	Growth
Vitamins B	5,099	7,096	5,485	8%
Vitamins C	919	1,522	954	4%
Vitamins E	326	644	332	2%
Vitamins A	219	435	252	15%
Vitamins D	413	374	606	47%

	2019	Growth last 3 years
Magnesium	1,148	26%
Potassium	917	9%
Calcium	471	2%
Sodium	403	49%
Zinc	342	7%
Iron	72	1%
Chromium	156	2%

Here's a run-down of how a selection of these micronutrients can aid brain health. ^{17,18,19,20}

Selenium

Involved in various brain functions, including motor performance, coordination, memory and cognition. In neurodegenerative disorders such as Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis and epilepsy, selenium metabolism seems to be altered – possibly due to pro-oxidative events accompanying these states.

Zinc

Deficiency is associated with neurological and psychological impairments.

Calcium

regulates neurotransmission and controls nerve excitability.

Magnesium

A study found that administration of magnesium supplements to aged rats improved working and long-term memory. The magnesium in cell membranes is also important for the transmission of impulses. Furthermore, magnesium and calcium need to be present in ideal amounts in the body to prevent excitability of the nervous system. A deficiency of either one can lead to neurological problems.

B Vitamins

Considered particularly important for good brain health. Thiamin (B1) is one of the many B vitamins that is found abundantly in the brain and nerve tissue. It plays a role in the conduction of nerve impulses.

Ascorbic Acid (Vitamin C)

Important in the synthesis of the neurotransmitter dopamine, but also protects the brain against oxidative stress.

To view Prinova's complete range of vitamins & minerals [click here](#). For further information or to order a sample, [click here](#).

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