Why Are Peanuts Good For Me?

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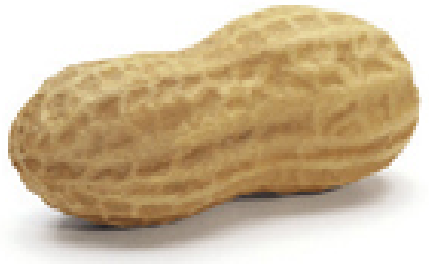
Nutrition

Long before energy bars…

There were energy capsules.



Peanut

FDA approved health claim (July 2003)

Energy food

↓

Functional food

"Scientific evidence suggests but does not prove that eating 1.5 ounces of most nuts, such as peanuts, as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease."

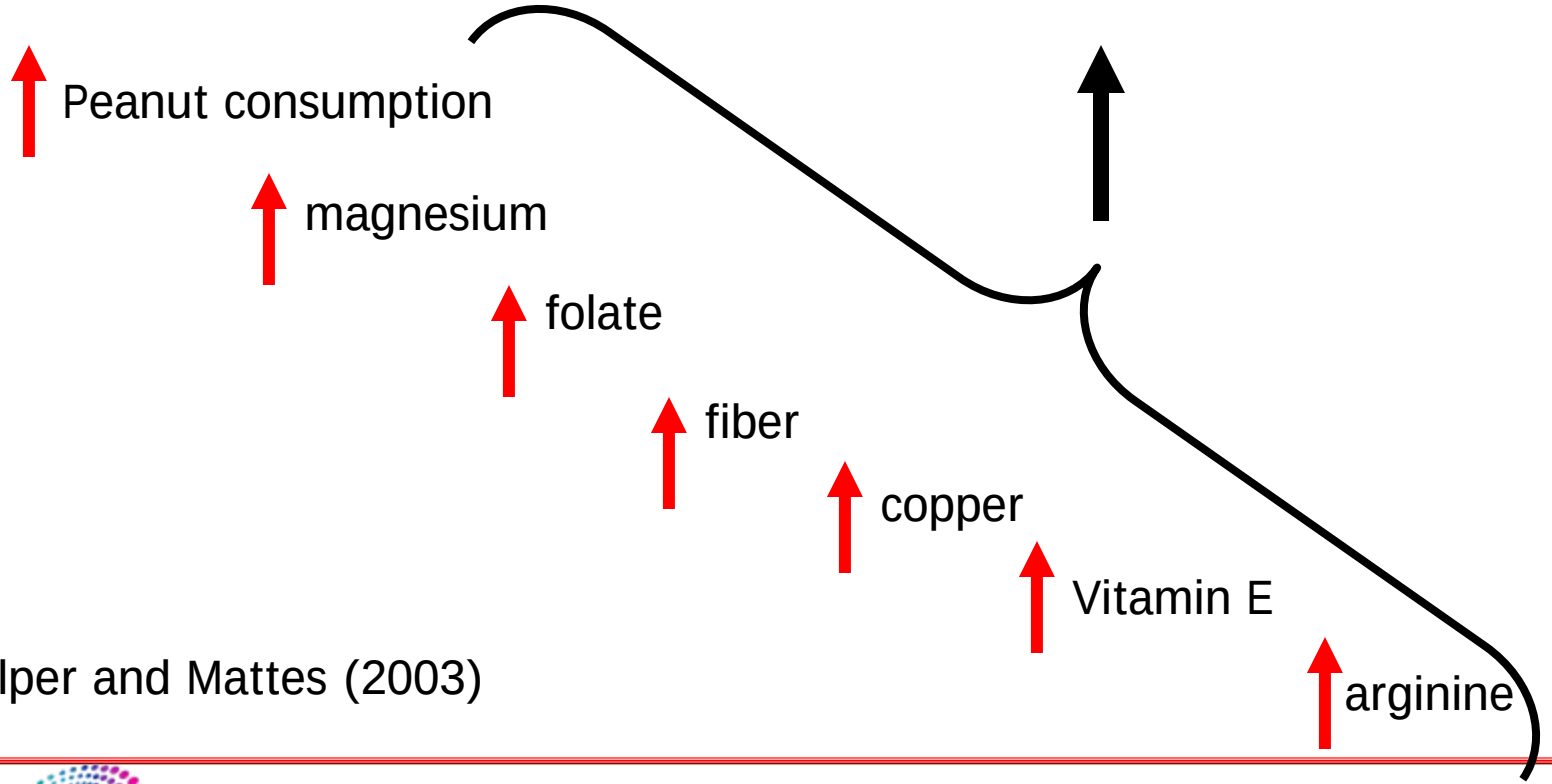
What are functional foods ?

