UK

Product Manual

GNLD®

INTERNATIONAL

Product Manual

The information provided in this product manual is only for distributor support regarding the GNLD products. It does not apply for diagnoses or treatment of any illnesses or medical conditions.

The contents and qualities of the products described in this English product manual is only valid for the British and Irish market

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Introducing GNLD Products... For Life!

Welcome to GNLD International! This Distributor Product Guide provides all the information you need to share GNLD products and build your business. Think of it as a "map" you can use to learn about the products as your customer base grows.

Since 1958, GNLD has been making a positive difference in people's lives and today we are a globally recognized leader in product innovation and technology. With leading-edge products that fulfill genuine human needs, it's easy to see why our products inspire consumer confidence and enjoy a reputation as "Simply the Best!"

As long as you are in business with GNLD, here's a fact you can bank on: **GNLD products work!** The popularity of GNLD products is the result of honest performance rather than high-powered advertising. We confidently support all of our products with a money-back guarantee. We offer it to support you and your customers, but we don't think you'll need it. Here's why:

- Our world-renowned Scientific Advisory Board guides the research and development of GNLD products.
- GNLD products are manufactured to the highest quality standards using the finest raw materials available.
- GNLD products undergo extensive quality control throughout production.
- Environmental sensitivity guides every decision we make about product manufacture, use and disposal.

The excellence of our products makes it easy for you to attract and keep customers. Many GNLD purchasers have become customers for life, and it's not uncommon for one generation in a family to share GNLD products with the next. GNLD products provide the foundation for a solid customer base, with repeat business the norm, making GNLD a sought-after business opportunity worldwide.

We are aware that your customers have a daily choice of hundreds of different products to choose from. Our task is to make it easy to choose the products of high quality and that also are environmental friendly. We also want to provide you with a product range which you can be proud to present.

Year after year, GNLD has offered smart solutions: leading edge products that are safe, effective, and easy on the environment.

We provide a dependable supply of products that are good value for money. Reflecting a long-term commitment to health and prosperity, our product line is the key to our rare longevity in an intensely competitive industry. It includes:

- **Nutritional supplements** to support optimal health.
- **Home care products** for ecological "low-dose, low-burden" performance.
- **Nutriance Body and Skin care products** for lasting health and beauty.
- **Weight Control** for health and well-being.

This Distributor Product Manual has been written to help assure your success. It's packed with valuable information that is easy to find and use. For each product, a short "Fast Facts" section and more comprehensive "Product Story" provide information consumers want. "Fast Facts" offers a concise summary of the product "at a glance" — it's picture, label, marketing and science summary, the needs it fills, and its special features.

The "Product Story," on the other hand, is an in-depth report. Current and well-organized, this section includes historical anecdotes relevant to the product, scientific and technical information, product claims, marketing aids and other information for consumers.

What does the guide mean to you? You don't have to be a product expert to build your GNLD business. This publication places everything you need to know about GNLD products at your fingertips. We're confident that it will help you build the long-term customer base that has become the hallmark of GNLD businesses around the world. Here's to your success!

The Science behind your GNLD Business

Product excellence through leading-edge science and technology

At GNLD, Science Never Sleeps

GNLD's global research and development team works around the clock to bring you the most advanced products in the world. At any hour of the day, someone, somewhere, is brainstorming or researching an idea for a new GNLD product, performing a laboratory test to assure the safety, purity, and efficacy of a raw material, or developing an innovative technology that will be used to create products that truly make a positive difference in people's lives.

The Scientific Advisory Board Keeps GNLD Products at the Leading Edge

Today science is moving faster than ever before. Sometimes it is difficult to keep up with all the research breakthroughs and assess if new products are based on sound science. GNLD's Scientific Advisory Board (SAB) provides the perspective necessary to sort out the facts from the fads. This talented group of scientists, technologists and product professionals is the main reason our unequaled products continue to hold leading-edge positions in the global marketplace. Our SAB members are some of the most prominent professionals in their fields — you will not find a more distinguished, committed, or hard-working group anywhere!

Guided by nature's "blueprint" and armed with information accessible only to experts, GNLD's SAB continues to lead the world in product innovation. The SAB constantly reviews and applies the latest scientific breakthroughs to:

- forecast and evaluate the health challenges facing us and our planet today and in the future
- create new products to fulfill genuine human needs
- act as a proactive resource to keep GNLD at the forefront of significant scientific and technological developments
- guarantee superior product performance and safety

Meet the Members of the Scientific Advisory Board!

Arianna Carughi, Ph.D., C.N.S.

Dr. Carughi received her B.A. in Biology/Ecology and Conservation from Vassar College, M.S. in Human Nutrition from Columbia University, and Ph.D. in Nutritional Sciences from the University of California, Berkeley. She is a Fellow of Stanford University, a Certified Nutrition Specialist, and a recipient of the International Institute of Education scholarship, the Neizer Fellowship from Stanford University, and a National Institutes of Health research grant in experimental nutrition. Her research has been published in numerous scientific journals. Fluent in English, Spanish, and Italian, Dr. Carughi has extensive contacts within the global scientific community and is particularly enthusiastic about the leadership role that the GNLD SAB plays in facilitating the international exchange of groundbreaking nutritional research.

As a university researcher, Dr. Carughi focused on nutrients — especially proteins and vitamins such as folic acid — playing key roles in growth and development. Now she applies these skills across a much broader spectrum of research challenges. In 1996, she was appointed to the organizing committee for the Plant Phenolic Interactive Group (PhenHRIG), a global team of phytonutrient researchers. Afilliated with the American Society for Nutritional Sciences, the research interest group is dedicated to the study of plant phenolic compounds (phytonutrients such as flavonoids and isoflavones) and their health effects. The Advisory Board of the PhenHRIG is comprised of top researchers in the phytonutrient area. At GNLD, Dr. Carughi's leadership is invaluable in helping develop innovative products.

Fred Hooper, Ph.D.

Dr. Hooper earned his B.S. in Biology, Chemistry, and Math from Stephen F. Austin University in Texas and his Ph.D. in Biochemistry and Nutrition from Texas A & M University. He did postdoctoral research at the Institute for Biomedical Research at the University of Texas and taught science at high school and university levels. Dr. Hooper has participated in research on vitamins, hormones, lipids, and amino acids, and is credited with numerous scientific publications.

Dr. Hooper brings to GNLD an in-depth understanding of the intricate environment of the individual human cell and a fierce dedication to protecting the biological integrity and health of that environment. GNLD depends on Dr. Hooper to know how each product will react in the body and to evaluate new products in the context of the current state of research. A noted product formulator, Dr. Hooper explores how nutrients from whole foods work together to nourish, protect, and regenerate cells, and how whole-food supplements can provide optimal nutrition at the cellular level. With the goal of optimizing health and longevity for people everywhere, Dr. Hooper lectures throughout the world to provide diverse audiences with the "straight talk" they need to make informed decisions about their health and nutrition.

JOHN R. MILLER

Originally a Silicon Valley electronics engineer, Mr. Miller is Vice President of Science & Technology, GNLD International. His scientific and technical experience includes more than three decades of manufacturing administration, domestic and international product development, and international research and marketing for GNLD. Mr. Miller's efforts have brought more than 500 products to almost 50 countries. Adept at long-range planning and problem solving, Mr. Miller determines the feasibility of products while they are still in the conception stage. He then guides products through development to introduction, coordinating with scientific, manufacturing, regulatory, and consumer groups to ensure that specific requirements are met.

Mr. Miller is the coordinator, communicator, and organizer of GNLD's SAB activities. He understands the high-tech climate of today's health and nutrition industry, and GNLD depends on his superior communication abilities to translate the latest research findings into information that people can understand and products they can use. Mr. Miller works closely with the Council for Responsible Nutrition and the Direct Sales Association to support GNLD's health and business interests. He is a member of the New York Academy of Sciences and the Society of Cosmetic Chemists. His ongoing concerns include health claims regulations, promoting health awareness, and environmental issues such as protection of our water supply.

GORDON W. NEWELL, PH.D.

A graduate of the University of Wisconsin, Dr. Newell received a B.A. in Chemistry and an M.S. and a Ph.D in Biochemistry. He joined Stanford Research Institute as Senior Biochemist and for 28 years directed one of the first toxicology departments in the U.S. Dr. Newell has held many administrative research positions, designed and evaluated laboratory facilities, and conducted chemical and environmental research in the fields of biochemical toxicology, food additives, industrial chemicals, drugs, and pesticides.

Dr. Newell served as Associate Executive Director of the Board of Toxicology and Environmental Health Hazards (National Research Council/National Academy of Sciences) and Senior Program Manager for Health Studies at the Electric Power Research Institute. Author of more than 80 technical publications and several hundred client-confidential reports, he has been an invited speaker and participant at numerous scientific meetings worldwide. He has been a member and chair of advisory and review committees for various organizations, including the Society of Toxicology, the American College of Toxicology, the Environmental Mutagen Society, and the Society for Risk Analysis. Dr. Newell is a Fellow and Vice Chairman of the Board of Directors of the Academy of Toxicological Sciences, with which he has been affiliated since 1981. He uses his extensive scientific knowledge to ensure that GNLD products are the global "gold standard" for safety and efficacy.

David Shepherd, Ph.D.

Dr. Shepherd received his B.S. degree from Durham University (United Kingdom), and M.S. and doctorate degrees in Microbial Biochemistry from Manchester University (U.K.). He completed postdoctoral studies in Microbial Enzymology at the University of California, Davis. A world-renowned biochemist and phytonutrient expert, Dr. Shepherd has authored 16 scientific publications and 12 patents. Dr. Shepherd has a broad background in manufacturing, including extensive experience in more than 40 global markets as Worldwide Director of Food Beverages for one of the world's largest food companies. As Director of Product Science and Technology for Europe and Africa, he guides GNLD's nutritional and product research efforts at the European Technology Center in France. Fluent in French, German, and English, Dr. Shepherd is an important participant in the international research community.

Dr. Shepherd brings to GNLD an authoritative perspective on all aspects of food technology, from food biochemistry and raw materials to food and beverage development, manufacture, and distribution. He is also knowledgeable about the history of whole foods, the global food supply, and the effect of current market trends on nutrient diversity and availability. A strong believer in natural approaches to health and longevity, Dr. Shepherd believes that dietary supplementation is essential to achieving optimal health and preventing age related diseases.

Laszlo P. Somogyi, Ph.D.

Dr. Somogyi attended the University of Agricultural Sciences of Budapest, Hungary, and received M.S. and Ph.D. degrees from Rutgers University in New Jersey. He worked 16 years in various technical positions in the food industry and was a senior food scientist at Stanford Research Institute (now SRI International). He is now Senior Consultant at SRI's Health and Specialty Chemicals Center. He is an expert in product development, nutritional values of processed foods and beverages, regulatory and economic aspects of food ingredients and additives, and biology, processing, and utilization of fruits and vegetables. Author of more than 40 scientific papers, Dr. Somogyi has contributed to and edited numerous books, including the recent Processing Fruits: Science and Technology.

In 1996 he received a grant from the U.S. Food and Drug Administration to estimate amounts of key additives in the U.S. food supply. He was also appointed to the liaison committee between the National Academy of Sciences and the Institute of Food Technologists, the world's largest international organization of food scientists, of which he is a Fellow and Executive Committee member. A member of the American Association of Cereal Chemists and the Industry Advisory Council to the Department of Food Science and Nutrition at the University of California, Davis, Dr. Somogyi brings to GNLD expertise in all aspects of food science.

SAB Involvement in the Global Scientific Community

As well-respected leaders in their fields, GNLD's SAB members are also highly regarded participants in the global scientific community. They are annually invited to attend as many as 100 prestigious scientific meetings, where they both present their original research findings and learn from the breakthroughs of others. GNLD also sponsors numerous scientific events and conferences each year.

