

**Ingredient solutions for
healthier, happier lives.**



**The power of innovation
behind your brands.**

INNOVATION



Over 70 years in the global marketplace.

Located outside of New York, NY in Morristown, New Jersey, PLT Health Solutions works with strategic partners throughout the world to bring the most innovative and effective Ingredients to our global customers.



A purpose-driven business

- ✔ Our business is developing **ingredient-based solutions** that help people live healthier, happier lives
- ✔ Our focus on values and delivering **value to our customers** will always be the foundation of who we are as a company
- ✔ We pursue projects that contribute to **sustainability, fair trade & protecting the environment**





10bil+

Doses of PLT
ingredients consumed
In the last decade



200+

Scientific trials designed or
participated In



30+

High quality,
scientifically backed
Ingredient solutions



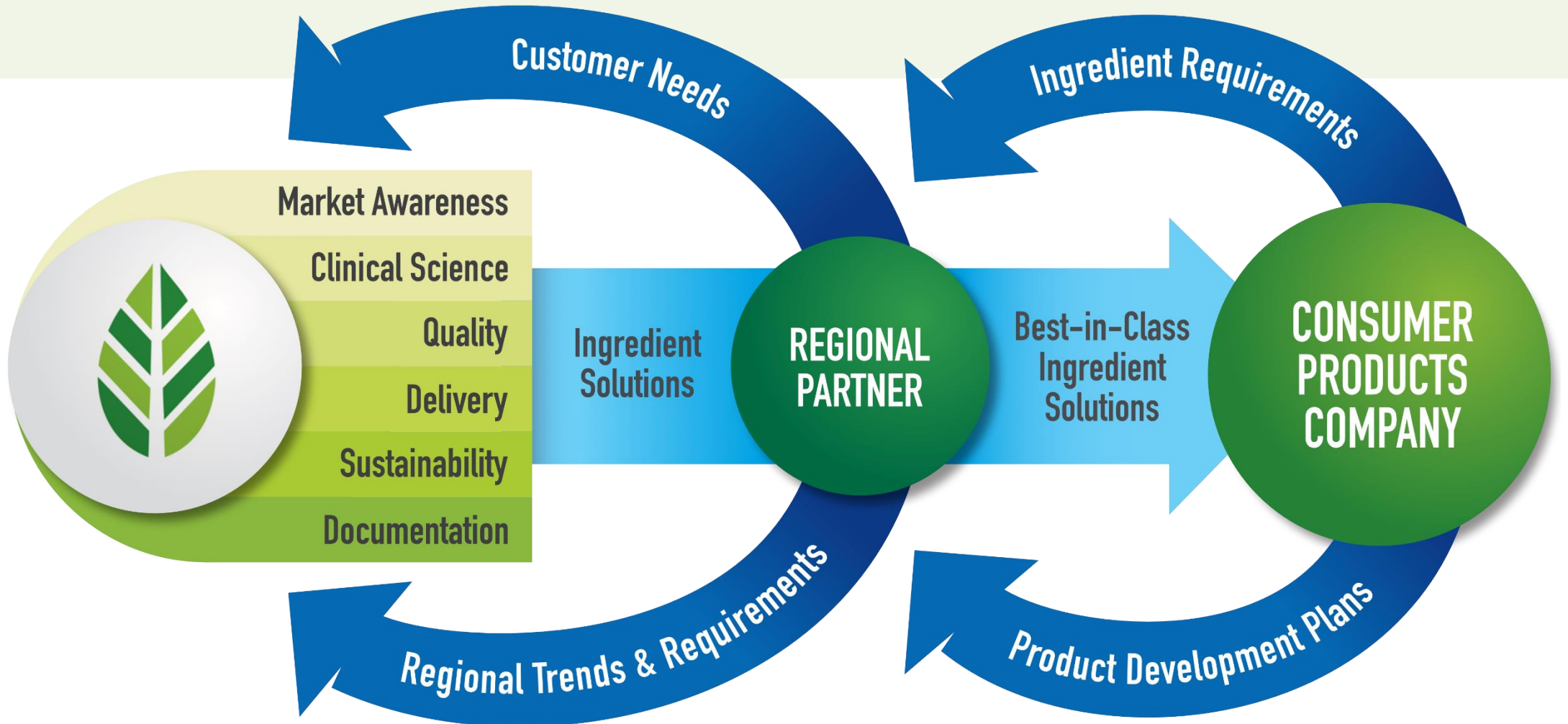
Making an impact on multiple fronts.

PLT Health Solutions has developed best-in-class capabilities in market research, product innovation, clinical science, and quality systems to deliver Ingredients that drive major consumer brands.

This combination of resources gets results for our customers.



How PLT adds value today





PLT PEOPLE + PLANET™ Initiative

Established to expand our sustainability efforts on behalf of both environmental and human issues – going beyond our everyday activities of promoting human health and wellness



SUSTAINABILITY GOALS

PLT Commitments in Perspective

2030 PEOPLE+PLANET™ IMPACT

1 MILLION	1 MILLION	1 MILLION
Women & Children Provided with Vitamins	Children Empowered Through Education	Meals to Families in Need

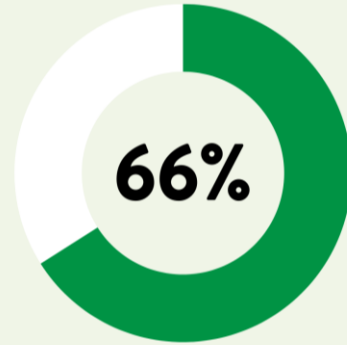
Supporting UN Sustainable Development Goals

- 2 ZERO HUNGER
- 3 GOOD HEALTH AND WELL-BEING
- 4 QUALITY EDUCATION
- 13 CLIMATE ACTION
- 14 LIFE BELOW WATER
- 15 LIFE ON LAND

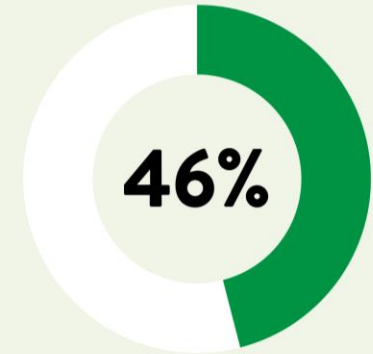


Impact of sustainability on consumer demand

Today's consumers have set the sustainability standard high – there are several factors impacting their decision making



66% of consumers and 80% of young adults (18-34) are willing to pay more for sustainable products compared to less sustainable competitors.

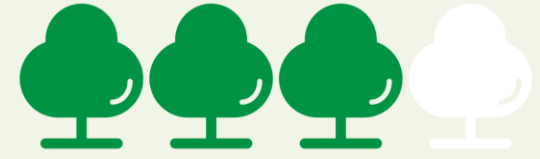


46% say third-party or independent source confirmation is important.



1 of 2

surveyed asserted that clear language on products is important.



3 of 4

sustainable shoppers use labels or third-party certifications to confirm a company or product's sustainability credential.



'Best-in-class' products

Ingredient solutions that are considered performance leaders or that deliver unique value propositions



Joint Health

5•LOXIN®

AprèsFlex®

AquaLOX®

Weight Management

SLENDACOR®
WEIGHT MANAGEMENT COMPLEX

Xanthigen®

Vegetarian Vitamin D

EARTHLIGHT®
WHOLE FOOD VITAMIN D



We understand applications & delivery systems and their challenges

Our ingredient development, clinical science, and formulating assistance focuses on helping you deliver the best consumer experience possible.



Bakery



Beverages



Capsules



Chews



Dairy / Dairy Replacement



Effervescent



Gummies



Soft Gels



Tablets



Powders



RTDS / Shots



Snacks



Stick Packs



Plant-based meat



Bars



Solutions that punch above their weight.

Consumer experience is everything!



SMALL DOSE



**WELL TOLERATED
AND SAFE**
(multiple studies)



EXPERIENTIAL



WATER SOLUBLE
(wide application base)



SCIENCE-BACKED



**TRANSPARENCY
& IDENTITY FROM
SEED-TO-SHELF**
(trusted quality)



PLT
HEALTH SOLUTIONS

*Après*Flex®

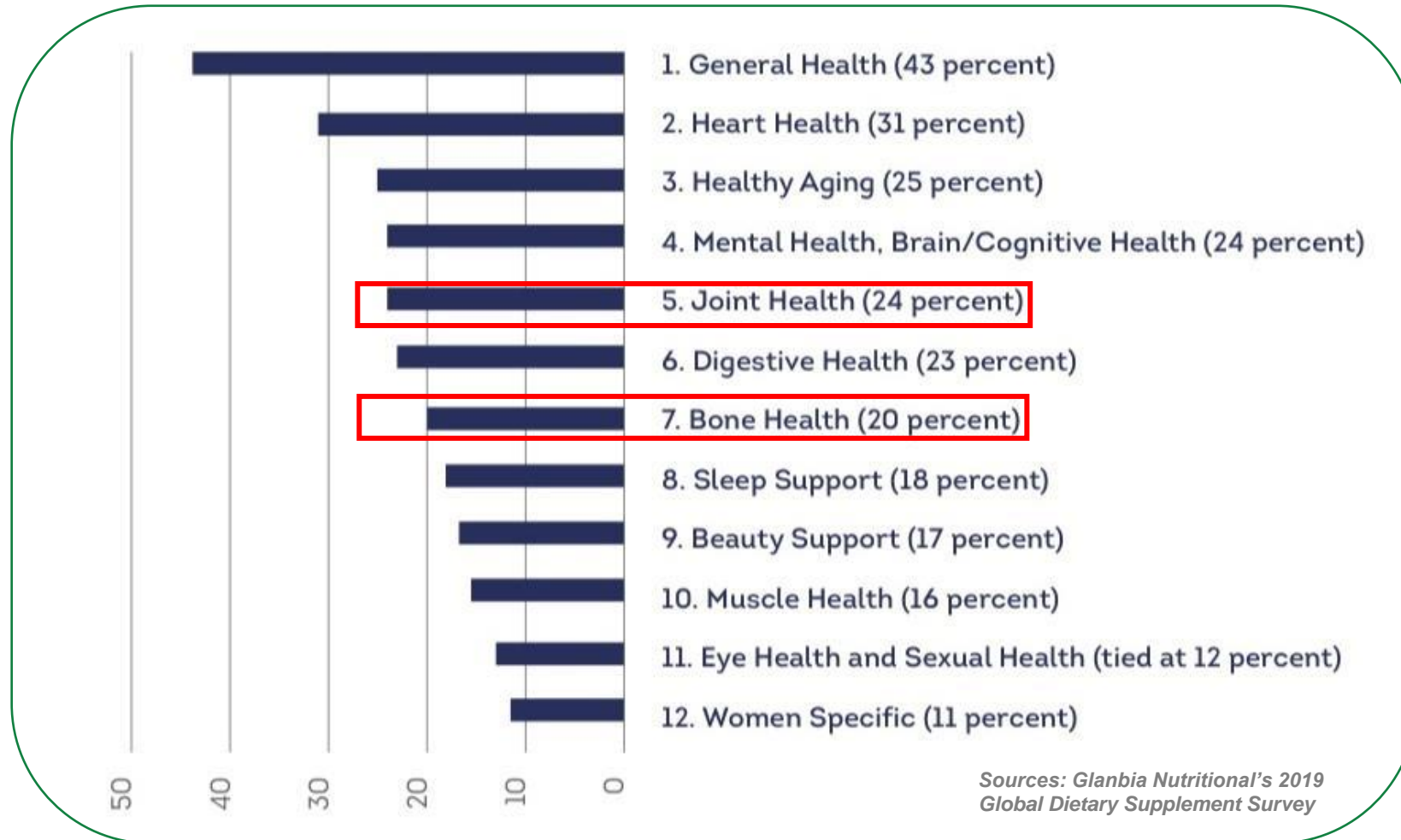
**MOBILITY MAKES ALL THE
DIFFERENCE IN THE WORLD**

**Delivering joint comfort and flexibility from a
100 mg dose that starts to work in as few as 5 days**





Joint and bone health represent two of the top supplement categories for global consumers

