

DISCLAIMER: This information is provided "as is". The author, publishers and marketers of this information disclaim any loss or liability, either directly or indirectly as a consequence of applying the information presented herein, or in regard to the use and application of said information. No guarantee is given, either expressed or implied, in regard to the merchantability, accuracy, or acceptability of the information.

Further, this information is not presented by a medical practitioner and is for educational and informational purposes only. The content is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Always seek the advice of your physician or other qualified health provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read.

Since natural and/or dietary supplements are not FDA approved they must be accompanied by a two-part disclaimer on the product label: that the statement has not been evaluated by FDA and that the product is not intended to "diagnose, treat, cure or prevent any disease."

Muscle Building Supplements

Table of Contents

Why Use Body Building Supplements

Body Building and Ephedra

Using Nitric Oxide for Body Building

All About Creatine

Body Building Energy Drinks

Protein Supplements

Meal Replacement Supplements

Maltodextrin Supplement to Degrade Enzymatic Process

Glutamine

Vanadyl for Nitrogen Retention

Leucine to Promote Anticatabolic Metabolism

Essential Fatty Acids

Glucosamine

Special Supplements for Women

The Dangers of Steroids

Why Use Body Building Supplements

Why Use Bodybuilding Supplements?

Bodybuilding supplements have risen in prominence in the past few decades. They offer the advantages of both convenience and affordability. Since bodybuilders need to get more nutrition than the average individual, it will be much easier for them to achieve their goals through supplements. Keep in mind that these are not magic bullets that you can take and expect to become big overnight. Everything needs to be included in a sound and systematic strategy.

A Brief Description of Bodybuilding Supplements

Bodybuilding supplements are used by many gym enthusiasts with the hope of gaining more lean muscle while losing extra fat. At present, there are so many choices to choose from compared to many years ago. During the 1970s, protein supplements were the only staple that helped bodybuilders reach their target protein intake per day without having to devour huge amounts of food. 20 years later, manufacturers and laboratories started creating more products that promise to create anabolic responses to boost the body's recovery for tissue repair as well as improve metabolism to keep unwanted fat off.

Now, there are protein supplements of different kinds like creatine, branch chain amino acids, nitric oxide, fat burners and energy enhancers which will support the aspiring bodybuilder in a variety of ways.

Sometimes two or more of these products can be taken for better results since some products are known to compliment the effects of others. People however, should know that bodybuilding supplements only comprise a small portion of the entire picture. People think that the products have almost similar effects to anabolic steroids wherein they can be physically attractive in a matter of a few weeks and that is completely false. Supplements, as the name suggests, should only serve as secondary support to a sound diet and exercise program.

The Advantages and Usage

Diet is one of the most important pillars of having a well-built physique. Muscles require enough carbohydrates and protein to grow which is why bodybuilders are advised to consume about 3 grams of carbs and 1 to 1.5 grams of protein for every pound they weigh everyday.

Bodybuilding supplements help individuals reach their target amounts without having to eat too many meals inconveniently throughout the day. Since caloric and protein intake should be equally divided throughout the

day to avoid fat hoarding, it requires about 6 to 8 evenly spaced meals for people to expect results. This is very hard to come by especially for those who do not engage in bodybuilding professionally.

Eight ounces of boiled chicken breast contains about 25 grams of protein. That means that a 200-lb person needs to eat at least 8 pieces daily to reach his goals. A scoop of protein powder supplement already contains about 20 grams not to mention that it also has the advantage of different flavors.

Bodybuilders can now easily bring a shaker to work and drink 50 grams of protein in a few seconds. However, people should take note that supplements only work well if they are also including whole meals consisting of natural, fat-free and nutritious foods. One cannot expect to live on protein shakes alone since total caloric intake for the day would be less than required causing the body to cannibalize on itself for energy expenditure.

Answering the Question

Natural bodybuilding simply means abstaining from drug use to reach physical goals. The good thing is that all bodybuilding supplements are natural and approved to be safe before they can be patented. If you're trying to attain a healthy and great-looking body, it will be easier if you take supplements. There's completely nothing wrong if you choose to get

nutrients directly from whole food sources but you will eventually realize that it will take more time, effort and money to get the same results or less.

Some food sources may contain a few quantities of the nutrient you're looking for. However, if you're trying to reach certain levels, it will be easier to invest in tablets, powders and capsules that are accurately calibrated and measured according to the specific needs of bodybuilders.

It is up to you to choose which supplements you wish to invest in. Some find that protein supplements plus vitamins and minerals are enough while others feel more vibrant with the infusion of newer products like nitric oxide and creatine. It is also important to find the right brand that best suits your needs and budget.

Body Building and Ephedra

Bodybuilding and Ephedra

Ephedra has been a highly controversial material in recent years. This is largely due to its fat-burning effect as well as the perceived relative risks that may be fatal. Many hardcore bodybuilders have embraced its entry onto the scene while others intend to stay on the safe side. What are the issues and is it truly a good move to ban its use?

What is Ephedra?

Ephedra generally refers to the Ephedra Sinica plant and is called ma huang by the Chinese. It has long been included in traditional Chinese medicine in the past 5,000 years due to its potent effects in treating hay fever, flu, colds and asthma. Ephedra is a stimulant and a thermogenic. This is caused by its ephedrine and pseudoephedrine properties. The resulting effects would be alertness, increased focus, increased heart rate, increased blood pressure, easier breathing and metabolic boost.

The hype about ephedra may be due to its fat burning and thermogenic effects especially when taken together with caffeine and aspirin. Studies have shown that individuals burn almost 1 kilogram more of weight compared to a placebo. This explains why a lot of bodybuilders, athletes and average individuals have instantly welcomed the findings with the hope of losing unwanted fat and performing better in sports. The true nature of weight loss, weight loss maintenance and enhanced athletic performance however, is not fully known.

Ephedra can also cause a variety of side effects ranging from mild to sometimes fatal. Examples would be allergic or hypersensitivity reactions as evidenced by:

- Skin rash

- Irritable mood
- Dizziness
- Nausea
- Nervousness
- Excitability
- Restlessness
- Trembling
- Shakiness
- Insomnia
- Profuse sweating
- Itchy skin and scalp
- Vomiting
- Frequent urination
- Hyperthermia or fever
- Dehydration
- Irregular heartbeat
- Warm feeling
- Seizure
- Heart attack
- Stroke or death

The FDA or Food and Drug Administration began to question the full measures of the material after finding out about a number of dangerous and fatal side effects. The FDA banned ephedra as well as other ephedra-containing supplements on April 12, 2004.

Prominent Cases and Controversies

A lot of bodybuilders and other athletes have taken ephedra before its ban in April 2004 and there have been many issues surrounding its true efficacy and dangers. Some argue that it is only the combination of aspirin that causes serious side effects.

Bodybuilding stacks have popularized the ECA or ephedrine-caffeine-aspirin stack that reportedly can help people lose fat 50% to 100% more than other known fat burning supplements. Others have substituted the aspirin with yohimbe or green tea extract hoping to reduce the known risks.

