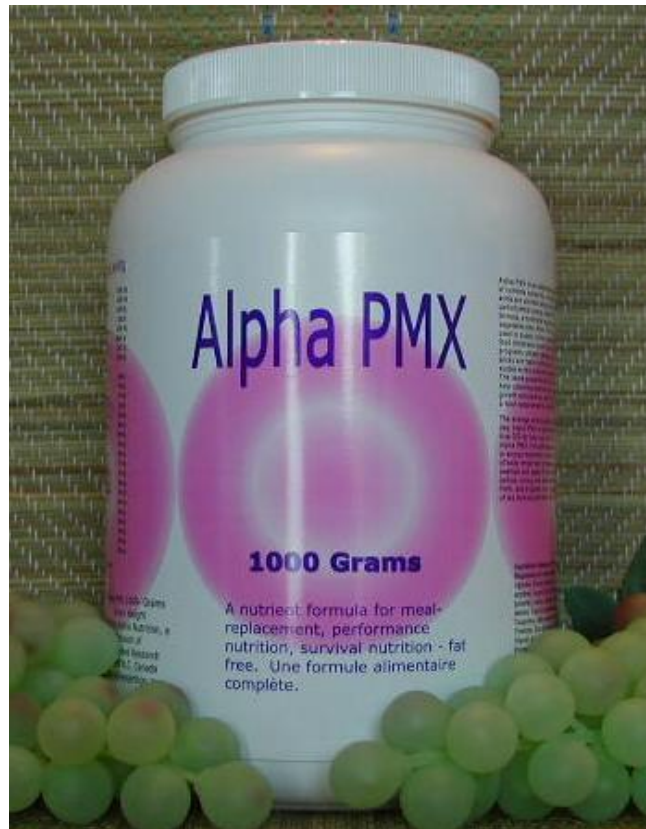
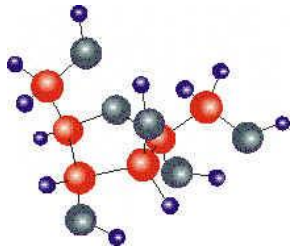


# Alpha PMX

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 sites, found at <http://www.alphanutrition.com> <http://www.nutramed.com>

**Formula orders are place at Alpha Online**

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## Links to Online Resources

### [Purchase Alpha PMX Online](#)

If you are using Alpha PMX and have not read the Alpha Nutrition Program, you can order the book online. A printed edition is essential if you need revision instructions. [Order Book Online](#)

For all formula Information [See Modular Nutrition Online](#)

See all our information online <http://www.nutramed.com>

## 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. While foods in the diet can sometimes supply complete and balanced nutrition, there are many circumstances when adding nutrients is desirable or necessary. We designed Alpha PMX to supply complete nutrition except for fat. Alpha PMX is 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 high nutrient density of Alpha PMX can be used strategically to support nutrition whenever nutrient or caloric deficiency is a concern. Alpha ENF is gluten-free and does not contain gluten, cow's milk, soya, or egg ingredients. Alpha PMX is suitable for vegetarians.

- Alpha ENF is the complete nutrient set for meal replacement.
- Alpha PMX is the complete nutrient set minus the oil component 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 PMX

### Alpha PMX is a Meal Replacement Formula

Alpha PMX is an elemental nutrient formula that supplies a complete set of nutrients except for fat. Alpha PMX was designed both for performance nutrition and for managing illness, injury and for tube feeding when food intake is impossible. The formula is hypoallergenic and can be used as meal replacement and nutritional supplement when eating is difficult or digestion is impaired. PMX is very useful in performance nutrition, supplying nutrients for athletic training and performance events. PMX offers a complete set of essential and non-essential free-form amino acids and a complete set of vitamins and minerals with extra antioxidants. The nutrient values of Alpha PMX are listed on the label as nutrients available per 1000 Kcal or 300 grams of the formula. Carbohydrate supplies 88 % of the calories and amino acids (replacing protein) 12 %.

