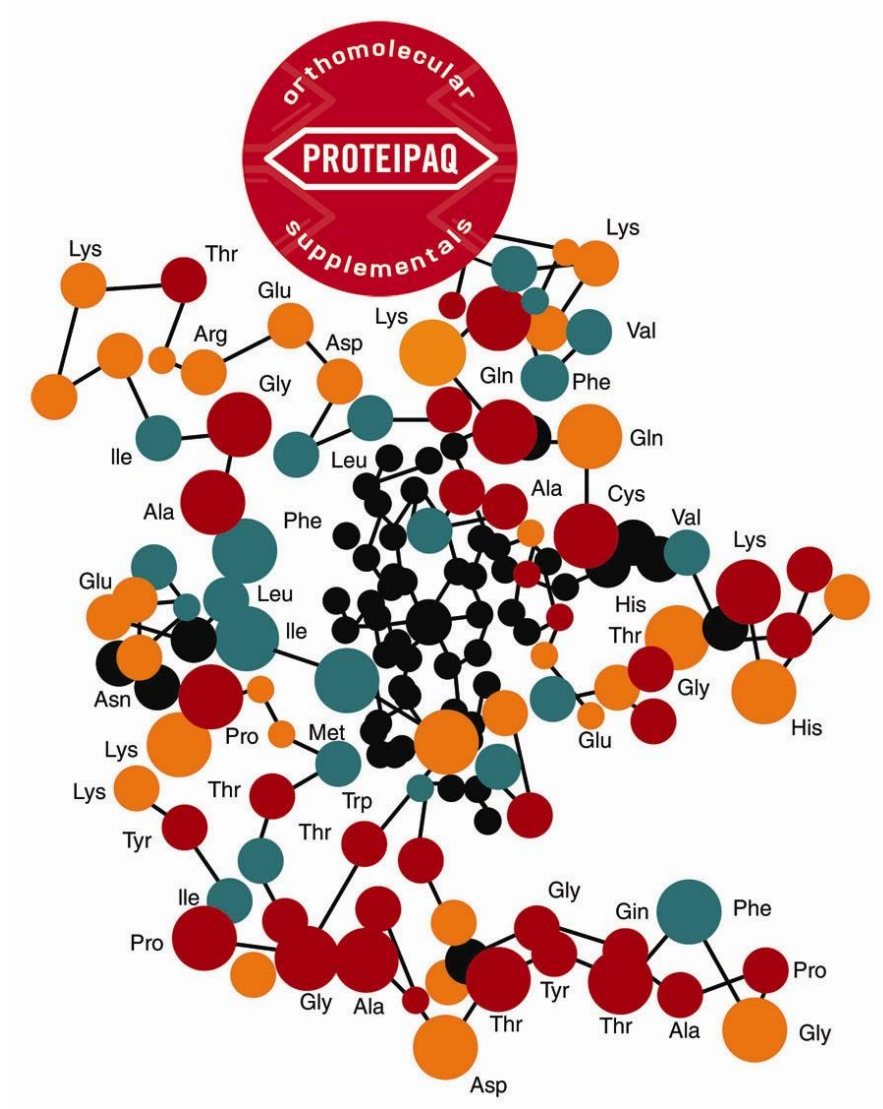


PROTEIPAQ AND PROTEICEUTICALS



**NUTRITIONAL, THERAPEUTIC AND NUTRACEUTICAL
PROGRAMMES FOR AUGMENTATIVE, RESTORATIVE
AND CURATIVE NUTRITION DERIVED FROM
ORTHOMOLECULAR PROTEIN AND *MATERIA MEDICA*
BASED SELECTIONS**

BACKGROUND TO THE “PROTEIPAQ” AND “PROTEICEUTICALS” ORTHOMOLECULAR NUTRITIONAL AND THERAPEUTIC PROGRAMMES

Nutrients are classified into six groups: proteins, carbohydrates, fats, minerals, vitamins and water. Optimal orthomolecular (ortho- meaning õcorrectõ or õcorrective) nutrition is only to be derived from a complementary balance of all of these, and even then, only superficial deficiencies or imbalances will spell out the differences between achievement, under-achievement or non-achievement in the human quest for life.

Apart from water, it is the intractable scarcity of proper protein availability which is proving to be the most persistent and insidious nutritional deprivation in the world today; extending into surprisingly diverse socio-economic spectrums, **which include groups whose nutritional shortages do not necessarily arise from a lack of composite protein availability, but from life-style generated sub-optimal nutritional practices.**

Proteins are complex organic nitrogenous compounds forming the basic structural component of all living things, and can thus be regarded as the core of life itself. All bodily functions are regulated through the action of a wide variety of enzymes, hormones, gamma-globulins (anti-bodies), transferrins, nucleic acids (includes RNA/DNA) and numerous others, all of which are *also* composed of protein.

Amino acids are nitrogenous organic acids (four also include sulphur) which are the structural components from which all bodily proteins are formed.

