# LifeExtension.com September 2022

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Probiotics for Vaginal Health

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**Target Aging with Carnosine**

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**PLUS: Page 20**

Probiotics for Vaginal Health
THREE WAYS TO BUILD STRONGER BONES

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* CAUTION: If you are taking a vitamin K antagonist (e.g., warfarin), consult your healthcare practitioner before taking this product.

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<td>A scientific review published in May 2022 describes the therapeutic potential of a supplement called carnosine. This review advocates for more clinical trials to evaluate carnosine’s ability to combat common disorders afflicting aging humans.</td>
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<td>For the past 23 years, Life Extension® has been privileged to interact with a medical oncologist who has consistently identified the world’s most effective approaches to prostate cancer diagnosis and treatment.</td>
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## DEPARTMENTS

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<td>The number of American men dying of prostate cancer is increasing. Yet, innovative treatments demonstrate favorable outcomes with minimal side effects. Early diagnosis is key, especially PSA screening in men 40 and older.</td>
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<td>PSA testing increases after guidelines updated; vitamin E tocotrienols help prevent weight gain; low ergothioneine levels linked to dementia and cognitive impairment; specialized pro-resolving mediators (SPMs) may help treat MS.</td>
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Out with the Bad

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Ingrid
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**MEDICAL ADVISORY BOARD**

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Richard Black, DO, is a dedicated nuclear medicine physician practicing as an independent contractor out of Cleveland, Ohio. Dr. Black is board-certified in internal medicine and nuclear medicine, and is licensed to practice medicine in multiple states throughout the United States.

John Boik, PhD, is the author of two books on cancer therapy, Cancer and Natural Medicine (1996) and Natural Compounds in Cancer Therapy (2001). He earned his doctorate at the University of Texas Graduate School of Biomedical Sciences with research at the MD Anderson Cancer Center, focusing on screening models to identify promising new anti-cancer drugs. He conducted his postdoctoral training at Stanford University’s Department of Statistics.

Aubrey de Grey, PhD, is a biomedical gerontologist and Editor-in-Chief of Rejuvenation Research, the world’s highest-impact, peer-reviewed journal focused on intervention in aging. He received his BA and PhD from the University of Cambridge in 1985 and 2000 respectively. Dr. de Grey is a Fellow of both the Gerontological Society of America and the American Aging Association and sits on the editorial and scientific advisory boards of numerous journals and organizations.

Deborah F. Harding, MD, is founder of the Harding Anti-Aging Center. She is double board-certified in internal medicine and sleep disorder medicine. She also earned the Cenegenics certification in age management medicine. She is a faculty member of the University of Central Florida Medical School.

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L. Ray Matthews, MD, FACS, is a professor of surgery and director of Surgical Critical Care at Morehouse School of Medicine in Atlanta, GA, and a trauma and critical care surgeon at Grady Memorial Hospital. He has published widely and is known as one of the top vitamin D experts. Dr. Matthews has spoken before the U.S. Food and Drug Administration several times, presenting a recent update about clinical research on vitamin D.

Ralph W. Moss, PhD, is the author of books such as Antioxidants Against Cancer, Cancer Therapy, Questioning Chemotherapy, and The Cancer Industry, as well as the award-winning PBS documentary The Cancer War. Dr. Moss has independently evaluated the claims of various cancer treatments and currently directs The Moss Reports, an updated library of detailed reports on more than 200 varieties of cancer diagnoses.

Michael D. Ozner, MD, FACC, FAHA, is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of The Great American Heart Hoax, The Complete Mediterranean Diet and Heart Attack Proof. For more information visit www.drozner.com.

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Xiaoxi Wei, PhD, is a chemist, expert in supramolecular assembly and development of synthetic transmembrane nanopores with distinguished selectivity via biomimetic nanoscience. She has expertise in ion channel function and characterization. She founded X-Therma Inc., a company developing a radical new highway towards non-toxic, hyper-effective antifreeze agents to fight unwanted ice formation in regenerative medicine and reduce mechanical icing.

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I keep losing friends and acquaintances at the peak of their careers to preventable diseases.

One reason is failure to control elevated blood pressure.

For most people, just one anti-hypertensive medication taken at bedtime will slash their risk of heart disease, stroke, and kidney failure.

A question some people ask is:
"How long do I have to take that one pill every night?"

My response:
"As long as you need it to optimize your blood pressure."

Inane rebuttals include:
"I don’t want to take a pill every night."

I derive no pleasure when these people are stricken with a catastrophic illness and say, "I should have listened to you years ago."

Instead, I blame myself for failing to convey the lifesaving message.

A similar situation occurs in relation to prostate cancer.

The number of American men dying of metastatic prostate cancer has increased significantly according to a March 2022 JAMA report.¹

This increase appears to have begun after 2008 and 2012, when the U.S. Preventive Services Task Force (USPSTF) recommended against routine PSA screening.

The increase in prostate cancer deaths occurs, in part, due to the lack of preventive measures, the obesity epidemic, and the fact that:

Most men over age 40 don’t utilize PSA blood tests to screen for prostate cancer.

One reason for avoiding tests is fear of side-effect-prone treatments. Yet more modern methods are eradicating prostate malignancies without the harsh effects inflicted by surgical removal or intensive radiation therapies.

We describe one of these treatments in this month’s issue.

After reading this editorial, I hope readers will not overlook the basics when it comes to preventing needless tragedies.
Take a Break from Work

Brian Goldner’s family did not openly discuss details of his seven-year ordeal with prostate cancer, but from what I surmise, he put in long hours to achieve remarkable business successes for Hasbro®.

In 2014, Brian was diagnosed with prostate cancer around age 51.

Age 40 is when men should have their initial PSA screening.

The challenge many of us confront (including me) is finding time to take a break from work to have important health checkups.

It’s not always easy, especially with procedures like colonoscopies.

I jokingly state when preparing for my colonoscopies that there is “always something better to do” than face a two-day colonoscopy ordeal.

Approximately 50,000 colorectal cancer patients are expected to die in 2022.

Large numbers of needless disabilities and deaths occur because essential diagnostics are being delayed or avoided by large segments of the American public.7-9

Please don’t let this happen to you.

Why Hasbro® Is More Than a Toy Company

I suspect everyone reading this article has engaged with a Hasbro® product, either playing one of their board games like Monopoly®, or purchasing toys for children.

Even with these kinds of brands, there is only so much growth potential.

In 2008, a dynamic individual named Brian Goldner changed that. He executed a strategy that turned toys like G.I. Joe and Transformers into blockbuster movies for children.

Brian Goldner transformed Hasbro® into a multimedia company that won coveted licenses to make toys based on Star Wars and Marvel franchises.

His tireless work ethic enabled Hasbro® to achieve unprecedented growth, but I fear at a personal cost to Brian’s health that many of us also confront.

The American Cancer Society estimates that 34,500 men will die of prostate cancer this year in the United States.2

These deaths are occurring despite the ability to detect prostate cancer in an early stage when cure rates are exceedingly high.3

Dietary changes and better medications show promise in the management and treatment of prostate cancer.4-6 But early diagnosis is key and reinforces the importance of PSA screening in men aged 40 and older.

Last year, a famous individual who had battled prostate cancer for seven years died at the young age of 58. His status as CEO of Hasbro® generated headline news with outpourings of grief that such a talented individual was no longer with us.

In This Month’s Issue...

Life Extension® has published dozens of articles on how to reduce one’s risk of contracting prostate cancer and how to better treat it.

The article on page 28 of this month’s issue describes dietary patterns shown to confer cancer protective benefits.
Page 56 provides an update about a cancer treatment we reported on in 2016 that has now entered a formal clinical trial.

Page 72 links to articles for prostate cancer patients. They describe how to properly stage a prostate malignancy and what therapies are best suited based on individual need.

For women, the article on page 20 describes a novel way to improve vaginal health.

Any form of cancer treatment involves disruptive stress, expense, and side effects.

Readers are encouraged to take proactive steps today to reduce their risk of malignancies and other preventable illnesses.

For longer life,

William Faloon, Co-Founder
Life Extension®

References

"Friends" Sitcom Actor Dies of Prostate Cancer at age 59

As I was writing this editorial, another noteworthy individual perished after a four-year battle with prostate cancer.

James Michael Tyler played “Gunther” in the “Friends” television series.

He was diagnosed with prostate cancer during a routine health assessment in 2018 and underwent aggressive therapy.

By June 2021 James announced that he had developed bone metastasis. In October 2021 he died at age 59.

Since his 2018 diagnosis, James Michael Tyler campaigned for early testing and documented his treatments.

I applaud celebrities who convey their personal health issues to the public. It motivates people to take preventive actions.

The amount of needless suffering, and number of deaths from metastatic prostate cancer, however, have increased significantly.
When it comes to your health.

Go Green

Those who drink green tea enjoy better **cardiovascular health**.¹

**Mega Green Tea Extract** provides more of the health-promoting polyphenol **EGCG** than the equivalent of several cups of green tea.

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Blood tests can detect underlying health issues before serious illness manifests.

Until October 1, 2022, readers of Life Extension Magazine can have a PSA blood test plus a CBC/Chemistry panel for only $45.

The CBC/Chemistry panel alone provides far more tests than what most conventional labs check for today.

Just $45 measures cardiovascular risks, PSA, and more including:

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  - MCH (mean corpuscular hemoglobin)
  - MCHC (mean corpuscular hemoglobin concentration)
  - RDW (red blood cell distribution)
  - White blood cell count • Immune Cell Differentiation
  - Count • Platelet count

- **PSA (prostate-specific antigen)**

- **Liver Function:**
  - Alkaline phosphatase
  - LDH (lactate dehydrogenase)
  - AST (aspartate aminotransferase)
  - ALT (alanine transaminase)
  - Total protein • Albumin • Globulin
  - Albumin/globulin ratio
  - Bilirubin

- **Lipid Profile:**
  - Total cholesterol • Triglycerides
  - HDL cholesterol • LDL cholesterol (calc.)
  - VLDL cholesterol (calc.)
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  - Estimated Coronary Heart Disease risk

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  - eGFR (estimated glomerular filtration rate)

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You’ll be sent a list of drawing stations in your area along with a pre-paid requisition. You can walk into the drawing station nearest you at your convenience.

These tests cost far less than what commercial labs charge and you get results back fast. You also have free access to our Wellness Specialists to help review your results.

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Tocotrienols promote HEALTHY DNA function

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Caution: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

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In 2012, the US Preventive Services Task Force (USPSTF) issued guidelines advising against PSA screening in all men, endorsing, instead, individual decision-making in men aged 55-69. That led to a decrease in PSA screening.

In 2017, the USPSTF reversed those guidelines.

A 2022 review published in JAMA Oncology found that updated guidelines for PSA screening, have led to significant increases in men diagnosed with this cancer in all age groups having PSA blood tests.*

This translates into more men being diagnosed at an earlier stage when intent-to-cure treatments are more effective.

The USPSTF revised its guidelines because of intense efforts by groups like Life Extension® that relentlessly advocated for PSA screening in men over age 40.

