



# The Truth About Vitamin D

*The Sunshine Vitamin*  
*with*  
***Dr. Ritamarie Loscalzo***

**“Sun phobia, sunscreens and spending too much time indoors have all contributed to the problem of Vitamin D insufficiency.”**

***Zoltan Rona, MD, MSc***



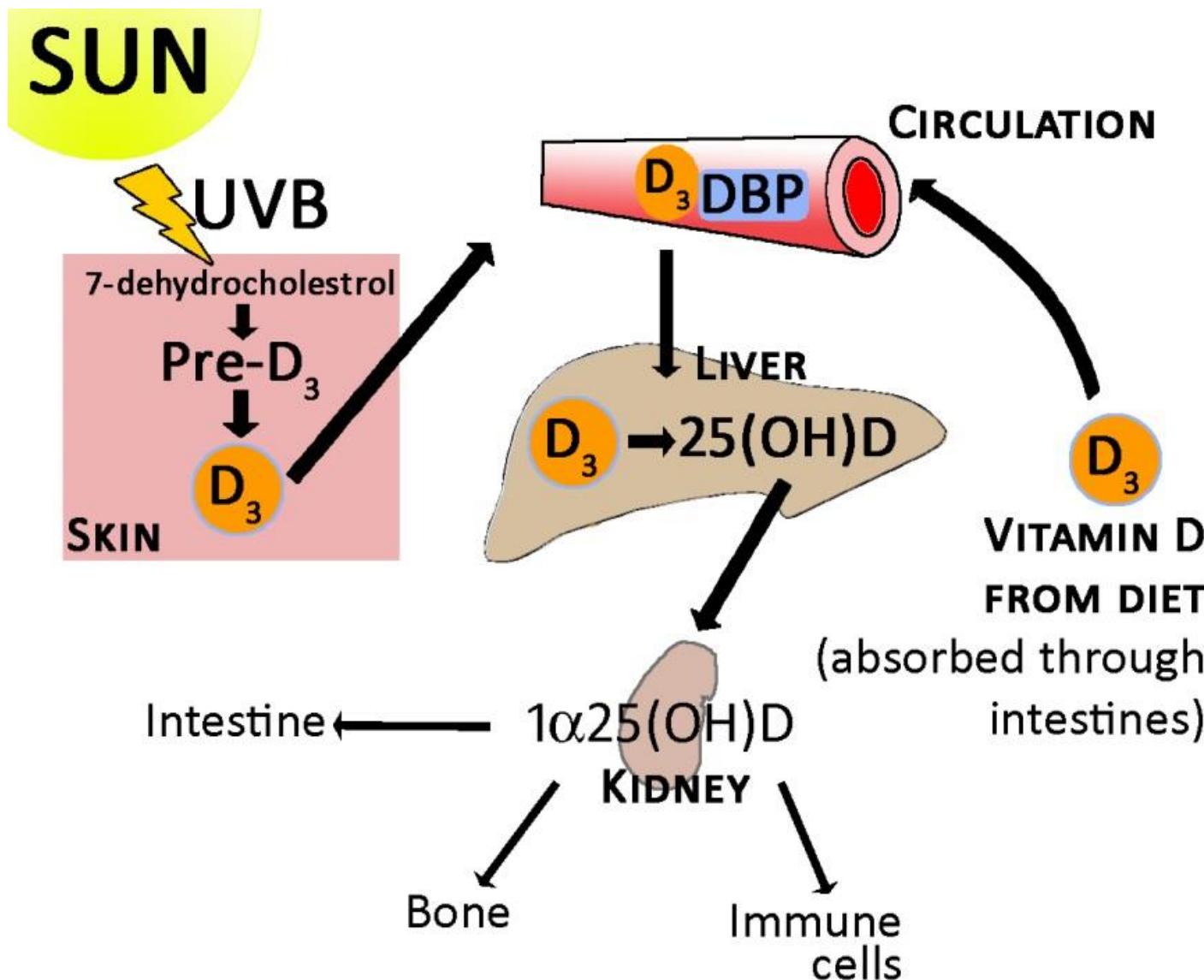
# By the End of This Presentation You'll Understand:

