Got energy? That’s a big question. Many people are low on energy. A major cause of low energy is magnesium deficiency. In fact, studies show 50%–90% of people are deficient, often highly deficient. Magnesium boosts energy levels by feeding the body’s energy production system or Krebs cycle.

Myo-Mag—HPDI’s magnesium and malic acid formula — is designed to supercharge your energy production system to support a high energy lifestyle. Are you ready for what Myo-Mag can do for your energy? Well, it boosts energy, but does a lot more, too!

Getting enough magnesium is critical, of course. But it is equally important to get readily assimilable forms of magnesium and the synergistic nutrients required for its uptake and utilization. Myo-Mag provides optimal forms of magnesium and synergistic nutrients required to create energy (as ATP) for higher energy living. Myo-Mag feeds the body’s energy production system (Krebs cycle), which maximizes cellular energy. That is why users of Myo-Mag report far greater energy levels.

Myo-Mag supplies critical nutrients for energy production (as ATP) in the body. But it offers benefits far beyond boosting energy levels. Being a super magnesium formula, Myo-Mag optimizes all other beneficial effects of magnesium. In addition to energy production, magnesium is essential for muscle health, cardiovascular health, balancing calcium levels (and ensuring proper calcium uptake), as well as for proper function of more than 800 enzyme systems in the body.
ENERGY – Myo-Mag supplies your cellular energy system with raw materials it can use immediately to produce energy for high vitality living. Myo-Mag can help you create energy fast—and naturally!

MENTAL ENERGY – Just as Myo-Mag boosts physical energy, it can also boost mental energy. The energizing forms of magnesium and synergistic nutrients it provides create cellular energy the body can use for all purposes requiring energy.

MUSCLE RECOVERY – Myo-Mag supports muscle health, muscle use, and muscle recovery. You might call Myo-Mag a muscle formula, and indeed “Myo” means “muscle” in Greek. Muscles that are properly nourished function well and are loose, not contracted, overly tight, or cramped. Muscles can benefit from Myo-Mag!

RELAXATION AND CALMING – In addition to being an “energy” production formula, Myo-Mag provides forms of magnesium and other nutrients that allow the body to relax. Muscle relaxation is a well known effect of magnesium. Also, the counterbalancing effect of magnesium on calcium in cells contributes to a relaxation effect. Too much calcium by itself (without being balanced) by magnesium can lead to muscle contraction and tension.

GREATER SENSE OF WELL-BEING – Myo-Mag can provide an overall sense of well being. This is likely due both to the wide range of benefits and effects of magnesium (see list below) combined with the benefits of the synergistic nutrients it provides. For example, a combination of the known benefits of muscle relaxation, improved mood, and increased vitality can together contribute to an overall increased sense of well-being.

CARDIOVASCULAR HEALTH – The heart is a muscle and gain major benefits from the right forms of magnesium, like other muscles

HEADACHES – The ingredients in Myo-Mag are known to help headaches, including migraine headaches

MANY OTHER BENEFITS – Due to its status as an exceptional magnesium & malic acid formula, Myo-Mag provides all benefits associated with magnesium (see list below), but also supercharges these benefits due to the malic acid (malate), B vitamins, and other synergistic nutrients.
**MYO-MAG OVERVIEW**

**Myo-Mag** is an advanced magnesium formula that supports metabolism, energy production (ATP), and optimal cellular function. It allows for rapid uptake and absorption of easily assimilated forms of magnesium. It also provides critical nutrients supporting energy production in the body. Because **Myo-Mag** rapidly boosts magnesium levels, individuals usually notice greater physical and mental energy, reduced fatigue, and often a greater sense of overall well being.

**MAGNESIUM, MALIC ACID (MALATE), B VITAMINS, AND MORE**

**Myo-Mag** contains ingredients participating in the production of ATP. One vegetarian capsule contains 100 mg of magnesium and over 300 mg of malic acid. Vitamin B1 is included as Thiamin HCl and vitamin B2 is included as both Riboflavin and Riboflavin 5'-phosphate. Also included are vitamin B6 in its pyridoxal 5'-phosphated coenzyme form, manganese (because high levels of magnesium can deplete the body of it), magnesium carbonate (a malic acid buffer), and glycine as the carrier for a portion of the magnesium and for the manganese.

Supplementing the diet with magnesium and malic acid may reverse conditions of low energy. Suggested daily amounts include 300–600 mg of magnesium and 1200–2400 mg of malic acid.

**MYO-MAG CONSIDERATIONS & APPLICATIONS**

There are several key nutrients needed by mitochondria to manufacture ATP in the body. These include oxygen, magnesium, food substrate, ADP, and inorganic phosphate, as well as Vitamin B1, Vitamin B2, and Vitamin B6 in their phosphorylated (coenzyme) forms.

The body also requires malate (an important Krebs cycle intermediate) in order for most of these nutrients to function effectively in the process of ATP production. When adequate amounts of any of these nutrients are not present in the mitochondria, a vicious cycle can occur in which ATP is not created in amounts sufficient for proper cell function.

Insufficient amounts of ATP means that some B vitamins may not be adequately phosphorylated leading to improper metabolism and further reductions in ATP production. The much less efficient anaerobic production of ATP may be utilized to a greater extent. A balance point may be reached wherein the body produces only a fraction of the optimal amount of ATP. Under these conditions muscle weakness and fatigue may occur.

Vitamin B6 in its coenzyme form (pyridoxal-5'-phosphate) and magnesium are required for normal activity of malate dehydrogenase enzymes involved in ATP production in the Krebs Cycle. In addition, the respiratory chain involved in ATP synthesis requires adequate amounts of the coenzyme forms of B vitamins B1 and B2, which are the precursors of NAD and FAD. These two B vitamins, like B6, require a magnesium-dependent phosphate transfer reaction to become biologically active. Magnesium deficiency would therefore create a sluggish respiratory chain and a decreased efficiency in the transfer of reducing equivalents from the cytosol to the mitochondria. Supplementing the diet with magnesium and malic acid boosts energy production and thereby can reverse conditions of low energy.

In “Management of Fibromyalgia: Rationale for the Use of Magnesium and Malic Acid,” Abraham and Flechas reported that supplementing the diet with magnesium and malic acid may reverse such conditions of low energy (Jrnl of Nutritional Medicine 1992 3: 49–59). The recommended daily amounts include 300–600 mg of magnesium and 1200–2400 mg of malic acid.

**MAGNESIUM**

Magnesium is a key ingredient in Myo-Mag which provides 100 mg per capsule in the form of magnesium malate. Magnesium plays a major role in energy production in the body. In particular, magnesium plays a critical role in key enzymatic reactions for both aerobic and anaerobic glycolysis, which is the oxygen-dependent metabolic pathway that coverts glucose into energy at ATP and NADH.

In order to appreciate the many benefits Myo-Mag offers, it helps to understand the effects and benefits of magnesium. Magnesium levels influence many physiological processes and functions. These include:

- Increases energy by greater production of ATP (adenosine triphosphate) in cells
- Supports production and function of over 800 enzyme systems in the body
- Relaxes muscles / reduces muscle tension
- Boosts vitality, endurance, and strength
- Improves cardiovascular / heart health (relaxes cardiac muscle)
- Relieves pain, including chronic pain
- Ideal for arthritis / fibromyalgia / joint pain
- Improves health of skin and mucous membranes
- Eases headaches and migraine headaches
- In sports medicine — replenishes Mg levels for energy (combats fatigue, and soothes pain and sore muscles)
• Improves mood and reduces stress
• Increases memory and cognitive functions
• Boosts immune system
• Improves assimilation of calcium / builds stronger bones
• Balances calcium and magnesium levels in cells
• Proven antimicrobial and antiseptic
• Raises DHEA (dehydroepiandrosterone) levels naturally
• Eases menopause and premenstrual syndrome (pms)
• Supports healthy libido (and endocrine system)
• Anti-aging, rejuvenating, revitalizing
• Keeps cell membranes flexible
• Controls cholesterol production in the body
• Regulates blood sugar levels / needed for insulin production, transport, and function in cells
• Supports antioxidant systems

Given the wide range of benefits conferred by magnesium on the human body, it becomes apparent that no level of deficiency is acceptable. Magnesium is simply critical for life and for health. It is far better to have more magnesium than less.

**MYO-MAG** contains three types of magnesium: magnesium malate, magnesium carbonate, and magnesium diglycinate. As noted, the malate form of magnesium offers the unique benefit of feeding the energy production system in the body. The magnesium carbonate in the formula acts as a buffering agent while magnesium glycinate is absorbed into the bloodstream thereby increasing absorption beyond the gastrointestinal tract.

**MALIC ACID / MALATE**

**Myo-Mag** provides malic acid via magnesium malate, which breaks down in the body into about 80% malic acid and 15% magnesium. Malic acid is a compound (molecular formula C₇H₆O₇) made by all living organisms. Malic acid contributes to the sour taste of fruits, and its name derives from the Latin word for apple. Esters and salts of malic acid are known as malates. The malate anion is an intermediate in the citric acid cycle, or Krebs cycle, which produced energy (ATP) in the body.

According to Abraham and Flechas (1992): “Malate is the only metabolite of the citric acid cycle which correlates positively with physical activity.” They add: “Following endurance training of athletes, muscles were characterized by a 50% increase in the malate-aspartate redox shuttle enzymes, where malate plays a key role…When there is increased demand for ATP, there is also an increased demand and utilization of malate.”

**MANGANESE**

**Myo-Mag** includes manganese because high levels of magnesium can deplete manganese. The classes of enzymes that have manganese cofactors is large and includes oxidoreductases, transferases, hydrolases, lyases, isomerases, ligases, lectins, and integrins. The reverse transcriptases of many retroviruses (though not lentiviruses such as HIV) contain manganese. The best-known manganese-containing polypeptides may be arginase and Mn-containing superoxide dismutase (Mn-SOD).

Manganese is an essential human dietary element. It is present as a coenzyme in several biological processes, which include macronutrient metabolism, bone formation, and free radical defense systems. It is a critical component in dozens of proteins and enzymes. The human body contains about 12 mg of manganese, mostly in the bones. The soft tissue remainder is concentrated in the liver and kidneys. In the human brain, the manganese is bound to manganese metalloproteins, most notably glutamine synthetase in astrocytes.

**MYO-MAG USAGE**

Taking 1–3+ **Myo-Mag** provide nutrients that help the body create energy. However, taking 3–6 (or more) **Myo-Mag** daily would meet the need for supplementing with 300–600 mg of magnesium and 1200–2400 mg of malic acid that is known to reverse conditions of low energy. We recommend starting low (1-2 capsules) and then gradually increasing the dosage. **Myo-Mag** is contained in a vegetarian capsule to ensure rapid assimilation.

