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Calcium Supplements & CVD Risk

Does the Risk Outweigh the Benefits?

You may have heard/read about the study showing that taking calcium supplements regularly may increase the risk of heart attack.



The study¹, published in the British Medical Journal, led by Professor Ian Reid at the University of Auckland, is a meta-analysis of 15 randomized trials on calcium supplements conducted in the last twenty years involving 12,000 people, with the aim to investigate the links between calcium supplementation and cardiovascular events.

Based on the analysis of the data in the 15 trials, the researchers found that **calcium supplements increase the risk of heart attack by about 30%**. Professor Reid explained that this could be associated to **higher blood calcium levels from supplementation (mostly in forms of carbonate and citrate), which could lead to hardening of the arteries**.

Interestingly enough, the meta-analysis did NOT include any studies with calcium supplements that contain vitamin D and vitamin K, and hence, yield such a rather

shocking conclusion. That being said, vitamin D actually increases gut absorption of calcium and does not help decrease serum calcium levels. **Vitamin K**, on the other hand, plays a pivotal role in neutralizing the adverse effect of calcium supplement by **servicing as a “guide” that leads Ca++ into the bone matrix** and, as a result, reducing CVD risk.

Research has shown that vitamin K insufficiency of the vessel wall is a severe and independent risk factor for cardiovascular disease.²

MGP (Matrix-Gla-Protein) - a vitamin K-dependent protein - is the strongest and the most abundant inhibitor of soft tissue calcification.

There are two groups of Vitamin K2 in supplements, known as **menatetrenone (MK-4)** and **menaquinone-7 (MK-7)**. The longer chained MK-7, derived from naturally fermented foods (eg. soy), has a longer serum half-life and exerts a dramatically more potent effect at **1000 times** than that of the shorter chained MK-4 (mostly synthetic) in promoting bone mineral density and preventing the calcification of blood vessels.³

Source of calcium is another issue to be considered, according to the conclusion of the above

study. Amino acid chelated (AAC) calcium is one of the best calcium sources for increasing bone density while minimizing the blood calcium level increase after the supplementation compared to citrate and other calcium salts.

Our body recognizes Ca AAC as food (protein) and absorbs it via a different pathway from that of the calcium salts. This absorption mechanism enables better incorporation of AAC calcium into the bone matrix without raising serum calcium ion level significantly.

Therefore, when choosing a calcium supplement, it is important to look out for the sources of the minerals (ie. Ca, Mg, Zn), as well as the inclusion of vitamin K2 (MK-7) and vitamin D3, to maximize the benefits of calcium in prevention of osteoporosis and reduce the risk of cardiovascular complications.

Reference:

1. Bolland MJ, Alison Avenell, Baron JA, Grey A, MacLennan GS, Gamble GD, Reid IR. Effect of calcium supplements on risk of myocardial infarction and cardiovascular events: meta-analysis. BMJ (2010); 341: c3691.
2. Vermeer C, Braam L, Knapen M, Schurgers L. Vitamin K Supplementation: A Simple Way to Improve Bone and Vascular Health. Nutraceuticals (2003) 11: 17-20.
3. Geleijnse JM, Vermeer C, Grobbee DE, Schurgers LJ, Knapen MHJ, van der Meer IM, Hofman A, Witterman JCM. Dietary Intake of Menaquinone Is Associated with a Reduced Risk of Coronary Heart Disease: The Rotterdam Study. J.Nutr. (2004) 134: 3100-3105.

Absorbability vs. Natural Source - Which One is the Pivotal Quality in a Calcium Supplement?

Calcium Absorbability

Have you ever been bewildered by the variety of calcium forms claimed to be the most absorbable?

Comparisons of absorbability of different calcium forms have been extensively studied using a few different methods. The tracer (isotopic)-based test is by far the most accurate and economic method widely used.

Using the tracer-based method, studies ^{1,2,3} have shown the following collective absorbability data:

1. **biglycinocalcium – an AAC* (40.4%)**
2. calcium-citrate-malate (36.3%)
3. bone meal/bone powder (33.3%)
4. calcium citrate (29.6%)
5. calcium carbonate (29.6%)
6. tricalcium phosphate (25.2%)
7. hydroxyapatite (20.3%)

*AAC - An amino acid chelated mineral, by definition, involves **more than one bond (non-ionic interactions)** between the ligand (ie. amino acid) and the metallic molecule.

Do we need phosphorus in our calcium supplements?

Although it is well-known that Phosphorus is one of the essential minerals for structural integrity of our bone,

Excessive phosphorus/phosphate intake can actually REDUCE the overall bone mineral density.

The reason is that **high serum phosphate will directly trigger an increase in parathyroid hormone (PTH) secretion**, which promotes the calcium release from the bone.⁴

In our regular diet, most calcium-rich foods contain comparable amount of calcium to phosphorus, for example:

1. Milk [Ca:119 mg / P:93 mg]*
2. Canned sardine [Ca: 382 mg / P:490 mg]*
3. Camembert Cheese [Ca: 387 mg / P:347 mg]*

Nonetheless, there are other common foods that contain

rather high phosphorus with small amounts of calcium (may refer to Table 1), such as:

1. Chicken [Ca: 20 mg / P: 229 mg]*
2. Brown Rice [Ca: 10 mg / P: 83 mg]*
3. Egg [Ca: 48 mg / P: 178 mg]*
4. Corn [Ca: 5 mg / P: 63 mg]*

*per 100g

Moreover, phosphate in carbonated beverages (eg. Coke, Pepsi, Sprite) has been recognized, in numerous studies, to be one of the major factors causing osteopenia/osteoporosis in North Americans.⁵ Hence, it is rather more likely that we have been taking excessive amount of phosphorus, whereas we do not often obtain adequate amount of calcium.

Bone meal/Hydroxyapatite has the closest structure to our bone since it contains Ca⁺⁺/PO₄ in its crystalline matrix. However, can we actually benefit from it?

You may be surprised by the poor absorbability of hydroxyapatite [Ca₅(PO₄)₃(OH)] shown in the studies despite the fact that it is the actual crystalline structure of our bone matrix. Such poor absorption could be due to that **hydroxyapatite does not dissociate well in our GI tract**. In addition, hydroxyapatite contains significant amounts of phosphate (56.8% PO₄³⁻). Based on the **absorbability data** and **body's serum Ca²⁺/PO₄³⁻ homeostasis** discussed above, taking hydroxyapatite, therefore, does not seem to be a better choice than taking other calcium salts.

Reference:

1. Heaney RP, Reeker RR, Weaver CM. Absorbability of calcium sources: the limited role of solubility. *Calcif Tissue Int* 1990; 46:300-4.
2. Smith KT, Heaney RP, Flora L, Hinders SM. Calcium absorption from a new calcium delivery system (CCM). *Calcif Tissue Int*. 1987; 41(6): 351-2.
3. Miller JZ, Smith DL, Flora L, Slemnda C, Jiang XY, Johnston CC Jr. Calcium absorption from calcium carbonate and a new form of calcium (CCM) in healthy male and female adolescents. *Am J Clin Nutr*. 1988 Nov; 48(5): 1291-4.
4. De Francisco AL, Cobo MA, Setien MA, Rodrigo E, Fresnedo GF, Unzueta MT, Amado JA, Ruiz JC, Arias M, Rodriguez M. Effect of serum phosphate on parathyroid hormone secretion during hemodialysis. *Kidney Int*. 1998 Dec ; 54(6): 2140-5.
5. Guerrero-Romero F, Rodriguez-Moran M, Reyes E. Consumption of Soft Drinks with Phosphoric Acid as a Risk Factor for the Development of Hypocalcemia in Postmenopausal Women. *J Clin Epidemiol* 1999; 52(10): 1007-1010.

