

What to look for when buying supplements

By Leanne Cooper ©

Deciding which brand or type of supplement to purchase can be a difficult decision considering the sheer variety of supplements available in chemists, health food shops, supermarkets, the internet and through mail order. Nutritionist and naturopath, Leanne Cooper, answers our most common questions about supplements, and outlines how to ensure quality and value for money when purchasing supplements.

Do large numbers of vitamins/minerals in a supplement mean that it is a better product?

No, because in order to accommodate for a large array of nutrients in a supplement, the quantity of each ingredient has to reduce. This means that the dose of each ingredient often ends up being so small that the supplement's effectiveness is compromised.

Another issue to be aware of is that while combining certain nutrients with others increases their effectiveness, it can also have the opposite effect. The risk with a multi vitamin/mineral product is that a number of nutrients in the product may be competing with each other and thus inhibiting absorption. Figure 1. outlines some examples of the common interactions between vitamins and minerals:

Figure 1.

Vitamin/mineral: Vitamin A

Enhances absorption: Vitamin C, B3, E, D and zinc

Inhibits absorption: Iron, copper.

Vitamin/mineral: Vitamin C

Enhances absorption: Vitamin B2, B3, B9, B12, bioflavonoids

Vitamin/mineral: Vitamin D

Enhances absorption: Vitamin A

Vitamin/mineral: Vitamin E

Enhances absorption: Vitamin A, C, zinc and selenium

Inhibits absorption: Iron

Vitamin/mineral: Calcium

Enhances absorption: Vitamin D and magnesium

Vitamin/mineral: Iron

Enhances absorption: Vitamin C

Inhibits absorption: Manganese

Vitamin/mineral: Magnesium

Enhances absorption: B6, Vitamin D

Inhibits absorption: Sodium

Vitamin/mineral: Zinc

Enhances absorption: Vitamin B6

The bottom line is that while multi vitamins/minerals are a reasonable stopgap if your diet is inadequate, they cannot beat eating a wide variety of wholesome foods, as food has a better natural balance for absorption than most multi vitamins.

If a vitamin/mineral is combined with a herb does this increase the supplement's effectiveness?

The same rule applies as for multi vitamins - the more ingredients that are added, the smaller the dose that is available from each ingredient. There are many blends constantly being introduced to the market and while they offer the consumer a greater array of natural medications, they also encourage a hit and miss approach to health care.

Having said this, there are some successful combinations. Here are some examples:

Garlic and Echinacea:

Both garlic and Echinacea are potent immune supportive plants, combined together they cover many more of the immune functions needed to fight off infection than they do alone.

Echinacea and horseradish:

Combined, they offer a great immune supportive blend specifically for people who need upper respiratory tract support, like sinus or hay fever sufferers. When you are suffering from these conditions your immune system is constantly under attack, so the horseradish will alleviate the symptoms of the sinus or hay fever, while the Echinacea can assist in supporting your immune system.

Ginkgo and Hawthorne Berry:

Both herbs are well known for their effect on the circulatory and cardiovascular system. Ginkgo is said to be useful for the microcirculation, while Hawthorne is supportive of the heart.

Tip:

When buying a Ginkgo supplement, read the label to check that it contains 24% Ginkgo flavone glycosides and 6% terpenoids - this is the industry standard, yet many over-the-counter Ginkgo supplements do not meet this requirement.

Other effective combinations are: zinc added to immune boosting supplements; and B6 and magnesium combined with herbs that relieve PMT.

If a supplement is advertised as grown or manufactured a certain way, does this mean it is of a superior quality?

It may well be, as the manufacturing process, the mix of ingredients, the packaging, and the growing of the raw materials can all influence the end product's quality.

The majority of vitamin and mineral products start with the same raw material, but how they are put together can dramatically alter the quality of the end product. One important issue here is how much of a product is made up of excipients, i.e., inactive substances that are used to bind active ingredients into a supplement. Manufacturers are not required to list these inactive ingredients, so often you do not know that they are there unless you add up the total number of active ingredients in the product, and deduct this figure from the number of grams in the tablet. For example if you have a 1,000 mg tablet, and the total grams of the listed ingredients is 930 mg, this means the remaining 70 mg are inactive substances.