Editor’s Note: The Food and Drug Administration first approved PSA testing as a screening aid for the diagnosis of prostate cancer in 1994.

* JAMA Oncol. 2022 Jan 1;8(1):41-47.
Tocotrienol Form of Vitamin E Helps Prevent Obesity, Animal Study Finds

The journal *Molecules* reported that members of the vitamin E family known as tocotrienols may play a role in the prevention of weight gain, as shown in a mouse study.*

For 13 weeks, researchers fed mice either a high-fat diet or a control diet that was significantly lower in fat and calories, with or without tocotrienols.

Body weight was measured at the beginning and end of the study.

At the end of the study, animals given a high-fat diet predictably weighed more than those that received a control diet.

Mice that received tocotrienols gained less weight on the high-fat diet and had less white fat accumulation around the kidneys.

Editor’s Note: “Additionally, tocotrienols also inhibited hepatic [liver] damage from obesity,” the authors concluded.

* Molecules. 2022 Mar 28;27(7):2188.
Ergothioneine Levels Linked to Decrease in Dementia, Cognitive Impairment

Higher plasma levels of ergothioneine, an amino acid that occurs in certain mushrooms and other sources, may be associated with less dementia and cognitive impairment, according to an article in Free Radical Biology & Medicine.*

Researchers compared ergothioneine levels in plasma samples collected from 496 men and women recruited from memory clinics and the community.

Researchers observed that people with dementia had the lowest plasma ergothioneine concentrations.

A similar observation was seen in participants with cognitive impairment without dementia who had intermediate plasma ergothioneine levels compared to controls.

Low ergothioneine levels were significantly associated with risk of Alzheimer's disease with or without cerebrovascular disease determined by MRI. Decreased ergothioneine levels were also associated with risk of vascular dementia.

Editor's Note: Higher plasma ergothioneine levels were correlated with greater global cortical thickness of the brain, and volume of the brain’s hippocampus (involved in memory and learning), indicating less atrophy.

One can boost ergothioneine blood levels by incorporating lots of mushrooms in the diet or taking a 5 mg ergothioneine supplement daily.

* Free Radic Biol Med. 2021 Dec;177: 201-211.
Specialized pro-resolving mediators (SPMs) may play a role in the treatment of multiple sclerosis (MS), an autoimmune disease in which chronic inflammation occurs, the *Journal of Neuroinflammation* reported.*

SPMs, produced in the body from fatty acids (including omega-3s), help maintain a healthy post-inflammatory response. Because these fatty acids are not completely converted to SPMs, supplemental SPMs and their precursors may be beneficial.

In a mouse model of MS, SPMs were found to be below the limit of detection, while pro-inflammatory molecules derived from fatty acids were increased. The administration of SPMs to mice suppressed pro-inflammatory molecules, beneficially modified aspects of immune function, enhanced neurologic outcomes, and protected their nerves.

**Editor’s Note:** “When resolution fails, inflammation becomes uncontrolled, leading to chronic inflammation and tissue damage, as occurs in multiple sclerosis (MS),” the authors stated.

**RESTORE YOUTHFUL GUT BALANCE**

With Strawberry Flavored FLORASSIST® Prebiotic Chewable

Item #02203 • 60 vegetarian chewable tablets

1 bottle $15 • 4 bottles $13 each

- With age, our **bifidobacteria** levels **decline** to as little as 5%, creating gut imbalance.¹
- *Increasing bifidobacteria* levels **enhances** digestion and carbohydrate metabolism.
- *Strawberry flavored FLORASSIST® Prebiotic Chewable* helps restore healthy **bifidobacteria** levels in as little as 14 days using **XOS prebiotic.**²
- **1,000 mg** of **XOS** (xyloooligosaccharides) per prebiotic chewable.

References

PreticX™ is a trademark of AIDP, Inc.

For full product description and to order **FLORASSIST® Prebiotic Chewable**, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
With age, our body accumulates senescent cells that affect the day-to-day function of the healthy cells around them.

**Senolytics** are compounds that selectively remove senescent cells.

**Senolytic Activator** contains nutrients designed to target senescent cells for normal elimination.

This formula contains a patented *fisetin* that is more bioavailable than regular fisetin.

The fisetin dose in **Senolytic Activator** provides the potency of 7 capsules of Bio-Fisetin. (Some people take Bio-Fisetin daily for its other health benefits.)

**COMPREHENSIVE SENOLYTIC SUPPORT**

The **Senolytic Activator** formula provides the following nutrients:

- **THEAFLAVINS** (polyphenols from black tea)
- **BIO-QUERCETIN** (ultra-absorbable form)
- **APIGENIN** (a natural flavonoid)
- **BIO-FISETIN** (up to 25 times greater bioavailability)

The suggested dose of the **Senolytic Activator** is 3 capsules once a week. Each bottle lasts 3 months and costs very little.
PROSTATE HEALTH
The best way to keep YOU in the picture.

Ultra Prostate Formula was created to help maintain prostate health. It contains a dozen ingredients to:
• Support healthy urination
• Promote healthy prostate function
• Support healthy prostate cell division

Ultra Prostate Formula is the most comprehensive standardized-ingredient prostate-health supplement.

For full product description and to order Ultra Prostate Formula, call 1-800-544-4440 or visit www.LifeExtension.com

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PROBIOTICS
FOR
WOMEN’S
HEALTH
Most people take probiotics to improve immune and digestive function.

But the intestines are not the only place where healthy bacterial flora are important.

Another site unique to women is the vagina. Healthy vaginal flora can support gynecological health.¹²

An unhealthy mix can increase risk for bacterial, yeast, and sexually transmitted infections, along with fertility problems.¹

Researchers have identified a specific type of Lactobacillus bacteria that has been shown to improve the vaginal microbiome while reducing colonization by potentially harmful microorganisms.³⁵
PROBIOTICS FOR WOMEN’S HEALTH

The Importance of Vaginal Health

The predominant bacteria species present in a healthy vaginal microbiome are those in the Lactobacillus genus.²

When numbers of Lactobacillus drop, it makes room for potentially harmful microorganisms to gain a foothold. Unhealthy yeast like Candida albicans and bacteria such as Gardnerella vaginalis can grow in numbers.²

This shift toward harmful microorganisms in the vagina is referred to as vaginal dysbiosis. If it gets severe enough, it can lead to common infections like bacterial vaginosis or a yeast infection.²

It is estimated that as many as 29% of U.S. women aged 14 to 49 have a vaginal microbiome consistent with bacterial vaginosis,¹ which can cause burning during urination, strong “fishy” vaginal odor, vaginal itching, and abnormal vaginal discharge.⁶

Recurrent vaginal yeast infections (vulvovaginal candidiasis) are also increasingly common, affecting approximately 138 million women annually worldwide.⁷ They are associated with increased risk of infections, inflammation, and negative reproductive outcomes.¹,⁷

Maintain a Healthy Vaginal Microbiome

Scientists have isolated a specific strain of the probiotic bacteria Lactobacillus plantarum that is prevalent in a healthy vaginal microbiome.

This strain has been shown to interfere with the growth of pathogens like Candida yeast by outcompeting them for the ability to attach and thrive.⁸

A study was conducted using vaginal epithelial cells that already contained undesirable microorganisms such as C. albicans, G. vaginalis, Staphylococcus aureus, and Escherichia coli.

L. plantarum was shown to successfully adhere to and help protect these infected cells.⁹

L. plantarum has also been evaluated in several human trials, with impressive results:³,⁵,¹⁰

- Oral intake resulted in L. plantarum colonization of the vagina and an improvement in the vaginal microbiome.
- Lactobacillary grade scores, used to clinically evaluate vaginal microbiome healthy lactobacillus levels, improved significantly.
- In women with vaginal dysbiosis and a history of recurrent yeast infections, there was a significant reduction in redness and swelling.

Gastrointestinal and Immune Function

Probiotics have also been found to help address gastrointestinal issues and general immune function.

Gastrointestinal symptoms such as abdominal cramps, diarrhea, constipation, nausea, and vomiting are frequently reported around the time of menstruation.¹¹ Irritable bowel syndrome (IBS) is also characterized by symptoms of diarrhea, constipation, and abdominal pain, and is more common in women than men.¹²

Another specific Lactobacillus strain, L. helveticus, may help address these issues. It supports immune health and a healthy inflammatory response. In preclinical studies, this probiotic:

- Inhibits the growth of common pathogens such as Listeria, Candida, and E. coli,¹³-¹⁵
- Reduces production of pro-inflammatory mediators, including those associated with chronic inflammation and risk for autoimmune disease and cancer in the gut,¹⁶-¹⁹
• Increases production of interferon and cells that produce IgA antibodies, which both help the immune system fight infections,\(^ {17}\)

• Reduces intestinal inflammation in animals while reducing markers of systemic inflammation and oxidative stress.\(^ {18}\)

In a study of adults,\(^ {20}\) a majority of subjects believed that this probiotic had a beneficial effect on their health, with a significant improvement in average scores of gastrointestinal symptoms including diarrhea, constipation, crampy abdominal pains, and flatulence.

In other studies, *L. helveticus* demonstrated an ability to improve immune function, both in normal subjects and in elite, fatigued athletes whose immune function can dwindle with intense training.\(^ {21-23}\)

These studies found that this strain boosts components of immune function that are associated with protection from infectious diseases, including increasing secretion of interferon and maintenance of salivary IgA antibody levels.

---

**A Probiotic Blend Designed for Women**

- Like the gut, the health of the vagina is dependent on the balance of various types of microorganisms living there. Healthy bacteria protect vaginal health, while pathogens increase risk for vaginal infections and other disorders.

- Oral intake of the probiotic *L. plantarum* has been shown to reach the vaginal environment where it helps outcompete and impair the growth of pathogenic microorganisms, improving vaginal health.

- Another probiotic, *L. helveticus*, improves gut health, reducing common gastrointestinal symptoms, and boosts immune function and resistance to infection.

- Scientists have formulated a probiotic blend of these strains of *Lactobacillus* bacteria, which can help women improve their overall health including vaginal, gastrointestinal, and immune health.
In one study, use of the probiotic *L. helveticus* led to a significant reduction in the duration and severity of upper respiratory tract infections.\(^{22}\)

Taking *L. helveticus* along with *L. plantarum* can support overall optimum women's health.

**Summary**

A healthy vaginal flora can support vaginal health. An unhealthy mix can increase risk for bacterial infections, yeast infections, sexually transmitted infections, and even fertility problems.

The probiotic *Lactobacillus plantarum* helps ensure a healthy composition of vaginal microbiome able to outcompete potential harmful microorganisms that can cause bacterial or yeast infections.

Another probiotic, *Lactobacillus helveticus*, has been shown to improve common gastrointestinal symptoms like cramps, diarrhea, and constipation along with markers of immune function.

The combination of these probiotics provides a wide range of benefits for optimal women's health. •

If you have any questions on the scientific content of this article, please call a Life Extension Wellness Specialist at 1-866-864-3027.