**COMPOSITION:** One (1) vegetarian capsule of **Myo-Mag** provides the following percentages of the Daily Value:

<table>
<thead>
<tr>
<th>NUTRIENT</th>
<th>AMOUNT</th>
<th>% Daily Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium (Mg malate, diglycinate, carbonate)</td>
<td>100 mg</td>
<td>24%</td>
</tr>
<tr>
<td>Malic Acid (Mg malate)</td>
<td>300 mg</td>
<td>*</td>
</tr>
<tr>
<td>Ingredient</td>
<td>Amount</td>
<td>% Daily Value</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------</td>
<td>---------------</td>
</tr>
<tr>
<td>Manganese (Mn diglycinate)</td>
<td>5 mg</td>
<td>217%</td>
</tr>
<tr>
<td>Vitamin B1 (Thiamin HCl)</td>
<td>10 mg</td>
<td>633%</td>
</tr>
<tr>
<td>Vitamin B2 (Riboflavin)</td>
<td>8 mg</td>
<td>615%</td>
</tr>
<tr>
<td>Vitamin B2 (Riboflavin-5′-phosphate)</td>
<td>2 mg</td>
<td>154%</td>
</tr>
<tr>
<td>Vitamin B6 (Pyridoxal-5′-phosphate)</td>
<td>5 mg</td>
<td>294%</td>
</tr>
<tr>
<td>Glycine (Mg and Mn diglycinate)</td>
<td>160 mg</td>
<td>*</td>
</tr>
</tbody>
</table>

* No established Daily Value

**DIRECTIONS:** As a dietary supplement take 1–3+ capsules daily, or as directed by a health care professional.

**INGREDIENTS:** MYO-MAG only contains the highest-quality USP grade magnesium malate, magnesium diglycinate, magnesium carbonate, manganese diglycinate, thiamin HCl, riboflavin, pyridoxal-5′-phosphate, riboflavin-5′-phosphate, vegetable cellulose (capsule), microcrystalline cellulose, and silica.

MYO-MAG does not contain wheat, rye, oats, corn, barley, gluten, soy, egg, dairy, yeast, sugar, GMOs, sulfates, chlorides, wax, preservatives, colorings, or artificial flavorings.

**CONCLUSION**

Energy is important for life and health. And whether you realize it or not, large numbers of factors—some of which are beyond your control—conspire daily to rob you of energy. These factors may include low magnesium levels, stress to EMF exposure (like Wi-Fi or cell phone radiation), adverse dietary influences (like glyphosate/RoundUp), other chemical and/or environmental exposures, and even just lack of exercise. One of the easiest things to do is to take Myo-Mag to get the magnesium, malic acid, and synergistic nutrients you need to build greater energy levels. Get ready to blast off!

**MYO-MAG RESOURCES**

- Myo-Mag Magnesium & Malic Acid Formula
- HPDI Mineral Formulas
- Myo-Mag on Amazon
- HPDI Blog Articles
- The Health Benefits of Oral Magnesium Using Myo-Mag by Dr. Hank Liers

**Articles**

- Uses and Benefits of Magnesium Glycinate

- Athletic Performance, Anti-Aging, Athletic Performance, B Vitamins, Blood Sugar Support, Brain Health, Cell Protection, Detoxification, Electromagnetic Fields, Energy, Enhancements, Enzymes, Fitness, Immunity, Irena Ossola, Magnesium, Minerals, Myo-Mag, Nutrition, Nutritional Supplements, Orthomolecular Medicine, Pain, pain relief, Products, Recovery, Rejuvenation, Rejuvenation Program, Skin Care, Sleep, Sports, Supporting Protocols, Video, 5G, adenosine triphosphate, ADP, aerobic ATP production, aluminum, Amazon, anaerobic energy production, antimicrobial, antiseptic, arthritis, Athletes, Athletic Performance, ATP, ATP synthesis, B vitamins, Bone Health, calcium assimilation, calcium magnesium balance, cardiovascular health, cell function, cell phone radiation, Cellular energy, chemical sensitivity, cholesterol control, chronic fatigue syndrome, citric acid cycle, coenzyme B vitamins, coenzyme B2, coenzyme B6, cognitive function, creating health naturally, detoxification, dietary supplement, Dr. Hank Liers, Dr. Hank Liers original formula, EMF, EMF mitigation, EMF pollution, EMF supplement, endocrine health, endurance, energizing formula, energy formula, energy production, enzyme function, Enzyme Systems, Exercise, exercise recovery, FAD, fibromyalgia, Fluoride, FM, food substrate, Fred Liers, glucose, gluten free, glycine, glycolysis, glyphosate, GMO free, Hank Liers, headache, Health Products Distributors Inc., heart health, high energy, high performance nutrition, HPDI, HPDI rejuvenation program, immune booster, immunity, improved memory, improved...
There's a new kind of super-antioxidant formula in town. It will quench your free radicals in ways you never conceived. It's called Ultimate Protector+. Its benefits are many due to a triple-action design that includes instructing cells to make their own antioxidants, a process known as Nrf2 activation. The benefits range from anti-aging and anti-inflammatory effects to support for immunity, brain function, and cardiovascular health. Your body depends on antioxidants to defend it from oxidative stressors. And Ultimate Protector+ defends you like nothing else can.

Ultimate Protector+ is among the world's premier Nrf2 antioxidant supplements. It started when Dr. Hank realized that a triple-mode formula could best leverage the antioxidant powers available via Nrf2 activators in supplement form. That is, he could develop an ultra-effective Nrf2 activator-antioxidant formula by combining 1) non-GMO vitamin C, 2) potent exogenous (external) antioxidants from plant substances, and 3) plant-based Nrf2 transcription factor activators for endogenous (internal) antioxidant production within cells.

Dr. Hank designed Ultimate Protector+ to provide the most comprehensive antioxidant protection going beyond any supplement. The proof of his design methodology is the fact that one serving (six small capsules) of Ultimate Protector+ provides nearly 1,000,000 ORAC6.0 units. The ORAC6.0 test from Brunswick Labs measures how effectively an antioxidant can perform against six different free radicals: hydroxyl, peroxy, peroxynitrite, singlet oxygen, superoxide anion, and hypochlorite (hypchlorous acid).
Most antioxidant supplements may effectively quench one or two types of free radicals. What makes Ultimate Protector+ different is its unique capacity to quench all six major free radicals. Ultimate Protector+ provides a significant edge in defending your body against the full spectrum of oxidants encountered in daily life.

The distinctive advantage of balanced free radical defense against a broad spectrum of oxidants distinguishes Ultimate Protector+ as a premier antioxidant and anti-aging supplement. This also makes it a “go-to” formula for supporting strong immunity, mitigating the effects of inflammation, enhancing brain function, boosting cardiovascular health, etc., as well as generally maintaining high antioxidant status in cells.

Looking at the Brunswick Labs’ ORAC6.0 test results (from August 2019) for Ultimate Protector+, you see various oxidants (hydroxyl radical, peroxyl radical, singlet oxygen, etc.) are quenched at somewhat different levels. What is most important is that all six types are quenched, and that the total level of antioxidant protection—968,237 µmole TE/gram—is extremely high. To get an idea of how high that level of protection is, consider that a typical “good” antioxidant supplement might provide about 7,000–10,000 µmole TE/gram.
Specifically, the test results for **Ultimate Protector+** show values of 3,376 µmole TE/gram for peroxyl radicals, 5,569 µmole TE/gram for hydroxyl radicals, 2,758 µmole TE/gram for peroxynitrite radicals, 221,866 µmole TE/gram for superoxide anion radicals, 34,169 µmole TE/gram for singlet oxygen radicals, and 5,005 µmole TE/gram for hypochlorite radicals. The table (below) shows for each free radical type the ORAC6.0 daily values for six capsules of **Ultimate Protector+** containing 3.55 grams of the formula.

### **ULTIMATE PROTECTOR+™ ORAC6.0 Units Per Serving (six capsules)**

<table>
<thead>
<tr>
<th>ORAC6.0 Units Per Serving*</th>
<th>Free Radical Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,985</td>
<td>Peroxyl Radical is very important in many biological systems, including lipid peroxidation, DNA cleavage, and protein backbone modification.</td>
</tr>
<tr>
<td>19,770</td>
<td>Hydroxyl is highly reactive and cannot be eliminated by our endogenous enzymes. It damages virtually all types of macromolecules: carbohydrates, nucleic acids, lipids, and amino acids. In the skin, hydroxyl radicals are created by UV exposure.</td>
</tr>
<tr>
<td>9,791</td>
<td>Peroxynitrite is a reactive nitrogen species that is particularly harmful to proteins. It has been implicated in the development of certain cancers, hepatitis, and chronic inflammation. In the skin, peroxynitrite contributes to the breakdown of vital proteins, such as collagen.</td>
</tr>
<tr>
<td>121,300</td>
<td>Singlet Oxygen is generated in the skin by UV exposure. It is linked to the oxidation of LDL cholesterol and cardiovascular disease.</td>
</tr>
<tr>
<td>787,624</td>
<td>Superoxide Anion is a precursor of all other reactive oxygen species – sometimes referred to as “the mother of free radicals.” It is highly toxic and contributes to lipid and DNA damage.</td>
</tr>
<tr>
<td>17,768</td>
<td>Hypochlorite HOCl – direct reaction of HOCl with plasmid DNA gives rise to single- and double-strand breaks via chloramine-mediated reactions.</td>
</tr>
</tbody>
</table>

![](https://via.placeholder.com/150)

The overall daily ORAC6.0 value for six capsules (3.55 g) is obtained by adding the values for each free radical type. The total of 968,237 units is calculated by multiplying 272,743 units x 3.55 gram serving. To our knowledge there is no other Nrf2 or antioxidant formula that comes close to providing the complete protection of **Ultimate Protector+** in terms of breadth of coverage and overall strength.

### **ULTIMATE PROTECTOR+ PRODUCT INFORMATION**

**Ultimate Protector+** is a next generation cell protection formula that simultaneously meets the body’s needs for 1) **high levels of Vitamin C**, 2) **full spectrum antioxidants** (including polyphenols, flavonoids, anthocyanidins, oligomeric proanthocyanidins, catechins, curcuminoïds, ellagic acid, pterostilbene, resveratrol, chlorogenic acid, xanthines, punicalagins, quercetin, zeaxanthin, carotenoids, polysaccharides, quinic acid, and more), and 3) many of the most **protective enzyme activators (Nrf2 activators)** — in a single product! This potent combination of characteristics distinguishes the formula because no other single formula available today offers such complete protection.

**Ultimate Protector+** supplies nutrients that provide anti-aging, anti-inflammatory, and pain relieving effects, as well as ultra-high levels of antioxidant protection. Damage to cells caused by free-radicals contributes to many degenerative health conditions and to the aging process. This formula effectively supports the body in combating adverse effects of free-radicals.
ULTIMATE PROTECTOR+ BENEFITS

- Anti-aging
- Anti-inflammatory
- Pain relief
- Acts to support the body regarding brain function, cardiovascular conditions, hypertension, and supports strong immunity
- Ultra powerful free radical defense. Helps prevent and mitigate free radical damage that contributes to conditions of poor health.
- Facilitates the body’s internal production of antioxidant enzymes within cells by supplying many powerful natural Nrf2 transcription factor activators
- Ultra effective, high potency, best-in-class antioxidant protection

ULTIMATE PROTECTOR+ FEATURES

- Plant Based Nrf2 Activators Potentiate the Body’s Internal Antioxidant Systems
- Ultra-High Antioxidant Potency as measured by ORAC6.0 testing to be over 968,000 micro moles TE per serving!
- Complete Formula Defends Body Against All Six Major Classes of Free Radicals including: 1) peroxyl, 2) hydroxyl, 3) peroxynitrite, 4) singlet oxygen, 5) superoxide anion, and 6) hypochlorite
- Provides 12+ Fruit- and Vegetable-Based Antioxidants and Nrf2 Activators to Offer Full Spectrum Protection
- Synergistic Formula Combines Effects of Endogenous (Internally Produced) Antioxidants, Exogenous (externally supplied) Antioxidants, and Vitamin C
- 100% non-GMO Ingredients (includes non-GMO Vitamin C)
- Contains calcium and magnesium malates supporting ATP & enzyme production
- Includes BioPerine ® a black pepper extract that significantly enhances the absorption of all of the nutrients in the formula
- Veggie Capsules (suitable for vegetarians and vegans)
Easy to Take. Just six small capsules daily provides optimal antioxidant protection.

