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### ON THE COVER

**Citrus Extract Reduces Body Fat**

In human trials, a new **moro orange** extract decreased waist circumference up to **2.79 inches**.

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Huge Disparities in Healthy Longevity

The British government collects medical data on its citizens better than most other countries.

In March 2021, the Office of National Statistics published a report showing that British men in the upper economic category live in good health an astounding 19 more years than men in the lowest group.¹

Women in this upper category enjoy 19.3 more years in good health.

Overall life expectancy for men in the upper economic class is 9.4 years longer compared to the lowest category.

This is not the first report showing improvements in healthy longevity in those who take steps to reduce their disease risks.²³

Reasons for more healthy life years in better-educated British citizens include less tobacco use, more nutritious diets, and access to private health care.²³

Another data set finds those in the lower socio-economic category have high relative incidences of premature deaths from coronary heart disease.⁴

This premature clogging of arteries can be attributed to excessive amounts of fried foods and saturated fat in the diet, not enough fruits and vegetables, spiraling obesity rates, and tobacco use.⁴⁻⁶

These losses of healthy life years are not always attributable to socioeconomic status. A large swath of the general public engages in risky behaviors that threaten to ignite a new epidemic of cardiovascular disorders.

A study published by JAMA in April 2022 found mortality to be 169% higher after age 65 in Americans having no financial assets compared to those with at least $300,000 (in 1995 dollars).⁷

Additional financial assets beyond $500,000 were not associated with lower mortality, implying that great wealth is not required to enjoy more healthy life years.

This editorial explores healthy longevity practices that are relevant worldwide, including the United States.
Disparity Among British Citizens

Studies of human population groups have long uncovered disparities in healthy longevity that are not attributed to race or geographic location.

A report issued in March 2021 by the British Office of National Statistics highlights the wide disparities as follows:¹

- Males living in the most deprived areas of England can expect to live 19 years less in “good” health compared with those in the least deprived.

- The healthy longevity gap for females in the most deprived areas of Britain is 19.3 years.

The authors of this report point out that the life expectancy variation at birth is worsening across England. Women in the most deprived areas of England experienced a decline in life expectancy at birth, while women in the least deprived areas had an increase in life expectancy at birth.

Those living in the most economically deprived areas spend almost two decades less in good health than their counterparts in the least deprived areas.

And these disparities occur in a country (United Kingdom) that provides free universal health care.

The encouraging news is that many of these lost healthy life years can be recovered in all socioeconomic classes.

Health Disparities in the United States

A study published in the May 27, 2020 issue of JAMA Cardiology looked at heart disease variations among socioeconomic classes in the United States.⁸

Individuals residing in low socioeconomic-status areas had twice the incidence of coronary artery blockage and heart attacks compared with higher socioeconomic areas.

Even after accounting for traditional risk factors such as tobacco use, body weight, LDL, blood pressure, and type II diabetes, those residing in low socioeconomic areas still had an elevated risk of early coronary heart disease.

Interestingly, just 40% of heart disease events in the low socioeconomic group were attributable to the traditional risk factors mentioned in the above paragraph. This leaves 60% of coronary disease incidences “attributable to other factors associated with low socioeconomic status.”

The authors of this JAMA Cardiology study suggest that increased stress, less access to nutritious foods, and inadequate medical care are among the reasons for the high rate of coronary artery disease in low socioeconomic groups. The authors also point out healthier lifestyle choices practiced in higher socioeconomic status groups that reduce cardiovascular risks.

I partially concur with these assumptions but am concerned about other risk factors that are neglected by individuals in all socioeconomic classes.
These risk factors include overconsumption of sugars, excess calorie intake, and health negligence that is prevalent in modern societies...including by some readers of Life Extension® Magazine.

Rising Obesity Prevalence

Excess body fat leads to the development of diabetes, heart disease, liver failure, osteoarthritis, and certain cancers.9

England has some of the worst upticks in obesity prevalence compared with the rest of Europe.

A 2017 review article stated that obesity trends in most European countries increased by 10%-40% over a 10-year period.9

During this same period, obesity prevalence in England more than doubled (over 100% higher).9

According to a 2021 study, more deaths in England and Scotland since 2014 may be due to excess body weight than are caused by cigarette smoking.10

Smoking trends in England have declined in recent decades while obesity prevalence has sharply increased.10

A similar situation has occurred in the United States.

Worsening Trends in Scotland

The British Medical Journal (2014) reported a 43% decline in coronary disease death rates from 2000 to 2010 in Scotland.13

This decrease occurred because of improved prevention and treatment and was evenly consistent across socioeconomic classes.

The authors then point out that rising rates of obesity and type II diabetes are offsetting some of these benefits, and that diabetes prevalence worsened in the lowest socioeconomic classes.

Move forward to a report published by the British Heart Foundation in January 2022. Cardiovascular deaths are more than three-times higher for people (under age 75) in Glasgow City, Scotland, than in other areas of England.14

The map copied on this page shows areas of Britain that have higher cardiovascular death rates. What it does not reveal are the wide disparities that exist within cities like Glasgow, where those in lower socioeconomic classes suffer more cardiovascular events at younger ages.

Heart Failure Cases Soar Globally

A study published in February 2021 by the European Society of Cardiology looked at 195 countries and found the number of people with heart failure nearly doubled between 1990 and 2017.11

The authors of this study said the rising prevalence of heart failure in the low, low-middle, and middle socioeconomic demographic-index countries “is driven by a surge of risk factors such as hypertension, diabetes mellitus, obesity, smoking, and other unhealthy lifestyles.”

Sudden death from heart failure plummeted by 44% from 1995-2014 in the United States.12

Increasing obesity prevalence is causing hard-fought reductions in cardiovascular disorders to go in reverse.
Dietary Supplement Use in Britain

Unlike other countries that restrict dietary supplements, Britain has long permitted the sale of high-potency nutrients without costly registration requirements.

This policy provides British citizens access to supplements that Americans have long enjoyed.

The problem is supplements in Britain are more expensive and subject to an additional value-added tax.

Access to supplements can benefit echelons of British society that can afford them but is of little help to lower classes that cannot even afford fresh fruits and vegetables.

The British government is recognizing this dilemma. In 2021, all British citizens were offered free vitamin D supplements.

Regrettably, each capsule of these “free supplements” contains only 10 mcg (400 IU) of vitamin D. This dose is woefully inadequate compared to the 5,000 IU to 8,000 IU of vitamin D many people need to achieve optimal blood levels.

Unhealthy Behavior Across All Economic Classes

In presentations I give about emerging rejuvenation therapies, I remind the group to not forget the fundamentals of healthy longevity.

JAMA Study Corroborates British Findings

On April 8, 2022, the Journal of the American Medical Association (JAMA) published findings from a study that evaluated mortality over an 18-year period that found:

- After age 65, mortality in those with no assets was 2.69-times higher (hazard ratio) relative to those with at least $300,000 of assets (in 1995 dollars).
Based on this, those with no assets have only a 40% estimated probability of surviving from age 65 to age 85, while 71% of those in the $300,000 asset category survived from age 65 to 85.

Additional wealth greater than $500,000 was not associated with lower mortality.

As it related to tobacco use, after adjustment for confounding variables, the estimated probability of surviving from age 65 to age 85 was only 33% for current smokers compared to 70% for those who never smoked. Said differently, this study found that smoking is associated with sharply higher mortality independent of one’s socioeconomic status.

My observations over the past 45 years are that higher net worth individuals do not always take care of themselves better than those with relatively few resources.

The slide on the previous page titled, “How to Accelerate Deadly Illnesses,” shows how to shorten healthy longevity no matter what financial class you fit into.

