

Common Vegetable Oil *Increases* Heart Attack Risk

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Research Report

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EDITORIAL

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CONTRIBUTORS

Ben Best • Virginia Chen • Michael Downey • Kris Massey • Sharon Mintz
Kyle Roderick • Edward R. Rosick, DO, MPH, DABIHM

ADVERTISING

Vice President of Marketing • Rey Searles • rsearles@lifeextension.com
National Advertising Manager • Leslie Stockton • 404-347-1755

VICE PRESIDENT OF SALES AND BUSINESS DEVELOPMENT

Ron Antriasian • rantriasian@lifeextension.com • 781-271-0089

CIRCULATION & DISTRIBUTION

Life Extension • 3600 West Commercial Blvd., Fort Lauderdale, FL 33309
Editorial offices: 954-766-8433 • fax: 954-491-5306

Customer Service: 800-678-8989

Email: customerservice@LifeExtension.com

Wellness specialists: 800-226-2370 • Wellness email: wellness@LifeExtension.com

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Magazine

Gustavo Tovar Baez, MD, operates the Life Extension Clinic in Caracas, Venezuela. He is the first physician in Caracas to specialize in anti-aging medicine.

Ricardo Bernales, MD, is a board-certified pediatrician and general practitioner in Chicago, IL, focusing on allergies, bronchial asthma, and immunodeficiency.

Mark S. Bezzek, MD, FACP, FAARM, FAAEM, is board-certified in internal medicine, emergency medicine, and anti-aging/regenerative medicine. He is the director of Med-Link Consulting, which specializes in bioidentical hormone replacement therapy, natural alternatives, anti-aging, and degenerative diseases. He holds US patents for a multivitamin/mineral supplement, an Alzheimer's/dementia compilation, and a diabetic regimen.

Anna M. Cabeca, DO, FACOG, ABAARM, is a board-certified gynecologist and obstetrician, as well as board-certified in anti-aging and regenerative medicine, an expert in functional medicine, and an expert in women's health. She specializes in bioidentical hormone replacement therapy and natural alternatives, successful menopause and age-management medicine.

Thomas F. Crais, MD, FACS, a board-certified plastic surgeon, was medical director of the microsurgical research and training lab at Southern Baptist Hospital in New Orleans, LA, and currently practices in Sun Valley, ID.

William Davis, MD, is a preventive cardiologist and author of *Wheat Belly: Lose the Wheat, Lose the Weight* and *Find Your Path Back to Health*. He is also medical director of the online heart disease prevention and reversal program, *Track Your Plaque* (www.trackyourplaque.com).

Martin Dayton, MD, DO, practices at the Sunny Isles Medical Center in North Miami Beach, FL. His focus is on nutrition, aging, chelation therapy, holistic medicine, and oxidative medicine.

John DeLuca, MD, DC, is a 2005 graduate of St. George's University School of Medicine. He completed his internal medicine residency at Monmouth Medical Center in Long Branch, NJ, in 2008 and is board-certified by the American Board of Internal Medicine. Dr. DeLuca is a Diplomate of the American Academy of Anti-Aging Medicine and has obtained certifications in hyperbaric medicine, pain management, nutrition, strength and conditioning, and manipulation under anesthesia.

Sergey A. Dzugan, MD, PhD, was formerly chief of cardiovascular surgery at the Donetsk Regional Medical Center in Donetsk, Ukraine. Dr. Dzugan's current primary interests are anti-aging and biological therapy for cancer, cholesterol, and hormonal disorders.

Patrick M. Fratellone, MD, RH, is the founder and executive medical director of Fratellone Associates. He completed his internal medicine and cardiology fellowship at Lenox Hill Hospital in 1994, before becoming the medical director for the Atkins Center for Complementary Medicine.

Carmen Fusco, MS, RN, CNS, is a research scientist and clinical nutritionist in New York City who has lectured and written numerous articles on the biochemical approach to the prevention of aging and degenerative diseases.

Norman R. Gay, MD, is proprietor of the Bahamas Anti-Aging Medical Institute in Nassau, Bahamas. A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth and Sports.

Mitchell J. Ghen, DO, PhD, holds a doctorate in holistic health and anti-aging and serves on the faculty of medicine at the Benemerita Universidad Autonoma De Puebla, Mexico, as a professor of cellular hemopoietic studies.

Gary Goldfaden, MD, is a clinical dermatologist and a lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology of Hollywood, FL, and COSMESIS Skin Care.

Miguelangelo Gonzalez, MD, is a certified plastic and reconstructive surgeon at the Miguelangelo Plastic Surgery Clinic, Cabo San Lucas.

Garry F. Gordon, MD, DO, is a Payson, AZ-based researcher of alternative approaches to medical problems that are unresponsive to traditional therapies. He is president of the International College of Advanced Longevity Medicine.

Richard Heifetz, MD, is a board-certified anesthesiologist in Santa Rosa, CA, specializing in the delivery of anesthesia for office-based plastic/cosmetic surgery, chelation therapy, and pain management.

Roberto Marasi, MD, is a psychiatrist in Brescia and in Piacenza, Italy. He is involved in anti-aging strategies and weight management.

Maurice D. Marholin, DC, DO, is a licensed chiropractic physician and board-certified osteopathic family physician. While training at the University of Alabama, he completed Fellowships in Clinical Nutrition and Behavioral Medicine. He is currently in private practice in Clermont, FL.

Prof. Francesco Marotta, MD, PhD, of Montepapaleone Medical Center, Milan, Italy, is a gastroenterologist and nutrigenomics expert with extensive international university experience. He is also a consulting professor at the WHO-affiliated Center for Biotech & Traditional Medicine, University of Milano, Italy and hon. res. professor, Human Nutrition Dept, TWU, USA. He is the author of over 130 papers and 400 congress lectures.

Philip Lee Miller, MD, is founder and medical director of the Los Gatos Longevity Institute in Los Gatos, CA.

Michele G. Morrow, DO, FAAFP, is a board-certified family physician who merges mainstream and alternative medicine using functional medicine concepts, nutrition, and natural approaches.

Filippo Ongaro, MD, is board-certified in anti-aging medicine and has worked for many years as flight surgeon at the European Space Agency. He is considered a pioneer in functional and anti-aging medicine in Italy where he also works as a journalist and a writer.

Herbert Pardell, DO, FAAIM, practices internal medicine at the Emerald Hills Medical Center in Hollywood, FL. He is a medical director of the **Life Extension Foundation[®]**.

Lambert Titus K. Parker, MD, an internist and a board-certified anti-aging physician, practices integrative medicine from a human ecology perspective with emphasis on personalized brain health, biomarkers, genomics and total health optimization. He serves as the Medical Director of Integrative Longevity Institute of Virginia, a 501(c)3 Non-Profit Medical Research Institute. He also collaborates on education and research for Hampton Roads Hyperbaric Therapy.

Ross Pelton, RPh, PhD, CCN, is director of nutrition and anti-aging research for Intramedicine, Inc.

Patrick Quillin, PhD, RD, CNS, is a clinical nutritionist in Carlsbad, CA, and formerly served as vice president of nutrition for Cancer Treatment Centers of America, where he was a consultant to the National Institutes of Health.

Allan Rashford, MD, graduated from the University of Iowa Medical School. Upon completing medical training, he became chief of medicine at St. Francis Hospital in South Carolina, and he was later named president of the Charleston Medical Society.

Marc R. Rose, MD, practices ophthalmology in Los Angeles, CA, and is president of the Rose Eye Medical Group. He is on the staff of Pacific Alliance Medical Center, Los Angeles, and other area hospitals.

Michael R. Rose, MD, a board-certified ophthalmologist with the Rose Eye Medical Group in Los Angeles, CA, is on the staff of the University of Southern California and UCLA.

Ron Rothenberg, MD, is a full clinical professor at the University of California San Diego School of Medicine and founder of California HealthSpan Institute in San Diego, CA.

Roman Rozencaiwag, MD, is a pioneer in research on melatonin and aging. He practices in Montreal, Canada, as research associate at Montreal General Hospital, Department of Medicine, McGill University.

Michael D. Seidman, MD, FACS, is the director of otolaryngology-head and neck surgery for the Bloomfield satellite of Henry Ford Health System (HFHS), Detroit, MI, co-director of the Tinnitus Center, and co-chair of the Complementary/ Alternative Medicine Initiative for HFHS.

Ronald L. Shuler, BS, DDS, CCN, LN, is involved in immunoncology for the prevention and treatment of cancer, human growth hormone secretagogues, and osteoporosis. He is board-certified in anti-aging medicine.

Paul Wand, MD, Fort Lauderdale, FL, is a clinical neurologist with special expertise in treating and reversing diabetic peripheral neuropathy and brain injuries from various causes.



Örn Adalsteinsson, PhD, is chairman of the **Life Extension®** Scientific Advisory board. He holds a master's and doctorate from the Massachusetts Institute of Technology (MIT). He has specialized in human therapeutics including vaccines, monoclonal antibodies, product development, nutraceuticals, formulations, artificial intelligence, hormones, and nutritional supplementation. He has also authored articles and contributed to peer-reviewed publications and served as an editor for the *Journal of Medicinal Food*.



John Boik, PhD, is the author of two books on cancer therapy, *Cancer and Natural Medicine* (1996) and *Natural Compounds in Cancer Therapy* (2001). He obtained his doctorate at the University of Texas Graduate School of Biomedical Sciences with research at the MD Anderson Cancer Center, focusing on screening models to identify promising new anti-cancer drugs. He conducted his postdoctoral training at Stanford University Department of Statistics. He is currently president of New Earth BioMed, a nonprofit cancer research corporation that studies mixtures of natural products.



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



Frank Eichhorn, MD, is a urologist specializing in prostate cancer for 10 years. He has a private practice in Bad Reichenhall, Germany, and is prostate cancer consultant at the Urologische Klinik Castringius, Planegg, Munich. In his integrative approach to prostate cancer he works together with an international network of experts to improve treatment outcomes for prostate cancer patients with a special focus on natural and translational medicine.



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



Steven B. Harris, MD, is president and director of research at Critical Care Research, a company that grew out of 21st Century Medicine in Rancho Cucamonga, CA. Dr. Harris participates in groundbreaking hypothermia, cryothermia, and ischemia research. His research interests include antioxidant and dietary-restriction effects in animals and humans.



Peter H. Langsjoen, MD, FACC, is a cardiologist specializing in congestive heart failure, primary and statin-induced diastolic dysfunction, and other heart diseases. A leading authority on coenzyme Q10, Dr. Langsjoen has been involved with its clinical application since 1983. He is a founding member of the executive committee of the International Coenzyme Q10 Association, a fellow of the American College of Cardiology, and a member of numerous other medical associations.



Dipnarine Maharaj MD, MB, ChB, FRCP (Glasgow), FRCP (Edinburgh), FRCPPath., FACP

Dr. Dipnarine Maharaj is the Medical Director of the South Florida Bone Marrow Stem Cell Transplant Institute and is regarded as one of the world's foremost experts on adult stem cells. He received his medical degree in 1978 from the University of Glasgow Medical School, Scotland. He completed his internship and residency in Internal Medicine and Hematology at the University's Royal Infirmary.



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



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



Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Tukwila, WA. He received his MD from the University of Michigan and has taught natural biochemical medical treatments since 1983. Dr. Wright pioneered the use of bioidentical estrogens and DHEA in daily medical practice. He has authored or co-authored 14 books, selling over 1.5 million copies.



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



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Wrong Vegetable Oil Increases Heart Attack Risk



BY WILLIAM FALOON

Heart attack rates peaked in the United States in **1968**.

In this era, it was not unusual for a man under age **60** to die from sudden **cardiac arrest**.¹

A debate raged in the **1960s** as to which **dietary factors** were responsible for the epidemic of **coronary artery** blockage.

One side claimed **saturated fat** to be a factor because it raised blood cholesterol. They pointed to studies showing that **vegetable fat** sources such as **corn** and **safflower oil** lowered **cholesterol** and would therefore reduce heart attack risk.

These **vegetable** sources of oil contain high amounts of **omega-6** fats. Excessive consumption of omega-6s can create chronic **inflammatory** reactions.² Inflammation is involved in the development of **atherosclerosis**.^{3,4}

The natural health community long ago urged people to limit their intake of **omega-6** fats and add plentiful quantities of **omega-3** (from fish sources) and **monounsaturated** fats (from olive oil and nuts).

Battling against these recommendations are endless commercial advertisements promoting **corn** and **safflower oil** brands as being heart healthy.

A study just published in *The British Medical Journal* uncovered startling data from a huge

human study initiated nearly 50 years ago. It turns out that while omega-6 oils reduce cholesterol, those individuals who consume too much may be at higher risk of death, especially in people over age 65.⁵

In other words, the nearly five-decade practice of replacing butter and other saturated fats with corn oil and other omega-6 fats was an apparent mistake.

This issue of *Life Extension Magazine*[®] describes the benefits of heart healthy extra virgin **olive oil** and why it should be ingested in lieu of most saturated fats and certain vegetable oils.



As late as 2009, the **American Heart Association** stated that a diet low in saturated fat and moderately high in omega-6 fatty acids was probably beneficial for the heart.⁶

This advice was based partially on evidence that people who ate lots of beef and butter were at higher risk for coronary artery disease.^{7,8}

While avoiding high intakes of **saturated fats** makes sense, we have long warned about the dangers of consuming excess amounts of **omega-6 fats**, which permeate today's American diet.

The typical American diet contains a ratio of **17** omega-6 fats for every **1** omega-3.⁹

A review of the scientific literature reveals that an optimal ratio of omega-6 to omega-3 in the diet is roughly 4 to 1, though some propose that the ratio should be **2** omega-6 fats to **1** omega-3.¹⁰⁻¹² Other researchers have recommended a 1:1 ratio, meaning that equal amounts of **omega-6s** to **omega-3s** should be ingested for optimal health.¹¹⁻¹⁴

What's overlooked is the role that **monounsaturated fats** and their accompanying **polyphenols** play in heart health and overall longevity. The easiest way of including them in one's diet is to use plentiful quantities of extra virgin **olive oil** along with a handful of **walnuts**.

Revealing Analysis of Previous Data

A new analysis of old human data revealed startling statistics that made headline news stories earlier this year.¹⁵ It turned out that people who consumed a diet high in omega-6-rich **corn oil** had **higher** overall risk of **death** than those who consumed **butter**.

This is not to say eating lots of butter is beneficial. We know it raises cholesterol and increases certain types of cancer.^{16,17} What this analysis published in *The British Medical Journal*⁵ revealed is an ominous possibility of **increased risk of death** in people over age 65 who:

- Used liquid corn oil in place of other cooking fats (including hydrogenated oils)
- Used vegetable oils high in omega-6s on food such as salads
- Used corn oil-based margarine in place of butter

People who followed the above diet **reduced** their average **saturated fat** intake by about **50%**, but **increased** linoleic acid (an **omega-6 fat**) ingestion by more than **280%**!

This large increase in percentage of **omega-6 fats** is likely to have caused the adverse effects in people who thought they were consuming a heart-healthy diet.

The evidence for this report came from an analysis of data obtained from a human study conducted nearly 50 years ago. Corroborating this finding are results from randomized controlled studies that show consuming diets rich in omega-6s do



not necessarily reduce the risk of heart attack or overall mortality despite reductions in total and LDL cholesterol.^{18,19}

Since excess **omega-6s** increase **systemic inflammation** and they are chemically modified into highly **oxidative fats**, it's easy to make a connection as to why ingestion of omega-6-rich corn oil and derived products (like soft tub margarine derived from corn oil) are in fact dangerous to overconsume.

You've probably watched thousands of commercials in which corn oil and other omega-6 fats were promoted as being heart healthy. Cardiac patients for decades were urged by physicians to switch from **saturated** to **omega-6** fats. This dietary change did not reduce heart attack incidence. The need to include beneficial **omega-3s** is still overlooked by many in the medical mainstream.

Longevity Benefits of Olive Oil

A large volume of published data has emerged in support of the wide-ranging health benefits of including lots of **olive oil** in one's diet.²⁰⁻²⁶

Olive oil, rich in monounsaturated fat, is a major component of the **Mediterranean diet**, which consistently confers longevity benefits in human populations.²⁷⁻³²

Not only does olive oil reduce **vascular risks** (heart attack,³³⁻³⁸ stroke^{39,40} and hypertension^{41,42}), but compelling evidence indicates that it may also reduce incidence of several forms of **cancer**.⁴³⁻⁴⁷

While **olive oil** is rich in **mono-unsaturated fats**, it also contains **polyphenols** that have shown unique health benefits.^{21,48-52}

A notable recent study included 7,216 men and women at high risk for cardiovascular disease who



were randomized into various diet groups. After a median follow-up of only 4.8 years and adjustments for other risk factors, those who consumed the most **extra virgin olive oil** enjoyed a **39% reduced** risk of cardiovascular disease and **35% reduced** risk of cardiovascular mortality.⁵³

For each **10 gram** per day **increase** of **extra virgin olive oil** consumption, there was a **7% decreased** risk of cardiovascular mortality.⁵³

Olive Oil Superior to Cardiac Drugs

The huge (**35%**) reduction in cardiovascular mortality and relative lack of side effects from extra virgin olive oil is highly impressive. In fact, if a **drug** were developed with these benefits and excellent safety profile, it would be a blockbuster.

This does not mean you should avoid medications properly prescribed by your physician. What it reveals is the huge impact that

dietary factors like **extra virgin olive oil** have on human longevity.

It also exposes what may be a fallacy in the decades-long advice for cardiac patients to cut back on all forms of fat. While **Dean Ornish** and **Nathan Pritikin** documented reversals of coronary disease in heart attack patients who consumed **ultra-low** fat diets, it is very difficult to comply with these near-zero fat diets in real world settings.

Adding **extra virgin olive oil** (in place of omega-6 fats like corn oil) is both tasty and easy to comply with.

No Surprises for Longtime Readers of Life Extension Magazine

The stream of new studies validating the health benefits of **extra virgin olive oil** should come as no revelation to longtime readers of **Life Extension Magazine**.

We've been avid proponents of **extra virgin olive oil** and its beneficial **polyphenols** for decades.

Recent studies you'll read about in this month's issue reveal even greater health benefits to consuming **extra virgin olive oil** than were previously documented.

One concern we have with commercial olive oil is that some brands are diluted with cheap omega-6 oils. The reason for this is that extra virgin olive oil costs more to produce than corn, safflower and other oils.

For readers concerned about getting **100% extra virgin olive oil**, we've identified a source that is grown in **California** that takes extraordinary steps to ensure their product is extra-pure.

For longer life,



William Faloon

References

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Increased Mortality Risk Associated with Inflammation-Promoting Diet

An article published in the *American Journal of Clinical Nutrition* reports an association between a higher **Dietary Inflammatory Index** score and an increased risk of mortality from cardiovascular disease and cancer over a median of 12.4 years.*

The investigation included 8,089 men and women enrolled in a study that compared the effects of a placebo to low-dose supplementation with vitamins C and E, beta-carotene, selenium, and zinc from 1994 to 2002. Participants' dietary records were utilized to calculate each subject's Dietary Inflammatory Index score.

Participants whose dietary inflammation scores were among the top one-third of subjects had a risk of dying from cancer or cardiovascular disease that was **53% higher** than those whose scores were among the lowest third. For cancer alone, the risk of death was **83%** greater in the highest Dietary Inflammatory Index group.

Subjects in the placebo group whose Dietary Inflammatory Index scores were among the top third had over **twice** the risk of death from all causes over follow-up compared to those whose scores were among the lowest third. However, this effect was **not** observed among those who received the vitamin and mineral supplements.

**Am J Clin Nutr.* 2016 Feb 10.

Omega-3 Associated with Improved Memory Function in Older Adults

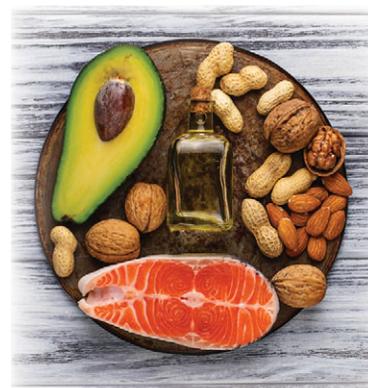
Results of a study published in the *Journal of Alzheimer's Disease* indicate better object location recall among older men and women who supplemented with **omega-3** fatty acids.*

The study utilized data from a previously reported double-blind trial involving healthy men and women between the ages of 50 and 80 years who received **2,200 mg** per day of omega-3 fatty acids or a placebo daily for 26 weeks. The 44 subjects included in the current investigation received tests that assessed object location memory before and after the treatment period.

At the end of the study, red blood cell membrane proportions of omega-3 fatty acids were significantly higher in the treatment group compared with those who received a placebo. While object location recall performance at the beginning of the study was comparable, omega-3 supplemented participants experienced an average improvement of **13.2%** versus **3.5%** in the placebo group.

Editor's Note: As possible mechanisms involved in support of the study's findings, authors Nadine Külzow and her associates note the beneficial effects for omega-3 on nerve cell membranes, new synapse formation, and synaptic transmissions that modulate the function and expression of receptors involved in memory and learning.

**J Alz Dis.* 2016 Feb 10.





High Coffee Intake Associated with Lower MS Risk

An article in the *Journal of Neurology Neurosurgery & Psychiatry* reports an association between increased coffee drinking and a lower risk of developing multiple sclerosis (MS).*

Subjects in the current investigation were derived from a study in Sweden in which 1,620 patients with multiple sclerosis were matched for age and other factors with 2,788 control subjects, and a study in the US that matched 1,159 multiple sclerosis patients with 1,172 controls. Participants were questioned concerning their history of coffee drinking over the years, including quantity consumed.

Those who consumed approximately six cups of coffee per day had a **30%** lower risk of multiple sclerosis compared to no intake in the Swedish study and a **31%** lower risk in the US study.

“The results of these thorough analyses add to the growing evidence for the beneficial health effects of coffee,” conclude Elaine Kingwell and José Maria Andreas Wijnands in an accompanying editorial.

Editor’s Note: “By upregulating adenosine A1 receptors, consumption of caffeine attenuates neuroinflammation and demyelination in animal models of multiple sclerosis,” authors A. K. Hedström and colleagues note. They add: “Further studies are required to establish if it is in fact caffeine, or if there is another molecule in coffee underlying the findings, to longitudinally assess the association between consumption of coffee and disease activity in multiple sclerosis, and to evaluate the mechanisms by which coffee may be acting, which could thus lead to new therapeutic targets.”

**J Neurol Neurosurg Psychiatry*. 2016 Mar 3.

Metformin Lowers Mortality Risk in Diabetic Women with Cervical Cancer

An article published in *Cancer Epidemiology, Biomarkers & Prevention* reports an association between the use of metformin and a lower risk of mortality from cervical cancer among women diagnosed with the disease.*

Kathy Han of Princess Margaret Cancer Centre and her Toronto colleagues utilized health care databases to identify 181 diabetic women aged 66 and older who were diagnosed with cervical cancer from 1997 to 2010. Cumulative metformin dose following diagnosis was calculated by multiplying dose and quantity of tablets dispensed with each prescription until the last follow-up date.

Over a 3.9-year median, a total of 129 deaths occurred, among which 61 were attributed to cervical cancer. Dr. Han’s team uncovered a **21.4%** lower risk of dying from cervical cancer and a **5%** lower risk of all-cause mortality in association with each additional **365 grams** of cumulative metformin use.

Editor’s Note: As potential mechanisms, the authors note that metformin has been found to impact signaling pathways involved in cervical cancer growth, sensitize cancer cells to radiotherapy and decrease tumor hypoxia (low oxygen levels).

**Cancer Epidemiol Biomark Prev*. 2015 Dec 31.



Green Tea Extract Associated with Decreased Liver Enzymes

Results of a randomized trial reported in the February 1, 2016, edition of the *International Journal of Preventive Medicine* reveal a reduction in liver enzymes among patients with **nonalcoholic fatty liver disease (NAFLD)** given a green tea extract supplement.*

The trial included 80 men and women with elevations of the liver enzymes **alanine aminotransferase (ALT)** and **aspartate aminotransferase (AST)** and ultrasonography diagnosed NAFLD who received **500 mg** of green tea extract or a placebo for 90 days. Weight, ALT, AST, and alkaline phosphatase levels were measured at the beginning of the study and at 12 weeks.

Among those who received the green tea extract, ALT and AST were significantly lowered compared with levels measured at the beginning of the study, while nonsignificant reductions occurred in the placebo group.

Editor’s Note: In their discussion of the findings, the authors remark that epigallocatechin gallate (EGCG), one of the main catechins in green tea, is believed to reduce oxidative stress in the liver that can contribute to NAFLD. Other research has shown that catechins increase liver lipid metabolism.

**Int J Prev Med*. 2016 Feb 1;7:28.





Cancer Risk Significantly Lower When Vitamin D Levels Hit 40 ng/mL

A pooled analysis published in *PLOS ONE* found an association between higher vitamin D levels and a substantial reduction in invasive cancers.*

Robert P. Heaney and colleagues at UC San Diego pooled data from the Lappe cohort, which included 1,169 women who participated in a randomized trial and the GrassrootsHealth cohort, a prospective study cohort that included 1,135 women.

Lappe cohort subjects had median **25-hydroxyvitamin D** levels of **30 ng/mL** while those in the GrassrootsHealth cohort had a median of **48 ng/mL**.

The researchers determined that a vitamin D level of **40 ng/mL** or more was associated with a **67% lower** risk of developing cancer over a 3.9 year median compared to levels of **20 ng/mL** or less. The finding suggests that the target vitamin D level of **20 ng/mL** recommended by the Institute of Medicine in 2010 may be insufficient to provide significant cancer protection.

Editor's Note: "We have quantitated [determined] the ability of adequate amounts of vitamin D to prevent all types of invasive cancer combined, which had been terra incognita until publication of this paper," commented coauthor Cedric Garland, DrPH, who is an adjunct professor at the University of California San Diego School of Medicine Department of Family Medicine and Public Health. "These findings support an inverse association between 25(OH)D and risk of cancer and highlight the importance for cancer prevention of achieving a vitamin D blood serum concentration above **20 ng/mL**, the concentration recommended by the IOM for bone health."

**PLOS ONE*. 2016 Apr 6.

Fewer Hospital Readmissions among Men Treated with Testosterone

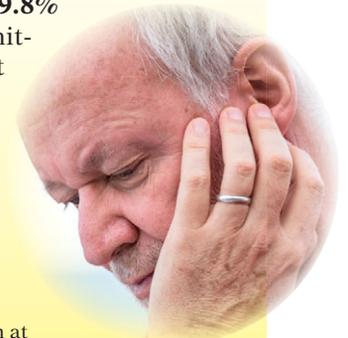
A study reported in *Mayo Clinic Proceedings* uncovered a lower rate of hospital readmission among men who received **testosterone replacement** compared to untreated men.*

Previous research has found a decrease in muscle mass and strength in association with hospitalization among older men that is linked to an increased risk of readmission. Testosterone is an androgenic hormone that helps maintain muscle mass, among other benefits.

Jacques Baillargeon and colleagues analyzed SEER-Medicare linked data for 6,372 men aged 66 and older with low testosterone levels who were hospitalized from 2007 to 2012. They found that men who were being treated with testosterone had a **9.8%** readmission rate within 30 days of being admitted, compared to **13%** among men who were not being treated with the hormone. When emergency department admissions were evaluated, **10%** of those who did not use testosterone were readmitted within a month, compared to **6.2%** of users.

Editor's Note: "It is possible that our findings of decreased hospitalization among male Medicare beneficiaries who received testosterone therapy reflect the improved health, strength and exercise capacity seen in previous studies," commented Dr. Baillargeon, who is a professor of epidemiology in the department of preventative medicine and community health at the University of Texas Medical Branch.

**Mayo Clin Proc.* 2016 Apr 13.



Higher Serum Magnesium Levels Linked with Decreased Artery Calcification

Research published in *Nutrition Journal* found a lower risk of coronary artery calcification among men and women with higher levels of serum magnesium.*

More than 1,200 participants were involved in the Genetics of Atherosclerotic Disease study, which included Mexican men and women between the ages of 30 and 75 years. Subjects included in the current investigation were limited to those without cardiovascular disease or family history of premature coronary heart disease. Blood sample analysis provided data concerning serum magnesium and other values, and computed tomography examination assessed **coronary artery calcium (CAC)**.