The conditions in which raw materials are grown can also influence the end product. For example, organically grown produce has been found to have greater numbers of nutrients, as well as fewer pesticides and other such chemicals.

The packaging of a product is another issue to consider. For example vitamin A, C, D, E B1, B3, B6 and B9 are vulnerable to light and heat, so they should be sold in dark coloured containers to protect them from light, and stored away from direct sunlight and heat. Botanical herbs that have volatile oils (essential oils), which give them their distinctive aromas, are also very sensitive to light and heat. If you see cold-pressed or steam-distilled on the label of a herb, this means the manufacturers use an extraction process that minimises the product's exposure to these potentially damaging elements.

Should I buy supplements sold via network or pyramid selling?

Only if you know what ingredients are in the product. In order to safe guard the consumer, the Therapeutic Goods Act (TGA) in Australian requires that manufactures list the ingredients used in a product (only the active ingredients), placing the ingredients in order of largest amount used to least. Products that are sold via network or pyramid selling generally have not undertaken these standards, so you have no real way of knowing what is in the product. If a manufacturer has not undergone the rigours of the TGA for whatever reason (often it is a very costly process), their confidence in their product should shin through in the information they are willing to provide you. You can request information about a product that has not been TGA approved by calling the distributor/manufacturer or asking the supplier. You have a right to be suspicious if they are not forthcoming.

What dose of supplement should I take?

The Recommended Daily Allowance (RDA) for nutrients is provided by the World Health Organisation and is based on historical studies of large populations of people. The figures provide a rough guide to the levels of nutrients required to prevent obvious signs of disease or deficiency symptoms, but they don't take into account individual needs, such as the environment you live in, your stress levels and health status.

If you decide you need a higher dose than the RDA, it is important to know which nutrients it is safe to increase the dosage of. Some nutrients taken at high dose can have a potentially dangerous effect. For example, vitamin A is often not recommended for women who are pregnant or for individuals with liver disease or damage, as it accumulates specifically in the liver. Also, some nutrients, like vitamin C, are not retained in the body for long, so having a large dose of vitamin C in one go is a less useful exercise - it is much better taking it in divided doses over the day.

A rough guide for safety of dosage is to split the vitamins into two groups: water-soluble and fat-soluble. The water-soluble group (vitamins B and C) are generally safe at doses above the RDA because they follow the body's water flow and are not stored in the body. In contrast, the fat soluble group (vitamins A, D, E and K) are found in fat and are stored in the body, so can grow to toxic levels. If you are taking fat-soluble vitamins, most commercially available products will be within the ranges above and close to the RDA. Practitioner products may have higher doses; but they are only available from qualified health care professionals.

Generally most products available commercially that have undergone TGA approval will be restricted in the dosages they can provide, unless the product is for practitioner use only. Many of the products that have not undergone TGA testing have very low doses of active ingredients (often too low), which prevents them from having an adverse effect.

Suggested doses: the lower end of the following ranges is a conservative dose, and the upper limit is a therapeutic dose, used by many practitioners. The lower end is a good starting point for asses sing a supplement; however, these figures are only rough guides as there are many factors affecting the actual required dose. If you are unsure of what dose is most suitable for you, check with your practitioner or chemist.

Vitamin:

Vitamin: C

RDA (mg): 50

Suggested dose range (mg): 100-1000.

Vitamin: B1

RDA (mg):1-5

Suggested dose range (mg): 1-100.

Vitamin: B2

RDA (mg): 1.5-2

Suggested dose range (mg):10-40.

Vitamin: B3

RDA (mg): 13-18

Suggested dose range (mg): 10-100.

Vitamin: B5

RDA (mg): 5-10

Suggested dose range (mg): 20-200.

Vitamin: B6

RDA (mg): 1.5-2.6

Suggested dose range (mg): 10-150.

Vitamin: B12

RDA (mg): 2-5 mcg

Suggested dose range (mg): 5-100 mcg.

Vitamin: B9 (folic acid)

RDA (mg): 400 mcg

Suggested dose range (mg): 1,000-5,000 mcg.

