



Ernährung Vitamine



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Overview

- 1- Who needs Vitamin Supplements?
- 2- Special case Vitamin D
- 3- Think of B12 deficiency in seniors

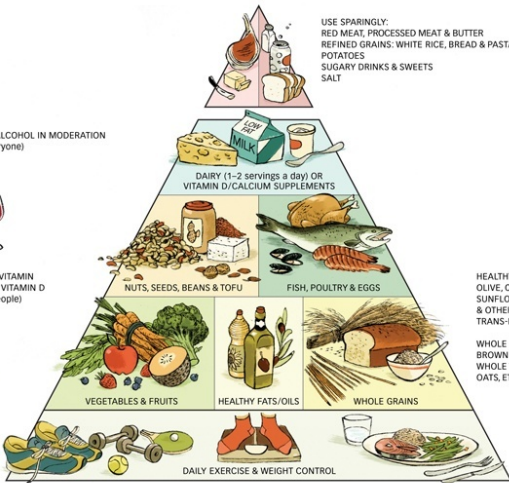


THE HEALTHY EATING PYRAMID

Department of Nutrition, Harvard School of Public Health



Walter Willett, DrPH, MD
Chair, Department of Nutrition,
Harvard School of Public Health
Fredrick Stare Professor of Epidemiology
Harvard School of Public Health
Professor of Medicine,
Harvard Medical School



USE SPARINGLY:
RED MEAT, PROCESSED MEAT & BUTTER
REFINED GRAINS: WHITE RICE, BREAD & PASTA
POTATOES
SUGARY DRINKS & SWEETS
SALT

**DAIRY (1-2 servings a day) OR
VITAMIN D/CALCIUM SUPPLEMENTS**

NUTS, SEEDS, BEANS & TOFU **FISH, POULTRY & EGGS**

VEGETABLES & FRUITS **HEALTHY FATS/OILS** **WHOLE GRAINS**

DAILY EXERCISE & WEIGHT CONTROL



HEALTHY FATS/OILS:
OLIVE, CANOLA, SOY, CORN,
SUNFLOWER, PEANUT
& OTHER VEGETABLE OILS;
TRANS-FREE MARGARINE

WHOLE GRAINS:
BROWN RICE,
WHOLE WHEAT PASTA,
OATS, ETC.

OPTIONAL: ALCOHOL IN MODERATION
(Not for everyone)

DAILY MULTIVITAMIN
PLUS EXTRA VITAMIN D
(For most people)

For more information about the Healthy Eating Pyramid:
WWW.THE NUTRITION SOURCE .ORG

Putting Multivitamins to the test

15'000 men (MDs) 50+ old randomized – mean FU 11 year (PHS – II)
– results per 1000 participants // double-blind RCT

1000 took a
multivitamin

↓

170 diagnosed with
cancer

↓

1000 took a
placebo


↓

183 diagnosed with
cancer


↓

10 Years later

- 8 % sig. reduction of incident cancer with the multivitamin
- no effect on death
- no effect on cardiovascular outcomes
- **too healthy to benefit more? 60% exercised; < 4% smokers; better diet**