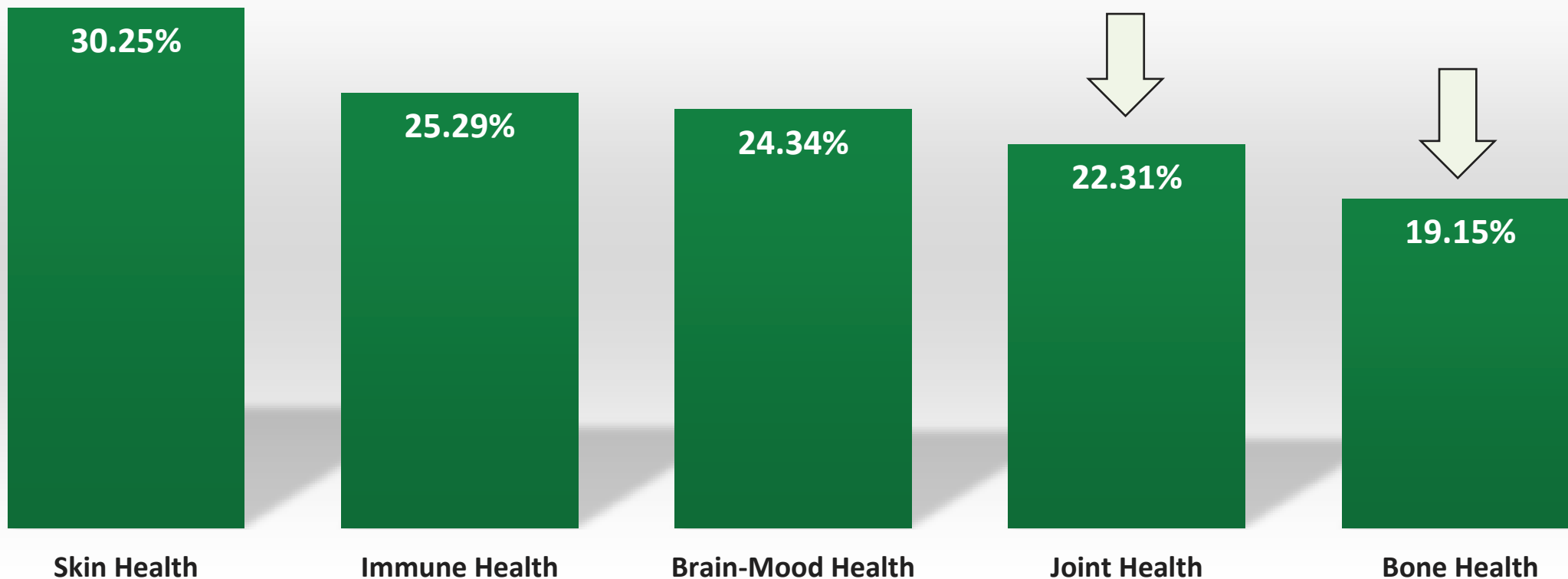




Top health categories by supplement product launches

Of the leading health categories for supplement launches over the last 5 years, joint and bone health are two of the fastest growing (CAGRs of 22.31% and 19.15%)

Top Supplement Category Product Launches ('17-'21)
By Compound Annual Growth Rate (CAGR)



Sources: Innova Market Insights (April 2022)



Joint health ingredients: Changing of the guard

Low dose and time to efficacy are major drivers today

- Glucosamine and chondroitin were called a “**falling star**” in NBJ's 2020 Condition Specific Report
- Key reasons:
 - Variable efficacy
 - Difficult to formulate into taste sensitive products
- As a result of this shift, joint health brands now benefit from a wider range of formulation options
- **Market need: novel, effective ingredients for joint health that are low dose and can be used in a wide span of applications**



SMALL DOSE SIZE



GLUCOSAMINE
1500 mg*



AprèsFlex
100 mg*



The shifting consumer demographics in joint health

While the aging population makes up a large part of this market, younger demographics are more focused on mobility and active lifestyle

As baby boomers age, joint health has moved to the forefront of the condition-specific market

- However, recent trends have shown that athletes and younger demographics are looking for a joint health supplement to help maintain their joint health (*Nutritional Outlook*)
- Joint health is becoming a focus now for **sports recovery products**
- Consumers are becoming more aware of the **science behind products** and are looking for ingredients that are substantiated by convincing research (*Innova Consumer Survey 2020*)





The joint health (comfort) market

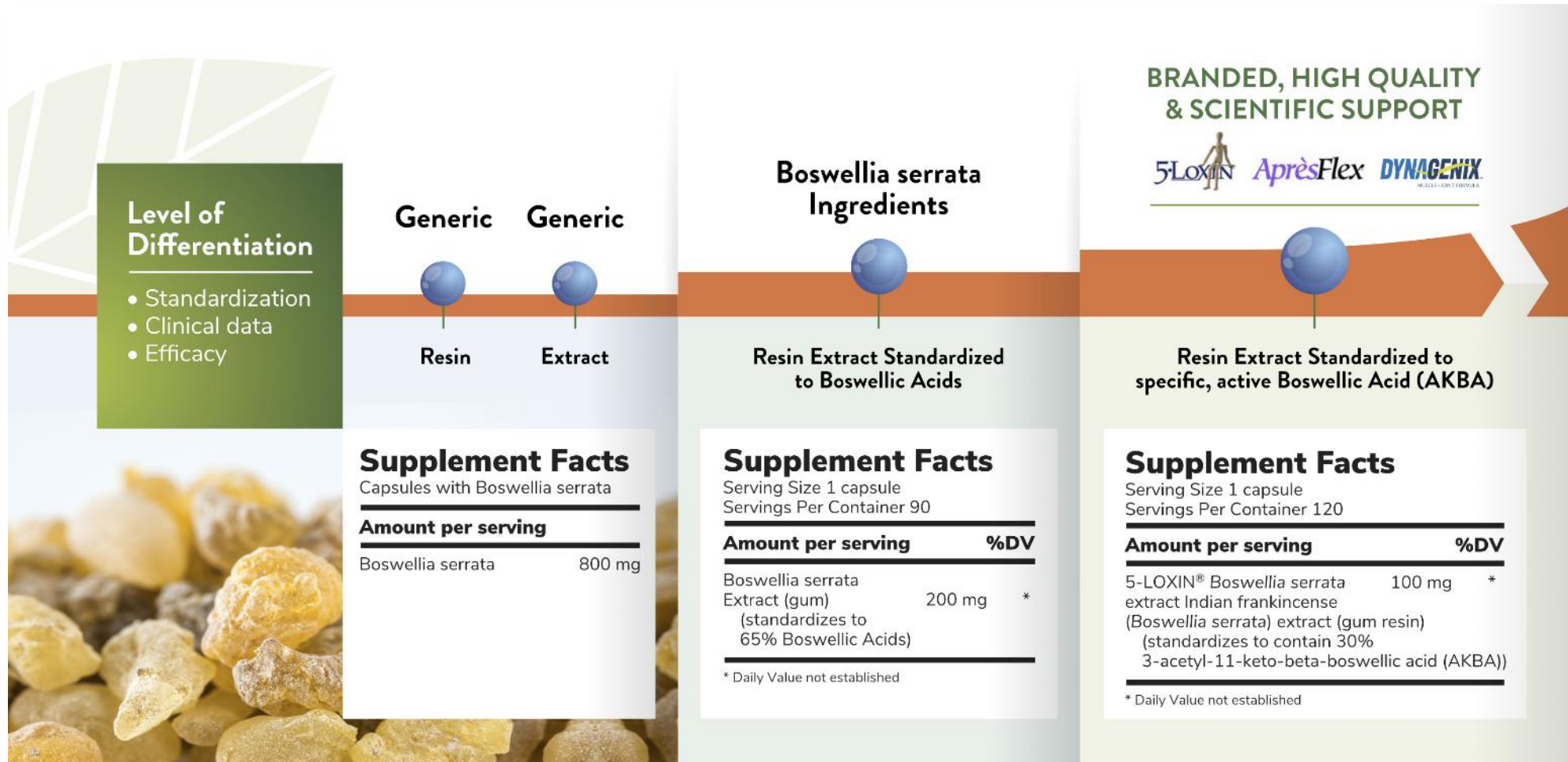
A quick overview and comparison

	Ingredient Class	Time to Efficacy	Types of Claims Being Made
Specialty/Premium	Collagens	2 months	'Joint Health', 'Joint Comfort'
	Boswellia (ApresFlex, 5-LOXIN)	5-7 days	'Promotes Joint Flexibility, Comfort, Movement and Range of Motion'
	Nutrients	2-6 months+	'Joint and Bone Support' 'Promotes Health of Joints'
	Pycnogenol	2 months	'Supports Joint Comfort and Mobility'
	Eggshell Membrane	7-10 days	'Joint Comfort and Flexibility'
	Ingredient Class		Types of Claims Being Made
Commodity	Glucosamine	1-3 months	Combo products say 'Chondroitin Cushions and Lubricates joints' 'MSM Comforts and Soothes Joints'
	Chondroitin		
	MSM	1-3 months	'Comforts Joints' 'Joint Health' 'Support for Healthy Joints'
	Hyaluronic Acid	2-4 months	'Supports and Lubricates Joints'



The PLT Boswellia Portfolio

Our branded, high quality, and scientifically supported AKBA ingredient solutions are on another level compared to generic material





Mechanisms of action and bioavailability

AprèsFlex®

AprèsFlex® exhibited powerful anti-inflammatory and cartilage protective effects

Mechanism of action research shows that AprèsFlex has:

Superior **bioavailability** of the active, AKBA

- Peak serum concentration of AKBA was 14% higher
- Overall, a **51.78%** greater bioavailability of AKBA

Superior **anti-inflammatory** activity

- FCA-induced inflammation
- 'Reduction in serum TNF-alpha
- Protection against cytokine-induced death of chondrocytes

Superior **chondroprotection**

- Recovery from IL-beta-induced inhibition of GAG synthesis
- Inhibition of MMP-3 production

Mol Cell Biochem (2011) 354:189–197
DOI 10.1007/s11010-011-0818-1

Cellular and molecular mechanisms of anti-inflammatory effect of Aflapin: a novel *Boswellia serrata* extract

Krishanu Sengupta · Jayaprakash N. Kolla · Alluri V. Krishnaraju ·
Nandini Yalamanchili · Chirravuri V. Rao · Trimurtulu Golakoti ·
Smriti Raychaudhuri · Siba P. Raychaudhuri



Potential opportunities for clinical messaging

Bringing to market a product with a clinically studied, natural and safe dietary ingredient that targets mediators of joint comfort and flexibility

