

CPME - Standing Committee of European doctors



## Prevention - the case for vitamin D

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Respondent

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# Treatment

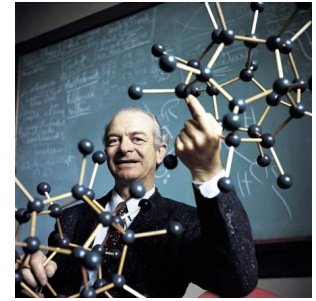
degenerative diseases

osteoporosis - coronary heart disease

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- Implementation of traditional diets
  - Mediterranean
  - Indo-Mediterranean
  - Japan (Okinawa)
- Overweight management
  - Atkins nutritional principles
- Physical training & coaching
- Bioceuticals
  - vitamin D3
  - vitamin K2
  - omega-3 fatty acids
- Pharmaceuticals

# Orthomolecular Medicine



- Linus Pauling (Stanford University) (1900-1994)
  - “The preservation of optimum health and the treatment of disease by varying the concentrations in the human body of substances that are normally present in the body” Science 1968
  - Laughed ascorbic acid advocate?
    - But, it seems to look like Linus Pauling is right after all !
      - “approximately 13% of the US population is vitamin C deficient”
        - Am J Clin Nutr. 2009 / NHANES III
      - “in young Canadian adults 14% had deficient levels of serum ascorbic acid and 33% had suboptimal levels”, “serum ascorbic acid deficiency is associated with elevated markers of chronic disease in this population of young adults”
        - Am J Epidemiol. 2009
      - “millions of people worldwide can be diagnosed with vitamin C deficiency according to accepted definitions”
        - Basic Clin Pharmacol Toxicol. 2009



# Nutritional blood analysis

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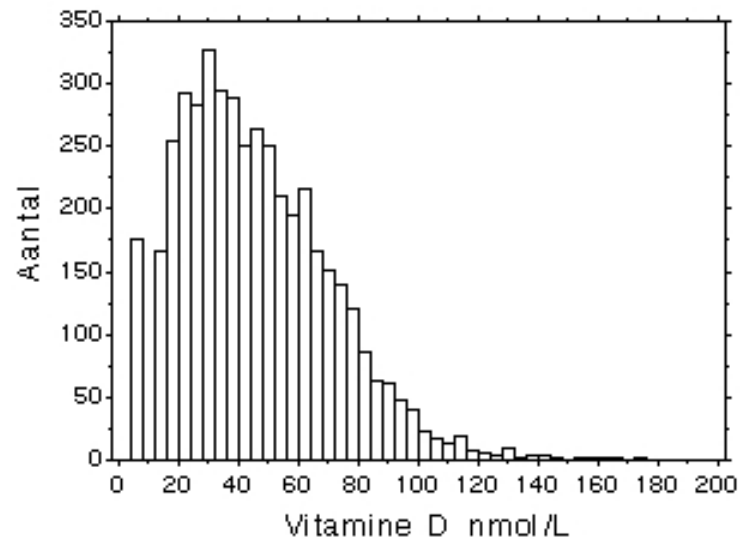
- > deficiencies in Flanders
  - serum 25-hydroxyvitamin D
  - red blood cell membrane omega-3/6/9 fatty acids
    - gamma-LA, alpha-LA, EPA, DHA, oleic acid
  - blood zinc: > children & adolescents
- > insufficiencies in Flanders
  - serum under-carboxylated proteins (vitamin K)
  - serum tocopherols
  - serum ascorbic acid
  - serum carotenoids
    - biomarker of fruit and vegetable intake
  - blood magnesium
  - blood selenium
  - red blood cell folic acid
  - serum vitamin B12

# The case for vitamin D3

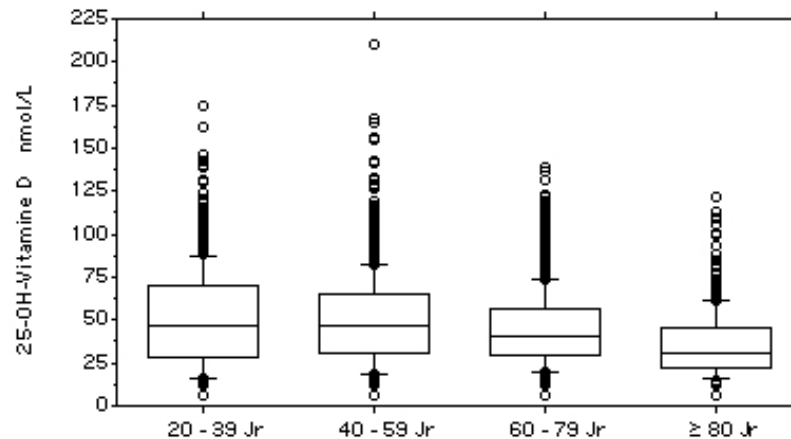


- Flanders Ghent region: 4460 representative outpatients
  - 60%: < 50nmol/L
  - wintertime/ Jan-April: P50=35nmol/L, regressive
  - summertime/ May-Sept: P50=56nmol/L, progressive
- Optimal level throughout the year: > 80nmol/L
- Recommendation
  - daily sunshine = wishful thinking
  - daily cod liver oil = wishful thinking
  - daily supplement of minimal 2000IU vitamin D3 to fulfill the optimal target level of serum 25-hydroxyvitamin D
  - be included in the refund nomenclature

## 4460 serum 25-hydroxyvitamin D levels representative for Flanders Ghent region



60%: < 50nmol/L



marked reduction in serum 25-hydroxyvitamin D level with age



# The case for omega-3

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- Omega-3 index (red blood cell membrane EPA+DHA)
  - Flanders: 3-5%
  - Optimal: > 8% (Harris WS, Am J Clin Nutr 2008)
- Recommendation
  - small fatty fishes three times a week
  - purified fish oil supplement on fish-free days to fulfill the optimal target percentage of the omega-3 index
  - be included in the refund nomenclature



# The case for vitamin K

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- Undercarboxylated vitamin K-dependent proteins
  - Osteocalcin
    - osteoporosis
  - Matrix Gla protein
    - strongest inhibitor of calcification in soft tissues
    - cardiovascular calcification
    - Agatston coronary artery calcium score (heart scan)
- Optimal: maximal gamma-carboxylation
- Recommendations
  - daily phylloquinone (K1) rich vegetables
  - daily vitamin K2 rich fermented Japanese soy products
  - daily oral supplement of minimal 200mcg vitamin K2 to full-fill maximal gamma-carboxylation of vitamin K dependent proteins
  - be included in the refund nomenclature