Consumer Nutrition: Dietary Supplements and Health

What are dietary supplements?

a dietary supplement is: a food product, excluding tobacco, that contains at least one…

Vitamin

Mineral

Herb or other plant product

Amino acid

Metabolite

Constituent

Combination of any of these ingredients

Dietary Supplements Health and Education Act (DSHEA)

Supplement Health Claims

Can make structure & function claims on label

helps maintain healthy chol levels

supports your immune system

Enhances energy

Supports testosterone production

Burden of proof:

Supplements: ephedra

Medications: Vioxx/Celebrex

Disinfomercial

AND Position

“the best nutritional strategy for promoting health and reducing the risk of chronic disease is to wisely choose a wide variety of foods”

Supps may help some meet nutrition needs

Essential nutrients and phytochemicals are readily available in fruits, vegetables, legumes, grains, nuts, seeds.

Help or Harm?

Deficiency?

Nutrition is only 1 factor influencing health and sport performance

Burden of proof is on the FDA

Provide a false sense of security

Possibly. Users of dietary supplements may

disregard other very important lifestyle behaviors

take excessive dosages

use supplements as alternative medicine

take supplements that are contaminated or mislabeled

take potentially harmful supplements, such as ephedra, synephrine, Hydroxycut, beta carotene

If you’re going to use…

Some general safeguards by Consumers Union

Before trying a supplement to improve your health, try changing your diet and lifestyle – food first!

USP

http://www.usp.org/

NSF International

“Certified for Sport”

http://dietarysupplements.nlm.nih.gov

and…

Use “Supplement Facts”

Talk to your MD or pharmacist

Stop if health problems arise

3 Types of Quackery: Food Faddism

“Involve unreasonable or exaggerated beliefs that eating (or not eating) specific foods, nutrients, supplements, or combinations of certain foods may cure disease, convey special health benefits, or offer quick weight loss.”

May or may not be intentionally misleading

Health Fraud

“shares many of the characteristics of food faddism, except it is always deliberate and done for gain. According to the AND’s *Complete Food and Nutrition Guide*, ‘health fraud means promotion for financial gain, a health remedy that doesn’t work-or hasn’t yet been proven to work’ and that is ‘promoted to improve health, well-being, or appearance’”

Misdirected Claims

“includes those that lead consumers to make incorrect inferences or generalizations about the health benefits of food. This type of claim misdirects consumers to believe that the foods are more healthful than is the case.”

What is an ergogenic aid?

Ergogenic: def

Classes of ergogenic aids

Mechanical aids

Psychological aids

Physiological aids

Pharmacological aids

Nutritional aids

Sports supps that are beneficial

Caffeine

Creatine

Bicarbonate

CHO

Water

(Protein)

Caffeine

Removed from WADA list 1/04

Stimulant from methyl xanthine - a phytochemical

Beverages contain 35-135 mg caffeine/serving

OTC meds 200 mg/tablet

In gels, Blocks & jelly beans

“Energy drinks” include caffeine and guarana (herbal stimulant)

Does seem to improve performance

Stimulates alertness, heart fx, blood circulation & release of epi

Reduces RPE d/t CNS stimulation

Peak 1-2 hrs, half life 4-6 hrs

Creatine

Compound derived from amino acids, stored in muscle.

60% is phosphorylated (CrP), readily available energy

Increased power during brief (0-30 sec) repeated high-intensity ex w/ brief recovery

May not translate into improved skill-sport performance

Daily turnover ~2 gm/d

Exogenous sources: meat, dairy & eggs

Endogenous sources: synthesized from arginine & glycine by the liver & kidneys

Creatine continued

Protocol – 2-5 d x 20 g creatine monohydrate for super saturation then 2-5 g/d

Side effects:

**Long-term:** seems safe for most. Studied since 1994, but…

**Short-term:** GI upset, headaches, dehydration, heat stroke, muscle cramping/strains/tears and weight gain.

Sodium Bicarbonate

Buffers acid

Supplementation increases muscle’s ability to remove excess H+

Benefits maximal effort lasting 1-3 min

Side effects: nausea, diarrhea, alkalosis.

Decreased when taken with 1 liter of H20.

Carbohydrates – sports bars/gels

Fuel source that delays exhaustion during endurance events

Beverages, bars and gels are easy to consume

**Dosage**: 1 g/min

**Side effects**: nausea, but gut can be trained

Water

Mechanism of benefit:

Temperature regulation

Transport

How do you know if you are adequately hydrated?

What if you combine water and CHO during long bouts of exercise?