

Bodybuilding vitamins & supplements...an introduction

By Soren W. Hartmann



Vitamins & supplements:

In this day and age of overworking, irregular and unhealthy eating and little sleep, our diet often lacks certain nutrients.

If one would select a healthy and balanced daily diet, most of our requirements would be covered. Our diet, however, often is not balanced and healthy.

Supplements may be added to our diet to meet the daily requirements of important substances needed by the body. Supplements are increasing in popularity and sales are rising. All kinds of supplements are available, varying from multivitamins to products stimulating the burning of fat.

Supplements for people engaging in weightlifting can be subdivided into two categories:

1. Basic supplements and
2. Supplements **boosting performance and health.**

A basic supplement can be taken throughout the year and normally consists of one or other essential substance such as a vitamin, a mineral or a type of fat. These substances are required for the proper functioning of the human body. They are involved in important and less important processes throughout our bodies.

These essential substances cannot be produced by the body itself and therefore have to be extracted from our food. However, you will understand that they are often lacking in our food. It is therefore recommended to take at least one multivitamin every day, 1 to 3 grams of vitamin C and a tablespoon of Omega-3 fatty acid (as contained in flax oil for instance). These supplements will almost entirely meet your body's requirement of these essential elements.

Supplements boosting performance and health are those which make your diet more complete. A good example is protein powder made of milk, whey, soy or albumen (egg white). Such powders contain a complete selection of amino acids. These amino acids are important for recovery processes and muscle growth. Our regular diet normally contains sufficient amino acids for the maintenance of the body. Nevertheless it is recommended sporting men and women to supplement their daily diet with extra high-grade proteins.

Protein powders are very easy to use, they taste good and meet your increased protein requirement. If you want your exercises to stimulate muscle growth, take 3 to 5 protein-shakes every day.

Human Growth Hormone: HGH



HGH: Human Growth Hormone

Human Growth Hormone was first discovered in 1956 and its structure was identified in 1972. It was extracted from cadavers, sold at very high prices, and injected with needles into the body. In mid-1998 the 191 chain HGH molecule was genetically engineered in the laboratory. This is available to us now through a costly doctor's pharmaceutical prescription, and secondly at a reasonable price through a homeopathic oral spray. The third therapy alternative would be Secretagogues and Stacked Amino products. The idea here is to coax your own body, by stimulating the Pituitary Gland, to produce more of its own HGH.

So the consumer has these three choices: HGH spray, shots, or pills. With all three choices the goal is the same: to raise the measurable IGF-1 level. To discover which protocol is right for you we offer a short discussion below on all three therapies. It should be noted that the Federal Drug Administration does not allow any nutritional product (HGH pills) to claim that it can "cure" any disease. The FDA does approve Pharmaceutical drugs and Homeopathic preparations to claim they can cure a particular disease and the testing to achieve this status is quite rigorous as we all know. A doctor is permitted to prescribe Human Growth Hormone to a patient for anti-aging even though it's only approved by the FDA as a cure for dwarfism. The Pharmaceutical manufacturer is not permitted to suggest its use as an anti-aging therapy, only as a treatment for dwarfism, and one company ended up paying substantial fines and penalties for doing just that.

The large majority of Homeopathic remedies do, with FDA approval, claim to cure various ailments. Homeopathic HGH is one of only a handful of preparations that claims to "cure" nothing. 21st Century HGH is manufactured at an FDA monitored and approved laboratory. The curious difference between pharmaceutical HGH (HGH prescription shots) and homeopathic HGH is that even though the former injects huge amounts of the actual hormone, compared to only a miniscule amount in the homeopathic preparation (human growth hormone oral spray), the rejuvenation levels are remarkably similar!

Human Growth Hormone Pills:

Being very conservative the idea of stimulating my own body's production of HGH through nutritional supplements sounded the most "natural" to me. However, the authoritative Physician's Desk Reference Manual rates different forms of absorption by the body and yields eye-opening information. It says that when you swallow a pill, less

than 10% of the nutrient actually gets into the blood stream. The other 90% is processed by the gastrointestinal tract as waste.

Oral absorption through the mucosa (the lining of the mouth) is the preferred choice of medical experts because the body absorbs 90% of the nutrient into the bloodstream. That's a huge difference. What was not a big difference to us, but was still very interesting, was that oral absorption (90%) was higher than intra-muscular injection (80%).

So, piling a bunch of substances into my body in the form of stacked amino acids and secretagogues, most of which would actually pass through me, just to coax my Pituitary Gland into a little bit of action didn't seem like a plan to me. Also, after a few months the Pituitary gland says, "no mass," and refuses to get stimulated into action no matter what the supplemental dosage. Additionally, I was scared away by reports that taking stacked amino "growth hormone pills" can raise cortisol levels in your body, which is extremely unhealthy. So the choice then came down to actually putting the hormone into my body by way of shots or via oral sprays.

Human Growth Hormone Shots:

Almost all the HGH sites will tell you that the cost for HGH shots ranges between \$10,000 and \$20,000 per year. It doesn't. You can easily find it available for around \$3,000 per year and even lower if you go through Mexican pharmaceuticals. Needles today are very safe and generally painless. But sticking myself twice a day, twenty days per month, didn't seem like a routine a healthy person should be doing, no matter how quick and easy it is. Call me squeamish if you like, I don't care. This might suit some people, and if it does, you can consider going for it. Not me. Those taking HGH injections should be aware that a few problems have been reported with "high" or "over" dosages, so anyone using this protocol would be wise to be clinically monitored on a regular basis by a physician.

HGH Spray:

So the HGH spray option was the one I chose, especially considering the fact that I didn't know if the product would deliver what retailers were claiming. It seemed to be the most benign, risk free, gentle therapy that produced excellent results, and was reasonably priced between \$500 and \$1250 per year. The amounts of herbal and nutritional contents listed on a product label can be most misleading. What's important is not the nutritional content listed on the label, but rather how much of that nutrient is actually absorbed into the cells of the body.

