

# Cardiovascular Disease & Complementary Medicines



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# Complementary Medicines

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- "a regimen for the prevention or alleviation of a disease or ailment, or for the maintenance of health, and which does not necessarily rely on the evidence of efficacy based on Western current practice "

NSW Department of Health Information Bulletin

#99/18

11 October 1999



# Opinion

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- "You can't make a blanket statement that supplements are either good or bad. It depends on the particular vitamin or mineral (or combinations of them), the level of the dose and whether or not the recipient really needs a supplement."



Dr Rosemary Stanton  
17 May 2007

# Expensive Urine?

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You would never  
guess how many  
vitamins I can  
swallow at once.  
(hint: it's about  
28.)

# FISH OIL [omega-3-fatty acids]

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- Play a role in suppressing the production of inflammatory compounds
- Reduce platelet aggregation
- Inhibits triglyceride synthesis in the liver → decreased triglyceride blood levels
- Contains alpha-linolenic acid →
  - **EPA** Eicosapentaenoic acid (function)
  - **DHA** Docosahexanoic acid (structure)

# FISH OIL [omega-3-fatty acids]

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- Optimal cell membrane function
  - Structural and fluid integrity
  - Maintains flexibility of blood vessels → beneficial effects on blood pressure
- Derived from salmon, mackerel, lake trout, flounder, tuna (from microalgae in their diet)
- Concentrated Krill Oil → less heavy metals due to their position in the food chain
  
- **3-6g/day Regular strength**
- **1-2g/day Concentrated capsules**

# FLAXSEED OIL [omega-3, 6, 9-fatty acids]

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- Also known as **LINSEED OIL**
- Omega-3 & 6 cannot be synthesised by the body, are therefore essential
- $\Omega$ -9 (Oleic acid) can be synthesised by the body from unsaturated fats
- Has 3 times as much  $\Omega$ -3 than  $\Omega$ -6
  - Different to other sources
  - $\Omega$ -6 is more inflammatory than  $\Omega$ -3
  - Sunflower Oil & Peanut Oil have no  $\Omega$ -3!

# FLAXSEED OIL [omega-3, 6, 9-fatty acids]

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- $\Omega$ -3 = alpha-linolenic acid
- $\Omega$ -6 = linoleic acid
- Recommended ratio of  $\Omega$ -6: $\Omega$ -3
  - Between 5:1 & 10:1
- Reduction in inflammation
- Improved balance with omega-3 & omega-6 through flaxseed oil
  
- **Up to 2g THREE times/day**
- **Double for anti-inflammatory use**

# PLANT STEROLS

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Also known as PHYTOSTEROLS

- ❑ Main component is SITOSTEROL
- ❑ Found in nuts, corn, rice, wood pulp, leaves
- ❑ Slightly different structure to cholesterol  
→ minimal absorption
- ❑ Competes with dietary cholesterol to bind to fatty acids → Interferes with cholesterol absorption

# PLANT STEROLS

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- ❑ Found in fortified margarines & mayonnaise
- ❑ Potential reduction in LDL cholesterol ~ 10-15%
- ❑ No effect on HDL cholesterol or triglycerides
- ❑ NOT for patients with homozygous sitosterolaemia (rare genetic metabolic disease)
  
- ❑ **2-3g per day instead of butter/other spreads**

# FIBRE

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- Soluble fibre = oat/psyllium/pectin/ guar gum
- Insoluble wheat fibre and cellulose not effective
  
- Reduces dietary absorption of cholesterol
  - increases cholesterol elimination from the body
  - Improves HDL:LDL
  - No effect on serum triglycerides

# FIBRE

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Beneficial effects on other CHD risk factors

- Blood pressure
- Clotting factors
- Obesity
- Insulin resistance
  
- Reduces peak blood glucose levels by slowing carbohydrate digestion
  
- Beneficial for general gut health (but not for faecally impacted patients)

# FIBRE

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- Ensure it is given with sufficient water, preferably 30-60 minutes after food (or on cereal) and certain medications
  - Lithium
  - Digoxin
  - Carbamazepine
- Dosage varies according to individual
- **5-10g per day**

# MAGNESIUM

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- Necessary for optimal function of all muscles in the body, including the heart
- Deficiency can manifest as
  - Muscle cramps
  - Fatigue & irritability
  - Mental confusion
- Refer to doctor for individual dosage requirements
- May interfere with the absorption and efficacy of some medications
  - Quinolones
  - Tetracyclines

# COENZYME Q10 [ubidecarenone]

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- ❑ Naturally occurring in body; amount declines with age
- ❑ Involved in production of energy within cells
- ❑ More active tissue (eg. heart) → more need for CoQ10
- ❑ May inhibit oxidation of LDL cholesterol → reduce risk of heart disease

# COENZYME Q10 [ubidecarenone]

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- Statins deplete the body of CoQ10
- Supplementation may be of benefit to
  - patients on high dose statin therapy
  - Athletes (claims of increasing endurance)
- May increase the glucose-lowering effect of diabetic medication
  
