

Vitamina D e malattie reumatiche

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Vitamin D and...

- Rheumatoid arthritis
- Chronic musculoskeletal pain
- Glucocorticoids

Vitamin D Intake Is Inversely Associated With Rheumatoid Arthritis

- Aim: to evaluate the association of dietary/supplemental vitamin D intake with rheumatoid arthritis (RA) incidence
- Data from a prospective cohort study of 29,368 women of ages 55–69 years without a history of RA at study baseline in 1986. Diet was ascertained using a self-administered, 127-item validated food frequency questionnaire that included supplemental vitamin D use
- Through 11 years of follow up, 152 cases of RA were validated against medical records

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Table 2. Relative risks (RRs) and 95% confidence intervals (95% CIs) for risk of rheumatoid arthritis according to intake of vitamin D from food and supplements, Iowa Women's Health Study, 1986–1997

Vitamin D measure, IU/day*	Cases	Person-years	Age-adjusted RR (95% CI)	Multivariable-adjusted RR (95% CI)†
Total				
<221.4	64	103,613	1.00 (referent)	1.00 (referent)
221.4–467.6	42	103,741	0.64 (0.43–0.97)	0.67 (0.45–1.01)
≥467.7	46	106,827	0.67 (0.45–1.00)	0.67 (0.44–1.00)
<i>P</i> for trend			0.05	0.05
Dietary				
<169	59	103,586	1.00 (referent)	1.00 (referent)
169–289.9	50	103,750	0.81 (0.55–1.21)	0.87 (0.58–1.29)
≥290	43	106,845	0.68 (0.44–1.06)	0.72 (0.46–1.14)
<i>P</i> for trend			0.09	0.16
Supplemental				
Nonusers	109	200,008	1.00 (referent)	1.00 (referent)
<400	13	37,423	0.64 (0.36–1.14)	0.65 (0.36–1.15)
≥400	30	76,750	0.69 (0.46–1.04)	0.66 (0.43–1.00)
<i>P</i> for trend			0.05	0.03

* Tertiles of standard supplemental dose.

† Adjusted for age, caloric intake, smoking status, hormone replacement therapy, decaffeinated coffee consumption, and β -cryptoxanthin intake.

Exposure to ultraviolet-B and risk of developing rheumatoid arthritis among women in the Nurses' Health Study

- Aim: To examine the association between UV-B **light exposure** and **RA risk** among women in two prospective cohort studies, the Nurses' Health Study (NHS) and the Nurses' Health Study II (NHSII)
- A total of **106 368 women from NHS**, aged 30–55 years in 1976, and **115 561 women from NHSII**, aged 25–42 in 1989, were included in the analysis
- 1314 women were identified with incident RA from the start of each cohort until 2008 (NHS) and 2009 (NHSII)

Exposure to ultraviolet-B and risk of developing rheumatoid arthritis among women in the Nurses' Health Study

Table 3 HR of incident rheumatoid arthritis, according to cumulative average UV-B exposure in NHS and NHSII