6. USDA Nutrient Database.

Table 1. Amounts of calcium and phosphorus in 100 grams (3.5 oz.) of selected foods, and the ratio of these two elements ⁶

Food	Calcium (mg/100 g)	Phosphorus (mg/100 g)	Ca:P Ratio
<i>DAIRY</i>			
Cheese, cottage, low fat	69	151	0.46
Cheese, processed	720	511	1.41
Milk, whole	119	93	1.28
Yogurt, low fat	199	157	1.27
Yogurt, whole milk	121	95	1.27
<i>VEGETABLES</i>			
Broccoli	47	66	0.71
Carrots	27	44	0.61
Corn	5	63	0.08
Kale	138	28	4.93
Lettuce, iceberg	19	20	0.95
Peas, green	24	90	0.27
Spinach	100	50	2
<i>MEATS</i>			
Chicken	20	229	0.09

Table 1. Amounts of calcium and phosphorus in 100 grams (3.5 oz.) of selected foods, and the ratio of these two elements ⁶

Food	Calcium (mg/100 g)	Phosphorus (mg/100 g)	Ca:P Ratio
Crab	101	260	0.39
Duck	12	203	0.06
Oyster	62	159	0.39
Sardine	382	490	0.78
Turkey	25	213	0.12
<i>GRAINS/CEREALS</i>			
Barley	19	221	0.09
Oat bran	59	734	0.08
Rice, brown	10	83	0.12
Wheat flour, white	338	619	0.55
<i>LEGUMES & NUTS</i>			
Lentils	19	180	0.11
Peanuts	88	519	0.17
Soybeans	145	245	0.59
<i>MISCELLANEOUS</i>			
Chocolate, semisweet	32	132	0.24
Egg, whole	48	178	0.27

Bone Health Series

Vita Aid Professional Nutrition

Os Matrice is a unique calcium supplement formulated with **major and trace minerals as glycine chelates (the most absorbable form) and horsetail extract (Si)**, accompanied by daily 1000 IU of **vitamin D3** and the natural form of **vitamin K2 (MK-7, 1000x effectiveness compared to MK-4 in improving bone mineral density)**, to promote the bone matrix strength and bone mineral density.

OsteoFort is formulated with a **proper ratio of calcium and magnesium (2:1)** and therapeutically effective dose of **Vitamin D3 (1000 IU) and K2 (MK-7; 120 mcg)** to maximize the bioavailability of calcium in bone mass building and reduce the process of vessel calcification, which is associated with CVD. Both Ca & Mg are in AAC* and citrate form minerals to promote both bone mineral density and electrolyte balance.

If your patient are used to taking other calcium supplements without MK-7., Vita Aid's **MQ-7** is another option to be added to the patients' daily calcium supplementation, especially for those with higher risk of CVD.



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Quiz: What should you know about Vitamin K?

The Most Important Vitamin for Bone Health and Prevention of the Soft Tissue Calcification

Q₁ Do you know which only vitamin could directly promote the bone mineral density?

A₁ It is Vitamin K. While vitamin K is an important component of the clotting factors in liver, vitamin K also plays the role as a “guide” to lead serum Ca⁺ to the bone.

Q₂ How many different forms of K supplement are available in the market? Are they all of the same bioavailability?

A₂ There are two major forms of Vitamin K allowed in supplements - Vitamin K1 and K2.

- » **K1** (derived from plant)
- » **K2** (from fermentation or synthetic processes)- **is way more bioavailable than K1**
- » **K3** is a toxic form and not allowed in Canada.

Q₃ So, does it mean that the inclusion of “vitamin K2” in bone health products makes it an optimal choice for bone health?

A₃ No. There are primarily two forms of vitamin K2 commercially available. These are MK4 and MK7.

- » **MK4** used in dietary supplements is mostly chemically synthesized.
- » **MK7** is produced by naturally bacterial fermentation of soy.
- » Upon uptake, MK-4 tends to go straight to the liver for storage (not stay in blood) with more effect on the clotting factors, less effect on bone



mineralization.

- » **MK-7** is shown to be one of the most effective and bioavailable forms of vitamin K in **bone health** due to its long half-life in the serum.²

Q₄ Is there much difference in promoting bone mineralization between MK-4 and MK-7?

A₄ YES, BIG difference. The difference is 1000 folds in therapeutic dose between MK-4 and MK-7.

- » Clinical studies have shown that only **45 mcg of MK-7** exerts effectiveness in both CVD prevention and increasing the bone mineral density while it takes a minimum of **45 mg of MK-4** to yield significant result.^{1,2} (**1mg = 1000 mcg**)

Q₅ Based on the studies, the Canadian consumers can choose a bone supplement that contains either 45+ mcg of MK-7 or 45 mg of MK-4 to promote my bone health then, right?

A₅ No, since they will not be able to legally purchase a supplement that contains 45 mg of MK-4 in Canada because the **Daily Upper Limit of vitamin K is 120 mcg** regulated by Health Canada regardless what form of Vitamin K.

Q₆ What would happen if I take only 120 mcg of MK-4, which is way lower than its effective dose (45 mg), for my bone health?

A₆ **120 mcg MK-4 is still beneficial** to the maintenance of your blood clotting function, **BUT that dosage is way too low (1/1000)** for the bone density improvement.

- » Thus, MK-7 is the only vitamin K form that you can legally use it while truly getting the benefits of healthy bone mineralization in dosage even below 120mcg (>45mcg).

Q₇ Can my patients still take supplement with vitamin K for their bone health if they are taking anticoagulant drugs?

A₇ **YES**, but the dosage should not exceed than 120 mcg. A close monitoring on the level of blood coagulation would be required. Once the lab data show the clotting function being stable, the patient can continue taking vitamin K with anticoagulant medication given that daily dosage of vitamin K is kept steady.

- » To choose MK-7 is safer for patient with anticoagulant treatment since only 45 mcg per day is required – posing much less concerns on contraindications.

Q₈ Recent studies have showed that taking calcium supplement may increase the risk of calcification on the arterial wall and, hence, increase the risk of atherosclerosis. Would taking calcium supplement with vitamin K increase the risk of blood clotting plaques and atherosclerosis?

A₈ The answer is NO. Human clinical studies have shown that taking MK-7 is helpful in reducing the calcium deposit in the blood vessels; thus, MK-7 is an essential nutrient for

CVD patients who are taking calcium supplements.

» That being said, due to the longer serum of half-life than MK-4, MK-7 is the preferred form in guiding the supplemented calcium into bone instead of staying in blood vessels - hence reducing the risk of atherosclerosis.

Q₉ So why do most companies still use MK-4, not MK-7, for their bone supplements?

A₈ MK-7 is the much more expensive form (5-10 times); therefore, the inclusion

of MK-7 in a formula would make the price of the product not appealing to customers. Therefore, you may need to weigh wisely both the quality and the cost of the product to achieve the maximum health benefits for your patients.