The findings showed that **13%** of the women and **41.5%** of the male participants had coronary artery calcium scores greater than zero.

Among subjects whose serum magnesium levels were among the top **25%** of participants, the adjusted risk of having a CAC score greater than zero was **42% lower** than those whose magnesium levels were among the lowest **25%**.

Editor's Note: Additionally, the risk of high blood pressure was **48%** lower and the risk of type II diabetes was **69%** lower for those in the highest magnesium group. Each **0.17 mg/dL** increment in serum magnesium was found to be associated with a **16%** lower risk of the presence of coronary artery calcification.

**Nutr J.* 2016 Mar 1.





Aspirin Predicted to Improve Cancer Survival by up to 20%

Adding **aspirin** to their treatments could improve cancer patients' chances of surviving the disease by as much as **20%**, according to a new review.*

Peter Elwood and colleagues evaluated five randomized trials and 42 observational studies. Subjects consumed low-dose aspirin in addition to their treatments and were followed for an average of five years. "Our review, based on the available evidence, suggests that low-dose aspirin taken by patients with bowel, breast or prostate cancer, in addition to other treatments, is associated with a reduction in deaths of about **15%-20%**, together with a reduction in the spread of the cancer," he reported. "One of the concerns about taking aspirin remains the potential for intestinal bleeding," Dr. Elwood noted. "That's why we specifically looked at the available evidence of bleeding and we wrote to all authors asking for further data. In no study was serious or life-threatening bleeding reported."

Editor's Note: "While there is a desperate need for more detailed research to verify our review and to obtain evidence on less common cancers, we'd urge patients diagnosed with cancer to speak to their doctor about our findings so they can make an informed decision as to whether or not they should take a low-dose aspirin as part of their cancer treatment," Dr. Elwood recommended.

**Plos One*. 2016 April 20.

Higher Zinc Levels Linked with Less Inflammation in Men and Women Treated for HIV

Biological Trace Element Research reported a study conducted at the University of Massachusetts Amherst which found an association between higher zinc concentrations and reduced inflammation as indicated by lower **C-reactive protein (CRP)** levels in HIV-positive men and women treated with antiretroviral therapy.*

The study included 177 men and 134 women aged 18 to 60 years enrolled in the Positive Living with HIV Study in Kathmandu, Nepal. Blood samples were analyzed for CRP and zinc.

Average CRP levels declined in association with rising zinc concentrations. Those whose CRP levels were among the top one-third of subjects had zinc levels that were **44.2%** lower than those whose CRP

levels were among the lowest third. Among men whose zinc levels were highest, CRP levels were **30%** lower than those whose levels were among the lowest third, and for women, CRP levels were **35.9%** lower.

Editor's Note: The authors recommend further research to determine whether zinc supplementation could help reduce inflammation in individuals treated for HIV.

**Biol Trace Elem Res*. 2016 May;171(1):63-70.



Critical Flaw in Government-Funded Study

A letter published in the *New England Journal of Medicine* exposed a critical flaw in a study that erroneously caused many men to stop annual **PSA screening**.*

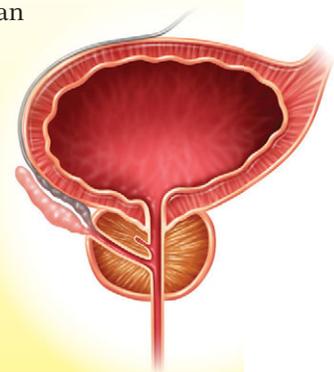
It turned out that in a huge government-funded trial, both study groups were having their **blood tested** for **PSA**. In other words, the number of men counted as having **PSA** tests was about the same as those not counted as having **PSA** testing.

The initial reaction to the flawed findings in **2012** was that **PSA screening** had no value since there was little difference in prostate cancer mortality between the two groups.

Based on this new review of the original study data showing both groups were having **PSA** tests, our expectation is that a formal announcement will be made for men to resume annual **PSA** screening. According to lead author Jonathan Shoag: "We demonstrate that the PLCO study did not compare a group of men who received **PSA** screening to a group of men who were not screened, but compared men who were screened to other men who were screened, and we should therefore reconsider any decisions based on the study."

Editor's Note: "We expect this article to have a profound impact on the debate over the value of **PSA** screening," coauthor Jim C. Hu, MD, MPH, predicted. "While there are risks of over-diagnosis and over-treatment associated with **PSA** testing, it can play an important role in preventing prostate cancer deaths as part of a personalized approach to cancer screening."

**N Engl J Med*. 2016 May 5;374:1795-1796.





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- Keep **bones strong**.
- Maintain **blood sugar levels** already within normal range.
- Promote normal **blood pressure**. Magnesium is also...
- Involved in **energy metabolism** and **protein synthesis**.

The recommended intake of magnesium to maintain vascular health is **500 mg** or more a day. With **Life Extension® Magnesium Caps**, you can easily obtain **500 mg** of elemental magnesium for less than **7 cents a day!**

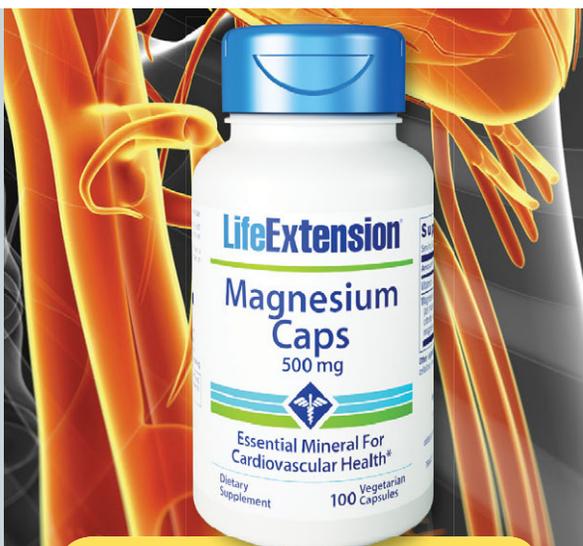
Non-GMO

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

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To order **Magnesium Caps**, call **1-800-544-4440** or visit **www.LifeExtension.com**



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Is Your Olive Oil *COUNTERFEIT?*

The **Mediterranean diet** with its high content of **olive oil** is well-documented to reduce cardiovascular disease and overall mortality.¹⁻³

Scientists have discovered a range of beneficial compounds naturally found in **extra virgin** olive oil, depending on the brand selected.

Recent research shows that olive oil's potent effects are dependent not only on its **monounsaturated** fatty acids, but also on constituents known as **polyphenols**. Levels of **polyphenols** vary with the source and method of olive fruit processing.

Compared to other food oils (corn, cottonseed, safflower, etc.), olive oil is more expensive. This has created a situation whereby olive oil is being diluted with cheaper oils to generate greater profits at the expense of public health.

As we found when investigating this scandal, a large percentage of products labeled as "extra virgin olive oil" are not what consumers think and some are outright counterfeit.⁴⁻⁶

Fortunately, a source of **extra virgin olive oil** has emerged that is tested to deliver high **polyphenols**—and to have zero adulteration or mishandling.

Researchers continue to confirm that those who follow a Mediterranean diet have a longer life expectancy and a lower risk of heart disease, high blood pressure, and stroke.¹⁻³

Olive oil has built a strong reputation for defending against diabetes, cancer, rheumatoid arthritis, and other diseases. Newly released studies demonstrate that incorporating olive oil into one's daily diet may protect against other conditions such as Alzheimer's, osteoporosis, and skin aging as well as premature death.⁷⁻¹⁴

A **2013** study found that these benefits are greater when **extra virgin olive oil** is substituted for regular olive oil.¹⁵ This study found that many of the beneficial effects of the Mediterranean diet can be ascribed largely to the **quality** of its extra virgin olive oil.⁷

Results from a **2015** study point to the superiority of **extra virgin olive oil** for **cooking**. A comparison of different cooking methods found that the use of extra virgin olive oil for cooking not only preserved the antioxidants found in vegetables, it also boosted their content.¹⁶

Extra virgin olive oil is a rich source of monounsaturated fatty acids, along with various **polyphenol** compounds such as oleocanthal, oleuropein, hydroxytyrosol, and tyrosol.⁷ These substances are believed to modulate nearly 100 human genes⁸ that favorably control cell signaling⁹ and age-associated processes.⁷

The health benefits of olive oil consumption vary widely, however, depending on the choice of product. Those not consuming the right type or amount of olive oil might not be getting much benefit at all.

This is due to two problems. First is that the overall *polyphenol content* of any olive oil is **inconsistent**

among brands. Second, most olive oil products on the market have been shown to be seriously **adulterated**.

Let's delve into each of these two issues, which are critical to understanding biological effects of this remarkable oil.

Polyphenol Levels are Critical

Originally, olive oil's high content of **monounsaturated** fatty acids was credited with its health benefits. Abundant levels of one particular monounsaturated fatty acid known as **oleic acid** have been demonstrated to increase high-density lipoprotein (HDL) or "good" cholesterol and decrease low-density lipoprotein (LDL) or "bad" cholesterol.¹⁷

Scientists initially thought that if oleic acid were responsible for the bulk of olive oil's cardiovascular and other health benefits, they would see the same benefits with oleic acid itself. But that is not what they found.¹⁸

Instead, an explosion of research strongly suggests that many of olive oil's benefits are attributable to its **polyphenols**, which are compounds naturally occurring that inhibit oxidation and extend shelf-life. The presence of disease-fighting polyphenols in olive oil appears to explain why other monounsaturated-rich oils don't come close to matching olive oil's health benefits.¹⁹

Hydroxytyrosol is one of the polyphenols found in the highest amounts in olive oil—and it has been demonstrated to provide key cardiovascular benefits.^{20,21} This polyphenol and others that are abundant in extra virgin olive oil—including tyrosol and verbascoside—



neutralize free radicals, lower blood pressure, and slow atherosclerosis.²¹ Over 30 different polyphenols (also called phenolics) are found in extra virgin olive oil, including lignans and the secoiridoids known as oleuropein and oleocanthal.^{21,22}

A recent meta-analysis, including 32 studies and 841,211 subjects, clarified that the benefits of olive oil consumption far exceed the benefits of other rich sources of **monounsaturated** fatty acids—underscoring that olive oil’s beneficial effects derive from polyphenols.²³

This meta-analysis showed that when evaluating olive oil separately, olive oil itself reduced the risk for all-cause mortality by **23%**, cardiovascular events by **28%**, and stroke incidence by **40%**. Monounsaturated fatty acid intakes that came from a general mix of animal and plant origins did not reveal any significant risk reduction for all-cause mortality, cardiovascular events, or stroke.²³

As University of California at Davis scientists reported regarding this meta-analysis, extra virgin olive oil “...is the only oil that is high both in monounsaturated fat and phenol content, and comparable health benefits would not be provided by other oils or foods.”²⁴

As a result, it is now broadly recognized that the high **polyphenol** content of **extra virgin olive oil** (not its high monounsaturated fat content) is an important driver of its documented reduction in cardiovascular disease risk and other benefits.^{18,19,23}

Olive Polyphenols Regulate Blood Lipids

The amount of cholesterol in one’s blood and its breakdown of “bad LDL” and “good HDL” remains a hallmark by which conventional authorities assess vascular disease risk.

Olive oil favorably modulates these blood lipid levels.

A flurry of studies reveals differences between higher-polyphenol and lower-polyphenol olive oils for a variety of cardiovascular markers. Olive oils richer in polyphenols were found to produce:

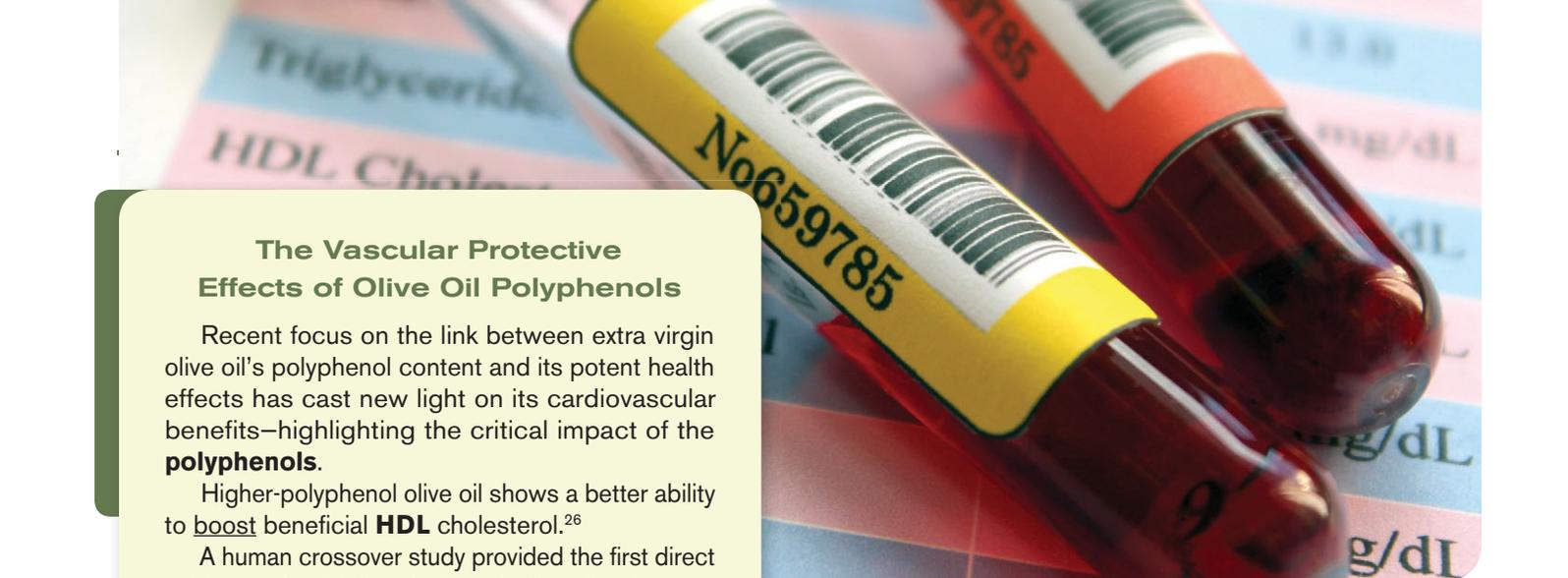
- Reduced LDL,²⁵
- Improved LDL density,²⁵
- Increased HDL,^{26,27}
- Improved HDL function,²⁸
- Reduced LDL oxidation,^{26,29} and
- Improved postprandial hemostatic (blood flow-inhibiting) profile to a less thrombogenic (clot-promoting) state.^{30,31}



What You Need to Know

The Benefits of Extra Virgin Olive Oil

- Scientists are finding varying cardiovascular benefits from extra virgin olive oil, depending on the brand tested.
- Olive oil’s potent effects have now been shown to be dependent on its levels of constituents known as polyphenols.
- Vast differences in polyphenol levels are due to extraction and handling differences, as well as to widespread adulteration of olive oil products. Up to 80% of oils sold in the US as extra virgin olive oil are adulterated.
- Fortunately, an extra virgin olive oil has been identified that is tested to be vastly superior in polyphenol content as well as 100% adulteration-free.



The Vascular Protective Effects of Olive Oil Polyphenols

Recent focus on the link between extra virgin olive oil's polyphenol content and its potent health effects has cast new light on its cardiovascular benefits—highlighting the critical impact of the **polyphenols**.

Higher-polyphenol olive oil shows a better ability to boost beneficial **HDL** cholesterol.²⁶

A human crossover study provided the first direct evidence that high-polyphenol olive oil enhances HDL function. A three-week intake of **25 ml/d** (about **1.7 tablespoons**) of high-polyphenol olive oil produced a **3.05%** increase in what is known as cholesterol efflux capacity, while a low-polyphenol olive oil produced only a **2.34%** decrease.²⁸ Cholesterol efflux capacity is a measure of how well HDL cholesterol removes bad cholesterol from white blood cells (macrophages) so that it can be eliminated from the body, reducing overall cholesterol.³⁵ Another human trial revealed that olive oil polyphenols enhance the expression of genes that trigger this process.³⁶

High-polyphenol olive oil was also shown to make HDL particles bigger, enhancing their ability to remove cholesterol from arterial plaque.²⁸

A group of researchers found that **2 tablespoons** of high-polyphenol olive oil daily for four months substantially improved endothelial function in adults with atherosclerosis.³⁷ Endothelial dysfunction interferes with arteries' ability to maintain healthy blood flow and normal blood pressure.³⁸

In another human study, scientists determined that a higher polyphenol intake over one year, as a result of increased extra virgin olive oil consumption, decreased blood pressure in participating adults aged 55 to 80. Higher polyphenol intake, confirmed by increased urine polyphenol excretion, was linked directly to increases in plasma nitric oxide, which signals blood vessels to relax and thus lower blood pressure.³⁹

Beyond cardiovascular effects, the polyphenols in extra virgin olive oil have been found to suppress cancer.^{40,41} For instance, the major extra virgin olive oil polyphenols have been shown to cause cells with the breast cancer-promoting gene HER2 to self-destruct.⁴¹

Although not specifically tied directly to polyphenols, olive oil also quells inflammation, protects stomach health, and inhibits other diseases—including Alzheimer's and premature death.⁷⁻¹⁴

These favorable changes in blood markers of cardiovascular risk show the value of ingesting lots of **olive oil polyphenols**.

What's been overlooked until recently is the variation in polyphenol content among olive oil products on the market. A key study that measured levels of one particular polyphenol demonstrated that some olive oil brands on the United States market provide **five times** as much of this polyphenol as some others.³²

In response to data indicating the importance of **olive oil polyphenols**, a specific source of extra virgin olive oil has been identified that contains consistently high levels of total polyphenols.

We'll return to this exciting and potentially life-saving oil later. But first, let's examine the other hurdle when it comes to deriving olive oil's full benefits—rampant product **adulteration**.

Olive Oil Adulteration is Widespread

The United States is the world's third-largest consumer of olive oil, and standards for the top grade—"extra virgin"—have been established by the International Olive Council and United States Department of Agriculture (USDA).³³

However, there are numerous ways to cheat, and enforcement is virtually nonexistent. An estimated **50%** of extra virgin olive oil brands sold in Italy—and **75% to 80%** of extra virgin olive oil brands sold in the United States—do not even meet the legal grades to be called extra virgin.⁶

The most common fraud involves diluting extra virgin olive oil with lower-quality oils from North Africa and other areas. Worse, many bottles labeled extra virgin olive oil contain almost no olive oil at all—just a seed oil such as sunflower, altered with chlorophyll and beta-carotene to convey the same appearance and fragrance.⁶ Some use an inert liquid fat as a base, adding just a little olive oil to pass it off as genuine. Others deodorize rancid oil using chemicals and heat, killing off its health properties.³⁴

In addition to laboratory measured standards for “extra virgin,” the International Olive Council and USDA have established sensory standards—indicators that detect when oils are oxidized, low-quality, lacking characteristic fruity flavor, or adulterated with cheap, refined oils.³³

Using these sensory tests, University of California at Davis scientists analyzed 186 extra virgin olive oil samples from several countries, all selected randomly from retail shelves in California. They found that **73%**—imported and local—failed. The extent to which each failing brand failed its sensory tests ranged from **56%** to **94%**. The majority of samples tested exhibited one or more of the following:³³

- Oxidation by exposure to high temperatures, light, or aging,
- Adulteration with cheaper, refined olive oil, or
- Poor quality from processing flaws, improper storage, or use of damaged and overripe olives.

Experts advise consumers to check for the authentic fresh-fruity and spicy-peppery tastes, but how can people be fully certain that they’re unleashing the potency of the real thing?

Fortunately, our scientific investigators have identified a source that surpasses the lab measurement and sensory standards of pure, fresh, extra virgin olive oil—while delivering polyphenols at the highest end of the scale!



What Are Polyphenols?

Polyphenols are naturally occurring compounds found largely in fruits, vegetables, tea, wine, and cocoa. They are secondary metabolites of plants, generally defending them against ultraviolet radiation or aggression by pathogens. More than 8,000 polyphenolic compounds have been identified in various plant species.⁴²

The polyphenolic content of foods is greatly affected by environmental factors such as soil type, sun exposure, and rainfall. The degree of ripeness considerably affects the concentrations and proportions of polyphenols. A critical factor affecting polyphenol content of any food is storage time and type, which affects polyphenol oxidation. Exposure to light, heat, or air can destroy polyphenols.⁴³

Polyphenols are anti-inflammatory and free-radical scavengers. Some have anticarcinogenic and cardioprotective effects. Polyphenols have beneficial effects on the endothelial lining of blood vessels by increasing the availability of nitric oxide and by preventing the lipid oxidation underlying atherosclerosis.

Numerous studies suggest that polyphenols from different plants may work synergistically to protect against cardiovascular disease, cancer, diabetes, endothelial dysfunction, osteoporosis, and neurodegenerative and other chronic diseases—without any known side effects.⁴²

The typical Western diet lacks sufficient amounts and variety of plant polyphenols to be of optimal benefit.

Polyphenols give extra virgin olive oil its unique fresh-fruity and spicy-peppery taste and improve its shelf life, with some versions containing several times the polyphenols of others. So potent are these compounds that, cooking with extra virgin olive oil not only fully preserves the antioxidant value of the food, it also boosts the food’s antioxidant content.

Do you want to know what polyphenols “feel” like? Take a slow sip of extra virgin olive oil and wait for the sudden tingling at the extreme back of the throat. This is the tell-tale sign of an extra virgin olive oil that’s polyphenol-rich.

**Researcher presents
newly lab-tested olive oil.**

High-Polyphenol, Adulteration-Free Olive Oil

Refining causes a reduction in the **polyphenol** content of olive oil. **Extra virgin olive oil** is less refined.

Even among authentic extra virgin olive oils, a host of factors interact to determine polyphenol content. These include olive variety, weather type, timing of harvest, promptness of pressing, pressing method, handling, distance to market, and storage.³²

An investigation has found an olive oil brand that is both polyphenol-packed and completely pure and unadulterated, making it possible for Americans to derive the full health benefits of **extra virgin** olive oil.

This is especially critical in light of research reporting that it is the polyphenol content of olive oils that unleashes the full health benefits, including reduction in all-cause mortality.^{18,23,25-31}

This California-derived extra virgin olive oil meets all conditions for purity. The olives are grown on a family farm, providing the Mediterranean-like climate needed for nutrient-rich olives while avoiding the long transit time involved in importing Mediterranean-derived oil. The non-GMO olives are harvested early in the season and handpicked to exclude leaves and avoid the bruising caused by mechanical harvesters. They are crushed within hours of harvest rather than days, and the resulting oil is then cold-extracted and not filtered, which preserves its raw qualities, after which it is stored in temperature-controlled stainless steel tanks until it's poured into dark bottles to protect it from light.

Summary

Olive oil's beneficial effects are highly dependent on its **polyphenols**.

There are huge differences in polyphenol content of commercially sold olive oil brands. This can occur because of variable growing conditions and from extraction and handling differences.

Most troubling, however, is widespread **adulteration**. Studies show that between **75%** and **80%** of oils sold in the United States as "extra virgin olive oil" are adulterated or diluted.

A California grown extra virgin olive oil has been identified that is lab-tested to be superior in **polyphenol** content with no adulteration. ●

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



Cooking and Storage Conditions for Extra Virgin Olive Oil

There is a great deal of confusion amongst consumers as to what is the best oil to cook with. In order to make the best decision, we need to discuss two things: first, *smoke point*, or the temperature at which an oil begins to break down, loses its taste and nutritional benefits and releases harmful chemicals, and second, the tendency to *oxidize* or go rancid.

There's a general belief that regular olive oil isn't an optimal oil for sautéing due to having a low smoke point. But high quality extra virgin olive oil has a *high smoke point* of 400°F. If olive oil in general has gotten a bad rap for use in cooking, it's probably because up to **80%** of the oils sold in the US as extra virgin olive oil are counterfeit. Most people who think they're using it are actually using *inferior* oils.

The low acidity of high quality extra virgin olive oil allows it to have a longer shelf life since it tends to oxidize more slowly.^{44,45} Even so, proper storage conditions are important in order to minimize oxidization. Accordingly, high quality extra virgin oil should be kept in a cool, dark place and in a dark bottle away from light, oxygen, and heat as these factors can reduce the nutritional value of the oil in the long run. Cooking with genuine, unadulterated high quality extra virgin olive oil presents no problem for general cooking.

New Analysis Highlights the Cardiac Dangers of Corn Oil

For decades the US government and the medical establishment have advised the American public as to the cardiovascular risk associated with diets high in saturated fats such as butter, whole milk and cheese. In place of these saturated fats, they have recommended polyunsaturated fats—vegetable oils such as corn oil—to reduce the incidence of deadly heart disease. These recommendations have made the grave mistake of assuming omega-6 fats share the same cardiac benefits as omega-3 fats.

Over thirty years ago, **Life Extension**[®] identified corn oil, which is loaded with the omega-6 fatty acid linoleic acid, as pro-inflammatory.

The journal *The BMJ* (formerly *The British Medical Journal*) published a recently rediscovered clinical data set from between 1968 and 1973, with a study population of more than 9,000 people.⁴⁶

Control subjects were fed saturated-fat rich meals that included red meat, milk and cheese. The intervention group had most of their saturated fats replaced by corn oil rich in the pro-inflammatory omega-6 fatty acid linoleic acid. The goal of the analysis was to evaluate the theory that omega-6 rich corn oil would protect people against heart disease and lower their mortality. What the researchers found, however, was that the use of corn oil to replace saturated fats in the diet lowered cholesterol but increased the risk of death from heart disease.

This new analysis of old data validates what **Life Extension** pointed out over thirty years ago, when we warned the public to select vegetable oils with care in order to avoid the pro-inflammatory omega-6 fatty acids like **linoleic acid** found in corn oil and other high omega-6 vegetable oils.

Heart-healthy vegetable oils with low amounts omega-6 linoleic acid and low saturated fat are far better options than corn oil rich in omega-6 linoleic acid.⁴⁷ Whenever possible, be sure to look for *extra virgin, cold pressed* in order to receive the full benefits of these healthy oils. For salad dressings, olive oil and flaxseed are reasonable options. Flaxseed oil should always be refrigerated, and should never be used for frying. For sautéing, olive oil is a far better choice than corn oil.⁴⁸

- Extra virgin olive oil contains oleic acid and is rich in heart-healthy polyphenols including oleuropein, hydroxytyrosol, tyrosol, and verbascoside.^{17,20,21}
- Avocado oil, rich in monounsaturated fatty acids, carotenoids, and phytosterols is a healthy option.⁴⁹
- Flaxseed oil, high in healthy omega-3, alpha-linolenic acid is another healthy option.⁵⁰

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Impact on Body Weight

A new study published in the journal *Lancet Diabetes & Endocrinology* lends further credence to the sterling reputation of extra virgin olive oil and its remarkable benefits for health and weight loss.⁵¹

In a randomized, controlled study, scientists analyzed the waist circumference and weight of 7,447 subjects who consumed three different diets over five years. They concluded that a Mediterranean diet, in which extra virgin olive oil is heavily featured, is more conducive to weight loss than low-fat diets. The findings held true for a variety of different groups, including those with type II diabetes, the elderly and people who are overweight or even obese.

Subjects were divided into three groups. One group had a Mediterranean diet featuring extra virgin olive oil, the second group had a Mediterranean diet that featured a mix of nuts, and the third group was instructed to simply avoid all fats. In the end, the olive oil group lost the most weight—an approximate two pounds, while the low-fat group averaged a 1.3-pound loss. The group that ate a Mediterranean diet with nuts lost an amount comparable to the low-fat group.

What may not be appreciated by this study is that adults tend to gain significant weight as they age. The fact that those who consumed the most extra virgin olive oil lost weight over a 5-year period makes it clear that olive oil is the type of fat to consume for those concerned about body weight.

