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January 2015

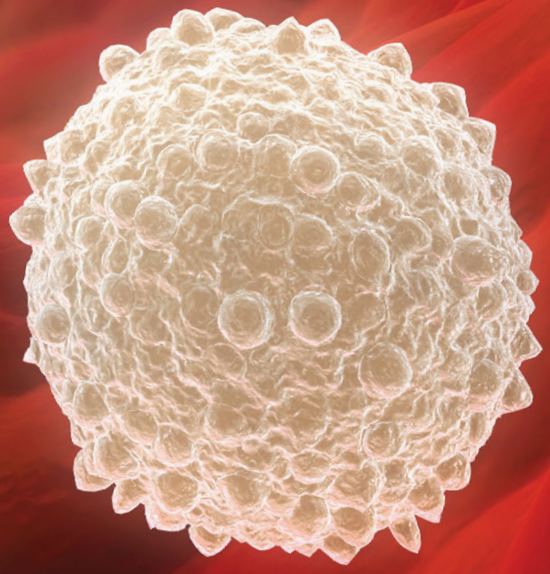
Reverse Age-Related Immune Dysfunction

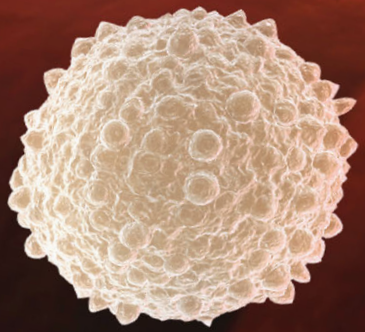
Exclusive Report from Leading Anti-Aging Medical Conference

Systemic Impact of Immune Senescence

A Life-Shortening Virus That Infects Most People

Novel Methods to Restore Youthful T-Cell Function





Red and White Blood Cells Flowing Through the Bloodstream

$4.99

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SUPER $ SALE

The annual **SUPER SALE** enables members to obtain premium grade supplements at prices substantially **below** what commercial companies charge. When members buy products from the **Life Extension Foundation Buyers Club**, they know that the **quality** of the products are backed by the organization's commitment to achieving an indefinitely extended life span. What follows are a few examples of the **savings** members enjoy during the **SUPER SALE**.

	Retail	Member SUPER SALE Discount Price Per Bottle
Immune Senescence Protection Formula **60 vegetarian capsules, Item # 01905** Standardized full-spectrum Reishi mushroom extract with *Cistanche* extract to regulate the immune system and restore youthful immune balance.	**$40**	**$24.30** *(four-bottle purchase)*
Super Omega-3 EPA/DHA with Sesame Lignans/Olive Fruit Extract **120 softgels, Item # 01482** Super purified EPA/DHA fish oil plus sesame lignans and potent olive (fruit and leaf) extract to provide critical omega-3 fatty acids and essential components of the Mediterranean diet.	**$32**	**$15.35** *(ten-bottle purchase)*
AMPK Activator **90 vegetarian capsules, Item # 01907** Activating AMPK "turns off" many of the destructive factors of aging, enabling cells to return to their youthful vitality. Research shows that the two plant extracts contained in this formula (*Gynostemma pentaphyllum* and *trans*-tiliroside) promote AMPK activation.	**$48**	**$29.70** *(four-bottle purchase)*
Optimized Resveratrol with NAD+ Cell Regenerator™ **30 vegetarian capsules, Item # 01930** High-potency *trans*-resveratrol now contains nicotinamide riboside, a novel form of vitamin B3 that supports mitochondrial health, along with pterostilbene and fisetin, which work in synergy with resveratrol to "turn on" longevity genes.	**$42**	**$24.30** *(four-bottle purchase)*
NAD+ Cell Regenerator™ Nicotinamide Riboside **100 mg, 30 vegetarian capsules, Item # 01904** Nicotinamide riboside is a revolutionary new form of vitamin B3, which is directly converted to NAD+, a coenzyme found in every cell that is essential for the efficient transfer of food to energy.	**$34**	**$17.55** *(four-bottle purchase)*
Super Booster with MacuGuard™ Ocular Support **60 softgels, Item # 01980** Just one softgel daily provides potent doses of vitamins K1 and K2, gamma tocopherol, sesame lignans, chlorophyllin, and lycopene, along with zeaxanthin, *meso*-zeaxanthin, lutein, and C3G for eye support.	**$52**	**$32.40** *(four-bottle purchase)*
Advanced Bio-Curcumin® with Ginger and Tumerones **30 softgels, Item #01808** Enhanced-absorbing **BCM-95®** curcumin with broad-spectrum inflammation-suppressing support.	**$30**	**$18.23** *(four-bottle purchase)*
Ultra Natural Prostate **60 softgels, Item # 01898** Comprehensive support for an aging prostate gland utilizing standardized lignans, plus boron and phospholipids for enhanced absorption.	**$38**	**$21.60** *(twelve-bottle purchase)*
Bone Restore with Vitamin K2 **120 capsules, Item # 01727** Highly absorbable forms of calcium and boron, magnesium, zinc, and K2. (Available with or without vitamin K2.)	**$24**	**$14.85** *(four-bottle purchase)*

The SUPER SALE extends to February 2, 2015.

Members traditionally take advantage of the **SUPER SALE** to stock up on a year's supply of their favorite supplements. To place your order, **call 1-800-544-4440** or visit **www.lef.org** (**SUPER SALE** pricing available only to members in the US, Canada, and England.)

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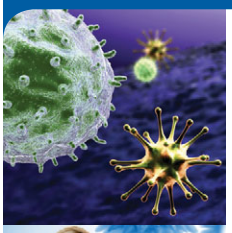

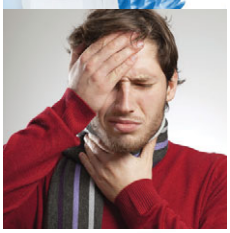

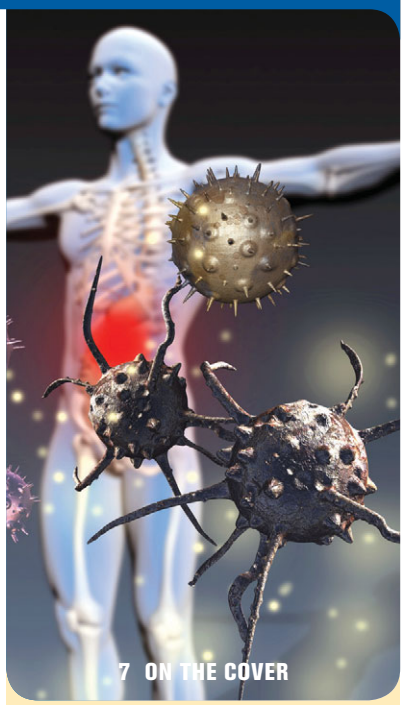

REVERSE AGE-RELATED IMMUNE DECLINE

Few people realize that **immune degeneration** predisposes us to cancer, vascular disease, infection, and senility, along with inflammatory disorders that shorten our life span. Researchers have identified specific immune components that decline with aging and have discovered natural ways to restore more youthful immune profiles in maturing individuals.

DEPARTMENTS

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Super Potent Multivitamin & Mineral Supplement

Compare CENTRUM® to TWO-PER-DAY:

Sample Ingredient Comparison	Centrum® Silver® Adults 50+	Life Extension® Two-Per-Day
Vitamin C	60 mg	500 mg
Vitamin D3	500 IU	2,000 IU
Vitamin B1	1.5 mg	75 mg
Vitamin B2	1.7 mg	50 mg
Vitamin B6	3 mg	75 mg
Vitamin B12 (as methylcobalamin)	25 mcg	300 mcg
Niacin (as niacinamide)	20 mg	50 mg
Pantothenic acid	10 mg	100 mg
Vitamin E	50 IU (synthetic)	100 IU (natural)
Folate	400 mcg (synthetic)	400 mcg (natural)
Zinc	11 mg	30 mg
Selenium	55 mcg	200 mcg
Lutein	250 mcg	5,000 mcg
Lycopene	300 mcg	2,000 mcg
Biotin	30 mcg	300 mcg
Boron	150 mcg	3,000 mcg
Chromium	45 mcg	200 mcg
Molybdenum	45 mcg	100 mcg
Magnesium	50 mg	100 mg
Manganese	2.3 mg	2 mg
Iodine	150 mcg	150 mcg
Potassium	80 mg	25 mg
Vitamin A (as beta-carotene)	1,000 IU	4,500 IU
Vitamin A (preformed)	1,500 IU	500 IU
Choline (as bitartrate)	(none)	20 mg
Inositol	(none)	50 mg
Calcium	220 mg	12 mg
Alpha Lipoic Acid	(none)	25 mg
Natural Mixed Tocopherols (providing gamma, delta, alpha, and beta tocopherols)*	(none)	20 mg
NIAGEN® Nicotinamide Riboside	(none)**	1 mg

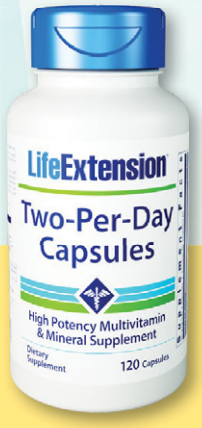
Commercial "one-a-day" supplements provide very low potencies.

The chart to the left reveals how much more potent the *new* **Two-Per-Day** is compared to the leading commercial multivitamin.

When compared to conventional "one-a-day" products, **Life Extension**'s *new* **Two-Per-Day** contains up to **50 times** more potency of specific nutrients.

Commercial supplements often contain the cheapest form of nutrients, which fail to provide optimal benefits. For example, the **50 IU** of synthetic vitamin E contained in **Centrum**® Silver® Adults 50+ may provide relatively little vitamin E to the bloodstream compared to the **100 IU** of natural vitamin E in **Two-Per-Day**.

The new **Two-Per-Day** contains a small amount of **nicotinamide riboside**, a nutrient that has been shown to support mitochondrial health and promote longevity by boosting cellular **NAD+** levels. The only common dietary source of **nicotinamide riboside** is cow's milk. The daily dose of **Two-Per-Day** provides the amount of **nicotinamide riboside** found in almost 7 cups of milk.* Most members are taking higher (**100 mg**) doses in the **NAD+ Cell Regenerator** or the new **Optimized Resveratrol with Nicotinamide Riboside**.



Item# 01914 Capsules

Item# 01915 Tablets

Compared to Centrum® Silver® Adults 50+, Two-Per-Day Tablets or Capsules provide about:

- 4 times more Vitamin D
- 8 times more Vitamin C
- 2 times more Vitamin E
- 10 times more Biotin
- 20 times more Boron
- 4 times more Selenium
- 25 times more Vitamin B6
- 50 times more Vitamin B1
- 12 times more Vitamin B12
- More than twice as much niacin, zinc, and many other nutrients

A bottle containing 120 capsules of **Two-Per-Day Capsules** retails for $22. If a member buys four bottles during **Super Sale**, the price is reduced to **$13.50** per bottle. (Item # 01914)

A bottle containing 120 tablets of **Two-Per-Day Tablets** retails for $20. If a member buys four bottles during **Super Sale**, the price is reduced to **$12.15** per bottle. (Item # 01915)

Each bottle of **Two-Per-Day** lasts **60 days**, so members can obtain the benefits of this high-potency formula for as little as **$6.07 per month**.

To order Life Extension Two-Per-Day Tablets or Two-Per-Day Capsules, call 1-800-544-4440 or visit www.LifeExtension.com

*Ratings based on results of the 2014 ConsumerLab.com Survey of Vitamin & Supplement Users. More information at www.consumerlab.com/survey2014.

Contains soybeans. Due to the source of the kelp, this product may contain fish and shellfish.

***Available at: https://chromadex.com/wpresources/Upload/Article/Literature/Ingredient/IngredientSaleSheets_NIAGEN_V0114b_pw.pdf. Accessed July 15, 2014.**

****Two-Per-Day provides a small amount of gamma tocopherols as part of natural mixed tocopherols, which include natural vitamin E.**

LifeExtension® Magazine

SCIENTIFIC ADVISORY BOARD

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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.

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BONE RESTORE

WITH VITAMIN K2

Bone Restore combines critical **bone boosting** nutrients into one **superior formula**.

Bone Restore includes highly ***absorbable*** forms of **calcium** and **boron,** along with **vitamin D3**, **magnesium**, **zinc**, **manganese**, and **silicon**. **Bone Restore** is available with or without **vitamin K2** (MK-7).

The retail price for 120 capsules of **Bone Restore** is $24. If a member buys four bottles during **Super Sale**, the price is reduced to **$14.85** per bottle. **(Item# 01727)**

The same **Bone Restore** formula without vitamin K2 (MK-7) is available as well. The retail price for 120 capsules is $22. If a member buys four bottles during **Super Sale**, the price is reduced to **$12.83** per bottle. **(Item# 01726)**

Just four capsules of Bone Restore provide:

Highly Absorbable Calcium (as DimaCal® dicalcium malate, TRAACS® calcium bisglycinate chelate, calcium fructoborate)	**700 mg**
Vitamin D3	**1,000 IU**
Vitamin K2 (as menaquinone-7)	**200 mcg**
Magnesium (as magnesium oxide)	**300 mg**
Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	**3 mg**
Zinc (as zinc amino acid chelate)	**2 mg**
Manganese (as amino acid chelate)	**1 mg**
Silicon (from horsetail extract)	**5 mg**

Item #01727

Note: Those who take **Super Booster** or **Super K** usually do not need additional vitamin K2. They should order **Bone Restore** without **vitamin K2**. Those taking the anticoagulant drug **Coumadin**® (warfarin) should use **BONE RESTORE** without **vitamin K2**.

Fruitex B® and OsteoBoron® are registered trademarks of VDF Futureceuticals, Inc. U.S. patent #5,962,049. DimaCal® and TRAACS® are registered trademarks of Albion Laboratories, Inc. Malate is covered by U.S. Patent 6,706,904 and patents pending.

To order Bone Restore, call 1-800-544-4440 or visit www.LifeExtension.com

How Immune Decline Hastens Aging

BY WILLIAM FALOON

This has been an incredible year of scientific achievement. Even the lay public is coming to the realization that profoundly extended health spans may be just around the corner.

A concern expressed by our older members is whether they can remain alive long enough to benefit from the upcoming biomedical revolution. These health activists want to determine their areas of ***vulnerability*** to ensure they're not overlooking a validated way to stave off disease, aging, and death.

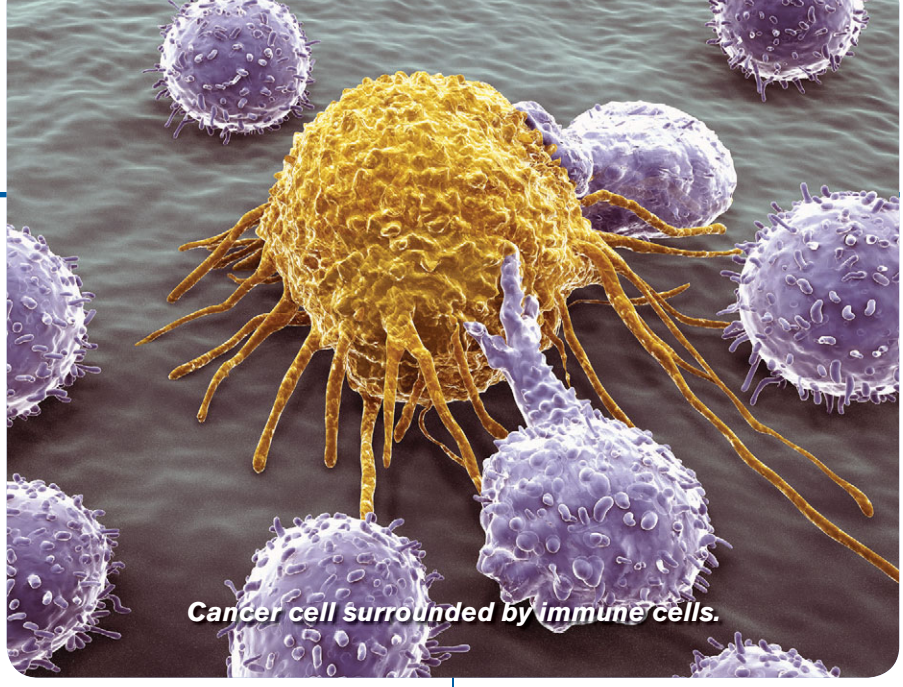
Our work involving **longevity research** dates back to the **1960s**. This has enabled us to gain exclusive ***insights*** into what causes people to **die**–people who otherwise take exceptionally good care of themselves.

A sad example of **mortality vulnerability** occurred in **January 2014**. That's when one of our pioneer members died at the young age of **92**. His intellectual contributions, spanning many decades, helped us survive withering governmental assaults aimed at **censoring** our ability to disseminate lifesaving information.

I can't stop thinking that we were only weeks away from potentially saving him. I don't want this same fate to befall other ***Life Extension***® members.

We've talked before about the lethal impact of **immune senescence**. It occurs when our aging immune system fails to protect against **cancers/infections**, and instead generates excess **inflammatory** reactions that attack every cell in our body.

What virtually no one understands is how aging ***accelerates*** immune decline and what must be done to reverse this lethal trend.


Cancer cell surrounded by immune cells.

The most common afflictions associated with normal aging are **atherosclerosis, cancer,** and **Alzheimer's disease**.[1] What few doctors know is that all these illnesses are related to **immune senescence**.[2,3]

In people over age 65, the top 10 causes of death include **pneumonia**, **influenza**, and **sepsis** (systemic inflammation caused by severe infection).[1] **Immune senescence** is a major cause of all these maladies.[4-10]

As winter sets in, the term "***immune system***" is liberally tossed around as people seek to protect against viral infections. What the public does not yet understand is what causes our immune system to fail as we age.[11]

Why Young Children Catch So Many Colds

Young children get lots of colds. Some suffer as many as eight to ten each year before age 2.[12]

The reason youngsters suffer more colds than older children and adults is because they haven't built up "immunity" to cold viruses.[12] But what does this immunity really mean?

When one is exposed to an infectious agent, the body creates and maintains "**memory T-cells**" that provide a degree of immunity to the same infection.[13] This works magnificently well in our first four to five decades of life. But then something happens that leads to the downward spiral of **immune senescence**.

Too Many "Memory T-Cells"

Memory T-cells form when our immune system successfully eradicates an invader. They remain in the body and are ready to instantly respond when that same bacteria, virus, or cancer cell reappears.

One would think it desirable to have lots of **memory T-cells**. The problem is that memory T-cells only work against prior infections. As we age, we collect excess numbers of **memory T-cells** and produce fewer critically important **naïve T-cells**.[14]

The term "**naïve**" may not sound like something beneficial as it relates to immune function, but it is. A **naïve immune cell** is one that has not been activated by an **antigen** (a substance that provokes an adaptive immune response). Since it is "**naïve**" (not yet exposed to an antigen), **naïve immune cells** are primed to effectively respond to new infectious agents and malignancies.[15]

Once exposed, **naïve immune cells** become **memory cells** or **plasma cells** specific to the original **antigen**. As our internal reservoir of **naïve immune cells** is decreased, we have less ability to respond to new **infections** and **malignancies**.[16]

To make matters worse, excess numbers of **senescent memory cells** provoke undesirable **inflammatory** reactions[17-21] that are thought to underlie most age-related diseases including atherosclerosis, cancer, and dementia.[22-26]

To put this in simplistic terms, if we are to protect against the ravages of **immune senescence**, we need to increase our numbers of **naïve cells** ("virgin" immune cells), while reducing numbers of surplus senile **memory cells**.

Importance Of "Functional" Natural Killer Cells

The first line of defense against virus-infected[28-31] and cancer cells is our **natural killer cells**.[32-45] Young individuals have high levels of functional **natural killer (NK)** immune cells, but this declines with aging.[46-49]

In elderly subjects, decreased **NK cell activity** is associated with an increased incidence and severity of **viral infections** such as **shingles**, **influenza**, and **cytomegalovirus** (CMV).[47,50-53]

Shingles occurs when our immunity to dormant chickenpox viral infection declines. It manifests as an extremely painful skin lesion that can last for months.[54]

Influenza, commonly called the flu, is a virus that inflicts its lethal effects mostly on the elderly, who represent the largest portion of the population that suffers immune dysfunction.[1,7]

Cytomegalovirus (CMV) is a chronic infection that, as you'll discover later in this issue, may contribute significantly to degenerative disease. About **90%** of older people showed history of **CMV** infection on lab testing compared to about **60%** of the general population.[55] Increased prevalence of **CMV** in the elderly is thought to lead to decreased immune surveillance.[56-61]

Natural killer cells originate in the bone marrow (like other immune cells) and go through a maturation process that enables them to participate in early control of **microbial infections** and **cancers**.[47,62]

Healthy **NK** function is critical in eliminating transformed cancer cells.[27,44,63] **NK cells** are also involved in the elimination of senescent cells[62,64] that otherwise cause **chronic inflammation**.[27,65-67]

The age-related decrease in functional **NK cells** is likely to have wider implications for the health of older adults than currently understood by the mainstream. If an aging person is to better manage debilitating and deadly infections and malignancies, maintaining youthful **NK function** is critical.

Consequences Of Immune Cell Exhaustion

Over the course of our lifetime, our immune system becomes "exhausted." What this refers to is the excess accumulation of worn-out **memory T-cells** and reduced production of vital **naïve T-cells**.[68-70]

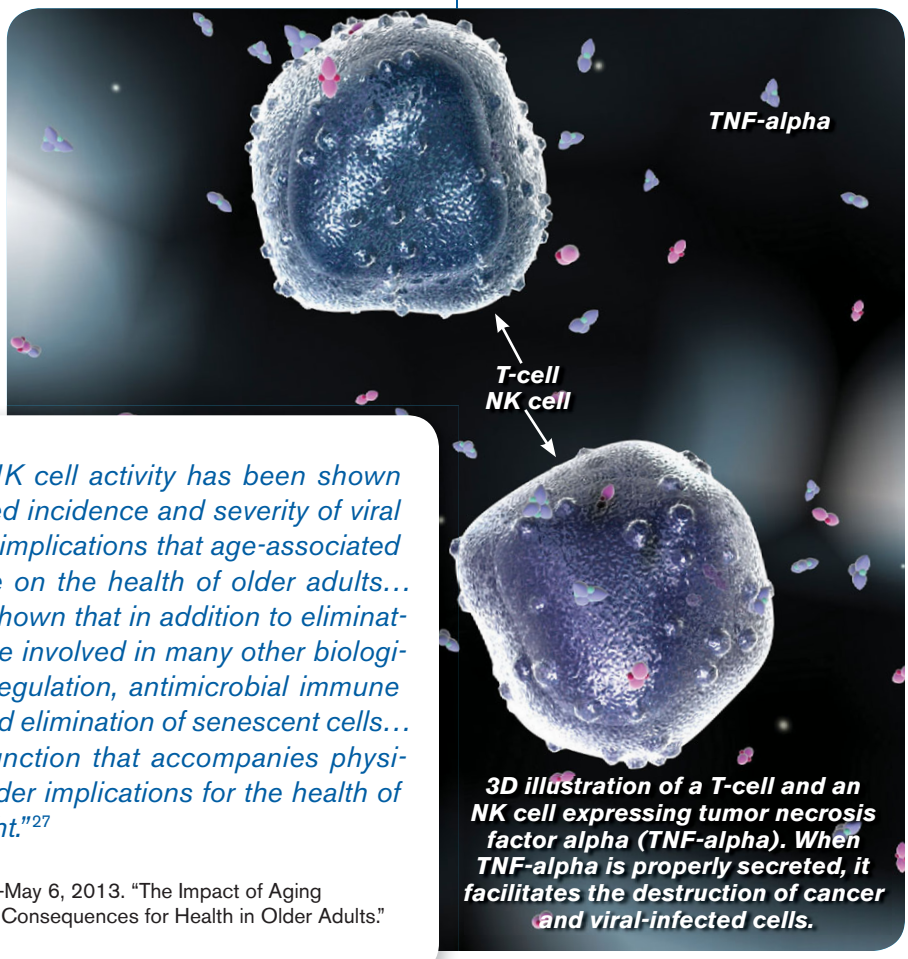
As people accumulate **exhausted T-cells**, an adverse consequence is these senile memory cells emit **pro-inflammatory *cytokines***[22,71] that exacerbate **chronic inflammatory** conditions.[72,73] Individuals with higher levels of ***exhausted*** immune cells suffer greater mortality.[74,75]

The deficit of **naïve immune cells** combined with overaccumulation of **exhausted memory cells** decreases the efficacy (antibody response) of **vaccinations**.[76-78]

Exhausted memory T-cells are associated with increased inflammation.[79] Inflammation is associated with increased risk of **coronary heart disease**, **impaired vascular function**, **vascular inflammation**, and **endothelial dysfunction**.[80-83]

An accumulation of **exhausted T-cells** has been seen in persons suffering from **rheumatoid arthritis**[84] and **ankylosing spondylitis** (an inflammatory disease of the spine).[85-87]

Compelling evidence points to the accumulation of **senile (exhausted) T-cells** as a factor that accelerates a broad array of age-associated diseases.[71]



3D illustration of a T-cell and an NK cell expressing tumor necrosis factor alpha (TNF-alpha). When TNF-alpha is properly secreted, it facilitates the destruction of cancer and viral-infected cells.

"In elderly subjects, decreased NK cell activity has been shown to be associated with an increased incidence and severity of viral infection, highlighting the clinical implications that age-associated changes in NK cell biology have on the health of older adults… Evidence has emerged that has shown that in addition to eliminating transformed cells, NK cells are involved in many other biological processes such as immune regulation, antimicrobial immune responses, and the recognition and elimination of senescent cells… Thus, the decrease in NK cell function that accompanies physiological aging is likely to have wider implications for the health of older adults than originally thought."[27]

Reference: *Aging Research Reviews*-May 6, 2013. "The Impact of Aging on Natural Killer Cell Function and Potential Consequences for Health in Older Adults."

More T-Helper Cells Needed

T-helper cells identify and tag invaders for elimination by the immune system.[89]

Regulatory T-cells tell the immune system that its job is finished and it's time to stop the attack.[89-91] A normal balance involves having at least one to four ***T-helper*** cells for each ***regulatory T-cell*** (regulatory T-cells are sometimes called suppressor T-cells).[92]

As humans age, there is an inversion in the **T-helper/regulatory T-cell ratio**.[93] What this means is that too many **regulatory T-cells** form while **T-helper** cell counts drop, resulting in there being more regulatory T-cells than T-helpers. The T-helper/regulatory T-cell ratio can be considered to be a predictor of mortality.[76,77,94] People with low **T-helper** counts and higher **regulatory T-cell** counts die sooner.

Cancer patients often present with a low T-helper/regulatory T-cell ratio.[95,96] Some studies show that tumor cells secrete chemicals that turn up **regulatory T-cell** formation in order to prevent the immune system from attacking cancer cells.[97-99] Cancer chemotherapy dramatically lowers **T-helper** counts.[100,101]

To combat **immune senescence**, it is critical to reverse the inversion of the T-helper/regulatory T-cell ratio. This means boosting **T-helper** counts while lowering **regulatory T-cells**.

Reversing Immune Senescence

Immune senescence is a prime cause of debility and mortality.

Fortunately, discoveries in recent years have been shown to help reverse the ***immune dysfunction*** that plagues virtually all aging humans (and cancer patients).

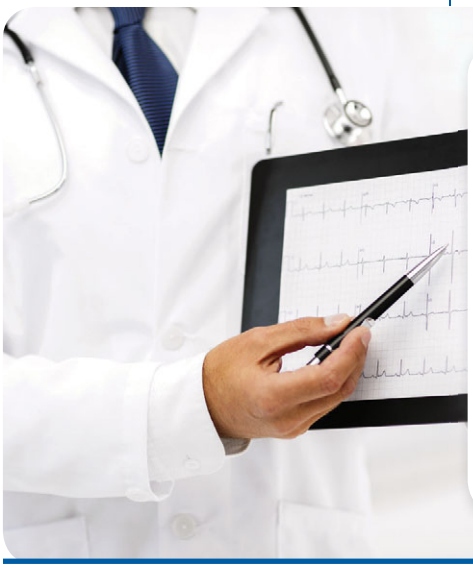
Here is a summary of the six underlying causes of **immune senescence** described in this article:

- Decrease in **naïve immune T-cells** needed to fight new invaders.[93]
- Increase in exhausted **memory T-cells** that create chronic **inflammatory** reactions.[93]
- Decrease in functional **natural killer (NK) cell** activity.[93]
- **Thymus** gland atrophy that reduces T-cell function and numbers.
- Too many **regulatory T-cells** and a reduction in **T-helper** cells.
- Excess production of **interleukin-6**, a cytokine that promotes **inflammation**.[102]

The good news is that there are proven ways to counteract all six factors involved in senile immune dysfunction.

Most Life Extension members already take **zinc** and **DHEA**. There is evidence that these supplements can at least partially restore **thymic function** vital to transforming immune cells produced in bone marrow to mature **T-cells**.[103-105] DHEA also helps suppress deadly **interleukin-6**.[106,107]

A breakthrough in combatting **immune senescence** has been found in a medicinal plant called ***cistanche*** that has been used extensively in China to treat the "ailments of aging."[108] Until recently, doctors would not have understood how ***cistanche***



"We conclude that chronic heart failure patients show a higher degree of immunosenescence than age-matched healthy controls. T-lymphocyte differentiation and interleukin-6 (IL-6) levels are increased in patients with an advanced clinical status and may contribute to disease impairment through a compromised adaptive immune response due to accelerated aging of their immune system."[88]

Reference: *International Journal of Cardiology*-July 1, 2014. "Immunosenescence and Inflammation Characterize Chronic Heart Failure Patients With More Advanced Disease."


Cistanche

reverses some of the underlying causes of **immune senescence**.

Supplementation with ***cistanche*** has been shown to increase **naïve T-cells** and **natural killer (NK) cells** while decreasing **memory T-cells** and pro-inflammatory **interleukin-6**.[109]

One of the characteristics of people who live over **100 years** is a low level of **interleukin-6**.

A prime reason for the severe immune disorders suffered by the elderly is the marked decrease in **naïve T-cells** and functional **natural killer cells**, with a concomitant increase in **memory T-cells**. ***Cistanche*** reverses these pathological trends that characterize immune senescence.

One way ***cistanche*** functions is by restoring the progenitors of peripheral **naïve T-cells**, which explains the increase seen in these vital cells in response to ***cistanche***.[109] Animals supplemented with ***cistanche*** have increased **life spans**, as would be expected by a compound that counteracts **immune senescence**.[109]

Cistanche is one of the most popular Chinese herbal medicines and is listed in the Chinese herbal pharmacopeias as having "**anti-aging**" properties.

Hidden Effects Of Natural Killer (NK) Cell Senescence

Natural killer (NK) cells are best known for their impact on reducing the incidence and severity of **viral** infections.[28-31]

Overlooked are studies showing vibrant **NK function** is crucial for the immune system to recognize and eliminate unhealthy/infected cells and dysfunctional (senile) cells.[27,115] A pathologic consequence of too many **senile cells** is tissue/organ damage and chronic inflammation.[116-119]

Senile (senescent) **cells** reside in a state of irreversible cellular paralysis. Your body wants them to die and disappear, but they ***linger*** on for dangerously long periods. While these senile cells contribute nothing to healthy function, they remain metabolically active, secreting an array of dangerous ***growth factors*** and ***pro-inflammatory cytokines***.

Functional **NK cells** can eliminate senile cells before they buildup to lethal levels. When **NK cells** are hampered by aging, however, they are less able to remove deadly senile cells from our bodies.

As **NK cells** themselves become **senescent** in older people, there is increased reactivation of tuberculosis and viral illnesses (such as shingles and CMV), slow resolution of inflammatory responses, and increased incidence of bacterial/fungal infections and malignancies.[27,120]

It is likely that the **senescence** of **NK cells** has wider implications on the health of older adults than originally thought. NK cell **senescence** thus represents a dagger of ***vulnerability*** that predisposes us to premature suffering and death. It must be reversed to avert degenerative disease.

One reason the Chinese saw such impressive therapeutic results is that ***cistanche*** restores one of the most prominent bone marrow biomarkers of immune cell formation called **stem cell antigen-1**.[109] Senile bone marrow loses its ability to produce fresh **naïve immune cells**, which are launched into the bloodstream to differentiate into mature **naïve T** and **natural killer cells**. Bone marrow **stem cell antigen-1** represents the body's main source of **naïve** T-cells in the blood.[109] ***Cistanche*** appears to have a rejuvenating effect on the bone marrow, something that is now only possible using very expensive recombinant drugs.[110-112]

There are other factors that weaken immune function in the elderly that ***cistanche*** has been shown to counteract. These will be described in depth in an article appearing in this issue.

Perhaps the most exciting finding was an open-label pilot trial of elderly people that combined a low-dose of ***cistanche*** (**100 mg**) with zinc, vitamin E, vitamin B6, fucoidan, and coenzyme Q10. Not only were markers of immune senescence reversed, but the test subjects reported improvements in quality of life, such as not "***feeling tired all the time.***" This makes sense in light of the multiple adverse effects **immune senescence** inflicts on the body, which includes increased levels of **frailty**.[113,114]

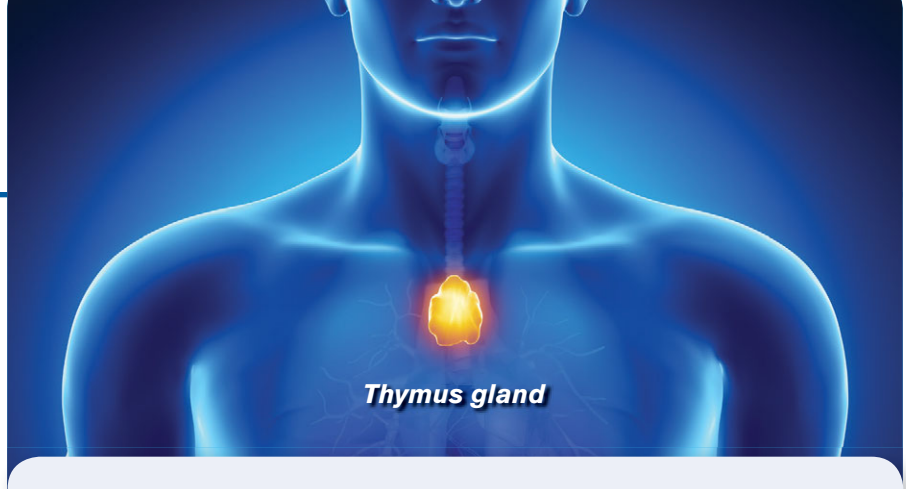
How To Take Advantage Of Novel Immune Restorative Technologies

Unlike prescription drugs or even certain dietary supplements, ***cistanche*** does not cost a lot. It has been added to the most popular nutrient members now take to bolster immune function (Reishi). Virtually every person over 35 should add this ***cistanche/Reishi*** immune protection duo to their daily regimen.

Another supplement to consider for short-term use is **enzymatically modified rice bran**, which has been demonstrated to have overwhelming benefits in boosting **natural killer cell** activity.[130-134] The problem we have with this supplement is its **high cost**. What we are going to suggest, and will provide a rationale for, is for members to take this enzymatically modified rice bran for only four months out of the year.[134]

We believe the substantial boost in **natural killer cell** activity will help eliminate **virus-infected cells**, **premalignant cells**, and **senile cells** that linger in the body and emit constant streams of pro-inflammatory cytokines. An underlying cause of aging is the accumulation of senile (senescent) cells that fail to undergo **apoptosis** (natural cell cycle destruction).[135] An increase in **natural killer (NK) activity** can help purge the body of these unwanted **senescent cells**. You're also going to learn in this issue of ***Life Extension*** magazine why removing cells infected with the CMV (cytomegalovirus) can result in a meaningful extension of the healthy human life span.

To further restore a more youthful immune profile, we're recommending that members go on a **60-day** course of an over-the-counter drug called **cimetidine**.



Most People Don't Get Enough Zinc

Immune cells are produced in the **bone marrow** and programmed into functional **T-cells** by our **thymus gland**. Profound shrinkage (atrophy) of the thymus gland occurs with aging and in the presence of nutrient deficiency–especially **zinc**.[121,122]

Zinc supplementation in old animals stimulates thymus gland growth and increases youthful thymic functions critical to healthy immune regulation.[123,124]

In older adult humans, zinc deficiency is rampant. One reason for this is that the government's minimum recommended daily allowance for zinc is only **8** to **11 mg**.[125] Yet **35** to **45%** of people over age 60 don't even get half of that.[126,127]

Optimal levels of supplemental zinc is around **30** to **50 mg** a day, so it is easy to see why even people taking basic RDA-potency vitamins are woefully short of this critical mineral.

Scientists now believe that **zinc** deficiency plays a direct role in the aging of the immune system.[128,129] The hormone **DHEA** is also important in maintaining youthful thymic function.

Zinc and **DHEA** are remarkably low-cost dietary supplements, and the fact that most people are deficient in one or both of them helps explain the epidemic of degenerative disease that occurs as human's age past 60 years, which is when **immune senescence** significantly manifests. As you've been reading, however, more than just **zinc** and **DHEA** are needed to ward off immune senescence.

This can be purchased at pharmacies at very low cost. We suggest that most people take **800 mg** of cimetidine each night for 60 consecutive days to reduce excess **regulatory T-cell** counts and increase **T-helper** cell counts. **Regulatory T-cells** sometimes turn off the immune system before immune eradication of virus-infected cells and tumor cells occurs.

We think this 60-day cycle of **cimetidine** should be considered a few times during the year, but do not take it all the time. We don't have the data yet to support everyday use of cimetidine in protecting against **immune senescence**, but there is compelling evidence for shorter-term use.[136] Cimetidine is approved by the FDA for use in heartburn sufferers (The brand name of this drug is Tagamet®.)

A trial was done on colorectal cancer patients who used **800 mg** a day of cimetidine for one year. In these patients, cimetidine demonstrated significant survival benefits—**84.6%** of the cimetidine/fluorouracil group were alive after 10 years compared to only **49.8%** of the control group (given fluorouracil alone).[137]

Life Extension has recommended **cimetidine** to certain

cancer patients since **1985**, and the most robust benefits have been shown to occur when cimetidine is administered ***prior*** to surgery and other immunosuppressive cancer therapies.[138-142]

We urge members to get on a 60-day cycle of cimetidine now to bolster defenses against immune senescence and winter infections.

On page 33 of this issue is a listing of cimetidine side effects and contraindications.

We're On The Verge Of Something Big...

In case you have not figured it out yet, we are entering a new paradigm in the prevention and reversal of age-related disease.

While certain nutrients **Life Extension** members have taken for decades help protect against immune decline, never before have we had such an arsenal to counteract the multiple underlying factors that characterize **immune senescence**. And this is just the beginning.

We are funding aggressive clinical research involving bone marrow rejuvenation with the objective of mobilizing hematopoietic stem and progenitor cells (HSPCs) that will rejuvenate *every* tissue of our aging bodies.

We are going even further in helping the very elderly with a research project that involves taking stem cell-stimulated blood of individuals under age 25, tissue-type matching it to elderly individuals, separating the youth factors from this young blood, and transfusing it into the elderly subjects. The objective of this research project is nothing short of meaningful ***age reversal*** in individuals who may have only a few more months or years to live.

How is this expensive research funded? By the dietary supplements you purchase from the **Life Extension Buyers Club**. We use proceeds from supplement sales to fund a wide range of projects aimed at finding cures for cancer, vascular disease, aging, and death itself. A record number of media stories this year highlighted areas of research we pioneered that are now being studied at prestigious universities.

Obtain Latest Formulations At Discount Prices

Once a year, we **discount** the price of *every* one of our advanced nutritional formulas. Members take advantage of this once-a-year **Super Sale** to stock up on their favorite supplement formulas.

What should comfort members more than anything else are the three novel methods to counteract aging we have introduced over the past few months. In addition to the **immune senescence** reversal program discussed in this editorial, there is now a supplement that mimics several of the longevity properties of the drug **metformin**, and a cell-regenerating nutrient called **nicotinamide riboside** that we've been working on since the year **2001**.

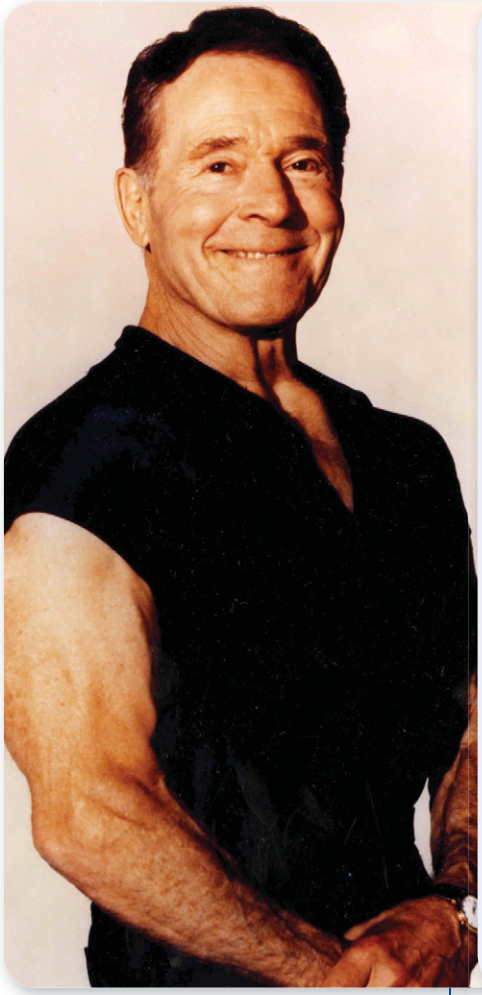
We've also combined some nutrients into existing formulas so that members can obtain more benefits while swallowing fewer pills.

No organization in the world is combatting senescence and human mortality more aggressively than **Life Extension**. Your support via supplement purchases and donations enables us to expand on an unprecedented biomedical research endeavor.

To order nutrients you need today at **Super Sale** prices, call **1-800-544-4440**.

For longer life,

William Faloon



Premature Death Of Jack LaLanne Likely Caused By Immune Senescence

It is impossible to overstate the magnitude of disability and death that **immune senescence** inflicts on aging human populations. When you hear a person died from "**old age**," in almost every instance the underlying culprit is a ***dysfunctional*** immune system that ignites deadly inflammatory fires while failing to protect against infections and malignancies.

No one we know tried to live for over **100 years** more than health pioneer **Jack LaLanne**. He engaged in rigorous lifelong exercise and ate a low-calorie healthy diet. He followed an old-line supplement program probably devoid of **vitamin K** and **DHEA**, which may have contributed to his premature death at age **96**.

Jack LaLanne died of **pneumonia** following **aortic valve** surgery. Aortic valve stenosis is caused by **calcification**, **chronic inflammation**, and other factors such as elevated **homocysteine**.[143]

Vitamin K prevents **calcification** that is so often the reason why an elderly person's aortic valve fails.[144-149] **DHEA** partially protects against **inflammation**.[150-152]

Immune senescence may very well have contributed to Jack LaLanne's early demise by crippling his ability to fight off the **pneumonia**, which was the acute cause of his death.

It is difficult to imagine someone as fit and vigorous as **Jack LaLanne** succumbing to **pneumonia**. Yet a dysfunctional **immune system** deprives even the hardiest of us from warding off infections that were easily overcome in our youth.

Clearly, protecting against **immune senescence** is a mandatory component of a longevity program.