Stop Premature Aging!

As I turn age 68, a significant number of my highly educated friends (attorneys and CPAs my age) suffer from chronic illness or have died from preventable causes.

Despite their high incomes, many failed to engage in the basics of preventative medicine.

The data sets presented in this article should motivate more readers to improve their behavioral patterns so they can enjoy more years in great health.

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William Faloon
Co-Founder, Life Extension®

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In the News

Resveratrol Supplementation Improves Glucose Regulation in Type II Diabetics

Supplementing with resveratrol showed positive effects in the regulation of glucose and the maintenance of healthy levels of inflammation and oxidative stress in type II diabetics, according to an article in Complementary Therapies in Medicine.*

The participants who completed the trial were being treated with drugs for type II diabetes. One group received 200 mg of resveratrol daily for 24 weeks and another was given a placebo.

The resveratrol recipients had reductions in glucose and insulin, as well as reduced insulin resistance, compared to the beginning of the trial and to the placebo group.

Editor's Note: The authors concluded that, “Supplementation of resveratrol along with oral hypoglycemic agents may be useful in the reduction of diabetic-associated complications.”

Vitamin E Helps People with Leukoaraiosis, a Brain Condition

A study published in the *International Journal of Neuroscience* found improvements in factors related to leukoaraiosis, an abnormality in the brain’s white matter, among adults given supplements containing vitamin E.*

The study included 160 men and women diagnosed with leukoaraiosis by MRI who had undergone testing for cognitive function. Participants received either 200 IU, 400 IU or 600 IU of vitamin E or a placebo daily for 12 weeks. At the end of the treatment period, blood samples were evaluated for inflammatory factors as well as for markers of oxidative stress and endothelial function.

Inflammation, oxidative stress, and endothelial function improved in all individuals in vitamin E-treated groups compared with the placebo. Cognitive function scores also significantly improved in the vitamin E-treated groups. Improvement in all measured factors was correlated with higher doses of vitamin E.

Editor’s Note: “Vitamin E could be a potential drug for the clinical treatment of leukoaraiosis patients,” the authors concluded.

Branched Chain Amino Acid Supplements Raise Level of Physical Function in Stroke Patients

Stroke patients who supplemented with branched chain amino acids (BCAAs) showed improvement in muscle and functional status compared to those who did not, the journal Frontiers in Neurology reported.*

The study included 54 patients who had recently suffered a stroke and were receiving intensive therapy at a rehabilitation center. Most had muscle tissue loss. Half of the participants received a supplement that contained 6 grams of a blend of the branched chain amino acids leucine, isoleucine, and valine, twice per day for four weeks.

Among those who received BCAAs, handgrip strength and skeletal muscle mass improved after treatment, while in the control group, muscle mass decreased.

In the BCAA group, 46% of the individuals regained the ability to walk by the study’s conclusion, compared to 37% in the placebo group.

Editor’s Note: Both groups experienced improvement in physical function such as balance, gait, and swallowing, but the group that received BCAAs improved to a greater extent.

People with Higher Carotenoid Levels Have Lower Dementia Risk

An article published in *Neurology*®, the medical journal of the American Academy of Neurology, reported an association between higher levels of several carotenoids and a lower risk of developing Alzheimer’s disease and other dementias during an average follow-up period of 16 to 17 years.*

Carotenoids are a family of yellow to red plant pigments, including beta-carotene, which have an antioxidant effect.

Researchers examined data from 7,283 men and women who were aged 45 years and older upon enrollment in the third National Health and Nutrition Examination Surveys 1988-1994. Participants’ serum levels of antioxidant vitamins A, C and E, and the carotenoids were determined from blood samples collected at the beginning of the study.

Among those aged 65 and older at enrollment, each approximate 15.4 micromols/liter increase in lutein and zeaxanthin was associated with a 7% decrease in dementia risk during follow-up. For beta-cryptoxanthin, each 8.6 micromols/liter increase was associated with a 14% reduction among those older than 45 at the beginning of the study.

**Editor’s Note:** “Antioxidants may help protect the brain from oxidative stress, which can cause cell damage,” stated study author May A. Beydoun, PhD, MPH, of the National Institutes of Health’s National Institute on Aging.

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Shed Belly Fat—
THE MEDITERRANEAN WAY
Prescription drugs that enable massive weight loss made headline news this year.¹ Yet people seeking modest weight loss often turn to plant-based alternatives that are backed by human research.

In a placebo-controlled study, both groups were asked to continue their existing diet and exercise habits.

The group ingesting a new fruit extract lost more total body weight than the placebo arm.²

The fruit extract group also reduced waist circumference by 2.8 inches.²

This article describes research supporting the use of this fruit that originated in the Mediterranean.
**Dangers of Abdominal Fat**

More than 70% of U.S. adults are overweight or obese. But not all body fat is the same. Certain types, such as abdominal fat, pose the greatest threat.

Excess body weight around the abdomen, or abdominal obesity, keeps our bodies in an inflammatory state that has been associated with increased risk of metabolic abnormalities.

A review paper published in the *Archives of Medical Science* concluded that:

> “Sustained inflammation is considered a strong risk factor for developing many diseases including CVDs [cardiovascular diseases], metabolic syndrome, diabetes, and cancer.”

Readers of this publication have been educated for decades about the dangers of chronic inflammation and strategies to combat it.

**The “Moro Orange”**

Searching for a way to promote healthy weight loss, scientists have investigated compounds known as anthocyanins.

Evidence from preclinical studies suggests that diets enriched in anthocyanins can improve glucose tolerance and insulin sensitivity.

Anthocyanins are pigments found in red, blue, and purple color fruits and in the “moro orange.”

The moro orange fruit is believed to have originated at the beginning of the 19th century in Sicily, as a result of a natural bud interaction with another orange type.

Anthocyanins from moro oranges have been shown to help decrease weight and adipose tissue (fat) by regulating metabolism of fatty acids.

One study showed that when healthy, overweight adults supplemented with a moro orange juice extract rich in anthocyanins it resulted in significant reductions in body mass index (BMI) compared with taking a placebo.

**Beneficial Compounds in Moro Orange**

Scientists have concluded that the anti-obesity effect of moro orange juice in animal studies is so significant, it cannot be explained by anthocyanin content alone.

Moro orange contains other health-promoting compounds, including:

- Flavonoids
- Carotenoids
- Hydroxycinnamic acids

These and other moro orange components may work together to inhibit fat storage.

Research on mice demonstrated that intake of moro orange juice:

- Reduced fat accumulation by about 50%,
- Decreased adipocyte size, and
- Regulated gene expression of adipose tissue (modulated gene expression changes caused by a high-fat diet).
Weight-Loss Benefits of Moro Orange

- Clinical studies show that moro orange extract can reduce weight by an average of 4.2% and decrease dangerous belly fat, when combined with exercise and a reduced-calorie diet.
- Moro orange is high in anthocyanins, which some data have linked to weight loss, along with an array of other beneficial compounds.

Weight Loss in Humans

Scientists set out to assess moro orange’s potential for weight loss in humans.

In a clinical study, researchers instructed 60 overweight individuals to take 400 mg of moro orange juice extract once daily. They were also asked to continue with their existing diet and exercise habits.²

Compared to placebo, those who took the moro orange extract for 12 weeks reduced their:

- **Weight** by 4% (vs. 0.5% with placebo),
- **BMI** by 1.11 kg/m² (vs. 0.15 kg/m² with placebo),
- **Waist circumference** by 2.79 inches (vs. 0.31 inches with placebo), and
- **Hip circumference** by 2.35 inches (vs. 0.27 inches with placebo).

