

Record: 1

Title: Does Vitamin D Reduce the Risk of Dementia?
Authors: Grant, William B.¹ *wbgrant@infionline.net*
Source: Journal of Alzheimer's Disease; 2009, Vol. 17 Issue 1, p151-159, 9p, 2 Charts

Document Type: Article

Subject Terms: *VITAMIN D
*ALZHEIMER'S disease
*DEMENTIA
*NEUROBEHAVIORAL disorders
*PERIODONTAL disease
*TOOTH loss
*ULTRAVIOLET radiation -- Physiological effect

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Keywords:** Alzheimer's disease
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vitamin D

Abstract: The understanding of the role of vitamin D in maintaining optimal health has advanced sharply in the past two decades. There is mounting evidence for beneficial roles for vitamin D in reducing the risk of bone diseases and fractures, many types of cancer, bacterial and viral infections, autoimmune diseases, and cardiovascular diseases. Recently, several reports have also been published regarding the role of vitamin D in neuroprotection. This article develops the hypothesis that vitamin D can reduce the risk of developing dementia, presenting the evidence from observational and laboratory studies. The observational evidence includes that low serum 25-hydroxyvitamin D [25(OH)D] has been associated with increased risk for cardiovascular diseases, diabetes mellitus, depression, dental caries, osteoporosis, and periodontal disease, all of which are either considered risk factors for dementia or have preceded incidence of dementia. The laboratory evidence includes several findings on the role of vitamin D in neuroprotection and reducing inflammation. Although this evidence is supportive, there do not appear to be observational studies of incidence of dementia with respect to prediagnostic serum 25(OH)D or

vitamin D supplementation. Such studies now appear to be warranted.

[ABSTRACT FROM AUTHOR]

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Record: 1

- Title:** Reduced Serum Levels of 25-Hydroxy and 1,25-Dihydroxy Vitamin D in Egyptian Children with Autism.
- Authors:** Meguid, Nagwa A.
Hashish, Adel F.
Anwar, Mona
Sidhom, Gloria
- Source:** Journal of Alternative & Complementary Medicine, Jun2010, Vol. 16 Issue 6, p641-645; , 5p
- Document Type:** Article
- Subject Terms:** VITAMIN D -- Therapeutic use
AUTISM in children -- Treatment
CHILDREN with disabilities -- Care
SERUM
CROSS-sectional method
- Abstract:** Objective: The aim of this study was to investigate the potential role of vitamin D in autism through serum level assessment. Design: This was a case-controlled cross-sectional study. Setting: The study was conducted at the Out-patient Clinic for "Children with Special Needs" at the Medical Services Unit of the National Research Centre in Cairo, Egypt. Subjects: Seventy (70) children with autism diagnosed according to the DSM-IV criteria of the American Psychiatric Association were recruited for this study. The mean age \pm standard deviation (SD) of the patients was 5.3 ± 2.8 years. Controls included 42 age-matched randomly selected healthy children of the same socioeconomic status (mean age \pm SD, 6.1 ± 1.8 years). Methods: Circulating levels of both forms of vitamin D (25(OH)D and 1,25(OH)₂D) and serum calcium were measured for all subjects. Associations between vitamin D status, birth season, and clinical characteristics of autism were examined. Results: Children with autism had significantly lower 25(OH)D ($p < 0.00001$) and 1,25(OH)₂D ($p < 0.005$) as well as lower calcium ($p < 0.0001$) serum values than the controls. A significant positive correlation was obtained between 25(OH)D and calcium (correlation coefficient $r = 0.309$, $p < 0.01$) within the children with autism. No significant difference was found on comparison of birth month and season of birth between children with autism and healthy controls. Furthermore, associations linking parental consanguinity or convulsions with vitamin D could not be established. Conclusions: Serum values of 25(OH)D in the children with autism of this study could classify them as being "vitamin D inadequate," which lends support to the

hypothesis that autism is a vitamin D deficiency disorder. [ABSTRACT FROM AUTHOR]

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Record: 1

Title: Serum 25-Hydroxyvitamin D in Infantile Rickets.

Authors: Arnaud, Sara B.
Stickler, Gunnar B.
Haworth, James C.

