

The modern athlete

Sports nutrition concepts and formulations

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Today sports nutrition is one of the most promising sectors of the dietary supplement industry, having shown phenomenal growth in the last few years. Sports nutrition has evolved from an "athletes only" category to include people maintaining a healthy lifestyle, spanning a wide age range.

Applying the science of nutrition, Sabinsa offers many sports ingredients that cater to the needs of the hard-core athlete and the general health maintenance consumer. Discover the applications, mechanisms of

actions and formulation possibilities using Sabinsa's sports ingredients to support endurance, rehydration, weight management, joint care, improved digestion and even immune support.

Of the leading 12 trends (Figure 1),



Figure 1 – 12 key trends in the business of food, nutrition and health.

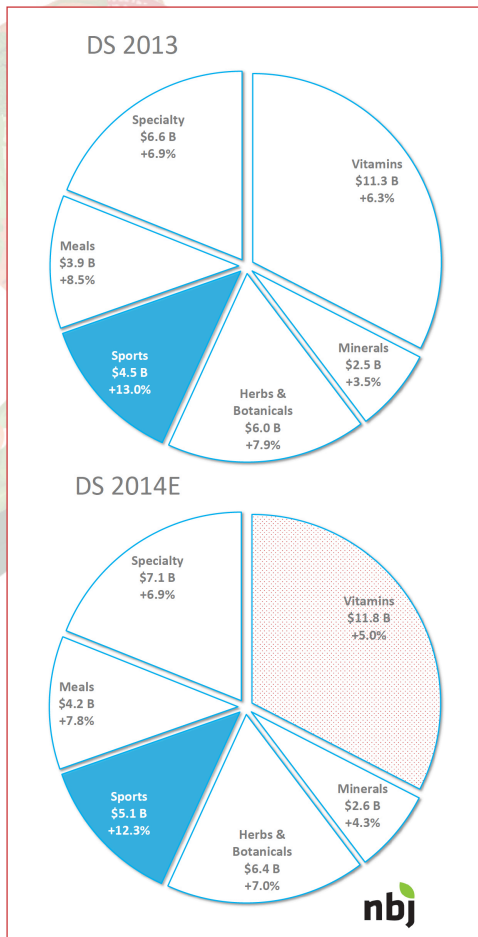


Figure 2 – A healthy growth and a continued positive outlook for domestic and international markets.



Health app dashboard on display. Ref: Apple, iPhone Conference 2014.

identified by *New Nutrition Business*, a leading publication from the Centre for Food & Health Studies based in London, key categories such as Naturally Functioning Protein and Energy all rank high.

Category	2013 Sales (\$)	10-13 CAGR (%)	2014 Est. Trended (\$)	2014 Est. Forecast (\$)	Dollars Gained (Lost)
Multis	5,713	7.4	6,136	5,816	(320)
Omegas	1,168	2.9	1,202	1,125	(77)
Probiotics	1,191	37.9	1,642	1,407	(235)
Vitamin D	713	13.8	811	770	(41)
Sports nutrition	4,517	12.0	5,059	5,072	13
Meals	3,938	12.7	4,438	4,243	(195)
Calcium	1,174	-2.3	1,020	1,148	128
Vitamin C	1,044	3.9	1,085	1,052	(33)
B vitamins	1,784	16.5	2,078	1,923	(155)
Homeopathics	1,138	12.4	1,279	1,138	(141)

Table 1 – No “lost sales” in sports nutrition for 2014.

Consider a quick snapshot of where 2013 and the estimated 2014 data on supplements, in the United States did, as shown by *Nutrition Business Journal*, Penton Media (Figure 2).

Companies looking at healthy lifestyles is evolving, from health tracking kits, watches and phones, the idea of the modern athlete is to be all-around healthy, all the time.

It's reported that many categories will slow down, and even possibly see negative growth, however, the interesting chart shown in Table 1 displays the gain for the Sports Nutrition Category.