Several popular athletes have reportedly suffered from concurrent ephedra use. Minnesota Vikings offensive lineman Korey Stringer died from heatstroke in 2001 that may have been partly spurred by ephedra use. Baltimore Orioles pitcher Steve Bechler died from heatstroke as well in 2003 wherein the medical examiner discovered that ephedra toxicity was a huge contributing factor.

The International Olympic Committee and World Anti-Doping Agency also bans ephedrine since up to now, several athletes continue to consume it for its performance-enhancing and fat-burning effects.

Other agencies that consider it as a banned substance include the NBA or National Basketball Association, the NFL or National Football League, the NHL or National Hockey League, FIFA and motorcycle racing groups.

Banned for Good

Ephedra used to be an over \$1 billion annual business in America alone. The FDA has given a 60-day period to totally ban its sales to give room for

ephedra manufacturers and sellers to retaliate via lawsuits. However, the U.S. Government has already been keeping a watchful eye on ephedra use since the death of Bechler in 2003. The move and decision actually came very quickly which left several companies and consumers shocked and baffled whether the effects were truly real or just hyped up conversation.

The WNBF and INBF have also banned ephedra due to its potential harm to users. It is possible for WNBF and INBF to ban some substances not banned by the FDA or IOC and vice-versa. They have been following studies and observations made by the FDA and U.S. Government closely leading to their final decision. A grace period was given for all users to suspend product use without penalization. At present, ephedra is banned for good and no exceptions will be made for illegal manufacturing, sale or distribution.

Using Nitric Oxide for Body Building

Using Nitric Oxide for Bodybuilding

Every year, several new supplements are being introduced to the market. The majority of these actually do not last very long because of their obvious ineffectiveness in helping people gain more quality muscle. Bodybuilders are looking for new and natural ways to spur their body to newfound growth without the risk of adverse side effects. Nitric oxide has done just that.

What is Nitric Oxide?

Nitric oxide or NO is a free form gas that is naturally produced in the body which functions to improve communication among cells. The molecular composition of the gas is one atom of nitrogen and one atom of oxygen. The amino acid Arginine is broken down by enzymes inside the body. This process produces nitric oxide. The enzyme group is known as NOS or Nitric Oxide Synthase converting L-arginine into L-citruline. Nitric oxide has several other useful functions in the body such as regulating blood circulation, controlling and managing brain activities as well as functions of the liver, lungs, stomach, kidneys and other vital organs.

Bodybuilders have become quite interested in nitric oxide because of its blood circulation enhancing effects. Since athletes and gym enthusiasts aim to provide as much nutrients to their muscles for growth and strength as possible, nitric oxide has proven to be a great supplement especially when taken together with muscle-enhancing products like protein supplements and creatine.

More nutrients will be delivered via blood flow and absorbed by the muscles in effect making them larger and more conditioned against stress. Nitric oxide also has anti-inflammatory actions that help bodybuilders tolerate pain associated with muscle stress. This means that they can workout longer

and recover faster. Hormonal actions are also affected such as regulating the release of gonadotropin-releasing hormones and adrenaline.

Maximizing the Efficacy

A lot of health experts and bodybuilders suggest that you take nitric oxide 30 to 45 minutes before hitting the gym. This will help cause vasodilation or widening of the blood vessels to flush nutrients into your muscles. The effect would be increased endurance and tolerance to heavy weights, fuller pumps and faster recoveries. Some also find that supplementing via a post-workout drink will maximize the benefits provided by nitric oxide. You may consume 25 to 50 grams of protein, 5 to 10 grams of creatine or dextrose and 6 to 12 grams of arginine. On non-training days, bodybuilders also try to maintain maximum nutrient absorption in their muscles to aid recovery and tissue repair and growth by consuming more nitric oxide.

Take note that exercise boosts the effect of nitric oxide output. Whatever muscle you're working becomes more flushed as it fills up with blood thereby causing nutrients to flow in and be absorbed. Exercise increases ROS or reactive oxygen species and PNS or peroxynitrite species production that can inhibit protein synthesis and impair insulin effectiveness. Ingestion of anti-oxidants will help support nitric oxide and prevent its degradation such as vitamin E and C, selenium, grape seed polyphenols and lipoic acid. Folic

acid is also good in supporting the conversion process of transforming arginine into nitric oxide.

Things to Watch For

Overdose is always a possibility for any product containing amino acids. Too much arginine can cause nausea, weakness and diarrhea. Since a lot of protein powder supplements already contain BCAAs or branch chain amino acids like arginine, simultaneous consumption of various products can predispose bodybuilders to overdose. They should make sure to stay within normal levels and avoid associated side effects related to intolerance. It is suggested that users observe their body's reactions first for 1 week taking into account both the positive and adverse effects before planning to increase the dosage.

Before using any nitric oxide product, always seek the advice of a health care practitioner to check for underlying conditions that may interact and cause adverse reactions. Examples of precautions would be high or low blood pressure, history of stroke, liver or thyroid disease, cardiac arrhythmia, anxiety, depression, seizure, diabetes, pernicious anemia, prostate enlargement and psychiatric illness. Some drugs may also interact with the product such as MAOIs. Nitric oxide is contraindicated among pregnant women, nursing mothers, those susceptible to heat or dehydration, under

18 years of age and over 50 years of age. Stop taking the product as soon as you notice any adverse effects.

All About Creatine

What is Creatine?

Creatine is naturally produced in the human body. It is primarily manufactured in the liver where it enters the bloodstream and is regularly delivered to other body parts and muscles. Initially, the amino acids arginine and glycine react, then form a compound called guanidinoacetate. When guanidinoacetate receives a methyl group from S-AdoMet or S-adenosylmethionine, it transforms into creatine. Chemically, creatine is known as N-aminoiminomethyl-N-methylglycine-N-amidinosarcosine, N-methyl-N-guanylglycine and methylglycocyanine. One gram of creatine can dissolve in 75 milliliters at room temperature and the rate increases as temperature rises.

Creatine can also be acquired from a variety of foods such as meat and fish. Since a number of researches have shown that the body naturally does not produce enough creatine to support optimum muscle growth as well as the strength that most bodybuilders are aiming for, supplements are necessary in the form of pills, capsules or powders. Every day the body only produces

anywhere from 1 to 3 grams of creatine. Supplements can provide 5 to 10 grams instantly with a single scoop. One kilogram of raw meat contains about 5 grams of creatine but the numbers slowly decrease as the meat is prepared and cooked.

Is It Good for you?

Nowadays, creatine is a staple supplement among bodybuilders, power lifters and sports superstars because of the variety of effects that it offers. Some of the observed benefits include gains in lean muscle mass, muscle fiber size increase or hypertrophy, increased myosin, increased optimum strength and power, increased single-effort and repetitive sprint performance and increased exercise performance.