Mineral:**Mineral: Calcium**

RDA (mg): 800-1,400

Suggested dose range (mg): 400-1,200.

Mineral: Magnesium

RDA (mg): 350

Suggested dose range (mg): 300-1,000.

Mineral: Zinc

RDA (mg): 15

Suggested dose range (mg): 10-100.

Mineral: Iron

RDA (mg): 10-20

Suggested dose range (mg): 15-50.

How do I work out the actual cost per dose?

Your 200 gram (2,000 mg) vitamin C powder costs you \$25. Each dose is 1 metric teaspoon or 3.9grams (3,900 mg). Each dose contains:

Vitamin C - 2,850 mg
Bioflavanoids - 195 mg
Rutin - 195 mg
Quercetin - 120 mg
TOTAL - 3,360mg

- Total ingredients per dose - 3,900mg
- Total listed ingredients - 3,360mg

This means you are left with 540 mg of inactive ingredients - almost 15% of the total ingredients.

- There are 51 doses in the bottle (2,000mg divided by 3,900mg per dose).
- Each dose costs you \$0.50c (\$25.00 divided by 51 doses).
- The manufacturer recommends just one dose a day so the cost per day is \$0.50.

You could compare this product with other products and measure the dose cost per day and level of inactive ingredients.

Common Supplements: What To Look For

Antioxidants

There are a myriad of antioxidant blends on the market, but ultimately the antioxidant you choose will be determined by the reasons you are taking it, and your current diet and health status. The antioxidant CoQ10, for example, is popular among athletes as it is believed to improve the production of energy, as well as acting as an antioxidant. Antioxidants are also taken for the prevention of cellular damage from chemicals and pollutants in our environment, to prevent ageing, and to prevent cellular changes in the body.

Although certain antioxidants work well when combined, research into the area of blended constituents is limited and often conflicting. Researchers do agree; however, that Vitamins A, C and E, plus zinc, are good examples of nutrients that exert a stronger antioxidant effect when combined.

B vitamins

Vitamin Bs should be taken as a complex (in a group with most of them present at once), because taking one B group vitamin may affect the current levels of other B group vitamins in your body. Many B vitamins compete with each other, while others are dependent on the presence of another B vitamin in order to exert an effect. The B group exists in a fine balance that is not easily simulated artificially. If you require a specific B vitamin it is best to take a complex and then the specific B vitamin on top of this.

Protein powder supplements

In order to get the most from a protein powder (muscle gain and/or weight gain), ensure that the brand you choose has all the following essential amino acids (these are the small units in a protein that you must get from your diet because our bodies are unable to produce them).

- Phenylalanine
- Leucine
- Valine
- Lysine
- Isoleucine
- Methionine
- Threonine
- Tryptophan

(listed in order from greatest requirement to least)

It is very common to find protein powders that are deficient in one or more of these essential amino acids. If one or more essential amino acid is missing from a protein powder it will limit the bioavailability (usefulness) of the product, hence part of the contents are wasted, along with your money.

Echinacea

Research supports the immune boosting effect of Echinacea. It is thought that the most effective time to take echinacea is at the early stages of infection, or over the three months of winter, as it works best when taken over short periods of time, rather than permanently.

Echinacea has three varieties, echinacea angustifolia, echinacea purpurea and echinacea pallida. The strength of activity of each form varies, with angustifolia the strongest, followed by purpurea and then pallida. The stronger varieties cost the manufacturer more, so ensure that you are paying an appropriate cost that reflects the strength of the echinacea.

Echinacea is available in tablet, liquid, and even lozenger form. The effectiveness of each form depends on the factors outlined earlier (level of active ingredient, manufacturing process etc), but the difference between the tablet and liquid

form is generally very small. Convenience and taste will probably be the deciding factors here as many people dislike the taste of liquid echinacea, and find the tablet form more convenient. The echinacea lozenge is generally less effective than either the tablet or liquid, as the dose level may be compromised by the preparation requirements. You would be wise to check the form of echinacea used and the end dose you get from each tablet to ensure its effectiveness. The value of adding zinc to the lozenge is also dubious, because the dose will probably be too small for it to have much benefit.