Sprays provide excellent absorption when micro-sized beads or droplets of a nutrient are taken into the body through the tissue lining of the mouth or nose. Blood capillaries are extremely close to the surface in these areas and readily absorb HGH into the bloodstream. The flow of absorbed nutrients from this area of the mouth is to the Carotid Artery, then to the brain, and then on to the heart within 22 to 30 seconds. Within minutes, it is totally dispersed throughout the body.

As far as which spray is the best, it's my belief that if and when independent clinical trials are made of all the spray products they will all basically be close in effectiveness. They all contain the same amounts of Somatotrophin. Some add a little bit of this, some add a little bit of that. I chose the one I thought was most homoeopathically prepared because I knew more care would have been taken in its manufacturing and it would probably be more gentle on my system.

The Human Growth Hormone market is beset by some overzealous marketers who sometimes make claims that are somewhat misleading, especially in the area of HGH human growth hormone clinical studies. I've read through many entire websites which make claims, based on pharmaceutical HGH, that imply the same results will occur with their nutritional product. They are just "fast talking" their clientele. Learn as much as you can about Human Growth Hormone and make your own decision about which way you want to go. No matter what age you begin taking the product, you'll enjoy the results.

Michael Harvey is a retired professional athlete who has been in the nutritional industry since 1995. The most informative website on HGH Human Growth Hormone can be found at <http://www.21stcenturyhgh.com>

Article Source: <http://EzineArticles.com>

Omega 3 fatty acids fish oil and muscle building



Omega 3 fatty acids fatty acids, fish oil and muscle growth

It is important to know more about **omega 3 fats and supplements**. Contrary to what most people think, fats are very important and are essential for various body processes. The most important function of fat is the production of energy. Vitamins A, D, E and K can only be dissolved in fat.

Fats may be of animal or vegetable origin. It is important to make a simple distinction between 'good' and 'bad' fats.

Saturated fats are of the kind found in products such as meat and dairy products. Your body uses them almost exclusively for the production of energy. If you eat too many of these every day, they may start clogging up your veins causing physical discomfort and other problems.

Unsaturated fats are usually found in products of vegetable origin. Examples are: sunflower oil, olive oil and nuts.

Fatty acids are used by the body to form cell-membranes, to support the central nervous system, to produce a number of important hormones and for many other essential body processes.

In addition, the body also uses them to produce energy after the most important functions of these fatty acids have been fulfilled.

Your body is capable of producing many kinds of fats by itself, except for **the omega-6 and omega-3 types**. These fats should preferably be contained in your diet. These fats are sometimes also referred to as 'essential' fats. Unfortunately these fats do not form part of most people's daily dietary intake.

A few practical ways to ensure you consume these fats:

- take half a tablespoon of flaxseed oil every day (for instance on salads) or mixed in with your protein shake
- whenever possible, use sunflower oil or olive oil
- every now and then eat a handful of walnuts, almonds or sunflower-seeds
- eat biological peanut butter on rough wholemeal bread
- eat fatty fish such as salmon, trout or mackerel regularly
- eat turkey and beef regularly and drink a lot of milk.

If you follow one or more of these suggestions, your training-results and general health will improve considerably. If you take care of implementing the above items in your daily food scheme, you are well on your way improving your training results and general health!

Therefore add a table spoon of flaxseed oil daily to ensure you get enough of the healthy omega-6 and omega-3 fatty acids and to experience the benefits.

Ginkgo Biloba as sex booster



Does Ginkgo Biloba work?

Yes it does. Ginkgo preparations contain 5 anti oxidants which are anti aging and not to be found elsewhere: Ginkgoloids. Thanks to those oxidants the Ginkgo Biloba trees are able to go for over 2000 years.

Ginkgo preparations are made of these ginkgoloids for 6%. And the leaves contain about 0,1 %. These anti-oxidants do work. How exactly they work we don't know. But they are very effective.

Research done with just one ginkgoloid are all disappointing. Also cocktails of about 3 of them seem to disappoint. Apparently they are only effective all 5 together. Ginkgo also contains Vitamin C, sugars, phenols, terpenes and a lot of flavonoids.

Researchers have made heart attacks happen with animal subjects. When administered Ginkgo in advance the infarct caused less damage and the subjects recovered more quickly.

Through this effect Ginkgo could possibly slow down the aging of brain tissue. A lot of research is being done on Ginkgo and Alzheimer.

What good is Ginkgo biloba?

Ginkgo is an anti oxidant with a broad spectrum of effective protection in the body. If you are taxing your body by lifting weights or using dangerous ergogenic substances it is probably worth a try.

(CLA) Conjugated Linoleic Acid



CLA (conjugated linoleic acid) has been shown to be highly effective supplement to aid in weight loss and the conversion of fat to lean muscle mass in animal studies and is used extensively by body builders and weight loss professionals.

For once the supplement industry seems to be right. CLA reduces fat and promotes muscle growth. It does so even with people who are not athletic to begin with shown by a Norwegian research publication on over weight subjects.

The researchers did administer different doses of CLA for a period of 12 weeks. The subjects trained in the gym of the research institute. Before, during and after the 12 weeks researchers measured muscle mass and fat percentage of the people involved.

Dose/day	Effect fat loss	Effect muscle mass
Placebo	+ 1,6 kilo	geen
1,7 gram	- 1,2 kilo	+ 0,9 kilo
3,4 gram	- 1,8 kilo	+ 0,4 kilo
5,1 gram	- 0,4 kilo	+ 0,5 kilo

CLA supplementation was also shown to improve the lean mass to body fat ratio, decreasing fat deposition, especially on the abdomen, and enhancing muscle growth. After evaluation it was clear that the subjects felt better when they were administered CLA.