- **Foods and food components that provide a health benefit beyond basic nutrition.**
  - **Reduced risk of chronic disease**
  - **Enhanced management of chronic disease**
- **These are food components not considered as nutrients in the traditional definition.**

IFT Expert Report (2005)

Beneficial effects of peanut consumption

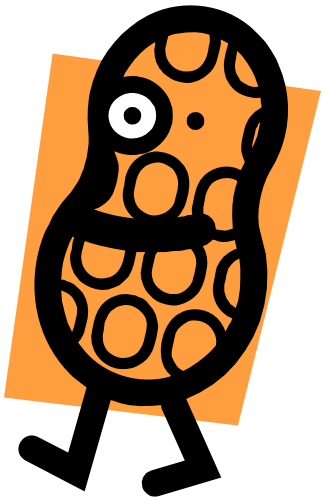
- Reduced risk of cardiovascular diseases



Alper and Mattes (2003)

Beneficial effects of peanut consumption

- Low blood cholesterol



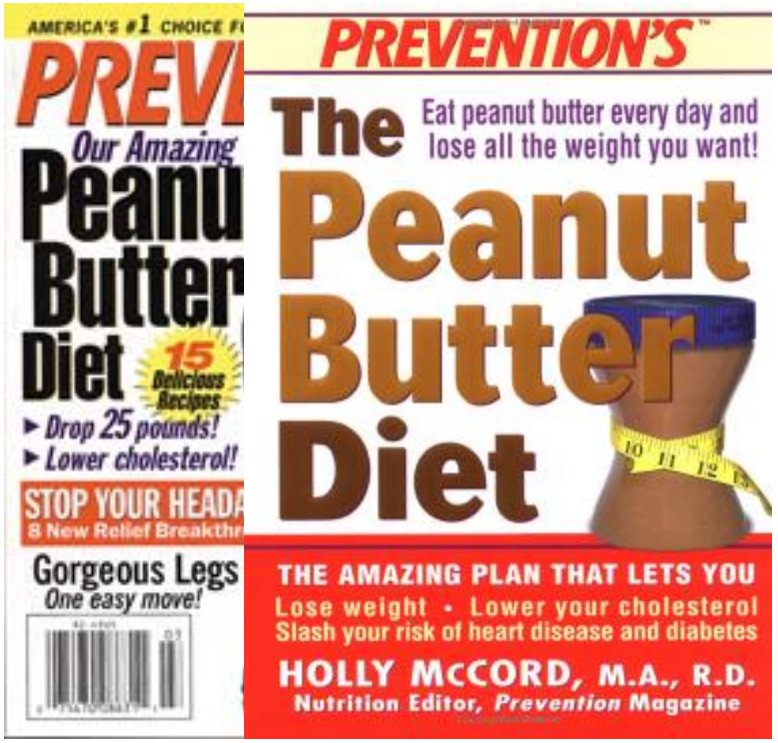
"Peanut eaters have lower LDL and total cholesterol by 14 and 11%, respectively".

Kris-Etherton et. al. (1999)

Beneficial effects of peanut consumption

- Compatible with a weight reduction diet

Peanut butter and peanuts are satisfying snacks that can help people stick to weight loss diets.



Beneficial effects of peanut consumption

- Reduced risk of Type II Diabetes

5 times/week = **27% reduced risk of developing type II diabetes**

Jiang et. al. (2002)

Beneficial effects of peanut consumption

- Reduced risk of Alzheimer Disease

Foods with high vitamin E = ↓ Alzheimer's

17% of RDA

21% of RDA

Engelhart et. al. (2002)