- ★ **How Vitamin D can protect** you from cancer, heart disease, autoimmune disease, digestive disorders and so much more
- ★ The relationship between Vitamin D and Calcium in **bone metabolism**
- ★ How to benefit from **safe sun exposure**
- ★ How to test, supplement, and eat in a way **that supports Vitamin D**



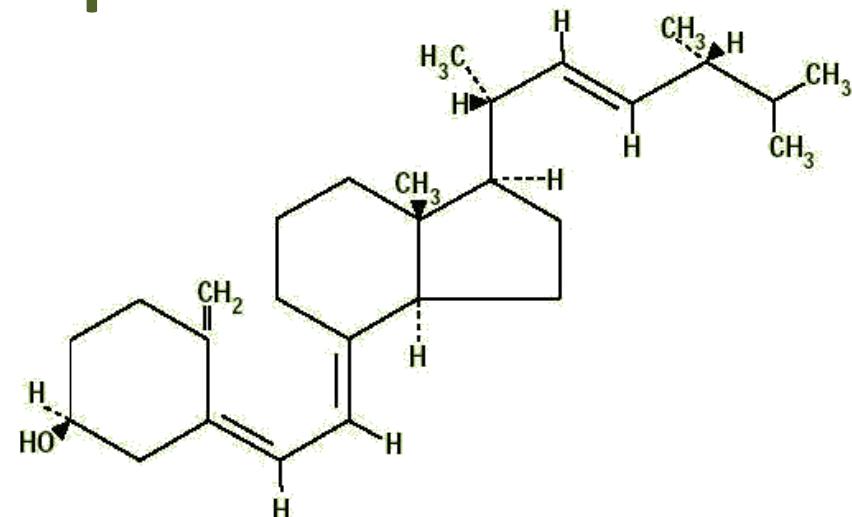
**Medical Disclaimer:** The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, [drritamarie.com](http://drritamarie.com), and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.

# Vitamin D Basics



# Functions of Vitamin D Part 1

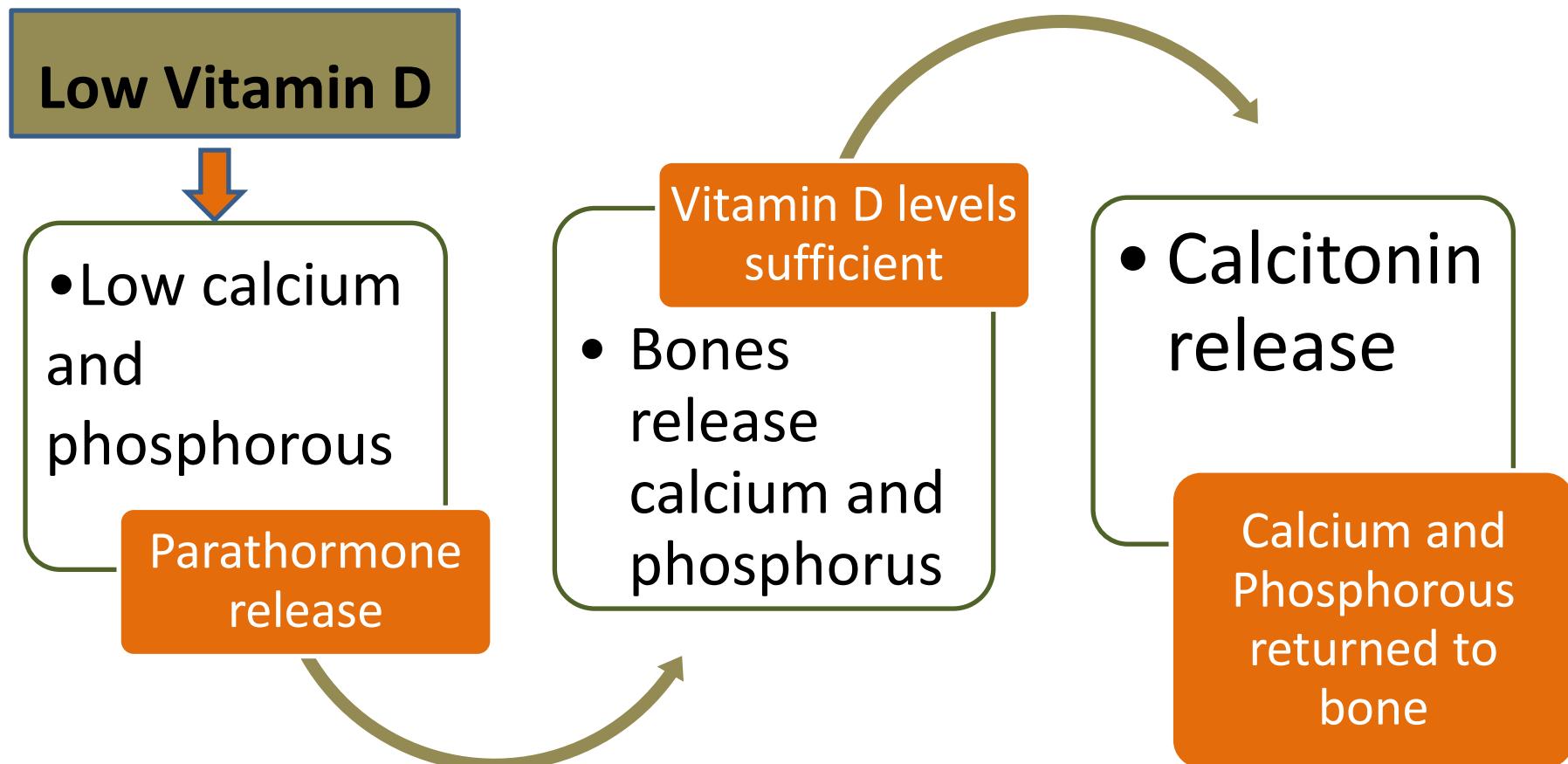
- \* Helps **gut absorb calcium** and phosphorus
- \* Regulate **calcium and phosphorus metabolism**
- \* **Adrenal** gland health
- \* **Blood sugar** control
- \* **Bone** metabolism
- \* **Brain** and nervous system development and function
- \* **Digestion** and nutrient absorption
- \* **Blood brain barrier** permeability
- \* **Gut** membrane permeability