Creatine works by improving muscle bioenergetics. Muscles are composed of two fiber types namely slow-twitch fibers and fast-twitch fibers. Slow-twitch fibers or type I muscle fibers are more involved in endurance and stamina. Fast-twitch fibers or type II muscle fibers are more involved in muscle size and strength. Bodybuilders are more concerned about stimulating and developing their type II muscle fibers more since these can produce fast, powerful, strong contractions. Both types also expend energy at varying rates which explains why type I dominant individuals perform less power

over an extended period of time while type II dominant individuals perform more power over a limited period of time.

Muscle fibers are glycolytic or are able to split glucose in order to create energy. Type II muscle fibers can split glucose quickly, regenerate ATP quickly and contract more powerfully since they contain high amounts of creatine and phosphocreatine or PCr or creatine phosphate. Increasing the amount of creatine in the muscles will then result in faster glucose splitting leading to faster recovery time and more powerful muscle pumps and contractions.

Another advantage of creatine is that it increases stamina and endurance by serving as fuel once muscle glycogen stores or ATP is depleted. This means that the body supposedly uses up available stores in order to expend enough energy to support a variety of tasks including resistance and aerobic training. Once stores are depleted, the body should begin cannibalizing on its own tissues particularly a combination of muscle and fat. Creatine helps prevent muscle destruction as it feeds the body to produce energy.

More on Creatine Use

Ideally, creatine should be taken post-workout to aid in recovery. Some bodybuilders prefer to take it before working out to save as much muscle

mass as possible and to get fuller pumps and last longer. Creatine supplements usually indicate a loading phase which lasts anywhere from 5 to 7 days. During this initial phase, users consume as much as 10 to 20 grams of creatine to fully supplement all muscles throughout the body.

After the loading phase, a maintenance period follows wherein users halve the initial dose and continue taking creatine for a span of 6 to 8 weeks. Bodybuilders are then recommended to take a break off creatine for 2 weeks at least before repeating the cycle to allow the body to adjust and adapt to the changes.

Body Building Energy Drinks

Bodybuilding Energy Drinks

Energy drinks have become quite popular since the late 1980s. The components have also come a long way as new compounds and recently discovered effective agents have been added to the mix. The question, however, still remains – Are bodybuilding drinks really effective or are people better off taking plain water? Find out more about the true nature and efficacy as well as the dangers behind seemingly healthy concoctions.

Describing Bodybuilding Energy Drinks

Energy drinks are beverages that can provide more energy in the form of good extra calories compared to other types. The calories these contain are actually lower compared to regular soft drinks and do not pose the usual side effect of glucose spiking. Bodybuilders basically consume these drinks at the start of the day, pre-workout or post-workout in order to increase their endurance and stamina to last different activities and exercises.

Some of the general components that can be found in bodybuilding energy drinks include methylxanthines, caffeine, herbs, guarana, B vitamins, taurine, maltodextrin for taste, creatine, carnitine, inositol, ginkgo biloba and glucuronolactone. Some brands may contain a lot of sugar but the main ingredient in all types is caffeine that enhances mood, alertness and focus. Eight ounces of the beverage usually have around 75 to 100 mg of caffeine.

Normally, the body heavily relies on glucose and glycogen stores for energy in order to support a variety of tasks. Since bodybuilders frequently burn up more calories and engage in various diets that basically controls carbohydrate intake, it is possible for glucose stores to run out faster compared to sedentary individuals. Bodybuilders aim to gain new lean muscle while preserving what they already have. This requires a strategic intake of calories. Since they perform heavy lifting regularly, they should properly allocate intake of extra calories at the right time so that the body consumes it to support the anaerobic tasks without eating up valuable

muscle. Energy drinks are most effective and renders most noticeable results when consumed before or during exercise. Post-workout, these are also effective to replenish glycogen stores.

More Reported Benefits

Many bodybuilders who take energy drinks strategically report several advantages including reduced muscle soreness after hitting the gym, reduced burning sensation during intense workouts and faster recovery. Some products contain alpha L-Polylactate which controls lactic acid production in the muscles responsible for causing post-workout pain responses. The type of sugar used in good energy beverages is also complex and produces the same effects as complex carbohydrates like brown rice, whole-wheat grains and oatmeal. This means that the body doesn't store unnecessary fat and sugar breaks down slowly to be properly absorbed and not hoarded as fat.

Other known benefits include cell protection through the presence of antioxidants. These work by inhibiting damage caused by free radicals formed during exercise. Oxygen distribution and blood circulation is also enhanced throughout the body minimizing muscle damage, prevent cramps and improve strength and performance. Electrolytes in the drinks insure that fluids and nutrients are well maintained in the muscles reducing the risk for

injury and hastening recovery. With low osmolality, fluids and other nutrients are delivered to and absorbed by the muscles quickly so individuals can expect faster and more productive muscle gains.

Special Precautions

Since there are virtually hundreds of brands and types to choose from, make sure that the bodybuilding energy drinks you pick perform as indicated – to provide energy. You don't have to pay for very expensive ones claiming to contain so many components you may not even have heard of before. Side effects are also possible among those who have forms of epilepsy, are pregnant or under 18 years of age.

Some drinks have been banned in a number of countries due to fatal results. Nervousness, dizziness, anxiety, restlessness, insomnia, vomiting, muscle twitching and headaches are other possible side effects. Bodybuilders should avoid consuming high amounts of energy drinks at one time since there are perceived risks associated with excessive caffeine intake. Certain conditions, substances and drugs may also interact with one or more components resulting in adverse reactions. Be aware that dehydration is not an uncommon side effect of the beverages and alcohol consumption can aggravate the effect. Avoid cocktails and mixed drinks that include these.

Protein Supplements

For almost 40 years, protein supplements have become a necessity when it comes to a real bodybuilder's nutrition regimen. These products have offered the benefits of convenience as well as affordability helping every type of individual gain more quality muscle mass and losing extra fat. Find out the importance of protein supplements as well as the various types for your needs.

About Protein

Protein is one of the most essential nutrients the body needs for growth, repair and development. Tissues in the body use protein to grow in size and repair themselves. This leads to an increase in overall strength, symmetry and energy. Enzymes in the body are protein-based molecules. This means that they work better in terms of improving metabolism.

Protein can also be efficiently used up as fuel when energy stores coming from carbohydrates and glycogen are depleted. During bodybuilding, a lot of tissue breakdown occurs. Bodybuilders lift heavy weights in order to break down muscle fibers with the hope that several new ones will grow out of single branches through a process known as overcompensation.

Protein is highly useful since it supports fast tissue repair and regeneration. Additional amino acid source is provided to synthesize the tissues.

Individuals who plan to gain more muscle mass are advised to take 1 to 1.5 grams of protein per pound of bodyweight to fully provide for all muscles in the body. Protein supplements further aid in weight loss since it contributes to blood sugar rises and an increased feeling of satiety. Other notable benefits that come from supplements are increased endurance, increased energy, increased mental awareness and improved immunity against infection and other diseases.

