

# Dietary Supplement Use, Fitness Clubs and the Consumer

A State-of-the-Industry Analysis

*by*

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## Introduction

The Apex Fitness Group™ is a peerless resource for accurate fitness information and innovative programs that enhance all aspects of non-clinical health care and performance. Our business philosophy is one of consumer protection through programs, not products. This includes maintaining unprecedented expertise on the manufacturing and use of dietary supplements.

Apex is not a dietary supplement company, nor do we recommend supplements for medicinal purposes—we incorporate supplements, when appropriate, into individual fitness programs based on a formal screening process.

## Nutrition a Key

One of the key components to a healthy lifestyle is proper nutrition. There are countless methods of nourishing the body and an overwhelming amount of related information available to consumers. When used in conjunction with proper food intake and an appropriate exercise program, dietary supplements can enhance the positive results of other lifestyle components. The practice of controlled dietary supplement use can also make unique contributions to health, fitness and performance goals.

## Dietary Supplements

Since 1995, dietary supplement sales have tripled nationwide and are predicted to grow at an even greater pace as we progress into the millennium. Almost 70 percent of Americans are using natural substances. Many of these supplement users are members of health clubs across the country. Clear benefits with little risk have fueled the increased use of natural substance

As the population increasingly supports supplementation, it becomes more important than ever for the business owner to provide a method for the consumer to make sense of scientific data and to properly utilize dietary supplements. The incorporation of supplements into a program designed by qualified professionals is the only way to separate the questionable products or information from the credible. *A properly structured dietary supplement program can also help prevent the common practice of indiscriminate use of natural substances that can be harmful, wasteful and expensive.*

## The Consumer Dilemma

There are thousands of natural compounds on the market. Due in part to a relatively positive safety record (as compared to pharmaceutical makers), the federal government has allowed supplement companies to police their own manufacturing practices and preserved our personal right to health by allowing unrestricted access to dietary supplements. However, many consumers are forced to purchase supplements based on advertising, unqualified recommendations or friendly advice. Often, supplement manufacturers do not disclose all product information, in particular data that might discourage a sale.

## The Apex Fitness Role

The Apex Fitness Group seeks to collect and evaluate all available data related to non-clinical health care, fitness and performance. We also prepare this data for community use in an educational continuum and through a complete fitness program that delivers products supported by irrefutable science. *Our company recognizes the value of proper dietary-supplement use in addition to the consumer's need to bridge the gap between traditional science and federal policies that allow the current methods of dietary supplement use, manufacture and distribution.*

Of the thousands of natural compounds available for sale in the United States, very few survive Apex Fitness Group's rigorous development and recommendation criteria. Part of the process for approving the production of any new compound is a third-party consultation with medical scientists regarding safety and efficacy. In addition, the decision to manufacture is based on current and future government and industry regulatory issues. An outside attorney specializing in dietary supplement regulations and litigation (former FDA lawyer) provides counsel for the Apex dietary-supplement development committee.

## Business Owners and Consumers Can Establish a Brand on Which They Rely

The following points describe how Apex Fitness Group can make your facility the only logical choice for your community to purchase dietary supplements. *These points are also what consumers/business owners should expect and demand before choosing a brand of supplements:*

- At this time Apex only incorporates recommendations of *dietary supplements for non-medicinal purposes* such as: health improvement and maintenance, hastening fitness goals, and to increase athletic performance. The product

claims will only address these goals and no products are designed to address symptoms of disease. This makes safety virtually a non-issue.

- Phoenix Labs, our third-party manufacturing facility produces pharmaceuticals and therefore utilizes Good Manufacturing Practices (GMPs) for quality assurance. GMPs ensure that products cannot vary from batch to batch. Phoenix Labs operates under a drug license and therefore has the ability *to test every substance from the raw materials to the finished products for purity, potency and reproducibility.*
  - ◆ Tests include: disintegration, dissolution (proper form for absorption), stability (shelf life potency guarantee), purity (no contaminants) and potency which includes the finished products certificate of analysis (C of A).
- Phoenix has in-house *product validation and testing methods* based on all available certified protocols including applicable United States Pharmacopoeias (USPs) and other country's compendia (validated methods of product production).
- We establish proof of “equivalence”—that is a given dose a product must contain a certain amount of key ingredients in order to produce a known effect.
  - ◆ Apex maintains the *appropriate peer review research that supports the dosage and purpose of the compound.*
- Regular batch tests are employed in order to *validate that the products will actually be absorbed and utilized by the body.*
  - ◆ Disintegration and dissolution tests.
- Apex delivers assurance that the ingredients are nontoxic, along with a listing of any known potential side effects and interactions with drugs.
  - ◆ *Products are incorporated into a program that maintains the user's total nutrient intake in a safe optimal range. This is done by considering food, drug and other supplement intake (including meal replacement drinks and bars) by using an appropriate but simple screening process.*
  - ◆ *We supply full ingredient disclosure, including precautions, contraindications and all other available pertinent information.*
- We maintain the *qualified personnel and support documents* making them available to all consumers through the Website or telephone.

## A Critical Partnership

By using Apex Fitness Group as your partner for the delivery of dietary supplements you will have covered all possible consumer and business concerns while generating ongoing incremental dollars. Most importantly, *you will be providing the public a service that helps shield them (and business owners) from the potential negatives of self-administering nutritional products.* In addition, this service allows everyone to make buying decisions based on education and gives consumers the potential to experience only the benefits of a safe and economical dietary supplement strategy.

## Position Statements

Based on Apex Fitness Group's extensive examination of the dietary-supplement industry, government regulations and the safety and efficacy findings, the following are the company's position statements.\*

\*For those seeking more information, Neal Spruce and Dr. Alan Titchenal have published ***An Evaluation of Fitness-Enhancing Supplements***, a comprehensive review of dietary supplements and the industry.

### General Supplement Use

***When ingested and manufactured properly, specific compounds can allow the body to operate at full capacity without disturbing its natural physiology as drugs do.***

It is naive or arrogant to think that on an everyday basis we consume every health-and-performance-related compound in optimal doses, ratios and at proper times from food alone, especially when all obstacles, including the inability to define these levels, are taken into account. Additionally, it is well known that we do not consume more than we need of all necessary substances from our diets. These issues collectively indicate any compound contributing to cellular performance has the potential to be sub-optimal when food alone is the matrix. Therefore, given the safety margins of nutrients and the industry's safety record, supplementation offers a sound and viable means of optimizing health and performance.

Individual results during usage may be based on the physiological and psychological state of the recipient.

### Typical Exerciser

***Everyone should investigate the use of a multivitamin and mineral formula in addition to a calcium supplement in order to complement one's best efforts to define and consume a proper diet.***

Proper use of a multivitamin and mineral formula can shore up the nutrient content of food intake at least to eliminate the conservative guesswork regarding ideal diet and at best to enable the recipient to achieve nutrient levels that have been shown to stave off chronic disease. Other compounds related to cosmetic goals show promise in accelerating body-fat reduction and recovery in addition to

assisting in appetite control during a proper training regimen. These benefits may lessen the workload and often can improve compliance.

## Competitive Sport

***Maximizing potential during high-level competition involves exploiting all available resources within known healthful guidelines.***

High-level sport is not “natural” or healthy. The body is pushed to its limits and beyond psychologically and physiologically, leading to acute and chronic injuries.

Most athletes do not believe eating solely from the food pyramid is going to maximize their potential for performance and recovery. Nor will these competitors consume foods in this ideal fashion, especially given the easily accessed alternatives (e.g. fast food) and learned behaviors.

