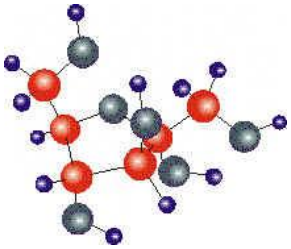
Alpha ENF

A Meal Replacement Formula



Alpha Nutrition Medical Foods

Alpha Nutrition specializes in elemental nutrient formulas, the pure expression of nutrient biochemistry. We use the concept of nutrient modules to create nutrient formulas. We provide a choice of nutrient modules so that food can be replaced, nutrient intake can be supplemented and balanced in a variety of ways. These precise nutrient sets are formulated by assembling nutrients into modules that supply energy, electrolytes, antioxidants, phosphate, vitamins, minerals, neurotransmitter substrates and amino acids as the protein building blocks. The formulas are all packaged as dry powders to be mixed with water or juices and taken orally.

You can obtain further information and email support at our web site, found at http://www.alphanutrition.com or http:/www.nutramed.com

Formula orders are place online

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Links to Online Resources

Purchase Alpha ENF Online

If you are using Alpha ENF and have not read the Alpha Nutrition Program, you can order the book online. A printed edition is essential if you need diet revision instructions. Order Books Online

For all formula Information See Modular Nutrition Online

If you have not yet ordered Alpha ENF and need to solve a health problem, consider ordering one of the Alpha Nutrition Starter Packs - you will receive the Alpha Nutrition Program and a 500 Gram bottle of Alpha ENF to evaluate. Most starter packs come with a second book, a complete course in the specific health problems you seek to solve.

Alpha Nutrient Formulas

Alpha Nutrition formulas provide a choice of nutrient modules so that nutrient intake can be supplemented and balanced in a variety of ways. We designed Alpha ENF to supply complete nutrition and it remains the formula of choice for meal replacement. The formulas are assembled by combining modules that supply energy, electrolytes, antioxidants, phosphate, vitamins, minerals, neurotransmitter substrates and amino acids as the protein building blocks.

- Alpha ENF is the complete nutrient set for meal replacement.
- Alpha PMX is the complete nutrient set minus the vegetable oil with increased amino acids.
- Alpha DMX is a subset of all vitamins, amino acids and minerals except sodium. The formula contains no fats.
- Alpha AAX is the complete amino acid module.

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Alpha ENF is a Meal Replacement Formula

Alpha ENF is an elemental nutrient formula that contains nutrients in powder form to be mixed with water, fruits, vegetables or juices in a blender. Alpha ENF can be used alone short-term to supply your nutritional needs or combined with foods to supply part of the day's nutrition. Nutrient intake can be quickly boosted by adding Alpha ENF to a fruit or vegetable juice and will often be tolerated when other foods are not. The high nutrient density of Alpha ENF can be used strategically to support nutrition whenever nutrient or caloric deficiency is a concern and can curb appetite when weight loss is the goal. The formula is hypoallergenic and is well tolerated even by people who are hypersensitive to many foods and food additives. The formula is free of additives, colorants and animal products.

A blender quickly mixes the powder with water hot or cold. Alpha ENF will turn fruits or vegetables into a complete meal. You can also mix Alpha ENF by shaking the formula with water or juice in a closed container.

The amount of Alpha ENF used per day depends on nutritional needs. Alpha ENF can be used alone to supply all your nutritional needs or combined with foods to supply part of the day's nutrition.

The serving size of Alpha ENF can vary from 30 to 100 grams; the average serving size is 50 grams or about 1/3 cup of formula - mix in one or more cups (220 ml) of water. One 50-gram serving is worth about 180 Calories. Because Alpha ENF is a concentrated mix of nutrients, extra water is recommended between servings of the formula.

Instructions: Start with Alpha ENF 50 grams in juice as a quick breakfast or snack. After a few days, increase the dose to 50 grams three times a day for a total of 540 Calories per day. You would also have two meals to supply, for example, another 500 to 1000 Calories per day, depending on your nutritional needs and goals.

Since the nutrients in Alpha ENF are quickly absorbed and are utilized quickly, it is a good idea to have frequent, smaller servings of Alpha ENF. For example, instead of having 100 grams three times a day, it is better to have 50 grams, six times a day, every two hours. It is not a good idea to go more than three hours between servings of Alpha ENF, since you may experience a "power-down" as you run out of nutrients.

Summary of ENF Applications

Alpha ENF is a complete nutrient formula that replaces food and provides nutrient supplementation in variety of ways. The formulas can be used whenever eating is difficult, food intake is reduced or eating food causes symptoms. Here are some common applications of the formula:

Meal Replacement
Nutritional Supplement
Food Holiday
Tube Feeding
Traveling Food
Fitness Booster
Digestive Disorders
Weight Management
Fasting and Detoxification
Irritable Bowel Syndrome
Crohn's Disease
Ulcerative Colitis
Celiac Disease
Bowel Surgery
Food Allergy
Eczema
Hives
Asthma
Arthritis
Fibromyalgia
Chronic Fatigue
Migraine Headaches
Alcohol Addiction
Eating Disorders
Loss of Appetite
Malnutrition

Instructions for Mixing & Use

Alpha ENF is an elemental nutrient formula in powder form that contains a mixture of pure nutrients. The formula is mixed with water and juices. When a food holiday is required to clear symptoms, ENF is mixed with water in a blender. We recognize that pure nutrients are not delicious but they are good for you! The overall tastes are sweet, salty and a bit metallic. There tends to be a lingering salty after-taste. While it is tempting to add a lot of flavoring, coloring, sweetening and emulsifying additives to Alpha ENF to make it taste better, we have always resisted the temptation. Instead, we concentrated on the safety and effectiveness of the formula. For most people, Alpha ENF functions best if it is kept pure.