Knowing the Different Proteins

There are so many protein supplements available in the market today. Each one also features other additions like essential nutrients, nitric oxide and branch chain amino acids in order to maximize the results for users. Cost will also be determined by the preparation and type of protein present in the mix although the most popularly convenient are isolated or concentrated protein mixtures.

Whey protein is the most popular type of supplement used by most bodybuilders. Whey protein is acquired during the process of transforming milk into cheese. This type contains the important amino acids needed to build, repair and maintain muscle tissue. Soy protein comes from the

soybean plant. It is considered as the next best protein source to meat but not a complete single source of protein. This type also helps reduce unwanted fat by lowering LDL cholesterol and maintaining HDL cholesterol.

Casein protein is a reliable protein source and is slower to digest. Effects peak around 6 to 8 hours after intake. This is why most bodybuilders prefer taking it before going to sleep at night. Egg protein is a natural protein source that comes from egg whites. Individuals get all the benefits without having to worry about fat from egg yolks.

Whey or soy isolate protein supplements are very similar to regular whey and soy protein. However, they are more concentrated and purer in terms of protein content. These types are especially useful for very strenuous exercises and hardcore bodybuilders.

Too Much or Less Protein

Individuals who do not perform very strenuous exercises or live sedentary lifestyles should consume less protein than athletes and bodybuilders. 0.6 to 1 gram per pound of bodyweight may be sufficient for most average individuals. Too much protein is not good for the body since it puts extra strain on the kidneys and liver to eliminate. Some effects could be fatal especially among older people since their vital organs can no longer function

as efficiently as before. Aside from protein supplements people also regularly get more from natural food sources like meat, nuts, eggs and milk.

Protein deficiency is also another problem which renders a person more prone to developing infection, depression and other types of physical and mental diseases. Kwashiorkor is a type of protein deficiency illness more common among children. Higher amounts of protein are required to provide balance to the body. Keep in mind that protein supplements should be coupled with a healthy and nutritious diet composed of real food.

Supplements should not be purely used alone as a means of maintaining normal bodyweight and nutrient levels.

Meal Replacement Supplements

Meal Replacement Supplements

Millions of people have invested in meal replacement supplements because of their known effectiveness plus the convenience of not having to keep eating whole meals that take up a lot of time and space to prepare. It is important that you know how to properly assess the type of supplement you need that fits your physique and health goals. There are so many products to choose from in health stores and on the Internet.

Defining Meal Replacement Supplements

Meal replacement supplements are defined as prepackaged products that come in the form of a drink or bar which can be readily consumed anytime and anywhere. These products are accurately measured in terms of calories as well as other essential components like protein, carbohydrates, fat, fiber, vitamins and minerals. The idea is to help individuals reach health and physique goals by letting them consume their recommended dietary allowance for the day.

People no longer need to keep counting the macros of natural food sources and do not have to worry about consuming too much or too less. These are also highly convenient since users don't have to stop for a meal during certain parts of the day and they can stick to their nutrition regimen because of the ready-to-drink form of the products.

Meal replacement supplements contain about 200 to 250 calories per serving and are fortified with over 20 vitamins and minerals. Almost all of these are also properly concocted to minimize the presence of other agents that may lead to glucose rise and extra fat storage by being fat-free or sugar-free.

At the beginning, meal replacement products were intended for elderly and ill adult patients who had nutritional deficiencies and cannot properly swallow large amounts of food. Later on individuals such as dieters, athletes

and bodybuilders were targeted. These individuals have various nutritional needs and so the supplements have also been adjusted accordingly to suffice.

Choosing Your MRS

If you are trying to improve muscle size, strength and endurance in order to perform better in sports and other strenuous activities, it would be wiser to include meal replacement supplements in a complete diet plan. It also consists of whole food meals evenly spaced throughout the day. Calorie count is highly important to properly disseminate energy consumption in your body that could make or break your goals.

When looking for the right product read the label first. You need to know the contents and if they are a fit your goals well. The carbohydrates will be listed as complex, fiber, sugar and sugar alcohol. Make sure that complex carbs comprise most of it with moderate fiber and as little sugar and sugar alcohol as possible. Next, check the protein content and find out the type of protein used. Protein isolate or protein concentrate come in at around 25 to 40 grams and are usually the best sources.

Next, check the fat content. The total amount of fat in calories should not exceed 20% of the total MRS. Also consider the presence of vitamins, minerals and amino acids if there are any. You don't have to take additional

vitamins and minerals if the product already contains these. You may also want to make a preference for different available flavors and forms.

Meal Replacement Concerns

The Food and Drug Administration or FDA does not fully define meal replacement although it indicates that the products are pre-packaged forms of ready-to-consume bars or drinks. There have been a number of studies aiming to find out if meal replacement supplements are as or more effective as traditional diets that simply counted calories of whole foods. Most users at present primarily invest in MRS with the hope of losing weight and keeping it off. Experts are trying to discover if these are helpful in the long term or if individuals start to be deprived of essential nutrients that may only be obtained from real natural food sources.

There are some concerns regarding the studies since most subjects have been provided with MRS free of charge so there is no definite basis whether or not they took the products religiously. There is also no definite record of the total weight loss and other effects to people because meal replacement supplement studies were usually done as part of a larger research or program.

Studies have also been more focused on observing overweight and obese people only so there are no accurate details on the products' effects on average individuals. Perhaps the most obvious drawback of meal replacement supplements would be encouraging people to develop poor eating habits and to find a quick fix to their weight problems.

Maltodextrin Supplement to Degrade Enzymatic Process

You may not be aware that maltodextrin is the main component in almost all weight-gain products. It has a significant effect on the enzymatic process which allows individuals to perform better during exercise as well as bulk up on much needed muscle mass. This natural ingredient is highly useful especially for athletes and bodybuilders without the risk of side effects.

What is Maltodextrin?

Maltodextrin is a complex carbohydrate that greatly helps individuals perform better and last longer to cope with the demands of heavily strenuous activities. Despite being a carbohydrate, it functions more by rapidly degrading the enzymatic process. Maltodextrin supplements are usually added to beverages in order to quickly replenish carbohydrate stores that may have been depleted during exercise. Maltodextrin provides 4 kilocalories per gram just like any other carbohydrate. The ingredient is a

very convenient energy source that facilitates rapid delivery and absorption of important nutrients by muscle tissues. Muscle glycogen can instantly be replaced during or after exercise.

Maltodextrin is derived from cornstarch and is very easily digestible. The starch is initially cooked. Acids and/or enzymes are then added to break the starch into smaller polymers. The process is highly similar to what occurs inside the body when digesting carbohydrates. Some forms of maltodextrins are polymers of dextrose that are also referred to as glucose polymers coming in the form of dried powders. These do not contain much fat, fiber or protein although some products are highly known for having soluble fiber and is very useful in reducing fat and excess weight. Most products also do not add vitamins or flavors.

