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Doctors have been obsessed with testing single interventions, be it a dietary supplement, drug, or lifestyle, to ascertain if meaningful disease risk reductions can be achieved.

If miraculous results are not discovered, the drug, nutrient, or healthy lifestyle is sometimes discredited by the clinical investigators and pessimistic media.

An increasing number of enlightened researchers are coming to the realization that to protect against degenerative diseases in humans, more than one concurrent intervention is needed.

For the first time ever, a tightly monitored, randomized controlled clinical trial investigated the combination of vitamin D, omega-3s and a simple home exercise program on invasive cancer risk in older people.

After only three years, there was an astounding 61% reduced risk of invasive cancers in the vitamin D + omega-3 + home exercise group compared to placebo.¹

This same study found smaller cancer hazard ratio reductions in groups receiving only vitamin D (24%), or only omega-3s (30%) or only home exercise (26%). But nothing compared with the robust 61% reduced risk for invasive cancer when all three interventions were used together.¹

Invasive cancers are malignancies that grow past the original site and spread to healthy tissues.² They generally require grueling treatments that often fail to completely cure.

A record 609,000 Americans will perish this year from malignant diseases.⁴

Cancer prevention is increasingly being prioritized by the medical mainstream. One reason is the toxicity and failure rates of conventional therapies.³

This editorial describes how low-cost nutrients and modest physical activity can protect against one of our most feared diseases.
Results from some human studies indicate that mega-dose vitamin D may increase serum concentration faster but there is no evidence to support decreased risk of falls, fractures, or bone mineral density.5,6

Cancer Often Develops Slowly

Short-term studies of interventions designed to reduce cancer risk are suspect because some study subjects are likely harboring malignancies that have not yet reached clinical or symptomatic relevance.

We have previously cited examples of studies that exclude cancers diagnosed the first year and find more robust cancer prevention benefits in later years by improving calcium, vitamin D and other nutrient levels.7-9

Even the cancer prevention study described in the opening of this article lasted only three years. The researchers acknowledged this limited period might not fully reflect the longer-term benefits of vitamin D + omega-3 + modest exercise.

Mechanisms of Cancer Prevention

Chronic inflammation is a contributor to the initiation and promotion of common malignancies. Human studies have shown an association between reduced incidence of advanced cancer with vitamin D supplementation,10 a therapeutic role of omega-3s against certain types of cancers,11 and the impact of exercise on reducing cancer risk.12,13
Two small, human trials found that combined supplementation with vitamin D and omega-3s resulted in significant reductions in markers of inflammation, oxidative stress, and tumor cell activity.

Mechanistic research has identified the potential of cancer protective pathways in response to vitamin D, omega-3s, and exercise.

For instance, vitamin D downregulates growth factors that fuel cancer. Vitamin D also regulates genes that protect against cancer cell propagation.

Omega-3 fatty acids impede cancer development by inhibiting chronic inflammation, suppressing angiogenesis, and inducing tumor cell apoptosis (programmed cell death).

Preclinical data suggest physical activity helps protect against tumor progression. Increased physical activity can induce tumor cell apoptosis and increase an enzyme in cells called AMPK that helps downregulate cellular proliferation.

**Huge Clinical Trial**

The cumulative benefits of vitamin D + omega-3s + modest exercise were amply demonstrated in the largest clinical trial of its type, resulting in robust reductions in invasive cancer incidence. This provides promising documentation of the beneficial effects available when nutrients and lifestyle are combined, rather than studied one at a time, in isolation.

**Modest Amounts of Nutrients and Exercise**

An interesting nuance about this interventional study is that the researchers used an algae-sourced omega-3 supplement providing 333 mg of EPA and 667 mg of DHA per daily dose.

Vitamin D3 was used in this study at the modest dose of 2,000 IU daily.

The exercise regimen was very basic, did not require sophisticated equipment, and was easily incorporated into a home lifestyle program with only a minimal time commitment.

I will describe how to engage in this easy exercise program at the end of this article.

**Will More Interventions Work Better?**

We’ve published extensive articles in Life Extension Magazine about improving the efficacy of vitamin D by ensuring adequate magnesium and vitamin K intake.

Magnesium by itself has demonstrated reductions of cancer risk in observational studies. One reason may be that magnesium activates vitamin D in the body.
Vitamin K possesses additive and synergistic properties with vitamin D. These include helping to maintain bone density\textsuperscript{38} and anti-cancer properties supporting apoptosis.\textsuperscript{39-41}

Maintaining skeletal structure is essential to help guard against tumor cell degradation of bone that causes the release of potent growth factors that stimulate cancer cell proliferation.\textsuperscript{42,43}

It would be fascinating to see results of a large human trial that combined:

- Vitamin D3
- Omega-3s
- Magnesium
- Vitamin K2
- Modest exercise
- AMPK-activating compounds (like metformin, hesperidin, gynostemma and curcumin), and an
- Optimized (healthy) diet

\textbf{Affordable Cancer Prevention}

There will be enormous societal benefits if the risk reduction findings from the combined interventions study (vitamin D + omega-3s + modest exercise) transition to the general population.

These benefits include substantial reductions in cancer incidence, reduced need for expensive/toxic treatments, and prevention of needless deaths.

These interventions are not expensive.

In fact, if one were to add up the exorbitant costs of conventional oncology treatments, the government might save money by providing supplements at no charge to underprivileged Americans that contain in two capsules: vitamin D3 and omega-3s, with vitamin K2 and some magnesium.

I’ve long argued that today’s healthcare cost crisis could be mitigated if more aggressive prevention strategies were consistently adopted.

Most of you have been supplementing with potent doses of the nutrients that contributed to this 61% reduction in invasive cancers. This was the first and largest tightly controlled prevention study of its kind.

\textbf{For longer life,}

William Faloon, Co-Founder,
Life Extension®
The following appears to be a very basic exercise regimen, easily incorporated into a lifestyle program requiring no sophisticated equipment and only a minimal time commitment.

**DO-HEALTH**
**Simple Exercise Program (SHEP)\(^1\)**

In the DO Health Study a simple home exercise program (SHEP) was implemented. The program included five exercises to be performed five times per week. The average time needed to complete the program was 30 minutes.

The SHEP was developed by Bischoff-Ferrari, et al. at the Center on Aging and Mobility, University of Zurich, Switzerland.

See heike.bischoff@usz.ch for further information.

---

**Leg Strength (3 x 10 Repetitions)**

**Single Leg Stand Balance (10 x 10 seconds each leg)**

**Arms and Back Strength (3 x 10 Repetitions)**

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**Stair Climbing Exercise (3 x 10 Repetitions)**

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<table>
<thead>
<tr>
<th>SHEP (Strength Exercise)</th>
<th>Control Exercise (Flexibility Exercise)</th>
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<tr>
<td>1. Sit-to-stand (quadriceps/hip extension strength training)</td>
<td>1. Hip and knee mobility (seated position)</td>
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<tr>
<td>2. One-leg stance (hip muscles strength training plus static balance training)</td>
<td>2. Hip mobility (standing position)</td>
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<tr>
<td>3. Pull Backs against elastic resistance (seated position)</td>
<td>3. Trunk and chest mobility (seated position)</td>
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<tr>
<td>4. External shoulder rotation against elastic resistance (seated position)</td>
<td>4. Shoulder mobility (seated position)</td>
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<tr>
<td>5. Steps</td>
<td>5. Ankle mobility (standing position)</td>
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SHEP (Strength) 30 minutes 3 times a week compared to a control exercise program (Flexibility) 30 min 3 times a week.\(^2\)
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Coffee Drinking Associated with Reduced Risk of Cardiovascular Disease and Death

A large, prospective cohort study published in European Journal of Preventive Cardiology showed that drinking coffee was associated with reduced risk of cardiovascular disease and mortality.*

Researchers followed 449,563 people averaging 58 years old for 12 years to determine the best kind of coffee for preventing heart disease and boosting longevity.

They evaluated ground, instant, and decaffeinated.

All types of coffee were associated with a reduced risk of cardiovascular disease and death, but ground coffee produced the greatest benefits.

As compared to non-coffee drinkers overall reduction in cardiovascular incidents was observed.

Drinking 2-3 cups of ground coffee per day led to a 27% reduced risk of death whereas consumption of 4-5 cups reduced the risk of arrhythmias by 17%.

Editor’s note: Research has shown that drinking coffee improves endothelial function and lowers the chance of heart failure.

Senolytics May Protect Against Adverse Effects of Radiation Therapy

Senolytics may play a protective role against long-term side effects of radiation therapy used to treat cancer, according to a study published in *elife.*

Senescence describes a condition in which aged, dysfunctional cells stop dividing yet survive to create a harmful, proinflammatory environment.

In this preclinical trial, mice that got radiation either received low dose Navitoclax or a combination of dasatinib with quercetin for 10 days. Another group received metformin for 10 weeks.

Animals that received senolytics within a month following irradiation showed a reduction in frailty progression, better muscle and liver function, and greater short-term memory compared to untreated mice.

Metformin was similarly as effective as senolytics. Rather than killing senescent cells, metformin prevents the proliferation of senescence in neighboring cells.

**Editor’s Note:** Senolytic therapies that kill senescent cells or metformin may improve quality of life in people receiving radiation therapy. There is also evidence that the AMPK-activating property of metformin may impede cancer cell proliferation.