**References**


5. Lallemand Internal Reports. 2014.


Dryness and loss of firmness are outward signs of normal aging.

One reason is loss of ceramides that are required for skin to retain its moisture and youthful suppleness.

Skin Restoring Ceramides contains wheat-derived ceramide lipids in an oral capsule that hydrate the skin and smooth the appearance of fine lines and wrinkles.

ITEM #02096
30 liquid vegetarian capsules
1 bottle $18.75
4 bottles $17.25 each

For full product description and to order Skin Restoring Ceramides, call 1-800-544-4440 or visit www.LifeExtension.com

Ceratig® is a registered joint-trademark of PLT Health Solutions and Arco, Robertet Group, France.

Contains wheat. Gluten free.
TARGETED SLIMMING FOR WAIST AND HIPS

In a clinical trial, a proprietary blend of *Sphaeranthus indicus* flower and mangosteen extracts combined with a standard diet and regular exercise for 8 weeks enabled average reductions in:*

- **Body weight** by 11.5 pounds
- **Waist** size by 4.7 inches
- **Hip** size by 2.5 inches

**Waistline Control™** contains this patented blend of extracts.†

The dose used in human studies is **one** capsule, twice daily before meals.†


† This supplement should be taken in conjunction with a healthy diet and regular exercise program. Results may vary.

MERATRIM® is a Laila Nutraceuticals trademark, registered in USA.

ITEM #02509
60 vegetarian capsules
1 bottle $24
4 bottles $22 each

For full product description and to order **WAISTLINE CONTROL™**, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
FLORASSIST® PROBIOTIC Women's Health contains two probiotic strains.

One promotes microbial flora for vaginal health.

The other supports digestive and immune functions.

Several clinical trials have shown that:

- **L. plantarum ROSELL®A** oral intake helps restore and maintain a microbiome to support proper vaginal health.\(^1\)^\(^2\)

- **L. helveticus LAFTI® L10** promotes digestive health\(^3\) and encourages a healthy immune response.\(^4\)

Just one capsule daily provides the broad and targeted probiotic support a woman needs.

References

L. plantarum ROSELL®A is L. plantarum P17630 (Proge P17630\(^2\)), licensed from PROGE FARM\(^2\), Italy.

Item #02505
30 vegetarian capsules
1 bottle $24 • 4 bottles $22 each

Contains soybeans.

For full product description and to order FLORASSIST® PROBIOTIC Women's Health, call 1-800-544-4440 or visit www.LifeExtension.com

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Foods and Nutrients That Help Prevent PROSTATE CANCER
An estimated 268,000 American men will be diagnosed with prostate cancer during 2022.¹

Most men with cancer cells in their prostate gland are unaware of it.

Ingesting foods with anti-cancer activities, while avoiding foods that promote cancer propagation may:

• Lower risk of developing prostate cancer,
• Reduce need for aggressive therapies in those with low-grade disease, and
• Improve clinical outcomes in those treated for prostate cancer.

A 2022 meta-analysis found that meat, especially processed meat, may be associated with increased prostate cancer risk.²

Another recent study found that a high consumption of vegetables, fruits, and whole grains is strongly linked to protective effects against prostate cancer.³

Previous research has shown that specific foods can reduce prostate cancer risk and improve outcomes in those following an active surveillance (watchful waiting) program or undergoing curative treatment.
Diet, Nutrients, and Prostate Cancer

About one in eight men will be diagnosed with prostate cancer during his lifetime.\(^1\)

However, regular consumption of certain foods is associated with lower rates of prostate cancer. By boosting intake of the following foods, men may significantly lower their risk.

**Walnuts**

Feeding walnuts to mice inhibits the development of tumors and decreases tumor growth and size. It also lowers levels of IGF-1 (insulin-like growth factor 1), a protein associated with prostate cancer.\(^4\)

Other animal and cell culture research shows that walnuts:\(^5,6\)

- Inhibit the growth of prostate cancer cells,
- Lower PSA (prostate-specific antigen) levels, which may indicate prostate cancer when elevated, and
- Reduce the size of prostate tumors.

In older men, walnut intake improved biomarkers related to prostate and vascular health.\(^4\)

**Cruciferous Vegetables**

Observational studies have found that men with a high consumption of broccoli and other cruciferous vegetables like cabbage, cauliflower, and kale have a lower risk of invasive prostate cancer.\(^7,8\)

A meta-analysis concluded that cruciferous vegetable intake is associated with an overall reduced risk of prostate cancer.\(^9\)

These effects may be a result of cruciferous vegetables’ abundance of beneficial compounds, including:\(^10\)-\(^14\)

- Glucosinolates,
- Indole-3-carbinol (I3C),
- 3,3’-diindolylmethane (DIM), and
- Phenethyl isothiocyanate (PEITC).

**Flaxseed**

In human studies, flaxseed intake has been shown to:\(^15\)

- Decrease proliferation of prostate cancer cells, and
- Reduce proliferation of tumors in as few as 30 days.

Flaxseeds contain lignans, which are converted in the body into compounds called enterolactones.\(^16\)

Men with higher levels of enterolactones have been shown to be less likely to have prostate cancer than men with low levels.\(^17\)
Coffee
A meta-analysis found that consuming four or more cups of coffee daily was linked to a reduced risk of fatal and high-grade prostate cancer, as well as a lower risk of overall prostate cancer.\(^\text{18}\)

Additionally, a large epidemiological study found that, compared to drinking no coffee, drinking six cups of coffee (including decaffeinated) daily reduced the risk of prostate cancer by 18% and lowered the risk of lethal prostate cancer by 60%.\(^\text{19}\)

Tomatoes
Lycopene is the carotenoid pigment that gives tomatoes their red color.

A systematic review of cell and animal studies found that lycopene decreases androgen metabolism and signaling, an important factor in prostate cancer growth and progression.\(^\text{20}\)

Additional anti-cancer mechanisms of lycopene are believed to include inhibiting inflammation and reducing oxidative stress within prostate tissue.\(^\text{21}\)

Lycopene is known to inhibit the growth of prostate cancer cells in vitro, and higher circulating levels have been associated with reduced prostate cancer risk.\(^\text{22,23}\)

Above-average consumption of lycopene has been tied to a 59% reduction in the risk of death from aggressive prostate cancers.\(^\text{24}\)

Prostate-Protecting Foods
- One in eight American men will be diagnosed with prostate cancer in his lifetime.
- Specific foods have been shown to exert protective effects against prostate cancer.
- These foods include walnuts, cruciferous vegetables, flaxseed, coffee, tomatoes, green tea, and pomegranate, supported by supplemental vitamin D and boron.
FOODS AND NUTRIENTS THAT HELP PREVENT PROSTATE CANCER

**Pomegranate**
In a phase II clinical trial of men with low-risk prostate cancer, prostate tissue samples from those who took pomegranate fruit extract daily for one year contained significantly lower levels of biochemical markers associated with DNA damage and prostate cancer.28

An earlier phase II trial was undertaken in men who had undergone surgery or radiation for prostate cancer and who subsequently showed rising PSA levels. Patients who consumed eight ounces of pomegranate juice daily had a delay in PSA doubling time, the time it takes for PSA levels to rise.29

Preclinical data show that pomegranate components protect against multiple aspects of prostate cancer including growth, progression, and spread, by inhibiting:30-35

- Tumor cell proliferation,
- Cell division,
- Invasiveness,
- Growth of new blood vessels, and
- Metastasis (spread).

A review found that three components of pomegranate exhibit these inhibitory effects on prostate cancer growth and spread: luteolin, ellagic acid, and punicic acid.36

**Boron**
A study found that men with the highest boron intake showed a 54% lower risk of prostate cancer compared to those with the lowest intake. In addition, they reported that increased dietary boron intake was associated with a decreased risk of prostate cancer in a dose-response manner.37

In an animal model, scientists orally administered various concentrations of a boron-containing solution. This resulted in decreases in prostate tumor size by 25% to 38%. Remarkably, PSA levels dropped by an astounding 86% to 89% in the animals that received boron.38

These findings suggest that supplemental boron may have both preventive and therapeutic effects—helping both to shrink prostate tumors and to decrease levels of PSA.

**Green Tea**
One clinical trial found that green tea catechins were 90% effective in preventing prostate cancer in men with pre-malignant lesions. The researchers recruited 60 men, aged 45-75. Thirty participants received 200 mg of green tea catechins three times daily, while the

**More Dietary Tips**
- The Mediterranean diet, which is rich in whole grains, legumes, vegetables, fruits, and nuts, has been associated with reduced risk of prostate cancer and prostate cancer-related death.52-54
- High fiber intake is linked with reduced prostate cancer aggressiveness.55
- Eating low-glycemic foods (foods low in sugars and unhealthy carbs, as well as adequate fiber, protein, and healthy fat) may reduce prostate cancer risk.
- Certain foods have been associated with greater risk of prostate cancer, including eggs,56-58 milk,59-63 and processed or overcooked meat.64-67
other 30 subjects received a placebo. Biopsies were conducted at six and 12 months.39

Remarkably, only one man in this pre-malignant green tea group was diagnosed with prostate cancer, compared to nine men in the control group who were diagnosed with the disease. No significant side effects or adverse reactions were reported. The lead researcher concluded that “90% of chemoprevention efficacy could be obtained by [green tea catechin] administration in men prone to developing prostate cancer.”39

Green tea polyphenols have also shown efficacy as an adjunctive therapy. Prostate cancer patients were given 1,300 mg of green tea polyphenols, mostly EGCG, prior to the time of radical prostatectomy. They showed significant reductions in PSA and other tumor promoters such as vascular endothelial growth factor.40

**Vitamin D**

Observational studies have shown cancer risk reductions of up to 50% based on higher vitamin D status.41,42 People with higher vitamin D levels have lower odds of lethal prostate cancer.43 It’s difficult to get enough from food sources and there are risks with sun exposure. Scientists have determined that supplemental doses ranging from 5,000 IU to 8,000 IU daily can bring blood levels of vitamin D up to optimal ranges associated with reduced risk for chronic disease. Regular blood testing is important to guide adjustments to these doses to achieve the maximum benefits.

**Grapeseed**

Grapeseed extract induced apoptosis (programmed cell death) in prostate cancer cells.44 Grapeseed extract inhibited prostate cancer growth and progression in mice.45

A study found that men who supplemented with grapeseed extract reduced their risk of prostate cancer by 41%. Moreover, high 10-year average use of grapeseed extract was associated with a 62% reduction in prostate cancer risk.46

**Curcumin**

Curcumin induces apoptosis (programmed cell death), interferes with the spread of cancer cells, and regulates inflammatory responses.47-50

In one trial, 30 patients with castration-resistant prostate cancer and rising PSA received curcumin while undergoing treatment with docetaxel and prednisone. Improved PSA responses were noted in 59% of participants.51
FOODS AND NUTRIENTS THAT HELP PREVENT PROSTATE CANCER

Summary

Specific foods and drinks have been shown to be associated with a favorable influence on risk factors for, and mechanisms of prostate cancer.

