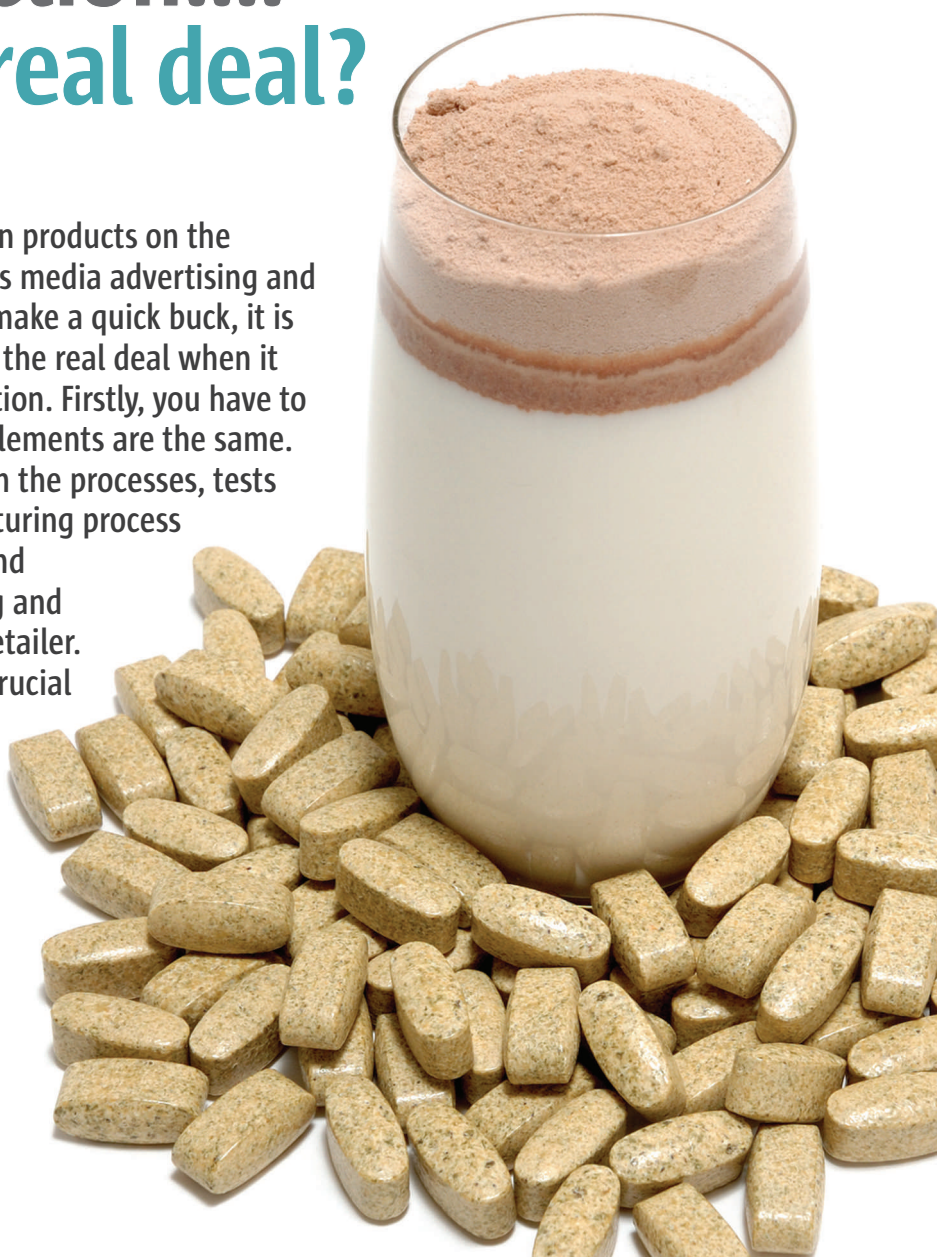


By Ian Roothman, BSc (Biochem)(Phys) MCSD – Founder Owner Nutrition Lab Brand

PROTEIN SUPPLEMENTS

Facts and Fiction... What is the real deal?