SPORTS NUTRITION INGREDIENTS

In the course of research, Sabinsa discovered several compounds that possess substantiated structural and functional claims for support in the management of sports.

Curcumin C3 Complex®

Obtained from the dried rhizomes of *Curcuma longa* (Turmeric) and standardized for minimum 95% Curcuminoids [Curcumin, Demethoxycurcumin (DMC) and Bisdemethoxycurcumin (BDMC)].

Patented for its unique composition ratio and use, C3 Complex offers consumers a wide range of health benefits. Curcuminoids provides protection from free radical damage, it reduces and prevents inflammation and also boosts the immune system. Curcuminoids helps to decrease muscle soreness from oxidative stress and inflammation associated with continuous exercise and hence improves athletic performance and endurance.

Sabeet™

Sabinsa's trademarked Beet root extract, standardized for minimum of 2% Nitrate.

Research strongly indicates that Beet root supplementation has been clinically proven to help improve athletic performance and this is attributed due to the high nitrate content.

PolyBos®

A completely water soluble extract from *Boswellia serrata* gum can be used as a post exercise drink to reduce exercise related inflammation in the joints and other related stress.

Saberry®

A proprietary, patented, versatile “superfruit”, is an ORAC Dense Phytonutrient™ obtained from the fresh fruits of *Emblica officinalis* and standardized to contain a minimum of 10% 6-glucogallin. A water soluble extract that neutralize free radicals in the body by providing beneficial effects against exercise induced oxidative tissue damage.

DigeZyme®

A proprietary combination of enzymes helps in proper break down of food and better absorption of nutrients within the body. This multi-enzyme complex consists of alpha amylase, protease, lipase, cellulase and lactase. DigeZyme® is derived from non-animal source and found to be shelf stable. This unique blend of enzymes helps in digesting the protein for better assimilation. Research indicates that protease enzyme has the ability to reduce bruising, swelling and other athletic injuries.

FenuSterols®

Saponin rich fraction obtained from Fenugreek seeds standardized for 50% Steroidal Saponins. By increasing testosterone levels, it increases the deposition of protein in the muscles, leading to increased muscle mass and strength.

Fabenol®

An alpha-amylase inhibitory natural extract obtained from *Phaseolus vulgaris* (common beans or kidney beans). The alpha amylase inhibitor is identified in the protein fraction of the bean. This protein binds with the active sites of alpha-amylase and prevents the starch metabolizing activity. Hence it is also called as “Starch Blocker”.

An amylase inhibitor obstructs the digestion of starch and absorption of glucose. Therefore amylase inhibitors are therapeutically valued in conditions such as diabetes (to reduce blood sugar levels)

and in weight management or satiety building.

GarCitrin®

The standardized extract obtained from the dried fruit rinds of *Garcinia cambogia* and contains a minimum of 50% (–)Hydroxycitric acid (HCA) and 5% Garcinol. HCA promotes inhibition of fatty acids, facilitates the oxidation process of fatty acids and has appetite suppressant benefits. Garcinol enhances the biological action of HCA and contributes antioxidant activity to the formulation due to its amphibiotic effect. Patented, clinically tested phytonutrient for weight management.

LactoCran™ *

A unique composition of shelf-stable probiotic LactoSpore® (*Bacillus coagulans*, MTCC 5856) combined with cranberry seed prebiotic. LactoCran™ synbiotic provides support for healthy gut and digestive health.

Ginger Extract

Obtained from the dried rhizomes of *Zingiber officinale* and is standardized for minimum 5% Gingerols. Ginger has been well documented in Indian system of Ayurvedic Medicine for anti-inflammatory properties. Supplementation of ginger results in reduction in muscle pain following exercise induced muscle injury.

BioPerine®

Obtained from the dried fruits of *Piper nigrum* (black pepper) and is standardized for minimum 95% Piperine. BioPerine® is a widely patented and a clinically proven "Bioavailability Enhancer" for nutrients and a natural "Thermonutrient®" from Sabinsa.