* eLife 11:e75492.
Vitamins A, C, D, E Linked to Lower Risk of Respiratory Illness and Mortality

A pooled analysis concluded that having lower serum levels of vitamins C and E were associated with greater risk of respiratory diseases, and that lower levels of vitamins A, C, and D were associated with an increased risk of dying from these diseases, the journal *Respiratory Research* reported.*

Lower serum vitamin C levels were associated with a greater risk of wheeze. Among smokers, lower levels of the alpha-tocopherol form of vitamin E were associated with increased wheeze and chronic bronchitis/emphysema.

Among smokers a higher risk of death from chronic lower respiratory disease (asthma, bronchitis, or emphysema) and influenza/pneumonia was associated with lower levels of vitamin D. Greater influenza and pneumonia mortality was also associated with lower vitamin A levels. Vitamin C deficiency doubled the risk of dying from these conditions.

**Editor's Note:** The data were compiled from 16,218 participants in the National Health and Nutrition Examination Survey III (NHANES III), conducted from 1988 to 1994, and 17,838 who participated from 1999 to 2006.

*Respir Res. 2022 Jun 9;23(1):150.*
Older Adults with Sarcopenia Benefit from Leucine-Rich Protein Supplements

Results from a meta-analysis of randomized trials concluded that protein supplements rich in the essential branched-chain amino acid leucine could improve muscle strength in individuals with sarcopenia, characterized by muscle wasting that contributes to frailty in aging people, according to an article in *Archives of Gerontology and Geriatrics.*

A total of six studies, including 699 men and women with sarcopenia were included in the analysis. A daily protein supplement containing 3 grams to 6 grams of leucine was given to 346 participants for 8 to 13 weeks, while 353 received a placebo or no leucine. Muscle strength, muscle mass, and physical performance were evaluated before and after the treatment periods.

Muscle strength significantly improved in leucine-supplemented participants as a primary outcome in comparison with the control groups. There was also a trend toward improvement in muscle mass and physical performance.

*Editor’s Note:* Leucine-rich protein supplementation improves muscle strength in sarcopenic older adults and can be suggested as a nutritional treatment for sarcopenia.

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EASE BREATHING AND IMPROVE LUNG FUNCTION
With age, lung function begins to decline.\textsuperscript{1-3} The problem is further exacerbated by exposure to secondhand smoke and air pollution.

This decline threatens overall health, quality of life, and lifespan.\textsuperscript{2} Scientists have identified four plant-derived ingredients that can help counter this decline.

\textbf{Human} studies have validated significant improvements in \textit{lung function}. 

\textbf{Boswellia} \textbf{Serrata}
Over 40% of Americans live in areas with poor air quality. Pollution levels correlate with increased rates of lung disease.4-6

For example:

- Ohio has the country’s worst air quality—and a lung disease prevalence of 15.5%.
- Hawaii has the country’s best air quality—and a lung disease prevalence of just 3.5%.
- Lung symptoms of air pollution exposure can include coughing, breathing difficulties, congestion and worse.
- Excessive air pollution can result in development of respiratory conditions, including asthma and chronic obstructive pulmonary disease (COPD).

**Key Nutrients Can Help**

Scientists have identified four plant-derived compounds that improve lung health as follows:7-16

- **Boswellia serrata** and **Aegle marmelos** improved breathing and lung function in healthy adults sensitive to pollution.8
- **Boswellia serrata**, **Aegle marmelos**, and **saffron** were shown to improve breathing ability in asthmatics,7,9,10 and
- In preclinical studies, **andrographolide** has been shown to reduce smoke-induced lung damage.14-16

**BOSWELLIA-BAEL FRUIT BLEND**

Boswellia serrata is a plant found in Arabia and India. It has shown benefits for several conditions, including asthma.17

Bael fruit is a shrub native to the Indian subcontinent and southeast Asia. Its fruit and seeds are used in traditional medicine for various disorders.18

An equal blend of extracts of these plants was shown, in a clinical trial, to alleviate asthma symptoms and to provide a clinically meaningful improvement in lung health parameters.7

In one study, scientists enlisted healthy adults with self-described sensitivity to air pollution.8

This trial included a group that took a placebo, while another group took 200 mg daily of the Boswellia-Bael blend. After just three weeks, the group that received the Boswellia-Bael combination had some improved lung function. After six weeks, they had a:8

- 30.2% improvement in total air exhaled during a spirometry test (which measures lung capacity, or how much air you can breathe into or out of your lungs),
- 16.4% improvement in air forced out in the first second, a measure of air movement through larger airways, and
- 7.4% improvement in aerobic exercise capacity, measured by average speed walked during a six-minute period (from 3.36 mph to 3.5 mph).

COPD and asthma can require use of inhalers for coughing, wheezing, or troubled breathing during a flare-up. For this reason, they are also called rescue drugs or rescue inhalers.

A second study investigated the effect of the same blend in subjects who suffered from mild to moderate bronchial asthma. One group took a placebo, while the other took 100 mg of the Boswellia-Bael blend twice daily.7
The treatment group experienced improved breathing and reduced use of inhalers, including:

- **50.17%** improvement in **peak expiratory flow rate**, a measure of the maximum amount of air a person can push out of their lungs when exhaling forcefully, after eight weeks, and

- **44%** decrease in the use of a “rescue” **asthma inhaler** after four weeks.

The improvements were attributed to the extracts’ **anti-inflammatory** activity.7

### Saffron

The spice **saffron** has long been used in traditional medicine for respiratory ailments and to counter inflammation, among other purposes.10

Eighty adults with mild to moderate **asthma** were enrolled in a placebo-controlled trial. After taking **50 mg** of **saffron** twice daily for **eight weeks**, the treatment group had:9,10

- **50%** less waking at night due to asthma symptoms,
- **40%** less “rescue” inhaler use,
- **36.8%** less activity limitation, and
- **33.8%** less shortness of breath during the night.

Saffron also reduced biomarkers of **inflammation** (such as C-reactive protein).10,19-21 Animal data show that saffron has relaxing effects on the smooth muscle of the **trachea** (windpipe) as an additional mechanism of supporting breathing/lung function.19-25

### Andrographolide

The compound **andrographolide** is extracted from the stem and leaves of **Andrographis paniculata**. It has been used in traditional Indian medicine and is best known for supporting **immunity**.26

Cell and animal models of smoke- or pollution-induced lung toxicity suggest that andrographolide may protect against **lung damage**. It appears to do so by:11,13-16

- Inhibiting **DNA damage**,  
- Protecting against **oxidative stress**, and  
- Reducing **inflammation**.

---

**WHAT YOU NEED TO KNOW**

**Breathe Easy as You Age**

- Beginning around age 25-35, lung function begins to decline with each passing year. Respiratory health is further damaged by air pollution.

- Scientists identified four plant-derived ingredients that enhance lung health: **Boswellia serrata**, Bael fruit, saffron, and andrographolide.

- Human studies show that a blend of **Boswellia** and **Bael fruit extracts** improved breathing and boosted lung function in healthy individuals, as well as people with sensitivity to air pollution or those with asthma.

- A clinical study shows that **saffron** extract increased breathing capacity and reduced symptoms in those suffering from asthma.

- Preclinical data suggest that **andrographolide** could protect lungs against pollution and smoke.
A combination of Boswellia-Bael blend, saffron, and andrographolide may help protect lung function and promote better breathing well into older age.

**Summary**

Aging, declining lung function, and air pollution can damage lungs and cause breathing difficulties. Researchers have identified four plant-based ingredients that protect healthy lung function.

A blend of **Boswellia** and **Bael fruit** extracts was clinically shown to improve breathing and relieve asthma symptoms.

**Saffron** extract was clinically demonstrated to improve asthma.

**Andrographolide** was found in preclinical research to protect against lung damage from pollutants and smoke.

Together, these ingredients may help preserve vital lung function and breathing capacity.

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

**References**

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- Saffron,³,⁴
- Andrographolide¹

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- Promote lung function.²-⁴

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References:

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IMPROVE URINARY FLOW BY ENHANCING PROSTATE FUNCTION
Prostate problems are widespread as men age.

Benign prostate enlargement and associated urinary difficulties adversely impact sleep and overall life quality.¹

Researchers have identified nutrients that can improve prostate function and circumvent urinary discomforts.

Most impressive are clinical data showing benefits in response to combinations of standardized plant extracts.
Consequences of an Aging Prostate

The prostate is a walnut-size gland located just below the bladder in men.\(^1\)

Prostate cancer is prevalent in aging males\(^2\) but non-malignant prostate disorders are more widespread.\(^1\)

Benign prostate hyperplasia (BPH) affects about 8% of men in their 40s and gradually worsens to more than 80% as men age past 79 years.\(^3\)

Those afflicted with BPH may experience lower urinary tract symptoms, including the sudden need to urinate, frequent urination, waking often during the night to urinate, difficulty urinating, and similar symptoms.\(^4\)

Medications are available to alleviate BPH, but many men do not tolerate their side effects.

Several nutrients have been shown to reduce urinary symptoms without side effects.

SAW PALMETTO AND BETA-SITOSTEROL

Saw palmetto is a plant native to Florida and has long been used as a drug in Europe to alleviate urinary symptoms associated with BPH.\(^5\)

A systematic review published in 2020 compared saw palmetto extract with the drug tamsulosin in over 1,000 men with BPH.\(^6\)

After at least six months of treatment, saw palmetto showed comparable benefits to tamsulosin (with the exception of prostate volume), but without the common side effects of tamsulosin, like ejaculation disorders and decreased libido.