Bron Blankson H, Stakkestad JA, Fagertun H, Thom E, Wadstein J, Gudmundsen O. Conjugated linoleic acid reduces body fat mass in overweight and obese humans. In: Journal of Nutrition, December 2000, 130(12), blz. 2943-2948.

Compared to the previous generations, **Americans are deficient in CLA, because changes in cattle-feeding practices have decreased CLA content in meat and milk.** For optimal CLA production, cows need to graze on grass rather than be artificially fattened in feed lots.

The meat of grass-fed cows contains up to four times as much CLA. Today's dairy products have only about one third of the CLA content they used to have before 1960.

Current research findings about CLA.

CLA reduces body fat in mice by up to 88%

CLA improves insulin sensitivity

CLA inhibits the growth of prostate cancer while linoleic acid promotes it

CLA supplementation helps prevent the initiation, promotion and metastasis of breast cancer

Immune-enhancing effects of CLA

Anti-Atherogenic effects of CLA

CLA lowers cholesterol and triglycerides, helps keep arteries clean

Possible anti-osteoporosis effects of CLA

More muscle less fat through CLA administration

CLA doesn't help with people on a diet trying to lose weight. It does however help people with building muscle mass and does seem to block the growth of fat cells. That is what researcher told at a meeting of the American Chemical Society.

According to researchers from the University of Wisconsin people using CLA gained twice as much muscle than people using none.

Above was concluded after a study with 80 obese people under a training regime and a diet with low fat. One half were given a placebo and the other half of the group was given CLA.

Both groups lost an equal amount of weight. About 2-3 kilograms.

The difference between groups was found that the placebo group gained 75% fat and 25% muscle. The CLA group gained in a ratio of 50-50.

The study backed up different studies conducted in the last 10 years on CLA. According to those studies CLA has anabolic, muscle building properties and improves the effectiveness of the hormone insulin.

This research was conducted by the supplement industry.

Conjugated Linolic Acid is found in animal fats like cheese, milk products and meat. Doping guru's are claiming this is the reason that builders and lifters progress the most while on a diet with mostly animal sources for protein. In supplements the usual dose is about 500 to 1000 milligram per capsule.

Critics are still not convinced about the use of CLA. With animal studies there are promising results but with human studies the results are moderate. As CLA becomes more available at lower pricing it is cost effective now to try and see what CLA could mean for the individual.

Coenzyme Q10



Coenzyme Q10 has exploded onto the health scene. This powerful mineral has many health saving properties. It is responsible for essential chemical reactions in your body as well as being a dynamite antioxidant.

What's more, Coenzyme Q10 or CoQ10 occurs naturally in your body, (and that's good), but unfortunately, as you age, have nutritional deficiencies or get sick you are producing less of this essential mineral.

And check this out...studies show that an estimated 25% deficiency will cause serious metabolic health problems. At 75%, death will follow and that would mean no more birthday cake for you!

CoQ10 plays a key role in the production of adenosine triphosphate (ATP) needed for energy production in every cell. It also has a powerful antioxidant that helps guard against damage from free radicals.

And that is just for starters, cardiologist Peter Langsjorn explains "Like the vitamins discovered in the early part of this century, CoQ10 is an essential element of food that can now be used medically."

It gets even better...

Here are just a few of the health benefits:

Weight Loss - stimulates your body's metabolism

Healthy Gums - suppresses gingival inflammation

Male Fertility - improves sperm mobility and protects free radical injury

Cardiovascular - improvement of symptoms in cardiac and congestive heart failure patients

Immune System - significantly enhances function

In various other studies CoQ10 was a tremendous benefit in lowering high blood pressure and helped with angina and congestive heart failure.

So you may be asking yourself, "Wow, where do I find this stuff??" well, good news and bad news. A small amount, 10 to 20 milligrams of CoQ10, can be found in fish and organ

meats of animals. Well...that slowed me down a little! I don't like organ meats of animals, do you? Yuck! Here is another solution. An easily available source of this nutrient is in many high quality nutritional systems.

Safe scientific formulated blends of vitamins and minerals including CoQ10 are specially formulated for maximum absorption. For adults taking Coenzyme Q10 in a supplement, the optimal amount should be between 30 and 90 mg per day. Under a doctor's care, higher amounts may be prescribed.

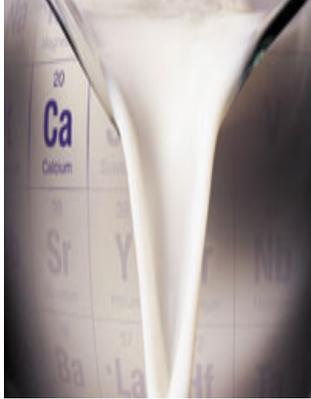
Regardless of age or health almost everybody would benefit from taking CoQ10 daily. Our health and quality of life are based on feeling good and having healthy energy supplies.

And really people... this is so much better for your energy levels than a cigarette and a diet soda!

Brennan Howe is owner of the free hair loss information site
<http://www.keepingyourhair.com> Find out how good nutrition will help your hair loss.

Article Source: <http://EzineArticles.com>

Casein and whey proteins have anabolic properties



Research results transform whey powder from a by-product of cheese making to a highly functional and nutritious co-product

Among those few family-operated cheese making plants still in existence, stories occasionally circulate on how grandma drank a glass of whey a day to stay strong and healthy. Her energy level and physical well-being provided testimonial to the benefits of whey.

Through the years, whey's negative disposition as a sub-component or by-product of cheese making overwhelmed its positive attributes, making it virtually impossible for whey-drinking grandmas to convince their offspring to drink this wonder food.

