

Debunking Myths About Dietary Supplements

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Third Party Certification

- National Nutritional Foods Association (Trulabel)
- Consumerlab.com
- USP.org (video showing how to walk through dietary supplement aisle)
- FDA.gov/food/ingredientpackaginglabeling/labelingnutrition/ucm20026097.htm

Choosing High Quality Dietary Supplements

- Stay away from multi level mail order companies
- Look for quality and safety features on the product label
- Read the product label every time you repurchase to look for reformulations



Proprietary Blend

- A “proprietary blend” on a dietary supplement’s **Supplement Facts** panel is a list of ingredients that are part of a product formula specific to a particular manufacturer
- <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/DietarySupplements/ucm070597.htm>

Proprietary Blend

Sodium	20 mg	1%
Total Carbohydrates	4 g	1%
Sugars	1 g	**
Calcium	250 mg	25%
Proprietary Blend	13350 mg	**
Muscle Performance Matrix (Creatine Monohydrate, Beta Alanine, Creatine Magnesium Chelate, Dcreatine Malate)		
Muscle Pump Matrix (Glycerol-Silica Matrix, Arginine AKG, Taurine, Citrulline Malate, Cinnulin PF® Patented Cinnamomum Burmannii Extract (Bark) 3% Type-A-Polymers, Polygonum Cuspidatum (Root) 20% Resveratrol, Gynostemma Pentaphyllum (Leaf) Gypenosides, RC-NOS® Rutaecarpine, Gamma Tocopherol)		
Acute Energy/Neuro Modulation System (Acetyl-L-Tyrosine, Choline Bitartrate, L-Tyrosine, Caffeine Anhydrous, Huperzine A 1%)		

*Percent Daily Values based on a 2,000 calorie diet

**Daily Value Not Established.

New York Times February 3, 2015

- NY State Attorney General tested store brands of supplements at GNC, Target, Walgreens, Walmart
- Four of five products did not contain any of the herbs on their labels
- Independent agency tested 78 bottles from a dozen locations across New York state (DNA bar coding, genetic fingerprinting)

New York Times

- Ginkgo biloba – Target (powdered rice, beans, peas, wild carrots) and Walmart (powdered radish, houseplants, wheat)
- St Johns Wort – Target (powdered rice, beans, peas, wild carrots)
- Ginseng – Walgreens (powdered garlic and rice)
- Echinacea, Saw palmetto – GNC? (powdered legumes like peanuts & soybeans)
- Valerian – Target (powdered rice, beans, peas, wild carrots)
- Cease and desist letters went out
- Garlic - ok

Certificate of Analysis

- http://www.nutraceuticalsworld.com/issues/2008-11/view_columns/quality-focus-certificates-of-analysis
- Quality Testing
- http://www.crnusa.org/SIDI/PDFs/SIDI_WG_COAGuideline_V1.0_April2010.pdf

National Institute of Health - Dietary Supplement Information

- <http://www.nlm.nih.gov/medlineplus/druginformation.html>
- www.fda.gov/food/dietarysupplements
- Type “label claim” to check product claims

Weight Loss Supplements - Adulterants & Other Quality Issues

- Garcinia cambogia (hydroxycitric acid)
- Hoodia gordonii (cactus) central MOA
- Ephedra - stimulant
- Hydroxycut - raspberry ketones, ginger root, quercetin, garcinia cambogia - liver problems (law suit)
- Green tea extract - theobromine, catechins
- Chromium - insulin
- Vanadium - insulin
- Green bean coffee - chlorogenic acid, glucose regulation
- Raspberry ketones - phenolic, glucose regulation



Natural Weight Management Options

- Apples (pyruvate is an appetite suppressant)
- Adequate sleep
- Water

Immune Modifying

- Hand washing
- Zinc Lozenges
- Chicken Noodle Soup (*in vitro*)
- Protein
- Echinacea (*purpurea, pallida, angustifolia*)
- Astragalus





Omega 3 Fatty Acids

- Not flaxseed oil and walnuts (Alpha Linolenic Acid, nee ALA)
- **EPA, DHA: wild Pacific salmon [with astaxanthin], sardines, herring, light canned tuna, krill oil**
- Fish oil supplements (varied)
- > 3 grams daily, interacts with Coumadin, NSAIDs
- www.EFAEducation.org

Supplement Facts

Serving Size: 2 Softgels

Servings per Container: 90

Fish Oil 1000 mg

	Amount Per Serving	% Daily Value
Calories	18	
Calories from Fat	18	
Total Fat	2 g	3%
Saturated Fat	0.6 g	3%
Trans Fat	0 g	*
Vitamin E (d-alpha tocopherol)	30 IU	100%
Omega-3	0	
EPA (Eicosapentaenoic Acid) Volume 18%	330 mg	
DHA (Docosahexaenoic Acid) Volume 12%	220 mg	
Other Omega-3s Volume 8%	140 mg	
Total Omega-3s Volume 38%	690 mg	
Oleic Acid (Omega-9) Volume 6%	116 mg	

*Daily value not established.