The SAB's constant and professional presence within the global scientific community gives us the opportunity to gain knowledge, insight, and opportunities that none of our competitors can match. For instance, due to the SAB's involvement in certain areas of research, our Carotenoid Complex supplement attracted the attention of several scientists, including a **United States Department of Agriculture (USDA)** research group that went on to publish studies showing that Carotenoid Complex had a positive effect on the immune function.Two more USDA studies also showed that Carotenoid Complex reduced oxidative damage to cells and blood components.

A World of Support: GNLD's Global Science Network

Backing every one of our products is GNLD's **Global Science Network.** The GNLD Scientific Advisory Board regularly calls upon the considerable talents of a global network of researchers, product technicians, and engineers selected for their unique expertise, qualifications and abilities. These scientific liaisons are affiliated with universities, laboratories, and institutes, both public and private, throughout the world. This extensive network of experts insures that we know our business inside and out. Unfortunately, this level of scientific support is the exception rather than the rule in our industry. Regardless, it is necessary to assure the safety and purity of raw materials and the efficacy and biocompatibility of finished products.

Some Meetings Attended by SAB Members

Carotenoid Research Interactive Group Meeting (Atlanta, Georgia)

Annual Meeting of Professional Research Scientists (FASEB) (Atlanta, Georgia)

Free Radicals, Antioxidants, Cardiovascular Disease (Taiwan)

Vitamin E Annual Science Update (Hawaii)

International Toxicology Congress (Seattle, Washington)

Dietary Phytochemicals in Cancer Prevention and Treatment (Washington, D.C.)

United Nations Educational, Scientific and Cultural Organization (UNESCO) Global Network for Molecular and Cell Biology (Poland)

Nutraceuticals Conference (Holland)

Future of Functional Foods (Princeton, New Jersey)

Some GNLD-sponsored and Co-sponsored Scientific Events

Oxidants and Antioxidants in Biology, the largest U.S. meeting of the International Society for Free Radical Research (Santa Barbara, California)

Natural Antioxidants: Molecular Mechanisms and Health Benefits (Beijing, China)

Free Radicals in Brain Physiology and Disorders (Tokyo, Japan)

Therapeutic Potential of Biological Antioxidants, organized by the Linus Pauling Institute of Science and Medicine (Tiburon, California)

UNESCO/Confederation of Scientific and Technological Associations in Malaysia/ Society for Free Radical Research – Asia Workshop on Nutrition, Lipids, Health and Disease (Penang, Malaysia)

GNLD Laboratories: State-of-the-Art Facilities Run on Brain Power!

To achieve product excellence, GNLD spends millions of dollars on state-of-the-art technical equipment and modern facilities. Used to assure the production of high-quality products, this leading-edge equipment is housed in our **North American Research Facility** in California and in our **European Technology Center** in France.

Dozens of highly trained professionals with advanced degrees can be found in these laboratories, where food technologists, microbiologists, engineers, biochemists and other nutrition experts press the frontiers of new product development while keeping an ever watchful eye on product consistency and quality. Their considerable experience and expertise assures product quality without compromise.

While Our Competitors Scramble to Catch Up, We Set the Pace!

As science progresses and even accelerates, you can continue to depend on GNLD to remain a primary driving force in the global marketplace. We're setting the pace for the industry. And while our competitors scramble to catch up, GNLD will continue to set performance records with innovative and peerless products.

The GNLD difference in quality

10 GNLD Differences You Can Count On!

We're unique, and we want you to know it! Our philosophy, people, and products embody the "GNLD Difference". We are in business to make a positive difference in people's lives, and that lofty goal requires a comprehensive, long term approach to business. We rely on nature's "blueprint" to guide the world's top-notch scientists in developing safe, effective, innovative products that meet real human needs. So how do we distinguish ourselves from our market competitors? Let us count the ways!

GNLD difference #1:

Quality Is Not a Goal — It's a Commitment

GNLD does not define *quality* as a high standard to be achieved. Instead, it is a level of excellence which our people and products have already attained and that we are committed to maintaining. Our commitment to "Quality Without Compromise" ensures that GNLD will continue to lead the industry with superior products.

GNLD difference #2:

A "What's Right" Philosophy

The cornerstone of GNLD's guiding philosophy is "What's Right." Simply stated, this philosophy dictates that every decision is made in the best interests of the CUSTOMER, DISTRIBUTOR, COMPANY, and the ENVIRONMENT — that is, what's right for all the participants in GNLD's Total Value Opportunity. The "What's Right" philosophy ensures that each product designed, developed, and distributed by GNLD will be of the finest quality.

GNLD difference #3:

Based in Nature, Backed by Science

We use nature as a "blueprint" to formulate products that are safe and effective over a lifetime of use. You'd be surprised how often this difference alone sets us apart from the competition. What's more, considerable scientific research precedes the development of each GNLD product. We weigh the existing body of scientific evidence — everything from ancient folkloric usages to the latest scientific findings from international, double-blind, placebo-controlled, clinical trials. Then we combine the best that Nature and Science have to offer in order to create innovative, effective products.

GNLD difference #4:

Our SAB Is Enormously Talented and Committed

A distinguished group of scientists, technologists and product professionals, GNLD's Scientific Advisory Board is the most active, committed, prominent, and qualified in the nutrition industry. While many companies do not even have scientific advisors, or have advisors who are minimally involved, GNLD's SAB members are highly regarded in their respective fields and are frequently called by the scientific community, government, and industry to provide vision and direction. On a day-to-day basis, your SAB is continuously involved in literally hundreds of research projects. The result is leading-edge products that are proven to work. This talented, hard-working group is truly at the heart of GNLD's envied position at the leading edge of product innovation.

GNLD difference #5:

Raw Materials Up to a Standard, Not Down to a Price

Raw materials are available in many forms, with different abilities, and at vastly different prices. The selection of raw materials determines the ultimate quality level and price of the finished product. GNLD selects only the finest raw materials to ensure quality results to the consumer. For this reason, we are renowned for manufacturing products that are "up to a standard, not down to a price". In addition, GNLD has pioneered the extraction, concentration, and use of numerous raw materials. Sometimes we were the first in the world to offer certain products, such as Carotenoid ComplexTM, and we had to develop innovative technologies, such as the use of oxygenless encapsulation, to protect our products during manufacturing. All of our ingredients are generally regarded as safe.

GNLD difference #6:

We Don't Take Their Word for It — We Put It to the Test!

GNLD verifies the quality of each raw material. No matter how reputable the supplier, each shipment is quarantined until an individual batch sample can be tested for potency and purity. Only after raw materials have met GNLD's exacting standards are they moved into our warehouses. And testing doesn't stop there. We also analyze finished products (vitamins, phytonutrients, etc.) according to our stringent SAB standards to be sure they meet or exceed the rigorous scientific and regulatory criteria essential to market products

throughout the world. Using advanced methods, we test tablet disintegration and dissolution time, stability, purity, potency, bioavailability, odor, taste, etc. Moreover, we exceed regulatory requirements by subjecting our products to additional tests, often conducted by researchers from universities, government agencies and private contract laboratories, to verify their performance.

GNLD difference #7:

The Highest Manufacturing Standards in Our Industry

GNLD's manufacturing standards always exceed those required by law. For instance, our U.S. manufacturing facility holds a Drug Manufacturing License. Granted by the Food and Drug Administration (FDA), this license means that every aspect of our operation is open to unannounced inspection by the FDA to confirm that we follow Good Laboratory Practices and Good Manufacturing Practices. Whereas no law requires supplement manufacturers to meet the stringent standards required of drug manufacturers, we voluntarily subject ourselves to such scrutiny to assure the finest quality products and to preserve consumer confidence. We have maintained this license for more than 15 years. Our European Technology Center meets similar high standards.

GNLD difference #8:

State-of-the-Art Research and Development Facilities

GNLD has multimillion-dollar, state-of-the-art product research and development facilities on two continents. Our sparkling-clean North American Research Facility and our leading-edge European Technology Center house high-technology instruments that allow us to develop safe, effective products. In addition, GNLD is listed as an Original Equipment Manufacturer, which allows the company to engineer, develop, and manufacture its own specialized production equipment. Thus, GNLD can rapidly implement new product and technology innovations.

GNLD difference #9:

Highly Skilled Technical People

GNLD continues to attract and retain highly qualified people. In addition to our prestigious and esteemed Scientific Advisory Board and Global Science Network, GNLD employs a highly skilled team of laboratory specialists. Using sophisticated instruments and complex procedures, this professional research staff is responsible for GNLD's quality control and assurance. They apply their scientific and manufacturing expertise to ongoing development of new and improved products and manufacturing technologies.

GNLD difference #10:

Longevity and Leadership in a Competitive Market

Competition is intense in the global marketplace, and only the fittest survive. Companies come and go over the years, and longevity is uncommon. GNLD is a rare exception, having been in business since 1958. We have not only survived — we have thrived! An industry leader, GNLD is a company that other companies try to imitate. GNLD's excellent reputation is based on a history teeming with technical achievements and industry firsts. A good example is the fact that the United Kingdom Patent Authority issued patent #2,274,235, protecting Carotenoid Complex™ as a unique and exclusive product available only from GNLD and making it the only carotenoid supplement in the world whose formula is protected by law!

Count on GNLD for Products You Can Trust and a Business Built to Last!

We are totally committed to remaining at the leading edge of product innovation and to setting the industry benchmark for quality. We're confident that our products will continue to make a positive difference in people's lives. Year after year, you can count on GNLD for product excellence!

GNLDs milestones:

Technical Achievements and Industry Firsts

Since its beginnings in 1958, GNLD has been committed to product excellence and innovation. Over the years, this "GNLD Difference" has resulted in the creation of hundreds of leading-edge products. The following list of GNLD technical achievements and industry firsts is by no means comprehensive; it is meant to convey only the major milestones by which we measure the sure and steady progress that has made GNLD a trusted and respected name worldwide.

1958-1963

- Formula IV, the original four-factor food supplement developed.
- Pioneering protein supplements.
- Unique protein instantizing process.

1964-1968

- Vitamin E in skin care products.
- Protein supplements delivering all 22 amino acids involved in human nutrition.

1969-1973

- Natural Formulas, GNLD's research and quality control laboratory and manufacturing plant, is built.
- Super-concentrated biodegradable cleaners.

1974-1978

- Late Dr. Arthur Furst joins the company; the Scientific Advisory Board is established.
- Significant expansion of laboratory and manufacturing capabilities (new microbiology lab, stricter quality control, etc.)

1979-1983

- GNLD provides a waterfiltersystem, for a water you can trust.

1984-1988

- Aloe Vera Plus revolutionizes Aloe Vera supplementation.

- Late Dr. Arthur Furst's broad-spectrum antioxidant Toxgard (now Betaguard).
- Salmon Oil omega-III fatty acids establish a new benchmark for product purity.
- Dr. Fred Hooper, Mr. John Miller, Dr. Laszlo Somogyi, and Dr. Gordon Newell join as scientific advisors.
- Acidophilus Complex features Targeted Delivery Technology for two-piece hard-gel capsules, a whole new concept in acidophilus supplementation.
- l987 Texas A&M studies show Tre-en-en® Grain Concentrates support growth, development, and efficient nutrient utilization.

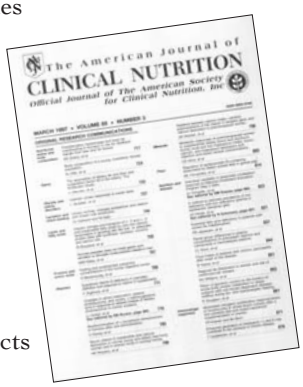
- Computer link is established between GNLD and the National Library of Medicine.

