Good afternoon!

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Nutrition Through the Life Cycle
Nutr 251
Spring Semester 2017-2018
Group Project

Students will work in groups of three and write a research paper and brief class presentation on a nutrition related topic. The topics will be randomly assigned to groups. The group will need to conduct a literature search which includes a minimum of 8-10 references. Review the material and write a paper. The paper should be 8-10 pages in length (this does NOT include the reference page, which should be separate), double spaced, one inch margins on all sides, 12 point font, Calibri or Times New Roman font style.

All papers must use APA style for in text citations and reference lists. The failure to cite information that is not common knowledge is considered a form of plagiarism. Please be sure to correctly cite all information in your papers.

Only scholarly journals or peer reviewed journals are considered reputable sources. You may include websites, but they must be reputable. Note, Wikipedia is not a good source by itself; you must look up and cite the original source for full credit. Half of your sources must be original research; the others may be review articles from peer reviewed journals. You may also use material/chapters from textbooks, especially as background material explaining your topic.

The research paper should contain an introduction to the topic stating the goal or objective of the paper, your body of evidence and a summary or conclusion. Remember you are looking for the nutritional component and/or behavior pattern in the topic you are given. So this could be how the condition affects nutritional status, how the condition is alleviated through proper nutrition or the effect proper nutrition has on the condition or how behaviors are altered by the condition. Maybe it will cover treatment options. This part will depend on what you find in the available research.
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Epidemiology

Vitamin D Deficiency and Risk of Cardiovascular Disease

Thomas J. Wang, MD; Michael J. Pencina, PhD; Sarah L. Booth, PhD; Paul F. Jacques, DSc; Erik Ingelsson, MD, PhD; Katherine Lanier, BS; Emelia J. Benjamin, MD, MSc; Ralph B. D’Agostino, PhD; Myles Wolf, MD, MMSc*; Ramachandran S. Vasan, MD*

Background—Vitamin D receptors have a broad tissue distribution that includes vascular smooth muscle, endothelium, and cardiomyocytes. A growing body of evidence suggests that vitamin D deficiency may adversely affect the cardiovascular system, but data from longitudinal studies are lacking.

Methods and Results—We studied 1739 Framingham Offspring Study participants (mean age 59 years; 55% women; all white) without prior cardiovascular disease. Vitamin D status was assessed by measuring 25-dihydroxyvitamin D (25-OH D) levels. Prespecified thresholds were used to characterize varying degrees of 25-OH D deficiency (<15 ng/mL, <10 ng/mL). Multivariable Cox regression models were adjusted for conventional risk factors. Overall, 28% of individuals had levels <15 ng/mL, and 9% had levels <10 ng/mL. During a mean follow-up of 5.4 years, 120 individuals developed a first cardiovascular event. Individuals with 25-OH D <15 ng/mL had a multivariable-adjusted hazard ratio of 1.62 (95% confidence interval 1.11 to 2.36, P=0.01) for incident cardiovascular events compared with those with 25-OH D ≥15 ng/mL. This effect was evident in participants with hypertension (hazard ratio 2.13, 95% confidence interval 1.30 to 3.48) but not in those without hypertension (hazard ratio 1.04, 95% confidence interval 0.55 to 1.96). There was a graded increase in cardiovascular risk across categories of 25-OH D, with multivariable-adjusted hazard ratios of 1.53 (95% confidence interval 1.00 to 2.36) for levels 10 to <15 ng/mL and 1.80 (95% confidence interval 1.05 to 3.08) for levels <10 ng/mL (P for linear trend=0.01). Further adjustment for C-reactive protein, physical activity, or vitamin use did not affect the findings.