Alpha PMX can be used alone to supply all your nutritional needs or combined with foods to supply part of the day's nutrition. Nutrient intake can be quickly boosted by adding Alpha PMX to a fruit or vegetable juice and will often be tolerated when other foods are not. The high nutrient density of Alpha PMX 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.



Alpha PMX and water are the ultimate survival rations. PMX is an efficient method of transporting nutrients on expeditions, hiking, and mountain climbing. Travelers have reported Alpha ENF and Alpha PMX rescues when they developed travelers' diarrhea and couldn't eat, when they have been stranded by bad weather on a boat trip, or simply couldn't find the right food when they were in a foreign country.

#### PMX applications

- meal replacement & nutrient supplementation
- before and after surgery
- sports nutrition, athletic training
- survival kit & emergency rations at home
- nutrition and survival rations trekking and traveling.
- tube feeding when eating food is not possible

PMX comes in powder form to be added to water, juices or food. PMX comes in 1000 Gram jars (gross weight). Alpha PMX is gluten-free and does not contain cows milk, Soya, or egg ingredients.

PMX is suitable for vegetarians.

Pleasant drinks can be made by mixing Alpha PMX with fruits, vegetables or juices in a blender. A blender quickly mixes the powder with any liquid, hot or cold. Alpha PMX will turn any fruit or vegetable juice into a complete meal. You can also mix Alpha PMX by shaking the formula with water or juice in a closed container.

The amount of Alpha PMX used per day depends on nutritional needs. Alpha PMX 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 PMX 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 PMX is a concentrated mix of nutrients, extra water is recommended between servings of the formula.

**Instructions:** Start with Alpha PMX 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 PMX are quickly absorbed and are utilized quickly, it is a good idea to have frequent, smaller servings of Alpha PMX. 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 PMX, since you may experience a "power-down" as you run out of nutrients.

### **Five differences between Alpha ENF and PMX**

1. Lipid (fat) is omitted from Alpha PMX
2. Alpha PMX has higher levels of amino acids.
3. Alpha PMX is not flavored
4. Alpha PMX is a dry powder with a longer shelf life than Alpha ENF
5. Alpha PMX is more tolerant of higher temperatures and is recommended for use in hot climates.

### **Fat Free**

Occasionally, the fat component of Alpha ENF will bother a hypersensitive person and the fat-free Alpha PMX will be better tolerated. Fatty acids can be supplied separately in the form of fresh vegetable oil added to the formula at the time of mixing with juices or water. Because it is fat-free, the Alpha PMX formula has a longer shelf-life and can be used as emergency rations at home, for example, in an earthquake survival kit or as backup nutrition and survival rations on an ocean cruiser.

Fatty acids can be supplied separately in the form of fresh vegetable oil added to the formula at the time of mixing with juices or water.

## Instructions for Mixing & Use

Alpha PMX is an elemental nutrient formula in powder form that contains a mixture of pure nutrients. The formula is mixed with water and juices. The basic idea behind Alpha PMX is to supply a complete set of nutrients in their pure form. We recognized, of course, 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 PMX to make it taste better, we have always resisted the temptation. Instead, we concentrated on the safety and effectiveness of the formula. For

If your food tolerance permits, pleasant drinks can be made with fruits or vegetables, water, and Alpha PMX mixed in the blender, with ice if you like it cold. A blender quickly mixes the powder with any liquid, hot or cold

**A Good Way to Mix Alpha PMX** when you tolerate some foods is to add fresh or frozen fruit or vegetables with water 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 fruit juices are compatible with Alpha PMX. For example, an easy mix is to add frozen orange concentrate, Alpha PMX and water in the blender - 30 seconds at medium speed is usually enough for a good mix. Use only unsweetened juices. Canned fruits such as peaches or pears (avoid fruit canned with added sugar) can be blended with Alpha PMX and ice to make a fruit "smoothie". Frozen berries - blueberries, raspberries and strawberries also make good Alpha PMX smoothies. Fresh fruits such as mango, cantaloupe and honeydew can be mixed in the blender with Alpha PMX (ice and water) to make refreshing, nourishing drinks.