Source: Pediatrics; Feb76, Vol. 57 Issue 2, p221, 5p

Document Type: Article

Subject Terms: *VITAMIN D deficiency
*RICKETS
*HYPOPHOSPHATEMIA, Familial
*PARATHYROID hormone

Abstract: Abstract. In small children with nutritional vitamin D deficiency, the serum concentration of 25-hydroxyvitamin D (25-OH-D), the major circulating metabolite of vitamin D, was correlated with the stage of clinical disease. It was low (16 to 20 ng/ml) but within the normal range in the earliest (hypocalcemic) stage of the deficiency syndrome and decreased (< 15 ng/ml) in the more advanced stages. In patients with familial hypophosphatemia (X-linked dominant), mean serum 25-OH-D concentration was the same as in age-matched normal controls. Evidence is presented that endogenous parathyroid hormone may have a role in the depletion of serum 25-OH-D in deficiency states. Pediatrics, 57:221-225, 1976, RICKETS, VITAMIN D DEFICIENCY, FAMILIAL HYPOPHOSPHATEMIA (X-LINKED DOMINANT), SERUM 25-HYDROXYVITAMIN D, PARATHYROID HORMONE. [ABSTRACT FROM AUTHOR]

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Database: Academic Search Premier

Record: 1

Title: Maternal vitamin D deficiency increases the risk of preeclampsia.

Authors: Bodnar LM; Catov JM; Simhan HN; Holick MF; Powers RW; Roberts JM

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Publication Type: Journal Article; Research Support, N.I.H., Extramural

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MeSH Terms: Pre-Eclampsia/*etiology
Vitamin D Deficiency/*complications
Adolescent; Adult; Calcitriol/blood; Case-Control
Studies; Female; Gestational Age; Humans; Infant,
Newborn; Mothers; Motor Activity/physiology; Pre-Eclampsia/blood; Pre-Eclampsia/ethnology; Pregnancy; Pregnancy
Complications/blood; Pregnancy Outcome; Pregnancy Trimester,
First/blood; Risk Factors; Socioeconomic Factors; Vitamin D
Deficiency/blood

Abstract: **Context:** Vitamin D has direct influence on molecular pathways proposed to be important in the pathogenesis of preeclampsia, yet the vitamin D-preeclampsia relation has not been studied.
Objectives: We aimed to assess the effect of maternal 25-hydroxyvitamin D [25(OH)D] concentration on the risk of preeclampsia and to assess the vitamin D status of newborns of preeclamptic mothers.
Design and Setting: We conducted a nested case-control study of pregnant women followed from less than 16 wk gestation to delivery (1997-2001) at prenatal clinics and private practices.
Patients: Patients included nulliparous pregnant women with singleton pregnancies who developed preeclampsia (n = 55) or did not develop preeclampsia (n = 219). Women's banked sera were newly measured for 25(OH)D.
Main Outcome Measure: The main outcome measure was preeclampsia

(new-onset gestational hypertension and proteinuria for the first time after 20 wk gestation). Our hypotheses were formulated before data collection.

Results: Adjusted serum 25(OH)D concentrations in early pregnancy were lower in women who subsequently developed preeclampsia compared with controls [geometric mean, 45.4 nmol/liter, and 95% confidence interval (CI), 38.6-53.4 nmol/liter, vs. 53.1 and 47.1-59.9 nmol/liter; $P < 0.01$].

There was a monotonic dose-response relation between serum 25(OH)D concentrations at less than 22 wk and risk of preeclampsia. After confounder adjustment, a 50-nmol/liter decline in 25(OH)D concentration doubled the risk of preeclampsia (adjusted odds ratio, 2.4; 95% CI, 1.1-5.4). Newborns of preeclamptic mothers were twice as likely as control newborns to have 25(OH)D less than 37.5 nmol/liter (adjusted odds ratio, 2.2; 95% CI, 1.2-4.1).

Conclusions: Maternal vitamin D deficiency may be an independent risk factor for preeclampsia. Vitamin D supplementation in early pregnancy should be explored for preventing preeclampsia and promoting neonatal well-being.

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Substance Nomenclature: 32222-06-3 (Calcitriol)

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Record: 1

Title: Association between vitamin D deficiency and primary cesarean section.

Authors: Merewood A; Mehta SD; Chen TC; Bauchner H; Holick MF

Author Address: Department of Pediatrics, Division of Endocrinology, Diabetes, and Nutrition, Boston University School of Medicine, and Division of General Pediatrics, Boston Medical Center, Boston, Massachusetts 02118, USA.

Source: The Journal Of Clinical Endocrinology And Metabolism [J Clin Endocrinol Metab] 2009 Mar; Vol. 94 (3), pp. 940-5. *Date of Electronic Publication:* 2008 Dec 23.