1989-1993

- Carotenoid Complex™ is the first and only supplement to provide the full carotenoid profile of an optimal serving of fruits and vegetables.
- GNLD becomes the only direct selling company ever invited to present its findings (a Carotenoid Complex study) to the New York Academy of Sciences.
- Dr. Arianna Carughi and Dr. David Shepherd join the Scientific Advisory Board.

1994-1997

- Carotenoid Complex studies conducted by U.S. Department of Agriculture and university scientists are published in the American Journal of Clinical Nutrition and other journals, showing that Carotenoid Complex can boost blood carotenoid levels and immunity and protect LDL cholesterol and cellular lipids from oxidation.
- Flavonoid Complex™, the first whole-food flavonoid supplement, offers leading-edge, water-soluble antioxidant protection from fruits, vegetables, and green tea.
- Cruciferous Plus™ provides phytonutrients from cruciferous vegetables and other whole foods.



- "Gel-Gard" Enteric Protection System results in the highest potency supplement of beneficial microflora, Acidophilus Plus.
- Nutriance skin care products (with ACR, vitamins E, C and A, green tea and echinea) are shown to clearly diminish wrinkles.
- Tests on humans show that Nutriance Renewing Antioxidant Treatment accelerates the antioxidant activity and protects the skin against free radicals and the negative effects of UV-radiation.

1999-Present

Experts from SAB and the Global Science Network (GSN) introduced GR^2 Control Weight Loss Program proven to help the body reach and maintain a healthy weight. Thanks to the weight decrease, also the risk of diabetes, heart diseases and arthritis is lower.

GR^2 Control is clinically tested and proven to give the strenght of Glycemic Response Control which maximizes the burning of fat, minimizes storeing of fat and re-educate the body to healthier eating habits throughout the whole life.

The Importance of Nutrition

Do You Eat to Live Or Live to Eat?

"You are what you eat" is more that just a catchy phrase your mother used to get you to eat right. It's a profound truth. From the Stone Age to the Industrial Age, people have recognized the healthful properties of certain foods. And now, in the Information Age, the importance of nutrition is so well recognized and supported by scientific evidence that virtually every major public health organization in the world makes dietary recommendations. The link between good nutrition and good health is similarly strong.

"We must shift our national focus from avoiding nutritional deficiencies to understanding the preventive miracles proper nutrition offers," wrote Dr. Bernadine Healy, former director of the U.S. National Institutes of Health, in her book *A New Prescription for Women's Health*. "The validity of nutrition as a legitimate scientific discipline can no longer be questioned."

The foods and supplements we consume make up our diet. In recent years, the belief that a balanced diet is a cornerstone of health has sparked a revolution in the way people think about food. Whereas meat, potatoes, and salad constituted "eating well" in much of the 20th century, the diet of the 21st century will likely incorporate Mediterranean, Asian, and vegetarian eating patterns and low-fat, low-salt, high-fiber foods. Fueled by our growing knowledge of health and nutrition, our new view of food focuses on eating to achieve optimal health. But people have intuitively known the health benefits of foods for centuries, as evidenced by a well-quoted line from 17th-century French playwright Molière: "One should eat to live, not live to eat."

Cellular Nutrition Is the Foundation of Health

If you built your dream house, you'd first build a strong foundation and then assemble the finest materials available to complete your project. Constructing a foundation of health that will last a lifetime requires the same commitment to quality building materials. Cells are the "building blocks" that make up a body, and each of the human body's about 73 billion highly specialized cells require clean air and water and essential nutrients — carbohydrates, lipids and sterols, proteins, vitamins and related food factors (such as phytonutrients), minerals, and enzymes. Good whole foods and good whole-food supplements provide the nutritional diversity and density that lay the foundation for good health.

Nutrition Affects Your Health Both Today and Tomorrow

The diet is your body's only source for raw materials it needs to perform its day-to-day functions. Cellular workings are complicated and continual. Fortunately, your cells perform their jobs automatically, without any forethought on your part. *Your only responsibility to this intricate, dynamic system is to provide the high-quality nutrients the body needs to do a good job.*

This task is challenging, since every day milliards of cells are created, destroyed, and replaced. Over the course of seven years, most of our cells, with the exception of brain cells and a few very specific glandular cells, are replaced. For example, red blood cells, which carry oxygen throughout your body, have a life span of only four months before they're removed from the bloodstream and destroyed. The human body contains about 25 billion red blood cells, so the demand for nutrients to constantly replace these cells is enormous! Some cells, such as those of the mouth or intestines, turn over even faster — every day, in fact!

Furthermore, different cells and tissues have special nutritional requirements. For instance, lung cells have a higher requirement for vitamin C than many cells, whereas eye tissue has a higher need for lutein and other carotenoid phytonutrients. The body's nutrient supply, provided by foods and supplements, must exceed demand, or deficiency symptoms result.

Over the short term, a nutrient-deficient diet compromises day-to-day health. For instance, carotenoids — colorful plant pigments responsible for the red in tomatoes, the orange in carrots, and the yellow in squash — are critical to the function of certain blood cells that defend the body against microbial invaders. Studies show that people do not necessarily feel as good as they could if their diet is carotenoid-deficient. Conversely this can mean that a carotenoid-rich diet might help people feel good. The same way vitamin C and zinc may shorten the duration of a cold. Short-term effects of nutrient deficiencies are also apparent — evidenced as lower energy levels — in people whose diets are deficient in B-vitamins or iron.

Disease Is Not an Inevitable Consequence of Aging

Many gerontologists (scientists who study aging) believe that disease and debility are not inevitable consequences of growing older. They believe that longer and healthier lives are achievable through a healthful balance of diet, exercise, rest, and relaxation.

The seeds of suboptimal health are often sown in childhood, when many children and teens consume highly processed, fatty, salty, and sugary foods. By their 20s, most people are not as healthy as they should be because they fail to get enough exercise or to eat diets rich in antioxidants or other nutrients. By the time they're in their 30s, prime time for devotion to family and career, they are often too busy for regular exercise and sufficient sleep. By their 40s, due to stress, poor diets, and inactivity, they're tense, undernourished, and overweight. At about age 50, diseases begin to manifest themselves. Many people of both sexes begin taking one medication or another.

Health continues to decline, with millions of people each year suffering from chronic conditions that limit their activity: Many people die in their mid-70s of some serious health problems. Poor nutritional habits could be one of the reasons.

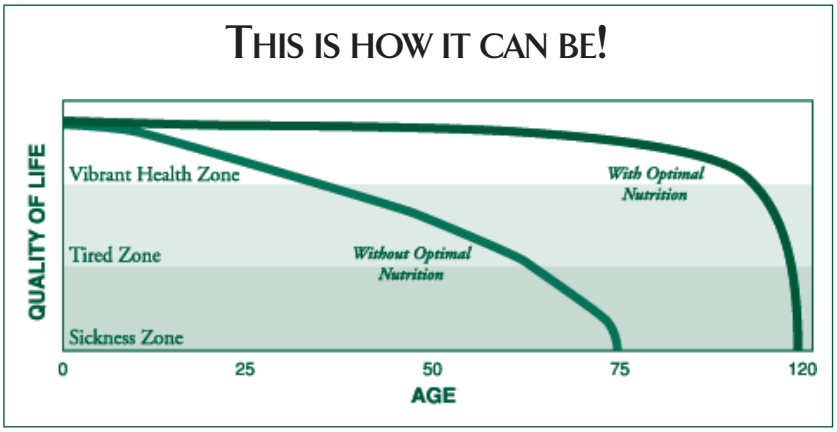
A Global Glance at Mortality: Poor Nutrition Takes It's Toll Everywhere

The life expectancy in the world's least-developed countries is 43 years, compared to 78 years in one of the world's most developed countries, according to the World Health Organization. The global average for life expectancy is almost 65 years.

Regardless of age, a balance of good nutrition, exercise, and rest goes a long way toward achieving health, vitality, and longevity. But good nutrition is more than eating healthy foods which supply necessary carbohydrates, lipids, sterols, protein, vitamins and related food factors (such as phytonutrients), minerals, and enzymes. It means giving our bodies substances it can use. Note that diet is what we eat, but nutrition is what our cells and tissues actually receive.

Eating Well by Itself Is No Guarantee of Good Nutrition

Foods must pass through six stages: diet (eating healthy foods), digestion (mechanically breaking down foods through mouth chewing and stomach churning), absorption (passage of nutrients from the intestines into the bloodstream), circulation (distribution of nutrients carried in blood to cells), assimilation (incorporation of nutrients into cells), and elimination (removal of metabolic waste products from cells). Only when all of these challenges are successfully met do our foods provide our bodies with the nutrition they need.



The Reality of the Daily Diet

Nutrient Density + Nutrient Diversity = Optimal Nutrition + Vitality

"The greatest health challenge we face today is finding a way to increase levels of nutrients in our diet and broaden the variety of foods we eat each day — without increasing our calorie intake!" says Dr. Fred Hooper of the GNLD Scientific Advisory Board. The ultimate goal of the diet is to provide an abundance and a wide variety of nutrients — that is, nutrient density and nutrient diversity.

Nutrient Density

Ideally, our foods would be low in calories but high in nutrients. In reality, however, we get too many calories and too few nutrients. When we eat a food such as French fries, for example, we remove the nutrient-rich potato peel, leaving an almost pure-starch mass which is cut, fried, and salted. Such processed foods are nutrient-poor and calorie-rich, and they rarely provide the nutrient density of their whole-food parents.

Nutrient Diversity

The idea of getting a variety of nutrients is not new, but it has grown in importance. While one generation of Americans grew up thinking that diversity was "three square meals", the next generation was told to eat from the "Four Basic Food Groups." Later, to encourage dietary diversity, that recommendation was changed to advise choosing foods from the "Food Pyramid". Likewise, the Japanese government recommends eating 30 different foods each day for optimal health.

Unfortunately, many of us engage in a practice called "channel eating", where we eat the same rather small number of foods over and over (for example, eating the same breakfast cereal every day). This practice erodes diversity. It may also reduce the availability of certain nutrients, impacting the nutrient density of the diet as well.

People miss out on many important nutrients because their eating habits are exactly that — habits. For example, big portions of the population never get the antioxidant protection of berries because they never eat berries. The closest some people get to eating a berry is a little jam now and then. But berries are one of the richest sources of healthful plant nutrients called flavonoids. The same argument could be made for other beneficial nutrients which people miss out on when they consume only a narrow range of foods.

We Know Better, Yet We Still Make Poor Dietary Choices

"Do as I say, not as I do" could be the world's dietary anthem. People everywhere know they should consume healthy foods. Yet, people everywhere often make poor food choices — despite the fact that they know better.

Polls show that most Europeans, for instance, understand the dietary goals recommended by the different national governments:

- Reduce fat intake to 30% of total calories or less.
- Limit saturated fat to less than 10% of calories.
- Consume less than 300 milligrams of cholestorol each day.
- Eat at least five servings of fruits and vegetables each day.
- Increase consumption of complex carbohydrates by eating six or more servings of breads, cereals, and fruits each day.
- Eat moderate amounts of protein.
- Limit total daily sodium intake.
- Consume the RDA for calcium.

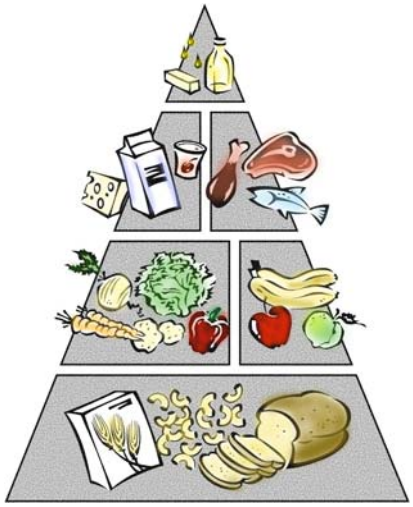
Despite growing nutritional awareness, diets have not improved. A survey done in 1991, where the eating habits of Americans were compared during three decades showed that less than 25% of the people interviewed had a healthy diet. When even more countries become developed countries, where refined, fatty foods with high levels of sugar and salt are usual, the unhealthy eating habits will stay as they are.