The search for safe modulations to nutrient intake is here to stay whether or not sport institutions ban them. Someone is going to implement any potential performance or recovery enhancement process and get away with it.

Part of being a great athlete should be extensive research in augmenting the nutrient content of foods with safe and legal compounds that may maximize their potential simultaneously, leveling the playing field.

Each of us has a right to health so athletes can and will make their own decisions. Because of the safety record of the supplement industry, the competitor may presume he/she has an opportunity to gain and nothing to lose (except money) when properly incorporating legal compounds. Additionally, the use of a placebo often yields a positive response.

There is no substitute for an appropriate training regime and attitude, including a magic pill that will create a world-class athlete out of anyone. However when food intake, talent and motivation is the best the athlete can do, specific compounds, in proper dosage and forms, ingested at proper times offer a safe viable means of maximizing potential and enhancing results during training and competitions.

## Dietary Supplements as Medicines

***At this time, it is the position of Apex Fitness Group that the general population does not use dietary supplements for medicinal purposes unless recommended by a qualified health professional. This practitioner would have experience in treating disease and symptoms with both prescription drugs and natural compounds and would have performed the research necessary to choose the safest and most effective therapy.***

No one argues that there may be significant advantages to treating some diseases or illnesses with natural substances, as opposed to using their drug counterpart, and that the medical community is on the brink of adding a few of

these alternatives to traditional medicine. However, because of the complexities of the human organism during a pathological state and the uncertainty of the potential beneficial active ingredient(s) in most natural compounds, it becomes very difficult for the average consumer to “self diagnose” and select a potential remedy.

Although supplements are generally meant to enhance naturally occurring bodily functions without disturbing natural physiology—thus providing health care—some natural substances have drug actions. Drugs treat symptoms and often necessarily and dramatically disturb normal functioning, thus generally providing disease care. Therefore, dietary supplements that act like drugs are drugs (because of either dosage or structure) and should be treated as such. Unfortunately, in the United States there are no incentives for the funding of research and development of supplement compounds that may be an effective and less harmful means of therapy than their drug counterpart.

## Apex Dietary Support Paths

You set the goal, we provide the path

### Apex Fit

Products include those that deliver the vital nutrients needed to promote optimal health. Live a longer, healthier, more balanced life.

### Apex Fix

Products provide guilt-free healthy snacks for the athlete and/or anyone on the go. Welcome to the future of snack food.

### Apex Lean

Products include those that help you burn fat and retain muscle by increasing energy expenditures, while supporting appetite control.

### Apex Max

Products include those that help you increase muscle mass by enhancing your workout performance and aiding in a quick recovery

## Apex Fit

**Apex Fit products include those that deliver the vital nutrients needed to promote optimal health. Strive for a healthier, more balanced life.**

Strive for a healthy life. Apex makes being healthy simple, so you can get on with your life. Apex Fit takes the guesswork out of nutrition, matching your needs with the right supplements at the right time. Maximize your efforts while maintaining your supply of vitamins and minerals. Take your pick: If you prefer bars, drink mixes or supplements we make it easy for you to reach your goal.

Apex Fit products are uniquely formulated to maintain a safe and optimal range of nutrients when combined with other Apex products.

**The objectives of the Fit Path are two-fold:** (1) to overcome dietary limitations or the inability to obtain nutrients and/or (2) to aid in recovery and mitigate pain from injury or joints.

**Overcome dietary deficits and limitations.** People supplement to overcome dietary shortcomings from food diets. Diets can be deficient due to the following conditions:

- Insufficient food intake
- Increased nutritional needs that are not met by diet alone
- Lack of interest in essential food grouping
- Low body fat maintenance
- Inability to define the perfect diet by professionals and the general population
- Unknown variables of actual nutrient content of food

Multivitamin and mineral formulas can overcome these dietary deficiencies to enable users to improve their overall health, to gain optimal health and to reach their potential.

**Hasten recovery and lessen injury or joint pain.** The objective of these supplements is to hasten the recovery process and relieve minor discomfort experienced by women during Premenstrual Syndrome or athletes who place undue stress on their joints.

## Apex Fit Multivitamin (Performance, Vegan/High Carbohydrate, 50 Plus & Women's)

### Potential Users

- All adults (unless medical reasons prevail) striving to improve or maintain health.

### Description

- Tableted preparation designed to replace all multivitamin and mineral formulas in order to enhance the nutrient content of food.
- Specific formulas to complement an individual's food intake, including vegans, in an attempt to satisfy nutritional requirements and increase cellular efficiency without adding calories.
- Nutritional "insurance" from normal dietary shortcomings due to food preferences, nutrient availability and the inability to define the perfect diet.

### Basic action mechanism

- Maintains a safe optimal range of nutrient intake 24 hours/day by: (1) identifying food intake, (2) considering other Apex supplement use, (3) utilizing a controlled release delivery system, and (4) formulating according to strict scientific criteria.

### Typical use

- Replaces all multiple vitamin mineral formulas.
- 1 tablet daily for Seniors', Vegan, Women's formulas
- Performance Formula:
  - o Basic dose – Take one tablet with 8 oz of water immediately following the first meal of the day.
  - o Athlete <150 lbs. – Take one tablet with 8 oz of water after the first and last meals of the day.
  - o Athlete >150 lbs. – Take one tablet with 8 oz of water after each of the three meals (morning, afternoon, evening).

## **Apex Fit Multivitamin Children's Chewable (Specialty Item)**

### **Potential users**

- Children between ages two and twelve (unless medical reasons prevail) striving to improve or maintain health.

### **Description**

- Chewable preparation designed to replace all multivitamin and mineral formulas in order to enhance the nutrient content of food.
- Specific formulas to complement a child's food intake in an attempt to satisfy nutritional requirements and increase cellular efficiency without adding calories.
- Nutritional "insurance" from normal dietary shortcomings due to food preferences, nutrient availability and the inability to define the perfect diet.

### **Basic action mechanism**

- Maintains a safe optimal range of nutrient intake 24 hours/day by: (1) identifying food intake, (2) utilizing a controlled release delivery system, and (3) formulating according to strict scientific criteria.

### **Typical use**

- Ages 2-4: one table daily; ages 4-12: two tablets daily.

## Apex Fit Prenatal (Specialty Item)

### Potential users

- Females who are trying to conceive, or those who are pregnant, attempting to support healthy fetal development and maintain maternal health.

### Description

- Tableted preparation containing key compounds in their proper forms and strengths according to the latest scientific data involving pregnant females.

### Basic action mechanism

- Maintains a safe optimal range of nutrient intake 24 hours/day by: (1) identifying food intake, (2) considering other Apex supplement use, (3) utilizing a controlled release delivery system, and (4) formulating according to strict scientific criteria.

### Typical use

- Use in lieu of a multivitamin and mineral and antioxidant supplement.
- Continue with calcium supplementation as needed.
- Take one tablet daily, with breakfast, as a nutritional supplement.

## Apex Fit Super Antioxidant

### Potential users

- All adults (unless medical reasons prevail) striving to improve or maintain health.
- All intense exercisers attempting to enhance recovery and stave off exercise-induced free radical damage.

### Description

- Tableted controlled-release preparation containing well-researched antioxidant compounds to complement the Apex Fit multivitamin formulas.