# Functions of Vitamin D Part 2

- ★ **Immune system** health
- ★ **Mood**, mind, memory and behavior
- ★ **Muscle, nerve** and athletic performance
- ★ **Normal blood pressure**
- ★ **Pancreatic** health
- ★ **Skin** health
- ★ **Sleep**
- ★ **Vision**
- ★ **Weight** control – carbohydrate and fat metabolism

# Vitamin D Homeostasis



# Why We Become Vitamin D Deficient

- ★ **Sun phobia**
- ★ Sunscreens
- ★ Too much **time indoors**
- ★ Poor liver function
- ★ Poor **kidney** function
- ★ Poor bile production
- ★ **Food allergies** (prevent absorption)
- ★ Northern climates / cold climates
- ★ **Genetics**
- ★ Showering and scrubbing with soap
- ★ **Statin drugs**



# Vitamin D Deficiency

## Consequences:

- Psychiatric
  - Schizophrenia
  - Depression
- Infections
  - Urinary
  - Tuberculosis
- Circulatory
  - High blood pressure
  - Coronary heart disease
- Cancer
  - Breast
  - Colon
  - Prostate
  - Other
- Other
  - Diabetes
  - Syndrome X
  - Obesity

- Pulmonary
  - Wheezing
  - FEV1
- Bone & Muscle
  - Osteoporosis
  - Osteomalacia
  - Osteoarthritis
  - Rickets
  - Muscle aches & weakness



Sunscreen  
Melanin  
Latitude  
Winter

## Medications & Supplements:

- Antiseizure
- Glucocorticoids
- Rifampin
- HAART
- St. John's Wort
- Malabsorption
  - Crohn
  - Whipple
  - Cystic fibrosis
  - Celiac
- Organ failure
  - Liver disease
  - Renal failure
  - Nephrotic syndrome

## Vitamin D Testing

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# Vitamin D Deficiency Can Result In