Reality Check: What We Should Eat Versus What We Actually Do Eat

The connection between diet and health is so well established that nearly all public health organizations in all countries are giving diet recommendations. For example in the USA the Department of Agriculture/ Health and Human Services published a food pyramid to recommend the daily doses of different nutrients. On the next page we see how Americans should eat according to the recommendations compared to how they really eat. Remember that the bad eating habits of the Americans are not unique: similar pattern – too little vegetarian or dairy products and too much fat and sweets – is present in most developed countries.

For fruits and vegetables, the consumption pattern is particularly alarming. Virtually all of the world's major public health organizations recommend consuming at least five servings of fruits and vegetables each day for optimal health. In the USA the National Cancer

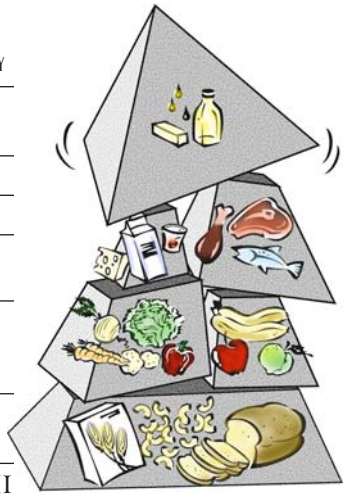
RECOMMENDED SERVINGS



FOOD GROUP	RECOMMENDED SERVINGS PER DAY	ACTUAL SERVINGS PER DAY
bread, cereal, rice, pasta	6-11	5.1
vegetables	3-5	2
fruits	2-4	1
milk, yogurt, cheese	2-3	1.3
meat, poultry, fish, dry beans, eggs, nuts	2-3	2.2
fats, oils, sweets	use sparingly	3.5

Source: *Eating in America Today,* Edition II

ACTUAL SERVINGS



Institute, American Cancer Association and National Research Council recommend 5-9 servings of fruits and vegetables each day. Fruits and vegetables contain vitamins, minerals, fibers and other healthful phytonutrients (nutrients only available from plants – carotenoids, flavonoids, cruciferous compounds etc). Numerous studies show that the gap between the dietary ideal and actual consumption is enormous.

- Only 9% of Americans eat the recommended minimum amount of fruits and vegetables
- Nearly half of the population in the USA do not eat any fruits during a normal day!
- Nearly one fourth of the population in the USA do not eat any vegetables during a normal day!
- 70% of the population in the USA do not eat a single fruit that contains great amounts of vitamin C during a normal day.
- 80% of the population in the USA do not eat a single fruit or vegetable that contains great amounts of carotenoids during a normal day.
- We have a tendency to overestimate the amount of healthy food we eat and underestimate the amount of bad food.
- In one study the consumers overestimated the amount of fruits and vegetables they eat by 33 percent.

Food is abundant and available in developed countries, so food scarcity is not the problem! Nonetheless, studies show that virtually none of us eat well enough to get the Recommended Daily Allowance (RDA) of many critical vitamins and minerals! The RDA is the amount of vitamins or minerals necessary to prevent the appearance of deficiency symptoms in healthy people. Some people think that they do not have to consume RDA amounts of nutrients every day as long as they get all the nutrients they need over several days. Studies show that not only do the vast majority of us fail to get the RDA every day, but we do not get it over several days, either.

The RDA to Survive — but the ODI to Thrive!

The tragedy is that we are not even consuming amounts of nutrients that would prevent deficiency symptoms, let alone amounts that would take us a step closer to optimal health! You can survive with a poor diet, but you certainly won't thrive. While deficiency symptoms can be corrected by supplying the substance which is lacking, many scientists believe that optimal health results from vitamin and mineral consumption in amounts exceeding the RDA. According to Nobel laureate Linus Pauling: "The RDA for a vitamin is not the allowance that leads to the best health for most people. It is, instead, only the estimated amount that for most people would prevent death or serious illness from overt vitamin deficiency. Values of the daily intake of the various vitamins that lead to the best health for most people may well be several times as great, for the various vitamins, as the values of the RDA". A concept that is growing in acceptance among the scientific community is that of Optimal Daily Intake, or ODI, an idea GNLD scientists pioneered in the late 1970s.

Supplements: "Nutritional Insurance" When the Diet Is Poor

Nutrient density and nutrient diversity are two sides of the same coin. Research indicates that the reality of the daily diet is that you cannot get all the nutrients you need for optimal health and vitality from foods alone. The next step will likely be government recommendations to consume both healthy foods and supplements. You don´t need to wait for new government recommendations to take charge of your health today! Make better food choices. And when the inevitable nutrient "gaps" arise, supplement to assure your best health.

The Evolution of the Human Diet: Our Ancestors Ate Better Than We Do!

The modern diet is a far cry from the foods that humans have consumed for two million years. Before humans took up agriculture 10,000 years ago, they were primarily hunter-gatherers, with dietary needs met primarily by fruits, vegetables, roots, nuts, seeds, legumes, fish, and wild game. Scientists believe our ancestors ate about three times the amount of fruits and vegetables we do, generally consumed within hours of being gathered, usually raw, with little or no processing. It is likely, therefore, that our ancestors had intakes of vitamins and minerals that exceeded the current RDAs (1.5 to 5 times higher), although they were by no means megadoses.[1)] They also ate five times more fiber than we do. In many respects, the ancestral diet resembles the American Heart Association's dietary recommendations, the traditional Mediterranean and East Asian diets, and semi-vegetarian eating practices. Our ancestors did not live long, but it was infection and accidents — not degenerative disease — that killed them.

Intake Levels for Various Nutrients

	Prehistoric Ancestors (estimated intake)	RDA (recommended intake)	Modern Humans (current intake)
Vitamins, mg/day			
Riboflavin	5,01	1,3-1,7	1,34-2,08
Folate	0,34	0,18-0,2	0,149-0,205
Thiamin	3,07	1,1-1,5	1,08-1,75
Ascorbic Acid	439	60	77-109
Vitamin A[2]	2.240	800-1.000	1.170-1.414
Vitamin E, I.U.	28	8-10	7-10
Minerals, mg/day			
Iron	62,4	10-15	10-11
Zinc	33,4	12-15	10-15
Calcium	1.520	800-1.200	750
Sodium	604	500-2.400	4.000
Potassium	6.970	1.900	2.500
Fiber, g/d	86	20-30	10-20
Energy, kcal/day	2.500	2.200-2.900	1.750-2.500

1) Adapted from: Eaton, S.B. Eaton III, S.B. Konner, M.J. och Shostak, M. An Evolutionary Perspective Enhances Understanding of Human Requirements J. Nutr. 126:1732-1740, 1996.

Our Food Supply

Modern Foods Provide More Quantity, Less Quality

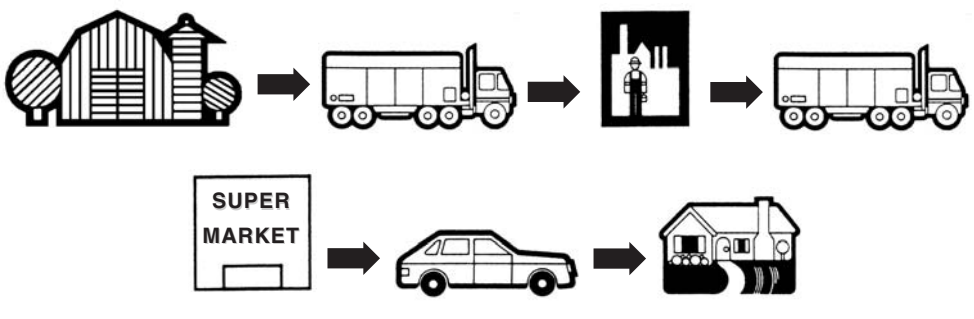
Throughout history, obtaining food has been a struggle. Today, however, getting food is merely a matter of satisfying our personal whims and fancies. Our choices are no longer limited by local seasons or climate. In fact, individual foods are usually in season somewhere and may be shipped halfway around the world just for our convenience. Our food supply has never been more abundant and feeding ourselves has never been easier.

Technological advancements in farming, transportation, storage, and processing of foods have made this bounty possible. Whereas in the past people bought fresh produce, dairy products, and meats directly from the farm, today people rarely have time to plan well-balanced meals and track down local foods to use in their preparation. For convenience, we tend to buy our food in grocery stores or restaurants. And, unlike our ancestors, we eat convenience foods of all types — even entire meals — which are readily available in packages, cans, jars, "boil-in-bag" pouches, freezer trays and microwave-ready containers.

In choosing convenience, however, we may be sacrificing nutrition. From harvest to tabletop, our food may be stored, processed, refined, cooked, frozen, packaged, and shipped. And at each step, several factors can lessen food's nutritional value:

- **Chemical changes.** Oxidation and fermentation may cause foods to deteriorate. For instance, oxidation can destroy vitamins A and C.
- **Heat.** Meat, fish, poultry, some fruits and vegetables, raw milk, and many other products can become inedible in less than a day at room temperature.
- **Cold.** "Chill injury" and "freezer burn" can lead to nutrient destruction. So, too, can repeated freezing and thawing.
- **Light.** Light can spur the destruction of nutrients, especially riboflavin, vitamin A, and vitamin C, and can induce the oxidation of fats.
- **Irradiation.** This technique kills microorganisms but can inactivate enzymes which occur naturally in foods.
- **Moisture.** Damp storage conditions can hasten the destruction of nutrients.
- **Natural food enzymes.** The same enzymatic reaction that causes fruits and vegetables to ripen will continue to the point that produce rots.
- **Microorganisms.** Bacteria, yeast, and molds lessen the nutritional value of foods.
- **Macroorganisms.** Insects, parasites, and rodents can destroy foods.
- **Physical stress.** Food preparation may include peeling, cutting, dicing, and shredding — all of which can reduce nutrient content.
- **Time.** Fresh corn and peas, for example, lose nutritional value within hours of harvest. And if you let a fresh vegetable sit in the crisper for a week, you would be better off with a frozen or even canned vegetable for dinner!

From the Farm to your Table



Farming

The nutrient content of soil can vary greatly from one farm to the next. Essential nutrients, especially minerals, can become depleted after years of farming the same soil. Although fertilizers may offset these differences, the nutrient values of certain foods may not be consistent purchase after purchase.

Modern farming technologies also impact nutritional value. For example, genetic engineering led to the development of special varieties of tomatoes that have a uniform size convenient for canners, and a thicker skin necessary for machine harvesting. But engineered tomatoes have less vitamin C and lycopene (an important phytonutrient) than their natural cousins.

Farming practices can also have a negative impact. Farmers frequently harvest produce before it's ripe, robbing plants of the chance to attain the nutrient density and diversity that develop with maturity. Moreover, air and water pollutants, such as smog, insecticides and herbicides, can also act as chemical antagonists and rob fruits and vegetables of some of their nutritional value.

Transportation and Storage

After harvest, food may be stored on the farm in barns or silos before it's sold to food brokers and transported to warehouses. It may sit for months before it is transported to grocery stores to be stocked, displayed, and sold. During transportation and storage, factors such as temperature, light, moisture, and even time itself act to lessen the nutritional value of foods.