Reference:

1. Geleijnse JM, Vermeer C, Grobbee DE, Schurgers LJ, Knapen MHJ, van der Meer IM, Hofman A, Witterman JCM. Dietary Intake of Menaquinone Is Associated with a Reduced Risk of Coronary Heart Disease: The Rotterdam Study. *J.Nutr.* (2004) 134: 3100-3105.
2. Knapen MHJ, Schurgers LJ, Vermeer C. Vitamin K2 supplementation improves hip bone geometry and bone strength indices in post-menopausal women. *Osteoporos Int* (2007). 18: 963-972

Ingredient FOCUS

Natural Vegetarian ACE Inhibitor KM-20 Peptide from Sesame Seed



KM-20 peptide, derived from sesame seeds (*Sesamum indicum*), has been shown to exert Angiotensin Converting Enzyme (ACE) inhibitory activities and successfully lower blood pressure in a dose dependant manner.

In a 12-week clinical trial in Japan, a daily dose of 1000 mg is shown to be associated with a 15% decrease in systolic blood pressure and a 12% decrease in diastolic blood pressure.¹ A lower dose of 500 mg/day also produces statistically significant decrease in both systolic and diastolic blood

pressures. There were no adverse reactions such as dry cough or digestive issues commonly seen in pharmaceutical ACE inhibitors. Moreover, sesame peptide is a great vegetarian alternative from other known natural ACE inhibitory peptides such as those derived from bonito fish (*Sarda orientalis*) or milk.

Sometimes different mechanisms are required to achieve clinically significant results when treating hypertension. Nutritional supplementation such as magnesium, taurine, vitamin C, bioflavonoids, and CoQ10 to support the organs and vasculatures are also important in achieving synergistic effects.

Herbal diuretics such as corn silk (*Zea mays*), dandelion (*Taraxacum officinale*), and burdock (*Arctium lappa*) have to be noted as well. Through the use of single or

combined blood pressure lowering mechanisms, we can manage mild-moderate hypertensive cases successfully with nutritional and herbal supplementations.

Angiolaxin is the sole brand name containing sesame peptides KM-20 in North America. Angiolaxin is best used with an initial loading dose of 1000 mg/day for 4 weeks, then taper off at 750 mg/day or even lower at 500mg/day for maintenance dose.

- Dr. Carol Lin, ND
(Currently Practicing in Downtown Vancouver; Member of Vita Aid's Medical Advisory Board)

Reference:

1. Nakamura E, Hirakawa Y, Tho Y, Nagaoka H, and Shoji Y. Dose Finding and Safety Study of 12-Weeks Repeated Intakes of Sesame Peptides (KM-20) on Mild Hypertensive Subjects. *Japanese Pharmacology & Therapeutics.* 2004; 32 (4): 239-249.



Myth or Truth: A Bioavailable Magnesium Supplement = A Stool Softener?

Magnesium plays a role as a co-factor in more than 300 biochemical reactions in the body; it is especially important in macro-nutrient metabolism. However, most magnesium salts, such as magnesium oxide (MgO), carbonate and citrate, do not have ideal absorption rates. MgO in particular has only 4% of fractional absorption rate of magnesium, and it has been used as a laxative in allopathic medicine.

When magnesium salt is not readily absorbed in the colon, it can draw water from the interstitial into the lumen resulting in softened stool/diarrhea. Therefore, patients' stool change can be a good indicator of the magnesium bioavailability. That being said, patients suffering from constipation may benefit from the poor absorption rate of most oral magnesium supplements as most magnesium salts often exert laxative effect.

Bisglycino-magnesium is a unique chelate form of magnesium that is readily up-taken into the blood stream and able to participate in the vital reactions in the body. Its absorption rate is more than twice of the minerals salts and NOT dependent to the pH in the stomach or food intake due to the fact that **our body recognizes Mg Amino Acid Chelate (AAC) as food (protein) and absorbs it via a different pathway** from that of the Mg salts (eg. citrate). This absorption mechanism

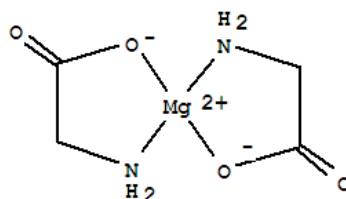
enables better incorporation of AAC magnesium into the targeted tissues such as muscles.

Magnesium supplementation is one of the most simple and economic treatments to help improve symptoms of chronic fatigue, muscle spasm/tension, tension headache, palpitations, anxiety, hypertension, arrhythmias and insomnia. If your patient is not responding to a magnesium supplement, you may want to check if he or she is also experiencing diarrhea/softened stool after taking magnesium. It could indicate that you should consider using the more bioavailable and/or purer bisglycino-magnesium.

*- Dr. Brent Barlow, ND
Member of Vita Aid
Medical Consultancy Team*

Did you know that...

The chelating ratio of bisglycino-magnesium is actually inversely proportional to its percentage of magnesium content because **bisglycino-magnesium is a huge molecule and contains only ~13-14% of magnesium.**



*The molecular weight of Bisglycino-Mg = 180.42 g/mol;
Mg % = Mg Atomic Wt. / Bisglycino-Mg Molecular Wt. =
24.30 / 180.42 = **13.5%***

In other words, in a highly pure bisglycino-magnesium product containing 150 mg Mg per capsule, the total content weight should be around 1200-1300 mg **unless it also contains other magnesium salts (ie. non-chelated) with lower molecular weight such as MgO.**

How is Bisglycino-Mg made?

During the chelation process, excessive MgO is usually added to glycine to ensure all glycine molecules are bound. The extra MgO ideally should be removed from the end product.

However, most suppliers do not invest in such a technique to completely remove MgO, which may appear to increase Mg dosage in the supplement while really decreasing the overall absorption rate.

Vita Aid chooses the highest purity magnesium bisglycinate from **Albion Laboratories**; with their patented technique, they are capable of removing MgO to yield a highly purified Mg bisglycinate.

“Bisglycino-Mg“ contains 150 mg of magnesium from 1200 mg bisglycinomagnesium. The only ingredients in capsule are bisglycinomagnesium and L-leucine; it is absolutely free of magnesium stearate.

Stress Management

Treating the Root with TCM Herbal Formula

Jia Wei Xiao Yao Wan (**Femalance**) is one of the most popular TCM formulas for stress management and ailments of Liver and Spleen. It has essentially been proven by countless clinical trials since the formula was first recorded more than 500 years ago.

Jia Wei Xiao Yao Wan (Femalance) is the modified formula of *Xiao Yao San* with the addition of the cooling/detoxifying and blood-moving herbs – *Zhi Zi* and *Mu Dan Pi*, respectively. This modification is more effective in clearing the heat and blood stasis in Liver.

Clara Cohen is a registered acupuncturist practicing in Port Moody, BC. She is currently teaching at the Boucher Institute of Naturopathic Medicine and The International TCM College of Vancouver. Clara uses *Jia Wei Xiao Yao Wan* (Femalance) for Spleen qi deficiency and Liver qi stagnation issues in stressed and overwhelmed patients, as well as women with symptoms associated with PMS (eg. breast tenderness, mood swings and painful menstruation) and pre- & post-menopausal syndrome (eg. hot flashes, fatigue, dry mouth and throat). She also mentioned that Femalance is a good formula for patients with Seasonal Affective Disorder (SAD), especially during the transition from fall to winter (ie. winter blue). “I love Femalance particularly for the purity of its ingredients as the

product is free of carriers such as corn starch, maltodextrin, and magnesium stearate,” said Clara Cohen.