Best in Class Cell Protection

ULTIMATE PROTECTOR+ INGREDIENTS

Ultimate Protector+ contains USP-grade non-GMO Vitamin C, SFB® standardized fruit blend (~50% polyphenols, high-ORAC powder: 9,000 µmole TE/g) from Grape, Cranberry, Pomegranate, Blueberry, Apple, Mangosteen, Bilberry, Chokeberry, and Goji Berry), Curcumin (standardized extract with 95% curcuminoids), Trans-Resveratrol (98% from Giant Knotweed), Green Tea Extract (93% polyphenols, 50% EGCG), VinCare® Whole Grape Extract (>80% polyphenols, ORAC>19,000 µmole TE/g), Calcium Malate, Magnesium Malate, and Bioperine® (a patented black pepper extract that enhances absorption of all ingredients and is a known Nrf2 activator).

Ultimate Protector+ is contained in a capsule suitable for vegetarians (i.e., a veggie cap) and contains no magnesium stearate.

ULTIMATE PROTECTOR+ RECAP

Ultimate Protector+ satisfies three distinct needs: 1) The need for a non-GMO Vitamin C product. That is, a Vitamin C formula that avoids genetically modified sources, 2) The need for a single powerful antioxidant formula. That is, a single, easy-to-take antioxidant formula offering a broad range of extremely high ORAC6.0 plant source #antioxidants, and 3) The need for a supplement providing a full spectrum of many of the most powerful Nrf2 activators. That is, a supplement providing a wide range of natural #Nrf2 transcription factor activators that allow the body to make its own antioxidant enzymes (e.g., superoxide dismutase (SOD), catalase, heme oxygenase, and glutathione peroxidase).

Ultimate Protector+ is an invaluable supplement for individuals requiring a high-quality, high-potency, and highly effective antioxidant...
supplement providing exceptionally well-rounded antioxidant protection against a broad range of free radicals. It has a unique triple action capacity to provide the nutrients required by the body for maximum free-radical defense, including plant-based Nrf2 activators that allow cells to produce their own antioxidants.

Providing nearly one million ORAC6.0 units is just one of the ways Ultimate Protector+ supports optimal health. Combining super antioxidant power with non-GMO vitamin C and Nrf2 activators makes Ultimate Protector+ an ideal choice for anyone seeking the highest levels of antioxidant protection.

**ULTIMATE PROTECTOR+ RESOURCES**

Ultimate Protector+

Ultimate Protector+

detailed product information)

**HPDI BLOG ARTICLES**

Amazing Healing Potential of Natural Nrf2 Activators

Ultimate Protector+ Design Considerations
http://www.integratedhealthblog.com/scientific-basis-ultimate-protector/

New Directions For Preventing Free-Radical Damage
http://www.integratedhealthblog.com/new-directions-for-preventing-free-radical-damage

Natural Phytochemical Nrf2 Activators for Chemoprevention
http://www.integratedhealthblog.com/natural-phytochemical-nrf2-activators-for-chemoprevention/

Ultimate Protector+ Brunswick Labs ORAC6.0 Test Report

Rejuvenation Program Part 4: Foundational Elements in the Master Rejuvenation Program

**VIDEOS**

Ultimate Protector+ Phenomenal Test Results! 986,000 ORAC6.0 units Versus Six Types of Free Radicals
(https://www.youtube.com/watch?v=klx1YSjCStk)

Dr. Hank Liers Deep Dive: Ultimate Protector+ (https://www.youtube.com/watch?v=TVLQir_0SyU)
Natural Phytochemical Nrf2 Activators for Chemoprevention

Posted on June 30, 2019 by Hank Liers, PhD

Dr. Hank Liers here considers mechanisms involved in the activation of transcription factor Nrf2. Nrf2 is encoded by the NFE2L2 gene. Nrf2 can induce expression of genes encoding for antioxidant enzymes. Thus, it contributes to regulation of oxidative stress.

Dr. Liers’ interest regards use of natural phytochemical Nrf2 activators for improving health. Also, see his post, “New Directions for Preventing Free-Radical Damage” (06.27.19).

INTRODUCTION
Nrf2 SIGNALING, FOODS, AND HEALTH
Despite progress in the early detection and treatment of cancer, overall mortality rates for most cancers of epithelial origin have not declined during the past three decades. Consequently, in recent years attention has been directed to cancer prevention.

Carcinogenesis can be viewed as a multistep process in which the genes controlling proliferation, differentiation, and apoptosis are transformed and altered under selective environmental pressures.

Tumor development involves three distinct, yet closely linked, phases: initiation, promotion, and progression. The initiation phase is a rapid and irreversible event that occurs when a normal cell is exposed to a carcinogenic event. Frequently, unrepairable or misrepaired DNA damage happens in the initiation phase.

Promotion and progression processes are relatively longer processes than the initiation stage, and are considered reversible. Using various animal cancer models, scientists found that all three cancer development stages can be intervened by treatment with natural (or synthetic) chemicals.

Epidemiological and population studies also establish a close relationship between incidence of cancer and consumption of certain types of food.

The term “chemoprevention” was first coined in 1976 by Michael Sporn, when he referred to prevention of malignancy development by vitamin A and its synthetic analogs. Since then, chemoprevention has been adopted as one of the major tactics to modulate the process of carcinogenesis. Many research studies have proven this strategy is effective in reducing the incidence of cancer in well-defined high-risk groups.

Chemoprevention is by definition the use of natural (or pharmacologic) agents to inhibit the development of invasive cancer. The chemicals with a cancer preventive activity are referred to as chemopreventive agents. A chemopreventive agent can inhibit carcinogenesis either by blocking the DNA damage at initiation stage or by arresting or reversing the processes at promotion and progression stages. Most of the chemical substances used in cancer chemoprevention studies are natural phytochemicals found in food.

On the basis of the inhibition stages, chemopreventive agents have been classified into two categories, namely blocking agents and suppressing agents. Blocking agents act by preventing carcinogens from reaching the target sites, from undergoing metabolic activation, or from subsequently interacting with crucial cellular macromolecules such as DNA, RNA, and proteins at initiation stages.

Suppressing agents, on the other hand, inhibit the malignant transformation of initiated cells at either the promotion or the progression stage. Some agents may work on all three stages of carcinogenesis, and are hence classified into both categories.

**DIETARY PHYTOCHEMICALS ARE NATURE'S CHEMOPREVENTIVE AGENTS**

Many different animal models and cancer cell lines have been used to evaluate the chemopreventive values of phytochemicals, and have led to the discovery of new classes of chemopreventive agents. These agents include isothiocyanates (such as sulforaphane) from cruciferous vegetables, polyphenols from green and black tea, curcuminoids (from turmeric root), stilbenes such as resveratrol (from giant knotweed plant), flavonoids such as quercetin, and anthocyanidins (from many fruits and soybeans).

Progress also has been made in understanding the mode of action of newly identified chemopreventive agents. Exposure to the chemopreventive agents produces certain level of reactive oxygen species (ROS) or electrophiles, and causes mild oxidative/electrophilic stresses in cells.
Such mild oxidative stresses are sufficient to initiate the signaling pathways that, in turn, can activate a variety of cellular events, such as induction of phase II detoxification enzymes and antioxidant enzymes, expression of tumor-suppressor genes, and inhibition of cell proliferation and angiogenesis.

In order to survive under a variety of environmental or intracellular stresses, our cells have developed highly efficient protective mechanisms to protect themselves from oxidative or electrophilic challenges. Proteins that comprise phase II detoxification and antioxidant enzymes provide an enzymatic line of defense against reactive oxygen species. These enzymes include superoxide dismutase (SOD), catalase, glutathione peroxidase, glutathione S-transferase (GST), and glutamate cysteine ligase.

Induction of phase II and antioxidant enzymes are regulated at the DNA/gene level by antioxidant responsive element (ARE). ARE-mediated gene expression plays a central role in the cellular defense against cellular oxidative damage.

Experimental evidence supports the view that induction of ARE-mediated cytoprotective enzymes is a critical and sufficient mechanism to enable protection against carcinogenesis provoked by environmental and endogenous insults.

One of the key ARE-binding transcription factors is Nrf2. Induction of cytoprotective enzymes in response to ROS, electrophiles, and chemopreventive agents is a cellular event that is highly dependent on Nrf2 protein.

**Nrf2 BOOSTS CELL DETOXIFICATION AND ANTIOXIDANT ENZYMES**

By activating Nrf2 signaling, chemopreventive agents can increase cellular detoxification and antioxidant enzymes, thereby enhancing removal of reactive carcinogens and blocking carcinogenesis. This hypothesis has been tested in many studies.

For example, a study with sulforaphane (an isothiocyanate present abundantly in cruciferous vegetables) has shown that oral administration of this phytochemical could effectively block benzo(a)pyrene-induced forestomach tumors in mice. This protective effect was abrogated in mice that could not produce Nrf2, supporting a critical role of phase II detoxification and antioxidant enzymes in the prevention of carcinogenesis by chemopreventive agents.

Nrf2 is normally bound in the cytoplasm of cells to a protein called KEAP1. However, when an appropriate phytochemical agent attaches to a kinase receptor on the cell wall a phosphate group is released that causes the Nrf2 to be released. The Nrf2 then migrates into the cell nucleus and causes an antioxidant enzyme, such as SOD, to be released. This endogenously produced enzyme then can protect against ROS, electrophiles, and chemopreventive agents.

In practice, it has been found that a combination of multiple polyphenols works significantly better than single ingredients at activating Nrf2. In fact, in one experiment it was found that a combination of five ingredients all known to be Nrf2 activators was 18 times more effective than any single ingredient. Furthermore, it was found that this combination of five ingredients increased levels of SOD by 30% and catalase by 56%.
ULTIMATE PROTECTOR+
A POWERFUL, NATURAL NRF2 ACTIVATION FORMULA FOR GREATER HEALTH

In view of the above information and the fact that new and more effective ingredients are available, we have updated our exceptional formula designed to maximize activation of Nrf2 in the body. This new product is ULTIMATE PROTECTOR+. It is among the most advanced, natural Nrf2 activator formula on the market today.