Saw palmetto’s effects may be enhanced when its active component, beta-sitosterol, is extracted and taken with it. Beta-sitosterol is a compound that is believed to reduce levels of the hormone dihydrotestosterone (DHT),\(^7\) which at high levels is linked to an enlarged prostate.\(^8\)

In a randomized, controlled trial, men with BPH who took 500 mg of beta-sitosterol-enriched saw palmetto oil daily for 12 weeks had significantly improved symptoms and reduced PSA (prostate specific antigen) levels.\(^9\) High PSA levels can indicate an enlarged prostate or possible prostate cancer.\(^10\)

In another trial, patients with chronic prostatitis who took saw palmetto daily for 12 weeks had significantly improved urinary health scores, including reduced pelvic pain and discomfort.\(^11\)

Prostatitis, or inflammation of the prostate is frequently caused by bacterial infections. It may cause similar urinary symptoms, along with fever, sexual dysfunction, and pelvic pain.\(^1,12\)

NETTLE EXTRACTS

Extracts of the dwarf and stinging nettle plants can provide a range of prostate benefits.\(^13\)

Nettle extracts exert anti-microbial effects to reduce prostatitis risk.\(^14\) They also enable some reduction in prostate size, improvement in urinary flow, and reduced residual urine in the bladder.\(^15,16\)

In a clinical trial, 60 men with benign prostate hyperplasia took either stinging nettle root extract...
or a placebo daily for 12 weeks. Those taking the nettle extract had reduced inflammation and improved urinary health scores.\(^{17}\)

An evaluation was done of four randomized controlled studies of 922 patients with moderate-to-severe prostate symptoms. Findings from this analysis showed significantly more men responded positively to the combination of saw palmetto and nettle extracts, compared to placebo. The majority of those who responded experienced a reduction of one urination episode per night.\(^{18}\)

A combination of saw palmetto and nettle extracts is popular in European medicine to improve urinary symptoms in aging men.\(^{19}\)

**PUMPKIN SEED**

Pumpkin seeds have been used to promote urinary health around the world for centuries.\(^{20}\)

In one controlled clinical trial, the combination of pumpkin seed and saw palmetto oils resulted in an over 40% reduction in PSA levels, compared to baseline. The improvement was evident after three months and continued throughout the one-year trial.

In this trial, supplementation with either pumpkin seed or saw palmetto oils or both, resulted in improvement in quality-of-life scores.\(^{21}\)

**PYGEUM AFRICANUM**

The bark of Pygeum africanum, the African prune tree, contains compounds that support prostate and bladder health.

In a rigorous meta-analysis of 18 controlled trials, men taking Pygeum were more than twice as likely as placebo users to report an improvement in BPH symptoms.\(^{22}\)

In a clinical trial of men with BPH, taking Pygeum extract twice daily for two months, compared to baseline, resulted in a:

- 40% improvement in prostate symptoms score,
- 31% improvement in quality of life, and
- 32% reduction in nocturnal urinary frequency.\(^{23}\)

Pygeum has been used in Europe for decades as a medication to improve urinary symptoms in men with BPH.\(^{22}\)

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**WHAT YOU NEED TO KNOW**

**Relief for Prostate Problems**

- Benign prostate hyperplasia and prostatitis are common diseases of the prostate gland that are frequent causes of urinary problems in men.
- Multiple plant extracts and compounds have been shown to prevent and relieve symptoms of these diseases, without side effects that may come with medications, and may even reduce risk of prostate cancer.
**BOSWELLIA**

Boswellia serrata, also known as Indian frankincense, has been used for centuries in traditional Indian medicine to treat inflammatory conditions. Preclinical research has shown that it can:

- Induce death in prostate cancer cells,\textsuperscript{24,25}
- Decrease formation of androgen receptors that many prostate cancers require to survive, and\textsuperscript{26}
- Inhibit the growth of blood vessels that tumors need to metastasize.\textsuperscript{27}

Clinical studies are needed to evaluate how these beneficial functional effects may impact prostate cancer risk and outcomes in aging men.

**FLOWER POLLEN**

Research suggests that flower pollen benefits the prostate by relaxing smooth muscle tissue in the urinary tract and potentially alleviating lower urinary tract symptoms.\textsuperscript{28,29} One study found that a ryegrass pollen extract worked as well as six different drugs commonly used for benign prostate hyperplasia.\textsuperscript{30}

In a preclinical study, flower pollen extract reduced harmful activity of altered prostate cells, which suggested it could benefit prostatitis and have a possible prostate cancer preventative effect.\textsuperscript{31}

**NORWAY SPRUCE**

Research has shown that increased dietary intake of lignans, polyphenols found in many plants, correlates with reduced prostate cancer risk.\textsuperscript{32-34} The Norway spruce contains particularly high amounts of lignans. In preclinical studies, Norway spruce lignans reduced prostate tumor volume and increased the death of cancer cells. Other Norway spruce extracts reduced lower urinary tract symptoms in a model of chronic prostatitis.\textsuperscript{35,36}

In the body, lignans convert into a compound called enterolactone,\textsuperscript{37} which may promote hormonal changes associated with lower prostate cancer risk.\textsuperscript{38,39}

An epidemiological study found that those with the highest enterolactone levels were 60% less likely to have prostate cancer than those with low levels.\textsuperscript{33}

**BORON**

Boron is a mineral with benefits throughout the body.\textsuperscript{40} Preclinical research in mice found that boron can decrease the size of existing prostate tumors.

In addition, a large survey showed that the risk of prostate cancer was 52% lower in those whose daily boron intake averaged 1.8 mg compared to those who consumed 0.9 mg or less.\textsuperscript{40}
LYCOPENE

Lycopene is a carotenoid found in many plants, including tomatoes. One meta-analysis found that higher lycopene intake was associated with reduced risk of prostate cancer.

Other research has found that increased lycopene intake is associated with decreased prostate size, and reduced risk for prostate cancer development and progression.

Summary

Many men over age 40 deal with persistent urinary discomforts mostly caused by benign prostate hyperplasia and sometimes prostatitis.

A large volume of published scientific data demonstrates benefits in response to certain nutrients individually.

Even more impressive is evidence showing significant results when these plant extracts are taken in combination.

Some of these nutrients possess mechanisms that may help protect against prostate cancer development.

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

References

1. Available at: https://www.cancer.gov/types/prostate/understanding-prostate-changes#:~:text=The%20three%20most%20common%20prostate%20problems%20are%20inflammation,does%20not%20increase%20your%20risk%20of%20prostate%20cancer. Accessed December, 1, 2022.


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HOW
MUSHROOMS
PROTECT AGAINST
AGING
Human studies have found an association between mushroom consumption and lower risk of chronic diseases and premature death.

One study of more than 15,000 Americans found that those who consumed mushrooms had a 16% lower risk of mortality than those who did not eat mushrooms.

Replacing just one serving a day of red or processed meat with mushrooms was associated with a 35% lower risk of all-cause mortality.1

Research has identified an amino acid in mushrooms, L-ergothioneine, that may be responsible for these health-promoting effects.2

One of the world’s preeminent nutritional biochemists, Dr. Bruce Ames, published a seminal review proposing that L-ergothioneine should be classified as a “longevity vitamin.”2

L-ergothioneine is not produced in the body. It must be obtained through diet.2-5

Typical American diets are low in mushrooms. L-ergothioneine levels in the body also tend to decline with age.6

For those who don’t ingest lots of mushrooms, direct oral intake of L-ergothioneine is an easy way to obtain their benefits.
Reduced Telomere Shortening

Several studies have pointed out how L-ergothioneine may promote longevity.

One contributor to the aging process is the loss, or shortening, of telomeres, the protective caps on the ends of chromosomes. Telomere shortening is a marker of advanced cellular aging, loss of function, and eventual cell death.

A 2022 study found that L-ergothioneine significantly reduced the rate of telomere shortening and the number of short telomeres in cells exposed to oxidative stress.

Another area being studied is L-ergothioneine’s ability to protect cellular DNA. For example, ultraviolet-induced DNA damage in the skin accelerates skin aging and risk of skin cancer. L-ergothioneine protects against this DNA damage in the skin, which is one reason it is an ingredient in many anti-aging creams.

Oxidative stress is a driver of disease and accelerated aging. L-ergothioneine is closely related to glutathione, one of the most powerful antioxidants produced in the body. L-ergothioneine concentrates in the mitochondria, which are vulnerable to oxidative damage.
Preclinical evidence shows that L-ergothioneine can help neutralize damaging oxidizing compounds before they damage mitochondria. It can also protect against free radicals that damage DNA and proteins.

Experimental evidence has also shown that L-ergothioneine can inhibit the synthesis of pro-inflammatory cytokines, which are abundant in many chronic inflammatory diseases associated with aging.

Together, these effects may help ward off chronic disease and promote longer life.

Protecting the Brain

The concentration of L-ergothioneine is particularly high in several major regions of the brain, including those responsible for cognitive function, learning, and memory.

In mice, L-ergothioneine promotes nerve cell maturation, resulting in enhanced memory. Cell studies show it helps promote the formation of new neurons, which is vital to learning and also to memory formation.