Researchers today are grandmas in disguise. Through extensive clinical trials and advanced technologies, scientists are isolating components in whey and associating specific fractions with beneficial functions in the body. Whey is quickly becoming the value-added food of the 21st century, something grandma knew all along.

"Whey's potential has hardly been tapped," says Joe O'Donnell, exec. Dir. of the California Dairy Research Foundation. "The dairy industry needs to take the lead in designing practical research that produces scientifically sound and promotable results." The fact is that about 50% of the original nutrients in milk remain in whey during cheese making. These components, when efficiently and precisely separated, have application as value-added ingredients in other foods.

It was not that long ago when whey disposal was considered a financial burden. Now it's a profit center. Researchers are exploring these components and their benefits. No whey component has been left unturned.

Proteins reduce blood pressure

At the recent Institute of Food Technologists annual meeting, leading whey protein isolate producer Davisco Foods International Inc., Le Sueur, Minn., shared with attendees results from a study correlating whey protein consumption with reducing blood pressure in rats. The company hopes these effects hold true in humans.

In making the announcement, Marty Davis, g.m. of Davisco's whey protein operations, said that hypertension has been reported to be one of the most important factors leading to heart attacks in industrialized countries.

"Nearly 30% of fatalities among adults are the result of hypertension or its renal, coronary or neurological complications," Davis explained. "In the United States, more than 50 million adults suffer from hypertension. Based on the rat study results, we have begun further studies on humans using (the company's) highly purified form of hydrolyzed whey protein isolate."

The ingredient is currently commercially available and has application in nutritional beverages, dairy and non-dairy based products.

Lactoferrin controls pathogens

Lactoferrin, a non-heme iron-binding glycoprotein, has recently been shown to assist in controlling pathogenic micro-organisms like Haemophilus influenza. Researchers at Tufts

University School of Medicine, Boston, observed human and bovine lactoferrin to be proteolytic and capable of cleaving and removing specific proteins from the outer membrane of H. influenza, a Gram-negative pathogen that causes upper respiratory infections in children. Removal of membrane proteins and subsequent removal of virulence factors without killing the micro-organism may attenuate the pathogen, assisting in the control of respiratory disease.

In conclusion, "We know whey as a food ingredient can and does deliver calcium, vitamin D and protein," says O'Donnell. "What the industry should do now is take a closer look at how whey as a food ingredient can contribute to nutrient activity and help the body take care of itself."

"Creatine: More than a sports nutrition supplement"



Although creatine offers an array of benefits, most people think of it simply as a supplement that bodybuilders and other athletes use to gain strength and muscle mass. Nothing could be further from the truth.

A substantial body of research has found that creatine may have a wide variety of uses. In fact, creatine is being studied as a supplement that may help with diseases affecting the neuromuscular system, such as muscular dystrophy (MD).

Recent studies suggest creatine may have therapeutic applications in aging populations for wasting syndromes, muscle atrophy, fatigue, gyrate atrophy, Parkinson's disease, Huntington's disease and other brain pathologies. Several studies have shown creatine can reduce cholesterol by up to 15% and it has been used to correct certain inborn errors of metabolism, such as in people born without the enzyme(s) responsible for making creatine. Some studies have found that creatine may increase growth hormone production.

What is Creatine?

Creatine is formed in the human body from the amino acids methionine, glycine and arginine. The average person's body contains approximately 120 grams of creatine stored as creatine phosphate. Certain foods such as beef, herring and salmon, are fairly high in creatine. However, a person would have to eat pounds of these foods daily to equal what can be obtained in one teaspoon of powdered creatine.

Creatine is directly related to adenosine triphosphate (ATP). ATP is formed in the powerhouses of the cell, the mitochondria. ATP is often referred to as the "universal energy molecule" used by every cell in our bodies. An increase in oxidative stress coupled with a cell's inability to produce essential energy molecules such as ATP, is a hallmark of the aging cell and is found in many disease states. Key factors in maintaining health are the ability to: (a) prevent mitochondrial damage to DNA caused by reactive oxygen species (ROS) and (b) prevent the decline in ATP synthesis, which reduces whole body ATP levels. It would appear that maintaining antioxidant status (in particular intracellular glutathione) and ATP levels are essential in fighting the aging process.

It is interesting to note that many of the most promising anti-aging nutrients such as CoQ10, NAD, acetyl-L-carnitine and lipoic acid are all taken to maintain the ability of the mitochondria to produce high energy compounds such as ATP and reduce oxidative stress. The ability of a cell to do work is directly related to its ATP status and the health of the mitochondria. Heart tissue, neurons in the brain and other highly active tissues are very sensitive to this system. Even small changes in ATP can have profound effects on the tissues' ability to function properly. Of all the nutritional supplements available to us currently, creatine appears to be the most effective for maintaining or raising ATP levels.

How does creatine work?

In a nutshell, creatine works to help generate energy. When ATP loses a phosphate molecule and becomes adenosine diphosphate (ADP), it must be converted back to ATP to produce energy. Creatine is stored in the human body as creatine phosphate (CP) also called phosphocreatine. When ATP is depleted, it can be recharged by CP. That is, CP donates a phosphate molecule to the ADP, making it ATP again. An increased pool of CP means faster and greater recharging of ATP, which means more work can be performed. This is why creatine has been so successful for athletes. For short-duration explosive sports, such as sprinting, weight lifting and other anaerobic endeavours, ATP is the energy system used.

To date, research has shown that ingesting creatine can increase the total body pool of CP which leads to greater generation of energy for anaerobic forms of exercise, such as weight training and sprinting. Other effects of creatine may be increases in protein synthesis and increased cell hydration.

Creatine has had spotty results in affecting performance in endurance sports such as swimming, rowing and long distance running, with some studies showing no positive effects on performance in endurance athletes. Whether or not the failure of creatine to improve performance in endurance athletes was due to the nature of the sport or the design of the studies is still being debated.