Gaziano JM et al. JAMA 2012

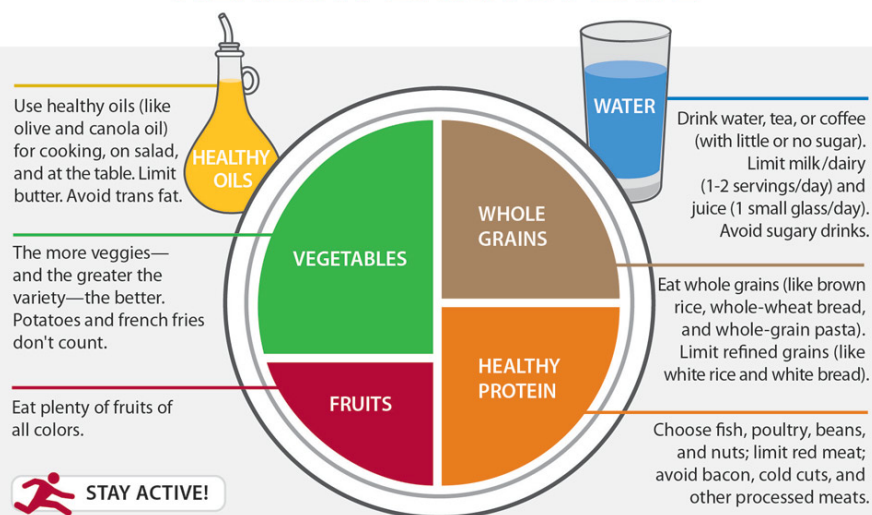


Concept change

- Much of the 20th century was a research about single nutrient benefits
- **This has changed:** we are looking at whole foods and how to build a **healthy plate**
- Eat lots of fruits and vegetables, whole grains, along with healthy sources of protein and fats
- All vitamins (apart from vitamin D) are covered by a healthy diet – **however not all eat a healthy diet**



HEALTHY EATING PLATE



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A multivitamin is a supplement / insurance and not a substitute for a healthy diet

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Ingredients	Daily Amount	% Daily Value
Vitamin A (as natural beta carotene)	2,000 IU	40
Vitamin C (ascorbic acid)	150 mg	250
Vitamin D (cholecalciferol)	1000 IU	250
Vitamin E (as d-alpha tocopherol)	200 IU	667
Thiamine (vitamin B ₁ as HCl)	1.5 mg	100
Riboflavin (vitamin B ₂)	2 mg	118
Niacinamide (niacinamide/vitamin B ₃)	20 mg	100
Vitamin B ₆ (pyridoxine hydrochloride)	10 mg	500
Folic acid (folate, vitamin B ₉)	400 mcg	100
Vitamin B ₁₂ (cyanocobalamin)	400 mcg	6,667
Pantothenic acid (as calcium pantothenate)	10 mg	100
Magnesium (as magnesium oxide)	200 mg	50
Zinc (zinc oxide)	15 mg	100
Selenium (as selenium chelate)	100 mcg	143
Chromium (as chromium amino acid chelate)	100 mcg	83

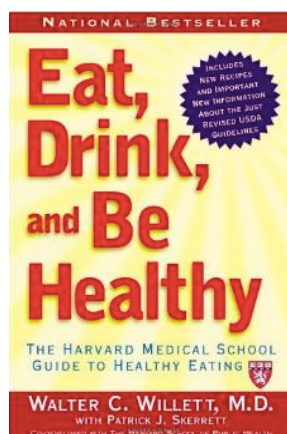


Eat, drink and be healthy

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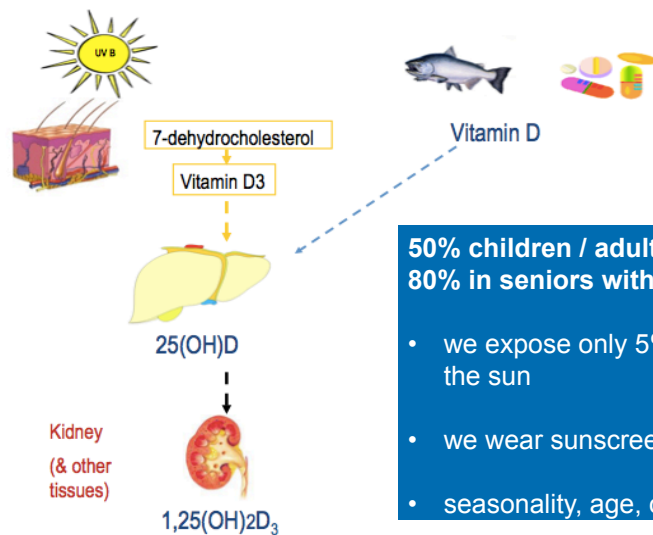
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Special Case Vitamin D



**50% children / adults are deficient
80% in seniors with hip fracture**

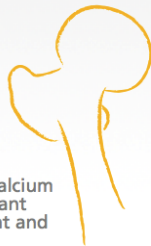
- we expose only 5% of our skin to the sun
- we wear sunscreen
- seasonality, age, obesity