Making walnuts, cruciferous vegetables, flaxseed, and other plant foods a consistent part of a healthy diet—further supported by supplemental vitamin D, boron and other nutrients—could potentially save lives and spare men the side effects of conventional treatments.

Consider cutting back or avoiding red meat, especially processed meat to further reduce risk of prostate and other cancers.

If you have any questions on the scientific content of this article, please call a Life Extension Wellness Specialist at 1-866-864-3027.

References


N-Acetyl-L-Cysteine (NAC) has been shown to support healthy immune response and respiratory function.

NAC supports healthy levels of glutathione that helps promote a healthy inflammatory response and protect cells from oxidative damage.

For full product description and to order N-ACETYLY-L-CYSTEINE, call 1-800-544-4440 or visit www.LifeExtension.com

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Kids

Hate Broccoli…
But You Don’t Have To

Your mom told you to eat your greens. And she was right. If you didn’t listen, we have good news.

Just one daily Optimized Broccoli and Cruciferous Blend tablet provides cell-protective compounds found in fresh vegetables.

For maximum absorption each enteric coated tablet contains two layers:

- **Myrosinase** to release *sulforaphane* in the small intestine, in one layer, and
- **Glucoraphanin** from broccoli, watercress, cabbage and rosemary (*sulforaphane* precursors), in the other layer, and
- **DIM** (3, 3-diindolylmethane) to promote healthy estrogen balance.

For full product description and to order Optimized Broccoli and Cruciferous Blend, call 1-800-544-4440 or visit www.LifeExtension.com

Item #02368 • 30 enteric coated vegetarian tablets
1 bottle $28.50 • 4 bottles $26.50 each

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Anti-Aging Properties of Carnosine
On May 20, 2022, a review article was published that described the hidden therapeutic potentials of carnosine.¹

Carnosine was defined as “a molecule with multimodal mechanisms of action.”

The paper revealed more than 1,000 studies published about the structure, function, and biological activities of carnosine under experimental and clinical conditions.

This 2022 published review advocates for more well-defined clinical trials to evaluate carnosine’s multiple mechanisms.

These human studies include evaluating carnosine’s potential to combat disorders as diverse as type II diabetes, Parkinson’s, and Alzheimer’s.

Twenty-two years ago, Life Extension® became the first to introduce the benefits of high-dose carnosine supplementation.

Since then, many readers have supplemented daily with 500 mg to 1,000 mg of carnosine.
What is Carnosine?
Carnosine is a compound composed of two amino acids linked together (a dipeptide).
It reduces or blocks glycation, rejuvenates aged cells, and more.4,6
These actions hinder processes that contribute to age-related disorders.

Dangers of Glycation
Glycation occurs when glucose (sugar) attaches to proteins, DNA, and lipids (fats), forming toxic compounds called advanced glycation end products (AGEs).
These AGEs damage cells, tissues, and organs.4
Glycation occurs at a faster rate in those suffering from diabetes because they have elevated blood sugar that binds to the body’s proteins. But it occurs in everyone over time.7,8

An Anti-Glycation Nutrient
Carnosine stands out because of its ability to prevent and reduce the impact of glycation.
It can inhibit the formation of toxic compounds resulting from excessive blood sugar, preventing them from damaging proteins.9,10
A systematic review of 36 articles on the impact of carnosine presented findings about its anti-glycation properties.11
One randomized controlled trial found that compared to placebo, diabetic patients receiving 1,000 mg of carnosine each day for 12 weeks had significant improvements in fasting blood glucose, serum triglycerides, and HbA1c levels.12
The HbA1c blood test is one way that we can measure the extent of glycation in the body.

Increased Longevity
Carnosine’s ability to reduce glycation, oxidative stress, and chronic inflammation4 makes it a promising candidate to slow aging processes.
In cultured cells, carnosine helped prevent senescence and rejuvenated the cells that already showed signs of senescence.6 Cellular senescence is closely linked to accelerated aging and development of disease.
Carnosine is a compound that is produced in the body. Levels decline with age.

In an animal study, treating aging-accelerated mice with carnosine increased the proportion of mice living into old age.\(^{14}\)

**Promoting Brain Health**

Neurodegenerative diseases such as Alzheimer’s can result from protein glycation and oxidative stress that lead to the accumulation of toxic proteins.\(^{15}\)

In models of Alzheimer’s, Parkinson’s, and aging, carnosine has shown benefits, including:\(^4\)

- Reduction of toxic protein aggregation and inflammation in cell studies,
- Reduction in cognitive impairment, inflammation, and beta-amyloid accumulation in rodents, and
- Increase in antioxidant enzymes in cell and animal models of Parkinson’s disease and aging.

Reduce Glycation for Better Health

- **Carnosine** is a compound that is produced in the body. Levels decline with age.

- Carnosine helps block the toxic effects of glucose that drive accelerated aging and risk for age-related disease.

- This compound also reduces oxidative stress and inflammation. In preclinical trials it has prevented cellular senescence and inhibited the shortening of *telomeres*.

- In one animal study, carnosine increased the proportion of mice living into old age.

- In human studies, carnosine has demonstrated the ability to help ward off premature aging and chronic disease.
CONTROLLING DIABETES AND METABOLIC DISEASE

According to the National Diabetes Statistics Report, almost 40 million Americans have diabetes. The numbers are even more worrisome regarding pre-diabetes (fasting blood sugar between 100 mg/dL to 125 mg/dL), which is present in almost 100 million adults 18 years and older.16

In animal models, carnosine improves glucose control and insulin sensitivity and blocks the progression of diabetes complications.17-21

In one mouse study, it even reduced or delayed the initial development of diabetes.21

In a randomized controlled clinical study in non-diabetic overweight and obese individuals, 12 weeks of daily carnosine improved the glycemic and insulin response to an oral glucose challenge.22

A meta-analysis of 18 randomized controlled trials of supplements containing carnosine or related compounds found that they improved triglyceride and cholesterol levels.23

CARDIOVASCULAR BENEFITS

Poor glucose control and diabetes increase risk of heart disease. By improving metabolic health and shielding tissues from glycation, carnosine reduces that risk.

Several reviews have noted that carnosine may improve cardiac function and has potential benefits for prevention or treatment of cardiovascular disease and stroke.20,24-26

Congestive heart failure occurs when the heart cannot pump blood sufficiently, resulting in one or more symptoms that can include shortness of breath, fatigue, and accumulation of fluid in the abdomen or extremities.27 It can limit mobility and physical functioning, and severely impair quality of life.

In a study of patients with heart failure, participants were assigned to receive standard congestive heart failure medical therapy alone, or with added carnosine, 500 mg/day over a six-month period.28 Compared with the patients not taking carnosine, the supplemented group significantly improved their physical condition in a number of ways. Patients saw improvement in:

- Quality-of-life scores,
- Six-minute walking distance,
- Peak exercise workload, and
- The ability to deliver oxygen for use in tissues during exercise.

SUMMARY

Oxidative stress, chronic inflammation, and glycation are underlying causes of aging and chronic disease. Carnosine can fight all three. It is a powerful antioxidant and anti-inflammatory, and also anti-glycation compound.

These actions can benefit brain, heart, and metabolic health.

In an animal study, carnosine extended life. In clinical trials, carnosine has demonstrated improvements against several common chronic degenerative disorders.

KNOW YOUR NUMBERS...

Here are the blood lab values that Life Extension considers optimal for three important metabolic parameters:

1. Fasting Glucose: 80-86 mg/dL
2. Fasting Insulin: <5 μIU/mL
3. HbA1c: 5.0%-5.4%
We concur with a 2022 published review that advocates for well-defined clinical trials to fully evaluate carnosine’s multiple effects on human health. The challenge is where to find funding! 
Carnosine is an affordable dietary supplement and not a patented prescription drug. This means there is no financial incentive as there is with pharmaceuticals to spend many $millions of dollars on clinical trials.

If you have any questions on the scientific content of this article, please call a Life Extension Wellness Specialist at 1-866-864-3027.

References
Give the Old You a Helping Hand

“Helps your body do what it needs to do.”
Richard
VERIFIED CUSTOMER REVIEW

Experience should build us up, not tear us down.

Life is a journey with bumps in the road. We move on wiser, prouder—but the marks remain. Marine oil contains compounds called specialized pro-resolving mediators. These “SPMs” support tissue rejuvenation, clear debris so healthy cells can flourish, and help maintain the balance between cytokine compounds that keep your body in harmony. Pro-Resolving Mediators. Feel like you again.

Item #02223 • 30 softgels
1 bottle $21 • 4 bottles $19 each

For full product description and to order Pro-Resolving Mediators, call 1-800-544-4440 or visit www.LifeExtension.com

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**BIOACTIVE FORMS OF VITAMIN B12**

Only **two bioactive** coenzyme forms of vitamin B12 can be used directly by the body and brain.

This **B12 Elite** provides both:

**ADENOSYLCOBALAMIN**
- Active in brain cell mitochondria.
- Preclinical evidence suggests that it may support already healthy levels of dopamine.
- Supports cellular energy production.

**METHYLCOBALAMIN**
- Supports cognition within brain cells.
- Promotes red blood cell production.
- Helps maintain healthy homocysteine levels.

Dissolve in the mouth or chew one vegetarian **lozenge** daily.

**Item #02419** • 60 vegetarian lozenges
1 bottle $8.25
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For full product description and to order **B12 Elite**, call 1-800-544-4440 or visit www.LifeExtension.com
Whole-Body Support

Everything good takes time.

Magnesium is essential for a healthy heart and sturdy bones; it’s even great for your mood. But, most of us don’t get enough from our diets.

Our innovative formula delivers both immediate and extended-release magnesium, so you get the maximum benefits—for the long haul.

“For overall health for bones. Great product.”
Roniele
VERIFIED CUSTOMER REVIEW

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Roniele
VERIFIED CUSTOMER REVIEW

CAUTION: If taken in high doses, magnesium may have a laxative effect. If this occurs, divide dosing, reduce intake, or discontinue product.

ZümXR® is a registered trademark and protected by patents. See www.ZümXR.com


These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Carnosine is a unique dipeptide that can inhibit glycation throughout the body, thereby helping to slow normal aging processes. Suggested dose is one 500 mg Carnosine capsule taken once or twice daily.

Super Carnosine provides 500 mg of carnosine per capsule along with benfotiamine to further impede glycation reactions.

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SAFELY

Turn Off

Pain Signals
A March 2022 study published in the Pain Journal revealed a striking statistic:

More than one in five U.S. adults reported suffering from chronic pain.¹

Pain medications can help temporarily. But long-term use poses health risks.

A safer alternative is needed. That is where PEA comes in.

**Palmitoylethanolamide**, or PEA for short, is a fatty acid made in the body.

Scientists have found that it works in unique ways to reduce inflammation and relieve pain—without worrisome side effects.²

In human trials, PEA has been shown to reduce pain associated with common conditions, including:²⁻⁹

- Arthritis,
- Sciatica,
- Migraine headache,
- Carpal tunnel syndrome, and
- Other types of nerve and joint pain.