Child echinacea has recently become available. The only real difference between this and the adult version is a smaller dose size, and many of the child liquid echinacea preparations do not use ethanol as a base - instead they use the sweet but safe base of glycerin (which makes the preparation more palatable).

There is one foolproof way of ensuring that the echinacea you have bought is the real thing (there have been reported cases of brands stating they have echinacea, but in fact have used a similar plant that is not echinacea and does not have the same effect). Simply wait for a minute after your tongue contacts with the echinacea and you should notice a buzzing or zinging sensation on your tongue - that is real echinacea!

Vitamin C

There are a number of easily recognised differences in vitamin C products on the market. The chemical name for Vitamin C is ascorbic acid (pure vitamin C), a form which some people find is harsh on their stomach. A number of manufacturers produce vitamin C tablets and powders that are mixed (flushed) with minerals such as calcium and sodium, as this process dilutes the acidity of the product. However, it also dilutes the quantity of active ingredient and should be reflected in the cost. Pure vitamin C is expected to be more expensive than calcium ascorbate and sodium ascorbate (respectively).

The recent discovery of a class of substances called bioflavonoids (substances that are linked to vitamin C) found in coloured berries and citrus fruit has seen the emergence of numerous blends of vitamin C with bioflavonoids (you may have seen preparations that are marketed with rosehips, which are coloured berries rich in bioflavonoids). Bioflavonoids act to enhance the action of vitamin C in the body and are potent antioxidants. The addition of bioflavonoids does enhance the product, but also increases the overall cost of the vitamin C. Hence adding coloured fruit to your diet (blackberries, strawberries, blueberries, boysenberries and mulberries) may be a wiser decision for your wallet!

There is a large array of vitamin C preparations on the market, including powders, tablets (chewable and nonchewable), and water dissolving tablets. If faced with three different preparations that use the same blend of vitamin C and non active ingredients, your choice would best be made by cost, taste and convenience.

Around 61% of the Australian population uses supplements, making us one of the top supplements users in the world. Source: Roy Morgan Research

Questions to ask when comparing supplement brands

- What level of the active ingredient am I getting in each dose?
- How many doses do I need to take per day?
- How much does each dose cost?
- Does the product contain all the nutrients required for effective absorption and utilisation?
- Is the active ingredient of a high quality?

Supplement rules:

- Do not take your supplements with alcohol or coffee as this hinders the absorption of many nutrients
- Take garlic with food
- Take your B vitamins in the morning or they could keep you awake at night
- Take liver herbal formulations 20 minutes prior to food
- Take amino acids on their own, away from food
- Wash your iron supplement down with a juice drink, as this can improve the absorption of the iron
- Do not take your iron supplement with a cup of tea as the tannin binds to the iron rendering it unabsorbable
- If you are taking a number of different supplements at once, ensure they are not competing nutrients that may reduce each others effectiveness.

Trainer sued in client death

Recommending supplements to a client has had serious implications for an American personal trainer and his former employer, the Crunch Fitness health club chain. The family of a 37-year-old fashion designer who died after suffering a stroke while working out with her personal trainer claimed in a lawsuit filed in June last year that the woman's death was brought on by a combination of nutritional supplements her trainer allegedly instructed her to take.

The lawsuit states that Anne Marie Capati should not have taken the supplements because she was also on medication for hypertension. The supplements included a combination of ephedra, Whey Fuel, EFA, Lean Body Shake, a combination of essential fatty acids and Yohimbe bark extract. The complaint alleges that Capati's trainer told her to complement her exercise and diet program with the five drugs, and accompanied her to a vitamin shop to buy them. The lawsuit seeks \$40 million in punitive and compensatory damages, and the vitamin shop and the manufacturers of the supplement have also been named in the lawsuit.

This situation serves as a warning to fitness professionals to be mindful of professional limitations when working with clients and members. It is beyond the scope of practice of registered fitness leaders to recommend supplements, so it pays not to place yourself in this potentially dangerous position.

The information presented is generalised. If you have persisting health problems you should see a qualified practitioner for individualised advice. Your practitioner can target more specifically your needs and ensure the products you take are relevant to your needs.