In animal models, it is protective against oxidative-stress-induced deficits in learning and memory and learning deficits induced by beta-amyloid accumulation. Beta-amyloid buildup is seen in the brains of patients with Alzheimer’s disease, making L-ergothioneine an intriguing candidate for clinical studies looking at neuroprotective agents.

L-Ergothioneine’s Health Benefits

- In an observational study, people who consumed mushrooms had a 16% lower risk of dying than those who didn’t. The amino acid L-ergothioneine is believed to be largely responsible for mushrooms’ health benefits.
- L-ergothioneine may promote longevity by preventing shortening of telomeres, protecting DNA from damage, fighting oxidative stress and inflammation, and protecting the brain and heart.
- In a population study, higher levels of L-ergothioneine in the body were associated with reduced risk of cardiometabolic disease and cardiovascular mortality.
- In a clinical trial of adults with mild cognitive impairment, taking 5 mg of L-ergothioneine daily for 12 weeks significantly improved measures of cognitive function.
In humans, lower blood levels of L-ergothioneine have been noted in patients with both mild cognitive impairment and dementia, compared to healthy subjects, suggesting that low L-ergothioneine could be a risk factor for these conditions. Low levels of L-ergothioneine are also seen in patients with Parkinson’s disease and brain matter atrophy.

In a clinical trial of adults with mild cognitive impairment, taking a mushroom extract containing 5 mg of L-ergothioneine daily for 12 weeks led to significant improvements in verbal memory, working memory, sustained attention, and other measures of cognitive function compared to those taking a placebo.

Cardiovascular Health

Diseases of the heart and blood vessels remain the leading causes of death and disability.

Dysfunction of the vascular endothelium is central to a wide range of cardiovascular disorders, including hypertension, atherosclerosis, chronic heart failure, coronary artery disease, and diabetes.

L-ergothioneine has been found to be protective against different types of oxidative and inflammatory damage in endothelial cells, which form the inner lining of blood vessels.

It also protects against cell stressors that impair vascular relaxation, and prevents the binding of monocytes (a type of white blood cell) to endothelial cells, an early event in cardiovascular disease.

A large population study published in 2020 showed that higher levels of L-ergothioneine in the body are associated with reduction of cardiometabolic diseases by 15%, cardiovascular mortality by 21%, and overall mortality by 14%.

Other studies revealed that L-ergothioneine protects the endothelium from cell death.

Summary

L-ergothioneine is an amino acid found predominantly in mushrooms.

Its potent antioxidant and anti-inflammatory effects may help slow the cellular aging process and protect the body against age-related disorders, including neurodegenerative and cardiovascular diseases.

This may explain why, in population studies, people who eat mushrooms have a reduced risk of mortality.

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

References


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1 bottle $36.75
4 bottles $34 each

For full product description and to order Super Omega-3 Plus EPA/DHA Fish Oil, Sesame Lignans, Olive Extract, Krill & Astaxanthin, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Thermo Weight Control contains a patented red-chili extract that increases burning of calories.*†

Clinical results demonstrate reduced body mass including a decreased waist-to-hip ratio of 4%* after only 28 days.

Thermo Weight Control targets calories with capsaicin embedded in a plant fiber for optimal systemic benefits.

Specially formulated to be gentle on the stomach, these low-cost red-chili extract capsules can help maximize your weight management program.

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

* This supplement should be taken in conjunction with a healthy diet and regular exercise program. Individual results are not guaranteed, and results may vary.
Capsifen® is a registered trademark of Akay USA LLC.

Item #02511 • 60 vegetarian capsules
1 bottle $15 • 4 bottles $13.50 each

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Apple Cider Vinegar

with the "Mother"

The Power of Nature
Apple Cider Vinegar (ACV) is a traditional folk remedy that has been shown to support digestion and weight loss.*

Real Apples In Each Bottle
Enzymedica's ACV is produced from real, wild-picked apples that are pressed and fermented. We strive to provide the greatest benefits intended by nature.

Friendly To Teeth
Liquid ACV has been shown to cause damage to tooth enamel. Capsules bypass your teeth, delivering ingredients where they need to go.

Bad Taste? No Problem
Vinegar isn't always tasty. ACV capsules don't have a bad taste, and are small and simple to swallow.

Item #54035 Enzymedica Apple Cider Vinegar, 60 capsules $22.49
Item #55305 Enzymedica Apple Cider Vinegar, 120 capsules $37.49

For full product descriptions and to order Enzymedica Apple Cider Vinegar, please call 1-800-544-4440 or visit LifeExtension.com

"According to SPINS, a market research and consulting firm for the Natural Products Industry
This supplement should be taken in conjunction with a healthy diet and regular exercise program. Individual results are not guaranteed, and results may vary.

* These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure or prevent any disease.
L-ergothioneine is an amino acid found in mushrooms. Cell-based studies suggest that L-ergothioneine may support healthy longevity by:

- Protecting against mitochondrial DNA damage
- Delaying telomere shortening
- Supporting DNA function in cells subjected to UV exposure

One daily capsule of Essential Youth provides 5 mg of L-ergothioneine.

This 5 mg potency exceeds the L-ergothioneine contained in 2 cups of white button mushrooms, depending on growing conditions.

References

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

ErgoActive® is a registered mark of Blue California.
Quercetin: The immune support nutrient

Quercetin is a little bioflavonoid that’s making big waves: Quercetin encourages your body’s healthy immune response.

And even in the wonderful world of bioflavonoids, our Bio-Quercetin stands out: its phytosome casing makes it 50 times more absorbable than standard quercetin supplements.

Ultra-absorbable, once-daily Bio-Quercetin®. Because being different is a good thing.

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

“I love having this in my toolbox for maintaining immune health.”
Deb
VERIFIED CUSTOMER REVIEW

Item #02302 • 30 vegetarian capsules

1 bottle $9 | 4 bottles $8 each
Vitamin D and Immunity

BY LAURIE MATHENA

Vitamin D plays a critical role in supporting the immune system.1-4 Low vitamin D levels have been associated with an increased risk of communicable diseases, including viral and bacterial infections.1 Approximately 40% of Americans have insufficient blood levels of vitamin D, and close to 30% have deficient vitamin D. This represents a major health risk, especially for older individuals.5 Vitamin D supplementation has been shown to help protect against acute respiratory infections.1

The following studies, published in the past few years, have added support to vitamin D’s role in boosting immunity and protecting against various infections:

- Vitamin D deficiency increases risk of respiratory tract infections.2 In elderly, institutionalized individuals, vitamin D deficiency was associated with an increased incidence of respiratory tract infections. The researchers suggested supplementation with vitamin D as a method for preventing respiratory tract infections.
Life Extension recommends maintaining vitamin D blood levels (25-hydroxyvitamin D) between 50-80 ng/mL with yearly blood testing to ensure optimal status.

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

References


• Low vitamin D status is associated with increased risk of chronic rhinosinusitis. Researchers found a significant association between lower serum vitamin D status and having chronic rhinosinusitis, which is persistent inflammation of the upper respiratory tract caused by immune dysfunction.

• Vitamin D supplementation reduces the risk of acute respiratory tract infections. After reviewing evidence from randomized, controlled trials, researchers found that vitamin D supplementation is modestly effective at reducing the risk of acute respiratory tract infections, as well as shortening the duration of their symptoms.
Fast-Acting Liquid Melatonin is a popular way to achieve more rapid sleep onset.

The nice-tasting, citrus-vanilla flavor enables convenient “drop” dosing of Fast-Acting Liquid Melatonin each night or when needed.

Life Extension also offers a full range of melatonin in solid forms and a variety of dosages.

CAUTION: Do not consume alcohol, drive or operate heavy machinery after taking this product.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
YOUR BONE HEALTH ... NOW BOOSTED

Bone Restore with Vitamin K2 combines skeletal-strengthening nutrients in one highly absorbable formula.

Item #01727 • 120 capsules
1 bottle $18
4 bottles $16.50 each

“... I feel I am being proactive in keeping my bones strong.”
Sonia
VERIFIED CUSTOMER REVIEW

For full product description and to order Bone Restore with Vitamin K2, call 1-800-544-4440 or visit www.LifeExtension.com

Caution: 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.

Trans menaquinone-7 as K2VITAL®. K2VITAL® is a registered trademark of Kappa BioScience.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

CAUTION: Individuals consuming more than 50 mcg (2000 IU)/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Do not exceed 10000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.

Item #01713
125 mcg (5000 IU) • 60 softgels
1 bottle $7.50 • 4 bottles $6.50 each

VITAMIN D3
Systemic support for immune function, bone health, and normal blood-sugar levels.

“This is a necessary ingredient for my health.”

James
VERIFIED CUSTOMER REVIEW

For full product description and to order Vitamin D3, call 1-800-544-4440 or visit www.LifeExtension.com

DEFEND YOUR HEALTH
In October 2022, I gave the keynote talk to open a 4-day event where physicians and scientists presented findings on combatting biological aging. My presentation was limited to 55-minutes. I could have taken the entire day based on the abundance of new data to report.

I opened my talk by stating that there had been more advances in the fields of age-delay and age-reversal over the prior 12 months than in any one-year period in human history.

This article summarizes highlights of my presentation at the Revolution Against Aging and Death (RAADfest) conference held in San Diego on October 6-9, 2022.

