

## Format:

Abstract ▾

Send to ▾

[J Clin Lipidol.](#) 2017 Mar - Apr;11(2):459-468. doi: 10.1016/j.jacl.2017.01.011. Epub 2017 Feb 2.

## The effects of vitamin D and omega-3 fatty acid co-supplementation on glycemic control and lipid concentrations in patients with gestational diabetes.

[Jamilian M](#)<sup>1</sup>, [Samimi M](#)<sup>2</sup>, [Ebrahimi FA](#)<sup>2</sup>, [Hashemi T](#)<sup>2</sup>, [Taghizadeh M](#)<sup>3</sup>, [Razavi M](#)<sup>4</sup>, [Sanami M](#)<sup>3</sup>, [Asemi Z](#)<sup>5</sup>.

### Author information

- 1 Endocrinology and Metabolism Research Center, Department of Gynecology and Obstetrics, School of Medicine, Arak University of Medical Sciences, Arak, Iran.
- 2 Department of Gynecology and Obstetrics, School of Medicine, Kashan University of Medical Sciences, Kashan, I.R. Iran.
- 3 Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, Kashan, I.R. Iran.
- 4 Department of Gynecology and Obstetrics, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran. Electronic address: [dr.m.razavi1357@gmail.com](mailto:dr.m.razavi1357@gmail.com).
- 5 Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, Kashan, I.R. Iran. Electronic address: [asemi\\_r@yahoo.com](mailto:asemi_r@yahoo.com).

### Abstract

**OBJECTIVE:** This study was performed to evaluate the effects of vitamin D and omega-3 fatty acids co-supplementation on glucose metabolism and lipid concentrations in gestational diabetes (GDM) patients.

**METHODS:** This randomized double-blind placebo-controlled clinical trial was done among 140 GDM patients. Participants were randomly divided into 4 groups to receive: (1) 1000 mg omega-3 fatty acids containing 360 mg eicosapentaenoic acid and 240 mg docosahexaenoic acid (DHA) twice a day + vitamin D placebo (n = 35); (2) 50,000 IU vitamin D every 2 weeks + omega-3 fatty acids placebo (n = 35); (3) 50,000 IU vitamin D every 2 weeks + 1000 mg omega-3 fatty acids twice a day (n = 35), and (4) vitamin D placebo + omega-3 fatty acids placebo (n = 35) for 6 weeks.

**RESULTS:** After 6 weeks of intervention, patients who received combined vitamin D and omega-3 fatty acids supplements compared with vitamin D, omega-3 fatty acids, and placebo had significantly decreased fasting plasma glucose ( $-7.3 \pm 7.8$ ,  $-6.9 \pm 6.6$ ,  $-4.0 \pm 2.5$ , and  $+1.0 \pm 11.4$  mg/dL, respectively,  $P < .001$ ), serum insulin levels ( $-1.9 \pm 1.9$ ,  $-1.3 \pm 6.3$ ,  $-0.4 \pm 6.3$ , and  $+2.6 \pm 6.5$   $\mu$ U/mL, respectively,  $P = .005$ ), homeostatic model of assessment for insulin resistance ( $-0.7 \pm 0.6$ ,  $-0.5 \pm 1.4$ ,  $-0.2 \pm 1.5$ , and  $+0.6 \pm 1.5$ , respectively,  $P < .001$ ) and increased quantitative insulin sensitivity check index ( $+0.01 \pm 0.01$ ,  $+0.008 \pm 0.02$ ,  $+0.002 \pm 0.02$ , and  $-0.005 \pm 0.02$ , respectively,  $P = .001$ ). In addition, changes in serum triglycerides ( $-8.2 \pm 41.0$ ,  $+7.6 \pm 31.5$ ,  $+3.6 \pm 29.9$ , and  $+20.1 \pm 29.6$  mg/dL, respectively,  $P = .006$ ) and very low-density lipoprotein cholesterol ( $-1.6 \pm 8.2$ ,  $+1.5 \pm 6.3$ ,  $+0.8 \pm 6.0$ , and  $+4.0 \pm 5.9$  mg/dL, respectively,  $P = .006$ ) in the vitamin D plus omega-3 fatty acids group were significantly different from