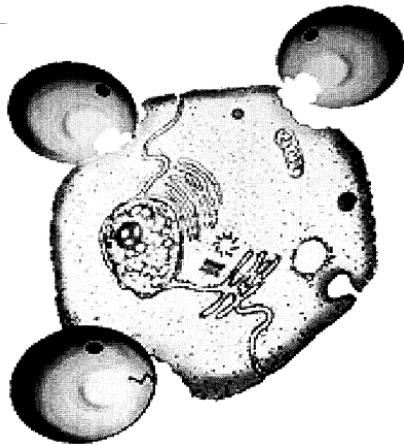
### Basic action mechanism

- Supply designated levels of specific compounds that may help to support a state of good health.
- Antioxidants help to contain free radicals, which lead to cellular damage (see Figure 1), and are increased by exercise, the environment and the aging process.

### Typical use

- Take one tablet daily with a meal.
- Ideally, this formula should be combined with the Apex Fit Multivitamin

**Figure 1 – Free Radicals Attacking a Cell**



## Apex Fit Advanced Calcium

### Potential users

- Adults who do not meet calcium requirements from food and multivitamin and mineral intakes, especially females who consume little or no dairy products.

### Description

- Tableted controlled-release preparation containing calcium, magnesium and vitamin D, which have been shown to work together to enhance calcium utilization. Calcium and magnesium are prepared in mineral transporters designed to optimize delivery.

### Basic action mechanism

- Contributes to calcium intake from food and multivitamin and mineral use to achieve and maintain bone health.
  - Maintains a safe optimal range of calcium intake 24 hours/day by: (1) identifying food intake, (2) considering other Apex supplement use, (3) utilizing a controlled release delivery system, and (4) formulating according to strict scientific criteria.

### Typical use

- As a dietary supplement, take one or two tablets daily with meals to meet calcium requirements.

## Apex Fit Vitamin C (Specialty Item)

### Potential users

- Non-pregnant adults during the cold or flu season.
- Regular use for non-pregnant athletes who train intensely.
- Anyone successfully using other high dose vitamin C supplements.

### Description

- This tableted form of vitamin C is esterified calcium polyascorbate, which may have up to four times the level of absorption (see Figure 1 – Vitamin C Absorption).
- The vitamin C has been buffered to alleviate gastric discomfort or a laxative effect sometimes common with high doses of vitamin C.

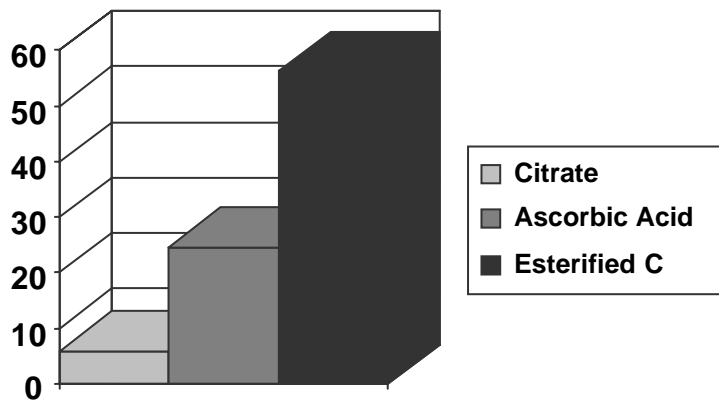
### Basic action mechanism

- To increase vitamin C blood levels in order to maximize vitamin C's powerful antioxidant effects. Increasing antioxidant protection may help promote a state of good health, support the immune response, and enhance the recovery process.
- This formula utilizes a two-stage controlled-release delivery system designed to maintain 24-hour/day tissue saturation.

### Typical use

- As a dietary supplement, take one tablet daily with meals. Take with 8 oz. of water.

**Figure 1 – Vitamin C Absorption**



Esterified vitamin C has several advantages: It produced a higher intracellular ascorbate level (as measured by white blood cell ascorbate) at all levels measured. Twenty-four hour urinary ascorbate output was lower in the esterified C group, confirming more of this form is retained.

## Apex Fit Premenstrual Formula (Specialty Item)

### Potential users

- Females with moderate to severe premenstrual symptoms

### Description

- This formula provides nutrients that give important nutritional support during the premenstrual state (PMS). It can be used safely when combined with other Apex products.

### Basic action mechanism

- Aspects of PMS are associated with variances in hormone cycles. This formula is designed to support a healthy hormone balance.
- Contains a blend of herbs to support relaxation.

### Typical use

- As a dietary supplement, take two tablets in the morning and two tablets in the evening with 8 oz of water. The best time to take this formula is with a meal.
- If using prescription pain or anti-depressant medications, consult your physician before using this product.

## Apex Fit Joint Support

### Potential users

- Individuals concerned with joint and cartilage health.
- Athletes who place undue stress on joints or cartilage.

### Description

- An appropriate combination of glucosamine and chondroitin sulfates in a tableted preparation that has been shown to support and promote healthy joint cartilage without adverse effects (see Figure 5 and Figure 6).
- This formula considers the use of other Apex products to maintain a safe and optimal range of total nutrient intake.

### Basic action mechanism

- Attracts water to the joint and provides essential lubrication.
- Supplies the components for formation of healthy joint matrix.
- Reduces the activity of cartilage-degrading enzymes.

### Typical use

- Take three tablets daily, one with each of three meals and 8 oz. of water.
- Diabetics discuss use with a physician.

**Figure 5 – Pain Reduction from Glucosamine Sulfate**

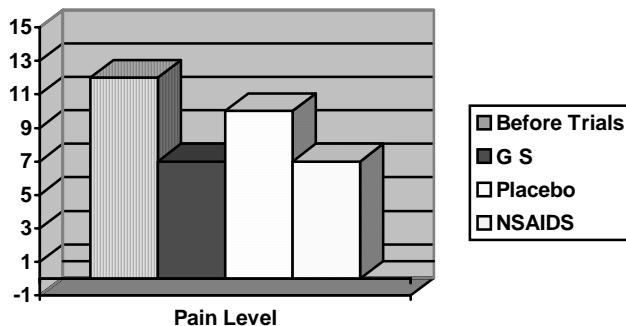


Figure 5 is a graphic depiction of the basic results from several clinical trials comparing NSAIDs, placebo and glucosamine sulfate for pain control.

**Figure 6 – Comparison of Adverse Events**

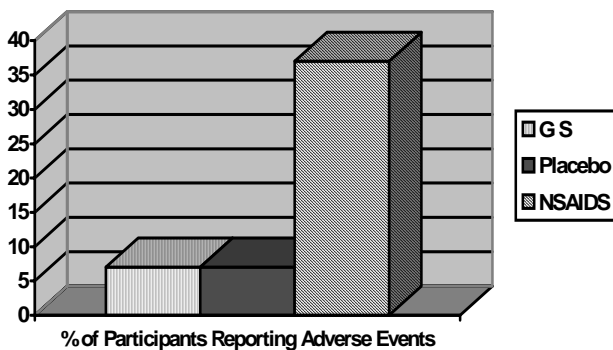


Figure 6 is a compilation of adverse event data from three clinical trials comparing NSAIDs to glucosamine sulfate.

## Apex Fit Ginkgo (Specialty Item)

### **Potential Users:**

- Students, athletes, and others seeking to promote mental focus, concentration and recall power
- For individuals seeking to support cognitive function and memory retention
- Do not use if taking heart medications
- Do not mix with other stimulants

### **Basic action mechanism**

- Increases memory retention, recall power, and decrease time to perform mental tasks

### **Unique Features:**

- Proprietary formula combines several well-studied compounds for improving cognitive function
- Made by a licensed pharmaceutical manufacturer (follows GMPs) that is able to provide herb standardization for purity, and potency and, most importantly, accuracy of content for proper dosage

### **Typical Use:**

- Take one to two capsules two times daily with 8 oz water. Separate doses by at least four hours.