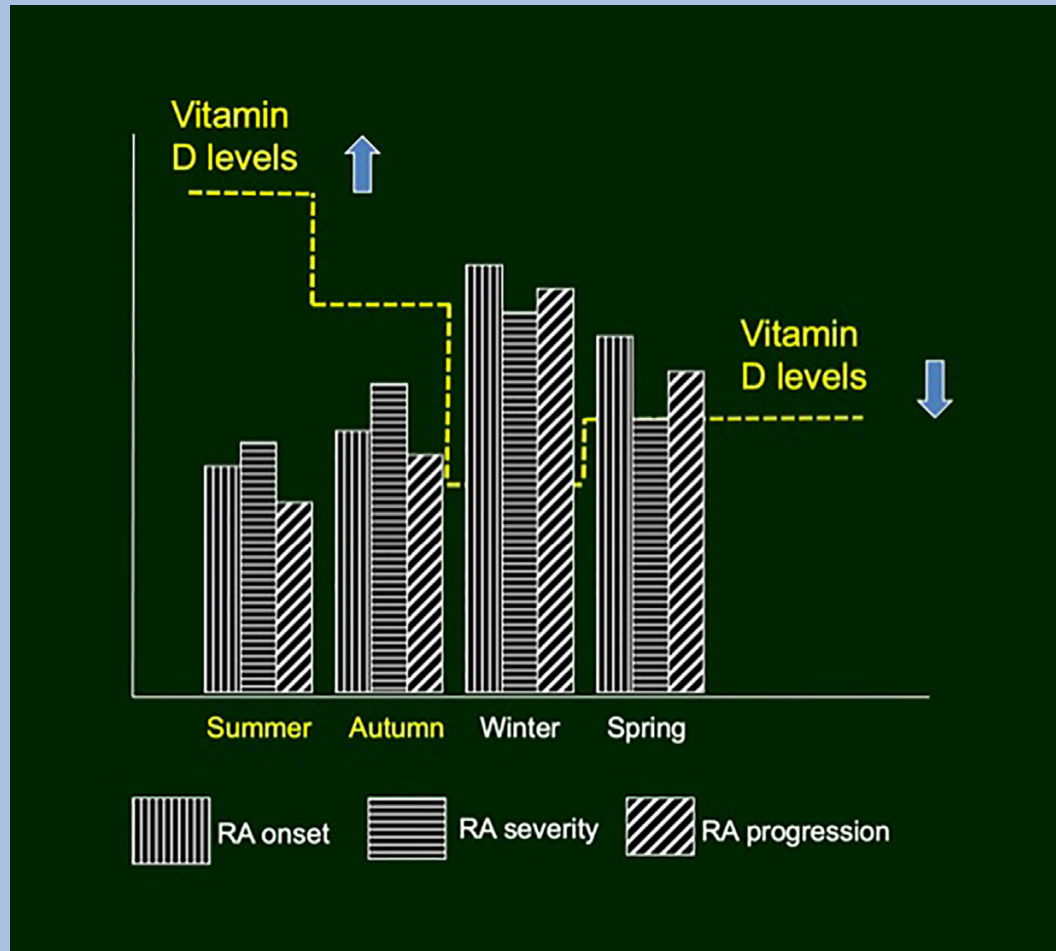
	Cumulative average UV-B*			
	Low	Medium	High	p Trend
NHS				
Median UV-B	104	113	164	
RA cases/person-years	374/1 038 261	340/1 120 965	219/739 207	
Age-adjusted HR (95% CI)	1.0 (ref)	0.84 (0.73 to 0.98)	0.79 (0.67 to 0.93)	0.004
Multivariable-adjusted HR† (95% CI)	1.0 (ref)	0.84 (0.73 to 0.98)	0.79 (0.66 to 0.94)	0.005
NHSII				
Median UV-B	104	113	145	
RA cases/person-years	101/600 134	108/558 559	172/883 582	
Age-adjusted HR (95% CI)	1.0 (ref)	1.10 (0.84 to 1.45)	1.12 (0.87 to 1.43)	0.39
Multivariable-adjusted HR† (95% CI)	1.0 (ref)	1.04 (0.79 to 1.37)	1.12 (0.87 to 1.44)	0.37

*Low: ≤ 109 Robertson–Berger units $\times 10^{-4}$ (R-B), medium: > 109 to ≤ 117 R-B, high: > 117 R-B.

†Adjusted for age, pack-years smoking, parity, breast feeding, physical activity, alcohol consumption, race, husband's education, census-tract median income, postmenopausal status and hormone use, mean number of rheumatologists per zip code.

HR, hazard ratio; RA, rheumatoid arthritis; UV-B, ultraviolet-B.

Influence of seasonal Vit D changes on clinical manifestations of RA



Efficacy of Oral Vitamin Supplementation in Inflammatory Rheumatic Disorders: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

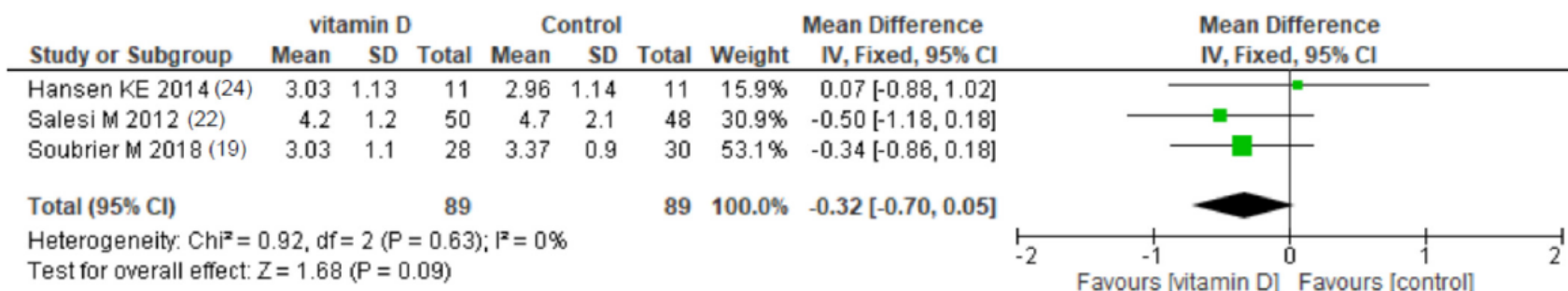


Figure 5. Meta-analysis of randomized controlled trials assessing the efficacy of vitamin D supplementation on DAS-28. Fixed effect model.