We include a broad range of Nrf2 activators in ULTIMATE PROTECTOR+. These activators source from a wide variety of freeze-dried and concentrated fruits, vegetables, and herbs. These include USP-grade non-GMO Vitamin C , SFB® standardized fruit blend (~50% polyphenols, high-ORAC powder: 9,000 μmole TE/g) from Grape, Cranberry, Pomegranate, Blueberry, Apple, Mangosteen, Bilberry, Chokeberry, and Goji Berry, Curcumin (standardized extract with 95% curcuminoids), Trans-Resveratrol (98% from Giant Knotweed), Green Tea Extract (90% polyphenols, 50% EGCG), and VinCare® Whole Grape Extract (>80% polyphenols, ORAC>19,000 μmole TE/g). In addition the product contains Calcium Malate and Magnesium Malate, that support ATP and enzyme product and Bioperine® (a patented black pepper extract that significantly enhances absorption of all ingredients and is a known Nrf2 activator).

Phytochemicals provided by the array of freeze-dried and concentrated fruits, vegetables, and herbs in the formula include: Polyphenols, Phenolic acids, Proanthocyanidins (OPCs), Anthocyanidins, Catechins, Glucosinolates, Zeaxanthin, Lutein, Lycopene, Beta Carotene, Chlorogenic acid, Ellagic acid, Quercetin, Quinic acid, Trans-Resveratrol, Ferulic acid, Punicalagins, Phloridzin, Polysaccharides, Xanthones and more.

In addition to these Nrf2 activators (above), ULTIMATE PROTECTOR+ contains an extremely broad array of plant based antioxidants from the same sources described above, as well as from non-GMO USP grade Vitamin C. All ingredients in this product have been used in chemoprevention protocols, as well as in protocols aimed at preventing free-radical damage in the body.

Ultimate Protector is now available on the HPDI website!

REFERENCES


“Signal transduction events elicited by cancer prevention compounds.” Mutat Res. 2001 Sep 1; 480–481: 231–41.


### ADDITIONAL RESOURCES

Ultimate Protector™

The Amazing Healing Potential of Natural Nrf2 Activators – by Dr. Hank Liers

Preventing Free-Radical Damage Using Ultimate Protector™ – by Dr. Hank Liers

New Directions for Preventing Free-Radical Damage – by Dr. Hank Liers

Ultimate Protector and the Role of Foundational Supplements for Health – by Fred Liers, PhD

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**ELECTROMAGNETIC FIELDS (EMF) AND NUTRITIONAL SUPPLEMENTS**

Posted on June 29, 2018 by Fred Liers, PhD

We live in a digital world enjoying convenient and limitless access to people, information, and the Internet of Things. What could be the downside? EMF for one.

What is EMF? EMF stands for “Electromagnetic Fields.” Electromagnetic fields encompass an entire spectrum of waves from extremely low frequencies (ELF) and visible light to ultra-high frequencies, such as cosmic rays (ionizing radiation).
What I refer to as “EMF” is the non-ionizing radiation to which we are exposed from cell phones and cell-phone towers, Wi-Fi, cellular data, Bluetooth, smart meters, computers, solar panel inverters, AC-to-DC transformers, power lines, and signals from other digital devices.

Is EMF harmful? Yes, there is a large body of scientific evidence showing EMF can be extremely harmful. Plenty of evidence has existed for decades. Do a search on PubMed. The harms of EMF are not publicized to consumers, especially by companies profiting from the digital and wireless revolutions.

The problem: every year there are more cell phone towers, Wi-Fi networks, “Smart” meters, and solar panel inverters. Soon California will mandate all new homes must have solar power, which means more EMF. Beyond this, there are millions of 5G antennas coming to your region, as part of the most powerful wireless network ever built.

Most health care professionals don’t know much about EMF and the importance of reducing exposure. However, there are a growing number of physicians who understand the dangers of EMF. They can make suggestions for lowering EMF exposure and may also refer you to EMF mitigation experts.

There are four types of EMF building biologists generally test for in homes: 1) Radiofrequency fields (RF), 2) magnetic fields, 3) electric fields, and 4) electromagnetic interference (EMI) or “dirty electricity.” All four types can cause health issues, so it is important to measure and isolate them so you can take action to reduce each type of field, respectively.

I tested my house and office for all four types of EMF—and found all four of them at high levels. I have since mitigated them to safer levels. I continue to find ways to reduce EMF and my exposures to them.

Ways that various types of EMF cause damage to biological systems:

- **DNA Damage** – Radiofrequency (RF) radiation induces both single- and double-stranded DNA breaks in human and animal cells. When DNA breaks are not properly repaired, the long-term damage results in adverse health effects.

- **Voltage Gated Calcium Channels (VGCC)** – EMF opens VGCCs causing cells to be flooded with calcium. This excess calcium disrupts multiple pathways, leading to various negative effects, including increased oxidative stress, disrupted nerve cell communication, and heart-related problems.

- **Blood Brain Barrier** – EMF can open the blood-brain barrier causing toxins or other harmful substances to enter the brain, and for the brain to leak” substances it requires, such as nutrients or neurotransmitters.

- **Melatonin Hormone Reduction** – EMF suppresses the production of melatonin, which is the antioxidant hormone responsible for repairing the body during sleep. When the body does not properly repair itself at night, problems can arise from immune-related conditions to premature aging.

- **Microbiome Disruption** – Just as all cells—including those in our body, are electrical, the organisms in our microbiome are electrical, too. There is evidence to show that our microbiome is harmed by EMF.

These are some of the ways that EMF can harm health. When you add them together, you begin to get a picture showing that EMF can cause significant harm to biological systems. Many scientists have suggested how EMF can contribute to almost any health condition from autism to Alzheimer’s disease.
Certain people, myself included, can immediately feel the effects of EMF exposure. Immediate or short-term effects can vary from fatigue, low-energy, and mental fogginess to head and body pains, and ringing in the ears (tinnitus). Terms used to describe the state of being sensitive to EMF are “Electromagnetic Sensitivity” and “Electromagnetic Hypersensitivity” (EHS).

Persons who suffer from EHS may range from 2% to 7% of the population or higher. Yet, whether or not you are “EHS” or feel effects from EMF exposure, science shows your body remains subject to adverse effects, including oxidative damage. That is, just because you do not feel it, does not mean it is not harmful.

Note: there is evidence that certain frequencies of EMF can support health. These often fall into the category of PEMF or “pulsed electromagnetic fields.” Another example: the Schumann resonances (7.82 Hz – 33.8 Hz), which are natural electromagnetic resonances created by lightning discharges from the ionosphere and the surface of the earth. The Schumann resonances are natural earth frequencies to which humans and all life has been exposed for millions of years.

**MY EMF STORY**

In my case, I never really noticed any problems until I had a solar panel power system installed on my roof—on two different homes, one in 2014 and the other in 2017. In both cases, I was exposed for relatively long periods at short distances to smart meters and solar inverters, as well as solar-related Wi-Fi equipment.

Shortly after the first installation, I noticed fatigue, inability to concentrate, and pressure in my head. I did not initially make the connection between how I was feeling and the solar installation, which included a DC to AC inverter and two smart meters. I tried to keep my analog electric meter, but the solar company told me only digital smart meters are compatible with the solar power system.

My symptoms improved when I moved my desk away from the wall on whose opposite side the solar equipment was located. Shortly thereafter, we moved to a different home in our metropolitan area. A few years later, we had solar panels installed on our new house. I hoped to avoid symptoms similar to what I had experienced previously. No such luck.

After the second solar installation in 2017, I again experienced fatigue, inability to concentrate, as well as pain in my head. I moved my desk and unplugged the solar company’s dedicated Wi-Fi unit that measures solar power generation. I felt better. But over a period of months I developed increasing low-tone tinnitus (ringing in the ears). At first it sounded like a small plane or a truck engine in the distance. The noise grew louder. Then it rumbled night and day. I realized it wasn’t an engine when I discovered the noise was significantly louder in my right ear. Alarmed, I began the process of eliminating possible causes. I finally eliminated all causes—except for EMF.

I read every book I could find about EMF. I read dozens of books, watched videos on the topic, and spoke to EMF experts. During this period my son chose to research EMF for science fair project. His initial idea was to build something for me (like a tinfoil helmet) to reduce my exposure. That idea evolved into measuring the EMF levels emitted by all electronics in our house.

My son’s science project would go on to regionals in our state. Yet for me, the most important thing was how it contributed to our understanding of EMF. It was a launch pad driving us deeper into research, and led to the implementation of many EMF mitigation strategies. Our entire family benefited from it.
It took months, but what we learned helped us take actions to mitigate EMF exposure. My tinnitus began fading and then diminished significantly so that it is not a daily issue for me. This was empowering for me because I took positive actions that made a difference in my health. The process continues because EMF is not going away. I remain vigilant. Yet, I hope my experience can help you reduce your EMF exposure, or avoid developing EMF sensitivity.

I still use cell phones and other digital devices. But I use them less and in much smarter ways. Ways that reduce my EMF exposure. Due to my research and experience with EMF, my awareness of its dangers is such that my thinking on the topic is forever changed. I can never take
EMF safety for granted. That is a good thing.

**EMF FROM SMART METERS, CELL PHONES, SOLAR INVERTERS, ETC.**

Smart meters and DC-to-AC solar inverters can produce high levels of electromagnetic interference (EMI), which is one form of EMF. For more information on EMI, read Samuel Milham’s *Dirty Electricity* (see resources section below). After reading that book, I considered the possibility that EMI could be contributing to my problems with EMF.

I learned that any device (like an inverter) that converts DC power (say from solar panels) into AC power (home outlets) can add unwanted forms of electricity into the AC power. Clean (60 Hz) electricity becomes polluted by electromagnetic interference. The higher the levels of this EMI or “dirty” electricity, the greater the amount of health effects.

I obtained a broadband EMI meter from Greenwave to measure dirty electricity in my home. I measured EMI levels with the solar system running at midday. Recommended EMI levels are 25–50 millivolts. Yet, every outlet in the house measured almost 2,000 millivolts (1,986 millivolts to be precise!).

I shut off the solar inverter (disabling it and two smart meters) to measure baseline dirty electricity. EMI levels dropped to less than 200 millivolts! This meant one thing: components of our solar system causing high levels (1700+ millivolts) of dirty electricity.

My first solution was to purchase multiple plug-in Greenwave EMI filters. I installed them in about 25 outlets throughout my home. They reduced EMI significantly, but they did not reduce it much in the outlets nearest to area that houses the breaker box, solar inverter, and smart meters. A few outlets away from that area exhibited stubbornly high EMI (1,500+ millivolts).

After further research, I called Satic USA. Satic is a solar company that understands that EMI can affect people. They have products designed to condition an electrical system to remove dirty electricity. I purchased a line conditioner (Super Duty Power Perfect Box) from Satic specifically created to clean EMI from photovoltaic (PV) solar systems.

Note: Satic describes its line conditioners primarily as energy saving devices and protectors of electrical equipment. Clean power is more efficient. Yet, clean, conditioned AC power means reduced EMI. Thus, there is a human health component built-in, if you will.

The Power Perfect Box was installed by an electrician near our breaker box. This line conditioner (containing two harmonic rectifiers) removed many unwanted harmonics and transients induced into our homes’ electrical system by the solar inverter and smart meters.
Above all, I felt better. I could focus better. I slept better. So did everyone else in the house. And my tinnitus began to diminish.