Vegetable juices are also good mixed with Alpha PMX. If you make juice in a juicer, either vegetable or fruit, just add Alpha PMX 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 PMX to the juice to be stored, but wait until you serve the juice to add Alpha PMX.

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 PMX 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.

## **Best Used Before Date**

Like all foods, Alpha PMX 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 than 80 degrees, 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.

## **PMX is Portable Food**

Alpha PMX can be used as portable food. Alpha PMX is an efficient method of transporting nutrients on expeditions, hiking, and mountain climbing. If you are traveling, you save weight and volume by just taking nutrients along. Travelers have reported Alpha PMX rescues when they developed travelers' diarrhea and couldn't eat; when they have been stranded by bad weather trekking or on a boat trip, or simply couldn't find the right food when they were in a foreign country. An adult using minimal energy can live for 4 days on one kilogram of Alpha PMX and water.

Many Alpha ENF and PMX users have food intolerances and take the formula with them wherever they go in case they cannot find the right food or they eat the wrong food and become ill. We recommend regular Alpha ENF for short trips since it is a complete nutrient set and can replace meals just by mixing with juice. For longer trips, hot countries and storage, we recommend Alpha PMX.

Alpha PMX is a better formula than Alpha ENF to take in hot weather and to tropical climates. Alpha PMX is less sensitive to heat driven oxidation. Fatty acids can be supplied separately in the form of fresh vegetable oil added to the formula at the time of mixing with juices or water.

## **Sports Nutrition**

PMX is a bottle full of nutrients can be very useful for physical training and athletics. Alpha PMX can be used before, during and after workouts and athletic events. Both formulas contain a complete set of free-form amino acids (not hydrolyzed protein), a complete set of vitamins, minerals and electrolytes. Nutritional support of fitness workouts and athletic performance, main ideas:

1. Supply rapidly absorbed forms of energy
2. Replenish electrolytes
3. Replenish neurotransmitters
4. Supply high levels of antioxidants
5. Avoid filling the digestive tract with food or other bulk.



## Part of the Day's Nutrition

Servings of Alpha PMX replace meals and can supply part of your daily nutrition. For example, you may start with Alpha PMX 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 PMX 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 PMX 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 PMX are readily available and are utilized quickly, it is a good idea to have frequent, smaller servings of Alpha PMX. If you alternate between Alpha PMX 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 PMX schedule might be:

|          |                           |
|----------|---------------------------|
| 8 AM     | Alpha PMX 50 to 100 grams |
| 10:30 AM | Alpha PMX 50 to 100 grams |
| 12:30 PM | Lunch                     |
| 3:30 PM  | Alpha PMX 50 to 100 grams |
| 6 PM     | Dinner                    |
| 10:30 PM | Alpha PMX (optional)      |

## PMX Food Holiday

Alpha PMX 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 PMX 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, 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 thought 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 PMX to the rescue! All the benefits of fasting are available when you take a food holiday on Alpha PMX. You get nutrients minus the problems food was bringing into your body. You can take as much Alpha PMX as your body needs to supply energy and be physically active, to restore damaged tissue and to regulate your body weight

When you are using Alpha PMX for complete 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 1100 Calories, a recommended daily minimum intake. Increase the amount of formula until your caloric intake is adequate to meet your need in the range of 300 to 600 grams per day.

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 PMX to complete a 10-day food holiday.

### **Adding Vegetable & Fish Oils**

To complete, the nutrient set, add vegetable oil at the rate of one to two tablespoons per 100 grams of the formula. The addition of fat is required to supply essential fatty acids and to increase caloric intake. A combination of extra virgin olive oil and Canola oil in equal proportions 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 500 mg.

For example start with 100 grams of PMX (360 calories) and add 15 Grams of oil (140 calories) to supply a total of 500 calories. The recommended average daily intake for physically active adults who want to maintain current body weight is 1000 to 1500 calories. You would use 2 or 3 of the 500-calorie batches to supply daily nutrition.