## Apex Lean

***Apex Lean products include those that help you burn fat and retain muscle by increasing energy expenditure, while supporting appetite control.***

### Fat Loss & Appetite Control

***Thermogenic*** refers to a category of compounds that are heat-producing or fat-burning. Taking a thermogenic agent can speed up the metabolism, raise core body temperature and accelerate calorie expenditure.

***Energy wasting*** can also occur as a result of thermogenic compounds. Energy wasting refers to a compound's ability to use up energy. *Energy* is the capacity to do work. *Food energy* is chemical energy, sometimes measured in calories. By wasting energy, compounds enable the body to work harder and use more calories—thus resulting in body-fat reduction and weight loss when total caloric intake is appropriate.

Individuals consume *thermogenic/energy-wasting supplements* in order to enhance body-fat reduction, and thus contribute to body-fat loss. Hypertrophic compounds are also used for the same goal as thermogenic compounds (altering body composition) because increasing muscle mass can indirectly contribute to body-fat reduction.

Some of the compounds in this category are not considered thermogenic, but are used with the intent to reduce body fat. They are included in this section because if a compound enhances body-fat reduction (without controlling appetite) compared to a nonsupplemented state, it must have some effect on metabolism—albeit indirect.

**The objective of thermogenic supplements is to increase 24-hour energy expenditure by wasting calories.** This affords the dieter a larger energy deficit, or creates one if energy intake is currently balanced with output before use. This lessens the workload, hastens results and, theoretically, improves compliance.

The *appetite control* category of supplementation refers to the ability to mitigate the feeling of hunger through initiating signals to the satiety center in the brain.

Like thermogenic supplements, appetite control compounds work towards the goal of altering body composition by weight loss. Thermogenic compounds are used for the objective of increasing metabolism by energy wasting. Appetite control compounds, on the other hand, are used for the objective of lessening the drive to consume energy. This helps clients decrease their food intake to an appropriate range that will help them achieve the goal of altering body composition through weight loss.

**The objective of appetite control compounds is to lessen hunger.** The primary problem with food intake compliance is that it creates an energy deficit—and the drive to consume energy to close that deficit.

## Apex Lean Fat Burn 1: Metabolizer Plus

### Potential users

- Anyone seeking to enhance body-fat reduction without directly affecting the central nervous system (CNS).

### Description

- Tableted preparation supplying a high quantity of lipotropic nutrients involved in fat metabolism in the liver.
- Non-stimulating fat-loss aid.

### Basic action mechanism

- Lipotropics have been shown to hasten the removal of fat from the liver, which is the site of the majority of fat metabolism.
- Supporting liver function may in turn support fat metabolism.
- These compounds are delivered to the tissues by a controlled-release delivery system to help maintain increased lipotropic levels 24 hours/day.

### Typical use

- As a dietary supplement, take one tablet with 8 oz. of water three times a day.
- Discontinue after reaching body-fat loss goal.

## Apex Lean Fat Burn 2 - Expenditure (with Pyruvate)

### Potential users

- Anyone seeking to enhance body-fat reduction without affecting the central nervous system (CNS).

### Description

- A tableted preparation of calcium and sodium salts of pyruvic acid that has been shown to enhance fat loss in association with a reduced-calorie diet.
- The active ingredient is stabilized, buffered, and prepared in an inulin delivery system to maximize utilization.
- Incorporates the patented form of pyruvate.

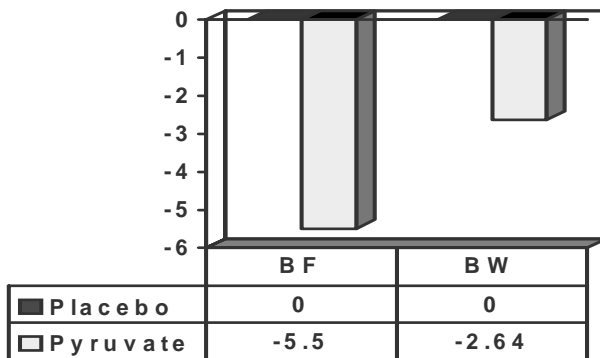
### Basic action mechanism

- Supplies substrate-stimulating energy-wasting (calorie-burning) cycles to enhance fat loss during dieting (see Figure 13).
- Inulin delivery system helps to maintain high blood levels of pyruvate with a lower dosage.

### Typical use

- As a dietary supplement, take two tablets three times daily with 8 oz. water before meals or exercise.
- Use in 6-8 week cycles.
- Discontinue after reaching body-fat goal.

**Figure 13 – Effects of Pyruvate During Fat Loss**



Body fat (BF) and weight loss (BW) lost during six weeks of pyruvate supplementation.

## Apex Lean Fat Burn 3: Intense Thermogenics

### Potential users

- Athletes needing assistance to attain low body-fat levels for competition.
- Individuals a hurry to lose body fat who want to avoid ephedrine but otherwise do not suffer adverse effects from CNS stimulants
- Users should be disciplined in appropriate eating and exercise habits to avoid the possibility of weight regain following cessation.
- Do not use if taking heart medications.
- Do not mix with other stimulants.

### Description

- Proprietary formula lessens the stimulation of the central nervous system compared to similar products, while providing a potent effect on fat loss.

### Basic action mechanism

- Promotes fat metabolism by supporting Brown Adipose Tissue (BAT) and burning more calories by producing heat.

### Typical use

- Take one capsule 3 times daily with 8 oz water.

## Apex Lean Resist Carbs

### Potential users

- Anyone seeking to enhance body-fat reduction without directly affecting the central nervous system (CNS).

### Description

- Tableted preparation containing HCA-600SX (Garcinia cambogia containing 60%(-) Hydroxy Citric Acid)
- Non-stimulating appetite control aid for use during fat loss, especially for carbohydrate cravers.
- Adjunct to Fat Burn 2 supplementation to support appetite control mechanisms while Fat Burn 2 - Expenditure (with Pyruvate) may increase energy wasting (metabolism) without directly stimulating the CNS.
- Prepared in a controlled-release delivery system designed to maximize tissue uptake.

### Basic action mechanism

- Hydroxy citric acid (HCA) has been shown to reduce carbohydrate conversion to fat by mimicking citrate.
- May redirect ingested carbohydrate to fill glycogen stores, which would increase energy and naturally support appetite control mechanisms (see Figure 14).
- May increase thermogenesis (calorie wasting).

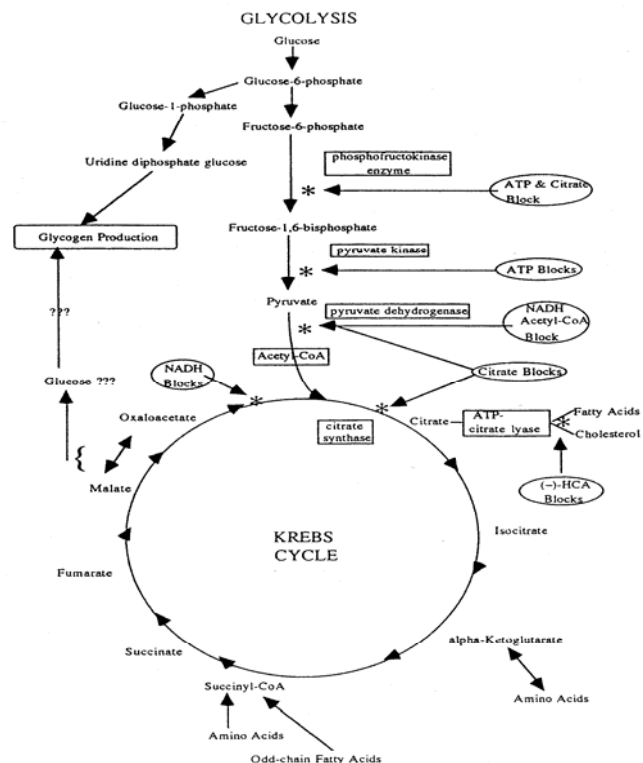
### Typical use

- Take one table three times daily with 8 oz. of water 30-60 minutes before meals.
- Do not use during pregnancy or lactation.
- Discontinue when you have reached body-fat goals.