Satic USA’s “Power Perfect Box” is a line conditioner that directly connects to the breaker box where it “cleans” your AC power using two harmonic rectifiers.

I highly recommend obtaining a Power Perfect Box if you have a smart meter, solar power inverter, or dirty electricity (EMI) coming from your utility. Measure baseline dirty electricity in AC outlets using a broadband EMI meter (like Greenwave) after turning off your solar inverter and smart meters.

Satic makes several types of Power Perfect Box. Which one you need depends on how many harmonic rectifiers your electrical system requires. They also make smaller, lower-cost in-line and plug-in EMF Eliminator devices, which act as high-capacity EMI filters. These provide less protection than a Power Perfect Box, but more than a Greenwave filter. Satic will recommend products based on your unique needs. If you contact Satic to order, speak to Alden, mention my name, and he may offer you a discount.

At Satic’s recommendation, I kept the plug-in Greenwave filters in power outlets throughout my home. Between the line conditioner and the Greenwave filters, EMI now ranges from 15 millivolts to 300 millivolts in most outlets during the day. It is lowest (10–50 millivolts) at night when the solar system is not running.

Note: Many homes only require Greenwave plug-in filters because EMI (dirty electricity) levels are already low to moderate (100–300 millivolts), as measured by a Greenwave meter. However, a residence or office with a typical solar panel installation peaks at about 2,000 millivolts. Thus, a solar-powered home, office, or school may require a dedicated line conditioner to reduce EMI below reductions obtained by plug-in filters.

Multiple Greenwave filters plugged into AC outlets can further reduce EMI. The combination of a line conditioner (like Satic USA’s Power Perfect Box) and plug-in Greenwave filters works well to bring EMI down to safer levels.
Another EMF issue arose. It seems my exposure to EMF from the home solar system prior to mitigation had led to a general sensitivity to EMF from other sources. That is, even though I had reduced my exposure to fields relating to the solar panel system and its parts (smart meters, solar inverter, solar-related Wi-Fi equipment), I had nevertheless become more sensitive to EMF from cell phones, cellular phone data, Wi-Fi, Bluetooth, vehicle electronics, and other sources.

This sensitivity meant that mitigating dirty electricity (EMI) and reducing the tinnitus, while helpful, would not be sufficient to stop my suffering related to other EMF sources. It would take effort to identify the sources, and then remove or mitigate them.

**EMF METERS**

Meters are your best friend when it comes to measuring EMF. About the same time I found the Greenwave EMI meter—EMI is just one type of EMF—I obtained three or four meters designed to measure other types of electromagnetic fields.

Some of my favorite meters are the Acoustimeter AM-10 (from EMFields), the Trifield 100XE (from Alpha Labs), and the ME3030B (from Gigahertz Solutions). Each meter can provide different insights into how much EMF exposure you receive from various sources.
I began the process of measuring every type of device from iPads to cell phone chargers. I carried meters with me everywhere I went. During his science fair project, I helped my son measure and document readings from EMF sources at multiple distances. This data would be invaluable for my own mitigation efforts.

Overall, EMF levels were far greater than I expected, and from a wider variety of sources not just mobile phones or Wi-Fi routers. For example, wireless toys and cordless phones can be among the worst offenders in the RF frequencies. Even indoor hydroponic systems can generate high levels of dirty electricity.
The TriField Meter 100XE is cost-effective.

Using my meters to obtain accurate measurements, I began reducing my exposure to all sources of EMF. The more I reduced EMF exposures, the better I felt. I noticed—and continue to notice—improvements in focus, mental energy, and overall well being.

**EMF MITIGATION SOLUTIONS**

If my EMF problems are a challenge to solve, then at least there are some upsides. My research has led me to solutions that allow me to heal and avoid symptoms. I am empowered to act upon my knowledge, and to share it.

In many ways, my experience has been a blessing. I am now aware of EMF dangers. While I would not wish anyone to have my experience, I hope that sharing my experience can help even a few people to avoid adverse health effects of EMF.

Here are some actions you can take that have helped me. I recommend you take these actions whether or not you feel symptoms or believe you are not affected by EMF.

- Create a wired Internet network in the home. Computers, laptops, and HDTVs can run on hardwired Ethernet connections. Smart phones and tablets can be hardwired using Ethernet adaptor cords. Use Wi-fi routers infrequently (minimize use), or not at all. Keep routers as far away from living areas as possible.
- Keep smart phones in airplane mode whenever possible. Minimize use of cell phones for calls. Use Air tube headsets and speaker phones whenever possible to provide distance from the device.
- Use an anti-radiation mobile phone case (like SafeSleeve). Avoid using mobile phones in a vehicles like cars and buses (as vehicles act as Faraday cages in which signals just bounce around). Keep away from phone or tablet when downloading data. Turn off Wi-Fi and cellular data on the phone most of the time.
- Never keep mobile phones in pockets or close to the body. Turn phone off or use airplane mode if phone must be kept in proximity to the body.
- Turn off electronics (phones, routers, Bluetooth devices) at night. Keep cell phones and other electronics out of your bedroom. Put your router on timer switch to shut off automatically at 9 or 10 pm.
- Use a landline phone. Yes, landline phone service still exists in most places.
• Obtain a good general EMF meter or two, such as a Trifield, Acoustimer, Cornet, or ME3030B (Gigahertz Solutions). Test your house and your devices.

• Test for electromagnetic interference (EMI) in household outlets using a EMI meter. Install a line conditioner and/or EMI filters (to reduce “dirty electricity”). You can obtain EMI meters and filters from Greenwave or Stetzer.

• Shield smart meters using “radiant barrier” anti-radiation materials, like Satic Shield (from Satic USA) or Reflectix (available at Home Depot). Place shielding on the interior wall opposite the meter. There are also metal meter cages for blocking fields coming from the face and sides of smart meter.

• Consider an in-line conditioner for your electrical system, especially if you have a smart meter or solar panels—or measure significant amounts (300+ millivolts) of dirty electricity on your wiring. I am pleased with Satic USA’s line conditioner (Power Perfect Box) that attaches to my electrical breaker box. If you contact Satic to order a line conditioner, ask to speak to Alden. Mention my name, and he may give you a discount.

• Keep a Faraday bag available for times when you want to block all signals to or from your smart phone or other devices. They are available for less than $20.

The more simple actions I take to reduce EMF, the better I feel. The list of actions I take to reduce EMF exposure grows weekly, it seems. Most of my symptoms have gone away. However, I have no desire to risk them coming back. Whenever possible, I avoid other people using cell phones, reduce time spent in places with Wi-Fi routers, smart meters, cell phone towers, etc.

I have become more sensitive than some of my meters (at least sometimes), so I feel that I am nearly a kind of meter myself in terms detecting the presence and magnitude of electromagnetic fields. Even so, I am often surprised by high EMF readings using my meters. Takeaway: Relying solely on yourself (no matter how sensitive you think you are), is not the best idea.

The most important thing you can do is to obtain a good EMF meter. Measure around your house, your devices, and appliances. Unless you actually have a meter, you will not likely optimize EMF reduction—because you can’t see EMFs. If cost is an issue, certain online stores let you rent EMF meters. Get started today!

**BEST SUPPLEMENTS FOR EMF**

The first lines of defense against EMF should be increasing distance from EMF sources, and reducing duration of exposure. These make a huge difference for protecting health.

One cannot control all sources of exposure. Neighbors have routers, smart meters, antennas, and other sources of EMF generating electronic pollution (“electrosmog”). Wi-Fi is nearly everywhere these days.

A huge component in EMF defense is nutritional supplements. Why? Because levels of EMF to which we are commonly exposed result in oxidative stress requiring high levels of antioxidants to quench free radicals. Fortunately, HPDI produces some of the best nutritional supplements available for dealing with EMF.

I already had a good diet and took plenty of high-quality nutritional supplements when my problems with EMF started. What I began doing differently was 1) taking generally higher doses of antioxidants and 2) targeting my antioxidant defense systems with specific antioxidant supplements.

By focusing on meeting my higher needs for antioxidants, and by adding specific supplements known for their antioxidant capabilities, I believe I mitigate the worst adverse effects of EMF. Antioxidant supplements noticeably support my ability to function as normally as possible given both my past experiences with EMF, and the ongoing daily needs for antioxidant defense.

I will describe the supplements I believe are most important to take for EMF exposure. I take all these supplements. I include every one of these supplements because each offers a unique benefit. Together they are the most essential formulas to help both with routine, daily exposures to EMF (like Wi-Fi and cell phones), as well as other types of exposures, such as proximity to potent EMF sources from smart meters to cell phone towers.

**ANTIOXIDANT & VITAMIN C FORMULAS**

The primary type of damage caused by EMF is oxidative stress, the most important type of nutritional supplements to help with free-radical damage are antioxidant formulas, including vitamin C and Nrf2 activator supplements. HPDI offers a complete range of antioxidant and Nrf2 activator products.

**PRO-C™ ANTIOXIDANT FORMULA**

PRO-C™ is an advanced free-radical protection formula. It performs double-duty as both a potent vitamin C formula and an superb antioxidant
PRO-C™ contains 500 mg (833% RDA) of buffered non-GMO Vitamin C (in the form of powdered calcium, magnesium, and zinc ascorbates), as well as high-potency Grape Extract (from grape seeds, skins, and pulp), green tea extract, reduced glutathione, n-acetyl-l-cysteine (NAC), r-lipoic acid, coenzyme forms of Vitamin B2 and Vitamin B6, and selenium. Many of these ingredients are powerful Nrf2 activators.

- HIGHLY EFFECTIVE VITAMIN C FORMULA PLUS ANTIOXIDANTS. A Complete Vitamin C Formula and a Powerful Antioxidant Formula Combined in a Single Supplement!
- POWERFUL, NRF2 ACTIVATOR. PRO-C Components of Grape Extract, Green Tea Extract, R-Lipoic Acid, and NAC are all well known Nrf2 activators. These Nrf2 activators are able to stimulate the body’s endogenous production of enzymes such as superoxidedismutase, glutathione peroxidase, catalase, and hemeoxygenase.
- RAPID ASSIMILATION. Vegetarian Capsule Form Ensures Rapid Uptake and Assimilation in the Body. You May Also Empty Capsule Contents into Water, Food, or Directly Into Your Mouth, If Desired. Mildly Tart Taste!

If I were to take just one antioxidant/vitamin C formula, PRO-C™ would be it. However, I also take another antioxidant formula called Ultimate Protector+. I believe the combination of the two superb formulas works even better for EMF exposure. That’s partly because Ultimate Protector+ activates Nrf2 in cells allowing them to generate their own antioxidants.

ULTIMATE PROTECTOR+ is a next-generation cell protection formula providing Nrf2 protective enzyme activators, high levels of non-GMO Vitamin C, and a full spectrum of exceptionally high potency antioxidants (with a tested ORAC6.0™ value greater than 986,000 (per six capsules).