The following schedule represents a minimum daily intake of 300 grams or 1000 Kcal divided into 6 feedings.

|          |                    |
|----------|--------------------|
| 8 AM     | Alpha PMX 50 grams |
| 10:30 AM | Alpha PMX 50 grams |
| 12:30 PM | Alpha PMX 50 grams |
| 3:30 PM  | Alpha PMX 50 grams |
| 6 PM     | Alpha PMX 50 grams |
| 9 PM     | Alpha PMX 50 grams |

When higher caloric intakes are required, the serving size can be increased and a seventh serving added before bed. Experienced Alpha PMX 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 all nutrition for periods longer than 2 weeks, then additional nutrients are required.

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. 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 at intervals 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 or K2 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 choline ( as lecithin), CoEnzyme Q10, lipoic acid, and Vitamin K2. See the companion book, **Nutrition Notes** for a detailed evaluation of nutrient intake recommendations and accessory nutrients.

## PMX 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.

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. <sup>1</sup>

Start with 50-gram servings of PMX 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 (take 10-20 minutes to add the complete serving). This gradual introduction allows the digestive tract to adjust to the input of pure nutrients.

Add vegetable oil at the rate of one to two tablespoons per 100 grams of the formula. The addition of fat is required to supply essential fatty acids and to increase caloric intake. 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 fatty acids as fish oil (salmon or blend of fish oils) to provide DHA daily intake of at least 500 mg.

For Example start with 100 grams of PMX (360 calories) and add 15 Grams of oil (140 calories) to supply a total of 500 calories. The recommended average daily intake for physically active adults who want to maintain current body weight is 1500 calories. With added oil, the energy intake profile should be in the range of: Carbohydrate 59% Fat 30 % Amino Acids 11%.

Fat will not stay in suspension when the formula is mixed in water; 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.

Most problems with tube feeding can be 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.

**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 wake 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 dose is too high bowel cramps may occur or mental fogginess, sedation or confusion might occur if high doses of amino acids reach the brain suddenly. This is uncomfortable but not harmful. If the interval between servings is too long, hypoglycemia might occur.

### **Low Protein Requirements**

The use of elemental nutrient formulas is useful in reducing or eliminating proteins from the diet. Three Alpha Nutrition formulas are useful in achieving low protein and high nutrient intake. The formulas provide a precise intake of amino acids in a well-balanced mixture impossible to achieve with food alone.

### **Kidney and Liver Disease**

Patients with reduced kidney or liver function are required to restrict protein, since their ability to handle the nitrogen waste of oxidized amino acids is limited. Fluctuating levels of ammonia influences brain cell function and can be considered whenever brain function is abnormal. Some children are born with metabolic abnormalities in the handling of amino acids and ammonia.

### **Food Allergy**

Staple foods such as milk, eggs, wheat, soya and meat contain proteins that frequently cause immune responses and are the basic problem in food allergic patients. Protein powders sold as "body-building" supplements are a source of trouble. Protein powders are often made from proteins such as milk protein (casein, whey), egg white (albumin), soya proteins, or hydrolyzed vegetable proteins. All these products must be avoided by people who react to foods or require a low-protein diet.

### **Pheylketonutira**

The challenge for most people with PKU is to limit protein intake so that toxic levels of phenylalanine do not accumulate. Phenylalanine is an essential amino acid found in all proteins. Some intake is required and there is a delicate balance between enough and not too much. A second need of people with PKU is to increase the amount of tyrosine in the diet, because tyrosine is made by the conversion of

phenylalanine and this conversion is blocked in PKU. You could argue that a perfect solution for PKU is to ingest a chemically defined nutrient formula that has precisely measured amounts of each amino acid and the right ratio between phenylalanine and tyrosine.