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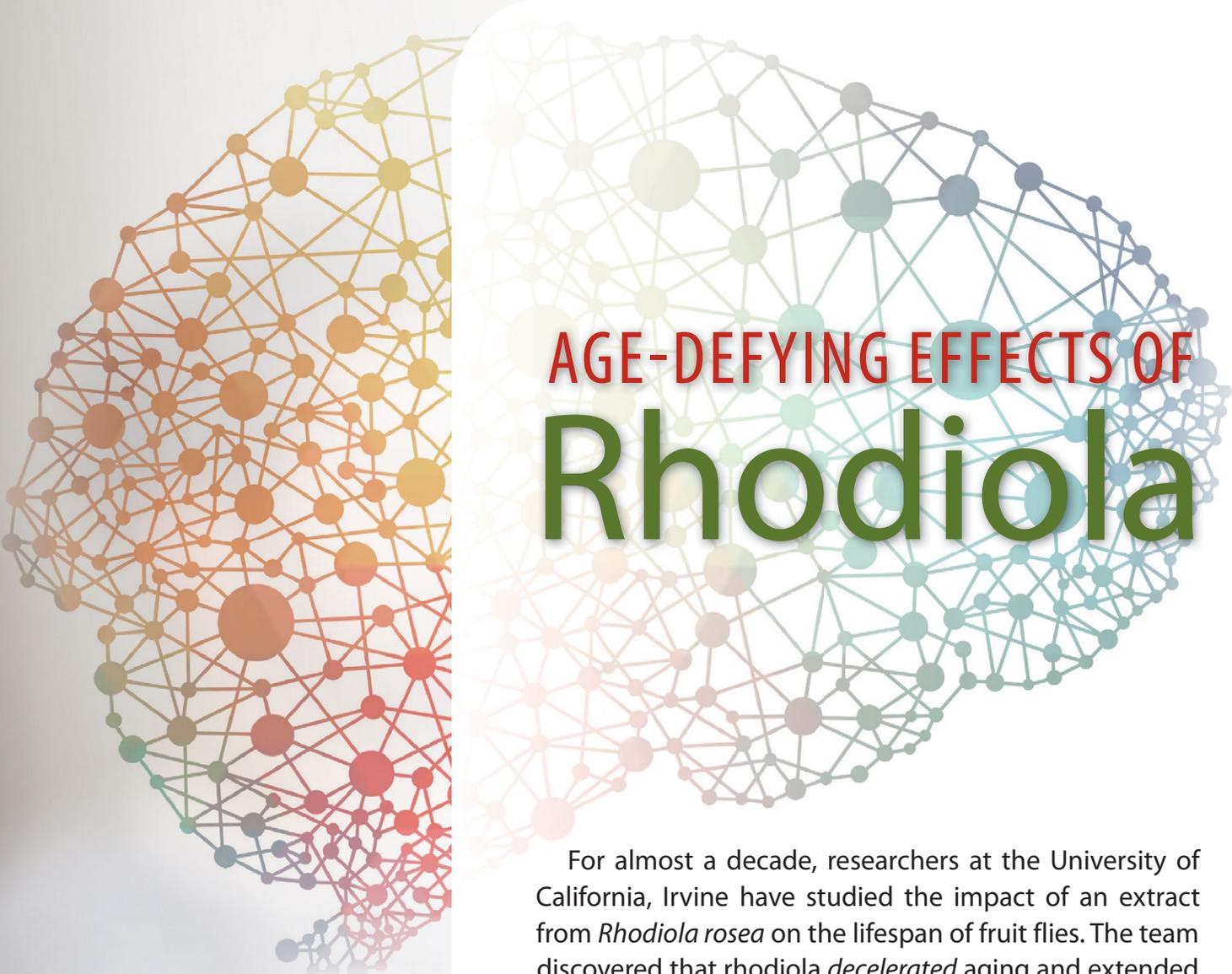
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AGE-DEFYING EFFECTS OF Rhodiola

For almost a decade, researchers at the University of California, Irvine have studied the impact of an extract from *Rhodiola rosea* on the lifespan of fruit flies. The team discovered that rhodiola *decelerated* aging and extended fruit fly lifespan by up to **25%**.¹⁻⁴

While studies in fruit flies don't necessarily translate directly into human benefits, this is an important step in the right direction for unraveling the longevity effects of the adaptogen rhodiola, which has been part of traditional medical practices in Asia and Europe for centuries.

Intrigued by this increase in lifespan, scientists decided to take a deeper look at rhodiola's various therapeutic properties to find out how it systemically enhances vibrant activity in the body. They found that rhodiola works in numerous pathways to optimize health and longevity. Some of the benefits include rhodiola's ability to delay immune senescence, enhance endothelial function, prevent neurological disease, lower stress, help fight fatigue, and improve physical endurance.

Rhodiola has been shown to help protect against several factors involved in normal aging. Research conducted on rhodiola establishes that the root extract confers systemic improvements in biological and physical function. Some of rhodiola's benefits overlap with other nutrients which indicates how well rhodiola works to help restore more youthful cell functions.

As research continues, published studies are validating that this ancient herb can be a vital component of a health and longevity program.

Longevity Compounds

The root extract of rhodiola contains over **140** different bioactive compounds.⁵ Studies suggest that its key active constituents, **salidroside** and several **rosavin** compounds,^{4,6} are responsible for rhodiola's longevity effect.

Researchers found that the **salidroside** component of rhodiola protects human cells from premature aging when exposed to oxidative stress. In this study, the extract preserved aging skin cells' ability to divide, thereby maintaining healthier, more vital skin.⁷ And, in a human study, rhodiola extract (containing **rosavins** and **salidroside**) was shown to improve endurance exercise capacity of all participants.⁸

Rhodiola works through various pathways to "tune up" the body to resist the factors of aging. The first of these is rhodiola's ability to delay the onslaught of immune senescence.

Postpone Age-Related Immune Senescence

As we age, our immune function declines in a process known as **immune senescence**.⁹ Over time, we gradually lose the ability to mount a robust immune response to infection¹⁰ and physiological challenges.¹¹⁻¹³

Immune senescence pokes holes in the body's defenses that pathogens can exploit. As our immune system becomes less vigilant, we become more susceptible to autoimmune diseases,¹⁴ less able to produce a healthy immune response to vaccinations,^{15,16} and more prone to the reactivation of latent viruses¹⁷ and to cancer.¹⁸

Animal studies have shown that rhodiola can enhance immune function,¹⁹⁻²³ provide antiviral and antibacterial activities that can reduce the risk of serious infections, including influenza,^{24,25} and inhibit the growth and invasiveness of a variety of human cancer cell lines.²⁶⁻²⁸

A complete understanding of rhodiola's ability to boost immunity remained elusive until recently, when an animal study found that it could **inhibit the death of thymic T cells**, which is particularly important as thymus function decreases with age and this decrease contributes to immune senescence.^{29,30} **T cells** are immune cells (lymphocytes) and some behave as "smart bombs," essentially homing in on new pathogenic threats, including bacteria and viruses. By inhibiting the death of thymic T cells, rhodiola helps deter immune senescence.



Rhodiola's Life-Enhancing Benefits

- Rhodiola supplementation can help fight age-related immune decline, a process known as *immune senescence*.
- Recent studies suggest that rhodiola prevents **endothelial dysfunction**, a primary cause of high blood pressure and atherosclerosis.
- Rhodiola's reported broad-spectrum health benefits include physical and cognitive improvement, as well as relief from mental and physical fatigue and depression.
- Rhodiola mitigates **stress and depression** through its balancing effects on the pituitary and adrenal stress-related hormones and mood-related brain neurotransmitters.
- Look for a *Rhodiola rosea* extract that has been standardized to contain **3% rosavins** and **1% salidroside**—which matches the concentrations used in human and animal studies.



What You Need to Know

Let's look at some of the different areas of the body positively impacted by rhodiola that can lead to life extension and a reduction in deadly diseases.

Impede Endothelial Dysfunction

In addition to enhancing immune function, rhodiola has been shown to provide protection to the cardiovascular system. A recent animal study confirmed that salidroside protects arteries from endothelial dysfunction,³¹ an early pathological event that can lead to the development of high blood pressure, heart attack, and stroke.^{32,33}

Impaired mitochondrial production is an early sign of endothelial dysfunction, and it appears to be a key event in the development of pulmonary hypertension³⁴ and other age-related vascular pathologies.³⁵ Cell studies show that rhodiola can restore mitochondrial generation in stressed endothelial cells and thereby protect against endothelial dysfunction.³⁶

Endothelial cells can self-destruct when exposed to elevated levels of **homocysteine**, a by-product of protein metabolism and an independent risk factor for heart attack and stroke.³⁷ Homocysteine also causes endothelial dysfunction by increasing oxidative stress

and by decreasing the activity of an enzyme essential for producing the endothelial relaxation molecule, nitric oxide.³⁸ Rhodiola has been shown to inhibit oxidative stress and prevent apoptosis in endothelial cells exposed to homocysteine.³⁹

Mitigate Mental Stress

It is widely acknowledged that psychological stress and mood disorders accelerate aging.⁴⁰⁻⁴³ The long-term Nurses' Health Study uncovered a link between mental stress, anxiety and an elevated risk of sudden cardiac death and fatal coronary artery disease.⁴⁴

Rhodiola belongs to a class of botanicals called **adaptogens**, which strengthen the body's resistance to mental and physical stress without disrupting normal bodily functions.^{45,46} Acting as an adaptogen, rhodiola helps balance the body's stress response system.^{47,48} Studies have also shown that it modulates the body's response to anxiety and depression by influencing the levels and activity of the mood-related neurotransmitters.^{6,49,50}

Fight Fatigue and Boost Performance

Studies have confirmed the fatigue-fighting and performance-enhancing effects of rhodiola in laboratory animals⁵¹ and humans.⁵²

Rhodiola can effectively prevent fatigue, thereby increasing mental performance. This was demonstrated in a study of 56 young, healthy physicians

during nighttime clinic duty.⁵³ Statistically significant improvements in mental performance tests were observed in the treatment group during the first 2-week period. At 6 weeks, the improvement diminished despite the continuous treatment. Investigators believe this was likely due to the low dose of rhodiola (**170 mg** per day) used in the study.

Another human study measured the effect of rhodiola intake on focus, strength, endurance, reaction time and limb speed and found that **200 mg** of a rhodiola extract (containing **3% rosavins + 1% salidroside**) improved endurance exercise capacity in all participants.⁸

Summary

The root extract of *Rhodiola rosea* has been used for centuries in traditional medical systems of Asia and Europe to increase resistance to mental and physical stress and relieve anxiety and depression.

Rhodiola can strengthen the body's resistance to psychological and physical stress without interfering with normal bodily functions and can protect against many of the factors of aging, including the age-related decline of the immune system.

In addition, rhodiola has been shown to combat depression by normalizing the body's stress hormone levels and modulating mood-elevating neurotransmitter levels in the brain.

With studies showing the multiple benefits of rhodiola on decelerating aging and increasing longevity through its multiple mechanisms, this ultra-low cost nutrient is likely to increase in popularity among health-conscious individuals. ●

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

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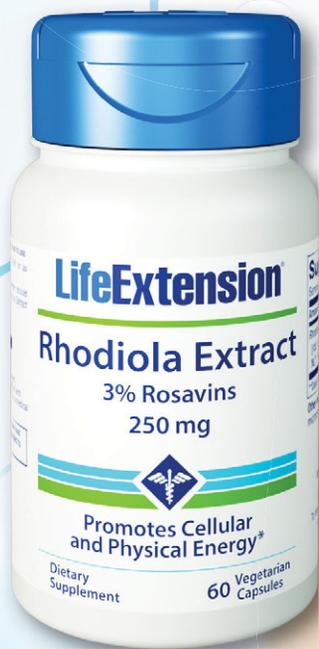
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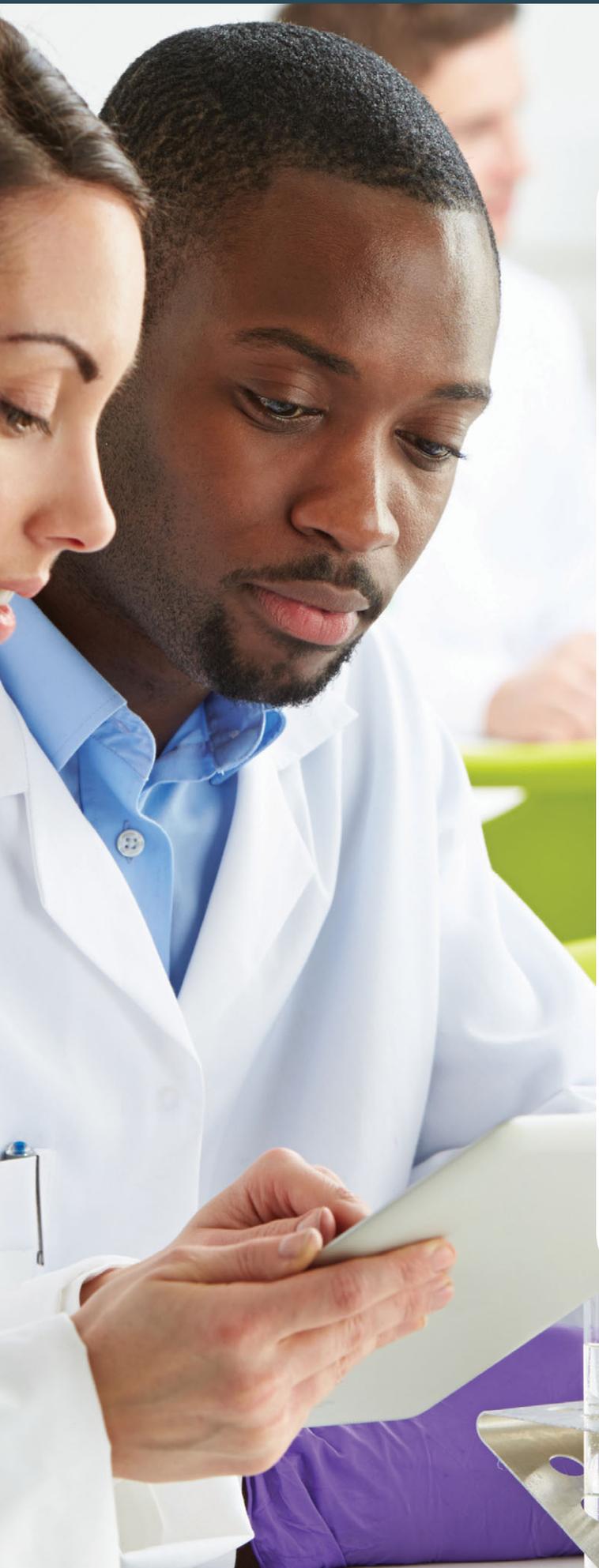
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How. Curcumin Targets Cancer





One in four Americans will die from cancer.¹ Despite clinical successes using new **immuno-therapy** drugs, cancer is still killing over **560,000** Americans each year.

Conventional medicine recognizes **prevention** as an essential element in today's "War on Cancer."

Curcumin is a natural compound extracted from the spice turmeric. An accumulation of evidence indicates its cancer-preventive effects, leading one scientist to call curcumin:

*"An ideal chemopreventive agent with its low toxicity, affordability, and easy accessibility."*²

Curcumin has emerged in this role after 30 years of research at the **National Cancer Institute**, which has been testing various substances for their potential preventive effects.²

According to the National Cancer Institute, after testing more than 1,000 candidates, just 40 indicated promise. Curcumin is one of the leading members of that elite group.

Curcumin has reached the stage of clinical trials, although it has been in use since ancient times as a remedy for many illnesses in different cultures.²

Used alone or in combination with other therapies, curcumin has an impressive track record in prevention and treatment.³

Here is a brief review of the research indicating the benefit of curcumin in the prevention of common malignancies, its potential to help treat certain cancers and to minimize the side effects associated with radiation and chemotherapy.

Curcumin's Unparalleled Cancer-Fighting Abilities

For those who have been diagnosed with cancer, it can seem as though the cancer developed practically overnight. In reality, the development of cancer is a lengthy process that may take years or even decades to play out.

The initiation and progression of a cell into a malignancy involves multiple steps. At each step there is a disruption in at least one pathway that controls normal cellular processes.³

The good news about this complex process is that it represents a potential point of intervention to delay or **prevent** a malignancy from forming.^{2,3}

Curcumin has now been shown to have an impact on virtually **all** of the major targets involved in the cancer development process. These effects give curcumin potent preventive and therapeutic properties against many different kinds of cancer.³

In general, chemopreventive substances (those used to inhibit, delay, or reverse cancer development) are grouped by their general mechanism: those that slow the proliferation of cancer cells, those that reduce oxidative stress, and those that block carcinogens from forming. Curcumin is a member of **all** three groups, giving it *unparalleled* cancer-fighting abilities.²

Curcumin's Multiple Mechanisms of Action

Curcumin's actions involve various combinations of mechanisms, including:²

- 1. Survival signaling.** Cancer cells early on develop the ability to proliferate and survive in environments that normally would not support cell replication. Curcumin modulates a host of survival signals through multiple pathways, thereby putting a halt to out-of-control replication.
- 2. Apoptosis.** This is the programmed cell death that eliminates dysfunctional cells. Cancer cells lose their ability to die off naturally, which plays a major role in the development of cancer, and in its resistance to conventional treatment. Curcumin switches back **on** the apoptosis signaling pathway, encouraging over-proliferating cells to die gracefully, rather than continue to grow and spread.
- 3. Growth Factors.** A wide variety of growth factors and other molecules can promote cancer cells' replication. Curcumin directly **inhibits** many of those molecules, stopping cancer growth in a multitargeted fashion.

4. Inflammation. Low-grade inflammation is a powerful promoter of cancer cell growth and survival. Curcumin blocks the pro-inflammatory process at several different points, reducing the overall state of inflammation and slowing cancer development. By blocking the inflammatory master molecule **nuclear factor-kappaB** (or **NF-kB**), curcumin blunts cancer-causing inflammation, slashing levels of inflammatory cytokines throughout the body.^{4,5}

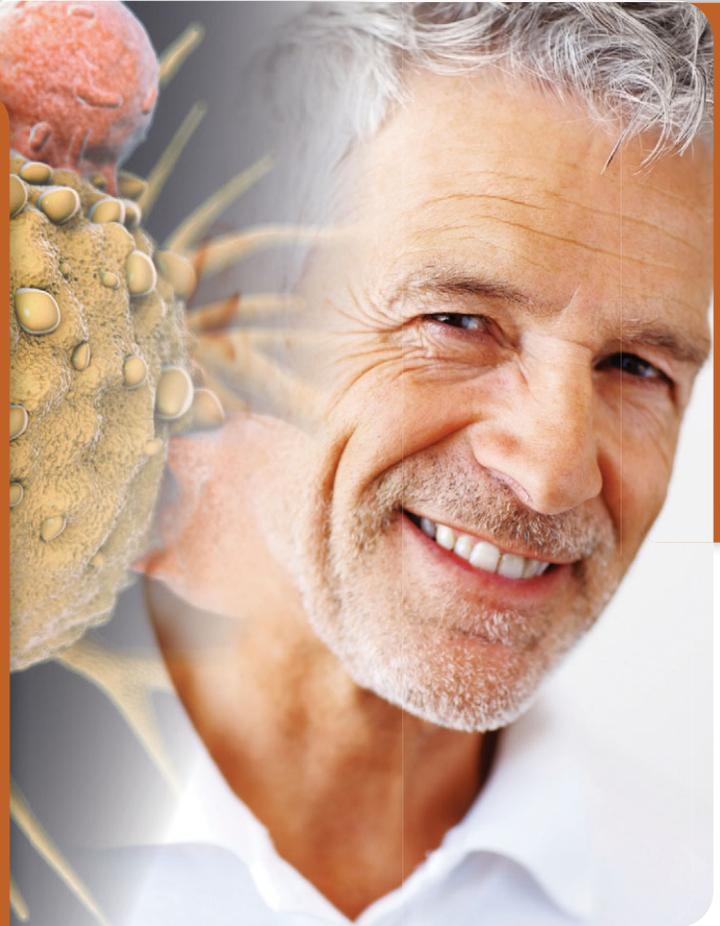
5. Cancer stem cells. Cancer stem cells are an unusual population of cells within tumors. These cells, like all stem cells, can develop into many different types of mature cells—including new cancer cells. Cancer stem cells are responsible both for new tumor formation and for failures of conventional chemotherapy, because they can survive drugs that kill normal cancer cells. Curcumin has been shown in multiple lab studies to suppress the growth of cancer stem cells. This has the dual benefit of possibly reducing the risk of recurrence after treatment, and also of improving response to therapy of existing malignancies.

6. The immune system. The healthy immune system constantly patrols the body, seeking out and destroying incipient cancer cells. As we age, however, the immune system becomes less functional, in a process called **immunosenescence**. Curcumin supports the body's immune system by preventing the loss of immune cells that destroy tumors. It also helps overcome tumor-induced resistance to immune destruction, thereby slowing or stopping early cancers naturally.



Curcumin and Cancer

- Cancer still kills one in four Americans, despite years of waging the “War on Cancer.”
- Mainstream medicine has little to offer in terms of cancer prevention, though it has won some important battles in the area of treatment.
- The natural compound curcumin has been called “an ideal chemopreventive agent” because of its ready availability, low cost, and low toxicity.
- Studies of curcumin and cancer now number in the hundreds, and demonstrate the compound’s versatile cancer-preventive and even cancer-treatment properties.
- Anyone with a personal or family history of cancer, and in fact anyone with major concerns about cancer in their own lives, should begin supplementing with curcumin, ideally in a form designed to enhance its absorption from the intestinal tract.



Studies show that all of these mechanisms, and perhaps many more, are continually active in cancer cells in culture and in animal studies, accounting for today’s great interest in curcumin as a cancer-fighting nutrient.

Clinical Trials

Promising lab and animal studies have paved the way for a growing series of human studies investigating curcumin’s chemopreventive properties. These now fall into three main categories:

1. Studies of curcumin as part of the **treatment** for existing cancers;
2. Studies of curcumin as a means of **reducing side effects** of chemo- or radiation therapy for existing cancers;
3. Studies of curcumin as a **means of preventing new cancers**.

Let’s examine each category of study separately.

Curcumin in Cancer Treatment

Curcumin has shown promise as a treatment for **gastrointestinal cancers**. This is because pure curcumin has a low rate of absorption, which is especially beneficial for these cancers because it means that higher levels of the compound stay in the intestinal tract for longer periods of time.

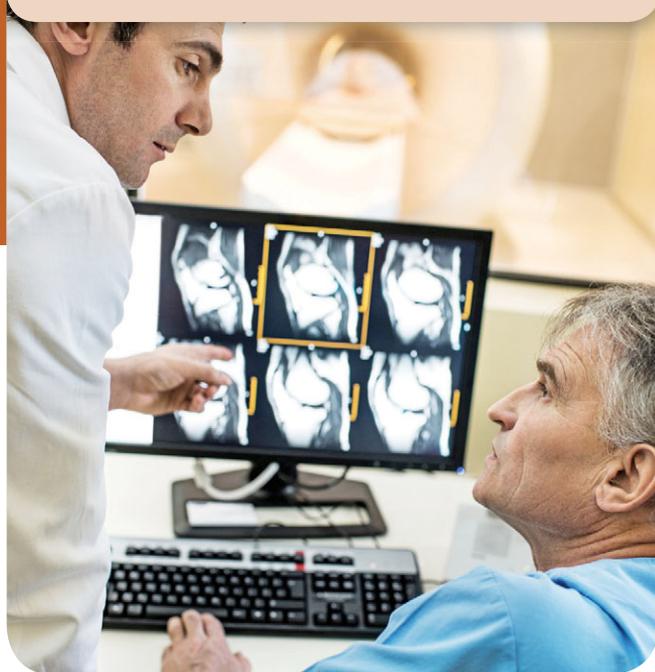
In one study of patients with **colorectal cancer**, for example, curcumin was administered at a dose of **1,080 mg** per day during the period between initial biopsy and surgery (a range of 10 to 30 days).⁶ At the time of surgery, the supplemented patients experienced numerous benefits, including an increased number of dying tumor cells, an increased expression of a gene that suppresses cancer (called **p53**), a reduction in blood levels of inflammatory TNF-alpha, and an improvement in body weight.

In another series of **colorectal cancer** studies, curcumin was shown to improve intracellular free radical scavenging activity (a highly-protective effect), reduce DNA damage, and suppress inflammatory changes.⁷⁻⁹ All of these benefits point to curcumin’s specific treatment effects.

Cancer Facts and Statistics

Cancer is a major health problem that can debilitate and destroy human lives. The annual global incidence of cancer is expected to increase from **14.1 million** new cases in 2012, with 8.2 million deaths, to nearly **25 million** in 2032.³

In the US, one out of every four deaths is caused by cancer.¹ Over \$124.6 billion was spent in direct medical costs for the 13.7 million cancer survivors and 1.5 million newly diagnosed cancer patients in the US in 2010. Increasing human life expectancy will inevitably raise cancer prevalence and the related costs. Consequently, the development of effective cancer prevention strategies is increasingly important.²



Curcumin has now gone through essential **Phase I** drug studies, which are aimed at determining the safety and ideal dose of any new therapeutic agent.² In a group of patients with high-risk or premalignant cancerous lesions, curcumin was found to be tolerable without significant side effects at doses up to **12,000 mg** per day.^{7,10} Beyond its obvious safety, curcumin led to numerous improvements in these patients as well. And in **33%** of subjects, the tumors didn't progress—even when they had not responded to chemotherapy previously.⁷

Curcumin has made unprecedented headway in attacking a usually lethal type of malignancy: **pancreatic cancer**. This was seen in a study in which **8,000 mg** per day of curcumin treatment produced favor-

able changes in markers of cancer progression.¹¹ One patient in this study remained stable for 18 months without progression—a *nearly unheard-of outcome*. Another showed temporary **reduction** of the existing tumor size by **73%**.

Please note that in the many studies cited in this article, either regular curcumin or turmeric powder that contains curcumin was used. Due to the poor absorption of standard curcumin and turmeric powder, very high doses are needed to achieve therapeutic blood levels. Enhanced absorption technologies today enable consumers to use curcumin supplements that provide the equivalent of over **2,000 mg** a day of curcumin in just one **400 mg** enhanced-absorbing curcumin capsule. Cancer patients often take several **400 mg** enhanced-absorbing curcumin capsules daily.

Curcumin and Chemotherapy

Some exciting studies are emerging on curcumin's potential role as a therapy in addition to standard treatments such as a radiation and chemotherapy. Studies show that not only can it help protect against the damage caused by these treatments, but it can also enhance their effect.

In a laboratory model, when curcumin was given in combination with the chemotherapy drug *cisplatin*, it significantly reduced the growth of surgically-implanted human head-and-neck tumors in mice.¹² And, in human breast, esophageal, and colon cells in culture, curcumin increased the malignant cells' sensitivity to chemotherapy drugs and to the effects of radiation treatments.^{13,14}

In a study of patients with chronic myeloid leukemia (CML), subjects received either the chemotherapy drug *imatinib* alone, or imatinib plus curcumin-rich turmeric powder (**15 grams** per day). After six weeks, the subjects receiving curcumin-plus-imatinib had a significantly greater reduction in a cancer growth factor than the patients treated with the cancer drug alone. Reduction of this growth factor as a result of combined therapy of imatinib and turmeric powder may help in the treatment of chronic myeloid leukemia.¹⁵

Curcumin's ability to help protect against the side effects of these treatments was seen in a study of breast cancer patients receiving radiation therapy. The patients were randomly assigned to receive **2,000 mg** of curcumin or a placebo three times daily throughout their course of radiation therapy.¹⁶ At the end of the treatment, the patients taking curcumin had significantly less severe radiation damage to their skin and a reduction in skin sloughing. Both of these benefits demonstrate curcumin's radioprotective effects.

Curcumin Prevents Cancer

It is extremely difficult to design and conduct human studies of cancer prevention. We cannot ethically induce cancer in a group of people and directly study the impact of preventive compounds, as is done in animal studies. Similarly, given the length of the human lifespan, it is not practical to study large groups of people for their entire lives to examine the impact of specific nutrients.

However, two particular kinds of studies—studies of slow-moving cancers or **precancerous conditions**,¹⁷ and studies of **biomarkers**, which are natural molecules that identify various stages of the transition from normal cells to malignant cells²—give us important insight into human cancer prevention strategies. Curcumin has been found to be beneficial in both of these kinds of studies, demonstrating its benefit in human cancer prevention.