ULTIMATE PROTECTOR+ supplies nutrients that provide anti-aging, anti-inflammatory, and pain relieving effects, as well as ultra-high levels of antioxidant protection. Damage to cells caused by free-radicals contributes to many degenerative health conditions and to the aging process. This formula effectively supports the body in combating adverse effects of free-radicals.
ULTIMATE PROTECTOR+ BENEFITS

- Anti-aging
- Anti-inflammatory
- Pain relief
- Acts to support the body in the prevention of cardiovascular conditions, hypertension, and support strong immunity.
- Ultra powerful free radical defense. Helps prevent and mitigate free radical damage that contributes to conditions of poor health.
- Facilitates the body’s internal production of antioxidant enzymes within cells by supplying natural NRF2 transcription factor activators
- Ultra effective, high potency, best-in-class antioxidant protection

ULTIMATE PROTECTOR+ FEATURES

- Plant Based Nrf2 Activators Potentiate the Body’s Internal Antioxidant Systems
- Ultra-High Antioxidant Potency with a tested ORAC6.0™ value of 968,000+ (per six capsules)!
- Complete Formula Defends Body Against All Six Major Classes of Free Radicals. Provides Plant-Based Antioxidants and Nrf2 Activators to Offer Full Spectrum Protection.
- Synergistic Formula Combines Effects of Endogenous (Internally Produced) Antioxidants, Exogenous (externally supplied) Antioxidants, and Vitamin C
- 100% non-GMO Ingredients (includes non-GMO Vitamin C)
- Veggie Capsules (suitable for vegetarians and vegans)
- Easy to Take—Six Capsules Daily Provides Optimal Antioxidant Protection

ULTIMATE PROTECTOR+ contains USP-grade non-GMO Vitamin C, SFB® standardized fruit blend (~50% polyphenols, high-ORAC powder: 9,000 µmole TE/g) from Grape, Cranberry, Pomegranate, Blueberry, Apple, Mangosteen, Bilberry, Chokeberry, and Goji Berry), Curcumin (standardized extract with 95% curcuminoids), Trans-Resveratrol (98% from Giant Knotweed), Green Tea Extract (93% polyphenols, 50% EGCG), VinCare® Whole Grape Extract (>80% polyphenols, ORAC>19,000 µmole TE/g), Calcium Malate, Magnesium Malate, and Bioperine® (a patented black pepper extract that enhances absorption of all ingredients and is a known Nrf2 activator).

By taking Ultimate Protector+ along with PRO-C™ as my primary antioxidant defense formulas, I maximize my EMF protection by allowing their benefits to function synergistically for greater effect.

OTHER FOUNDATIONAL FORMULAS

I emphasize the importance of antioxidant formulas because they are most effective at quenching the free-radicals caused by exposure to electromagnetic fields. In reality, HPDI’s antioxidant and vitamin C formulas are part of a complete system of HPDI supplements. This three-tiered system includes foundational supplements, enhancement formulas, and condition-specific formulas.

While antioxidant supplements are most important EMF defense, the truth is that antioxidant supplements work far better when they are properly combined with other foundational supplements in the HPDI system. That is, a high-potency multivitamin, essential fatty acids, and a Rejuvenate!™ superfood.

The case for multivitamins is abundantly clear. If you look at the list of harmful effects of EMF (above), you will see that in addition to free-
radical damage, EMF harms many essential biological functions in cells. Many of these functions cause cells to require additional vitamins and minerals. These nutrients can be provided by a high-potency multivitamin that provides both optimal amounts (versus minimal amounts) of nutrients, but also proper forms (like coenzyme vitamins) that are most readily assimilated and used by the body. Such forms are immediately used and do not require conversion to usable forms.

**MULTIVITAMINS: HIGH-PO TENCY, HIGH-PURITY**

**HPDI Multivitamins** include five different formulas, including a children’s chewable that scales up easily for adults. Two of the primary multivitamins are Multi Two Caps and Mighty Multi-Vite (caps).

**Multi Two Caps** – A comprehensive multivitamin providing optimal levels of key vitamins, minerals, and cofactors. Includes higher levels of B vitamins.

**Mighty-Multi-Vite!** – Similar to Multi Two Caps, but offers higher levels of key phytonutrients turmeric, grape extract, and broccoli sprouts powder.

HPDI’s high-potency multivitamins provide:

- **B-Complex vitamins**: B-Complex vitamins support enzyme systems. Enzymes are required for all metabolic functions in the body. B vitamins are cofactors required for every enzymatic reaction.

- **Minerals**: HPDI multivitamins provide 10 or more key minerals. Like B vitamins, minerals support enzyme systems. At the center is every enzyme an important mineral necessary for its function.

- **NAC (N-Acetyl-Cysteine)**: NAC increases glutathione levels, which are important antioxidant defense in the body.

- **Fat-soluble vitamins A, C, D, E, and K**: Fat soluble vitamins perform many essential functions, including protection of cell membranes.

**HPDI MULTIVITAMINS FEATURES**

- **COMPLETE, BALANCED CORE NUTRITION.** Full-Spectrum of Nutrients Exceptionally Balanced for Supporting Your Health.
Foundational Formula Ideal for Providing Essential Foundational Nutrition. A high-quality multivitamin is the foundation (i.e., core) for a complete nutritional supplement program.

- **RAPID AND EFFECTIVE ASSIMILATION.** Incorporates Bioavailable Vitamin and Mineral Carriers Your Body Recognizes and Can Assimilate Immediately. Plus, Multiple Carriers Ensure Assimilation. Tablet or Capsule Forms Rapidly Assimilated!
- **ENERGIZING:** Includes Coenzyme Form Vitamins and Krebs Cycle Bionutrients that work with your body to create high energy levels. Full-Spectrum Essential Nutrients Needed For Building, Supporting, and Maintaining Excellent Health.
- **HIGH PURITY.** Among the Purest Available Multivitamin supplements. Carefully Designed To Exclude Common Allergens, and Exclude or Minimize Excipients, Additives, and Fillers.

If I could only take a single supplement daily, it would be a multivitamin. I personally prefer HPDI's Mighty Multi-Vite! But Multi Two actually provides higher levels of important B vitamins.

Multivitamins are too vital not to take daily. Fortunately, you are not limited to taking a single supplement. That is why I put antioxidant and vitamin C formulas at the top of the list for protection against EMF. The truth is, however, that both a multivitamin and antioxidants are essential for foundational nutrition. You need both to ensure optimal protection from EMF. There are a few more critical nutrients you need, as well.

**ESSENTIAL FATTY ACIDS (EFA)**

Another important foundational supplement is essential fatty acids (EFA). Essential fats are critical for cellular function, cell membrane health, combating inflammatory processes, and overall health. Essential fats are necessary for cellular health. Yet, because EMF creates problems at the cellular level, it is even more vital to obtain essential fats to help cells function at their best.

People overlook the importance of essential fats. That is, I notice that multivitamins and antioxidants are far more likely to be prioritized, and therefore taken daily. Fair enough, because I prioritize those supplements too. Yet, we neglect essential fats at our peril. That is why I take EFAs daily, too.

**IMPORTANT FUNCTIONS OF ESSENTIAL FATTY ACIDS (EFA)**

- Regulate steroid production and hormone synthesis
- Regulate pressure in the eyes, joints, and blood vessels
- Regulate response to pain, inflammation, and swelling
- Mediate Immune Response
- Regulate bodily secretions and their viscosity
- Dilate or constrict blood vessels
- Regulate smooth muscle and autonomic reflexes
- Are primary constituents of cellular membranes
- Regulate the rate at which cells divide
- Necessary for the transport of oxygen from the red blood cells to tissues
- Necessary for proper kidney function and fluid balance
- Prevent red blood cells from clumping together
- Regulate nerve transmission

When by diet or supplementation, you consume the correct ratios and amounts of essential fatty acids, then you allow the EFAs to act in ways critical for these functions. For more detailed information, see Dr. Hank’s article, “The Truth About Essential Fatty Acids” (December 2017).

HPDI’s essential fatty acids formula is Essential Fats Plus E. Essential Fats Plus E provides essential fats in the proper amounts and ratios for good health.
Essential Fats Plus E contains eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) (important essential omega-3 fatty acids), gamma linolenic acid (GLA) (an important essential omega-6 fatty acid), and mixed tocotrienols and tocopherols (Vitamin E).

The EPA and DHA are in the form of triglycerides derived from marine lipids (using patented flash molecular distillation) and the GLA is from cold-pressed borage seed oil. The mixed tocotrienols and tocopherols derive from rice bran oil, and are included in the softgel capsules for antioxidant protection of the polyunsaturated oils.

Omega-3 and omega-6 fatty acids are known to play important roles in the formation of prostaglandins. The prostaglandins are important cellular regulators controlling inflammatory processes and pain in the body.

Fish oils may be useful adjuncts in protocols for 1) Cardiovascular disease, 2) Hypertension, 3) Arthritis and inflammatory disorders, 4) Psoriasis and skin problems, 5) Diabetes mellitus, 6) Depression, and 7) Kidney disease. GLA may be a useful adjunct in protocols for 1) Multiple Sclerosis and 2) Arthritis. Research indicates that in a balanced formula there are synergistic effects between EPA, DHA, and GLA. For example, it is known that EPA inhibits the conversion of GLA into pro-inflammatory (and pain-causing) arachidonic acid.

Research indicates that in a balanced formula there are synergistic effects between EPA, DHA, and GLA. For example, it is known that EPA inhibits the conversion of GLA into pro-inflammatory (and pain-causing) arachidonic acid.
Because these fatty acids have many double bonds that are prone to oxidation, Vitamin E is included in the forms of mixed tocotrienols and tocopherols. In addition, these forms of Vitamin E have been shown to reduce arterial plaques and enhance blood flow, inhibit thromboxane and platelet aggregation, protect serum lipids from oxidation (including LDL and HDL), reduce carotid stenosis (narrowing) and prevent stroke, trap harmful nitrogenous radicals, act as anti-proliferative agents, and provide powerful oxidative defense for the skin.

Essential fatty acids are considered “essential” for all the reasons described. They are so critical for proper cellular function that not having sufficient essential fats (or the proper ratios) can impair important processes in the body. I believe EMF exposure puts additional stress on cells such that essential fats are even more necessary. So take an EFA supplement like Essential Fats Plus E every day.

HYDROGEN SUPPLEMENTS

Hydrogen supplements can be very helpful for preventing or mitigating oxidative damage by EMF. I have recently written about two hydrogen formulas that support antioxidant defenses: Megahydrate and Active H2 Ultra. (See “Hydrogen Supplements – Active H2 Ultra and Megahydrate”)

MegaHydrate

Megahydrate (powder and capsules) provides H-, or the hydrogen anion, which provides lasting antioxidant protection. It is highly effective at quenching free radical (even better than molecular hydrogen), greatly enhances the production of ATP (cellular energy) in the body, retains its antioxidant capacity for extended periods, and is the key unlocking the potential of water as the medium for nutrient replenishment and waste removal at the cellular level.

The active ingredient in Megahydrate is silica hydride. One very important characteristic of the antioxidant capacity of silica hydride is that it is the only antioxidant that does not turn into a free radical (i.e., oxidant) once it has neutralized a free radical by donating its electron. Negatively-charged hydrogen turns into molecular hydrogen gas and/or turns into water.

One daily dose of Megahydrate has more antioxidant power than hundreds of glasses of fresh vegetable and fruit juices, broccoli, brussel sprouts, leafy greens, and other foods rich in antioxidants and prevents free radical damage.