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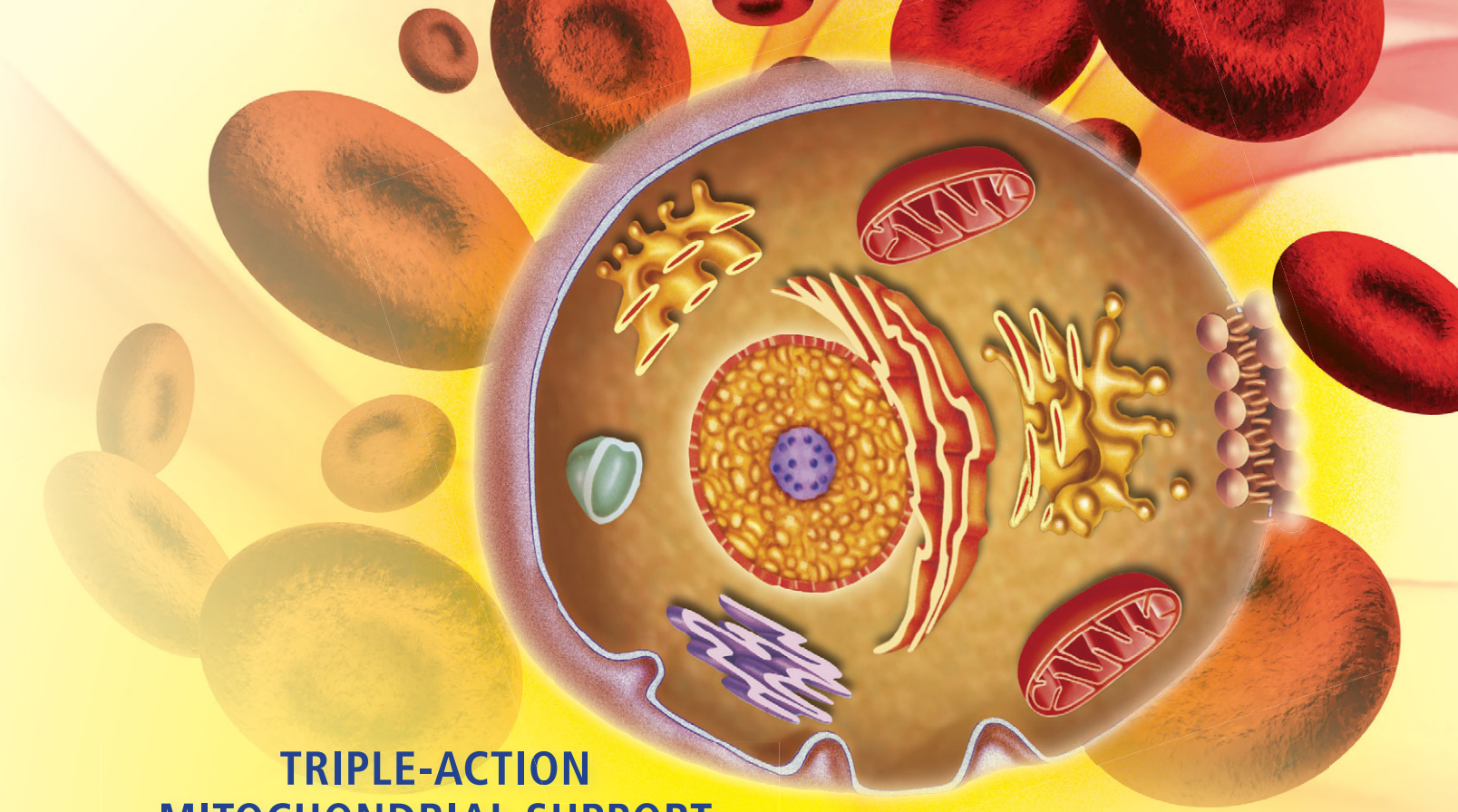

TRIPLE-ACTION MITOCHONDRIAL SUPPORT

CoQ10 + PQQ® with Shilajit

Super Ubiquinol CoQ10 with BioPQQ® energizes and generates new mitochondria in aging cells!

Super Ubiquinol CoQ10 with BioPQQ® contains **shilajit** to increase coenzyme Q10 in mitochondria plus **PQQ** to support the generation of new mitochondria in aging cells. This ***three-way*** mitochondrial support strategy offers the following benefits:

1. Ubiquinol CoQ10 • CoQ10 is required for generating optimal cellular energy. The *ubiquinol* form of CoQ10 offers superior absorption compared to the standard ubiquinone form.[1]

2. Shilajit Complex • PrimaVie® Shilajit has been shown to double levels of CoQ10 in the mitochondria.[1] Combining CoQ10 and Shilajit produced a **56%** increase in energy production in the brain and a **144%** increase in energy production in muscle.[2]

3. BioPQQ® • **PQQ** activates genes that promote the formation of new mitochondria while boosting mitochondrial antioxidant defenses.[3,4]

The optimal dose of **PQQ** is **20 mg** each day. Members taking **Mitochondrial Energy Optimizer**, **Mitochondrial Basics**, or **PQQ 10 mg caps** obtain this optimal PQQ dose when taking the new **Super Ubiquinol CoQ10 with BioPQQ®**.

The suggested dosage of one softgel daily of Super Ubiquinol CoQ10 with BioPQQ® provides:

Ubiquinol (as Kaneka QH Ubiquinol®)	100 mg
PrimaVie® Shilajit fulvic acid complex	100 mg
BioPQQ® Pyrroloquinoline quinone disodium salt	10 mg

A bottle of 30 softgels of **Super Ubiquinol CoQ10 with BioPQQ®** retails for $54. If a member buys four bottles during **Super Sale**, the price is reduced to **$31.05** per bottle.

Item # 01733

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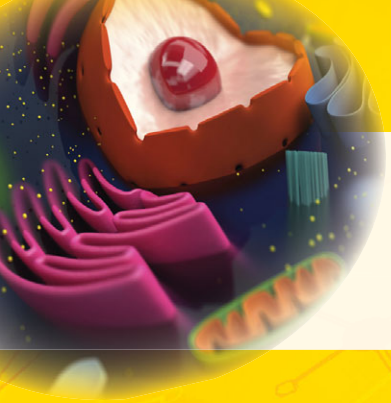
To order Super Ubiquinol CoQ10 with BioPQQ®, call 1-800-544-4440 or visit www.LifeExtension.com



AMPK Activator

A NEW PARADIGM IN CONTROLLING AGING

AMPK is an *enzyme* that serves as the body's "**master regulating switch**." It inhibits multiple degenerative factors by *revitalizing* aging cells.[1]

Found in every cell,[2,3] **AMPK** promotes ***longevity factors*** that have been shown to extend life span in numerous organisms.[1,4] Increasing AMPK signaling "turns off" many destructive effects of aging, thus enabling cells to return to their youthful vitality.[5]

Life Extension® scientists have compiled years of research to create **AMPK Activator**, a specialized *dual-extract formulation* that supports **AMPK** activation for health optimization. This natural formula supports AMPK enzymatic activities required to safely support a more youthful cellular environment.

Importance Of AMPK

Greater **AMPK** (*adenosine monophosphate-activated protein kinase*) activation has been shown to help target damaging factors of aging.[5] Studies show **increased** AMPK activity supports reduced fat storage,[6] new mitochondria production,[7] and the promotion of healthy blood glucose and lipids already within normal range.[4]

Gynostemma Pentaphyllum

An extract of the plant *Gynostemma pentaphyllum* was traditionally used in Asian medicine to promote longevity and scientists now know why—*G. pentaphyllum* promotes **AMPK** activation![8-10] In one of many studies showing a wide variety of benefits, researchers documented a 1-inch reduction in **abdominal circumference** in overweight individuals who took **450 mg** daily of *G. pentaphyllum* extract for 12 weeks.[11]

Trans-Tiliroside

Trans-tiliroside, extracted from plants such as **rose hips**, also boosts **AMPK** activation, but triggers different down-stream metabolic benefits than *G. pentaphyllum*.[12-14] Among its many benefits, a low equivalent dose of **56 mg** daily *trans-tiliroside* has been shown by researchers in preclinical studies to promote healthy blood glucose levels and body weight already within normal range.[15]

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The suggested daily dosage of **AMPK Activator** is to take two capsules with the first meal of the day and one capsule with the second meal. Three capsules provide:

***Gynostemma pentaphyllum* extract**	**450 mg**
Rose hip extract	**1,120 mg**
Standardized to ***trans*-tiliroside**	**56 mg**

Anti-Aging Discovery That Cannot Be Overlooked

Scientists uncovered the cell-energizing effect of **AMPK** in the 1970s. Since then, an exponential volume of data (over 7,500 published studies) documents the critical role that activated **AMPK** plays in maintaining life-sustaining cellular functions.

Those seeking to meaningfully extend their healthy life span should ensure they optimally activate their cellular **AMPK**. The reason this is so important is that in response to aging, excess calorie consumption, and/or low levels of physical activity, AMPK activity markedly declines.

A targeted way of **reversing** cellular depletion of this critical enzyme is to take the new **AMPK Activator** formula that comprises a dual-extract, plant-based formulation.

A bottle of 90 vegetarian capsules of the new **AMPK Activator** retails for $48. If a member buys four bottles during **Super Sale**, the price is reduced to **$29.70** per bottle.

Item # 01907

To order AMPK Activator at low Super Sale prices, call 1-800-544-4440 or visit www.LifeExtension.com

THE NEW...

SUPER BOOSTER

...NOW WITH EYE SUPPORT

One-Per-Day Multi-Nutrient Softgel

Most people don't get enough **oil-based** nutrients from their diet. **Super Booster** solves that problem with a once-a-day softgel that provides high potencies of **fat-soluble** nutrients and other compounds.

SUPER BOOSTER provides in one softgel:

- **Vitamin K2**: Studies show **vitamin K2** provides superior benefits for bones, arteries, and other tissues. The **MK-4** form of vitamin K2 is the most rapidly absorbed, but only remains active in the blood for a few hours. The **MK-7** form of K2, however, remains bioavailable for a sustained **24 hours**. Super Booster provides a potent dose of **MK-7** and **MK-4** (along with **vitamin K1)** to keep calcium in the bones and out of the arteries.
- **Gamma tocopherol**: Taking only **alpha** tocopherol displaces the critically important ***gamma tocopherol*** from cells in the body. **Gamma tocopherol** also quenches a dangerous free radical (peroxynitrite) that plays a major role in age-related decline. It is vital that those taking vitamin E supplements also consume at least **200 mg** a day of gamma tocopherol.
- **MacuGuard™ Carotenoid Phospholipid Blend**: To support eye health, macular density and healthy vision, MacuGuard™ provides **zeaxanthin**, **meso-zeaxanthin**, and **lutein**. Now that these carotenoids are included in the **Super Booster** formula, most people do not need to take a separate MacuGuard™ supplement.
- **Black currant extract**: Cyanidin-3-glucoside is the anthocyanin-rich purple pigment found in European **black currant extract** that helps promote eye comfort and health.
- **Sesame lignans**: Help boost tissue levels of ***gamma tocopherol*** via several different mechanisms.
- **Lycopene**: Evidence suggests those who ingest this carotenoid enjoy healthier prostate function. **Lycopene** also helps guard against LDL oxidation.
- **Chlorophyllin**: Scientific studies indicate **chlorophyllin** may protect against environmentally induced DNA damage.

Item # 01980

Just one softgel of Super Booster supplies:

Vitamin K1 (as phytonadione)	**1,000 mcg**
Vitamin K2 (as menaquinone-4)	**1,000 mcg**
Vitamin K2 (as menaquinone-7)	**200 mcg**
Gamma E Tocopherol	**245 mg**
Chlorophyllin	**100 mg**
MacuGuard™ Carotenoid Phospholipid Blend Phospholipids, marigold extract (flower) [providing 10 mg free lutein, 4 mg *meso*-zeaxanthin & *trans*-zeaxanthin]	**145 mg**
C3G (Cyanidin-3-glucoside) [from European black currant extract (fruit)]	**2.2 mg**
Sesame seed lignan extract	**20 mg**
Lycopene proprietary blend [from Micronized Lycopene and Tomat-O-Red® natural tomato extract (fruit)]	**10 mg**
Vitamin B12	**300 mcg**
Vitamin C	**95 mg**

Super Booster saves consumers big money by combining a variety of costly nutrients in one softgel. If you add up the price of the individual ingredients in **Super Booster**, you would spend **two to three** times more.

Just one **Super Booster** softgel should be taken each day with the heaviest meal.

A bottle of 60 **Super Booster** softgels—a two-month supply—retails for **$52**. If a member buys four bottles during **Super Sale**, the price is reduced to **$32.40** per bottle.

To order Super Booster, call 1-800-544-4440
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Contains soybeans.

Tomat-O-Red® is a registered trademark of LycoRed, Ltd.

IN THE NEWS

Walnuts May Provide Brain Benefit In Alzheimer's Patients

According to an article that appeared in the *Journal of Alzheimer's Disease*, a diet enriched with walnuts can help slow down, or even prevent, Alzheimer's disease.*

Researcher Abha Chauhan, PhD, and associates say an extract in the nuts may provide a protective effect against oxidative damage caused by beta-amyloid protein. A build-up of this protein leads to beta-amyloid plaque, which is believed to play a major role in the development of the disease.

Over a period of nine to 10 months, the team fed 4-month-old Alzheimer's-induced transgenic mice a diet containing **6** or **9%** walnuts, which is the equivalent of 1 or 1.5 ounces of walnuts per day in humans. Control groups consisting of transgenic mice and regular mice were fed a walnut-free diet. Between the ages of 13 and 14 months, all animals were tested for spatial memory and learning ability, position discrimination learning ability, psychomotor coordination, and anxiety-related behavior.

The transgenic mice on a control diet exhibited increased memory deficit and anxiety-related behavior, and impairments in spatial learning ability, position discrimination learning ability and motor coordination in comparison with normal mice on the same diet. The animals that ate the walnuts showed improvements in memory, learning, anxiety and motor development compared to the transgenic controls.

Editor's Note: In light of the significant amount of inflammation present in Alzheimer's disease, the researchers suggest the high omega-3 fatty acid content in the nuts could be responsible for the benefits observed.

**J Alz Dis.* 2014;42(4):1397-405.

Resveratrol Shows Bone Benefit

A study published in the *Journal of Clinical Endocrinology & Metabolism* found that resveratrol improved spinal bone density in men with metabolic syndrome—a cluster of risk factors associated with an increased risk of cardiovascular disease and diabetes—and may provide potential as a treatment for osteoporosis.*

Sixty-six obese men received **500 mg** resveratrol, **75 mg** resveratrol, or a placebo twice daily for 16 weeks. Bone mineral density, geometry, and microstructure were assessed before treatment and at the study's conclusion. Bone alkaline phosphatase and other blood markers of bone formation were measured at baseline and at four, eight, and 16 weeks.

Participants who received the **resveratrol** experienced a **2.6%** increase in lumbar spine volumetric bone mineral density at the end of the study and an average **16%** increase in bone alkaline phosphatase in comparison with the placebo group at each time point measured.

Editor's Note: "Our study is the first to reveal resveratrol's potential as an anti-osteoporosis drug in humans," announced lead author Marie Juul Ørnstrup, MD, of Aarhus University Hospital in Denmark. "Our findings suggest the compound stimulates bone-forming cells within the body."

**J Clin Endocrinol Metab.* 2014 Oct 16.

Acute Glaucoma Is An Inflammatory Disease

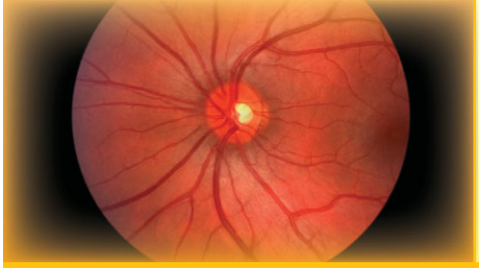
A study published in *Proceedings of the National Academy of Sciences* found that loss of vision in mice suffering from acute glaucoma, an inflammatory disease, can be caused by high pressure in the eye that sets in motion an inflammatory response leading to death of retinal cells.*

In the study, scientists at UC San Diego School of Medicine and Sun Yat-Sen University in China proved that a large, rapid, and sustained increase in eye pressure switched on a gene (TLR4) that activated a protein called caspase-8. Caspase-8 triggers the production of inflammatory proteins that typically allow mammals to fight microbial infections. By suppressing either the TLR4 gene or caspase-8 protein, the researchers were able to slow retinal cell death in mice with glaucoma.

"This immune response is a double-edge sword because, while these proteins protect us from infection in a normal situation, they stimulate apoptosis (programmed cell death) in retinal cells in cases of acute glaucoma," said study co-author Dr. Kang Zhang, of UC San Diego School of Medicine.

Editor's Note: By 2020, an estimated 3 million Americans will be diagnosed with glaucoma, the second leading cause of blindness. The study results will have immediate and broad clinical importance regarding the treatment of the disorder.

* *Proc Natl Acad Sci*. Epub 2014 July 14.



Higher Potassium Intake Linked With Lower Risk Of Death, Stroke

The finding of a reduced risk of stroke and premature mortality among women with a higher intake of potassium was reported in the journal *Stroke*.*

The current investigation utilized data from 90,137 postmenopausal women who had no history of stroke upon enrollment in the Women's Health Initiative Observational Study. Dietary questionnaire responses were analyzed for potassium intake, which averaged **2,611 mg** per day. Over an average 11-year follow-up period, 3,046 strokes (including 2,190 ischemic strokes) occurred and there were 11,596 deaths from all causes.

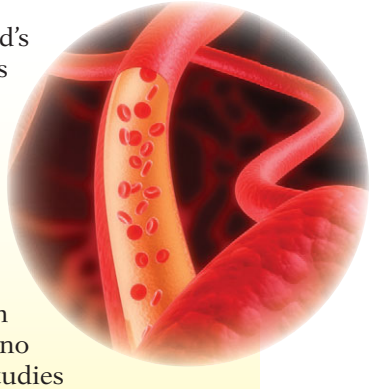
Among women whose potassium intake was among the highest **25%**, there was a **12%** lower risk of stroke, a **16%** lower risk of ischemic stroke, and a **10%** lower risk of dying from any cause over follow-up in comparison with those whose intake was among the lowest **25%**.

Editor's Note: Although the US Department of Agriculture recommends a level of **4,700 mg** of potassium daily, lead researcher Dr. Sylvia Wassertheil-Smoller, of the Albert Einstein College of Medicine, New York, observed that, "Only **2.8%** of women in our study met or exceeded this level. The World Health Organization's daily potassium recommendation for women is lower, at **3,510 mg** or more. Still, only **16.6%** of women we studied met or exceeded that."

* *Stroke*. Epub 2014 Sep 4.

Decreased Arterial Stiffness Associated With Supplementation

The results of a meta-analysis published in the *Journal of Nutrition* indicate that supplementing with nutrients could help protect against arterial stiffening that occurs with aging.*

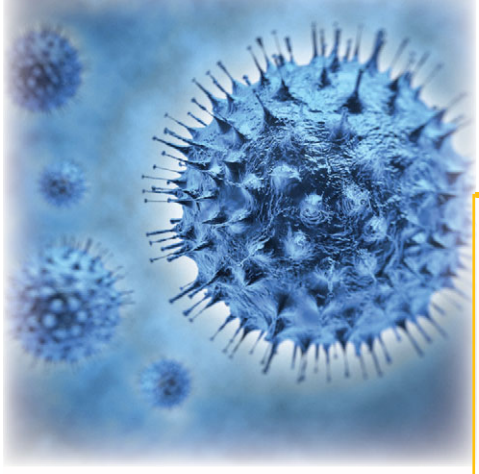


Ammar W. Ashor and colleagues at England's Newcastle University selected 20 randomized trials that included a total of 1,909 participants aged 22 to 63 for their analysis. Studies involved vitamin C and/or E alone, or a combination of other vitamins and/or mineral supplementation. Arterial stiffness was evaluated via pulse-wave velocity measurement or other methods.

Pooled analysis of the data revealed a significant reduction in arterial stiffness associated with supplementation in comparison with a placebo or no treatment. The benefit was more pronounced in studies in which arterial stiffness was experimentally induced or in primary prevention trials, and was stronger among those with lower plasma vitamin C and E prior to supplementation.

Editor's Note: "The beneficial effects of vitamins on vascular stiffness may be explained by the reduction of the damaging effects of free radicals on structural and functional components of the vessel walls," the authors said. "Vitamins inactivate free radicals, reduce inflammation, and therefore protect the integrity of the vascular wall. Furthermore, vitamins increase the bioavailability of the vasodilator and anti-inflammatory molecule nitric oxide."

**J Nutr*. Epub 2014 Aug 6.



Higher Nutrient Levels Associated With Lower Pancreatic Cancer Risk

The results of a study reported in the *International Journal of Cancer* suggest a protective effect of higher nutrient levels against the risk of developing cancer of the pancreas.*

The case-control study included participants in the EPIC (European Prospective Investigation into Cancer and Nutrition) study, which was designed to investigate the relationship between diet and other factors with chronic disease incidence. Over 400 subjects diagnosed with pancreatic cancer were matched with an equal number of control subjects who were free of the disease.

For those whose **beta carotene** levels were among the top **25%** of participants, the risk of developing pancreatic cancer was **48%** lower than that of subjects whose levels were among the lowest fourth. A **47%** lower risk was observed for those who consumed the most **zeaxanthin**, and for subjects whose **alpha-tocopherol** levels were among the top fourth, pancreatic cancer risk decreased **38%**.

Editor's Note: Authors Suzanne M. Jeurnink, of University Medical Center Utrecht, and her colleagues note that, "Potential mechanisms of such bioactive compounds include protection against free radical damage to DNA, enhancing immune function, and inhibiting insulin-like growth factor (IGF) by binding to IGF receptors."

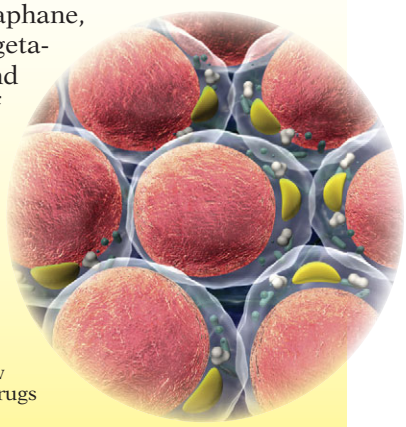
* *Int J Cancer*. Epub 2014 Aug 30.

Sulforaphane, Quercetin Improve Cells' Defense System

An article published on September 2, 2014, in the journal *Antioxidants and Redox Signaling* provides evidence that beneficial compounds from broccoli, onions, and other foods could boost cellular defense.*

The current study centers on Nrf2, a protein that enters and exits the cells' nuclei once every 129 minutes, according to research first conducted by Professor Paul J. Thornalley, of England's University of Warwick, and associates. When the protein is exposed to health threats, the rate of oscillation and cellular defense increases.

Dr. Thornalley's team found that sulforaphane, found in broccoli and other cruciferous vegetables, and quercetin, from onions, apples, and other plant foods, increase Nrf2's speed of oscillation between the cell's nucleus and cytoplasm to once every 80 minutes.



Editor's Note: "The way Nrf2 works is very similar to sensors in electronic devices that rely on continual reassessment of their surroundings to provide an appropriate response," Dr. Thornalley explained. "The health benefit of Nrf2 oscillating at a fast speed is that surveillance of cell health is increased when most needed, that is, when cells are under threat. By understanding how this process works and increasing Nrf2's speed without putting cells under threat, new strategies for design of healthier foods and improved drugs can be devised."

**Antiox Redox Signal*. 2014 Sep 2.

Deficient Vitamin D Levels Associated With Greater Risk Of Dying From Sepsis Or Septic Shock

Researchers at Detroit's Henry Ford Hospital report a protective effect of having sufficient vitamin D levels against the risk of dying from sepsis or septic shock within 30 days of intensive care unit admission. The findings were reported in the September 2014 issue of the *American Journal of Critical Care*.*

The study included 121 men and women admitted to the hospital's ICU with severe sepsis or septic shock, an inflammatory state resulting from infection in the bloodstream. Blood samples obtained before or during admission were analyzed for serum 25-hydroxyvitamin D levels.

Vitamin D deficiency, categorized in this study as a level of **15 ng/mL** or less, was uncovered in **54%** of total patients. Thirty-seven percent of vitamin D-deficient subjects died from any cause within 30 days of admission, in comparison to **20%** of those who were not deficient.

Editor's Note: "Mortality may be decreased by ensuring adequate vitamin D concentrations through supplementation with ergocalciferol or cholecalciferol within 30 days of hospitalization," the authors write. "This finding has important implications because sepsis is a leading cause of mortality in critically ill patients."

**Am J Crit Care*. 2014 Sep;23(5):e72-9.

Resveratrol Reduces High-Fat Diet's Effects On Mitochondrial Function

The *Journal of Food Science* reports the finding of a beneficial effect for resveratrol in preventing the adverse effects of a high-fat diet on mitochondrial function and other factors.*

Researchers divided 24 mice to receive a normal diet, a high-fat diet, or a high-fat diet enhanced with **0.06%** resveratrol for 20 weeks. At the end of the experiment, blood and spleen cell samples were analyzed for regulatory T-cell counts and other factors.

While regulatory T-cells in blood and spleen were reduced by the high-fat diet, their survival was improved in animals that received resveratrol. Resveratrol was also associated with a decrease in the elevation of reactive oxygen species production and restoring loss of mitochondrial function that was observed in the regulatory T-cells of high fat diet-fed animals. Resveratrol was found to increase the expression of a regulator of mitochondrial biogenesis and reduce regulatory T- cell apoptosis.

Editor's Note: "High-fat diet is a significant risk factor for health, and mitochondrial dysfunction is one of the major events activating cell death pathways during high-fat diet-induced oxidative stress," writes Bin Wang, of China's School of Food Science and Technology in Jiangsu. "We have already reported that several immune functions were changed in mice by high-fat feeding, indicating that the proinflammatory state of obese individuals might be related to chronic excessive nutrient intake."

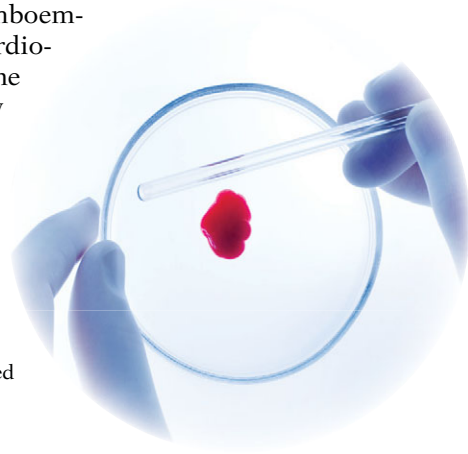
**J Food Sci*. Epub 2014 Aug 23.

Low-Dose Aspirin Linked To Decreased Blood Clot Risk

A study published in *Circulation* affirmed that regular intake of low-dose aspirin may help reduce the incidence of recurrent venous blood clots referred to as venous thromboembolism, as well as the risk of cardiovascular events.*

For the current study, Dr. John Simes, of the University of Sydney, Australia, and fellow researchers analyzed data from the WARFASA (Warfarin and Aspirin) and ASPIRE (Aspirin to Prevent Recurrent Venous Thromboembolism) trials. Participants in both trials received **100 mg** aspirin or a placebo daily for a median period of 24.2 months.

Among 1,224 men and women included in the combined analysis, venous thromboembolism occurred in **18.4%** who received a placebo and **13.1%** assigned to aspirin, resulting in a **32%** reduction among aspirin users. Subjects who received aspirin additionally experienced a **34%** reduction in the risk of major vascular events, including symptomatic venous thromboembolism, heart attack, stroke, and cardiovascular death, in comparison with the placebo group. The risk of clinically relevant bleeding was not significantly different between the two groups.



Editor's Note: "The treatment effect of aspirin is less than can be achieved with warfarin or other new generation direct thrombin inhibitors, which can achieve more than an **80%** reduction in adverse circulatory and cardiopulmonary events," Dr. Simes noted. "However, aspirin represents a useful treatment option for patients who are not candidates for anticoagulant drugs because of the expense or the increased risk of bleeding associated with anticoagulants."

* *Circulation*. Epub 2014 Aug 25.

Watch Out For Watchful Waiting

Findings from a study reported in *Urologic Oncology* indicate that watchful waiting, a no-treatment strategy recommended to many older men with low-grade prostate cancer, may not be appropriate for all patients, particularly African Americans.* "We know that African American men have more aggressive prostate cancer than Caucasian men," noted lead researcher Kosj Yamoah, MD, PhD.

Dr. Yamoah and associates evaluated data from a group of men with low to intermediate grade cancer as indicated by Gleason scoring of biopsy samples obtained by surgical removal of all or part of the prostate gland. (Restricting the study to men who underwent surgical removal of tissue for biopsy rather than needle biopsy samples helped ensure the accuracy of the tumor grading process by reducing the chance of missed areas of aggressive disease.) Over a seven-year period, disease control was observed in **90%** of Caucasian men as opposed to **79%** of African American men.

Editor's Note: "Our study shows that African American men who are diagnosed with a low-grade cancer at first—the cancers that are sometimes watched rather than treated—are more likely to develop aggressive disease sooner than Caucasian men," Dr. Yamoah concluded.

**Urol Oncol*. Epub 2014 Sep 8.

Validated in Huge New Study: Vascular Benefits of a Mediterranean Diet

A large, rigorous study published in the ***New England Journal of Medicine*** confirmed the health benefits of those who switch to a **Mediterranean diet** rich in **omega-3 fatty acids** as well as protective nutrients called polyphenols found in **olive oil**, fruits, vegetables, nuts like walnuts, and wine.[1] The study ended early because the life-sparing effects were so overwhelming, with startling benefits for vascular health.[1]

In addition to health-promoting vegetables and fruits with their abundance of **polyphenol** nutrients, the Mediterranean diet group also took **4 tablespoons** of polyphenol-rich extra-virgin **olive oil** a day.[1]

Life Extension® Members Benefited Long Ago

Starting in **2005**, Life Extension members began taking a supplement (***Super Omega-3***) that provided potent concentrations of **fish oil** and **olive polyphenols** like hydroxytyrosol and oleuropein.

Olive oil contains polyphenol nutrients that have demonstrated wide-ranging health benefits.[2-4] The recommended daily dose of **Super Omega-3** supplies a similar polyphenol content to that found in **4 to 6 tablespoons of olive oil.**

This supplement also provided standardized **sesame lignans** to support the beneficial effect of omega-3 fatty acids in the body.[5]

The **sesame lignans** not only direct the omega-3s fatty acids toward more effective pathways in the body, but guard the delicate fish oil from oxidation.[5,6]

CAUTION: If you are taking anticoagulant or antiplatelet medications, or have a bleeding disorder, consult your healthcare provider before taking this product.

Supportive but not conclusive evidence shows that consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease. IFOS™ certification mark is a registered trademark of Nutrasource Diagnostics, Inc. These products have been tested to the quality and purity standards of the IFOS™ program conducted at Nutrasource Diagnostics, Inc.

Super Omega-3 with Sesame Lignans and Olive Fruit Extract

To ensure the purest, most stable, and easy-to-tolerate fish oil, **Super Omega-3 EPA-DHA** is *molecularly distilled*. It enjoys the highest **5-star rating** for **purity**, **quality,** and **concentration** from the renowned ***International Fish Oil Standards*** program.[6]

A bottle containing 120 softgels of **Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** retails for $32. If a member buys four bottles during **Super Sale**, the price is reduced to **$18.90** per bottle. If **10 bottles** are purchased during **Super Sale**, the cost is **$15.35** per bottle. **(Item #01482)**

The daily dose (four regular size softgels) of Super Omega-3 EPA /DHA with Sesame Lignans & Olive Fruit Extract provides:

EPA (eicosapentaenoic acid)	**1,400 mg**
DHA (docosahexaenoic acid)	**1,000 mg**
Typical DPA (docosapentaenoic acid)	**156 mg**
Olive Extract (fruit and leaf) providing [39 mg polyphenols, 10.4 mg hydroxytyrosol/tyrosol, 8.8 mg verbascoside/oleuropein]	**600 mg**
Sesame Seed Lignan Extract	**20 mg**

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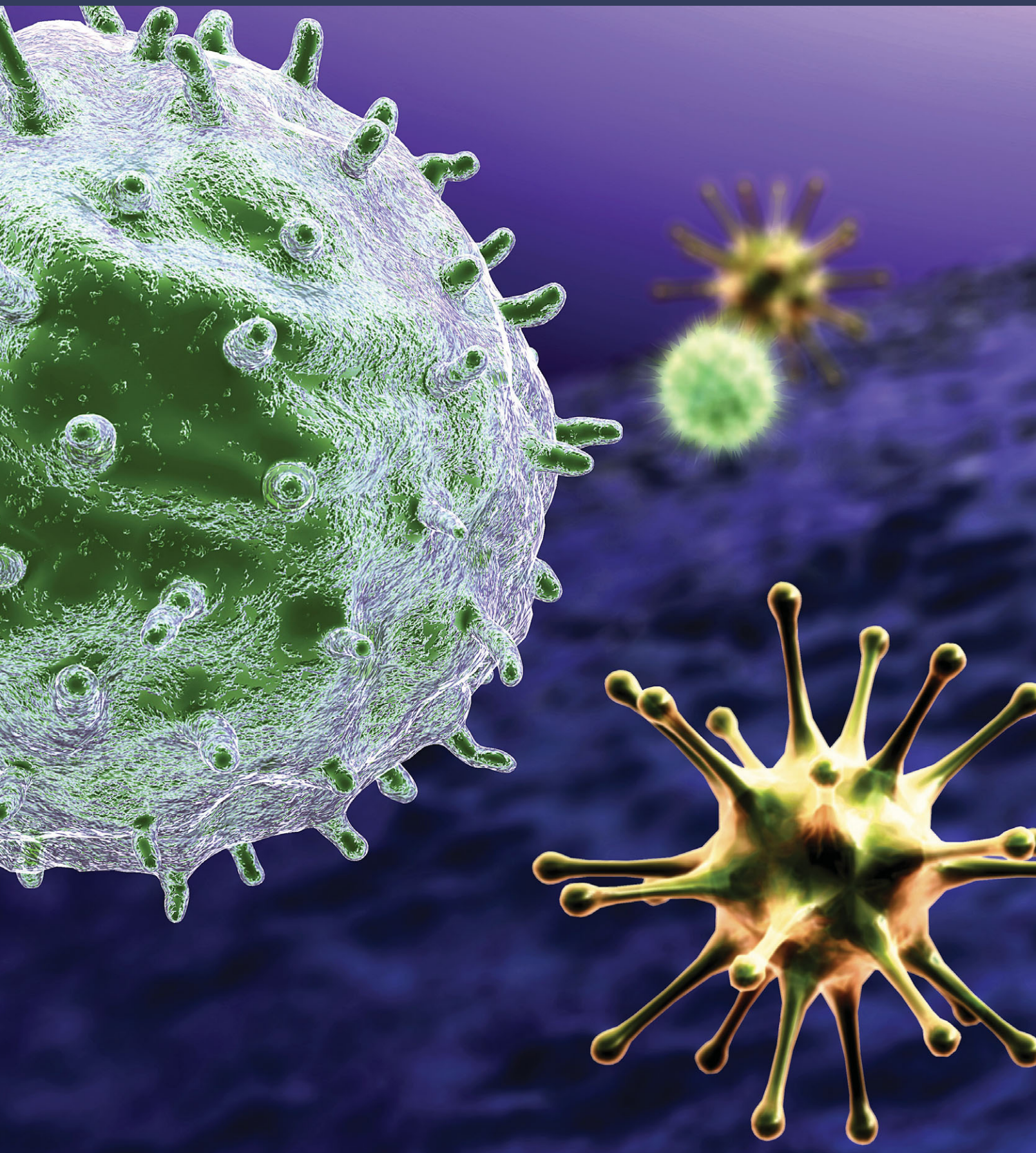
To order the most advanced fish oil supplement, Super Omega-3 EPA/DHA with Sesame Lignans and Olive Fruit Extract (with or without enteric coating), call 1-800-544-4440 or visit www.LifeExtension.com



BY WILLIAM FALOON

A COMMON VIRUS That May *Accelerate* Immune Senescence

A major reason why our immune system fails with aging is that we lose vital **naïve** (virgin) immune cells while we accumulate excess levels of senile **memory cells**.[1,2]

Naïve immune cells are needed to respond to new malignancies and infectious agents,[3] whereas memory immune cells only respond to the original antigen, i.e. bacteria, virus, or cancer cell.[4]

Once our reserve of **naïve immune cells** is depleted, we become vulnerable to diseases that were fought off in our youth.

Some people suffer accelerated **immune senescence** that wreaks havoc throughout their body. These individuals are unable to fend off new invaders because of **naïve cell** depletion. They may also suffer systemic damage caused by ***inflammatory*** signals emitted from senescent **memory cells**.[1]

A growing body of evidence has identified a **virus** (cytomegalovirus) that causes us to more rapidly deplete vital **naïve immune cells** with the consequential buildup of excessive **memory cells**.[1]

A disconcerting **60** to **90%** of us are estimated to harbor this insidious virus.[5] Fortunately, there are steps one can take to help offset the ***age-accelerating*** effects inflicted by the **cytomegalovirus (CMV)** and thus retain more youthful **immune function**.

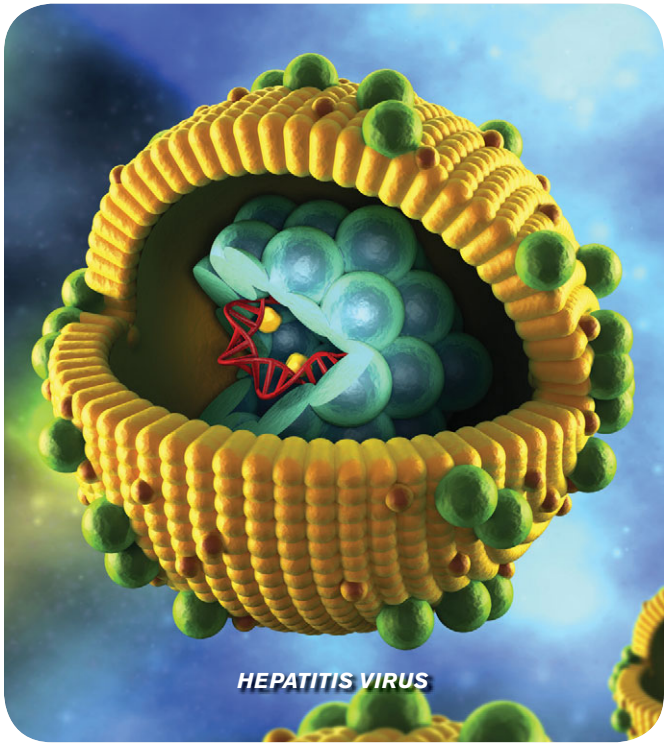
There is a limit as to how many **naïve immune cells** our bodies normally produce and this number declines with age.[6-9] Once a **naïve** cell is exposed to an antigen, it converts to a **memory** type immune cell that only responds to the same virus, bacteria, or other foreign agent.[4,10]

When we develop certain chronic viral infections, our immune system goes into constant overdrive, producing high levels of **naïve cells** that convert into **memory cells** upon exposure to new copies and strains of the virus replicating in our cells. Unfortunately, there are only limited numbers of these vital **naïve immune cells** our bodies can naturally make.

Those inflicted with **HIV** suffer an *accelerated* form of aging as their immune system works to fight the virus, despite the advent of anti-HIV drugs.[11,12] **Hepatitis C** infection creates this same problem.[13] The breakthrough news about hepatitis C is that new drugs are curing up to **90%** of those infected.[14]

Most of us, however, are not infected with hepatitis C or HIV. What the vast majority of us do harbor in our bodies is the **cytomegalovirus**. Lab tests revealed that it is present in approximately **60%** of the general population, and in **90%** of those over the age of **80**.[5]

The insidious property of **cytomegalovirus** (**CMV**) is that it leads to the continuous production of viral proteins that have the ability to establish secondary infections with *differing* **CMV** strains.[15-17] The deadly consequence that has been observed is continuous stimulation (and subsequent depletion) of **naïve cells** and excess accumulation of dysfunctional **memory cells** leading to the development of accelerated **immune senescence**.[18-20]



Unless one is immune compromised, most of us infected with CMV are **asymptomatic**—or so we think.[21] The harsh reality is that chronic CMV infection is associated with **frailty**, **cognitive decline**, and **arterial occlusion**—hallmark pathologies of "normal" aging processes.[22,23]

CMV Shown To Shorten Life Span

CMV infection can increase mortality (death) rate in otherwise healthy older individuals. This is most clearly seen by an increase in vascular deaths and immune senescence.[22,24]

One study found that high CMV antibody levels (associated with CMV exposure) were independently associated with a **179%** greater mortality rate over a five-year period.[22] Another study showed a **35%** increase in cardiovascular disease mortality in those with elevated CMV indicators.[25] In still another study, CMV reduced life expectancy by **3.7 years** after adjusting for other factors.[24]

What scientists are finding is that chronic CMV infection "exhausts" the immune system. It does this by depleting **naïve cells** needed to ward off new CMV strains and leaving behind a large population of pro-inflammatory senile **memory cells**.[18,26]

Of interest, however, was a study on long-lived family members whose offspring enjoy a **30%** reduced mortality rate.[27] These rare individuals, genetically enriched for longevity, were less susceptible to the characteristic CMV-driven impairments of immune function. This study showed that CMV infection was strongly associated with an age-related reduction in vital **naïve T-cells** and accumulation of **memory T-cells** in the general population, but not in members of long-lived families.[27] These long-lived individuals also showed lower **pro-inflammatory** status as measured by **C-reactive protein**. This study implies that by initiating strategies to boost **naïve T-cell** populations and suppress excess **memory cells**, one might derive some of the enhanced longevity benefits enjoyed by genetically programmed long-lived individuals.

CMV Adversely Affects Cognitive Thinking

T-helper cells are needed to help initiate an immune attack against foreign invaders. **Regulatory T-cells** (also known as suppressor T-cells) turn down immune responses, preferably after the pathogen has been brought under control.[28]

For optimal immune health, one should have approximately **one** to **four** T-helper cells for every **one regulatory** T-cell.[29,30] As a result of normal aging, **regulatory T-cell** counts elevate,[31,32] while **T-helper** counts decline.[33] Certain cancers appear able to boost regulatory T-cell counts in order to protect themselves against an immune attack.[34-36]

A study published in **2014** evaluated 360 adults (aged 60-103) and found that those with higher CMV activity had an **8-fold** increased risk of an inverted T-helper/regulatory T-cell ratio, meaning they had more **regulatory T-cells** than **T-helpers**.[37]

These human study subjects with inverted T-helper/regulatory T-cell ratios had **impairments** in some **cognitive dimensions** and more functional disability and dependency compared to subjects with higher T-helper counts and lower regulatory T-cell counts.

Humans with lower T-helper counts and higher regulatory T-cell counts die sooner.[38] It is thus important for aging individuals and certain cancer patients to take aggressive steps to maintain higher youthful levels of T-helper cells and keep regulatory T-cell counts from increasing too much.

How CMV Inflicts So Much Damage

CMV attacks the **endothelial** lining of our arteries, which explains the high prevalence of **vascular death** seen in those with active CMV infection.[39-45]

Immune cells are highly dependent on ***telomerase activity*** in order to maintain youthful function.[46] CMV causes immune cells to lose telomerase activity.[47-49]

CMV also forces vital **naïve immune cells** to be used to suppress active infection. The result is accelerated **immune senescence**.[50-52] As **naïve immune cells** decline, aging humans lose their natural protection against bacteria, viruses, and cancer.