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MeSH Terms: Cesarean Section/*statistics & numerical data
Vitamin D Deficiency/*complications
Adult; Calcium/blood; Female; Humans; Infant, Newborn; Logistic Models; Male; Pregnancy; Vitamin D/analogs & derivatives; Vitamin D/blood

Abstract: **Background:** At the turn of the 20th century, women commonly died in childbirth due to rachitic pelvis. Although rickets virtually disappeared with the discovery of the hormone vitamin D, recent reports suggest vitamin D deficiency is widespread in industrialized nations. Poor muscular performance is an established symptom of vitamin D deficiency. The current U.S. cesarean birth rate is at an all-time high of 30.2%. We analyzed the relationship between maternal serum 25-hydroxyvitamin D [25(OH)D] status, and prevalence of primary cesarean section.
Methods: Between 2005 and 2007, we measured maternal and infant serum 25(OH)D at birth and abstracted demographic and medical data from the maternal medical record at an urban teaching hospital (Boston, MA) with 2500 births per year. We enrolled 253 women, of whom 43 (17%) had a primary cesarean.
Results: There was an inverse association with having a cesarean section and serum 25(OH)D levels. We found that 28% of women with serum 25 (OH)D less than 37.5 nmol/liter had a cesarean section, compared with only 14% of women with 25(OH)D 37.5nmol/liter or greater (P = 0.012). In

multivariable logistic regression analysis controlling for race, age, education level, insurance status, and alcohol use, women with 25(OH)D less than 37.5 nmol/liter were almost 4 times as likely to have a cesarean than women with 25(OH)D 37.5 nmol/liter or greater (adjusted odds ratio 3.84; 95% confidence interval 1.71 to 8.62).

Conclusion: Vitamin D deficiency was associated with increased odds of primary cesarean section.

Comments:

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Cites: Clin Pediatr (Phila). 2007 Jan;46(1):42-4. (PMID: 17164508)

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From The Times

October 10, 2009

Vitamin D 'may cut premature birth risk and protect newborn babies'

Oliver Gillie in Bruges

Powerful new evidence about the way that vitamin D can reduce the risk of premature births and boost the health of newborn babies has emerged from an international research conference in Bruges. Delegates were told that mothers who were given ten times the usual dose of vitamin D during pregnancy had their risk of premature birth reduced by half and had fewer small babies.

The findings emerge after evidence, revealed in The Times, that vitamin D — the "sunshine vitamin" — could have a dramatic effect in combating Scotland's appalling health record. Statistics showing that Scots — particularly in the west — are exposed to less sunshine than those living farther south correlate exactly with higher incidences of heart disease, some cancers and multiple sclerosis. The Times has campaigned to have vitamin D recommended and prescribed as part of a national health programme.

The vitamin's benefits have been observed previously in uncontrolled studies of pregnant women and babies, but this is the first time they have been found in a scientific trial which met the most stringent criteria for "evidence-based inquiry". The findings may make it necessary for health departments to revise advice presently given to pregnant and breastfeeding women in the UK.

The investigators, Dr Bruce Hollis and Dr Carol Wagner of the Medical University of South Carolina, Charleston, met rigorous safety tests which were required by the Federal Drug Administration. The study was funded by the National Institutes of Health. The women, who all lived around Charleston, South Carolina, began taking 4,000 IUs per day of vitamin D after their first clinic visit at about three months of pregnancy. (4,000 IUs or international units equals 100 micrograms). A control group took 400 IUs, equivalent to the normal recommended dose in the US and UK. The women had their blood and urine tested monthly to ensure calcium and vitamin D levels were within safe limits.

Over the 2½ years of the study thousands of tests were made and monitored by an external safety committee. No test showed any adverse effect of the large dose of vitamin D. The average level of vitamin D in the women's blood increased by about 50 per cent.

About 600 women took part in the trial which included similar numbers of African Americans, Hispanic Americans and whites. Premature babies born to women taking high doses of vitamin D were reduced by half at both 32 and 37 weeks, and there were also fewer babies who were born "small for dates" — that is smaller than would be expected considering the length of time spent in the womb.

The women had a 25 per cent reduction in infections, particularly respiratory infections such as colds and flu as well as fewer infections of the vagina and the gums. The "core morbidities of pregnancy" were also reduced by 30 per cent in the women who took the high-dose vitamin D.

These included diabetes, raised blood pressure, and pre-eclampsia, an increase in blood pressure and fluid which may, if untreated, cause the death of the mother and/or the baby. Babies getting most vitamin D after birth suffered from fewer colds and less eczema.