In a study of people suffering from jaw joint pain, just two weeks of PEA use resulted in greater pain reduction and improvement in jaw mobility than high-dose ibuprofen.¹⁰
SAFELY TURN OFF PAIN SIGNALS

The Problems with Pain Medications

Two common classes of medication used to treat pain are non-steroidal anti-inflammatory drugs (NSAIDs) and opioids.

NSAIDs include over-the-counter drugs like ibuprofen (Advil®, Motrin®), naproxen (Aleve®), and high-dose aspirin.

These drugs can be effective at managing some forms of inflammation-related pain, but they come with side-effect risks.

Even short-term use of some NSAIDs has been found to be associated with increased risk of heart attack and stroke.11-13

Opioid medications are even more problematic because they are side-effect prone and often addictive.14-16

The leading cause of acute liver failure in the United States is acetaminophen toxicity.17 Regular use of acetaminophen is associated with increased risk of kidney damage, kidney cancer, and dementia.18-20

Scientists began looking for a safer way of controlling pain. They found it in palmitoylethanolamide (PEA), a compound produced in the body.

PEA and Inflammation

PEA is a fatty acid found in the body that lowers inflammation.

Animal studies show that PEA modulates inflammatory and oxidative pathways and significantly relieves chronic inflammatory and neuropathic pain.21,22

Several clinical trials have established the validity of PEA as a powerful pain reliever.8,23

Unlike commonly used pain-relieving drugs, PEA has no documented cardiovascular or renal risk.8 Clinical studies on PEA highlight its safety and efficacy even when used in combination with common pain relievers.4,6

Reducing Chronic Pain

Several human studies have evaluated the ability of PEA to control chronic pain.

One of the most remarkable findings coming out of these studies is that PEA is effective at reducing pain for a wide range of underlying conditions, including:

- Headache,
- Nerve pain,
- Joint pain,
- Back pain, and
- Other types of pain.

In patients with knee osteoarthritis, both 300 mg and 600 mg of PEA taken daily led to significant reductions in pain scores compared to a placebo.3 PEA also significantly reduced scores on various scales evaluating joint stiffness, improved knee function, and reduced anxiety.

Sciatica is extremely common. Irritation of the fibers of the sciatic nerve running down the back of the leg can cause severe pain in the lower back, leg, and foot.

In a study, 636 patients with sciatica were randomized to receive either 300 mg or 600 mg daily of PEA or a placebo.4 Both groups receiving PEA had improvements in pain and quality-of-life scores compared to placebo. Those taking the highest dose improved the most.

One study directly pitted PEA against ibuprofen, one of the most-used NSAIDs.10

People suffering from temporomandibular joint pain (affecting the joints of the jaw) received either PEA (300 mg in the morning and 600 mg at night for one week, followed by 300 mg twice a day for the second week) or high-dose ibuprofen.
After two weeks, PEA resulted in **greater pain reduction** and improvement in jaw mobility than ibuprofen.

It doesn’t stop there. Studies evaluating migraine headaches, carpal tunnel syndrome, arthritis, and a wide range of other types of pain have found that PEA significantly reduces pain intensity.²³⁵⁻⁹

In one study, patients with chronic pain who could not achieve adequate control using standard pain medications were given **600 mg of PEA** twice a day.² This treatment reduced pain scores in all patients who completed the study, regardless of their underlying condition.

All these studies found PEA to be well-tolerated with practically **no side effects**.

### Summary

**Chronic pain** is extremely common, but medications to treat it are too often ineffective and carry troublesome side effects.

Three classes of common pain drugs, **NSAIDs**, **acetaminophen**, and **opioids** can have significant and potentially life-threatening side effects.

Scientists have identified a natural fatty acid called **PEA** that acts by several mechanisms to reduce **pain** and **inflammation**.

Several human clinical trials have shown that PEA can help treat a wide range of pain types, without dangerous side effects.

If you have any questions on the scientific content of this article, please call a Life Extension Wellness Specialist at 1-866-864-3027.
References

1. Yong RJ, Mullins PM, Bhattacharyya N. Prevalence of chronic pain among adults in the United States. PAIN. 2022;163(2).
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References:

PEA is a fatty acid found in the body that works at the site of discomfort. Clinical studies show PEA can combat stubborn, minor pain and discomfort within 14-30 days of supplementation.¹³ Each chewable tablet delivers 600 mg of PEA (palmitoylethanolamide).

“Very effective for minor aches and pains.”
Robin
Verified Customer Review

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An Overlooked Cancer Therapy and Clinical-Trial Opportunity

BY WILLIAM FALOON AND STEPHEN STRUM, M.D.

In the June 2016 issue of Life Extension Magazine® we reported on a prostate cancer treatment being used on an outpatient basis that was showing good results with minimal side effects in most patients.1

The name of this approach is focal therapy. It is available in several forms including cryo, laser, ultrasound, and others.

The goal with focal therapy is to enable optimal oncological outcomes while reducing side effects, and to improve recovery times compared with conventional treatment options.

FOCAL THERAPY AND IMMUNE RESPONSES

The type of focal therapy discussed in this article uses image-guided techniques to damage part of the tumor via a freeze and thaw process while leaving the rest of the organ or tissue intact.

The objective as you will read is to generate a systemic immune response while leaving most of the affected organ or tissue intact.

By damaging the cancer cells, it causes them to release their antigens for recognition by the immune system.

Most focal therapies seek to completely ablate (destroy) the tumor. The majority of reports on focal therapy do not discuss the value of exposing the patient’s very own tumor cell antigens so that immune responses are activated.

As noted in a 2019 publication by Abdo, et al.: “Cryosurgery releases hundreds of unique antigens from a population of tumor cells that make up the invading cancer.”2

CHECKPOINT INHIBITOR DRUGS

Antigens are present in cancer cells and can trigger a targeted immune response against those very same cancer cells.

The problem is that cancer cells erect “checkpoints” that act as barriers to impede immune attack.

That’s why a class of drugs called “checkpoint inhibitors” like pembrolizumab (Keytruda®) and ipilimumab (Yervoy®) are increasingly used against a variety of malignancies.

But when checkpoint inhibitors are delivered via the intravenous route there are often systemic side effects which may be serious.3

This prompted some prostate cancer treatment centers to trigger damage in part of the tumor with localized cryo-focal therapy and inject checkpoint inhibitor drugs into the tumor area.

The combination of damaging (freezing-thawing) and uniquely injecting checkpoint inhibitors is part of the spectrum of “cryo-immune focal therapy.”4-6

Cryo-immune focal therapy damages the tumor instead of destroying it.
This causes antigens from the tumor to be released into the circulation where they provoke a systemic immune response against both local and distant (metastatic) tumor cells that migrated elsewhere in the body.

**AN EMERGING SCIENCE**

*Life Extension®* has been referring prostate cancer patients for **cryo-immune focal therapies** since at least 2015.

We’ve received much positive feedback about the results from earlier versions of this treatment. We have now learned that this therapy has become more comprehensive, adding additional drugs to augment the overall immune response.

An upcoming **clinical trial** is open and recruiting new patients with metastatic disease. The trial will assess the effects of **cryo-immune focal therapy** plus a systemic **immune drug** called **granulocyte-macrophage colony-stimulating factor** (GM-CSF).

The trial will also use a low dose of **cyclophosphamide** to lessen an obstacle to a more robust immune response against tumor cells.

Information about registration and the trial can be found at:


This article describes recent findings and a clinical trial that is testing this enhanced cryo-immune therapy against common malignancies.
More than 600,000 Americans will perish from cancer this year.²

Modern treatments are curing more cancer patients than ever before.

Unfortunately, the immediate and long-term side effects of conventional treatments like surgeries, radiation, chemo, and other toxic treatments are too often ignored or trivialized.

As just one example, breast cancer patients treated with aggressive chemotherapy (and surgery/radiation) incur serious adverse effects including immune suppression and increased risks of leukemia, and coronary artery disease over time.⁵,⁶

Although it is experimental, a cancer research group is treating metastatic cancer in an innovative way that could reduce or eliminate most side effects by damaging part of the tumor with cryotherapy and injecting the area with checkpoint inhibitor drugs.

Granulocyte-macrophage colony-stimulating factor or GM-CSF will be used to boost blood cell counts to enhance immune response.

Low-dose cyclophosphamide is also given to suppress a regulatory cell population that curtails the anti-tumor immune response. Cyclophosphamide may have an anti-angiogenesis benefit as well.

The checkpoint inhibitor ipilimumab (Yervoy®) also functions in this manner and potentially adds to the effectiveness of cyclophosphamide.

Although investigational at this point, the administration of checkpoint inhibitor drugs directly into a part of the tumor should generate a broader, both local and systemic, immune response against residual primary malignant cells as well as regional malignant and distant metastasized cells and with a lower risk of side effects compared to the systemic intravenous administration of checkpoint inhibitors.

The use of focal therapy alone against prostate cancer continues to be favorable. The goal now is to study the effects of cryo-immune focal therapy + systemic immune-boosting drugs against not only prostate cancer, but other metastatic malignancies.

### Cryoablation + Immune Treatments Against Common Cancers

In December 2019 a literature review by Aarts, et al., found favorable effects for cryoablation therapy combined with systemically administered immune checkpoint inhibitors and other conventional treatments in human studies.⁵

In most of these trials, the checkpoint inhibitors were given intravenously and not via direct injection into the tumor. The doses used in those studies cited by Aarts were significantly higher.

### Basis for Focal Cryo + Checkpoint Inhibitor Therapy

- Cancer cell necrosis inflicted by cryo results in the release of antigens from the cancer cell that act as immune triggers. It is believed that this can induce a tumor-specific immune response.

- Immunotherapy uses the patient's immune system for treatment of the tumor. Not all patients respond to immunotherapy with checkpoint inhibitors or other drugs.

- The combination of cryo + immunotherapy may enhance the effect of both therapies for improved tumor destruction—both locally and systemically.
This 2019 report described human studies demonstrating varying degrees of efficacy using cryoablation + whole-body immune therapies against a variety of cancer types including:

- Breast cancer (2 studies)
- Kidney cancer (2 studies)
- Lung cancer (1 study)
- Melanoma (2 studies)
- Prostate cancer (4 studies)

Researchers are intrigued about first priming the immune system with immune-stimulating drugs and damaging part of the tumor with focal therapy to expose tumor antigens, and injecting checkpoint inhibitor drugs into the area to facilitate an immune response against residual local and metastatic cancer cells.

This is the primary approach that will be used in a multi-modal clinical trial, described next, that plans to treat a variety of solid metastatic malignancies including breast and prostate cancer.

Clinical Trial on Cryo-Immune Focal + Systemic Immune Therapy

A clinical trial is currently recruiting metastatic cancer patients who have not responded to conventional therapy, or who refuse conventional therapy.

The clinical trial will evaluate the effectiveness of cryo-immunotherapy. The current medical center is in Rochester, Michigan, but more sites should soon be open.