Twenty-one specific amino acids are necessary for human protein nutrition: thirteen can be formed by the body if not supplied ready-made by dietary means; principally from carbohydrate constituents, essential fatty acids (EFA) and nitrogen freed from used and de-aminised proteins - these are termed õnon-essentialö amino acids.

However, the remaining eight õknown as õessential amino acidsö (EAA) õ can **only** be obtained by dietary means, and, further, **must be available in their specific, ready-made forms.** In respect of sub-adults, or under conditions of stress or illness, two of the preceding group of thirteen non-essential amino acids are, in fact, also õessentialö.

Having noted that proteins and their pre-cursor structural components, amino acids, are complex basics to nutrition, it is noteworthy that they are also complex in their functioning.

Whilst the number of known amino acids is finite, these are synthesised by the body into an almost infinite number of forms to make-up a multitude of different kinds of proteins to be utilised in very specific ways. The sequencing of more than three-million protein structures making-up the human proteome have already been identified õ also interesting to note is that these protein structures have been found to be three-dimensional; even their positioning relative to one another plays a role in their functioning.

A classical example of the importance of composite protein nutrition relates to the action of an enzyme known as ribonuclease, which modifies specific bonds of ribonucleic acid (RNA). It is a critical regulator of life processes within cells, and is composed of 124 specific amino acid residues **in an exact sequence.** It is therefore not difficult to imagine the results if the sequence of these amino acids is corrupted by mal- or sub-optimal nutrition or deprivation.

In order for the human body to utilise any one amino acid as the basis to forming bodily protein structures, it is **absolutely necessary that all eight** (sometimes ten) **of the “essential” amino acids are simultaneously available at all times;** should even only one be missing, **all** of the remaining essential amino acids will be õde-aminisedö in a process of transmutation, which hives-off the nitrogen portion to waste, thereby altering their composition into one of a carbohydrate, which can result in conditions of protein deprivation.

If severe enough, de-aminising may also lead to bodily nitrogen imbalance õ with deleterious results, as the body can only function effectively within narrow pH parameters. This is especially true where excessive transmutation of incomplete protein has the potential to project circumstantially existent conditions of nitrogen imbalance into hyper-bodily acidosis; for example, when in combination with certain drug-therapies, which, if not corrected expediently, is life-threatening õ many AIDS-related deaths arise from this cause.

Foods which simultaneously provide all eight of the essential amino acids in proper equilibrium are termed “complete” protein; whilst those which contain fewer than eight are termed “incomplete”. Orthomolecular nutrition and therapy can only follow by consumption of complete protein foodstuffs; sub-optimal nutrition is the consequence of an incomplete protein diet.

The forgoing illustrates that proper protein nutrition is not something that happens by chance, and if the quality of protein intake in severe instances of protein deprivation is not remedied, a chain of events will initiate which will ultimately lead to bodily destruction, where “less important tissues” are broken-down to free the necessary amino acids required to maintain “more vital” bodily structures, as the body’s first defence to self-preservation against total collapse.

This is the real face of malnutrition and, ultimately, starvation.

The lack of adequate protein nutrition is *the* cause for the poverty and disease syndromes prevalent in many parts of the world today, particularly in sub-Saharan Africa. UN estimates of the populations now existing in, and on the brink of starvation exceeds one-billion ó one-sixth of the world's population.

However, "under-nutrition" is not necessarily restricted to instances of inadequate nutritional availability; much malnutrition world-wide is occasioned by the prevalence of insensitive food-refining (which invariably discards key nutrients); the popularity of "junk-foods" and other poor nutritional practices; drug-abuse; stress, and a general decline in underlying health brought about by the style and environment of modern living.

Another arena of concern are the misconceptions which surround that of vitamins and minerals; where the controversial marketing activities of commercial interests is raising numerous moral issues. Micronutrients are not structural nutrients, but are co-factors to protein synthesis and other vital biological processes ó **their importance lies solely by their causality to the normal functioning of bodily cells.**

Unfortunately, many people (and, regrettably, authorities) are under the mistaken belief that simply öfortifyingö impoverished basic foods with an abundance of these micro-nutrients without due attention to the protein fundamentals will render such foods into sustainable nutrition: nothing could be further from the truth; any lack of proteins, whether from imbalance or deprivation, will never provide composite nutrition, no matter how many micro-nutrients are thrown into the mix.

Tragically, the food-security strategies of so many developing-country economies are based precisely upon this misconception.

This is the background to the PROTEIPAQ nutritional enhancement programmes, designed to provide a selection of realistic orthomolecular counter-measure options to deal with these realities.

NUTRITIONAL PROFILE OF "PROTEIPAQ" PRODUCTS

The foundation for all **PROTEIPAQ** and **PROTEICEUTICALS** products is a specifically-prepared soya in progressively increasing orthomolecular enhancement by the inclusion of specific additional essential amino acid constituents; a strategic selection of vegetable oil(s); fructose and infinitely variable vitamin and mineral inclusions.