Mainstream Media Coverage

The science of age reversal continues to garner favorable media coverage.

I presented a few of the many news outlets’ reports on regenerative medicine advances including:

**CBS News:** Can we reset our biological clocks?

**New Scientist:** How to GROW YOUNGER

**New York Times:** Can a Magic Protein Slow the Aging Process?
A Biological Renaissance

We are in the midst of a **biomedical renaissance** whereby human life spans are markedly improving.

As with the **European Renaissance**, few people today understand the magnitude of the scientific gains.

Nearly 3 times more Americans were alive aged 100 and older in **2020** compared to 1980.

The number of American centenarians is expected to surge **7-fold higher** by 2060.

The **age-adjusted** death rate has plummeted. This means the increase in **centenarians** is not only due to more people, but that **older people** are living longer.

And since year **1990**, nearly **70%** of mortality reductions have occurred in Americans over age **65**. This reflects significant longevity gains in older segments of the American population. (Which includes a lot of our readers including me!)

Where you Live Determines How Long You May Live

I displayed a map showing a nearly **9-year disparity** in life expectancy between **Mississippi** and **Hawaii**.

I pointed out that people living in states where **healthier lifestyles** are practiced enjoy **longer** disease-free lifespans.

Much of this longevity disparity is attributable to dietary differences. I listed toxic foods to avoid on the next slide.

I present this list of **toxic foods** during many of my talks to reinforce healthier dietary practices.

**Billionaires and Government Fund Age-Reversal Research**

In **January 2022**, the **largest age-reversal** project in history was announced, with **$3 billion** committed by billionaires (like Jeff Bezos and Peter Thiel) and the **National Institutes of Aging**.

This is a venture between the **federal government** and the **ultra-wealthy** seeking methods to delay and **reverse** aging!
Human Trial using CRISPR Gene Therapy

A monkey trial published in May 2021 showed a single CRISPR gene therapy injection lowered cholesterol by 60% and kept it low. This same research transitioned into a human trial that initiated studies in July 2022 — only a 14-month gap between primate and human research!

Historically, it has taken much longer to transition successful animal research into clinical trials.

CRISPR technology has even advanced to the point of engineering stronger immune T-cells to kill more tumor cells as reported in August 2022. This might help enable aging humans to escape the lethal impact of immune senescence.

Human Genome 100% Sequenced

In 2003, scientists sequenced 92% of the human genome. This caused the lay public to think the entire human genome had been sequenced.

In March 2022, scientists announced that 100% of the human genome had been sequenced.

That means the gene editing therapies being studied now (such as CRISPR) may be used to combat virtually every disease, including aging itself.

Age Reversal in Live Mice

As researcher’s zero in on rejuvenation strategies, a promising near-term solution is to use “transcription factors” to turn “on” pro-youth genes and turn “off” senescent-inducing genes. Transcription factors reprogram the genes of old cells, so the old cells can transform into young cells.

The two slides on the next page help further explain “transcription factors”.

Five months later (June 2022), MIT announced the Saudi Royal Family has started a nonprofit group that plans to spend up to $1 billion a year to do “research on the biology of aging and find ways to extend the number of years people live in good health.”
On March 7, 2022, the world awoke to an unprecedented announcement from the SALK Institute. Salk scientists had safely and effectively reversed the aging process in live mice by using transcription factors.

This generated headline news stories worldwide including Jimmy Fallon of The Tonight Show reporting that scientists had succeeded in "reversing the aging process by making cells young again."

The following three slides provide highlights to describe how Yamanaka transcription factors were used to reverse aging in live mice.

**Rewriting the Rules of Biology**

Time-honored doctrine is that cell aging is irreversible and that old cells eventually degenerate and die.

In 2006, that theory was turned upside down with the demonstration of in vitro cell rejuvenation.

In 2011, cells from a 100-year human were rejuvenated back to youth.

In 2022, a similar technique (using Yamanaka transcription factors) was used to partially reverse aging in live animals.

Human trials are now being pursued.

The box below shows the timeline in the development of cellular reprogramming using transcription factors.
Reducing the Senescent Cell Burden

For my keynote presentation, I planned on showing many new slides about senolytics (compounds that remove toxic senescent cells from the body).

Realizing there was insufficient time, I showed a chart from the National Library of Medicine that revealed near zero published papers about senolytics in 2013 and over 800 by mid-2022.

The chart below is updated to reflect all published studies that mention senolytics in 2022.

A vaccine is being investigated that may enable one’s aged immune system to remove senescent cells, thus eliminating the need for senolytic compounds.

A book published in 2022 called “Ageless” described ways to achieve super-longevity including using senolytics. Sanjay Gupta, M.D. gave it a nice endorsement.

Intermittent Fasting

Studies evaluating the broad-spectrum benefits of various forms of time-restricted eating continue to be largely consistent.

The potential value of intermittent fasting in cancer prevention is being continually corroborated as well as its role as possible adjuvant treatment.

Another study provided further validation of the general benefits of a fasting-mimicking diet in demonstrating significant weight loss and improvements in glycemic (diabetic) blood markers.
Rapamycin

Several speakers presented the potential longevity benefits of rapamycin, a drug that has extended lifespan in virtually every model tested. I focused on a newly identified mechanism of rapamycin, which is to reduce the error rate of cellular protein synthesis that occurs with normal aging. The box below describes the importance of this finding.

Two rapamycin clinical trials were described with results expected soon on the first of two human studies announced. The primary outcome for the first study evaluates changes in visceral fat in response to weekly rapamycin doses of 5 mg or 10 mg. Secondary measures will assess bone density and other aging measures using blood tests as shown on the slide below.

The second study being conducted at the Mayo Clinic will assess the effects of rapamycin on cardiac function in frail older adults. Two registries have been established to enable people self-experimenting with rapamycin to report the benefits and any side effects they may be encountering. The first slide on the next column describes a Mayo Clinic clinical trial that measures cardiac function effects of rapamycin given to frail older people. The next two slides on the right side column describe the rapamycin registries.

A book about rapamycin was published in 2022 and serves as a primer for those not familiar with data showing that rapamycin extends lifespan in virtually every species tested. The book (item #34189) costs $14.95 and can be ordered by calling 1-800-544-4440 or logging on to www.LifeExtension.com
Rejuvenating Aged Bone Marrow

Grim findings about what happens to bone marrow stem cells as we age are outlined on the following two slides. They were not shown during my time-limited talk at RAADfest.

I then revealed encouraging news about what scientists are doing to combat loss of youthful stem cell function in aged bone marrow.

I presented a 2022 study (top of next column) showing that infusion of bone marrow (hematopoietic) stem cells into mice with sepsis markedly improved survival.

This approach is not yet available for sepsis patients, but research is being planned to help rejuvenate aged human bone marrow.

I next described human research initiatives that aim to regenerate human aged hematopoietic and mesenchymal stem cells with the objective of inducing systemic rejuvenation.

Regenerative Effects of Young Plasma

When young blood is continuously circulated into old rodents (parabiosis), multiple regenerative effects occur, and lifespans are often lengthened (as much as 10-12 human equivalent years).

One aspect of aging that young blood had not shown to improve was immune senescence.

A 2022 study demonstrated for the first time restoration of hematopoietic stem cell function in response to parabiosis (young blood) therapy in rodents.
Continuous circulating young blood into old people is not practical.

What scientists have been doing is identifying factors in young blood that induce rejuvenation in older animals. The beneficial microRNA and other proteins from young blood cells can then be synthesized to make them widely available to reverse aging processes in maturing humans.

I next presented a study published in September 2022 that I helped to fund. A concentrate from human umbilical cord plasma was injected into older people for 10 continuous weeks.

The objective of these studies is to identify the safety/efficacy of very young (umbilical cord) plasma and then synthesize the regenerative factors so that all elderly people will someday be able to enjoy varying degrees of rejuvenation.

This pilot study showed indicators of age-reversal after only 10-weeks of administering the concentrate derived from umbilical cord plasma.

For those not familiar with a blood test that measures biological aging, I created a slide (on this page) showing the predictive power of a test called DNAm Grim Age. This is currently an expensive test only available to researchers, but I explained later how one can obtain surrogate results at no charge with basic blood tests.

The Betterhumans Research Group

A nonprofit group (Betterhumans.org) that I help fund is making remarkable progress. They have a team of scientists working around the clock to validate practical methods that elderly people can utilize to reverse indices of degenerative aging.

I encourage those with the wherewithal to make tax-deductible donations to contribute to Betterhumans.org group so they can initiate more age-reversal clinical research.

The slide at the top of the next column shows construction of Betterhumans new research facility. The Betterhumans building you see on the next page is nearly finished now (beginning of 2023).
Therapeutic Plasma Exchange

Another method being studied to control aging is to undergo a process called “plasma apheresis” which is used in clinical practice today for autoimmune disorders.

On the main RAADfest stage, Dr. Kiprov acknowledged the recruitment campaign I organized to find study subjects for his ambitious clinical trial. The treatment is called Therapeutic Plasma Exchange.

Dr. Dobri Kiprov’s research group (Lyfspn) is working with the prestigious Buck Institute on a study in which older people will undergo one of three different apheresis protocols to remove senile plasma proteins and replace them with fresh, healthy albumin plus immunoglobulins.