The trial design is as follows:

1. Identify an accessible location of tumor mass(es) inside or on the surface of the patient’s body.
2. Administer low-dose cyclophosphamide five days before the focal procedure to suppress a sub-population of lymphocytes (called Tregs) to further enhance T-cell destruction of cancer cells.
3. Use image-guided technology to precisely cryo-damage a portion of the malignant lesion.
4. Precisely inject into the tumor(s) two immune-therapeutic drugs:
   a. Keytruda® (pembrolizumab), which is a monoclonal antibody drug that inhibits PD-1 (programmed death -1 receptor) and impedes a cancer cell’s ability to escape the body’s normal immune response. PLUS,
   b. Yervoy® (ipilimumab), an anti-CTLA-4 (cytotoxic T-lymphocyte-associated antigen 4) monoclonal antibody drug that works to enhance the immune response by targeting a subset of T-cells called Tregs that inhibit the immune response.
5. The treatment also involves an immune drug called GM-CSF (granulocyte-macrophage colony stimulating factor) that has been used for decades to mobilize the bone marrow release of granulocytes and macrophages to protect against bone marrow suppression caused by toxic chemotherapy drugs. The objective in this cryo-immune clinical trial is to use GM-CSF to potentiate the effects of the immune checkpoint inhibitors Keytruda® and Yervoy®. The GM-CSF is given under the skin (subcutaneous) and is injected for about 30 days after cryo-immune focal therapy is administered.
6. Up to two cancer areas for each patient will be selected and treated during each treatment. The clinical trial will involve up to three treatments using the above approach for each patient.
By using a sequence of cryo-damaging the tumor (to release its antigens), followed by four different immune therapies (Keytruda® + Yervoy® + GM-CSF+ cyclo-phosphamide), a cryo-immune synergy is created, and some researchers believe that a clinically significant systemic anti-cancer immune response may be elicited.

Moreover, the intra-tumoral injection of drugs at a lower dose is likely to cause fewer side effects than higher-dose intravenous systemic therapy.

How to Determine if you Qualify for this Study

There is no cost to those eligible for the study other than possible travel expenses and lodging near the clinical trial study site medical facility. The study center may bill your insurance if it covers the cost of some laboratory tests and imaging, but patients are not expected to pay anything out of pocket.

If you or someone you know has a diagnosed metastatic malignancy involving a solid tumor and all available treatments have failed or the patient chooses against conventional therapy, you can register at the following website to ascertain your eligibility:

www.ramparthealth.com

Additional information about the trial can be found at www.clinicaltrials.gov/ct2/show/NCT04713371

If you are eligible, you will be contacted for full medical records and a trial coordinator(s) will guide you through the trial process.

Summary

I’ve interacted for over 20 years with some of the oncology experts involved with designing this clinical trial.

Neither I, nor Life Extension® have any financial interest in this cryo-immune focal therapy.

I am grateful the parties have worked together to enable this clinical trial to launch this year in the United States.

When confronted with difficult medical issues (not cancer), I’ve been fortunate enough to have alternative medicine doctors recommend simpler solutions that have spared me from surgery and other toxic treatments.

If this combined cryo-immune focal therapy proves efficacious it may revolutionize cancer treatment against many common malignancies.

References

Before the advent of focal therapies, men diagnosed with prostate cancer were confronted with harsh choices.

The so-called gold standard of treatment entails complete removal of the prostate gland and suspicious lymph nodes (radical prostatectomy). The side effects of this mutilating surgery are often horrendous.

Many men instead choose external beam radiation which has its own litany of potential side effects.

Improvements made over the years include “nerve sparing” radical prostatectomy and insertion of radioactive seeds in the malignant portions of the prostate gland and image-guided radiation therapy.

Currently available focal therapy options include:

- Focal Cryotherapy
- Focal HIFU (high intensity focused ultrasound)
- Focal Laser Ablation (FLA)
- Irreversible Electroporation (IRE)
- Vascular-Targeted Photodynamic Therapy (VTP)
- Focal Cryo-Immune Therapy (investigational)
- Radiofrequency Ablation (RFA)
- HDR-brachytherapy (high-dose rate brachytherapy)
- Focal Brachytherapy (FB) using seeds
- Stereotactic Body Radiation Therapy (SBRT)

The primary advantage demonstrated to date with focal therapy is a significantly improved adverse event profile versus whole-gland treatment.

However, side effects do occur, usually peri-operatively and temporarily that include:

- Urinary tract infection (in up to 20% of patients) and acute urinary retention (in up to 17% of patients).
- Painful urination and blood in the urine.
- Urinary incontinence following focal therapy in approximately 5% of patients.

The majority of patients recover in a few weeks. Erectile dysfunction can occur after focal therapy, but usually resolves over time.

Side-effect risks are greatly reduced when treatment is performed by an experienced clinician but are increased if the malignancy is located near the nerve bundle or urethra running through the prostate gland.
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How DOPAMINE
Dopamine is a neurotransmitter that promotes feelings of pleasure and reward, supports memory, attention, and more.¹

As we age, increased activity of an enzyme called monoamine oxidase B (MAO-B) degrades dopamine, causing levels to fall.²

Lower dopamine levels can contribute to reduced motivation and decreased enthusiasm for things that would excite most people.

A solution is to ingest compounds that inhibit the MAO-B enzyme.

Scientists have found that components of phellodendron tree bark accomplish this in lab studies³⁴ and have neuroprotective effects in animals⁵⁷.

Preclinical research also shows that a specific form of vitamin B12 may protect neurons and help prevent a decline in dopamine levels.⁸

These compounds may help maintain motivation and feelings of pleasure, while reducing risk for neurodegenerative illnesses.
What is Dopamine?

Dopamine is often referred to as the “feel-good hormone” due to its role in regulating mood.1

The brain releases dopamine during pleasurable activities. Low dopamine levels are associated with depression and a lack of motivation and pleasure.9

But the brain uses dopamine for more than mood elevation.

This neurotransmitter also influences movement, learning, cognition, and memory.10

Dopamine enables youthful cognitive performance and body coordination.11,12

Dopamine depletion plays a role in certain neurodegenerative diseases, while increasing dopamine has been shown to prolong lifespan in animals.1,13,14

Dangers of Reduced Dopamine

In a region of the brain that plays a role in cognitive and motor function, levels of dopamine decline by about 13% each decade after age 45.15

This decline coincides with an increase in the brain levels of monoamine oxidase B (MAO-B), an enzyme that degrades neurotransmitters such as dopamine.2

Low dopamine levels are associated with depression, lack of motivation, and pleasure.9 These mood and motivational changes also may be seen with normal aging in some people.

Rising MAO-B levels pose even more of a threat. MAO-B activity is higher in dementia patients than in non-impaired individuals the same age,16 suggesting a role in neurodegeneration.

One reason may be that increased MAO-B activity results in formation of potentially damaging by-products2,17,18 that can contribute to neurodegenerative diseases such as Parkinson’s and Alzheimer’s disease.19

Doctors frequently prescribe MAO-B inhibitors such as deprenyl (also called selegiline) to stop MAO-B degradation of dopamine in patients with Parkinson’s disease.19

Inhibiting MAO-B activity helps decrease the breakdown of dopamine and the potential harm that can be done by too much enzyme activity. This helps protect our aging brains.

The Effects of Phellodendron

Scientists discovered that some plants have MAO-B-inhibiting properties.

After investigating hundreds of botanicals, they identified phellodendron tree bark as one of the most potent plant-derived MAO-B inhibitors.3,4 Phellodendron (no relation to the houseplant philodendron) is also known as Amur cork tree. It has been safely used in traditional Chinese medicine for centuries to treat various ailments.5

In lab research, extract of phellodendron bark selectively inhibited over 80% of MAO-B activity, which is comparable to the drug deprenyl.4

This may enable dopamine levels to increase while blocking the neurotoxic effects of elevated MAO-B.

Phellodendron’s neuroprotective properties go beyond MAO-B inhibition.5,6,20

In scientific studies, phellodendron protects against neuroinflammation, beta-amyloid production, and other changes associated with Alzheimer’s disease, suggesting it may help to maintain cognitive function into older age.20

Phellodendron has also demonstrated anti-inflammatory, antibacterial, antiviral, and antitumor properties,5 helping to protect both the brain and body.

Those who take MAO-B-inhibiting drugs such as deprenyl do not need to take phellodendron. Phellodendron is not a substitute for physician-prescribed medications.
A B12 Form Helps Sustain Dopamine Levels

There are two bioactive forms of vitamin B12. One of them, adenosylcobalamin, has been shown in lab research to prevent a decline in dopamine levels and protect neurons.9

In research partially funded by the Michael J. Fox Foundation, scientists prepared brain slices of mice that carried a mutation linked to Parkinson’s disease and treated some with adenosylcobalamin.9 Every two minutes, they stimulated the dopamine-producing neurons.

After 20 minutes, the untreated control slices were releasing approximately 20% less dopamine. In the mice, dopamine production dropped by up to 45%. In the adenosylcobalamin-treated slices, dopamine production was equal to that of animals without the mutation linked to Parkinson’s disease.9

Stated differently, instead of dopamine production declining by 45% after 20 minutes like in the untreated brain slices, in the treated slices, it only dropped by 20% in response to the artificial stimulation.

This suggests that adenosylcobalamin may help prevent dopamine loss and related neurotoxicity.

Taken together, phellodendron extract and adenosylcobalamin may prevent an age-related decline in critical dopamine levels.

Summary

Levels of the neurotransmitter dopamine decline in the aging brain, in part due to increased activity of the enzyme MAO-B.

The result can be decreased motivation, diminished pleasure, and an increased risk for neurodegenerative diseases.

Scientists have found that phellodendron bark extract inhibits MAO-B, helping to maintain dopamine levels and prevent neurotoxicity.

A form of vitamin B12 called adenosylcobalamin may also prevent a decline in dopamine levels and help inhibit neurodegeneration.

These compounds may prevent declines in pleasure and motivation and protect the aging brain.

If you have any questions on the scientific content of this article, please call a Life Extension Wellness Specialist at 1-866-864-3027.
Inhibiting MAO-B May Boost Lifespan

The drug deprenyl is prescribed to inhibit MAO-B activity, most often in Parkinson’s disease patients. Inhibiting MAO-B leaves more dopamine in the brain’s neural circuits. In dogs, deprenyl treatment helped improve cognitive function. Additionally, animal studies have also found that MAO-B inhibition extends lifespan. For example, rats given deprenyl had an average lifespan up to 40% longer than untreated rats.

References

10. Ayano G. Dopamine: Receptors, Functions, Synthesis, Pathways, Locations and Mental Disorders: Review of Literatures. Journal of Mental Disorders and Treatment. 2016 01/01;2(2).
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Dopamine, the “feel good” neurotransmitter, regulates motivation, mood, movement, and cognitive function.

With age, dopamine levels decline due to the increase of the MAO-B enzyme.

Amur Cork Tree (Phellodendron bark) can help preserve dopamine by inhibiting MAO-B activity.