Naïve cells are lost to normal aging, making CMV infection particularly deadly in the elderly.[24,53]

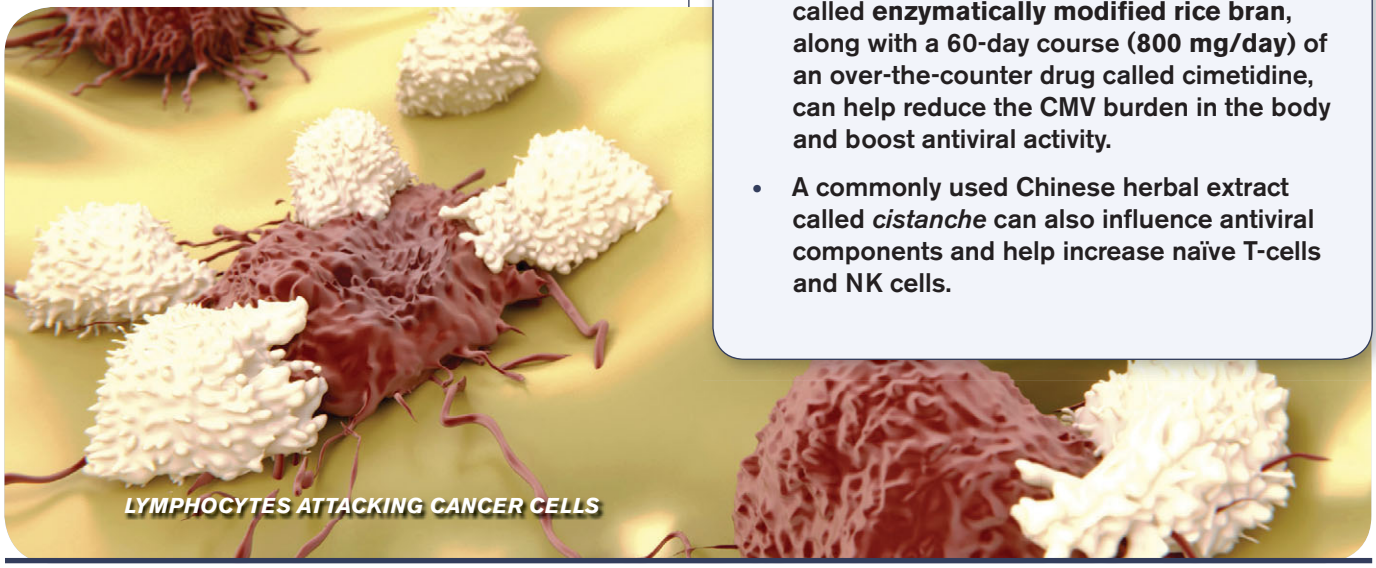
Active CMV infection is present in virtually all **glioblastoma** (fatal brain tumor) patients.[54] As we reported in **2013**, administering an anti-CMV drug (valganciclovir) to glioblastoma patients improves two-year survival rates by more than **3-fold**.[55] However, this drug has side effects[56,57] and costs about **$50,000** annually. It is thus not yet suitable for most normal aging people.

Another way to suppress CMV may be to bolster **natural killer cell** activity. An important function of natural killer (NK) immune cells is to destroy **virus-infected** cells throughout our body.[58]

What You Need To Know

CMV May Speed Up Immune Senescence

- **An aging immune system fails because, as we age, the body loses vital naïve immune cells and accumulates excess levels of senescent memory cells.**
- **This makes us vulnerable to diseases that were easily overcome in youth.**
- **Growing evidence shows that a virus called cytomegalovirus (CMV) depletes naïve immune cells and infects approximately 60 to 90% of people.**
- **CMV infection can shorten the life span of otherwise healthy older adults. Bolstering natural killer cell (NK) activity may suppress CMV.**
- **A four-month course of a compound called enzymatically modified rice bran, along with a 60-day course (800 mg/day) of an over-the-counter drug called cimetidine, can help reduce the CMV burden in the body and boost antiviral activity.**
- **A commonly used Chinese herbal extract called *cistanche* can also influence antiviral components and help increase naïve T-cells and NK cells.**



LYMPHOCYTES ATTACKING CANCER CELLS

"An effective defense against CMV in immune competent subjects requires the participation of NK cells and T-lymphocytes… It has been shown that CMV chronic infection in old individuals is associated with accumulations of late-differentiated CD8 T-cells, characteristic of CD8 T-cell immunosenescence, and with the development of an 'Immune Risk Phenotype' (IRP), predictive of early mortality in the elderly indicating that this virus is a major driving force of T-cell immunosenescence."[82]

Reference: *Current Opinion In Immunology*—January 2014, "Shaping Of NK Cell Subsets By Aging."

CMV-Induced Immune Cell Exhaustion

Immune cells used to suppress chronic infections like **cytomegalovirus** (CMV) become senile or "exhausted" over time.[18,50,59,60]

As people accumulate **exhausted T-cells**, an adverse consequence is that the senile cells emit ***pro-inflammatory cytokines*** that exacerbate the **chronic inflammation** observed in elderly persons.[61,62] These individuals suffer higher mortality.[63,64]

The deficit of **naïve immune cells** combined with overaccumulation of **exhausted T-cells** decreases the efficacy (antibody response) of **vaccinations**.[65-67]

Persistent **CMV infection** and the consequent accumulation of pro-inflammatory **exhausted T-cells** are associated with increased risk of **coronary heart disease**, **impaired vascular function**, **vascular inflammation**, and **endothelial dysfunction**.[39,41,68-72] This all leads to increased **blood pressure** and contributes to **atherosclerosis**.[73]

An accumulation of **exhausted T-cells** has been seen in persons suffering from **rheumatoid arthritis** and other chronic inflammatory conditions.[74,75]

A strong body of evidence, mostly published over the past few years, indicates that **persistent CMV infection** and the accumulation of **senile** (exhausted) **T-cells** initiates and accelerates a broad array of age-associated and inflammatory diseases.[76-81]

An Immune Cell That Destroys CMV

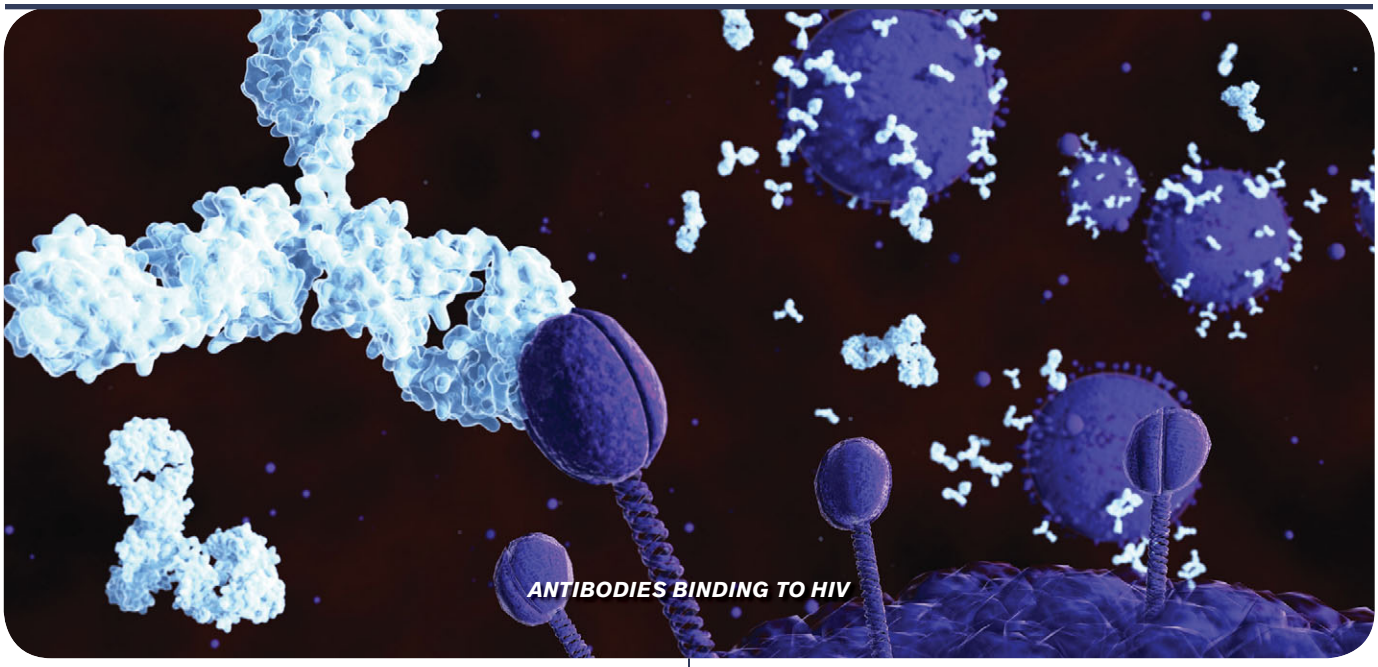
Cytomegalovirus (CMV) invades cells throughout the body and spews out copies that infect other cells.[83]

The first line of defense against virus-infected and malignant cells is our **natural killer (NK) cells**.[84-87] Young individuals have high levels of functional **natural killer** immune cells, but this declines with aging.[88-90]

In elderly subjects, decreased **NK cell activity** is associated with an increased incidence and severity of **viral infections**, which explains why **90%** of older people show **CMV** infection compared to about **60%** of the general population.[5]

Healthy **NK** function is critical in eliminating transformed cells before a viral infection or **malignancy** develops.[59,91,92] **NK cells** are involved in immune regulation, antimicrobial immune responses, and elimination of senescent cells that otherwise cause **chronic inflammation**.[59]

The age-related decrease in healthy **NK cell function** is likely to have wider implications for the health of older adults than currently understood by the mainstream. If an aging person is to control debilitating and deadly **CMV** replication, maintaining more youthful **NK function** would appear to play a critical role, as would restoration of the **naïve immune cell** population.



ANTIBODIES BINDING TO HIV

"…several features of the aging process, such as the reduced efficacy of vaccination, the appearance of senescent cells, and the higher rates of fungal infection may be attributable in part to the decline in NK cell function that accompanies human aging. If true, then developing strategies to prevent, delay, or reverse NK cell immunesenescence may be one way by which to improve the health of older adults."[59]

Reference: *Ageing Research Reviews*—September 2013
"The Impact Of Aging On Natural Killer Cell Function And Potential Consequences For Health In Older Adults."

Suppressing CMV Infection

Immune compromised people, such as HIV patients, organ transplant recipients given immune-suppressing drugs, and certain cancer chemotherapy patients are particularly vulnerable to **acute CMV infection**.[93-96] These individuals facing blindness,[97] pneumonia,[98] and possible death from an uncontrolled CMV infection are prescribed a drug like **valganciclovir** that is highly effective in controlling viral replication.[99-101]

One of the side effects of this drug is **bone marrow** suppression, which can hasten **immune senescence**.[102] That's because immune cells are formed in our bone marrow where they are released into the bloodstream for further differentiation into specific disease-fighting cells like macrophages and NK cells. Valganciclovir is therefore not recommended for most CMV-infected individuals who are asymptomatic.

Since we know that **NK cells** hunt down virus-infected cells and eliminate them, it makes sense to take steps to boost the *functionality* of our aging **NK cells** to suppress CMV activity.

Enhanced NK cell function alone will not likely eradicate CMV, but it can downregulate active CMV infection to reduce the damage inflicted on the body and theoretically reduce the number of **naïve immune cells** that will be used up fighting it.[103]

In as much as aging itself causes a decline in functional **NK activity**, initiating a four-month course of an NK-boosting compound like **enzymatically modified rice bran** offers an intriguing approach to reducing the CMV burden in an aging body.[104-106]

To further boost antiviral activity, consider taking **800 mg** each night of the over-the-counter drug **cimetidine** for 60 continuous days. This drug is approved for relieving heartburn, but a side benefit is that it boosts the number of **T-helper** immune cells while suppressing excess **regulatory T-cells**.[107-110]

As people age, and/or contract an illness such as cancer, they often produce too many **regulatory T-cells**[111,112] that prematurely shut down needed immune activity.[113-118] Aging also results in a decline of **T-helper cells** that initiate immune responses to virus-infected and cancer cells.[119] Cimetidine can be obtained without a prescription at your local pharmacy at low cost.

T-helper cells are required for the immune system to react to new infections and malignancies.[120,121] They help activate the secretion of antibodies and macrophages to destroy ingested microbes and help activate cytotoxic T-cells to kill virus-infected target cells. To fully appreciate the importance of T-helper

cells, you may know that HIV invades and destroys T-helper cells.[122] As T-helper cell counts decline, AIDS patients become vulnerable to a host of opportunistic infections.[123,124]

A four-month course of **enzymatically modified rice bran** combined with a 60-day regimen of **cimetidine** makes sense to reduce CMV activity and reverse markers of **immune senescence** such as dysfunctional NK cell activity, reduced T-helper counts, and excess numbers of regulatory T-cells.[104-107]

A commonly used herbal extract in China called ***cistanche*** has been recently shown to favorably influence multiple antiviral immune components, including increasing the number of naïve T-cells and NK-cells.[125] *Cistanche* is a low-cost nutrient that should be taken daily in the dose of **210 mg**, preferably with **1,000 mg** of **Reishi** mushroom extract, to provide broad spectrum protection against the many factors involved in immune senescence.

There Is Not Yet Universal Consensus On CMV And Immune Senescence

Not all published scientific papers agree that CMV infection accelerates **immune senescence**. The topic is currently being debated by immunologists around the world.[126] The studies supporting the pathologic impact of CMV on immune status are compelling, as is the data associating active CMV infection with shortened human life spans. But as critics accurately point out, "association" is not always the same as "causation."

For an aging human concerned about their health and longevity, it does not necessarily matter if **CMV** is accelerating **immune senescence**. That's because maturing individuals are already suffering a decline of naïve T-cells, reduced T-helper cells, loss of NK cell activity, accumulation of worn out memory cells (that emit chronic inflammatory signals), and an increase in regulatory T-cells. So initiating daily supplementation with **210 mg** of ***cistanche***, a 60-day course using **800 mg** daily of **cimetidine,** and a four-month course using **500 mg** daily of **enzymatically modified rice bran** makes sense for anyone over age 35 (and sometimes younger individuals with certain immune deficits).

I'm ending this article with information about *cimetidine* side effects. I know ***Life Extension***® members have historically shied away from drugs because of side-effect concerns. When it comes to the **60-day** course of **800 mg/day** of **cimetidine**, I hope eligible members will take into account the many rewards that a strong immune boost provides and view drug interaction risk only as it relates to their individual status.

Aging humans who choose not to take **cimetidine** should still consider initiating low-cost ***cistanche*** daily, along with a four-month regimen of **enzymatically modified rice bran**.

Summary

The immune system begins to shut down as we age due to the loss of vital **naïve immune cells** and an accumulation of excess levels of older **memory cells**, which makes us vulnerable to disease. Research shows that about **60** to **90%** of adults harbor a virus called **cytomegalovirus** (CMV), which depletes naïve immune cells. CMV may increase mortality in healthy older adults.

Enzymatically modified rice bran, taken over the course of four months, along with a 60-day course of **cimetidine**, may reduce CMV and boost antiviral activity. **Cistanche**, a common Chinese botanical extract, can also influence antiviral components and help increase naïve T-cells and NK cells. ●

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

Cimetidine: Drug Interactions And Side Effects

We describe here potential **side effects** for certain individuals taking **cimetidine**.

From past experience, I know the risk of ***any*** side effect will preclude some ***Life Extension*** members from considering even a **60-day** course of cimetidine at the moderate dose of **800 mg** at bedtime.

By way of analogy, I have dealt with aging men who have stubbornly high levels of **C-reactive protein**, which is an **inflammatory** factor associated with greater incidence of **vascular disease**, **dementia**, and certain **cancers**.[127-132]

Low **testosterone** levels are associated with higher **C-reactive protein** levels.[133-136] An unwarranted fear of **prostate cancer** caused many of these men to not elevate their **testosterone** levels. The outcomes in some cases were tragic.

When it comes to **cimetidine**, the benefit is boosting **T-helper** immune cell counts and lowering excess **regulatory T-cell** levels.[107-110] Aging people often have elevated ***regulatory T*-cells** that interfere with optimal immune defenses. Mortality rates are higher in those with surplus regulatory T-cells in relation to T-helper cell counts.

I hope members who could benefit from a 60-day course of cimetidine (**800 mg** a night) will not be dissuaded by side effect risks that are usually manageable if they occur at all.

Significant Drug Interactions[137,138]

Cimetidine is a known inhibitor of many isozymes of the cytochrome P450 enzyme system, including but not limited to CYP2D6, 3A4 and 1A2 isoenzymes, which can cause increases in plasma concentrations of certain drugs when cimetidine is ingested.[137,139]

A short list of important, clinically relevant drug interactions include:[102]

- Warfarin (Coumadin®), an anticoagulant;
- Sildenafil (Viagra®), a PDE5 inhibitor for erectile dysfunction;[140]
- Phenytoin (Dilantin®), an anticonvulsant;
- Propranolol (Inderal®),a beta-blocker used to reduce blood pressure and heart rate);[141]
- Nifedipine (Procardia®), a Ca^{2+}-channel blocker primarily used to reduce blood pressure);
- Diazepam (Valium®), an anti-anxiety medication;[142]
- Several tricyclic antidepressant drugs, lidocaine, theophylline (anti-asthmatic) and metronidazole (antifungal).[141]

Dosage of these drugs and other similarly metabolized drugs, particularly in patients with significant renal (kidney) and/or hepatic (liver) disease, may require adjustment when starting/stopping cimetidine to maintain therapeutic blood levels.

In patients with poor liver[143] or kidney function,[144] as well as elderly patients at risk for neuropsychiatric illness,[145] cimetidine dosage should be reduced to **300 mg** every 12 hours, and further reduction may be necessary depending upon patient tolerability.

Close monitoring of prothrombin time (PT)[146] is recommended with the anticoagulant warfarin (Coumadin®), and careful adjustment of the anticoagulant dose may be necessary with cimetidine treatment.

Aging men with pre-existing erectile dysfunction using sildenafil (Viagra®) should be aware that cimetidine boosts drug exposure by almost **60%**,[147] so men should strongly consider using a reduced dose of sildenafil (Viagra®) if concomitantly using cimetidine.

Sexual Side Effects In Men

Starting at the time of prescription use of cimetidine in the 1970s, multiple case reports began to appear in the peer-reviewed literature concerning sexual side effects, including loss of libido and erectile dysfunction.[148,149] In addition, many reports of breast tenderness and tissue growth in men, known as gynecomastia,[150] were published.[151,152] Conservative post-marketing surveillance data suggests that the incidence of gynecomastia may be as high as one out of every 25 male patients treated with cimetidine for high stomach acid.[153]

These sexual side effects are not surprising since cimetidine is known to interfere with sex hormone binding sites in androgen responsive tissues,[154] as well as increase prolactin levels and interfere with the peripheral activity of sex hormones like dihydrotestosterone (DHT).[155]

Since the risks for male sexual side effects and gynecomastia appear to increase with cimetidine dosages of **1,000 mg** daily in men over the age of 40 years (though some men may experience sexual dysfunction within a short time of starting cimetidine at lower doses),[149,152] older men should avoid doses of cimetidine in excess of **800 mg** daily and treatment regimens longer than 60 days.

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Item # 01423

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Life Extension® offers an advanced, cutting-edge pomegranate formula that brings together novel phytonutrients in a unique, high-potency blend.

Full-Spectrum Pomegranate™ combines standardized extracts from the **whole fruit** *and* **flower**, along with pomegranate **seed oil**, to support system-wide health. In addition to the highly absorbable antioxidant powerhouses found in pomegranate fruit,[2-4] **Full-Spectrum Pomegranate**™ *augments* these polyphenols with newly discovered biologically *active* compounds from other parts of the pomegranate plant.

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POMELLA® extract is covered under U.S. Patent 7,638,640 and POMELLA® is a registered trademark of Verdure Science, Inc.

One softgel of Full-Spectrum Pomegranate™ contains:

POMELLA® Pomegranate Extract (fruit) providing 120 mg punicalagins	**400 mg**
Proprietary Pomegranate Blend [flower extract and seed oil providing 30 mg punicic acid]	**137.5 mg**

Full-Spectrum Pomegranate™

A bottle containing 30 softgels of **Full-Spectrum Pomegranate**™ retails for $24. If a member buys four bottles during **Super Sale**, the price is reduced to **$14.18** per bottle.

Contains soybeans.

To order Full-Spectrum Pomegranate™, call 1-800-544-4440 or visit www.LifeExtension.com

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Next-Generation Formula . . .

Item # 01618

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WITH UC-II® AND APRÈSFLEX®

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As you grow older, age-related stiffness and discomfort in the joints becomes a fact of life. Activities once routine become a challenge as limited mobility hampers your every move.

You now have a more potent option to provide broad-spectrum support for aging joints.

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Better Absorption For Optimum Benefit

AprèsFlex® represents a quantum leap forward in the delivery to aging joints of **boswellia**, long prized for its ability to help with inflammatory issues. It is a superior inhibitor of the enzyme ***5-lipoxygenase*** or *5-LOX*.

Excess activity of 5-LOX results in the accumulation of ***leukotriene B4***, a pro-inflammatory compound that affects aging joints. **Boswellia** has been shown to bind directly to the 5-LOX enzyme in our bodies, blocking it from facilitating production of pro-inflammatory leukotrienes.[1,2]

AprèsFlex® boswellia *absorbs* into the blood **52% *better*** than previously available forms of boswellia, for superior effectiveness.

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In addition to AprèsFlex®, ArthroMax® contains a novel form of standardized chicken cartilage: **UC-II®**. Data show it helps with immune issues that can impact joint discomfort and ease of motion in aging individuals.

Two capsules of **ArthroMax® Advanced** with **UC-II® and AprèsFlex®** provide the following nutrients in one convenient, joint-protecting formula:

UC-II® standardized chicken cartilage	**40 mg**
Glucosamine sulfate 2KCl (from corn)	**1500 mg**
AprèsFlex® Indian frankincense (*Boswellia serrata*) **extract**	**100 mg**
Boron (calcium fructoborate as patented FruiteX B® OsteoBoron®)	**1.5 mg**

The retail price of a bottle of 60 capsules of **ArthroMax® Advanced** with **UC-II® and AprèsFlex®** is $36. If a member buys four bottles during **Super Sale**, the price is reduced to **$21.60** per bottle.

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BY RICHARD STANTON

Immune-Boosting Strategy For *Longevity*

It is rare for young people to develop cancer, life-threatening infections,[1,2] or chronic inflammation.[3-5] Why? Their immune systems are operating at peak capacity, turning "on" and "off" at precise times to eradicate pathogens, while not causing the chronic inflammation that can lead to cardiovascular disease and diabetes.[6,7]

As we age, this picture of health changes rapidly. By then, we have depleted our valuable treasure chest of defensive immunity cells and the balance shifts to a less vigorous immune system.

Serious infections, cancers, and inflammatory diseases are among the leading causes of premature death in older adults.[1,8,9] These disorders all arise from a common cause: the aging of the immune system, or ***immune senescence***.[10]

Immune senescence is now recognized as a major public health threat to aging populations.[11-14]

Doctors today respond to ***immune senescence*** by treating each disease or condition separately.[15-17] This approach fails to correct a major underlying mechanism behind both disease and aging and leaves us waiting for the next health problem to manifest.

After researching the causes of immune senescence, scientists have identified two botanicals that can provide powerful, complementary restorative properties that strengthen the two main branches of the immune system through unique mechanisms.

Cistanche primarily targets the ***adaptive*** immune system,[18] the specialized branch of the system that allows for a stronger immune response tailored to specific pathogens while providing longer-lasting protection.

And the medicinal mushroom *Ganoderma lucidum*, or **Reishi**, has potent strengthening effects mainly on the ***innate*** immune system,[19] the first-line component of the immune system that attacks foreign pathogens, including bacterial organisms, cells infected with viruses, and those transformed into malignant cells.[20]

Aging individuals need robust function of both ***adaptive*** and ***innate*** immunity to remain protected against infections, cancers, and inflammatory diseases.[21-25] Together, these bioactive agents, ***cistanche*** and **Reishi**, work in a complementary fashion to rejuvenate both major arms of the aging immune system.

Understanding Your Immune System

Let's take a quick tour of your immune system so that you understand how to best restore it to optimal functioning.

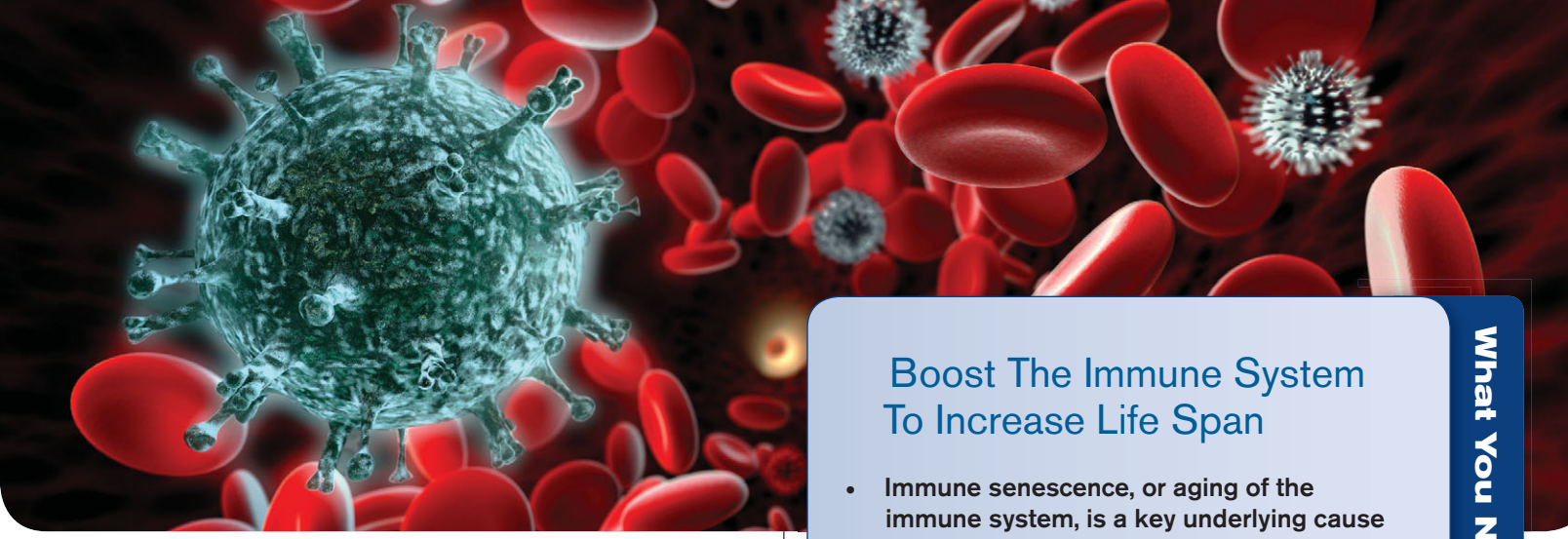
There are two main components of immune function that are intimately interconnected and work together to deliver round-the-clock surveillance and defense against body invasion.

Immune senescence involves the gradual loss of function of both of these components called the (1) ***innate*** and the (2) ***adaptive*** branches.[26,27] Normally, both branches of the immune system work closely together, with the innate immune system taking the initial lead in defending the body against infection.[28]

1) ***Innate*** immunity is the first line of defense to neutralize a foreign threat in the form of a bacterium, a virally infected cell, or a cell that has undergone malignant transformation early in the development of a cancer.[29,30]

While the ***innate*** immune system is launching its first attacks, the ***adaptive*** immune system starts to ramp up its targeted defenses that include "smart" weapons like antibodies against specific organisms and the group of immune system cells known as **T-cells**.[31,32]

2) ***Adaptive immunity***, with its heavy reliance on T-cells, begins to fade surprisingly early in life. The primary source of T-cells, the thymus gland in the chest, begins to shrink by young adulthood, making new, naïve T-cells increasingly rare.[11,33-35]



The Importance Of T-Cells

T-cells can be considered the "brains" of the immune system.[32] The immune system includes two types of T-cells: ***naïve T-cells*** and ***memory T-cells***.[36] These two types of T-cells allow the body to produce specific responses to new and repeating threats. Without T-cells, any minor infection such as a cold or a minor cut could ultimately result in death.

Naïve T-cells, which are abundant in our young life, respond to new threats that occur to the body. However, once they have responded to a specific virus or bacteria, they "learn" the molecular pattern of this threat and convert to ***memory T-cells***. These ***memory T-cells*** are like a stored number on your cell phone; they are programmed to respond to a *specific* threat that has previously invaded the body.[11] These ***memory T-cells*** are now programmed to respond to known threats, but will not rally to head off a new, unknown threat.

So, for example, if you catch the flu as a child, your body will send out a fleet of ***naïve T-cells*** to attack and mop up the infection. As an adult, if you are exposed to a similar flu virus again, your body will send out a fleet of ***memory T-cells*** to prevent the infection.

As we age, we build up an increasing inventory of ***memory T-cells*** that have "memories" of previous infections, which allows them to respond quickly to a similar invasion.

Unfortunately, as we build up this inventory of ***memory T-cells***, we also deplete our inventory of ***naïve T-cells***.[37] This depletion can have tragic results as we age. With fewer ***naïve T-cells*** to respond to new attackers, the body can become vulnerable and quickly devastated. The body will increasingly respond only to "known and repeated" threats and overlook "new" threats.[11] It seems with each passing day there are new threats emerging, such as new strains of flu or nascent cancer cells for which we must be prepared.[31,38,39]

Fortunately, two botanicals, *Cistanche* and *Reishi* can provide a powerful, natural means of boosting both ***adaptive*** and ***innate*** immunity. Each of these bioactives works in a unique and complementary fashion to stimulate the two key factors in a waning immune system.

Boost The Immune System To Increase Life Span

What You Need To Know

- **Immune senescence, or aging of the immune system, is a key underlying cause of symptoms of aging, such as influenza, pneumonia, and a host of viral, bacterial, and fungal diseases.**
- **Reduced function of your immune system also predisposes you to cancer and autoimmune disorders, both of which require functioning immunity to keep at bay.**
- **Taken together, the results of immune senescence contribute to exaggerated rates of early death.**
- **You can fight the impact of immune senescence in your own body by addressing the two major divisions of the immune system.**
- **Extracts of *Reishi* primarily restore vigor and normal function to the *innate* branch of the immune system, the inborn system responsible for the immediate, nonspecific responses to threats that allow your body to fend off previously unseen organisms and abnormal cells.**
- **Extracts of the herb *Cistanche* primarily boost the highly modulated *adaptive* branch of the immune system responsible for longer-term, more specific responses to threats and provide swift responses when you are re-exposed to a threat your body has "seen" previously.**
- **Both of these natural supplements have been shown to prolong life in animal studies, and both produce immune-boosting functions in human trials.**
- **Both innate and adaptive immunity can be strengthened with this combination of healing herbs, now shown to have effects demonstrable by modern immunological assays.**

Cistanche: Support For *Adaptive* Immunity

Extracts of the *Cistanche* plant species have been used for thousands of years as a tonic for a variety of age-related disorders.[40,41] In Traditional Chinese Medicine, *Cistanche* is used for its perceived ability to promote immune function in older people, which is now being proven by today's scientific understanding of immune senescence.[18]

Cistanche extracts have broad-spectrum benefits for the immune system, with the bulk of their effects producing favorable changes in age-related ***adaptive immunity***.

Chronic Viral Infection Worsens Immune Senescence

An important but little-regarded viral infection has now been found to contribute to accelerated **immune senescence** in a large number of aging adults. **Cytomegalovirus**, or **CMV**, is a member of the herpesvirus family that embeds itself in T-cells, where like a computer virus, it "runs in the background," using up cellular resources while weakening the effectiveness of the immune system as a whole.[35]

Older adults who test positive for CMV in their blood have a significantly higher immune risk profile than do uninfected people, which puts them at increased risk of early death related to immune senescence.[72] Studies reveal that chronic CMV infection, which typically produces no detectable symptoms, is strongly associated with an accumulation of weakened memory T-cells, and a concomitant reduction in the **naïve T-cells** necessary to cope with new infectious or malignant threats.[72]

And CMV-infected people die earlier: One study found a **42%** increase in the annual death rate among older adults with CMV compared to those without, corresponding to a **3.7-year** reduction in life expectancy after age 65.[73] Conversely, members of very long-lived families appear to have better control of the virus and these people, even when CMV infected, have fewer of the T-cell abnormalities associated with **immune senescence**, and thereby live longer.[72]

While there is little you can do to prevent or directly treat CMV infection, you can fight its deleterious effects on your longevity by doing all you can to boost your adaptive and innate immune systems using natural supplements such as *Reishi* and *Cistanche* extracts (and if need be customized prescription drug regimens).

One of the major components found in *Cistanche* species is ***echinacoside***, which stimulates the creation of T-cells[42] and enhances cell survival by reducing apoptosis.[43]

Echinacoside increases the expression of a vital growth factor that benefits immune function by potentially suppressing the premature conversion of ***naïve T-cells*** into activated ***memory T-cells***.[43-48] This is important because as we age, our ***naïve T-cells*** dwindle in numbers, which reduces our protective immune function.

But now there is a way to help increase the dwindling pool of ***naïve T-cells*** needed for later responses to new threats.[18,45,46] *Cistanche* raises levels of a growth factor that not only promotes increases in ***naïve T-cells***, but has also been studied as a novel approach to minimizing the autoimmune response so common in immune senescence.[45,49]

As we age, our immune systems are less able to properly control inflammatory responses.[50] Normally, our regulatory immune cells shut down inflammation at an appropriate time. With the onset of immune senescence, these regulatory cells lose their potency and tissues normally protected against inflammation become vulnerable to an ongoing attack by inflammatory cells. This component of immune senescence is responsible for persistent inflammation in autoimmune diseases such as lupus (where connective tissue is attacked), rheumatoid arthritis (where joint lining tissue is attacked), and inflammatory bowel diseases (where intestinal lining tissue is attacked).[51,52]

Increased Life Span With *Cistanche*

One of the most comprehensive and exciting outcomes of recent *Cistanche* research has been in the promotion of **longevity**. These studies indicate that enhancing immune function in older organisms prolongs life span.

A recent study looked at the use of *Cistanche* extracts as a way to delay aging. In the study, mice were given **four weeks** of supplementation with *Cistanche* extracts containing **8.25%** by weight *echinacoside*. The scientists found that *Cistanche* extracts **extended life span**.[18] The subjects of this study were a special strain of "senescence-accelerated mice," which age at a much faster rate than do normal mice, making them ideal for aging studies.

The control mice that were not treated with *Cistanche* extracts survived up to **385** days. In the treated group, **40%** of the *Cistanche*-supplemented animals remained alive![18] The untreated control mice had an average life span of **325** days, which is significantly shorter than the *Cistanche* group (**375** days).

The reasons for this longevity factor became apparent as researchers examined the immune cells. The control mice who did not take *Cistanche* extracts had an abundance of poorly functioning ***memory T-cells***, like most aging humans. The mice also had low numbers of ***naïve T-cells***.

The *Cistanche*-supplemented animals that were on a low-dose human equivalent to **210 mg/day** had increases in ***naïve T-cells*** and had lower populations of ***memory T-cells***, which is similar to a youthful immune system that is highly functional. What the study tells us is that the mice given *Cistanche* extracts had more immunological reserve and potentially were better "primed" for dealing with new threats to their longevity.

This study also provided evidence that *Cistanche* extracts have beneficial effects on ***innate*** immunity as well, by boosting levels of natural killer (NK) cells and reducing levels of the pro-inflammatory cytokine interleukin-6 (*IL-6*).[18]

We can now connect the dots between animal and human studies with *Cistanche*.

Protecting Human Immunity

In a study from Japan, healthy older men and women (aged 65 to 80 years) were supplemented for **12 weeks** with *Cistanche* extracts (containing **8.5%** by weight *echinacoside)* in a nutritional formulation.[53] Scientists found impressive gains in immune factors after supplementation. Subjects in this study had significant increases of **11.7%** in natural killer (NK) cell activity (components of **innate immunity**), which offer protection against new invaders. The researchers also showed a **20.2%** increase in the ratio of beneficial *CD4 T-cells* to *CD8 T-cells*. An increased CD4/CD8 ratio is indicative of healthy, youthful immune function.

This human study, taken together with the previous animal studies, provides a link between enhanced immunity and longevity. It can be assumed that boosting ***adaptive*** immunity with *Cistanche extracts* may assist in prolonging human life span.

Reishi Extract: Enhancing *Innate* Immunity

Boosting ***adaptive immunity*** is only half of the story in managing immune senescence. To have a successful immune system, you also need an active **innate immune** response in order to fully identify and destroy threats from infections, malignancies, and out-of-control inflammation. Remember, without a strong, nonspecific ***innate immune*** response, your body won't have time to develop the ***adaptive immunity*** you need to survive new threats.

Using Immune-Boosting Supplements

Boosting your immune function by enhancing both ***innate*** and ***adaptive immunity*** is clearly beneficial.

Comprehensive support for both adaptive and innate immunity may be achieved with the use of standardized *Cistanche* and *Reishi* extracts all year-round.


REISHI MUSHROOM

Reishi mushrooms (*Ganoderma lucidum*) are well known in Asian traditional medicine, with multiple uses for promotion of health and longevity.[54,55] Working in a way that is complementary to *Cistanche*, Reishi extracts enhance the ***innate immune*** system, boosting the function of its components to prevent premature aging and death.

This was shown dramatically in a study of healthy adult mice.[56] At the age of one year (which is middle age for a mouse), the animals were fed either control chow without supplementation, or chow enriched with Reishi extracts. By **88 weeks** of life (old age), the average age of survivors (when half the animals in each group had died) was up to **66 days** longer in *Reishi*-supplemented mice than in control animals. At the point when only **20%** of mice survived, the Reishi-supplemented mice were up to **110 days** older on average than were control mice, while by the time only **10%** survived, the remaining Reishi-supplemented animals were up to **148 days older or more** than controls.

In other words, it took significantly longer for the Reishi-supplemented mice to be negatively impacted by the effects of aging. The bottom line is that the surviving mice who took *Reishi* were older than their unsupplemented peers.

Reishi's life-extending effects on boosting immunity include enhancements to:[57-59]

- Cytotoxic T-cells that attack and kill aberrant cells that can't provide proper identification as part of one's "self", such as virus-infected cells or cells that may be turning malignant.
- Neutrophils, which blast invaders with destructive chemical bursts,
- Cytokines, signaling molecules that draw in attack cells,
- Toll-like receptors, which are molecular pattern-detection receptors on immune cells that identify dangerous molecular patterns carried by pathogens,
- Major histocompatibility (MHC) interactions that distinguish between human tissue types and foreign materials; their enhancement reduces malignant cells' ability to hide from the immune system.[60]

Reishi extracts also reduce secretion of the pro-inflammatory cytokine *IL-6*; high levels of *IL-6* in human populations is closely associated with shorter life spans.[55,61,62]

On the other hand, Reishi enhances production of interleukin-10 (*IL-10*), the cytokine associated with greater longevity in human studies.[51,61,63] Additionally, Reishi regulates the ***innate immune*** response by suppressing *TNF-alpha*, which is a major pro-inflammatory signaling molecule.[55,61]

Reishi extracts have been shown to stimulate cell-killing activity by modulating dendritic cells, which is important since these cells help eradicate both virus infected and malignant cells.[59] And polysaccharides from Reishi enhances two major features of ***innate immune*** system cells: phagocytosis (engulfing and destroying microorganisms) and chemotaxis (movement of attack cells towards a threatening invader).[64]

All of these ***innate immunity***-boosting properties come to fruition in studies of Reishi as an antiviral agent. Polysaccharides from Reishi are especially effective against viruses in the *herpesvirus* family, which includes *herpes simplex* viruses responsible for oral/genital herpes and shingles, respectively.[65,66] Another herpesvirus, cytomegalovirus, is responsible for many of the features of immune senescence that accelerate aging and reduce longevity.

Human studies are beginning to show potent anti-herpesvirus effects from Reishi. People infected with *herpes zoster* viruses may suffer from post-herpetic neuralgia, a severely painful nerve disorder that can linger for years as a result of the virus taking refuge in nerve cells. In an early proof-of-concept study, patients who did not respond to standard treatment, as well as those with painful shingles outbreaks, experienced dramatic reduction in pain using Reishi.[67]

In fact, Reishi extracts reduce viral, bacterial, and parasitic organisms sufficiently well and have been used as natural additives to the feed of a variety of animals and birds.[68-71] In one study, extracts from the mushroom stimulated innate immunity by activating bacteria-engulfing cells called macrophages to devour the human pathogen *Listeria monocytogenes*.[69]

Summary

Aging of the immune system, or **immune senescence**, is a major component of systemic aging and a leading cause of life-shortening diseases of aging such as infectious diseases, malignancies, and chronic inflammatory disorders.

Immune senescence encompasses cumulative deficits in the ***innate,*** or first-line, branch of the immune system, accounting for difficulties older adults have in fending off new, previously unseen threats like emerging viruses or developing cancer cells.

But immune senescence also involves deficits in the ***adaptive***, or "teachable," branch of the immune system, which is why older adults respond poorly to vaccines and may experience recurrence of diseases that their bodies had previously encountered.

Two immune-boosting botanical extracts—from *Cistanche* herbs and from *Reishi* mushrooms—have now been shown to exert powerful and complementary effects on the innate and the adaptive immune systems. Both supplements increase longevity in animal studies, presumably related to the impact of *Cistanche* mainly on ***adaptive immunity*** and to Reishi's impact mainly on ***innate immunity***.

We can't ignore the lethal impact that **immune senescence** inflicts on our aging bodies. Increased susceptibility to bacterial, viral, and fungal infections, to cancer development, and to autoimmune/inflammatory diseases are all manifestations of **immune senescence**. All can shorten our life spans.

Exciting studies of ***Cistanche*** and ***Reishi*** extracts show how they can help restore youthful immune function. ●

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

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A Remarkable 11 Active Ingredients

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All brains decline with age, but numerous studies show that the proper nutrients can promote more youthful cognition and enhanced memory.

Only **Cognitex®** combines **11** essential ingredients in one cost-effective formula.

Sold separately, these components sell for a small fortune in Europe, where they are commonly prescribed for optimal brain health. The following is a sample of what you'll find in each softgel:

- **Alpha-Glyceryl Phosphoryl Choline**: boosts levels of acetylcholine, which enables brain cells to communicate.
- **Gastrodin**: a brain shield that supports healthy levels of blood flow.
- **Grape Seed Extract**: boosts brain oxygen flow.
- **Vinpocetine**: increases circulation and brain cell conductivity.
- **Phosphatidylserine**: encourages improved concentration.
- **Pregnenolone**: a vital hormone that promotes mental energy.

Cognitex® with Pregnenolone & Brain Shield® is the most advanced neuro-enhancing formula on the market.

The retail price for 90 softgels of **Cognitex® with Pregnenolone & Brain Shield®** is $62. If a member buys four bottles during **Super Sale**, the price is reduced to **$35.78** per bottle. If eight bottles are purchased during **Super Sale**, the price is reduced to **$33.75**.

Cognitex® is also available without pregnenolone at a slightly lower cost. **Item # 01896**

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ITEM # 01897

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Alpha-Glyceryl Phosphoryl Choline (A-GPC)	**600 mg**
Phosphatidylserine (from Sharp-PS®)	**100 mg**
Brain Shield® (Gastrodin)	**50 mg**
Vinpocetine	**20 mg**
Leucoselect® Grape Extract (seed)	**150 mg**
Wild Blueberry Extract	**150 mg**
Sensoril® Ashwagandha Extract	**125 mg**
Uridine-5'-Monophosphate (disodium)	**50 mg**
Proprietary NeuroProtection Complex Blend Perluxan® Hops Extract, Rosemary Extract	**125 mg**
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SUPPORT FOR THE AGING IMMUNE SYSTEM

DUAL-MECHANISM IMMUNE SENESCENCE FORMULA

As we age, our once-vigorous immune system begins to decline. The result is ***immune senescence***, which has been linked to problematic outcomes in aging.[1]

A vital immune system is composed of a healthy balance of ***naive T-cells*** that attack new invaders and ***memory T-cells*** that attack previously known invaders. However, after a ***naive T-cell*** attacks a new threat, it becomes a ***memory T-cell***, which will only go after a threat that it remembers.[2,3]

The result is that the delicate immune balance tips and we have a surplus of ***memory T-cells*** and a deficit of ***naive T-cells***. With this imbalance, our body is less able to defend itself against new invasions. This produces a less-vigilant immune system—or ***immune senescence.***[4]

Life Extension® researchers have developed an innovative, *dual-mechanism* formula designed to combat ***immune senescence***.

Immune Senescence Protection Formula™ is composed of two botanical compounds that support both adaptive (e.g. ***naïve T-cells)*** and innate (e.g. macrophages and neutrophils) immune response cells. Together, these nutrients work in a complementary fashion to rejuvenate both major arms of the aging immune system through unique mechanisms.