Dr. Martin Kwok is an ND and DrTCM practicing in Richmond, BC. He considers Femalance being one of the most broadly used TCM formulas to deal with a great variety of conditions. “Other than using Femalance for PMS associated symptoms caused by LV qi stagnation and SP qi deficiency, I use it for patients with diarrhea-dominant Irritable Bowel Syndrome (IBS), especially those accompanied by stress-induced symptoms” said Dr. Martin Kwok.

Dr. Robert McDonald is a TCM doctor practicing in Markham, Ontario. He was very happy with the effectiveness of Femalance and shared with us one of his clinical cases. He prescribed Femalance to a male patient (35 years old) who had high levels of stress, lack of appetite, aching lower rib cage, slight constipation, mild depression mixed with moments of anxiety. His pulse was wiry and thin, and his tongue was red with thin white coating. “After the treatment of Femalance, 2 capsules twice a day, noticeable changes were observed in pulse within one week. The patient also had significant improvement in anxiety and depression, regular bowel, stronger appetite, and no aching on the lower ribs.” In addition, Dr. McDonald pointed out that Femalance comes in a relatively effective high dosage extract, as

well as easy to swallow vegetarian capsules - creating excellent compliance from patients.

Femalance is used to release the Liver Qi stagnation, strengthen the Spleen, nourish the blood, and clear heat in TCM paradigms. With the appropriate presentation, it can be used for menopausal disturbance, menstrual irregularity, dysmenorrhea, infertility, endometriosis, chronic hepatitis, early stage of cirrhosis, peptic ulcer, pelvic inflammatory disease, urethritis, etc.

Liver qi stagnation and Spleen qi deficiency are often observed in patients with stressful lifestyles. Irritability, anxiety, night sweating, palpitation are commonly experienced. For female patients, the symptoms are usually associated with PMS and heavy menstrual flow.

For most TCM formulas in the market, the extraction ratios to dried herb equivalents are usually between 3-5: 1 with the recommended dosages are 9-12 g (10-15 tablets) per day. On the contrary, the extraction ratio of SynerPlex's Femalance is 8:1, and 4-6 capsules daily are able to yield noticeable benefits.

Reference:

1. Chen JK, Chen TT. Chinese Herbal Formulas and Applications: Pharmacological Effects & Clinical Research (2009).

Weight Management - EGCG vs. Caffeine

Ingredient FOCUS



Catechins in green tea extract have long been reputed for its use in anti-cancer, antioxidant, and weight management.

The recent study by University Medicine Berlin¹ has shown that a single dose (300 mg) of EGCG could increase the fat burning and metabolism by 33% while the use of caffeine alone yielded a 34.5% increase in fat metabolism.

The results suggested that EGCG has

comparable effect to caffeine and that there is no synergistic effect when combining EGCG and caffeine. The proposed explanation for the lack of synergism is the difference in the half-life between caffeine (4 hours) and EGCG (2 hours).

The mechanisms of EGCG's effect in weight management include **increasing energy metabolism, promoting fatty acid oxidation and excretion, inhibiting adipogenesis (fat cell development), and reducing the lipid absorption.**

Reference:

1. F. Thielecke, G. Rahn, J. Böhnke, F. Adams, A.L. Birkenfeld, J. Jordan, M. Boschmann. EGCG and postprandial fat oxidation in overweight/obese male volunteers: a pilot study. *European Journal of Clinical Nutrition* (2010).

Thé VertAid contains 225 mg of EGCG per capsule (50% EGCG in 450 mg green tea extract) and is one of the highest EGCG content green tea extract capsules in the market.

Thé VertAid contains less than 1% natural occurring caffeine. It hereby provides benefits in not only weight management, but also cancer prevention and maintenance of good health without the stimulating stress from caffeine.



Ingredient FOCUS

NATURE'S ANTIBIOTIC – PROPOLIS



Have you ever wondered how the fragile bee larvae are protected from the potentially harmful pathogens in their the environment?

As bee hives are constantly exposed to outside materials filled with microbes, such as soils and decomposed invading creatures, propolis becomes crucial in warding off the pathogens. PROPOLIS is a natural antibiotic, antiviral and antifungal substance that is collected by bees from parts of plants, buds and exudates to use as a sealer for their hives. It is widely used as an antimicrobial to treat the infections and inflammations of the mucous membrane.

Bee propolis is mainly consisted

of waxes, resins/balsams, aromatic and ethereal oils, and pollen. The active ingredients include **flavonoids, catechin, caffeic acids, and polyphenols.**¹ These constituents have been shown to protect cells against lipopolysaccharide (LPS)-induced endotoxemia and the associated systemic inflammatory response; this effect is proposed to be attributed to the propolis' ability to



reverse the imbalance of the pro- and anti-inflammatory cytokines.²

Due to its important role in keeping the hive sanitized and protecting the larvae from the infectious agents, propolis possesses the antibacterial (eg. *Streptococcus spp.* and *Staphylococcus spp.*)/ antiviral/ antifungal (eg. Candidiasis)/ antiprotozoan properties.¹ Propolis' antimicrobial and anti-inflammatory actions on the mucous membrane can be applied to the relief of symptoms related to upper respiratory infections,³ as well as the management of symptoms of mild-moderate asthma and allergic rhinitis.³

Propolis also yields **hepato-**

protective effect against hepatotoxins such as aflatoxin and carbon tetrachloride (CCl₄). It has been shown to **restore GSH and catalase level, reduce the liver enzyme (ie. ALT, AST, LDH) leakage**, and minimize the peroxidative stress induced by toxins.⁵

Pure Propolis can be used topically to treat ulcers of the skin or mucus membrane (eg. canker sores, stomatitis) by directly applying the powder to the affected area.

Moreover, clinical research³ has shown that propolis, when used in conjunction with Echinacea and vitamin C, is effective in preventing

the incidence of respiratory tract infections in children. Hence, PURE PROPOLIS can also be combined with COLDEFENXIN, which contains Echinacea 20:1/ American Ginseng/ Vitamin C/ Zinc Gluconate, to help strengthen body's immune system as the flu season approaches.

Vita Aid's Pure Propolis is an ethanolic extract from raw propolis; the impurities, such as clay, hays, insect chitins, are eliminated from the end product during the process while keeping the key constituents – giving the medicine more potent antimicrobial and antioxidant effects.

Reference:

1. Marcucci MC. Propolis: chemical composition, biological properties and

therapeutic activity. *Apidologie* (1995). Vol 26: 83-99.