Processing

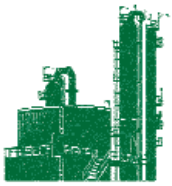
Food processing — a wide array of techniques that modify foods for storage, convenience, taste, etc. — can further drain the nutrient value from food. Produce, for instance, is often peeled, cored, cut, shredded, or chopped before it is frozen, canned, or cooked. Such processing strips away nutrient density and diversity.

Freezing

In the interest of convenience and storage, much of today's produce is available frozen. The produce is shipped from a broker's warehouse to a processing plant where it can be held for several days prior to freezing. In the meantime, the foods may be sprayed with chemicals to delay spoilage and repel insects. Many types of produce are blanched (boiled for several minutes and cooled rapidly) before freezing. This process can destroy much of the vitamin C, thiamine, and enzymes. While freezing will help preserve the remaining nutrients, the food's nutritional value will continue to fade with time.

Canning

Canning, too, can degrade the nutritional value of food. Canned food often undergoes harvesting, receiving, soaking and washing, sorting and grading, blanching, peeling and coring, can filling, air removal, can sealing, cooling, labeling, packing, and storage. A form of baking soda may be added to very acidic foods with the result that B-vitamins are destroyed. Food may also be treated with additives to preserve color and texture. The high heat necessary for canning can lead to major losses of minerals, and canning fluids provide a reservoir into which vitamins can leach.



Refining

We accept without question the fact that the health of crops and livestock depends upon the nutrients they are provided. Yet many people attempt to build healthy bodies by consuming highly-processed, refined foods with inadequate amounts of crucial nutrients. Ironically, the nutrients removed in refining processes from these products are often fed to livestock to improve their health!

Grains: Refining strips grains of much of their nutritional value. For instance, most of the nutrients in rice are concentrated in the husk, which is removed during processing to make white rice. Likewise, commercially prepared cornmeal is often "degermed" prior to packaging to extend its shelf life. The corn germ is then used to manufacture corn oil, while we consume the remaining cornmeal. Similarly, when wheat is refined, the germ and hull are removed, eliminating most of the fiber, B-vitamins, vitamin E, lipids, and sterols. When the wheat is baked into bread, 15–30% of the thiamine may be lost.

Sugar: In its raw state, sugar is a nutritious food containing a great number of vitamins and minerals. During refining, these nutrients are removed as raw molasses, which ranchers add to animal feed — along with the wheat bran and wheat germ removed from refined grain — in order to raise healthy livestock. Once more, we consume the dead, empty calories that remain. Refined sugar is 100% carbohydrate and has no value to the body except as calories.

Fruits and Vegetables: Food processing may remove healthful phytonutrients (plant nutrients), as they tend to make fruit juices bitter and can contribute to rancidity. Similarly, carotenoids are often removed from plant oils to "de-colorize" them. And processes such as canning can destroy lutein, a phytonutrient in spinach and other green, leafy vegetables that is important to eye health.

Cooking

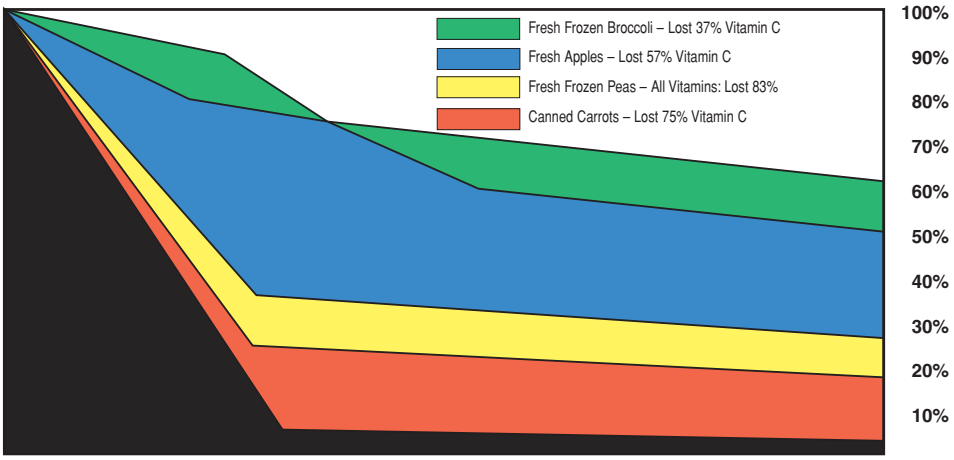
Cooking is often the last step in the preparation of food before it reaches our table. Heat, oxidation, or other chemical reactions during this process can destroy vitamins (especially B and C), amino acids, and enzymes. Also, boiling or blanching foods can cause vitamins and minerals to leach out of foods and into the cooking water. Even steaming fruits and vegetables — second in nutritional value only to consuming them raw — can cause nutrient loss.

GNLD Supplements Boost Your Diet's Nutrient Density And Diversity

The bottom line is that your food may not be as nutritious as you think. Every day nutrients are processed out of our food in the name of convenience. Even if you pick the right foods — and most of us don't — you may not be getting the nutrient density and nutrient diversity you need for optimal health and vitality. While one solution would be to eat only fresh, raw, or slightly cooked foods in as close to their natural form as possible, few of us can spend our entire day hunting, gathering, and carefully preparing our food. We must look for practical alternatives. The key to an optimal diet is good whole foods and good whole-food supplements.

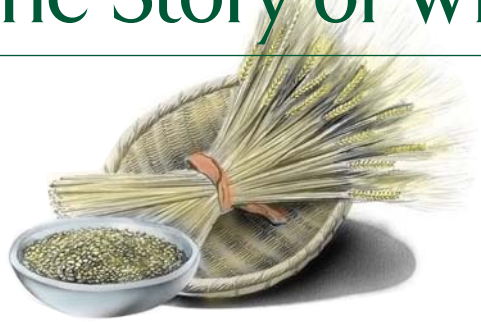
GNLD offers an excellent solution to this dilemma: our complete line of fine nutritional supplements. Each product is formulated to support genuine human health needs and to assure a complete, balanced daily intake of important nutrients. For hundreds of thousands of people around the world, GNLD products are an important part of their daily diet and health care regimen. Take charge of your health by joining them! The nutritional value of your diet could have an important impact on your vitality today and your health tomorrow.

This chart depicts the dramatic nutrient losses that take place in food from harvest through transport and storage, until it reaches our table.



Life staples

The Story of Wheat



Life Itself Has Been Processed Out of the Staff of Life

When the Pharaohs of ancient Egypt died, they were buried with everything they would need to sustain them in the afterlife. In uncovering some of these tombs, scientists found large earthenware jars full of wheat which would still sprout even though it was almost 4,000 years old!

Within each whole-wheat berry or kernel, nature has packed all of the elements necessary to reproduce life. So long as the wheat berry remains intact in its original form, it will keep indefinitely. For thousands of years, however, humans have ground whole-wheat berries into flour for use in breads, pastas, noodles, cakes, breakfast cereals, tortillas, and other widely consumed foods, earning wheat the nickname "the staff of life."

Wheat, a member of the grass family, provides more nourishment for more people worldwide than any other food. While rice is the most common grain in Asia, wheat is the dietary base in Africa, Europe, North and South America, Australia, and a large part of Asia. In many developed nations, wheat provides 40-60% of the calories in the diet.

The Industrial Revolution forever changed the way we eat wheat. As people began to move away from agricultural communities and into large cities, a serious problem developed: How could the flour be made to last long enough to feed large masses of people? The grain processor solved the problem by taking out some of the things which made the flour spoil — notably, the nutrient-rich outer bran and germ layers of the wheat berry, which contains most of the plant's vital lipids, sterols, vitamins, and minerals. In fact, modern milling subjects whole-wheat berries to about two dozen processes before they're transformed into table flour. However, this modern solution created new problems.

What's Removed: Vitamins, Minerals, and Lipids and Sterols

Processing removes wheat's bran, germ, and oil. Outer layers such as the bran contain most of the vitamins and minerals, and are sold to ranchers for livestock feed. (In this respect, cattle eat better than we do!)

Wheat germ and wheat germ oil, rich sources of natural vitamin E and important lipids and sterols, are sold as foods and supplements.

What is added? Bleach and a small portion of previously removed vitamins

When the most nutritious parts of the wheat germ have been taken away, the result of the cleaning process is unbleached flour, which still contains some substances that attract insects. The flour is then treated with bleach that oxidizes proteins and other nutrients and prolongs the shelf-life of the flour. Then a small portion of the nutrients that were removed from the flour during grounding is synthetically added. Normally this amount is smaller than the amount that was in ungrounded wheat. Unfortunately this "enrichment" replaces only three to six of those over 20 substances that were originally removed!

How Much Nutrient Value Is Lost Due to Wheat Refining?

In refining whole wheat to make white flour, much of the wheat's original nutrient value is lost. Removal of the oils (lipids and sterols) to avoid rancidity is only part of the story. As the chart below from the American Journal of Clinical Nutrition shows, the majority of the remaining nutrients are lost to processing as well.

Losses of Nutrients in Refining of Wheat*

Nutrient	% Loss in White Flour
Thiamin	77
Riboflavin	80
Niacin	81
Vitamin B6	72
Pantothenic acid	50
Folacin	67
Alpha-tocopherol	86
Betaine	23
Choline	30
Calcium	60
Phosphorus	71
Magnesium	85
Potassium	77
Manganese	86
Iron	76
Zinc	78

*Adapted from Schroeder, *H.A. American Journal of Clinical Nutrition* 24:562, 1971.

Life staples

The Story of Rice

A Symbol of Life and Fertility for Centuries

Rice provides most of the food for more than half of the world's human population. About 94% of the world's rice is produced and consumed in Asia, where it is a symbol of life and fertility — hence the origin of the widespread custom of throwing rice at bridal couples! A member of the grass family, rice was cultivated in China as early as 27 centuries B.C., and in Japan it is so important that even the Emperor joins in its ritual harvest. More than 25 species of rice exist, but one species — Oryza sativa — furnishes virtually all of the world's rice.

Rice Processing Destroys Many Nutrients

Most people prefer white rice over brown. The only difference between the two is processing: Rice with the hulls removed but the bran left on is brown rice, whereas rice which is further processed (i.e. polished, "enriched") is white rice. The nutritional value of rice is concentrated in the outer layers of the granule, which are rich in B-vitamins, vitamin E, minerals, fiber, and lipids and sterols such as gamma-oryzanol. Processing removes these layers, which are often sold as livestock feed. So while processing degrades the nutritional value of the human diet, at least it enriches the animal diet.

In rice-eating nations, 60-80% of calories come from rice. This means that 20-40% of calories from the other foods consumed must supply all the missing vitamins, minerals, and other important nutrients. In many countries, the nutrient content of rice largely determines the quality of health of the people who must subsist upon it. And white rice is not a nutrient-diverse food: 92% of a polished rice granule is solely carbohydrates, and only 2% of the additional material has any nutritional value.

The milling of rice has dramatic health consequences, the most important of which is the loss of thiamin (vitamin B1) responsible for beriberi among peoples whose diets consist almost entirely of white rice. Milling also decreases the content of riboflavin, niacin, protein, iron, and calcium in white rice. Brown rice, in contrast, retains its nutritional value.

Due to the industrialization of the Far East, Asian rice is now probably more processed than ever before in history. To put back some of the nutrients removed during processing, vitamins and minerals are sprayed on white rice, which ironically is then described as "enriched." Vitamins and minerals are not the only nutrients stripped from rice during processing, but these are the only nutrients returned during "enrichment". A significant amount of protein, fiber, and lipids and sterols are forever lost during the conversion of brown rice to white.