Dual action of VITAMIN D

bone

+

muscle



Vitamin D helps calcium absorption, important bone development and maintenance

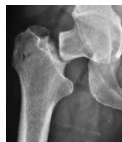


Vitamin D has a direct effect on muscle and reduces the risk of falling

Evidence Double-Blind RCTs



30% ↓



Hip fracture

14% ↓



Any Non-vert fractures

34% ↓

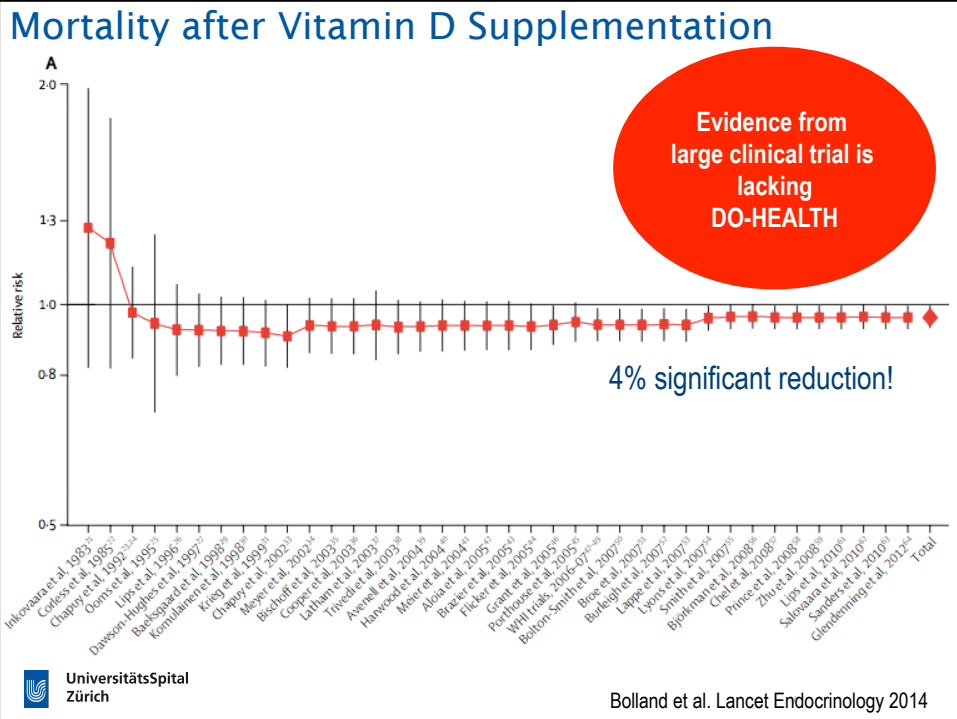


Falls

12 RCTs / 11 pooled RCT > 30'000 seniors

8 RCTS

Bischoff-Ferrari HA et al. Archives of Internal Medicine 2009
Bischoff-Ferrari HA et al. NEJM 2012
Bischoff-Ferrari HA et al. BMJ 2009 + 2011





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SEVENTH FRAMEWORK
PROGRAMME

THEME [HEALTH.2011.2.2.2-1]
[Investigator-driven clinical trials for therapeutic interventions in elderly populations]
Proposal no: 278588-2
 Principal Investigator (sponsor):
 Prof. Heike A. Bischoff-Ferrari, MD, DrPH
 Centre on Aging and Mobility
 University of Zurich
 Gloriastrasse 25
 8091 Zurich, Switzerland



