# Why Vitamin D Deficiency Needs To Be Corrected

#### **UNITED FOR HEALTH 2020 LLC**

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# Vitamin D

- Vitamin D is a prohormone that helps in the absorption of calcium from the gut
- 80% of Vitamin D comes from the sun; 20% of Vitamin D comes from food
- Healthy gut, liver, and kidneys are needed to manufacture active Vitamin D from the sun



# Vitamin D

- Every cell in the body has vitamin D receptors
- Benefits of Optimal Vitamin D levels
  - Protective against some cancers (breast, colon, ovarian, prostate)\*\*
  - Improves Bone health
  - Improves Brain health
  - Improves Cardiovascular health
  - Improves Muscle health
  - Improves Immune health
    - Optimal immune function protects against infections (viral and bacterial)

#### Deficiency of Vitamin D leads to many health threats

# Vitamin D Deficiency

Diseases associated with Vitamin D deficiency

(Vitamin D deficiency impacts both the risk of developing chronic diseases and the course of illness)

- Cardiovascular disease: Hypertension, Hyperlipidemia, Coronary Artery Disease, Myocardial Infarction, Heart Failure, and Stroke
- Autoimmune diseases: Type 1 & 2 Diabetes, Lupus, Rheumatoid Arthritis, Multiple Sclerosis (course also altered), Thyroid disease
- **Cognitive Disorders** Alzheimer's, Parkinson's. Schizophrenia, Depression, Anxiety
- Cancers –Breast, Colon, Ovarian, and Prostate (pain and mortality)
- **+Bone disorders**: Rickets/Osteoporosis/ Osteomalacia/Osteopenia/Bone Loss/Risk of Fracture
- Obesity
- ←Fatigue
- Myopathy (muscle weakness and pain)
- Mortality



# Vitamin D3 and Immune Function

Vitamin D is necessary for normal immune function

Low level of vitamin D is associated with

- Reduced level of immunity
- Predisposed to viral and bacterial infections

Benefit of Optimal Vitamin D level is associated with preventing infections (both viral and bacterial) (studies in influenza and COVID-19)

- Protection against contracting the disease if exposed to the virus
- Decreased severity of illness if infected
- Decrease mortality (death) if develop severe infection

# Vitamin D Deficiency

#### Factors contributing to Vitamin D Deficiency

- Poor sunlight exposure
  - Fear of skin cancer from sun exposure has people applying sunscreen and clothing covering up skin
  - Spending fewer hours outdoors
    - Working long hours
    - Sedentary life-style
    - COVID-19 "Stay-at-home directive"
  - Cultures were women cover their bodies
- Elders living in residential facilities or confined at home
- Increasing age (vitamin D naturally decreases with age)
- Fast food diet
- Ethnicity (darker skin)
  - Melanin has photoprotective action and protects the skin from harmful effects of ultraviolet radiation
  - High melanin level (darker skin) inhibits the production of vitamin D in the skin
  - Difficult for dark skinned people to have enough sun exposure to produce sufficient vitamin D

# Vitamin D Deficiency

- 42% US population deficient in vitamin D
  82% Blacks are vitamin D deficient
  - 70% Hispanics are vitamin D deficient
  - +97% Native/First American children are vitamin D deficient

- These 3 ethnic groups have:
  - High rate of obesity, cardiac disease, diabetes and many cancers
  - Disproportionately higher number of COVID-19 + people, higher severity of illness, and the highest death rate
  - Vitamin D deficiency may not directly cause these disease, but observational and controlled trial so a strong correlation, therefore since vitamin D is safe and inexpensive, it should be considered

### Vitamin D Deficiency Factors contributing to Vitamin D Deficiency

#### Are you getting enough vitamin D?

Studies have found many people in northern latitudes are deficient in vitamin D. This deficiency is even more pronounced for people in northern latitudes with darker skin pigmentation.