**Figure 14 – Proposed Mechanism of Action for HCA**

#### Partial Regulation of Glycolysis (Metabolism of Carbohydrates) and the Krebs Cycle by HCA

Using more fat as fuel should help maintain liver glycogen by better management of glycolysis and early initiation of gluconeogenesis.



## Apex Lean Resist Fat

### Potential users

- Non-stimulant aid for supporting natural appetite control mechanisms for overeaters, especially dietary fat cravers.
- Weight or body-fat conscious athletes in the final weeks of competition dieting.
- Not to be used by those with pancreatitis or those with a family history of pancreatitis.

### Description

- Tableted preparation containing Cholecystokinin (CCK), a regulatory peptide involved in appetite control mechanisms.
- This formula uses CCK-8, a peptide form that has demonstrated full biological potency in supporting appetite control mechanisms (see Figure 17).

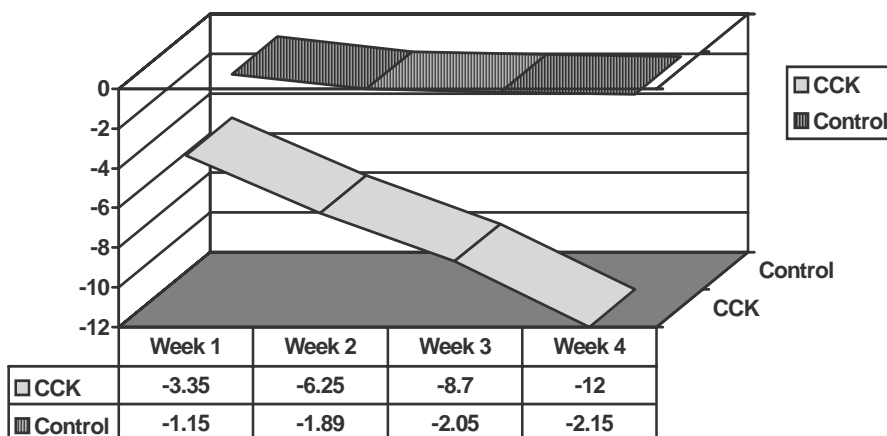
### Basic action mechanism

- Secretion of CCK during digestion sends signals to the central nervous system (CNS), producing satiety. Supplementing CCK may mimic this response, leading to early meal termination.

### Typical use

- As a dietary supplement, take one tablet for every 50 lbs three times daily, 30 minutes before a meal. Take with 8 oz. of water.
- Discontinue after reaching body-fat reduction goal.

**Figure 17 – Effects of CCK on Weight Loss**



## Apex Max

***Apex Max products include those that help you increase muscle mass by enhancing your workout performance, and aiding in a quick recovery.***

Hypertrophy means to increase in size. *Muscular hypertrophy* is the increase in the size of muscle cells. *Hypertrophic compounds* are purported to increase muscle mass. Hypertrophy compounds seek to enable the body to recover from the stress or exercise and increase muscle mass.

Hypertrophic compounds are often used to achieve the human desire to enhance physical health and physique by supplementation for two of the three goals: to enhance physical performance and/or to alter body composition.

**The objective of hypertrophic compounds is to increase the size of muscle mass.** The physiological environment conducive to optimum hypertrophy is a high testosterone (anabolic hormone) to cortisol (catabolic hormone) ratio yielding the largest possible net protein aggregation following resistance training. *Anabolic* refers to promoting anabolism, which is the actual building of tissues, mainly muscle, in the body. *Catabolic* is the opposite of anabolic and refers to the breakdown of tissues, usually from disease, infection, injury, intense training, strict dieting and/or immobilization.

The improved anabolic-to-catabolic ratio enhances this hypertrophy state in part by inhibiting the degradation caused by unaccustomed exercise. Specific substances have shown the ability to reduce cortisol, boost testosterone, increase protein synthesis and reduce 3-methyl histidine markers—a sign of muscle degradation—thus showing potential in creating an optimum atmosphere for hypertrophy.

**The objective of ergogenic compounds is to improve performance.** Ergogenic compounds (performance enhancing) may also be used for enhancing hypertrophy. Ergogenic compounds increase muscular work capacity, which may lead to a training session effect, causing an increase in muscle size.

## Apex Max Recovery

### Potential users

- Novice and experienced athletes during intense training cycles (aerobic and anaerobic).
- Bodybuilders and other weight-conscious athletes during the final weeks of contest preparation.

### Description

- Tableted preparation containing three of the most important amino acids involved in key muscle proteins.
- Leucine, isoleucine and valine are prepared in a cephalin delivery system to increase utilization.
- The ratio of the branched chain in this formula is consistent with positive studies using these amino acids.

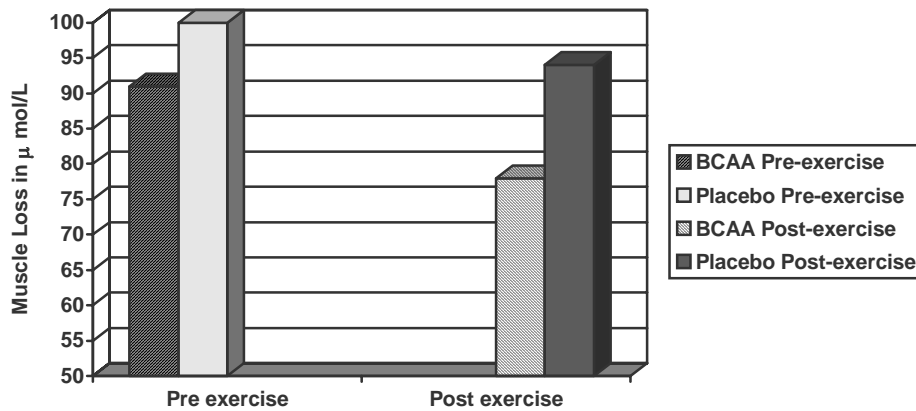
### Basic action mechanism

- Hasten recovery and reduce exercise-induced muscle damage by supplying the nutrients involved in protein synthesis (see Figure 12).
- An additional energy substrate during prolonged, high intensity activities.
- Support neurochemistry, which may help delay fatigue.

### Typical use

- For recovery: take one tablet with 8 oz of water for every 30 pounds of lean body mass before exercise.
- Take each does with one serving of Apex Fit Drink Mix to further enhance the anabolic environment.

**Figure 12 – Effects of BCAA Supplementation on Protein Loss**



## Apex Max Creatine

### Potential users

- All experienced, aspiring and competitive bodybuilders and other anaerobic athletes trying to increase muscle size and strength (see Figure 10 and Figure 11).
- Experienced athletes seeking to improve performance unconcerned with weight gain.

### Description

- Creatine monohydrate and glutamine peptide combined with inulin in a tableted preparation. This form protects past the stomach acid environment and controls the rate of release, allowing the user to maintain cellular phosphocreatine level with minimum intake.