Losses of Nutrients when Brown Rice is Processed to White Rice*

Nutrient	% Loss in White Rice
Protein	11
Fat (includes lipids/sterols)	79
Fiber	67
Calcium	25
Phosphorus	57
Iron	50
Potassium	57
Thiamin	79
Riboflavin	40
Niacin	66
Alpha-tocopherol (Vitamin E)	84

*Composition of Foods, Agricultural Handbook No. 8, Agricultural Research Service, United States Department of Agriculture, 1963.

Life staples

The Story of Soy

The Legume that Conquered the World

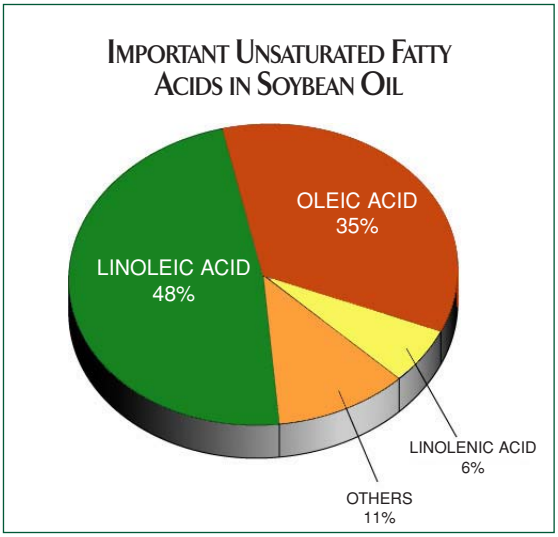
Soybeans belong to the pea family (Leguminosae) and are among the first crops cultivated by humans. Since the 11th century B.C., they have been grown in China, where they were the most important crop. They made their way to Japan in the 7th century, to Europe in the 17th century, and to the United States in 1804. Today, soybeans are everywhere. They are the world's leading legume crop, with more than 100 million metric tons produced annually.

Soy Foods Are Growing in Popularity

Soybeans have a bright future in the global kitchen. They are currently processed for consumption as oil in margarines, shortenings, and salad dressings, and as protein in tofu, miso, tempeh, soy milk, meat extenders, and meat replacements (for example, bacon-like bits, simulated sausages, etc.). As the nutritional and health benefits of soybeans become better known, soybeans are sure to become dietary superstars. But for now, think of them as undiscovered actors whose time will soon come in the theater of global nutrition.

Soybeans Pack a Lot of Nutritional Value

Soybeans are 13-25% oil, 30-50% protein, and 14-24% carbohydrate. They are an excellent source of essential fatty acids (those which are not produced by the body and therefore must be consumed in the diet). Good sources of complementary protein when consumed with cereal grains, soybean products are comparable to milk, a high-quality protein, in essential amino acids. "When well-processed soy products serve as the major or sole source of protein intake, their protein value approaches or equals that of foods of animal origin, and they are fully capable of meeting the long-term essential amino acid and protein needs of children and adults," say V.R. Young and N.S. Scrimshaw of the Massachusetts Institute of Technology's Clinical Research Center and Department of Nutrition and Food Science.



Adapted from: Smith, A.K. and Circle, S.J. Soybeans: Chemistry and Technology, Avi Publishing Company, Inc., Westport, Connecticut, 1972.

The Need for Supplementation

"Good food is the best medicine," goes the saying. Yet it can be difficult to consume foods that provide the nutrient density and nutrient diversity we need each day. Either we make poor food choices, or we try to pick healthful foods, but nutrient losses during food harvest, processing, transportation, and preparation degrade its value and undermine our best efforts. Resulting nutritional "gaps" can impact health, both short-term and long-term.

Health and disease are not black-and-white states. Barring mishap, the usual situation is not that one day you're perfectly healthy, and the next day you die. Over the course of several decades, our bodies can go from a state of vibrant health, to tiredness, to marginal nutritional deficiency and to suboptimal health.

Many Factors Determine Your Nutrient Needs

No two people are alike in their nutritional needs. Members of the same family, eating the same meals, will derive different benefits from the foods served. Our personal tastes dominate much of what we consume. While one person refuses to eat green vegetables, another will prefer foods heavy in fat, and yet another may consume only a very small amount of protein. Our individual metabolism also determines the benefits we derive from food. Age, sex, physical condition, and activity levels directly affect the body's need for nutrients and its ability to use them. Many scientists believe that these differences may play a large part in explaining why some people complain of feeling tired and sluggish while others remain vital and active.

Certain aspects of your lifestyle can increase nutrient demands. For instance, physically active people may need more antioxidants than sedentary individuals. So, too, might people who are exposed to pollution on a daily basis, who consume foods laden with fat or chemical additives, or who are under mental stress. Alcohol, medication, food additives, and water contaminants can also increase the need for certain nutrients. Smokers may benefit from more vitamin C, and coffee drinkers may want to take more B-vitamins. Dieters, on the other hand, may need more vitamin E, as avoiding fat means missing out on some of the richest sources of this vitamin. And if they eat products made with "fake fats" such as olestra, they may need to supplement with vitamins A, D, E, K, and carotenoids, as artificial fats may hinder the body's utilization of these lipid-soluble nutrients.

Two Goals of Nutritional Supplementation

Supplementation can go a long way toward filling nutritional gaps created by suboptimal diets and impacting your quality of life. Nutritional supplementation has two goals:

- Providing nutrients in amounts sufficient to *prevent or correct deficiency symptoms.*
- Providing nutrients in amounts necessary for supporting *optimal health.*

In other words, supplementation can give your body what it needs to survive and thrive!

The RDA to Survive: Preventing Nutrient Deficiencies

The **Recommended Dietary Allowance (RDA)** is the amount of a vitamin or mineral necessary to prevent the appearance of deficiency symptoms in healthy people. Nutrient deficiencies may cause cells to slow their various critical activities until they either receive proper nutrition or die.

When we consume fewer nutrients than our bodies need, supplements can help fill immediate gaps, such as the greater demand for nutrients during physical activity. Or, taken over time, supplements can correct deficiencies. But just as the symptoms of long-term deficiency do not appear overnight, nor can they be corrected immediately. It can take weeks or even months before the full benefits of supplementation are achieved.

Dietary gaps have definite health consequences. Some consequences are unalterable — for example, birth defects resulting from insufficient intake of folic acid during pregnancy. Others create conditions which may or may not be corrected, which can significantly impact the quality of life. Even deficiencies of substances which have no established RDAs, such as omega-3 fatty acids and bioactive phytonutrients (plant nutrients that have activity in the body), may tip the body's balance away from health and towards bad health.

For most people, just consuming the RDA is a challenge. As we have seen, suboptimal intakes are not rare; they're very common. And certain populations are particularly at risk for nutritional deficiencies — women (especially those who are pregnant or breastfeeding), the elderly, children (especially those from low-income families), high school and college students, smokers, dieters, etc.

Compounding the problem, the current RDAs may be too low for many nutrients. For instance, scientists once thought people needed only 60 mg of vitamin C to prevent any signs of deficiency, but new data provides strong evidence to support raising the RDA significantly.

The ODI to Thrive: Beyond Deficiency and Toward Optimal Health

While deficiency symptoms can be corrected by supplying the scarce nutrients, many scientists believe that optimal health results when certain nutrients are consumed in amounts exceeding the RDA. According to Nobel laureate Linus Pauling: *"The RDA for a vitamin is not the allowance that leads to the best health for most people. It is, instead, only the estimated amount that for most people would prevent death or serious illness from overt vitamin deficiency. Values of the daily intake of the various vitamins that lead to the best health for most people may well be several times as great, for the various vitamins, as the values of the RDA."*

The concept of the RDA may be outdated. A new concept, one that GNLD scientists pioneered in the 1970s, has been gaining wide acceptance in the scientific community: The idea is to consume nutrients at levels which a consensus of scientific studies have shown promote optimal health and vitality. That level of intake is referred to as the **Optimal Daily Intake (ODI).** For many nutrients, the ODI is much greater than the RDA.

For millions of people, greater-than-RDA nutrient intake may significantly enhance the quality of life. Several studies indicate that not only does calcium at greater-than-RDA levels prevent osteoporosis (thinning of the bones); it also helps rebuild bone, especially in conjunction with estrogen-replacement therapy and weight-bearing exercise. Similarly, strong scientific support shows that greater-than-RDA amounts of vitamin E, the major lipid-soluble antioxidant in all cellular membranes, and carotenoids, healthful phytonutrients for which no RDA has yet been established, are useful.

And research indicates that vitamins C and E and selenium, probably through their function as antioxidants, may promote optimal health when consumed in amounts greater than the RDA. The exceptions are vitamins A and D, which should not be consumed in greater-than-RDA amounts, as these vitamins can be toxic at high levels.

Greater than RDA Levels May Support Optimal Health

At the same time as scientists continue to recommend greater daily amounts of nutrients, the gap between ideal and actual portions is growing. In many cases ODI is going to be many times higher than current RDA.

Vitamin E is a classic example: Numerous studies show that the RDA is too low to defend the body from oxidants and other free radicals or to provide maximum health benefit. Many scientists now believe the ODI for vitamin E should be from 100 to 600 I.U. per day for healthy people. It is nearly impossible to get this amount of vitamin E from the foods you eat! Even from the richest vitamin E sources, just to get the RDA (15 I.U.) you would have to eat: (see table on page 27)

Besides being nutrient-dense, a healthy diet is also nutrient-diverse. In vitamin E, you want more than just alpha-tocopherol; you want the eight different bioactive tocopherols and tocotrienols found in vitamin E-rich food. Rather than just beta-carotene, you would want the diverse benefits of the other 50 to 60 carotenoid "family members" existing in the food supply. The same is true with flavonoids, cruciferous compounds, and other healthful nutrients: When it comes to the diet, variety is better for you than the same old things you're used to.

Virtually everyone can benefit from supplementation, which can help provide the nutrient density and diversity shown to support optimal health. If you're going to take supplements to take charge of your health, GNLD's are simply the best! Based in Nature and backed by Science since 1958, GNLD supplements are a world-renowned "gold standard" for nutritional excellence.

GREATER THAN RDA LEVELS MAY SUPPORT OPTIMAL HEALTH

NUTRITION	RDA	ODI SHOWN BY SCIENTIFIC STUDIES
Vitamin C	60 mg	500 to 1.500 mg
Vitamin E	10 mg	70 to 400 mg
Chromium	50–120 microgram	200 microgram
Calcium	1.000 mg	500 to 1.500 mg
Selenium	60 microgram	50 to 200 microgram

FOOD	AMOUNT NEEDED	CALORIES
Spinach 	2,5 pounds	297 calories
Safflower oil 	3,5 tablespoons	433 calories
Mayonnaise 	11 tablespoons	600 calories
Wheat germ 	6 ounces	670 calories
Peanut butter 	12 ounces	2.036 calories
Butter 	2 pounds	6.546 calories
Wholewheat bread 	124 slices	6.870 calories
Beef liver (broiled) 	7 pounds	6.966 calories
Eggs 	8 dozen	7.238 calories

Biocompatibility

At GNLD, assuring that our products are "biocompatible" is an important part of our product development process and is an important GNLD difference in product quality. The foods and supplements you consume should be compatible with the human body. The prefix bio means "life," and the word compatible means "fits right." Biocompatible substances, then, "fit right with life."