- ★ Over-weight
- ★ High Blood Pressure
- ★ Osteoporosis and Osteopenia
- ★ Autism
- ★ Autoimmune Conditions
- ★ Cancer
- ★ Depression
- ★ Asthma
- ★ Migraines
- ★ Cystic Fibrosis
- ★ Diabetes (types: 1 and 2)
- ★ Multiple Sclerosis
- ★ Schizophrenia
- ★ Epilepsy
- ★ Osteoarthritis
- ★ PCOS (Polycystic Ovarian Syndrome)
- ★ Musculoskeletal Pain, including Joint Pain and Low Back Pain
- ★ Muscle Weakness
- ★ Poor Balance
- ★ Systemic Inflammation
- ★ Fibromyalgia

# Blood Levels of Vitamin D (US Measurements)

<b>&gt;100 ng/mL</b>	Excessive vitamin D
<b>50–70 ng/mL</b>	Proposed optimal range
<b>30–50 ng/mL</b>	Suboptimal
<b>&lt;30 ng/mL</b>	Deficient
<b>&lt;20 ng/mL</b>	Overt vitamin D deficiency
<b>&lt;10 ng/mL</b>	Seriously deficient

*\*\* To convert to Standard International units, multiply by 2.496*

# Vitamin D Deficiency Statistics

- ★ 41% of people studied had Vitamin D level below 20
- ★ 82.1% of African Americans had Vitamin D level below 20
- ★ 69.2% of Hispanics had Vitamin D level below 20

*Nutr Res. 2011 Jan;31(1):48-54. doi: 10.1016/j.nutres.2010.12.001. Prevalence and correlates of vitamin D deficiency in US adults. Forrest KY<sup>1</sup>, Stuhldreher WL.*

- ★ 1988 - 1994, 45% of people studied had Vitamin D level greater than 30
- ★ 2001-2004, 23% of people studied had Vitamin D level greater than 30

*Demographic Differences and Trends of Vitamin D Insufficiency in the US Population, 1988-2004. Adit A. Ginde, MD, MPH; Mark C. Liu, MD; Carlos A. Camargo Jr, MD, DrPH. Arch Intern Med. 2009;169(6):626-632.*

# Cancer and Sun Exposure

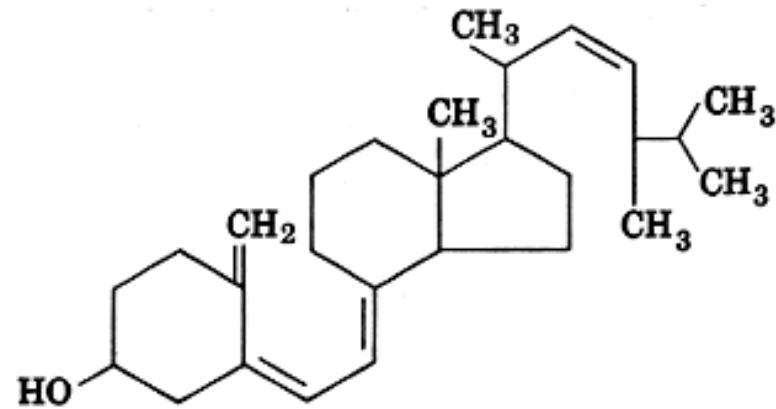
- **Melanoma** – most dangerous cancer of skin is not related to sun exposure – recent studies suggest it can be caused by vitamin D and omega-3 deficiency
- **Basal cell carcinoma** is benign
- **Sunscreens** are carcinogenic
- Get out of the sun when it starts to turn a little pink
- **Natural sunblocks** if necessary – zinc oxide, titanium dioxide

# Forms of Vitamin D

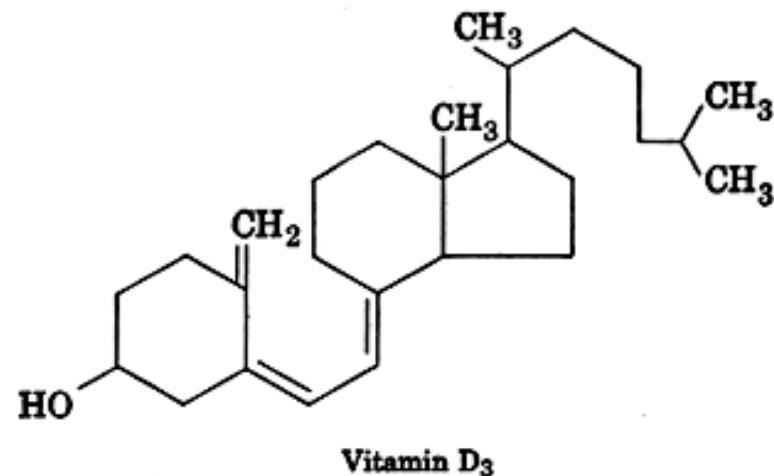
- \* **Vitamin D3:** found exclusively in animal sources