Losing Weight and Fat

For greater validation, a clinical trial was designed that involved 136 overweight but healthy humans, followed for a longer period of six months.⁹

This time, the volunteers were asked to consume 500 fewer calories daily and walk for 30 minutes, three times a week.

Those who took 400 mg of moro orange extract once daily, on average reduced:

- **Weight** by 4.2% (vs. 2.2% with placebo),
- **BMI** by 1.2 kg/m² (vs. 0.6 kg/m² with placebo),
- **Waist circumference** by 1.5 inches (vs. 0.7 inches with placebo),
- **Fat mass** by 7.5% (vs. 5.7% with placebo),
- **Abdominal fat mass** by 11.3% (vs. 6.1% with placebo),
- **Visceral fat mass** (between abdominal organs) by 12.4% (vs. 9.0% with placebo), and
- **Subcutaneous fat mass** (just under the skin) by 9.4% (vs. 6.4% with placebo).

Overall, 36% of those in the moro orange group had a weight loss of more than 5%, compared to 22.5% of the placebo group.⁹
To put the waist-size reduction of 1.5 inches into perspective, the notches on a belt are usually about one inch apart, making this a reduction of well more than one belt notch.

Evidence is clear that moro orange extract can be a vital part of a healthy weight-loss program.

**Summary**

The moro orange has been found to help reduce weight and dangerous abdominal fat.

It is high in anthocyanins and other compounds that may work together to promote weight loss.

Human studies found that moro orange extract safely reduced waist circumference by 1.5 to 2.79 inches.

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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A Mediterranean fruit has been demonstrated to support healthy fat loss in humans.*

A 6-month placebo-controlled trial asked participants to consume 500 fewer daily calories and walk for 30 minutes, three times a week. The group taking 400 mg each day of moro orange extract produced on average:

- Lower waist circumference by 2.79 inches
- Reduced overall weight by 4.0%
- Decreased hip circumference by 2.35 inches

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

References
Cancer-Fighting Properties of GYNOSTEMMA
Searching for plants with anti-cancer activity, scientists focused on a vine native to parts of Asia called *Gynostemma pentaphyllum*.

Long used to promote longevity, modern research has identified in it a treasure trove of anti-cancer compounds.¹

A review paper of cell and animal studies presented data on *Gynostemma*'s potential effects against leukemia, colon cancer, prostate cancer, lung cancer, breast cancer, and more.¹
**Cancer-Fighting Compounds**

*Gynostemma pentaphyllum* contains more than 230 different compounds in multiple classes, including saponins, sterols, flavonoids, and others.¹

Dozens of these nutrients have been studied and most have demonstrated anti-cancer activities against different cancer types.

One review article listed 28 specific compounds in *Gynostemma* that have anti-cancer activity in vitro. That doesn’t include the flavonoids and carotenoids it contains, which also have cancer-fighting properties in vitro.¹

**Reducing Cancer Growth**

Studies in cell cultures and animal models have demonstrated this plant’s anti-cancer properties.¹

In animals given *Gynostemma*, the size and weight of tumors is significantly reduced.²-⁵

Some of these studies found that *Gynostemma* attacked cancer cells and boosted the animals’ immune response to the tumor.³⁶⁻⁸

*Gynostemma* also appears to have synergistic effects with other anti-cancer compounds. For example, in a mouse model of colorectal cancer, co-treatment with the chemotherapy drug 5-fluorouracil enhanced the drug’s effectiveness.⁹

**Early Human Trials**

Evidence from studies in the 1990s mentions that *Gynostemma* intake enhances immune function even when patients are undergoing chemotherapy, which impairs immune function.¹

An early observational study showed lower rates of cancer relapse and metastasis as well as lower mortality rates and improved immune function.

Research interest on the benefits of *Gynostemma* has increased markedly over the past decades. We await and look forward to reporting new evidence as it becomes available.

**How Gynostemma Works**

With its many bioactive compounds, *Gynostemma* induces several beneficial mechanisms all at once.

In general, *Gynostemma* modulates the activity of several cellular signaling pathways tied to cancer formation and progression.

For example, it activates AMPK, while blocking mTOR and the associated PI3K/Akt.¹⁰⁻¹²

These pathways are involved in many aspects of cancer progression. These same mechanisms are found for other anti-cancer compounds being explored, such as the drug metformin.
Gynostemma’s mechanisms are associated with effects that have been observed in various studies. Some of the most notable include:

- **Cell cycle arrest.** When cancer cells grow and reproduce, they pass through a complex pathway known as the cell cycle. In multiple cancer types, studies have shown that Gynostemma modulates the activity of several proteins involved in cell cycle regulation, stopping the growth of cancer cells.

- **Induction of cell death.** When normal cells are aged or damaged, they die off through a beneficial process called apoptosis. Cancer cells shut off this process, evading death. Gynostemma acts to re-activate apoptosis, killing off these abnormal cells.

- **Inhibition of invasion and metastasis.** The lethality of cancers lies mainly in their ability to invade surrounding healthy tissues and metastasize (spread) to distant sites in the body. Gynostemma blocks several pathways involved in invasion and metastasis.

**Gynostemma’s Cancer-Fighting Actions**

- **Gynostemma pentaphyllum**, also known as jiaogulan, is an Asian plant containing hundreds of different bioactive compounds. Many have been studied and found to have anti-cancer activities.

- In cell culture and animal models, Gynostemma has been shown to stop the growth and spread of cancer, cause cancer cells to die off, and help the immune system attack cancer.

- Gynostemma acts by modulating the activity of several cellular signaling pathways tied to cancer formation and progression.

- **Interfering with cancer cell metabolism.** Cancer cells need nutrients and energy to grow. Gynostemma has been found to alter the function of key enzymes involved in cancer cell metabolism, starving cancer cells of energy and further blocking their ability to grow and reproduce.

- **Immune support.** Gynostemma has been found to support key immune system functions, giving a boost to immune cells such as macrophages, T cells, and NK cells. This helps the body more effectively fight and attack cancer.

This wide range of mechanistic effects makes Gynostemma a potential adjuvant weapon in the battle against cancer.
Summary

*Gynostemma pentaphyllum* and its extracts contain hundreds of compounds, many of which have demonstrated, in pre-clinical studies, anti-cancer activities against a range of human cancer types.

By acting on different signaling pathways associated with cancer formation and progression, *Gynostemma* adds yet another ingredient with promising results in the fight against cancer.

Most people use *Gynostemma pentaphyllum* today to activate cellular AMPK, which suppresses excess mTOR1. This enables many people to lose excess belly fat.

The anti-cancer findings provide another reason for people to include *Gynostemma pentaphyllum* in their supplement program.

We look forward to new evidence on *Gynostemma*, which has attracted growing interest in recent decades.

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References

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Increase AMPK to Better Manage Body Weight

Most people today consume excess calories. This results in mTOR constantly running at high gear, which is a factor in unwanted fat storage.

Studies show that increasing AMPK activity turns down excess mTOR.¹

Reduce Cell Fat Storage

Scientific studies show that increasing AMPK activity can encourage cells to store less fat and burn it as energy.²,³

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

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References

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More than 30 million adults in the U.S. rely on Xanax®, Valium®, Ativan®, or other prescription benzodiazepine drugs to cope with sleep disorders.1-3

These drugs come with side effects, and long-term use can lead to addiction.