Studies show that Megahydrate increases energy production (adenosine triphosphate or ATP) by up to four times.
BENEFITS OF MEGAHYDRATE

- Contains Hydrating Silica Microclusters®
- Extremely Powerful Antioxidant
- Recycles other Key Antioxidants in the Body
- Extremely Safe and Non-Toxic
- Easily Accesses All Cells in the body
- Increases Cellular ATP Production by up to a factor of 4 times
- Readily Converts NAD+ to NADH
- Reduces Pain & Inflammation
- Exhibits Powerful Anti-Aging Properties
- Protects and Repairs DNA
- Neutralizes Harmful Toxins like Fluoride, Chlorine, etc.
- Protects Against and Repairs Radiation Damage
- Increases Absorption of other Supplements
- Lowers surface tension of water you drink leading to improved detoxification
- Removes Heavy Metals from the Body
- Balances pH or Alkalizes the body
- Increases Zeta Potential of Human Cells
- Increases Cellular Hydration
- Very Stable – Works Over Extensive Time Periods
- Reduces Lactic Acid Buildup During Intense Workouts
- Protects Telomeres by allowing cells to exceed the Hayflick limit by 4–5 times

I drink Megahydrate daily in water. I find it very energizing and it seems to potentiate the other antioxidant supplements. Usually I drink it mixed with Active H2 Ultra, which provides molecular hydrogen. But sometimes I drink Megahydrate all by itself, as it is an excellent standalone hydrogen formula.

ACTIVE H2 ULTRA

ACTIVE H2® ULTRA is my favorite molecular hydrogen formula. In fact, I almost always add this tablet into water that is already infused with Megahydrate. That is, I believe this formula works best when taken together with Megahydrate. I like this combination “fizzy” drink so much, I created a video showing how to make it.

Active H2 Ultra tablets provides abundant hydrogen molecules that are uniquely found in fresh, raw, living foods and are essential to any serious antioxidation program.

A unique and patent pending combination of magnesium and supporting nutrients are the only active substances in Active H2 Ultra. This distinguishes it from the existing synthetic chemical formulas as well as the use of electrolysis (as in water ionizers) to generate molecular hydrogen.

The natural, proven Active H2 Ultra formula consists of a proprietary blend of pure magnesium metal, malic acid, tartaric acid, stearic acid, and dextrose that act synergistically in water to generate Molecular Hydrogen and electron-rich potential (-ORP).
BENEFITS OF ACTIVE H2 ULTRA

- Unsurpassed antioxidizing effects indicated by strong negative-ORP
- Scavenging of cytotoxic oxygen radicals and highly reactive hydroxyl radicals
- Reduction of oxidative stress and inflammation
- Regulation of various gene expressions and protein-phosphorylations
- A synergistic complement to other cellular antioxidants like vitamin C, vitamin E, and glutathione
- Enhanced endurance in daily activity and strenuous exercise
- Clinically proven to reduce lactic acid levels during strenuous workouts
- Reduced water cluster size for improved cellular hydration

ACTIVE H2 ULTRA FEATURES

- -700 mV ORP in 1 liter of pure water
- Increases cellular hydration
- Regular use heightens physical and mental energy
- Supports mitochondrial ATP (energy) production
- Alkalizing minerals (magnesium)
- Quickly and cleanly dissolves in less than 1 minute – no waiting around for dissolution.
- You can drink as soon as the tablet dissolves – thereby getting greater amount of hydrogen than in tablets that take longer to dissolve.

Hydrogen is emerging among the top super-nutrition discoveries of the 21st century. I am not waiting to gain its benefits. Just as many athletes are using it to gain a competitive advantage, I take Active H2 Ultra and Megahydrate for their effective antioxidant benefits and much more, including EMF protection. And so should you.

RESTORE

RESTORE is one of those products that go beyond anything else I’ve seen in terms of what is can do and how it does it. In fact, I recently published an article devoted solely to Restore (see “Restore Gut Health Formula + Video”).

The reason I include RESTORE in my list of top formulas for EMF exposure is because it protects the integrity of the gut barrier or tight junctions, supports the communications system in the gut microbiome, and acts as a fertilizer for the microbiome itself. These are important effects because EMF breaks down tight junctions, interferes with microbiome communications (as gut bacteria use their own weak EMF signals to communicate), and reduces microbiome health.
RESTORE is a soil-derived, scientifically backed mineral supplement that creates a firewall against toxins entering the gut wall. RESTORE helps create a biological environment for “good” gut bacteria to grow and flourish in order to support improvement of overall health.

RESTORE is not a probiotic. It is not a prebiotic. Rather, it is a carbon rich, alkaline liquid, with lignite derived trace organics and essential trace amino acids, that promotes an optimal environment in the gut. With 70% of the immune system located in the gut, this optimal gut environment leads to great gut health.

Research has shown RESTORE to be non-toxic and to support the tight junction cells of the gut lining. Additionally, RESTORE has been shown both in the laboratory and clinically to help support the functioning of the gut barrier and improve gut health. In experiments, toxins like herbicides and gluten have been shown to degrade the gut barrier. RESTORE has been shown to promote the strengthening of the tight junction gut barrier in small and large gut membrane cells for gut health.

One of the main elements in RESTORE is the lignite extract. Lignite comes from decomposed prehistoric matter. As plants decompose, they first form peat, which then turns into humate, then lignite, then leonardite and finally to coal. All of these are rich in carbon. One of the differences between all of these elements is the amount of time and pressure have been applied to them.

OTHER IMPORTANT SUPPLEMENTS MITIGATING EMF EFFECTS

My list of favorite supplements for EMF could be much longer. I will mention two other types of supplements I think can be useful for most people. One is magnesium and the other is C-60 (or Carbon-60).

MAGNESIUM

Magnesium is critical for supporting and enabling at least 400 enzymes in the body that are needed for the vital reactions in cells. EMF can damage or impair enzyme function. Therefore sufficient magnesium is essential for optimal cell function. One known problem is that most people are deficient in magnesium. When enzyme systems lack magnesium, they fail to properly function, resulting in many problems in the body, including lower energy production (ATP) and deficient metabolism.

Magnesium also balances calcium in cells. When EMF causes voltage gated calcium channels (VGCC) to open flooding cells with calcium, the presence of magnesium may help because one of the functions of magnesium is preventing cellular calcium imbalances. Not to mention the role of magnesium in energy production—as energy is required to pump excess calcium out of cells.

One of my favorite magnesium products is MYO-MAG. MYO-MAG is an advanced, synergistic magnesium formula that provides therapeutic levels of magnesium, plus nutrients that support the body’s utilization of magnesium.

MYO-MAG provides magnesium in the form of malate and diglycinate, as well as Vitamins B1, B2, and B6 (including coenzyme forms of these vitamins). The formula is buffered with a small amount of magnesium carbonate, and includes some manganese for mineral balance.

MYO-MAG therefore is a highly effective oral magnesium supplement with benefits that include less fatigue and greater energy, improved metabolic functions, cardiovascular support, nutrition for muscles, reduced spasms or cramps, help for migraine headaches, and many others. The formula not only supports metabolism, but also cellular energy production (ATP) and optimal cellular function. It allows for rapid uptake and absorption of easily assimilated forms of magnesium. It also provides critical nutrients supporting energy production in the body.
Because MYO-MAG rapidly boosts magnesium levels, individuals usually notice greater physical and mental energy, reduced fatigue, and often a greater sense of overall well being.

MYO-MAG contains ingredients participating in the production of ATP. One vegetarian capsule contains 100 mg of magnesium and 440 mg of l-malic acid. Vitamins B1 and B2 are included both in standard and phosphorylated forms. Also included are Vitamin B6 in its phosphorylated form only, manganese (because high levels of magnesium can deplete the body of it), magnesium carbonate (a malic acid buffer), and glycine as the carrier for a portion of the magnesium and for the manganese. MYO-MAG is contained in a vegetarian capsule to ensure rapid assimilation.

Supplementing the diet with magnesium and malic acid may reverse conditions of low energy. Suggested daily amounts include 300-600 mg of magnesium and 1200–2400 mg of malic acid. Taking 3 to 8 MYO-MAG capsules daily can provide these amounts. Beyond this formula, HPDI offers a complete range of magnesium formulas, including Ancient Minerals topical magnesium chloride products (oil, flakes, and gel).

CARBON-60
Carbon-60 or C-60 is an experimental supplement providing extremely high antioxidant capacities. Carbon-60 provides research grade Carbon-60 Fullerenes (0.8 mg/ml) in organic olive oil. While this formula is formulated for research, it is known to be among the most powerful antioxidants available. The structure of the Fullerene allows for a large number of electrons to be held and repeatedly donated for the purpose of quenching free radicals. It therefore offers unrivaled antioxidant capacity in the body.

I will be talking a lot more about Carbon-60 in coming months. Suffice it to say that the research is showing that C-60 may be the future of antioxidant nutrition.

CONCLUSION
Few people have paid much attention to the dangers of EMF until recently. There is growing awareness that EMF contributes to health problems, as well as the mechanisms by which EMF damages the body. Given the rise in health conditions likely to be related to EMF exposure, it makes sense to take action now, rather than unnecessarily risking harmful effects of exposures.

There are many actions you take to protect yourself and your family. These include turning off Wi-Fi, putting cell phones on airplane mode, shielding smart meters (or keeping your analog meters), increasing distance from EMF sources, and reducing duration of exposure.
Taking nutritional supplements providing good levels of antioxidant nutrients and supporting metabolic functions makes a lot of sense, too. Supplements have helped me be healthier and recover faster from EMF exposures. They likely can help you and yours do the same. EMF damages your cells daily. Take action to protect yourself!

**RESOURCES**

**Blog Articles**

HYDROGEN SUPPLEMENTS – ACTIVE H2 ULTRA AND MEGAHYDRATE

HYDROGEN SUPPLEMENTS – MAKE HYDROGEN DRINKS

RESTORE GUT HEALTH FORMULA + VIDEO

THE TRUTH ABOUT ESSENTIAL FATTY ACIDS

**Products**

Foundational Supplements

HPDI antioxidant & vitamin C formulas

PRO-C™

Ultimate Protector+ Antioxidant & Nrf2 Activator formula

HPDI Multivitamins

Multi Two

Mighty Multi-Vite!

Essential Fats Plus E

Hydrogen Supplements

Megahydrate

Active H2 Ultra

Gut Health Formulas

Restore

Myo-Mag (magnesium)

Ancient Minerals topical magnesium

Carbon-60

**EMF Mitigation Tools**

Greenwave Filters

(reduce electromagnetic interference on AC home wiring)

**Scientific Articles, Books, and Video**


Blank, Martin, PhD. Overpowered: What Science Tells Us About the Dangers of Cell Phones and Other Wi-Fi Age Devices. New York: Seven
Supplemental hydrogen is fast becoming essential in many people’s nutritional supplement regimens. Why? Because hydrogen offers significant health benefits, including excellent antioxidant protection, increased energy, faster recovery, and improved well-being. Who doesn’t want those benefits?
My favorite way to take hydrogen is to make hydrogen-infused water, or what I call a hydrogen “fizzy” drink. Two products I like best are Active H2 Ultra tablets and Megahydrate (available in powder and capsules). Active H2 Ultra provides molecular hydrogen (H2) and Megahydrate provides hydride (H-). Both are great standalone formulas, yet work well together as each provides unique means to quench free radicals effectively.

