

Title: Vitamin D Deficiency

Author: Kusuma Nio

Date: November 3, 2009

Key words: vitamin D, chronic pain, musculoskeletal pain

Abstract:

Symptomatic vitamin D deficiency has become increasingly prevalent particularly among the Somali immigrant group living in the Twin Cities Area. Serum vitamin D level should be assessed and the diagnosis of vitamin D deficiency should be considered when dealing with adult Somali females presenting with symptoms of chronic musculoskeletal pain. Additionally, physicians should also consider nutritional screening and provide nutritional guidance or supplementation of vitamin D in asymptomatic patients.

This document was created by a medical student enrolled in the Primary Care Clerkship at the University of Minnesota Medical School as part of the course project. The aim of the project is to present information on a medical topic in the format of a patient education handout. It does not necessarily reflect the views of the University of Minnesota Medical School physicians and faculty. These materials are provided for informational purposes only and are in no way intended to take the place of the advice and recommendations of your personal health care provider. The information provided may no longer be up to date since it has not been reviewed since the date of creation. The information provided should not be used to diagnose a health problem or disease, or as a means of determining treatment. In the event of a medical emergency, immediately contact a doctor or call 911.

SAMPLE MENU

HERE ARE FOOD ITEMS THAT YOU CAN ADD ONTO
YOUR DAILY MENU THAT WILL PROVIDE ENOUGH
VITAMIN D FOR THE DAY:

BREAKFAST:

- 1 SERVING OF FORTIFIED CEREAL - 40 IU
- 1 SERVING OF SKIM MILK - 90 IU

SNACK:

- 1 SERVING OF FORTIFIED CEREAL BAR - 50 IU

LUNCH:

- 1 SERVING OF EGG - 25 IU
- 1 SERVING OF NON FAT YOGURT - 90 IU

SNACK:

- 1 SERVING OF FORTIFIED CEREAL BAR—50 IU

DINNER:

- 1 SERVING OF FATTY FISH/ BEEF LIVER - 30- 300 IU
- 1 SERVING OF NON FAT PUDDING - 50 IU

DAILY TOTAL = 425 - 695 IU



UNIVERSITY OF MINNESOTA
MEDICAL SCHOOL
PRIMARY CARE SELECTIVE

UNIVERSITY OF MINNESOTA
MEDICAL SCHOOL

VITAMIN D
DEFICIENCY: WHAT
DO I NEED TO KNOW?



VITAMIN D DEFICIENCY

WHAT IS VITAMIN D?

VITAMIN D IS AN IMPORTANT SUBSTANCE THE BODY USES TO MAINTAIN STRONG BONES AND TEETH. MOST PEOPLE GET ENOUGH VITAMIN D FROM THE SUN AND DIETARY SOURCES; HOWEVER, SOME PEOPLE ARE AT INCREASED RISK FOR DEVELOPING VITAMIN D DEFICIENCY.



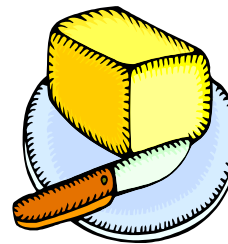
HOW DO I KNOW IF I AM AT RISK?

PEOPLE WHO ARE AT RISK FOR DEVELOPING VITAMIN D DEFICIENCY INCLUDE:

- PEOPLE WHO LIVE IN NORTHERN PART OF THE COUNTRY
- PEOPLE WITH DARK SKIN
- PEOPLE WHO AVOID THE SUN (SUCH AS THOSE WHO WEAR SUNBLOCK OR CLOTHES THAT COVER MOST OF THEIR BODIES)
- PEOPLE WITH DISEASES SUCH AS CELIAC DISEASE OR PANCREATIC DISEASE

WHAT HAPPENS IF I AM LOW?

LOW VITAMIN D CAN LEAD TO WEAKENED BONES AND TEETH. IT CAN ALSO LEAD TO DISEASES SUCH AS RICKETS AND OSTEOMALACIA. HOWEVER, MOST PATIENTS DEVELOP SYMPTOMS THAT ARE VERY COMMON, SUCH AS FATIGUE OR ACHES AND PAINS ON THE JOINTS AND MUSCLES. VITAMIN D DEFICIENCY HAS ALSO BEEN LINKED TO DISEASES SUCH AS CANCER, HEART DISEASE, DIABETES, STROKE, AND OTHERS.



WHAT CAN I DO TO GET MORE VITAMIN D?

IF YOU DON'T GET ENOUGH VITAMIN D FROM THE SUN, YOU MAY NEED MORE FOOD RICH IN VITAMIN D. THE CURRENT GUIDELINES RECOMMEND 400-800 IU OF VITAMIN D. THE TABLE BELOW PROVIDES A LIST OF FOODS THAT ARE RICH IN VITAMIN D.

YOU MAY ALSO WANT TO CONSIDER VITAMIN D SUPPLEMENT, ESPECIALLY IF YOUR DIET DOES NOT PROVIDE ENOUGH VITAMIN D. VITAMIN D SUPPLEMENT IS RELATIVELY SAFE, CHEAP, AND AVAILABLE OVER THE COUNTER. CONSULT YOUR DOCTOR FOR MORE INFOR-



Selected Food Sources of Vitamin D		
Food	International Units	Daily Value, %*
Cod liver oil, 1 tablespoon	1360	340
Salmon, cooked, 3 1/2 ounces	360	90
Mackerel, cooked, 3 1/2 ounces	345	90
Sardines, canned in oil, drained, 3 1/2 ounces	270	70
Eel, cooked, 3 1/2 ounces	200	50
Milk, nonfat, reduced fat, and whole, vitamin D fortified, 1 cup	98	25
Margarine, fortified, 1 tablespoon	60	15
Cereal grain bars, fortified with 10% of the DV, 1 each	50	10
Pudding, 1/2 cup prepared from mix and made with vitamin D fortified milk	50	10
Dry cereal, vitamin D fortified with 10% of DV, 3/4 cup (other cereals may be fortified with more or less vitamin D)	40-50	10
Liver, beef, cooked, 3 1/2 ounces	30	8
Egg, 1 whole (vitamin D is present in the yolk)	25	6

*DV indicates daily value. DVs are reference numbers based on the recommended dietary allowance. They were developed to help consumers determine if a food contains very much of a specific nutrient. The DV for vitamin D is 400 IU. The percent DV listed on the nutrition facts panel of food labels tells adults what percentage of the DV is provided by one serving. Percent DVs are based on a 2000-calorie diet. Your DVs may be higher or lower depending on your calorie needs. Foods that provide lower percentages of the DV will contribute to a healthful diet. Source: Clinical Nutrition Service. Facts About Dietary Supplements: Vitamin D. Bethesda, Md: National Institutes of Health, 2002.