Creatine can be found in the form of creatine monohydrate, creatine citrate, creatine phosphate, creatine-magnesium chelate and even liquid versions. However, the vast majority of research to date showing creatine to have positive effects on pathologies, muscle mass and performance used the monohydrate form. Creatine monohydrate is over 90% absorbable. What follows is a review of some of the more interesting and promising research studies with creatine.

Creatine and neuromuscular diseases

One of the most promising areas of research with creatine is its effect on neuromuscular diseases such as MD. One study looked at the safety and efficacy of creatine monohydrate in various types of muscular dystrophies using a double blind, crossover trial. Thirty-six patients (12 patients with facioscapulohumeral dystrophy, 10 patients with Becker dystrophy, eight patients with Duchenne dystrophy and six patients with sarcoglycan-deficient limb girdle muscular dystrophy) were randomized to receive creatine or placebo for eight weeks. The researchers found there was a "mild but significant improvement" in muscle strength in all groups. The study also found a general improvement in the patients' daily-life activities as demonstrated by improved scores in the Medical Research Council scales and the Neuromuscular Symptom scale. Creatine was well tolerated throughout the study period, according to the researchers.¹

Another group of researchers fed creatine monohydrate to people with neuromuscular disease at 10 grams per day for five days, then reduced the dose to 5 grams per day for five days. The first study used 81 people and was followed by a single-blinded study of 21 people. In both studies, body weight, handgrip, dorsiflexion and knee extensor strength were measured before and after treatment. The researchers found "Creatine administration increased all measured indices in both studies." Short-term creatine monohydrate increased high-intensity strength significantly in patients with neuromuscular disease.² There have also been many clinical observations by physicians that creatine improves the strength, functionality and symptomology of people with various diseases of the neuromuscular system.

Creatine and neurological protection/brain injury

If there is one place creatine really shines, it's in protecting the brain from various forms of neurological injury and stress. A growing number of studies have found that creatine can protect the brain from neurotoxic agents, certain forms of injury and other insults. Several in vitro studies found that neurons exposed to either glutamate or beta-amyloid (both highly toxic to neurons and involved in various neurological diseases) were protected when exposed to creatine.³ The researchers hypothesized that "... cells supplemented with the precursor creatine make more phosphocreatine (PCr) and create larger energy reserves with consequent neuroprotection against stressors."

More recent studies, in vitro and in vivo in animals, have found creatine to be highly neuroprotective against other neurotoxic agents such as N-methyl-D-aspartate (NMDA) and malonate.⁴ Another study found that feeding rats creatine helped protect them against tetrahydropyridine (MPTP), which produces Parkinsonism in animals through impaired energy production. The results were impressive enough for these researchers to conclude, "These results further implicate metabolic dysfunction in MPTP neurotoxicity and suggest a novel therapeutic approach, which may have applicability in Parkinson's disease."⁵ Other studies have found creatine protected neurons from ischemic (low oxygen) damage as is often seen after strokes or injuries.⁶

Yet more studies have found creatine may play a therapeutic and or protective role in Huntington's disease^{7, 8} as well as ALS (amyotrophic lateral sclerosis).⁹ This study found that "... oral administration of creatine produced a dose-dependent improvement in motor performance and extended survival in G93A transgenic mice, and it protected mice from loss of both motor neurons and substantia nigra neurons at 120 days of age. Creatine administration protected G93A transgenic mice from increases in biochemical indices of oxidative damage. Therefore, creatine administration may be a new therapeutic strategy for ALS." Amazingly, this is only the tip of the iceberg showing creatine may have therapeutic uses for a wide range of neurological disease as well as injuries to the brain. One researcher who has looked at the effects of creatine commented, "This food supplement may provide clues to the mechanisms responsible for neuronal loss after traumatic brain injury and may find use as a neuroprotective agent against acute and delayed neurodegenerative processes."

Creatine and heart function

Because it is known that heart cells are dependent on adequate levels of ATP to function properly, and that cardiac creatine levels are depressed in chronic heart failure, researchers have looked at supplemental creatine to improve heart function and overall symptomology in certain forms of heart disease. It is well known that people suffering from chronic heart failure have limited endurance, strength and tire easily, which greatly limits their ability to function in everyday life. Using a double blind, placebo-controlled design, 17 patients aged 43 to 70 years with an ejection fraction <40 were supplemented with 20 grams of creatine daily for 10 days. Before and after creatine supplementation, the researchers looked at:

- 1) Ejection fraction of the heart (blood present in the ventricle at the end of diastole and expelled during the contraction of the heart)
- 2) 1-legged knee extensor (which tests strength)
- 3) Exercise performance on the cycle ergometer (which tests endurance)

Biopsies were also taken from muscle to determine if there was an increase in energy-producing compounds (i.e., creatine and creatine phosphate). Interestingly, but not surprisingly, the ejection fraction at rest and during the exercise phase did not increase. However, the biopsies revealed a considerable increase in tissue levels of creatine and

creatine phosphate in the patients getting the supplemental creatine. More importantly, patients getting the creatine had increases in strength and peak torque (21%, $P < 0.05$) and endurance (10%, $P < 0.05$). Both peak torque and 1-legged performance increased linearly with increased skeletal muscle phosphocreatine ($P < 0.05$). After just one week of creatine supplementation, the researchers concluded: "Supplementation to patients with chronic heart failure did not increase ejection fraction but increased skeletal muscle energy-rich phosphagens and performance as regards both strength and endurance. This new therapeutic approach merits further attention."¹⁰

Another study looked at the effects of creatine supplementation on endurance and muscle metabolism in people with congestive heart failure.¹¹ In particular the researchers looked at levels of ammonia and lactate, two important indicators of muscle performance under stress. Lactate and ammonia levels rise as intensity increases during exercise and higher levels are associated with fatigue. High-level athletes have lower levels of lactate and ammonia during a given exercise than non-athletes, as the athletes' metabolism is better at dealing with these metabolites of exertion, allowing them to perform better. This study found that patients with congestive heart failure given 20 grams of creatine per day had greater strength and endurance (measured as handgrip exercise at 25%, 50% and 75% of maximum voluntary contraction or until exhaustion) and had lower levels of lactate and ammonia than the placebo group. This shows that creatine supplementation in chronic heart failure augments skeletal muscle endurance and attenuates the abnormal skeletal muscle metabolic response to exercise.