Benzodiazepines cause another issue. Their use is associated with reduced melatonin levels.4-6

In one study, a single dose of a benzodiazepine derivative (which is metabolized into active benzodiazepines) before bedtime significantly suppressed the production of melatonin.4

Melatonin helps regulate our sleep cycles. This means that benzodiazepines interfere with the body’s natural ability to initiate healthy sleep.

Clinical trials show that melatonin intake can improve sleep quality in many people and appears to help reduce dependence on benzodiazepine drugs.
Dangers of Benzodiazepines

More than 50 million U.S. adults suffer from a sleep disorder like insomnia or sleep apnea.7,8

Poor sleep has been linked with health problems, including type II diabetes, obesity, and injuries. In the elderly, sleep problems are associated with increased risk of falls, frailty, and death.9-14

Many people turn to benzodiazepine drugs for help.15 These drugs enhance sleep onset, reduce the number of times waking at night, and improve total sleep time and sleep quality with short-term use.16 Too often, these drugs are taken longer than needed, increasing their addictive potential.

Well-known downsides to regular benzodiazepine use:17-19

• They are heavily sedating, impairing the ability to think clearly and increasing risk for accidents.

• They can lead to tolerance, which means users need to take higher and higher doses to get the same effect.

• They can lead to dependence or addiction.

• They come with common side effects including dizziness, weakness, depression, and confusion.

What’s less well-known is that benzodiazepines interfere with how the brain naturally promotes healthy sleep.

Benzodiazepines Deplete Melatonin

Melatonin is a hormone secreted by the brain’s pineal gland. Often called the “sleep hormone,” it is central to regulating the body’s natural sleep-wake cycle.20

Benzodiazepines interfere with the body’s natural melatonin production.4 As early as 1986, scientists found that even a single dose of a benzodiazepine derivative (which is metabolized into active benzodiazepines) before bedtime significantly suppresses the production of melatonin.4 When scientists administered a drug that blocked the action of benzodiazepines, melatonin was restored to normal levels.

Larger studies have confirmed this finding. For example, after a single nighttime dose of alprazolam (Xanax®), peak levels of melatonin in the bloodstream are roughly half what they would be normally.5,6

By trying to improve sleep quality with benzodiazepines, people are impeding their body’s natural ability to regulate sleep.

How Oral Melatonin Improves Sleep

A meta-analysis of 19 studies found that melatonin improves sleep in multiple ways, including:21

• Reducing the time it takes to fall asleep,

• Improving sleep quality, and

• Extending the duration of sleep.

Melatonin promotes relaxation and sleep, without side effects or the risk of dependence associated with benzodiazepines.

For example, an observational study of patients undergoing kidney dialysis—which is often associated with sleep disturbances—found that taking 3 mg of melatonin before bedtime was more effective than Xanax® in improving sleep quality as shown in multiple subjective sleep assessment scales.22

Regrettably, not all sleep-deprived sufferers find complete relief using melatonin alone.
Reduce Dependence on Drugs

Melatonin is safer than benzodiazepines and has side benefits that include potential to reduce risks of certain cancers.\textsuperscript{23} It is not addictive or sedating, and melatonin supports the brain’s natural ability to promote sleep instead of interfering with it.

In elderly insomniacs who use benzodiazepines to be able to sleep, adding melatonin significantly improved sleep quality and time.\textsuperscript{24} In a follow-up study, scientists evaluated whether taking melatonin could help people stop using benzodiazepines.\textsuperscript{25} They randomized elderly insomniacs on benzodiazepines to receive either 2 mg of controlled-release melatonin before bed or a placebo. During the six weeks of the study, participants were encouraged to try to wean themselves off benzodiazepines.

By the end of the study, 79\% of those taking melatonin were able to completely discontinue benzodiazepine use. In the placebo group, only 25\% were able to stop using benzodiazepines.

Life Extension advises not to discontinue any medication without prior approval from your treating physician.

Summary

The use of benzodiazepines to promote sleep comes with potential side effects and may lead to dependence.

Clinical trials show that melatonin improves sleep quality, helps people fall asleep faster, helps them stay asleep longer, and can help benzodiazepine users discontinue their use of these drugs.

The dilemma is that melatonin does not work for everyone and better methods to improve sleep quality, especially in older individuals, is urgently needed.

Please consult with your treating physician before discontinuing use of any medication.

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

Melatonin Compared to Prescription Sleep Medications

- Many people turn to benzodiazepine drugs to help promote sleep. But benzodiazepines cause sedation and are often addictive.

- Research has revealed that even a single dose of a benzodiazepine significantly lowers levels of melatonin, the sleep hormone that is integral to sleep control in the body.

- Trials show that oral melatonin promotes sleep without side effects or the risk for dependence associated with benzodiazepines.
References


8. ASA. Sleep and Sleep Disorder Statistics. AMERICAN SLEEP ASSOCIATION. 2022.


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While many people find melatonin helps improve sleep, others take it nightly for its immune protection effects. People often try a range of doses before bedtime to assess what potency works best for them.

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<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Item #</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melatonin IR/XR</td>
<td>60 capsules, 1.5 mg of combined immediate-release and extended-release melatonin in each capsule.</td>
<td>#02201</td>
<td>$9</td>
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<tr>
<td>Lower-Potency Melatonin IR/XR</td>
<td>60 capsules, 1.5 mg of combined immediate-release and extended-release melatonin in each capsule.</td>
<td>#02201</td>
<td>$9</td>
</tr>
<tr>
<td>Liquid Melatonin (Fast-Acting Liquid)</td>
<td>Citrus Vanilla • 2 fl. oz, 3 mg of melatonin per 1 mL dropper (approximately 20 drops).</td>
<td>#02234</td>
<td>$9</td>
</tr>
<tr>
<td>Melatonin Gummy</td>
<td>60 vegetarian gummies, 3 mg of melatonin in each sugar-free* vegetarian gummy.</td>
<td>#02503</td>
<td>$16.50</td>
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</tbody>
</table>

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Sometimes, the foods you love don’t love you back.

Between 16% to 31% of adults complain of bloating, which produces uncomfortable feelings of excessive fullness, gas, abdominal pressure, and pain. A whopping 66% to 90% of those with irritable bowel syndrome (IBS) suffer from the same symptoms.¹

Bloating also often goes hand-in-hand with other gastrointestinal disorders, such as dyspepsia (digestion), celiac disease, and constipation.¹

Fortunately, four plant compounds have been shown to provide effective relief from occasional digestive discomfort.

Decreased Bloating

**Fennel** and **curcumin** have traditionally been used to aid digestion. In a clinical trial, researchers combined **fennel seed oil** and **low-dose curcumin** to test their effect in patients with **irritable bowel syndrome**.²
After 30 days, those taking the fennel-curcumin blend reported an average 50% decrease in a rating score of bloating, abdominal pain, and other irritable bowel syndrome symptoms. This was nearly double the 26.1% decrease in the placebo group.

Even better, all symptoms were improved by treatment with fennel and curcumin, and 25.9% of the fennel-curcumin group became completely symptom-free (compared to just 6.8% of placebo recipients).

The treated group also reported a significant improvement in irritable bowel syndrome-related quality of life, with no adverse effects.

**Improved Digestive Symptoms**

Two additional extracts, artichoke and ginger, have been shown to substantially improve digestive symptoms like bloating, nausea, vomiting, upper abdominal pain, and feeling overly full after eating only a small amount of food.

In a clinical trial, 126 patients with functional dyspepsia (recurring and unexplained indigestion) received either 20 mg of ginger root extract and 100 mg of artichoke leaf extract or a placebo.\(^3\)

In just two weeks, 44.6% of participants taking the artichoke-ginger blend had significant improvement in digestive symptoms, compared to 13.1% of placebo recipients.