Rapid Relief, Low Dose

- Advanced formulation clinically demonstrated to deliver benefits AS EARLY AS 5 DAYS*
- Works fast - Significantly improves joint COMFORT, STIFFNESS and FUNCTION as early as 5 days*
- POWERFUL support for joint health in a small, easy-to-take LOW DOSE*

Joint Comfort and Mobility

- Clinically demonstrated to improve JOINT COMFORT (as early as 5 days)*
- Potent, clinically studied extract improves JOINT STIFFNESS*
- Clinically studied support for JOINT MOBILITY*

Joint Function and Overall Joint Health

- Clinically demonstrated to deliver improvements in OVERALL JOINT HEALTH*
- Delivers clinically studied support for improvements in JOINT FUNCTION*

Mechanistic Support

- Advanced formulation with greater bioavailability
- Improves key markers of joint health including TNF- α and CRP*

*These statements are proposed claims that should be vetted by customer's internal Science and Regulatory teams



Sustainability distinguishes our *Boswellia serrata*

Third party audit bolsters our credibility and responds to market sentiment

PLT Confirms Sustainability of Boswellia Serrata Supply through Third-Party Audit
February 23, 2022



PLT Confirms Sustainability of Boswellia Serrata Supply through Third-Party Audit

22 February 2022 — PLT Health Solutions, Inc. announced today that it has partnered with Botanical Liaisons, LLC (Boulder, CO) to undertake a sustainability audit of Indian Boswellia serrata gum resin harvesting and collection practices related to its use in a wide range of nutritional supplement applications. The audit measured sustainability through in-country interviews of field workers, resin consolidators, ingredient manufacturers and government officials. The third-party audit was based on a broad range of environmental, cultural and economic parameters and concluded: It is clear from the information collected from the stakeholders that [sustainability] is supported. Boswellia serrata has several sustainability advantages that prevents over-harvesting of PLT-sourced Boswellia compared to other sources and species of Boswellia.



2022 Botanical Liaisons, LLC 3rd party audit measured sustainability through in-country interviews with field workers, resin consolidators, ingredient manufacturers and government officials

NUTRA
ingredients-usa.com

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PLT says third-party audit verifies sustainability of its Boswellia sources

By Hank Schuitz    

28-Feb-2022 - Last updated on 28-Feb-2022 at 10:57 GMT



nutraceutical
BUSINESS REVIEW

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Active Nutrition Cardiovascular Digestion Cognitive Finance Regulatory

Third-party confirms sustainability of PLT Boswellia serrata

25-Feb-2022    

Manufacturing | Ingredients

Sustainability expert Botanical Liaisons has conducted an audit of the harvesting and collection practices of the substance commonly referred to as frankincense



Nutraceuticals World MAGAZINE NEWS EXCLUSIVES NUTRACEUTICALS

BREAKING NEWS

PLT Partners with Botanical Liaisons For Boswellia Serrata Sustainability Audit

Most audits have been conducted on the harvests of other Boswellia species, leading to some confusion about the species used in dietary supplements and foods.





AprèsFlex[®]

Mobility makes all the difference in the world

Low-dose, fast-acting, scientifically supported joint health solution



Composition

- ✓ Synergistic composition derived from *Boswellia serrata* gum resin
 - **Multi-patented combination** of several proprietary extracts of *Boswellia serrata* which together deliver enhanced efficacy in a low-dose
 - Standardized to key active compound: Acetyl-11-keto- β -boswellic acid (**AKBA**)



Dosage

- ✓ **Clinical efficacy demonstrated for 100 mg/day**
- ✓ Available as a powder
- ✓ Applications
 - ✓ Soft-gels
 - ✓ Capsules
 - ✓ Tablets
 - ✓ Powders



Regulatory / IP

- ✓ Pre-DSHEA (sold prior to 1994)
- ✓ Kosher KOA and Halal JUM
- ✓ Master file with Health Canada
- ✓ US Patent # 20040073060
- ✓ US Patent # 20130084348
- ✓ US Patent # 20150290270



Why ApresFlex?

- ✓ Subject of 10 pre-clinical and clinical studies to understand mechanism of action and efficacy in supporting joint comfort and mobility
- ✓ Improved joint comfort **in just 5 days**
- ✓ Sustainable, botanical ingredient



What kind of formulator will buy PLT Boswellia

We look to people who value what we offer – which is a lot!

**Big Brand
Joint Health**

1,2,3,4,6,7

**Big Brand
Sports
Nutrition**

1,2,3,5,6

**Functional
Food
Companies**

6,7

**Physician
Brands**

2,3,5

**Traditional
Joint
Health**

**Mass Market/
Low Cost**

1. Wants to develop a **market leading brand**
2. Has the resources to educate & promote
3. Is risk averse to quality issues and bad press
4. Wants to compete against OTC products
5. Is attracted to muscle benefits
6. Believes that formulation flexibility and fast results target an expanding demographic
7. Interested in sustainability



AprèsFlex media presence drives brand awareness

A brand that reaches thousands of people a month with top notch publicity

Nutraceuticals World MAGAZINE NEWS EXCLUSIVES NUTRACEUTICALS WORLD

FEATURES

Active Lifestyles Lead Health Markets in Fresh Directions

Consumers have a spectrum of needs as they focus on getting fit and staying active.




nextavenue HEALTH MONEY & POLICY WORK & PURPOSE LIVING CAREGIVING

How to Support Your Joint Health

Early prevention and monitoring are key to mobility and vitality as we age

By IMD™ | April 12, 2021 | Health



nutraceutical Where food moves forward

Home Ingredients Research & Development Manufacturing Packaging Events Directory

PLT announces new clinical study on AprèsFlex 5-Day Joint Support ingredient that confirms fast-acting efficacy

20-Apr-2022

Ingredients | Research & Development | Dietary supplements

Patented *Boswellia serrata* complex improves joint comfort and enhances and improves joint function

PLT Health Solutions, Inc. announced the publication of a clinical study on its *Boswellia serrata*-based AprèsFlex 5-Day Joint Support ingredient that is critical to the performance of its ability to support joint health and function in its naturally significant improvements in pain and inflammation starting as early as 5 days after initial consumption.

Published in: The Journal of the American Nutrition Association, the study is titled "Efficacy and Safety of Atlept, a Novel *Boswellia serrata* Extract in the Treatment of..."



PLT Health Solutions ingredient supports joints, study shows

By Kavitha Sivasubramaniam Ⓔ
23-Jul-2022 - Last updated on 22-Jul-2022 at 08:15 GMT

RELATED TAGS: Joint health, PLT Health Solutions, Joints

PLT Health Solutions' *Boswellia serrata*-based ingredient aids joints and improves their function, according to new clinical research.



NUTRA ingredients.com

PLT features ingredients that support powerful consumer messaging

PLT expands international leadership with new opportunities

An anti-inflammation ingredient that supports joint health and overall sense of well-being

PLT plans cultivated-sourced *Rhodiola rosea* ingredient launch

PLT will supply traceable, standardized *elderberry* extract to the North American market

PROBIOTA

BE PART OF THE WORLD'S LEADING MICROBIOME EVENT!

New developments

A total of 67 people took part in the randomised, double-blind, placebo clinical trial. They were given 100 mg/day of AprèsFlex or a placebo for 30 days.

Measurements taken during this period included Visual Analog Score (VAS), The Lequesne algofunctional index (LFI), The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Serum biomarkers (MMP3, TNF, hsCRP, COMP, CPI)

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NIE Awards 2021

Posted on October 7, 2021 by Angela Sobase in NIE 2021, NIE 2021 10 11, NIE Features, Nutrition Industry Executive



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Home • Nutrition Industry Executive • NIE 2021 • Helpful Ingredients Offer New Hope to Pain & Inflammation Sufferers

Helpful Ingredients Offer New Hope to Pain & Inflammation Sufferers

Posted on March 1, 2021 by Jay Chiquerra in NIE 2021, NIE 2021 03, NIE Features, Nutrition Industry Executive



Nutritional Outlook NEWS MEDIA E-LEARNING TOOLS AWARDS FUN FACTS PUBLICATIONS E-BOOKS SUBSCRIBE

Spotlight

Patented extract of *Boswellia serrata* shown to support joint health in as little as five days with low daily dose

July 20, 2022
Subscribed News

Results showed that subjects taking the patented *Boswellia serrata* extract experienced noticeable relief as early as five days into the trial, and used less than one-tenth the amount of NSAIDs. (PLT) *Boswellia serrata* (WOS) extract showed WOMAC function, with low WOMAC scores of 47.9, 49.9%, 44.4%, 50.3%, 47.4%, and 48%, respectively.



Topics

- Beauty
- Biotech
- Brain Health
- Delivery Systems
- Digestive Health
- Food & Beverage
- Heart Health
- Herbs & Botanicals
- Immune Support
- Joint & Bone Health
- Omega 3

Nutraceuticals World MAGAZINE NEWS EXCLUSIVES NUTRACEUTICALS WORLD

Study to Support Joint Function in Five Days

PLT's AprèsFlex was studied for its short-term effects on joint function in participants with knee osteoarthritis.





PLT Joint Health Case Study

Messaging brands are leveraging in the market based on our industry-leading clinicals

CASE STUDY



Case study: Osteo Bi-Flex Joint Health



Delivering on the goal of creating a lifetime's worth of value for customers

PRODUCTS WITH 5-LOXIN® ADVANCED



Triple Strength



Triple Strength with Vitamin D



Ease



Triple Strength Plus Turmeric



One Per Day



Triple Strength MSM

- 5-Loxin Advanced (ApresFlex) is the main ingredient that powers nearly all of The Bountiful Company's claims
- It is included in the core formula of Osteo Bi-Flex (meaning it is in every single SKU).

We've been #1 for 13 years

Osteo Bi-Flex® is once again named pharmacists' most recommended brand of joint supplements.

[LEARN MORE](#)

Experience Improved Joint Comfort in 7 Days**

Osteo Bi-Flex® is the drug-free way to help enjoy movement and improved joint comfort in 7 days.**

[LEARN MORE](#)

#1 Pharmacist Recommended Brand
BONE/JOINT STRENGTHENERS
2019-2020
US News Pharmacy Times

Osteo Bi-Flex JOINT HEALTH®
TRIPLE STRENGTH
Shows Improved Joint Comfort within 7 Days!***
GLUCOSAMINE CHONDROITIN with JOINT SHIELD®

Osteo Bi-Flex JOINT HEALTH®
TRIPLE STRENGTH + Vitamin D
Shows Improved Joint Comfort within 7 Days!***
GLUCOSAMINE CHONDROITIN with JOINT SHIELD®

Osteo Bi-Flex JOINT HEALTH®
EASE
Advanced Triple Action
Shows Improved Joint Comfort within 7 Days!***
MSM Formula
GLUCOSAMINE and MSM with JOINT SHIELD®

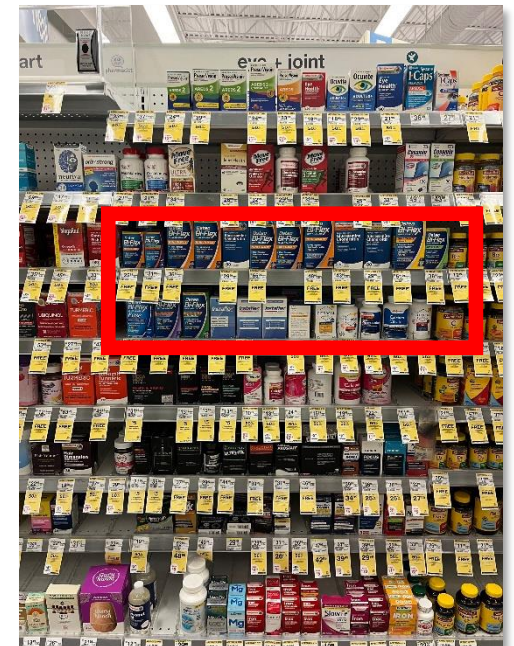


Case study: Osteo Bi-Flex Joint Health

Osteo Bi-Flex is packed on major retail shelves across the United States – a prime spot for consumer recognition