Dopamine Advantage provides 500 mg of Amur Cork Tree and 500 mcg of Vitamin B12 in each capsule.
For the past 23 years, Life Extension® has been privileged to interact with a medical oncologist who has consistently identified the world’s most effective approaches to prostate cancer diagnosis and treatment.

Stephen Strum, M.D. has made cancer medicine the focus of his life since 1963.

Of Dr. Strum’s 59 professional years, 40 of them involved tireless efforts to provide patients with the best means to evaluate and treat prostate cancer, and to prevent the many side effects associated with anti-cancer therapies.

This resulted in 127 peer-reviewed, published papers and 124 presentations, most of which were accomplished in the setting of a clinical practice, with negligible financial assistance.

Over the past six decades, Dr. Strum provided comprehensive individualized treatments and felt privileged to be an integral part of the lives of thousands of cancer patients and their families.

The situations and problems his patients have sought help with have included:

- Men living with the dread of getting prostate cancer,
- Those with a strong family history of prostate cancer seeking ways to prevent it,
- Newly diagnosed prostate cancer patients, and
- Men with advanced stages of the disease who had undergone various treatments, with many being unfortunate to have progressive disease.

I asked Dr. Strum to share with readers of Life Extension Magazine® the best ways to treat prostate cancer.

In response to my request, Dr. Strum investigated 570 peer-reviewed papers over the course of many months to honor us with an honest 10,000-word appraisal.
He went further and selected almost 300 key articles to create a public Dropbox™ folder for Life Extension® readers wishing to delve deeply into this vital topic and related issues.

You will be able to download close to 300 PDFs and graphic files into a zip file on your computer. Then you can unzip it to open and see all the files sorted alphabetically by lead author and by year of publication.

Dr. Strum is semi-retired. He saved his own life using his exceptional grasp of the medical literature and clinical expertise to enable a complete response to light chain amyloidosis.

The articles Dr. Strum compiled are written for those who have, or suspect they have prostate cancer. They contain meticulously laid-out facts, opinions of critical relevance to prostate cancer, and hyperlinks to relevant websites.

These articles are not meant for casual reading. They require intensive focus for those seeking better diagnostics and treatments for the most common malignancy striking men.

What may surprise readers of Dr. Strum’s reports are the myriad of advanced diagnostics and treatments that are not being routinely incorporated into conventional practice.

The best I can do to save lives is to provide Dr. Strum with a forum to empower prostate cancer patients with information that can assist them in utilizing the many modern treatment modalities currently available.

To review Dr. Strum’s up-to-date article on optimized prostate cancer diagnostics and treatments, please visit: www.LifeExtension.com/strum

The weblink takes you to two articles as follows:

PART 1. Optimized Prostate Cancer Treatment
Introduction
Changing Nature of the Patient-Physician Relationship
The Critical Nature of Context
The Contextual Menu
Find the “Artist”
Where the Patient with Cancer Goes Wrong
Caveats

PART 2. Focal Therapy
Active Surveillance and Focal Therapies

To access the above Part 1 and Part 2 log on to www.LifeExtension.com/strum

NOTE: To review Life Extension’s Prostate Cancer Treatment Protocol (originally written by Dr. Strum in 2003) with updates since 2003, log on to: www.LifeExtension.com/prostate
Brite Eyes III provides a well-established lubricant in every drop, soothing eye discomfort without irritation. **N-acetylcarnosine** is used as a stabilizing agent.

For full product description and to order Brite Eyes III, call **1-800-544-4440** or visit [www.LifeExtension.com](http://www.LifeExtension.com).

**Item #00893**  • 2 containers (5 mL each)

- 1 box $27
- 4 boxes $25 each

"Best eye drops I have found."

*David*  
**VERIFIED CUSTOMER REVIEW**
Super Omega-3 provides components found in Mediterranean diets, including sesame lignans to extend the stability of DHA in the blood.

**SUPER OMEGA-3 PLUS**
EPA/DHA Fish Oil, Sesame Lignans, Olive Extract, Krill & Astaxanthin
(2,520 mg of EPA + DHA in four softgels)

Item #01988 • 120 softgels

1 bottle $34.50

4 bottles $32 each

**SUPER OMEGA-3**
EPA/DHA Fish Oil, Sesame Lignans & Olive Extract
(2,400 mg of EPA + DHA in four softgels)

Item #01982 • 120 softgels

1 bottle $24.75

4 bottles $22 each

For full product description and to order Super Omega-3, or Super Omega-3 Plus, call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: If you are taking anti-coagulant or anti-platelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
ACTIVE LIFESTYLE & FITNESS

01529 Creatine Capsules
02020 Super Carnosine
02023 Tart Cherry with CherryPURE®
02146 Wellness Bar–Chocolate Brownie
02147 Wellness Bar–Cookie Dough
02148 Wellness Code® Advanced Whey Protein Isolate
02246 Wellness Code® Muscle Strength & Restore Formula
02243 Wellness Code® Plant Protein Complete & Amino Acid Complex
02242 Wellness Code® Whey Protein Isolate Chocolate
02261 Wellness Code® Whey Protein Concentrate Chocolate
02260 Wellness Code® Whey Protein Concentrate Vanilla
02243 Wellness Code® Whey Protein Isolate Chocolate
02242 Wellness Code® Whey Protein Isolate Vanilla

AMINO ACIDS

00038 Arginine Ornithine Powder
01253 Branched Chain Amino Acids
01829 Carnosine
01671 D,L-Phenylalanine Capsules
01624 L-Arginine Caps
01532 L-Carnitine
00345 L-Glutamine
00141 L-Glutamine Powder
01678 L-Lysine
00133 Taurine Powder
00326 Tyrosine Tablets

BLOOD PRESSURE & VASCULAR SUPPORT

01824 Advanced Olive Leaf Vascular Support
02004 Arterial Protect
02497 Endothelial Defense™ Pomegranate Plus
0320 NitroVasc™ Boost
00984 Optimal BP Management
01953 Pomegranate Complete
00956 Pomegranate Fruit Extract
02024 Triple Action Blood Pressure AM/PM
02102 VenoFlow™

BONE HEALTH

01726 Bone Restore
02123 Bone Restore Chewable Tablet
02416 Bone Restore Elite with Super Potent K2
01727 Bone Restore with Vitamin K2
01725 Bone Strength Collagen Formula
00313 Bone-Up™
01963 Calcium Citrate with Vitamin D
01506 Dr. Strum’s Intensive Bone Formula
02417 Mega Vitamin K2
01476 Strontium Caps

BRAIN HEALTH

01524 Acetyl-L-Carnitine
01974 Acetyl-L-Carnitine Arginate
02419 B12 Elite
02510 Brain Fog Relief
01659 CDP Choline
02321 Cognitex® Basics
02396 Cognitex® Elite
02397 Cognitex® Elite Pregnenolone
01540 DMAE Bitartrate
02006 Dopa-Mind™
02413 Dopamine Advantage
02212 Focus Tea™
01658 Ginkgo Biloba Certified Extract™
01527 Huperzine A
00020 Lecithin
02101 Memory Protect

ENERGY MANAGEMENT

01628 Adrenal Energy Formula • 60 veg capsules
01630 Adrenal Energy Formula • 120 veg capsules
00972 D-Ribose Powder
01473 D-Ribose Tablets
01900 Energy Renew
01544 Forskolin
01805 Ginseng Energy Boost
00668 Metabolic Advantage Thyroid Formula™
01869 Mitochondrial Basics with PQQ
01868 Mitochondrial Energy Optimizer with PQQ
01904 NAD+ Cell Regenerator™ • 100 mg, 30 veg capsules
02344 NAD+ Cell Regenerator™ • 300 mg, 30 veg capsules
02348 NAD+ Cell Regenerator™ and Resveratrol
01500 PQQ Caps • 10 mg, 30 vegetarian capsules
01647 PQQ Caps • 20 mg, 30 vegetarian capsules
00889 Rhodiola Extract
02003 Triple Action Thyroid

EYE HEALTH

01923 Astaxanthin with Phospholipids
00893 Brite Eyes III
02323 Digital Eye Support
01514 Eye Pressure Support with Mirtogenol®
01992 MacuGuard® Ocular Support with Saffron
01993 MacuGuard® Ocular Support with Saffron & Astaxanthin
01873 Standardized European Bilberry Extract
01918 Tear Support with MaquiBright®

FISH OIL & OMEGAS

01937 Mega EPA/DHA
02218 Mega GLA Sesame Lignans
01983 Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 60 softgels
01988 Super Omega-3 Plus EPA/DHA Fish Oil, Sesame Lignans, Olive Extract, Krill & Astaxanthin
01982 Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 120 softgels

CHOLESTEROL MANAGEMENT

01828 Advanced Lipid Control
01359 Cho-Less™
01910 CHOL-Support™
01030 Red Yeast Rice
01304 Theaflavins Standardized Extract
00372 Vitamin B3 Niacin Capsules

DIGESTION SUPPORT

53348 Betaine HCl
02412 Bloat Relief
30747 Digest RC®
07136 Effervescent Vitamin C - Magnesium Crystals
02021 Enhanced Super Digestive Enzymes
02022 Enhanced Super Digestive Enzymes and Probiotics
02033 EsophagCool™
01737 Esophageal Guardian
01706 Extraordinary Enzymes
02100 Gastro-Ease™
01122 Ginger Force™
00605 Regimint
01386 TrueFiber®
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<td>01879</td>
<td>Se-Methyl L-Selenocysteine</td>
</tr>
<tr>
<td>01778</td>
<td>Super Selenium Complex</td>
</tr>
<tr>
<td>00213</td>
<td>Vanadyl Sulfate</td>
</tr>
<tr>
<td>01813</td>
<td>Zinc Caps</td>
</tr>
</tbody>
</table>

### MISCELLANEOUS

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
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</thead>
<tbody>
<tr>
<td>00577</td>
<td>Potassium Iodide</td>
</tr>
<tr>
<td>00657</td>
<td>Solarshield® Sunglasses</td>
</tr>
</tbody>
</table>

### MOOD & STRESS MANAGEMENT

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
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</thead>
<tbody>
<tr>
<td>02434</td>
<td>Calm-Mag</td>
</tr>
<tr>
<td>02312</td>
<td>Cortisol-Stress Balance</td>
</tr>
<tr>
<td>00987</td>
<td>Enhanced Stress Relief</td>
</tr>
<tr>
<td>01074</td>
<td>5 HTP</td>
</tr>
<tr>
<td>01683</td>
<td>L-Theanine</td>
</tr>
<tr>
<td>02175</td>
<td>SAMe (S-Adenosyl-Methionine)</td>
</tr>
<tr>
<td>02176</td>
<td>SAMe (S-Adenosyl-Methionine)</td>
</tr>
<tr>
<td>02174</td>
<td>SAMe (S-Adenosyl-Methionine)</td>
</tr>
<tr>
<td>02429</td>
<td>Theanine XR™ Stress Relief</td>
</tr>
</tbody>
</table>