After four weeks, 63.1% of those in the treatment group reported marked reductions in digestive symptoms, compared to only 24.6% in the placebo group.

**Summary**

After-meal bloating and other gastrointestinal disturbances can impair our quality of life.

Ginger, artichoke leaf, fennel, and curcumin have shown clinical effectiveness in decreasing bloating, gas, nausea, abdominal pain, and other symptoms typical of irritable bowel syndrome as well as other gastrointestinal problems.

Together, extracts from these four plants may promote a healthier digestive system. •

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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References

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Bloat Relief helps relieve occasional discomfort, such as gas and bloating following a meal.

Scientists have combined four plant extracts that target underlying causes of gastrointestinal discomforts:

- Ginger root
- Artichoke leaf
- Fennel seed oil
- Curcumin

For maximum benefit, take one softgel twice daily before your heaviest meals.

Prodigest® is a registered trademark of Indena S.p.A., Italy.

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Normal aging results in a progressive decline in immune function with a sharp fall occurring after age 65-70 years.

Experimental studies seek to restore stem cells in bone marrow, where all immune cells originate.¹,²

The dilemma is that these stem cell renewal therapies are not yet available outside research settings.

Healthy immunity at any age, however, can be supported using nutrients that function via multiple pathways.

This article summarizes what many readers of this publication are doing to optimize their immune function.

BY MICHAEL DOWNEY

Nutrients that impact immunity

Garlic
**Garlic**

A recent review found that garlic compounds show strong antibacterial activity against a wide range of harmful bacteria, including drug-resistant strains.³

Another review reported that garlic offers antimicrobial, antifungal, anticancer, wound-healing, antioxidant, anti-inflammatory, and other protective effects.⁴ Compounds in garlic boost proliferation of T cells and function of natural killer cells.⁵⁻⁸

Garlic’s antiviral defense was demonstrated when volunteers took oral garlic containing the protective garlic compound allicin from November through February.⁹ The garlic group suffered 63% fewer cold infections than the placebo group. Those in the garlic group who did catch colds had symptoms for just 1.52 days on average, compared to 5.01 days for the placebo group.⁹ Although it contains no allicin, aged garlic extract has demonstrated potent antiviral and immune-enhancing properties.

In individuals taking an aged garlic extract, T cells and NK cells showed greater proliferation, compared to individuals taking placebo. After 90 days, the garlic group had experienced 21% fewer cold and flu symptoms and 58% fewer work/school days missed due to illness.⁵

**Lactoferrin**

Lactoferrin is a protein found in milk and produced in tears, saliva, mucus, and by some immune cells.¹⁰ It helps prevent a wide range of pathogens from entering through the linings of the oral cavity, nasal cavity, airways, and digestive system. This includes viruses that cause the common cold, flu, and hepatitis B and C.¹⁰ Lactoferrin disrupts viruses’ ability to bind to cells.¹¹ If a virus cannot attach to cells, it cannot cause illness. Lactoferrin’s indirect antiviral effects include:

- Activating and increasing natural killer cells, which eliminate abnormal cells,¹²,¹³ and
- Stimulating production of other antiviral compounds, including interferons, which trigger immune mechanisms.¹⁰,¹⁴

If viruses are already inside body cells, lactoferrin may block these pathogens from reproducing, limiting the spread of an illness and reducing its severity.¹⁰,¹⁵ Lactoferrin also enhances the immune system’s ability to monitor for potential carcinogenic cells.¹² A 2022 study concluded that, by sequestering iron, lactoferrin reduces the pathogenic potential of microorganisms, which require iron to grow and reproduce. The study concluded that lactoferrin may help maintain health at all stages of life.¹⁶

**Vitamin D**

Vitamin D fortifies immunity and has anti-microbial effects.¹⁷⁻²¹ Published studies show that vitamin D:

- Interferes with some forms of viral replication,
- Helps repair cell linings, including those in the lung airways,
- Boosts production of proteins that protect against infection, and
- Helps prevent production of excess pro-inflammatory compounds in the lungs.

Meta-analyses of clinical trials have shown that vitamin D helps protect against respiratory tract infections.²²,²³
**Low vitamin D levels have been associated with higher rates of many chronic diseases, including cancer.**

In 2022, two reviews were published documenting vitamin D’s capacity to enhance protection against both infections and cancer.

The first review noted that studies support vitamin D’s role in preventing and reducing the severity of several infectious diseases.

It also found that higher blood 25-hydroxyvitamin D levels (a measure of vitamin D levels in the body) may benefit some autoimmune rheumatic diseases.

The second review found that vitamin D provides *multi-level anti-cancer action* and protects against several cancer types.

**Zinc**

**Zinc deficiency**, which is common among the elderly, may compromise immune function and contribute to atherosclerosis, cancer, autoimmune diseases, and other age-related conditions.

Aging adults who replenish zinc levels may slow normal immune decline and protect against chronic inflammation.

Oral zinc intake in the elderly boosts the stress response of white blood cells, providing an immune anti-aging mechanism.

A 2022 review study found that zinc’s anti-viral properties can disrupt the replication and infectivity of some respiratory viruses and help regulate immune response in the respiratory tract.

**Mushrooms**

A 2022 review article concluded that medicinal mushrooms possess anticancer, anti-aging, antiviral, anti-parasitic, antimicrobial, and other beneficial properties.

Another recent review concluded that mushrooms’ ability to inhibit tumor cells makes them a “natural pharmaceutical.”

Among the most powerful of mushrooms’ immune-supporting compounds are beta glucans.

They bind to receptors on cells important for immunity, boosting their function and helping defend against infection. Beta glucans activate both the innate (the immediate, general defense) and adaptive (a later defense against specific threats) immune responses.
Preclinical studies show that melatonin improves immune response to infection by viruses, bacteria, and parasites by stimulating production and activity of T cells, natural killer cells, and macrophages that engulf and destroy invaders.  

**Melatonin** has also been found to support the immune system’s protection against cancer, inhibiting it at **every stage**.62-66  

A recent review study concluded that melatonin was a potential oncostatic, an agent that blocks cancer spread.67 Another 2022 report found that melatonin could mitigate cancer’s development, growth, and spread.68

**Vitamin C**

The activity of phagocytes (cells that surround and kill invaders), T cells, and many other immune cells is closely tied to their vitamin C content.69  

So, it makes sense that immune functions are improved by taking **vitamin C**.70,71  

A clinical trial showed that oral vitamin C reduced duration of colds by 9.4% on average and may decrease the severity of respiratory tract infections.72 (Not all studies show vitamin C to be effective against the common cold.)  

Researchers have found that vitamin C:

- Boosts function, growth, and survival of infection-fighting cells,73,74  
- Increases levels of immune-activating interferons,75,76  
- Neutralizes excess free radicals caused by infections, reducing illness severity,77  
- Promotes production of collagen, which maintains a barrier against infection, 76  
- Reduces histamine, a pro-inflammatory compound76 that plays a role in infections78 and causes allergy symptoms,79 and  
- Lowers pro-inflammatory compounds caused by infection, promoting tissue healing.80

Optimal immunity requires daily intake of vitamin C and other immune-supporting nutrients.
Summary

Age-related immune system dysfunction increases risk of infectious disease, cancer, and chronic inflammatory conditions.

Oral intake of the key immune-supporting nutrients vitamin D, zinc, lactoferrin, mushrooms, garlic, melatonin, and vitamin C can enhance immune function and partially offset age-related immune decline.

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

NUTRIENTS THAT IMPACT IMMUNITY

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Bodyguard for Your Brain

People tend to live longer in areas where lithium is abundant in the drinking water.*

Lithium is a low-cost mineral that functions in several ways to support cognition and overall brain health.