### Basic action mechanism

#### *Creatine*

- Creatine maximizes ATP production for more available energy to increase anaerobic performance.
- Buffers lactic acid because of less reliance on glycolysis.
- May contribute to cell volumization, which may transmit a greater anabolic signal.

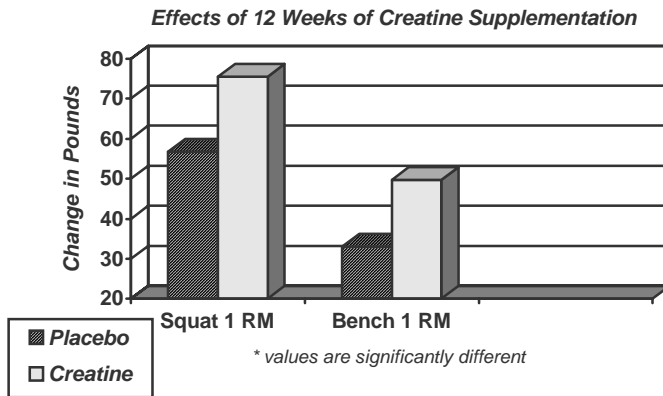
#### *Glutamine*

- May aid with recovery by increasing glutamine levels so muscle will not need to release it (anti-catabolic).
- High levels can help regulate protein synthesis.
- May restore glycogen levels faster.
- Contributes to cell volume.
- Glutamine peptides allow for greater absorption compared to standard glutamine supplements.

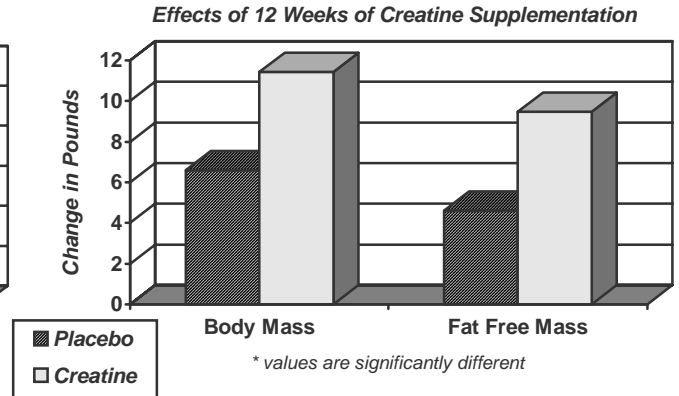
## Typical use

- For maintenance purposes, take 4 tablets with 8 oz of water 45 minutes prior to workouts.
- Take with one to two servings of Apex Fit Drink Mix to further enhance uptake and volumization.
- People with renal complications consult physician before use.

**Figure 10 – Effects of Creatine Supplementation on Strength**



**Figure 11 – Effects of Creatine Supplementation on Muscle Mass**



## Apex Max Volumizer

### Potential users

- All experienced, aspiring and competitive bodybuilders and other anaerobic athletes trying to increase muscle size and strength.

### Description

- Revolutionary combination of cell volumizing nutrients (has no competitor), including high doses of creatine, glutamine and taurine. This formula takes creatine to an unprecedented level.

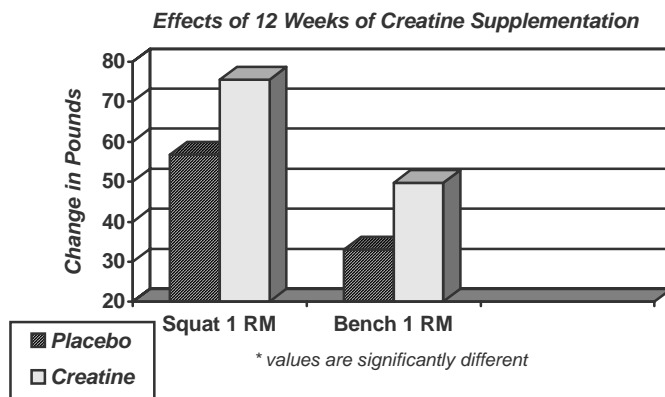
### Basic action mechanism

- The unique blend is designed to increase muscle cell volume, which enhances protein synthesis and increases the size and strength gains from exercise (see Figure 23). The tablet delivery system eliminates the incomplete utilization common with powdered forms of similar products and controls the rate of release for superior volumizing.

### Typical use

- Split 10 tablets into 3 doses. Take 4 tablets 1 hour before a workout and the remaining 2 doses of 3 tablets each throughout the day with 8 oz of water.
- Take with Apex Fit Drink Mix to further enhance uptake and volumization.
- Can be used for all or part of daily creatine intake.

**Figure 23 – The Effects of Creatine Supplements on Strength**



## Apex Max Glutamine

### Potential users

- All experienced, stressed athletes or competitive bodybuilders trying to maintain or increase muscle size and strength, especially while in a calorie deficit.

### Description

- Free glutamine in a powder form.

### Basic action mechanism

- Glutamine remains a viable candidate for dietary supplementation among athletes because it has been shown to support the immune system, promote glycogen synthesis and increase protein synthesis in various groups. In addition, glutamine may increase fluid volume in the cell leading to an increase in lean mass and protein synthesis.

### Typical use

- Highly stressed, calorie deprived athletes, such as in-season bodybuilders,
- Endurance athletes with an enormous exercise workload
- Athletes with a large exercise-energy expenditure and a calorie deficit for fat loss.
- The dose most likely to promote benefit is 5 to 20g/day in 5g doses throughout the day.

## Apex Max NO Xtreme

### Potential users

- Aid for experienced anaerobic athletes to enhance size and strength gains from exercise.
- Performance athletes not affected by weight gain (must self-determine).
- All experienced, aspiring and competitive bodybuilders and other anaerobic athletes attempting to increase muscle size and strength.

### Description

- A powdered mix used for immediate energy production and overall size and performance enhancement.

### Basic mechanism of action

- The base proprietary blend contains compounds that work synergistically to increase blood flow (vasodilatation). The greater blood flow to skeletal muscle would theoretically increase the delivery of oxygen, energy and rebuilding nutrients, while hastening the removal of waste products leading to a potential strength improvement, less muscle breakdown and greater net protein synthesis especially if combined with an appropriate “dose and timed” delivery of specific amino acids (see anabolic formula).

### Typical use

- 30-40 minutes before workout:
- Under 150 lbs. take 1.5 scoop
- 151-190 lbs. take 2 scoops
- 191 lbs. plus take 2.5 scoops
- Not necessary on non-workout days if using other products containing creatine, otherwise use half of recommended dose on non-training days.
- Do not exceed three scoops (primarily based on caffeine content).
- May use in conjunction with the Apex Anabolic Amino Xtreme and/or Apex Volumizer (see Seasonal Muscle and Strength Building Stacking Procedures)

## Apex Max Anabolic Amino Xtreme

### Potential users

- The product can stand alone especially for hard training athletes not wanting quick weight gain but needing rapid muscle tissue recovery (all track, basketball, most baseball, wrestlers, boxers, runners, cyclists, etc.) based on frequent events and training sessions.
- All older hard training exercisers/athletes.
- Physique competitors, especially during prolonged negative energy balance (dieting).
- An essential component in a unique stacking sequence for experienced adult strength and size exercisers/athletes.

### Description

- A powdered mix used to enhance muscle recovery during intense training cycles.

### Basic mechanism of action

- Amino Acid (AA) feeding stimulates protein synthesis independently of all other mechanisms. The Anabolic Amino Xtreme supplement contains a proprietary essential amino acid (EAA) composition that mimics the skeletal muscle AA profile, thus increasing the availability of the EAA in proportion to the requirement for muscle protein synthesis (MPS).