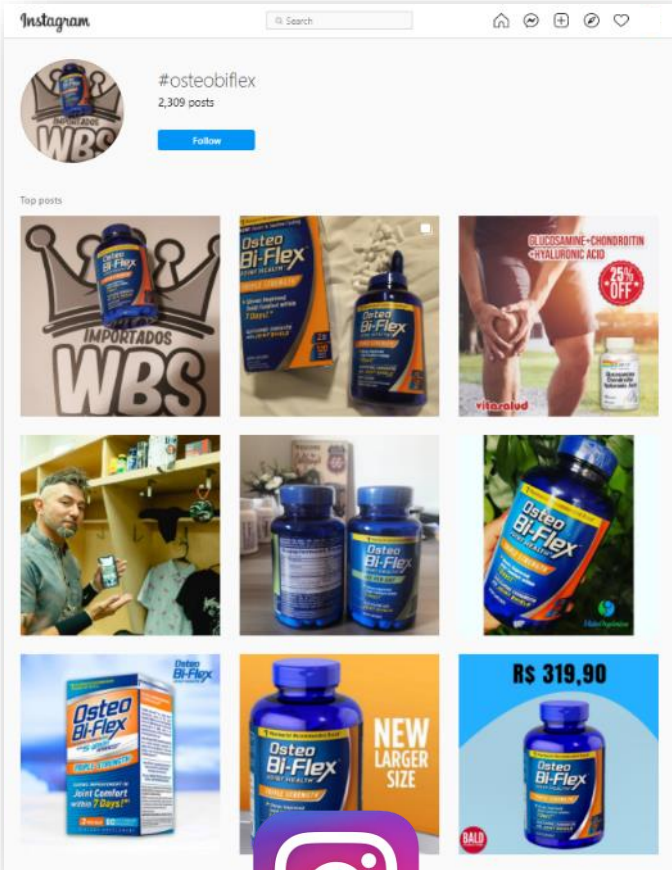
Walgreens





Case study: Osteo Bi-Flex Joint Health

Osteo Bi-Flex has built up top recognition among consumers interested in joint health products – opens the door for exciting promotional opportunities



Nestlé @Nestle · Apr 30
Nature's Bounty, Solgar, Osteo Bi-Flex, and Puritan's Pride will be joining the Nestlé family!
These brands will be integrated into Nestlé Health Science and complement our existing health and nutrition portfolio.
Learn more nes.tl/HealthNuBrands
#Health #Nutrition #Nestlé





Case study: Osteo Bi-Flex Joint Health

Consumer testimonials demonstrate the difference **AprèsFlex** makes in the lives of people each day



★★★★★ Great for arthritis relief!

Reviewed in the United States on October 21, 2022

Size: 28 Count (Pack of 2) | [Verified Purchase](#)

was able to try this product for 6weeks(free) via a promotion at a sporting event years ago when my PA suggested i stop taking a perscription med...

it helps my pain better than the prescription ever did, my hands & fingers do not ache all night anymore , i am not stiff in the morning and it is 1 small pill a day. Best otc pill ever!!

4 people found this helpful

★★★★★ Lives up to the hype!

Reviewed in the United States on December 5, 2020

Item Package Quantity: 1 | [Verified Purchase](#)

This really does work! I'm 61 and walk 1 1/2 miles to work every morning and **after just 6 days of Osteo the walk is easier.**

★★★★★ Excellent product

Reviewed in the United States on March 28, 2022

Item Package Quantity: 1 | [Verified Purchase](#)

This is an excellent product. **The pain I Had in my knees is barely noticeable now. This product also contains Magnesium, which is great for preventing nightly muscle spasms, a component you can't find in similar products.**

It always arrives as promised.

2 people found this helpful

★★★★★ THE BEST JOINT VITAMIN OUT THERE!

Reviewed in the United States on December 27, 2020

[Verified Purchase](#)

This is the only brand of a joint vitamin I will take. It clearly helps my knee inflammation! I purposely went without it for about 2 weeks just to see if I noticed a difference, and let me tell you...I will never go without it again. It really works. Thank you Osteo-BiFlex and Amazon! 😊

★★★★★ My Miracle Drug

Reviewed in the United States on August 29, 2020

[Verified Purchase](#)

I am reluctant to take supplements but for me Osteo Bi-Flex has been a miracle drug. I had pain and weakness in my hip and leg. I could not walk far without sitting and resting. A friend recommended Osteo Bi-Flex. I began taking one pill in the morning and one at night. **By day two I was already feeling some relief. By the end of thirty days I was totally free of pain.** I continue to take it morning and night although I no longer experience any pain or weakness. Be aware that Osteo Bi-Flex comes in several varieties -- I take the variety labeled "MSM Formula."

★★★★★ Fantastic!

Reviewed in the United States on December 11, 2019

[Verified Purchase](#)

I had very bad knee pain in my left knee and was desperate to find relief. **It was impacting my life and movement every day.** I had a very sore spot on the inside of my left knee. At the recommendation of a friend, I tried this. After just a few days, I thought my knee was feeling better. **After taking 2 pills each day for seven days, the improvement was remarkable! After just one week, the pain was about 85% better.** It continues to improve and I anticipate that my knee will be completely back to normal soon. I highly recommend this product!

41 people found this helpful

★★★★★ Works great!

Reviewed in the United States on September 9, 2022

[Verified Purchase](#)

I was experiencing some knee pain. Started taking this, **noticed improvement within 3 days and pain was completely gone after one w**

★★★★★ Worked for me

Reviewed in the United States on December 4, 2022

[Verified Purchase](#)

I had achy joined and **after 5 days I noticed the pain going away**

Triple Strength



Great product!

I have been using your product now for over 3 yrs. They have made a huge difference in my knees and joints. I would not go a day without using your products.

- Matilda

One Per Day Inflammatory Response



Miraculous!!!!

Started to use Daily and feel Much better within 15 days..... Never stop to use it anymore.

-- Luciano

One Per Day



Great Size Tablet

They work great for me and only having to take 1 per day is a big plus too.

- Mary

Triple Strength MSM



What A Great Product!!!

OMG!!! This has been blessing, give it a try, you won't be disappointed.

- Debbie

It Works



IT WORKS/HELPS tremendously...I can tell the difference if I miss a few days!!

-- Tammy



Earthlight[®] Whole Food Vitamin D

The cleanest label
Vitamin D on the
market today!





A need across all age groups

Recent analyses of Vitamin D deficiency globally



~1 bil

Of people globally
have low vitamin D
levels

Palacios C, Gonzalez L. Is vitamin D deficiency a major global public health problem?. *J Steroid Biochem Mol Biol.* 2014;144 Pt A:138-145. doi:10.1016/j.jsbmb.2013.11.003



~40%

Of Europeans are
vitamin D deficient

Amrein, K., Scherkl, M., Hoffmann, M. *et al.* Vitamin D deficiency 2.0: an update on the current status worldwide. *Eur J Clin Nutr* 74, 1498–1513 (2020).



~42%

Of the US population
is vitamin D deficient

Cleveland Clinic Mercy Hospital – 42% Percent of Americans Are Vitamin D Deficient. Are You Among Them?



Different demographics respond to Vitamin D

You have the opportunity to differentiate and personalize

- People with **darker skin** are at greater risk of vitamin D deficiency
- People who spend a lot of **time indoors** during the day
- People who **cover their skin** People who live in the **Northern hemisphere**
- **Older people** produce less Vitamin D, have greater rates of deficiency
- Breastfed **infants** who aren't given a Vitamin D supplement
- **Pregnant women** have an increased requirement for vitamin D

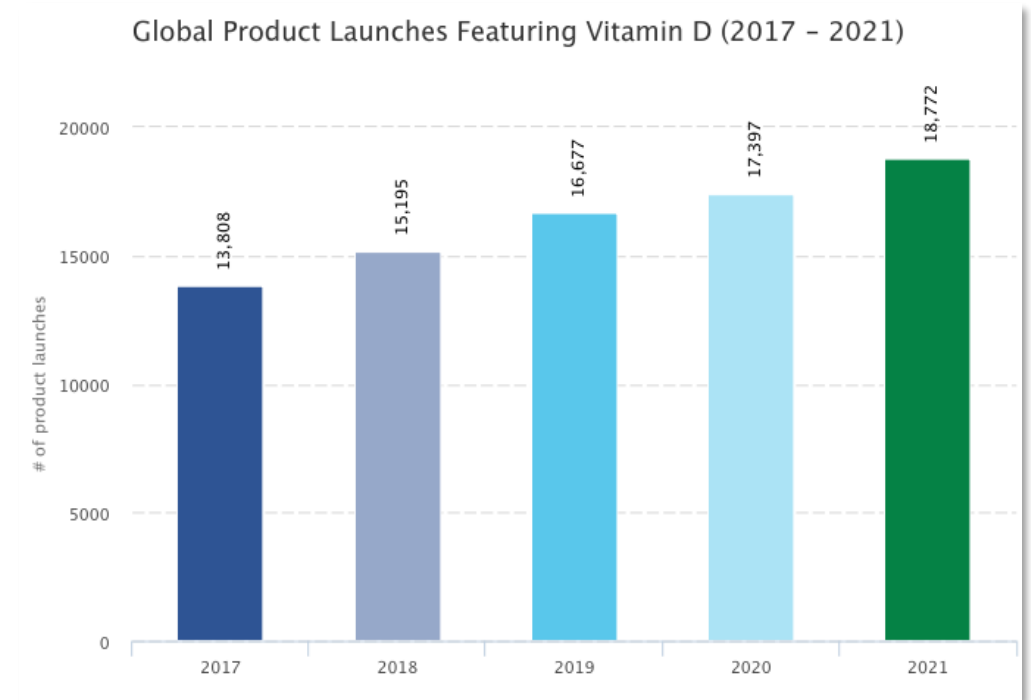




Vitamin D market overview

After sales and usage climbed in 2020, Vitamin D is positioned for continued growth in the years to come

- In line with product launch growth of Vit. D, market forecasters are projecting the overall Vitamin D market to reach \$1.6 billion by 2025 – a CAGR of 7% from '20 - '25
- The Vitamin D2 segment is expected to grow at a higher CAGR than D3 during the forecast period (Markets and Markets)

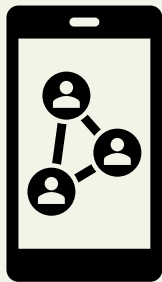


CAGR: 8%



Vitamin D is in the news

Since March of 2020, Vitamin D has been one of the most trending focal points of the media



Public Health England extends Vitamin D supplement advice during lockdown

By Nikki Hamrick

23-Apr-2020 - Last updated on 23-Apr-2020 at 11:03 GMT



Study: Vitamin D supplementation a key factor in COVID-19 severity

By Nikki Hamrick

15-Apr-2021 - Last updated on 15-Apr-2021 at 10:03 GMT



The vitamin D & COVID show: NutraIngredients reveals top 10 stories of 2021

By Will Chu

23-Jan-2021 - Last updated on 23-Jan-2021 at 10:03 GMT



RELATED TAGS: Top 10, Vitamin D, COVID-19

In a year dominated by COVID-19, the countdown for 2021 has been dominated by stories about the gut, vitamins, minerals and anything else linked to supporting immune health and warding off the virus' effects.