### **Replace Proteins with Amino Acids**

Alpha PMX avoids protein problems by using a balanced set of pure amino acids instead of proteins or hydrolyzed proteins. The average North American diet supplies 11-14% of total calories as protein, or 25-100 gms/day. Protein digestion and absorption are generally efficient. A minimum average protein intake is approximately 25 grams. Body protein is recycled. About 3% of the total body protein is recycled every day (approximately 200 grams). When protein intake drops amino acid retention becomes more efficient. In a healthy adult, net protein loss in a day may be as low as 2 grams. Dietary requirements for protein increase with activity, growth, and protein losses, especially following injury or during illness. The substitution of pure amino acids for protein changes the protein intake rules. We believe that amino acids are more efficient than food protein at maintaining a positive nitrogen balance. Moreover, amino acids in their pure form tend to be completely absorbed and utilized as amino acids and not lost in the feces or burned as fuel.

The amino acid mix in Alpha PMX is a balanced set of amino acids which means that "protein quality" is the highest available. No one has accurately determined the need for amino acid intake, but our contention is that amino acid requirements may be as low as 20-50% of the recommended daily protein requirement (the amount of food protein in the diet). Since all amino acids contain a nitrogen atom (N), protein balance is synonymous with nitrogen balance. When nitrogen intake exceeds nitrogen loss, there is net protein synthesis. Anabolism or tissue construction prevails. When nitrogen losses exceed intake, protein tissue is being broken down and catabolism prevails. Loss of protein-tissues occurs with malnutrition, following surgery, injury, burns and chronic illness.

Adequate intake of energy molecules, both carbohydrate and fats, is said to "spare protein", permitting a small protein intake to maintain positive nitrogen balance. In metabolic studies, the total amount of nitrogen intake is compared with the total excretion of nitrogen to assess protein balance. Excess amino acids may be converted to fuel. When amino acids are "burned" as fuel, ammonia (NH<sub>3</sub>) is the waste product. Ammonia is transported to the liver, converted to urea and excreted by the kidneys. One of the penalties of dietary protein excess is ammonia excess, a potential cause of body malfunction following a high protein meal. The blood measurement of urea nitrogen (BUN) shows the balance between urea production by the liver and excretion by the kidneys. The BUN rises in kidney failure and serves as a measure of ammonia or nitrogen. In liver disease, reduced ability to

synthesize urea leads to ammonia accumulation. Ammonia is neurotoxic and contributes to the syndrome of brain dysfunction in liver failure, hepatic encephalopathy.

### **Surgery and Healing Injuries**

Alpha PMX & 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 PMX 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 PMX to the rescue! Hospitalized patients have used their own Alpha PMX 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 bed rest. 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 )

## 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 ions 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 (H<sub>2</sub>O).

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<sup>-</sup>) and bicarbonate (HCO<sub>3</sub><sup>-</sup>); the minor anions are lactate, proteins, sulphate (SO<sub>4</sub><sup>2-</sup>) and hypophosphate (HPO<sub>4</sub><sup>2-</sup>).



## **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 or PMX is incorporated into the program as a meal replacement and nutrient supplement formula. While PMX 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". Nutrient formulas that could replace food completely were first used in research and hospital applications. These formulas were known as chemically defined or elemental nutrient formulas – ENFs.

NASA sponsored elemental formula 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 PMX would confirm or deny food involvement usually within 10-14 days. If the PMX 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. Evidence also linked food protein antigens and

immune-modulating substances in food to inflammatory bowel disease, and to several autoimmune diseases; Crohn's Disease, Rheumatoid Arthritis, Lupus Erythematosus, and possibly Multiple Sclerosis.