It is important to note that the whole-body lack of essential high energy compounds (e.g. ATP, creatine, creatine phosphate, etc.) in people with chronic congestive heart failure is not a matter of simple malnutrition, but appears to be a metabolic derangement in skeletal muscle and other tissues.¹² Supplementing with high energy precursors such as creatine monohydrate appears to be a highly effective, low cost approach to helping these patients live more functional lives, and perhaps extend their life spans.

Conclusion

Creatine is quickly becoming one of the most well researched and promising supplements for a wide range of diseases. It may have additional uses for pathologies where a lack of high energy compounds and general muscle weakness exist, such as fibromyalgia. People with fibromyalgia have lower levels of creatine phosphate and ATP levels compared to controls.¹³ Some studies also suggest it helps with the strength and endurance of healthy but aging people as well. Though additional research is needed, there is a substantial body of research showing creatine is an effective and safe supplement for a wide range of pathologies and may be the next big find in anti-aging nutrients. Although the doses used in some studies were quite high, recent studies suggest lower doses are just as effective for increasing the overall creatine phosphate pool in the body. Two to three grams per day appears adequate for healthy people to increase their tissue levels of creatine phosphate. People with the aforementioned pathologies may benefit from higher intakes, in the 5-to-10 grams per day range.

About the Author - William D. Brink

Will Brink is a columnist, contributing consultant, and writer for various health/fitness, medical, and bodybuilding publications. His articles relating to nutrition, supplements, weight loss, exercise and medicine can be found in such publications as Lets Live, Muscle Media 2000, MuscleMag International, The Life Extension Magazine, Muscle n Fitness, Inside Karate, Exercise For Men Only, Body International, Power, Oxygen, Penthouse, Women's World and The Townsend Letter For Doctors.

He is the author of *Priming The Anabolic Environment and Weight Loss Nutrients Revealed*. He is the Consulting Sports Nutrition Editor and a monthly columnist for *Physical* magazine and an Editor at Large for *Power* magazine. Will graduated from Harvard University with a concentration in the natural sciences, and is a consultant to major supplement, dairy, and pharmaceutical companies.

He has been co author of several studies relating to sports nutrition and health found in peer reviewed academic journals, as well as having commentary published in *JAMA*. He runs the highly popular web site BrinkZone.com which is strategically positioned to fulfill the needs and interests of people with diverse backgrounds and knowledge. The Brink Zone site has a following with many sports nutrition enthusiasts, athletes, fitness professionals, scientists, medical doctors, nutritionists, and interested lay people. William has been invited to lecture on the benefits of weight training and nutrition at conventions and symposiums around the U.S. and Canada, and has appeared on numerous radio and television programs.

William has worked with athletes ranging from professional bodybuilders, golfers, fitness contestants, to police and military personnel.

See Will's eBooks online here:

Muscle Building Nutrition

www.musclebuildingnutrition.com

A complete guide bodybuilding supplements and eating to gain lean muscle

Diet Supplements Revealed

www.aboutsupplements.com

A review of diet supplements and guide to eating for maximum fat loss

He can be contacted at: PO Box 812430

Wellesley MA. 02482.

www.BrinkZone.com

Email: will@brinkzone.com

Article References:

1. Walter MC, et al. Creatine monohydrate in muscular dystrophies: A double blind, placebo-controlled clinical study. *Neurology* 2000 May 9; 54(9): 1848-50.
2. Tarnopolsky M, et al. Creatine monohydrate increases strength in patients with neuromuscular disease. *Neurology* 1999 Mar 10; 52(4): 854-7.
3. Protective effect of the energy precursor creatine against toxicity of glutamate and beta-amyloid in rat hippocampal neurons. *J Neurochem* 1968-1978; 74(5).
4. Malcon C, et al. Neuroprotective effects of creatine administration against NMDA and malonate toxicity. *Brain Res* 2000; 860(1-2): 195-8.
5. Matthews RT, et al. Creatine and cyclocreatine attenuate MPTP neurotoxicity. *Exp Neurol* 1999; 157(1): 142-9.
6. Balestrino M, et al. Role of creatine and phosphocreatine in neuronal protection from anoxic and ischemic damage. *Amino Acids Abstract* 2002; 23(1-3): 221-229.
7. Matthews RT, et al. Neuroprotective effects of creatine and cyclocreatine in animal models of Huntington's disease. *J Neurosci* 1998; 18(1): 156-163.
8. Ferrante RJ, et al. Neuroprotective effects of creatine in a transgenic mouse model of Huntington's disease. *J Neurosci* 2000; 20(12): 4389-97.
9. Klivenyi P, et al. Neuroprotective effects of creatine in a transgenic animal model of amyotrophic lateral sclerosis. *Nat Med* 1999; 5(3): 347-50.
10. Gordon A, et al. Creatine supplementation in chronic heart failure increases skeletal muscle creatine phosphate and muscle performance. *Cardiovasc Res* 1995 Sep; 30(3): 413-8.
11. Andrews R, et al. The effect of dietary creatine supplementation on skeletal muscle metabolism in congestive heart failure. *Eur Heart J* 1998 Apr; 19(4): 617-22.
12. Broqvist M, et al. Nutritional assessment and muscle energy metabolism in severe chronic congestive heart failure-effects of long-term dietary supplementation. *Eur Heart J* 1994 Dec; 15(12): 1641-50.
13. Park JH, et al. Use of P-31 magnetic resonance spectroscopy to detect metabolic abnormalities in muscles of patients with fibromyalgia. *Arthritis Rheum* 1998 Mar; 41(3): 406-13.