'Overwhelming evidence' supports Vitamin D's immune function benefits

By Stephen Hamrick

22-May-2020 - Last updated on 05-May-2020 at 10:03 GMT



Research continues to link vitamin D levels with better COVID outcomes

By Stephen Hamrick

15-Apr-2021 - Last updated on 15-Apr-2021 at 10:03 GMT



'Strong evidence' that low levels of vitamin D are a predictor rather than a side effect of the pandemic disease

Duffy Hayes | Dec 23, 2021

Better messaging needed to improve vitamin D intake in ethnic minorities, says study

By Nikki Hamrick

09-Dec-2021 - Last updated on 09-Dec-2021 at 10:03 GMT



RELATED TAGS: Vitamins

Food health experts from the University of Surrey are calling for urgent improvements in public health messaging to address vitamin D deficiency in the UK's ethnic minority community.

'Overwhelming evidence' supports Vitamin D's immune function benefits

By Stephen Hamrick

22-May-2020 - Last updated on 05-May-2020 at 10:03 GMT



Congress lauds vitamin D for COVID-19

By Stephen Hamrick

15-Apr-2021 - Last updated on 15-Apr-2021 at 10:03 GMT



Resolution advocates new guidance to encourage vitamin D intake, especially among vulnerable populations.

Todd Runstad | Feb 26, 2021

The potential of vitamins D and K2 for the immune system

By Stephen Hamrick

15-Apr-2021 - Last updated on 15-Apr-2021 at 10:03 GMT



Research suggests several vitamins and minerals may be linked to helping boost immune health mechanisms.

Trygve Bergeland | Mar 25, 2021



The clean label trend

Consumers are more interested in Vitamin D than ever – but they want more than what the market offers today



2 in 5 consumers globally

are more open to buying products are that developed through plant-based technologies



70% of consumers globally

are likely to seek out products that meet clean label requirements



+93% growth in food & beverage

launches with a plant-based claim

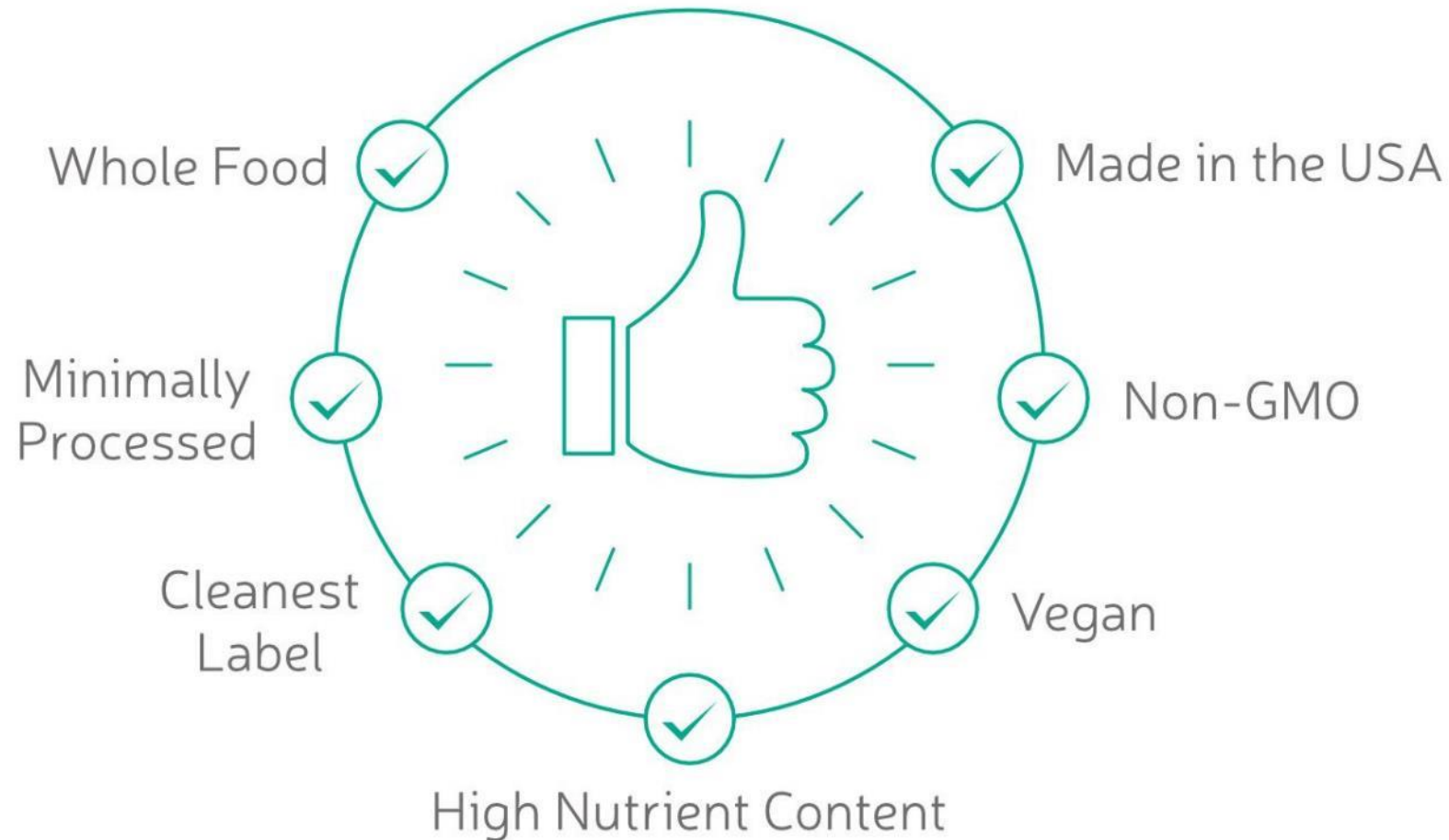
(Global, Nov 2019 to Oct 2020 vs Nov 2020 to Oct 2021)

Source: *Innova Market Insights and MannaTree Partners*



100% natural and minimally processed

A cost-effective, *real* vegan, whole food source of Vitamin D





100% natural and minimally processed

How Earthlight® Whole Food Vitamin D is made



Wholesome White Button & Portobello mushrooms are harvested from farms in Pennsylvania.



Mushrooms are blended using an innovative process.



Blended mushrooms are exposed to safe UV light (just like the sun). This dramatically increases Vitamin D content.



The high Vitamin D product is dried and converted into a powder.



The powder undergoes final quality checks, including Vitamin D concentration.





Earthlight Whole Food Vitamin D



This is the *cleanest label* Vitamin D on today's market. The big value proposition is that it is 'whole food' – but it checks every box you want

Food Category	Maximum Level of Vitamin D2
Breakfast cereals	2.25 µg of vitamin D2/100 g
Yeast-leavened bread & pastries	2.25 µg of vitamin D2/100 g
Grain products & pastas	2.25 µg of vitamin D2/100 g
Fruit juice and fruit/vegetable blend beverages	1.125 µg of vitamin D2/100 mL
Milk & dairy products (excluding fluid milks)	2.25 µg of vitamin D2/100 g/1.125 µg of vitamin D2/100 mL (beverages)
Cheese (excluding cottage cheese, ricotta cheese and hard-grating cheeses)	2.25 µg of vitamin D2/100 g
Meal replacement bars & beverages	2.25 µg of vitamin D2/100 g/1.125 µg of vitamin D2/100 mL (beverages)
Dairy analogues	2.25 µg of vitamin D2/100 g/1.125 µg of vitamin D2/100 mL (beverages)
Meat analogues	2.25 µg of vitamin D2/100 g
Soups & broths	2.25 µg of vitamin D2/100 g
Extruded vegetable snacks	2.25 µg of vitamin D2/100 g
Foods for Special Medical Purposes as defined under Regulation (EU) No 609/2013 excluding those intended for infants	15 µg/day
Food supplements as defined in Directive 2002/46/EC intended for the general population excluding infants	15 µg/day

THE CLEANEST LABEL D ON THE MARKET

These are all front-of-pack statements

All 7 at once only possible with Earthlight





Formulation and manufacturing

Consistent quality products

- ✓ Certified organic grades available
- ✓ Reproducible nutrient composition
- ✓ Two-year shelf life
- ✓ Low use levels and excellent economics
- ✓ Little to no impact on organoleptic properties of food
- ✓ Little to no impact on food manufacturing processes



Earthlight (mg)	Vitamin D μg	Vitamin D IU
1 mg	1 μg	40 IU
15 mg	15 μg	600 IU
20 mg	20 μg	800 IU



EFSA novel foods approval

Extensive safety review opens EU market to food applications for Earthlight

- ✓ Safety established
- ✓ Food systems identified
- ✓ PLT has exclusivity as UV D2 ingredient for five years





Earthlight[®] gains ANVISA approval in Brazil

Opening up the food fortification and retail supplement markets



- January 2022 approval
- Brazilian Health Regulatory Agency (Agência Nacional de Vigilância Sanitária: ANVISA)
- Allows food fortification sales
- Allows sales in retail supplement products
- Opens 216 million person market
- Adds to Earthlight global footprint



FDA approves food additive petition

Allows use of Earthlight as Vitamin D fortification in 18 categories

- ✓ Safety established
- ✓ Food systems identified
- ✓ Earthlight only FDA FAP-approved Vitamin D in 5 new categories

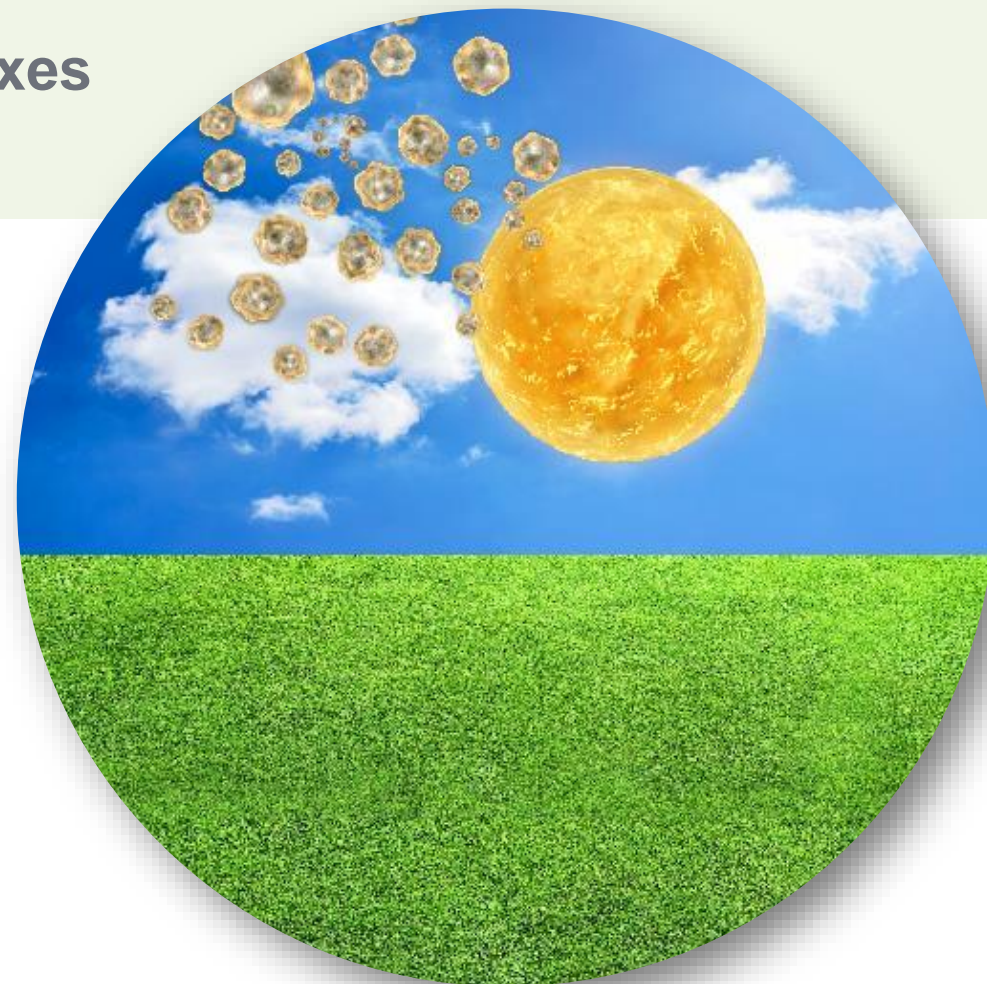




The best Vitamin D solution today

An ingredient solution that checks all the boxes

- ✓ Whole food
- ✓ Minimally processed
- ✓ High nutrient content
- ✓ Clean label
- ✓ Plant-based, non-GMO
- ✓ Won't affect taste or texture
- ✓ Excellent economics