\*Study: Vitamin D supplementation to prevent acute respiratory tract infections: meta-analysis, BMJ, 15 Feb 2017 See Dr John Campbell's YouTube video 'Vitamin D and immunity', for more information. Graphic: Liz Gould © Selkievisuals.com

#### COVID-19 Deaths in Chicago by Race/Ethnicity



# **Correcting Vitamin D Deficiency**

**The Sun** 

Spend 10-15 minutes in the sun with 40% of your skin exposed daily (UVB rays)

#### Food high in vitamin D

- Cod liver oil, Salmon, Swordfish, Tuna fish, Sardines
- Orange juice fortified with vitamin D
- Dairy and plant milks fortified with vitamin D
- Beef liver
- Egg yolk
- Fortified cereals

#### Consult with your physician:

- ✓ To have your Vitamin D3 level checked
  - ✓ The most accurate way to measure how much vitamin D is in your body is the 25-hydroxyl vitamin D blood test
- ✓ For dietary recommendation
- ✓ For recommended daily supplement dose to optimize your Vitamin D level:
  - Daily dose will be based on your serum vitamin D level, your current health, your ethnicity, and environmental factors (COVID-19, influenza etc)

# Vitamin D Supplements

- Two forms of Vitamin D
  - $\succ$  D<sub>2</sub> and D<sub>3</sub>
  - Ergocalciferol (D2)
    - Ergocalciferol is produced by invertebrates, some plants, lichens and fungi
    - > From ingestion of fortified food, **plant-based** foods, supplements (over-the-counter and prescriptions)

#### Cholecalciferol (D3)

- > 80% made internally (calcitriol) when skin is exposed to the sun's ultraviolet (UV) radiation
  - Sun rays (UVB) hit cholesterols in the skin cell to produce calcifediol is hydroxylated by the kidneys to form calcitriol (aka 1,25-dihydroxycholecalciferol) which circulates in the blood as a hormone regulating the concentration of calcium and phosphate
- > 20% from ingestion of fortified **food**, animal foods, **supplements** (over-the-counter and prescriptions)
- Adequate level 30-50 (ng/ml) (50-125 nmol/L);
- Deficient level less than 12 ng/ml (30 nmol/L)
- During COVID-19 era for Optimal Immune Function level 60-100 ng/ml

1 nmol/L = 0.4 ng/mL ng/ml - nanogram/milliliter



- 50,000 IU = 1,250 mcg (1.25 mg)
- 10,000 IU = 250 mcg
- 5,000 IU = 125 mcg
- 2,000 IU= 50 mcg
- 1,000 IU = 25 mcg
- 400 IU = 10 mcg
- 1 IU = 0.025 mcg

# Vitamin D3

### Correcting Vitamin D Deficiency with Supplements

#### Contact your healthcare provider to

- Get your Vitamin D level check AND
- For recommended dosing, the following is only a general guide

#### Children 1-18 y/o

- D<sub>3</sub> 2000 IU daily for six weeks
- Goal D25(OH)D above 30 ng/ml
- Maintenance D3 600-1,000 IU/day

#### Adults

- D<sub>3</sub> 50,000 IU once a week for 8 weeks or 5000 IU daily
- Goal D25(OH)D above 30 ng/ml
- Maintenance D3 1,500-2,000 IU/day
- If Malabsorption Syndrome, Obesity, African American
  - D3 5000-10000 IU daily (two to three times higher)
  - Goal D25(OH)D above 30 ng/ml
  - Maintenance D3 3000-6000 IU/day

Goal D25(OH)D 60 ng/ml – 80 ng/ml (for optimal immune function)

### Summary:

# VITAMIN D DEFICIENCY

75% OF AMERICANS ARE DEFICIENT IN VITAMIN D3

#### SYMPTOMS OF **D3 DEFICIENCY**

#### YOU'RE AT HIGHER RISK IF YOU HAVE/ARE

Limited Sun • Dark Skin • Pregnant - Elderly - Obese - Infant

CANCER

Vascular System

Immune System

Digestive System

Respiratory System

 MENTAL DISORDERS HEART DISEASE

COLD & FLU

KIDNEY DISEASE DIABETES

#### VITAMIN D3 BENEFITS

- Cell Formation
- Bone Health
- Heart Health
- Skin & Hair Health
- Pancreatic Health
- Reproductive Health Eye Health
  - Mood Health
    - Athletic Performance
    - Aging Process
- Musculatory System
- Weight Management
- Sleep Patterns
- Hearing

#### VITAMIN D3 SOURCES



THE SUN 10-15 min. UVB/day & at least 40% of skin exposed.



#### FISH, EGGS, LIVER Eggs, liver & fatty fish have limited amounts of D3.



#### **D3 SUPPLEMENTS**

Get your levels checked. You may need 10,000 (IU)+

# Remember, the pandemic is not over so continue to the following safety rules



## Thank you – Questions??

Contact Your Healthcare Provider for additional information and instructions.

You are welcome to email me for additional information or to schedule: serum Hemoglobin A1C, Total Cholesterol, and/or Vitamin D level (by appointment only)

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