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The Charleston team is running another trial in breastfeeding women who are taking 6,400 IUs per day, a dose 16 times the amount of vitamin D recommended in the UK. This high dose enables women to make breast milk which has sufficient vitamin D for the baby's needs, 400 IUs per day.

The American investigations used vitamin D3, the human form of the vitamin which is more potent than the vitamin D2, the plant form present in Abidec, the vitamin mixture usually recommended for babies in the UK.

"I'm telling every pregnant mother I see to take 4,000 IUs and every nursing mother to take 6,400 IUs of vitamin D a day," said Dr Hollis. "I think it is medical malpractice for obstetricians not to know what the vitamin D level of their patients is. This study will put them on notice."

Five years ago the UK National Institute of Clinical Excellence told doctors that women in Britain did not need to take vitamin D in pregnancy advice later overruled by the Chief Medical Officer.

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BEHIND THE STORY

The normally recommended level of sun exposure in the UK does not produce enough vitamin D, according to a separate study reported at the Bruges meeting (Oliver Gillie writes). Sunlight is the main source of vitamin D in the UK as elsewhere and so advice on sun exposure is crucial for health. Food cannot supply more than 10 per cent of what is needed.

Dr Jackie Berry, and Dr Ann Webb and others from the University of Manchester studied the effect of sunlamp treatment, which simulated summer sun in the UK, on 120 white volunteers who wore only a T-shirt and shorts. The treatments were given three times a week for six weeks in winter when blood levels of vitamin D are low and only 26 per cent of the volunteers obtained optimum blood levels as a result of the treatments.

This new research shows that advice, still given in the UK, that casual exposure of hands and face provides sufficient vitamin D is completely wrong. Revised advice from the Department of Health in December 2007 suggested that pregnant women would get sufficient vitamin D if they exposed shoulders as well as arms and legs. But this too is now shown to be insufficient by the study of simulated "British sunlight".

To get optimum benefit from sunbathing as many clothes as possible should be removed, or it should be done more often than three times a week, or for longer than 13 minutes a day. All these increases in exposure can be difficult to achieve especially when sunny weather seldom lasts for six consecutive weeks in the UK.

In wintertime in the UK the optimal level of vitamin D can only be obtained by taking a supplement because the sun is too weak. The Standing Committee of European Doctors is preparing a report on vitamin D which is expected to recognise, contrary to advice in the UK, that everyone, apart from young children, needs a vitamin D supplement of at least 1,000 IUs a day and probably 2,000 for full health.


The higher 2000 figure is supported by observational studies of groups of people showing higher levels of vitamin D are associated with a reduced risk of cancer, heart disease and immune system diseases as well as classic bone diseases, but as yet there are relatively few controlled scientific trials of higher doses.

Patients with hip fractures in Boston, in the US, taking 2000 IUs of vitamin D had 60 per cent fewer complications and 90 per cent fewer infections than patients who received a placebo in a double blind randomised trial, the Bruges workshop was told. They were also 40 per cent less likely to be readmitted to hospital, said the study leader Dr Beth Dawson-Hughes of Tufts University, Boston.

PREVIOUS PAGE

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Study: Vitamin D could help fight hepatitis C

Already heralded in battling cancer, Vitamin D may also be key to curing hepatitis. But Israelis, especially the ultra-Orthodox, are woefully deficient.

By Dan Even

Tags: [Israel health](#) [Israel news](#)

A new study has found that administering vitamin D to hepatitis C patients dramatically reduces the presence of the virus in the blood.

The study, carried out at Rebecca Sieff Hospital in Safed and Hillel Yaffeh Medical Center in Hadera by Dr. Assy Nimer and Dr. Saif Abu-Mouch covered 90 hepatitis C patients.

The findings were presented in late November at a conference of the American Association for the Study of Liver Diseases.

For six months, in addition to the standard treatment, which included Interferon once a week and a daily dose of the antiviral drug Ribavirin, 30 patients were also treated with 1,000 units of vitamin D a day. A control group of 60 patients went without the vitamin.

In order to assess the impact of vitamin D on the treatment of the disease, before starting the study, all patients, including those from the control group and those who were found to have a vitamin D deficiency, were given supplements, so that all participants began the study from the same point.

A month after the start of treatment, the virus had disappeared from the blood in 44 percent of the group receiving vitamin D supplements, as opposed to just 18 percent among the control group.