Curcumin's impact on precancerous conditions can be seen in a study of people with "monoclonal gammopathy of undetermined significance," and "smoldering multiple myeloma."¹⁷ Both of these conditions are disorders of antibody-producing cells (these are immune cells that help to identify and neutralize pathogens), and both can progress to a potentially fatal blood cancer called **multiple myeloma**. A strong predictor of the likelihood of these conditions progressing to multiple myeloma is found through the detection of an abnormal ratio of certain proteins produced by the premalignant cells.

By the end of the study period, supplemented subjects showed a significant decrease in the abnormal protein ratio, and also in the presence of other "useless" proteins produced by premalignant cells.¹⁷ Treated subjects also showed a significant reduction in markers of bone resorption (bone breakdown), a problem that occurs as multiple myeloma progresses and erodes into bony areas. This shows that curcumin could have the potential to slow the disease process from a premalignant to a malignant state.

In a remarkably similar finding in prostate cancer, a supplement of curcumin plus soy isoflavones was effective at decreasing levels of prostate-specific antigen (PSA, a biomarker of prostate cancer activity) in men with the highest levels at baseline, but with no detectable cancer yet.¹⁸ These two studies together

Choosing the Right Curcumin Supplement

Curcumin has been called "an ideal chemopreventive agent" because of its multiple mechanisms of action that fight cancer development at every step.² But curcumin does have an Achilles heel of sorts—it is relatively poorly absorbed from the gastrointestinal tract, reaching the circulation at only low levels after oral ingestion even of a large dose.^{26,27}

This is not a problem (and may be an asset) in gastrointestinal cancers, since poor absorption causes it to remain in the gut at higher levels for a longer period of time.²⁸ And, while there is good evidence for oral curcumin's effects even at low blood levels in certain cancers,¹¹ curcumin's poor bioavailability may reduce its effectiveness in fighting cancer in other parts of the body.

Scientists have discovered that it's possible to increase the bioavailability of curcumin by reconstituting purified curcumin with some of the natural oils and other components of the **turmeric root**.²⁹

When the curcumin-plus-turmeric complex is administered orally in healthy adults, the absorption of curcumin into the bloodstream is nearly **7-fold** that of curcumin alone, and **6.3-fold** greater than that of a curcumin-lecithin-piperine formula designed to enhance absorption.²⁹

In order to get the most out of this valuable supplement, it is important to select one that has proven high-absorption characteristics.



suggest that curcumin's cancer-preventive effects may be most evident in more advanced precancerous conditions.

Colon cancer is another malignancy in which prevention can be studied because it is frequently first detectable as **precancerous polyps** or collections of abnormal cells called *aberrant crypt foci*. These represent one of the earliest changes seen in the colon that may lead to cancer.

In a study of patients with **familial adenomatous polyposis** (an inherited condition in which people develop multiple polyps that progress to cancer), taking curcumin (**480 mg**) and quercetin (**20 mg**) three times a day reduced the size and number of polyps **by more than half**.¹⁹ Another study demonstrated that taking **4,000 mg** of curcumin per day for 30 days significantly reduced the number of aberrant crypt foci by **40%**, again demonstrating curcumin's power to prevent cancer progression.²⁰

Finally, a number of other studies have shown that curcumin reduces cancer-associated **biomarkers**, such as inflammatory molecules and oxidative damage, in patients having head-and-neck cancers, skin cancers, and tropical pancreatitis, an inflammatory disorder that can lead to pancreatic cancer.²¹⁻²⁵

Summary

Curcumin offers a multitargeted approach to cancer prevention that may also extend to treatment and mitigation of treatment side effects.

Curcumin operates by numerous independent mechanisms, most of which match up to a specific step in cancer development. This multitargeted approach is critical in a disease as complex and varied as cancer.

Studies show that curcumin has anticancer properties in malignancies as varied as colorectal, breast, prostate, pancreas, ovary, and others. Boosting curcumin's bioavailability by reconstituting it with natural oils and other compounds from the turmeric root is a promising means of increasing its effectiveness throughout the body.

Anyone with a strong personal or family history of cancer should consider routine supplementation with this versatile natural compound, which can attack cancer at its most fundamental roots.

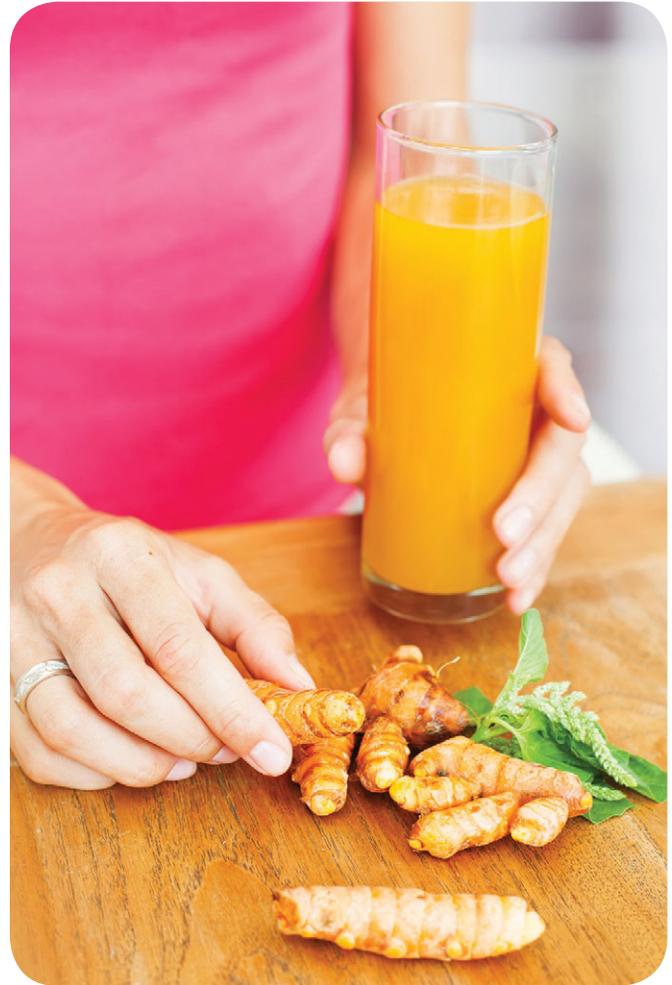
Curcumin's ready availability, low cost, and low toxicity make it live up to its name as an "ideal chemopreventive agent." ●

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



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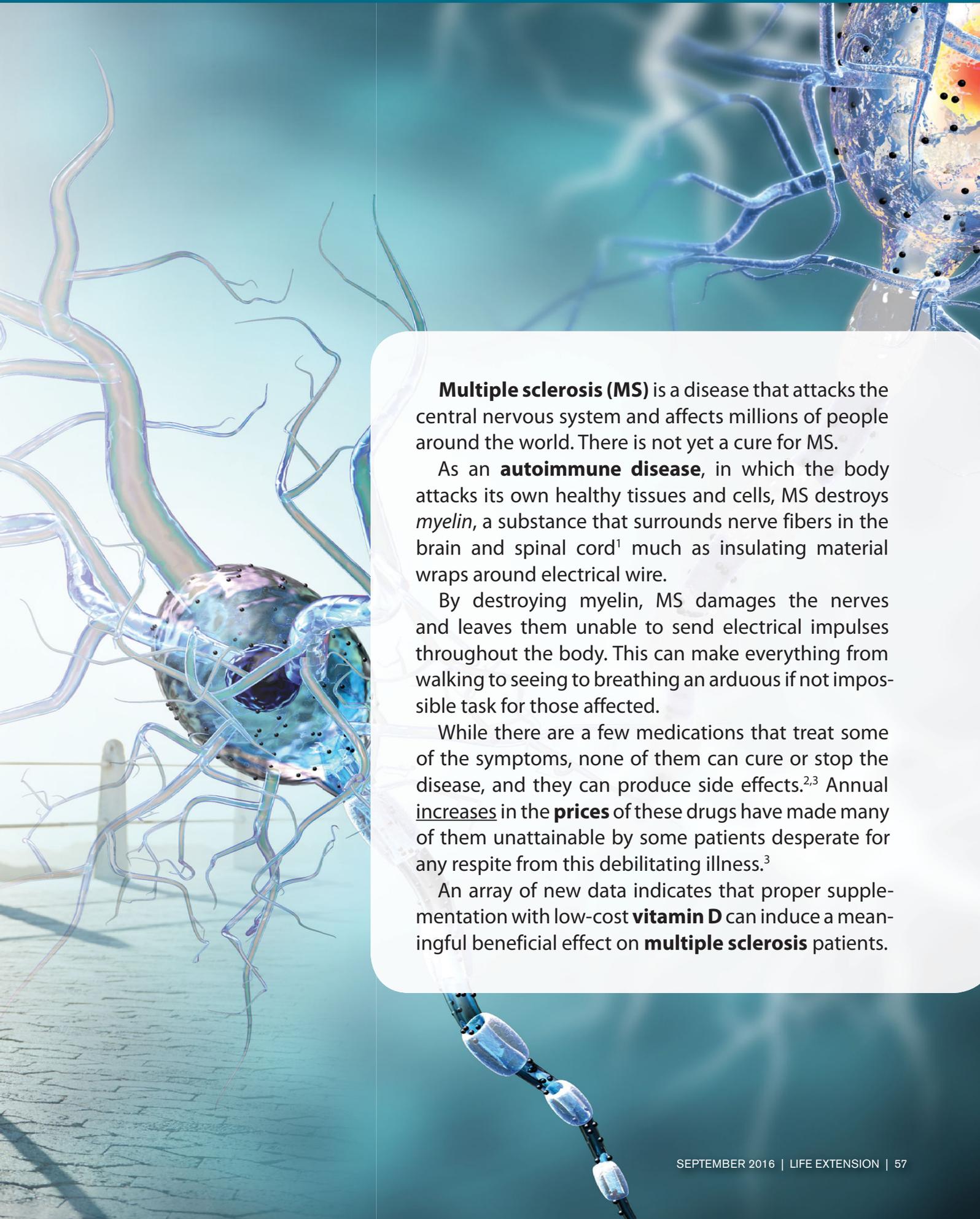
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VITAMIN D

Offers Hope for Multiple Sclerosis





Multiple sclerosis (MS) is a disease that attacks the central nervous system and affects millions of people around the world. There is not yet a cure for MS.

As an **autoimmune disease**, in which the body attacks its own healthy tissues and cells, MS destroys *myelin*, a substance that surrounds nerve fibers in the brain and spinal cord¹ much as insulating material wraps around electrical wire.

By destroying myelin, MS damages the nerves and leaves them unable to send electrical impulses throughout the body. This can make everything from walking to seeing to breathing an arduous if not impossible task for those affected.

While there are a few medications that treat some of the symptoms, none of them can cure or stop the disease, and they can produce side effects.^{2,3} Annual increases in the **prices** of these drugs have made many of them unattainable by some patients desperate for any respite from this debilitating illness.³

An array of new data indicates that proper supplementation with low-cost **vitamin D** can induce a meaningful beneficial effect on **multiple sclerosis** patients.

According to the latest research, **vitamin D** offers hope for those suffering from multiple sclerosis. Ample data show that low levels of vitamin D are associated with an increased risk of developing MS,^{4,7} and the vitamin has been shown to be effective in patients by reducing MS-caused inflammation. Studies show that having adequate levels of vitamin D can not only decrease the risk of developing MS, but can also delay its progression.^{4,7-10}

In addition, vitamin D has been shown to be useful for both preventing and treating a number of other debilitating neurodegenerative diseases, including Parkinson's and Alzheimer's.¹¹⁻¹⁶

In this article, you will learn what vitamin D blood levels are required to ensure adequate protection, and how much you need to take in order to achieve these levels.

Because vitamin D is very affordable and safe, no one should suffer the potential adverse consequences of having low levels of this crucial nutrient.



Vitamin D Slows the Progression of MS

A study in *JAMA Neurology* examined the possible link between vitamin D levels and MS disease progression in 1,482 men and women with relapsing-remitting MS (the most common form of MS) who were being treated with a common MS prescription medication (interferon beta-1b).⁷

Over an 18-month period, researchers measured vitamin D blood levels, conducted multiple brain MRI (magnetic resonance imaging) scans to assess MS progression, and monitored the relapse rate and progression using the **Expanded Disability Status Scale**, a method to quantify impairments of ambulation, activity levels, and ability to communicate.

The researchers determined that vitamin D had a significant effect on MS. They reported that those patients with the **highest** levels of vitamin D (greater than **40 ng/mL**) had the lowest rates of new MS lesions.

In addition, a study published in *JAMA* found that low circulating vitamin D levels are associated with the risk of developing MS.⁴ Specifically, they found that men and women with low levels of vitamin D (<**25 ng/mL**) had a much higher risk of developing MS when compared with those who had high levels (>**40 ng/mL**).

Even more recent studies have shown that optimal vitamin D levels can help *slow* MS activity, *delay* disease progression, and *delay* conversion of MS to secondary-progressive MS, a deadlier and more debilitating form of the disease.^{9,10}

In a 2014 article in *JAMA Neurology*, researchers measured vitamin D levels in patients who had suspected MS over a 2-year period.⁹ What they found was nothing short of amazing. The patients who had an average increase in their serum vitamin D of **20 ng/mL** in the first 12 months of the study experienced the following improvements over the 5-year length of the study:

- **57% lower** rate of new active brain lesions seen on MRI,
- **57% lower** relapse rate, and a
- **25% lower** yearly increase in brain lesion volume.

Lastly, a 2015 study on patients with relapsing-remitting MS examined whether or not vitamin D levels could predict conversion to secondary-progressive MS.¹⁰ In this 3-year study, researchers showed that those patients who had low vitamin D levels (**2-14 ng/mL**) had a **5.9 times increased** risk of shifting into the secondary-progressive form of MS when compared with people who had high levels (**23-52 ng/mL**).



Together, these studies make it clear that vitamin D can not only decrease the risk of developing MS, but can also delay its progression in those who already have it.

Vitamin D and Neurodegenerative Diseases

In addition to preventing and helping to treat MS, other studies show that vitamin D plays a critical role in preventing other neurodegenerative diseases, such as Parkinson's and Alzheimer's.

Parkinson's disease

Parkinson's disease is a disorder of the central nervous system that causes progressive and debilitating tremors and difficulty moving. While there is no cure for this disease, recent research has shown that maintaining optimal vitamin D levels may offer a way to **prevent** it.

In a 2014 paper in the journal *Neurological Sciences*, researchers did a meta-analysis of studies potentially linking low levels of vitamin D to an increased risk of Parkinson's.¹¹ After reviewing seven observational

Vitamin D Battles MS

- MS is a disease of the central nervous system that affects millions of people, causing debilitating fatigue, muscle weakness, deleterious visual changes, and major disability.
- Studies show that maintaining optimal levels of vitamin D can help prevent MS and can also help slow its progression.
- Studies have shown that vitamin D may also play a key role in helping prevent other diseases of the nervous system, including Parkinson's and Alzheimer's.
- The RDA of vitamin D—600-800 IU—is woefully inadequate for maintaining optimal levels of vitamin D. **Life Extension®** suggests supplementing with least 5,000 to 8,000 IU of vitamin D daily, depending on blood levels.

studies that included 1,008 patients and 4,536 controls, the authors concluded in no uncertain terms that “**low vitamin D levels are associated with an increased risk of PD (Parkinson’s disease).**”

A 2015 paper added proof to this powerful statement.¹² In this large meta-analysis including 5,690 patients with Parkinson’s and 21,251 controls, the researchers determined that patients with low vitamin D levels (<20 ng/mL) had a **two-fold increase** in the risk of developing Parkinson’s. Taking it one step further, they also found that vitamin D supplementation was associated with a decreased risk of developing Parkinson’s by a significant **38%**.

Alzheimer’s disease

Alzheimer’s disease is the most common form of dementia and has become a 21st century epidemic among America’s aging population. While expensive prescription pharmaceuticals can offer only minimal help in treating the symptoms, evidence shows that maintaining optimal levels of vitamin D can provide a safe and effective way to **protect** against this disease.

A paper in the journal *Neurology* followed 1,658 men and women, aged 69-79, over 5.6 years to determine if there was an association between vitamin D levels and Alzheimer’s. The researchers found that people with severe vitamin D deficiency (<10

ng/mL) had a **122% increased** risk of developing Alzheimer’s. For individuals that were deficient (greater than or equal to 10 ng/mL to less than 20 ng/mL) there was a **51% increased** risk.¹⁵ This led the authors to conclude: “**our studies confirm that vitamin D deficiency is associated with a substantially increased risk of all-cause dementia and Alzheimer’s disease.**”

Another study evaluated the relationship between vitamin D and cognitive function in 2,777 men and women aged 70-79.¹⁷ The researchers studied these men and women over a 4-year period, measuring both their vitamin D levels and cognitive performance using multiple tests. The results were unequivocal. Those people with low vitamin D levels (this time, defined as <30 ng/mL) had worse mental functioning and greater decline in their cognition when compared to those with higher levels of vitamin D.

To obtain high enough blood levels of vitamin D to help protect against cognitive decline, it is important to check blood levels of vitamin D and supplement with **5,000 to 8,000 IU** of vitamin D daily depending on individual blood levels. **Life Extension** suggests that optimal blood levels of **25-hydroxyvitamin D** using LabCorp’s measuring standard are between **50 to 80 ng/mL**.



Summary

Vitamin D is a widely available nutrient essential for optimal health. Receptors for this essential compound have been found in almost every cell in the body.

Vitamin D has been shown to be associated with both preventing and slowing the progression of a number of debilitating neurodegenerative diseases, including MS, Parkinson's, and Alzheimer's.

The recommended daily allowance (RDA) set by the government, **600-800 IU** a day, is woefully inadequate to achieve the optimal levels of vitamin D in the body that can help ward off these diseases.

With most people deficient in vitamin D—even if they're taking the RDA—more and more experts recognize that supplementing with at least **5,000 to 8,000 IU** is crucial to stem a number of deadly diseases. It should be taken with the heaviest meal of the day to increase absorption. ●

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

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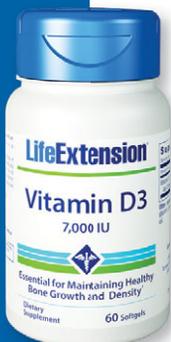


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EXCLUSIVE REPORT FROM THE

American Association for Cancer Research

CONFERENCE

Most forms of cancer are almost entirely preventable. No more than **10%** of cancer cases can be attributed to *inherited* genetic factors, while **90%-95%** are caused by lifestyle and environmental factors.¹

Tobacco alone accounts for **25%-30%** of cancer deaths, diet for **30%-35%**, infections for **15%-20%**, and radiation (including ultraviolet light) up to **10%**.¹ Being overweight or obese is estimated to cause **4%-20%** of cancer deaths.² All of these factors create or lead to chronic inflammation,³ the most common cause of cancer.^{1,4}

Cells in body tissues are normally “good citizens” that cooperate with other cells to facilitate body function. Cancer cells, by contrast, have no purpose other than to grow and multiply, contributing nothing to body function.

Many cancers are based on abnormal DNA or chromosomes, usually due to lifestyle or environmental DNA damage, but some are the result of inherited mutations.⁵ For example, although mutations in the BRCA1 gene are not common for the general population,^{6,7} for those having it the risk of breast or ovarian cancer before the age of 70 is **65%** or **39%**, respectively.⁸ (It’s possible that lifestyle differences

have some bearing on which BRCA1 carriers do or do not get cancer, but this has not been well studied.)

The two broad classes of genetic defects underlying cancer are (1) overactive **oncogenes** (genes that accelerate growth and multiplication), and (2) inactivated **tumor suppressor genes** (genes that normally prevent cancer).

Two of the most common oncogenes are **PIK3CA** (which promotes cell growth, survival, and motility)⁹ and **KRAS** (which greatly increases cell glucose uptake).¹⁰ The most common tumor suppressor gene is **p53** (which causes cells with defective DNA to self-destruct or stop replicating).¹¹

Cancer begins with gene mutations that increase abnormal growth and replication. Factors that assist these processes enable cancer cells to immortalize, or promote the formation of new blood vessels to nourish the tumor. In more advanced stages, mutations allow cancer to spread to other organs, a process called **metastasis**. More than **90%** of cancer deaths are due to metastasis.¹² To reach the metastatic stage typically requires at least several mutations.¹³ The risk of cancer before age 40 is only about **2%**, but by age 80 the risk increases to **50%**.¹⁴

In the United States, the six most frequently diagnosed cancers are, in decreasing order: breast, lung, prostate, colorectal, bladder, and skin. The six most common causes of cancer death in the United States are, in decreasing order: lung, colorectal, pancreas, breast, prostate, and liver.¹⁵ Thanks to aggressive efforts to detect breast and prostate cancer in early stages, they are often cured. Pancreatic cancer, by contrast, is usually only detected in more advanced stages.

Normal cells generate most of their energy from glucose and oxygen in the mitochondria. Cancer cells, however, obtain their energy by **glucose** metabolism outside the mitochondria through **glycolysis**. Although it is 18 times more efficient to derive energy from glucose in mitochondria,¹⁶ cancer cells compensate by absorbing massive amounts of glucose, with rates of glycolysis up to 200 times greater than normal cells.¹⁷

Cancer cells use **glucose** primarily as a source of material for building cellular components, rather than for energy.^{17,18} High glucose utilization is so characteristic of cancer that cancer imaging with PET scans is based on detection of **high glucose utilization**.¹⁹

Dichloroacetate (DCA), a non-patented compound, counteracts a protective mechanism used by cancer cells that prevents glucose products from entering mitochondria, which would send the mitochondria into overdrive, resulting in cell death.¹⁸ **Life Extension Foundation®** is funding clinical trials to treat cancer patients with DCA.

With this background, let's review the **American Association for Cancer Research** annual meeting, which was held April 18-22, 2015, in Philadelphia.

Colorectal Cancer

Sergei Grivennikov, PhD, assistant professor, Fox Chase Cancer Center, Philadelphia, is a specialist in cancers of the large intestine and rectum. He provided insights on the most frequently mutated gene in colorectal cancer, the **adenomatous polyposis coli (APC)** gene. This defect is seen in **75%** of sporadic colorectal cancers, but is due to an inherited mutation in less than **1%** of cases.²⁰

Chronic **inflammation**, characterized by the release of inflammatory cytokines (proteins) and DNA-damaging oxidants is typically the cause of colorectal gene mutations. Chronic inflammation not only contributes to the initiation of cancer mutations, but to tumor growth and metastasis.¹² Inflammation leads to infiltration of bacteria into tumors, which enhances the inflammation by releasing endotoxins.²¹⁻²³ A high-fat diet can result



in excessive pro-inflammatory bile acids, which can increase cancer-causing bacteria.²⁴ Calcium can help remove toxic bile acids.^{25,26}

Giorgio Trinchieri, MD, director for the Cancer and Inflammation Program, National Cancer Institute, Bethesda, Maryland, is concerned with the fact that inflammation contributes to abnormal bacteria in the gut, and that the abnormal bacteria interfere with anticancer chemotherapy.²⁷ Dr. Trinchieri would like to alter the gut microbiota to improve cancer treatment.²⁸ He recommends the use of probiotics, prebiotics, and transplantation of feces from healthy persons into cancer patients.²⁹ The FDA has been blocking fecal transfer by insisting that human stools are a drug which will require FDA approval before it can be given to patients.³⁰



Trinchieri

Christian Jobin, PhD, professor of medicine, University of Florida, Gainesville, is concerned with how inflammation induces colorectal cancer. Death from colorectal cancer is at least twice as high in persons with ulcerative colitis or Crohn's Disease as for the general population.³¹ Dr. Jobin suggests that inflammation encourages expansion of gut microorganisms that can induce cancer,³² including more toxic strains of **E. coli** bacteria.³³ Even without increasing the number of **E. coli**, inflammation can increase the propensity of **E. coli** to induce colorectal cancer.³⁴ Dr. Jobin wants to develop bacteria-killing viruses that are specific for the toxic strains of **E. coli** most responsible for inflammation and cancer.



Jobin

Aspirin against Colorectal Cancer

Andrew Chan, MD, program director, Gastroenterology, Massachusetts General Hospital, Boston, has investigated the use of aspirin to prevent colorectal cancer and to improve survival in colorectal cancer patients. Dr. Chan found that women who took the largest amounts of aspirin (**325 mg** more than 14 times per week) had the greatest (**53%**) reduction in risk of colorectal cancer.³⁵ But he also found that those women had the highest risk of gastrointestinal bleeding.³⁶ Dr. Chan discovered that aspirin increased survival in colorectal cancer patients with a PIK3CA mutation, but not in patients lacking this mutation.³⁷ Dr. Chan has done genetic screening to better identify colorectal cancer patients who would or would not benefit from aspirin.³⁸ **Editor's note:** Studies using lower dose aspirin reduce cancer risk, but not as effectively (by **53%**) as reported by Dr. Chan.^{98,99}

Cervical Cancer

Douglas Lowy, MD, acting director, National Cancer Institute, Bethesda, Maryland, works on vaccination against human papillomavirus (HPV). HPV is nearly always the cause of cervical cancer,³⁹ which is the second most common cause of cancer in women worldwide.⁴⁰ HPV is almost twice as common in less developed countries compared to developed countries,⁴¹ and is the most common sexually transmitted infection, although symptoms are not usually manifest.⁴² A school HPV vaccination program for girls aged 12-17 was introduced in Australia in 2007. Prevalence of the types of HPV vaccinated against dropped to less than a quarter of the initial value in young women by 2011,⁴³ and genital warts among women under 21 dropped from over **11%** to less than **1%**.⁴⁴ DNA testing for HPV provides **60%-70%** better screening than Pap smears.⁴⁵

The PIK3CA Oncogene Mutation

Bart Vanhaesebroeck, PhD, professor, University College London Cancer Institute, London, England, is interested in the PIK3CA subset of PI3K (*PhosphoInositide 3-kinase*) as one of the most frequently mutated genes in cancer, occurring in up to **40%** of breast cancer cases, more than a third of cancers of the uterus, up to a third of colon cancers, and about a quarter of stomach cancers (among other cancers).⁴⁶ These mutations in PIK3CA result in excessive cell growth, multiplication, metastasis, and inhibition of apoptosis (cell suicide).⁹ PIK3CA mutations are one of the most common oncogene mutations in breast cancer (especially cases associated with increased estrogen response).⁴⁷ PIK3CA-inhibiting substances can not only reduce PIK3CA activity,⁴⁸ but normalize blood vessels, thereby facilitating delivery of other chemotherapeutic agents.⁴⁹



Vanhaesebroeck

Cancer Stem Cells

Vihren Kolev, PhD, senior scientist, Verastem, Inc., Cambridge, Massachusetts, is attempting to eliminate cancer by targeting cancer stem cells. These cells are hard to eliminate. Often, apparently successful eradication of tumors by chemotherapy ultimately ends in failure because surviving cancer stem cells create a new, more resistant tumor. He described markers of cancer stem cells, such as focal adhesion kinase⁵⁰ and aldehyde dehydrogenase 1,^{51,52} which have the possibility of making stem cells easier to locate and identify, and thus eliminate.



Kolev



SIRT6 Protects Against Cancer

Raul Mostoslavsky, MD, PhD, associate professor of Medicine, Harvard Medical School, is an expert in sirtuin proteins,⁵³ the most well-known of which is SIRT1.



SIRT1 extends the lifespan of yeast, worms, and flies when stimulated by resveratrol.⁵⁴ Dr. Mostoslavsky, however, is most interested in the effect of SIRT6 on cancer. SIRT6 is localized at the telomeres at the end of chromosomes. It helps to maintain genetic stability, and prevents cellular aging.⁵⁵ Dr. Mostoslavsky has demonstrated that SIRT6 maintains genetic stability by assisting with repair of damaged DNA.⁵⁶ Cancer cells are greatly dependent on glycolysis to support rapid growth and multiplication. Dr. Mostoslavsky has shown that SIRT6 opposes this process, that reduction of SIRT6 fosters glycolysis, and that many cancers repress SIRT6.⁵⁷ **Life Extension Foundation** is funding Dr. Vera Gorbunova to find SIRT6-activating therapies.