Protect healthy cognition with lithium—it’s like a bodyguard for your brain!

LITHIUM
(1,000 mcg of lithium per tiny cap)

Item #02403
100 vegetarian capsules
1 bottle $12
4 bottles $10.50 each

Each bottle lasts 100 days.


For full product description or to order Lithium, 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.
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\(^1\)
- Delaying telomere shortening\(^2\)
- Supporting DNA function in cells subjected to UV exposure\(^3\)

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.\(^4,5\)

References

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

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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) 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.

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

Lactoferrin is a component of whey protein best known for its immune benefits.

An array of published studies describes how lactoferrin up-regulates innate and adaptive immune responses to a variety of antigens.

“I can say that this formula has been a blessing to my overall well-being.”
Lucinda
VERIFIED CUSTOMER REVIEW

Item #01681
300 mg, 60 vegetarian capsules
1 bottle $45  • 2 bottles $40 each
(Two-Month Supply)

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

Contains milk.
Bioferrin® is a registered trademark of Glanbia.

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What Is Chlorophyllin?

BY LAURIE MATHENA

We are surrounded by environmental toxins.

Currently, there are more than 80,000 chemicals registered or listed under the Toxic Substance Control Act.¹

In 2020, approximately three billion pounds of these toxic chemicals—many known carcinogens—were released into the environment.²

More disturbing is the fact that most of these chemicals were never adequately tested by any government agency regarding their effects on human health.³

Studies now show that these chemicals can contribute to diabetes, heart disease, and cancer by causing mutations to our DNA.⁴⁻⁸

You can’t avoid exposure to these toxins, but you can take steps to minimize their harmful impact on your body.

An inexpensive compound called chlorophyllin helps detoxify these deadly chemicals from your body, while offering critical protection for your DNA.
Protection Against Numerous Types of Cancer

Chlorophyllin is a water-soluble derivative of the green plant substance chlorophyll. Life Extension® reported on the antimutagenic properties of chlorophyllin in the mid-1980s. Since then, numerous studies have been published showing chlorophyllin’s ability to protect against multiple types of cancer.

The liver is especially at risk because its job is to cleanse the body of these harmful toxins.

Out of the 600,000 new cases of liver cancer diagnosed yearly, it is estimated that up to 28% of them are caused by aflatoxin, which is found in multiple improperly stored foods, including peanuts, corn, pistachios, and rice.

Chlorophyllin binds to the carcinogenic byproducts of aflatoxin metabolism, which decreases the bioavailability of these cancer-causing chemicals.10,11

In this way, chlorophyllin has the potential to significantly reduce the risk of liver cancer induced by aflatoxin.

Additionally, chlorophyllin has been shown to protect against the following:

- Oral Cancer: A study in hamsters showed that chlorophyllin can prevent genetic mutations and reverse gene expression linked to oral cancer caused by the chemical dimethylbenzanthracene (DMBA).7,12

- Pancreatic Cancer: Chlorophyllin has antiproliferative effects on pancreatic cells.13

- Colon Cancer: When colon cancer cells were treated with chlorophyllin, it inhibited the enzyme ribonucleotide reductase (RR), which made these cancer cells less able to grow and more receptive to mainstream cancer chemotherapeutic agents.14

- Bladder Cancer: The combination of chlorophyllin with photodynamic therapy resulted in approximately 85% destruction of bladder cancer cells.15

- Breast Cancer: When human breast cells were exposed to the carcinogen dibenzopyrene (DBP), dangerous and unstable DNA adducts were formed. However, adding chlorophyllin to the breast cells led to a 65% decrease in the number of DNA adducts.16 Formation of DNA adducts is an early step in the formation of cancer-causing DNA mutations.17

- Stomach Cancer: Chlorophyllin has been shown to help stop the growth and metastasis of stomach cancer in rats.18

Anticarcinogenic Pathways

Chlorophyllin protects against many types of cancer because it targets multiple pathways involved in cancer development.

This compound, associated with healthy green plants, has demonstrated anticarcinogenic effects against a variety of widespread environmental toxins.19

- Chlorophyllin helps prevent carcinogens such as heterocyclic amines from altering DNA to inflict malignant changes.20

- It limits the formation of DNA adducts caused by known carcinogens, including dibenzanthracene, dibenzopyrene and benzoprenanthrene.21

- It functions as an antimutagenic agent against chemicals such as PhiP, which are known to be involved in colon, prostate, pancreatic, and breast cancer.21,22

- It protects against mutations of the p53 tumor suppressor gene. Protecting healthy expression of p53 is a critical factor that helps guard against cancerous changes.23

Proper use of chlorophyllin affords considerable defense against the natural and man-made toxins that permeate our food and environment.

Health-conscious individuals sometimes take around 100 mg of chlorophyllin with heavy meals to protect DNA from environmental and dietary mutagens.

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

References

MacuGuard® Ocular Support provides:

- Lutein, trans-zeaxanthin, and meso-zeaxanthin help maintain structural integrity of the macula and retina.¹⁻⁵

- Cyanidin-3-glucoside assists with night vision.⁶⁻⁷

- Saffron has been shown to help support vision as demonstrated by doctors’ eye exams.¹

- Alpha-carotene further helps support macular density.¹

MacuGuard® Ocular Support with Saffron + Astaxanthin

Item #01993 • 60 softgels

1 bottle $33 • 4 bottles $30 each

(Each bottle lasts for two months.)

MacuGuard® Ocular Support is available with or without astaxanthin.

For full product description and to order either of these MacuGuard® formulas, call 1-800-544-4440 or visit www.LifeExtension.com
The Two-Per-Day multinutrient formula is superior to commercial multivitamins because it provides vastly higher potencies of vitamins, minerals and plant extracts.

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

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For full product description and to order TWO-PER-DAY MULTIVITAMIN, call 1-800-544-4440 or visit www.LifeExtension.com
You know zinc is good for you—but are you getting enough?

**Zinc** promotes healthy immune responses.

Life Extension® provides **50 mg** of highly **absorbable** zinc in each vegetarian capsule.

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

OptiZinc® is a Lonza trademark, registered in the USA.

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DETOX YOUR DNA

DNA is under constant attack from environmental and food toxins that can cause unwanted changes. Plant compounds have been shown to help protect DNA structure against unwanted changes. Some people today take 100 mg of chlorophyllin with heavy meals. Others take a multi-nutrient formula that provides:

- Chlorophyllin extract
- Watercress extract
- Hops extract

“Love this stuff.”
Andrew
VERIFIED CUSTOMER REVIEW

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

XanthoForce™ is a trademark of Berg Imports, LLC.

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Quercetin has demonstrated significant health benefits, but higher doses are often required to achieve optimal results. A novel phytosome delivery technology markedly increases absorption to deliver more quercetin throughout one’s body.

For daily quercetin supplementation, take just one of the highly absorbable Bio-Quercetin Phytosome capsules.

One small 10 mg quercetin dose of Bio-Quercetin provides a 500 mg equivalent dose of standard quercetin!*

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1 bottle $9 • 4 bottles $8 each

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

* Supplier Internal Study: Data on File. 2017

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Cook for Your Gut Health:
Quiet Your Gut, Boost Fiber, and Reduce Inflammation

Gut health is vital to your overall health and longevity. Beyond influencing your digestive system, it plays a role in immunity, emotions, and in how well you absorb nutrients from food.

The cookbook, *Cook for Your Gut Health*, from America’s Test Kitchen, provides recipes designed to encourage a healthy microbiome.