With so many different protein products on the market, overwhelming mass media advertising and businessmen that want to make a quick buck, it is sometimes extremely difficult to get the real deal when it comes to protein supplements selection. Firstly, you have to understand that not all protein supplements are the same. They are different in all aspects. From the processes, tests and protocols, the physical manufacturing process itself, the way they were designed and formulated, as well as the packaging and delivery of the final product to the retailer. Each of these different steps play a crucial role in the quality of the product you hold in your hands, as well as the short- and long-term results it will produce within the body. I am going to present you with the latest facts about supplements, what ingredients and added nutrients to look out for on the label and what questions to ask when buying a protein supplement.



Review the facts first then decide what to buy!

These are the facts you need to know about Supplements in general to enhance your health:

Nearly 75% of the world population takes some type of supplement each day. There are literally thousands of brands and millions of products to choose from. Is there really a difference between them?

FACT 1 HOW IS THE QUALITY OF A SUPPLEMENT REGULATED?

The Medical Control Council (MCC) does not monitor the contents or purity of a supplement, nor the quality or source of the nutritional ingredients. This is the obligation of the manufacturer.

Purity: What does it really mean? — Defined: The quality or state of being pure or unimixed with any other elements.

In most cases, impure ingredients are used by many companies. The MCC does not require manufacturers to list these ingredients (on the nutritional labels) if they are not added when making the final dosage form. Often the raw materials may contain only 90% or less of the listed ingredients, along with 10% or more of lactose and corn starch, which are known allergens for some people.

These items have been known to cause digestive disturbances and weaken the immune system. Make sure that the manufacturer of the product you are buying will not compromise the integrity of a product with such raw materials. Read the label to see if it states that the product has been tested to be FREE of these substances. If a manufacturer makes false claims on their labels they are liable for prosecution.

Hypoallergenic: What does it really mean? — Defined: non-allergy producing. A term applied to a preparation in which every possible care has been taken in the formulation and production stage to ensure minimum instance of allergic reactions.

FACT 2 NOT ALL PRODUCTS ARE CREATED EQUAL.

Pharmaceutical Grade: What does it mean?

There are basically three different grades of raw materials used in products, they are: Pharmaceutical Grade - meets pharmaceutical standards as set out by the South African Pharmaceutical Council.

Food Grade - meets standards set for human consumption

Feed Grade - meets standards set for animal consumption

The difference between each grade type is one of quality and purity. In technical terms, no substance is 100% pure as there are always other substances added to various products. The difference between the grades relates to the quantity of these other substances that are present in the product.

There are several criteria by which pharmaceutical grades are judged. The product must be in excess of 99% pure with no binders, fillers, excipients, dyes, or unknown substances or ingredients that may cause known side-effects.

“If a manufacturer makes false claims on their labels, they are liable for prosecution.”

FACT 3 QUALITY CONTROL BEGINS WITH THE RAW MATERIALS

There are numerous raw material suppliers, but what makes one superior to the other begins with how the material is grown. Raw materials and quality control is the key to an excellent nutritional supplement.

Questions to ask about your supplements:

- Is the product natural or synthesised?
- How were they cultured?
- Did the seeds come from organic sources?
- Were pesticides used at any point?
- Where were they grown?
- How were they harvested?
- Were fields depleted in the process?
- How often are the fields rotated?

Quality control begins by selecting the freshest active raw materials. Immediately after harvesting is complete the product starts to age, so transporting and storing the materials in a temperature controlled environment is very important to insure the longevity of the items. Once the finished products reach the warehouse, rotation and inventory control is the key to maintaining fresh supplements.

Just like food and drugs, vitamins age until they have lost their entire potency. Many people take vitamins all their life and wonder why they have medical problems. Medical problems can be magnified by improperly made, irresponsibly stored or poor quality raw materials. Vitamins are a science, just like drugs and all other product producing industries. Unfortunately there will always be companies who prefer the bottom line rather than your health and the quality of their products.



The South African Pharmaceutical Council (SAPC)

The SAPC provides assurance to the consumer, as well as those involved in manufacturing and processing, that the quality and purity of the raw materials utilised are of pharmaceutical grade.

Consequently, the SAPC guarantees a certain standard of excellence sold only through physicians, pharmacies and selected health shops. The bottom line is, if the product is not manufactured properly it may not work or could cause side effects.

If you're not sure what you are buying, ask for the facts...