Next step DO-HEALTH to test 2000 IU/day benefits on health



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BAG 2012 – Vitamin D

Klassifikation	Serum 25(OH)D nmol/l (ng/ml)	Klinische Implikationen
Schwerer Vitamin D- Mangel	< 25 nmol/l (< 10 ng/ml)	Erhöhtes Risiko von Rachitis, Osteomalacie, sekundärem Hyperparathyreoidismus, Myopathie, Stürzen und Frakturen
Vitamin D- Insuffizienz	25 to 50 nmol/l (10 to 20 ng/ml)	Erhöhtes Risiko von Knochenverlust, sekundärem Hyperparathyreoidismus, von Stürzen und Frakturen
Vitamin D – Mangel	< 50 nmol/l (< 20 ng/ml)	fasst schweren Mangel und Insuffizienz zusammen (Siehe oben)
Zielwert für adäquaten Vitamin D Spiegel	> 50 nmol/l (>20 ng/ml)	Niedriges Risiko für Knochenabbau und sekundärem Hyperparathyroidismus, neutrale Wirkung auf Stürze und Frakturen
Wünschenswerter Zielwert für Sturz und Frakturreduktion	75 nmol/l (30 ng/ml)	Optimale Suppression von Parathormon und Knochenabbau; Verminderung von Stürzen und Frakturen um 20%

Vitamin D Zufuhr	Schweizer Allgemein-Bevölkerung	Personen mit schwerem Vitamin-D-Mangel 25(OH)D-Konzentrationen < 25 nmol/l	Beide Gruppen
	Empfohlene tägliche Zufuhr	Empfohlene tägliche Zufuhr	Tolerierbare Höchstmengen / Tag
Kinder / Jugendliche			
0-6 Monate	400 IE (10 µg)	400 - 1000 IE (10 - 25 µg)	1000 IE (25 µg)
6-12 Monate	400 IE (10 µg)	400 - 1000 IE (10 - 25 µg)	1500 IE (37.5 µg)
1-3 Jahre	600 IE (15 µg)	600 - 1000 IE (15 - 25 µg)	2500 IE (62.5 µg)
4-8 Jahre	600 IE (15 µg)	600 - 1000 IE (15 - 25 µg)	3000 IE (75 µg)
9-18 Jahre	600 IE (15 µg)	600 - 1000 IE (15 - 25 µg)	4000 IE (100 µg)
Erwachsene			
19-59 Jahre	600 IE (15 µg)	1500 - 2000 IE (37.5 - 50 µg)	4000 IE (100 µg)
> 60 Jahre	800 IE (20 µg)	1500 - 2000 IE (37.5 - 50 µg)	4000 IE (100 µg)
Schwangere und stillende Frauen			
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Neue Empfehlungen BAG für Vitamin D 2012

Ziel
Shift von 97%+ der Bevölkerung auf normalen 25(OH)D Spiegel
50+ nmol/l
20+ ng/ml

für die Knochengesundheit in jedem Alter

Overview

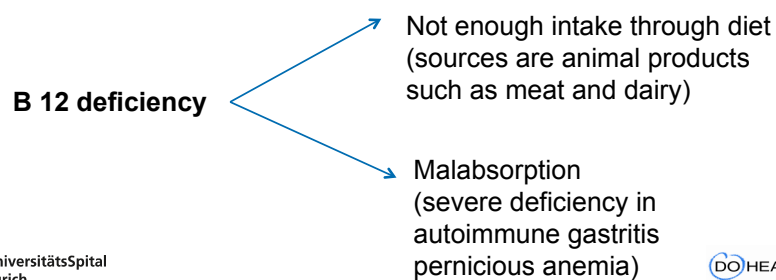
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Case report NEJM 2013

- Over the course of two months, a 62-year-old man developed numbness and a “pins and needles” sensation in his hands
- had trouble walking, experienced severe joint pain, began turning yellow, and became progressively short of breath.
- **The cause was lack of vitamin B₁₂**

Risk Factors B12 – deficiency

- over 50 years old – **prevalence is 20 to 25 %**
- proton-pump inhibitor or H2 blocker
- Vegetarian
- weight-loss surgery or have a condition that interferes with the absorption of food



Symptoms B12 – deficiency causes reversible megaloblastic anemia, demyelinating neurologic disease, or both

- strange sensations, **numbness, or tingling in the hands, legs, or feet**
- **difficulty walking** (staggering, balance problems)
- **anemia**
- a swollen, inflamed tongue
- yellowed skin (jaundice)
- **difficulty thinking and reasoning (cognitive difficulties), or memory loss**
- paranoia or hallucinations
- **weakness**
- **fatigue**

Symptoms frequently seen in seniors

Think of D-deficiency and B-12 deficiency



Vielen Dank