- \* **Vitamin D2:** found in plant sources in small amounts

- \* **Synthetic Vitamin D2:** fortified products and some supplements



Vitamin D<sub>2</sub> (calciferol)



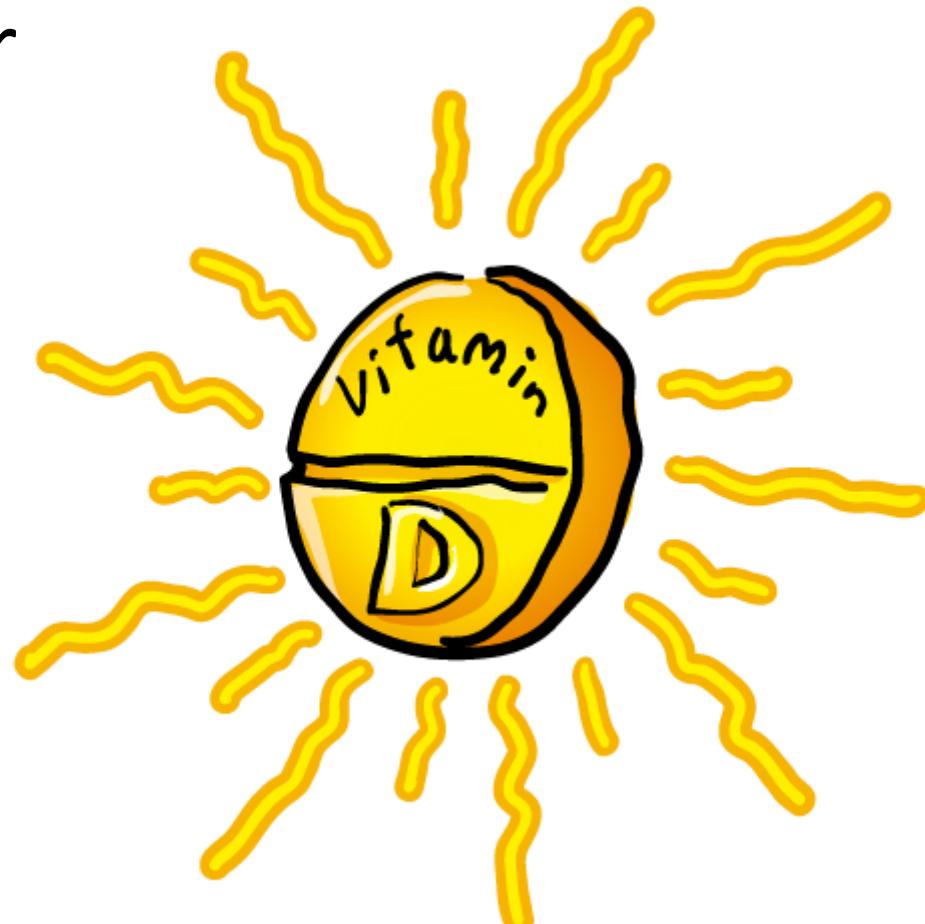
Vitamin D<sub>3</sub>

# Vitamin D in Foods

Food	Serving Size	Calories	Amount of Vitamin D
Cod Liver Oil	1Tbs	120	1360
Salmon	4 oz	158	511
Sardines	3.2 oz	189	175
Tuna	4 oz	147	93
Egg	1	77	43
Shitake Mushrooms	½ cup	41	20

# Those at Highest Risk of Vitamin D Deficiency

- ❑ **Overweight:** greater need – stored in fat
- ❑ **Pregnant women**
- ❑ **Elderly:** skin loses ability to produce
- ❑ **Dark skinned:** melanin blocks UVB rays