FACT 4 TRANSPORTATION OF A SUPPLEMENT IS VITAL FOR PROPER ABSORPTION

As we age our enzyme bank depletes, the conversion of food and vitamins becomes more difficult and their breakdown can be challenging. Absorption into our cells is also minimised, often resulting in malnutrition. The proper co-factors must be included in a formulation in order to get nutritional benefits. Ratio balancing of the individual ingredients is another fact not to be ignored. Nutritional supplements are available in several forms, namely powders, tablets, liquids, or capsules. Let's review each one separately.

Various Forms of Nutritional Supplements

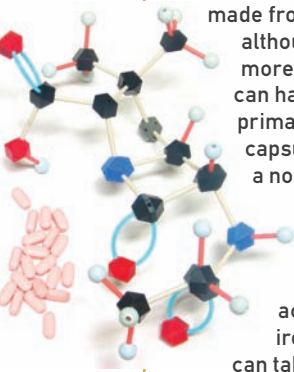
Tablets are usually very hard and consist of binders and heavy coatings in order to maintain their shape. As you have already learned, binders can be invasive to the body if not carefully selected. Manufacturers usually produce tablets because they are economical. They tend to force many ingredients into one tablet trying to convince the consumer that their needs are met in one magic pill. Very few companies have mastered the proper technique of tablet making. Liquid supplements are easy to absorb but require heavy dosing in order to achieve desired recommended daily allowances. They are cumbersome when travelling and tend to taste unpleasant. Often the taste needs to be disguised with some form of sweetener. Some sweeteners are harmful while others are perfectly acceptable. Know which sweetener is in the products you are considering.

Capsules tend to be the industry's favourite. The capsule is usually made of gelatin allowing easy breakdown of the nutrients inside. For the

vegetarian there are capsules made from vegetable sources although they tend to cost more. Like tablets, capsules can have fillers. This is done primarily to make the capsule look full and act as a non-caking agent.

Absorption of nutrients can only be attained by the proper catalyst accompanying it. Take iron for example, people

can take all the iron they want but without folic acid and B-12 it can not reach the cells. A clear understanding of vitamins and nutrition is crucial prior to taking a



FACT 5 YOU CAN'T ALWAYS JUDGE A SUPPLEMENT BY ITS COVER

Supplemental facts on the label do not always tell the facts. In most cases they don't even come close.

Journalists have recently discovered vitamin and nutritional products do not contain the milligrams listed on the label. Obviously, it is an impossible task for any agency to monitor every supplement that is on the market.

Globally, there are various units of measurements displayed on nutritional labels. Interpreting these labels requires the expertise of a professional who understands the difference between them, along with the latest laws and regulations placed on the industry.

FACT 6 ADVERTISEMENT IS NOT ALWAYS IN OUR BEST INTEREST

Many companies spend millions of rands in advertising, hoping to convince consumers to buy their brand. Catchy phrases and fancy buzz words are used to entice, stimulate and often mislead the general public. These are ploys used when the quality or the efficacy of a product is usually in question.

FACT 7 EXPIRATION DATES: WHAT DO THEY REALLY MEAN?

Expiration dates have been used for years to increase sales in all industries. Example: If a drug has an expiration date of December 2002 does this mean that there is a mechanism built into that drug that will reach expiration it on January 1st 2003? What is happening to that drug weeks and months before expiration date? All drugs and vitamins start to age or break down the day after they are manufactured. Most products are safe to take up to 1 year after expiration date. The concern is that the product may be less effective and the dosage may vary. Not all substances deteriorate at the same speed. For example: Vitamin A deteriorates 33% faster than other vitamins. Quality vitamin manufacturers will beef up their vitamin A slightly to cover the time period that this vitamin may be on their, the distributor's and retailer's shelf, as well as in your home. A quality manufacturer will also ensure that their vitamins meet the approximate listed strength on the label at the time of expiration.

How do you find quality vitamins and supplements?

This is difficult for the average person, so the following information is a guideline for you to follow.

- ▶ The store must be a high volume store. This means vitamin sales, not food sales.
- ▶ The store must maintain a temperature controlled environment.
- ▶ The store should not have a warehouse on or off the premises.
- ▶ The store should maintain a quality rotation policy.
- ▶ The store should have board certified staff operating the floor.
- ▶ The store needs to understand how vitamins are made, know the manufacturers and have toured the vitamin and supplement labs that produce the products they carry.
- ▶ The store must carry pharmaceutical grade vitamins.