Cistanche Rejuvenates Aging Immune System

Scientists have discovered that the *echinacoside* compound found in ***Cistanche*** plant extract stimulates the development of ***naïve T-cells*** and leads to a lower amount of ***memory T-cells***, thereby creating a more balanced immune response. ***Cistanche*** also increases Natural Killer (NK) cell activity—resulting in a **15%** life span increase in animal research![5]

A 12-week human study of a dietary supplement containing standardized *Cistanche*, resulted in impressive gains in immune factors after supplementation. Subjects had significant improvements, including an **11.7%** increase in natural killer (NK) cell activity and a **20.2%** improvement in the ratio of CD4 to CD8 cells. An increased CD4/CD8 ratio is indicative of healthy, youthful immune function.[6]

Reishi Mushroom Combats Immune Senescence

The numerous bioactive components of the **Reishi** mushroom exert powerful effects that may reverse many of the factors of immune senescence.[7]

Reishi extracts boost the function of innate immune cells, the immune system's first line of defense.[7-9]

It has long been known that **Reishi's** unique polysaccharides, triterpenes, and other constituents[10] enhance the body's hematopoietic stem cells, macrophages, and other crucial immune factors.[11-13] Animal research shows **Reishi** supports multiple aspects of immune function and longevity.[14]

Ultra-Potent, *Dual-Extract* Formulation

Now, both ***Cistanche*** and **Reishi** are available in one powerful, dual-extract formulation, specifically created for year-round support of the aging immune system!

Immune Senescence Protection Formula™ with standardized *Cistanche* and Reishi is our maximum *dual-extract* defense against immune senescence.

The suggested serving of two vegetarian capsules daily of **Immune Senescence Protection Formula™** provides:

***Cistanche tubulosa* extract** (stem and leaf) [std. to 22% echinacosides (46.2 mg)]	**210 mg**
Reishi mushroom (*Ganoderma lucidum*) **extract** (Fruit body) [std to 13.5% polysaccharides (132.3 mg) and 6% triterpenes (58.8 mg)]	**980 mg**
Reishi mushroom (*Ganoderma lucidum*) **spore**	**150 mg**

A bottle of 60 vegetarian capsules of **Life Extension®** **Immune Senescence Protection Formula™** retails for $40. If a member buys four bottles during **Super Sale**, the price is reduced to **$24.30** per bottle.

Item # 01905

Standardized *Cistanche*

For those seeking the effects of **Cistanche** only, **Life Extension®** has created a standalone **Standardized *Cistanche*** that contains the same echinacosides as in the **Immune Senescence Protection Formula™**. For a very low price, a member can obtain the recommended **210 mg** daily ***Cistanche*** dosage in a single, high-potency capsule providing a potent **46.2 mg** dose of echinacosides.

Standardized *Cistanche* provides powerful support against immune senescence.

The suggested dosage of one vegetarian capsule of **Standardized *Cistanche*** provides:

***Cistanche tubulosa* extract** (stem and leaf) [std. to 22% echinacosides (46.2 mg)]	**210 mg**
Vitamin C (as ascorbyl palmitate)	**2 mg**

A bottle of 30 vegetarian capsules of **Life Extension®** **Standardized *Cistanche*** retails for $20. If a member buys four bottles during **Super Sale**, the price is reduced to **$10.80** per bottle.

Item # 01906

To order Life Extension®
Immune Senescence Protection Formula™,
or Standardized *Cistanche* call 1-800-544-4440
or visit www.LifeExtension.com

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BY STEPHEN POSNICK

ACTIVATE YOUR ***NATURAL KILLER CELLS***

To Guard Against Infection And Malignancy

Flu viruses are responsible for as many as 50,000 deaths every year in the US.[1]

Bacterial pneumonia[2] causes over 60,000 deaths annually.[3,4]

Annual flu and pneumonia vaccines are common, but they might not be sufficient to fight off wintertime infections in the presence of a weakened immune system known as ***immune senescence***.[5-8]

The first line of defense against new invaders is our **natural killer (NK) cells**. As we age, NK cells lose their *functionality*, thus leaving us far more vulnerable to viral diseases–and the formation of tumors.[9,10]

Aging humans don't have to succumb to this massive loss of **NK cell** function. Scientists have uncovered an **enzymatically modified rice bran** that has been shown to increase **NK cell activity** in circulating blood cells by up to **84%**![11]

By optimizing your NK cell function, you will be raising defenses against early death from viral illness–and against cancer as well. **Enzymatically modified rice bran** has been proven to help restore ***NK cell activity*** and may thereby shorten the duration and severity of winter illnesses.[12]

Powerful Immune Defense

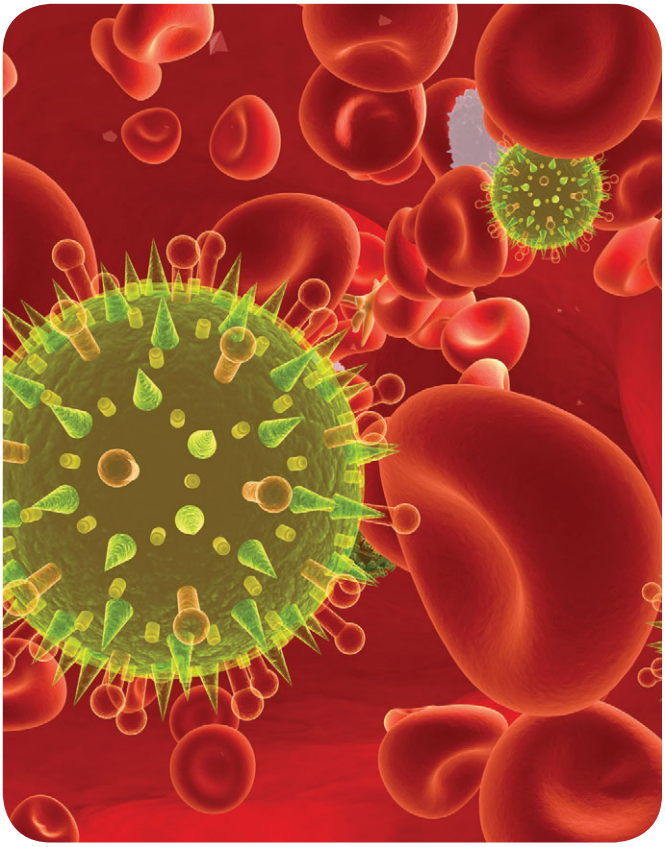
Natural killer cells (NK cells) are one of your body's most powerful defenses against infections and cancer.[13-15] These tiny security guards seek and destroy cells that have been transformed by an infection with a virus or by one of many malignant changes that transform them into cancer cells.[9,16]

NK cells work by triggering apoptosis (programmed cell death) in cells that have been transformed by a virus or malignancy.[17,18] Without this critical defense mechanism, viruses can be spread throughout the body and cancer cells can form invading, metastasized tumors.[9,19]

The health of these cells is critical to a robust immune system. Unfortunately, your NK cell function rapidly declines as part of the natural decline in your immune system as you age.[20-22] This degeneration of immune function is medically termed **immune senescence**.

This explains, in part, why aging individuals become such a ready target of each year's new influenza outbreak despite being vaccinated against the flu.

Anywhere between **5** to **20%** of the US population gets the flu every year, in a seasonal wave that begins as early as October, often peaks in February, and can last until May.[23-25] Older adults are at especially high risk: **90%** of seasonal flu-related deaths, and up to **60%** of flu-related hospitalizations, occur in people 65 and older,[26] which happens to be the age when NK cell function precipitously declines.[27,28] And the older we get, the higher the risk of a hospitalization or death from the flu.[29]



When you were younger, your NK cells, which are part of your ***innate*** immune system, could destroy the new strain of virus while your ***adaptive*** immune system "learned" its properties and then made antibodies to destroy any remaining virus.[30-33] But because your NK cell function declines with age, you can easily be rapidly overwhelmed by new viral strains before your slower ***adaptive*** immunity can develop.

Similarly, older adults are at an increased risk of cancer because falling NK function fails to destroy malignant cells early on, allowing them time to develop various tricks that evade adaptive immunity while they grow into life-threatening tumors. Younger people have more robust NK function, which helps explain why cancers are generally so rare before late middle age.

Why Mainstream Medicine's Solutions Don't Work

Mainstream medicine has little to offer to counteract declining NK cell function. Although new vaccines can help protect against specific viruses, a decline in immune function (as part of immune senescence) limits vaccine efficacy in older people.[34] More potent antiviral drugs can be developed—again to combat specific viruses—but the problem with these drugs is that they have substantial toxicity,[35] they are given only *after* a viral infection has established itself, and they are extremely costly.[36-39] Specific cytokine injections (such as low-dose interleukin-2) may help replace other components of waning immunity, but again, side effects and high costs[40] limit their widespread use.[41,42]

A better approach would be to change the way the body responds to threats like viruses and tumor cells by directly *boosting* **NK cell function** and restoring waning immunity caused by immune senescence.[5,43]

By enhancing NK cell function, you would potentially be improving resistance, not to one or a few related viruses, *but to virtually all viruses at once*.[44] In the process, you would also be potentially enhancing natural cancer resistance, not to specific cancer types, *but to virtually all malignancies at once*.[45]

Fortunately, as a result of years of research by immunologists, infectious disease experts, and oncologists, a natural compound has been discovered that can significantly improve declining NK cell function precisely when it is needed the most—during the vulnerable winter season when infectious flus are at their peak.

Seasonal Flu Defense

- Immune senescence is the age-related dysregulation and steady loss of function of various components of the immune system; it explains the rise in infections, cancers, and even autoimmune problems seen in elderly populations.
- The reduction of one particular component of immunity—activity of natural killer cells—leaves older adults uniquely vulnerable to viral infections, especially during the winter-time peak in influenza.
- Natural killer (NK) cells are the body's front-line security team, identifying and eliminating cells infected with viruses or transformed by cancer.
- A unique product, **enzymatically modified rice bran (EMRB)**, has now been developed, EMRB boosts NK cell activity by nearly **84%**.
- EMRB is also effective at reducing deaths from certain cancers, further testimony to its boost of NK function.
- The wintertime viral season is precisely the time that this product should be used for optimum protection.
- Support the rest of your immune system year-round with other supplements capable of fighting off immune senescence in all branches of your defenses, and use EMRB as your wintertime immune enhancer.

Natural Compound Boosts NK Cell Function

A derivative of rice bran called **enzymatically modified rice bran (EMRB)** has been shown to promote robust NK cell function in animal and human studies.[11,46]

By mechanisms that are still under investigation,[46,47] EMRB has been shown to increase NK cell activity in circulating blood cells by up to **84%**.[11]

Arabinoxylan is a type of indigestible fiber found in cell walls of the hard components of plants, such as in the husks, or bran, of cereal grains.[48,49] *Enzymatically modified rice bran* is produced by exposing crude fiber from rice bran to enzymes isolated from the Japanese culinary mushroom, shiitake (*Lentinula edodes*).[50,51]

Recently, there has been an explosion of interest in **EMRB** as an NK cell-boosting agent to overcome the reduction of NK cell activity due to immune senescence. Several basic laboratory and animal studies have helped to set the stage for EMRB's effects on NK cell function.

EMRB Boosts NK Cell Activity In Just Two Days!

An especially promising early animal study demonstrated the power of EMRB for boosting NK cell activity. When old mice with age-related reduction of NK function were injected with EMRB, they showed a greater than **five-fold** increase in NK cell activity within just **two days** of treatment.[46] The enhanced NK activity in this study also resulted in increased binding of NK cells to target tissues and boosted the amounts of cell-killing chemicals inside each cell.

As a number of lab studies have shown, this increase in NK cell activity could have important benefits, including enhancing the body's response to vaccines and chemotherapy. This magnitude of restoration of immune cells is usually accomplished only by very expensive injectable drugs, such as interleukin-2[52] and granulocyte colony-stimulating factor (GCSF).[53-55]

How Your Life Depends On Natural Killers

"**Natural killer cells**" are one of your body's leading defenses against dying. That's because these specialized immune cells are natural killers of cells that have become transformed, either by infection with a virus or by one of many malignant changes that mutate them into cancer cells.[9,16]

Natural killer (NK) cells are part of your ***innate immune system***, that part of the immune system that was ready to go the moment you were born (innate means "from birth").[64] Unlike cells belonging to your ***adaptive immune system***, NK cells don't require specific antibodies to do their work.[65]

Rather, NK cells come fully equipped to recognize any cells that don't belong in your body.[65] Such cells include those whose replicative machinery has been taken over by a virus, and also cells that have gone rogue to replicate without natural controls, such as cancer cells.[16]

Thus, NK cells normally patrol throughout your body, acting almost like tiny but well-armed security guards. As they circulate in your bloodstream, NK cells constantly seek out cells that lack the proper "ID badge," in the form of molecular patterns indicating that they are authorized parts of your biological self.[66-69]

Once such unauthorized cells have been identified, NK cells shoot to kill, destroying virally or malignantly transformed cells, while leaving intact any normal, healthy cells that can prove their identity.[68] NK cells use as weapons chemical substances that punch holes in target cell membranes, allowing them to insert proteins that trigger the cell death program called apoptosis, which lies latent in every cell.[70]

Cells infected by viruses are detrimental to our body, both acutely and chronically. Destruction of virally infected cells by apoptosis prevents continued intracellular replication of viruses.[16,70]

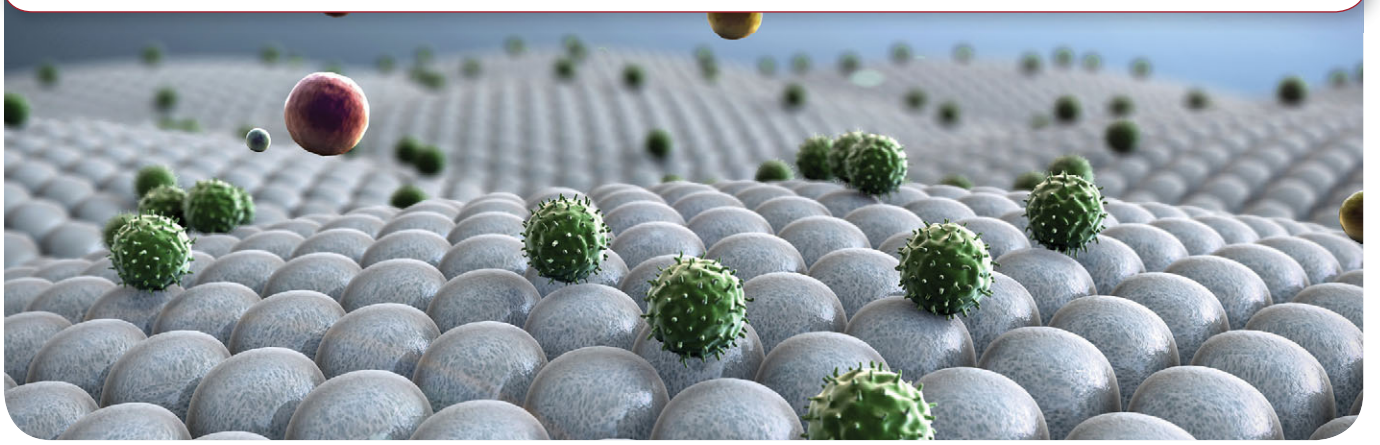
Functional NK cells are needed to destroy virus-infected cells before viral replication gets out of control. Failure of NK cells to control an infection results in release of new viruses, followed by more rapid infection, viral replication, and destruction of millions of additional cells, spreading the virus throughout the body.

In the case of malignant cells, NK cell-induced apoptosis can stop a developing cancer in its tracks, preventing further replication of cells before they can form an invading, metastasizing tumor.[71]

NK cells have recently been found to have other important functions vital to infection- and cancer-free survival:

- NK cells secrete cytokines, which are chemical signaling molecules that regulate the activity of other immune system cells;[5]
- NK cells are essential to stopping inflammatory responses once they've done their work,[72-74] for example, by deleting populations of senile immune cells. NK cells can shift the immune system's focus away from a target that has already been neutralized;[75]
- NK cells can enhance the immune response to ongoing threats by stimulating "B-lymphocytes" to produce antibodies that destroy specific antigens.[76]

Unfortunately, a decline in **NK cell function** with age can leave older adults uniquely vulnerable to viral infections, especially during the wintertime peak in influenza. But a unique formula of **enzymatically modified rice bran** (**EMRB**) has been developed that has boosts NK cell activity by nearly **84%**, potentially reducing the severity and duration of viral illnesses–and death from certain cancers as well.



Another important benefit derived from EMRB's activation of NK cells is that it enhances the body's immune response to vaccines against both infections and cancers.[56] This is of special importance to older adults, whose vaccine responses are often weaker than desired. Finding effective ways to boost the vaccine's efficacy is a major priority in adult vaccine development.

In a landmark study of cultured human blood cells, EMRB inhibited the replication of one of humanity's most-feared viruses, HIV, by *boosting* multiple immune responses that are typically *suppressed* by the AIDS virus.[57]

A series of cell culture studies has also established that EMRB's ability to activate NK cells helps fight cancer. One such study showed that EMRB increased susceptibility of both human and mouse breast cancer cells to a common chemotherapy drug *by more than **100-fold**!*[58] This has tremendous implications for reducing the doses of toxic chemotherapy agents in current use.

And in cells from human T-cell leukemia, EMRB alone induced the death of malignant cells.[59]

Human Studies Prove EMRB's Benefits

Human studies on supplementation with EMRB are equally impressive.

When a group of 20 healthy adult men and women were supplemented with EMRB for 60 days, with either a dose of **1,000 mg/day** or **3,000 mg/day**, NK cell activity in both groups jumped by approximately **35%** in the first week.[12]

A similar effect was shown in another study when a lower dose of **500 mg/day** of enzymatically modified rice bran was given to healthy subjects between 45 and 55 years old. With EMRB supplementation, all participants experienced a significant **three-fold** enhancement of NK activity in just three to four weeks—with no side effects.[60]

In a four-month study in individuals who were initially low in NK cell activity, supplementation with **1,000 mg/day** of EMRB led to a **four-fold** increase in NK cell activity at two months, compared to control responses. And at the end of four months, participants showed a **seven-fold** increase in NK cell activity![61]

EMRB has also been studied in human patients with malignancies with remarkable results. In 48 patients with multiple myeloma, a blood cancer, whose median age was 65 years, a dose of **2,000 mg/day** for three months produced a significant near **84%** increase in **NK cell activity** by the end of the second month of supplementation.[11]

This increase in NK cell activity could potentially result in longer life spans, as demonstrated by the next study on patients with a deadly form of liver cancer called ***hepatocellular carcinoma***. In a three year randomized, controlled trial of EMRB vs. placebo, supplemented patients had a reduced recurrence rate of the cancer (**31.6%** EMRB-group versus **46.7%** in controls).[47] Supplemented subjects also lived longer.

- At one year, **76%** of supplemented subjects were alive, but only **63%** of control patients survived;
- At two years, **35%** of supplemented patients were alive, but only **6.7%** of control subjects survived; and
- By two and a half years, **11%** of supplemented subjects survived, while no control patient remained alive.

An Optimum Regimen For A Potent Supplement

EMRB (enzymatically modified rice bran) provides a much-needed boost for aging immune systems, specifically by restoring NK cell activity. The only other way to accomplish this is with expensive pharmaceutical drugs that have to be closely monitored by an expert physician to protect against side effects.

However, EMRB may only need to be taken for a limited period of time each year. Some researchers are concerned that *overstimulation* of NK cells over long time spans may not be desirable.[62,63]

We recommend taking EMRB when your body is most vulnerable to viral infections: the roughly four-month period of the flu season's peak activity, from early December to the end of March.[23] That is when your NK cell activity is most vital for protection against influenza and its consequences. During this period of intensive immune stimulation, your body may also rid itself of incipient premalignant cells and "senile" cells that can contribute to chronic inflammation.

Once the flu season is over, you can stop the EMRB supplement until next year's season begins. All-year immune support can be obtained by supplementing with other immune enhancers such as *Cistanche* and *Reishi* that provide broad-spectrum immune support, including enhanced NK cell activity.

Summary

At the peak of the wintertime virus season, older adults are uniquely vulnerable to potentially life-threatening infections. This is part of the bigger picture of ***immune senescence***, the natural decline of our immune function with age.

NK cells normally provide your body's first, immediate response to previously unknown threats.

Since NK cell function declines with age, we should consider taking special steps during the winter season to fill in this critical component of immune function.

Studies show that **enzymatically modified rice bran** (EMRB) rapidly and significantly boosts aging **NK activity**, with real-world effects demonstrated on both viral infections and cases of malignancy.

Maturing individuals should take steps to maintain and strengthen immune function year-round with supplements (such as ***Cistanche*** and **Reishi**) aimed at the **innate** and **adaptive** immune responses.

During the high-risk winter months, however, it would appear to be quite beneficial to add the **NK cell** activity-boosting effects of **EMRB**. This can provide the added protection needed to conquer acute and chronic issues that can markedly shorten life spans.

During that four-month period, you may also be ridding your body of accumulated precancerous cells and inflammation-generating senescent cells that have outlived their usefulness. ●

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

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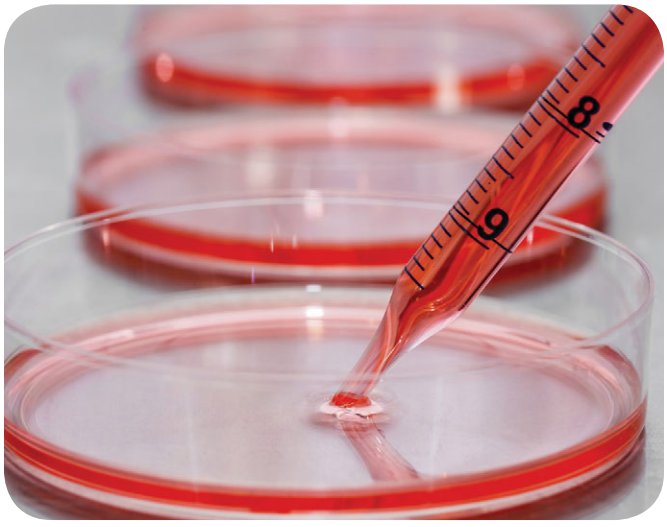

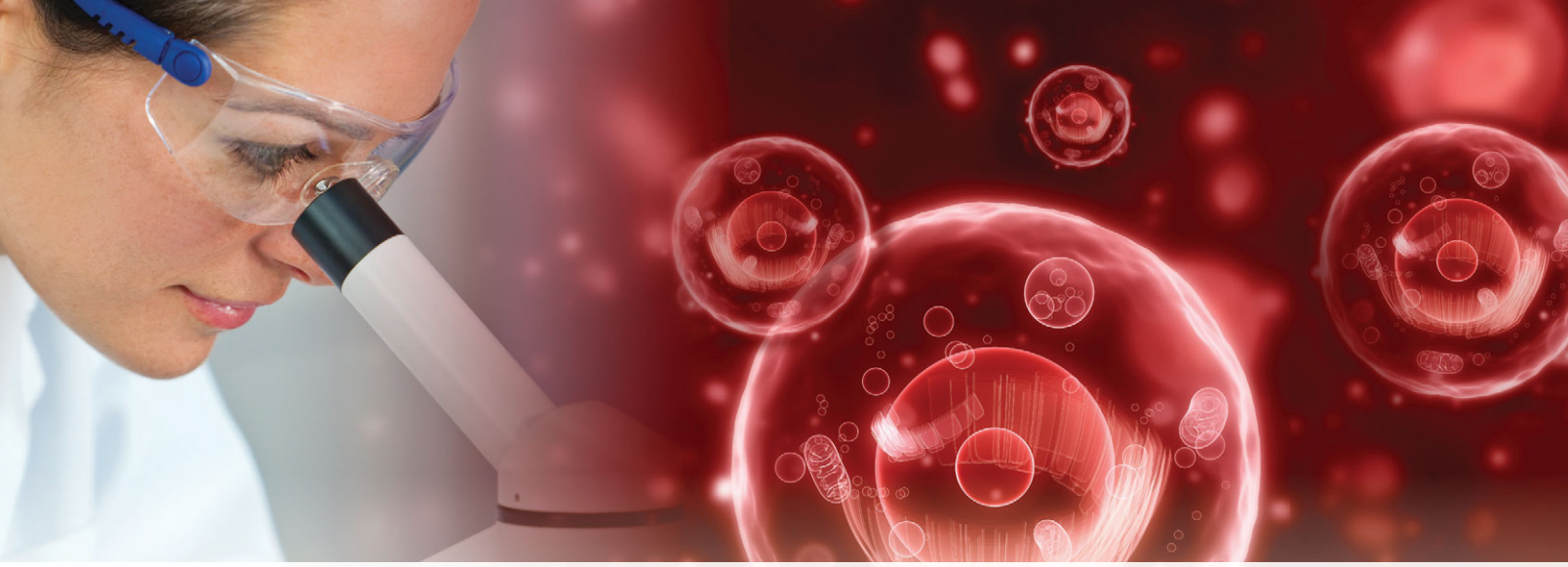

FIGHT BACK AGAINST AGING!

Aging is Characterized by Inflammation, Glycation, and Mitochondrial Decay

The loss of cellular vitality is caused by a number of factors, including mitochondrial problems, glycation, and free-radical reactions. Life Extension® members have access to a state-of-the-art nutritional formula called MITOCHONDRIAL ENERGY OPTIMIZER WITH BioPQQ® that helps protect delicate cellular structures and enables cells to perform life-sustaining metabolic processes.

Mitochondrial Energy Optimizer with BioPQQ® is designed to counteract age-related structural and functional changes by providing the following unique ingredients:

- **CARNOSINE:** As humans age, proteins in their bodies become **irreversibly damaged** by **glycation** reactions. *Glycation* is the cross-linking of proteins and sugar to form **non-functioning** structures called advanced glycation end products in the body, which can lead to alterations of normal cell function. **Carnosine** is not only a powerful **anti-glycating** agent, but it also protects **neurons** against reactive and cytotoxic protein carbonyl species associated with normal aging.[1-5]
- **PQQ:** This breakthrough micronutrient has been shown to trigger ***mitochondrial biogenesis***—the growth of new mitochondria in aging cells![6] PQQ also activates genes involved in protecting the delicate structures within the mitochondria.[7-10]
- **LUTEOLIN:** Systemic inflammation is involved in most undesirable consequences of aging. Culprits behind **inflammatory** reactions are pro-inflammatory **cytokines**, such as **interleukin-1** and **tumor necrosis factor-alpha**. *Luteolin* is a flavonoid that has been shown to help suppress these inflammatory cytokines.[11-16]
- **BENFOTIAMINE:** Effectively modulates multiple destructive biochemical pathways that are induced by higher than desirable blood glucose levels. Human mortality studies indicate that *ideal* fasting glucose levels are between **74–85 mg/dL**. Yet many aging people have fasting glucose above **90 mg/dL**, which is less than optimal.[16-19] Benfotiamine protects endothelial cell integrity from the effects of high glucose levels. In addition, benfotiamine exhibits direct antioxidative capacity and supports DNA function.[20]
- **PYRIDOXAL 5′-PHOSPHATE:** Aging results in the formation of **advanced glycation end products** throughout the body. **Pyridoxal 5′-phosphate** is the active form of vitamin B6 that has been shown to protect against both lipid and protein **glycation** reactions.[21-24]
- **R-LIPOIC ACID:** Destructive free-radical activity in the **mitochondria** plays a major role in the loss of cellular vitality. A microencapsulated Bio-Enhanced® **R-lipoic acid** facilitates youthful **mitochondrial energy output** while guarding against **free radicals**. Two forms of lipoic acid are sold on the supplement market, but **R-lipoic acid** is far more potent.[25-28]
- **ACETYL-L-CARNITINE ARGINATE:** The amino acid L-carnitine is required to transport fats into the **mitochondria** to be burned for cellular energy. **Acetyl-L-carnitine arginate** is a patented form of carnitine that also **supports neurites** in the brain.[29]

Taking all of the individual ingredients in the **Mitochondrial Energy Optimizer with BioPQQ®** separately would be prohibitively expensive, but Life Extension® members obtain this comprehensive formula at substantial savings.

A bottle of **Mitochondrial Energy Optimizer with BioPQQ®** containing **120 capsules** retails for $94. If a member buys four bottles during **Super Sale**, the price is reduced to **$56.70** per bottle.

Just four capsules of Mitochondrial Energy Optimizer with BioPQQ® provide:

Carnosine	**1000 mg**
ArginoCarn® Acetyl-L-carnitine arginate DiHCl	**675 mg**
R-Lipoic acid (as microencapsulated Bio-Enhanced®)	**150 mg**
Benfotiamine	**150 mg**
Vitamin B6 (as pyridoxal 5′-phosphate)	**100 mg**
BioPQQ® (Pyrroloquinoline quinone disodium salt)	**10 mg**
Luteolin	**8 mg**
Calcium	**230 mg**

Item # 01768

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To order Mitochondrial Energy Optimizer with BioPQQ®, call 1-800-544-4440 or visit www.LifeExtension.com

FlorAssist®
Heart Health Probiotic

Enhances Healthy Cardiovascular Factors

Researchers are discovering how important **probiotics** are to overall health. Beyond improving digestive health, probiotics provide a broad spectrum of benefits throughout the body.

FlorAssist® Heart Health Probiotic contains a novel probiotic—*Lactobacillus reuteri* 30242—that has been shown in clinical trials to safely support healthy cholesterol in adults already within the normal range.[1,2]

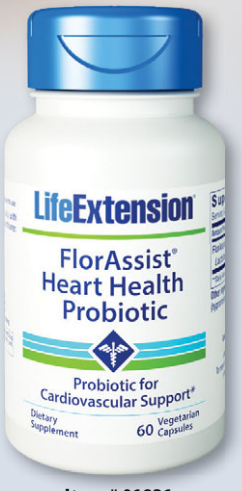
Additionally, *L. reuteri* 30242 has been shown to support healthy CRP (a marker for inflammation), fibrinogen (involved in clot formation), apoB-100 (a marker for LDL particle size, a known cardiovascular risk factor), and vitamin D levels (important for cardiovascular health) for those within normal range.[3]

FlorAssist® Heart Health Probiotic has been carefully formulated for convenient use as a safe, easy-to-swallow capsule with no unpleasant aftertaste. One capsule with food twice daily is the perfect addition to a heart-healthy lifestyle.

The suggested daily dose of <u>two</u> vegetarian capsules of FlorAssist® Heart Health Probiotic provides:

FlorAssist® *Lactobacillus reuteri* (NCIMB 30242)	**5 Billion CFU***

* Colony Forming Units



Item # 01821

A bottle of 60 vegetarian capsules of **FlorAssist® Heart Health Probiotic** retails for $32. If a member buys four bottles during **Super Sale**, the price is reduced to **$18.90** per bottle.

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To order FlorAssist® Heart Health Probiotic, call 1-800-544-4440 or visit www.LifeExtension.com

Boost "Functional" Natural Killer Cell Activity

Natural killer (NK) cells function as the body's first responders.[1] As soon as NK cells sense a potential invasion, they are on the scene to initiate immune protection. Natural killer cells promote seasonal support for the body's natural defense system.

In addition, functional NK cells recognize and eliminate **senescent cells** that accumulate in aged tissues and create metabolic disturbances.

As we age, **natural killer** cell activity markedly declines[2] with an enzymatically concurrent weakening of normal immune functions.[3]

For targeted *seasonal protection*, a formula called **NK Cell Activator™** has been developed, which contains an enzymatically **modified rice bran** shown to be a potent immune modulator.

NK Cell Activator™ supports the activity of **natural killer** (NK) cells—crucial components of the innate immune system.

In one clinical study, scientists documented a ***3-fold*** increase of **natural killer** cell activity in healthy individuals within three to four weeks of receiving **500 mg** daily of the rice bran compound found in **NK Cell Activator™**.[4]

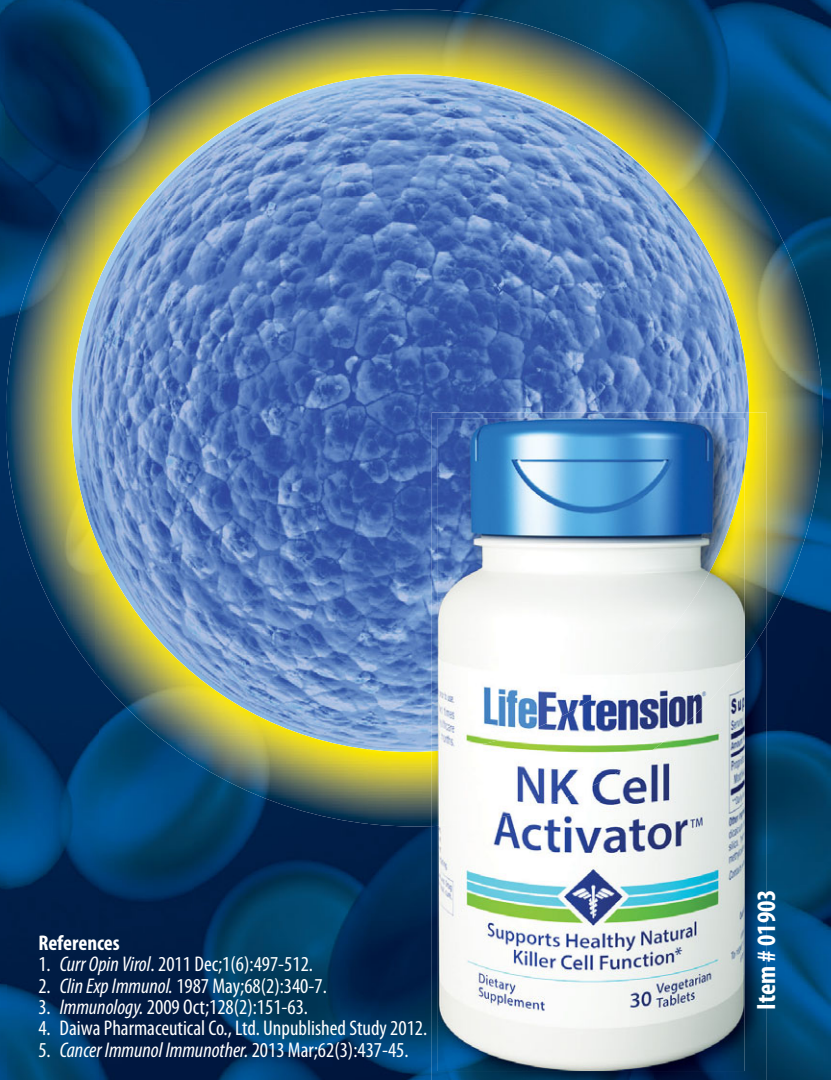
In another double-blind, randomized, placebo-controlled study, researchers noted that subjects taking the enzymatically **modified rice bran** found in **NK Cell Activator™** experienced a boost in *myeloid dendritic cells*—cells that act as key messengers between the innate and the adaptive immune systems.[5]

A strategy to derive the unique functional effects of ***NK Cell Activator™*** is to take one capsule daily for four months during the winter season.

The suggested single serving of one vegetarian tablet of **NK Cell Activator™** provides:

Proprietary Enzymatically Modified Rice Bran	**500 mg**

A bottle of 30 tablets of **NK Cell Activator™** retails for $45. If a member buys four bottles during **Super Sale**, the price is reduced to **$28.35** per bottle.



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To order Life Extension® NK Cell Activator™, call 1-800-544-4440 or visit www.LifeExtension.com

Discount Prices For Premium-Quality Products

Life Extension® members are longevity enthusiasts who take extraordinary steps to stave off disease, aging, and death. When members buy products from the **Life Extension Foundation Buyers Club**, they are assured of receiving the highest quality products based on the latest scientific studies that demonstrate benefits.

The **discounts** available to Foundation members enable them to purchase **premium-quality** supplements at prices below those charged by commercial companies.

Here are some examples of **savings** members enjoy during the annual **Super Sale**:

	Our Low Retail Price	SUPER SALE Member-Volume Discount Price Per Bottle
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract **120 softgels, Item # 01482** Super purified EPA/DHA fish oil plus sesame lignans and potent olive (fruit and leaf) extract to provide critical omega-3 fatty acids and essential components of the Mediterranean diet.	**$32**	**$15.35** (ten-bottle purchase)
AMPK Activator • **90 vegetarian capsules, Item # 01907** Activating AMPK "turns off" many of the destructive factors of aging, enabling cells to return to their youthful vitality. Research shows that the two plant extracts contained in this formula (*Gynostemma pentaphyllum* and *trans*-tiliroside), promote AMPK activation.	**$48**	**$29.70** (four-bottle purchase)
Super Bio-Curcumin® • **400 mg, 60 vegetarian capsules, Item # 00407** Super-absorbable formulation promotes healthy lipids, joint function, and healthy DNA. Absorbs up to seven times greater than conventional curcumin.	**$38**	**$23.63** (four-bottle purchase)
NAD+ Cell Regenerator™ Nicotinamide Riboside **100 mg, 30 vegetarian capsules, Item # 01904** Nicotinamide riboside is a revolutionary new form of vitamin B3 that is directly converted to NAD+ , a coenzyme found in every cell that is essential for efficient energy transfer from food to energy.	**$34**	**$17.55** (four-bottle purchase)
Super Booster with MacuGuard™ Ocular Support • **60 softgels, Item# 01980** Just one softgel daily provides potent doses of vitamins K1/ K2, gamma tocopherol, sesame lignans, chlorophyllin, and lycopene, along with zeaxanthin, *meso*-zeaxanthin, lutein, and C3G for eye support.	**$52**	**$32.40** (four-bottle purchase)
Two-Per-Day • **120 tablets Item # 01915** Provides up to 50 times more potency of specific ingredients than commercial multivitamin/mineral formulas, along with unique ingredients not found in products like Centrum®. Also available in capsule form.	**$20**	**$12.15** (four-bottle purchase)
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™ **100 mg, 60 softgels, Item # 01426** The superior ubiquinol form of CoQ10 plus a natural compound (shilajit) shown to double mitochondrial CoQ10 levels.	**$62**	**$35.10** (ten-bottle purchase)
Life Extension Mix™ • **315 Tablets, Item # 01955** This high potency multi-nutrient formula now includes a small dose of nicotinamide riboside, a revolutionary form of vitamin B3 that converts to a coenzyme in the body called NAD+, which is essential in "turning off" genes that promote aging.	**$98**	**$46.91** (ten-bottle purchase)
Vitamin D3 • **5,000 IU, 60 softgels, Item # 01713** High-potency vitamin D in a softgel to provide greater absorption into the bloodstream.	**$11**	**$6.68** (four-bottle purchase)
Ultra Natural Prostate • **60 softgels, Item # 01898** Comprehensive support for an aging prostate gland utilizing standardized lignans, plus boron, and phospholipids for enhanced absorption.	**$38**	**$21.60** (twelve-bottle purchase)
MacuGuard™ Ocular Support • **60 softgels, Item # 01885** Offers triple eye protection with phospholipids, lutein, and zeaxanthins. This product is no longer needed for most people taking the new Super Booster that now contains these same ingredients.	**$22**	**$13.37** (four-bottle purchase)
Super K with Advanced K2 Complex • **90 softgels, Item # 01724** More potent formula includes 200 mcg of long-acting MK-7 form of vitamin K2, plus 1,000 mcg of K1 and 1,000 mcg of the MK-4 form of vitamin K2.	**$30**	**$18.23** (four-bottle purchase)

To order call toll-free 1-800-544-4440

	Our Low Retail Price	SUPER SALE Member-Volume Discount Price Per Bottle
PQQ Caps with BioPQQ® • **10 mg, 30 vegetarian capsules, Item # 01500** Promotes mitochondrial biogenesis (generation of new mitochondria) in aging cells.	$24	$14.85 (four-bottle purchase)
DHEA (Dehydroepiandrosterone) • **25 mg, 100 capsules, Item # 00335** A hormone that declines with aging, benefits overall health.	$18	$10.13 (four-bottle purchase)
Mitochondrial Energy Optimizer with BioPQQ® • **120 capsules, Item # 01768** To maintain healthy cellular function, protein structural integrity, and mitochondrial biogenesis.	$94	$56.70 (four-bottle purchase)
Mega Green Tea Extract **725 mg, 100 lightly caffeinated vegetarian capsules, Item # 00953** A highly concentrated 98% polyphenol extract delivering 45% of the health-promoting catechin EGCG.	$30	$16.20 (four-bottle purchase)
Optimized Resveratrol with NAD+ Cell Regenerator™ • **60 vegetarian capsules, Item # 01930** Best-selling *trans*-resveratrol formula now contains nicotinamide riboside, a novel form of vitamin B3 that supports mitochondrial health, along with pterostilbene and fisetin, which work in synergy with resveratrol to "turn on" longevity genes.	$42	$24.30 (four-bottle purchase)
Bone Restore with Vitamin K2 • **120 capsules, Item # 01727** Highly absorbable forms of calcium and FruiteX B® OsteoBoron®, magnesium, zinc, and K2 as MK-7. Available with or without vitamin K2.	$24	$14.85 (four-bottle purchase)
Cognitex® with Brain Shield® • **90 softgels, Item # 01896** Optimal support for the brain. Includes gastrodin, glyceryl phosphoryl choline, vinpocetine, phosphatidylserine, uridine 5'-monophosphate, and more. Available with or without pregnenolone.	$60	$35.10 (four-bottle purchase)
Brain Shield® Gastrodin • **300 mg, 60 vegetarian capsules, Item# 01802** A unique compound providing unparalleled, multifactorial support for cognitive and circulatory brain function.	$33	$20.25 (four-bottle purchase)
ImmuneSenescence Protection Formula • **60 vegetarian capsules, Item # 01905** Standardized full-spectrum Reishi mushroom extract with *Cistanche* extract to regulate the immune system and restore youthful immune balance.	$40	$24.30 (four-bottle purchase)
Triple Action Cruciferous Vegetable Extract • **60 vegetarian capsules, Item # 01468** Comprehensive cruciferous plant extract formulation, with I3C, DIM, apigenin, and other DNA-protecting vegetable concentrates.	$24	$14.85 (four-bottle purchase)
European Milk Thistle • **60 softgels, Item # 01822** High-absorption phospholipid-enhanced formula delivers nearly five times more active components to the bloodstream to support detoxification processes as well as promote liver health and function.	$28	$16.88 (four-bottle purchase)
Skin Restoring Phytoceramides • **350 mg, 30 vegetarian capsules, Item # 01596** Oral phytoceramides derived from wheat can reach the skin's deepest layers to offset the body's natural decline with age.	$25	$15.53 (four-bottle purchase)
ArthroMax® Advanced with UC-II® and AprèsFlex® • **60 capsules, Item # 01618** Promotes joint health and may promote comfortable joint structure and function.	$36	$21.60 (four-bottle purchase)
FlorAssist® Heart Health Probiotic • **60 liquid vegetarian capsules, Item # 01821** Contains a novel probiotic—*L. reuteri* 30242—shown to support healthy cholesterol in the normal range.	$32	$18.90 (four-bottle purchase)
Advanced Bio-Curcumin® with Ginger and Tumerones • **30 softgels, Item # 01808** Triple-action formula acting on multiple signaling pathways to deliver broad-spectrum protection against inflammation.	$30	$18.23 (four-bottle purchase)
Neuro-Mag™ Magnesium L-Threonate • **90 vegetarian capsules Item# 01603** Optimal form of magnesium to protect synaptic density of neurons.	$40	$24.30 (four-bottle purchase)

Order online at www.LifeExtension.com/SuperSale

BY SCOTT RAHWAY

"Next Generation" VITAMIN Provides HOPE To Aging Societies Worldwide

Revolutionary Form Of Vitamin B3 "Turns Off" Aging Genes

Normal aging is accompanied by a noticeable increase in both mental and physical **fatigue**, along with a **loss of motivation**.[1] The tiredness we outwardly feel reflects inward impairment of cellular functions critical to sustaining life.

This is in part the result of reduced levels of a compound called **NAD+**, found in every cell in the body and essential to life.[2,3] NAD+ enables the transfer of energy from the foods we eat to vital cell functions[4] and is required to turn "off" genes that accelerate degenerative aging processes.[5,6]

Published research confirms that NAD+ levels decline as we age[7,8] and represent a fundamental, systemic contributor of aging.[9]

Finding a way to boost NAD+ levels, therefore, could help *promote youthful vitality and even extend life span*.

For the past 13 years, we at ***Life Extension***® have been searching for an efficient way for aging humans to affordably boost their cellular NAD+ levels. We came close in **2001**, when one of our researchers developed an effective NAD+ boosting sublingual lozenge; unfortunately, it only maintained stability for a short time period.