### Typical use

- Each training day\* (ranges based on size or greater stresses, e.g. prolonged dieting, extreme training conditions, etc.):
- 10 to 30 minutes pre-workout: Drink 20-40g of CHO with 6-12g of Anabolic Amino Xtreme
- Use Apex High Performance or Workout Shake
- Immediately following training, ingest 6-12g of Anabolic Amino Xtreme
- 20 to 40 minutes after post workout Anabolic Amino Xtreme ingestion, consume a mixed meal drink of ~30-50gms of CHO with 15-30g of protein and low fat (2-4g).
- Use Apex High Performance or Workout Shake
- Consume normal post workout whole-food meal at ~ two hours post training
- \*Optional for potentially maximizing results: repeat the 6-12g Anabolic Amino Xtreme ~one hour before next meal or before bed.

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# Apex Fitness Fast Foods

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## **BARS**

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### **Apex Fit Quick Energy Bars**

#### **Potential users**

- For anyone as:
  - A meal substitute
  - An early morning or pre-workout meal
  - An aid to satiety
  - A better dessert option
- An experienced exercise
  - As a pre- and post-workout meal to enhance training and recovery.
  - Can be used during training.

#### **Description**

- A great tasting nutritional snack providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- Bars come in a variety of flavors, including chocolate chip cookie dough, chocolate peanut butter cup, cookies n' cream, and oatmeal raisin. Available flavors may vary.

#### **Basic action mechanism**

- This preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

#### **Typical use**

- When necessary if food is not an option, but not to exceed 1/3 of daily caloric intake.

## Apex Fruit Fuel High Fiber Energy Bar

### Potential users

- For anyone as:
  - A meal substitute
  - An early morning or pre-workout meal
  - An aid to satiety
  - A better dessert option
- An experienced exerciser:
  - As a pre- and post-workout meal to enhance training and recovery
  - Can be used during training

### Description

- A great tasting nutritional snack providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- Available flavors may vary.
- A good source of fiber.
- An excellent source of protein.

### Basic action mechanism

- This preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- When necessary if food is not an option, but not to exceed 1/3 of daily caloric intake.

## Apex Fit Soy Bars

### Potential users

- For anyone as:
  - A meal substitute
  - An early morning or pre-workout meal
  - An aid to satiety
  - A better dessert option
- An experienced exercise
  - As a pre- and post-workout meal to enhance training and recovery.
  - Can be used during training.

### Description

- A great tasting nutritional snack providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- A great source of soy protein providing 9g – 11g per bar.
- Bars come in a chocolate peanut butter cup. Available flavors may vary.

### Basic action mechanism

- This preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- When necessary if food is not an option, but not to exceed 1/3 of daily caloric intake.
- As a great source of soy protein.

## Apex Fix Crisp Bars

### Potential users

- For anyone as:
  - A meal substitute
  - An early morning or pre-workout meal
  - An aid to satiety
  - A healthy snack with fewer calories than the Fit line
  - A better dessert option
- An experienced exercise
  - As a pre- and post-workout meal to enhance training and recovery.
  - Can be used during training.

### Description

- A great tasting nutritional snack providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- Bars come in a variety of flavors, including chocolate peanut butter, citrus and oatmeal raisin. Available flavors may vary.

### Basic action mechanism

- This preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- When necessary if food is not an option, but not to exceed 1/3 of daily caloric intake.

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## BAKED GOODS

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### Apex Fix Cookies

#### Potential Users

- For anyone as:
  - A meal substitute
  - An early morning or pre-workout meal
  - An aid to satiety
  - A better dessert option
- An experienced exercise
  - As a pre- and post-workout meal to enhance training and recovery.
  - Can be used during training.

#### Description

- A great tasting cookie providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- Apex Fix Cookies come in a variety of flavors, including white chocolate chip, chocolate chip, chocolate candy, peanut butter candy, chocolate mint chip and double chocolate chip. Available flavors may vary.

#### Basic Action Mechanism

- To be used as a healthy snack and to maintain a consistent calorie intake.
- This preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

#### Typical Use

- When necessary if food is not an option, but not to exceed 1/3 of daily caloric intake.

## Apex Breakfast Square

### Potential users

- For anyone as:
  - A meal substitute
  - An early morning or pre-workout meal
  - An aid to satiety
  - A better dessert option
- An experienced exercise
  - As a pre- and post-workout meal to enhance training and recovery.
  - Can be used during training.

### Description

- A great tasting nutritional snack providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- Squares come in a variety of flavors, including oatmeal raisin, oatmeal chocolate chip and oatmeal apple cinnamon. Available flavors may vary.

### Basic action mechanism

- This preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- When necessary if food is not an option, but not to exceed 1/3 of daily caloric intake.

## SNACKS

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### Apex Potato and Sweet Crisps

#### Potential Users

- For anyone as:
  - An addition to a meal
  - A hundred-calorie snack
  - An aid to satiety
  - A healthier alternative to regular chips.

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#### Description

- Great tasting popped chips containing 60% less fat and only one-hundred calories in the whole bag.
- Apex Potato Crisps come in a variety of flavors, including original, barbeque and ranch. Available flavors may vary.

#### Basic Action Mechanism

- To be used as a healthy snack and an alternative to regular potato chips.
- May be used to maintain a consistent calorie intake for those trying to lose or maintain weight.

#### Typical Use

- As a snack or addition to a meal.

## DRINKS

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### Apex Fit Drink Mix

#### Potential users

- For anyone as:
  - A meal replacement
  - An aid to fat loss and satiety.
- An experienced exerciser
  - A pre- and post-workout liquid meal to enhance training and recovery
  - As an addition to cell-volumizing nutrients.

#### Description

- A great tasting meal replacement drink providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- This formula includes proteins with the highest biological values, such as whey, egg and caseinate.
- This formula can be used with other Apex products so you can maintain a safe and optimum range of total nutrient intake.
- Available in Chocolate, Double Chocolate, Orange Crème, Café Mocha, Strawberry and Vanilla Supreme flavors. Available flavors may vary.

#### Basic action mechanism

- One formula (Chocolate and Strawberry) contains fructose, a natural sweetener that does not evoke an insulin response compared to other sweeteners.
- The powdered preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.
- The ideal ratio of protein, fats and carbohydrates works to enhance testosterone and other anabolic hormones to improve protein synthesis.

#### Typical use

- Add two scoops of powder to one cup (8 oz.) of cold water or liquid of choice. For a rich milkshake effect, blend with crushed ice and/or your favorite fruit. Be creative, but count your calories.
- Experienced exercisers take one scoop before and after workout to enhance the anabolic environment and/or to add to volumizing nutrients (e.g., creatine).

## Apex Fit Soy Drink Mix

### Potential users

- For anyone as:
  - A meal replacement or an aid to fat loss and satiety.
- An experienced exerciser
  - A pre- and post-workout liquid meal to enhance training and recovery
  - As an addition to cell-volumizing nutrients.
- Females seeking to add the health benefits of soy to their diets.
- Vegetarians seeking a meal replacement drink.

### Description

- A great tasting meal replacement drink providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- This formula includes soy protein isolate with a high protein quality score.
- This formula can be used with other Apex products so you can maintain a safe and optimum range of total nutrient intake.
- Comes in chocolate and vanilla flavors.

### Basic action mechanism

- This formula contains fructose, a natural sweetener that does not evoke an insulin response compared to other sweeteners. This formula contains fiber to promote a feeling of fullness.
- The powdered preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- Add two scoops of powder to one cup (8 oz.) of cold water or liquid of choice. For a rich milkshake effect, blend with crushed ice and/or your favorite fruit. Be creative, but count your calories.