If your food tolerance permits, pleasant drinks can be made with fruits or vegetables, water, and Alpha ENF mixed in the blender, with ice if you like it cold. A blender quickly mixes the powder with any liquid, hot or cold. Alpha ENF will turn any fruit or vegetable juice into a complete meal.

The Best Way to Mix Alpha ENF when you tolerate some foods is to add fresh or frozen fruit or vegetables with water or juices in a blender or Nutribullet type of smoothie maker. We often use frozen fruits + ENF + Water in a Nutribullet blender that quickly mixes the powder with the water and frozen fruit. Depending on your food tolerances, rice milk, soya milk and yogurt may be added to the DMX mix. If you do not have a blender, you can also mix Alpha ENF by shaking the formula with juice in a closed container.

Many fresh and fruit juices are compatible with Alpha ENF. For example, an easy mix is to add frozen orange concentrate, Alpha ENF and water in the blender - 30 seconds at medium speed is usually enough for a good mix. Use unsweetened frozen juice concentrates. Canned fruits such as peaches or pears can be blended with Alpha ENF and ice to make a fruit "smoothie". Frozen berries - blueberries, raspberries and strawberries also make good Alpha ENF smoothies. Fresh fruits such as mango, cantaloupe and honeydew can be mixed in the blender with Alpha ENF (ice and water) to make refreshing, nourishing drinks.

Vegetable juices are also good mixed with Alpha ENF. If you make juice in a juicer, either vegetable or fruit, just add Alpha ENF at the end of the juicing run. If you are going to make larger quantities of juice and store it in the fridge, it is better not to add Alpha ENF to the juice to be stored, but wait until you serve the juice to add Alpha ENF.

Instructions are based on gram weight measurements. The only way to accurately measure the formula servings is with a gram scale. Fortunately, this is seldom necessary. You can use standard kitchen measuring cups to approximate the gram servings. Conversions from weight to volume are never very accurate so you don't have to worry about being precise. For example, a 50 gram serving of Alpha ENF or Alpha PMX is somewhere between 1/3 cup and 1/2 cup. Use a plastic measuring scoop. If the scoop is rated at 1/3 cup, use a heaping serving of the formula. If the measuring scoop is 1/2 cup, a flat serving, a little under the mark will achieve about the same formula weight. One 1000 gram jar (gross weight) of Alpha ENF contains 910 grams of formula, enough for 3 days complete nutrition at 300 gram per day.

Best Used Before Date

Alpha ENF is a perishable food. Like all foods, Alpha ENF is labeled with a best used before date. Since most of the formula is sold directly to end users, formulas usually arrive with several months of shelf life. Check the best-used date when the formula arrives and plan to use it all before that date. The formula should be stored in a cool location, below 65 degrees F. Exposing the formula to increased heat will decrease shelf life and is associated with increased odors when you open the jar. Avoid exposing the packaged formula to direct sunlight and temperatures above 72 degrees F. Refrigerate open jars of the formula if possible. Except when exposed to temperatures higher that 80 degrees F, the formula is stable and will not suddenly expire. If you want to store the formula beyond the best-used date, simply refrigerate. The formula can be stored in a freezer to extend its shelf life for at least an additional year. After mixing the formula in juice, the mix will ferment quickly if warm. Keep refrigerated or carry in a thermos with added ice.

Part of the Day's Nutrition

Servings of Alpha ENF replace meals and can supply part of your daily nutrition. For example, you may start with Alpha ENF 50 grams three times a day for a total of 500 Calories per day. You would also have two meals to supply, for example, another 500 to 1000 Calories per day, depending on your needs and goals. The morning and late afternoon tend to be critical times in the day when Alpha ENF can provide good energy and appetite stability. The next critical time if you are working is coming home, tired and disinterested in food preparation; you will tend to seek a food reward as you relax and recover from the day's activities. Often a serving of Alpha ENF mixed with fruit or fruit juice will satisfy your immediate nutritional needs; later you can prepare an evening meal at a leisurely pace.

Since the nutrients in Alpha ENF are readily available and are utilized quickly, it is a good idea to have frequent, smaller servings of Alpha ENF. If you alternate between Alpha ENF and meals, the timing is not so critical because you will have slower, sustained release of nutrients as you digest food.

A day's Alpha ENF schedule might be:

8 AM	Alpha ENF 50 to 100 grams
10:30 AM	Alpha ENF 50 to 100 grams
12:30 PM	Lunch
3:30 PM	Alpha ENF 50 to 100 grams
6 PM	Dinner

ENF Food Holiday

Alpha ENF is a meal replacement formula and can be used to supply complete nutrition during a food holiday. Our experience suggests that there are many people who know they need or want a food holiday. Some have already tried cleansing programs or fasting and felt better. Others are aware that their food is hurting them but have not yet taken action to stop the problem. There are other people who would benefit from a food holiday but do not know it; they suffer illnesses that are food-related but the relationship between food intake and symptom production is concealed. All these people can benefit by replacing food with Alpha ENF for a food holiday. A complete food holiday is the treatment for choice for delayed pattern food allergy, digestive disorders and immune-mediated inflammatory disease. A food holiday will often produce remission of disease activity in conditions such as hives, eczema, asthma, migraine, inflammatory arthritis, Crohn's disease, celiac disease, chronic fatigue, fibromyalgia, and irritable bowel syndrome.