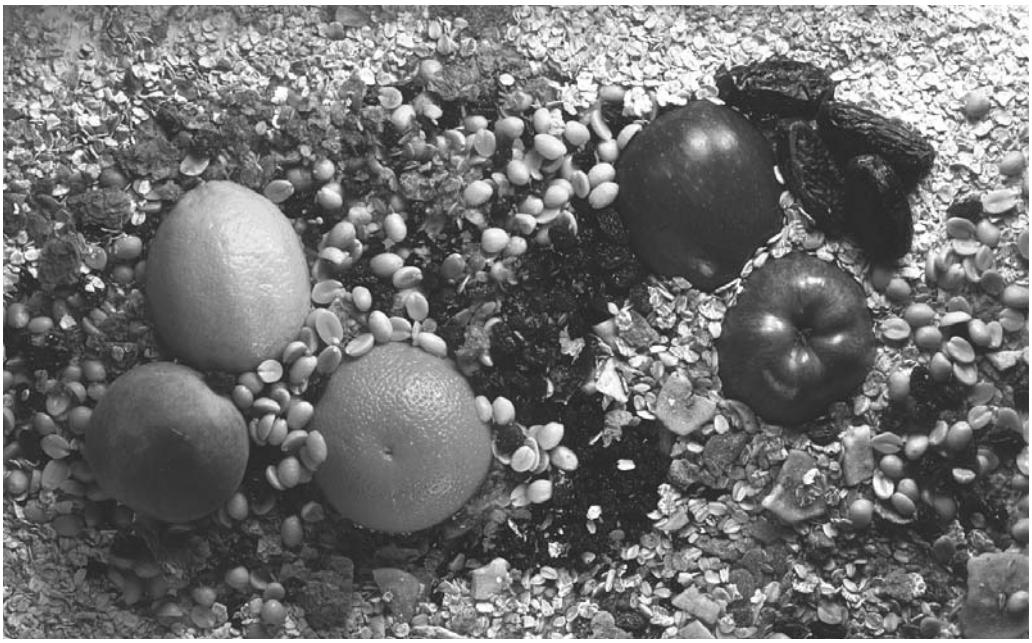
Biocompatibility has never been a more important consideration for supplement users. As more and more people strive to age gracefully and seek ways to bolster health and vitality, the supplement industry has expanded enormously, with sales growing steadily and dramatically all over the world.

In such a dynamic market, designations such as "organic" or "natural" have been tossed around to the point that they have lost much of their meaning for consumers. Motor oil, for instance, is "organic" in one sense (that is, it is derived from living organisms), but it is not something we want to put into our bodies! More recently, "organic" has been defined as simply "carbon-containing" and by that definition lots of dangerous substances are actually "organic" (poisons such as cyanide, solvents such as turpentine, fluorescent dyes, etc.)! So Caveat emptor: the "organic" designation can mean next to nothing in today's marketplace.

Similarly, the word "natural" has lost its meaning. Some supplement manufacturers use materials which are "natural" but not biocompatible — pine bark, orange algae, pond scum, and other "natural" ingredients. These substances have never been a part of the human diet, so we have no way of knowing if they're safe even for short-term consumption. The human body may not be equipped to properly process these substances. Asking if something is "natural" is not as important as asking "Is it biocompatible?"

At GNLD, extensive research and our commitment to nature's "blueprint" sets us apart. We make biocompatibility of our products a top priority. Before we approve the use of any raw material, it must not only pass rigorous laboratory challenges for quality, purity, and function, but must pass our biocompatibility criteria as well. Is the substance normally part of the human food chain? Does it have a long history of safe use? Are there any unknown factors about its composition? Does it match up to nature's "blueprint" for human nutrition? What happens if someone consumes this material every day, for 20 years, 50 years, or a lifetime?

It is this type of challenge that has kept GNLD products not only at the leading edge of science, but of technology as well. By committing ourselves to developing products based upon whole-food, human-food-chain raw materials, GNLD has pushed forward the frontiers of nutritional supplementation to become the world's leader.



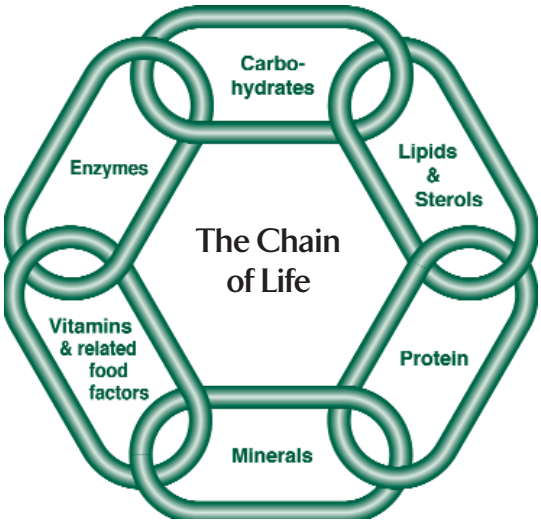
The Chain of Life

Nutrients Must Work Together for Optimal Health

At GNLD, we understand that a nutrient is not an isolated entity performing one simple little task. Instead, each nutrient depends on the presence of many others to perform its functions in the body. For instance, the body may use a single nutrient as a component of 300 different enzymes it manufactures, and each of those enzymes in turn requires a different mixture of nutrients! If key nutrients or any of their helper nutrients are missing or scarce, the body's ability to function normally becomes compromised.

Our in-depth nutritional knowledge enables us to take a comprehensive approach to GNLD product development. When formulating a supplement, for instance, our nutritional experts evaluate all of the related nutrients that must be available to ensure maximum utilization of the supplemental nutrient. We also pay attention to what happens to each nutrient as it passes through the body's metabolic machinery. Similarly, we make sure the supplement is capable of delivering optimal nutrition which individual cells can utilize.

This holistic approach to product development has earned GNLD a reputation for product excellence and credibility throughout the industry, and it has resulted in products capable of providing maximum benefits to the body. Each supplement addresses specific nutritional "links" in the "Chain of Life".

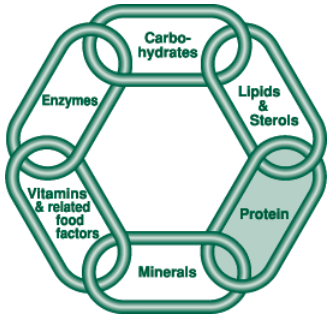


A Chain is Only as Strong as its Weakest Link

This adage helps us visualize the body's nutritional needs. So often when people use the term nutrition, they automatically think of vitamins. But many different nutritional "links" are required to keep the "Chain of Life" strong — protein, carbohydrates, lipids/sterols, enzymes, minerals, vitamins, and related food factors such as phytonutrients. If even one link is weak, the overall "Chain of Life" can weaken as well. The result? The body's metabolic machinery may not run as well as it should. Over time, health and vitality become compromised.

The strength of one "link" in the nutritional "Chain of Life" often depends upon the strength of another "link". For example, before vitamins can be utilized efficiently in the body, minerals must be present. In fact, for optimum functioning throughout the body, all six nutrient groups must be presented in sufficient quantities and in proper balance. Only then can a complete, strong nutritional "Chain of Life" exist.

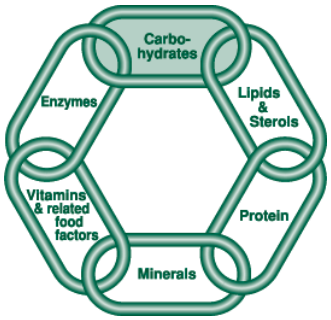
Protein



Protein accounts for about three-fourths of the dry matter in human tissues other than fat and bone. It's a major structural component of hair, skin, nails, connective tissue, and body organs. It's required for practically every essential function in the body. For instance, a transport protein (hemoglobin) carries oxygen throughout the body, whereas a regulatory protein (insulin) regulates blood sugar level. Contractile proteins (actin and myosin) regulate muscle function, and immunological proteins (antibodies) protect the body against microbial invaders. Very small proteins (peptides) act as hormones and neurotransmitters to relay chemical messages throughout the body.

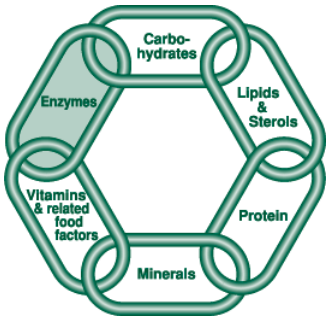
While protein is used mostly to build and repair tissues, it can also be used for heat and energy, as one gram of protein yields four calories of energy. However, if adequate fat and carbohydrates are available, the body will spare protein from this energy function.

Carbohydrates



Like the gasoline that keeps our cars running, carbohydrates keep our bodies running. Known as "the fuel food," carbohydrates provide an inexpensive and readily-available source of energy to sustain life. Foods contain three basic types of carbohydrates: sugars, starches, and fiber. Sugars are simple carbohydrates that provide quick energy and are easily used by the body — examples include glucose, fructose, galactose, sucrose (table sugar), and lactose (milk sugar). Starches, on the other hand, are complex carbohydrates which require lengthier digestive action before they can be utilized. For this reason, they are consumed for sustained energy. Lastly, dietary fiber — carbohydrates which are so complex they are indigestible — contributes little or no energy.

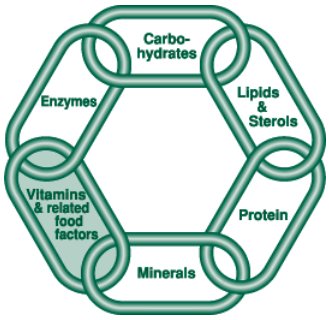
Enzymes



Enzymes are proteins that speed biochemical reactions while remaining unchanged in the process. The body cannot carry out chemical reactions at body temperature without their help. Without these biological catalysts, chemical reactions would occur so slowly that life as we know it could not exist. With them, chemical reactions can occur at rates as much as 10 milliard times faster than would be possible without enzymes!

Enzymes are critical to digestion and metabolism. Just as keys are necessary to unlock doors, enzymes are required to release nutrients from foods so they can be absorbed and utilized by the body. If enzymes are not present in sufficient quantities, complete digestion cannot take place. Enzymes also keep the body's metabolic "machinery" running smoothly. In turn, vitamins and minerals are essential for proper enzyme functioning.

Vitamins and Related Food Factors

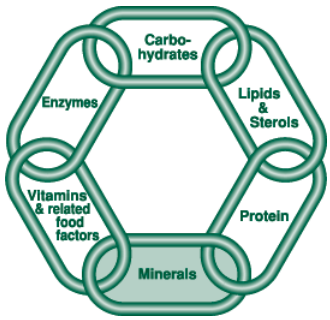


Vitamins are substances (derived from plants and animals) which are required in small amounts for normal body function. With few exceptions, the body cannot manufacture them, so they must be ingested in foods or supplements on a regular and continuous basis.

Vitamins are either water-soluble (B-complex vitamins, vitamin C) or fat-soluble (vitamins A, D, E, and K). Consumption of insufficient amounts of vitamins can lead to deficiencies. Physical and emotional stress can also deplete the body's vitamin reserves. The amount of a vitamin necessary to prevent the appearance of deficiency symptoms in healthy people is called the Recommended Dietary Allowance (RDA).

Like vitamins, phytonutrients (nutrients from plants) are food-related factors required for optimal health. They include carotenoids from carrots, tomatoes, spinach, and other foods; flavonoids from grapes, berries, teas, etc.; cruciferous compounds from broccoli, Brussels sprouts, and other cruciferous vegetables; sulfur-bearing compounds from garlic and onions; mucopolysaccharides from aloe vera; isoflavones from soybeans — the list goes on and on. Scientists have only in recent decades begun to understand the many different ways phytonutrients benefit health. Some phytonutrients, for instance, are potent antioxidants. Others boost the production of enzymes that detoxify dangerous substances.