Glutamin as effective stress blocker



How L-glutamin works its magic...

L-glutamine remains the supplement of choice for many bodybuilders. It is a free form amino acid that can be found naturally in beans, meat, fish, poultry and dairy products. It is also an important component of protein powders and is one of the twenty non-essential amino acids found in the body.

It is widespread throughout the body and plays an important role in protein metabolism. From a bodybuilder's perspective, glutamine's strength is its ability to reduce the amount of muscle deterioration that occurs as a result of intense physical workouts. Failure to replace the high levels of glutamine consumed during intense exercise could result in greater susceptibility to illness due to a weakening of the immune system. In addition, glutamine stolen from the muscles to maintain the immune system must be replaced to keep those muscles building.

Bodybuilders can benefit from taking 10 grams of l-glutamine each day, preferably taken post-workout to enhance its recuperative effects. As a nutrient that occurs naturally in the body glutamine is safe to take although ingesting excessive amounts could cause an upset stomach.

You can find out more about l-glutamine and other useful bodybuilding supplements by visiting the site listed below.

Richard Mitchell is the creator of the bodybuildingadvisor.com website that provides guidance and information to athletes at all levels of bodybuilding experience. Go to [Glutamine Supplements](#) to learn more about the issues covered in this article.

Article Source: <http://EzineArticles.com>

St. John's Wort for bodybuilding purposes



The bright yellow flower of the St Johns Wort (*hypericum perforatum*) with its ray-like petals represents the power of the sun that forces away the darkness. This already points to the anti-depressant effects of the St Johns Wort which are highly respected, even in conventional medicine.

St. John's Wort, a perennial plant, has been used for hundreds of years to treat depression, unrest and anxiety disorders as well as nerve pain. For a long time, doctors and herbalists alike have known about its use as a sedative, but also as treatment for wounds, burns, insect bites, stomach ulcers and more. It is still used widely today and its effectiveness has been proven to a point where some insurance companies are now covering the treatment.

It is not a powerful drug -- when used to treat depression -- in the sense of bringing a quick recovery, but shows excellent long term results in many patients. The herb assists body and soul in the healing process and helps to build a solid foundation for a complete recovery.

St John's Wort was tested in a double-blind study of 105 male and female patients in the 20 to 64 year age group, suffering from mild to moderate depression. They were divided into two groups and monitored over a period of four weeks. One group was given 300mg of St Johns Wort extract three times daily, and the other received a placebo. All of the patients had psychiatric evaluations before the start of the study and after four weeks of treatment. The results revealed that, 67% of the St Johns Wort group had responded positively to the treatment without any adverse side effects whereas only 28% of the placebo group showed any signs of improvement.

St Johns Wort is available as tea (flowers and leaves), liquid extracts and pills or capsules. It is normally taken thrice daily and it will take one week or more to notice any improvement in the condition. Treatment can be continued for long periods of time as the herb does not normally produce any side effects. But St Johns Wort can interact strongly with other medication e.g. cancer and HIV drugs, contraceptive pills and others. So it is vitally important to consult a medical specialist first before starting a course of treatment.

One effect of St Johns Wort is that it makes the skin more sensitive to light. It is therefore important to keep out of the sun as much as possible while using the herb.

There is growing evidence to suggest that St. Johns Wort is a safe and effective, natural remedy for the treatment of mild to medium depression.

Disclaimer: The information contained in this article is presented for information purposes only. The material is in no way intended to replace professional medical care or attention by a qualified practitioner. It cannot and should not be used as a basis for diagnosis or choice of treatment.

Mireille Gautschi is a qualified Flower Essence Therapist and Herbalist who has many years experience with the development of natural herbal remedies. Her products can be found on the [Hillside Herbal Products](#) website that also offers a very informative newsletter.

Article Source: <http://EzineArticles.com>

Probiotic supplements and digestive disorders



Probiotic supplements

It is estimated that more than 100 million people in America are affected by some form of digestive disease. That's more than half of the U.S. population!

For some people, digestive disorders are a source of irritation and discomfort that may cause them to drastically limit their life styles and miss work frequently. For others, these disorders may be extremely crippling, and even fatal.

The Digestive Process

The GIT breaks down foods by first using mechanical means such as chewing, and then by the application of a host of complex chemical processes. These chemical processes include everything from saliva to **colon microbes**. Since the GIT is the point of entry for the human body, everything eaten has an impact on the body. The food eaten and passed through the GIT contains nutrients as well as toxins. Toxins can be anything from food additives and pesticides to specific foods that induce a reactive response by the GIT. The process of **digestion** is accomplished via the surface of the gastrointestinal tract using secretions from accessory glands. The two glands providing the majority of digestive chemicals utilized by the gastrointestinal tract are the liver and the pancreas. The function of the liver is to control the food supply for the rest of the body by further processing of the food molecules absorbed through the intestines. This is done by dispensing those food molecules in a controlled manner, and by filtering out toxins that may have passed through the gastrointestinal tract wall.

Another very important function of the gastrointestinal tract is as a sensory organ. By rejecting foods through objectionable taste, vomiting, and diarrhoea or any combination of these symptoms, the sensing capacity of the GIT can protect the body. The surface of the GIT has a complex system of nerves and other cells of the immune system. The surface of the GIT, or mucosa, is part of a complex sensing system called the **MALT (Mucosa Associated Lymphatic Tissue)**. Probiotic

The immune sensors in MALT trigger responses such as nausea, vomiting, pain, and swelling. Vomiting and diarrhoeas are abrupt defensive responses to MALT-sensing foods with a strong allergic or toxic component. This kind of food intolerance is responsible for many digestive problems. The gastrointestinal tract is "hard-wired" to the brain via hormonal, neurotransmitter-mediator chemical communication.