2. Korish AA, Arafa MM. Propolis derivatives inhibit the systemic inflammatory response and protect hepatic and neuronal cells in acute septic shock. *Braz J Infect Dis* (2011). Vol 15(4): 332-338.
3. Cohen HA, Varsano I, Kahan E, Sarrel M, Uziel Y. Effectiveness of an herbal preparation containing Echinacea, propolis, and vitamin C in preventing respiratory tract infections in children. *Arch Pediatr Adolesc Med.* (2004). Vol 158: 217-221.
4. Khayyal MT, el-Ghazaly MA, el-Khatib AS, Hatem AM, de Vries PJ, el-Sahfei S, Khattab MM. A clinical pharmacological study of the potential beneficial effects of a propolis food product as an adjuvant in asthmatic patients. *Fundam Clin Pharmacol.* (2003). Vol 17(1): 93-102.
5. Bhadauria M. Propolis prevents hepatorenal injury induced by chronic exposure to carbon tetrachloride. *Evidence-based Complementary and Alternative Medicine* (2011). Vol 2012: 1-12.

Full-Spectrum Approach to Cold/Flu Prevention and Treatment

Clinical FOCUS



Imurex (Yu Ping Feng San/ Jade Windscreen Powder) is one of the most popular TCM formulas used to strengthen the immune system. It was originally prescribed and recorded during the Yuen Dynasty (1347 A.D.) in China. Research studies have shown that Yu Ping Feng San (Imurex) is able to stimulate immune function by increasing IgA production (hence, protecting the mucous membrane)¹, relieve allergic rhinitis and allergic dermatologic conditions by regulating IL-4 and histamine release. Its uses can be further extended to treating chronic & acute nephritis and facial

paralysis.¹

In TCM paradigm, Imurex has the action to augment the qi (especially **Wei/Defensive Qi**), which stabilizes the exterior and arrests spontaneous sweating. Deficiency of Wei Qi may lower the defensive function of the skin, increasing a person's susceptibility to exterior pathogens. The clinical symptoms may include spontaneous sweating, aversion to wind, fatigue, and a pale and shiny complexion, frequent recurrence of cold/flu, prolonged recovery from cold/flu, as well as allergic symptoms such as asthma and eczema.

Imurex is usually administered for a long term use, often for the treatment of chronic bronchitis³, allergic rhinitis, as well as chronic renal and dermatological conditions.⁴

Clara Cohen (DTCM, R. Acu; currently practicing in Port Moody, BC; instructor of Boucher Institute

Coldefenxin

NPN 80025565

Coldefenxin contains **Echinacea Extract 20:1/ American Ginseng Extract (10% ginsenosides)/ Vitamin C/ Zinc Gluconate** to boost and strengthen the immune system, helping patients recover from cold symptoms without exhausting the immune function.

Highly concentrated herbal extract, which provides effective dose in less capsules.



of Naturopathic Medicine; advisor of SynerPlex TCM products) **uses Imurex as a cold/flu prophylactic**; she usually recommends Imurex for

her patients to take for a full month before the cold season arrives to strengthen the immune function.

Huang Qi (*Astragalus membranaceus*) is the chief herb in the formula, used to strengthen *Wei Qi* at the exterior. Another two herbs, **Bai Zhu (*Atractylodes macrocephala*)** assists Huang Qi to stop spontaneous sweating and **Fang Feng (*Saposhnikovia divaricata*)** dispels wind pathogens.

Integrative treatment of combining immune-supporting and anti-microbial products can provide a full spectrum care to patients:

Use **Imurex** as a prophylactic to

prepare patients' immune defence for the upcoming cold/flu season. **Imurex** contains high dose of **Astragalus**, which should be used in strengthening the immune system and preventing the cold/flu only.

For patients already caught the cold/flu, **Coldefenxin and Pure Propolis** would be the best combination to eliminate the microbial infection.⁵ Moreover, **Alliimin DR (Garlic)** with highly potent allicin (5000 mg/cap) in stomach-friendly capsule form would be an excellent natural antibiotic to reduce the severity of infection and prevent against secondary bacterial infections.

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Clinical FOCUS

Complementary Treatment Protocol For Leaky Gut Syndrome

Food allergies/sensitivities can often be caused by digestive dysfunctions. Leaky Gut Syndrome (LGS) is considered the main cause of GI discomforts and other symptoms (eg. eczema, asthma), and food elimination is the most widely used protocol used to treat LGS. Nonetheless, patient compliance has always been the biggest challenge for both the practitioners and the patients, especially those allergic to multiple allergens. A proper meal plan can become the source of emotional stress during the healing process.

“Incomplete food elimination and stressful meal preparations are two key reasons that lead to failed treatment plan for LGS” shared by Dr. Carol Lin.

Dr. Carol Lin is a naturopathic physician practicing in Downtown Vancouver. Her practice focuses on lots of allergy and GI issues in patients

Proteases that work at broad range of pH levels play quite crucial roles in supporting the patients' gut healing during the food elimination process.

with stressful lifestyle. Based on her clinical experiences over the years, Dr. Lin found that the success rate of food elimination treatment plan for allergic patients had been really low. Patients sometimes felt guilty and stressed about breaching the food elimination protocol and decided to bail out on the treatment.

Then Dr. Lin revised the **protocol by introducing high potency enzyme product, Optizyme from Vita Aid,**

to her allergic patients during the first stage food elimination treatment. Patients did not need to strictly eliminate dairy, gluten, egg, soy, corn containing foods all at once, and in the meantime, their symptoms still improved because the enzymes were working to break down most allergens.

“Within 6 months, most of my patients were able to shift from high potency enzymes (Optizyme) to lower potency protease complex formula (Supreme Zyme-Aid Extra Fort) without exacerbating the symptoms. After one year of complete treatment plan, the patients could reintroduce some originally sensitive foods in moderate quantity” said Dr. Lin. She taught her patients to bring the enzyme supplements with them if they know they are going to have meals that may contain significant amount of sensitive ingredients.

Enzymes have specific effectiveness in breaking down the nutrients at a range

of pH levels, temperature and dosages. Although enzyme units are difficult to be understood, they provide us clues about the enzyme qualities and strengths in different environments.

For instance, HUT unit in protease is defined as the proteolytic activity at pH levels of around 4-5; whereas, SAP indicates that an enzyme functions in acidic environment such as stomach. (These two units cannot be inter-converted.)

Therefore, choosing an enzyme product containing enough proteases that work at broad range of pH levels is very important for supporting the patients' gut healing during the food elimination process.

Proteases can break down proteins to hypo-sensitive shorter peptides or amino acids in the GI tract and allow sufficient time for the gut to heal.

Dysbiosis is another digestive issue, potentially caused by stress and foods with high sugar and certain difficult-to-digest polysaccharides (foods for un-friendly bacteria). Although

supplementing probiotics is a good way to restore gut flora balance, minimizing the stress from intolerant food ingredients (eg. raffinose in bean, yam, and cruciferous vegetables) should also be addressed. Raffinose intolerance is usually not noticed right after meal as it is a food source only for colon flora (not in the small intestine). GI discomforts (eg. gas, bloating and flatulence) usually occur 2-3 hours after the meal. Such food intolerance may aggravate the symptoms of LGS.

Alpha-galactosidase, included in the well-known product "Beano", is an important enzyme used to break down certain polysaccharides that are food source for gas-producing bacteria leading to flatulence and bloating.

Vita Aid enzyme products contain broad-spectrum enzyme combinations including alpha-galactosidase, which is not often seen in most other enzyme products in the professional channel. Both Optizyme and Supreme Zyme-Aid Extra Fort contain Proteases I, II, III, and IV; all of which are able to maintain their potencies at pH range from 2 to 10.