Uses in Bodybuilding

The term "maltodextrin" actually refers to varying lengths of dextrose polymers. Maltodextrin is not very sweet compared to dextrose. It is the primary ingredient found in most weight-gainer products and supplements and come in handy for individuals who need to gain more mass and weight such as ectomorphs. A lot of weight-gain supplements contain a lot of calories to help individuals move up in terms of weight and muscle and

consume more than their average dietary intake without having to eat so much in several meals daily.

The fine white powder has a bland taste and mixes very well with different types of liquids. It also helps improve the ability of protein powders to mix with other liquids so most bodybuilders prefer to prepare their on-the-go meals by combining maltodextrin with 1 or 2 scoops of protein powder and 8 to 12 ounces of water. The product contains no fat and can provide energy for long hours. Bodybuilders usually incorporate maltodextrin in their diets during the bulking phase. One drawback would be the extremely high calories that weight-gain products contain so although maltodextrin itself contains no fat, the excess calories will result in a combination of muscle and fat gain. By degrading the enzymatic process, conversion of carbohydrates to energy is reduced thereby allowing individuals to perform better for longer periods of time.

Suggested Use for Maximum Results

Maltodextrin is best mixed with about 50 grams of water or fruit juice in a shaker or screw-topped mixer. You may also blend it with protein powder since maltodextrin can improve the protein supplement's ability to mix while the protein's flavor can improve maltodextrin's taste. Consume the mix pre-workout, during workout or post-workout to provide enough energy to

last all exercises or to quickly replenish glycogen and carbohydrate stores. Every 50 grams of maltodextrin will provide around 190 calories, 47 grams of carbs and less than 2 grams of protein and fat.

Maltodextrins are usually categorized by DE or dextrose equivalent which is a measure of minimizing power compared to a dextrose standard of 100. Higher DE correlates to a greater extent of starch depolymerization that lead to a smaller average size of polymers. The FDA considers some brands of maltodextrins having a DE less than 20 as safe or labeled as GRAS or generally recognized as safe food ingredients. These can be used to spray-dry fruit juices and flavors as well as build solids in meat and dairy products. Take maltodextrin once or twice a day depending on the intensity and frequency of activity. For those who wish to bulk up in size, they may continue taking more than what is present in weight-gain supplements.

Glutamine

Despite being the most abundant amino acid in the body, many people are still taking more glutamine from other sources with the intent of preventing disease, increasing muscle size and strength and enhancing endurance and energy. Find out the different advantages of glutamine supplementation and achieve new physical feats without having to worry about adverse effects.

What is Glutamine?

Glutamine is an amino acid naturally found in the proteins of all living organisms. It is categorized as a semi-essential or conditionally essential amino acid since the body is able to synthesize all the glutamine it needs. It is one of the 20 amino acids genetically coded in the standard. It has a side chain which is an amine created by replacing glutamic acid's side-chain hydroxyl with an amine functional group. It is then considered as the amide of glutamic acid with codons CAA and CAG.

There are also times when the body cannot synthesize and produce adequate amounts of glutamine and requires the use of supplementation. Many medical experts consider glutamine as a very important amino acid especially in metabolic stress conditions and events such as cancer, trauma and infection.

There are plenty of functions by glutamine which greatly help the body cope with physical stress and disease. On the average, people take anywhere from 5 to 10 grams of glutamine a day. Although the body naturally produces the amino acid it can also be found in most meats, fruits and vegetables like fish, eggs, milk, beans and spinach which individuals eat on a regular basis.

Functions and Importance of Glutamine

There are several biochemical functions of glutamine such as being a substrate for DNA synthesis. It also plays a major role in protein synthesis serving as a fuel source for the brain. It is also an inhibitor of cortisol-induced protein catabolism, serving as a primary fuel source for enterocytes. These are cells that line the internal small intestine and it is also a precursor for fast-dividing immune cells, regulating acid-base balance in the kidneys through the production of ammonium and fighting the spread of microorganisms and other harmful agents.

Glutamine is also called a nutraceutical since it features both nutritional and medical benefits. The amino acid aids in gastrointestinal function by aiding enterocytes that line and protect the small intestine. Some of the added gastrointestinal benefits that glutamine can provide would be maintaining gut barrier function, supporting cell proliferation and differentiation in the intestines. It also reduces septic morbidity as well as alleviating the symptoms of IBS or irritable bowel syndrome. Glutamine has a higher intestinal extraction rate compared to other amino acids and results in more effective cleansing properties.

Glutamine can be readily converted into glutamic acid which acts as a precursor to the neurotransmitter GABA or gamma amino butyric acid. It is

also considered to be an excitatory neurotransmitter. Glutamine effectively transports ammonia to the liver transforming it into a less harmful form, urea, which is then excreted by the kidneys to reduce toxic effects.

Glutamine can also be converted into alanine which can be transformed into glucose to be used as a fuel source during intense and extra-long workouts. Furthermore, post-surgery patients benefit a lot from glutamine since it can shorten recovery time and hasten healing by improving nitrogen balances, lymphocyte recovery as well as intestinal permeability without any side effects.

Glutamine in Bodybuilding

Many bodybuilders take glutamine supplements since these are highly effective in increasing energy and endurance for weight training. By balancing nitrogen levels, glutamine helps stimulate muscle protein synthesis that leads to boosts in muscle size and strength. Individuals now can expect to stay strong and focused to last their workouts and avoid over training.

Those who may have reached a plateau in their training can try adding more glutamine to their diet. Most products come in the form of tablets, pills, capsules and powders that can conveniently be taken any time of the day.

Compared to eating a lot of meat to reach recommended daily amounts, supplementation would be an easier route. As a naturally occurring substance, glutamine is also considered very safe and effective so you don't have to worry about side effects and other possible drug complications and interactions.

Vanadyl for Nitrogen Retention

Many people may be aware of the useful properties of vanadyl that effectively treat type 1 diabetic patients. However, there are also other uses for it due to its ability to help muscles and tissues retain nitrogen. Strength athletes and bodybuilders are slowly realizing the potent effects of the mineral that is readily available in most health food stores and online shops.

What is Vanadyl?

Vanadyl supplements provide vanadium to users and are quite helpful in enhancing the utilization of insulin by muscle cells. Vanadium is a mineral found naturally inside the human body which functions to balance blood sugar levels as well as the proper release of energy. This is especially important in the case of type 1 diabetic patients in order to improve absorption and distribution of glucose throughout the body. Insulin is

necessary in order for muscle cells to uptake amino acids and carbohydrates from the bloodstream.

Vanadyl sulfate or VO_2SO_4 is a trace mineral that comes in a solid blue crystalline form and has similar functions to insulin by increasing the amount of amino acids and glucose driven into the muscles. Vanadyl sulfate is oxidized in acidic solution to the vanadyl ion as well as in alkaline solutions to the vanadate ion which both appear in yellow-orange color.

It can be used together with chromium picolinate to inhibit sugar synthesis. Zinc amalgam reduces vanadyl sulfate to a combination of green and purple vanadium. As it drives more glucose and amino acids into muscles, nitrogen retention is obtained and energy levels are increased. All these effects however, are not yet fully evaluated by the FDA or Food and Drug Administration.