These recipes are packed with fiber to help keep you regular, provide prebiotics that help feed the good bacteria in your gut, and help prevent chronic inflammation in your GI tract.

All the recipes can be adjusted to be gluten-free, lactose-free, or wheat-free. And 60 of the recipes in *Cook for Your Gut Health* are naturally low FODMAP, while others can be easily customized to be low FODMAP.

FODMAPs are fermentable carbohydrates that are notorious for triggering digestive symptoms like pain, gas, and bloating. A low-FODMAP diet is recommended for anyone suffering from irritable bowel syndrome (IBS) and other digestive disorders.

In addition to its gut-friendly recipes, *Cook for Your Gut Health* provides an in-depth education on the science of gut health, how to eat to support a healthy gut, and information on the low-FODMAP diet.

The following recipes from the book prove that you don’t have to sacrifice flavor or variety to support a healthy gut.

—Laurie Mathena
Pea and Feta Frittata

SERVES 4

12 large eggs

1/3 cup whole milk

1/2 teaspoon plus pinch table salt, divided

2 ounces feta cheese, crumbled into 1/2-inch pieces (1/2 cup)

2 tablespoons minced fresh oregano

2 tablespoons extra-virgin olive oil, divided

2 cups frozen peas

Pinch red pepper flakes (optional)

1/2 teaspoon grated lemon zest plus 2 teaspoons juice, divided

6 ounces (6 cups) baby arugula

1 fennel bulb, stalks discarded, bulb halved, cored, and sliced thin

1. Adjust oven rack to middle position and heat oven to 350 degrees. Whisk eggs, milk, and 1/2 teaspoon salt in bowl until well combined. Stir in feta and oregano.

2. Heat 1 teaspoon oil in 12-inch oven-safe nonstick skillet over medium-high heat until shimmering. Add peas, pepper flakes, and 1/4 cup water. Cover and cook until peas are bright green and just tender, 3 to 5 minutes. Uncover, stir in lemon zest and 1/2 teaspoon juice and cook until skillet is dry, about 1 minute.

3. Add egg mixture and cook, using rubber spatula to stir and scrape bottom of skillet until large curds form and spatula leaves trail through eggs but eggs are still very wet, about 30 seconds. Smooth curds into even layer and cook, without stirring, for 30 seconds. Transfer skillet to oven and bake until frittata is slightly puffy and surface bounces back when lightly pressed, 6 to 9 minutes.

4. Using rubber spatula, loosen frittata from skillet and transfer to cutting board. Let sit for 5 minutes. Meanwhile, whisk remaining 5 teaspoons oil, remaining 2 teaspoons lemon juice, and remaining pinch salt together in large bowl.

Add arugula and fennel and toss to coat. Season with salt and pepper to taste. Serve.

Make it Low FODMAP Substitute dairy-free or lactose-free milk for whole milk. Substitute 2 cups frozen broccoli florets, thawed and chopped, for peas. Increase arugula to 8 ounces and reduce fennel to 1/2 bulb.

Make it Dairy Free Substitute dairy-free milk for the whole milk. Omit feta.
Salmon, Avocado, Orange, and Watercress Salad

SERVES 4

2 (6- to 8-ounce) skin-on salmon fillets, 1 inch thick
3 tablespoons plus 1 teaspoon extra-virgin olive oil, divided
¾ teaspoon table salt, divided
½ teaspoon pepper
3 oranges
1 teaspoon white wine vinegar
1 teaspoon Dijon mustard
4 ounces (4 cups) watercress, torn into bite-size pieces
1 avocado, halved, pitted, and sliced thin
¼ cup fresh mint leaves, torn
¼ cup hazelnuts, toasted and chopped

1. Adjust oven rack to lowest position, place aluminum foil-lined rimmed baking sheet on rack, and heat oven to 500 degrees. Make 4 or 5 shallow slashes, about 1 inch apart, on skin side of each fillet, being careful not to cut into flesh. Pat salmon dry with paper towels, rub with 1 teaspoon oil, and sprinkle with ¼ teaspoon salt and pepper.

2. Reduce oven temperature to 275 degrees and remove sheet from oven. Carefully place salmon skin side down on hot sheet. Roast until center is still translucent when checked with tip of paring knife and registers 125 degrees (for medium-rare), 8 to 12 minutes. Transfer salmon to plate. Let cool completely, about 20 minutes. Using 2 forks, flake salmon into rough 2-inch pieces; discard skin.

3. Meanwhile, cut away peel and pith from oranges. Holding fruit over bowl, use paring knife to slice between membranes to release segments. Measure out 2 tablespoons orange juice and transfer to separate bowl.

4. Add vinegar, mustard, remaining 3 tablespoons oil, and remaining ½ teaspoon salt to bowl with orange juice and whisk until smooth. Arrange watercress in even layer on serving platter. Top with salmon pieces, orange segments, and avocado. Drizzle vinaigrette over top, then sprinkle with mint and hazelnuts. Serve.

Make it Low FODMAP Reduce avocado to ½ avocado (4 ounces).
Pan-Seared Chicken Breasts with Artichoke, Tomato, and Bulgur Pilaf

SERVES 4

½ teaspoon ground cumin
¼ teaspoon plus ¼ teaspoon table salt, divided
¼ teaspoon pepper
4 (6-ounce) boneless, skinless chicken breasts, trimmed
¼ cup extra-virgin olive oil, divided
1 ½ cups jarred whole baby artichokes packed in water, rinsed, patted dry, and quartered
2 ¼ cups water
1 ½ cups medium-grind bulgur
10 ounces cherry tomatoes, halved
3 ounces feta cheese, crumbled (¼ cup)
¾ cup minced fresh parsley
½ cup pitted kalamata olives, chopped
1 tablespoon lemon juice

1. Combine cumin, ¼ teaspoon salt, and pepper in bowl. Cover chicken breasts with plastic wrap and pound to uniform thickness as needed. Pat dry with paper towels and sprinkle with cumin mixture.

2. Heat 1 tablespoon oil in 12-inch skillet over medium-high heat until just smoking. Cook breasts, turning as needed, until golden brown and register 160 degrees, about 10 minutes. Transfer breasts to plate, tent with aluminum foil, and let rest while preparing pilaf.

3. Heat 1 tablespoon oil in now-empty skillet over medium-high heat until shimmering. Add artichoke hearts and cook, without stirring, until spotty brown, about 2 minutes. Stir in water, scraping up any browned bits, and bring to boil. Stir in bulgur and remaining ¼ teaspoon salt. Off heat, cover and let sit until grains are softened and liquid is fully absorbed, about 5 minutes.

4. Add tomatoes, feta, parsley, olives, lemon juice, and remaining 2 tablespoons oil to pilaf and gently fluff with fork to combine. Season with pepper to taste. Serve chicken with pilaf.

Make It Dairy Free Omit feta.

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 Cook for Your Gut Health, call 1-800-544-4440 or visit www.LifeExtension.com

Item #34192 • Price: $22.49
Do the answers not come as quickly as they used to? A healthy adult brain has as many as 100 billion nerve cells.

Supercharge their performance with Cognitex® Elite.

The nutrients in this comprehensive brain health formula support youthful memory and cognition to help you stay focused on living your healthiest life.

For full description and to order Cognitex® Elite products, call 1-800-544-4440 or visit www.LifeExtension.com

Do not use if you are of childbearing age, pregnant or planning to become pregnant.