For centuries, fasting has been used as a healing strategy. Fasting can be though of as a food holiday with health benefits but the penalty is no nutrient intake. Our insight into the benefits of fasting is simple - when you stop eating problematic foods, you tend to get better. People with delayed pattern food allergy, for example, seldom know that their food is making them sick until they try fasting and feel dramatically better. The trouble with fasting is that you are also starving - there are no nutrients coming in. Alpha ENF to the rescue! All the benefits of fasting are available when you take a food holiday on Alpha ENF. You get nutrients minus food problem. You can take as much Alpha ENF as your body needs to supply energy and be physically active, to restore damaged tissue and to regulate your body weight.

The idea of reducing the body burden of non-nutrient chemicals - toxic and otherwise has been pursued by research groups. Young et al investigated the change in serum and urinary metabolites on an elemental formula similar to Alpha ENF. They stated that urine "contains a vast number of chemical constituents...many are exogenous." These excreted chemicals were contained in the food and beverages ingested and had to be detoxified and excreted by the body. The traffic of non-nutrient chemicals through the body can be thought of as the "overburden" or a cost of food processing. Reducing the cost of food-processing is metabolic rest. After several days on Alpha ENF, the concentration of excreted chemicals declined. Detox and fasting merge in some contexts; people drink juices, take herbs, and other concoctions, hoping to feel better. Often complex programs of fasting, colonics, saunas, are combined with medicinal potions. Our view is that all the benefits of all the detoxification programs can be achieved very simply, inexpensively and safely. Stop eating and enjoy Alpha ENF in juices as your nutrient supply.

When you are using Alpha ENF for complete short-term nutrition, you should have at least one 50 gram serving 6 times a day. You can increase the serving size until your caloric needs are met. Six 50-gram servings or 300 grams provides 1180 Calories, a recommended daily minimum intake. Increase the serving size of formula until your caloric intake is adequate to meet your needs. If you use 50 grams 6 times per day, one 1000 gram (gross weight) bottle will last 3 days. You need 4 kilograms or more of Alpha ENF to complete a 10-day food holiday. The following schedule represents a minimum daily intake of 300 grams or 1000 Kcal divided into 6 feedings.

8 AM	Alpha ENF 50 grams
10:30 AM	Alpha ENF 50 grams
12:30 PM	Alpha ENF 50 grams
3:30 PM	Alpha ENF 50 grams
6 PM	Alpha ENF 50 grams
9 PM	Alpha ENF 50 grams

When higher caloric intakes are required, the serving size can be increased and a seventh serving added before bed. Experienced Alpha ENF users can increase the amount taken per serving up to 100 grams.

Long Term Formula Use

When Alpha ENF or PMX are required to supply most or all nutrition for periods longer than 2 weeks, then additional nutrients are required. Expert professional supervision is recommended. There are several nutrient requirements in long term use (months to years) that are not met by the formulas. A patient who has to repair tissues needs more amino acids, and Alpha AAX can be added. In long term use, fat in the form of vegetable and fish oils can be added to increase caloric intake and complete a desirable fatty acid composition. You can add vegetable oil up to one tablespoon per 100 grams of the formula. A combination of extra virgin olive oil and Canola oil is recommended. Fat intake can be increased from 20 to 30% of daily caloric intake if tolerated. Estimate vegetable oil requirement as 9 calories per gram of oil. Add omega 3 fish oil (salmon or blend of fish oils) to provide DHA daily intake of at least 300 mg. By adding oil, you can increase the energy intake profile toward carbohydrate 60% Fat 30 % Amino Acids 10% of daily calories. We recommend that a nutrient intake analysis is done and compared with recommended intakes. In addition regular blood tests are recommended to assess nutrient absorption and metabolic status. This testing should include blood counts, vitamin B12, electrolytes, kidney and liver function, including prothrombin measurement. Supplemental Vitamin K1 and B12 are often required. Other "accessory" nutrients that are available in food but are absent in the formulas may also be desirable in the long term. All the advice regarding supplementing a regular diet may be relevant when relying on Alpha formulas long term. The accessory nutrients that we find most attractive are CoEnzyme Q10, alpha lipoic acid, and omega 3 fatty acids. See the companion book, **Nutrition Notes** for a detailed evaluation of nutrient intake recommendations and accessory nutrients.

Alpha Nutrition Program

The Alpha Nutrition Program is a set of instructions designed to resolve disease through diet revision. The program is nutritional therapy, a personal technology of health restoration and health maintenance. The use of Alpha ENF is incorporated into the program as a meal replacement and nutrient supplement formula. While ENF can be used without the program, we encourage everyone with a food related disease to redesign their diet using the program's instructions. The development of the Alpha Nutrition Program began many years ago with the observation that some food selection patterns are associated with dysfunction and disease. In one person, for example, the daily ingestion of multigrain bread, milk, cheese, bran muffins, beef, coffee, orange juice, and wine is associated with chronic fatigue, sleepiness after eating, nose congestion, flushing, headaches, generalized aching, stiffness, and episodes of unexplained depression. When the food list is changed to rice, vegetables, chicken, peaches, and pears, the symptoms disappear and the person reports increased energy and a renewed sense of well-being. Similar observations are reported in a large sample of people of all ages. A variety of other dysfunctional patterns are found to improve with proper diet revision. We reasoned that everyone probably has a small set of best-fit foods that would allow them to feel and function optimally. The first goal of therapy should then be to identify the simplest set of best foods for each person. The core concept further developed as we kept score of adverse food reactions reported by patients and found that rice and common, cooked vegetables were among the best tolerated and most acceptable of all food choices.