Top Earthlight[®] Applications

Based on PLT market research and experience

✓ Plant Milks / Drinks




✓ Plant-Based Meats




✓ Soups & Soup Mixes




✓ Plant-Based Snacks



✓ Meal Replacement Bars



✓ Supplements





Earthlight PR and media relations that drive brand awareness at the consumer level

Consumers are invested in learning more about the benefits of Vitamin D and Earthlight reaches them with top notch publicity

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ANVISA approves mushroom-derived vitamin D2 for Brazilian market

By Stephen Daniels 09 Feb 2022 Last updated on 18 Feb 2022



prepared FOODS

Complete Line of Plant Proteins

PLT Health Solutions: Approved for Europe
Earthlight® Whole Food Vitamin D receives Novel Foods Approval for European market

Food groups	Maximum Level of Vitamin D2
Breakfast cereals	2.25 µg of vitamin D2/100 g
Yeast-leavened bread & pastries	2.25 µg of vitamin D2/100 g
Cereal products & pasta	2.25 µg of vitamin D2/100 g
Fruit juice and fruit/vegetable blend beverages	1.125 µg of vitamin D2/100 ml
Milk & dairy products (excluding fluid milk)	2.25 µg of vitamin D2/100 g/1.125 µg of vitamin D2/100 ml (beverage)
Cheese (including cottage cheese, ricotta (cheese and milk curdling agent))	2.25 µg of vitamin D2/100 g
Meat replacement bars & beverages	2.25 µg of vitamin D2/100 g/1.125 µg of vitamin D2/100 ml (beverage)
Dairy analogues	2.25 µg of vitamin D2/100 g/1.125 µg of vitamin D2/100 ml (beverage)
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WholeFoods Market **Nutraceuticals**

NEWS GROCERY SUPPLEMENTS HABA SUPPLIERS COLUMNS BLOG

Exploring 5 Top Trends in Food Science



Nutritional Outlook
3,200 followers

#Mushroom derived vitamin D gets Brazil approval. Earthlight, a whole-food #vitaminD ingredient provided by PLT Health Solutions, has gained approval from ANVISA, allowing its use as an ingredient in #food, #beverage ...see more



Plant-based vitamin D ingredient Earthlight approved for Brazilian market
nutritionaloutlook.com • 2 min read

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BEHIND GREAT SATISFACTION ARE ALWAYS GREAT RAW MATERIALS

PLT wins novel foods approval for mushroom-based Vitamin D



FOOD TECHNOLOGY MAGAZINE | ARTICLE

Focus on Immune Health

September 1, 2020



Nutraceuticals World

Mushroom-Derived Vitamin D Source Receives Regulatory Approval in Brazil

Earthlight Whole Food Vitamin D delivers 1,000 micrograms (40,000 IU) of vitamin D per gram of ingredient.



02.18.22
Earthlight Whole Food Vitamin D has received

Beverage Industry

Immunity-conscious consumers seek fortified beverages

Consumers seek improved health, on-the-go nutrition



Humboldt Coffee Co. launched a vitamin-infused cold brew shot, Q&A Valley (Immunity). Packaged in 2-ounce ready-to-drink bottles, the shot is fortified with vitamins C, Vitamin D3, and L-theanine. (Image courtesy of Humboldt Coffee Co.)

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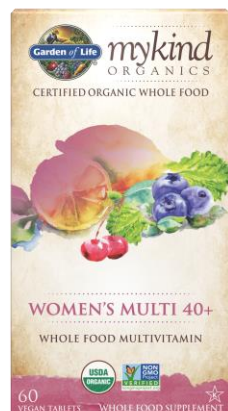
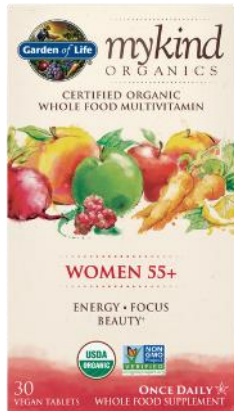
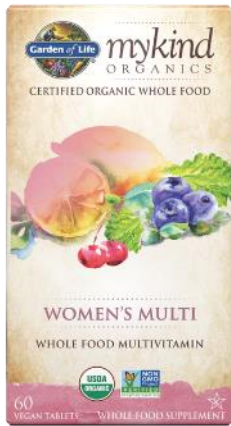
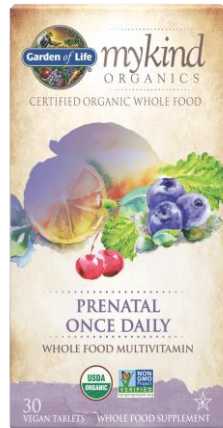
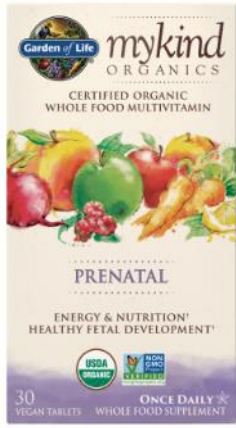
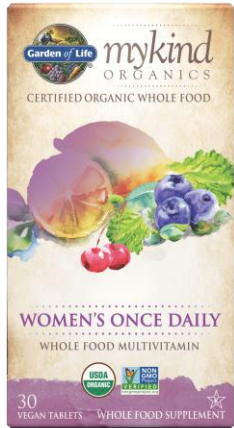
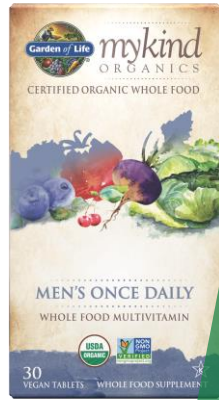
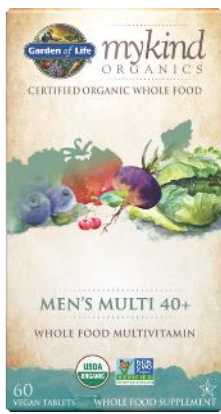
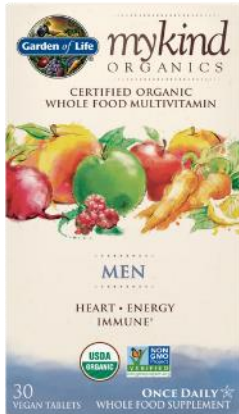
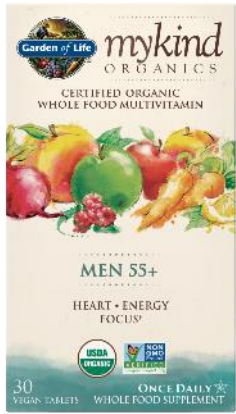
PLT achieves food additive status for mushroom vitamin D ingredient





Earthlight® Success Stories

How companies translate science into compelling consumer messaging!



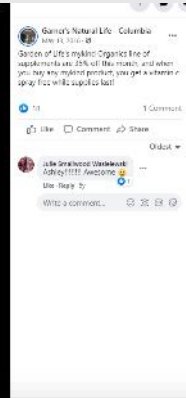
Garden of Life® mykind Organics

The first Certified USDA Organic, Non-GMO Project Verified, Certified Vegan, Certified Gluten Free multivitamins