## Apex Lean Drink Mix

### Potential users

- For anyone as:
  - A meal replacement
  - An aid to fat loss (see Figure 7).
  - An aid for satiety.
- An experienced exerciser
  - A pre- and post-workout liquid meal to enhance training and recovery.

### Description

- A great tasting meal replacement drink providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- Soy protein and fiber are added to promote the myriad health benefits of these nutrients.
- This formula includes proteins with the highest biological values, such as whey, egg and caseinate.
- This formula considers the use of other Apex products to maintain a safe and optimum range of total nutrient intake.

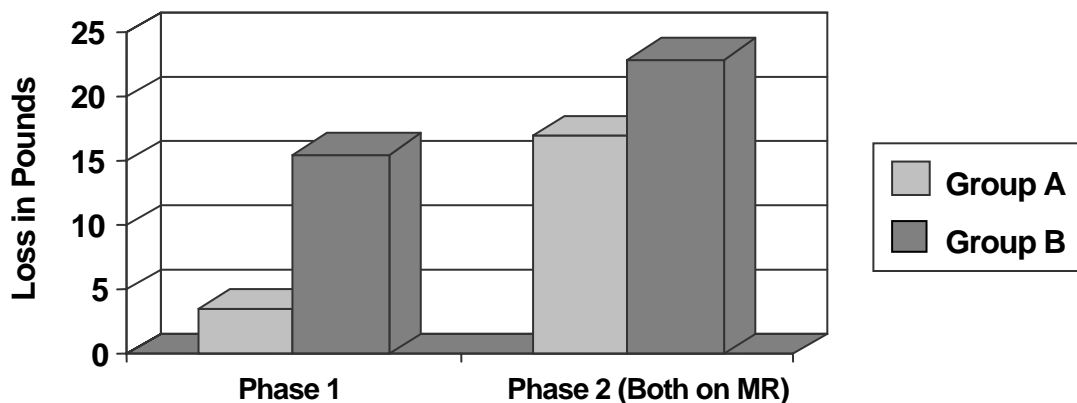
### Basic action mechanism

- This formula contains fructose, a natural sweetener that does not evoke an insulin response compared to other sweeteners.
- This formula contains fiber to promote a feeling of fullness.
- The powdered preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- Add two scoops of powder to one cup (8 oz.) of cold skim milk or water. Stir or blend until smooth. For a rich milkshake effect, blend with crushed ice and/or your favorite fruit. Be creative, but count your calories.

**Figure 7 – Use of Meal Replacements for Fat Loss**



Phase 1 included the first three months of the study where Group A used no meal replacements and Group B used two daily. Both groups were prescribed the same calories. Phase 2 spanned two years—both groups were given the same diet, including one meal replacement and one snack.

## Apex Max Drink Mix (High Performance X-treme)

### Potential users

- For anyone:
  - As a meal replacement
  - To increase caloric intake for the goal of weight gain
  - As an early morning or pre-workout meal.
- An experienced exerciser
  - As a pre- and post-workout liquid meal (when mixed with additional carbohydrates) to enhance training and recovery
  - As an addition to cell-volumizing nutrients (e.g., creatine).

### Description

- A great tasting meal replacement drink providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- This formula includes proteins with the highest biological values, such as whey, egg and caseinate.
- This formula works with other Apex products to maintain a safe and optimum range of total nutrient intake.
- Comes in chocolate and vanilla flavors.

### Basic action mechanism

- This supplement provides high protein in low volume to help increase protein intake during weight gain.
- The powdered preparation of nutrients facilitates rapid absorption in order to enhance the workout and recovery process.

### Typical use

- Add two scoops of powder to one cup (8 oz.) of cold milk, water or liquid of choice. For a rich milkshake effect, blend with crushed ice and/or your favorite fruit. Be creative, but count your calories.
- Mix and use as needed but should not exceed 1/3 of daily caloric intake.

## Apex Max Whey Drink Mix

### Potential users

- Adults who do not meet protein requirements from food intake, especially cosmetic athletes and other athletes (strength, endurance and active recreational) during an adaptation period.
- Weight and body-fat conscious athletes during the final weeks of competition dieting, in order to meet protein requirements with fewer calories.
- Underfed and over-trained athletes.

### Description

- A great tasting, high biological value protein source in powdered form, for greater absorption and retention.
- Has a high content of BCAA (more than 50% of the essential amino acid content) needed for recovery and energy.

### Basic action mechanism

- Supply protein to meet exercisers' increased needs when food is not an option due to calories or schedule restraints.
- This peptide and free form amino acid blend increases absorption and may decrease nitrogen (muscle) losses during severe or prolonged weight reduction or intense exercise (see Table 3).

### Typical use

- Add to food intake to meet protein requirements: usually 1.2 to 2.0 g/kg/d; specific amounts depend on age, activity, intensity, and energy intake.
- As a dietary supplement, an appropriate dose is one scoop mixed with 8 to 12 oz. of cold water, milk or juice. Mix thoroughly in a blender or shaker.

Table 3 - Peptide Chain Length

Starter Protein	Hydrolysate Type	>5	4-5	2-3	Amino Acids	Nitrogen Absorption (%)	
Whey protein	Short chain	40	23	32	5	37.7	P<0.001
	Long chain	98	--	--	2	12.1	
Ovalbumin	Short chain	Trace	16	75	9	33.6	P<0.005
	Medium chain	Trace	68	24	8	23.0	
Casein	Short chain	Trace	22.5	69.5	8	32.0	P<0.005
	Medium chain	Trace	64	35	1	24.5	

## Ready-to-Drink: The Workout Shake™

### Potential users

- For anyone as:
  - A meal replacement
  - An aid to fat loss and satiety
- An experienced exerciser:
  - A pre- and post-workout liquid meal to enhance training and recovery
  - As an addition to cell-volumizing nutrients

### Description

- A great tasting meal replacement drink providing an ideal ratio of protein, carbohydrates and fat in a form that is easily digested and quickly assimilated by the body.
- This formula can be used with other Apex products so you can maintain a safe and optimum range of total nutrient intake.
- This formula includes proteins with the highest biological values, such as whey and caseinate.
- Available in Rich Chocolate and Creamy Vanilla flavors. Available flavors may vary.
- Excellent source of calcium.
- Excellent source of protein.

### Basic action mechanism

- As a liquid, it facilitates rapid absorption in order to enhance the workout and recovery process.
- The ideal ratio of protein, fats and carbohydrates works to enhance testosterone and other anabolic hormones to improve protein synthesis.
- This formula includes proteins with the highest biological values, including whey and caseinate.
- It contains sucrose instead of fructose, since fructose does not elicit the insulin response deemed necessary for maximum muscle-glycogen storage and protein synthesis post workout.

### Typical use

- Anyone:
  - Early-morning or pre-workout meal
  - Meal substitute
  - Aid for satiety
- Experienced exercisers:
  - Pre- and post-workout liquid meal to enhance training and recovery
- Drink one serving before or after workouts
- Shake well before use. Serve cold. Refrigerate after opening. Do not freeze. Store in a cool, dry place.

### Protein Recommendations for Athletes

	<b>Strength Athletes</b>	<b>Active Recreational Athletes</b>	<b>Endurance Athletes</b>
<b>Minimum acceptable intake</b>	1 g/kg/d	1 g/kg/d	1.4 g/kg/d
<b>Adaptation period (training)</b>	1.6 to 2 g/kg/d	1.2 to 1.8 g/kg/d	1.6 to 2 g/kg/d