Space Diet

Elemental nutrient formulas represent the ultimate reduction of food and have been called "Space Diets". NASA sponsored ENF development to define the minimum weight and volume requirement for human food. A variety of ENFs had been designed and tested by various research and commercial groups over the past 4 decades. ENFs had been used to manage serious digestive diseases and to provide adequate nourishment when eating food was undesirable or impossible. Early formulas were often administered by tube feeding. Taste and texture were not important. Early applications of ENFs included pre- and post-operative nutrition, the treatment of diarrhea, malabsorption, malnutrition, Crohn's disease, ulcerative colitis, pancreatic disease, and short gut syndrome. If food problems are suspected of causing an illness, a trial of clearing on an ENF would confirm or deny food involvement usually within 10-14 days. If the ENF clearing proved successful, the Alpha Nutrition Program style of food reintroduction could become a standard method of redefining a safe diet. By the early 80's it became apparent that there were new opportunities to apply ENFs to solving common health problems. A new theory of food allergy emerged to explain common and chronic diseases such as asthma, eczema, hives, migraine headaches, chronic fatigue, irritable bowel syndrome and a number of other conditions.

Surgery and Healing Injuries

Alpha ENF & Alpha PMX can be used to supply nutrients before and after surgery. Often, pre-operative preparation requires a period of reduced food intake or fasting and Alpha ENF can be used as a completely absorbed and fully nourishing food-replacement. After surgery, eating may be difficult or undesirable and the Alpha formulas can supply much-needed nutrients efficiently. Studies have shown experience confirms that people recover better from surgery if they are well nourished before and after.

Tissue injuries require increased nutrient intake to heal properly. Increased intake of nutrients can be beneficial to injured patients. Often after injuries, as after surgery, good nutrition is neglected or difficult to achieve. Appetite may be suppressed by pain and drugs. Hospital food may be unappetizing and nutritionally inferior. Alpha ENF to the rescue! Hospitalized patients have used their own Alpha ENF kept at their bedside to boost their nutrition.

Padden-Jones et al demonstrated that essential amino acid and carbohydrate (EAAC) supplementation maintains muscle protein synthetic capacity and reduces lean muscle loss in patients who are immobile or confined to bedrest. In young healthy individuals, the combined effect of EAACs on muscle protein synthesis is greater than the sum of their independent effects. They used 16.5 g essential amino acids and 30 g carbohydrate three times daily. They stated:" EAAC supplementation maintained muscle protein synthetic capacity and ameliorated muscle loss during 28 d of bed rest. Our data also suggest that there was no change in muscle protein breakdown associated with bedrest or EAAC supplementation." (Clin Endocrinol Metab. 2004;89:4351-4358)

Feeding Sick Infants

Commercially prepared formulas, made from cow's milk or soya beans, have progressed over the years toward a more "human" composition by significant processing of the milk and addition of nutrients. Both cow's milk and soya based formulas present a host of potential problems, however to some infants. Cow's milk causes disease through its protein content by causing both immediate and delayed patterns of allergy. Soya formulas present similar protein allergy problems and also contain plant estrogens that may interfere with normal development. If mother decides not to breastfeed her infant, there are no easy safe and secure formulas to turn to. The decision is often based on guessing which formula offers the least risk of problems. We have deleted all recommendation for soya formulas as replacements for cow's milk formulas. When infants react to cow's milk formulas, hydrolyzed milk formulas, Nutramigen and Pregestamil are usually tried. Alimental and Neocate formulas are also available.

Mothers often contact us asking for help feeding infants who do not tolerate any of the "hypoallergenic" formulas that are readily available. There are infants who develop symptoms from almost all food and formulas. For these hypersensitive babies Alpha ENF can be helpful to increase the nutrient intake when food choices are limited. You can establish tolerance by slow gradual introduction of the formula.

Feeding sick infants can be a demanding task and professional supervision is always recommended. Just as a guideline, you can begin by mixing one teaspoon of ENF in about once cup of rice milk or any juice that is tolerated and offer this 3 times a day for a few days.

If the child tolerates the introductory dose, more formula can added the rice milk and the volume increased slowly. Alpha ENF is designed to provide all the vitamins and minerals at average adult recommended values at 300 grams per day. The optimal method of determining the correct dose for formula is to estimate the nutrient intake needs of the infant and then calculate the amount of formula required. Vegetable oil can be added to the rice milk, ENF mix to increase the fat content of the diet in the range of 1 to 3 teaspoons per day mixed with the formula. A blend of half olive oil and half canola oil provides a good fatty acid composition and is often (but not always) tolerated. A common initial effect of the formula is to stimulate contractions of the stomach and small intestine. This effect subsides with use and can be reduced by diluting the formula with more water. The most common mistake mothers can make is to feed an infant concentrated formula and not offer enough water. Extra water can be added to the formula or taken between formula feedings. The infant should have frequent urination with substantial volume of slightly colored urine. If urine volume decreases and the color becomes darker yellow, the infant needs more water.