# Vitamin D Testing

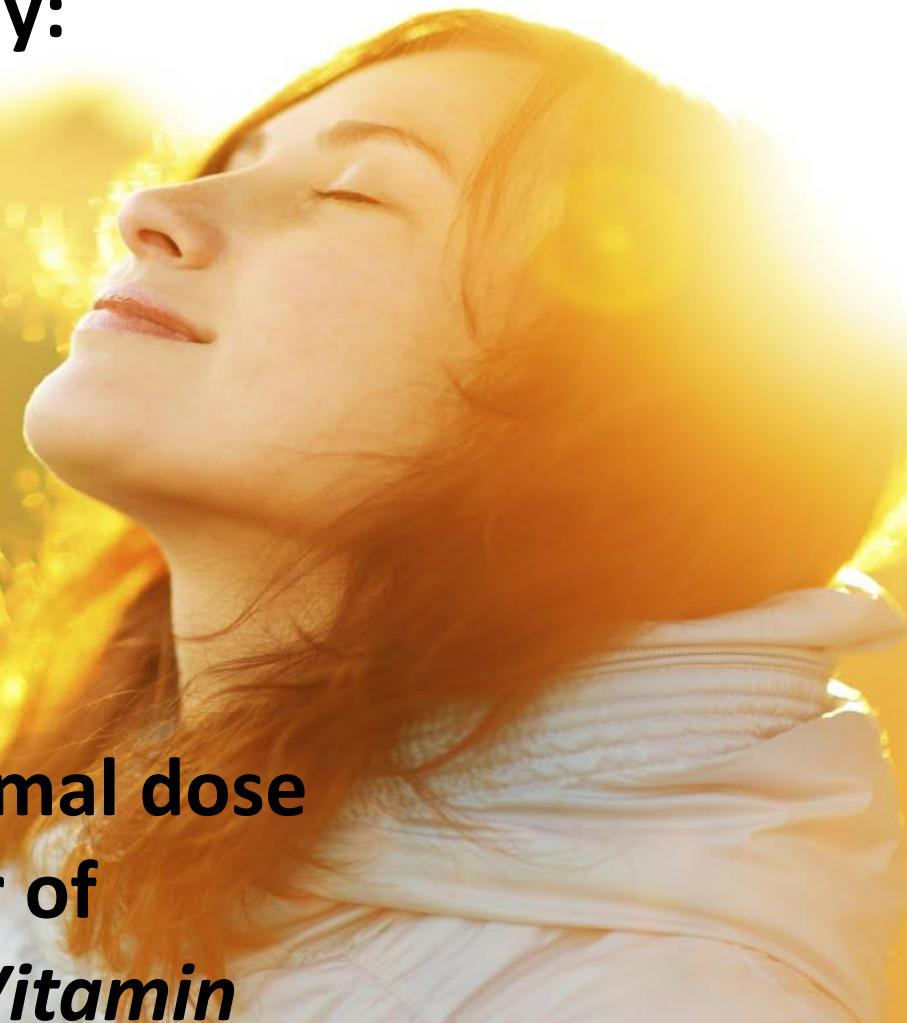


- ★ Get a baseline test
- ★ Supplement if indicated
- ★ Retest every 3 months until stable, for at least a year
- ★ Be sure to test in winter and summer