### **PMX 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 are glucose-burning machines. 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 PMX & 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 PMX & 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, O<sub>2</sub><sup>-</sup>. If O<sub>2</sub><sup>-</sup> floats free of the energy engines, it may interact with and damage other molecules. Cell membranes are vulnerable to O<sub>2</sub><sup>-</sup> injury; damaged membranes disturb the function of the entire cell. Extra O<sub>2</sub><sup>-</sup> 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 O<sub>2</sub><sup>-</sup> encounters with critical molecules over many years contributes to accelerated aging and cellular dysfunction. The nutrients that combine harmlessly with O<sub>2</sub><sup>-</sup> and are referred to as "antioxidants". Vitamin C is best known antioxidant. If you can raise the amount of Vitamin C in cells, you may soak up enough O<sub>2</sub><sup>-</sup> to make a long-term difference. The effect of Vitamin C is enhanced if you present three other nutrient antioxidants alongside, Vitamin E, beta carotene and selenium.

## **The Importance of No Proteins, No peptides**

One of the therapeutic secrets of PMXs 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 PMX 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 PMX. 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 PMX 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 PMX**

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 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 PMX 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 PMX 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 PMX by carbohydrates. 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 an 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 the 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.

## **Alpha PMX Ingredient Summary**

Maltodextrin, Microcellulose, 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, Sodium Molybdate, Chromium Chloride.

## **Ingredient Sources**

The idea of an PMX is to present nutrients in a pure or near-pure form so that food source contaminants are avoided. Maltrodextrin is hydrolyzed corn starch and is generally tolerated by people with an allergy to corn since the protein antigens in corn are generally not present. Microcellulose is the fiber component from plant sources and provides enough bulk that bowel movements still occur even with prolonged food holidays on Alpha PMX. 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 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 and professional 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 PMX with caution and with medical supervision.

## Alpha PMX Applications

Alpha PMX and Alpha PMX are complete nutrient formulas and can replace food and provide nutrient supplementation in variety of ways. The formulas can be used whenever eating is difficult, food intake is reduced or eating food causes symptoms.

- Meal Replacement
- Nutritional Supplement
- Food Holiday
- Post Operative
- Healing Injuries
- Traveling Food
- Fitness Booster
- Sports Nutrition
- Digestive Disorders
- Tube Feeding
- Weight Management
- Irritable Bowel Syndrome
- Crohn's Disease
- Ulcerative Colitis
- Celiac Disease
- Bowel Surgery
- Food Allergy
- Arthritis
- Fibromyalgia
- Chronic Fatigue
- Eating Disorders
- Loss of Appetite
- Malnutrition
- Weight Problems



## Nutrient Values of 100 Grams Alpha PMX

The nutrient values of Alpha PMX are listed per 100 grams of formula designed to supply all vitamins above recommended daily allowances and mineral levels at RDA (except for lower sodium and potassium.) 300 grams of the formula supplies approx. 1100 calories of energy. Carbohydrate supplies 88% of the calories; fat is 0% and amino acids (replacing protein) is 12%.

|                 |        |    |
|-----------------|--------|----|
| Calories        | 360.00 |    |
| Carbohydrate    | 75.00  | gm |
| Protein*        | 10.40  | gm |
| Fat             | 0.00   | gm |
| Cholesterol     | 0.00   |    |
| Sugars          | 12.00  | gm |
| Fiber           | 5.7    | gm |
| <b>Minerals</b> |        |    |
| 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 PMX 100 Grams |        |    |
| <b>Vitamins</b>     |        |    |
| 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 |
| <b>Amino Acids</b>  |        |    |
| L-alanine           | 399    | mg |
| L-arginine          | 747    | mg |
| L-aspartic acid     | 747    | mg |
| L-cystine           | 120    | mg |
| L-glutamic acid     | 249    | mg |
| L-glutamine         | 598    | mg |
| L-glycine           | 1246   | mg |
| L-histidine         | 265    | mg |
| L-isoleucine        | 598    | mg |
| L-leucine           | 797    | mg |
| L-lysine HCl        | 747    | mg |
| L-methionine        | 448    | mg |
| L-phenylalanine     | 747    | mg |
| L-proline           | 448    | mg |
| L-serine            | 299    | mg |
| L-threonine         | 399    | mg |
| L-tryptophan        | 149    | mg |
| L-tyrosine          | 498    | mg |
| L-valine            | 500    | mg |

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