Now, after more than a decade of searching, an effective **NAD+** cell-boosting technology has finally become available.

Nicotinamide Riboside Boosts NAD+

The most effective way to boost NAD+ levels in the body is through a newly discovered form of vitamin B3 called **nicotinamide riboside**.[10] Studies have shown that **nicotinamide riboside** switches "off" the genes of aging, extends life span, increases endurance, improves cognitive function, activates beneficial sirtuins, and enhances cellular energy.[5,11]

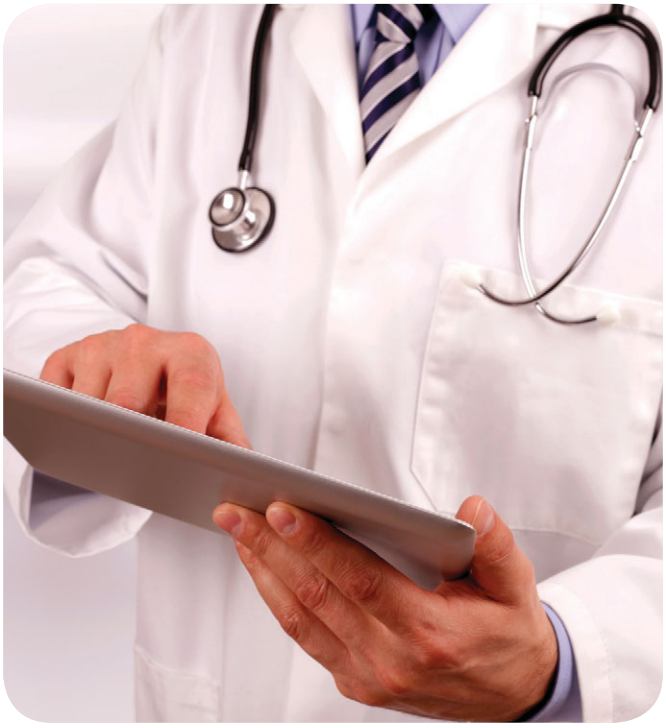
What makes this patented form of vitamin B3 so unique is its ability to directly convert into NAD+.

Why NAD+ Is So Important

NAD+ is the term used in the scientific literature to describe a cellular compound called ***nicotinamide adenine dinucleotide***. Compelling research shows that NAD+ has a unique ability to protect tissues, induce DNA repair, and increase life span.[3,12,13] These features have led prominent universities to investigate **NAD+** as a potential therapy for various degenerative diseases associated with the aging process.[14]

NAD+ battles aging in two different and important ways:

1. The first has to do with cellular energy. **NAD+** plays an important role in transferring energy released from the foods we eat to the mitochondria so that it can be converted into cellular energy.[3,15] Mitochondria are the tiny intracellular "furnaces" that power cellular processes.[16]



As NAD+ levels decline, mitochondrial function is impaired, which results in fewer mitochondria surviving, and ultimately may lead to many of the physical symptoms of aging. Fortunately, by increasing intracellular **NAD+** levels, age-related ***mitochondrial dysfunction*** can be reversed.[9]

2. Second, NAD+ activates[3] key anti-aging enzymes called sirtuins.[9,17,18] Sirtuins, specifically **SIRT1** and **SIRT3**, are intimately related to longevity through their control of gene expression and require **NAD+** for their activity.[3,5,19,20-22]

By activating these sirtuins, we're able to gain control over one of our body's anti-aging "switches." SIRT enzymes "turn off" certain genes that promote aging, such as those involved in inflammation,[23,24] in fat synthesis and storage,[25,26] and in blood sugar management.[25,26]

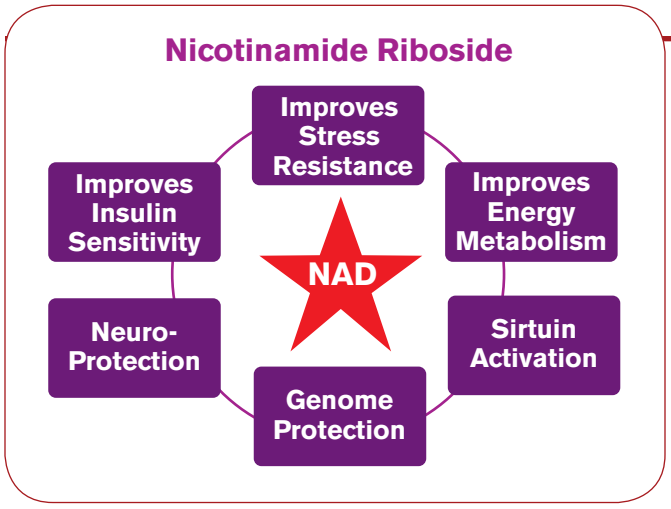
Consequences Of Falling NAD+ Levels

The age-related decrease in NAD+ causes defects in both energy- and gene-related functions to accumulate. These defects feed on one another to produce the disorders we typically identify as aging.[19]

The consequences of a decline in NAD+ levels and subsequent reduction in SIRT1 and SIRT3 enzymes include:

- ***Neurodegeneration*** in the brain,[19,27,28]
- ***Vascular inflammation***, producing damage to heart and blood vessels that can result in stroke or heart attack, [29-31]
- ***Increased fat storage*** in the liver, which could lead to nonalcoholic fatty liver disease (NAFLD),[32-34]
- ***Increased fat production and deposition*** in white adipose tissue (the primary fat storage form found in dangerous belly fat),[35,36]
- ***Growing insulin resistance***, and
- ***Fatigue, loss of muscle strength and decreased fatty acid oxidation***.[39,40]

To avoid these degenerative processes, it is essential that steps be taken to optimize the amount of NAD+ in our bodies.



A Natural NAD+ Booster

Nicotinamide riboside has been scientifically proven to maintain robust levels of NAD+ in cells, thereby ***both*** supporting vital cellular energy functions ***and*** activating the anti-aging enzymes SIRT1 and SIRT3.[11,41] As a result, NAD+ provides an extraordinary range of longevity benefits that add up to a system-wide slowing and reversal of certain aging processes. In addition, **nicotinamide riboside** accomplishes this NAD+ boosting effect without the irritating skin flushing and rash caused by the standard forms of vitamin B3.[42]

Directly boosting NAD+ with **nicotinamide riboside** presents a new and effective strategy for preventing the natural decline in cellular energy as we age by promoting youthful vitality.

Initial Studies On Nicotinamide Riboside

Nicotinamide riboside works through multiple mechanisms to promote life extension. Most dramatic are its effects on longevity and metabolism, as shown by recent laboratory studies.

In their early investigations into the effects of **nicotinamide riboside** on life span, scientists used a strain of yeast known to have a relatively short average life span of about **8.3** generations.[5,43] When the yeast was treated with **nicotinamide riboside**, the average life span nearly doubled, to **16.1** generations.

And in a model commonly used to study life span modifications, researchers discovered that the roundworm *C. elegans* could be made to survive, on average, **16%** longer when supplemented with nicotinamide riboside; this life span extension was demonstrated to result from a roughly **50%** increase in mitochondrial oxygen consumption, a measure of mitochondrial efficiency.[44]

When pursuing additional lab studies, scientists found that supplementing mice with **nicotinamide riboside** reduced many dangerous factors of aging. For one particular study, the mice were fed a high-fat diet with either no supplementation (control), or nicotinamide riboside for **12** or **16** weeks. The supplemented mice showed healthy weight loss, increased energy, and improved insulin sensitivity, all of the factors that indicate optimal vitality. The scientists also demonstrated that nicotinamide riboside

What You Need To Know

A Novel Form of Vitamin B3 Switches "Off" Aging Genes

- **Normal aging is in part the result of declining levels of NAD+, an essential compound found in every cell. Boosting levels can promote youthful vitality and even extend life span.**
- **The most effective way to boost NAD+ levels is through nicotinamide riboside, a newly discovered form of vitamin B3.**
- **Studies have found that nicotinamide riboside switches "off" the genes of aging, increases endurance, improves cognitive function, activates the key anti-aging sirtuins SIRT1 and SIRT3, enhances cellular energy, and extends life span.**

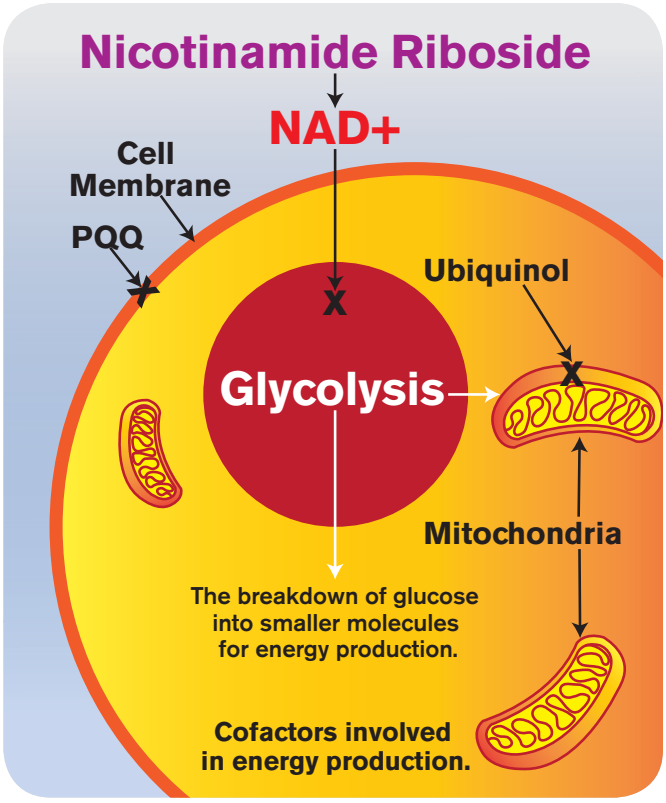
supplementation increased energy metabolism while protecting the animals against the metabolic abnormalities induced by a high-fat diet.[11]

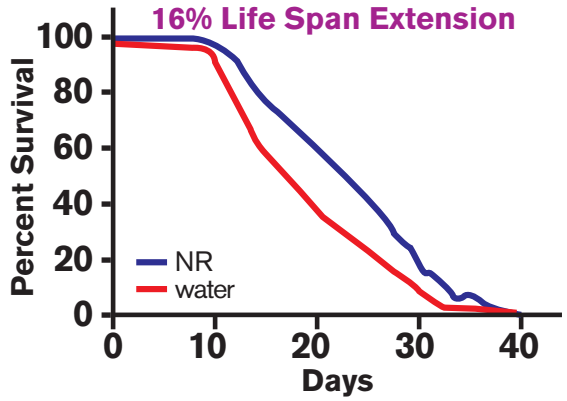
Remarkably, these beneficial results were attained *without any differences* in food intake or total physical activity between supplemented and control mice.[11] The supplemented animals lost weight, performed better at exercise, and managed their blood glucose better purely as a result of **nicotinamide riboside**-induced increases in calorie-burning (measured by increased oxygen consumption rates).

Detailed analysis of the mice in this study revealed that supplementation with **nicotinamide riboside** had produced a marked increase in essential **NAD+** levels, resulting in the activation of the critical life span-extending enzymes **SIRT1** and **SIRT3**.[11] Supplementation with nicotinamide riboside also improved the numbers and function of **mitochondria**.

Nicotinamide Riboside Protects Brain Cells

As cases of dementia and Alzheimer's reach epidemic proportions in the aging population, pharmaceutical companies are aggressively researching neuroprotective compounds.[45,46] **Nicotinamide riboside**, with its ability to directly increase **NAD+**, is providing promising brain benefits.





MOA: More efficient NAD+ production

- NAD+ modulation augments mitochondrial stress signaling, improving mitochondrial function and preventing age-associated decline.[44]
- Genetic or pharmacological restoration of NAD+ prevents age-associated metabolic decline and promotes longevity in *C. elegans*.[44]

A recent lab study demonstrated the ability of nicotinamide riboside to protect brain cells in advanced age.[15] For the study, mice that were engineered to develop Alzheimer's disease were treated with **nicotinamide riboside** beginning at middle age (5 to 6 months) and lasting into old age (10 to 11 months). At the end of the study, the supplemented animals had significant improvements in their **cognitive function**.[15] The mechanisms by which these effects were achieved were found to include significant increases in brain levels of **NAD+** (the result of supplementation with nicotinamide riboside) and consequently activated enzymes involved in cellular energy production and energy release from glucose.[15]

In a similar study of neuroprotection, nicotinamide riboside was shown to delay the degeneration of axons, the "communications cables" of nerve cells that carry impulses over long distances.[47,48] When these communication cables deteriorate, tingling, weakness, numbness, and loss of motor function can occur as a result.[49-51]

Other studies in mammalian cells in culture demonstrate that nicotinamide riboside treatment increases NAD+ concentrations inside of cells by up to **2.7-fold**,[52] and that administering nicotinamide riboside can improve NAD+-related deficiencies in animal and yeast cells.[53]

Summary

Nicotinamide riboside is a unique form of vitamin B3 that has been found to provide an extraordinary range of impressive **longevity benefits** that promise to change how science approaches the reduction of aging.

By boosting levels of a powerful molecule called **NAD+**, nicotinamide riboside switches "off" many deleterious genes of aging, extends life span, increases endurance, improves cognitive function, activates sirtuins, and enhances cellular energy.

Directly boosting NAD+ with **nicotinamide riboside** presents a new and effective strategy for preventing the natural decline in cellular energy as we age by promoting youthful vitality. ●

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

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Tart cherries are packed with unique compounds that have been shown to block the COX-1 and COX-2 inflammatory enzymes.[1] The benefits of tart cherry include rapid muscle recovery after exercise[2-5] and fast relief from the minor aches, discomfort, and stiffness that can follow everyday muscle exertion.[2,3]

Clinically Validated

In human studies, researchers have scientifically confirmed the muscle-supporting benefits of tart cherries. For example, a randomized controlled trial found that consuming tart cherry juice twice daily produced a substantial decrease in muscle symptoms related to exercise. In the same study, the exercise-induced loss of strength over the four days following a workout was reduced from **22%** to only **4%**.[4]

Anthocyanins

Anthocyanins are powerful flavonoids that provide the dark pigmentation in blueberries, raspberries, and bilberries.[5,6] What has drawn the attention of scientists is that tart cherries contain a higher content of anthocyanins than other fruits.[1]

Anthocyanins have been extensively studied for their numerous advantages that include heart, cellular, and cognitive health.[6-8]

Life Extension® now offers **100%** natural **Tart Cherry Extract**, a supplement that opens the door to the remarkable benefits of continued physical activity—***at any age!*** This formulation provides all the muscle-supporting benefits of tart cherries and mimics the anthocyanin dose used in successful clinical trials by providing a standardized **40 mg** dose of anthocyanins in each capsule.[2,4]

The serving size of one vegetarian capsule of Tart Cherry Extract with Standardized CherryPURE® contains:

CherryPURE® Tart cherry *(Prunus cerasus)* **extract** (skin) [std to 6.5% anthocyanins (40 mg)]	**615.5 mg**

To order Tart Cherry Extract with Standardized CherryPURE®, call 1-800-544-4440 or visit www.LifeExtension.com

A bottle of 60 vegetarian capsules of **Tart Cherry Extract with Standardized CherryPURE**® retails for $22. If a member buys four bottles during **Super Sale**, the price is reduced to **$13.50** per bottle.

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Advanced Defense Against Cellular Aging

NAD+ Cell Regenerator

If you are experiencing fatigue and lack of motivation, it may be due to the age-related decline in **NAD+** levels[1] and subsequent impairment of healthy cellular metabolism.[2]

NAD+ (*nicotinamide adenine dinucleotide*) promotes systemic youthful functions and is found in every cell in the body.[3] In addition, **NAD+** plays an essential role in regulating **genes**[4,5] that control aging.[6]

How To Boost NAD+ Levels Within Your Cells

Newly patented **nicotinamide riboside** increases cellular levels of **NAD+** in the body.[7,8]

For the first time, aging humans have an effective and affordable method to boost the critical **NAD+** enzyme for refreshed vitality.

Nicotinamide riboside represents an innovative advance to combat aging that functions via unique mechanisms not found in typical dietary supplements. It has emerged as a front-line weapon in **Life Extension**'s ongoing war against premature aging.

The name of this new **nicotinamide riboside** formulation is **NAD+ Cell Regenerator™**.

Multiple Benefits Of Increasing NAD+ Cellular Levels

Nicotinamide riboside has been documented to help replenish cellular **NAD+** and in the process:

- Promote sirtuin (SIRT1 and SIRT3) gene activation,[6]
- Enhance growth and efficiency of mitochondria—supporting energy levels and physical performance,[6]
- Favorably modulate metabolism,[6]
- Contribute to neuronal health—supporting cognitive function during aging,[9-11]
- Promote insulin activity—supporting healthy blood sugar in those within the normal range.[6]

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Life Extension® **NAD+ Cell Regenerator™** contains the patented ingredient NIAGEN®, the first commercially available form of **nicotinamide riboside**.

The suggested daily dose of one **NAD+ Cell Regenerator™** capsule provides:

NIAGEN® Nicotinamide Riboside 100 mg

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A bottle of 30 vegetarian capsules of **NAD+ Cell Regenerator™** retails for $34. If a Life Extension member buys four bottles during **Super Sale**, the price is reduced to **$17.55** per bottle. The suggested dose is just one small capsule daily.

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with NAD+ Cell Regenerator

Over 6,000 studies have been published on **resveratrol**, a compound shown to favorably alter genes that help slow the aging process. In fact, resveratrol triggers some of the same beneficial youthful gene expression activated by **calorie restriction**.[1]

The all-new **Optimized Resveratrol with NAD+ Cell Regenerator** now contains NIAGEN® **nicotinamide riboside**, a novel nutrient shown to support mitochondrial health and promote longevity pathways. This new formula provides **100 mg** of **NIAGEN® nicotinamide riboside**—an amount equivalent to almost 667 cups of milk![2]

The updated **Optimized Resveratrol with NAD+ Cell Regenerator** also contains specific compounds in berries, such as **pterostilbene** and **fisetin**, which researchers say work in synergy with resveratrol to "turn on" the body's own longevity genes.

Just one capsule of Optimized Resveratrol with NAD+ Cell Regenerator supplies:	
Trans-Resveratrol	250 mg
NIAGEN® Nicotinamide Riboside	100 mg
Grape-Berry Actives	40 mg
Quercetin	60 mg
Trans-Pterostilbene	0.5 mg
Fisetin	10 mg

A bottle of 30 **Optimized Resveratrol with NAD+ Cell Regenerator** vegetarian capsules retails for **$42 (Item # 01930)**. If a member buys four bottles during **Super Sale**, the price is reduced to **$24.30** per bottle. The suggested dose is **one** capsule daily of this "optimized" resveratrol formula.

To order Optimized Resveratrol with NAD+ Cell Regenerator, call 1-800-544-4440 or visit www.LifeExtension.com

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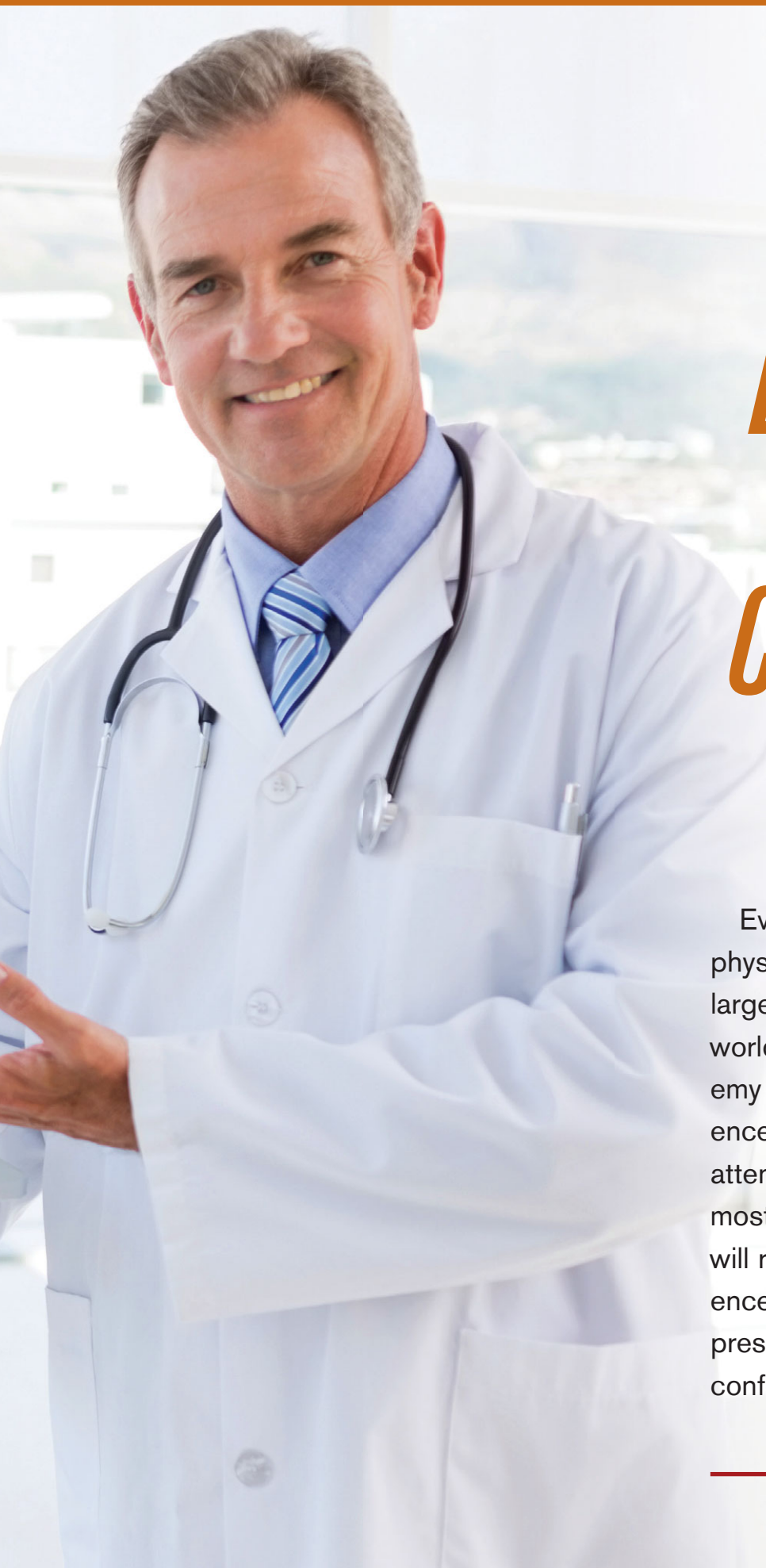


The *Las Vegas* A4M *Conference*

Every December, thousands of physicians attend what is by far the largest anti-aging conference in the world: the A4M (American Academy of Anti-Aging Medicine) conference in Las Vegas, Nevada. I have attended many of these conferences, most recently in 2012 and 2013. I will report mainly on the 2013 conference, but will include a few relevant presentations made at the 2012 A4M conference.

Health Benefits Of Nitric Oxide

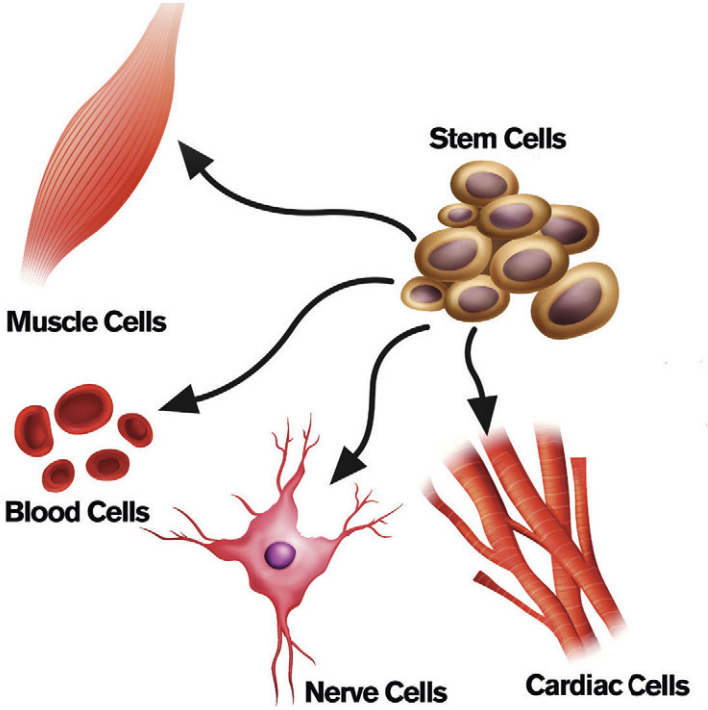
Nathan Bryan, PhD, (Assistant Professor of Molecular Medicine, School of Medicine, University of Texas Health Science Center) is a **nitric oxide** expert. Nitric oxide is a short-lived signaling molecule composed of nitrogen and oxygen. Dr. Bryan pointed to three theories of aging, all of which he said are controlled by nitric oxide: **telomere shortening**, **mitochondrial dysfunction**, and **loss of stem cell function**.

Telomeres are the ends of chromosomes that shorten with age, causing cells to become inactive when the telomeres become too short. ***Nitric oxide synthases***, a group of enzymes that catalyze the formation of nitric oxide, stimulate the activity of the enzyme that keeps telomeres from shortening in endothelial cells (cells lining blood vessels).[1,2]

Mitochondria are organelles in cells that produce energy. ***Nitric oxide*** stimulates the creation of new mitochondria, notably in heart muscle.[3]

Stem cells can prevent tissue aging by regenerating damaged and worn-out tissues. Dr. Bryan said that ***nitric oxide synthase*** is required to stimulate mobilization and differentiation of stem cells,[4] and that older patients don't respond well to stem cell therapy due to reduced availability of **nitric oxide**.

In addition to these aging processes, reduced ***nitric oxide*** availability leads to **insulin resistance**.[5] And with age, the endothelial cells lining blood vessels show a reduced capacity to produce the nitric oxide that causes blood vessels to dilate—one of the symptoms of ***endothelial dysfunction***.[6]



Endothelial dysfunction contributes to **high blood pressure** and **atherosclerosis** and precedes atherosclerosis years before the disease manifests.[7] Endothelial dysfunction tends to occur in men at an earlier age than it occurs in women.[8]

Pomegranate protects cardiovascular health by augmenting nitric oxide, which supports the functioning of endothelial cells that line the arterial walls. Nitric oxide signals vascular smooth muscle to relax, thereby increasing blood flow through arteries and veins.

Scientists have known for some time that oxidized LDL (low-density lipoprotein) can reduce the expression of nitric oxide synthase, the enzyme that produces nitric oxide from an amino acid called arginine. Recently, they discovered that pomegranate juice enhances the bioactivity of nitric oxide synthase in endothelial cells. Furthermore, pomegranate's antioxidant properties protect nitric oxide from oxidative destruction, thus augmenting its biological actions.[9,10]

An Italian study examined the role of pomegranate juice in nitric oxide synthase activity in artery sections that had already developed atherosclerosis. In these segments, blood forcing its way around atherosclerotic plaque buildup exerts significant stress on arterial walls. This stress reduces nitric oxide synthase expression and sets the stage for the formation of yet more plaque.

The researchers selected mice with a genetic predisposition to developing atherosclerosis. They put the mice in one of the groups on a high-fat diet, let arterial disease develop for six months, and then added pomegranate juice to the experimental group's drinking water for 24 weeks. The placebo group was given plain drinking water.[11]

Pomegranate not only increased the expression of nitric oxide synthase in both healthy and atherosclerotic blood vessels, but increased it the most in blood vessels with the most plaque buildup. The list below shows the increase in nitric oxide synthase expression that occurred in response to pomegranate:[8]

- Healthy blood vessel areas — **3.3%** increase in nitric oxide synthase
- Low-prone atherosclerotic areas — **26.1%** increase in nitric oxide synthase
- High-prone atherosclerotic areas — **46.7%** increase in nitric oxide synthase

Pomegranate's ability to increase nitric oxide synthase resulted in a significant reduction in atherosclerotic lesions.[11]

High Blood Pressure: Diagnosis And Treatment

Mark C. Houston, MD, (Associate Clinical Professor of Medicine, Vanderbilt University School of Medicine, and Director of the Hypertension Institute, Saint Thomas Hospital and Health Services) said that **high blood pressure** is due to three stressors to the endothelial cells that line blood vessels: **inflammation**, **oxidative stress**, and **immune dysfunction**.

Dr. Houston said that endothelial dysfunction precedes high blood pressure by decades.[12] Once high blood pressure develops, blood vessel disease gets worse, creating a vicious cycle.[13] To the extent that inflammation is part of this vicious cycle, high blood pressure is an ***inflammatory*** disease.[14]

Dr. Houston described different methods of measuring blood pressure. Manual measurement of blood pressure in a medical office is the worst method. The "white-coat response" (anxiety in reaction to medical professionals) can result in an elevated blood pressure reading leading to unnecessary drug therapy.[15] This effect can be eliminated by the use of an automated device.[16] Even better is a blood pressure monitoring device that can be worn over a 24-hour period.[17] Patients whose blood pressure does not decrease while sleeping are more likely to have a stroke.[18] Unfortunately, wearing a blood pressure monitoring device at night can often disturb sleep, undermining the accuracy of the reading.[19]

Dr. Houston has had great success in getting his patients off blood pressure drugs with his program of diet, exercise, weight reduction, and supplements. After six months of his treatment protocol, **62%** of his high blood pressure patients were able to stop taking drugs.[20] According to Dr. Houston, the average American is consuming about **10 times** the minimum requirement for **sodium**, and is consuming **two times** as much sodium as potassium. Consuming **five times** more potassium than sodium is recommended. For blood pressure reduction, Dr. Houston also recommends **omega-3** fatty acids (especially DHA), a monounsaturated fat (such as **olive oil**), **vitamin C**, **vitamin D**, **lycopene**, **pycnogenol**, **coenzyme Q10**, and **500** to **1,000 mg** per day of **magnesium**.[20]

Testosterone Replacement Does Not Cause Prostate Cancer

Abraham Morgentaler, MD, (Associate Clinical Professor of Urology, Harvard Medical School) has helped revolutionize **testosterone** replacement for older men. Prior to the 1990s, it was commonly believed that administering testosterone increased the risk of prostate cancer. Dr. Morgentaler began questioning this belief when he found evidence of prostate cancer in biopsies in men having low testosterone. In 1996, he published a paper in the ***Journal of the American Medical Association***, which documented prostate cancer in 11 (**14%**) of 77 men with low testosterone.[21] This result suggested to him that low testosterone is a risk factor rather than a protective factor for prostate cancer.

A decade later he was able to report that clinical trials with testosterone replacement therapy showed no increase in risk of prostate cancer.[22] **High serum testosterone** is not associated with a risk of developing prostate cancer.[23,24] Testosterone replacement therapy does not even increase cancer in men with a high risk of prostate cancer.[25,26]

Dr. Morgentaler hypothesized that testosterone can facilitate prostate cancer if given to men with extremely low levels of testosterone. But this effect quickly reaches saturation due to the limited number of testosterone receptors. His analogy is that once a plant is receiving enough water, additional water does not make the plant grow more.[27]

Whereas normal blood testosterone is typically well above **450 ng/dL**, saturation is estimated to occur at **230 ng/dL** total serum testosterone.[28] For this reason, a man with serum testosterone of **250** or **300 ng/dL** would be testosterone deficient, but would be above the level at which testosterone therapy could increase prostate cancer risk. An estimated **20%** of men have low testosterone by age 50, while half of men have low testosterone by age 80.[29] Low testosterone levels are associated with decreased muscle mass, low bone density, central obesity, insulin resistance, low energy, decreased cardiovascular health, low libido, and irritability. Also, it is associated with increased mortality in the elderly population.[29,30]

In 2004, Dr. Morgentaler was writing a review of evidence for the safety of testosterone replacement therapy[31] when it occurred to him to search for the basis of earlier beliefs that testosterone therapy would increase prostate cancer risk. He discovered the source to be a single study based on a single unrepresentative patient in 1941 by Nobel Laureate Charles Brenton Huggins.[32]

Dr. Morgentaler gave presentations at both the 2012 and 2013 A4M. About **85%** of his 2013 presentation was identical to his 2012 presentation. Most of the new material in his 2013 presentation was a response to a recent article claiming that testosterone therapy increases cardiovascular disease risk.[33] Dr. Morgentaler cited evidence to the contrary,[29,34] calling the study flawed. His opinion was shared by other scientists.[35,36]

Benefits And Hazards Of Playing Football

Joseph Maroon, MD, (Professor of Neurological Surgery, University of Pennsylvania School of Medicine) addressed the question, "Should you allow your child to play football?" Dr. Maroon cited the risks, but also extoled the benefits, which are not as easily scientifically documented.

Between 1980 and 2006, out of millions of players, there were 1,866 documented deaths or survived cardiac arrests in American competitive athletics; **56%** of these deaths were due to cardiovascular disease, compared to **22%** caused by trauma.[37] Cardiovascular deaths in athletes under age 40 are usually due to inherited conditions.[38] Retired professional football players, however, suffer more cardiovascular disease than the general population their same age.[39] The injury rate among American high school athletes in the 2005-2006 school year was highest in football (4.36 per 1,000 athletes), followed by wrestling (2.5 per 1,000 for boys).[40] Dr. Maroon stated that injuries from riding bicycles exceeded those from football and asked, "Should you allow your child to ride a bicycle?"

Dr. Maroon has devoted a great deal of attention to the subject of concussion. Long-term consequences of concussion include brain pathology from tau protein that is similar to what is seen in Alzheimer's disease.[41,42] Dr. Maroon recommended omega-3 fatty acids to reduce possible effects of concussion.[43,44] He also referred to the Lystedt Law, passed in Washington State in 2009 (and subsequently passed in most other states), requiring that athletes under the age of 18 who have experienced concussion during a practice or game be prohibited from further participation until cleared by a medical professional.[45] The majority of coaches were already avoiding returning an athlete to play too soon after a suspected concussion.[46]

Dr. Maroon's concluding remarks included a personal testimony regarding the benefits to health and character resulting from his lifelong participation in athletics. He contrasted the alarming growth of childhood obesity with the health benefits, social skills, and leadership skills that arise from athletic competition. He quoted General Douglas MacArthur, who wrote, "Upon the fields of friendly strife are sown the seeds that upon other fields, on other days, will bear the fruits of victory."

Daniel Amen, MD, (Psychiatrist and Medical Director of Amen Clinics, Inc.) spoke at the 2012 Las Vegas A4M conference with a message that conflicted with Dr. Maroon's. Dr. Amen said that, "You should only allow your kids to play tackle football if you don't like them." He added that brain damage can occur even without concussion, referring to disrupted white matter found in the brains of soccer players rather than swimmers.

Dr. Amen specializes in SPECT (Single Photon Emission Computed Tomography), which uses gamma rays to image the brain. He has established that SPECT is superior to other brain imaging techniques, namely CT (Computed Tomography) or MRI (Magnetic Resonance Imaging), for the detection of mild traumatic brain injury.[47] SPECT accuracy in diagnosis of Alzheimer's disease may be as high as **88%**.[48] Dr. Amen is critical of other psychiatrists for not examining the organ which they are studying—the brain.[49] Dr. Amen believes he has established that SPECT can reveal undetected brain traumas, brain toxicities, and other maladies leading to psychiatric symptoms.[50] Dr. Amen has determined that overweight and obese persons have smaller brain volume

and reduced brain blood flow.[51,52] Dr. Amen has also shown reduced blood flow in the brains of retired professional football players, which he says is consistent with a pattern of chronic brain trauma.[53] Dr. Amen said that helmets prevent skull fracture, but not brain injury. The skull is hard, whereas the brain is soft and when there is trauma to the head, the soft brain slams up against bony ridges. In his experience, many psychiatric problems can be traced to undetected head traumas. He reported improved blood flow in retired professional football players who he treated with fish oil, multiple vitamins, ginkgo, alpha lipoic acid, and N-acetyl-cysteine.[54]

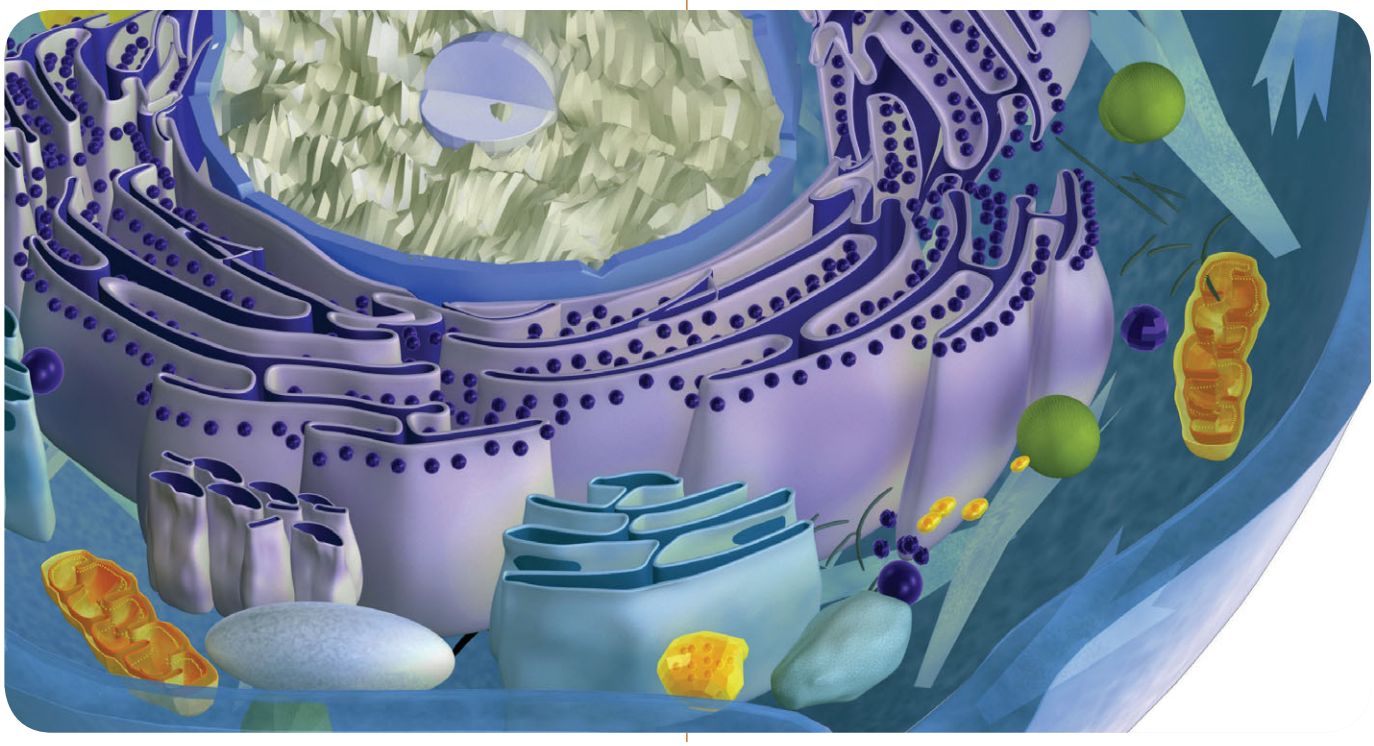
MitoQ For Mitochondrial Dysfunction

Michael Murphy, PhD, (Group Leader, Medical Research Council Mitochondrial Biology Unit, Cambridge, England) said that many aging-related diseases are the result of increasingly dysfunctional mitochondria (the organelles that provide energy to cells). Because getting drugs or nutraceuticals into mitochondria can be difficult, Dr. Murphy (as a mitochondrial biochemist) designed a new antioxidant molecule tailored for entering mitochondria.[55,56] He called his new molecule **MitoQ**.[57] Modeling a variety of diseases in mice and rats, Dr. Murphy demonstrated the potential benefit of MitoQ against cardiac ischemia-reperfusion,[58] sepsis,[59] diabetic nephropathy,[60] multiple sclerosis,[61] inflammatory bowel disease,[62] metabolic syndrome,[63] and alcohol-induced liver damage.[64] MitoQ became the first molecule designed to reduce mitochondrial oxidative damage to enter phase II clinical trials. One trial, intended to reduce Parkinson's disease, failed to show any benefit,[65] probably because the neuron damage in the patients was already too great for the chemical to have an effect. But the other trial, on hepatitis C, demonstrated that MitoQ could decrease liver inflammation in patients suffering from the disease.[66] Future clinical trials are planned.

Detoxification Strategies

John Cline, MD, (Medical Director, Cline Medical Center, Nanaimo, BC, Canada) described his methods of detoxification. Dr. Cline is more representative of "alternative medicine" than the other presenters. Chelation therapy (removal of toxic metals from the blood) is part of his practice. Dr. Cline also recommended infrared saunas for elimination of toxic metals from the body.[67] Arsenic, cadmium, lead, and mercury are toxic metals that have no known beneficial effect in humans, but which can be removed from the body through sweating.[68]

The human body normally detoxifies chemicals through two-step metabolic processing in the kidney, described as phase I and phase II biotransformation. First, phase I causes a chemical alteration of the toxin through oxidation, reduction, or hydrolysis.

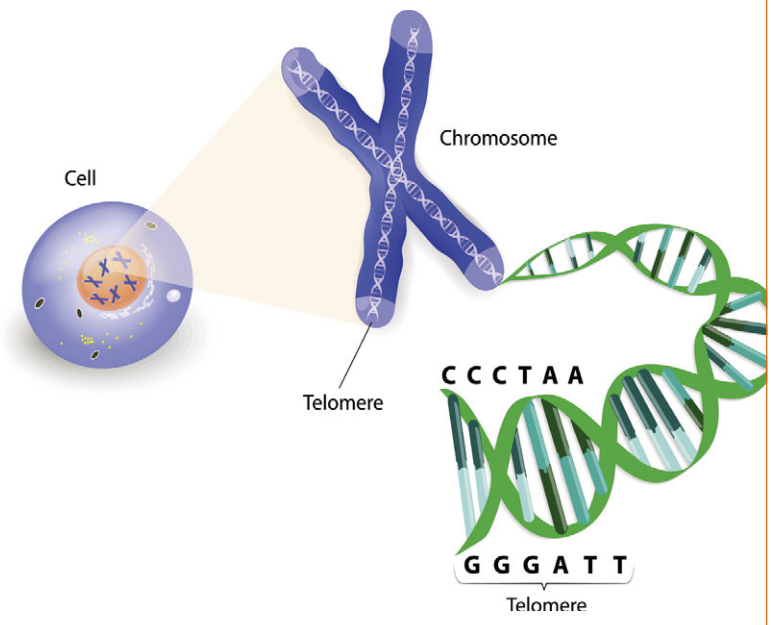


Then phase II causes conjugation (linking) of the parent molecule or the products of phase I to another molecule, such as glutathione or sulfate.[69,70] Phase II results in products that are much less toxic, water soluble, and easily excreted. But the products of phase I metabolism can be more toxic than the original toxin. To protect against the toxic products of phase I, Dr. Cline recommended magnesium, zinc, folic acid, vitamin C, and B vitamins. For phase II products, he recommended whey protein, N-acetyl-cysteine, glycine, pantothenic acid, magnesium, and TMG (trimethylglycine). Dr. Cline gave no citations to justify these claims.

Dr. Cline also advocates promoting forgiveness for stress-reduction and health.[71] Unforgiveness is distinguished from anger by continuing rumination about the hurtful experience and offending person.[72] As general advice for detoxification, Dr. Cline suggested drinking pure water, eating organic foods, avoiding amalgam dental fillings, and being cautious when eating fish (due to mercury toxicity).