Guarana

Guarana is responsible for improving endurance performance since it contains a substance similar to caffeine.

Pea Protein

Pea based protein provides a good vegan source of protein which is rich in BCAA (Branched Chain Amino Acids), contains high protein content that plays a vital role in muscle building. Since Pea Protein is completely free from any milk residues, it can be taken by people who are lactose intolerant.

Vitamin B12

Vitamin B12 also called cobalamin acts as an energy booster, improves metabolism by increasing the energy level in the body, helps in the production of red blood cells

and maintains proper functioning of the nervous system.

SPORTS NUTRITION PERFORMANCE BASED FORMULAS

Bi-Layer Tablets

Formula **a** (Table II) is an endurance booster with natural nitrate carrier as beet

a)		
Sabeet™	750 mg	1st layer
Curcumin C3 Complex®	250 mg	2nd layer
b)		
Sabeet™	500 mg	1st layer
Curcumin C3 Complex®	250 mg	1st layer
PolyBos®	250 mg	2nd layer
Vitamin B12	100 µg	2nd layer

Serving: 1 bi-layer tablet, twice daily

Table II

root and fortified with antioxidant and anti-inflammatory activity of Curcumin C3 Complex®. The product not only increases the resistance against exhaustion but also supports better joint function for extensive work out.

Slow Release Bi-Layer Endurance Tablet

A Complete Sports solution, Formula **b** (Table II) keeps you high in energy and endurance throughout the day and fortifies your body against the daily wear and tear. Endurance booster nitrate is slow released for longer exercise and work out fortified with vitamin B12. Curcumin C3 Complex® provides a strong antioxidant and anti-inflammatory activity. As a post work out ingredient in the formula, PolyBos® provides protection against regular wear and tear in joints and muscles making it quicker for recovery. Hence, this formula provides high endurance, better work out, protection against break down and quicker recovery.

Sachets

Formula **a** (Table III) is a perfect supplement for boosting the endurance for intensive work out fortified with antioxidants from Superfruit. The supplement can be taken for instant benefits approximately 2-3 hours before intensive work out. This supplement is free from any stimulant or processed sugar or excipients and low in calories.

a)	
Sabeet™	5 g
Saberry®	1 g
b)	
Sabeet™	500 mg
Guarana	200 mg (1:4 extract ratio)
PolyBos®	1 g
Saberry®	1 g

Table III

Formula **b** (Table III) is a perfect solution for a low calorie endurance booster. Sabeet™ and Guarana provide the quick boost of stimulant and endurance at same time for high intensity work out. The quick boosting function is well balanced by recovery agents – PolyBos® and Saberry® which provide protection against wear and tear in muscles and provide antioxidant boost to scavenge free radicals which are also source of inflammation.

A Full Range Protein Sachet for Men & Women

A unique concept of providing gender specific protein diet using vegan source of proteins (Table IV):

For Women – Pea based protein

c)		Women	Men
Pea protein	12 g	Pea protein	12 g
Sabeet™	5 g	Sabeet™	5 g
PolyBos®	1 g	PolyBos®	1 g
Saberry®	1 g	Saberry®	1 g
DigeZyme®	50 mg	FenuSterols®	150 mg
		DigeZyme®	50 mg

Standard in both versions –
Vegan Protein / Non-animal sourced Protein,
Beverage Grade materials, Lactose free

Table IV

provides a good vegan source of protein which is rich in BCAA (branch-chain-amino-acids) and completely free from any milk residue thus can be taken by people who are lactose intolerant. The Pea protein is further supplemented by DigeZyme®, a unique blend of enzymes which help in digesting the protein for better assimilation. The combination not only provides protein supplement to your body but also contains unique extracts to provide protection against wear and tear such as PolyBos® and provides the necessary antioxidant support for better and quicker recovery. This product helps in maintaining a good body contour without plumping excess muscles.