Feeding hypersensitive children 1- 5 years

There are very special children who are food intolerant and chronically ill. Many of these children will benefit from careful feeding, following the Alpha Nutrition guidelines. The addition of nutrients in the form of elemental nutrient formulas can be marvelously helpful. Again Alpha ENF can be added to a limited food intake in the range of 50 to 300 grams per day to provide nutrient and caloric intake. Parents often contact us requesting a specific feeding plan for their sick child and we can only reply that a professional assessment is required to determine the specific needs of a specific child. Nutrient needs are sometimes difficult to determine because the individual needs of children may vary from average recommended values, especially if food allergy, other illnesses and/or injury are involved. We realize that good professional advice is often in short supply and can be expensive to obtain.

The formula instructions and our books provide general guidelines that help you make reasonable decisions about formula serving sizes and frequency. A reasonable approach is to begin with 100 grams per day for children up to 2 to 5 years and increase up to a maximum of 300 grams per day if required. At 300 grams per day the intake of most nutrients reaches adult recommended intakes with a caloric intake of about 1100.

Water Balance

Water is essential to life. Meal replacement formulas are mixed with water – more water is almost always better than less. Water requirements vary with age, activity, climate, food intake and other variables. The average daily input is 1.8 to 2.5 liters for adults, 0.4 to 1.0 liters for infants. Increased water loss from sweating, vomiting, or diarrhea must be replaced by water intake or dehydration soon threatens existence. An infant with vomiting and diarrhea is in the most trouble with water loss. Infants have limited ability to conserve water by reducing urine production and have no direct control of their liquid intake. Replacement of the infant's lost body fluids must include salts with water, so that the concentration of electrolyte in blood and cellular fluid remains constant. Sodium and potassium are the metal ion most closely monitored in clinical medicine.

If anything goes wrong with serum concentrations of sodium, potassium and magnesium, the nervous system and muscles are the first to malfunction. Since the heart is a muscle under nervous system control, sodium and potassium problems lead to pump problems. Intravenous administration of water and glucose solutions alone without the metal salts will not sustain life for long. The most basic body need is for salt water, not sugar water.

Diuretics are popular drugs, although they deplete sodium, potassium and magnesium and may cause a recurrent loop of increased water retention, solvable only by replacing potassium, magnesium, and eliminating the diuretic. Diuretic drinks - alcohol, coffee, tea, and some herbal teas - produce water and electrolyte loss. A normal kidney controls water balance remarkably well, but is fooled by drugs and diuretic beverages. This diuretic trickery is hazardous, especially if imbalances of sodium, potassium, magnesium, and zinc occur.

All substances dissolved in water exert osmolar pressure, a vitally important property for living cells that balance intake and output of substances from the external environment across semipermeable membranes. Osmolality is a property of solutions that depends on the number of solute particles present in a given volume of water. The major solutes in living fluids are: electrolytes, organic molecules, and colloids. Sodium and chloride are major contributors to serum osmolality. The two next most important osmolar solutes in serum are urea and glucose. The normal range for serum osmolality in healthy individuals is 282-300 mOsm/kg of water (H2O). Electrolytes are divided into cations that have a positive charge in solution and anions that have a negative charge. The major anions in serum, are chloride (Cl^-)and bicarbonate (HCO_3^-); the minor anions are lactate, proteins, sulphate ($SO_4,^{2-}$) and hypophosphate (HPO_4^{2-}).

Tube Feeding

There are many concerns when tube feeding with formulas replaces eating food. While Alpha ENF and PMX are suitable for tube feeding and may solve problems created by other enteral formulas, nutrient intake must be customized to suit the specific needs of each patient. Expert medical supervision is required. We recommend that a nutrient intake analysis is done at intervals and compared with RDIs. In addition, regular blood tests are recommended to assess nutrient absorption and metabolic status. This testing should include blood counts, vitamin B12, electrolytes, kidney and liver function tests including prothrombin measurement. Supplemental fats, Vitamin K1 and B12 are often required

Various enteral feeding tubes are available, classified by site of insertion and location of the distal tip of the feeding tube. A tube into the stomach is best because the stomach tolerates more variations and concentrations of ingredients including hypertonic solutions. The stomach also provides valuable digestive functions and regulates small bowel activity. Vitamin B12 absorption requires the stomach, the presence of hydrochloric acid, and intrinsic factor. An empty stomach will atrophy and will become infected with microbes that cannot survive in a normally active stomach. Feeding tubes placed in the small bowel are more problematic and should be avoided unless there is no alternative. Jejunal infusion often causes abdominal cramping and diarrhea. Tubes move, irritate the bowel wall, cause bleeding and promote infection. Small-bore enteral feeding tubes are preferred but are more prone to clogging. Williams cites predisposing factors such as thick formulas with

intact proteins, insufficient flushing, and incorrect medication administration, She recommends that tubes are flushed with 30 mL of water every four hours When feeding are intermittent tubes should be irrigated with 30 mL of water after each feeding. When medications are administered, tubes should be flushed with 15–30 mL of water before and after drug delivery. When several medications are being given at the same time, each one should be administered separately. The feeding tube should be flushed with at least 5-10 mL of water between medications. [i]

Alpha ENF can be blended with warm water and used for tube feeding. The formula is complete out of the jar. Start with 50-gram servings every two hours or 6 times a day and increase until caloric needs are met - 50 gm is about 1/2 cup of formula. Mix in 1.5 to 2.0 cups of warm water.