Now let's look at what makes a protein supplement ideal and superior to any others with regard to formulation:

- ▶▶ It should combine various vital ingredients to improve muscle tone and help reduce body fat (if you are looking for a weight loss meal replacement, also called a MRP)
 - ▶▶ Enhance liver detoxification and function and improve digestion with an added multi-fibre blend.
 - ▶▶ It should also contain Alpha Lipoic Acid in sufficient quantity for improved insulin sensitivity and blood sugar control. This should also help reduce the accumulation of cellulite and body fat. Alpha Lipoic Acid also serves as a vitamin like universal anti-oxidant that is effective in both aqueous (water) and lipid (fat) mediums.
 - ▶▶ Contain nutrients that protect against FREE radicals, which do most of their damage by inhibiting methylation. Maintaining and enhancing methylation is the next therapy for ageing and disease, including cancer and heart disease.
 - ▶▶ It should also contain nutrients that help reduce the risk of blood clotting and also protect against UV induced cancers.
 - ▶▶ Have a high protein content per serving
 - ▶▶ Be lactose, corn and starch free
 - ▶▶ Contain ingredients that will help prevent bone loss (Osteoporosis)
- It is common knowledge that calcium and vitamin D work together to help prevent osteoporosis, but what about the many other essential minerals and nutrients needed for bone health? Boron is an important mineral and should be an added nutrient. Other important vitamins are vitamin B12, K, D, C and E. Always check the label for Boron content.

Lab Research Notes:

The most important factors to consider when buying a protein supplement, is to make sure it contains the necessary nutrients to prevent long-term osteoporosis (or bone loss), enhancing methylation (reducing homocysteine) thereby preventing ageing and heart disease, enhance liver detoxification, improve insulin sensitivity and blood sugar control and are lactose, corn and starch free.

Protein Supplements and Osteoporosis (Bone Loss)

Bone Remodeling and Causes of Osteoporosis

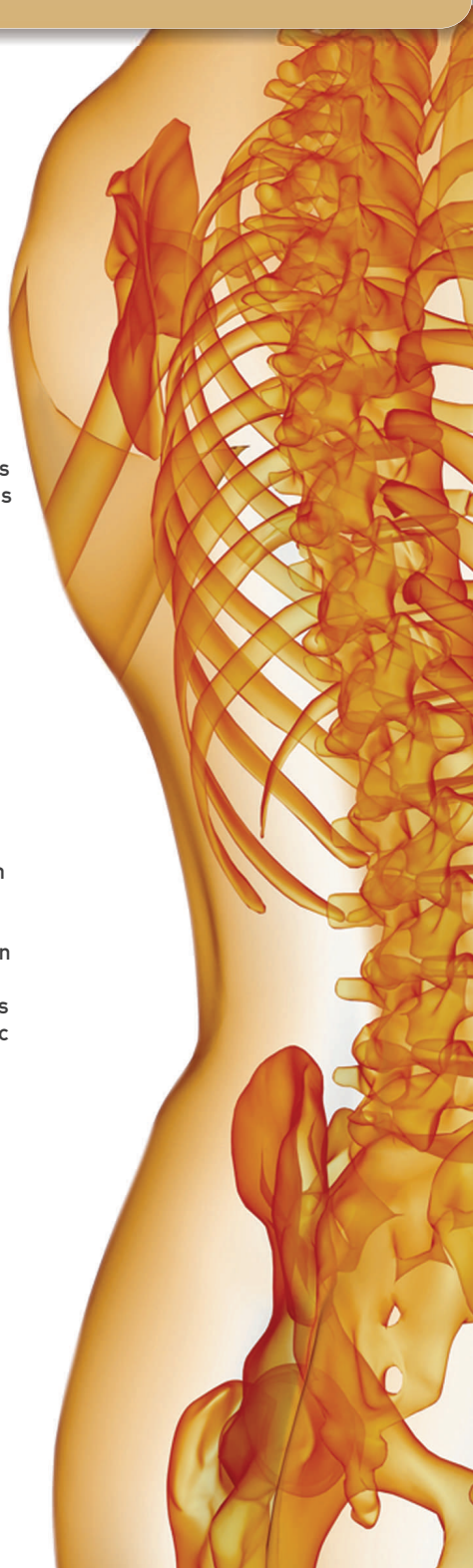
Osteoporosis is defined as a reduction of bone mass, or bone density, which causes the bones to become brittle and fragile. People afflicted with osteoporosis are more susceptible to a wide range of fractures, including fractures of the hip, spine, and wrist. Fractures associated with osteoporosis are debilitating and costly. Mortality rates one year after hip and spine fractures have been reported to be as high as 30. Many studies report high rates of institutionalisation, loss of function and death after hip and spine fractures.