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- 02020 Super Carnosine
- 02023 Tart Cherry with CherryPURE®
- 02146 Wellness Bar–Chocolate Brownie
- 02147 Wellness Bar–Cookie Dough
- 02246 Wellness Code® Advanced Whey Protein Isolate Vanilla
- 02221 Wellness Code® Muscle Strength & Restore Formula
- 02147 Wellness Code® Plant Protein Complete & Amino Acid Complex
- 02261 Wellness Code® Whey Protein Concentrate Chocolate
- 02260 Wellness Code® Whey Protein Concentrate Vanilla
- 02243 Wellness Code® Whey Protein Isolate Chocolate
- 02242 Wellness Code® Whey Protein Isolate Vanilla

### Amino Acids
- 00038 Arginine Ornithine Powder
- 01253 Branched Chain Amino Acids
- 01829 Carnosine
- 01671 D,L-Phenylalanine Capsules
- 01532 L-Carnitine
- 00345 L-Glutamine
- 00133 Taurine Powder
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### Blood Pressure & Vascular Support
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- 02004 Arterial Protect
- 02497 Endothelial Defense™ Pomegranate Plus
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- 00984 Optimal BP Management
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- 02024 Triple Action Blood Pressure AM/PM
- 02102 VenoFlow™

### Bone Health
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- 02123 Bone Restore Chewable Tablet
- 02416 Bone Restore Elite with Super Potent K2
- 01727 Bone Restore with Vitamin K2
- 01725 Bone Strength Collagen Formula
- 00313 Bone-Up™
- 01963 Calcium Citrate with Vitamin D
- 01506 Dr. Strum’s Intensive Bone Formula
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### Brain Health
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- 01974 Acetyl-L-Carnitine Arginate
- 02419 B12 Elite
- 02510 Brain Fog Relief
- 01659 CDP Choline
- 02321 Cognitex® Basics
- 02396 Cognitex® Elite
- 02397 Cognitex® Elite Pregnenolone
- 01540 DMAE Bitartrate
- 02006 Dopa-Mind™
- 02413 Dopamine Advantage
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- 01805 Ginseng Energy Boost
- 00668 Metabolic Advantage Thyroid Formula™
- 01869 Mitochondrial Basics with PQQ
- 01868 Mitochondrial Energy Optimizer with PQQ
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- 02344 NAD+ Cell Regenerator™ - 300 mg, 30 veg capsules
- 02348 NAD+ Cell Regenerator™ and Resveratrol Elite™
- 01500 PQQ Caps
- 01647 PQQ Caps
- 00889 Rhodiola Extract
- 02003 Triple Action Thyroid

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- 01630 Adrenal Energy Formula • 120 veg capsules
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- 01473 D-Ribose Tablets
- 01900 Energy Renew
- 01544 Forskolin
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- 00893 Brite Eyes III
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- 01514 Eye Pressure Support with Mirtogenol®
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- 01988 Super Omega-3 Plus EPA/DHA Fish Oil, Sesame Lignans, Olive Extract, Krill & Astaxanthin
- 01982 Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 120 softgels
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PRODUCTS

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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
02423 Daily Skin Defense
80141 DNA Support Cream
80163 Eye Lift Cream
80123 Face Rejuvenating Anti-Oxidant Cream
80109 Hyaluronic Facial Moisturizer
80110 Hyaluronic Oil-Free Facial Moisturizer
80188 Hydrating Anti-Oxidant Facial Mist
00661 Hydroderm
55495 Intensive Moisturizing Cream
80168 Lifting & Tightening Complex
80162 Melatonin Advanced Peptide Cream
80114 Mild Facial Cleanser
80172 Multi Stem Cell Hydration Cream
80159 Multi Stem Cell Skin Tightening Complex
80122 Neck Rejuvenating Anti-Oxidant Cream
80150 Renewing Eye Cream
80142 Resveratrol Anti-Oxidant Serum
01938 Shade Factor™
02129 Skin Care Collection Anti-Aging Serum
02130 Skin Care Collection Day Cream
02131 Skin Care Collection Night Cream
80166 Skin Firming Complex
02096 Skin Restoring Ceramides
80130 Skin Stem Cell Serum
80164 Skin Tone Equalizer
80143 Stem Cell Cream with Alpine Rose
80148 Tightening & Firming Neck Cream
80161 Triple-Action Vitamin C Cream
80152 Turbo Sloan Peptide Cream
80157 Vitamin C Lip Rejuvenator
80129 Vitamin C Serum
80136 Vitamin D Lotion
80102 Vitamin K Cream

SLEEP

01512 Bioactive Milk Peptides
02300 Circadian Sleep
01551 Enhanced Sleep with Melatonin
01511 Enhanced Sleep without Melatonin
02234 Fast-Acting Liquid Melatonin
01669 Glycine
02308 Herbal Sleep PM
01722 L-Tryptophan
01668 Melatonin - 300 mcg, 100 veg capsules
01083 Melatonin - 500 mcg, 200 veg capsules
00329 Melatonin - 1 mg, 60 capsules
02503 Melatonin - 3 mg, 60 gummies
00330 Melatonin - 3 mg, 60 veg capsules
00331 Melatonin - 10 mg, 60 veg capsules
00332 Melatonin - 3 mg, 60 veg lozenges
02201 Melatonin IR/XR
01787 Melatonin 6 Hour Timed Release 300 mcg, 100 veg tablets
01788 Melatonin 6 Hour Timed Release 750 mcg, 60 veg tablets
01786 Melatonin 6 Hour Timed Release 3 mg, 60 veg tablets
01721 Optimized Tryptophan Plus
01444 Quiet Sleep
01445 Quiet Sleep Melatonin
02502 Rest & Renew

VITAMINS

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

WEIGHT MANAGEMENT & BODY COMPOSITION

02479 7-Keto® DHEA Metabolite - 100 mg, 60 veg capsules
01807 Advanced Appetite Suppress
02207 AMPK Metabolic Activator
02504 Body Trim and Appetite Control
02478 DHEA Complete
01738 Garcinia HCA
02506 Mediterranean Weight Management
01432 Optimized Saffron
00818 Super CLA Blend with Sesame Lignans
02509 Waistline Control™

WOMEN'S HEALTH

01942 Breast Health Formula
01626 Enhanced Sex for Women 50+
01894 Estrogen for Women
01064 Femmenessence MacaPause®
02204 Menopause 731™
02319 Prenatal Advantage
01441 Progesta-Care®
01649 Super-Absorbable Soy Isoflavones
02507 Youthful Woman 40+ with B-Complex
FLORASSIST® GI
for a Healthy Digestion

Phages target bad intestinal bacteria, allowing beneficial strains to flourish.

FLORASSIST® GI provides a 7-strain blend of probiotics in a dual encapsulation formula to deliver beneficial bacteria and phages where you need them the most.

Dual-Encapsulation Delivery

Item #02125 • 30 liquid vegetarian capsules
1 bottle $24.75 • 4 bottles $22.50 each

Note: Color of inner capsule may vary but does not affect ingredients.

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"I have taken this supplement for a long time. It works!"
Ingrid
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The best way to keep YOU in the picture.

**Ultra Prostate Formula** was created to help maintain prostate health. It contains a dozen ingredients to:

- Support healthy urination
- Promote healthy prostate function
- Support healthy prostate cell division

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

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

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A British study reveals 19-year deficits in healthy longevity based on socioeconomic and behavioral patterns.

22  CITRUS EXTRACT REDUCES BELLY FAT
In two human trials, a new citrus extract decreased waist circumference up to 2.79 inches.

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Researchers have identified anti-cancer compounds in an Asian vine called Gynostemma pentaphyllum.

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A single dose of common sleeping pills such as Xanax® can suppress production of melatonin and create other health issues.

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