Blend for 1 minute and administer. For the first few days it is best to add extra water to formula and administer slowly. This gradual introduction allows the digestive tract to adjust to the input of pure nutrients.

In long term use, fat in the form of vegetable and fish oils can be added to increase caloric intake and complete a desirable fatty acid composition. You slowly can add vegetable oil up to one tablespoon per 100 grams of the formula. A combination of extra virgin olive oil and Canola oil in equal proportions is recommended. Fat intake can be increased to about 20 to 30% of daily caloric intake, if tolerated. Estimate vegetable oil requirement as 9 calories per gram of oil. Add omega 3 fish oil (salmon or blend of fish oils) to provide DHA daily intake of at least 500 mg. By adding oil, you can increase the energy intake profile toward carbohydrate 60% Fat 30 % Amino Acids 10% of daily calories.

Add oil after the formula has been mixed with warm water in the blender and then blend another 30-40 seconds at high speed. Administer promptly. If you mix the formula and let it sit, the oil will separate and a small amount of the less soluble nutrients will settle- a quick remix in the blender may be required.

Night feedings A feeding schedule that extends from 8 AM to 10 PM, for example, may work well. Sometimes, however, feedings are required overnight. An overnight fast of 8-10 hours may be well tolerated, but for many reasons blood sugar levels may drop during sleep. In normal circumstances, hunger and thirst wakes a person who then eat and drinks according to body signals. If you are depending on tube feeding you may need to prepare a 50-gram serving and leave at the bedside in a shakable container. Shake briefly to remix and administer.

If the formula is too concentrated (not enough water) the symptoms may be bowel cramps and possibly distention; dark yellow urine, dry mouth, dehydration. If the formula is too concentrated, bowel cramps may occur or mental fogginess, sedation or confusion might occur. This is uncomfortable but not harmful. If the interval between servings is too long, hypoglycemia might occur. Problems with formula feeding are often solved by

1. adding extra water
2. increasing the time taken to administer the formula
3. reducing the dose per serving
4. increasing the frequency of servings.

ENF Design

The first thing we need from a nutritional formula is energy. If you are designing such a formula, you have to decide what fuels you are going to add to supply energy. Living cells require glucose as the primary fuel. Animals take advantage of the ability of plants to manufacture sugar and other nutrients. Energy is locked into the molecular bonds of a few basic fuel molecules: glucose, fructose, fatty acids, and amino acids. This energy is released as the energy-supplying molecules are dismantled by oxidation. Food-derived energy allows us to move, to do work by muscle contraction, and to keep warm. Body heat is generated by the metabolic activity of every cell. Carbohydrates and fats are the principle sources of energy, although amino acids may be utilized as energy. Combustion of amino acids requires the excretion of nitrogen, which is first converted to ammonia. Glutamine is the shuttle which carries ammonia from rapidly metabolizing tissues to the liver. The liver converts ammonia to urea, which is delivered to the kidneys for excretion in the urine.

The energy requirement of any individual is determined by physical activity. Your energy balances shift with variations in food intake and activity level. A healthy, active adult will usually spend 1000-3000 Kcal per day of food energy (or approximately 33Kcal/Kg). Daily physical exercise is beneficial and tends to promote normal body weight, with energy intake matching output. With food restriction, increased metabolic efficiency allows the body to do better with less. This increased efficiency, induced by caloric restriction, tends to frustrate people seeking to lose weight.

Electrolytes

The next functional module of great importance is electrolytes - the salts dissolved in water which form the basis of blood and cellular function.. Sodium, potassium, chloride, and bicarbonate are the essential electrolytes which should arrive in proportion to each other and in the right amounts for proper body function Water is essential and intake determines the concentration of electrolytes in the blood and tissue fluids. The right amount of water is important - more is almost always better than less. Alpha ENF & PMX provide a balanced set of electrolytes including phosphate, which is essential to energy storage and transfer.

Antioxidants

The antioxidants are provided in generous quantities in Alpha ENF & PMX because of their many potential health benefits. Vitamin C, betacarotene, vitamin E and selenium scavenge free oxygen radicals. Cellular combustion can be compared to a wood stove, which needs adequate protection to do its job without burning the house down. As we burn fuel in our cells, some oxygen atoms are given an extra electron and become the radical, O2-. If O2- floats free of the energy engines, it may interact with and damage other molecules. Cell membranes are vulnerable to O2- injury; damaged membranes disturb the function of the entire cell. Extra O2- reacting with DNA can make the code sticky and can cause mistakes in code reading or replication, resulting in cell mutation. The cumulative damage of trillions of random O2- encounters with critical molecules over many years contributes to accelerated aging and cellular dysfunction. The nutrients that combine harmlessly with O2- and are referred to as "antioxidants".

Vitamin C is the safest and best antioxidant in town. If you can raise the amount of Vitamin C in cells, you may soak up enough O2- to make a long-term difference. The effect of Vitamin C is enhanced if you present three other nutrient antioxidants alongside, Vitamin E, betacarotene and selenium.