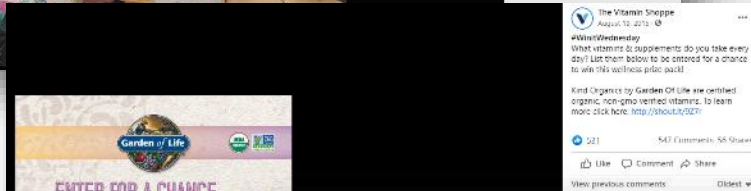


Case study: Garden of Life's mykind Organics

Internal brand success has led to product promotion through other media partners



10% OFF Garden of Life Multivitamins





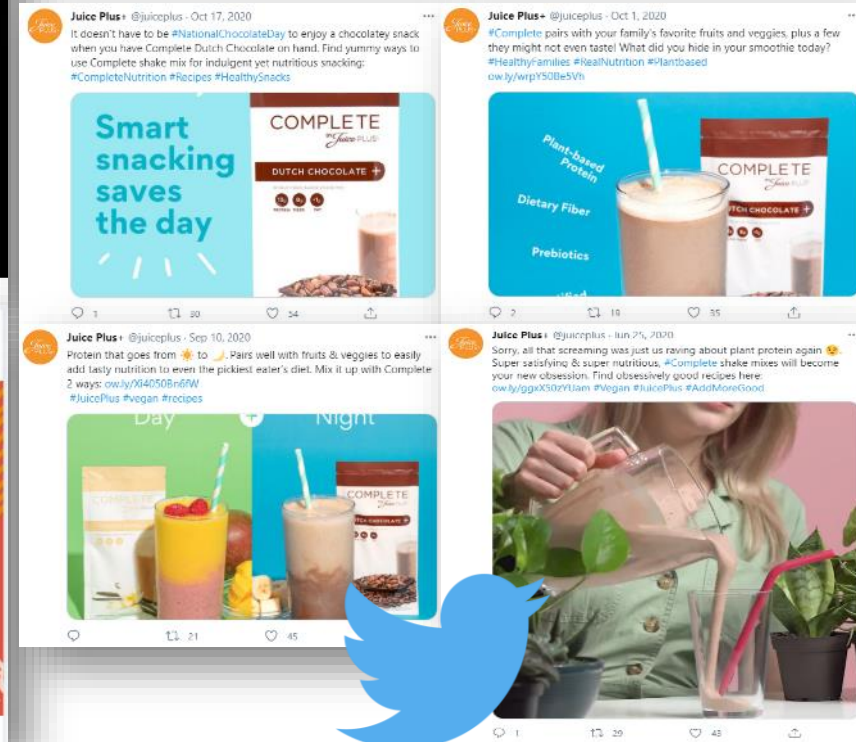
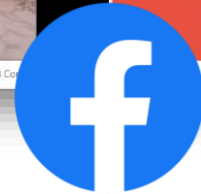
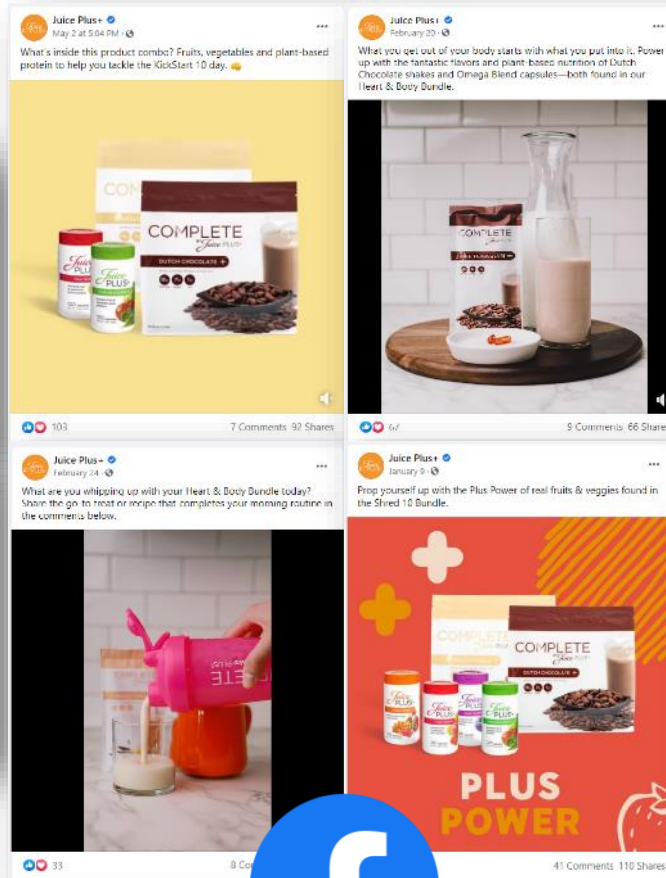
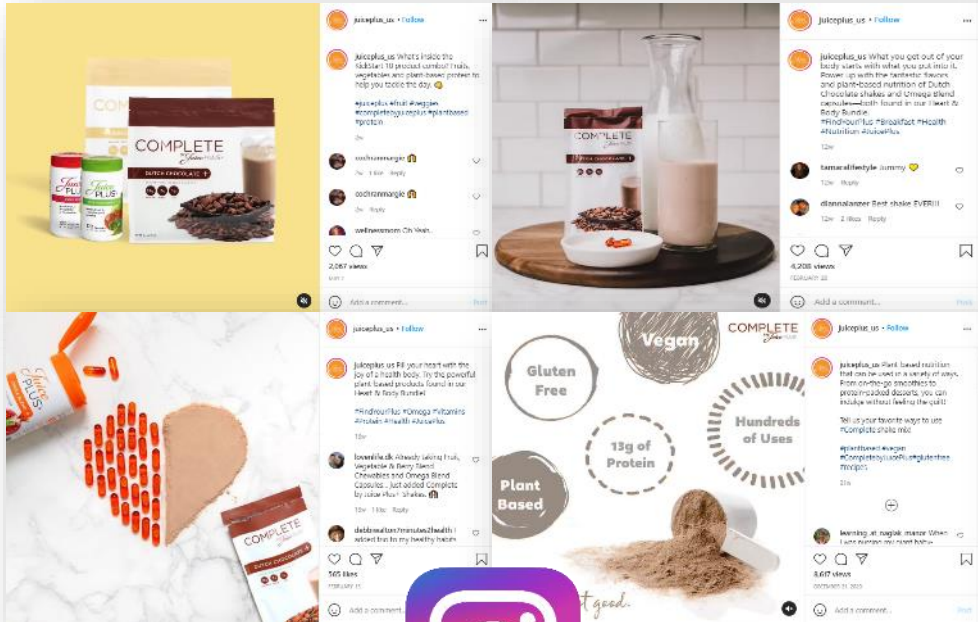
Complete by Juice Plus[®]+

Delicious, on-the-go plant-based nutrition shakes to support your day



Case study: Complete Shakes by Juice Plus+

Juice Plus+ has been very active pushing Earthlight product posts on each social channel





Sunfood™ Superfoods

A powdered superfood drink that can help keep your immune system balanced



Case study: Sunfood Superfoods Organic Mushrooms

Social push has been not only towards Earthlight, but organic mushrooms as a whole





Uplift – Good, Mood, Food

Digestive and mood organic plant-based prebiotic fiber powder



Case study: Uplift's Daily Uplifter Fiber Powder

Uplift is consistent with a product focused approach on social media

The collage displays a variety of social media content for Upliftfood. On the left, Instagram posts show product packaging, a woman holding a product, and a child with a product. The right side features Facebook posts with video thumbnails and captions, including a giveaway announcement and a 'Mid-day gut happy bliss ball date coming right up!' post. A large Facebook logo is overlaid on the bottom right.



GoodBelly[®] Probiotics

Powerhouse dairy-free shot that contains Vitamin D to help support bone health



Case study: GoodBelly Probiotics Bone Shot

New product launch paired with social promotion has led to early success

Instagram Post 1:
 goodbellyprobiotics • Follow
 New Product Alert! We've always got your belly in mind, and now we're looking out for your bones too! This juicy powerhouse contains Vitamin D, calcium and THREE different probiotic strains to help support bone health. Now available (and on sale through 12/31) at your local Whole Foods Market.

Instagram Post 2:
 GoodBelly January 21
 Is your whole fam doing the 12 Day Belly Reboot? Us too 🥰
 #DrawerFullOfGoods
 Get your gut health back on track, sign up here:
<https://goodbelly.com/12-day-reboot/>

Facebook Post:
 GoodBelly November 18, 2019
 New Product Alert! We've always got your belly in mind, and now we're looking out for your bones too! This juicy powerhouse contains Vitamin D, calcium and THREE different probiotic strains to help support bone health. Now available (and on sale through 12/31) at your local Whole Foods Market.

Amazon Listing:
 GoodBelly Probiotic Functional Shots Bone Shots
 \$6.99+ · Out of stock · Brand: Goodbelly
 We've always got your belly in mind, and now we're looking out for your bones too! This juicy powerhouse contains Vitamin D, calcium and three ...
 * Check website for latest pricing and availability. Images may be subject to copyright. Learn More

Out of stock!!!

CONFIDENTIAL PREVIEW

Nutricog

Clinically studied brain
support and cognitive
enhancement



PLT
HEALTH SOLUTIONS





Nutricog Composition

Patented combination of
Haritaki (*Terminalia chebula*)
Boswellia (*Boswellia serrata*)

Standardized to:

- Gallic acid
- Ellagic acid
- Amyrins



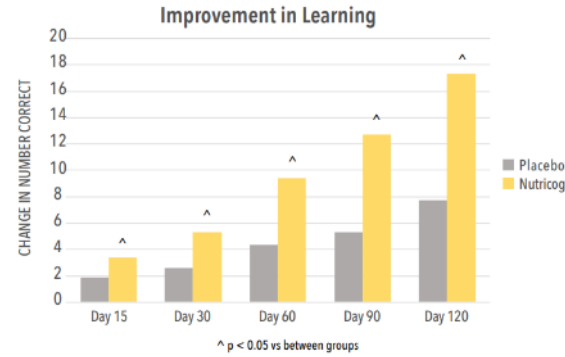


A new, breakthrough study

A randomized, double-blind, placebo-controlled clinical trial assessed Nutricog for its ability to impact the processes that underpin learning and memory: the encoding, combining, storing, and recovering of verbal information

Improved Learning Performance

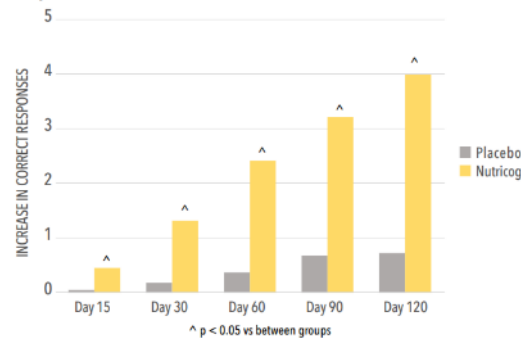
Acquiring new information is important for overall cognitive function and essential for long-term brain health



Improved Attentional Focus with Proactive Interference

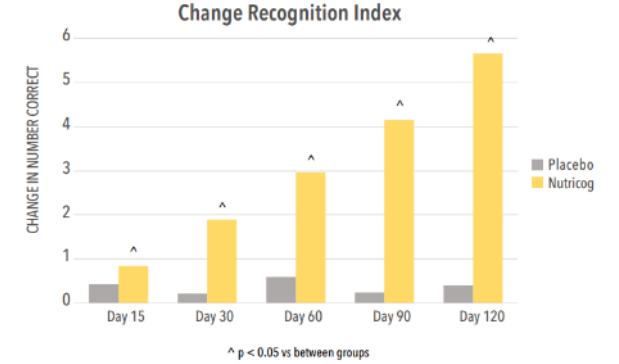
The ability to recall new information despite distracting factors is a challenging aspect of modern life.

Improvements in Recall with Proactive Interference



Improvement in Recognition Memory (episodic memory)

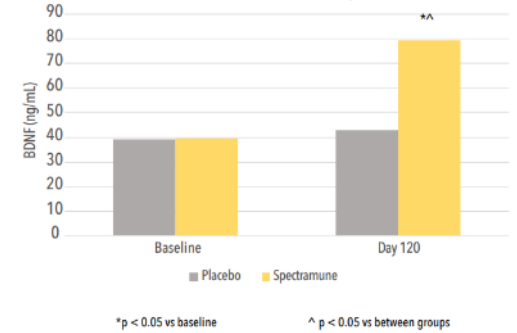
Recognizing familiar faces, places, or finding your way on a route infrequently traveled



Increased Neurogenesis and Neuroplasticity

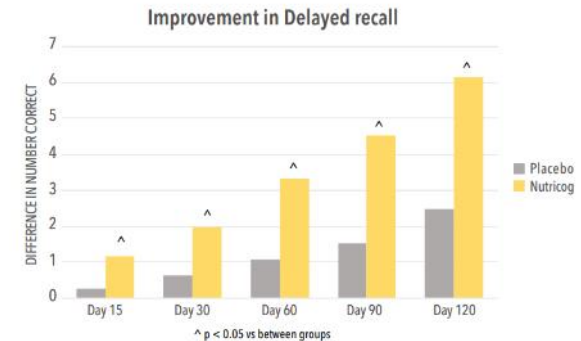
Increases in serum BDNF point to better neuronal survival, growth and plasticity

Serum Brain-derived Neurotrophic Factor



Improvement in Delayed Recall (episodic memory)

Managing everyday events with better recall of the important details





Next-Level Cognition Support

**300 mg/d for comprehensive
cognitive benefits**

**Significant results in just
15 days**

Clinical findings after 4 months of use include:



- Improved immediate recall capacity and short-term memory
- Improved learning performance; faster rate of learning
- Improved attention, focus, and concentration; reduced distractibility
- Improved long-term retention of details
- Improved recognition memory
- Increased BDNF
- Better sleep