Preventing Osteoporosis

Maintaining healthy bones goes far beyond calcium and vitamin D, although these are vital. A healthy bone matrix also relies on vitamins and minerals that are rarely mentioned in the context of osteoporosis, including zinc, boron, copper, magnesium, vitamin K, silicon and folic acid, amongst others. This information is vital to millions of people, including men, who are known to suffer from osteoporosis.

Proteins are constructed of various amino acids, each with a very specific function. Most amino acids are produced in the liver, and 20 percent must be obtained through the diet. The amino acids not produced by the body are known as essential amino acids. L-arginine and L-lysine are essential amino acids necessary for protein synthesis, the production of collagen, calcium absorption, the production of hormones, enzymes, and antibodies, and tissue repair.

Several studies document the effects of essential amino acids on bone growth and metabolism, and



there is sufficient support that essential amino acid supplementation contributes to bone formation and may be useful for preventing or treating osteoporosis. One animal study found that supplementation with L-arginine prevented the inhibition of bone growth and re-absorption of bone induced by glucocorticoids. Another study demonstrated that both L-arginine and L-lysine stimulated osteoblast cells to reproduce and activate.

A Nutrient Rich Conclusion

Looking at all the scientific research data and how important it is to consume the correct nutrients in the correct amounts amplifies the importance buying a protein supplement that is rich in the nutrients that will enhance your long-term health. Make sure to look at the label and only buy products that have all the correct nutrients that have been manufactured to strict quality standards and adhere to the aforementioned guidelines. Remember that by buying protein supplements from brands that set themselves apart from the rest by adhering to the strict manufacturing protocols set out by the South African Pharmaceutical Council, you are investing in your health and not the bank account of those individuals that try to mislead the public. Consuming high quality, nutrient rich protein supplements can contribute greatly to a long, happy and healthy life.

The following nutrients are crucial in a protein shake to enhance your health – make sure these are added to the protein supplement you intend to buy:

Calcium –1200 mg (dicalcium malate and calcium bisglycinate) daily requirement

Vitamin D3–800 international units (IU) daily

Magnesium –340 mg daily

Zinc –2 mg daily

Manganese –1 mg daily

Boron –3 mg daily

Vitamin C –1 to 3 grams (g) daily

Vitamin E –400 IU daily (with 200 mg gamma tocopherol)

Vitamin B12 with folic acid–300 to 1200 micrograms (mcg) B12 and 800 to 3200 mcg folic acid daily

Vitamin K–10 mg daily

Whey protein –up to 50 g daily (contains the essential amino acids L-arginine and L-lysine necessary for bone formation)

Soy isoflavones (genistein, daidzein, glycitein) –55 to 120 mg daily

About Nutrition Lab

Nutrition Lab technologies (Pty) Ltd, is a Sports & Lifestyle Nutrition company that produces protein and lifestyle supplementation that are manufactured in a Medical Control Council (MCC) licensed facility that is registered as a pharmaceutical company with the South African Pharmacy Council (SAPC) and the Department of Health (DOH). NUTRITION LAB products are manufactured using effective doses of the highest quality pharmaceutical grade nutraceuticals and bio-identical hormones, sourced from the world's best and most

trusted raw material suppliers. Every batch of raw material is tested for potency and contamination. All products are manufactured under GMP (Good Manufacturing Practice) and PMP (Pharmaceutical Manufacturing Practice) conditions and are developed using the latest scientific evidence available to ensure the highest quality and purity of the end product. Your Health is their main concern! Their goal is also to educate the public about health issues and offer serious alternatives.

Visit www.mat-rx.com or www.thenutritionlab.com.