# Vitamin D Supplementation

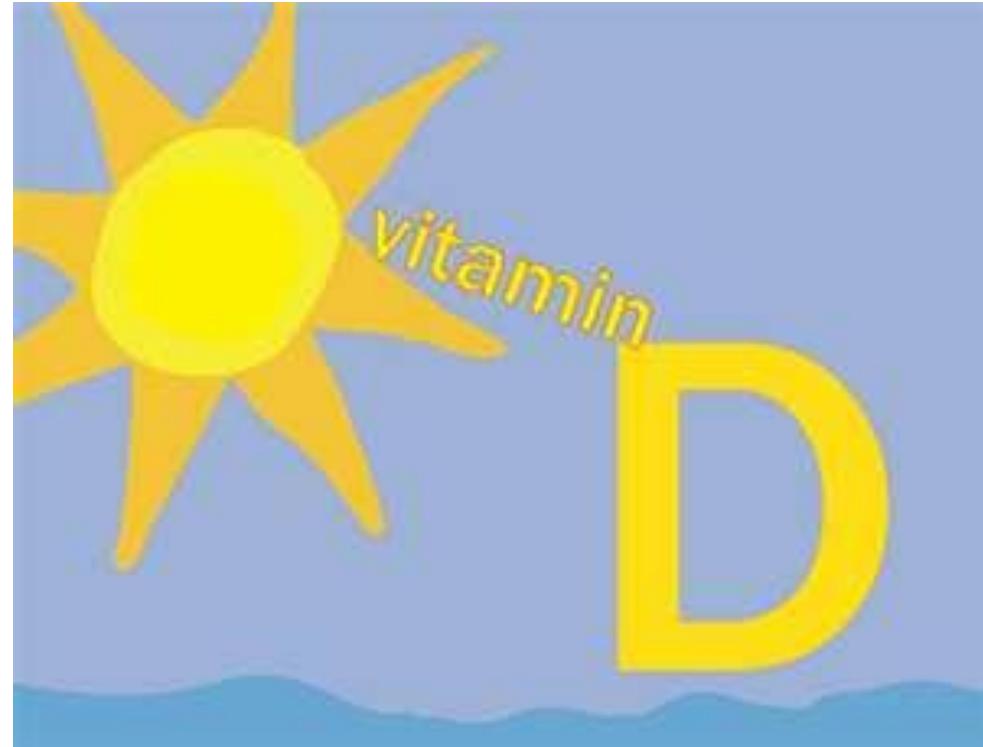
## How Much is Safe?

- ★ University of Toronto study:  
No measurable shifts in  
levels until  $> 4000$  IU
- ★ 20, 000 IU made each  
hour of summertime sun  
exposure
- ★ Skin reserves
- ★ 10,000 IU considered optimal dose  
by Dr. Zoltan Rona, author of  
*Vitamin D: The Sunshine Vitamin*



# Conditions That Benefits From Large Doses of Vitamin D

- ★ Cancer
- ★ ALS
- ★ Depression
- ★ Hashimotos
- ★ Multiple sclerosis
- ★ Allergies
- ★ Flu
- ★ Rheumatoid arthritis
- ★ Heart disease
- ★ Lung disease
- ★ Osteoporosis



*Dr. Joe Prendergast, endocrinologist, - 50,000 iu per day*

# Subset of Conditions That Respond To Vitamin D Supplementation - 1

- ✓ **The flu:** *Cambridge Journals* showed that vitamin D reduces the incidence of respiratory infections in children
- ✓ **Muscle weakness:** Michael F. Holick: muscle weakness is usually caused by vitamin D deficiency because for skeletal muscles to function properly, their vitamin D receptors must be sustained by vitamin D
- ✓ **Psoriasis:** In a study published by the UK PubMed central, it was discovered that synthetic vitamin D analogues were found useful in the treatment of psoriasis

# Subset of Conditions That Respond To Vitamin D Supplementation - 2

- ✓ **Chronic kidney disease:** Patients with advanced chronic kidney diseases unable to make the active form of vitamin D
- ✓ **Diabetes:** Lancet.com - 10,366 children were given 2000 international units (IU)/day of vitamin D3 per day during their first day of life then monitored for 31 years; risk of type 1 diabetes was reduced by 80 percent
- ✓ **Asthma:** Asthma attacks in school children in Japan were significantly lowered in those subjects taking a daily vitamin D supplement of 1200 IU a day

# Subset of Conditions That Respond To Vitamin D Supplementation - 3

- ✓ **Periodontal disease:** Raising their vitamin D levels increases defensins and cathelicidin and lower the number of bacteria in the mouth
- ✓ **Cardiovascular disease:** *Harvard University* - nurses study - women with low vitamin D levels had a 67% increased risk of hypertension
- ✓ **Schizophrenia and Depression:** Vitamin D prenatal and during childhood - vitamin D receptor in the brain integral for brain development and mental function maintenance in later life

# Subset of Conditions That Respond To Vitamin D Supplementation - 4

Cancer: Georgetown University Medical Center presented at the American Association for Cancer Research - increased doses of Vitamin D linked to a 75 percent reduction in overall cancer growth and 50 percent reduction in tumor among those already having the disease, especially estrogen-sensitive breast cancer