After three months, the success rate for the group getting the supplement rose to 96 percent, compared to 48 percent in the control group.

Other findings from the study, which will be presented next month in Kfar Blum at a conference of the Israeli Association for the Study of the Liver, indicate that this trend continues even after the end of drug treatment.

The initial results show that six months after the end of treatment, 90 percent of patients treated with drug therapy and vitamin D supplements had the virus disappear and completely recovered.

"The drug treatment for hepatitis C patients is usually administered for around a year, and occasionally the virus disappears from the blood, but remains in other places, for example, in the liver and lymph glands," explained Nimer, the director of the Liver Disease Unit at Rebecca Sieff Hospital. "At the end of the treatment, the virus may return to the blood, but we found that in patients who were also given the vitamin D supplement, the virus did not return, that is, it was excreted by the body."

How vitamin D helps improve the condition of hepatitis patients is not entirely clear. However, according to Nimer, "It has already been proven that vitamin D benefits the immune system by increasing the activity of T cells [white blood cells that help in the fight against pathogens], improves the body's reaction to the insulin hormone, and reduces the level of pro-inflammatory proteins that cause liver infections caused by viruses."

The findings have important ramifications, mainly in light of the difficulty in effectively treating all patients with hepatitis C, a disease that has become the leading cause of cirrhosis of the liver and the need for liver transplants, and thereby the number one cause of liver cancer.

It is the only form of hepatitis for which no vaccine has been developed yet.

"The proteins surrounding the virus change constantly and it is difficult to create a vaccine against it," Nimer said.

There are some 300 people believed to be living in Israel with hepatitis C and receiving drug therapy. World Health Organization data indicates that this is an infectious disease with global reach: in the United States, 2 million-4 million patients are diagnosed annually, 5 million-15 million patients in Europe, and 12 million patients in India. Most of them are unaware they have been infected and are not receiving drug therapy, which increases the risk of a worsening of liver function.

There is also an incidence of disease in Japan, where some 350,000 new cases are diagnosed annually, and in Egypt, where 20 percent of blood donors are rejected as carriers of hepatitis C.

The virus is spread primarily by coming into contact with tainted blood, either through blood donation or unsterilized syringes, mainly among narcotics users.

The risk of being infected during unprotected sex is low - around 2-3 percent.

In recent years medical literature has highlighted vitamin D as effective in reducing the risk of various diseases, including infectious diseases, diabetes and even breast cancer, prostate cancer and colon cancer. It also increases the effectiveness of treatment for cancer patients.

An article published in 2006 suggested the possibility that a vitamin D deficiency during the sunless days of winter is the cause of flu outbreaks and increases the risk of respiratory illness in children, even though articles published later countered those findings.

Let the sunshine in

Vitamin D is absorbed from the sun's rays, but according to recently conducted studies over the past few years, even in sunny Israel, a substantial part of the population suffers from a Vitamin D deficiency.

A survey conducted at Rambam Medical Center in Haifa found that there is a severe shortage of vitamin D in the ultra-Orthodox community due to their modest dress, which shields most of the body from the sun's rays.

A survey conducted a year and a half ago at the Kupat Holim Meuhedet health maintenance organization, which checked vitamin levels in the blood in children up to the age of 19, found an average level of 22 nanograms per milliliter of vitamin D. This amount is only two-thirds of the recommended level (32 units).

In the ultra-Orthodox Kiryat Sanz neighborhood in Netanya, an especially severe shortage was found, with an average of 18.5 units. However even in the Jerusalem neighborhood of Baka, which is partially secular, the average level measured was still only 29 units.

About two years ago, Prof. Sophia Ish-Shalom of Rambam found that young high-tech workers also have a vitamin D deficiency, due to the many hours spent working in offices during daylight hours.

Around 5-10 percent of vitamin D levels are obtained from foods, especially salmon, sardines, mackerel, cod, tuna and egg yolks. Vitamin D levels are measured in international units.

At the U.S. National Academy of Science's National Institute of Health, the recommended daily consumption is 200 units of vitamin D up until age 40, 500 units from age 51-70 and 600 units from age 71 on.

Many experts argue that the recommendations are too low, and the issue is under discussion in professional medical associations in the West.

In recent months, the Health Ministry has begun promoting a plan to increase vitamin D levels among Israelis, by enriching milk drinks, approving the import of nutritional supplements that contain vitamin D in higher doses and increasing awareness of the importance of the vitamin among pregnant women and among children, among other tactics.

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