Location /part

- Kernels
- Skins
- Hulls
- Roots
- Leaves

Components of Peanuts

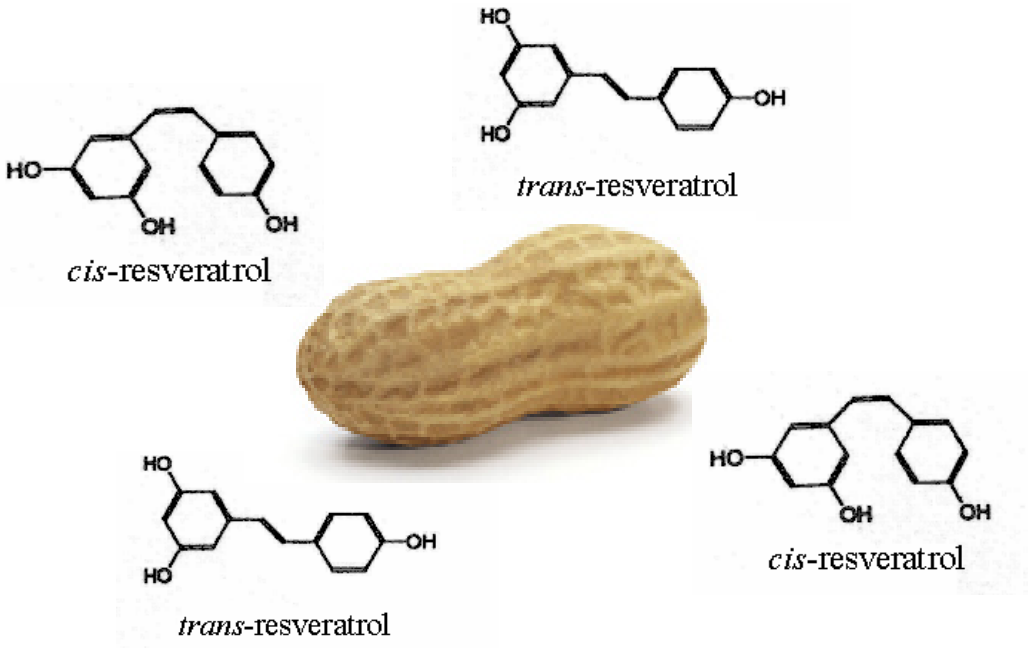
NUTRIENT

- **Macronutrients**
  - Proteins
  - Fats
  - Dietary Fiber
- **Micronutrients**
  - Folate
  - Magnesium, Copper, Potassium, Calcium
  - Vitamin E

FUNCTIONAL

- **Stilbenes**
  - Resveratrol
- **Phytosterols**
  - Beta-sitosterol
- **Flavonoids**
  - Flavanols, Flavones
  - Flavanones, Isoflavonoids
- **Phenolics**
  - Cinnamic & Benzoic acids

Stilbenes - Resveratrol



Stilbenes - Resveratrol

Wounding or Slicing

UV light

Fungal attack

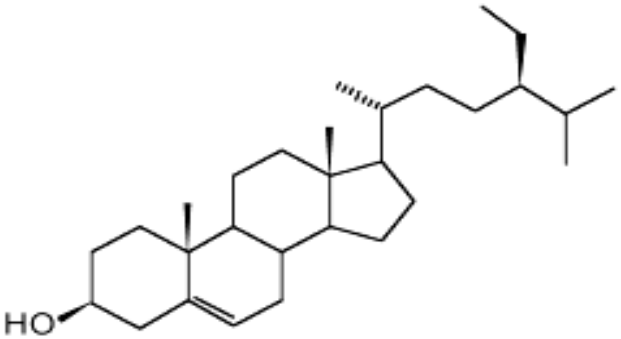
Stilbenes

- **Food Sources**
  - **Wine** 0.6 mcg/g (5.01)
  - **Peanuts** 0.01 mcg/g (5.14)
- **Resveratrol enhanced peanut (REP)**
  - **Ultrasound treatment for production of REP – Patent filed by UGA (Resurreccion, et al., 2004)**
  - **REPs** approx. 8.0 mcg/g

- Raw peanuts
- Surface sterilized
- Fully-imbibed in water
- Size-reduction stress
- Ultrasound Treatment
- Incubation

Phytosterols

- **Natural components of vegetable oils.**
- **Chemical structure similar to cholesterol.**
- **Beta-sitosterol**
  - **a sterol with anticancer properties** (Awad et al., 2000)