### Full text links



### Save items

 Add to Favorites ▾

### Similar articles

A randomized-controlled clinical trial investig: [J Clin Lipidol. 2016]

Effects of omega-3 fatty acid supplementation [Clin Nutr. 2015]

Magnesium-zinc-calcium-vitamin C [Appl Physiol Nutr Metab. 2018]

**Review** The Effects of Vitamin D Supplen [Horm Metab Res. 2017]

**Review** Effect of omega-3 fatty aci [Diabetes Metab Syndr. 2017]

[See reviews...](#)

[See all...](#)

### Cited by 10 PubMed Central articles

**Review** Significance of Vitamin Indian J Endocrinol Metab. 2019]

**Review** Regimens of vitamin D chrane Database Syst Rev. 2019]

Adherence to the Mediterranean Diet, Dietary Pa [Nutrients. 2019]

[See all...](#)

### Related information

Articles frequently viewed together

MedGen

PubChem Compound (MeSH)

the changes in these indicators in the vitamin D, omega-3 fatty acids, and placebo groups.

**CONCLUSION:** Overall, vitamin D and omega-3 fatty acids co-supplementation for 6 weeks among GDM patients had beneficial effects on fasting plasma glucose, serum insulin levels, homeostatic model of assessment for insulin resistance, quantitative insulin sensitivity check index, serum triglycerides, and very low-density lipoprotein cholesterol levels.

Copyright © 2017 National Lipid Association. Published by Elsevier Inc. All rights reserved.

**KEYWORDS:** Gestational diabetes; Glycemic control; Lipid concentrations; Omega-3 fatty acid; Supplementation; Vitamin D

PMID: 28502503 DOI: [10.1016/j.jacl.2017.01.011](https://doi.org/10.1016/j.jacl.2017.01.011)

[Indexed for MEDLINE]



Publication type, MeSH terms, Substances



LinkOut - more resources



Keyword)

Cited in PMC

### Recent Activity



[Turn Off](#) [Clear](#)

The effects of vitamin D and omega-3 fatty acid co PubMed

Maternal supplementation with very-long-chain r PubMed

Maternal vitamin D status during pregnancy and child

Fish Oil-Derived Fatty Acids in Pregnancy and Wh PubMed

Omega-3 Fatty Acids and Cardiovascular Disease: A

[See more...](#)

You are here: [NCBI](#) > [Literature](#) > [PubMed](#)

[Support Center](#)

#### GETTING STARTED

[NCBI Education](#)  
[NCBI Help Manual](#)  
[NCBI Handbook](#)  
[Training & Tutorials](#)  
[Submit Data](#)

#### RESOURCES

[Chemicals & Bioassays](#)  
[Data & Software](#)  
[DNA & RNA](#)  
[Domains & Structures](#)  
[Genes & Expression](#)  
[Genetics & Medicine](#)  
[Genomes & Maps](#)  
[Homology](#)  
[Literature](#)  
[Proteins](#)  
[Sequence Analysis](#)  
[Taxonomy](#)  
[Variation](#)

#### POPULAR

[PubMed](#)  
[Bookshelf](#)  
[PubMed Central](#)  
[BLAST](#)  
[Nucleotide](#)  
[Genome](#)  
[SNP](#)  
[Gene](#)  
[Protein](#)  
[PubChem](#)

#### FEATURED

[Genetic Testing Registry](#)  
[GenBank](#)  
[Reference Sequences](#)  
[Gene Expression Omnibus](#)  
[Genome Data Viewer](#)  
[Human Genome](#)  
[Mouse Genome](#)  
[Influenza Virus](#)  
[Primer-BLAST](#)  
[Sequence Read Archive](#)

#### NCBI INFORMATION

[About NCBI](#)  
[Research at NCBI](#)  
[NCBI News & Blog](#)  
[NCBI FTP Site](#)  
[NCBI on Facebook](#)  
[NCBI on Twitter](#)  
[NCBI on YouTube](#)  
[Privacy Policy](#)

National Center for Biotechnology Information, U.S. National Library of Medicine  
 8600 Rockville Pike, Bethesda MD, 20894 USA

[Policies and Guidelines](#) | [Contact](#)