MAKE “FIZZY” HYDROGEN-INFUSED WATER WITH ACTIVE H2 ULTRA

Drinking H2-rich water is an easy and effective method for obtaining hydrogen, according to the Molecular Hydrogen Foundation. Making hydrogen-infused water is simple and convenient, as you can drink it at home or while traveling. Effective hydrogen products HPDI carries include Active H2 Ultra tablets, Megahydrate powder, and Megahydrate capsules.

My favorite hydrogen drink contains both Active H2 Ultra and Megahydrate. I take these products separately at times, but find it easier to take them together—and gain the benefits of both immediately.

**INGREDIENTS – HYDROGEN-INFUSED WATER**

- 1 Scoop Megahydrate powder (500 mg) or 1 Megahydrate capsule (600 mg)
- 1 Tablet of Active H2 Ultra
- 8–16 Ounces of Purified Water

**DIRECTIONS:** Put one scoop of Megahydrate powder (or open one capsule) into your container of water. Let sit for about 30–60 seconds. Drop in one Active H2 Ultra tablet. Allow it to effervesce for one minute or until fully dissolved. Drink immediately. For best assimilation,
preferably take on an empty stomach at least 10–15 minutes before food. Wait one hour after eating to drink hydrogen-infused water.

**Note:** Do not wait long after effervesce stops to drink the water because hydrogen will escape into the air. Alternatively you can cap the container with a lid, and this will allow the hydrogen to last a while longer.

Molecular hydrogen is sufficiently small to pass through glass, so use a metal container if you plan to cap it. If you drink immediately, then the type container you use won’t matter. I personally prefer a glass mason jar. This allows me to see the tablet dissolve, but also means drinking it immediately.

I make 1–3 hydrogen fizzy drinks daily, first in the morning and then in the afternoon, but almost never in the evening as it can be energizing. I drink hydrogen water on an empty stomach. I gain a significant energy boost, but also other benefits, including improved athletic performance, faster recovery from exercise, and an overall greater sense of well-being.

I highly recommend you try hydrogen supplements for yourself, and then consider them for your clients or patients. Our experience is that most people are pleasantly surprised by the results they get from hydrogen supplements, especially if they have a need for exceptional free-radical defense, or stand to benefit from the proven effects of hydrogen (see list below).

You will want to continue taking hydrogen supplements regularly because the benefits are so significant, especially over time. Let the power of hydrogen starting working for you.

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**Active H2 Ultra** is a fast-effervescing tablet.

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**MOLECULAR HYDROGEN BACKGROUND**

More than 1,000 scientific studies indicate molecular hydrogen offers therapeutic potential in 170 disease models, and every organ of the body, according to the Molecular Hydrogen Institute.

Hydrogen is an antioxidant. It is also an extremely small molecule that can penetrate even the tiniest cellular compartments. This helps explain how hydrogen works to offer free-radical defense throughout the entire body.

The medical and scientific literature is clear. Hydrogen’s modes of action:

- $H_2$ reduces oxidative stress as a selective antioxidant and by maintaining homeostatic levels of glutathione, superoxide dismutase, catalase, etc.

- $H_2$, like other gaseous signaling molecules (i.e. NO, CO, $H_2S$), appears to have cell signal-modulating activity affording it with anti-inflammatory, anti-obesity, and anti-allergy benefits.

We include hydrogen supplements in HPDI’s system of Foundational Supplements. In fact, hydrogen formulas as just one of six foundational supplements. We consider hydrogen a “secondary” foundational supplement usually to be added to a supplement regimen after the four primary ones: multivitamins, antioxidant & vitamin C formulas, essential fatty acids, and superfoods high in dietary nucleic acids (i.e., Rejuvenate! superfoods).
The scientific literature discusses the use of molecular hydrogen for many clinical applications, including:

- **Metabolic Syndrome** including diabetes, hyperlipidemia, arteriosclerosis, hypertension, and obesity
- **Ischemia/reperfusion injuries**, including cerebral and myocardial infarctions, organ transplants, post-cardiac arrest
- **Neuroprotection**, including applications for dementia, Parkinson's disease, depression, and anesthesia
- **Inflammation**, including applications for polymicrobial sepsis, rheumatoid arthritis, wound healing, and bowel diseases
- **Mitochondrial diseases**
- **Hemodialysis and ventilation**
- **Aging**, including cognitive decline
- **Exercise**, including applications for fatigue, lactic acid, recovery, and oxidative stress related to heavy exercise
- **Side effects of cancer therapies**, including radiotherapy and chemotherapy
- **Many other benefits**

(Source: Molecular Hydrogen Foundation)

**HOW HYDROGEN WORKS**

According to the Molecular Hydrogen Foundation, there are three ways molecular hydrogen exerts positive health effects:

1. Molecular hydrogen easily diffuses into subcellular compartments where it scavenges **cytotoxic oxygen radicals**, thereby protecting DNA, RNA, and proteins against oxidative stress.

2. Molecular hydrogen triggers activation or upregulation of additional antioxidant enzymes (e.g., glutathione, superoxide dismutase, catalase, and others) and/or cytoprotective proteins of the body.

3. Molecular hydrogen may be a novel signaling molecule that alters cell signaling, cell metabolism, and gene expression. This may explain its apparent anti-inflammatory, anti-allergic, and anti-apoptotic (or anti-cell death) effects.

Notably, two of these three mechanisms of action involve antioxidant activity. Hydrogen is one of the best antioxidants for all the reasons discussed, and we believe it acts synergistically with other antioxidants, including **Vitamin C**, glutathione, and Nrf2 activators (like those in HPDI's **Ultimate Protector**).

**MEGAHYDRATE MAKES MOLECULAR HYDROGEN BETTER**

Why add **Megahydrate** to your hydrogen-infused water? Because Megahydrate provides hydride, the negative anion of hydrogen, or H-. Thus, a tiny scoop of Megahydrate provides vast quantities of electrons available to quench free radicals. Unlike molecular hydrogen, which dissipates quickly into the air, and therefore must be consumed immediately, hydride rich water (about -700 ORP!) may last for three weeks in an active state. That is a good reason to take Megahydrate by itself whether or not you already use it with molecular hydrogen in your hydrogen “fizzy” drink (see recipe above).
Megahydrate (powder or capsule) provides hydride (H-) for free radical defense.

The interesting thing about H- is that after it gives up its electron, it becomes simply “H” or atomic hydrogen. It then looks to pair up with another “H” to become H2, which is molecular hydrogen. In this way, Megahydrate not only gives you large quantities of stable H- and potent antioxidant capabilities, but also then creates molecular hydrogen in your body. This means it becomes a different kind of antioxidant, H2, which is therapeutic in itself.

By adding Megahydrate to your hydrogen-infused water (as described above), you create a unique “double whammy” drink in which you maximize the powers of hydrogen (H2 and H-) to create and maintain good health.

Note: Megahydrate powder is more cost effective than Megahydrate capsules, which must be opened into the fizzy drink. However, Megahydrate capsules are convenient for traveling and are easy to take by themselves. I keep both available, so I can use either one depending on my daily needs.
Drinking H2-rich water is an easy, effective method for obtaining hydrogen according to the Molecular Hydrogen Foundation. Drinking hydrogen-infused water is convenient as you can drink it at home or while traveling. Effective hydrogen products HPDI carries include Active H2 Ultra tablets, Megahydrate capsules, and Megahydrate powder.

As noted, I make 1–3 hydrogen drinks daily using Megahydrate and Active H2 Ultra. I drink them on an empty stomach. I enjoy a significant energy boost, which helps power me through my day. I gain other benefits, including improved athletic performance, noticeably faster recovery from exercise, and an overall greater sense of well-being.

The nice thing about hydrogen supplements is how flexibly you can use them. While I typically prefer to make hydrogen-infused “fizzy” drinks in water, I will often sip Megahydrate-infused water by itself during the day or even in the evening (as it is less energizing than molecular hydrogen).

Megahydrate does not immediately lose its potency in water, so it can be casually sipped. Also, if you’re traveling or on-the-go, you can simply swallow a Megahydrate capsule by itself. Finally, you can carry Active H2 Ultra tablets with you wherever you go, and add them to water whenever convenient for you.

Megahydrate and Active H2 Ultra creates an ultra-healthy hydrogen fizzy drink.

TRY HYDROGEN!
Try hydrogen supplements for yourself. Then consider recommending them to client, patients, friends, and family. Most people welcome the results from hydrogen. This is especially true if they need exceptional free-radical defense — and who doesn’t? We can all stand to benefit from the proven health benefits hydrogen uniquely provides.

After you try hydrogen, you will want to continue taking it. Hydrogen-infused “fizzy” water can become your go-to drink. Remember, hydrogen works best when taken consistently and daily!

HYDROGEN RESOURCES

Hydrogen Articles

Hydrogen Supplements – Make Hydrogen Drinks

Hydrogen for Optimal Health

Wonders of Molecular Hydrogen

Molecular Hydrogen (H2) at the Forefront of Health Research

The Science Behind MegaHydrate by Hank Liers, PhD

Hydrogen Supplements

Active H2 Ultra tablets

Megahydrate capsules

Megahydrate powder

HPDI hydrogen products

Other Hydrogen Resources

Molecular Hydrogen Foundation
| Month       | Year       | Month       | Year       | Month       | Year       | Month       | Year       | Month       | Year       | Month       | Year       | Month       | Year       | Month       | Year       | Month       | Year       |
|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
Malic Acid + Magnesium, supplied by Douglas Laboratories®, provides a professional formula of 500 mg of malic acid, 200 mg magnesium hydroxide, 30 mg
Vitamin C and 10 mg of lemon bioflavonoids in an easy to swallow tablet. Suggested Usage: View Label Additional Information: Product Data Sheet. *Note:
The above files are in pdf format. MYO-MAG is a synergistic magnesium and malic acid formula designed to assist the body in the production of energy (ATP). The formula includes important coenzyme B vitamins (B1, B2, B6) and manganese. Proper energy (ATP) production is critical for supporting all bodily processes. MYO-MAG supports metabolism and cellular function. It allows for rapid uptake and absorption of easily assimilated forms of magnesium (Mg malate, Mg diglycinate, Mg carbonate). Magnesium offers significant benefits to the body and is critical for the functions of more than 800 enzymes. It also supports many organ system process. Oral Magnesium (MYO-MAG) can result in less fatigue, improved metabolic functions, cardiovascular support, nutrition for muscles, and reduced spasms. As it turned out, the magnesium and malic acid product Joanne took was not properly buffered and contained no B vitamins, which are critical to the body's metabolic processes that make ATP. I therefore formulated MYO-MAG, which provides oral magnesium in the form of malate and diglycinate, as well as Vitamins B1, B2, and B6 (including coenzyme forms of these vitamins). MYO-MAG is buffered with a small amount of magnesium carbonate, and included some manganese for mineral balance. Myo-mag magnesium & malic acid – energizing formula. Mighty multi-vite! Multivitamin – update.