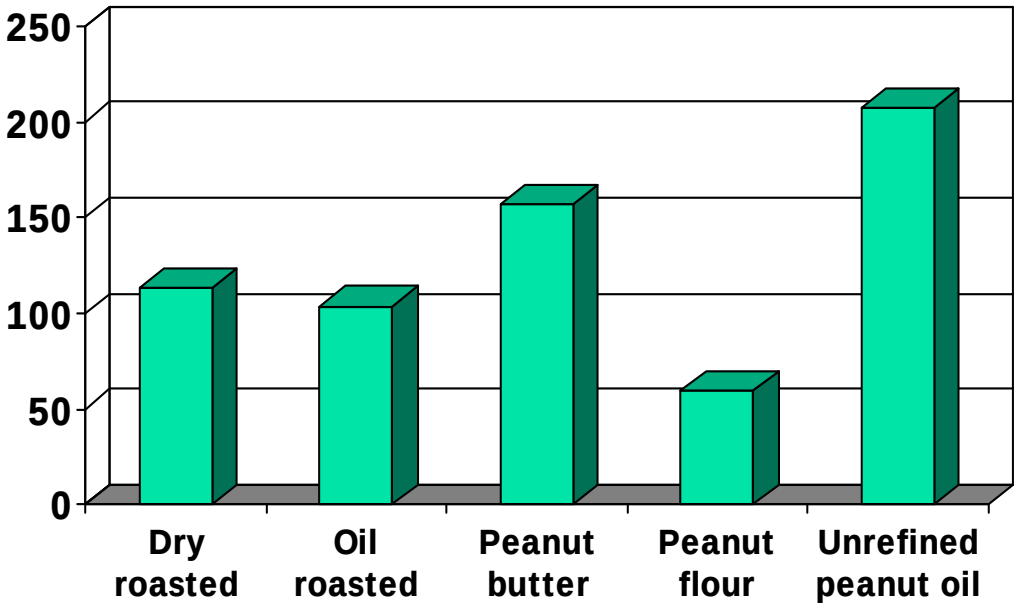


β-Sitosterol

Phytosterols

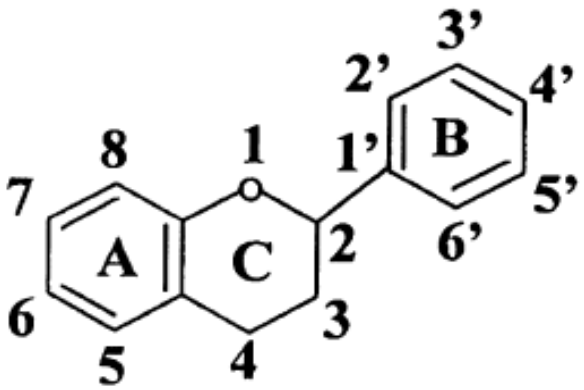
- **Food Sources**
  - **Vegetable oils Refined peanut oil contains 38% more beta-sitosterol than refined pure olive oil (Peanut Institute, 2000)**
  - **Margarines (0.3 to 0.5%)**
  - **Peanut and peanut products (Valencia > Runner, Spanish, Virginia)(Awad et al 2000)**

Beta-sitosterol (mg/100g)