Offshore Medical Practices

A growing number of medical facilities are being established in Nassau, Bahamas due to its proximity to the United States and longstanding relationships that U.S. physician/scientists have maintained with their Bahamian counterparts.

The next slide on this page is a compound (former U.S. Consulate office of sorts) that the Age-Reversal Network group leased. It serves as a staging ground to plan potential age-reversal medical opportunities at several established clinics in The Bahamas. It also has free bedrooms for patients of these clinics to stay in who cannot afford hotel rooms.

Those interested in medical treatments available in other countries should log on to: www.age-reversal.net and provide contact information to stay informed.

Lives Lost because of Over Regulation

The most tragic barrier delaying lifesaving progress is excess regulation of clinical (human) research.

On top of the next page is a slide that chronicles the multi-decade delay in recognizing the benefits of one drug (metformin):
I created an online document to petition the FDA to remove bureaucratic roadblocks that are delaying regenerative medicine clinical trials. In many cases, the red tape is keeping promising human studies from even launching.

I ask readers to log on to: www.age-reversal.net/FDA to sign on to this petition that will be used to amend clinical trial requirements so that rapid-fire human studies can launch.

Log on to: www.age-reversal.net/FDA to sign on to a petition to help amend clinical trial requirements.

**Lethal Impact of Delayed Biomedical Technology**

The slides on this page show the premature death of Lyndon Johnson (at age 64) and how similarly situated leaders of this country with coronary artery disease are living to age 76 and beyond because of advances in biomedical technology.

I then postulated that elderly people today are in the same predicament, i.e., we are aging to death when potential cures for biological aging may be less than a decade away.

My emphasis is the need to accelerate rejuvenation research with more funding and less governmental regulation over clinical trials.

**Triumphs and Tragedies**

The period from October 2021 to October 2022 was a year of scientific triumphs and needless tragedy. We lost a dedicated long-term supporter to type II diabetic complications and I am determined to STOP these kinds of preventable tragedies.
I emphasized during my talk that those with health problems who ignore my dietary and medication suggestions may fail to achieve their super-longevity objectives.

As much as I despise most elements of Big Pharma, every once in a while they develop a medication whose benefits outweigh side effect risks.

One of these is a drug class to reduce type II diabetic complications called SGLT2 inhibitors. I presented many slides on this class of drug that you can view at www.AgeReversal.net.

If you have less than optimal glycemic control, I urge you to consider a SGLT2 inhibitor drug like Jardiance® in addition to metformin.

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### A Biological Age Estimate using Low Cost Blood Tests

A university research team has developed an algorithm to estimate one’s biological age with results available from a CBC/Chem + C-reactive protein blood test.

Known as the Levine-Horvath Phenotypic Age Model, it was developed using blood test data to estimate future morbidity and mortality in nearly 10,000 people over a 23-year period.

**Levine-Horvath Phenotypic Age Model**

No Cost with CBC/Chem + C-reactive protein test

- ‘Phenotypic Age’ estimate based on clinical measures of 9,926 adults with complete biomarker (blood test) data
- Analyzed data from over 23 years of mortality follow-up
- Advanced computational/statistical methods used to identify 9 phenotypic blood test markers to predict morbidity/mortality risk

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5940111

This Phenotypic Age Model is not fully validated to predict biological aging at an individual level. Results from comprehensive blood test panels provide more reliable data in our opinion about one’s future morbidity/mortality risks.

---

The slide below shows my score using calculations from the Levine-Horvath Phenotypic Age Model. It indicates my biological age to be about 11 years younger than my chronologic age.

<table>
<thead>
<tr>
<th>Albumin</th>
<th>4.5 g/dL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine</td>
<td>.93 mg/dL</td>
</tr>
<tr>
<td>Glucose</td>
<td>95 mg/dL</td>
</tr>
<tr>
<td>CRP</td>
<td>.27 mg/L</td>
</tr>
<tr>
<td>Lymphocytes</td>
<td>29%</td>
</tr>
<tr>
<td>MCV</td>
<td>93 fl</td>
</tr>
<tr>
<td>RDW</td>
<td>12.7%</td>
</tr>
<tr>
<td>Alkaline Phosphatase</td>
<td>40 u/L</td>
</tr>
<tr>
<td>White Blood Cells</td>
<td>3.8</td>
</tr>
</tbody>
</table>

**Bill Falcon’s phenotypic (biological) age calculation:**

- Albumin
- Creatinine
- Glucose
- CRP
- Lymphocytes
- MCV
- RDW
- Alkaline Phosphatase

These results equate to: 11.12-year younger phenotypic-age compared to chronological-age

- Albumin
- Creatinine
- Glucose
- CRP
- Lymphocytes
- MCV
- RDW
- Alkaline Phosphatase

This calculation is available at no extra cost for those who order a blood test panel that provides everything needed for the Levine-Horvath age model + fasting insulin, A1C, lipids, and other health measures.

Commercial labs charge over $500 for these tests, but readers of Life Extension Magazine® can obtain this test panel for only $77.

Once you order this test, you are immediately sent a requisition and list of local blood draw centers throughout the U.S. Results come back quickly and will include the Levine-Horvath calculation of your biological age.

To order, call 1-800-208-3444 (24 hours) or log on to: www.LifeExtension.com/blood

Note this surrogate measure of one’s biological age is not the same as the GrimAge test described earlier in this article.

I continue to discuss the validity of the Levine-Horvath Phenotypic Age Model with experts in the field. What’s nice about the Phenotypic Age Model is that its calculations are based on results from blood tests readers of this magazine already utilize on a regular basis.
Additional Topics in My Keynote Presentation

So far, I've presented less than half of the many areas of longevity research and practical applications that occurred since RAADfest 2021.

You can view my RAADfest presentation at: www.age-reversal.net (in video or PowerPoint format) that will cover:

• Massive weight loss with GLP-1 prescription drugs
• What is an Optimal diet? (Live 3 to 13 years longer)
• What’s Behind Surging Deaths from Heart disease?
• Impossible become possible… Million Times Faster Computation
• Brain Implant Operates Digital Devices (Mind/Cloud interface)
• Elon Musk Predicts Humans can Live Forever
• Record numbers of Famous Dead Billionaires
• Lethal Impact of Elevated Glucose
• SGLT2 Inhibitor drugs protect kidneys, heart, and brain while lowering glucose and A1C.

Annual RAADfest Conference

RAADfest is a nonprofit conference whose purpose is to enable aging people to live in good health far longer than most anyone can imagine today.

This annual event enables people to stay informed and connect with many of the best doctors, scientists and thought leaders in the field.

RAADfest 2023 will be held in Los Angeles, California September 7-9, 2023.

RAADfest 2023 will begin Friday evening and continue all day Saturday with formal presentations going until 3 pm on Sunday. Informal gatherings will occur throughout the Friday-Sunday period.

The registration fee that includes two organic meals and cancelation insurance is $647 for LifeExtension readers. (Use code “LEF” to obtain this discounted registration price.)

To learn more or reserve your place at RAADfest 2023, log on to: www.Raadfest.com

In Summary...

It is a privilege and downright fun to interact with scientists on the front lines of regenerative medicine research.

Our mutual objective is to save human lives including our own.

Those interested in receiving email updates about research projects can register at no cost at: www.age-reversal.net

I conclude by asking those who are able to make charitable donations to the Human Age Reversal Project.

All donations will only be used to fund actual study costs and not salaries or overhead expenses.

Over $1 million has been raised and nothing will be spent until multi-intervention age-reversal projects commence. (See the slide below.)

Welcome to our fantastic voyage!

For longer life,

William Faloon, Volunteer Age Reversal Network* 

*The Age Reversal Network is a public benefit group that consists of physicians, scientists, activists, and participants in regenerative medicine research. These individuals share a common desire to rejuvenate aged people. To receive free updates that are sent out every 3-4 weeks, log on to: www.age-reversal.net/join

Donate to Human Age Reversal Project

![Donate to Human Age Reversal Project](image)
When sugar binds to proteins in your body, glycation reactions may affect healthy cell structures.

Carnosine, benfotiamine, and pyridoxal-5-phosphate are powerful nutrients that help inhibit cellular glycation.

PQQ and R-lipoic acid promote healthy cell energizing mitochondria function.

Mitochondrial Energy Optimizer provides a spectrum of nutrients at a fraction of the cost of buying them individually.

For full product description and to order Mitochondrial Energy Optimizer with PQQ, call 1-800-544-4440 or visit www.LifeExtension.com

Bio-Enhanced® is a registered trademark of Geronova Research, Inc.
Support Healthy Cell DNA with Super Absorbable TOCOTRIENOLS

Tocotrienols promote HEALTHY DNA function

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

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

Evnol SupraBio™ is a trademark of ExcelVite Inc. and protected by US Patent Nos: 6,596,306 and 7,544,822.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
BEAT BELLY FAT WITH AMPK

Studies show that increasing AMPK activity encourages cells to stop storing fat.

AMPK Metabolic Activator helps trigger cellular AMPK, enabling your body to burn unwanted fat—particularly around your abdomen.

For full product description and to order AMPK Metabolic Activator, call 1-800-544-4440 or visit LifeExtension.com

Item #02207 • 30 vegetarian tablets
1 bottle $28.50 • 4 bottles $24 each

This supplement should be taken in conjunction with a healthy diet and regular exercise program. Individual results are not guaranteed, and results may vary.