Enhancing the Immune System against Cancer

Ton Schumacher, PhD, professor, Netherlands Cancer Institute, Amsterdam, Netherlands, works on using the immune system to fight cancer. The



role of the immune system in preventing cancer is apparent from the fact that AIDS victims and transplant recipients taking immune suppressant drugs have an increased risk of cancer.^{58,59} Cancer cells are able to evade or suppress the immune system. The journal *Science* called cancer immunotherapy the “breakthrough of the year” in 2013 because of the discovery of ways to prevent cancer from blocking the immune system.⁶⁰ Cancer that has spread from its tissue of origin (metastatic cancer) is generally incurable. Metastatic melanoma has shown rapid tumor regression in nearly a third of patients receiving these kinds of immunotherapies (checkpoint inhibitors) that prevent cancer from blocking the immune system.⁶⁰ Dr. Schumacher was part of a team that analyzed nearly five million mutations in over 7,000 cancers. Melanoma and lung cancer were found to have the highest frequency of mutations.⁶¹ Cancer cells that have the highest number of mutations, such as melanoma, are the most vulnerable to this type of (checkpoint inhibitor) immunotherapy.⁶²

CRISPR Gene Editing to Fight Cancer

Tyler Jacks, PhD, director, Koch Institute for Integrative Cancer Research, Cambridge, Massachusetts, has been using the new **CRISPR/Cas9** technology, which was developed for editing the human genome in 2013.^{63,64} CRISPR/Cas9 is based on a system used by bacteria to defend themselves against viruses. When bacteria are invaded by viruses, the bacteria store part of the virus’s DNA in the genome of their cell, called CRISPR. RNA copied from the CRISPR is attached to a Cas9 cutting enzyme. The RNA then guides the Cas9 enzyme to the virus to cut (and thereby destroy) the virus. CRISPR/Cas9 has been applied to gene editing by designing guide RNAs for specific DNA locations to be edited.⁶³

Dr. Jacks has worked on a team that used CRISPR/Cas9 to cure an inherited disease in a mouse.⁶⁵ He has also used CRISPR/Cas9 to create a mouse model of cancer.⁶⁶ Such models can be used to study the features of many cancer types, and to experiment with potential therapies. Cancer cells can have a high mutation rate, although only a few of the mutations are thought to drive the cancer. CRISPR/Cas9 can be used to distinguish between mutations that drive cancer and mutations which do not. Dr. Jacks anticipates that CRISPR/Cas9 will be used to design immune system cells that target specific cancers.⁶⁷





Conclusions/Interpretations

It is an unfortunate fact that almost all of modern medicine is based on treatment of disease, rather than on prevention, most tragically exemplified by cancer, which is so highly preventable. The key to prevention is better lifestyle. Unconventional health practices have the potential to reduce cancer incidence even more than the lifestyle changes advocated by conventional medicine. As I wrote in the December 2015 issue of *Life Extension Magazine*[®], a low carbohydrate ketogenic diet can provide energy while depriving cancer cells of the amount of **glucose** they require.

Conventional medicine too often discounts the value of supplements, but many scientific studies demonstrate that supplements can substantially reduce cancer incidence.¹

The key to more curative treatment is early detection. Good breast and prostate examination practices explain why the diagnosis rate for these cancers greatly exceeds the rate of fatality. Colon cancer would be more effectively treated if more people had regular colon examinations. Liver cancer is often due to chronic inflammation resulting from hepatitis. The hepatitis B virus can be prevented by vaccination.⁶⁸ Hepatitis C virus is usually transmitted by unsafe intravenous drug or transfusion practices and unprotected sex, but is now controlled in over **90%** of cases.^{69,70} Pancreatic cancer has been difficult to detect in early stages, which is why it is so often fatal. Cancer cells often release DNA into the bloodstream, which means that detecting cancer through blood tests (“liquid biopsies”) may be done in the future if standardized techniques can be developed.⁷¹

Notes on Cancer Prevention

There appears to be a link between salt intake and the bacterium **Helicobacter pylori**, which is associated with stomach cancer. It is possible that these two factors contribute to the development of the disease. In addition, salt intake and other dietary components are likely to damage the stomach mucosal lining, increasing the risk of stomach cancer.⁷² Risk of stomach cancer, colon cancer, and rectal cancer is probably increased by damage to mucous membranes from iron or **N-nitroso compounds (NOCs)** in red or processed meat.⁷³⁻⁷⁵ Further damage is caused when cooking at high temperatures as this contributes to the formation of cancer-causing heterocyclic amines.⁷⁶ Mucosal damage is also a reason why consuming more than two drinks of alcohol daily increases colorectal cancer risk.⁷⁷ Any amount of alcohol consumption increases the risk of breast cancer in women because alcohol can convert estrogen into carcinogenic forms.⁷⁸⁻⁸¹ For women with a BRCA1 mutation, surgical removal of the breasts can result in a reduced breast cancer risk.^{82,83}

Animals that eat plants and fish that eat fish have increased concentrations of toxic metals in their flesh^{84,85} and increased concentrations of organic toxins in their fat.⁸⁶⁻⁸⁸ Organic toxins like PCBs (polychlorinated biphenyls) persist in the environment and thus accumulate in fat tissue, increasing by many times the risk of melanoma skin cancer (for example).⁸⁹ Because these toxins can damage DNA and cause cancer, a plant-based diet is safer than an animal-based diet. Chlorophyllin supplements can reduce the cancer-causing potential of toxin exposure.^{90,91} (See the December 2015 issue of *Life Extension Magazine* for more details.)

Selenium supplementation has been shown to reduce cancer incidence.⁹² A double-blind, randomized study showed that zinc supplements improved survival of cancer patients receiving radiation therapy.⁹³ Vitamin D supplementation has been shown to reduce breast cancer incidence.⁹⁴ Curcumin has been shown to inhibit breast cancer metastasis in mice.⁹⁵ Higher quercetin intake is associated with reduced lung cancer incidence.⁹⁶ A randomized, placebo-controlled trial of omega-3 fatty acid (EPA) supplementation showed significantly reduced polyp formation in subjects having an inherited predisposition to colon cancer.⁹⁷ *Life Extension Magazine* has published many articles about nutrients which can reduce DNA damage by preventing inflammation and adverse gene expression changes, so the above is merely a sampling. ●

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

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* J Diet Suppl. 2011 Jun; 8(2):158-68

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References

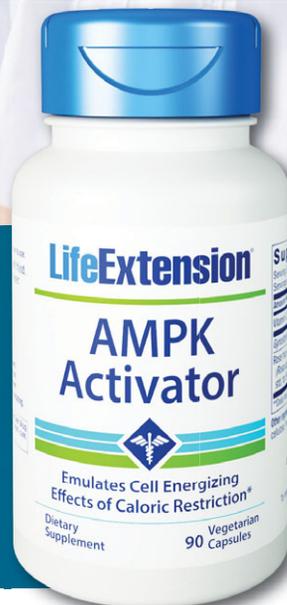
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Note: **EGCG** is the acronym for **epigallocatechin gallate**, which is the polyphenol in green tea that has demonstrated the most robust health benefits.

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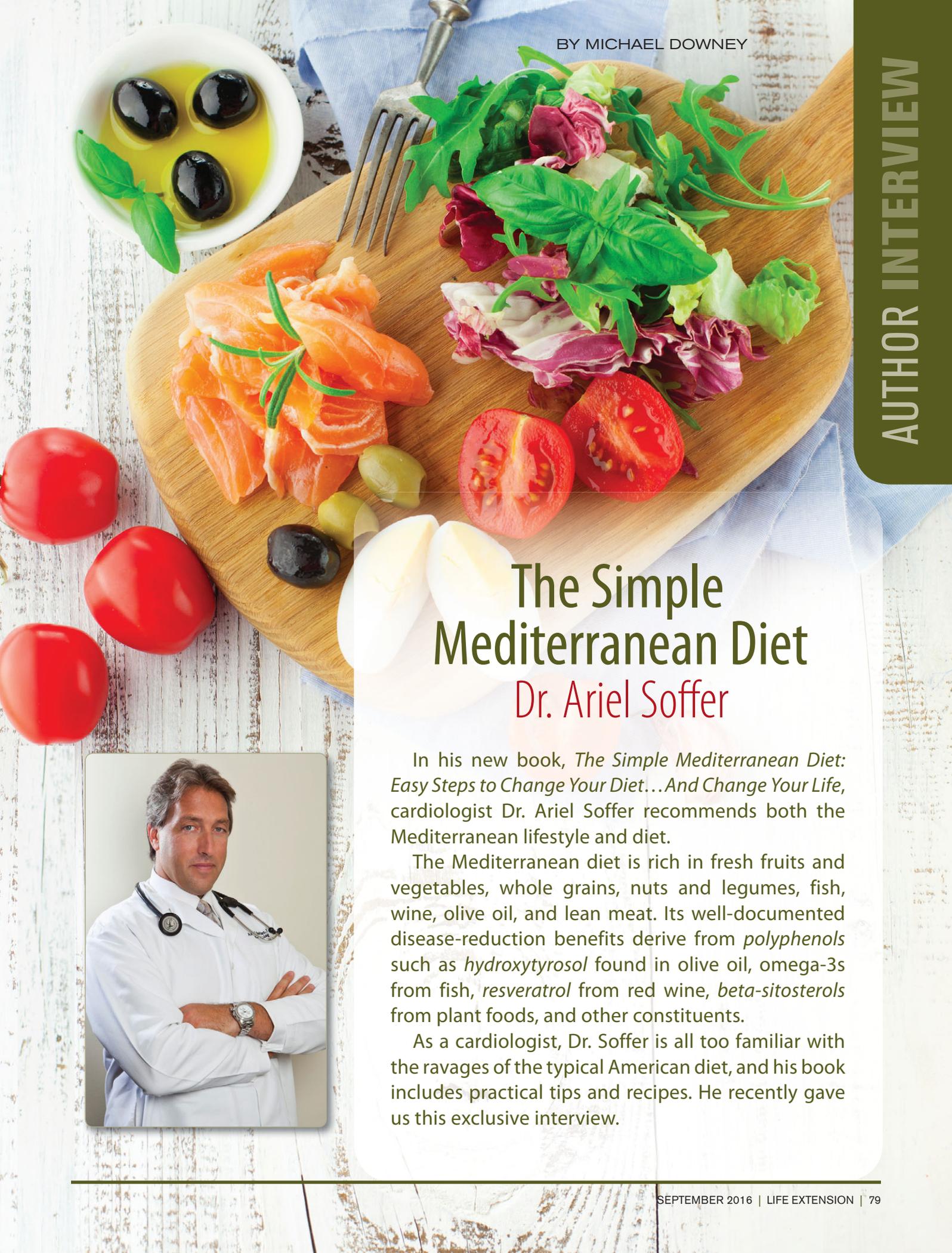


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BY MICHAEL DOWNEY

AUTHOR INTERVIEW



The Simple Mediterranean Diet

Dr. Ariel Soffer

In his new book, *The Simple Mediterranean Diet: Easy Steps to Change Your Diet...And Change Your Life*, cardiologist Dr. Ariel Soffer recommends both the Mediterranean lifestyle and diet.

The Mediterranean diet is rich in fresh fruits and vegetables, whole grains, nuts and legumes, fish, wine, olive oil, and lean meat. Its well-documented disease-reduction benefits derive from *polyphenols* such as *hydroxytyrosol* found in olive oil, *omega-3s* from fish, *resveratrol* from red wine, *beta-sitosterols* from plant foods, and other constituents.

As a cardiologist, Dr. Soffer is all too familiar with the ravages of the typical American diet, and his book includes practical tips and recipes. He recently gave us this exclusive interview.



LE: Can you briefly outline the overall Mediterranean lifestyle?

AS: The Mediterranean lifestyle I'm proposing seeks to add balance to your life by keeping work and stressful activities in perspective. And the diet is based on a wide array of wholesome, "whole" foods that are packed with nutrients and antioxidants. There are literally hundreds of high-quality, peer-reviewed studies showing that following the simple principles I describe in this book can benefit every area of your life. You'll lose weight, lower your disease risk, live longer, and be happier. Perhaps even better, you won't feel like you're suffering or denying yourself.

LE: And for those who find it challenging to make all their meals Mediterranean, you recommend SimpleMD—what exactly is SimpleMD?

AS: This program takes the best of the Mediterranean Diet and makes it easy to follow by providing ready-to-eat SimpleMD protein bars made with authentic extra virgin olive oil and real red wine.

LE: What led you to your focus on the Mediterranean diet?

AS: There really was one moment that pushed me over the edge. There were already plenty of data showing that the Mediterranean Diet was good for your heart and arteries. But (in 2015) a study published in the *Journal of the American Medical Association* looked at the rate of invasive breast cancer among women. And guess what? The study authors, led by Dr. Estefania Toledo, found that a diet high in extra virgin olive oil actually reduced the risk of breast cancer.

LE: What was the deeper significance of this?

AS: This was the first randomized trial of any type showing that a particular diet could reduce the risk of breast cancer—and it all came down to extra virgin olive oil for the "primary prevention of breast cancer." This is deeply exciting, because it shows that the Mediterranean Diet isn't a one-trick diet. It's not only good for heart disease. It is about glowing good health in *every* area of life.

LE: Your book stresses two essential elements of the Mediterranean diet. Extra virgin olive oil and red wine. Can you explain the effects of each on the body? First, olive oil.

AS: Put simply, it's an incredibly healthy fat that you should be consuming every day. Extra virgin olive oil is loaded with healthy monounsaturated fats and powerful polyphenols. It has been shown to protect the inner lining of coronary arteries and help lower blood pressure in women with high blood pressure. A review of all the published benefits of extra virgin olive oil found that it helped reduce inflammation in the coronary arteries, may help lower total cholesterol, reduced the formation of blood clots, and provided additional evidence that it supported healthy arteries. Extra virgin olive oil has been shown to help prevent stroke in the elderly. In lab studies, extra virgin olive oil has been shown to slow tumor growth in colon cancer. Consumption of olive oil appears to support healthy brain function and might even protect against depression. It is unique among cooking oils for its ability to support a healthy heart, brain, vascular system, and in newer research is even suggested to reduce the risk of certain types of cancer.

LE: What can people do to ensure that their extra virgin olive oil is authentic?

AS: One way is to buy directly from the producer and have it shipped to your home. However, this can be expensive—you might find yourself paying as much for extra virgin olive oil as you would for a fine perfume or cologne! A better option is to buy one of the



up-and-coming California extra virgin olive oils. California is making a name for itself by producing authentic, high quality, and superior-tasting extra virgin olive oils you can trust. These extra virgin olive oils have the benefit of being much fresher, because they aren't stored and shipped overseas, so they are less likely to be rancid, oxidized, or fake.

LE: And what about the effects on the body of the other essential component of the Mediterranean diet—red wine?

AS: Perhaps not surprisingly, what makes red wine so powerful begins with the grapes. Wine grapes are full of powerful polyphenols. According to the *American Journal of Clinical Nutrition*, polyphenols are best known for preventing diseases like heart disease and cancer. They are commonly found in medicinal plants and are known to take an active role in enzyme activity and cell health. Polyphenols can be found in green tea, coffee, herbs and spices, fruits, vegetables, and red grapes.

LE: And the chief polyphenol in red wine is resveratrol, correct?

AS: Resveratrol has even attracted attention from life extension researchers, who believe that it may be able to extend cell life and someday be used to prolong human life. It helps protect the heart against ischemic heart disease by protecting the coronary arteries from damage caused by inflammation and oxidation. Resveratrol, along with other plant chemicals, is known to target and disrupt the creation of cancer cells. Exciting new research is showing that resvera-

tol can be an important part of a multifaceted approach to treating and slowing the progression of Alzheimer's. Resveratrol has been shown to modify certain brain chemicals that are closely linked to increased risk of obesity, diabetes, and metabolic syndrome, which are all closely related to increased risk of heart disease as well as a constellation of other health issues. Through its ability to support healthy brain function and regular neurochemicals, resveratrol can help prevent depression and bipolar disorder, and in some smaller studies, has been shown to reduce the risk of autism.

LE: You also point to the benefits of *non-wine* alcohol.

AS: According to Harvard Medical School, alcohol in any form is known to help protect the heart, and moderate drinkers have lower rates of heart attack, strokes, blood clots, and overall death from heart disease. In fact, the overall risk reduction ranges between **25%** and **40%**. That's a pretty significant benefit. Moderate drinking has been shown to increase levels of "good" (HDL) cholesterol, improve your body's sensitivity to the hormone insulin (which helps control blood sugar), reduce your blood's tendency to clot (which helps prevent the formation of clots that cause heart attack and stroke), and reduce the risk of diabetes.

LE: How much wine and extra virgin olive oil should we consume each day?

AS: Enjoy one glass a day of red wine for women and one to two for men. A traditional Mediterranean-style diet calls for eating about eight to ten olives or ingesting three to four tablespoons of olive

oil every day. The Food and Drug Administration recommends about two tablespoons daily. The PREDIMED study, the largest and most definitive scientific study on the benefits of olive oil, used four tablespoons a day as its benchmark. I recommend four tablespoons. Fortunately, extra virgin olive oil is so delicious that it's not hard to get those few tablespoons every day. You can use olive oil in salad dressings or in any of the recipes in the back of the book.

LE: The *second* lowest level of the SimpleMD Food Pyramid you provide clearly illustrates the foods to be used as a base for every meal—fruits, vegetables, whole grains, olive oil, beans, nuts, legumes, seeds, herbs, and spices—but many readers may be surprised to find exercise constituting the lowest level.

AS: But before you think, "Oh great, another doctor telling me I need to spend more time in the gym," think about the actual *types* of exercise that long-lived people in the Mediterranean basin get. They walk a lot. They play outdoor sports. They dance. All of this counts as healthy physical activity, and ideally, you should be getting 30-60 minutes every day of light-to-moderate physical activity.

LE: Your SimpleMD protein bars—which contain red wine and extra virgin olive oil along with other nutrients—are critical to your 30-day weight-loss program, correct?

AS: In our practice, we often recommend that patients who need to lose a substantial amount of weight start with a month-long diet "boot camp" of eating 4-5 bars a day, plus one meal consisting of a

AUTHOR INTERVIEW

leafy green salad with extra virgin olive oil and a lean protein. We've found it's relatively easy for people to follow, and it results in a period of faster weight loss while their metabolism resets. Please note: this is not a long-term solution. I would recommend only following this type of eating plan for 30 days or less, and then making the transition into a more sustainable, long-term diet with three meals and two smaller snacks.

LE: How do stress management and sleep figure into the Mediterranean lifestyle?

AS: The actual number of hours of sleep an adult needs varies, but if you're consistently getting less than 6 hours of sleep a night, that's not good. We know that stress causes inflammation, that stress is closely linked to the risk of heart disease and other serious medical conditions, that people who are under stress are more likely to be obese, and that overall mortality is negatively affected by stress. Unfortunately, finding a way to de-stress can be dauntingly difficult in today's complicated world of 24/7 work. Hopefully, some of the measures I suggested will help, especially the exercise.

LE: You emphasize incorporating the Mediterranean lifestyle into daily life in simple ways.

AS: So many "diet" books mean well, but when we get down to the details, they are recommending a lifestyle that is nearly impossible in today's America. You'd need to carve out five extra hours in every day for all of the exercise and food-prep time to follow the complicated plan. I believe the Mediterranean-focused lifestyle I've laid out in these pages is the path to a healthy

balance, one that combines excellent and healthy food with good nutrition, adequate exercise and sleep, and relaxation. This program is all about living well and living long while following the scientifically validated principles of the Mediterranean Diet.

LE: And you include recipes for healthy breakfasts, lunches, and dinners.

AS: You don't have to enjoy cooking to get the full benefit of the Mediterranean Diet—whether it's through our SimpleMD protein bars, a meal delivery service like Fresh Diet, or finding Mediterranean-friendly restaurants, there are plenty of convenient and easy ways to find great Mediterranean food. But if you do happen to enjoy cooking, you're in luck! I've collected just a small sample of recipes from various sources that both satisfy the requirements of the Mediterranean Diet and are delicious as well. Once you get acquainted with these, feel free to experiment with these ingredients. And remember, try to incorporate authentic extra virgin olive oil into your meals wherever possible. The health benefits are profound. ●

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 book an appointment at **Dr. Soffer's office in Aventura, Florida**, call (855) 337-3627. **Dr. Ariel Soffer, MD, FACC**, maintains board certifications and re-certifications in internal medicine and in cardiovascular disease, and has been a fellow in the American College of Cardiology since 1998.



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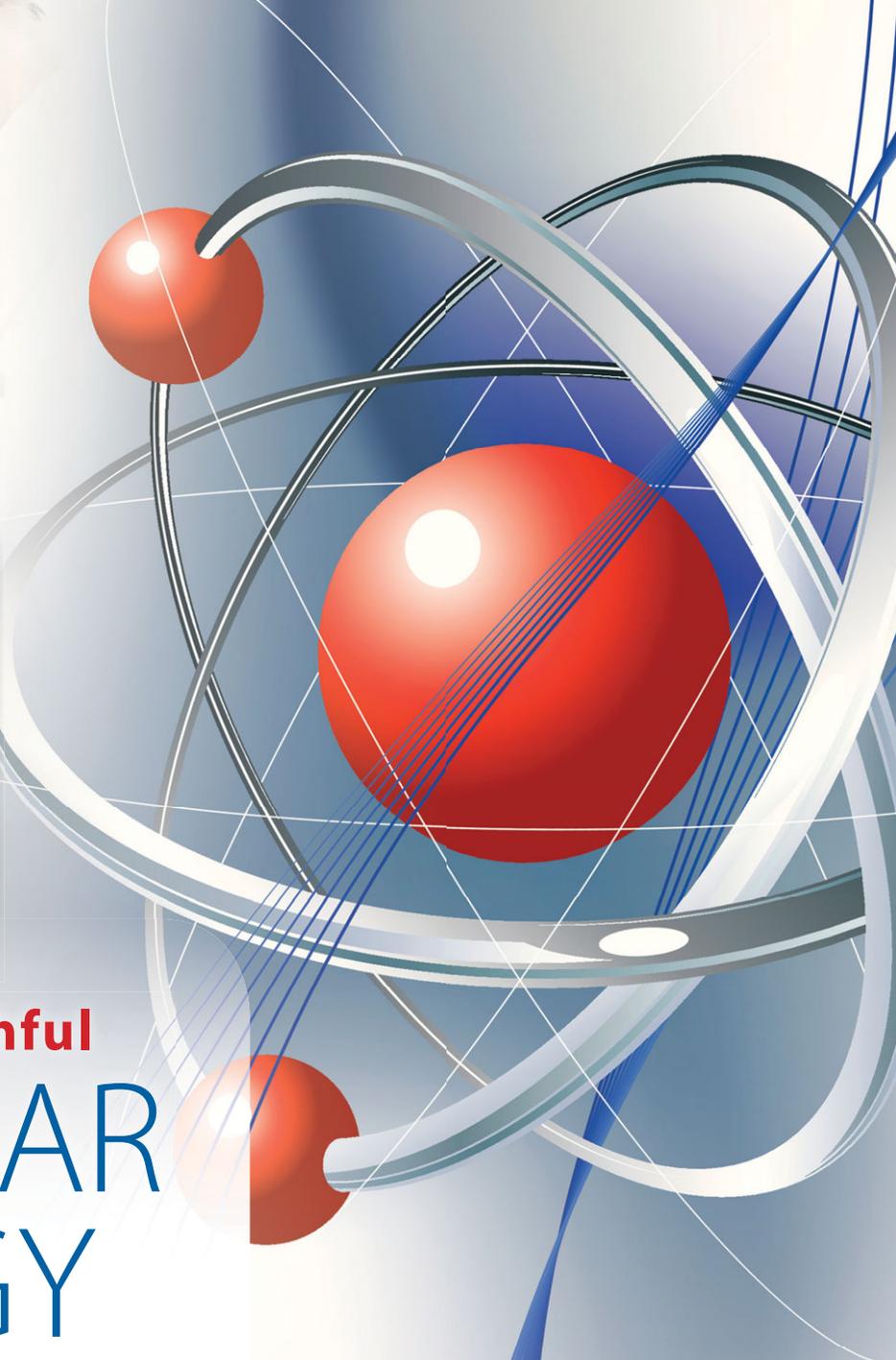
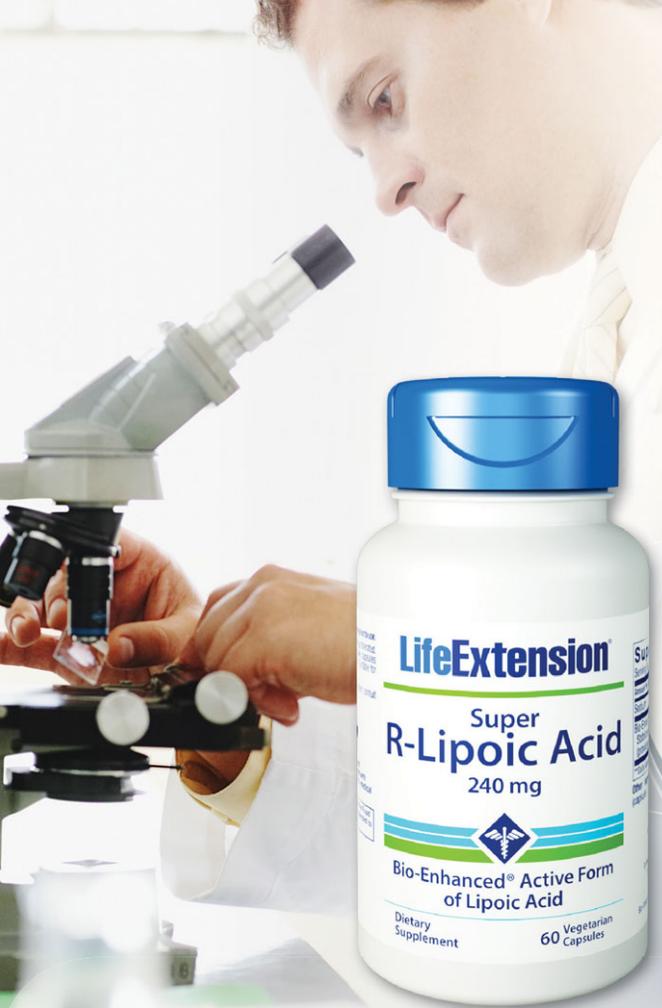
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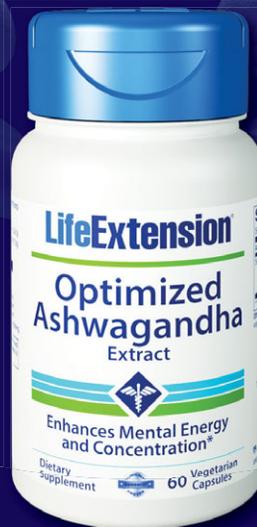
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BY KYLE RODERICK

Beauty from Within

As a plastic surgeon to film stars, pop singers, and pro-athletes, Leif Rogers, MD, FACS, does far more than enhance the looks of some of the world's most beautiful people. Indeed, Dr. Rogers fortifies as well as beautifies his patients from *within* by prescribing medically proven safe and effective vitamin, mineral, and free-radical scavenging supplements.

With offices in Beverly Hills and Pasadena, California, Dr. Rogers is differentiated from other plastic surgeons by his singular aesthetic vision, surgical skills, and pioneering use of oral phytoceramides and intravenous vitamin supplements. These supplements, which help patients feel, look, and function at their best, are part of Dr. Rogers' commitment to upholding "the highest quality standards in reconstructive surgery, cosmetic plastic surgery and nonsurgical treatments that include an optimal balance of artistry with the most sophisticated medical advances."



Leif Rogers, MD, FACS

Dr. Rogers and his staff are highly focused on helping to strengthen a client's skin from within. They are in the vanguard of plastic surgery in that they realize the importance of vitamins in relation to the promotion of skin health as well as the importance of vitamins to the healing process after surgery.

"Vitamins are essential in our daily metabolic functions," he explains. One supplement that Dr. Rogers is particularly keen on is phytoceramides, mainly because there is so much medical evidence supporting their potential for promoting the development of healthy skin cells.

Phytoceramides for Natural Beauty

As Dr. Rogers explains, "Phytoceramides are plant-derived ceramides, which are substances that our healthy skin cells produce to communicate with one another as well as to create a waterproof seal from the outside world."

Ceramides are waxy lipid molecules, composed of a fatty acid and a substance called sphingosine. Ceramides are found in high concentrations within the membranes of human cells.