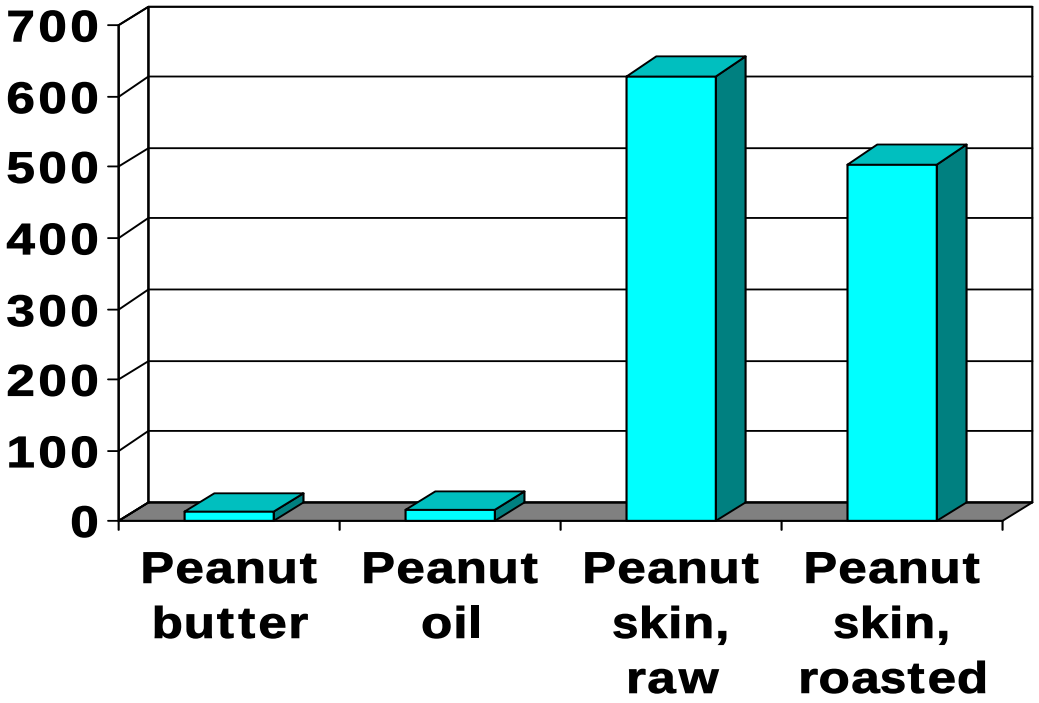
Flavonoids

- Secondary plant phenolics widely distributed in the leaves, seeds, bark and flowers
- Over 4,000 flavonoids occur in nature



Flavonoids in peanuts

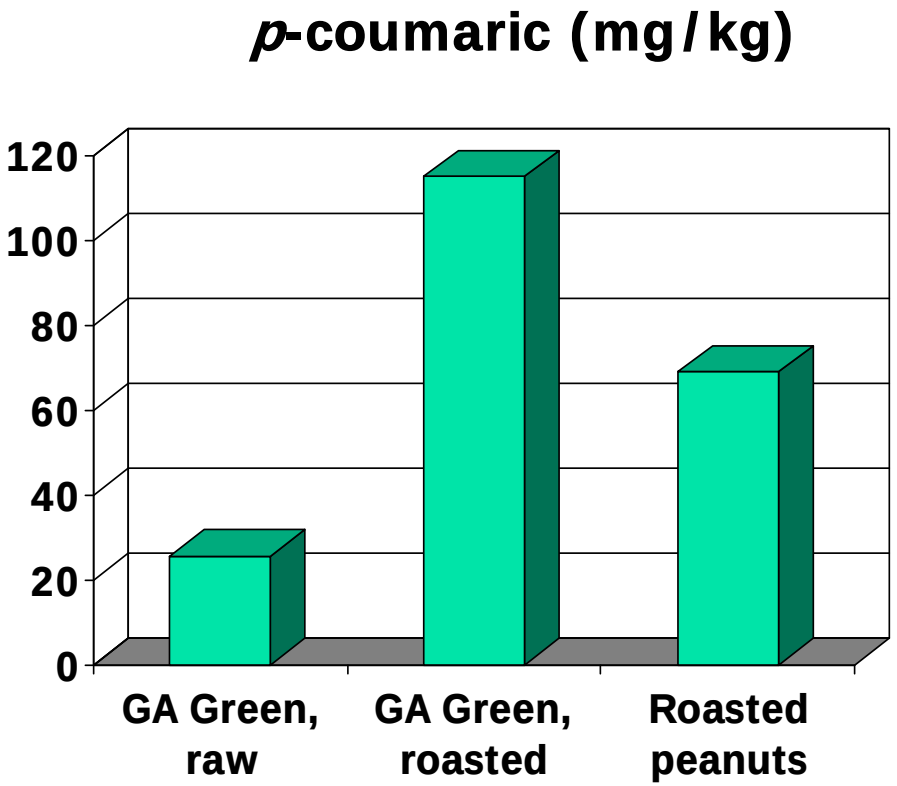
- Total proanthocyanidin (mg/100g)



- Total isoflavone (mg/100g)
  - Peanuts, raw 0.26

Phenolic acids

- Derivatives of benzoic and cinnamic acids
- *p*-coumaric acid and ethyl protocatechuic acid are potent antioxidants



Health benefits

Reduced risk of cardiovascular disease

Anti-cancer activity

Lowers blood cholesterol

Inhibits platelet aggregation

Reduced risk of Type II diabetes

Free-radical scavengers

Free radicals in the body may lead to…

Atherosclerosis

Cataract

Cancer

Asthma

Diabetes

Rheumatoid arthritis

Knekt et. al. (2002)

Functionality

Components in peanuts may be used as food ingredients for their...

- Antioxidant properties

Functionality

- **Stabilizing effect**
  - **Heat stability of milk**
  - **Foam / gel stability**
  - **Co-pigments for stability of anthocyanins**

Functionality

- **Antimicrobial agent**
  - **Antibacterial**
    - **Sporeformers**
      - *Bacillus, Clostridium*
    - **Pathogens**
      - *Listeria, Salmonella, E. coli*
  - **Antifungal**

Natural Renewable

Nutritious Available

Mother Nature's Vitamin Pill

FOOD Product Innovation and Commercialization