Health Benefits Of Long Telomeres

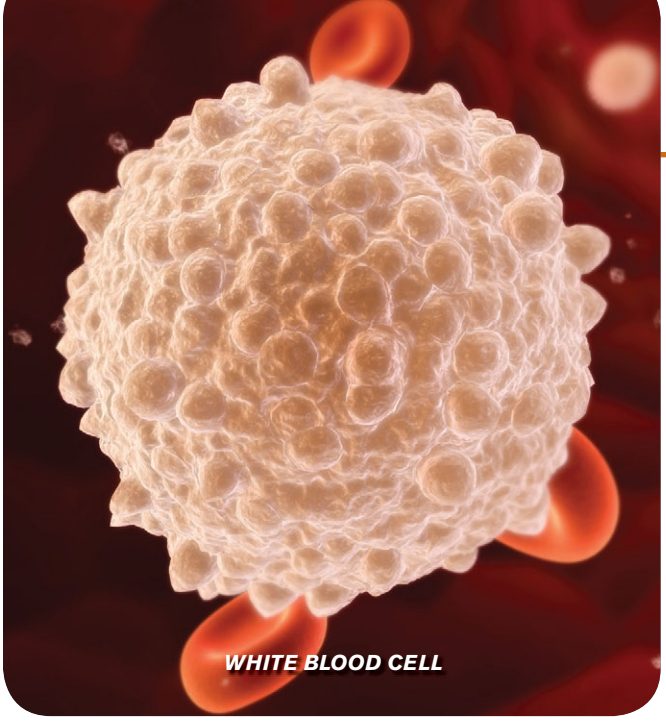
Kathleen Collins, PhD, (Professor, Department of Molecular and Cellular Biology, University of California, Berkeley) spoke at the 2012 A4M about the potential for monitoring telomere length in medicine. **Telomeres** are strands of DNA at the ends of chromosomes that shorten with each cell division. When telomeres become too short, cells no longer divide—and this effect is considered to be a cause of aging.[73]



Dr. Collins achieved fame by showing that defects in **telomerase** (the enzyme that lengthens telomeres) are linked with a genetic disease called *dyskeratosis congenita*, which is associated with bone marrow failure.[74] Later it was shown that short telomeres could be used as a means of identifying patients who have the genetic defect leading to bone marrow failure.[75] Dr. Collins said there is evidence that telomere length could be used as a diagnostic tool to identify women who have genetic defects that make them at high risk for developing breast cancer.[76,77] She noted that short telomeres can be indicative of an unhealthy lifestyle, including smoking, obesity, consumption of processed meats, and a low intake of vitamin D or omega-3 fatty acids.[78] Dr. Collins believes that measuring telomere length could be a useful tool in the coming age of molecular medicine based on the genomic, metabolic, and antibody profile of individual patients.[79] But she said that too often, the average telomere length is used as a diagnostic tool rather than the lengths of the shortest telomeres in cells. Determining the length of the shortest telomeres is important because it is the shortest telomeres that cause cells to become dysfunctional.[80,81] At the conference, Dr. Collins was representing the company Life Length (www.lifelength.com), which specializes in measuring shortest telomeres. Dr. Collins was occupying the Life Length booth in the A4M exhibit hall.

Mark Rosenberg, MD, (Physician, Institute for Healthy Aging, Boca Raton, Florida) noted that although telomerase is present in the great majority of cancer cells, short telomeres can lead to cancer by causing chromosome abnormalities.[82] A study of average telomere length of white blood cells showed that the group of people with the lowest third of telomere lengths were **three times** more likely to get cancer and **two times** as likely to die of cancer over a 10-year period as people in the highest third of telomere lengths.[83] Similarly, persons whose white blood cell telomeres are short have a higher risk of developing coronary heart disease,[84,85] and are **eight times** more likely to die of infectious disease.[84] Mice that were bred to be cancer resistant had their life spans increased by the telomerase enzyme (which lengthened their telomeres).[86]

There is a concern that lengthening telomeres by increasing telomerase activity can facilitate cancer. But mice whose telomerase activity was increased by gene therapy at 1-year or 2-years of age had a **24** or **13%** (respectively) increase in median life span without increased cancer risk.[87] In adult mice, at least, increasing telomerase activity had health benefits without increased cancer risk, which could be a promising sign for humans. The health benefits for the mice



included increased **insulin sensitivity** and improved neuromuscular coordination.[87] Dr. Rosenberg gave evidence of increased telomere length in people who take supplements. Average white blood cell telomere length was **5%** longer for women who took multivitamin supplements, and higher dietary intakes of vitamins C and E were also associated with longer telomeres.[88] Longer telomeres were associated with higher plasma levels of folic acid, vitamin D, and omega-3 fatty acids, as well as higher dietary intake of magnesium and curcumin.[89]

William Andrews, PhD, (Founder and President of Sierra Sciences) believes that human health and longevity without risk of cancer can be achieved by activating telomerase, the enzyme that lengthens telomeres. He noted that telomerase is active in lobsters, which continue to grow throughout their whole lives, rather than ceasing to grow at an age of maturity.[90] But lobsters do not get cancer, even in polluted waters that increase cancer in fish and molluscs.[91] Dr. Andrews created his company Sierra Sciences for the purpose of discovering chemicals that could increase the activity of telomerase enzyme.[92] Telomerase preferentially lengthens the shortest telomeres in human cells.[93] The highest potency substance Dr. Andrews has found so far is a chemical that stimulates telomerase activity to **16%** of the amount that would be required to make cells immortal. He believes that with $30 million he could achieve **100%**.[92]

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

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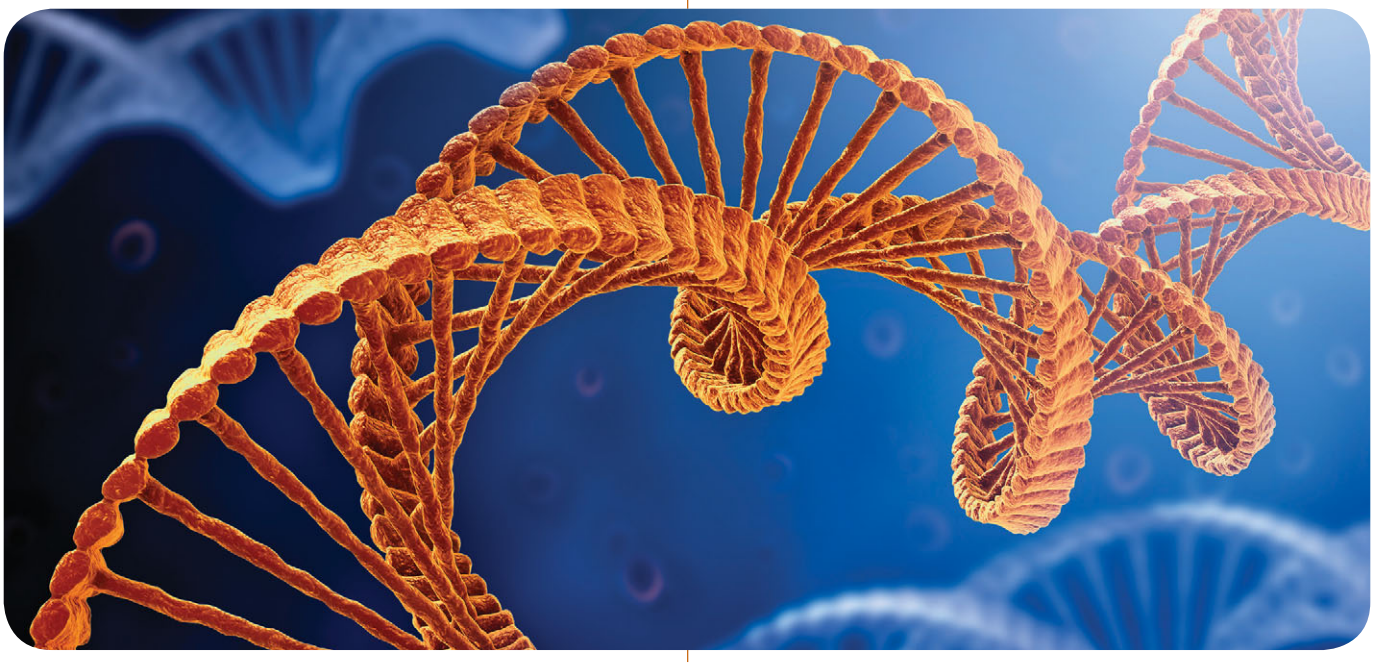

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GET SERIOUS

A Neurosurgeon's Guide To Optimal Health And Fitness

BY MICHAEL DOWNEY

With Brett A. Osborn, DO, FAANS, CSCS

Brett A. Osborn, DO, FAANS, CSCS, is a neurological surgeon with a secondary certification in anti-aging and regenerative medicine–and a Life Extension® member. He specializes in scientifically based nutrition and exercise and is a walking billboard for his recommended regimen. His book, *Get Serious, A Neurosurgeon's Guide to Optimal Health and Fitness*, teaches that we need to take responsibility for our own health and longevity. In this exclusive interview, Dr. Osborn talks about some of the key recommendations in his book.

LE: Dr. Osborn, to what extent do our genes predetermine our health and longevity?

BAO: The truth is most ailments of modern-day society are preventable. Yes, most strokes, dementia, heart attacks, diabetes, spine disorders, and even most cancers, are preventable… You are ultimately in control. So stop blaming your genes! Keep in mind that the majority of diseases—barring those of a congenital nature—are environmental in origin.

LE: Even cancer?

BAO: Yes, this even includes cancer! It was previously thought that if one developed cancer, he or she "had bad genes." Cancer was "genetic." Cancer is largely an environmental disease, period. As many as **90** to **95%** of all types of cancers have their roots in the environment and lifestyle. As noted in a study published in *Pharmacology Research*, a respected, mainstream medical journal, "The evidence indicates that of all cancer-related deaths, almost **25** to **30%** are due to tobacco, as many as **30** to **35%** are linked to diet, about **15** to **20%** are due to infections, and the remaining percentage are due to other factors like radiation, stress, physical activity, environmental pollutants, etc." You and you alone have a choice, a choice to be healthy or sick. And this choice is independent of the hand your parents dealt you.

LE: Angelina Jolie recently had a prophylactic double mastectomy based upon the results of genetic testing.

BAO: Well, here's the deal. There are specific genes, which if mutated, are associated with the development of certain cancers—*BRCA1* and *BRCA2* in the context of breast cancer. If high-risk individuals harboring these mutations were identified, they potentially could intervene early, thereby preventing disease. Keep in mind, however, that the incidence of the *BRCA* mutation in the general population is low. According to the American Heart Association, heart disease claims nearly 500,000 women yearly. This is nearly **12 times** more than reported breast-cancer related deaths in 2009. Accordingly, educating the public about this preventable disease should be more the focus of our attention than radical celebrity-endorsed procedures that will benefit relatively few, specifically those with the gene.

LE: In your book, you suggest we should lump cancer and other lethal diseases together and search for a common cause, correct?

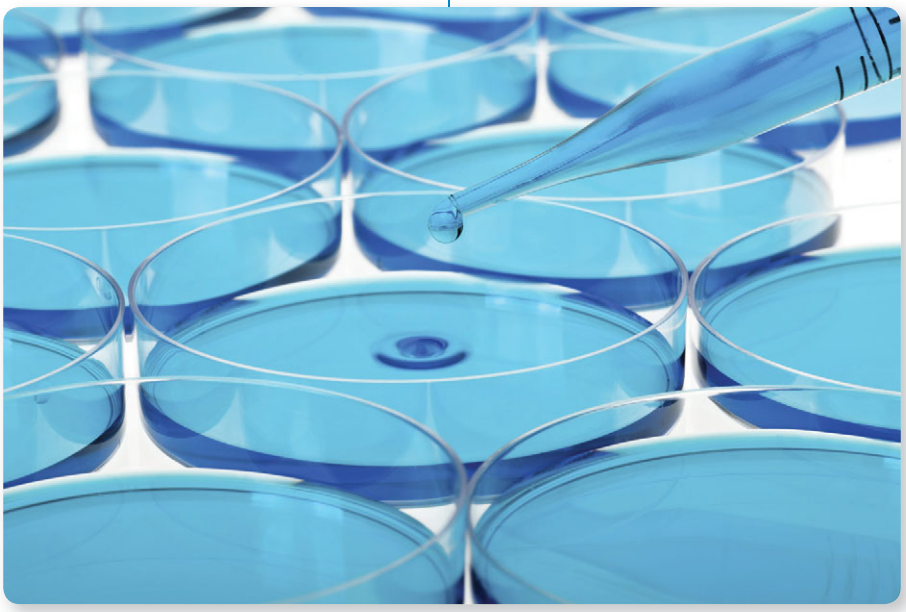
BAO: The answer is a resounding YES! In recent years, inflammation has come to the forefront as a major player in the genesis of atherosclerotic heart disease, cerebrovascular disease, diabetes, and cancer. From my standpoint, all diseases have an inflammatory component, all of them. And this is where we should focus our efforts primarily, from a preventive standpoint. Hunting down genetic mutations in existing tumors is too late. Instead, we should be preventing the genetic mutations and protecting the genome by limiting free-radical production and reducing oxidative stress. This will ultimately reduce the incidence of all diseases, not just cancer, as most have similar origins.

LE: But inflammation is protective of the body.

BAO: Restated, acute inflammation is protective of the body. It is integral to our immune response, wound healing and repair of exercise-induced muscle damage… Chronic inflammation on the other hand serves absolutely no benefit. Unfortunately, in many of us, this flame burns unchecked and disease accumulates. Blame no one except yourself and certainly not your genes. You are "insulting" your genes by presenting them with bad stimuli such as poor nutrition, tobacco smoke, and a lack of exercise. Chronic exposure to excess free radicals (oxidation) and inflammation cause age-related disease. Oxidation and inflammation are like two peas in a pod. Where there is one, there's the other.

LE: How can we determine our inflammation levels?

BAO: Have your CRP checked. CRP, or C-reactive protein, is a protein secreted by the liver in response to a variety of stimuli, namely those



that activate the inflammatory cascade. Interestingly, one of the factors that causes an elevation in CRP levels is secreted by adipocytes or fat cells. It should not come as a surprise, therefore, to learn that patients with metabolic syndrome have elevated CRP levels. In fact, CRP is an independent risk factor for coronary heart disease, hypertension, type II diabetes, and atherogenic dyslipidemia. Do not procrastinate and allow bodily inflammation to run rampant one day longer. Stop inflammaging in its tracks with proper nutrition, exercise, supplements, and, if need be, pharmaceuticals. Drive your [high-sensitivity CRP test results] down [toward] zero. This is an indication that you are doing something right.

LE: Your book stresses that both saturated and unsaturated fats are essential to health. But aren't saturated fats bad for us?

BAO: [They're] not as bad as was once thought. Ironically, their cautious consumption may confer protection against a variety of diseases. On the other hand, unsaturated fats are not all "good." Omega-3 fatty acids isolated from cold water fish, yes; omega-6 fatty acids in the context of the American diet, no. Allow me to explain. Saturated fat in the presence of high glycemic index carbohydrates—or reduced levels of "good" polyunsaturated fats—elevates LDL or "bad" cholesterol levels. On its own, it doesn't.

LE: So it's beneficial to consume saturated fat?

BAO: Right, but only under favorable conditions. Low insulin levels are mandatory, as is high dietary omega-3 fatty acid

intake. Unfortunately, the typical American diet fosters high insulin levels, lacks adequate omega-3 fatty acids, and is replete with omega-6 fatty acids, which in excess are inflammatory in nature. This milieu is atherogenic, or artery clogging. To prevent heart disease, the number one killer of Americans, and to potentially reduce the incidence of certain cancers among many other diseases, one must alter the omega-6:omega-3 ratio. I'm not a fish eater, yet I take high-dose omega-3 capsules. For me, it's not an apple a day, but an oil change a day that keeps the doctor away.

LE: So what is cholesterol and how risky are high levels of it?

BAO: Cholesterol is vital to our existence, as are fats. This waxy substance is the precursor of many hormones including cortisol, testosterone, progesterone, and estrogen. In fact, it is considered the "mother of all hormones." Cholesterol is also a crucial component of cell membranes, including the myelin sheaths of neurons. Unfortunately, due to the aggressive scare tactic-based marketing schemes utilized by Big Pharma, most individuals with "high cholesterol" are prescribed statins as a preventive modality for coronary heart disease. Well guess what? The data don't pan out. A 2010 meta-analysis of more than 65,000 patients concluded that the use of statins in a high-risk primary prevention setting was not associated with a statistically significant reduction in the risk of all-cause mortality. Instead, concern yourself with the subtypes of LDL [cholesterol] floating around in your blood and your triglyceride: HDL ratio—each of which can be optimized with dietary interventions and not by default with statins.

LE: Doesn't consuming less saturated fat lower LDL cholesterol?

BAO: While there may be a reduction in LDL when saturated fat intake is reduced, there is subtype shift from LDL "A" to "B," hence an increased coronary

Dr. Osborn's Key Supplement Recommendations

In his book, *Get Serious, A Neurosurgeon's Guide to Optimal Health and Fitness*, Dr. Brett Osborn recommends his program for building a healthy, fit, and strong body and mind. Among his recommendations are key supplements. We asked him for his favorites and to explain the rationale for each choice.

Omega-3 fatty acids: If you could choose one, this would be it! There are literally volumes of data demonstrating the beneficial effects of omega-3s' stemming from their robust anti-inflammatory capacity.

Resveratrol: In addition to providing robust anti-inflammatory effects, resveratrol influences the expression of several gene products that influence metabolism.

Green tea extract: Green tea has anticancer effects, probably through its epigallocatechin gallate, or EGCG content.

Vitamin D: You may not realize it, but vitamin D_3 is actually a hormone, a vital bodily hormone acting directly on the genome.

Curcumin: Curcumin has powerful anti-inflammatory properties which thwarts the formation of amyloid plaque.

B-Complex: B-complex vitamins are important for what is termed "methylation," a cellular process that occurs a billion times per second. Deficient or "hypo" methylation is associated with a variety of diseases such as cancer, coronary artery and cerebrovascular disease, and neural tube defects.

Vitamin C: This is integral to numerous biological processes such as tissue repair, the quenching of free radicals, and the formation, along with the maintenance, of skin, tendons, ligaments, and blood vessels.

Vitamin E (mixed tocopherols and tocotrienols): The benefits of vitamin E are numerous. For example, supplementation has been demonstrated to reduce atherosclerotic plaque burden and improve one's lipid profile.

Magnesium: Okay, there is no arguing about this one: Magnesium stabilizes the heart muscle and prevents arrhythmias. It lowers blood pressure by relaxing blood vessels, plays a role in carbohydrate metabolism, and reduces one's risk of osteoporosis by augmenting bone density.

Probiotics: This is the good bacteria that most of us lack in our gut. Just because the bowel in actuality is external to the body does not permit you to neglect it. Nurture it, instead, for optimal health.

And more: Choose a multivitamin that is just that, "multi," [as in] multiple capsules or tablets per day. While water is not considered a supplement, it should be. Even mild dehydration can affect mental and physical performance. Gastrointestinal function may also be impaired, resulting in delayed transit times and constipation.

risk. In addition, one sacrifices the HDL-bolstering effect of saturated fat intake through so-called low-fat diets. Native LDL unto itself is harmless—particularly the pattern A subtype; it is the oxidized LDL particle that causes the problems. Therefore, keeping oxidative stress in check is more important than your "cholesterol number."

LE: How can we determine our LDL cholesterol subtypes?

BAO: VAP—Vertical Auto Profile—testing is a cholesterol, lipid, and lipoprotein test. It measures all the components of a standard lipid profile but delves further, segmenting cholesterol into subclasses. Subtype A is "fluffy" and less apt to be integrated into atherosclerotic plaque, while subtype B is dense and atherogenic. A standard lipid profile does not differentiate the two. For this reason, it is completely erroneous to assume that elevations in LDL are wholly bad. Your LDL may be composed mainly of subtype A.

LE: In *Get Serious*, you explain that many pharmaceuticals have been shown to boost health in ways for which they were not specifically intended—but they are simply not offered to patients. Why not?

BAO: Because they are "off-label," and doctors are quite frankly, nervous of lawsuits. And that's a crying shame. Why? Because your doctor may be taking them!

LE: Can you give us an example?

BAO: Statin drugs can lower cholesterol levels, but what you may not know is how many doctors—like me—are taking these

drugs, even those who don't have cholesterol problems. Why? Statins are also potent anti-inflammatory agents.

LE: You wrote that you also take the diabetes drug metformin.

BAO: Remember resveratrol? Well guess what: Metformin acts on similar enzymatic pathways, increasing insulin sensitivity, and by virtue, reducing the insulin signal. Reducing the insulin signal secondarily reduces inflammation in animal models. This likely occurs in humans as well, given the antitumoral effects metformin has on a variety of cancers. This effect, too, is the result of reduced growth factor expression in response to metformin. It acts at the level of the gene! And its actions are not limited to the insulin-signaling pathway; they are wide reaching, affecting and modulating many bodily processes. An analog of metformin will one day be launched as an "anti-aging" drug.

LE: Should everyone consider taking metformin now to inhibit aging—or wait for longevity studies?

BAO: [Metformin] mimics the effect of caloric restriction (CR). This significantly extends life in animal models. By reducing the insulin signal and therefore the risk of cancer, diabetes, vascular disease, and obesity, it will likely have similar effects in humans. Are you going to wait and see if it extends life prior to discussing this option with your doctor? I've been on metformin for years. Not a single untoward effect. And no, it typically does not make one hypoglycemic. Should you choose to take metformin, you must supplement with additional B vitamins, particularly B12 and folate.

LE: Your book addresses ways to build a stronger body. Is there a secret to adding muscle?

BAO: The only way to develop strength and build muscle is to progressively overload a muscle group through proper exercise. What is the optimal way to lose body fat and improve your physique? Aerobics? No. Resistance training. Weight lifting.

LE: No elliptical machines or other equipment or special classes?

BAO: The pillars of the training regimen will always be the five basic compound movements: squat, bench press, deadlift, overhead press, and a chin/pull-up or rowing movement. Whatever your goals, if you want to be big and muscular, or if you want to be nicely toned and sculpted, these basic exercises will get the job done. No balls or bikes or bands needed.

LE: In the chapter Supplements 101, you recommend particular nutritional supplements. How do you choose what supplements are most essential?

BAO: I chose my supplements logically, based upon what we know to be the agents of the aging process and particularly, age-related disease. And they are the same: free radical damage, oxidative stress, and chronic inflammation.

LE: Thanks a lot, Dr. Osborn.

BAO: Thank you.

Brett Osborn, MD, is a Board-Certified Neurological Surgeon (ABNS) with a secondary certification in Anti-Aging and Regenerative Medicine. He has also received a CSCS (certified strength and conditioning specialist) honorarium from the National Strength and Conditioning Association. In addition to spending the last 10 post-residency years performing brain and spine surgeries, he has counseled patients on the roles of sound nutrition and exercise in their quest for total body health.

For further information, please visit http://drbrettosborn.com.

To order a copy of *Get Serious, A Neurosurgeon's Guide to Optimal Health and Fitness*, call 1-800-544-4440 or visit www.LifeExtension.com

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

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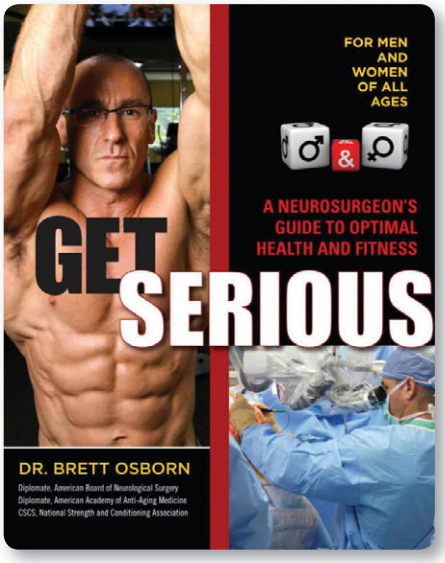

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Ceramides are essential for preserving healthy-looking skin.[1,2] They play an important role in maintaining the skin's moisture balance and protecting the skin's surface.[3]

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Researchers have discovered that the ceramides naturally produced by young skin are identical to those present in **wheat**—and that these wheat-derived oils can be taken *orally*.

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Skin Restoring Phytoceramides with Lipowheat® can reach the deepest layers of skin all over the body—*not just where creams are applied*—where it can offset the visible impact of the body's gradual decline in ceramides. The hydrating action of **Lipowheat® ceramides** has proved effective in clinical trials.

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Contains wheat.

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- **Standardized lignans** convert to *enterolactone* in the intestine, which is then absorbed into the bloodstream to provide support for prostate cells against excess estrogen levels.[1-3]
- **AprèsFlex®** supports normal inhibition of *5-lipoxygenase* or *5-LOX*, an enzyme that is associated with undesirable cell division changes.[4,5]
- **Stinging and Dwarf nettle root extracts** help support prostate cells against excess estrogen levels.[6,7]
- **Saw Palmetto CO2 extract** helps inhibit *dihydrotestosterone* (DHT) activity in the prostate, helps support normal urinary flow, and helps regulate inflammatory reactions in the prostate.[8-11]
- **Pygeum** (*Pygeum africanum*) extract helps suppress prostaglandin production in the prostate and supports healthy urination patterns.[12,13]
- **Pumpkin seed oil**, from select pumpkins, enhances the composition of free fatty acids and augments saw palmetto's benefits.[14-16]
- **Beta-sitosterol** enhances the protective effects of other botanical extracts and helps improve quality of life.[17-19]
- **Graminex® Flower Pollen Extract™**, has been shown to help relax the smooth muscles of the urethra and help regulate inflammatory reactions.[20-22]
- **Boron** has been shown to slow elevation of prostate-specific antigen (PSA).[23-25]
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- **Phospholipids** enhance absorption of active compounds.

Item # 01898

The suggested daily dose of two softgels of ***Ultra*** **Natural Prostate** provides:

Saw Palmetto CO2 extract (fruit) [providing 272 mg total fatty acids]	**320 mg**
Graminex® Flower Pollen Extract™ (from rye)	**252 mg**
Stinging and Dwarf nettle extracts (root)	**240 mg**
Beta-Sitosterol (from pine)	**180 mg**
Phospholipids	**160 mg**
Pygeum extract (bark)	**100 mg**
Pumpkin seed oil [providing 170 mg total fatty acids]	**200 mg**
AprèsFlex® Indian frankincense (*Boswellia serrata*) **extract** (gum resin) [providing 14 mg AKBA[1]]	**70 mg**
Proprietary Enterolactone Precursors Blend [HMRlignan™ Norway spruce (*Picea abies*) (knot wood) and Flax (seed) lignan extracts]	**20.15 mg**
Lycopene [from natural tomato extract (fruit)]	**10 mg**
Boron (as Albion® bororganic glycine)	**3 mg**

[1] 3-O-acetyl-11-keto-ß-boswellic acid

A bottle of 60 softgels of **Ultra Natural Prostate** retails for **$38**. If a member buys four bottles during **Super Sale**, the price is reduced to **$23.63** per bottle. If a member buys 12 bottles during **Super Sale**, the price is **$21.60**.

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Phosphatidylcholine facilitates transport across the intestinal lining into the bloodstream, making it an ideal "carrier molecule" for ***silybin***.[4,5] Scientists believe that phosphatidylcholine molecularly bonds to silybin, ushering it through the membranes of cells in the intestinal tract.[4]

This unique **silybin-phosphatidylcholine** complex is absorbed nearly **5 times better** than silymarin alone, and its concentration in the liver, its target organ, is **10-fold greater** than silymarin alone.[6-8]

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SUPER **FOODS**

BY MICHAEL DOWNEY

Chia

Nature's Perfect Food

Recent studies have revealed that chia (*Salvia hispanica*) is a remarkably well-rounded nutritional source, providing protein, magnesium, phosphorus, and essential fatty acids. It is also the richest vegan source of omega-3 and dietary fiber. Gluten-free and grain-free, chia also has **six times** the calcium of milk.[1]

Chia–which is Mayan for "strength"–is a desert plant native to Central America with edible seeds that have a pleasing, nutty flavor. A relative of the mint family, these little black and white seeds were once a staple of the ancient Aztec diet.[2]

Now, a growing body of research points to chia's power to help prevent diseases such as cardiovascular disorders,[3,4] cancer,[5] and diabetes.[4] But above all, experts now recognize the remarkable weight-reducing capacity of chia seeds,[6,7] which are often referred to as "a dieter's dream."

Lose Weight Without Starving

Hunger is a main enemy of weight loss. But tiny chia seeds quickly absorb a lot of liquid to create a gel[8] that can keep you feeling full for hours. (This sticky gelatinous coating is how the seeds bonded to the popular terra cotta Chia Pets, which appear to grow hair overnight when watered.) When chia is exposed to water in the stomach, it increases in size and weight, and since the gel is made almost completely of water, it contains practically no calories. Since the gel coating continues to adhere tightly to each seed, it tricks the stomach into thinking it is full on just a fraction of the calories.[9] Scientists have shown that chia decreases appetite for a full two hours after consumption and reduces the sugar spikes that occur after a meal.[6] Because it absorbs **12 times** its own weight, adding two tablespoons of chia to your diet reduces the energy density of food, while boosting fiber intake.[9]

Chia seeds are an excellent source of fiber, with **10 grams** in two tablespoons—more than one-third of the daily recommended fiber intake.[10] Both the chia gel and fiber content help food move through your digestive tract faster—removing toxins from the body more quickly to help prevent constipation, diarrhea, and diverticulosis.[11]

In a randomized clinical trial, volunteers with metabolic syndrome consumed a beverage containing chia. After two months, those who consumed the chia had a greater decrease in body weight than controls, as well as an increase in *adiponectin*[7]—a hormone that plays a role in preventing obesity, metabolic syndrome, and type II diabetes.[12-14] Adiponectin also exerts weight-loss effects on the body via the brain, similar to *leptin*, the satiety hormone.[15] In this study, only the group consuming the chia beverage experienced decreases in serum triglycerides, in the inflammation marker C-reactive protein (CRP), and in the blood glucose response curve (AUC) after a glucose tolerance test.[7]

As an added bonus, Chia's gelling action helps prolong hydration and retain electrolytes during exercise.

Inhibiting Diabetes

More than 29 million Americans now have diabetes and nearly 86 million have prediabetes, a condition of abnormally high blood sugar levels that falls just short of diagnosis for type II diabetes.[16] Preclinical research suggests that chia supplementation can prevent the insulin resistance that leads to diabetes. In animals fed a sugar-rich diet, chia seeds were also shown to favorably modify blood lipid changes.[4]

If you eat high-starch or high-sugar foods, blood sugar is more likely to spike after meals, which can raise your risk of diabetes.[17] Consuming chia with a meal can combat this by turning food into constant, steady blood-sugar energy, rather than a dangerous series of glucose ups and downs.

Chia gel creates a physical barrier between the carbohydrates you eat and the digestive enzymes that break them down into sugar. Chia's high content of complete protein and its novel combination of soluble and insoluble fiber combine with the chia-gel barrier to slow down your body's conversion of carbohydrates into blood sugar.[8]

Cardiovascular Support

Diabetes and its risk factors greatly increase the risk of cardiovascular disease. For those with type II diabetes, conventional medications and lifestyle changes alone often fail to significantly reduce the risk of heart disease.

Easy Egg And Butter Replacement

The tendency of chia to gel allows it to be used as an egg substitute in foods and baked goods, reducing dietary cholesterol and increasing nutrient content—as well as slashing calories. As a substitute for eggs, chia reduces calories and fat content, while not affecting taste, texture, color, or overall acceptability.[25]

To use as an egg replacement, simply mix one tablespoon of chia seeds with three tablespoons of water and let sit for 15 minutes.

Similarly, chia gel can replace half the butter in most recipes, since it bakes and and tastes the same or better. Simply divide the amount of butter called for in a recipe in half and make up the balance with chia.

Cutting-edge research has found that chia supplementation can provide enhanced cardiovascular protection specifically for diabetics. Vladimir Vuksan, PhD, of the Risk Factor Modification Center at the University of Toronto, Canada, has devoted significant resources to the study of chia's beneficial effects on diabetics who are at risk for cardiovascular disease.[3]

In his most recent clinical trial, 20 adults with type II diabetes took supplements of either chia or wheat bran daily for three months. By the end of the study, the chia group saw significant improvement across a range of disease markers, including blood pressure and lipid profiles, as well as inflammatory and clotting factors. Systolic blood pressure in the chia group dropped by six points, while the wheat bran group's blood pressure was unchanged. C-reactive protein and clotting factors were also markedly reduced in the chia group compared to the wheat bran group.[3]

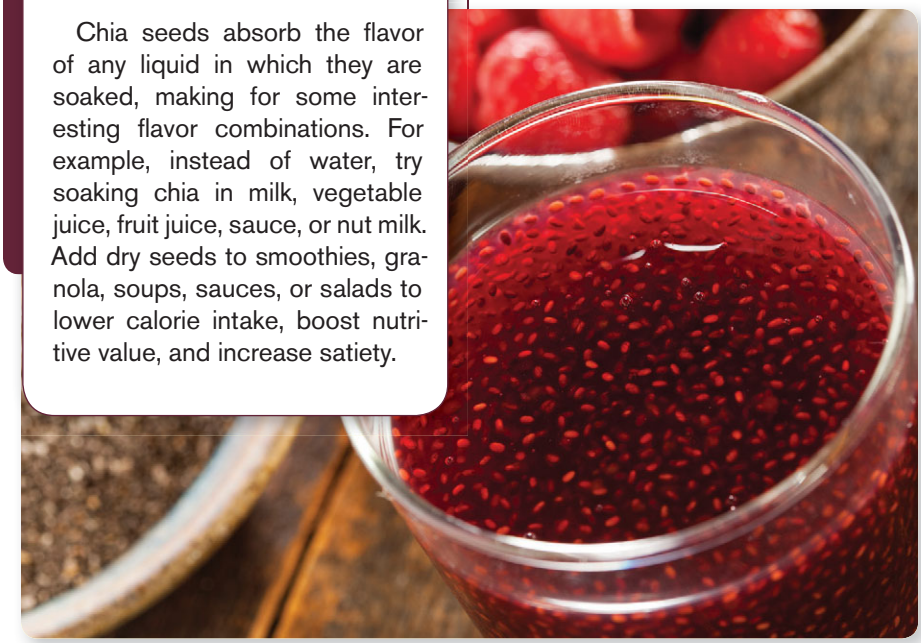
Scientists found that, as a dietary fat source, chia could lower total cholesterol levels while increasing HDL cholesterol. They also found that when substituting chia seeds for other fat sources, such as corn oil, chia was able to prevent high triglyceride levels and reduce abdominal obesity. This was a result of chia's high content of *alpha linolenic acid* (ALA), which is a precursor of omega-3 fatty acids.[4]

Chia's rich content of fiber and phytochemicals, along with its unparalleled abundance of omega-3 fatty acids—the greatest omega-3 source of any plant—strongly promotes heart and cholesterol health. Along with its plentiful omega-6 fatty acids, the omega-3s in chia help build new cells and regulate body processes.[2,3,10,18]

Chia seeds contain a high proportion of the daily recommended intakes of calcium, magnesium and especially, manganese[1,10]—nutrients that may help prevent hypertension.[19,20] These minerals are also important for healthy weight, energy metabolism, and DNA synthesis.

Ways To Use Chia

Chia seeds absorb the flavor of any liquid in which they are soaked, making for some interesting flavor combinations. For example, instead of water, try soaking chia in milk, vegetable juice, fruit juice, sauce, or nut milk. Add dry seeds to smoothies, granola, soups, sauces, or salads to lower calorie intake, boost nutritive value, and increase satiety.



Osteoporosis Prevention

Many Americans are not getting nearly enough calcium, especially those who avoid dairy. This can cause osteoporosis, a disorder that decreases bone density and increases risk of fractures. Osteoporosis afflicts 54 million American adults,[21] **80%** of whom are women. Millions more have osteopenia, a condition that is essentially pre-osteoporosis.[21] By 2020, half of all Americans over age 50 will be at risk.[21,22]

Fortunately, a single ounce of chia seeds provides **18%** of your daily calcium requirement—**six times** as much as an equal quantity of milk![1]

Cancer Protection

Chia has shown additional promise in cancer prevention. In a pre-clinical study involving breast cancer models, researchers found that dietary chia inhibited both the overall growth and the spread of cancer.[5]

Chia's Shelf Life

Chia contains properties that help combat premature aging of the skin and inflammation of various tissues.[23,24] These same properties allow raw chia seeds to stay fresh and ready to eat for about four years, without deterioration in flavor, odor, or nutritional value—a quality not found in many seeds. Prepared chia gel will keep for up to two weeks, and can keep any food tasting fresh longer if the gel is mixed into it during preparation.

Nutritional Content Of Chia

The abundance of fiber and essential fatty acids in chia packs a powerful nutritional wallop for minimal calories. A single ounce delivers **40%** of your daily fiber requirement. Chia is the greatest source of omega-3 essential fatty acids of any plant food and provides high amounts of protein, calcium, phosphorus, and potassium.[10]

One ounce (or **28 grams)** of dried chia seeds provides the following:[10]

		Percent Daily Value
Calories	137	
Calories from fat	72.1	
Calories from protein	15.2	
Saturated fat	0.9 g	4%
Cholesterol	0.0 g	0%
Dietary fiber	10.6 g	42%
Protein	4.4 g	9%
Sodium	5.3 mg	0%
Calcium	177 mg	18%
Potassium	44.8 mg	1%
Phosphorus	265 mg	27%
Manganese	0.6 mg	30%
Zinc	1.0 mg	7%
Total Omega-3 fatty acids	4,915 mg	
Total Omega-6 fatty acids	1,620 mg	

Summary

Growing research has shown the tiny Chia seeds to be a powerhouse that can help prevent diseases such as cardiovascular disorders, cancer, osteoporosis, and diabetes. But more importantly, it is recognized as "a dieter's dream food" for its remarkable weight-loss capacity. Absorbing 12 times its own weight in liquids, studies have shown that chia decreases appetite for a full two hours after consumption, while reducing after-meal sugar spikes and providing **5 grams** of fiber per tablespoon. ●

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

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Profound loss of connections between nerve cells in the brain is one of the major hallmarks associated with ***neurodegeneration*** and memory impairment. Previous research has shown that **magnesium** is a critical factor in controlling **synaptic density.**[1]

To combat this, an innovative form of magnesium called **Neuro-Mag™** has been developed. The *magnesium-L-threonate* contained in **Neuro-Mag™** has been shown to specifically target multiple areas of the aging brain. In fact, pre-clinical models show that the *magnesium-L-threonate* contained in **Neuro-Mag™** boosted levels of magnesium in spinal fluid by **15%** versus no increase from conventional magnesium.[2]

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Although research into the role of magnesium in the brain dates back 70 years, scientists continue to uncover its comprehensive benefits for cognitive function.[1,3] Studies using ***magnesium-L-threonate*** show this unique form of magnesium maintains the quantity of synaptic connections between brain cells and inhibits the dysregulation of signaling pathways.[1]

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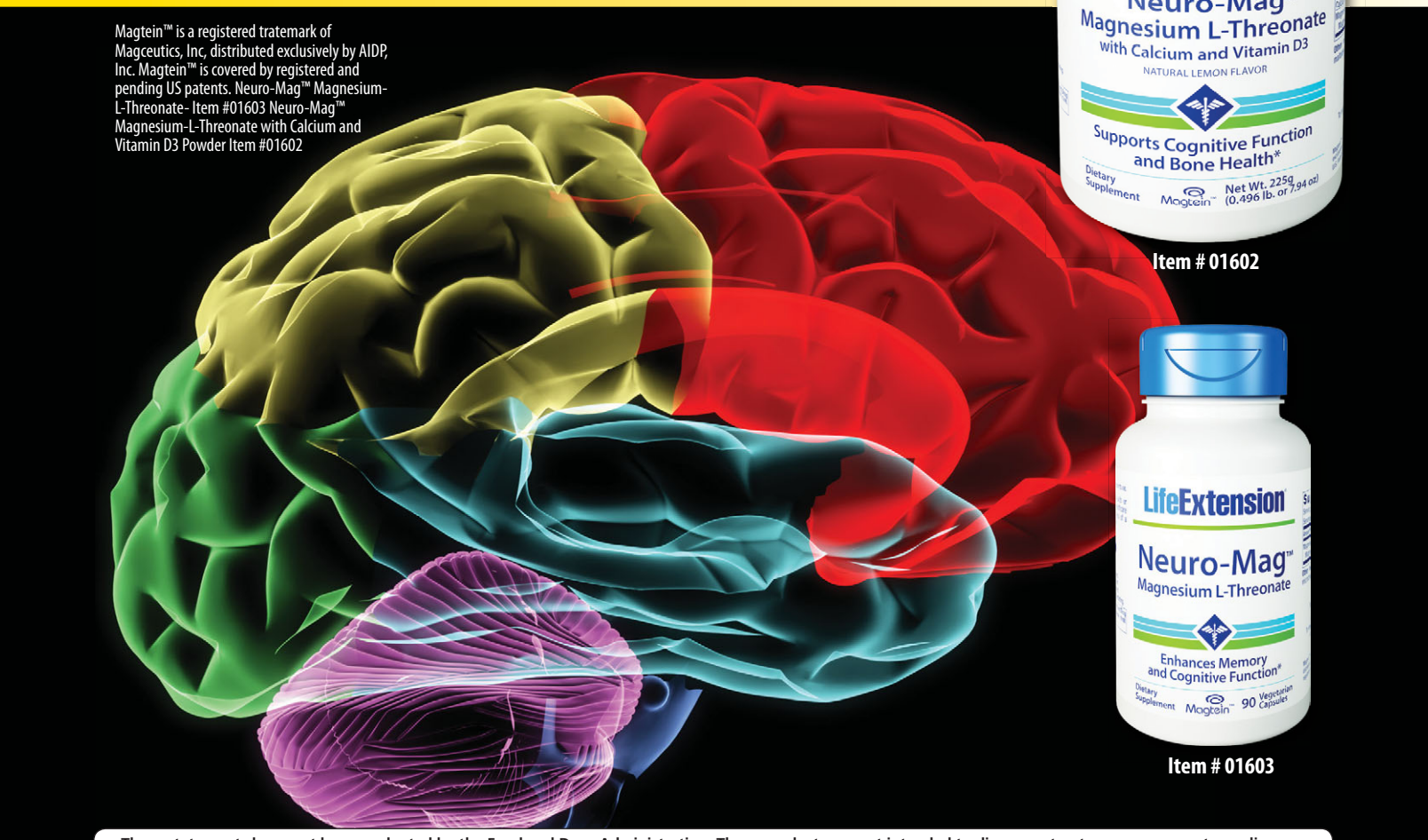

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3. Have your blood drawn.
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5. Take the opportunity to discuss the results with one of our knowledgeable health advisors by calling 1-800-226-2370; or review the results with your personal physician.

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Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. **CBC** includes immune (white) cell count, red blood cell count and platelet count. Also includes:

DHEA-S
TSH for thyroid function
Estradiol
Vitamin D 25- hydroxy
Hemoglobin A1c
C-Reactive Protein
Homocysteine
Free Testosterone
Total Testosterone
PSA (prostate-specific antigen)

FEMALE LIFE EXTENSION PANEL (LC322535) — $269

Chemistry Profile includes glucose, cholesterol, LDL, HDL, triglycerides, liver and-kidney function tests PLUS 20 additional tests. **CBC** includes immune (white) cell count, red blood cell count and platelet count. Also includes:

DHEA-S
TSH for thyroid function
Estradiol
Progesterone
Hemoglobin A1c
C-Reactive Protein
Homocysteine
Free Testosterone
Total Testosterone
Vitamin D 25- hydroxy

WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) — $275

CBC/Chemistry profile (see description at right), DHEA-S, free and total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Free T4, Reverse T3, Insulin, Hemoglobin A1c, Vitamin D 25-hydroxy, C-reactive protein (high sensitivity), and Ferritin.

WEIGHT LOSS PANEL-BASIC (LC100027) — $130

CBC/Chemistry profile (see description above right), DHEA-S, free and total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Insulin and Hemoglobin A1c.

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To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel. This panel provides valuable information about a testosterone metabolite that can affect the prostate, and the mother hormone that acts as a precursor to all other hormones.

FEMALE HORMONE ADD-ON PANEL (LCADDF)* — $125

Pregnenolone and Total Estrogens

To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel. This panel provides valuable information about total estrogen status, and the mother hormone that acts as a precursor to all other hormones.

LIFE EXTENSION THYROID PANEL (LC304131) — $75

TSH, T4, Free T3, Free T4.

FEMALE COMPREHENSIVE HORMONE PANEL* — $299

(LC100011) CBC/Chemistry Profile (see description above right), DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.

MALE COMPREHENSIVE HORMONE PANEL* — $299

(LC100010) CBC/Chemistry Profile (see description above right), DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3.