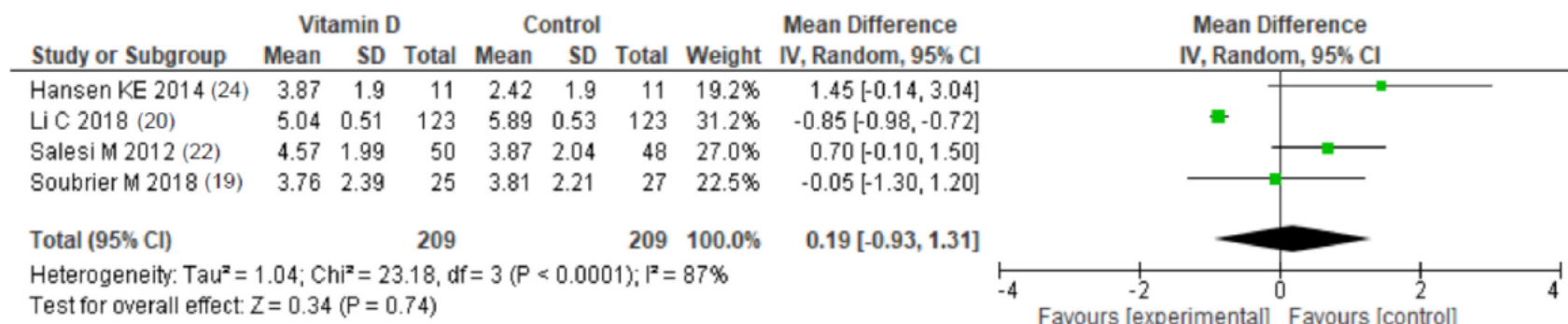


Figure 6. Meta-analysis of randomized controlled trials assessing the efficacy of vitamin D supplementation on visual analog scale for pain. Fixed effect model.

Vit D and RA - Summary

- There is observational evidence that higher vitamin D intake and higher sun exposure may reduce the risk of developing RA. However, there is no demonstration from a clinical trial that vitamin D supplementation can reduce the risk of incident RA
- There is modest evidence that vitamin D supplement or the oral administration of 1,25(OH)₂D can mitigate the disease severity of RA
- Further large-scale randomized clinical trials are required (pre- and post-treatment levels of 25OHD, individual dose)

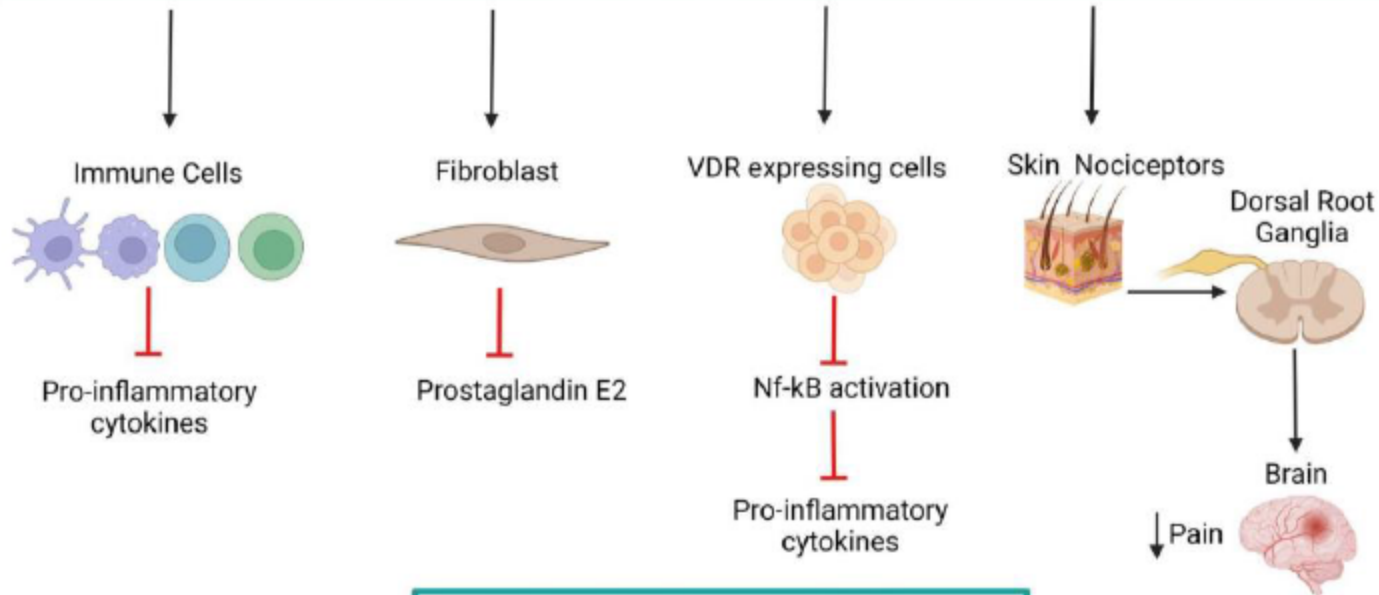
The Efficacy of Vitamin D Supplementation in the Treatment of Fibromyalgia Syndrome and Chronic Musculoskeletal Pain