Digestive Enzymes for All GI Complaints?

Digestive enzymes are conventionally considered as the first choice when treating symptoms of indigestion and intolerance (ie. enzyme deficiencies). However, symptoms of indigestion and dysbiosis often overlap, and the actual cause is not easy to determine.

Most indigestion symptoms are the result of body's difficulty in digesting complex sugars, such as raffinose from beans. Enzyme formulas focusing on carbohydrate digestion (eg. Zyme-Aid Carbo Fort) may be the best choice for such patients.

Nonetheless, if the patient is experiencing GI discomforts due to dysbiosis, using digestive enzyme alone may exacerbate the symptoms due to the fact that the break-down of complex sugars into simple sugars can fuel the microorganisms, especially the pathogenic ones (eg. candida) and increase fermented gas production in the gut. Supplementing probiotics, such as Optimum-PB8+/ Ultra-PB30+, would be more beneficial to this group of patients.



Featured Product

L-Glutamine Plus

NPN 80028661

L-Glutamine Plus is a combination of **highly purified, vegetable sourced L-glutamine (9 g/ serving) manufactured based on Japanese Standards** and **synergized antioxidants** to promote recovery from illness, trauma and medical treatments, such as chemotherapy.

- » Restores plasma glutamine levels depleted after periods of physical stress (e.g. prolonged exhaustive exercise).
- » Supports immune system and digestive system health after periods of physical stress (eg. cancer chemotherapy, post-surgery, protease inhibitor

treatment for HIV/AIDS)

- » Helps to manage the symptoms associated with bowel inflammation and diarrhea; and increases the ability of the GI tract to absorb nutrients. (eg. Short bowel syndrome, Crohn's disease)
- » Ensures proper repair of damaged intestinal tissues and prevents abdominal adhesions.





New Hope for Pain Relief & Anti-Inflammatories

A Natural COX-2 Inhibitory Approach

Over the past few years, **iso-alpha acids** - the active ingredients in hops (*Humulus lupulus*) - have been acknowledged for their **anti-inflammatory effect, as well as their potent antioxidant properties**. Traditionally, hop is well-known for its use as a sedative for anxiety-associated insomnia.

Hop extract has been shown to inhibit lipopolysacchride-stimulated PGE2 formation with **>300-fold selectivity of COX-2 over COX-1**.¹ Interestingly enough, research findings showed that iso-alpha acids found in hop extract yielded NO direct inhibition of COX-1 or COX-2 peroxidase activity and that they showed minimal PGE2 inhibition relative to celecoxib, aspirin, or ibuprofen in models expressing COX-1 and -2 constitutively.^{1,2} Instead, the iso-alpha acids were found to reduce inflammation via **inhibiting the induction of COX2 gene transcription rather than inhibiting the COX enzymes**.¹ Collectively, the findings suggest that hop's anti-inflammatory effect only **acts on the inducible, but not constitutive COX-2** and support the fact that hop has a **lower potential for**

gastrointestinal and cardiovascular toxicity observed with direct COX enzyme inhibitors.

Clinically, daily 1000 mg of patent hop extract (*Perlusan™*) in **Verlusan** with 30% iso-alpha acids produced a significant improvement in WOMAC (Western Ontario McMasters Osteoarthritis Index) pain and stiffness scores in a 2-week, randomized, double-blind and placebo-controlled clinical trial of human subjects exhibiting knee osteoarthritis according to American College of Rheumatology criteria; no sedative side effect was reported in the study.²

Reference:

1. Tripp M, Darland G, Lerman R, Lukaczer D, Bland J, Babish J. Hop and modified hop extracts have potent in vitro anti-inflammatory properties. *Acta Hort* (2005). Vol 668: p217-228.
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Verlusan contains daily dosage of 1000 mg patent hop extract - *Perlusan*, in combination with boswellia (103 mg), curcumin isolate (200 mg), and rosemary altogether to carry out anti-inflammatory and anti-oxidative effects. The resinous boswellic acids in boswellia have been shown to provide anti-inflammatory, anti-arthritic and analgesic activity and significantly lower the total WBC count in the joint fluid.³ It could also be used in Inflammatory Bowel Disease (IBD) to alleviate the inflamed gut-linings.

If your patients are not satisfied with the effect of their current natural NSAID medications, **Verlusan** could be a good alternative. **Verlusan** works the best when taken with empty stomach (>30 minutes away from meals).



Ensuring Probiotic Quality

Can Good Bugs Go Bad?

Overuse of antibiotics and antibacterial detergents has created many health concerns associated with dysbiosis in our body; for that reason, probiotics have become one of the most popular supplements over the past few years. Probiotics can help our body rebuild the friendly flora environment and strengthen the defensive system against many pathogens.

However, which strains of these “good bacteria” can actually flourish throughout our digestive tract? Is it true that they pose potential risk of passing on antibiotic resistant genes to other pathogenic bacteria? What is the difference between single strain formulas and multiple strain formulas? Answers to the above questions essentially outline the important guidelines of how to choose a good probiotic product.

Bile/Acid Resistance

Probiotics, by definition, should be viable at the time of ingestion, and more importantly, able to survive GI tract passage and colonize the host epithelium. The most vital traits are their capability to **tolerate the high acidity** in the stomach and **high bile salts concentrations** found in the small intestine. Such traits may enable the probiotics to compete with *H. pylori* growth in the stomach.

Probiotic Stability & Prebiotics

The viable counts in most probiotic products are significantly less than what are claimed on the labels since most probiotics are more vulnerable separated from their natural habitats. Nevertheless, a few strains of probiotics have been shown to withstand room temperature quite well.

The addition of prebiotics (eg. FOS)

can also improve shelf lives of probiotic formulas, as well as their establishment in the gut. However, there are individuals who may experience bloating and mild abdominal distension after consuming prebiotics. In such cases, formulas without prebiotics can be an option given that the strains are stable.

“Human Strains” v.s. “Human Gut Anchoring Strains”

Humans are **born sterile** before they encounter a variety of bacteria from the surrounding environment. Therefore, even though “human strain” is one of the highly marketed features in probiotic formulas, there is no strain from human origin. Any strains of bacteria succeeded in colonizing in their host human become the “human strains”.

Probiotics’ human-gut anchoring ability can actually be tested via their adhesion to human intestinal cell lines – HT-29 and Caco-2.

How is Multi-strain Better?

That being said, the “human strain” from one’s gut does not necessarily guarantee its anchoring to another person’s gut-linings as there are other variables (eg. diet, pathogenic bacteria, and inflamed gut linings) that can affect the colonization of probiotics. Therefore, the best way to ensure successions of the probiotics is to include multiple strains rather than single strain so that the probability of a probiotic strain flourishing at a specific niche in the GI tract increases by folds.

Antibiotic Resistance Test & Genome Database

Bacteria including probiotics are capable of sharing their genetic materials (eg. plasmids) with each other; such nature could be problematic as the antibiotic resistant genes from probiotics can potentially be passed onto the pathogenic bacteria.