THE CBC/CHEMISTRY PROFILE (LC381822) — $35

Note: This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions.

CARDIOVASCULAR RISK PROFILE
- Total Cholesterol
- HDL Cholesterol
- LDL Cholesterol
- Triglycerides
- Cholesterol/HDL Ratio
- Estimated CHD Risk
- Glucose
- Iron

LIVER FUNCTION PANEL
- AST (SGOT)
- ALT (SGPT)
- LDH
- Total Bilirubin
- Alkaline Phosphatase

KIDNEY FUNCTION PANEL
- BUN
- Creatinine
- BUN/Creatinine Ratio
- Uric Acid

BLOOD PROTEIN LEVELS
- Total Protein
- Albumin
- Globulin
- Albumin/Globulin Ratio

BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE
- Red Blood Cell Count
- White Blood Cell Count
- Eosinophils
- Basophils
- Polys (Absolute)
- Lymphs (Absolute)
- Monocytes (Absolute)
- Eos (Absolute)
- Baso (Absolute)
- RDW
- Monocytes
- Lymphocytes
- Platelet Count
- Hemoglobin
- Hematocrit
- MCV
- MCH
- MCHC
- Polynucleated Cells

BLOOD MINERAL PANEL
- Calcium
- Potassium
- Phosphorus
- Sodium
- Chloride
- Iron

COMPREHENSIVE THYROID PANEL (LC100018) — $199

TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA

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This test measures delayed (IgG) food allergies for 95 common foods.

ADRENAL FUNCTION PANEL (LC100021) — $136

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CBC/Chemistry profile (see description above), C-reactive protein (high sensitivity), Vitamin B12, Folate, Homocysteine, Vitamin D 25-hydroxy, Hemoglobin A1c, TSH, Free T3, Free T4, Ferritin, Urinalysis, Fibrinogen, and Insulin.

HEALTHY AGING PANEL-BASIC† (LC100025) — $149

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VAP™ TEST* (LC804500) — $90

The VAP™ cholesterol test provides a more comprehensive coronary heart disease (CHD) risk assessment than the conventional lipid profile. Direct measurements, not estimations, are provided for total cholesterol, LDL, HDL, VLDL, and cholesterol subclasses.

VAP™ PLUS* (LC100009) — $330

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* This test requires samples to be shipped to the lab on dry ice for customers using a Blood Draw Kit and will incur an additional $35 charge. If the customer is having blood drawn at a LabCorp facility, this extra charge does not apply.

** This test is packaged as a kit, requiring a finger stick performed at home.

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◯ **NUTRIENT PANEL†** **(LC100024)** **$349**
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CBC/Chemistry Profile (see description previous page), Epstein –Barr Virus antibodies (IgG and IgM), Cytomegalovirus Antibodies (IgG and IgM), Ferritin, Total and Free Testosterone, DHEA-S, Free T3, Free T4, Cortisol, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Insulin.

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◯ **CARDIAC PLUS*** **(LC100008)** **$145**
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◯ **GALECTIN-3** **(LC004110)** **$90**
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HORMONES

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◯ **MALE BASIC HORMONE PANEL** **(LC100012)** **$75**
DHEA-S, Estradiol, Free and Total Testosterone, PSA

◯ **FEMALE BASIC HORMONE PANEL** **(LC100013)** **$75**
DHEA-S, Estradiol, Free and Total Testosterone, Progesterone

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◯ **PREGNENOLONE*** **(LC140707)** **$116**
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◯ **PROGESTERONE** **(LC004317)** **$55**
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LifeExtension®
NATIONAL DIAGNOSTICS, INC.

3600 West Commercial Boulevard
Fort Lauderdale, FL 33309

Phone your order to: **1-800-208-3444**
Fax your order to: **1-866-728-1050**

PRODUCTS

AMINO ACIDS
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Branched Chain Amino Acids
D, L-Phenylalanine Capsules
Glycine Capsules
L-Arginine Capsules
Arginine/L-Ornithine Capsules
L-Carnitine Capsules
L-Glutathione, L-Cysteine & C
L-Glutamine Capsules
L-Glutamine Powder
L-Lysine Capsules
L-Tyrosine Tablets
Mega L-Glutathione Capsules
N-Acetyl-L-Cysteine Capsules
Optimized Carnitine with GlycoCarn®
Pharma GABA®
Super Carnosine Capsules
Taurine Capsules

BONE & JOINT HEALTH
ArthroMax® with Theaflavins and AprèsFlex®
ArthroMax® Advanced with UC-II® and AprèsFlex®
Bone-Up™
Bone Restore
Bone Restore w/Vitamin K2
Bone Strength Formula w/KoAct™
Dr. Strum's Intensive Bone Formula
Fast Acting Joint Formula
Glucosamine Chondroitin Capsules

BRAIN HEALTH
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Brain Shield® Gastrodin
Cognitex® with Brain Shield®
Cognitex® with Pregnenolone & Brain Shield®
Cognitex® Basics
Cognizin® CDP Choline Capsules
DMAE Bitartrate
Ginkgo Biloba Certified Extract™
Huperzine A
Lecithin Granules
Methylcobalamin Lozenges
Migra-Mag with Brain Shield®
Neuro-Mag™ Magnesium L-Threonate
Optimized Ashwagandha Extract
Phosphatidylserine Capsules
Prevagen®
Rhodiola Extract
Super Ginkgo Extract
Vinpocetine

DIGESTIVE
Bifido GI Balance
Carnosoothe w/PicroProtect
Digest RC™
Esophageal Guardian
Enhanced Super Digestive Enzymes
Extraordinary Enzymes
FlorAssist® Probiotic
Gutsy Chewy Digestive Tablets
Pancreatin
Regimint
Theralac Probiotics

DURK AND SANDY PRODUCTS
Blast™
Inner Power™

EYE CARE
Bilberry Extract
Brite Eyes III
Eye Pressure Support with Mirtogenol®
MacuGuard™ Ocular Support
MacuGuard™ Ocular Support with Astaxanthin
Solarshield Sunglasses
Super Booster w/MacuGuard™ Ocular Support

FIBER
AppleWise Polyphenol
Fiber Food
TruFiber®
WellBetX PGX® plus Mulberry

FOOD
Rich Rewards™ Black Bean Vegetable Soup
Rich Rewards™ Spicy Cruciferous Vegetable Soup
Rich Rewards™ Cruciferous Vegetable Soup
Rich Rewards™ Lentil Soup
Rich Rewards™ Mung Bean Soup with Turmeric
Rich Rewards® Coffee (Available in mocha, vanilla and decaffeinated)
Rich Rewards™ Protein Creamer
Rich Rewards® Whole Bean Coffee

HAIR CARE
Dr. Proctor's Advanced Hair Formula
Dr. Proctor's Shampoo
Super-Absorbable Tocotrienols

HEART HEALTH
AppleWise Polyphenol
Advanced Lipid Control
Advance Olive Leaf Vascular Support w/Celery Seed Extract
Aspirin (Enteric Coated)
Cardio Peak™ w/Standarized Hawthorn and Arjuna
Cho-Less™
D-Ribose Tablets
D-Ribose Powder
Endothelial Defense™ with Full-Spectrum Pomegranate™
Fibrinogen Resist
Forskolin
Homocysteine Resist
Natural BP Management
Peak ATP® with GlycoCarn®
PhosphOmega®
Policosanol
PROVINAL® Purified Omega-7
Pycnogenol® French Maritime Pine Bark Extract
Red Yeast Rice
Super Absorbable CoQ10™ with *d*-Limonene
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Super Omega with Krill & Astaxanthin
Super Ubiquinol CoQ10
Super Ubiquinol CoQ10 with BioPQQ®
Super Ubiquinol CoQ10 with Enhanced Mitochondrial™ Support
Theaflavin Standardized Extract
TMG Powder
TMG Liquid Capsules

HERBAL/PHYTO PRODUCTS
Artichoke Leaf Extract
Asian Energy Boost
Astaxanthin w/Phospholipids
Berry Complete
Blueberry Extract
Blueberry Extract w/Pomegranate
Butterbur Extract w/Standardized Rosmarinic Acid
Calcium D-Glucarate
Enhanced Berry Complete with Acai
Full-Spectrum Pomegranate™
Grapeseed Extract with Resveratrol & Pterostilbene
Huperzine A
Kyolic® Garlic Formula 102 + 105
Kyolic® Reserve
Mega Green Tea Extract
Mega Green Tea Extract (Decaffeinated) (also w/CoffeeGenic® Green Coffee Extract)
Mega Lycopene Extract
Optimized Ashwagandha Extract
Optimized Garlic
Pomegranate Extract
Pycnogenol
Optimized Quercetin
Resveratrol with Synergistic Grape-Berry Actives
Rhodiola Extract
Silymarin
SODzyme™ with GliSODin®
Stevia Extract
Advanced Bio-Curcumin® with Ginger & Turmerones
Super Bio-Curcumin®
Super Ginkgo Extract
Triple Action Cruciferous Vegetable Extract
Venotone
Whole Grape Extract

HORMONES
Advanced Natural Sex for Women® 50+
7-KETO® DHEA
DHEA
DHEA Complete
GH Pituitary Support Day Formula
GH Pituitary Support Night Formula
Liquid Melatonin
Melatonin
Melatonin Timed Release
Natural Estrogen with Pomegranate Extract
Pregnenolone
ProgestaCare for Women
Super Miraforte with Standarized Lignans

IMMUNE ENHANCEMENT
AHCC® (Active Hexose Correlated Compound)
Black Cumin Seed Oil
Black Cumin Seed Oil w/Bio-Curcumin®
Buffered Vitamin C Powder
Echinacea Extract
FlorAssist™ Probiotic
i26 Hyperimmune Egg
Immune Modulator w/Tinofend®
Immune Protect with PARACTIN®
Immune Senescence Formula™
Lactoferrin
NK Cell Activactor™
Norwegian Shark Liver Oil
Optimized Fucoidan w/Maritech® 926
Peony Immune
ProBoost™ Thymic Protein A
Reishi Extract Mushroom Complex
RiboGen™ French Oak Wood Extract
Standardized Cistanche
Vitamin C w/Dihydroquercetin
Zinc Lozenges

INFLAMMATORY REACTIONS
Arthro-Immune Joint Support
ArthroMax® with Theaflavins
Boswella
Bromelain (Specially-coated)
Cytokine Suppress™ with EGCG
DHA (Vegetarian Sourced)
Fast Acting Joint Formula
Ginger Force®
Krill Healthy Joint Formula
5-LOX Inhibitor w/AprèsFlex®
Mega EPA/DHA
Mega GLA with Sesame Lignans
MSM
Organic Golden Flax Seed
Serraflazyme
SODzyme™ with GliSODin® and Wolfberry
Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract
Tart Cherry w/Standardized CherryPURE®
Zyflamend® Whole Body

LIVER HEALTH
Branch Chain Amino Acids
Certified European Milk Thistle
N-Acetyl Cysteine
Liver Efficiency Formula
European Milk Thistle
Hepatopro
SAMe
Silymarin

PRODUCTS

MINERALS
Advanced Iodine Complete
Biosil
Bone Restore
Bone Strength Formula w/KoAct®
Bone-Up™
Boron Capsules
Calcium Citrate with D3
Chromium Ultra
Copper
Iron Protein Plus
Magnesium
Magnesium Citrate
Only Trace Minerals
Optimized Chromium w/Crominex® 3+
OptiZinc
Sea-Iodine™
Selenium
Se-Methyl L-Selenocysteine
Strontium
Vanadyl Sulfate
Zinc Lozenges

MISCELLANEOUS
Blood Pressure Monitor Arm Cuff
CR Way Edition Advanced Dietary Software

MITOCHONDRIAL SUPPORT
Acetyl-L-Carnitine
Acetyl-L-Carnitine-Arginate
Mitochondrial Basics w/BioPQQ®
Mitochondrial Energy Optimizer w/BioPQQ®
Optimized Carnitine with GlycoCarn®
Super Absorbable CoQ10™ with *d*-Limonene
Super Alpha Lipoic Acid with Biotin
Super R-Lipoic Acid
Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™

MOOD RELIEF
Adrenal Energy Formula
Bioactive Milk Peptides
L-Theanine
5 HTP
Enhanced Natural Sleep® w/ Melatonin
Enhanced Natural Sleep® w/o Melatonin
Natural Stress Relief
SAMe
L-Tryptophan
Optimized Tryptophan Plus

MOUTH CARE
Advanced Oral Hygiene
Mouthwash w/Pomegranate
Toothpaste
Xyliwhite™ Mouthwash

MULTIVITAMIN
Booster
Children's Formula Life Extension Mix™
Comprehensive Nutrient Packs Advanced
Life Extension Mix™ Capsules
Life Extension Mix™ Powder
Life Extension Mix™ Tablets
Life Extension Mix™ w/o Copper Capsules
Life Extension Mix™ w/o Copper Tablets
Life Extension Mix™ w/Extra Niacin
Life Extension Mix™ w/Extra Niacin w/o Copper
Life Extension Mix™ w/Stevia Powder
Life Extension Mix™ w/Stevia w/o Copper Powder
Life Extension One-Per-Day
Life Extension Two-Per-Day
Super Booster MacuGuard™ Ocular Support

PET CARE
Cat Mix
Dog Mix

PROSTATE & URINARY HEALTH
Optimized Cran-Max® with UTI*Rose*™
5-LOXIN®
PalmettoGuard™ Saw Palmetto w/Beta Sitosterol
Pomi-T®
PalmettoGuard™ Saw Palmetto/Nettle Root Formula w/Beta-Sitosterol
Ultra Natural Prostate Formula
Water-Soluble Pumpkin Seed Extract

SKIN CARE
Advanced Lightening Cream
Advanced Peptide Hand Therapy
Advanced Triple Peptide Serum
Advanced Under Eye Serum with Stem Cells
Amber Self MicroDermAbrasion
Anti-Aging Mask
Anti-Glycation Serum
Anti-Aging Rejuvenating Face Cream with Coffee Extracts
Anti-Aging Rejuvenating Scalp Serum
Antioxidant Rejuvenating Foot Cream
Antioxidant Rejuvenating Foot Scrub
Antioxidant Rejuvenating Hand Cream
Antioxidant Rejuvenating Hand Scrub
Anti-Redness & Blemish Lotion
Bio-Collagen w/Patented UC-II®
Bioflavonoid Cream
Broccoli Sprout
Corrective Clearing Mask
DNA Repair Cream
Dual-Action MicroDermAbrasion
Essential Plant Lipids Reparative Serum
Face Master® Platinum
Face Rejuvenating Antioxidant Cream
Enhanced FernBlock® with Red Orange Complex
Fine Line-Less
Hair Suppress Formula
Healing Formula All-in-One Cream
Healing Mask
Hyaluronic Facial Moisturizer
Hydrating Anti-oxidant Face Mist
Hydroderm®
Lifting & Tightening Complex
Lycopene Cream
Melatonin Cream
Mild Facial Cleanser
Neck Rejuvenating Antioxidant Cream
Pigment Correcting Cream
(Ultra) Rejuvenex®
Rejuvenex® Body Lotion
RejuveneX® Factor Firming Serum
Rejuvenating Serum
Renewing Eye Cream
Resveratrol Anti-Oxidant Serum
Skin Lightening Serum
Skin Restoring Phytoceramides w/Lipowheat®
Skin Stem Cell Serum
Stem Cell Cream w/Alpine Rose
Ultra Rejuvenex®
Ultra RejuveNight® w/o Progesterone
Ultra Lip Plumper
Ultra Wrinkle Relaxer
Under Eye Refining Serum
Under Eye Rescue Cream
Vitamin C Serum
Vitamin D Lotion
Vitamin E-ssential Cream
Vitamin K Healing Cream
Youth Serum

SOY
Natural Estrogen w/Pomegranate
Super Absorbable Soy Isoflavones
Ultra Soy Extract

SPECIAL PURPOSE FORMULA
AMPK Activator
Anti-Alcohol Antioxidants w/HepatoProtection Complex
Benfotiamine w/Thiamine
Breast Health Formula
Butterbur Extract w/Standardized Rosmarinic Acid
Chlorella
Chlorophyllin
Green Coffee Extract CoffeeGenic®
Coriolus Super Strength
CR Mimetic Longevity Formula
Cinsulin® w/InSea2®
and Crominex® 3+
European Leg Solution Diosmin 95
Fem Dophilus
Femmenessence MacaPause®
GlycemicPro™ Transglucosidase
Migra-eeze™
NAD+ Cell Regenerator™ Nicotinamide Riboside
Natural Female Support
Optimized Resveratrol w/NAD+ Cell Regenerator™
Pecta-Sol®
Potassium Iodide
PQQ Caps with BioPQQ®
PteroPure®
Prelox® Natural Sex for Men®
Pyridoxal 5' - Phosphate
Tri Sugar Shield™

SPORTS PERFORMANCE
Creatine Capsules
DMG (N, N-dimethylglycine)
L-Glutamine Capsules
L-Glutamine Powder
Whey Protein Isolate
Whey Protein Concentrate

VITAMINS
Ascorbyl Palmitate Capsules
B12
Beta-Carotene
Biotin Capsules
Buffered Vitamin C Powder
Complete B Complex
Effervescent Vitamin C
Fast-C®
Folic Acid + B12
Gamma E Tocopherol w/Sesame Lignans
Gamma E Tocopherol/Tocotrienols
Inositol Capsules
Mega Lycopene Extract
Methylcobalamin
MK-7
No-Flush Niacin
Optimized Folate
Super Ascorbate C Capsules
Super Ascorbate C Powder
Super K w/Advanced K2 Complex
Tocotrienols w/Sesame Lignans
Vitamin B3 (Niacin) Capsules
Vitamin B6
Vitamin B12 Lozenges
Vitamin C
Vitamin D3
Vitamin D3 w/Sea-Iodine™
Vitamins D and K w/Sea-Iodine™
Vitamin E
Vitamin K2

WEIGHT MANAGEMENT
Advanced Anti-Adipocyte Formula w/Meratrim® & Integra Lean®
Advanced Natural Appetite Suppress
CalReduce Selective Fat Binder
CoffeeGenic® Green Coffee Extract
7-KETO DHEA
DHEA® Complete
Fucoxanthin Slim™
Garcinia HCA
Integra-Lean® African Mango Irvingia
Optimized Irvingia w/Phase 3™ Calorie Control Complex
Optimized Saffron with Satiereal®
Natural Glucose Absorption Control
Super Citrimax®
Super CLA Blend w/Guarana and Sesame Lignans
Super CLA Blend w/Sesame Lignans
WellBetX PGX® plus Mulberry

Buyers Club Order Form

SUPER SALE SAVINGS ON ALL PRODUCTS
To order call 1-800-544-4440

No.		Retail Each	Member Each	Qty	Total
	A				
01524	**ACETYL-L-CARNITINE** - 500 mg, 100 veg. caps	$34.00	$25.50		
	Buy 4 bottles, price each	30.00	22.50		
01525	**ACETYL-L-CARNITINE ARGINATE** - 100 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	50.99	38.24		
01628	**ADRENAL ENERGY FORMULA** - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01630	**ADRENAL ENERGY FORMULA** - 120 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	42.00	31.50		
01828	**ADVANCED LIPID CONTROL** - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01521	**ADVANCED ORAL HYGIENE** - 60 mint lozenges	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00681	**AHCC** - 500 mg, 30 caps	59.98	44.99		
00457	**ALPHA-LIPOIC ACID W/BIOTIN (SUPER)** - 250 mg, 60 caps	37.00	27.75		
	Buy 4 bottles, price each	32.00	24.00		
01907	**AMPK ACTIVATOR** - 90 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01440	**ANTI-ALCOHOL ANTIOXIDANTS w/HEPATOPRO** - 100 caps	26.00	19.50		
	Buy 4 bottles, price each	23.00	17.25		
01509	**ANTI-ADIPOCYTE FORMULA w/MERATRIM® & INTEGRA LEAN® (ADVANCED)** - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01625	**APPLEWISE POLYPHENOL EXTRACT** - 600 mg, 30 veg. caps	21.00	15.75		
	Buy 4 bottles, price each	19.00	14.25		
01039	**ARGININE/ORNITHINE** - 500/250, 100 caps	17.99	13.49		
00038	**ARGININE/ORNITHINE POWDER** - 150 grams	22.95	17.21		
	Buy 4 bottles, price each	19.00	14.25		
01624	**(L)-ARGININE CAPS** - 700 mg, 200 veg. caps	26.50	19.88		
	Buy 4 bottles, price each	23.25	17.44		
01617	**ARTHROMAX® w/THEAFLAVINS & APRESFLEX®** - 120 veg. caps	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01618	**ARTHROMAX® ADVANCED w/UC-II® & APRESFLEX®** - 60 caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01404	**ARTHRO-IMMUNE JOINT SUPPORT** - 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00919	**ARTICHOKE LEAF EXTRACT** - 500 mg, 180 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01533	**ASCORBYL PALMITATE** - 500 mg, 100 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
00888	**ASHWAGANDHA EXTRACT (OPTIMIZED)** - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01805	**ASIAN ENERGY BOOST** - 90 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01066	**ASPIRIN** - 81 mg, 300 enteric coated tablets	6.00	4.50		
	Buy 4 bottles, price each	5.33	4.00		
01720	**ASTAXANTHIN WITH PHOSPHOLIPIDS** - 4 mg, 30 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
	B				
00920	**BENFOTIAMINE W/ THIAMINE** - 100 mg, 120 veg. caps	$19.95	$14.96		
	Buy 4 bottles, price each	18.60	13.95		
00925	**BENFOTIAMINE (MEGA)** - 250 mg, 120 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 1

No.		Retail Each	Member Each	Qty	Total
01206	**BERRY COMPLETE** - 30 veg. caps	$21.00	$15.75		
	Buy 4 bottles, price each	18.67	14.00		
01496	**BERRY COMPLETE w/ACAI (ENHANCED)** - 60 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.00	19.50		
00664	**BETA-CAROTENE** - 25,000 IU, 100 softgels	11.25	8.44		
01622	**BIFIDO GI BALANCE** - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01073	**BILBERRY EXTRACT** - 100 mg, 100 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01512	**BIOACTIVE MILK PEPTIDES** - 30 caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01631	**BIO-COLLAGEN w/PATENTED UC-II®** - 40 mg, 60 small caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
*01006	**BIOSIL™** - 5 mg, 30 veg. caps	18.95	15.16		
*01007	**BIOSIL™** - 1 fl oz	31.99	25.59		
00102	**BIOTIN** - 600 mcg, 100 caps	7.50	5.63		
	Buy 4 bottles, price each	6.50	4.88		
01709	**BLACK CUMIN SEED OIL** - 60 softgels	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01710	**BLACK CUMIN SEED OIL w/BIO-CURCUMIN®** - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01008	**BLAST™** - 600 grams of powder	26.95	20.21		
70000	**BLOOD PRESSURE MONITOR** - ARM CUFF (medium)	99.95	49.99		
70004	**BLOOD PRESSURE MONITOR** - WRIST (cuff)	69.95	52.46		
01214	**BLUEBERRY EXTRACT** - 60 veg. caps	22.50	16.88		
	Buy 4 bottles, price each	20.00	15.00		
01438	**BLUEBERRY EXTRACT w/ POMEGRANATE** - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01506	**BONE FORMULA (DR. STRUM'S INTENSIVE)** - 300 caps	56.00	42.00		
	Buy 4 bottles, price each	50.00	37.50		
01726	**BONE RESTORE** - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	19.00	14.25		
01727	**BONE RESTORE W/VITAMIN K2** - 120 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01725	**BONE STRENGTH FORMULA w/KOACT®** - 120 caps	45.00	33.75		
	Buy 4 bottles, price each	40.00	30.00		
00313	**BONE-UP®** - 240 caps	28.95	21.71		
	Buy 4 bottles, price each	27.21	20.41		
01379	**BOOSTER** - 60 softgels	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01980	**BOOSTER w/MACUGUARD™ OCULAR SUPPORT (SUPER)** - 60 softgels	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
01661	**BORON** - 3 mg, 100 veg. caps	5.95	4.46		
	Buy 4 bottles, price each	5.25	3.94		
00202	**BOSWELLA** - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	30.00	22.50		
01802	**BRAIN SHIELD® GASTRODIN** - 60 veg. caps	33.00	24.75		
	Buy 4 bottles, price each	30.00	22.50		
01253	**BRANCHED CHAIN AMINO ACIDS** - 90 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.00	12.75		
01699	**BREAST HEALTH FORMULA** - 60 caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
00893	**BRITE EYES III** - 2 vials, 5 ml each	34.00	25.50		
	Buy 4 boxes, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 2

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

OFFER ENDS FEBRUARY 2, 2015
To order online visit www.LifeExtension.com/SuperSale

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01203	**BROMELAIN (SPECIALLY-COATED)** - 500 mg, 60 enteric coated tablets	$21.00	$15.75		
	Buy 4 bottles, price each	19.00	14.25		
00884	**BUTTERBUR EXT. w/STANDARDIZED ROSMARINIC ACID** - 60 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.60	29.70		
	C				
01653	**CALCIUM CITRATE w/VITAMIN D** - 300 caps	$24.00	$18.00		
	Buy 4 bottles, price each	21.25	15.94		
01651	**CALCIUM D-GLUCARATE** - 200 mg, 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
†††01823	**CALREDUCE SELECTIVE FAT BINDER** - 120 mint chewable tablets	45.00	33.75		
	Buy 4 bottles, price each	38.00	28.50		
01700	**CARDIO PEAK™ W/STANDARDIZED HAWTHORN & ARJUNA** - 120 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00916	**CARNITINE w/GLYCOCARN® (OPTIMIZED)** - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01532	**L-CARNITINE** - 500 mg, 30 veg. caps	15.00	11.25		
	Buy 4 bottles, price each	13.20	9.90		
01258	**CARNOSOOTHE w/PICROPROTECT™** - 60 veg. caps	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01687	**CARNOSINE (SUPER)** - 500 mg, 90 veg. caps	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01003	**CAT MIX** - 100 grams powder	15.00	11.25		
	Buy 4 jars, price each	12.00	9.00		
01891	**CHILDREN'S FORMULA LIFE EXTENSION MIX™** - 100 chewable tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00550	**CHLORELLA** - 500 mg, 200 tablets	23.50	17.63		
01571	**CHLOROPHYLLIN** - 100 mg, 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.00	15.00		
01359	**CHO-LESS™** - 90 capsules	35.00	26.25		
01477	**CHROMIUM ULTRA** - 100 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
01504	**CHROMIUM W/CROMINEX® 3+ (OPTIMIZED)** - 500 mcg, 60 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
01503	**CINSULIN® W/INSEA2® AND CROMINEX® 3+** - 90 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01906	**CISTANCHE (STANDARDIZED)** - 30 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	16.00	12.00		
01818	**CITRIMAX® (SUPER)** - 180 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	38.00	28.50		
00818	**CLA BLEND W/SESAME LIGNANS (SUPER)** - 3,000 mg, 120 softgels	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
	Buy 10 bottles, price each	26.33	19.75		
00819	**CLA BLEND w/GUARANA & SESAME (SUPER)**-3,000 mg, 120 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.33	28.75		
01896	**COGNITEX® w/BRAIN SHIELD®** - 90 softgels	60.00	45.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 8 bottles, price each	48.00	36.00		
01897	**COGNITEX® w/PREGNENOLONE & BRAIN SHIELD®** - 90 softgels	62.00	46.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 8 bottles, price each	50.00	37.50		
01421	**COGNITEX® BASICS** - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 3

No.		Retail Each	Member Each	Qty	Total
01659	**COGNIZIN® CDP CHOLINE CAPS** - 250 mg, 60 veg. caps	$36.00	$27.00		
	Buy 4 bottles, price each	34.00	25.50		
01735	**COMPLETE B-COMPLEX** - 60 veg. caps	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
01998	**COMPREHENSIVE NUTRIENT PACKS ADVANCED** - 30 packs	90.00	67.50		
	Buy 4 boxes, price each	82.00	61.50		
00119	**COPPER CAPSULES** - 2 mg, 100 caps	9.91	7.43		
00949	**COQ10 w/ d-LIMONENE (SUPER-ABSORBABLE)** - 50 mg, 60 softgels	25.00	18.75		
	Buy 4 bottles, price each	22.00	16.50		
	Buy 10 bottles, price each	20.00	15.00		
00950	**COQ10 w/ d-LIMONENE (SUPER-ABSORBABLE)** - 100 mg, 100 softgels	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
	Buy 10 bottles, price each	56.00	42.00		
01226	**COQ10 (SUPER-UBIQUINOL)** - 100 mg, 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
	Buy 10 bottles, price each	48.00	36.00		
01733	**COQ10 w/BIOPQQ® (SUPER UBIQUINOL)** - 100 mg, 30 softgels	54.00	40.50		
	Buy 4 bottles, price each	46.00	34.50		
	Buy 10 bottles, price each	43.00	32.25		
01426	**COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)**-100 mg, 60 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
01425	**COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)**-50 mg, 100 softgels	58.00	43.50		
	Buy 4 bottles, price each	53.00	39.75		
	Buy 10 bottles, price each	50.00	37.50		
01427	**COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)**-50 mg, 30 softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01431	**COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (SUPER UBIQUINOL)**-200 mg, 30 softgels	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
	Buy 10 bottles, price each	52.00	39.00		
80154	**COSMESIS ADVANCED LIGHTENING CREAM** - 1 oz jar	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
80155	**COSMESIS ADVANCED PEPTIDE HAND THERAPY** - 4 oz bottle	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80152	**COSMESIS ADVANCED TRIPLE PEPTIDE SERUM** - 1 oz bottle	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
80140	**COSMESIS ADVANCED UNDER EYE SERUM w/STEM CELLS** - .33 oz	49.00	36.75		
	Buy 2 bottles, price each	42.00	31.50		
80139	**COSMESIS AMBER SELF MICRODERMABRASION** - 2 oz	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80118	**COSMESIS ANTI-AGING MASK** - 2 oz	72.00	54.00		
	Buy 2 bottles, price each	63.36	47.52		
80151	**COSMESIS ANTI-AGING REJUVENATING FACE CREAM** - 2 oz jar	65.00	48.75		
	Buy 2 jars, price each	57.00	42.75		
80153	**COSMESIS ANTI-AGING REJUVENATING SCALP SERUM** - 2 oz bottle	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80134	**COSMESIS ANTI-GLYCATION SERUM** - 1 oz **W/BLUEBERRY & POMEGRANATE EXTRACTS**	33.00	24.75		
	Buy 2 bottles, price each	31.35	23.51		
80133	**COSMESIS ANTIOXIDANT FACIAL MIST** - 2 oz	32.00	24.00		
	Buy 2 bottles, price each	30.40	22.80		
80127	**COSMESIS ANTIOXIDANT REJUVENATING FOOT CREAM** - 2 oz	45.00	33.75		
	Buy 2 jars, price each	42.80	32.10		
80128	**COSMESIS ANTIOXIDANT REJUVENATING FOOT SCRUB** - 2 oz	59.00	44.25		
	Buy 2 jars, price each	51.92	38.94		

SUB-TOTAL OF COLUMN 4

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

JANUARY 2015

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

Buyers Club Order Form

SUPER SALE SAVINGS ON ALL PRODUCTS
To order call 1-800-544-4440

No.		Retail Each	Member Each	Qty	Total
	C CONTINUED				
80117	**COSMESIS ANTIOXIDANT REJUVENATING HAND CREAM** - 2 oz	$64.00	$48.00		
	Buy 2 jars, price each	57.49	43.12		
80121	**COSMESIS ANTIOXIDANT REJUVENATING HAND SCRUB** - 2 oz	58.00	43.50		
	Buy 2 jars, price each	51.04	38.28		
80105	**COSMESIS ANTI-REDNESS & ADULT BLEMISH LOTION** - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80147	**COSMESIS BIOFLAVONOID CREAM** - 1 oz jar	46.00	34.50		
	Buy 2 jars, price each	39.00	29..25		
80144	**COSMESIS BROCCOLI SPROUT CREAM** - 1 oz	46.00	34.50		
	Buy 2 jars, price each	39.00	29.25		
80120	**COSMESIS CORRECTIVE CLEARING MASK** - 2 oz	64.50	48.38		
	Buy 2 jars, price each	56.76	42.57		
80141	**COSMESIS DNA REPAIR CREAM** - 1 oz jar	49.00	36.75		
	Buy 2 jars, price each	42.00	31.50		
80108	**COSMESIS ESSENTIAL PLANT LIPIDS REPARATIVE SERUM** - 1 oz	74.95	56.21		
	Buy 2 bottles, price each	65.95	49.46		
80123	**COSMESIS FACE REJUVENATING ANTIOXIDANT CREAM** - 2 oz	69.50	52.13		
	Buy 2 jars, price each	61.16	45.87		
80107	**COSMESIS FINE LINE-LESS** - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80131	**COSMESIS HAIR SUPPRESS FORMULA** - 4 oz	59.00	44.25		
	Buy 2 bottles, price each	51.92	38.94		
80137	**COSMESIS HEALING FORMULA ALL-IN-ONE CREAM** - 1 oz	53.00	39.75		
	Buy 2 jars, price each	45.43	34.07		
80115	**COSMESIS HEALING MASK** - 2 oz	64.50	48.38		
	Buy 2 bottles, price each	56.76	42.57		
80102	**COSMESIS HEALING VITAMIN K CREAM** - 1 oz	79.50	59.63		
	Buy 2 bottles, price each	69.96	52.47		
80109	**COSMESIS HYALURONIC FACIAL MOISTURIZER** - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
80110	**COSMESIS HYALURONIC OIL-FREE FACIAL MOISTURIZER** - 1 oz	58.00	43.50		
	Buy 2 bottles, price each	51.04	38.28		
80138	**COSMESIS HYDRATING ANTIOXIDANT FACE MIST** - 4 oz	39.95	29.96		
	Buy 2 bottles, price each	38.00	28.50		
80103	**COSMESIS LIFTING & TIGHTENING COMPLEX** - 1 oz	74.50	55.88		
	Buy 2 tubes, price each	65.56	49.17		
80146	**COSMESIS LYCOPENE CREAM** - 1 oz jar	28.00	21.00		
	Buy 2 jars, price each	25.40	19.05		
80135	**COSMESIS MELATONIN CREAM** - 1 oz	33.00	24.75		
	Buy 2 jars, price each	27.10	20.33		
80114	**COSMESIS MILD FACIAL CLEANSER** - 8 oz	59.00	44.25		
	Buy 2 bottles, price each	51.92	38.94		
80122	**COSMESIS NECK REJUVENATING ANTIOXIDANT CREAM** - 2 oz	64.00	48.00		
	Buy 2 jars, price each	56.32	42.24		
80111	**COSMESIS PIGMENT CORRECTING CREAM** - 1/2 oz	74.00	55.50		
	Buy 2 bottles, price each	65.12	48.84		
80106	**COSMESIS REJUVENATING SERUM** - 1 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80150	**COSMESIS RENEWING EYE CREAM** - 1/2 oz	65.00	48.75		
	Buy 2 jars, price each	57.00	42.75		
80142	**COSMESIS RESVERATROL ANTI-OXIDANT SERUM** - 1 oz	46.00	34.50		
	Buy 2 bottles, price each	39.00	29.25		
80112	**COSMESIS SKIN LIGHTENING SERUM** - 1/2 oz	$85.00	$63.75		
	Buy 2 bottles, price each	74.80	56.10		
80130	**COSMESIS SKIN STEM CELL SERUM** - 1 oz	74.00	55.50		
	Buy 2 bottles, price each	69.00	51.75		
80143	**COSMESIS STEM CELL CREAM W/ALPINE ROSE** - 1 oz jar	66.00	49.50		
	Buy 2 jars, price each	58.00	43.50		
80148	**COSMESIS TIGHTENING & FIRMING NECK CREAM** - 2 oz jar	39.00	29.25		
	Buy 2 jars, price each	35.00	26.25		
80116	**COSMESIS ULTRA LIP PLUMPER** - 1/3 oz	64.00	48.00		
	Buy 2 bottles, price each	56.32	42.24		
80101	**COSMESIS ULTRA WRINKLE RELAXER** - 1 oz	89.95	67.46		
	Buy 2 bottles, price each	79.76	59.82		
80113	**COSMESIS UNDER EYE REFINING SERUM** - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80104	**COSMESIS UNDER EYE RESCUE CREAM** - 1/2 oz	74.50	55.88		
	Buy 2 bottles, price each	65.56	49.17		
80129	**COSMESIS VITAMIN C SERUM** - 1 oz	85.00	63.75		
	Buy 2 bottles, price each	74.80	56.10		
80136	**COSMESIS VITAMIN D LOTION** - 4 oz	36.00	27.00		
	Buy 2 bottles, price each	33.66	25.25		
80145	**COSMESIS VITAMIN E-ESSENTIAL CREAM** - 1 oz	28.00	21.00		
	Buy 2 jars, price each	26.00	19.50		
80149	**COSMESIS YOUTH SERUM** - 1 oz	65.00	48.75		
	Buy 2 bottles, price each	57.00	42.75		
00862	**CRAN-MAX®** - 500 mg, 60 veg. caps	17.50	13.13		
	Buy 4 bottles, price each	15.00	11.25		
01424	**CRAN-MAX® with UTI*ROSE*™ (OPTIMIZED)** - 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01529	**CREATINE CAPSULES** - 120 veg. caps	10.95	8.21		
	Buy 4 bottles, price each	9.25	6.94		
01746	**CREATINE WHEY GLUTAMINE POWDER** - 454 grams (vanilla)	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01429	**CR MIMETIC LONGEVITY FORMULA** - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
*33840	**CRWAY GREAT GLUCOSE CONTROL CD**	98.00	82.00		
**CRWAY	**CR WAY OPTIMAL HEALTH PROGRAM SOFTWARE**	195.00	195.00		
00407	**CURCUMIN® (SUPER BIO)** - 400 mg, 60 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
01808	**CURCUMIN® w/GINGER & TURMERONES (ADVANCED BIO)**-30 softgels	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01804	**CYTOKINE SUPPRESS™ w/EGCG** - 30 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
	D				
00658	**7-KETO® DHEA METABOLITE** - 25 mg, 100 caps	$28.00	$21.00		
	Buy 4 bottles, price each	24.00	18.00		
01479	**7-KETO® DHEA METABOLITE** - 100 mg, 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01640	**DHA (VEGETARIAN SOURCED)** - 30 veg. softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00607	**DHEA** - 25 mg, 100 tablets (dissolve in mouth)	14.00	10.50		
	Buy 4 bottles, price each	11.75	8.81		
01478	**DHEA COMPLETE** - 60 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	43.20	32.40		

SUB-TOTAL OF COLUMN 5

SUB-TOTAL OF COLUMN 6

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

OFFER ENDS FEBRUARY 2, 2015
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Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
00335	**DHEA** - 25 mg, 100 caps	$18.00	$13.50		
	Buy 4 bottles, price each	15.00	11.25		
00454	**DHEA** - 15 mg, 100 caps	14.00	10.50		
	Buy 4 bottles, price each	12.00	9.00		
00882	**DHEA** - 50 mg, 60 caps	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
01689	**DHEA** - 100 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01358	**DIGEST RC** - 30 tablets	19.95	14.96		
	Buy 4 boxes, price each	17.00	12.75		
01272	**DIGESTIVE ENZYMES (ENHANCED SUPER)** - 100 veg. caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01671	**D,L-PHENYLALANINE CAPSULES** - 500 mg, 100 veg. caps	18.75	14.06		
	Buy 4 bottles, price each	16.00	12.00		
01540	**DMAE BITARTRATE** - 150 mg, 200 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	15.00	11.25		
00059	**DMG** - 125 mg, 60 tablets	24.80	18.60		
	Buy 4 boxes, price each	22.69	17.02		
01570	**DNA PROTECTION FORMULA** - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	32.00	24.00		
00544	**DOG MIX** - 100 grams powder	19.50	14.63		
	Buy 4 jars, price each	16.00	12.00		
00321	**DR. PROCTOR'S ADVANCED HAIR FORMULA** - 2 oz	39.95	29.96		
	Buy 4 bottles, price each	32.00	24.00		
00320	**DR. PROCTOR'S HAIR FORMULA SHAMPOO** - 8 oz	24.95	18.71		
	Buy 4 bottles, price each	22.00	16.50		
00899	**DUAL-ACTION MICRODERMABRASION ADV. EXFOLIATE** - 2.4 oz	39.95	29.96		
	Buy 4 jars, price each	38.95	29.21		
	E				
01528	**ECHINACEA EXTRACT** - 250 mg, 60 veg. caps	$14.35	$10.76		
	Buy 4 bottles, price each	12.50	9.38		
01498	**ENDOTHELIAL DEFENSE™ w/FULL-SPECTRUM POMEGRANATE™** - 60 softgels	56.00	42.00		
	Buy 4 bottles, price each	52.00	39.00		
00997	**ENDOTHELIAL DEFENSE™ w/GLISODIN®** - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
00625	**EPA/DHA (MEGA)** - 120 softgels	19.95	14.96		
	Buy 4 bottles, price each	18.00	13.50		
01737	**ESOPHAGEAL GUARDIAN** (Berry flavor) - 60 chewable tablets	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01042	**EUROPEAN LEG SOLUTION DIOSMIN 95** - 600 mg, 30 veg. tabs	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01706	**EXTRAORDINARY ENZYMES** - 60 caps	26.00	19.50		
	Buy 4 bottles, price each	24.00	18.00		
01514	**EYE PRESSURE SUPPORT w/MIRTOGENOL®** - 30 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
	F				
†01054	**FACE MASTER® PLATINUM**	$199.00	$199.00		
00965	**FAST-ACTING JOINT FORMULA** - 30 caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01717	**FAST-C® w/DIHYDROQUERCETIN** - 120 veg. tabs	26.00	19.50		
	Buy 4 bottles, price each	24.00	18.00		
20053	**FEM DOPHILUS®** - 30 caps	25.95	19.46		
20055	**FEM DOPHILUS®** - 60 caps	39.95	29.96		
01064	**FEMMENESSENCE MACAPAUSE®** - 120 veg. caps	$34.99	$26.24		
01728	**FERNBLOCK® w/RED ORANGE COMPLEX (ENHANCED)** - 30 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01670	**FIBER FOOD CAPS** - 200 veg. caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
	Buy 10 bottles, price each	13.00	9.75		
00718	**FIBRINOGEN RESIST™** - 30 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	44.00	33.00		
01749	**FLAX SEED (ORGANIC GOLDEN GROUND)** - 14 oz.	11.67	8.75		
01821	**FLORASSIST® HEART HEALTH PROBIOTIC** - 60 caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
01825	**FLORASSIST® PROBIOTIC** - 30 liquid caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
01439	**FOLATE (OPTIMIZED) (L-METHYLFOLATE)** 1,000 mcg - 100 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01641	**FOLIC ACID + B12 CAPSULES** - 200 veg. caps	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
01544	**FORSKOLIN** - 10 mg, 60 veg.caps	16.00	12.00		
	Buy 4 bottles, price each	14.00	10.50		
01513	**FUCOIDAN w/MARITECH® 926 (OPTIMIZED)** - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
00993	**FUCOXANTHIN-SLIM™** - 90 softgels	44.00	33.00		
	Buy 4 bottles, price each	39.00	29.25		
	G				
00559	**GAMMA E TOCOPHEROL/TOCOTRIENOLS** - 60 softgels	$42.00	$31.50		
	Buy 4 bottles, price each	37.00	27.75		
00759	**GAMMA E TOCOPHEROL W/SESAME LIGNANS** - 60 softgels	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01394	**(OPTIMIZED) GARLIC** - 200 veg. caps	24.95	18.71		
	Buy 4 bottles, price each	21.00	15.75		
01301	**GH PITUITARY SUPPORT DAY FORMULA** - 120 tabs	48.00	36.00		
	Buy 4 bottles, price each	44.00	33.00		
01302	**GH PITUITARY SUPPORT NIGHT FORMULA** - 120 veg. caps	25.00	18.75		
	Buy 4 bottles, price each	22.50	16.88		
***01228	**GINGER FORCE®** - 60 softgels	31.95	23.96		
01658	**GINKGO BILOBA CERTIFIED EXTRACT™** - 120 mg, 365 veg. caps	46.00	34.50		
	Buy 2 bottles, price each	43.50	32.63		
01648	**GINKGO EXTRACT 28/7 (SUPER)** - 120 mg, 100 veg. caps	29.00	21.75		
	Buy 4 bottles, price each	26.50	19.88		
00756	**GLA WITH SESAME LIGNANS (MEGA)** - 60 softgels	19.50	14.63		
	Buy 4 bottles, price each	18.00	13.50		
00345	**(L) GLUTAMINE CAPSULES** - 500 mg, 100 caps	14.95	11.21		
	Buy 4 bottles, price each	13.50	10.13		
00141	**(L)-GLUTAMINE POWDER** - 100 grams	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00522	**GLUCOSAMINE/CHONDROITIN CAPSULES** - 100 caps	38.00	28.50		
	Buy 4 bottles, price each	32.00	24.00		
01541	**GLUTATHIONE, CYSTEINE & C** - 100 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
00314	**L-GLUTATHIONE (MEGA)** - 250 mg, 60 caps	39.64	29.73		
01731	**GLYCEMICPRO™ TRANSGLUCOSIDASE** - 60 veg. caps	48.00	36.00		
	Buy 4 bottles, price each	42.00	31.50		