### MULTIVITAMINS

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>02199</td>
<td>Children's Formula Life Extension Mix™</td>
</tr>
<tr>
<td>02354</td>
<td>Life Extension Mix™ Capsules</td>
</tr>
<tr>
<td>02364</td>
<td>Life Extension Mix™ Capsules without Copper</td>
</tr>
<tr>
<td>02356</td>
<td>Life Extension Mix™ Powder</td>
</tr>
<tr>
<td>02355</td>
<td>Life Extension Mix™ Tablets</td>
</tr>
<tr>
<td>02357</td>
<td>Life Extension Mix™ Tablets with Extra Niacin</td>
</tr>
<tr>
<td>02365</td>
<td>Life Extension Mix™ Tablets without Copper</td>
</tr>
<tr>
<td>02292</td>
<td>Once-Daily Health Booster - 30 softgels</td>
</tr>
<tr>
<td>02291</td>
<td>Once-Daily Health Booster - 60 softgels</td>
</tr>
<tr>
<td>02313</td>
<td>One-Per-Day Tablets</td>
</tr>
<tr>
<td>02428</td>
<td>Plant-Based Multivitamin</td>
</tr>
<tr>
<td>02317</td>
<td>Two-Per-Day Capsules - 60 capsules</td>
</tr>
<tr>
<td>02314</td>
<td>Two-Per-Day Capsules - 120 capsules</td>
</tr>
<tr>
<td>02316</td>
<td>Two-Per-Day Tablets - 60 tablets</td>
</tr>
<tr>
<td>02315</td>
<td>Two-Per-Day Tablets - 120 tablets</td>
</tr>
</tbody>
</table>

### NERVE & COMFORT SUPPORT

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>02202</td>
<td>ComfortMAX™</td>
</tr>
<tr>
<td>02303</td>
<td>Discomfort Relief</td>
</tr>
</tbody>
</table>

### PERSONAL CARE

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01006</td>
<td>Biosil™ - 5 mg, 30 veg capsules</td>
</tr>
<tr>
<td>01007</td>
<td>Biosil™ - 1 fl oz</td>
</tr>
<tr>
<td>00321</td>
<td>Dr. Proctor's Advanced Hair Formula</td>
</tr>
<tr>
<td>00320</td>
<td>Dr. Proctor's Shampoo</td>
</tr>
<tr>
<td>02322</td>
<td>Hair, Skin &amp; Nails Collagen Plus Formula</td>
</tr>
<tr>
<td>01278</td>
<td>Life Extension Toothpaste</td>
</tr>
<tr>
<td>00408</td>
<td>Venotone</td>
</tr>
<tr>
<td>00409</td>
<td>Xyliwhite Mouthwash</td>
</tr>
<tr>
<td>02304</td>
<td>Youthful Collagen</td>
</tr>
<tr>
<td>02252</td>
<td>Youthful Legs</td>
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</tbody>
</table>

### PET CARE

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01932</td>
<td>Cat Mix</td>
</tr>
<tr>
<td>01931</td>
<td>Dog Mix</td>
</tr>
</tbody>
</table>

### PROBIOTICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>01622</td>
<td>Bifido GI Balance</td>
</tr>
<tr>
<td>01825</td>
<td>FLORASSIST® Balance</td>
</tr>
<tr>
<td>02421</td>
<td>FLORASSIST® Daily Bowel Regularity</td>
</tr>
<tr>
<td>02125</td>
<td>FLORASSIST® GI with Phage Technology</td>
</tr>
<tr>
<td>01821</td>
<td>FLORASSIST® Heart Health</td>
</tr>
<tr>
<td>02250</td>
<td>FLORASSIST® Mood Improve</td>
</tr>
<tr>
<td>02208</td>
<td>FLORASSIST® Immune &amp; Nasal Defense</td>
</tr>
<tr>
<td>02120</td>
<td>FLORASSIST® Oral Hygiene</td>
</tr>
<tr>
<td>02203</td>
<td>FLORASSIST® Prebiotic</td>
</tr>
<tr>
<td>02505</td>
<td>FLORASSIST® ProbioticWomen's Health</td>
</tr>
<tr>
<td>01920</td>
<td>FLORASSIST® Throat Health</td>
</tr>
<tr>
<td>52142</td>
<td>Jarro-Dophilus® for Women</td>
</tr>
<tr>
<td>00056</td>
<td>Jarro-Dophilus EPS® - 60 veg capsules</td>
</tr>
<tr>
<td>21201</td>
<td>Jarro-Dophilus EPS® - 120 veg capsules</td>
</tr>
<tr>
<td>01038</td>
<td>Theralac® Probiotics</td>
</tr>
<tr>
<td>01389</td>
<td>TruFlora® Probiotics</td>
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</tbody>
</table>

### SKIN CARE

<table>
<thead>
<tr>
<th>Code</th>
<th>Product Name</th>
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</thead>
<tbody>
<tr>
<td>80157</td>
<td>Advanced Anti-Glycation Peptide Serum</td>
</tr>
<tr>
<td>80165</td>
<td>Advanced Growth Factor Serum</td>
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<tr>
<td>80170</td>
<td>Advanced Hyaluronic Acid Serum</td>
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<tr>
<td>80154</td>
<td>Advanced Lightening Cream</td>
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<tr>
<td>80155</td>
<td>Advanced Peptide Hand Therapy</td>
</tr>
<tr>
<td>80175</td>
<td>Advanced Probiotic-Fermented Eye Serum</td>
</tr>
<tr>
<td>80177</td>
<td>Advanced Retinol Serum</td>
</tr>
<tr>
<td>80152</td>
<td>Advanced Tripeptide Serum</td>
</tr>
<tr>
<td>80140</td>
<td>Advanced Under Eye Serum with Stem Cells</td>
</tr>
<tr>
<td>80137</td>
<td>All-Purpose Soothing Relief Cream</td>
</tr>
<tr>
<td>80139</td>
<td>Amber Self MicroDermAbrasion</td>
</tr>
<tr>
<td>80118</td>
<td>Anti-Aging Mask</td>
</tr>
<tr>
<td>80151</td>
<td>Anti-Aging Rejuvenating Face Cream</td>
</tr>
<tr>
<td>80153</td>
<td>Anti-Aging Rejuvenating Scalp Serum</td>
</tr>
</tbody>
</table>
PRODUCTS

SLEEP
01512 Bioactive Milk Peptides
02300 Circadian Sleep
01551 Enhanced Sleep with Melatonin
01511 Enhanced Sleep without Melatonin
02234 Fast-Acting Liquid Melatonin
01669 Glycine
02308 Herbal Sleep PM
01722 L-Tryptophan
01668 Melatonin • 300 mcg, 100 veg capsules
01083 Melatonin • 500 mcg, 200 veg capsules
00329 Melatonin • 1 mg, 60 capsules
02503 Melatonin • 3 mg, 60 gummies
00330 Melatonin • 3 mg, 60 veg capsules
00331 Melatonin • 10 mg, 60 veg capsules
00332 Melatonin • 3 mg, 60 veg lozenges
02201 Melatonin IR/XR
01787 Melatonin 6 Hour Timed Release
300 mcg, 100 veg tablets
01788 Melatonin 6 Hour Timed Release
750 mcg, 60 veg tablets
01786 Melatonin 6 Hour Timed Release • 3 mg, 60 veg tablets

01721 Optimized Tryptophan Plus
01444 Quiet Sleep
01445 Quiet Sleep Melatonin
02502 Rest & Renew

VITAMINS
01533 Ascorbyl Palmitate
00920 Benfotiamine with Thiamine
00664 Beta-Carotene
01945 BioActive Complete B-Complex
00102 Biotin
00084 Buffered Vitamin C Powder
02229 Fast-C® and Bio-Quercetin Phytosome
02075 Gamma E Mixed Tocopherol Enhanced with Sesame Lignans
02070 Gamma E Mixed Tocopherol & Tocotrienols
01913 High Potency Optimized Folate
01674 Inositol Caps
02244 Liquid Vitamin D3 • 50 mcg (2000 IU)
02232 Liquid Vitamin D3 (Mint) • 50 mcg (2000 IU)
01936 Low-Dose Vitamin K2
00065 MK-7
00373 No Flush Niacin
01939 Optimized Folate (L-Methylfolate)
01217 Pyridoxal 5’-Phosphate Caps
01400 Super Absorbable Tocotrienols
02334 Super K
01863 Super Vitamin E
02422 Vegan Vitamin D3
02028 Vitamin B5 (Pantothenic Acid)
01535 Vitamin B6
00361 Vitamin B12 Methylcobalamin
01536 Vitamin B12 Methylcobalamin • 1 mg, 60 veg lozenges
01537 Vitamin B12 Methylcobalamin • 5 mg, 60 veg lozenges
02228 Vitamin C and Bio-Quercetin Phytosome • 60 veg tablets
02227 Vitamin C and Bio-Quercetin Phytosome • 250 veg tablets
01753 Vitamin D3 • 25 mcg (1000 IU), 90 softgels
01751 Vitamin D3 • 25 mcg (1000 IU), 250 softgels
01713 Vitamin D3 • 125 mcg (5000 IU), 60 softgels
01718 Vitamin D3 • 175 mcg (7000 IU), 60 softgels
01758 Vitamin D3 with Sea-Iodine™
02040 Vitamins D and K with Sea-Iodine™

WEIGHT MANAGEMENT & BODY COMPOSITION
02479 7-Keto® DHEA Metabolite • 100 mg, 60 veg capsules
01807 Advanced Appetite Suppress
02207 AMPK Metabolic Activator
02504 Body Trim and Appetite Control
02478 DHEA Complete
01738 Garcinia HCA
01432 Optimized Saffron
00818 Super CLA Blend with Sesame Lignans
02509 Waistline Control™

WOMEN'S HEALTH
01942 Breast Health Formula
01626 Enhanced Sex for Women 50+
01894 Estrogen for Women
01064 Femmenessence MacaPause®
02204 Menopause 731™
01441 Progesta-Care®
01649 Super-Absorbable Soy Isoflavones
02507 Youthful Woman 40+ with B-Complex
Taurine is one of the most abundant amino acids in your body, but levels decline over time. Be proactive and give your heart and brain powerful support with high-quality Taurine from Life Extension!

For full product description and to order Taurine, call 1-800-544-4440 or visit www.LifeExtension.com

Item #01827
1000 mg
90 vegetarian capsules*
1 bottle $9.75
4 bottles $9 each

*Also available in an unflavored powder that mixes easily into your favorite healthy beverage.

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
The Two-Per-Day multinutrient formula is superior to commercial multivitamins because it provides vastly higher potencies of vitamins, minerals and plant extracts.

Two-Per-Day Multivitamin Capsules
Item #02314 • 120 capsules (two-month supply)
1 bottle $19.13 • 4 bottles $17 each

Two-Per-Day Multivitamin Tablets
Item #02315 • 120 tablets (two-month supply)
1 bottle $18.38 • 4 bottles $16.25 each

For full product description and to order TWO-PER-DAY MULTIVITAMIN, call 1-800-544-4440 or visit www.LifeExtension.com

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