Antibiotic resistance test ensures that

All strains in Vita Aid probiotic products meet the following criteria:

- » Bile/acid resistance test (no enteric coating required)
- » Laboratory-tested for **Human-gut anchoring ability**
- » Antibiotic resistance panel
- » Room temperature stability test
- » Include **185% viable cells** when manufactured
- » Comes with or without Fructooligosaccharides (FOS) formula
- » Multi-strains (6–10 strains)
- » **Dairy Free formula available (NEWLY LAUNCHED!)**

Available dosage forms and potencies:

- » **Optimum PB8+** (14 billion) with/without FOS (capsule)
- » **Ultra PB30+** (48 billion) with/without FOS (powder)
- » **Supreme PB30+ Dairy Free** (55 billion) with/without FOS (capsule)

the probiotic strains are sensitive to at least 3 commonly used antibiotics, especially the last-resort ones such as Vancomycin, and Carbapenems.

To take the safety issue further, all probiotics should have their genomes assayed and registered with well-known genome databases so that their safety and efficacy can continue to be monitored.

The above information is based on Health Canada’s NHPD Monographs and the consultation with Dr. Lorenzo Diana, ND (medical advisor board member of Vita Aid Professional Nutrition, currently practicing in Markham, ON, Canada)



One of the Most Potent, Clinically Proven Natural Ingredients for Alzheimer's Disease

Huperzine A from Club Moss

When patients complain of symptoms relating to poor memory, forgetfulness and dementia, there are several effective strategies to maintain optimal mental health function and prevent against neurodegenerative diseases such as Alzheimer's disease (AD).

Huperzine A is one of best herbal ingredients shown to **retain the concentration of acetylcholine (ACh)** at the post-synaptic cleft to improve nerve transmission.

Huperzine A (HupA) is an extract from a club moss known as *Huperza serrata*. It is a potent, reversible **acetylcholinesterase (AChE) inhibitor**. In other words, **HupA inhibits the breakdown of ACh** resulting in an increase in the level and the duration of the action of ACh.

Numerous clinical trials have been done in China (since 1990's) and in the USA (since early 2000's) using Huperzine A to treat vascular dementia and AD. Improvements in memory and cognitive function were consistently observed.

A 2009 **meta-analysis¹ of five double-blind, placebo-controlled, randomized clinical trials of HupA** involving **474 subjects with AD** concludes HupA as having beneficial effects in cognitive function and activities of daily living (ADLs).

The meta-analysis showed that **daily dosages of 300-500 mcg of HupA for 6-24 weeks** could improve the **the scores in mini-mental state**

examination (MMSE) scale by up to 3.52 points.¹

Similar design was used in other studies^{2,3} assessing the efficacy of a pharmaceutical reversible AChE inhibitor - Aricept (donepezil), and the results showed an mean increase in the MMSE score of only 1.26-1.36 points.

Compared to other FDA approved cholinesterase inhibitors for the treatment of AD (such as Aricept, Cognex, and Exelon), **HupA is more readily bioavailable with a higher penetration rate across the blood-brain-barrier and a longer duration of action.**

Further evidence⁴ has shown that **concomitant use of Aricept and HupA exerted additive effect and improved the MMSE score by 2.2 points over a course of 3 months.**

HupA can also support the function for mental clarity and cognitive function in healthy patients (ie. without symptoms of neurodegenerative dementia).

- Dr. Carol Lin, ND

(Currently Practicing in Downtown Vancouver; Member of Vita Aid's Medical Advisory Board)

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Cognicin is formulated with **Huperzine A**, plus other brain tonic ingredients such as:

- » **Phosphotidylserine** - the only FDA approved ingredient claiming the effectiveness in improving aged-related memory degeneration
- » **Curcuma longa extract C3** - a patented curcumin complex with at least 95% curcumin as antioxidant, anti-inflammatory, anti-amyloid to decrease amyloid deposition in the brain as seen in AD.
- » **Ginkgo biloba extract** (standardized to 24% ginkgo flavonglycosides)
- » **Rosemarinus officinalis** extract (6% rosemarinic acid).



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Mitochondrial Cytopathy

The Basis of Pathophysiology in Long-Term Unresolved Adrenal Fatigue

Patients with long-term adrenal fatigue/exhaustion who fail to respond to any of the adaptogenic herbs, licorice, and adrenal glandular desiccate can be a mind-baffling experience for a practitioner. Chronic fatigue syndrome (CFS) could in fact be the case due to the long-term (>6 months) unresolved adrenal depletion. So what else can come into play in CFS cases like this?

There is mounting evidence that the CFS are due to dysfunctions at the cellular level. The scientific findings from the biopsies of the CFS patients have revealed **oxidative damages in the mitochondrial DNA** of muscle cells.^{1,2}

Such genetic alterations affect mitochondria's ability to contain the reactive oxygen species (ROS), resulting in depletion of antioxidants and further damages to the DNA and other essential compounds, such as L-carnitine and coenzyme Q10. **As a matter of fact, mitochondrial**

dysfunction/cytopathy in various organs may offer possible explanations for the variety of symptoms in CFS (eg. joint pain with no signs of inflammation, myalgias, headache, foggy head etc). (Refer to Figure 1)

When the cells' mitochondrial dysfunction progresses further, it can become a vicious cycle as the oxidative stress accumulates. In such cases, adrenal support likely won't work well since the mitochondria are too depleted of the essential components to make energy despite the increase in cortisol levels.

Cortisol helps the body cope with stress via its actions to increase serum glucose (ie. glycogenolysis, gluconeogenesis) so that more glucose can be shunted into the cells and utilized to produce ATP energy via Krebs cycle and electron transport chain. When the mitochondria become dysfunctional, the cell's ability to convert glucose to

H.C.Q10-Cardio is designed for cardiomyopathy (eg. CHF) or chronic fatigue syndrome associated with mitochondria dysfunction.

Each capsule contains **Hawthorn (900 mg dried herb equivalent), CoQ10 (KanakaQ10) (100 mg), and L-carnitine with taurine and magnesium** to synergistically support cardiovascular function and mitochondrial integrity.



energy will be impaired.

Therefore when treating severe adrenal exhaustion/ CFS patients, it is important to consider **concomitant support to the mitochondrial functions – the foundation of**