Actiponin® is a trademark of TG Biotech Co., Ltd.

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
William Shatner rose to fame in his role as Captain James T. Kirk on the TV series *Star Trek* in the 1960s.

Now, more than half a century later, the 91-year-old actor has become the embodiment of the legendary phrase, “live long and prosper.”

His career as an actor, director, singer, and author spans seven decades, and includes a Golden Globe and two Emmy Awards.

He has written 30 books, recorded 8 albums, performed on Broadway, and has participated in more than 250 television shows, movies, and plays.

In recent years, his personal life has taken center stage.

Shatner is a well-respected breeder of world champion horses, and at age 89, he rode one of his horses to an amateur World Champion title.

At 90, Shatner became the oldest person ever to fly into space, traveling as a passenger on Jeff Bezos’ spaceship, Blue Origin.

Now, at 91 years old, he maintains a zest for life and sharp wit that has left many people asking, what’s his secret?
**Shatner's Longevity Secrets**

William Shatner has a signature sense of humor that has become as synonymous with his name as Captain Kirk.

So, when asked his secret to a good, long life, it's hardly surprising that Shatner offered these words of wisdom:

"Don’t die. That it; that's the secret," he said in his book, *Live Long And…. "Simply keep living and try not to slow down."

But a closer look at his life reveals that Shatner implements many key life-extending practices shared by the world’s longest-living “Blue Zone” communities. This includes lifestyle habits like living with purpose, getting lots of natural movement, eating a more plant-based diet, and prioritizing family.

Most recently, he received a stem cell treatment designed to systemically deliver restorative factors throughout his body.

Shatner's therapy involved intravenous infusion of stem cells manufactured in Southern California.

Stem cell treatment has not been approved by the FDA for the treatment of any specific disease. Ongoing research has focused on treating immune disorders, metabolic diseases, neurological impairments, aging, and more.

When Shatner announced his stem cell treatment on the popular social media platform, Twitter, he said, “Is it possible to turn back the clock? I will let you know."

On November 21, 2022, an announcement was made by the California Institute of Regenerative Medicine that $8 million additional dollars were allocated to conduct more human stem cell research initiatives.

**Living Your Passion**

Not long after receiving the stem cell therapy, Shatner became the oldest person to travel into space.

This 10-minute, 17-second journey changed his perspective on life.

“I was so thoroughly unprepared for this experience. It was among the strongest feelings of grief I have ever encountered,” said Shatner in his new book *Boldly Go*.

“Going into space made me so aware of how fragile our lives are here on Earth, how we need each other, and need to continue to strengthen bonds that connect us to each other. Because out there, there is no life. There is no us.”

The journey was also physically demanding.

Traveling at more than 2,000 MPH, passengers experience 5.5 Gs of force—which feels like five times their body weight pressing on their chests, making it difficult to breathe or move.

Passengers must also be able to pass a fitness test prior to the flight, which consists of climbing seven flights of stairs in a minute and a half.

How has Shatner remained robust enough to endure such intense physical strain? He would likely say it’s by riding his beloved horses.

**November 21, 2022**

**UC San Diego Awarded $8 million To Expand Stem Cell Human Trials**

**Alpha Stem Cell Clinic** at UC San Diego is a network of stem cell clinics in California.

California Institute of Regenerative Medicine awarded Alpha $8 million in additional funding to conduct human stem cell research.

This comes to $72 million in recent funding from the California Institute of Regenerative Medicine.

According to Shatner, the charity raises $400,000-$500,000 per year, and **100%** of the donations goes to the 501c3 charities he has selected.

**Family and Fun**

In addition to horseback riding, Shatner exercises in the pool for 30 minutes a day, running in place and doing arm and leg exercises.

He also minds what he eats, saying, “I try to adhere to a more plant-based diet these days, with occasional exceptions, and if I am to fish, it must only be for food. Never for sport.”

Shatner has a youthful wonder about life that pushes him to constantly try new things.

For example, when he was in his mid-80s, Shatner purchased his first electric bike for himself and his wife, Elizabeth, and they routinely go on 20- to 30-mile excursions.
An e-bike has a motor that assists you when you’re pedaling. “The e-bike got me outside and got me fitter,” he told the LA Times. “Going up the hills is not a problem. I’ve got an arthritic back from all the horseback riding, my muscles are tender, yet I go back to my car when the bike ride’s over and I feel perfect.”

This has not only kept him active but has also provided an activity he can enjoy with his entire family.

Shatner regularly bikes with more than a dozen of his family members over the hills of Santa Barbara. With this new shared hobby, “a family that was always somewhat tight became a hugely cohesive group,” explained Shatner to AARP.

Future Plans

For Shatner, remaining active—physically, professionally, and socially—is part of his unofficial longevity program. “I know that good, healthy aging comes from not being solitary or brooding,” he said in an article in Newsmax. “Say yes to the opportunities life is offering. Say yes to life, yes to dinner, yes to going out, and yes to something new. Because time is too short to lose one opportunity to sacrifice another.”

He also continues to say yes to work. Since turning 90, Shatner released the book, Boldly Go, he recorded a self-titled album called “Bill”, was the star guest at the 2022 LA Comic Con, and he’s working on a documentary detailing his trip into space.

He is also the host and executive producer of a documentary series on The History Channel called UnXplained, a non-fiction series that explores the mysteries of the world.

Shatner has been through many desperate times in his life—out of work, broke, divorced, living in his car with his dog. Yet he never stopped pursuing the acting career he believed was his calling, and never took any of his successes for granted.

Perhaps that is why, now that he is in his ninth decade, Shatner has such a zest for life, a thirst for knowledge, and a deep appreciation of the world around him.

“If you allow yourself to be awed by life, to keep drinking in its limitless knowledge, to keep striving for answers, to enjoy the beauty around us at every moment, to never stagnate... well, then you might find yourself living for a very long time, and, ideally, prospering,” said Shatner. “Or, in the absence of the longevity and self-defined prosperity you seek, you might well find meaning, or even better, happiness.”

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

To order a copy of Boldly Go, call 1-800-544-4440 or visit www.LifeExtension.com

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**FOOD**

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**HEART HEALTH**

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<td>Homocysteine Resist</td>
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<td>Immune Senescence Protection Formula™</td>
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<td>ArthroMax® Elite</td>
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**LIVER HEALTH & DETOXIFICATION**

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<td>Milk Thistle - 60 veg capsules</td>
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<td>Glutathione, Cysteine &amp; C</td>
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<td>HepatoPro</td>
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**LONGEVITY & WELLNESS**

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<td>Blueberry Extract and Pomegranate</td>
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<td>DNA Protection Formula</td>
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<td>Essential Youth - L-Ergothioneine</td>
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**PRODUCTS**

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<td>Optimized Garlic</td>
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PRODUCTS

02119  GEROPROTECT® Ageless Cell™
02415  GEROPROTECT® Autophagy Renew
02401  GEROPROTECT® Stem Cell
02211  Grapeseed Extract
00954  Mega Green Tea Extract (decaffeinated)
00953  Mega Green Tea Extract (lightly caffeinated)
01513  Optimized Fucoidan with Maritech® 926
02230  Optimized Reservatrol Elite™
01637  Pycnogenol® French Maritime Pine Bark Extract
02210  Resveratrol Elite™
00070  RNA (Ribonucleic Acid)
02301  Senolytic Activator®
01208  Super R-Lipoic Acid
01919  X-R Shield

LUNG HEALTH
02512  Healthy Lungs

MEN’S HEALTH
02209  Male Vascular Sexual Support
00455  Mega Lycopene Extract
02306  Men’s Bladder Control
01789  PalmettoGuard® Saw Palmetto and Beta-Sitosterol
01790  PalmettoGuard® Saw Palmetto/Nettle Root Formula and Beta-Sitosterol
01837  Pomi-T®
01373  Prelox® Enhanced Sex for Men
01940  Super MiraForte with Standardized Lignans
02500  Testosterone Elite
01909  Triple Strength ProstaPollen™
02029  Ultra Prostate Formula

MINERALS
01661  Boron
02107  Extend-Release Magnesium
01677  Iron Protein Plus
02403  Lithium
01459  Magnesium Caps
01682  Magnesium (Citrate)
01328  Only Trace Minerals
01504  Optimized Chromium with Crominex® 3+
01740  Sea-Iodine™
01879  Se-Methyl L-Selenocysteine
01778  Super Selenium Complex
00213  Vanadyl Sulfate
01813  Zinc Caps

MISCELLANEOUS
00577  Potassium Iodide
00657  Solarshield® Sunglasses

MOOD & STRESS MANAGEMENT
02434  Calm-Mag
02312  Cortisol-Stress Balance
00987  Enhanced Stress Relief
01683  L-Theanine
02175  SAMe (S-Adenosyl-Methionine) 200 mg, 30 enteric coated vegetarian tablets
02176  SAMe (S-Adenosyl-Methionine) 400 mg, 30 enteric coated vegetarian tablets
02174  SAMe (S-Adenosyl-Methionine) 400 mg, 60 enteric coated vegetarian tablets
02429  Theanine XR™ Stress Relief