# High Dose Vitamin D Supplementation

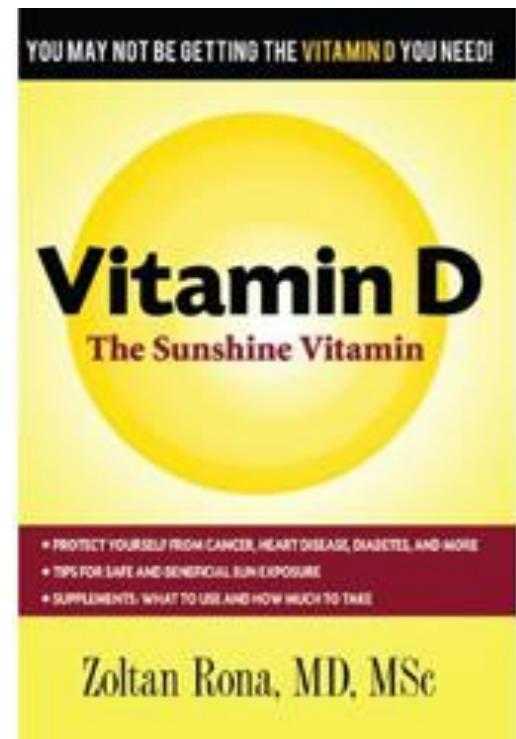
- ★ John Cannelli, head of vitamin D council recommends **50,000 – 100,000 iu daily for cold or flu**
- ★ Dr. Mercola recommended **90% of body weight during swine flu outbreak**
- ★ Norm Shealy, MD takes **50,000 iu daily** – has for 18 months
- ★ **Do not take calcium with such high doses**
- ★ In 1930s and 1940s doctors at Johns Hopkins prescribed **600,000 iu to treat arthritis** and only 10 patients developed toxicity symptoms after 2 – 18 months

# Vitamin D Toxicity Symptoms

- ★ Weight loss and fatigue – first
- ★ Anorexia
- ★ Nausea
- ★ Vomiting
- ★ High blood calcium
- ★ Kidney damage
- ★ Only deaths reported were when steroids prescribed with the Vitamin D

# Treatment for Vitamin D Toxicity

- ★ Discontinue supplements
- ★ Stay out of sun
- ★ Drink at least 4 liters of water per day
- ★ Symptoms resolve in several weeks, calcium level normalizes in several months



# Supplementation Guidelines

- ★ Vitamin K2
- ★ Vitamin A
- ★ Research drug interactions
- ★ Limit or avoid calcium supplements with high dose vitamin D



# Resources/References - 1

- ✿ <http://archinte.jamanetwork.com/article.aspx?articleid=414878>
- ✿ [www.whfoods.com](http://www.whfoods.com)
- ✿ *Vitamin D the Sunshine Vitamin, Zoltan Rona, MD*
- ✿ <http://www.youtube.com/watch?v=l4fAB9-vTzU>
- ✿ <http://drritamarie.com/blog/2011/02/06/vitamin-d-are-you-getting-enough/>
- ✿ [http://www.naturalnews.com/035089\\_vitamin D deficiency si gns symptoms.html#ixzz2v5BLWJh1](http://www.naturalnews.com/035089_vitamin_D_deficiency_si gns_symptoms.html#ixzz2v5BLWJh1)
- ✿ Mercola.com “Daily Sunlight Can Keep Cancer Away” August 7, 2008
- ✿ Mercola.com “Lack of Sunshine Causes One Million Deaths a Year” August 24, 2007
- ✿ Dr. Joe Mercola Comments How Much Vitamin Do You Need?

# Resources/References - 2

- ★ Video by Dr. Joe Mercola. 1 hour video with lots of details about Vitamin D
- ★ Annals of Epidemiology April 14, 2009 Dr. Cedric Garland
- ★ Annals of Epidemiology July 2009, Volume 19, Issue 7, Pages 468-483
- ★ Science Daily, “New Model of Cancer Development: Low Vitamin D Levels May Have Role” May 26, 2009
- ★ The Journal of Steroid Biochemistry and Molecular Biology March 2007; 103(3-5):708-11
- ★ American Journal of Clinical Nutrition June 2007; 85(6):1586-91.
- ★ American Journal of Epidemiology October 12, 2007