Slendacor[®] Weight Management Complex

Building a weight loss brand consumers
can trust

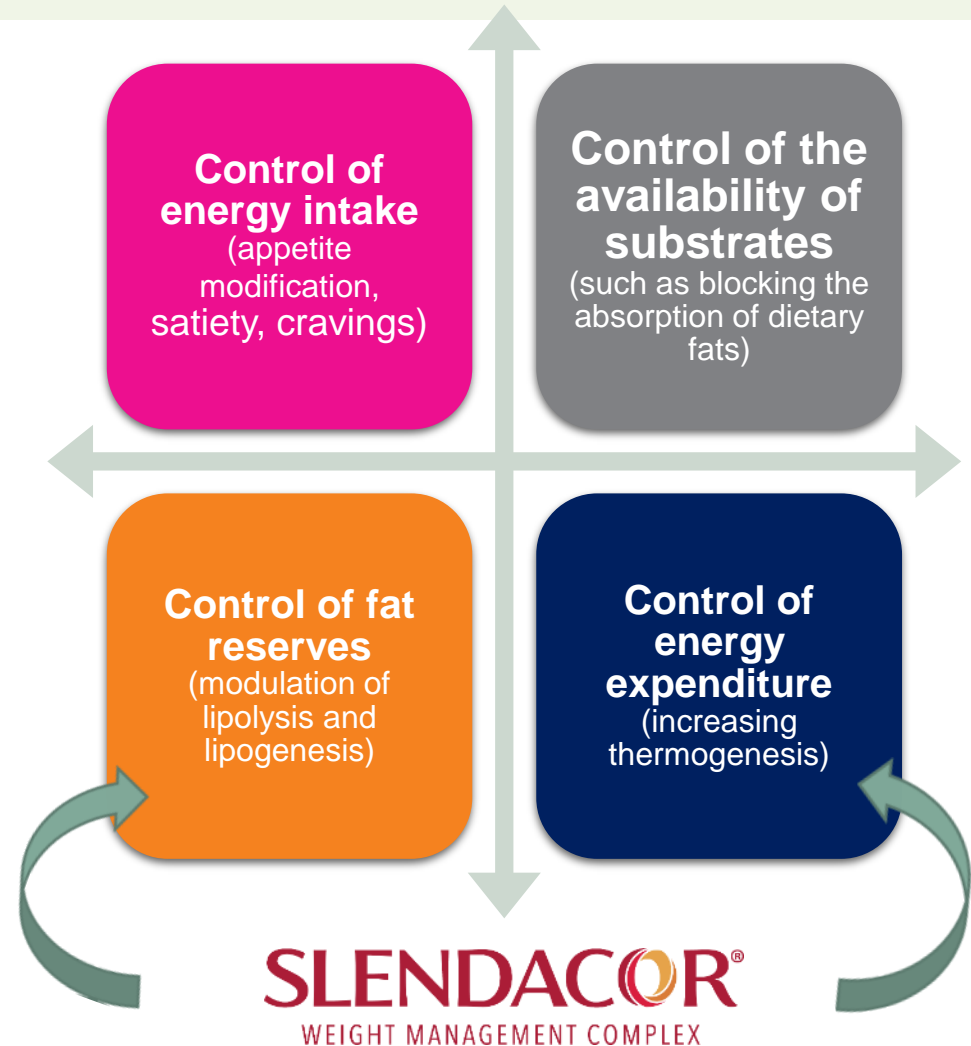


How do weight management supplements work?

Multiple mechanisms are involved in energy metabolism

Energy metabolism

- Highly conserved by redundant mechanisms
- Regulated by many pathways
- Approaches to weight management target different mechanisms
- Multiple metabolic targets support greater efficacy and side benefits





Composition

A synergistic blend of three commonly used spices with traditional medicinal and culinary uses

TURMERIC (*CURCUMA LONGA*)



DRUMSTICK LEAVES (*MORINGA OLEIFERA*)



CURRY LEAVES (*MURRAYA KOENIGII*)





Composition

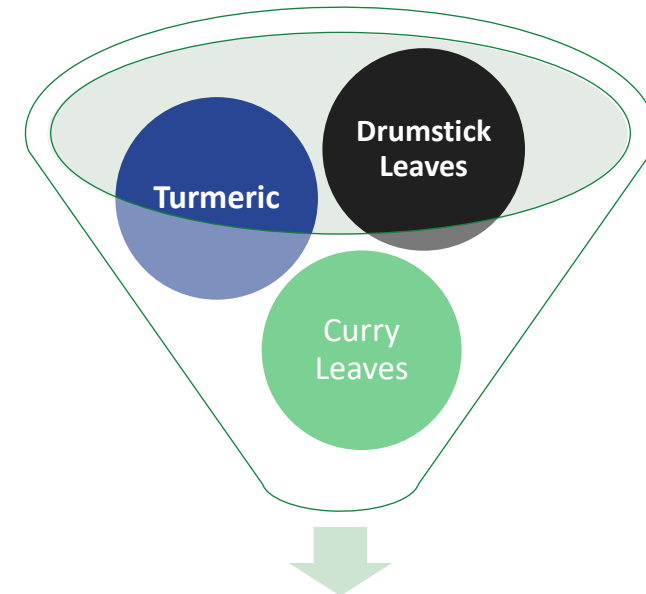
Slendacor shows significantly improved performance over individual components and other combinations

The ability of natural compounds to work synergistically

- Inhibit fat accumulation (adipogenesis)
- Promote the breakdown of fat in fat cells (lipolysis)

% Inhibition of adipogenesis in 3T3-L1 cells

Test Product	% Inhibition
<i>Moringa oleifera</i> Leaf Extract	25.70
<i>Murraya koenigii</i> Leaf Extract	24.86
<i>Curcuma longa</i> Extract	29.50
Composition 1	25.56
Composition 2 SLENDACOR®	40.50
Composition 3	39.89



SLENDACOR®
WEIGHT MANAGEMENT COMPLEX



Compelling, evidence-based claims

Three well-designed clinical trials / Compelling consumer messaging

**Compared to diet and exercise alone, the trial on SLENDACOR shows:*

~12
Pounds Lost

6X
More Effective*

4X
Better BMI Improvement*

Up to **15%**
More Calories Burned at Rest*

WEIGHT

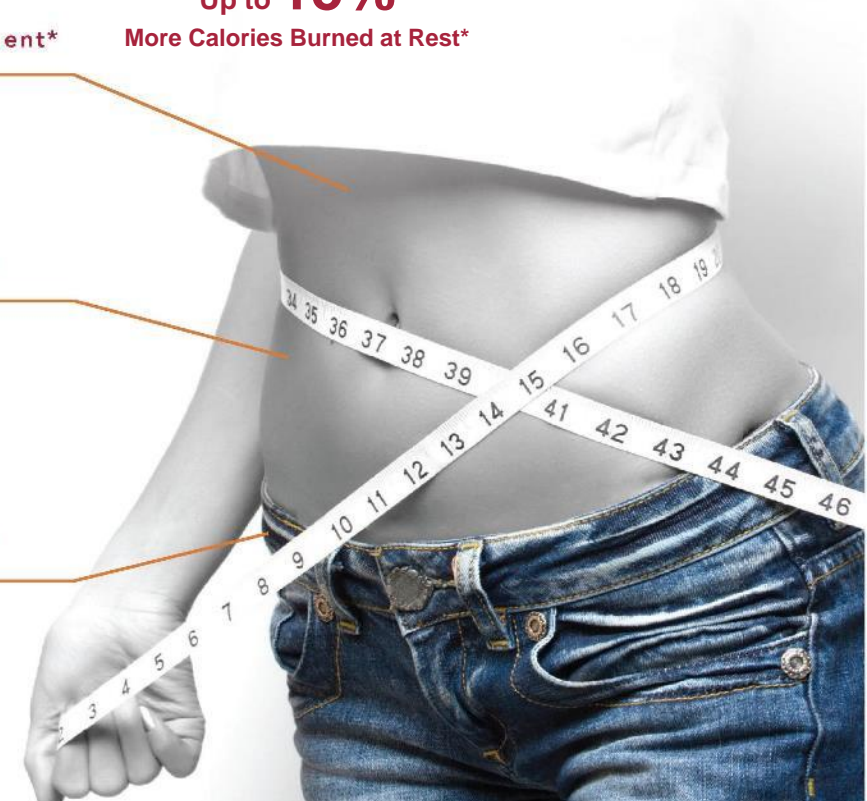
- Consistent results in 3 human clinical trials
- Statistically significant weight loss within 14 days
- Weight and inches reduction in women and men
- Flexible dose division: Efficacy demonstrated at once (900 mg), twice (450 mg), or three times (300 mg) per day
- Burn up to 15% more calories at rest; non-stimulant
- Patented formula

4X
More Effective*

**WAIST SIZE
REDUCTION**

3.2X
More Effective*

**HIP SIZE
REDUCTION**





SLENDACOR[®]
WEIGHT MANAGEMENT COMPLEX

A weight management journey that starts fast

An award-winning ingredient with multiple clinicals that shows results as soon as 14 days

WINNER
NUTRA
INGREDIENTS
AWARDS 2017

WINNER
NUTRA
INGREDIENTS USA
AWARDS 2022



Composition

- ✓ Patented dietary ingredient derived from three commonly used spices with traditional medicinal usages
 - Turmeric (*Curcuma longa*)
 - Drumstick leaves (*Moringa oleifera*)
 - Curry leaves (*Murraya koenigii*)



Dosage

- ✓ Clinical efficacy demonstrated for 900 mg/day
 - Once, twice, or three times per day dosing all supported by clinical research
- ✓ Multiple application dosage forms (water dispersible grade available)



Regulatory / IP

- ✓ Pre-DSHEA (sold prior to 1994)
- ✓ Three herbs commonly found in foods and supplements
- ✓ Kosher
- ✓ International Publication number: WO 2009/066303 A2
- ✓ US Publication number: US 2010/0227828 A1



Why Slendacor?

- ✓ Global success in five continents
- ✓ 3 gold-standard studies that demonstrate thermogenesis and significant weight loss within 14 days
- ✓ Sustained weight loss in both women and men
- ✓ Non-stimulant thermogenesis



What kind of formulator will buy Slendacor?

We look to people who value what we offer – which is a lot!

Big Brand/
Weight Loss
Leader 1,2,3

Big Brand/
Sports
Nutrition 1,2,4

Physician
Brand 5,6

Fashion
Forward
Innovator 4

Smaller/Niche
Weight Loss

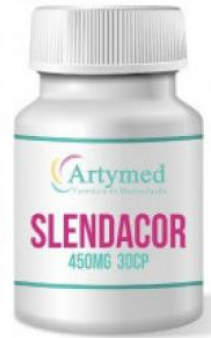
Mass Market/
Low Cost

1. Wants to develop a **market leading brand**
2. Has the **resources** to educate and promote
3. Is **risk-averse** to quality issues and bad press
4. Understands that **formulation flexibility** and **fast results** are lifestyle issues
5. Believes in **HEALTHY weight loss** – not a quick fix silver bullet
6. Focused on **overall metabolic health**



Slendacor® International Product Success Samples

International Product Success continues to build in primary market targets





Slimvance® and Slendacor®

United States Key Product Features





Key strengths define our business

- ✓ Science
- ✓ Quality
- ✓ Innovation
- ✓ Collaboration



Thank you!

Questions?



Want to learn more or request a sample?
Visit our website -

www.plthealth.com

rodolphe.hang@plthealth.com



PLT
HEALTH SOLUTIONS