MULTIVITAMINS
02199  Children’s Formula Life Extension Mix™
02354  Life Extension Mix™ Capsules
02364  Life Extension Mix™ capsules without Copper
02356  Life Extension Mix™ Powder
02355  Life Extension Mix™ Tablets
02357  Life Extension Mix™ Tablets with Extra Niacin
02365  Life Extension Mix™ Tablets without Copper
01209  Once-Daily Health Booster - 30 softgels
02291  Once-Daily Health Booster - 60 softgels
02313  One-Per-Day Tablets
02428  Plant-Based Multivitamin
02317  Two-Per-Day Capsules - 60 capsules
02314  Two-Per-Day Capsules - 120 capsules
02316  Two-Per-Day Tablets - 60 tablets
02315  Two-Per-Day Tablets - 120 tablets

NERVE & COMFORT SUPPORT
02202  ComfortMAX™
02303  Discomfort Relief

PERSONAL CARE
02322  Hair, Skin & Nails Collagen Plus Formula
01278  Life Extension Toothpaste
00408  Venotone
03044  Youthful Collagen
02252  Youthful Legs

PET CARE
01932  Cat Mix
01931  Dog Mix

PROBIOTICS
01622  Bifido GI Balance
01825  FLORASSIST® Balance
02421  FLORASSIST® Daily Bowel Regularity
02125  FLORASSIST® GI with Phage Technology
01821  FLORASSIST® Heart Health
02250  FLORASSIST® Mood Improve
02208  FLORASSIST® Immune & Nasal Defense
02120  FLORASSIST® Oral Hygiene
02203  FLORASSIST® Prebiotic
02505  FLORASSIST® Probiotic Women’s Health
01920  FLORASSIST® Throat Health

SKIN CARE
80157  Advanced Anti-Glycation Peptide Serum
80165  Advanced Growth Factor Serum
80170  Advanced Hyaluronic Acid Serum
80154  Advanced Lightening Cream
80155  Advanced Peptide Hand Therapy
80175  Advanced Probiotic-Fermented Eye Serum
80177  Advanced Retinol Serum
80152  Advanced Triple Peptide Serum
80140  Advanced Under Eye Serum with Stem Cells
80137  All-Purpose Soothing Relief Cream
80139  Amber Self MicroDermAbrasion
80118  Anti-Aging Mask
80151  Anti-Aging Rejuvenating Face Cream
80179  Brightening Peptide Serum
80176  Collagen Boosting Peptide Cream
80156  Collagen Boosting Peptide Serum
02408  Collagen Peptides for Skin & Joints
80180  CoQ10 and Stem Cell Rejuvenation Cream
80169  Cucumber Hydra Peptide Eye Cream
<table>
<thead>
<tr>
<th>Code</th>
<th>Product Description</th>
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<tbody>
<tr>
<td>02423</td>
<td>Daily Skin Defense</td>
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<tr>
<td>80141</td>
<td>DNA Support Cream</td>
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<td>80163</td>
<td>Eye Lift Cream</td>
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<td>80123</td>
<td>Face Rejuvenating Anti-Oxidant Cream</td>
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<tr>
<td>80109</td>
<td>Hyaluronic Facial Moisturizer</td>
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<td>80110</td>
<td>Hyaluronic Oil-Free Facial Moisturizer</td>
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<tr>
<td>80138</td>
<td>Hydrating Anti-Oxidant Facial Mist</td>
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<td>80103</td>
<td>Mild Facial Cleanser</td>
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<tr>
<td>80122</td>
<td>Neck Rejuvenating Anti-Oxidant Cream</td>
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<tr>
<td>80109</td>
<td>Hyaluronic Facial Moisturizer</td>
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<tr>
<td>80110</td>
<td>Hyaluronic Oil-Free Facial Moisturizer</td>
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<tr>
<td>80138</td>
<td>Hydrating Anti-Oxidant Facial Mist</td>
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<tr>
<td>80159</td>
<td>Multi Stem Cell Hydration Cream</td>
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<td>80122</td>
<td>Neck Rejuvenating Anti-Oxidant Cream</td>
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<td>80166</td>
<td>Skin Firming Complex</td>
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<td>Mild Facial Cleanser</td>
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<td>80239</td>
<td>Bioactive Milk Peptides</td>
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<td>02300</td>
<td>Circadian Sleep</td>
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<td>01551</td>
<td>Enhanced Sleep with Melatonin</td>
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<td>Enhanced Sleep without Melatonin</td>
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<td>02234</td>
<td>Fast-Acting Liquid Melatonin</td>
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<td>01669</td>
<td>Glycine</td>
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<td>Herbal Sleep PM</td>
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<td>01722</td>
<td>L-Tryptophan</td>
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<tr>
<td>01668</td>
<td>Melatonin · 300 mcg, 100 veg capsules</td>
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<td>01083</td>
<td>Melatonin · 500 mcg, 200 veg capsules</td>
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<td>00329</td>
<td>Melatonin · 1 mg, 60 capsules</td>
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<td>02503</td>
<td>Melatonin · 3 mg, 60 gummies</td>
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<tr>
<td>00330</td>
<td>Melatonin · 3 mg, 60 veg capsules</td>
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<td>00331</td>
<td>Melatonin · 10 mg, 60 veg capsules</td>
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<td>00332</td>
<td>Melatonin · 3 mg, 60 veg lozenges</td>
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<td>02201</td>
<td>Melatonin IR/XR</td>
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<td>01787</td>
<td>Melatonin 6 Hour Timed Release</td>
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<td>300 mcg, 100 veg tablets</td>
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<td>01788</td>
<td>Melatonin 6 Hour Timed Release</td>
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<td>750 mcg, 60 veg tablets</td>
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<td>01721</td>
<td>Optimized Tryptophan Plus</td>
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<tr>
<td>01444</td>
<td>Quiet Sleep Melatonin · 3 mg, 60 veg capsules</td>
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<tr>
<td>01445</td>
<td>Quiet Sleep Melatonin · 5 mg, 60 veg capsules</td>
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<tr>
<td>02502</td>
<td>Rest &amp; Renew</td>
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**VITAMINS**

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

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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>02479</td>
<td>7-Keto® DHEA Metabolite · 100 mg, 60 veg capsules</td>
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<tr>
<td>02207</td>
<td>AMPK Metabolic Activator</td>
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<td>02504</td>
<td>Body Trim and Appetite Control</td>
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<td>02478</td>
<td>DHEA Complete</td>
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<td>01738</td>
<td>Garcinia HCA</td>
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<td>02506</td>
<td>Mediterranean Weight Management</td>
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<td>01432</td>
<td>Optimized Saffron</td>
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<td>00818</td>
<td>Super CLA Blend with Sesame Lignans</td>
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<td>02511</td>
<td>Thermo Weight Control</td>
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<tr>
<td>02509</td>
<td>Waistline Control™</td>
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**WOMEN’S HEALTH**

<table>
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<tr>
<th>Code</th>
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<tr>
<td>01942</td>
<td>Breast Health Formula</td>
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<tr>
<td>01626</td>
<td>Enhanced Sex for Women 50+</td>
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<tr>
<td>01894</td>
<td>Estrogen for Women</td>
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<tr>
<td>02204</td>
<td>Menopause 731™</td>
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<td>02319</td>
<td>Prenatal Advantage</td>
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<tr>
<td>01649</td>
<td>Super-Absorbable Soy Isoflavones</td>
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<tr>
<td>02507</td>
<td>Youthful Woman 40+ with B-Complex</td>
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</tbody>
</table>
Re-Energize Heart and Brain Cells

“My gift to my heart.”
Donna
VERIFIED CUSTOMER REVIEW

Three Choices of Superior Ubiquinol CoQ10 Mitochondrial Delivery System

100 mg CoQ10
Item #01426 • 100 mg, 60 softgels
1 bottle $47.25
4 bottles $40 each

200 mg CoQ10
Item #01431 • 200 mg, 30 softgels
1 bottle $45
4 bottles $38.50 each

100 mg CoQ10 + 10 mg PQQ
Item #01733 • 100 mg, 30 softgels
1 bottle $38.25
4 bottles $31 each

For full product description and to order Super Ubiquinol CoQ10 with Enhanced Mitochondrial Support™, or Super Ubiquinol CoQ10 with PQQ, call 1-800-544-4440 or visit www.LifeExtension.com

PrimaVie® is a registered trademark of Natreon, Inc. Q+®, Kaneka Ubiquinol®, and the quality seal™ are registered or pending trademarks of Kaneka Corp.

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
Why settle for subpar supplements?

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

Each bottle provides a two-month supply.

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

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
7 PREVENTION OF HUMAN CANCER
In the largest controlled study of its kind, a combination of vitamin D, omega-3 and simple exercise reduced the risk of invasive cancers by a remarkable 61%.

22 IMPROVE LUNG FUNCTION
Clinical studies show how certain plant-derived ingredients improve breathing capacity and lung function.

30 MAINTAIN YOUTHFUL URINARY FLOW
European men utilize nutrients documented in clinical trials to reduce urinary discomforts and improve prostate function.

40 REDUCE TELOMERE SHORTENING
L-ergothioneine has been shown to promote longevity via mechanisms that include reduced telomere shortening.

56 AGE-REVERSAL UPDATE
Advances in the sciences of age-delay and age-reversal were presented at the annual RAADfest 2022 conference by William Faloon.

71 HOW WILLIAM SHATNER DEFIES AGING
Ultra-healthy at age 91, William Shatner, Star Trek’s Captain Kirk, engages in a host of personal life-extending practices and attitudes.