Conclusions—Vitamin D deficiency is associated with incident cardiovascular disease. Further clinical and experimental studies may be warranted to determine whether correction of vitamin D deficiency could contribute to the prevention of cardiovascular disease. (*Circulation. 2008;117:503-511. *)

Key Words: cardiovascular diseases ■ risk factors ■ vitamin D

Vitamin D deficiency is highly prevalent in the United States and worldwide.1 Low levels of 25-dihydroxyvitamin D (25-OH D) have been associated with increased cardiovascular risk in both men and women.2-5 In vitro, activated 1,25-dihydroxyvitamin D (1,25-OH D) di-
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Vitamin D deficiency is highly prevalent in the United States and worldwide.1 Low levels of 25-dihydroxyvitamin D (25-OH D) play a critical role in regulation of calcium and phosphate homeostasis,2 and more recently, in the prevention of cardiovascular diseases.3-4 In vitro, activated 1,25-dihydroxyvitamin D (1,25-OH D) di-
Diagnosis and management of vitamin D deficiency

Simon H S Pearce,12 Tim D Cheetham

Rickets in children and osteomalacia in adults are the classic manifestations of profound vitamin D deficiency. In recent years, however, non-musculoskeletal conditions—including cancer, metabolic syndrome, infectious and autoimmune disorders—have also been found to be associated with low vitamin D levels.1 The spectrum of these common disorders is of particular concern because observational studies have demonstrated that vitamin D insufficiency is widespread in many northern regions of the world, including industrialised countries.2,3 The increasing prevalence of disorders linked to vitamin D deficiency is reflected in the several hundred children with rickets treated each year in the UK.4 However, these children represent a small proportion of the individuals with a suboptimal vitamin D status in the UK population.4,5

A recent nationwide survey in the United Kingdom showed that more than 50% of the adult population have insufficient levels of vitamin D and that 16% have severe deficiency during winter and spring.6 The survey also demonstrated a gradient of prevalence across the UK, with highest rates in Scotland, northern England, and Northern Ireland.7 People with pigmented skin are at high risk, as are the elderly, obese individuals; those with malabsorption, short bowel, or renal or liver disease; and individuals taking anticonvulsants, rifampicin, or highly active antiretroviral drugs.

In this article we discuss the diagnosis and management of vitamin D insufficiency and deficiency in children and adults according to evidence from descriptive and observational studies, randomised trials, and meta-analyses.
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Box 1 | Sources of vitamin D

- Ultraviolet B sunlight exposure
- >90% of humankind’s vitamin D supply is derived from ultraviolet B light
- Oily fish including trout, salmon, mackerel, herring, sardines, anchovies, pilchards, and fresh tuna
- Amount will depend on preparation, with smoked herring containing approximately 4 μg (160 IU) per 100 g and raw herring 40 μg (1600 IU) per 100 g
- Cod liver oil and other fish oils
- Egg yolks
- 0.5 μg (20 IU) per yolk
- Mushrooms
- Small quantities
- Supplemented breakfast cereals, mainly supermarket "own brands" in the UK
- Typically between 2 μg and 8 μg (80-320 IU) per 100 g
- Margarine and infant formula milk
- Statutory supplementation in the UK

What are the sources of vitamin D?

Vitamin D refers to the precursors of the active secosteroid hormone 1,25-dihydroxyvitamin D3 (1,25(OH)2D3), also known as calcitriol. The major natural source of vitamin D is from skin photosynthesis following ultraviolet B solar irradiation (box 1).

In a fair skinned person, 20 minutes to 30 minutes of sunlight exposure on the face and forearms at midday is estimated to generate the equivalent of around 2000 IU of vitamin D. Two or three such sunlight exposures a week are sufficient to achieve healthy vitamin D levels in summer.
I. Working with your project topics

*Brainstorm research questions, focus areas, and keywords for searching.*

II. Information management & sharing plans

*How will you manage and organize the information you find?*

III. Finding sources

*What types of information do you need, and where / how will you find it?*

IV. Wrap-up
Exercise during and after pregnancy, weight gain and loss
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• How much should women be exercising during and after pregnancy?
• How much weight should women gain during pregnancy?
• How long should it take women to lose pregnancy weight gained post-partum?
• How much exercise and what type is safe during pregnancy and the post-partum period?
• How does weight gain affect women during pregnancy?
• How does nutrition affect weight gain during pregnancy?
Exercise during and after pregnancy, weight gain and loss

**Exercise**
- Physical activity
- Physical fitness

**Pregnancy**
- Post-partum
- Pregnant

**Weight gain & loss**
- Weight gain
- Weight loss
What are potential research questions or areas of focus related to your topic?

What are the major concepts and keywords for each?
How will you manage and organize the information you find?

Where and how will you store and share what you find?

Will you create separate files for each question? Will you divide questions among group members, or will each question be a collaborative effort?