Ceramides play a vital role in types of cellular signaling such as regulating the differentiation, proliferation, and programmed death of cells (apoptosis). Intriguingly, ceramide is a component of *vernix*, the waxy white substance that coats and protects the skin of newborn human infants.

As we age, Dr. Rogers continues, "Our cells produce fewer ceramides, leading to drier and thinner skin. Plus, the weakness caused by lack of ceramides also allows more toxins to enter through our skin." When ingested orally, however, "phytoceramides will be taken up by our cells and used to rebuild the intercellular connections restoring the moisture and barrier functions of our skin." Thus, according to Dr. Rogers, "Ceramides improve the function, and also the appearance of skin, giving us a more youthful look."

Dr. Rogers has presented the evidence-based medical research about phytoceramides and their anti-aging benefits on the *Dr. Oz* television show, "*Secrets to Cheat Your Age*." While phytoceramides have been touted by some physicians as "a facelift in a bottle," Dr. Rogers is much more circumspect. "Those of us over 40 often experience a noticeable improvement in skin tone and texture with regular oral consumption of phytoceramides," he notes. While he takes oral phytoceramide supplements every day, Dr. Rogers also takes multivitamins and NAD on a daily basis. (NAD is the biologically active coenzyme form of vitamin B3, or niacinamide.)

His Background

Even before Dr. Rogers became a physician, he was fascinated by biology and the workings of human consciousness. "I have a bachelor's of science degree in cell and developmental biology and a minor in psychology," he says. Given that his undergraduate areas of concentration were in realms that relate strongly to the medical practice and art of plastic surgery, it's arguable that Dr. Rogers was destined to become a plastic surgeon in Beverly Hills with A-list entertainment industry professionals as patients.

Dr. Rogers has been interested in the potential for healing provided by intravenous vitamin therapy ever since he was a medical resident. Back in those days, he witnessed nutritionally deficient patients experience significant health improvements after receiving intravenous vitamin and mineral infusions—and came away suitably impressed.



After he became a physician and attended an anti-aging medicine-related conference where research was presented on the use of intravenous vitamin infusions to help improve various health conditions, a light bulb switched on in his mind. He realized that intravenous vitamins could be assets to his medical practice.

As Dr. Rogers continues, “Intravenous vitamin therapy causes a mild euphoric feeling in most while also supporting the healing process, a time during which the body uses more than the usual amount of its resources. Many of my patients attribute their accelerated recoveries from different surgeries to these therapies.” Naturally, Dr. Rogers does his due medical diligence before making vitamin recommendations to prevent potentially negative interactions between any prescription medications the patient may be taking.

Dr. Rogers says he has always been interested in building, drawing, and sculpting. “My interest in the idea of surgically changing a person’s appearance dawned when I was 7 years old,” he says. “I was watching a television documentary called *The Making of Cleopatra*. This show documented, in fascinating detail, the surgical transformation of a female patient to make her resemble renderings of the ancient Egyptian queen Cleopatra. Completely fascinated, I blurted out to my parents, ‘I’m going to do that one day!’ When they looked at me with eyebrows raised, I explained, ‘I’ll be performing that kind of surgery, not receiving it,’” he says with a laugh.

“As long as I can remember,” Dr. Rogers continues, “I have been able to visualize a three-dimensional design or object in my mind and then draw it or build it so that it

becomes a reality.” While he studied sculpture in college, Dr. Rogers notes that he enjoyed “planning the architectural designs of my office and home.” Indeed, visiting the Beverly Hills office of Dr. Rogers is like stepping into a private museum. Designed with input from noted modernist interior designer James Magni, the offices and hallways abound with beautiful paintings and sculptures.

The quest for perfection and a vivid aesthetic vision have served Dr. Rogers well in his career as a plastic surgeon. As he puts it, “I am grateful to have in many ways an ideal skill set for plastic surgery.”

In His Personal Life

For the past several years, Dr. Rogers has been volunteering his considerable skill set to the nonprofit organization HELPs International, which brings free medical services to rural communities in Guatemala and Mexico.

“I take part on a 10-day medical mission to Guatemala every year,” Dr. Rogers says. “I work with a large multidisciplinary group of physicians and other medical professionals that set up a temporary hospital in remote regions of Guatemala. In that time, I perform a minimum of 25

What Dr. Rogers Offers

Before attending the Academy Awards, Grammys, or other entertainment events, actors, singers, models, and other entertainment industry professionals come to Dr. Rogers for intravenous vitamin, mineral, and free radical scavenging “cocktails” to help amp up their energy and promote healthy glowing skin from within. These intravenous infusion cocktails are also helpful for patients who need to recharge from working full time while raising families or recovering from grueling business travel. Here’s a brief overview of what is available in the practice of Dr. Rogers:

The Competitor: A combination of intravenous fluids, dextrose, electrolytes, vitamins, minerals, and free radical scavengers to give an energy boost, hydrate, build muscle and promote healing and endurance. It can be useful before and after workouts, or when training.

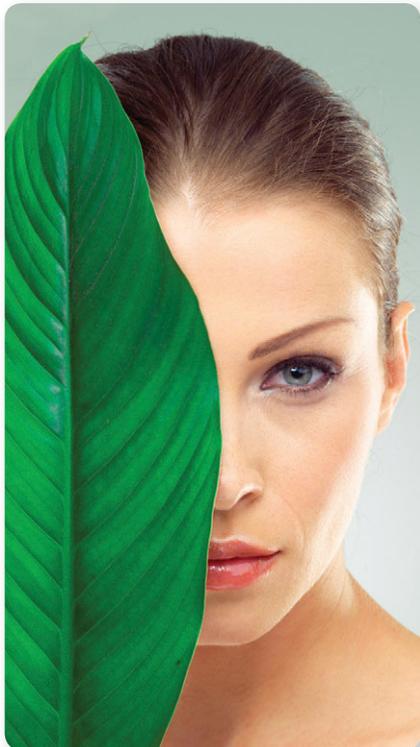
The Healer: This combination of intravenous fluids, electrolytes, vitamins, minerals, and free radical scavengers may help the patient recover or prepare for surgery, or recover from illness. Studies have shown free radical scavengers and vitamins can cut healing time in half, including healing of the skin (scars).

The Immunizer: This is a combination of intravenous fluids, electrolytes, vitamins, minerals, and free radical scavengers to help the signaling and function of the body’s immune system. This cocktail can be useful for illness prevention, when starting to feel sick, already sick, or recovering.

The Traveler: A combination of intravenous fluids, electrolytes, vitamins, minerals, and free radical scavengers to help the body recover from travel. Great for those who travel for work or who have just finished a long trip. This can combat jet lag, dehydration, and stress by enhancing energy and focus, rehydrating, promoting relaxation, and nourishing tissues.

surgeries on children and adults, many of whom have never seen a doctor in their lives.” The procedures, he adds, “range from repair of cleft lips and palates, to remedying burn scars and reconstructing large defects after resection of tumors.” Dr. Rogers finds his work with HELPs International rewarding because it affords the rare chance to make profound and everlasting improvements in the physical and mental health of people, as well as their appearance.

While Dr. Rogers enjoys snowboarding, dirt bike riding, hiking, and other sports, one of the downsides of his successful, busy practice is that, “I have less time for recreation. I do, however, work out with a trainer once or twice a week, depending on my schedule. When I was a student and resident,” he recalls, “I worked out five days a week in order to keep up my energy when I was averaging four hours of sleep per night for many years.”



His Super Slow Workout

Now with the commitments of family and work, he says, “Exercise is less frequent but even more important. I work out both at a private gym and in my home gym. My preferred workout routine is SuperSlow, a very specific workout technique that maximizes results with minimal time and risk of injury.” (The 10-second lifting and 10-second lowering repetition speed of SuperSlow movement was developed by Ken Hutchins during Nautilus-funded osteoporosis research at the University of Florida in the early 1980s.)

The method relies on very slow repetition speeds as compared to traditional resistance training regimens. In SuperSlow workouts, the exerciser reduces acceleration and momentum to limit the force the body is exposed to during exercise, so as to improve muscular loading. Some research indicates that SuperSlow produces superior results compared to traditional methods in as little as 10 weeks.

In Conclusion

Dr. Rogers believes that to be an exceptional plastic surgeon, one must focus on the entire patient, which encompasses the visual, spatial and material balance of all parts, rather than just a single body part or procedure. “We are so much more than a sum of our parts,” he explains. “This is why all parts of the person must be carefully studied in detail when an aesthetic surgery is under consideration. A sculptor never sculpts noses or breasts, but entire human beings,” he says. Dr. Rogers’s holistic approach to patients, coupled with his awareness that true health and beauty come from within, account for his exceptional plastic surgery practice. ●

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

For more information or to contact Dr. Rogers, please visit www.leifrogersmd.com

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BY SHARON MINTZ

Vitamin D Reduces Atopic Dermatitis Severity

A recent study has confirmed that supplementation with **vitamin D** significantly reduces the severity of atopic dermatitis in as little as four weeks.¹ Atopic dermatitis is a chronic, moderate-to-severe form of eczema, a skin disease that affects almost **18 million** Americans of all ages.²

In general, people suffering from this condition have had very few effective treatment options, and these address only the **symptoms** while doing nothing to combat the disease itself. But now, a better understanding of the underlying causes of atopic dermatitis has opened the door to a **targeted treatment** that can address a critical factor behind atopic dermatitis flares.

Supporting the Body's Natural Antibiotic

Symptoms of atopic dermatitis can range from dry, itchy skin and red rashes to severe flare-ups that produce open, weeping or crusted sores that may become infected with bacteria.^{2,3} These infections can progress to produce eye or eyelid problems, which can lead to sleep disruptions. The most severe cases may even require chronic drug therapy.³

This complex disorder has both genetic and environmental roots and appears to be related to allergic disorders and asthma, both of which involve abnormal immune system responses.⁴

Scientists have discovered that people with atopic dermatitis have a dangerously high percentage of the common bacteria *Staphylococcus aureus* on their skin's surface. Staph organisms abound on human skin surfaces and are normally mixed with (and to some extent controlled by) other,

less dangerous bacteria. But in people with atopic dermatitis, *S. aureus* grows out of control, constituting as much as **90%** of the organisms found on the skin.^{1,5}

Studies show that an increase in skin colonization with *S. aureus* is one of the most powerful triggers for atopic dermatitis "flares," the period of time when the condition gets worse, which is then followed by a period of remission. In addition, it has been found that areas of affected skin in atopic dermatitis patients contain significantly higher densities of *S. aureus*.^{1,6}

Typically, the body's immune system produces its own natural antibiotic called **cathelicidin**, which targets several microorganisms, including *S. aureus*.¹ But people with atopic dermatitis have low levels of cathelicidin. A key, then, to containing the out-of-control colonization of *S. aureus* is to boost levels of cathelicidin. One of the best ways to do that is with supplemental **vitamin D**.

The Role of Vitamin D

Previous studies have shown that vitamin D levels correlate strongly, and inversely, with the severity of atopic dermatitis, so higher levels mean less severe disease, and vice versa.⁷⁻⁹ Studies have also suggested that vitamin D supplementation has beneficial effects on atopic dermatitis symptoms.^{1,10-12} One of the reasons for these benefits is that the production of cathelicidin is strongly dependent upon vitamin D.¹³ In fact, supplementation with vitamin D was recently shown to boost cathelicidin levels, both in patients with atopic dermatitis and, to a lesser degree, in those with healthy skin.¹⁴

Now, a study published in *Journal of the Medical Association of Thailand* has confirmed previous findings that vitamin D supplementation significantly reduces *S. aureus* colonization, providing a key insight into how supplementation may prevent flares of the disease.¹

Let's take a look at the details of this exciting study.

Getting to the Root of Atopic Dermatitis

The patients included in this recent study all had mild-to-moderate atopic dermatitis as determined by a standard **Scoring for Atopic Dermatitis (SCORAD)** scale. At the beginning of the study, the researchers obtained skin cultures to determine the total number of *S. aureus* organisms. They also recorded the subjects' SCORAD score, took automated readings of skin redness and skin moisture, and took digital photographs of skin





Antimicrobial Properties of Vitamin D

As many as 1.2 million US hospital patients may be infected each year with a virulent staph infection that is resistant to antibiotics. A 2007 study showed this rate was almost ten-times greater than previous estimates.¹⁶

Each year, about 18,000 Americans die from drug-resistant staph infections.¹⁷

Vitamin D helps produce natural factors that kill staph and other microbes. This makes it especially important for older people and those going to a hospital to supplement with this low-cost nutrient.

As more antibiotic strains of bacteria emerge, the value of vitamin D in protecting against microbial infection markedly increases.¹⁸

zation with *S. aureus*, an organism known to be a factor in atopic dermatitis flares.

Vitamin D is already known to be safe at the doses used in this study, and no adverse effects were found during the study period.

Summary

Atopic dermatitis, a moderate-to-severe form of eczema, persists into adulthood in more than **10%** of Americans.¹⁵ Treatment options have long been limited to topical creams and oral antihistamines to reduce symptoms, but they do nothing to change the underlying conditions.

The discovery of cathelicidins, vitamin D-dependent natural antibiotics, has led to an improved understanding of atopic dermatitis. It has also led to the realization that vitamin D supplementation might be an appropriate way to control atopic dermatitis.

lesions. Then, for the next four weeks, the patients received either **2,000 IU** per day of vitamin D or a placebo.¹

The results were impressive.

By the end of the study, the average SCORAD score among supplemented atopic dermatitis patients was about **56% lower** compared with baseline.¹ Supplemented subjects also experienced reductions in skin redness (erythema index) compared with placebo, although no significant change in skin moisture content was found. Importantly, while the placebo group experienced an increase in colonization with

S. aureus, the subjects taking vitamin D had an approximate **46%** reduction in *S. aureus* colonization.¹ The decreases of both SCORAD score and skin colonization were shown to be correlated inversely with vitamin D levels: the higher the vitamin D level, the lower the rate of *Staph* colonization, and the lower (less severe) the SCORAD scores.

This study showed that daily supplementation with **2,000 IU** of vitamin D for four weeks significantly reduced the severity of atopic dermatitis symptoms, and also reduced the degree of coloni-

The study reviewed here adds to that knowledge base by proving that vitamin D supplementation significantly reduces the presence of dangerous *S. aureus* on skin surfaces. Since increased colonization with that organism is a known contributor to disease severity, the demonstration that vitamin D reduces colonization provides further evidence of how the vitamin interacts with the human immune system to reduce both the symptoms and a critical factor in atopic dermatitis flares.

People who suffer from atopic dermatitis should supplement daily with at least **2,000 IU** of vitamin D3 to boost their cathelicidin production, reduce colonization with offending organisms, and improve their skin condition. ●

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

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- | | |
|--|--|
| <p>○ COMPREHENSIVE PANELS</p> <p>○ MALE LIFE EXTENSION PANEL (LC322582) \$269
CBC/Chemistry Profile (See description)
C-Reactive Protein Homocysteine
DHEA-S Free Testosterone
TSH for thyroid function Total Testosterone
Estradiol PSA (prostate-specific antigen)
Vitamin D 25- hydroxy Hemoglobin A1c</p> | |
| <p>○ FEMALE LIFE EXTENSION PANEL (LC322535) \$269
CBC/Chemistry Profile (See description)
C-Reactive Protein Homocysteine
DHEA-S Free Testosterone
TSH for thyroid function Total Testosterone
Estradiol Vitamin D 25-hydroxy
Progesterone Hemoglobin A1c</p> | |
| <p>○ FEMALE HORMONE REPLACEMENT PANEL (LC100023) \$189
CBC/Chemistry Profile (see description), Estradiol, Estrone, Free and Total Testosterone, DHEA-S, Progesterone, TSH, and Insulin</p> | |
| <p>○ WEIGHT LOSS PANEL-COMPREHENSIVE (LC100028) \$275
CBC/Chemistry profile (see description), DHEA-S, Free and Total Testosterone, Estradiol, Progesterone, Cortisol, TSH, Free T3, Free T4, Reverse T3, Insulin, Hemoglobin A1c, Vitamin D 25-hydroxy, C-Reactive Protein (high sensitivity), and Ferritin.</p> | |
| <p>○ MALE ELITE PANEL* (LC100016) \$575
CBC/Chemistry Profile (See description), Free and Total Testosterone, Total Estrogens, Estradiol, DHEA-S, Progesterone, Pregnenolone, DHT, FSH, LH, TSH, Free T3, Free T4, Reverse T3, Free and Total PSA, IGF-1, SHBG, Vitamin D 25-OH, hs-CRP, Ferritin, Homocysteine</p> | |
| <p>○ FEMALE ELITE PANEL* (LC100017) \$575
CBC/Chemistry Profile (See description), Free and Total Testosterone, Total Estrogens, Estradiol, Estrone, DHEA-S, Progesterone, Pregnenolone, DHT, FSH, LH, TSH, Free T3, Free T4, Reverse T3, IGF-1, SHBG, Vitamin D 25-OH, hs-CRP, Ferritin, Homocysteine</p> | |
| <p>○ MALE HORMONE ADD-ON PANEL (LCADDM)* Pregnenolone and Dihydrotestosterone (DHT) \$120
To provide an even more in-depth analysis of a man's hormone status, Life Extension has created this panel as an addition to the Male Life Extension Panel.</p> | |
| <p>○ FEMALE HORMONE ADD-ON PANEL (LCADDF)* Pregnenolone and Total Estrogens \$125
To provide an even more in-depth analysis of a woman's hormone status, Life Extension has created this panel as an addition to the Female Life Extension Panel.</p> | |
| <p>○ COMPREHENSIVE THYROID PANEL (LC100018) \$199
TSH, T4, Free T4, Free T3, Reverse T3, TPO, ATA</p> | |
| <p>○ LIFE EXTENSION THYROID PANEL (LC304131) \$75
TSH, T4, Free T3, Free T4.</p> | |
| <p>○ THYROID PANEL WITH REVERSE T3 (LC100044) \$120
TSH, T4, Free T3, Free T4, Reverse T3</p> | |
| <p>○ THE CBC/CHEMISTRY PROFILE (LC381822) \$35
Note: This CBC/Chemistry Profile is included in many Life Extension panels. Please check panel descriptions.</p> <p>CARDIOVASCULAR RISK PROFILE
Total Cholesterol Cholesterol/HDL Ratio
HDL Cholesterol Estimated CHD Risk
LDL Cholesterol Glucose
Triglycerides Iron</p> <p>LIVER FUNCTION PANEL
AST (SGOT) Total Bilirubin
ALT (SGPT) Alkaline Phosphatase
LDH</p> <p>KIDNEY FUNCTION PANEL
BUN BUN/Creatinine Ratio
Creatinine Uric Acid</p> <p>BLOOD PROTEIN LEVELS
Total Protein Globulin
Albumin Albumin/Globulin Ratio</p> <p>BLOOD COUNT/RED AND WHITE BLOOD CELL PROFILE
Red Blood Cell Count Monocytes
White Blood Cell Count Lymphocytes
Eosinophils Platelet Count
Basophils Hemoglobin
Polys (Absolute) Hematocrit
Lymphs (Absolute) MCV
Monocytes (Absolute) MCH
Eos (Absolute) MCHC
Baso (Absolute) Polynucleated Cells
RDW</p> <p>BLOOD MINERAL PANEL
Calcium Sodium
Potassium Chloride
Phosphorus Iron</p> | |
| <p>○ MALE COMPREHENSIVE HORMONE PANEL* (LC100010) \$299
CBC/Chemistry Profile, DHEA-S, Estradiol, DHT, PSA, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3, Free T4, Cortisol.</p> | |
| <p>○ FEMALE COMPREHENSIVE HORMONE PANEL* (LC100011) \$299
CBC/Chemistry Profile, DHEA-S, Estradiol, Total Estrogens, Progesterone, Pregnenolone, Total and Free Testosterone, SHBG, TSH, Free T3, Free T4, Cortisol.</p> | |
| <p>○ FOOD SAFE ALLERGY TEST** (LCM73001) \$198
This test measures delayed (IgG) food allergies for 95 common foods.</p> | |
| <p>○ STRESS MANAGEMENT PROFILE (LC100043) \$125
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| <p>○ BASIC CORTISOL PROFILE-SALIVA** (LC100047) \$129
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| <p>○ SLEEP HORMONES PROFILE-SALIVA** (LC100048) \$175
Cortisol and Melatonin plus ratio.</p> | |
| <p>○ MTHFR/COMT GENETIC METHYLATION PROFILE** (LC100045) \$149
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- HEALTHY AGING PANEL-COMPREHENSIVE*** (LC100026) **\$249**
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- HEALTHY AGING PANEL-BASIC*** (LC100025) **\$149**
 CBC/Chemistry profile, C-Reactive Protein (high sensitivity), Vitamin B12, Folate, Vitamin D 25-hydroxy, Hemoglobin A1c, TSH, Ferritin, and Insulin.
- NMR LIPOPROFILE®** (LC123810) **\$99**
 The NMR LipoProfile® directly measures LDL particle size and number as well as HDL particle number, total cholesterol, and triglycerides. It also provides a calculation of one's risk of insulin resistance by assessing abnormalities in lipoprotein markers.
- ANEMIA PANEL*** (LC100006) **\$79**
 CBC/Chemistry Profile, Ferritin, Total Iron Binding Capacity (TIBC), Vitamin B12, Folate
- AUTOIMMUNE DISEASE SCREEN*** (L100041) **\$199**
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- DIABETES MANAGEMENT PROFILE – COMPREHENSIVE** (LC100040) **\$129**
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- DIABETES MANAGEMENT PROFILE – BASIC** (LC100039) **\$39**
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- ADVANCED CARDIAC BIOMARKERS**
- ADVANCED OXIDIZED LDL PANEL*** (LC100035) **\$285**
 This panel looks at vascular inflammatory biomarkers, beginning with lifestyle choices to the development of metabolic as well as cardiovascular disease and the formation of vulnerable plaque. The panel contains the following tests: F2-Isoprostanes, Myeloperoxidase, and Oxidized LDL.
- OXIDIZED LDL PANEL*** (LC100034) **\$175**
 This panel looks at vascular inflammatory biomarkers, beginning with the development of metabolic as well as cardiovascular disease and the formation of vulnerable plaque. The panel contains the following tests: Myeloperoxidase and Oxidized LDL.
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Boron
 Iron Protein Plus
 Magnesium (Citrate)
 Magnesium Caps
 Only Trace Minerals
 Optimized Chromium with Crominex® 3+ Sea-Iodine™
 Se-Methyl L-Selenocysteine
 Super Selenium Complex
 Vanadyl Sulfate
 Zinc Caps

Miscellaneous

Solarshield® Sunglasses

Mood & Stress Management

5 HTP
 L-Theanine
 Natural Stress Relief
 SAME (S-Adenosyl-Methionine)

Multivitamins

Children's Formula Life Extension Mix™
 Comprehensive Nutrient Packs ADVANCED
 Life Extension Mix™ Capsules without Copper
 Life Extension Mix™ Capsules
 Life Extension Mix™ Powder without Copper
 Life Extension Mix™ Powder
 Life Extension Mix™ Tablets with Extra Niacin
 Life Extension Mix™ Tablets without Copper
 Life Extension Mix™ Tablets
 Once-Daily Health Booster
 One-Per-Day Tablets
 Two-Per-Day Capsules
 Two-Per-Day Tablets

Personal Care

Anti-Aging Rejuvenating Scalp Serum
 Biosil
 Dr. Proctor's Advanced Hair Formula
 Dr. Proctor's Shampoo
 European Leg Solution Featuring Certified Diosmin 95
 Face Master Platinum
 Facial Toning System
 Hair, Skin & Nail Rejuvenation Formula w/VERISOL®
 Hair Suppress Formula
 Life Extension Toothpaste

Sinus Cleanser
 Venotone
 Xylwhite Mouthwash

Pet Care

Cat Mix
 Dog Mix

Probiotics

Bifido GI Balance
 BroccoMax®
 FLORASSIST® Heart Health
 FLORASSIST® Oral Hygiene
 FLORASSIST® Balance
 FLORASSIST® Mood
 FLORASSIST® Throat Health
 Theralac® Probiotics
 TruFlora® Probiotics

Skin Care

Advanced Anti-Glycation Peptide Serum
 Advanced Lightening Cream
 Advanced Peptide Hand Therapy
 Advanced Triple Peptide Serum
 Advanced Under Eye Serum with Stem Cells
 Amber Self MicroDermAbrasion
 Anti-Aging Face Oil
 Anti-Aging Mask
 Anti-Aging Rejuvenating Face Cream
 Anti-Glycation Serum with Blueberry & Pomegranate Extracts
 Antioxidant Facial Mist
 Anti-Oxidant Rejuvenating Foot Cream
 Anti-Oxidant Rejuvenating Foot Scrub
 Anti-Oxidant Rejuvenating Hand Cream
 Anti-Redness & Adult Blemish Lotion
 Bioflavonoid Cream
 Broccoli Sprout Cream
 Collagen Boosting Peptide Serum
 Corrective Clearing Mask
 DNA Repair Cream
 Essential Plant Lipids Reparative Serum
 Face Rejuvenating Anti-Oxidant Cream
 Fine Line-Less
 Healing Formula
 Healing Mask
 Healing Vitamin K Cream
 Hyaluronic Facial Moisturizer
 Hyaluronic Oil-Free Facial Moisturizer
 Hydrating Anti-Oxidant Facial Mist
 Hydroderm
 Lifting & Tightening Complex
 Lycopene Cream
 Melatonin Cream
 Mild Facial Cleanser
 Multi Stem Cell Skin Tightening Complex
 Neck Rejuvenating Anti-Oxidant Cream
 Pigment Correcting Cream
 Rejuvenating Serum
 Rejuvenex® Body Lotion
 Rejuvenex® Factor Firming Serum
 Renewing Eye Cream
 Resveratrol Anti-Oxidant Serum
 Shade Factor
 Skin Lightening Serum
 Skin Restoring Phytoceramides with Lipowheat®
 Skin Stem Cell Serum
 Stem Cell Cream with Alpine Rose
 Tightening & Firming Neck Cream
 Triple-Action Vitamin C Cream
 Ultimate MicroDermabrasion
 Ultra Eyelash Booster
 Ultra Lip Plumper
 Ultra Rejuvenex®
 Ultra RejuveNight®
 Ultra Wrinkle Relaxer
 Under Eye Refining Serum
 Under Eye Rescue Cream
 Vitamin C Serum
 Vitamin D Lotion
 Vitamin E-ssential Cream
 Youth Serum

Sleep

Bioactive Milk Peptides
 Enhanced Natural Sleep® with Melatonin
 Enhanced Natural Sleep® without Melatonin
 Fast-Acting Liquid Melatonin
 Glycine
 L-Tryptophan
 Melatonin
 Optimized Tryptophan Plus

Sports Performance

Creatine Capsules
 Creatine Whey Glutamine Powder (Vanilla Flavor)
 New Zealand Whey Protein Concentrate (Natural Chocolate and Vanilla Flavor)
 Tart Cherry Extract
 Whey Protein Isolate (Chocolate and Vanilla Flavor)

Vitamins

Ascorbyl Palmitate
 Benfotiamine with Thiamine
 Beta-Carotene
 BioActive Complete B-Complex
 Biotin
 Buffered Vitamin C Powder
 Daily C+
 Fast-C® with Dihydroquercetin
 Gamma E Tocopherol with Sesame Lignans
 Gamma E Tocopherol/Tocotrienols
 High Potency Optimized Folate
 Inositol Caps
 Liquid Emulsified Vitamin D3
 Liquid Vitamin D3
 Low-Dose Vitamin K2
 Methylcobalamin
 MK-7
 Natural Vitamin E
 No Flush Niacin
 Optimized Folate (L-Methylfolate)
 Pantothenic Acid (Vitamin B-5)
 Pyridoxal 5'-Phosphate Caps
 Super Absorbable Tocotrienols
 Super Ascorbate C Capsules
 Super Ascorbate C Powder
 Super K with Advanced K2 Complex
 Vitamin B12
 Vitamin B6
 Vitamin C with Dihydroquercetin
 Vitamin D3 with Sea-Iodine™
 Vitamin D3
 Vitamins D and K with Sea-Iodine™