- **Dose ~ 150mg/day (this may vary)**

# GLUCOSAMINE

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- Natural component of cartilage matrix – important for shock absorption in the joints
- Supplementation may be of benefit in osteoarthritis
- May affect
  - INR if taken with Warfarin
  - Blood glucose levels in diabetic patients
- Not suitable for people with seafood allergies for shellfish derived preparations

# GLUCOSAMINE

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- Can be combined with
  - **CHONDROITIN** – for lubrication and nutrition of the joint
  - **MSM** (Methylsulfonylmethane) – readily available form of sulfur which is important for synthesis & maintenance of connective tissue
  
- **1.5g/day**

# VITAMIN E [D-alpha-tocopherol]

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- Fat soluble vitamin
- Natural source has TWICE the bioavailability of synthetic Vitamin E
- Can increase risk of bleeding
- Antioxidant effect by scavenging free radicals
  - May reduce LDL oxidation
  - Protects artery walls by reducing the tendency to form plaques
- **1000iu/day**

# CALCIUM

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- Most abundant mineral in the body
- Important for
  - Bone and teeth formation
  - Muscle contraction
  - Nerve transmission
- Hard to absorb from the diet
- May decrease effect of Verapamil
- Interferes with absorption & efficacy of some antibiotics, bone density medications, thyroid medications

# CALCIUM

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- Calcium citrate more soluble than calcium carbonate and has 25% greater absorption BUT is less cost effective
  - ONLY clinically advantageous in patients with a achlorhydria (non-acidic gut environment)
- Prevention of Osteoporosis
  - **500mg-700mg elemental calcium/day** (best at night – suppresses nocturnal rise in bone resorption)
  - Dose may be adjusted according to individual variations

# VITAMIN D3 [cholecalciferol]

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- Increases Calcium absorption & utilisation
- Can cause hypercalcaemia especially if taken with a thiazide diuretic
- Particularly important for patients who are housebound or in residential care facilities
  
- **1000iu/day starting dose**

# VITAMIN B<sub>12</sub> B<sub>6</sub> & FOLIC ACID

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**Elevated homocysteine levels are associated with increased risk of CAD & vascular disease**

- Intake of Folic Acid, Vitamin B<sub>12</sub> & B<sub>6</sub> are inversely related to homocysteine levels – all are involved in the metabolism of homocysteine
- BUT a study found increased rate of restenosis in post-stent patients (especially bare metal stents) with high dose B vitamins

# Others

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## **CELERY**

- ❑ Traditionally relieves symptoms of gout and arthritis (increased uric acid elimination)
- ❑ Diuretic properties
- ❑ ? Use in renal impairment

❑ **3-6g/day**

## **SUGAR CANE WAX ALCOHOLS**

- ❑ Improve HDL:LDL [good:bad]
- ❑ May slightly increase the systolic hypotensive effect of Beta-blockers

❑ **10mg/day**

# Others

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## **GARLIC**

- ❑ ? Affects blood pressure, plasma lipids, blood glucose, platelet aggregation
- ❑ Can increase bleeding risk if used with warfarin
- ❑ Potentially useful for colds and coughs due to antimicrobial properties
  
- ❑ **Dose = 1mg Garlic Oil THREE times a day for immune benefit**

## **SOY**

- ❑ Cholesterol-lowering, antioxidant, estrogenic properties
- ❑ Possible reduction in LDL, triglycerides, total cholesterol AND increase in HDL
- ❑ Current discussion is not convincing regarding any clear benefits of soy
  
- ❑ **(Dose ~ 25g Soy Protein per day)**

# Others

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## **OLIVE LEAF**

- Rich in selenium, zinc, iron, vitamin C, betacarotene
- ANTIOXIDANT
- Liquid formulations can be added to juice or water before taking
  
- **Dose = 5g TWO or THREE times a day for immune benefit**

## **EVENING PRIMROSE OIL**

- Omega-6 fatty acid
  - Gamma-Linoleic acid (GLA)
  - Linoleic acid (LA)
- Components of prostaglandins, cell membranes, nerve cells
- May be of benefit in PMS and atopic eczema/dermatitis

**Dose = 1g THREE times a day with meals**

# Others

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## **BLACK TEA**

- Can improve brachial artery flow-mediated dilation in patients with Coronary Artery Disease
- No documented reduction in cardiovascular risk to date

## **ALCOHOL**

- *MODERATE* consumption !!!
- 1-3 drinks per day – not absolute definition
- Effects are thought to be mediated by increase in HDL cholesterol associated with moderate alcohol consumption
- **Dose = see your Dr**

# Balancing Act

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# Potential Interactions

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- **WARFARIN**
  - Almost everything can affect INR
- **Blood Pressure**
  - Fluid volume changes
  - Stimulant effect
- **Risk of Toxicity**
  - Duplication of therapy
- **Metabolic Handling**
  - Increase/decrease levels of drug in the body

# Who To Believe?

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- ❑ Polarised opinions
- ❑ Consider 'facts' in view of the sponsor
  - Pharmaceutical Companies
  - Complementary Health Companies
- ❑ Be guided by advice from trusted healthcare professionals
- ❑ Sensational claims – 'TOO good to be true' means they usually are!



# COMBINATION ?

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