Other Ingredients: Purified deep sea fish oil (from anchovies and sardines), soft gel capsule (gelatin, water, glycerin, natural lemon oil), natural lemon oil, d-alpha tocopherol, rosemary extract. Contains vitamin E derived from refined soybean oil.

Mercury and Fish

Species	MethylMercury PPM	
	Mean	Range
Swordfish	1.00	0.65-3.73
King mackerel	1.00	0.10-1.87
Shark	0.96	0.05-4.84
Pollack	0.20	ND - 0.78
Tuna (canned)	0.17	ND - 0.75
Catfish	0.07	ND - 0.31
Salmon	ND	ND
Shrimp	ND	ND

Cholesterol Clinical Study

- HDL-Atherosclerosis Treatment Study, NIH grant; RCT, 3 years
- N = 160, ≥ 3 stenoses of at least 30% of luminal diameter or one stenosis of at least 50%
- Group 1: Zocor + niacin (max 4 grams daily)
- Group 2: Antioxidant vitamins (800 IU vitamin E, 1000 mg vit C, 25 mg beta carotene, 100 mcg selenium)
- Group 3: Zocor + niacin + antioxidant vitamins
- Group 4: Placebo
- Endpoints: change in coronary stenosis and occurrence of death, MI, stroke, or revascularization
- No change in cholesterol in Group 2 or Group 4
- Significant reduction in cholesterol in Group 1
- Stenosis progressed 4% in Group 4 ($p = 0.16$) and 1.8% in Group 2 ($p = 0.004$)
- Stenosis regressed 0.4% in Group 1 ($p < 0.001$)
- Frequency of clinical endpoints increased 24% in Group 4, 3% in Group 1, 21% in Group 2, and 14% in Group 3



- Brown. Zocor and niacin, antioxidant vitamins, or the combination for the prevention of coronary disease. (HATS) NEJM 2001; 345: 1583.



Joint Health - Osteoarthritis

- Glucosamine (Na Sulfate [best absorbed], HCL, N-Acetyl forms)
- Turmeric (curcumin anti-inflammatory spice/supplement, in curry spice)
- Ginger (anti-inflammatory spice/supplement, topical cream Zingiber Rx, spice)

Turmeric Root (*Curcuma longa*)



- Curcumin (curry). In Zyflamend, Heinz yellow mustard.
- Antioxidant properties isolated in vitro (Selvam 1995), and comparable with vitamin C (touted as COX-II inhibitor in vitro)
- Anti-inflammatory by inhibiting leukotrienes and prostaglandin synthesis (Broadhurst 1997, Ammon 1993)
- Arthritis Dose: 300 mg 3 times daily (std 95% curcuminoids per dose)
- Side Effects: GI ulcer
- Drug Interactions: effects on platelets

Calcium and Bone Health

- Mineral stored in bones and teeth, remainder stored in soft tissue cells, bloodstream, extracellular fluid
- 1,000 mg – 1,200 mg elemental calcium/day
- Best combined with vitamin D
- May modestly increase risk of heart attack without co-administration of vitamin D (Bolland. Effect of calcium supplements on risk of myocardial infarction and cardiovascular events: meta analysis. BMJ 2010;341:c3691)
- Women's Health Initiative Study with data combined from 8 other randomized trials, calcium remains source of risk. Authors estimate treating 1000 people with calcium supplements for 5 years leads to 6 additional MIs or strokes while preventing three fractures.



Food Sources of Calcium

- Dairy: Cow's Milk, Yogurt, Almond Milk
- Vegetables: Bok Choy, Broccoli, Collard Greens, Turnip Greens
- Fish: Salmon, Sardines
- Fortified Foods: Breakfast Bars, Calcium Fortified Fruit Juice, Instant Breakfast Drink

Vitamin D

- Fat soluble, acts as a steroid hormone
- Body makes vitamin D from cholesterol through process triggered by UVB rays on the skin
- RDI: 600 IU – 800 IU daily
- Normal range = 30-74 ng/mL; serum 25(OH) vitamin D is not always a reliable indicator of vitamin D status
- Toxicity: N&V, constipation, HA, weakness

Vitamin D

- Colorectal cancer prevention – anti-inflammatory
- Breast cancer risk - lowers risk (Garland. AACR 2006)
- Heart protective – anti-inflammatory or via renin angiotensin system in men
- Fractures and falls –helps to absorb calcium and protect bones
- Immune system activation - T cells must have vitamin D or activation of T cells will cease

Are We Inducing Osteoporosis?

- Oral Glucocorticoids – vertebral fx
- Antibiotics – vitamin K is made by or converted by gut bacteria
- Anti-Ulcer Medications:
 - *PPI's like Nexium, Protonix, Prilosec
 - *SSRI's like Zoloft, Prozac
- Vitamin A > 1250 IU daily for 2 years

Mega-Dosing Do's & Don't's

- Take one multiple vitamin daily not individual high dose vitamin supplements
- Stay close to RDI for fat soluble vitamins (vitamin D, A, E) and some water soluble vitamins (folic acid, B12)