SUB-TOTAL OF COLUMN 7

SUB-TOTAL OF COLUMN 8

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

JANUARY 2015

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

Buyers Club Order Form

SUPER SALE SAVINGS ON ALL PRODUCTS
To order call 1-800-544-4440

No.		Retail Each	Member Each	Qty	Total
	G CONTINUED				
01669	**GLYCINE** - 1,000 mg, 100 veg. caps	$12.00	$9.00		
	Buy 4 bottles, price each	10.80	8.10		
01091	**GRAPE EXTRACT w/RESVERATROL (WHOLE)** - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01411	**GRAPE SEED EXTRACT w/RESVERATROL & PTEROSTILBENE** - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	34.00	25.50		
01604	**GREEN COFFEE EXTRACT COFFEEGENIC®** - 200 mg, 90 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01620	**GREEN COFFEE EXTRACT COFFEEGENIC®** - 400 mg, 90 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
00953	**GREEN TEA EXTRACT (MEGA)** - lightly caffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	24.00	18.00		
00954	**GREEN TEA EXTRACT (MEGA)** - decaffeinated - 100 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	24.00	18.00		
01545	**GUTSY CHEWY DIGESTIVE (CITRUS FLAVOR)** - 8 tablets	11.50	8.63		
01546	**GUTSY CHEWY DIGESTIVE (WILD BERRY FLAVOR)** - 8 tablets	11.50	8.63		
	H				
01074	**5 HTP** - 100 mg, 60 caps	$27.95	$20.96		
01738	**HCA (GARCINIA)** - 90 veg. caps	17.00	12.75		
	Buy 4 bottles, price each	15.00	11.25		
01393	**HEPATOPRO** - 900 mg, 60 softgels	50.00	37.50		
	Buy 4 bottles, price each	46.00	34.50		
01435	**HOMOCYSTEINE RESIST** - 100 veg caps	24.00	18.00		
	Buy 4 bottles, price each	21.60	16.20		
01527	**HUPERZINE A** - 200 mcg, 60 veg caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00661	**HYDRODERM®** - 1 oz	79.95	59.96		
	Buy 2 bottles, price each	65.33	49.00		
	I				
*01060	**i26® HYPERIMMUNE EGG** - 140 grams powder	$54.99	$46.75		
01704	**IMMUNE MODULATOR W/TINOFEND®** - 60 veg. caps	17.00	12.75		
	Buy 4 bottles, price each	15.00	11.25		
00955	**IMMUNE PROTECT W/PARACTIN®** - 30 veg. caps	29.50	22.13		
	Buy 4 bottles, price each	26.55	19.91		
01905	**IMMUNE SENESCENCE PROTECTION FORMULA™** - 60 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01049	**INNERPOWER™** - 530 grams powder	42.00	31.50		
01674	**INOSITOL CAPSULES** - 1,000 mg, 360 veg. caps	62.00	46.50		
	Buy 4 bottles, price each	58.00	43.50		
01292	**INTEGRA-LEAN® AFRICAN MANGO IRVINGIA** - 150 mg, 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01248	**IODINE COMPLETE (ADVANCED)** - 180 tablets	46.00	36.50		
01677	**IRON PROTEIN PLUS** - 300 mg, 100 caps	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
01492	**IRVINGIA W/PHASE 3™** - 120 veg. caps **CALORIE CONTROL COMPLEX (OPTIMIZED AFRICAN MANGO)**	56.00	42.00		
	Buy 4 bottles, price each	48.00	36.00		
	J, K				
00056	**JARRO-DOPHILUS EPS™** - 60 veg. caps	$22.95	$17.21		
01759	**JARRO-DOPHILUS EPS™** - 30 caps	39.95	29.96		
01724	**K w/ADVANCED K2 COMPLEX (SUPER)** - 90 softgels	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		

SUB-TOTAL OF COLUMN 9

No.		Retail Each	Member Each	Qty	Total
01600	**KRILL HEALTHY JOINT FORMULA** - 30 softgels	$32.00	$24.00		
	Buy 4 bottles, price each	29.00	21.75		
01050	**KRILL OIL PHOSPHOMEGA™** - 60 softgels	33.95	25.46		
00316	**KYOLIC® GARLIC FORMULA 102** - 200 veg. caps	26.45	19.84		
00214	**KYOLIC® GARLIC FORMULA 105** - 200 caps	27.45	20.59		
00789	**KYOLIC® RESERVE** - 600 mg, 120 caps	27.95	20.96		
	L				
01681	**LACTOFERRIN (APOLACTOFERRIN) CAPS** - 60 caps	$52.00	$39.00		
	Buy 4 bottles, price each	48.00	36.00		
00020	**LECITHIN** - 16 oz. granules	15.00	11.25		
	Buy 4 jars, price each	12.50	9.38		
01955	**LIFE EXTENSION MIX™** - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01957	**LIFE EXTENSION MIX™ W/EXTRA NIACIN** - 315 tablets	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01954	**LIFE EXTENSION MIX™** - 490 caps	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01956	**LIFE EXTENSION MIX™ POWDER** - 14.81 oz	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01965	**LIFE EXTENSION MIX™** - 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01967	**LIFE EXTENSION MIX™ W/EXTRA NIACIN** 315 tablets w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	69.50	52.13		
01964	**LIFE EXTENSION MIX™** - 490 caps w/o copper	110.00	82.50		
	Buy 4 bottles, price each	98.00	73.50		
	Buy 10 bottles, price each	85.00	63.75		
01966	**LIFE EXTENSION MIX™ POWDER** - 14.81 oz w/o copper	98.00	73.50		
	Buy 4 bottles, price each	86.00	64.50		
	Buy 10 bottles, price each	72.00	54.00		
01608	**LIVER EFFICIENCY FORMULA** - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01639	**5-LOX INHIBITOR W/APRESFLEX®** - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01678	**L-LYSINE** - 620 mg, 100 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
00455	**LYCOPENE EXTRACT (MEGA)** - 15 mg, 90 softgels	35.00	26.25		
	Buy 4 bottles, price each	30.00	22.50		
	M				
01885	**MACUGUARD™ OCULAR SUPPORT** - 60 softgels	$22.00	$16.50		
	Buy 4 bottles, price each	19.80	14.85		
01886	**MACUGUARD™ OCULAR SUPPORT w/ASTAXANTHIN** - 60 softgels	42.00	31.50		
	Buy 4 bottles, price each	38.00	28.50		
01459	**MAGNESIUM CAPS** - 500 mg, 100 veg. caps	12.00	9.00		
	Buy 4 bottles, price each	10.00	7.50		
01682	**MAGNESIUM CITRATE** - 160 mg, 100 veg. caps	9.00	6.75		
	Buy 4 bottles, price each	7.50	5.63		
01668	**MELATONIN** - 300 mcg, 100 veg. caps	5.75	4.31		
	Buy 4 bottles, price each	5.00	3.75		

SUB-TOTAL OF COLUMN 10

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

OFFER ENDS FEBRUARY 2, 2015
To order online visit www.LifeExtension.com/SuperSale

Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01083	**MELATONIN** - 500 mcg, 200 veg. caps	$18.00	$13.50		
	Buy 4 bottles, price each	16.00	12.00		
00329	**MELATONIN** - 1 mg, 60 caps	5.00	3.75		
	Buy 4 bottles, price each	4.63	3.47		
00330	**MELATONIN** - 3 mg, 60 caps	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01786	**MELATONIN TIME RELEASE** - 3 mg, 60 veg. tabs	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00331	**MELATONIN** - 10 mg, 60 caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00332	**MELATONIN** - 3 mg, 60 veg. lozenges	8.00	6.00		
	Buy 4 bottles, price each	6.88	5.16		
01734	**MELATONIN** (Fast Acting Liquid) - 3 mg (Natural Citrus-Van)	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
01787	**MELATONIN TIME RELEASE** - 300 mcg, 100 veg. tabs	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
01788	**MELATONIN TIME RELEASE** - 750 mcg, 60 veg. tablets	8.00	6.00		
	Buy 4 bottles, price each	7.00	5.25		
01536	**METHYLCOBALAMIN** - 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46		
	Buy 4 bottles, price each	8.00	6.00		
01537	**METHYLCOBALAMIN** - 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00		
	Buy 4 bottles, price each	25.00	18.75		
	Buy 10 bottles, price each	23.00	17.25		
00709	**MIGRA-EEZE™ (BUTTERBUR)** - 60 softgels	29.50	22.13		
	Buy 4 bottles, price each	26.33	19.75		
01800	**MIGRA-MAG w/BRAIN SHIELD®** - 90 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01522	**MILK THISTLE (EUROPEAN)** - 60 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	30.00	22.50		
01822	**MILK THISTLE (EUROPEAN)** - 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01817	**MILK THISTLE (EUROPEAN)** - 120 softgels	44.00	33.00		
	Buy 4 bottles, price each	40.00	30.00		
01698	**MIRAFORTE w/STANDARDIZED LIGNANS (SUPER)** - 120 caps	62.00	46.50		
	Buy 4 bottles, price each	56.00	42.00		
01769	**MITOCHONDRIAL BASICS w/BIOPQQ®** - 30 caps	52.00	39.00		
	Buy 4 bottles, price each	46.00	34.50		
01768	**MITOCHONDRIAL ENERGY OPTIMIZER w/BIOPQQ®** - 120 caps	94.00	70.50		
	Buy 4 bottles, price each	84.00	63.00		
00065	**MK-7** - 90 mcg, 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01279	**MOUTHWASH W/POMEGRANATE** - 16 oz	18.50	13.88		
	Buy 4 bottles, price each	17.00	12.75		
00451	**MSM (METHYLSULFONYLMETHANE)** - 1,000 mg, 100 caps	14.00	10.50		
	Buy 4 bottles, price each	11.95	8.96		
	N				
01534	***N*-ACETYL-L-CYSTEINE** - 600 mg, 60 veg. caps	$14.00	$10.50		
	Buy 4 bottles, price each	13.50	10.13		
01904	**NAD+ CELL REGENERATOR™** - 100 mg, 30 veg. caps	34.00	25.50		
	Buy 4 bottles, price each	26.00	19.50		
00066	**NATTOKINASE** - 60 softgels	25.50	19.13		
01807	**NATURAL APPETITE SUPPRESS (ADVANCED)** - 60 veg. caps	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		

SUB-TOTAL OF COLUMN 11

No.		Retail Each	Member Each	Qty	Total
00984	**NATURAL BP MANAGEMENT** - 60 tablets	$44.00	$33.00		
	Buy 4 bottles, price each	40.00	30.00		
01892	**NATURAL ESTROGEN** - 60 veg. tabs	38.00	28.50		
	Buy 4 bottles, price each	34.00	25.50		
01221	**NATURAL FEMALE SUPPORT** - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01471	**NATURAL GLUCOSE ABSORPTION CONTROL** - 60 veg. caps	39.00	29.25		
	Buy 4 bottles, price each	36.00	27.00		
01626	**NATURAL SEX FOR WOMEN® 50+ (ADVANCED)** - 90 veg. caps	59.00	44.25		
	Buy 4 bottles, price each	45.33	34.00		
01444	**NATURAL SLEEP®** - 60 veg. caps	13.00	9.75		
	Buy 4 bottles, price each	10.00	7.50		
01551	**NATURAL SLEEP® w/ MELATONIN (ENHANCED)** - 30 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
01511	**NATURAL SLEEP® w/o MELATONIN (ENHANCED)** - 30 caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01445	**NATURAL SLEEP® MELATONIN** - 5 mg, 60 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00987	**NATURAL STRESS RELIEF** - 30 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
01603	**NEURO-MAG™ MAGNESIUM L-THREONATE** - 90 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01602	**NEURO-MAG™ L-THREONATE W/CALCIUM & VITAMIN D** 225 grams - Lemon flavor	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
01903	**NK CELL ACTIVATOR™** - 30 veg. tablets	45.00	33.75		
	Buy 4 bottles, price each	42.00	31.50		
00373	**NO-FLUSH NIACIN** - 800 mg, 100 caps	19.00	14.25		
	Buy 4 bottles, price each	17.00	12.75		
	O				
01824	**OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRAT(ADVANCED)**	$36.00	$27.00		
	500 mg, 60 veg. caps • Buy 4 bottles, price each	32.00	24.00		
01819	**OMEGA WITH KRILL & ASTAXANTHIN (SUPER)** - 120 softgels	45.00	33.75		
	Buy 4 bottles, price each	42.00	31.50		
	Buy 10 bottles, price each	33.00	24.75		
01483	**OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)** - 60 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
	Buy 10 bottles, price each	12.50	9.38		
01482	**OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)** - 120 softgels	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	22.73	17.05		
01484	**OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)** - 120 enteric coated softgels	34.00	25.50		
	Buy 4 bottles, price each	31.00	23.25		
	Buy 10 bottles, price each	24.00	18.00		
01485	**OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)** - 60 enteric coated softgels	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
	Buy 10 bottles, price each	14.00	10.50		
01619	**OMEGA 3 EPA/DHA W/SESAME LIGNANS & OLIVE FRUIT EXTRACT (SUPER)** - 240 softgels (SMALL SOFTGEL)	32.00	24.00		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	23.00	17.25		

SUB-TOTAL OF COLUMN 12

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

Buyers Club Order Form

SUPER SALE SAVINGS ON ALL PRODUCTS
To order call 1-800-544-4440

No.		Retail Each	Member Each	Qty	Total
	O CONTINUED				
01901	**ONE-PER-DAY** - 60 tablets	$22.00	$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01328	**ONLY TRACE MINERALS** - 90 veg. caps	15.00	11.25		
	Buy 4 bottles, price each	12.50	9.38		
	P				
01789	**PALMETTOGUARD™ SAW PALMETTO w/BETA SITOSTEROL** - 30 softgels	$15.00	$11.25		
	Buy 12 bottles, price each	12.00	9.00		
01790	**PALMETTOGUARD™ SUPER SAW PALMETTO/ NETTLE ROOT W/BETA-SITOSTEROL** - 60 softgels	28.00	21.00		
	Buy 4 bottles, price each	26.00	19.50		
	Buy 12 bottles, price each	24.00	18.00		
00073	**PANCREATIN** - 500 mg, 50 caps	13.22	9.92		
01323	**PEAK ATP® WITH GLYCOCARN®** - 60 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	50.00	37.50		
00342	**PECTA SOL-C® MODIFIED CITRUS PECTIN** - 454 grams powder	109.95	82.46		
01080	**PECTA SOL-C® MODIFIED CITRUS PECTIN** - 270 veg. caps	79.95	59.96		
01811	**PEONY IMMUNE** - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00673	**PGX™ PLUS MULBERRY (WELLBETX®)** -180 veg. caps	34.95	26.21		
00865	**PHARMA GABA®** - 60 chewable tablets	29.95	22.46		
	Buy 4 bottles, price each	27.00	20.25		
01676	**PHOSPHATIDYLSERINE CAPS** - 100 mg, 100 veg. caps	54.00	40.50		
	Buy 4 bottles, price each	48.00	36.00		
01390	**PHOSPHOMEGA®** - 60 softgels	39.95	26.96		
01436	**POLICOSANOL** - 10 mg, 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	15.00	11.25		
01423	**POMEGRANATE™ (FULL-SPECTRUM)** - 30 softgels	24.00	18.00		
	Buy 4 bottles, price each	21.00	15.75		
00956	**POMEGRANATE EXTRACT** - 30 veg. caps	19.50	14.63		
	Buy 4 bottles, price each	17.55	13.16		
01797	**POMI-T®** - 60 veg. caps	33.33	25.00		
	Buy 4 bottles, price each	30.00	22.50		
00577	**POTASSIUM IODIDE** - 1 box, 14 tablets	6.95	5.21		
	Buy 4 boxes, price each	5.25	3.94		
01500	**PQQ CAPS W/BIOPQQ®** - 10 mg, 30 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01647	**PQQ CAPS W/BIOPQQ®** - 20 mg, 30 veg. caps	40.00	30.00		
	Buy 4 bottles, price each	36.00	27.00		
00302	**PREGNENOLONE** - 50 mg, 100 caps	26.00	19.50		
	Buy 4 bottles, price each	22.00	16.50		
00700	**PREGNENOLONE** - 100 mg, 100 caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
***01373	**PRELOX® NATURAL SEX FOR MEN®** - 60 tablets	52.00	39.00		
	Buy 4 bottles, price each	48.00	36.00		
01576	**PREVAGEN®** - 10 mg, 30 caps	60.00	45.00		
01577	**PREVAGEN® ES**- 20 mg, 30 caps	70.00	60.00		
00525	**PROBOOST THYMIC PROTEIN A™** - 4 mcg, 30 packets	59.95	44.96		
01441	**PROGESTACARE FOR WOMEN** - 4 oz cream	35.00	26.25		
	Buy 4 bottles, price each	32.00	24.00		
01898	**PROSTATE FORMULA (ULTRA NAT)** 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	35.00	26.25		
	Buy 12 bottles, price each	32.00	24.00		

SUB-TOTAL OF COLUMN 13

No.		Retail Each	Member Each	Qty	Total
01742	**PROTEIN-ISOLATE (WHEY) VANILLA** - 1 lb. powder	$30.00	$22.50		
	Buy 4 jars, price each	27.00	20.25		
01743	**PROTEIN-ISOLATE (WHEY) CHOCOLATE** - 1 lb. powder	30.00	22.50		
	Buy 4 jars, price each	27.00	20.25		
01770	**PROTEIN CONCENTRATE** (New Zealand Whey) **Vanilla** - 520 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01771	**PROTEIN CONCENTRATE** (New Zealand Whey) **Chocolate** - 660 gr	30.00	22.50		
	Buy 4 bottles, price each	26.60	19.95		
01812	**PROVINAL® PURIFIED OMEGA-7** - 30 softgels	27.00	20.25		
	Buy 4 bottles, price each	24.00	18.00		
01508	**PTEROPURE®** - 50 mg Pterostilbene 60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	30.00	22.50		
01209	**PUMPKIN SEED EXTRACT (WATER-SOLUBLE)** - 60 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01587	**PURE PLANT PROTEIN** - Veg. Vanilla 540 grams powder	38.00	28.50		
	Buy 4 jars, price each	35.00	26.25		
01637	**PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT**-100 mg, 60 veg. caps	64.00	48.00		
	Buy 4 bottles, price each	60.00	45.00		
01217	**PYRIDOXAL 5'-PHOSPHATE** - 100 mg, 60 veg. caps	22.00	16.50		
	Buy 4 bottles, price each	19.80	14.85		
	Q, R				
01309	**QUERCETIN (OPTIMIZED)** - 250 mg, 60 veg. caps	$22.00	$16.50		
	Buy 4 bottles, price each	20.00	15.00		
01030	**RED YEAST RICE** (Bluebonnet)- 600 mg, 60 veg. caps	16.95	13.56		
00605	**REGIMINT** - 60 enteric-coated caps	19.95	14.96		
	Buy 4 bottles, price each	18.67	14.00		
01708	**REISHI EXTRACT MUSHROOM COMPLEX** - 60 veg. caps	30.00	22.50		
	Buy 4 bottles, price each	27.00	20.25		
01448	**REJUVENEX® BODY LOTION** - 6 oz	24.00	18.00		
	Buy 4 tubes, price each	19.80	14.85		
	Buy 8 tubes, price each	17.00	12.75		
01621	**REJUVENEX® FACTOR FIRMING SERUM** - 1.7 oz	65.00	48.75		
	Buy 2 bottles, price each	50.66	38.00		
	Buy 6 bottles, price each	38.52	28.89		
01220	**REJUVENEX® (ULTRA)** - 2 oz	52.00	39.00		
	Buy 2 jars, price each	48.00	36.00		
	Buy 4 jars, price each	44.00	33.00		
	Buy 8 jars, price each	39.93	29.95		
00676	**REJUVENIGHT® (ULTRA)** - 2 oz	39.95	29.96		
	Buy 4 jars, price each	36.00	27.00		
01410	**RESVERATROL W/PTEROSTILBENE** - 100 mg, 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01930	**RESVERATROL W/NAD+ CELL REGENERATOR™ (OPTIMIZED)** - 30 veg. caps	42.00	31.50		
	Buy 4 bottles, price each	36.00	27.00		
01430	**RESVERATROL w/SYNERGISTIC GRAPE-BERRY ACTIVES (OPTIMIZED)** - 250 mg, 60 veg. caps	46.00	34.50		
	Buy 4 bottles, price each	41.33	31.00		
00889	**RHODIOLA EXTRACT** - 250 mg, 60 veg. caps	11.75	8.81		
	Buy 4 bottles, price each	10.58	7.94		
01900	**RIBOGEN™ FRENCH OAK WOOD EXTRACT** - 200 mg, 30 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	33.00	24.75		
00972	**(D) RIBOSE POWDER** - 150 grams	27.50	20.63		
	Buy 4 jars, price each	24.75	18.56		

SUB-TOTAL OF COLUMN 14

LIFE EXTENSION MEMBERS RECEIVE 25% OFF THE RETAIL PRICE OF ALL PRODUCTS

DEDUCT AN ADDITIONAL 10% ON ALL PRODUCTS DURING SUPER SALE

OFFER ENDS FEBRUARY 2, 2015
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Buyers Club Order Form

No.		Retail Each	Member Each	Qty	Total
01473	**(D) RIBOSE TABLETS** - 100 veg. tabs	$32.00	$24.00		
	Buy 4 bottles, price each	28.00	21.00		
01609	**RICH REWARDS® BREAKFAST GROUND COFFEE** - 12 oz. bag	13.00	9.75		
01730	**RICH REWARDS® BREAKFAST BLEND GROUND COFFEE** - 12 oz. bag	15.00	11.25		
	Natural Mocha				
01729	**RICH REWARDS® BREAKFAST BLEND GROUND COFFEE** - 12 oz. bag	15.00	11.25		
	Natural Vanilla				
01612	**RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE**-12 oz. bag	13.00	9.75		
01610	**RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE**-12 oz. bag	14.00	10.50		
01712	**RICH REWARDS™ BLACK BEAN VEGETABLE SOUP** - 32 oz. bottle	13.00	9.75		
	Buy 6 bottles, price each	12.25	9.19		
01530	**RICH REWARDS™ CRUCIFEROUS VEGETABLE SOUP** - 32 oz. bottle	11.95	8.96		
	Buy 6 bottles, price each	11.25	8.44		
01531	**RICH REWARDS™ (SPICY) CRUCIFEROUS VEGETABLE SOUP** - 32 oz. bottle	11.95	8.96		
	Buy 6 bottles, price each	11.25	8.44		
01705	**RICH REWARDS™ LENTIL VEGETABLE SOUP** - 32 oz. bottle	13.00	9.75		
	Buy 6 bottles, price each	12.25	9.19		
01810	**RICH REWARDS™ MUNG BEAN SOUP W/TURMERIC** - 32 oz. bottle	13.00	9.75		
	Buy 6 bottles, price each	12.25	9.19		
01820	**RICH REWARDS™ PROTEIN COFFEE CREAMER** - Vanilla - 270 grams	26.00	19.50		
	Buy 4 jars, price each	23.00	17.25		
01208	**R-LIPOIC ACID (SUPER)** - 240 mg, 60 veg. caps	49.00	36.75		
	Buy 4 bottles, price each	45.00	33.75		
00070	**RNA CAPSULES** - 500 mg, 100 caps	17.95	13.46		
	Buy 4 bottles, price each	16.16	12.12		
	S				
01432	**SAFFRON w/SATIEREAL® (OPTIMIZED)** - 60 veg. caps	$36.00	$27.00		
	Buy 4 bottles, price each	32.00	24.00		
00358	**SAME (S-ADENOSYL-METHIONINE)** - 200 mg, 20 enteric coated tablets	16.00	12.00		
	Buy 8 boxes, price each	14.00	10.50		
00453	**SAME (S-ADENOSYL-METHIONINE)** - 200 mg, 50 enteric coated tablets	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
00557	**SAME (S-ADENOSYL-METHIONINE)** - 400 mg, 20 enteric coated tablets	28.00	21.00		
	Buy 6 boxes, price each	24.00	18.00		
01055	**SAME (S-ADENOSYL-METHIONINE)** - 400 mg, 50 enteric coated tablets	66.00	49.50		
	Buy 4 bottles, price each	60.00	45.00		
01740	**SEA-IODINE™** - 1,000 mcg, 60 veg. caps	8.00	6.00		
	Buy 4 bottles, price each	7.20	5.40		
00046	**SELENIUM** - 2 oz dropper bottle	11.95	8.96		
01679	**SE-METHYL L-SELENOCYSTEINE** - 200 mcg, 100 veg. caps	12.00	9.00		
	Buy 4 bottles, price each	11.00	8.25		
00318	**SERRAFLAZYME** - 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
00284	**SHARK LIVER OIL (NORWEGIAN)** - 1,000 mg, 30 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01684	**SILYMARIN** - 100 mg, 50 veg. caps	9.25	6.94		
	Buy 4 bottles, price each	8.25	6.19		
01596	**SKIN RESTORING PHYTOCERAMIDES w/LIPOWHEAT®** - 30 veg. liquid caps	25.00	18.75		
	Buy 4 bottles, price each	23.00	17.25		
00961	**SODZYME® w/GLISODIN® AND WOLFBERRY** - 90 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	24.00	18.00		
00657	**SOLARSHIELD SUNGLASSES** - 1 pair smoke color	12.99	9.74		
	Buy 2 pairs, price each	11.50	8.63		

SUB-TOTAL OF COLUMN 15

No.		Retail Each	Member Each	Qty	Total
01097	**SOY EXTRACT (ULTRA)** - 150 veg. caps	$87.00	$65.25		
	Buy 4 bottles, price each	78.00	58.50		
00432	**STEVIA™ EXTRACT (BETTER)** - 100 packets, 1 gram each	9.95	7.46		
00438	**STEVIA™ ORGANIC LIQUID EXTRACT (BETTER)** - 2 oz liquid	11.00	8.25		
01476	**STRONTIUM** - 750 mg, 90 veg. caps	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01649	**SUPER ABSORBABLE SOY ISOFLAVONES** - 60 veg. caps	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01778	**SUPER SELENIUM COMPLEX** - 200 mcg, 100 veg. caps	14.00	10.50		
	Buy 4 bottles, price each	12.00	9.00		
	Buy 12 bottles, price each	11.00	8.25		
	T				
01723	**TART CHERRY EXTRACT w/STANDARDIZED CHERRYPURE®** - 60 veg. caps	$22.00	$16.50		
	Buy 4 bottles, price each	20.00	15.00		
00199	**TAURINE** - 1,000 mg, 50 caps	8.95	6.71		
	Buy 4 bottles, price each	8.00	6.00		
00133	**TAURINE POWDER** - 300 grams	20.00	15.00		
	Buy 4 bottles, price each	16.88	12.66		
01304	**THEAFLAVIN STANDARDIZED EXTRACT** - 30 veg. caps	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
01683	**(L) THEANINE** - 100 mg, 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	20.50	15.38		
††01038	**THERALAC PROBIOTICS** - 30 caps	47.95	35.96		
00668	**THYROID FORMULA™ (METABOLIC ADVANTAGE)** - 100 caps	21.95	16.46		
00349	**TMG POWDER** - 50 grams	14.00	10.50		
	Buy 4 bottles, price each	11.00	8.25		
01859	**TMG** - 1,000 mg, 60 veg. liquid caps	13.00	9.75		
	Buy 4 bottles, price each	12.00	9.00		
00781	**TOCOTRIENOLS WITH SESAME LIGNANS** - 60 softgels	38.00	28.50		
	Buy 4 bottles, price each	36.00	27.00		
01400	**TOCOTRIENOLS (SUPER-ABSORBABLE)** - 60 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
01278	**TOOTHPASTE** - 4 oz (Mint)	9.50	7.13		
	Buy 4 tubes, price each	8.67	6.50		
01468	**TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT** - 60 veg. caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01469	**TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT W/RESVERATROL** -60 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.60	22.20		
01803	**TRI SUGAR SHIELD™** - 60 veg. caps	36.00	27.00		
	Buy 4 bottles, price each	32.00	24.00		
01386	**TRUFIBER®** - 180 grams	32.95	24.71		
01389	**TRUFLORA PROBIOTICS** - 32 veg. caps	42.95	32.21		
01722	**L-TRYPTOPHAN** - 500 mg, 90 veg. caps	33.00	24.75		
	Buy 4 bottles, price each	30.00	22.50		
01721	**TRYPTOPHAN PLUS (OPTIMIZED)** - 90 veg. caps	32.00	24.00		
	Buy 4 bottles, price each	29.00	21.75		
01916	**TWO-PER-DAY** - 60 tablets	10.50	7.88		
	Buy 4 bottles, price each	9.50	7.13		
01915	**TWO-PER-DAY** - 120 tablets	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01914	**TWO-PER-DAY** - 120 caps	22.00	16.50		
	Buy 4 bottles, price each	20.00	15.00		
00326	**L-TYROSINE** - 500 mg, 100 tablets	12.98	9.74		

SUB-TOTAL OF COLUMN 16

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	Buy 4 bottles, price each	12.50	9.38		
00408	**VENOTONE** - 60 caps	18.95	14.21		
	Buy 4 bottles, price each	16.00	12.00		
01327	**VINPOCETINE** - 10 mg, 100 tablets	18.00	13.50		
	Buy 4 bottles, price each	14.00	10.50		
00372	**VITAMIN B3 NIACIN** - 500 mg, 100 caps	7.65	5.74		
	Buy 4 bottles, price each	6.65	4.99		
00098	**VITAMIN B5** - 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88		
	Buy 4 bottles, price each	9.38	7.04		
01535	**VITAMIN B6** - 250 mg, 100 veg. caps	12.50	9.38		
	Buy 4 bottles, price each	11.00	8.25		
00361	**VITAMIN B12** - 500 mcg, 100 lozenges	8.75	6.56		
	Buy 4 bottles, price each	7.25	5.44		
01634	**VITAMIN C w/ DIHYDROQUERCETIN** - 1,000 mg, 60 veg. tablets	10.00	7.50		
	Buy 4 bottles, price each	9.00	6.75		
00927	**VITAMIN C w/ DIHYDROQUERCETIN** - 1,000 mg, 250 veg. tablets	25.50	19.13		
	Buy 4 bottles, price each	23.25	17.44		
00084	**VITAMIN C (BUFFERED) POWDER** - 454.6 grams	23.95	17.96		
	Buy 4 bottles, price each	22.00	16.50		
01736	**(EFFERVESCENT) VITAMIN C-MAGNESIUM CRYSTALS** - 180 grams	20.00	15.00		
	Buy 4 bottles, price each	18.00	13.50		
01732	**VITAMIN D3** - 2,000 IU, 1 fl oz, Mint flavor	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01753	**VITAMIN D3** - 1,000 IU, 90 softgels	7.00	5.25		
	Buy 4 bottles, price each	6.00	4.50		
01751	**VITAMIN D3** - 1,000 IU, 250 softgels	12.50	9.38		
	Buy 4 bottles, price each	11.25	8.44		
01713	**VITAMIN D3** - 5,000 IU, 60 softgels	11.00	8.25		
	Buy 4 bottles, price each	9.90	7.43		
01718	**VITAMIN D3** - 7,000 IU, 60 softgels	14.00	10.50		
	Buy 4 bottles, price each	12.60	9.45		
01758	**VITAMIN D3 w/SEA-IODINE™** - 5,000 IU, 60 caps	14.00	10.50		
	Buy 4 bottles, price each	12.50	9.38		
00864	**VITAMIN D3** Liquid Emulsion - 2,000 IU, 1 oz.	28.00	21.00		
	Buy 4 bottles, price each	25.00	18.75		
01741	**VITAMINS D AND K w/SEA-IODINE™** - 60 caps	24.00	18.00		
	Buy 4 bottles, price each	22.00	16.50		
01763	**VITAMIN E (NATURAL)** - 400 IU, 100 softgels	30.00	22.50		
	Buy 4 bottles, price each	28.00	21.00		
	Buy 10 bottles, price each	26.00	19.50		
01225	**VITAMIN K2 (LOW-DOSE)** - 45 mcg, 90 softgels	18.00	13.50		
	Buy 4 bottles, price each	16.00	12.00		
	X				
00409	**XYLIWHITE™ MOUTHWASH** - 16 oz	$10.00	$7.50		
	Z				
01813	**ZINC HIGH POTENCY** - 50 mg, 90 veg. caps	$7.95	$5.96		
	Buy 4 bottles, price each	7.00	5.25		
01561	**ZINC GLUCONATE/OXIDE LOZENGES** - 18.75 mg, 60 veg. lozenges	9.00	6.75		
	Buy 4 bottles, price each	8.00	6.00		
NEW 01961	**ZINC ACETATE LOZENGES (ENHANCED)** - 18.75 mg, 30 veg. lozenges	12.00	9.00		
	Buy 2 bottles, price each	8.00	6.00		
***01051	**ZYFLAMEND® WHOLE BODY** - 120 softgels	64.95	48.71		

SUB-TOTAL OF COLUMN 17

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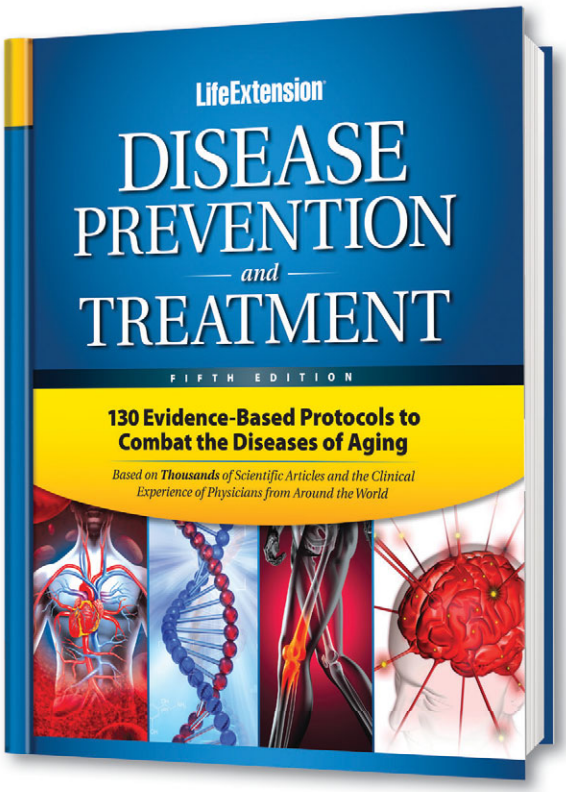

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Scientific evidence is accumulating that **zinc acetate** is the preferred zinc compound to provide enhanced seasonal immune support.

Zinc acetate releases **100%** of its zinc as ***ionic zinc***—positively charged zinc ions. **Zinc acetate** lozenges have been shown to strongly support immune function.[3-5]

Life Extension® **Enhanced Zinc Lozenges** provide **zinc acetate** with no other ingredients that could reduce the delivery of these immune-supportive, positively charged zinc ions. **Enhanced Zinc Lozenges** come in a naturally flavored peppermint lozenge.

The suggested serving size of one vegetarian lozenge of **Life Extension® Enhanced Zinc Lozenges** provides:

Zinc (as zinc acetate)	**18.75 mg**

A bottle of 30 vegetarian lozenges of **Life Extension® Enhanced Zinc Lozenges** retails for $12. If a member buys two bottles during **Super Sale**, the price is reduced to **$5.40** per bottle.

To order **Life Extension® Enhanced Zinc Lozenges**, call 1-800-544-4440 or visit www.LifeExtension.com

References

1. *J Nutr.* 2000 May;130(5S Suppl):1437S-46S.
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3. *Curr Ther Res.* 1998;59:595–607.
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5. *J Infect Dis.* 2008;197:795-802.

Highly Absorbable

ASTAXANTHIN

For Total Body Cellular Support

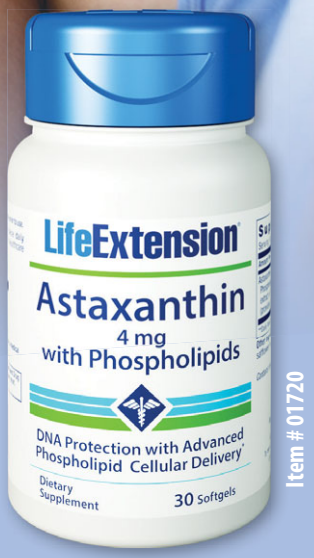
Astaxanthin has long been shown to promote eye health. More recent findings indicate that this member of the **carotenoid** family has benefits for the entire body, including the brain, heart, skin, and immune system.

Since astaxanthin is a **fat-soluble** compound, it has limited assimilation into the bloodstream, with as little as **50%** getting absorbed by the body.[1,2]

To facilitate maximum absorption of this key nutrient, Life Extension has combined **4 mg** of natural astaxanthin with a proprietary blend of **80 mg** of four different **phospholipids**. This innovative formulation has been shown to enhance carotenoid absorption by **several-fold**.[3]

A bottle containing 30 softgels of **Astaxanthin 4 mg with Phospholipids** retails for $16. If a member buys four bottles during **Super Sale**, the price is reduced to **$9.45** per bottle.

Contains soybeans.



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1. *Mol Nutr Food Res*. 2012 Sep;56(9):1385-97.
2. *Eur J Pharm Sci*. 2003 Jul;19(4):299-304.
3. *Int J Pharm*. 2011 June 30; 412(1-2):99-105.

To order Astaxanthin 4 mg with Phospholipids, call 1-800-544-4440 or visit www.LifeExtension.com

❤ SWIVEL ❤

❤❤ Singles Week In Vegas for Extended Life *All* Ages Welcome ! ❤❤

8 Full Days, Saturday - Saturday, July 25 - August 1, 2015

Request Registration Form (mention this announcement for $100 off) & Detailed Flyer at: SWIVELclub@aol.com

SWIVEL offers a special incentive for WOMEN.

Why a Special Focus on Women? ❤❤

Men outnumber women throughout the various levels of the life extension community. SWIVEL would like to reach out to those women who share a serious interest in the science of extending life. And yes, men are also invited. We just want to even out the playing field.

What Are These Levels of Life Extension? ❤

1) Squaring the Curve. The standard path is to be born, enjoy a vigorous, healthy period and then start to deteriorate until death. Those seeking to square the curve wish to take advantage of evidence based medical and technological science to *stay* healthy and vigorous right up until the end. It's called "Health Extension." This is the largest level.

2) Extend the Maximum Lifespan. Currently, the maximum human life-span is about 120 years. Some individuals are going further and looking to evidence based science and technology to extend this period to 150 years or 200 years or...... Their goals vary. This is the next largest level.

3) Indefinite Lifespan. The smallest group seeks an indefinite life-span. Some call themselves immortalists. They also look to evidence based science to conquer all diseases of aging. Some have made arrangements to be cryo-preserved should they deanimate (legal death) before mankind conquers death.

Incentive for Women ❤❤

An extended flyer is being sent to relevant organizations. It is our hope that one or two women from each will say, *"Yes, that's me."* All women receive a 50% discount. The regular price is $800 for 8 full days. Women will be charged $400 (includes a daily buffet lunch).

Mention this LEF announcement for $100 off. ❤

Program ❤❤

Our program will run from 10 am to 6 pm each day and will break for a healthy buffet lunch from 1pm - 2 pm. This is Vegas and we know that you just might be up late.

Unstructured events alone do not actually lead to everyone getting to meet those with whom they might have a shared interest. Therefore, several getting acquainted exercises, introductions and breakout groups have been designed to maximize your chance of meeting the "right" date, friends and colleagues. Evenings are unstructured. We will provide announcements for those who wish to organize specific evening events. "Everyone who wants to.........meet here...... at .....pm."

SWIVEL ❤❤

a device joining two parts so that one or both can pivot freely

Come look around.

WHY A FULL 8 DAYS ? ❤❤

SWIVEL's goal is very specific. We want to reach those individuals who identify with maximizing their healthy life-span *at any level* and then help them to meet each other. Community support follows.

SWIVEL wants more than brief introductions. We want *enough time* for you to ask *YOUR* questions in a no pressure environment. We want *YOU* to have *enough time* to actually get to know each other - *enough time* to decide if you wish to spend *more time* getting to know someone. We want to be *effective*.

Healthy life-span enthusiasts generally want to find a like minded partner.

WHY VEGAS ? ❤❤

Easy to reach. Lodging to fit every budget.

LODGING ❤❤

Our event site, The Orleans, is offering these attractive rates for single or double occupancy until 6-24-15. Resort Fee = $12.99. Taxes = 12%.

Sunday through Thursday. $41
Friday and Saturday. $95
Search "Vegas lodging" for additional sites.

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To request your Registration Form (mention this announcement for $100 off), along with more detailed information, please e-mail us at: SWIVELclub@aol.com ❤❤

THE POWER OF Curcumin + Ginger

HOW MUCH CURCUMIN ARE *YOU* ABSORBING?

Derived from the Indian spice turmeric, **curcumin** is acclaimed for its wide range of health-promoting effects on almost every organ system,[1-6] while supporting the body's healthy inflammatory response.[7]

Most **curcumin** extracts are neither well absorbed nor well retained in the body.

Advanced Bio-Curcumin® with Ginger & Turmerones contains **BCM-95®**, a patented, bioenhanced preparation of curcumin that has been shown to reach up to ***7 times higher*** concentration in the blood than standard curcumin.[8] In addition to the benefits of **BCM-95®** this advanced formula provides:

- *Turmerones*: botanical compounds that remain after curcumin is extracted, enhancing curcumin absorption and increasing the amount of curcumin inside cells.[9]
- *Ginger*: a close relative of curcumin with overlapping, complementary health benefits.
- *Phospholipids*: an emulsifying molecule that greatly enhances absorption.[10]

The suggested daily dosage of one softgel of Advanced Bio-Curcumin® with Ginger & Turmerones provides:

Turmeric Phospholipid Blend BCM-95® Bio-Curcumin Turmeric 25:1 extract (rhizome) [total curcuminoids complex with essential oils (380 mg)], Turmeric oil (rhizome) [providing 60 mg total turmerones], Phospholipids	**630 mg**
Ginger CO_2 extract (root) [providing 60 mg gingerols]	**200 mg**

Each softgel of **Advanced Bio-Curcumin® with Ginger & Turmerones** provides **400 mg** of **BCM-95® Super Bio-Curcumin**, plus an array of turmerones and phospholipids.

A bottle of 30 softgels of **Advanced Bio-Curcumin® with Ginger & Turmerones** retails for $30. If a member buys four bottles during **Super Sale**, the price is reduced to **$18.23** per bottle.

Contains soybeans.

References

1. *Adv Exp Med Biol.* 2007;595:197-212.
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9. *J Med Food.* 2012 Mar;15(3):242-52.
10. *Cancer Chemother Pharmacol.* 2007; 60:171-7.

Caution: Do not take if you have gallbladder problems or gallstones. If you are taking anticoagulant or antiplatelet medications, or have a bleeding disorder, contact your healthcare practitioner before taking this product.

To order Life Extension® Advanced Bio-Curcumin® with Ginger & Turmerones, call 1-800-544-4440 or visit www.LifeExtension.com

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