The following notes detail all of these components, seriatum, as they apply to PROTEIPAQ products.

S o y a (the macro-nutrient)

The soya utilised for all **PROTEIPAQ** products is enzyme inactivated in terms of a short process technique of only 15 minutes duration; and öfull-fatö in response to the increasing focus for broad-based macro-nutritional deliveries.

The original structure of the soya beans is minimally affected by the process, whilst naturally-occurring negative or anti-nutritive constituents such as hemagglutinins, trypsin-inhibitors and urease are inactivated. All **PROTEIPAQ** and **PROTEICEUTICALS** products are supplemented with additional essential amino acids to bring their protein content into orthomolecular sufficiency and balance.

Whilst all constituents of the soya are retained, the only exception relates to the hulls, which are discarded as the high cellulose content can make them somewhat indigestible.

S u g a r

PROTEIPAQ products include fructose in preference to sucrose as a sensory ingredient on account of its low Glycemic Index (GI); low in that the body has first to convert it into glucose, which slows-down its metabolism (unlike sucrose which is rapidly absorbed).

Glucose is an energy requirement for all cells; particularly the brain, which derives its energy only from glucose. All **PROTEIPAQ** and **PROTEICEUTICALS** products contain in excess of 6% dietary fibre, which also regulates the GL (Glycemic Load) of the products.

V e g e t a b l e o i l

Whilst the principal function of fat is to supply energy, fats form part of the structure of every bodily cell; particularly the brain (60% of the brain consists of fat), nerves and hormones & fat must also be present for intestinal bacteria to function properly.

There are three fats (linoleic, linolenic and arachidonic) which the body cannot form; they must be obtained by dietary means & these are termed essential fatty acids (EFA), as they are essential to normal life processes and shortages have serious consequences.

The principal sources of EFA are derived from polyunsaturated fats of the Omega 6 fat family; an important constituent of **PROTEIPAQ** nutritional enhancement programmes, where the oil constituent is derived from sunflower seed, which provides a high of 67% polyunsaturates.

Therapeutic formulations will also include a proportion of Omega 3 oils.

It should be noted that monounsaturates, whilst supplying energy, also provide some very specific nutritional elements; however saturates in general are undesirable as they, *inter alia*, inhibit the up-take of EFAs.

For "**PROTEICEUTICALS**", part of the sunflower ingredient is substituted with red palm oil, which is derived from the oil-palm fruit (not to be confused with palm-kernel oil, which has a completely different structure and functionality).

Red palm oil is the richest plant source of carotenoids, including lycopene in terms of pro-vitamin A, which, particularly in respect of beta-carotene, are powerful anti-oxidants protecting against free-radical damage and oxidation.

Another powerful anti-oxidant in red palm oil is the type of vitamin E provided, which comprises 45% tocopherols together with 55% tocotrienols & tocotrienol is believed to be between 40 and 60 times more potent than tocopherol.

The soya component of **PROTEIPAQ** also introduces phospholipids, as lecithin and cephalin, into the mix & these are complex fat-like substances which contain nitrogen in combination with phosphorous, providing for an extensive fatty acid profile in **PROTEIPAQ** products.

Vitamins & Minerals (the micro-nutrients)

In view of the importance of these constituents as co-factors to proper nutrition, it is also the area in which the **PROTEIPAQ** and **PROTEICEUTICALS** orthomolecular nutritional and therapeutic programmes offer a considerable degree of flexibility, as widely differing user circumstances will call for equally widely differing nutritional and/or therapeutic applications.

Consequently,

PROTEIPAQ 1 focuses on macro-nutrient orthomolecular enhancement, and is usually formulated without an extensive micro-nutrient input, as this is not always required; specifically where the products are utilised in conjunction with pharmaceutical or medical constituents.

An extended version of **PROTEIPAQ 1** will further increase micro-nutrient supplementation in terms of the "**PLUS**" variant, for application where usage will substantially be upon a stand-alone basis.

This variant is specifically directed to optimising protein metabolism.

PROTEIPAQ 1 products are presented as Ready-to-Use-Foods (RUF), which allows for a high rate of end-user acceptance.

PROTEIPAQ 2, with further extended macro-nutrient enhancements, will also provide maximised levels of micro-nutrients; whilst two variants will customise these further with strategic additions or overages to provide for diverse levels of orthomolecular nutritional therapy.

PROTEIPAQ 2 products will also be presented as sachetted Ready-to-Use-Therapeutic-Foods (RUTF).

In the case of **PROTEICEUTICALS** nutraceutical and materia medica products, these inputs will be pre-agreed with users in accordance with their specific requirements, optionally in consultation with highly specialised nutritional, homoeopathic and pharmaceutical professionals, whose consultancies are retained by the manufacturers of these products to ensuring optimal orthomolecular nutritional and therapeutic efficacies.

In addition to orthomolecular optimisation, variants of **PROTEICEUTICALS** will provide the bases for various homoeopathic ingredients to make for extremely potent homoeopathic strategies. These will also be formulated to end-user requirements.