No Proteins, No peptides

One of the therapeutic secrets of ENFs the avoidance of proteins or pieces of proteins known as peptides. Proteins are the most reactive molecules in food allergic disease. Staple foods such as milk, eggs, wheat, and meat contain proteins that frequently causes immune responses and are the basic problem in delayed patterns of food allergy. Protein powders sold as "body-building" supplements are also a source of trouble. Protein powders are often made from cheap proteins such as milk protein (casein, whey), egg white (albumin), soya proteins, or hydrolyzed vegetable proteins.

Alpha ENF avoids the protein problems by using a balanced set of pure amino acids instead of proteins or partially hydrolyzed proteins. Amino acids are the real nutrients derived from proteins by digestion of food. Amino acids do not trigger immune responses. Free amino acids are much more expensive than protein powders, but freeing the immune system from protein challenge is well-worth the cost.

Amino Acids

Instead of proteins, free amino acids are provided in Alpha ENF. A complete set of the nine essential amino acids is complemented by 10 of the non-essential amino acids. Some of these amino acids are destined to be included in body proteins; others will be used as neurotransmitters. Tyrosine and phenylalanine, for example, are converted to dopamine, noradrenalin and adrenalin. Tryptophan is converted into serotonin. Glycine itself is a major neurotransmitter in the spinal cord. Glutamate is the most important amino acid – neurotransmitter in the brain. The technique of amino acid proportioning is a frontier in nutritional programming for athletic performance. For example, Alpha ENF contains branch-chain amino acids, designed to enhance muscle action and growth. Leucine, in particular, seems to promote muscle growth, acting in concert with insulin. The other two branch-chain amino acids, isoleucine and valine, may also supply muscle fuel if impairment of glucose utilization occurs. Arginine has been effective in improving tissue repair and can be considered growth-promoting.

About the Sugar Content of Alpha ENF

Sugar has been blamed for all manner of health problems, often without justification. Many people who contact us with sugar concerns are misinformed and confused about the role of sugar in the body. They cannot differentiate among different kinds of sugar. They have not learned that glucose runs every cell alive on planet earth. Glucose, like oxygen and water is essential to life, but too much in the wrong place, at the wrong time can be harmful. The basic principle of a healthy life is that the right molecules have to be delivered to the right place at the right time. The idea is that glucose and fructose supply the energy that the body needs; the sugars are combined with all other nutrients following an ideal proportioning plan. If glucose utilization is impaired as in diabetes, then the rate of glucose absorption becomes critical. Small frequent doses will often be better utilized and high blood sugar peaks are avoided.

Free sugars in the diet are rapidly absorbed and utilized by body tissues. Some tissues such as muscle require insulin to absorb sugar. Other organs, such as the brain, do not require insulin and are prime sugar consumers. The liver tries to maintain blood sugar levels within a narrow normal range by either absorbing or releasing sugar. The liver, muscles and brain store sugar as glycogen. The liver can produce glucose from fatty acids and amino acids if food does not supply adequate sugar intake. Slow absorption of sugars is better tolerated than the rapid absorption of larger amount. Complex carbohydrates in vegetables are ideal sustained-release sources of sugar.

Ingredients

Alpha ENF is a high-quality meal replacement formula used in critical applications to provide optimal nutrient intake. There are no comparable products available of the shelf in the USA and Canada. The ingredients are all chosen for purity, solubility and low allergenicity. The ingredients are expensive and the formula is expensive to manufacture.

Elemental nutrient formulas represent the ultimate reduction of food, replacing food intake with a chemically defined set of nutrients. Nutrition is built of basic building blocks. Carbohydrates, fats and proteins are typical components of foods. Vitamins and minerals are essential nutrients. Alpha ENF is formulated by assembling nutrients into modules that supply energy, electrolytes, antioxidants, phosphate, vitamins, minerals, neurotransmitter substrates and protein building blocks.

Energy is supplied by in Alpha ENF by carbohydrates and fat. The principal sugars are glucose and fructose. These are the simplest carbohydrate molecules, known by their single ring structure as monosaccharides. Glucose is the fuel of all living things, supplying energy to all living cells, both plant and animal. The creation of glucose begins in plants with the magic of photosynthesis. The sun's photons are the original energy source used by the chloroplasts of leaves to drive carbon, hydrogen, and oxygen atoms together to form glucose. Plants then use the newly synthesized glucose to fuel all their other synthetic processes, constructing tissues.

Maltodextrin is hydrolyzed corn starch in granular form with glucose polymers of different molecular weights. Presenting energy in this form reduces the osmotic pressure of the formula (an advantage) and provides for variable absorption rates of glucose. Hydrolyzed starch is usually tolerated by people with allergy to corn since the protein antigens associated with allergy corn are generally not present. Maltodextrin does not contain gluten and is not related to barley-derived malt. Glucose and fructose: both monosaccharides are derived from corn and are usually tolerated by people with allergy to corn since the protein antigens associated with corn allergy are generally not present.

The electrolyte module consists of salts dissolved in water which form the basis of blood and cellular function. Sodium, potassium, chloride, calcium, magnesium, phosphate and chloride are the essential electrolytes which should arrive in proportion to each other and in the right amounts for proper body function. Water is essential and the intake amount determines the concentration of electrolytes in the blood and tissue fluids. The right amount of water is important - more is almost always better than less. The Alpha formulations provide a balanced set of electrolytes. Phosphate is essential to energy storage and transfer.