Vanadyl's Importance to Bodybuilders

Vanadyl has the ability to mitigate insulin resistance relating to improved nitrogen retention among bodybuilders and other strength athletes. This effect also makes it a very useful mineral to help athletes get through long and intense training sessions without over training.

Carbohydrate utilization during energy expenditure is maximized thereby allowing individuals to function better and perform at higher intensities without burning out due to glucose and energy depletion. Vanadyl may also lower cortisol and other catabolic hormones that tend to increase after over training. Bodybuilders can then expect to see improvements in terms of muscle size and strength. Recovery time in between training sessions may also be shortened.

Vanadyl sulfate is the form available in nutritional supplements readily available in most health food shops and online supplement stores. There may be pro-oxidative or anti-oxidative effects in different areas of the body. These will greatly help reduce muscle soreness after workouts due to proper management of lactic acid buildup.

Nitrogen retention also allows better absorption of other nutrients into the muscles including protein which is an essential building block. As a result there will be significant improvements in terms of gaining lean muscle mass and relative strength. Individuals can also expect to perform better by being able to do more sets, lift heavier weights and recuperate faster.

Other Vanadyl Considerations

Since vanadyl has not yet been thoroughly tested, it would be wise to watch for adverse results as soon as you first ingest the mineral. Similarly with other supplements and minerals, it is recommended to take 1 to 2 days off every week and 1 week off every 1 or 2 months. You may also choose to cycle your vanadyl intake to allow your body to readapt and adjust accordingly to the changes in terms of nutrient absorption and nitrogen balance.

At present, there is no ideal dosage and frequency of use indicated since research that involves long term use among humans is not yet available. Long-term side effects of vanadyl are still not fully defined.

It is also important to take necessary precautions if you're currently suffering from any disease or ailment. Some drugs and supplements you're currently taking may interact or inhibit the full effects of the mineral. Caffeine, alcohol and smoking may also tend to reduce the effects as with other medications and supplements. Special considerations should be given to pregnant women, nursing mothers, those with heart, liver or kidney problems, under 18 years old and over 50 years old. As soon as you notice any adverse reaction, stop taking the vanadyl supplement immediately.

Leucine to Promote Anticatabolic Metabolism

Leucine is becoming widely known for being the hardcore bodybuilder's most important nutrient. Even though it is not readily manufactured in the body, there are a lot of sources where you can get leucine in order to maintain muscle mass and prevent breakdown even during times of sickness. Find out more about its anabolic effects and other safety tips.

What is Leucine?

Leucine is an important amino acid which cannot be readily created inside the human body. It is part of the 3 BCAAs or branched chain amino acids. Bodybuilders and strength and endurance athletes use supplements and other products that contain leucine in order to enhance performance, promote muscle recovery and boost strength and endurance. Other essential amino acids that can work effectively with leucine include valine and isoleucine. Together, these three nutrients comprise about 70% of the total amino acids present in body proteins that explain why they are very important in maintaining structure and function in human beings.

It is a rare event for any individual to experience leucine deficiency since a lot of protein food sources contain it. More likely candidates would be vegetarians and vegans since their food choices do not have enough protein.

Some of the included symptoms indicative of leucine deficiency would be hypoglycemic ones such as dizziness, lightheadedness, shortness of breath, fatigability, headache, profuse sweating, paleness, vomiting and irritability.

Why Bodybuilders Need Leucine

Hardcore bodybuilders require sufficient leucine as well as valine and isoleucine since these greatly influence the metabolism of muscle protein. Muscle size and strength are the main concerns of strength athletes which is why they have to make sure that they tweak their metabolism properly in order to absorb most of the much needed nutrients for growth, development and recovery.

Leucine is not metabolized in the liver and can immediately serve as a substrate for muscle metabolism if ever cellular energy runs out or gets depleted. Essential contractile and enzyme muscle protein is preserved from degradation by dietary leucine to support the amount of leucine needed by hardworking bodybuilders.

Basically, leucine does not directly cause changes in body composition but its relative effect in promoting muscle recovery can indirectly spur muscle growth and significant improvement in strength and size. Leucine also supports glutamine synthesis wherein glutamine levels in the muscle and

the serum are normalized, promoting anticatabolic muscle metabolism. Bodybuilders also become more resistant against infection and other diseases caused by over training due to improved immune function.

Catabolism refers to metabolic pathways that release energy and break down molecules into smaller units. Proteins, fatty acids, polysaccharides and other large molecules are broken down into smaller ones like amino acids, fatty acids and monosaccharides. Leucine prevents this from happening during metabolism and then results in improvements in muscle recovery and growth. Cellular wastes are also reduced which translates to less post-workout pain and sores.

Furthermore, leucine is also believed to have advantageous effects in preventing protein wasting. Bodybuilders can rest assured that their body will not start cannibalizing on hard-earned muscle for fuel. Leucine is used as a fuel source during gluconeogenesis as well wherein blood sugar is synthesized in the liver thereby enhancing the healing process and keeping individuals strong and maintaining muscle mass even during times of infection, stress, malnutrition and trauma.

Glucose intolerant individuals may need more leucine since ineffective insulin uptake also leads to improper use of leucine in the body. The

perceived anabolic effects of leucine boosts muscle protein synthesis and inhibits muscle breakdown making it a very useful bodybuilding nutrient.

Dosage and Other Recommendations

Therapeutically, about 500 to 1,000 mg of leucine is recommended to patients daily. Average daily dosage is around 16 mg for every kilogram of bodyweight daily. Those who use up more calories or engage in more strenuous activities and diabetic patients may consume more depending on their relative needs. Leucine doses should be balanced together with valine and isoleucine for optimum results.

Ideally, 2 mg of leucine and valine are indicated for every 1 mg of isoleucine. You can obtain the amino acid through different food sources such as cottage cheese, fish, meat, poultry, peanuts, lentils, sesame seeds, brown rice and beans. These food sources are advised to be prepared in the least fatty way possible such as boiling or roasting.

Essential Fatty Acids

Essential fatty acids or EFAs are fatty acids that should be obtained from diet since these cannot be created within an organism from other constituents through other kinds of chemical pathways. Experts usually refer to essential fatty acids highly involved in biological processes and not merely acting as a

fuel source. Several compounds made from essential fatty acids can be obtained straight from natural food sources and supplementation wherein labels usually overestimate the recommended amounts. Other labels may also underestimate human needs for it since a lot of organisms are able to survive despite unfavorable and malnourished states.

Categories and Uses

Essential fatty acids come in 2 families namely omega-3 and omega-6. Both families are essential since the body is able to transform omega-3 into a new separate omega-3. Omega-3 or omega-6 cannot be interconverted. EFAs cannot be created from nothing however. Most of the polyunsaturated fat found in the human diet comes from essential fatty acids and there are so many food sources available that naturally contain these such as soya oil, flaxseed, fish, shellfish, leafy vegetables, walnuts and sunflower seeds.