Weight Management

7-Keto® DHEA Metabolite
 Advanced Anti-Adipocyte Formula
 Advanced Natural Appetite Suppress
 CalReduce Selective Fat Binder
 DHEA Complete
 Garcinia HCA
 HCAActive™ Garcinia Cambogia Extract
 Integra-Lean®
 Mediterranean Trim with Sinetrol™-XPur
 Optimized Irvingia with Phase 3™ Calorie Control Complex
 Optimized Saffron with Satiereal®
 Super Citrimax®
 Super CLA Blend with Guarana and Sesame Lignans
 Super CLA Blend with Sesame Lignans
 Waist-Line Control™

Women's Health

Advanced Natural Sex for Women® 50+
 Breast Health Formula
 Femmenessence MacaPause®
 Natural Estrogen
 Progesta-Care®
 Super-Absorbable Soy Isoflavones
 Ultra Soy Extract

ITEM No.	PRODUCT	YOUR PRICE			QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each		
A						
01524	ACETYL-L-CARNITINE • 500 mg, 100 veg. caps	34.00	25.50	22.50		
01525	ACETYL-L-CARNITINE ARGINATE • 100 veg. caps	59.00	44.25	38.24		
01628	ADRENAL ENERGY FORMULA • 60 veg. caps	24.00	18.00	16.50		
01630	ADRENAL ENERGY FORMULA • 120 veg. caps	46.00	34.50	31.50		
01828	ADVANCED LIPID CONTROL • 60 veg. caps	30.00	22.50	20.25		
00681	AHCC® • 500 mg, 30 caps	59.98	44.99			
29727	AHCC® (KINOKO® GOLD) • 500 mg, 60 veg. caps	74.95	52.47			
00457	ALPHA-LIPOIC ACID W/BIOTIN (Super) • 250 mg, 60 caps	37.00	27.75	24.00		
01907	AMPK ACTIVATOR • 90 veg. caps	48.00	36.00	33.00		
01440	ANTI-ALCOHOL ANTIOXIDANTS W/HEPATOPRO • 100 caps	26.00	19.50	17.25		
01509	ANTI-ADIPOCYTE FORMULA W/MERATRIM® & INTEGRA LEAN® (Advanced) • 60 veg. caps	39.00	29.25	27.00		
01625	APPLEWISE POLYPHENOL EXTRACT 600 mg, 30 veg. caps	21.00	15.75	14.25		
01039	ARGININE/ORNITHINE • 500/250, 100 caps	17.99	13.49			
00038	ARGININE/ORNITHINE POWDER • 150 grams	22.95	17.21	14.25		
01624	(L)-ARGININE CAPS • 700 mg, 200 veg. caps	26.50	19.88	17.44		
02004	ARTERIAL PROTECT • 30 veg. caps	48.00	36.00	33.00		
01617	ARTHROMAX® W/THEAFLAVINS & APRÈSFLEX® 120 veg. caps	44.00	33.00	30.00		
01618	ARTHROMAX® ADVANCED W/UC-II® & APRÈSFLEX® 60 caps	36.00	27.00	24.00		
01404	ARTHO-IMMUNE JOINT SUPPORT • 60 veg. caps	32.00	24.00	21.00		
00919	ARTICHOKE LEAF EXTRACT • 500 mg, 180 veg. caps	30.00	22.50	21.00		
01533	ASCORBYL PALMITATE • 500 mg, 100 veg. caps	22.50	16.88	15.00		
00888	ASHWAGANDHA EXTRACT (Optimized) • 60 veg. caps	10.00	7.50	6.75		
01805	ASIAN ENERGY BOOST • 90 veg. caps	24.00	18.00	16.50		
01066	ASPIRIN • 81 mg, 300 enteric coated tablets	6.00	4.50	4.00		
01923	ASTAXANTHIN WITH PHOSPHOLIPIDS • 4 mg, 30 softgels	16.00	12.00	10.50		
B						
00920	BENFOTIAMINE W/ THIAMINE • 100 mg, 120 veg. caps	19.95	14.96	13.95		
00925	BENFOTIAMINE (Mega) • 250 mg, 120 veg. caps	30.00	22.50	20.25		
01206	BERRY COMPLETE • 30 veg. caps	21.00	15.75	14.00		
01496	BERRY COMPLETE W/ACAI (Enhanced) • 60 veg. caps	29.00	21.75	19.50		
00664	BETA-CAROTENE • 25,000 IU, 100 softgels	11.25	8.44			
01622	BIFIDO GI BALANCE • 60 veg. caps	20.00	15.00	13.50		
01873	BILBERRY EXTRACT • 100 mg, 90 veg. caps	36.00	27.00	24.00		
01512	BIOACTIVE MILK PEPTIDES • 30 caps	18.00	13.50	12.00		
01631	BIO-COLLAGEN W/PATENTED UC-II® • 40 mg, 60 small caps	36.00	27.00	24.00		
*01006	BIOSIL™ • 5 mg, 30 veg. caps	18.95	15.16			
*01007	BIOSIL™ • 1 fl oz	31.99	25.59			
00102	BIOTIN • 600 mcg, 100 caps	7.50	5.63	4.88		
01709	BLACK CUMIN SEED OIL • 60 softgels	16.00	12.00	10.50		
01710	BLACK CUMIN SEED OIL W/BIO-CURCUMIN® • 60 softgels	32.00	24.00	22.50		
01008	BLAST™ • 600 grams of powder	26.95	20.21			
70000	BLOOD PRESSURE MONITOR (ACCUFIT™) • med/lq cuff	79.99	49.99			
70004	BLOOD PRESSURE MONITOR • Digital wrist cuff	69.95	52.46			

SUBTOTAL OF COLUMN 1

ITEM No.	PRODUCT	YOUR PRICE			QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each		
01214	BLUEBERRY EXTRACT • 60 veg. caps	22.50	16.88	15.00		
01438	BLUEBERRY EXTRACT W/ POMEGRANATE • 60 veg. caps	30.00	22.50	20.25		
01506	BONE FORMULA (DR. STRUM'S INTENSIVE) • 300 caps	56.00	42.00	37.50		
01726	BONE RESTORE • 120 caps	22.00	16.50	14.25		
01727	BONE RESTORE W/VITAMIN K2 • 120 caps	24.00	18.00	16.50		
01725	BONE STRENGTH FORMULA W/KOACT® • 120 caps	45.00	33.75	30.00		
00313	BONE-UP® • 240 caps	28.95	21.71	20.41		
01661	BORON • 3 mg, 100 veg. caps	5.95	4.46	3.94		
00202	BOSWELLA • 100 caps	38.00	28.50	22.50		
01802	BRAIN SHIELD® GASTRODIN • 300 mg, 60 veg. caps	33.00	24.75	22.50		
01253	BRANCHED CHAIN AMINO ACIDS • 90 caps	19.50	14.63	12.75		
01942	BREAST HEALTH FORMULA • 60 caps	34.00	25.50	22.50		
00893	BRITE EYES III • 2 vials, 5 ml each	34.00	25.50	24.00		
26576	BROCCO MAX® • 60 veg. caps	26.95	20.21			
01203	BROMELAIN (Specially-coated) 500 mg, 60 enteric coated tablets	21.00	15.75	14.25		
C						
01653	CALCIUM CITRATE W/VITAMIN D • 300 caps	24.00	18.00	15.94		
01651	CALCIUM D-GLUCARATE • 200 mg, 60 veg. caps	18.00	13.50	11.25		
*01823	CALREDUCE SELECTIVE FAT BINDER 120 mint chewable tablets	45.00	33.75	28.50		
01700	CARDIO PEAK™ W/STANDARDIZED HAWTHORN & ARJUNA 120 veg. caps	36.00	27.00	24.00		
00916	CARNITINE W/GLYCOCARN® (Optimized) • 60 veg. caps	36.00	27.00	24.00		
01532	L-CARNITINE • 500 mg, 30 veg. caps	15.00	11.25	9.90		
01258	CARNOOOSTHE W/PICROPROTECT™ • 60 veg. caps	30.00	22.50	20.25		
01829	CARNOSINE • 500 mg, 60 veg. caps	36.00	27.00	24.00		
01687	CARNOSINE (Super) • 500 mg, 90 veg. caps	66.00	49.50	45.00		
01932	CAT MIX • 100 grams powder	14.00	10.50	8.25		
01899	CHILDREN'S FORMULA LIFE EXTENSION MIX™ 100 chewable tablets	20.00	15.00	13.50		
00550	CHLORELLA • 500 mg, 200 tablets	23.50	17.63			
01571	CHLOROPHYLLIN • 100 mg, 100 veg. caps	24.00	18.00	15.00		
01359	CHO-LESS™ • 90 capsules	35.00	26.25			
01910	CHOL-SUPPORT™ • 60 liquid veg. caps	48.00	36.00	32.00		
01504	CHROMIUM W/CROMINEX® 3+ (Optimized) 500 mcg, 60 veg. caps	9.00	6.75	6.00		
01503	CINSULIN® W/INSEA2® AND CROMINEX® 3+ • 90 veg. caps	38.00	28.50	25.50		
01906	CISTANCHE (Standardized) • 30 veg. caps	20.00	15.00	12.00		
01818	CITRIMAX® (Super) • 180 veg. caps	40.00	30.00	28.50		
00818	CLA BLEND W/SESAME LIGNANS (Super) 1,000 mg, 120 softgels	36.00	27.00	24.75	19.75	
00819	CLA BLEND W/GUARANA & SESAME (Super) 1,000 mg, 120 softgels	42.00	31.50	28.75		
01896	COGNITEX® W/BRAIN SHIELD® • 90 softgels	60.00	45.00	39.00	36.00	
01897	COGNITEX® W/PREGNENOLONE & BRAIN SHIELD® 90 softgels	62.00	46.50	39.75	37.50	
01421	COGNITEX® BASICS • 60 softgels	38.00	28.50	26.25	24.00	

SUBTOTAL OF COLUMN 2

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
01659	COGNIZIN® CDP CHOLINE CAPS • 250 mg, 60 veg. caps	36.00	27.00	25.50			
01945	COMPLETE B-COMPLEX (BioActive) • 60 veg. caps	12.00	9.00	8.00			
02098	COMPREHENSIVE NUTRIENT PACKS ADVANCED • 30 packs	90.00	67.50	61.50			
01949	COQ10 w/d-LIMONENE (Super-Absorbable) 50 mg, 60 softgels	25.00	18.75	16.50	15.00		
01948	COQ10 w/d-LIMONENE (Super-Absorbable) 100 mg, 100 softgels	46.00	34.50	28.00	26.25		
01929	COQ10 (Super ubiquinol) • 100 mg, 60 softgels	56.00	42.00	36.00	33.00		
01733	COQ10 w/BIOPIQQ® (Super ubiquinol) • 100 mg, 30 softgels	54.00	40.50	33.00	30.00		
01426	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) • 100 mg, 60 softgels	62.00	46.50	39.00	36.00		
01425	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) • 50 mg, 100 softgels	58.00	43.50	34.50	31.50		
01427	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) • 50 mg, 30 softgels	20.00	15.00	12.00			
01431	COQ10 w/ENH MITOCHONDRIAL SUPPORT™ (Super ubiquinol) • 200 mg, 30 softgels	62.00	46.50	39.00	36.00		
00862	CRAN-MAX® • 500 mg, 60 veg. caps	17.50	13.13	11.25			
01424	CRAN-MAX® WITH ELLIROSE™ (Optimized) • 60 veg. caps	18.00	13.50	12.00			
01529	CREATINE CAPSULES • 120 veg. caps	10.95	8.21	6.94			
01746	CREATINE WHEY GLUTAMINE POWDER • 454 grams (vanilla)	30.00	22.50	19.50			
01429	CR MIMETIC LONGEVITY FORMULA • 60 veg. caps	39.00	29.25	27.00			
00407	CURCUMIN® (Super Bio) • 400 mg, 60 veg. caps	38.00	28.50	26.25			
01924	CURCUMIN® W/GINGER & TURMERONES (Advanced Bio) 30 softgels	30.00	22.50	20.25			
01804	CYTOKINE SUPPRESS™ W/EGCG • 30 veg. caps	30.00	22.50	20.25			
COSMESIS							
80157	ADVANCED ANTI-GLYCATION PEPTIDE SERUM • 1 oz	53.00	39.75	34.50			
80154	ADVANCED LIGHTENING CREAM • 1 oz	65.00	48.75	42.75			
80155	ADVANCED PEPTIDE HAND THERAPY • 4 oz	46.00	34.50	29.25			
80152	ADVANCED TRIPLE PEPTIDE SERUM • 1 oz	65.00	48.75	42.75			
80140	ADVANCED UNDER EYE SERUM W/STEM CELLS • .33 oz	49.00	36.75	31.50			
80139	AMBER SELF MICRODERMABRASION • 2 oz	49.00	36.75	31.50			
80158	ANTI-AGING FACE OIL • 1 oz	59.00	44.25	39.00			
80118	ANTI-AGING MASK • 2 oz	72.00	54.00	47.52			
80151	ANTI-AGING REJUVENATING FACE CREAM • 2 oz	65.00	48.75	42.75			
80153	ANTI-AGING REJUVENATING SCALP SERUM • 2 oz	46.00	34.50	29.25			
80134	ANTI-GLYCATION SERUM W/BLEUBERRY & POMEGRANATE EXTRACTS • 1 oz	33.00	24.75	23.51			
80133	ANTIOXIDANT FACIAL MIST • 2 oz	32.00	24.00	22.80			
80127	ANTIOXIDANT REJUVENATING FOOT CREAM • 2 oz	45.00	33.75	32.10			
80128	ANTIOXIDANT REJUVENATING FOOT SCRUB • 2 oz	59.00	44.25	38.94			
80117	ANTIOXIDANT REJUVENATING HAND CREAM • 2 oz	64.00	48.00	43.12			
80105	ANTI-REDNESS & ADULT BLEMISH LOTION • 1 oz	74.50	55.88	49.17			
80147	BIOFLAVONOID CREAM • 1 oz	46.00	34.50	29.25			
80144	BROCCOLI SPROUT CREAM • 1 oz	46.00	34.50	29.25			
80156	COLLAGEN BOOSTING PEPTIDE SERUM • 1 oz	59.00	44.25	39.00			
80120	CORRECTIVE CLEARING MASK • 2 oz	64.50	48.38	42.57			
80141	DNA REPAIR CREAM • 1 oz	49.00	36.75	31.50			
SUBTOTAL OF COLUMN 3							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
80108	ESSENTIAL PLANT LIPIDS REPARATIVE SERUM • 1 oz	74.95	56.21	49.46			
80123	FACE REJUVENATING ANTIOXIDANT CREAM • 2 oz	69.50	52.13	45.87			
80107	FINE LINE-LESS • 1 oz	74.50	55.88	49.17			
80131	HAIR SUPPRESS FORMULA • 4 oz	59.00	44.25	38.94			
80137	HEALING FORMULA ALL-IN-ONE CREAM • 1 oz	53.00	39.75	34.07			
80115	HEALING MASK • 2 oz	64.50	48.38	42.57			
80102	HEALING VITAMIN K CREAM • 1 oz	79.50	59.63	52.47			
80109	HYALURONIC FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80110	HYALURONIC OIL-FREE FACIAL MOISTURIZER • 1 oz	58.00	43.50	38.28			
80138	HYDRATING ANTIOXIDANT FACE MIST • 4 oz	39.95	29.96	28.50			
80103	LIFTING & TIGHTENING COMPLEX • 1 oz	74.50	55.88	49.17			
80146	LYCOPENE CREAM • 1 oz	28.00	21.00	19.05			
80135	MELATONIN CREAM • 1 oz	33.00	24.75	20.33			
80114	MILD FACIAL CLEANSER • 8 fl. oz	59.00	44.25	38.94			
80159	MULTI STEM CELL SKIN TIGHTENING COMPLEX • 1 oz	59.00	44.25	39.00			
80122	NECK REJUVENATING ANTIOXIDANT CREAM • 2 oz	64.00	48.00	42.24			
80111	PIGMENT CORRECTING CREAM • 1/2 oz	74.00	55.50	48.84			
80106	REJUVENATING SERUM • 1 oz	74.50	55.88	49.17			
80150	RENEWING EYE CREAM • 1/2 oz	65.00	48.75	42.75			
80142	RESVERATROL ANTI-OXIDANT SERUM • 1 oz	46.00	34.50	29.25			
80112	SKIN LIGHTENING SERUM • 1/2 oz	85.00	63.75	56.10			
80130	SKIN STEM CELL SERUM • 1 oz	74.00	55.50	51.75			
80143	STEM CELL CREAM W/ALPINE ROSE • 1 oz	66.00	49.50	43.50			
80148	TIGHTENING & FIRMING NECK CREAM • 2 oz	39.00	29.25	26.25			
80161	TRIPLE ACTION VITAMIN C CREAM • 1 oz jar	59.00	44.25	39.00			
80162	ULTIMATE MICRODERMABRASION • 8 fl. oz	39.00	29.25	26.25			
80160	ULTRA EYELASH BOOSTER • 0.25 oz (2 units \$39)	59.00	44.25				
80116	ULTRA LIP PLUMPER • 1/3 oz	64.00	48.00	42.24			
80101	ULTRA WRINKLE RELAXER • 1 oz	89.95	67.46	59.82			
80113	UNDER EYE REFINING SERUM • 1/2 oz	74.50	55.88	49.17			
80104	UNDER EYE RESCUE CREAM • 1/2 oz	74.50	55.88	49.17			
80129	VITAMIN C SERUM • 1 oz	85.00	63.75	56.10			
80136	VITAMIN D LOTION • 4 oz	36.00	27.00	25.25			
80145	VITAMIN E-ESSENTIAL CREAM • 1 oz	28.00	21.00	19.50			
80149	YOUTH SERUM • 1 oz	65.00	48.75	42.75			
D							
01912	DAILY C+ CITRUS FLAVOR • 30 stick packs	21.00	15.75	14.25			
00658	7-KETO® DHEA METABOLITE • 25 mg, 100 caps	28.00	21.00	18.00			
01479	7-KETO® DHEA METABOLITE • 100 mg, 60 veg. caps	40.00	30.00	27.00			
01640	DHA (Vegetarian) • 30 veg. softgels	20.00	15.00	13.50			
00607	DHEA • 25 mg, 100 tablets (Dissolve in mouth)	14.00	10.50	8.81			
01478	DHEA COMPLETE • 60 veg. caps	48.00	36.00	32.40			
00335	DHEA • 25 mg, 100 caps	16.00	12.00	11.00			
00454	DHEA • 15 mg, 100 caps	14.00	10.50	9.00			
00882	DHEA • 50 mg, 60 caps	19.00	14.25	12.75			
SUBTOTAL OF COLUMN 4							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01689	DHEA • 100 mg, 60 veg. caps	24.00	18.00	16.50			
01358	DIGEST RC® • 30 tablets	19.95	14.96	12.75			
02021	DIGESTIVE ENZYMES (Enhanced Super) • 60 veg. caps	22.00	16.50	15.00			
02022	DIGESTIVE ENZYMES w/PROBIOTICS (Enhanced Super) • 60 veg. caps	28.00	21.00	18.00			
01671	D, L-PHENYLALANINE • 500 mg, 100 veg. caps	18.75	14.06	12.00			
01540	DMAE BITARTRATE • 150 mg, 200 veg. caps	18.00	13.50	11.25			
01570	DNA PROTECTION FORMULA • 60 veg. caps	34.00	25.50	24.00			
01931	DOG MIX • 100 grams powder	18.00	13.50	11.25			
02006	DOPA-MIND™ • 60 veg. tabs	48.00	36.00	32.00			
00321	DR. PROCTOR'S ADVANCED HAIR FORMULA • 2 oz	39.95	29.96	24.00			
00320	DR. PROCTOR'S HAIR SHAMPOO • 8 oz	24.95	18.71	16.50			
E							
01528	ECHINACEA EXTRACT • 250 mg, 60 veg. caps	14.35	10.76	9.38			
01997	ENDOTHELIAL DEFENSE™ w/POMEGRANATE COMPLETE AND CORDIART™ • 60 softgels	68.00	51.00	46.50			
00997	ENDOTHELIAL DEFENSE™ w/GLISODIN® • 60 veg. caps	54.00	40.50	36.00			
01937	EPA/DHA (Mega) • 120 softgels	20.00	15.00	13.50			
01737	ESOPHAGEAL GUARDIAN (Berry flavor) • 60 chewable tablets	36.00	27.00	24.00			
01042	EUROPEAN LEG SOLUTION DIOSMIN 95 600 mg, 30 veg. tabs	20.00	15.00	13.50			
01706	EXTRAORDINARY ENZYMES • 60 caps	26.00	19.50	18.00			
02008	(CALIFORNIA ESTATE) EXTRA VIRGIN OLIVE OIL • 500 ml (16.9 fl. oz)	33.00	24.75	22.50			
01514	EYE PRESSURE SUPPORT W/MIRTOGENOL® • 30 veg. caps	38.00	28.50	25.50			
F							
*01054	FACE MASTER® PLATINUM • Facial Toning System	199.00	199.00				
00965	FAST-ACTING JOINT FORMULA • 30 caps	39.00	29.25	27.00			
01717	FAST-C® W/DIHYDROQUERCETIN • 120 veg. tabs	26.00	19.50	18.00			
20053	FEM DOPHILUS® • 30 caps	25.95	19.46				
20055	FEM DOPHILUS® • 60 caps	39.95	29.96				
01064	FEMMENSENCE MACAPAUSE® • 120 veg. caps	34.99	26.24				
02007	FIBER-IMMUNE SUPPORT (Apple Cinnamon) • 235 grams	34.00	25.50	23.50			
00718	FIBRINOGEN RESIST™ • 30 veg. caps	49.00	36.75	33.00			
01749	FLAX SEED (Organic golden) • 14 oz	11.67	8.75				
01821	FLORASSIST® HEART HEALTH • 60 veg. caps	32.00	24.00	21.00			
02019	FLORASSIST® ORAL HYGIENE • 30 lozenges	18.00	13.50	12.75			
01825	FLORASSIST® BALANCE • 30 liquid veg. caps	32.00	24.00	21.00			
02000	FLORASSIST® MOOD • 60 caps	33.00	24.75	22.50			
01920	FLORASSIST® THROAT HEALTH • 30 lozenges	20.00	15.00	13.50			
01913	FOLATE HIGH POTENCY (Optimized) • 5,000 mcg, 30 veg. tablets	25.00	18.75	16.50			
01939	FOLATE (Optimized) • 1,000 mcg, 100 veg. tablets	19.00	14.25	12.75			
01842	FOLATE + VITAMIN B12 (BioActive) • 90 veg. caps	12.00	9.00	8.00			
01544	FORSKOLIN • 10 mg, 60 veg. caps	16.00	12.00	10.50			
01513	FUCOIDAN W/MARITECH® 926 (Optimized) • 60 veg. caps	36.00	27.00	24.75			
G							
02070	GAMMA E TOCOPHEROL/TOCOTRIENOLS • 60 softgels	40.00	30.00	27.00			
00759	GAMMA E TOCOPHEROL W/SESAME LIGNANS • 60 softgels	32.00	24.00	21.75			
01394	GARLIC (Optimized) • 200 veg. caps	24.95	18.71	15.75			
SUBTOTAL OF COLUMN 5							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
*01122	GINGER FORCE® • 60 liquid caps	34.95	26.21				
01658	GINKGO BILOBA CERTIFIED EXTRACT™ 120 mg, 365 veg. caps	46.00	34.50	31.50			
00756	GLA WITH SESAME LIGNANS (Mega) • 60 softgels	19.50	14.63	13.50			
00345	(L-) GLUTAMINE CAPSULES • 500 mg, 100 veg. caps	14.95	11.21	10.13			
00141	(L-) GLUTAMINE POWDER • 100 grams	22.00	16.50	15.00			
00522	GLUCOSAMINE/CHONDROITIN CAPSULES • 100 caps	38.00	28.50	24.00			
01541	GLUTATHIONE, CYSTEINE & C • 100 veg. caps	20.00	15.00	13.50			
01669	GLYCINE • 1,000 mg, 100 veg. caps	12.00	9.00	8.10			
01411	GRAPE SEED EXTRACT W/RESVERATROL & PTEROSTILBENE 100 mg, 60 veg. caps	36.00	27.00	25.50			
01620	GREEN COFFEE EXTRACT COFFEEGENIC® 400 mg, 90 veg. caps	32.00	24.00	21.00			
00953	GREEN TEA EXTRACT (Mega) • lightly caffeinated, 100 veg. caps	30.00	22.50	18.00			
00954	GREEN TEA EXTRACT (Mega) • decaffeinated, 100 veg. caps	30.00	22.50	18.00			
H							
01074	5 HTP • 100 mg, 60 caps	27.95	20.96				
*02002	HAIR, SKIN & NAIL REJUVENATION FORM W/VERISON® 90 tabs	32.00	24.00	22.00			
01738	HCA (Garnicia) • 90 veg. caps	17.00	12.75	11.25			
29754	HCACTIVE™ GARCINIA CAMBOGIA EXTRACT • 90 caps	30.00	22.50				
01393	HEPATOPRO • 900 mg, 60 softgels	50.00	37.50	34.50			
01527	HUPERZINE A • 200 mcg, 60 veg. caps	40.00	30.00	27.00			
00661	HYDRODERM® • 1 oz	79.95	59.96	49.00			
I							
*01060	I26 HYPERIMMUNE EGG • 140 grams powder	54.99	46.75				
01704	IMMUNE MODULATOR W/TINOFEND® • 60 veg. caps	17.00	12.75	11.25			
00955	IMMUNE PROTECT W/PARACTIN® • 30 veg. caps	29.50	22.13	19.91			
02005	IMMUNE SENESCENCE PROTECTION FORMULA™ • 60 veg. tabs	40.00	30.00	27.00			
01049	INNERPOWER™ • 530 grams powder	42.00	31.50				
01674	INOSITOL CAPSULES • 1,000 mg, 360 veg. caps	62.00	46.50	43.50			
01292	INTEGRA-LEAN® AFRICAN MANGO IRVINGIA 150 mg, 60 veg. caps	28.00	21.00	18.00			
01677	IRON PROTEIN PLUS • 300 mg, 100 caps	28.00	21.00	19.50			
01492	IRVINGIA W/PHASE 3™ CALORIE CONTROL COMPLEX (Optimized African Mango) • 120 veg. caps	56.00	42.00	36.00			
J, K, L							
00056	JARRO-DOPHILUS EPS® • 60 veg. caps	22.95	17.21				
01834	K W/ADVANCED K2 COMPLEX (Super) • 90 softgels	30.00	22.50	20.25			
01600	KRILL HEALTHY JOINT FORMULA • 30 softgels	32.00	24.00	21.75			
01050	KRILL OIL • 60 softgels	33.95	25.46				
00316	KYOLIC® GARLIC FORMULA 102 • 200 veg. caps	27.45	20.59				
00214	KYOLIC® GARLIC FORMULA 105 • 200 caps	28.45	21.34				
00789	KYOLIC® RESERVE • 600 mg, 120 caps	28.95	21.71				
01681	LACTOFERRIN • 60 caps	52.00	39.00	36.00			
00020	LECITHIN • 16 oz granules	18.00	13.50	12.00			
02055	LIFE EXTENSION MIX™ • 315 tablets	80.00	60.00	52.00	43.75		
02057	LIFE EXTENSION MIX™ W/EXTRA NIACIN • 315 tablets	80.00	60.00	52.00	43.75		
02054	LIFE EXTENSION MIX™ • 490 caps	90.00	67.50	58.00	47.50		
SUBTOTAL OF COLUMN 6							