Canola Oil is now used in Alpha ENF formulas. Canola provides a better fatty acid profile than safflower oil and has solved the quality and supply problems we were having with safflower oil. Unfortunately, there is misinformation circulating about Canola oil, mostly repeating information about euracic acid that is 40 years out of date. Canola oil is quickly replacing other less desirable oils in commercial and retail food sales. We are convinced that Canola oil is safe, effective and offers the best ratio of Omega 6 and Omega 3 fatty acids of all the available oils. Antioxidants are provided in generous quantities in Alpha ENF because of their many potential health benefits.

Alpha ENF Ingredient Summary

Maltodextrin, Microcellulose Carboxymethyl cellulose, Glucose, Fructose, Canola Oil, Magnesium gluconate, Potassium gluconate, Calcium glycerophosphate, l-glycine, Sodium chloride, l-leucine, l-lysine HCl, l-phenylalanine, l-arginine, l-aspartic acid, Potassium chloride, l-isoleucine, l-glutamine, l-tyrosine, l-valine, Ascorbic acid, l-methionine, l-proline, l-threonine, l-alanine, Calcium pathothenate, l-serine, l-histidine, l-glutamic acid, Alpha Tocopheryl, Beta carotene l-tryptophan, l-cystine, Niacinamide, Thiamine, Zinc Gluconate, Pyridoxine HCl, Biotin, Ferrous Gluconate, Vitamin A palmitate, Manganese gluconate, Riboflavin, Vitamin B12, Potassium Iodide, Copper Gluconate, Vitamin D, Folic acid, Vi9tamin K2, Sodium Molybdate, Chromium Chloride.

Ingredient Sources

The idea of an ENF is to present nutrients in a pure or near-pure form so that food source contaminants are avoided. Canola oil is the only food ingredient in its native state. canola is a highly desirable oil. Maltrodextrin is hydrolyzed corn starch and is generally tolerated by people with allergy to corn since the protein antigens in corn are removed. Microcellulose and carboxymethyl cellulose are the fiber component from plant sources that provide distribution of nutrients in powder form and provide fiber bulk that helps bowel function and bowel movements still occur even with prolonged food holidays on Alpha ENF. Microcellulose reduces digestive symptoms overall and there is no known allergy. The vitamin and mineral nutrients are presented with US Pharmaceutical certified purity and are chosen for the optimal solubility in water - this provides quick mixing and maximum nutrient absorption. The amino acids are individually added to an Amino Acid Premix and are certified as 100% pure, l-form amino acids - i.e. no source or production contaminants. No hydrolyzed proteins are used in Alpha Nutrition formulations. The formulas are hypoallergenic and have been tolerated by people with sensitivity to many if not most foods. Hypoallergenic means low allergy potential but not zero potential; we doubt that a zero-allergy product is feasible and is not required by people who live in the real world and are exposed to thousands of potential allergens every day.

A well-informed reader with an interest in the details of manufacture of individual nutrients should first consult USP and FCC specifications, the Merck Index, textbooks of organic chemistry, biochemistry and pharmacology. In some instances, manufacturers will supply detailed information and examples of certificates of analysis on individual batches of their products. We do not publish our detailed formulations and ingredient specifications since this is confidential and proprietary information. Tolerance is not guaranteed and any potential user with a history of anaphylactic reactions to foods should

introduce Alpha ENF with caution and with medical supervision.

Nutrient Values of Alpha ENF

The nutrient values of Alpha ENF are listed per 100 grams of formula. 300 grams of the formula supplies approx. 1100 calories of energy. Carbohydrate supplies 80% of the calories; fat is 12% and amino acids (replacing protein) 8%.

Calories	360.00	
Carbohydrate	75.00	gm
Protein*	8.00	gm
Fat	4.50	gm
Cholesterol	0.00	
Sugars	12.00	gm
Minerals		
Calcium	270.00	mg
Chloride	600.00	mg
Chromium	0.04	mg
Copper	0.70	mg
Iodine	43.00	ug
Iron	3.30	mg
Magnesium	125.00	mg
Manganese	1.20	mg
Molybdenum	50.00	ug
Potassium	480.00	mg
Phosphate	270.00	mg
Sodium	480.00	mg
Selenium	0.02	mg
Zinc	5.00	mg
Alpha ENF 100 Grams		
Vitamins		
Vitamin A	800.00	IU
beta-Carotene	7.50	mg
Vitamin D	100.00	IU
Vitamin C	150.00	mg
Vitamin E	100.00	IU
Riboflavin	4.00	mg

Niacinamide	16.00	mg
Pyridoxine	10.00	mg
Thiamine	10.00	mg
Biotin	0.20	mg
Pantothenate	25.00	mg
Folic acid	200.00	ug
Vitamin B12	20.00	ug
Vitamin K2	100.00	ug
AminoAcids		
l-alanine	319	mg
l-arginine	598	mg
l-aspartic acid	598	mg
l-cystine	120	mg
l-glutamic acid	199	mg
l-glutamine	478	mg
l-glycine	996	mg
l-histidine	212	mg
l-isoleucine	478	mg
l-leucine	638	mg
l-lysine HCl	598	mg
l-methionine	359	mg
l-phenylalanine	598	mg
l-proline	359	mg
l-serine	239	mg
l-threonine	319	mg
l-tryptophan	120	mg
l-tyrosine	399	mg
l-valine	399	mg

i Williams, NT Medication Administration Through Enteral Feeding Tubes. American Journal of Health-System Pharmacy. 01/07/2009