- Systematic review of RCT to assess the effects of vitamin D supplementation in **pain management of fibromyalgia and chronic MS pain**
- 14 studies included – The quality of the eligible studies was assessed using the Cochrane risk-of-bias tool (version 22 august 2019)
- Cholecalciferol in 13 studies, calcifediol in 1 study

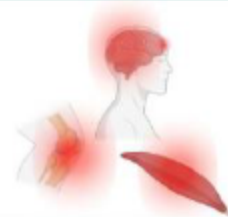
The Efficacy of Vitamin D Supplementation in the Treatment of Fibromyalgia Syndrome and Chronic Musculoskeletal Pain

- Six studies, of which four had the best-quality evidence, showed that vit D supplementation had beneficial effects in patients with 25OHD deficiency
- Eight studies, of which six had the best-quality evidence, showed that vit D supplementation resulted in pain reduction

Vitamin D supplementation

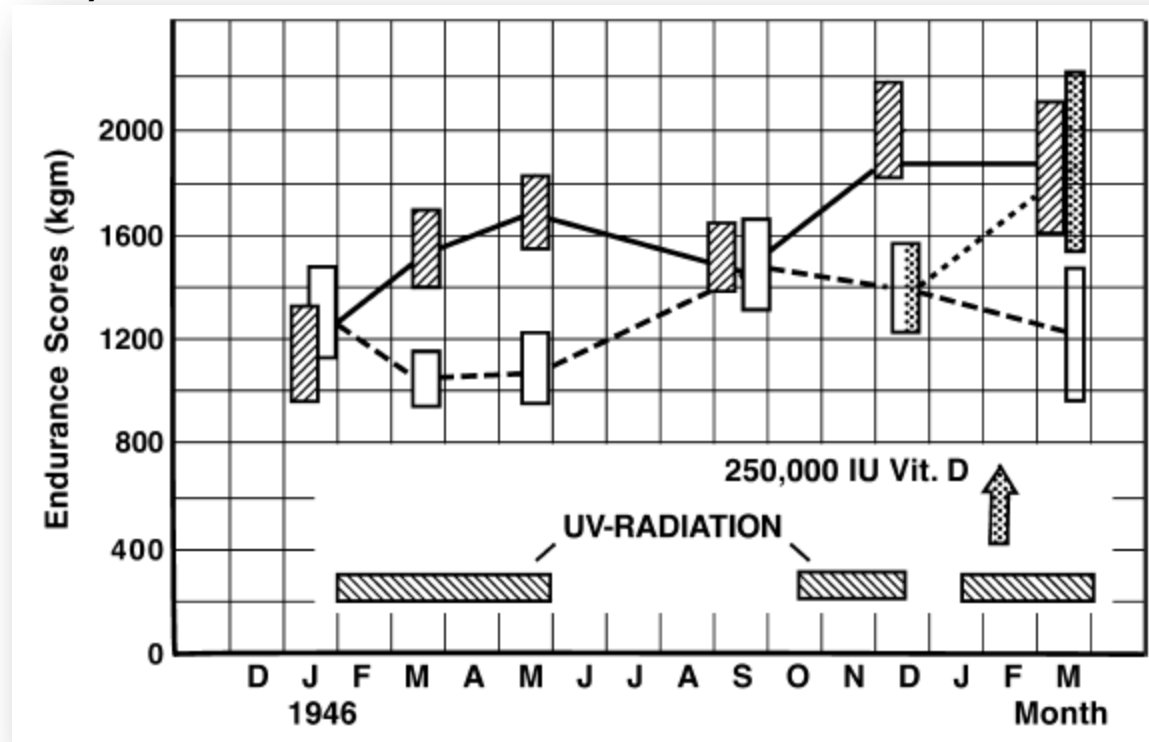


↓ Inflammation
↓ Chronic pain
↓ Oxidative Stress



Seasonal cardiovascular endurance on bike ergometer

120 intermittently irradiated German schoolchildren (*cross-hatched*) vs unirradiated controls (*clear*) with one group of 30 children given 250,000 IU vit D in february



Redrawn from figure in:
Ronge HE Y, Strahlentherapie 1952

Vitamin D and glucocorticoids (GC)

GC affect vit D metabolism:

- 30% decrease of 1α -hydroxylase and 9-fold increase in 24-hydroxylase activity
- GC inhibit hepatic 25-hydroxylase activity producing low plasma 25(OH)D values in close relationship with cumulative GC exposure