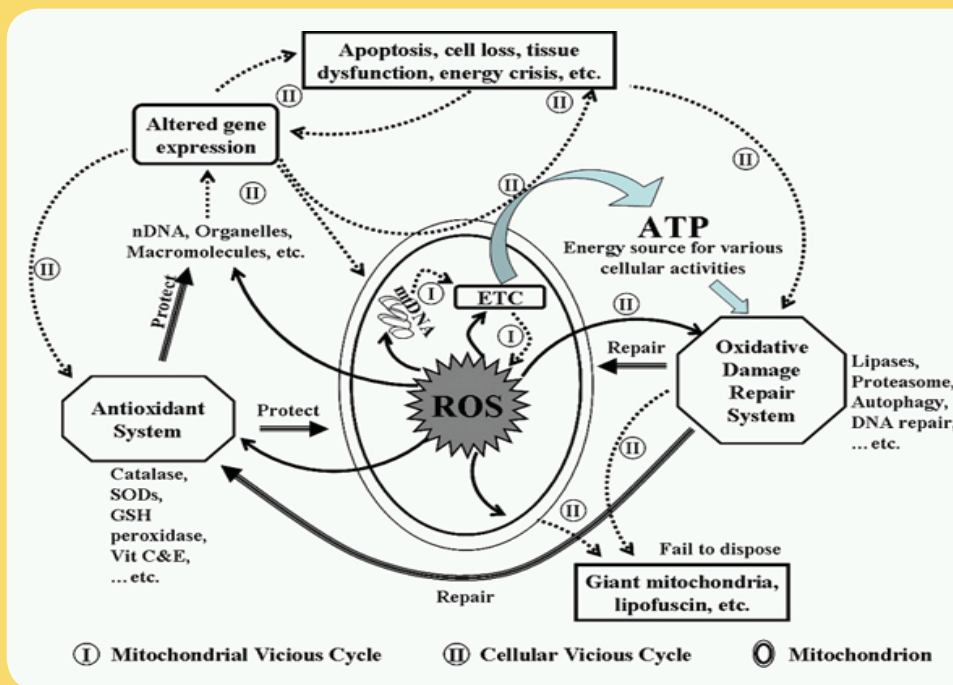


Figure 1. ROS-elicited oxidative stress, mitochondrial dysfunction, impairment of the antioxidant enzymes and DNA repair enzyme systems, and decline in the activities and capacities of the protein degradation system. The electron transport chain (ETC) in the mitochondrial inner membrane is actively involved in ATP synthesis. However, incomplete reduction of molecular oxygen can lead to the generation of ROS and other organic free radicals. Oxidatively damaged mitochondria and mutated mtDNA-encoded defective protein subunits will impair ETC, which results in less ATP production and more ROS outbreak - mitochondrial vicious cycle. In addition, the damaged mitochondria and macromolecules that escape from cellular disposal systems can lead to the accumulation of cellular garbage (e.g., giant mitochondria) and the formation of lipofuscin. These cellular events may in turn worsen cell protecting systems and energy production, which lead to the occurrence of the second vicious cycle - the cellular vicious cycle.⁴

energy synthesis. The key nutrients for the mitochondria include:

- » **CoQ10** (electron transport chain; strong antioxidant)
- » **L-carnitine** (promotes fatty acid transport/metabolism)
- » **Magnesium** (cofactor involved in ATP formation)
- » **Taurine** (strong, active antioxidant effects in the mitochondria)

» Other ingredients: vitamin B2/B3/B5, lipoic acid etc.

Reference:

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Ingredient FOCUS

Soy Isoflavone Quality

Total Isoflavone May Not Reflect the Actual Potency

Isoflavones from soy extract is one of the phytoestrogens with the strongest affinity to the hormone receptors and clinically proven effective for treatment in menopausal symptoms and menopause-associated bone mineral density loss.

Aglycone Isoflavone Equivalent (AIE) is the Gold-Standard Unit to determine the maximum amount of bioavailable isoflavone upon ingestion.

Percentage (%) of “total isoflavones” is the most commonly used standard to elicit the quantity/potency of a soy extract product.

However, % of “total isoflavones” by itself is in fact NOT an adequate measure in evaluating the efficacy of the isoflavones.

There are numerous forms of isoflavone existing in the plant kingdom. Soy extract itself contains more than 12 different isoflavone

types, with varying bioavailability of **50-100%** compared to that of the AIE.

Therefore, simply using total isoflavone % to identify the quality of a soy extract product would overestimate its potency because the total isoflavones, which include both aglycone and glycoside forms, can never match the maximum equivalent bioavailability of aglycone isoflavones.

For examples:

1 mg Genistein (aglycone form) = 1 mg AIE

1 mg Genistin (non-aglycone form) = 0.625 mg AIE

1 mg Daidzein (aglycone form) = 1 mg AIE

1 mg Daidzin (non-aglycone form) = 0.611 mg AIE

Most clinical studies use AIE as their standardization of potency, and those studies indicate that patients with different menopausal concerns should be prescribed with different isoflavones and potencies to yield the best result.

» **For general menopausal symptoms or prophylactic purposes,** the daily dosages

Vita Aid carefully selects the highest quality of **non-GMO soy isoflavones** for our two menopausal care products:

» **Isoflavones 200:**

79 mg AIE per capsule; Genistin + Genistein = 20.2 mg AIE)

» **Phytoestrol:**

Soy isoflavones 39.5 AIE, Genistin+Genistein =10.1 mg PLUS *Vitex, Dioscorea, Red Clover, Black Cohosh, Dong Quai, Burdock, Passionflower*



should reach **30-100 mg AIE with a minimum of 15mg AIE from genisten/genistin** (two of the 12 main isoflavones from soy extract).^{1,4,5, 6,9}

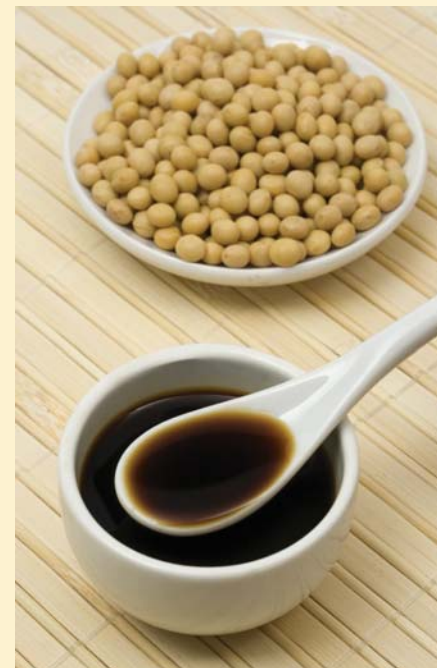
» **For bone mineral density,** the daily dosages should be increased to **75-125 mg AIE**.^{2,3,7, 8,10,11}

Moreover, combining soy isoflavones

with calmatve herbs (such as black cohosh and passion flower) can be considered for patients with moderate to severe menopausal symptoms.

Reference:

1. Albert A, Altubre C, Baró F, Buendía E, Cabero A, Cancelo MJ, Castelo-Branco C, Chantre P, Duran M, Haya J, Imbert P, Julia D, Lanchares JL, Llanaez P, Manubens M, Miñano A, Quereda F, Ribes C, Vázquez F. 2002. Efficacy and safety of a phytoestrogen preparation derived from Glycine max (L.) Merr in climacteric symptomatology: a multicentric, open, prospective and non-randomized trial. *Phytomedicine* 9(2):85-92.
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SYNERPLEX Top Choice of TCM Formula for Your Practice

Traditional Chinese Formulas with Western Pharmaceutical Standards

- » **Special extraction and granulation technique;** does not involve carriers such as corn starch/maltodextrin often used as diluting agents.
- » **Highly concentrated 8 : 1 extraction ratio,** meaning that fewer capsules are needed to reach effective dosage.
- » **Made in Canada** by NHPD-GMP site licence holder and all products are licensed with NPNs.
- » Tested by 3rd party independent and in-house laboratory for heavy metals and pesticides. Kosher Certified raw materials.
- » **Free of processed excipients** such as **magnesium stearate**, or microcrystalline cellulose. Instead, **certified organic apple fibre** is the only non-medical ingredient used as filler in a capsule.
- » Low temperature extraction technique to preserve the activity of medicinal ingredients
- » Fully follows the extraction process of the Traditional Chinese herbal pharmacy, all herbs are prepared into proper ratios and are **decocted and extracted together to enhance synergism and natural chelation between the herbs.**