The gastrointestinal tract is a muscular tube that contracts in a controlled rhythm to move food through the different sections. Strength and timing variations in the contractions can cause cramping (very strong contractions) and diarrhoea (contractions are very frequent).

When the contractions are slow and irregular, constipation may occur. "Motility disorder" is the general term used to describe problems with peristalsis.

In all but a few cases, a food allergy is the primary cause of gastrointestinal tract problems. Chronic diseases have their origin in food allergies. The dysfunction, discomfort, and disease associated with GIT are the result of local immune responses to food selections or combinations of foods. Probiotic

Food selections are a result of personal tastes, social fads, ethnic culture, religion, and, to a larger degree, local and/or seasonal availability. The food selections made in modern affluent society are based on a developed taste for a rich diet centered on meats and dairy products that are loaded with fats, high concentrations of proteins, and fat-soluble toxins. Advertising and misinformation about "healthy" diets have overshadowed human nutritional needs in modern affluent diets.

Dietary Shifts and Digestive Disorders

Human evolutionary history clearly shows that we are primarily herbivores. Human saliva contains alpha-amylase, an enzyme specifically designed to break down complex carbohydrates into sugar compounds. Our teeth are designed to cut vegetable matter and to grind grains.

The so-called canine teeth of humans bear no resemblance to the canines of even a domestic house cat. The human digestive system is long and the food is processed slowly to extract all the nutrients from plant material. Conversely, carnivores have short digestive tracts that digest flesh very quickly.

The digestive systems of carnivores are able to eliminate the large amount of cholesterol consumed in their diets. Carnivores do not have alpha-amylase present in their saliva.

The effect of the shift in our diets during the last hundred years has resulted in 44% of Americans and Canadians being afflicted with heartburn; peptic ulcer disease appears in 5% of the population, and nonulcer dyspepsia plagues between 20 and 40% of Americans. Over-the-counter medications for these ailments are a multibillion-dollar industry. In nearly every hour of television advertising there is at least one spot selling an antacid or similar product.

Probiotic supplements are developed as a response to the need for a comprehensive enzyme supplement. Designed to adapt to a variety of stomach acid pH conditions. Probiotic supplements facilitates the digestion of protein, fat carbohydrates, and fibre and milk lactose.

As humans age and the body's ability to break down food diminishes, a deficiency of pancreatic enzymes occurs. Since these enzymes are vital to maintain cellular function, a number of degenerative diseases may result.

Anti aging supplements & bodybuilding



Anti aging supplements

Anti aging natural supplements - do they exist? Is it possible that anti aging natural supplements can slow the aging process? Absolutely! Numerous clinical studies have shown and are still discovering the health benefits of many nutrients.

The foundation for good health is a lifestyle that includes a sensible diet with nutritional supplements, reasonable exercise and weight management. It is important to be aware of what NOT to eat as well as what you should eat. In general, if it comes in a packet or is processed, it's healthier not to eat it.

Slowing down the aging process includes providing your body all the nutrients it requires. These nutrients must work at the cellular level repairing your DNA and RNA. Ideally, you should be able to obtain the essential nutrients from your diet. However, that has not been possible for years. Numerous studies have found the overall nutrient value of foods has been declining for decades due to soil depletion.

Taking one of the high-quality, broad-spectrum anti aging natural supplements helps fill in the dietary gaps that everyone will have. The essential nutrients that you need are extensive and complex. Your body also needs and will use a wide array of anti aging natural supplements -- amino acids, antioxidants, bioflavonoids, neuronutrients, certain herbal extracts, enzymes and specialized substances such as L-Carnosine, alpha lipoic acid, acetyl L-Carnitine, ATP precursors and so on. And these nutrients have to be in the correct proportions to each other based on the latest research.

Remember, even the best anti aging natural supplements cannot substitute for a poor diet. For example, the USDA food pyramid recommends consuming 2.5 cups of vegetables a day for women and 3 cups a day for men -- most people simply do not. Consuming mostly junk food, sodas and sweets and taking anti aging natural supplements will not provide you with all the nutrients your body needs. Anti aging supplements should be considered supplements to, not replacements for, a reasonably balanced diet.

If you are serious about slowing down your aging process, remember that there is no single magic pill, supplement or hormone that on its own will help you achieve this objective. The best anti aging natural supplements aren't the one-a-day vitamin type. Why? One capsule or tablet simply cannot hold all that's needed in necessary quantities - it would be way too large to swallow. The minimal vitamins and minerals found in the typical one-a-day supermarket vitamins are only the beginning and probably a waste of money.

And on the other hand, when trying to design your own supplement plan, it's easy to end up with a dozen or more individual vitamins and minerals to take daily, which is both a hassle and expensive. Besides, if certain substances are out of balance, it's possible they can combine to produce other unwanted compounds that can be harmful. This is why buying a variety of supplements and taking them together can sometimes even be dangerous.

Another important consideration is that women need a different vitamin formula than men. Women's anti aging natural supplements should contain nutrients proven by clinical studies to support the balancing of female hormones in the years before, during and after menopause. And the best anti aging supplements for men should contain ingredients proven to support healthy male prostate.

Learn as much as you can about what finding the best anti aging natural supplements really means. After all, your health, energy and wellness are the issue. Before spending your money, be informed about the products you'll be taking every day.

Read more about best women's vitamins and supplements and best vitamins for men here. David Buster is VP of InfoSearch Publishing and webmaster of <http://www.safemenopausesolutions.com> - a website of natural health articles, reliable sources of nutritional supplements and related health resources.

Article Source: <http://EzineArticles.com>