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
02056	LIFE EXTENSION MIX™ POWDER • 14.81 oz	80.00	60.00	52.00	43.75		
02065	LIFE EXTENSION MIX™ • 315 tablets w/o copper	80.00	60.00	52.00	43.75		
02064	LIFE EXTENSION MIX™ • 490 caps w/o copper	90.00	67.50	58.00	47.50		
02066	LIFE EXTENSION MIX™ POWDER • 14.81 oz w/o copper	80.00	60.00	52.00	43.75		
01608	LIVER EFFICIENCY FORMULA • 30 veg. caps	18.00	13.50	12.00			
01639	5-LOX INHIBITOR W/APRÈSFLEX® • 100 mg, 60 veg. caps	22.00	16.50	15.00			
01678	L-LYSINE • 620 mg, 100 veg. caps	9.00	6.75	6.00			
00455	LYCOPENE (Mega) • 15 mg, 90 softgels	35.00	26.25	22.50			
M							
01992	MACUGUARD® OCULAR SUPPORT • 60 softgels	25.00	18.75	17.50			
01993	MACUGUARD® OCULAR SUPPORT w/ASTAXANTHIN 60 softgels	44.00	33.00	30.00			
01459	MAGNESIUM CAPS • 500 mg, 100 veg. caps	12.00	9.00	7.50			
01682	MAGNESIUM (CITRATE) • 160 mg, 100 veg. caps	12.00	9.00	7.50			
01908	MEDITERRANEAN TRIM WITH SINETROL™-XPUR 60 veg. caps	18.00	13.50	12.00			
01668	MELATONIN • 300 mcg, 100 veg. caps	5.75	4.31	3.75			
01083	MELATONIN • 500 mcg, 200 veg. caps	18.00	13.50	12.00			
00329	MELATONIN • 1 mg, 60 caps	5.00	3.75	3.47			
00330	MELATONIN • 3 mg, 60 veg. caps	8.00	6.00	5.16			
00331	MELATONIN • 10 mg, 60 veg. caps	28.00	21.00	18.00			
00332	MELATONIN • 3 mg, 60 veg. lozenges	8.00	6.00	5.16			
01734	MELATONIN (Fast-Acting Liquid) • 2 fl. oz (Citrus-Vanilla)	12.00	9.00	8.25			
01787	MELATONIN TIMED RELEASE • 300 mcg, 100 veg. tabs	12.00	9.00	8.25			
01788	MELATONIN TIMED RELEASE • 750 mcg, 60 veg. tablets	8.00	6.00	5.25			
01786	MELATONIN TIMED RELEASE • 3 mg, 60 veg. tabs	12.00	9.00	8.25			
01536	METHYLCOBALAMIN • 1 mg, 60 veg. lozenges (vanilla)	9.95	7.46	6.00			
01537	METHYLCOBALAMIN • 5 mg, 60 veg. lozenges (vanilla)	32.00	24.00	18.75	17.25		
00709	MIGRA-EEZE™ (Butterbur) • 60 softgels	29.50	22.13	19.75			
01522	MILK THISTLE (European) • 60 veg. caps	34.00	25.50	22.50			
01922	MILK THISTLE (European) • 60 softgels	28.00	21.00	18.75			
01925	MILK THISTLE (European) • 120 softgels	44.00	33.00	30.00			
01940	MIRAFORTE w/STANDARDIZED LIGNANS (Super) • 120 veg caps	62.00	46.50	42.00			
01869	MITOCHONDRIAL BASICS W/BIOPQQ® • 30 caps	44.00	33.00	30.00			
01868	MITOCHONDRIAL ENERGY OPTIMIZER W/BIOPQQ® • 120 caps	72.00	54.00	48.00			
00065	MK-7 • 90 mcg, 60 softgels	28.00	21.00	18.75			
00451	MSM (Methylsulfonylmethane) • 1,000 mg, 100 caps	14.00	10.50	8.96			
N							
01534	N-ACETYL-L-CYSTEINE • 600 mg, 60 veg. caps	14.00	10.50	9.25			
01904	NAD+ CELL REGENERATOR™ • 100 mg, 30 veg. caps	34.00	25.50	19.50			
00066	NATTOKINASE • 60 softgels	25.50	19.13				
01807	NATURAL APPETITE SUPPRESS (Advanced) • 60 veg. caps	38.00	28.50	25.50			
00984	NATURAL BP MANAGEMENT • 60 tablets	44.00	33.00	30.00			
01892	NATURAL ESTROGEN • 60 veg. tabs	38.00	28.50	25.50			
01626	NATURAL SEX FOR WOMEN® 50+ (Advanced) • 90 veg. caps	59.00	44.25	34.00			
01444	NATURAL SLEEP® • 60 veg. caps	13.00	9.75	7.50			
01551	NATURAL SLEEP® w/ MELATONIN (Enhanced) • 30 caps	22.00	16.50	15.00			

SUBTOTAL OF COLUMN 7

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01511	NATURAL SLEEP® W/O MELATONIN (Enhanced) • 30 caps	20.00	15.00	13.50			
01445	NATURAL SLEEP® MELATONIN • 5 mg, 60 veg. caps	18.00	13.50	12.00			
00987	NATURAL STRESS RELIEF • 30 veg. caps	28.00	21.00	18.00			
30741	NERVIA® • 90 softgels	53.95	40.46				
01603	NEURO-MAG® MAGNESIUM L-THREONATE • 90 veg. caps	40.00	30.00	27.00			
01602	NEURO-MAG® MAGNESIUM L-THREONATE w/CALCIUM & VITAMIN D3 • 25 grams • Lemon flavor	40.00	30.00	27.00			
01990	NITROVASC w/CORDIART™ • 30 veg. caps	18.00	13.50	12.00			
01903	NK CELL ACTIVATOR™ • 30 veg. tablets	45.00	33.75	31.50			
00373	NO-FLUSH NIACIN • 800 mg, 100 caps	19.00	14.25	12.75			
O							
01824	OLIVE LEAF VASCULAR SUPPORT w/CELERY SEED EXTRACT (Advanced) • 60 veg. caps	36.00	27.00	24.00			
01988	OMEGA-3 PLUS EPA/DHA w/SESAME LIGNANS, OLIVE EXTRACT, KRILL & ASTAXANTHIN (SUPER) • 120 softgels	45.00	33.75	31.50	24.75		
01983	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 softgels	18.00	13.50	12.00	9.38		
01982	OMEGA-3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 softgels	32.00	24.00	21.00	17.05		
01984	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 120 enteric coated softgels	34.00	25.50	23.25	18.00		
01985	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 60 enteric coated softgels	20.00	15.00	13.50	10.50		
01986	OMEGA 3 EPA/DHA w/SESAME LIGNANS & OLIVE EXTRACT (Super) • 240 small softgels	32.00	24.00	21.00	17.25		
01991	ONCE-DAILY HEALTH BOOSTER • 60 softgels	54.00	40.50	38.00			
02001	ONE-PER-DAY • 60 tablets	22.00	16.50	15.00			
01328	ONLY TRACE MINERALS • 90 veg. caps	15.00	11.25	9.38			
P							
01789	PALMETTOGUARD® SAW PALMETTO W/BETA-SITOSTEROL 30 softgels	15.00	11.25	10.50	9.00		
01790	PALMETTOGUARD® SUPER SAW PALMETTO/NETTLE ROOT W/BETA-SITOSTEROL • 60 softgels	28.00	21.00	19.50	18.00		
01323	PEAK ATP® WITH GLYCO-CARN® • 60 veg. caps	54.00	40.50	37.50			
*00342	PECTA SOL-C® MODIFIED CITRUS PECTIN • 454 grams powder	109.95	93.46				
*01080	PECTA SOL-C® MODIFIED CITRUS PECTIN • 270 veg. caps	79.95	67.96				
01811	PEONY IMMUNE • 60 veg. caps	36.00	27.00	24.00			
00673	PGX® PLUS MULBERRY (WellBetX®) • 180 veg. caps	34.95	26.21				
01676	PHOSPHATIDYLSERINE CAPS • 100 mg, 100 veg. caps	54.00	40.50	36.00			
01953	POMEGRANATE COMPLETE • 30 softgels	24.00	18.00	15.75			
00956	POMEGRANATE FRUIT EXTRACT • 30 veg. caps	19.50	14.63	13.16			
01500	PQQ CAPS W/BIOPQQ® • 10 mg, 30 veg. caps	24.00	18.00	13.50	12.00		
01647	PQQ CAPS W/BIOPQQ® • 20 mg, 30 veg. caps	40.00	30.00	24.00	21.00		
00302	PREGNENOLONE • 50 mg, 100 caps	26.00	19.50	16.50			
00700	PREGNENOLONE • 100 mg, 100 caps	30.00	22.50	20.25			
**01373	PRELOX® NATURAL SEX FOR MEN® • 60 tablets	52.00	39.00	36.00			
01576	PREVAGEN® • 30 caps	60.00	45.00				
*01577	PREVAGEN® ES • 30 caps	70.00	60.00				
00525	PROBOOST™ THYMIC PROTEIN A • 30 packets	66.60	49.95				
01441	PROGESTA-CARE® • 4 oz cream	36.39	27.29	25.72			

SUBTOTAL OF COLUMN 8

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01928	PROSTATE FORMULA (Ultra NAT) • 60 softgels	38.00	28.50	26.25	24.00		
01909	PROSTAPOLLEN™ (Triple strength) • 30 softgels	28.00	21.00	18.75			
01742	PROTEIN-ISOLATE (Whey) Vanilla • 403 grams	30.00	22.50	19.50			
01743	PROTEIN-ISOLATE (Whey) Chocolate • 437 grams	30.00	22.50	19.50			
01770	PROTEIN CONCENTRATE (New Zealand Whey) Vanilla 500 grams	30.00	22.50	19.95			
01771	PROTEIN CONCENTRATE (New Zealand Whey) Chocolate 640 grams	30.00	22.50	19.95			
01812	PROVINAL® PURIFIED OMEGA-7 • 30 softgels	27.00	20.25	18.00			
01508	PTEROPURE® Pterostilbene • 50 mg, 60 veg. caps	32.00	24.00	22.50			
01209	PUMPKIN SEED EXTRACT (Water-soluble) • 60 veg. caps	20.00	15.00	13.50			
01637	PYCNOGENOL® FRENCH MARITIME PINE BARK EXTRACT 100 mg, 60 veg. caps	64.00	48.00	45.00			
01217	PYRIDOXAL 5'-PHOSPHATE • 100 mg, 60 veg. caps	22.00	16.50	14.85			
Q, R							
01309	QUERCETIN (Optimized) • 250 mg, 60 veg. caps	22.00	16.50	15.00			
01030	RED YEAST RICE (Bluebonnet) • 600 mg, 60 veg. caps	17.60	13.20				
00605	REGIMINT • 60 enteric-coated caps	19.95	14.96	14.00			
01708	REISHI EXTRACT MUSHROOM COMPLEX • 60 veg. caps	30.00	22.50	20.25			
01448	REJUVENEX® BODY LOTION • 6 oz	24.00	18.00	14.85	12.75		
01621	REJUVENEX® FACTOR FIRING SERUM • 1.7 oz	65.00	48.75	37.50			
01220	REJUVENEX® (Ultra) • 2 oz	52.00	39.00	33.00	29.25		
00676	REJUVENIGHT® (Ultra) • 2 oz	39.95	29.96	27.00			
01410	RESVERATROL W/PTEROSTILBENE • 100 mg, 60 veg. caps	36.00	27.00	24.00			
02031	RESVERATROL W/NICOTINAMIDE RIBOSIDE (Optimized) • 30 veg. caps	42.00	31.50	27.00			
02030	RESVERATROL (Optimized) • 60 veg. caps	46.00	34.50	31.00			
00889	RHODIOLA EXTRACT • 250 mg, 60 veg. caps	14.00	10.50	9.00			
01900	RIBOGEN™ FRENCH OAK WOOD EXTRACT 200 mg, 30 veg. caps	36.00	27.00	24.75			
00972	(D) RIBOSE POWDER • 150 grams	27.50	20.63	18.56			
01473	(D) RIBOSE TABLETS • 100 veg. tabs	32.00	24.00	21.00			
01609	RICH REWARDS® BREAKFAST GROUND COFFEE • 12 oz. bag	13.00	9.75				
01730	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Mocha • 12 oz. bag	15.00	11.25	10.50			
01729	RICH REWARDS® BREAKFAST BLEND GROUND COFFEE Natural Vanilla • 12 oz. bag	15.00	11.25	10.50			
01612	RICH REWARDS® BREAKFAST BLEND WHOLE BEAN COFFEE 12 oz. bag	13.00	9.75				
01610	RICH REWARDS® DECAFFEINATED ROAST GROUND COFFEE 12 oz. bag	14.00	10.50				
01208	R-LIPOIC ACID (Super) • 240 mg, 60 veg. caps	49.00	36.75	33.75			
00070	RNA CAPSULES • 500 mg, 100 caps	17.95	13.46	12.12			
S							
01432	SAFFRON W/SATIAREAL® (Optimized) • 60 veg. caps	36.00	27.00	24.00			
01935	SAMe (S-ADENOSYL-METHIONINE) 200 mg, 30 enteric coated tablets	25.00	18.75	16.50			
01933	SAMe (S-ADENOSYL-METHIONINE) 400 mg, 30 enteric coated tablets	36.00	27.00	24.00			
01934	SAMe (S-ADENOSYL-METHIONINE) 400 mg, 60 enteric coated tablets	66.00	49.50	45.00			

SUBTOTAL OF COLUMN 9

ITEM No.	PRODUCT	YOUR PRICE				QTY	Total
		Retail Each \$	1 Unit Each	4 Unit Each	10 Unit Each		
01740	SEA-IODINE™ • 1,000 mcg, 60 veg. caps	8.00	6.00	5.40			
00046	SELENIUM • 2 fl. oz dropper	11.95	8.96				
01879	SE-METHYL L-SELENOCYSTEINE • 200 mcg, 90 veg. caps	11.00	8.25	7.50			
00318	SERRAFLAZYME • 100 tablets	18.00	13.50	12.00			
01938	SHADE FACTOR • 120 veg. caps	44.00	33.00	30.00			
01884	SILYMARIN • 100 mg, 90 veg. caps	14.00	10.50	9.50			
01249	SINUS CLEANSER • 4 oz. bottle	25.00	18.75				
01596	SKIN RESTORING PHYTCERAMIDES w/LIPOWHEAT® 30 liquid veg. caps	25.00	18.75	17.25			
00961	SODZYME® w/GLISODIN® & WOLFBERRY • 90 veg. caps	28.00	21.00	18.00			
00657	SOLARSHIELD® SUNGLASSES • Smoke color	12.99	9.74	8.63			
01097	SOY EXTRACT (Ultra) • 150 veg. caps	87.00	65.25	58.50			
00432	STEVIA™ (Better) • 100 packets, 1 gram each	9.95	7.46				
00438	STEVIA™ ORGANIC LIQUID SWEETENER (Better) • 2 oz	11.00	8.25				
01476	STRONTIUM • 750 mg, 90 veg. caps	20.00	15.00	13.50			
01649	SUPER ABSORBABLE SOY ISOFLAVONES • 60 veg. caps	28.00	21.00	18.75			
01778	SUPER SELENIUM COMPLEX • 200 mcg, 100 veg. caps	14.00	10.50	9.00	8.25		
T							
02023	TART CHERRY EXTRACT W/STANDARDIZED CHERRYPURE® 60 veg. caps	20.00	15.00	14.00			
01827	TAURINE • 1,000 mg, 90 veg. caps	13.00	9.75	9.00			
01918	TEAR SUPPORT w/MAQUIBRIGHT® • 60 mg, 30 veg. caps	18.00	13.50	12.00			
00133	L-TAURINE POWDER • 300 grams	20.00	15.00	12.66			
*13685	TEN MUSHROOM FORMULA® • 120 veg. caps	39.95	33.96				
01304	THEAFLAVIN STANDARDIZED EXTRACT • 30 veg. caps	18.00	13.50	12.00			
01683	(L) THEANINE • 100 mg, 60 veg. caps	24.00	18.00	15.38			
**01038	THERALAC® PROBIOTICS • 30 caps	47.95	35.96				
00668	THYROID FORMULA (Metabolic Advantage™) • 100 caps	21.95	16.46				
00349	TMG POWDER • 50 grams	14.00	10.50	8.25			
01859	TMG • 500 mg, 60 liquid veg. caps	13.00	9.75	9.00			
01400	TOCOTRIENOLS (Super-absorbable) • 60 softgels	30.00	22.50	21.00			
01278	TOOTHPASTE • 4 oz (Mint) tube	9.50	7.13	6.50			
01917	TRANQUIL TRACT™ • 60 veg. caps	52.00	39.00	34.50			
01468	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT 60 veg. caps	24.00	18.00	16.50			
01469	TRIPLE ACTION CRUCIFEROUS VEGETABLE EXTRACT w/RESVERATROL • 60 veg. caps	32.00	24.00	22.20			
02003	TRIPLE ACTION THYROID • 60 veg. caps	36.00	27.00	24.00			
01803	TRI SUGAR SHIELD® • 60 veg. caps	36.00	27.00	24.00			
01386	TRUFIBER™ • 180 grams	32.95	24.71				
01389	TRUFLOA® PROBIOTICS • 32 veg. caps	42.95	32.21				
01722	L-TRYPTOPHAN • 500 mg, 90 veg. caps	33.00	24.75	22.50			
01721	TRYPTOPHAN PLUS (Optimized) • 90 veg. caps	32.00	24.00	21.75			
02016	TWO-PER-DAY • 60 tablets	10.50	7.88	7.13			
02015	TWO-PER-DAY • 120 tablets	20.00	15.00	13.50			
02014	TWO-PER-DAY • 120 caps	22.00	16.50	15.00			
00326	L-TYROSINE • 500 mg, 100 tablets	12.98	9.74				

SUBTOTAL OF COLUMN 10

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
U, V							
01921	URIC ACID CONTROL • 60 veg. caps	24.00	18.00	16.50			
00213	VANADYL SULFATE • 7.5 mg, 100 veg. tablets	15.00	11.25	9.38			
00408	VENOTONE • 60 caps	18.95	14.21	12.00			
01327	VINPOCETINE • 10 mg, 100 veg. tablets	18.00	13.50	10.50			
00372	VITAMIN B3 NIACIN • 500 mg, 100 caps	7.65	5.74	4.99			
00098	VITAMIN B5 • 500 mg, 100 caps (Pantothenic Acid)	10.50	7.88	7.04			
01535	VITAMIN B6 • 250 mg, 100 veg. caps	12.50	9.38	8.25			
00361	VITAMIN B12 • 500 mcg, 100 lozenges	8.75	6.56	5.44			
01634	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 60 veg. tablets	10.00	7.50	6.75			
00927	VITAMIN C w/DIHYDROQUERCETIN 1,000 mg, 250 veg. tablets	25.50	19.13	17.44			
00084	VITAMIN C POWDER (BUFFERED) • 454 grams	23.95	17.96	16.50			
01736	VITAMIN C-MAGNESIUM CRYSTALS (EFFERVESCENT) 180 grams	20.00	15.00	13.50			
01732	VITAMIN D3 • 2,000 IU, 1 fl. oz, Mint flavor	28.00	21.00	18.75			
01753	VITAMIN D3 • 1,000 IU, 90 softgels	7.00	5.25	4.50			
01751	VITAMIN D3 • 1,000 IU, 250 softgels	12.50	9.38	8.44			
01713	VITAMIN D3 • 5,000 IU, 60 softgels	10.00	7.50	6.50			
01718	VITAMIN D3 • 7,000 IU, 60 softgels	14.00	10.50	9.45			
01758	VITAMIN D3 W/SEA-IODINE™ • 5,000 IU, 60 caps	14.00	10.50	9.38			
00864	VITAMIN D3 LIQUID EMULSION • 2,000 IU, 1 fl. oz	28.00	21.00	18.75			
01840	VITAMINS D AND K W/SEA-IODINE™ • 60 caps	24.00	18.00	16.50			
01863	VITAMIN E (Natural) • 400 IU, 90 softgels	28.00	21.00	19.50	18.00		
01936	VITAMIN K2 (Low dose) • 45 mcg, 90 softgels	18.00	13.50	12.00			
W							
01902	WAIST-LINE CONTROL™ • 120 veg. caps	42.00	31.50	28.50			
X, Y							
01919	X-R SHIELD • 90 veg. caps	15.00	11.25	9.75			
00409	XYLIWHITE™ MOUTHWASH • 16 oz	10.00	7.50				
Z							
01813	ZINC HIGH POTENCY • 50 mg, 90 veg. caps	7.95	5.96	5.25			
01561	ZINC LOZENGES • 60 veg. lozenges	9.00	6.75	6.00			
01961	ZINC LOZENGES (Enhanced) • 30 veg. lozenges	12.00	9.00	6.00			
*01051	ZYFLAMEND® WHOLE BODY • 120 liquid veg. caps	72.95	54.71				
BOOKS							
34002	THE 30-DAY HEART TUNE-UP by Steven Masley, MD • 2016	17.59	13.19				
33999	THE MENOPAUSE CURE by Jill D. Davey & Sergey Dzugan, MD • 2016	17.32	12.99				
33998	THE RIGHT TO TRY by Darcy Olsen • 2016	26.99	20.24				
33840	THE CRWAY® TO GREAT GLUCOSE CONTROL CD by Paul McGlothlin and Meredith Averill • 2016	189.00	189.00				
33890	FORTIFY YOUR LIFE by Tieraona Low Dog, MD • 2016	28.89	21.67				
33885	THE BLUE ZONES SOLUTION by Dan Buettner • 2015	26.00	19.50				
33880	OUTSTANDING HEALTH: THE 6 ESSENTIAL KEYS TO MAXIMIZE YOUR ENERGY AND WELL BEING by Michael Galitzer, MD & Larry Trivieri Jr. • 2015	24.95	18.71				
SUBTOTAL OF COLUMN 11							

ITEM No.	PRODUCT	Retail Each \$	YOUR PRICE			QTY	Total
			1 Unit Each	4 Unit Each	10 Unit Each		
33878	TESTOSTERONE REPLACEMENT THERAPY by Dr. John Crisler • 2015	19.99	14.99				
33877	THE TRUTH ABOUT MEN AND SEX by Abraham Morgentaler, MD, FACS • 2015	16.99	12.74				
33876	TOX-SICK • by Suzanne Somers • 2015	26.00	19.50				
33875	DOCTORED: THE DISILLUSIONMENT OF AN AMERICAN PHYSICIAN • by Sandeep Jauhar • 2015	26.00	19.50				
33874	MISSING MICROBES • by Martin J. Blaser, MD • 2014	28.00	21.00				
33873	EATING ON THE WILD SIDE • by Jo Robinson • 2014	16.00	12.00				
33872	GET SERIOUS • by Brett Osborn, MD • 2014	24.95	18.71				
33868	TOXIN TOXOUT: GETTING HARMFUL CHEMICALS OUT OF OUR BODIES AND OUR WORLD • by Bruce Lourie and Rick Smith • 2014	25.99	19.49				
33867	THE COMPLETE MEDITERRANEAN DIET by Michael Ozner, MD • 2014	19.95	14.96				
33869	UNLEASH THE POWER OF THE FEMALE BRAIN by Daniel Amen, MD • 2014	16.00	12.00				
33870	MAGNIFICENT MAGNESIUM by Dennis Goodman, MD • 2014	14.95	11.21				
DPT05	DISEASE PREVENTION AND TREATMENT, EXPANDED FIFTH EDITION (Hardcover) • 2014	69.95	39.95	36.00			
33865	THE RESTORATION OF THE HUMAN BODY [IN 7 PARTS] by Sergey A. Dzugan, MD, PhD • 2014	29.95	22.46				
33862	I'M TOO YOUNG FOR THIS • by Suzanne Somers • 2013	26.00	19.50				
33835	PHARMOCRACY • by William Faloon • 2011	24.00	9.60	8.00			
33958	THE VITAMIN D SOLUTION by Michael F. Holick, PhD, MD (Paperback) • 2013	16.00	12.00				
33838	YOUR GUIDE TO HEALTHY SKIN THE NATURAL WAY by Gary Goldfaden, MD • 2012	26.00	15.00				
33815	KNOCKOUT • by Suzanne Somers • 2009	25.99	17.00				
33809	TESTOSTERONE FOR LIFE by Abraham Morgentaler, MD • 2008	16.95	11.87				
33696	LIFE EXTENSION REVOLUTION by Philip Lee Miller, MD (Paperback)	16.00	12.00				
33805	MIAMI MEDITERRANEAN DIET WITH 300 RECIPES by Michael D. Ozner, MD, FACC, FAHA (Hardcover) • 2008	24.95	16.25				
33906	THE MIGRAINE CURE • by Sergey Dzugan, MD, PhD • 2006	24.00	15.60				
33803	WHAT YOUR DOCTOR MAY NOT TELL YOU ABOUT DIABETES by Steven V. Joyal, MD • 2008	14.99	10.49				
SUBTOTAL OF COLUMN 12							

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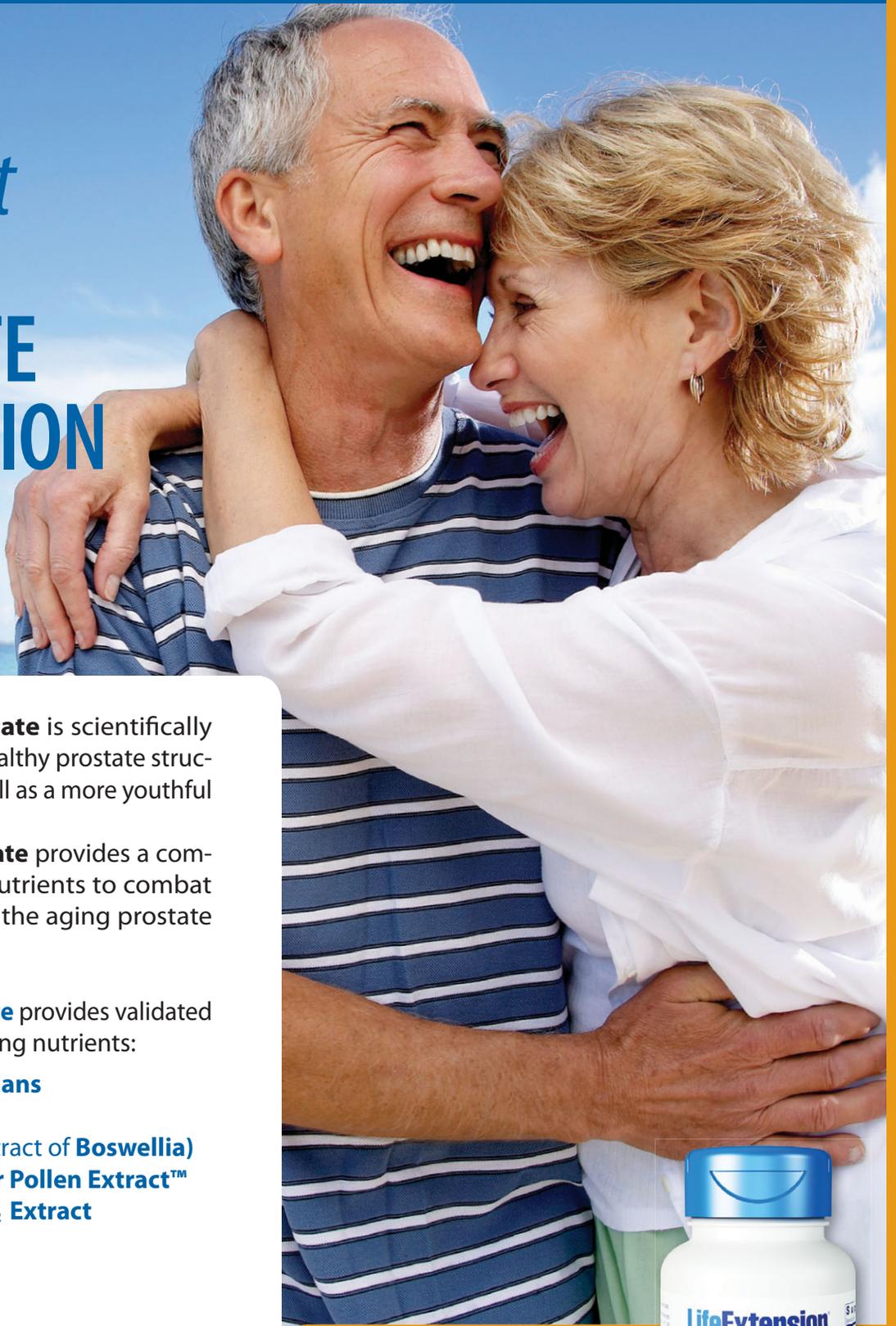
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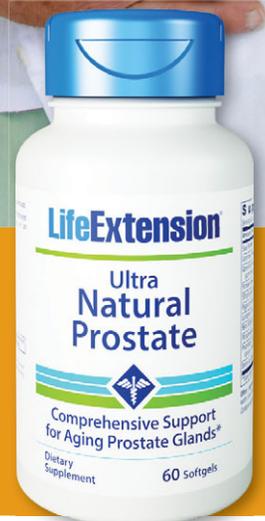
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