For Men – Pea based protein provides a good vegan source of protein which is further supplemented by DigeZyme®, a unique blend of enzymes which help in digesting the protein for better assimilation. The product is also fortified to provide the testosterone boost for plumping up the muscles as provided by FenuSterols®. The combination not only provides protein supplement to your body but also contains unique extracts to provide protection against wear and tear such as PolyBos® and provides the necessary antioxidant support for better and quicker recovery.

* LactoCran™ is trademark of Fruit d'Or Nutraceuticals

SPORTS NUTRITION MAINTENANCE BASED FORMULAS

a) Bi-Layer Tablets

LeanGard® Trim is a unique formula which not only helps the people who are looking for managing healthy body weight and lipid levels but also is very useful for people who are suffering from obesity or metabolic syndrome (Table V). Recent

a)		
LeanGard® Trim	250 mg	1st layer
Curcumin C3 Complex®	250 mg	2nd layer
b)		
GarCitrin®	750 mg	1st layer
FabenoI®	250 mg	2nd layer

Serving: 1 bi-layer tablet, twice daily

Table V

studies have shown that Curcumin C3 Complex® along with BioPerine® can be helpful in managing the healthy lipid levels and metabolic syndrome. LeanGard® Trim contains the composition which is clinically proven to be effective against obesity. LeanGard® is based on the concept of fighting obesity via multiple pathways – break, block and burn.

LeanGard® contains ForsLean®, BioPerine® and GarCitrin®. While ForsLean® is a direct activator for cAMP which helps in breaking down the stored fat by inducing the active lipase activity, without any side effects, this fat break down effect is synergistically supported by

GarCitrin® which blocks the new fat formation and also increases the fat metabolism thus in other words prompts the fat burning. GarCitrin® also helps in reducing the calorie uptake by its appetite suppressant activity. Activities of the ingredients in this formula are supported by BioPerine® which is a patented bioavailability enhancer for ingredients of LeanGard® Trim as well as Curcumin C3 Complex®.

b)
A formula for maintaining weight during the off season by controlling intake and the ultimate fate of calories (Table V). GarCitrin® is a unique composition from Garcinia in which the (–)hydroxy citric acid's activity is amplified by Garcinol, a polyphenolic antioxidant due to its amplibiotic effect. This composition is also supported by FabenoI's amylase inhibitory activity, thus controlling the absorption of the calories in the gut. Overall benefits are in reducing the appetite and calorie intake and absorption, thus activating the fat metabolism in the body and maintaining a healthy body composition.

Sachets

The formulation shown in Table VI is unique as it provides the endurance booster along with a synbiotic blend, consisting of cranberry and a spore

LactoCran™	8 grams
Sabeet™	2 grams

Table VI

forming probiotic. While Sabeet™ provides nitrates to increase the endurance and resistance towards exhaustion, the LactoCran™ synbiotic supports digestive health with a good microflora. The digestive tract is the first resistance layer against outside infection just like the skin. LactoCran™ is a unique composition of cranberry seed prebiotic with LactoSpore® (*Bacillus coagulans* MTCC 5856), this composition is unlike any other synbiotic which uses FOS or GOS as a prebiotic component. LactoCran™ has been studied for increasing the probiotic growth by 200%. LactoSpore® is a clinically studied probiotic which contains spore forming *Bacillus coagulans*.

NiLitis® Sport Concept

NiLitis® Sports (Table VII) is an extension of the clinically evaluated joint support formula of NiLitis®. NiLitis® Sports provides the ingredients to support healthy joint function, help in management of

Curcumin C3 Complex®	500 mg	1st layer
BioPerine®	5 mg	
PolyBos®	500 mg	2nd layer
Ginger Extract 5%	100 mg	

Table VII

inflammation and at the same time help in quicker recovery from regular muscle and tissue wear and tear due to extensive exercise regimen. Hence brings you back in the sports arena quicker!