There are several beneficial effects that essential fatty acids provide to the body such as hastening recovery time, boosting metabolism, increasing training intensity, developing muscle accretion, enhancing fat loss and improving distribution of nutrients and other vitamins into body cells.

Essential fatty acids are important for transportation, absorption and proper functioning of fat-soluble vitamins like vitamin A, D, E and K. Body

composition and function is significantly improved as cellular components, compounds, hormones and fat intake are regulated.

Types and Functions

Omega-3 fatty acids are long chains of polyunsaturated fatty acids with biological uses since they can be converted into different substances in the human body such as leukotrienes and prostaglandins. Omega-3 fatty acids are also highly involved in metabolic processes and are known to support and enhance fat loss in the right quantities.

Omega-3 and omega-6 fatty acids are hormone precursors and are able to determine cell membrane composition. Anti-inflammatory and pro-inflammatory responses through substances are then produced. Other uses of the fatty acids include reduction of oxidant stress caused by free radicals and spurring of inflammatory conditions like arthritis and diabetes.

Alpha-linolenic acid or LNA is the main component of omega-3s that are necessary for human survival. The body, however, cannot naturally produce LNA making it an essential fatty acid. LNA can be converted into EPA or eicosapentaenoic acid and DHA or docosahexaenoic acid. As for hormone regulation for specific responses, essential fatty acids can improve immune responses, aid against infection and metabolism.

Eicosanoids generally work to enhance cell communication. These hormones have 3 classes namely prostaglandins, leukotrienes and thromboxanes. Fat molecules go through either the lipoxygenase or cyclooxygenase pathway in order to produce prostaglandins and thromboxanes which can then lead to leukotriene production.

Anabolic Essential Fatty Acids

Bodybuilders include essential fatty acids in their diets because of their highly anabolic actions. EFAs improve cardiovascular conditioning of individuals by reducing platelet stickiness, widening and relaxing blood vessels for better blood circulation, lowering blood pressure, inhibiting prostaglandin series 2 and enhancing delivery of nutrients to muscles and other tissues. The anti-inflammatory actions of omega-6 are very useful in reducing post-workout pain due to lactic acid buildup. Joints and bone inflammation are also reduced wherein athletes are able to maintain stability and strength in hardcore exercises.

Essential fatty acids have cholesterol lowering effects through linoleic acid. Linoleic acid can be converted to GLA which is believed to be 170 times better than the parent molecule in lowering fat and cholesterol levels. Serum triglycerides are lowered significantly which, as a whole, improves body

composition and prevents various cardiovascular, metabolic and heart ailments like stroke, heart attack and diabetes.

Omega-6 is also known to boost thermogenesis and fat oxidation which comes in as an added bonus to those who wish to add more lean muscle and decrease fat to their frames. Sympathetic nervous system stimulation is regulated as well as management of energy expenditure using fatty acids as a fuel source. It is possible that bodybuilders will be able to perform more sets at higher intensities after initial glycogen stores have been depleted.

Take note that lack of essential fatty acids can also prove to be disadvantageous as evidenced by a variety of adverse symptoms and conditions like dermatitis, inflammatory skin condition, growth retardation, immuno-compromising and poor wound healing.

Glucosamine

As you aim to achieve new highs in terms of muscle size and strength, it is equally important to maintain good bone, joint and cartilage condition to prevent injuries. Many strength and endurance athletes include glucosamine as a means to improving performance and maintaining stability through difficult workouts. Read on and find out what makes it a very important amino sugar.

What is Glucosamine?

Glucosamine is an aminomonosaccharide that is naturally present and produced in the human body by chondrocytes located in cartilage. Generally, glucosamine functions to create long chains of GAGs or glycosaminoglycans that are necessary for joint and cartilage repair and maintenance. GAGs are modified long chain disaccharides that are the main component of PGs or proteoglycans. PGs together with collagen and chondrocytes make up cartilage. One type of glucosamine forms chitin that makes up exoskeletons and cell walls of various organisms.

The amino sugar is the most abundant monosaccharide. It is commercially made from crustacean exoskeletons or by fermenting corn or wheat.

Glucosamine production in the human body tends to slow down as the person ages. It may also be known as glucosamine sulfate, glucosamine hydrochloride, chitosamine, glucosamine sulphate or N-acetyl glucosamine.

Glucosamine is widely available in most health food shops and online stores in the form of sports drinks, nutritional supplements or powders as well as cosmetics. In most supplements the amino sugar is mixed with methylsulfonylmethane. It may also be mixed with chondroitin sulfate that further aids by increasing cartilage damage by enzymes and improving cartilage elasticity.

Important Uses

Glucosamine intake is known to increase the production of GAG and PG. When chondrocytes in cartilage gain access to glucosamine, these are able to create connective tissue in a more rapid manner since three chemical reaction phases can be skipped. Only phosphorylation reaction is required to create glucosamine-6-phosphate. Potential diffusion of amino acids and glucose through synovial membranes and joint capsules on the knees, elbows and other joints are enhanced as well as fibrotic articular tissues heal through glucosamine supplementation.

Bodybuilders are highly concerned about joint and cartilage condition since they are constantly pushing these to the limits when lifting very heavy loads. Without adequate glucosamine, GAG synthesis would be slowed or shut down entirely. Proteoglycan synthesis will also slow down or cease causing joints to become sorer after strenuous exercises or workouts. Chronic stress on the joints or wear and tear will eventually lead to long term joint problems like osteoarthritis. Nerve and spine damage are big risks if bones and joints are unattended to for a long period of time.

Glucosamine taken orally is traditionally used to treat osteoarthritis and other joint and bone ailments. This greatly helps in rebuilding cartilage and reducing pain responses triggered by two bones rubbing together. Normally,

synovial fluid helps lubricate joints to prevent friction pain and maintain proper mobilization. At present, athletes and bodybuilders take glucosamine to maintain good joint stability and strength and prevent injury.

Dosage and Safety

About 1,500 mg of glucosamine salt is indicated per day. Anions are included in the salt since glucosamine contains a positively charged amino group. According to a number of studies, it is considered safe although there may be special precautions given to certain individuals such as those with known hypersensitivity reactions to shellfish. Diabetics should also ask their physician first before taking supplements since it may interfere with normal hexosamine biosynthesis pathway regulation.

The amount of glucosamine in a glucosamine salt dosage will vary depending on the type of anion present and the other available salts in the mixture. Obese patients may also need to watch out for possible adverse reactions since there are suggestions that glucosamine has effects on those with insulin resistance or endothelial dysfunction. The FDA of Food and Drug Administration has not yet approved glucosamine in America although it is categorized as a dietary supplement.

When purchasing, make sure that manufacturers guarantee the product as safe and that it is not advertised as a medical or pharmaceutical product. It is however approved as a medical drug in Europe sold as glucosamine sulfate. When buying online, ask for certification and make sure that the source is legitimate to avoid complications.

