Vitamin D Deficiency
4 Key Areas of Vitamin D Benefits

• Brain
  – Prevention of Alzheimer’s disease
  – Treatment of ADD/ADHD, depression and other mental disorders

• Immune system
  – Cancer prevention
  – Arms the immune system to protect from infections

• Bones
  – Promotes calcium & phosphorus absorption
  – Help bones grow and keep them strong
    • Deficiency of vitamin D causes rickets

• Pregnancy
  – Increases infant birth weight (low birth weight babies at higher risk of breathing problems, heart conditions, digestion problems and more)

• That’s not all – new research coming out every day on the benefits of vitamin D

Terry Talks Nutrition

IMPROVING THE HEALTH OF AMERICA
So where do you get vitamin D?

Small amounts of vitamin D can come from food

- Cod liver oil
- Fatty fish (salmon, mackerel, sardines)
- Egg yolks
- Liver
- Mushrooms (raw)

Primary source of vitamin D for humans is the SUN

- Recommended exposure: 10-15 min a day (between 8 a.m. & 3 p.m.) 2-3 times per week of unprotected (NO CLOTHES OR SUNSCREEN) face, arms, and legs
If all you need is sunshine...

Why are almost 60% of Americans vitamin D deficient?
Barriers to Vitamin D Synthesis

• Darker skin
  – The more melanin in your skin, the less able the sun’s rays to penetrate it

• Living in a northern climate
  – If you have dark skin and live in a northern climate, on July 1, you would need 16 minutes of sun exposure to synthesize 1,000 IU of vitamin D; a fair-skinned person would need 4 minutes of sun exposure
  – on January 1, a dark skinned person would need 4.5 hours of sun exposure to synthesize 1,000 IU of vitamin D; a fair-skinned person would need 40 minutes

• Pollution

• Sunscreens
  – SPF of 8 or higher blocks vitamin D synthesis from sunlight by up to 95%; SPF of 15 or higher by 99%

• Overweight/Obese
  – Obesity is associated with 50% less circulating vitamin D (D is fat-soluble, so gets trapped in fat cells)

• Sedentary lifestyle

• Cholesterol drugs

• Genetics

• Age
  – By the time we are 65, changes to the structure of the skin reduce Vitamin D synthesis by 40%

Only 1 person in 10 gets enough Vitamin D from food and sunlight alone!
If you don’t get enough vitamin D

• 42% increased risk of dementia
  – *Severe deficiency* increases risk of dementia by 342%

• 62% increased risk of heart disease

• 80% increased risk of developing peripheral artery disease (circulatory problems in the legs)

• 88% more likely to be depressed

• Also: soft bones (rickets); increased risk of cancer,
How do you know if you have low Vitamin D?

• Ask your doctor for a Vitamin D test
  – Test for the presence of 25-hydroxyvitamin D in the blood
  – May be covered by insurance

• At home test kits are available
  – Require a finger stick with a lancet and sending in blood sample (just a few drops on blotting paper)
  – The test available through the Vitamin D Council is $65 for one test

• Vitamin D Council recommends a blood level of 50-80 ng/mL; many doctors consider any value over 30 ng/mL to be “normal”
Current Vitamin D Recommendations

• The current RDI for Vitamin D is 600 IUs (800 IU for adults over age 70)
• This is the amount to prevent RICKETS and is **not the optimal level**!
• Scientists are calling on the government to increase recommendations to **at least** 2000 IU per day
• Some experts suggest 5,000 IU daily, especially during the winter months
Vitamin D and the Brain

• Vitamin D can help prevent Alzheimer’s Disease

• One of the hallmarks of Alzheimer’s is the accumulation in the brain of hardened protein, called beta amyloid plaques

• A recent study found that the combination of vitamin D3 and curcumin stimulate the immune system to clear out beta amyloid plaques

• Also: relieves the symptoms of depression (increases serotonin levels); helpful for Parkinson’s disease and epilepsy
Vitamin D and the Immune System

• Vitamin D may protect against the flu
  – Higher blood levels of vitamin = less chance of getting the flu

Cancer

• Higher intake of vitamin D PLUS some sun exposure = 45% reduction in breast cancer risk
• Low levels of vitamin D are associated with an 8 times increased risk of triple negative breast cancer – the most dangerous form of breast cancer
  – This type of cancer is very aggressive and cannot be treated with the standard cancer drugs
Vitamin D and Bone Development

• Vitamin D works with calcium and other bone-building nutrients to increase bone density

• In a recent study, even a minimal dosage of vitamin D (200 IU) was associated with an almost 3% increase in total bone density in vitamin D deficient children
  – A 10% increase in peak bone mass as a child can mean a 50% reduction in risk of bone fracture as an adult
  – 60% of children have low levels of vitamin D

• Adult women taking 800 IU of vitamin D daily had a 30% reduction in fracture risk

• Most experts now recommend 2000 – 5000 IU daily for adults
Vitamin D and Pregnancy

• Some researchers report that as many as 95% of pregnant women – even women taking a prenatal vitamin – have low vitamin D levels
  – Vitamin D is crucial for the developing baby’s brain and immune system
• Low D levels during pregnancy mean
  – 4 times greater risk of needing a C-section
  – 5 times greater risk of pre-eclampsia (high blood pressure during pregnancy)
  – 3 times more likely to develop gestational diabetes
• For developing babies, low vitamin D in mom can lead to
  – Low birth weight
  – Poor lung function and breathing problems
  – Weak bones
Choosing a Vitamin D supplement

• Look for Vitamin D3 (cholecalciferol) – preferred form
  – D3 is more potent than D2 (ergocalciferol, the plant form)
  – In one study: 87% more potent

• Vitamin D works well alone or with other nutrients
  – minerals such as calcium (increases calcium absorption), magnesium, copper, and silica for bone density
  – Curcumin and the plant oils Spanish Sage and Rosemary for memory and brain health
  – Curcumin, boswellia and the fruit mineral, fructoborate, for joints and arthritis
Vitamin D and . . . Death?

• One final research finding that may motivate you to increase your daily intake of vitamin D

In a study looking at vitamin D intake, those who had the *lowest* levels of vitamin D had a **26% higher risk of death** from *all* causes compared to those with the highest vitamin D levels!
Recommended Reading!

The Vitamin D Solution

by

Dr. Michael Holick, MD, PhD