Minerals

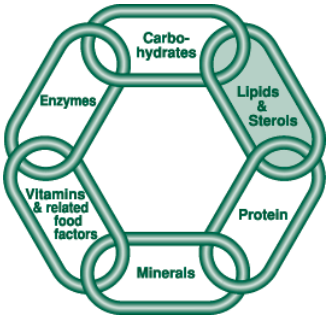


Like vitamins, minerals are absolutely critical to normal body function. Minerals make up 4-5% of our body weight and are present in the body in large amounts as "macrominerals" such as calcium, chlorine, phosphorus, potassium, magnesium, sodium, and sulfur, or in minute quantities as "microminerals" or "trace minerals" such as chromium, copper, fluorine, iodine, iron, manganese, molybdenum, selenium, and zinc. Important building blocks of bones, teeth, soft tissue, muscle, blood, and nerve cells, minerals are crucial to muscle response, nervous system communication, digestion, metabolism, and production of hormones and

antibodies. They regulate the balance of water, acids, bases, and other biologically important substances in the body, and are crucial components of our enzyme systems.

Though all minerals have their origins as components of earth, soil, and rock, some are bound within living organisms. Both earth-sourced minerals and those sourced from living organisms are found in our food supplies. In general, the body does not absorb minerals efficiently. As mentioned above, vitamins and minerals work better when taken in combinations than alone. Again, greater-than-RDA amounts of some minerals may be needed for optimal health.

Lipids & Sterols



Lipids and sterols are fats which are essential to life. They provide energy and house fat-soluble vitamins and many phytonutrients. Phospholipids are structural components of cell membranes, emulsifiers, and precursors of acetylcholine, an important neurotransmitter. Other lipids, such as omega-3 and omega-6 fatty acids, are essential to health, playing roles in brain development and controlling inflammation. Sterols are a class of lipids which include precursors of certain hormones, cholesterol (a component of all animal cell membranes), and precursors of vitamin D. Together, lipids and sterols make up most of the two-layered "blanket" that surrounds every cell in the body. They are especially important components of the fatty tissues of the nervous system.

Without properly balanced lipid/sterol levels, cells can become malnourished, which can lead to cellular fatigue. Lipids and sterols play a vital role in the assimilation of nutrients by the cell. If cells are unable to assimilate the nutrients they need, no amount of available nutrients will result in optimal nutrition. Likewise, unbalanced lipids/sterols may suppress endocrine gland function, further contributing to fatigue.

While all cell membranes need fats, not all fats are created equally. There are good fats and bad fats. For example, saturated fats, such as those in beef and butter, are more rigid cellular "building blocks" than are unsaturated fats, such as olive oil and omega-3 fatty acids. Many scientists believe that membranes built with more pliable building blocks may be better able to retain their elasticity and their discretionary power to let in the good substances and keep out the bad.

How Strong are the Links in Your Nutritional Chain of Life?

Most nutritionists would probably agree that if we had the time to plan, prepare, and eat three complete meals a day, we would probably be able to satisfy the requirements for a strong "Chain of Life." The problem is that few of us have the knowledge or the time necessary to ensure proper nutrition. As a result, we have no way of knowing just how strong the links are in our nutritional "Chain of Life." For millions of people around the world, nutritional supplementation provides the assurance that all of the body's nutrient requirements are being met daily.

Despite our best intentions, dietary gaps are a fact of life that weaken the "inks" in our "Chain of Life". Smart supplementation can help fill nutritional gaps, and GNLD's products are carefully formulated to strengthen all the links in the Chain of Life so you can achieve and maintain optimal health and vitality. Backed by years of scientific research and development, GNLD products are a way to assure that your nutritional "Chain of Life" is as strong as it can be. More than just vitamins and minerals, GNLD supplements provide a balance of essential nutrients to help you take charge of your health!

The Six Stages of Nutrition

Do You Know the Difference Between Diet and Nutrition?

When we hear the word nutrition, we often think of healthy foods. But healthy foods are really part of the diet. Individual cells can only benefit from good nutrition if the foods in the diet are broken down into building blocks small enough to absorb. These nutritional building blocks must then be distributed throughout the body, absorbed by cells, and metabolized, with crucial nutrients assimilated into the cellular machinery and waste products eliminated. **In other words, diet is what we eat, but nutrition is what our cells and tissues actually receive.**

GNLD's Scientific Advisory Board understands this distinction well. Nutrients pass through six separate and distinct stages as our body works to support nutrition in each cell. Each of these stages must operate efficiently to attain optimum nutrition for the entire body. Even a slight breakdown in one of the stages could reduce our chances for optimal health. With this in mind, GNLD's Scientific Advisory Board formulates each GNLD nutritional supplement to support one or more of these vital stages so cells may receive the balanced nutrition they need.

Diet

A good diet is the first step to ensuring our bodies receive the proper balance of nutrients necessary for optimal health. Diet consists of all the foods, liquids, and supplements that we consume daily.

Our diets sometimes fall short of the nutritional ideal. The goal of GNLD's nutritional supplement program is to improve the overall quality of the diet so that the basic nutrients important for good health are available in abundance and in balance every day. Supplementation can go a long way towards filling dietary "gaps".

Digestion

Digestion is the process by which complex foods are broken down into simple substances that the body can use for energy and support of cells and tissues. For instance, lipids, proteins, and carbohydrates are broken into fatty acid, amino acid, and simple sugar building blocks, respectively. Digestion begins with chewing and includes the action of acids and enzymes.

Each GNLD product is formulated for easy and complete digestion. Specific ingredients, such as enzymes or nutrients that improve digestion, are included in our products. Additionally, our tableting technologies assure rapid disintegration and dissolution, making tablet digestion easier.

Absorption

Absorption is the process by which the products of digestion — simple sugars, amino acids, fatty acids, vitamins, minerals, phytonutrients, etc. — pass through the lining of the intestinal wall and are taken directly into the body's circulatory system. While most nutrients are taken directly into the bloodstream, lipids and lipid-soluble nutrients take a less direct path to the circulatory system. These nutrients are first absorbed into the circulation via the lymphatic system.

Each GNLD product is formulated for easy absorption, providing essential nutrients to the bloodstream where they are then carried to all the cells of the body.

Circulation

Transporting the absorbed nutrients to each cell of the body is the role of the circulatory system. We may be eating properly, digesting properly and absorbing nutrients properly, but if our circulation is impaired, nutrients may not reach their cellular destinations.

GNLD's Scientific Advisory Board recognizes the crucial role the blood and circulatory system play in assuring cells receive good nutrition. They have formulated GNLD nutritional supplements to support optimal functioning of the body's lifeline to health.

Assimilation

Assimilation is the delicate process by which nutrients are passed through the membranes which surround each living cell. For the body's cells to grow, repair and rebuild themselves, proper assimilation is essential. For this process to take place, cells — especially their membranes — must be healthy. Many scientists believe that aging of organs and tissues occurs when cells deteriorate faster than the body can repair them. Proper assimilation of nutrients is essential for cellular repair.

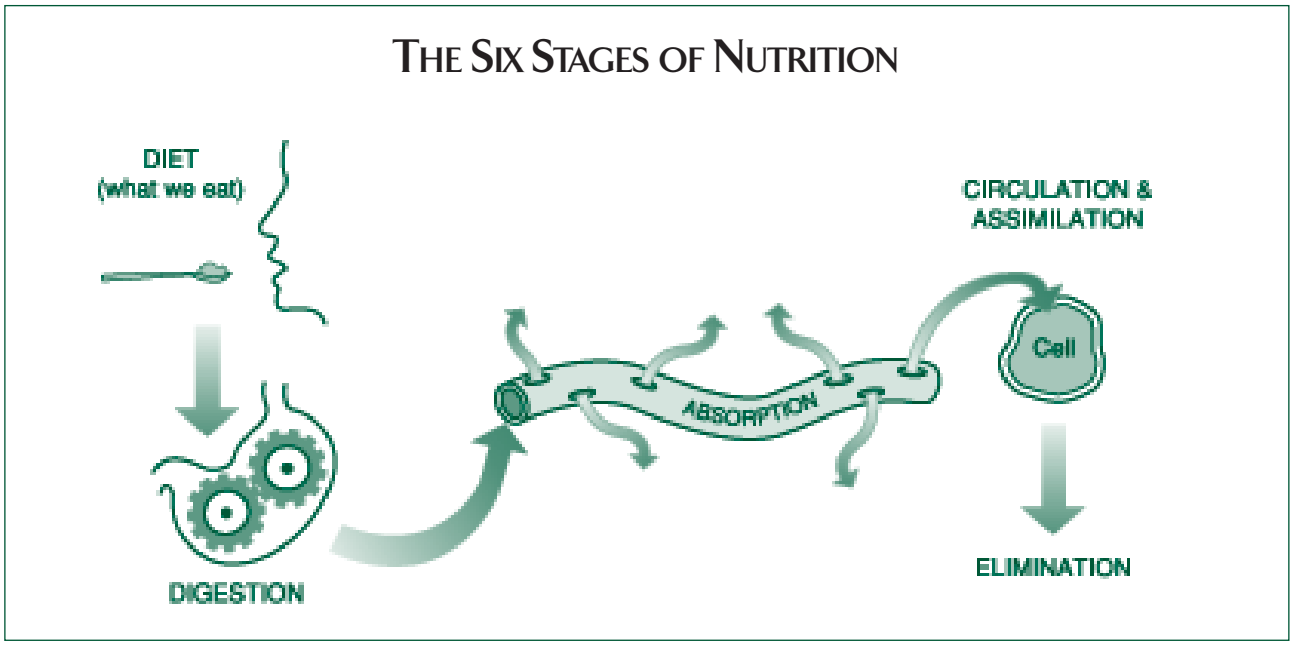
GNLD incorporates vital lipids and sterols into its formulations to support the cells' ability to assimilate nutrients. The familiar phrase "you are what you eat" can be more properly restated as "you are what your cells actually assimilate."

Elimination

The final stage of nutrition is the efficient elimination of wastes from the body. Elimination begins at the cellular level and is completed through many other metabolically-active areas such as the skin, kidneys, lungs, and colon. It is essential that wastes are completely and regularly eliminated from the body.

GNLD products have been formulated to help the cells and the body eliminate wastes efficiently and naturally.

Just as all the nutrients used by the body are utilized in combinations, the Six Stages of Nutrition are interrelated. Each one influences the activities of the others. Each GNLD product is formulated to provide essential nutrients and optimal support of one or more of the vital Six Stages of Nutrition.



Cellular Nutrition

We are Only as Healthy as Our Cells

The human body is made up of billions of "building blocks" called cells, each of which is fully able to perform all the processes that define life — respiration, energy production, movement, digestion, elimination, reproduction, etc. Just as the foundation of health is only as strong as its building blocks, we are only as healthy as our cells!

Vigilant Gatekeepers: Membranes Control What Gets in and Out of the Cell

Cells are like miniature bodies in that they need to take in nutrients and eliminate wastes in order to stay healthy. Luckily, each cell is surrounded by a membrane which acts as a vigilant gatekeeper: Only those nutrients needed by the cell at a given moment are allowed to enter, and only waste material and metabolic products are allowed to leave. Maintaining this selective, discretionary power is crucial to cellular health and vitality. Cells that cannot properly assimilate nutrients or eliminate wastes could be respectively described as "starved" or "constipated"! When such conditions exist, cells may become toxic and "sluggish" instead of healthy and vital. Sluggish cells are unable to efficiently produce energy for life or perform their other specialized jobs. Lipids, sterols, amino acids and other nutrients can help your cells maintain the discretionary power so important to their health. And if your cells "feel better", so will you!

GNLD Supplements are Aimed at Cellular Nutrition

At GNLD, we have an intimate understanding of the complex workings of cells, and since 1958 we have used that knowledge to create dietary supplements that are aimed at cellular nutrition. By supplying essential links in the "Chain of Life" and by fully addressing each of the "Six Stages of Nutrition," our products have established the global "gold standard" for cellular nutrition. Based in Nature and backed by Science, GNLD supplements provide comprehensive nutritional support. Our goal? We want to help your cells become the finest building blocks possible. If we succeed, your foundation for optimal health will be strong. To your health!