Special Supplements for Women

Special Supplements for Women

Women have much more going on inside their bodies compared to men. That is why they also need special kinds of supplements. To stay healthy, females need to properly regulate their hormones and other chemicals. Female supplements have been formulated to specifically cater to the different changes that women experience everyday for the rest of their lives.

Why Do Women Need Special Supplements?

People may not be aware that various processes are different between males and females. For example, women oxidize fat better than men and it is a fact that they can perform better when it comes to endurance types of activities and sports. Women use up more energy through fat oxidation while men use up energy from carbohydrate oxidation. This means that women are actually more efficient at burning fat directly while men may have to rely on

depleting carb and glycogen stores before hoping to lose extra fat and unwanted weight.

The total amount of water in women's bodies is comparably lower than men's. Women are more prone to dehydration so they have to take special supplements that ensure proper delivery of water plus other nutrients to their cells and tissues. Posture and skeletal disposition are also unique factors since women later on in life are more susceptible to bone illnesses and degradation such as osteoporosis.

Hormones are a common part of women's healthy lives. Every month, several circumstances occur inside females' bodies because of menstruation. This is why they also need assistance through supplementation to deal with the effects and symptoms.

Women actually need more nutritional supplements compared to men but studies indicate that they are actually taking less. Since men usually eat and drink more, they are less likely to develop deficiencies in nutrients. Women need to catch up and maintain normal levels of vitamins and minerals to support daily activities and cope with the internal stressors created by their physical structure. Aside from special supplements, women may also benefit from stereotyped products like protein powders and creatine.

Menstruation and Menopause

As early as 8 to 10 years old, women already experience regular hormonal changes inside their bodies. Menstruation often can lead to a variety of symptoms such as hot flashes, fever, mood swings, irritability, restlessness and even serious ones like severe blood loss, palpitations and tremors.

During the menstrual cycle, there are a lot of changes going on as new cells are being formed and older ones chaff off and are eliminated. It is important for women to take special supplements in order to support changes and avoid hormonal and nutritional imbalances. Birth control pills are useful in helping those with irregular menstrual cycles cope with the abnormalities. At the same time, blood loss is supported with increased iron intake.

Vitamin E is an important supplement that should be added to every woman's daily diet to ensure that nutrients are properly distributed and absorbed in the body. It also enhances blood circulation and immune responses thereby preventing infection and other diseases. At the same time it is also improving physical condition and appearance as evidenced by clearer skin, shinier hair and stronger nails.

Menopause can be a difficult yet inevitable phase in every woman's life. During this stage, women become more prone to hormonal imbalances,

nutritional deficiencies, onset of osteoporosis as well as mental changes. Special supplementation can help a lot in treating hormonal imbalances to boost vitality, beauty, immunity and strength. Usual problems associated with menopause such as irritability, confusion, hot flushes, night sweats and vaginal dryness can be alleviated and make older women feel much better.

Other Products and Precautions

Women should also start increasing their intake of essential fatty acids, vitamins and minerals such as calcium, iron, potassium and magnesium since these are highly important in maintaining overall health and condition.

There are natural supplements available in most health food stores and online pharmacies. Women should always seek consultation with their doctor before consumption to prevent complications due to drug interaction or underlying diseases. When buying online, they should also verify the product by reading the label and assessing the manufacturer, contents and expiry date. Some products may not work as well for others so try to observe for advantageous and consequential effects.

The Dangers of Steroids

Steroids have long been a controversial issue since the pinnacle of Arnold Schwarzenegger's bodybuilding career. Although the harmful effects have

already been exposed for decades, several young athletes and Mr. Olympia hopefuls are still taking the risk in exchange for short-term physical prowess. Are the perceived dangers of steroids really worth your health?

What are Steroids?

Steroids are anabolic-androgenic artificial substances that have relative effects on male sex hormones. The term anabolic refers to masculine and muscle-building properties provided by the class of drugs that should only be made available with a doctor's prescription.

Ideally, steroids are indicated for male individuals having problems with sexual characteristics such as impotence, low testosterone levels, tissue degradation caused by AIDS and delayed puberty.

Anabolic steroids were first identified and synthesized during the 1930s. Since athletes and bodybuilders discovered its significant effects in boosting muscle mass and strength, steroids are often used recreationally to improve physical appearance. The drugs are taken orally or injected via the muscles or blood vessels. Administration is often done in cycles and in some cases, bodybuilders use a variety of steroids in order to boost results while minimizing harmful effects.

Steroid Controversy

Non-medical uses for anabolic steroids have been highly controversial since athletes began showing very impressive feats that were never thought possible. These have been banned in several athletic agencies such as the NBA, NHL, WTA, FIFA and UEFA. Even bodybuilding events do random drug testing every now and then to discourage competitors from using them.

Most countries control steroid distribution while there are other nations that sell the drug freely such as Thailand and Mexico. Counterfeiting and smuggling allowed steroids to enter the United States through black markets. These are usually of low quality with several health risks.

There are so many side effects that result from steroid abuse and concurrent use such as jaundice, palpitation, dehydration, liver tumor, kidney disorders, cancer, high blood pressure, fluid retention, severe acne, trembling, testicle shrinking, low sperm count, infertility, baldness, gynecomastia or breast enlargement in men, cessation of menstrual cycle in women, hepatitis and bone weakness.

There are also a variety of psychological side effects such as paranoia, delusions, irritability, anxiety, feelings of invincibility, depression and euphoria. The term "roid rage" has been coined to describe the sudden mood swings exhibited by most steroid abusers.

Death from steroids is not an uncommon circumstance and it was through the deaths of some popular athletes and individuals that the drugs were finally banned and regulated.

It is illegal to possess anabolic substances without a prescription. Offenders can be penalized with one year imprisonment and a \$1,000 fine. Trafficking will be penalized with 5 years imprisonment and a \$250,000 fine. The maximum penalties can double for second felony drug offenses. Athletes discovered to be taking the drugs will be penalized by federal laws as well as suffer other consequences established by their respective sporting groups such as suspension, additional fines or termination.

The Benefits Vs. Health Risks

Generally, steroids can help a lot in maintaining muscle mass and boost recovery time for tissues that are highly useful for hardcore bodybuilders. Nutrient absorption in the muscles is enhanced at extreme rates and levels thereby resulting in significant increases in muscle size and strength. Fat loss is also maximized due to the anabolic effect that tends to use fat directly as a fuel source as the substances aim to preserve any present muscle tissue. Steroid users can expect to grow and recover from very intense workouts 5 to 10 times more than the average natural bodybuilder.

Several physical anomalies can also affect internal organs such as the heart, lungs, kidneys and liver. Over time, the body will require more effort to properly synthesize and absorb the drugs. Some individuals may also need to increase the dosage after some time as the body adapts to the effects. This poses more danger of drug overdose and toxicity. Athletes and hardcore bodybuilders nowadays are using more powerful anabolics that have noticeable results even on internal organs. The kidneys, pancreas, spleen and liver are known to expand and increase in size as well explaining why present physique competitors display larger waistlines and bigger guts than those 2 or 3 decades earlier.