VITAMIN D

UpDates Vol. 5 - N. 4 - 2022

Sito Web www.vitamind-journal.it

Editorial

The complex (and little known) interaction between vitamin D and intestinal microbiota

Circulating vitamin D_3 levels and risk of non-alcoholic fatty liver disease: is there a connection?

Bibliographic selection

www.pacinimedicina.it

Edition
Pacini Editore Srl
Via Gherardesca 1 • 56121 Pisa
Tel. 050 313011 • Fax 050 3130300
Info@pacinieditore.it
www.pacinieditore.it

Pacini Editore Medicine Division
Fabio Poponcini
Business Unit Manager
050 31 30 218 • fpoponcini@pacinieditore.it
Alessandra Crosato
Account Manager
050 31 30 239 • acrosato@pacinieditore.it
Francesca Gori
Business Development & Scientific Editorial Manager
fgori@pacinieditore.it
Manuela Mori
Digital Publishing & Advertising
050 31 30 217 • mmori@pacinieditore.it

Editing
Lucia Castelli
050 3130224 - lcastelli@pacinieditore.it

Graphics and pagination
Massimo Arcidiacono
050 3130231 - marcidiacono@pacinieditore.it

Print
Industrie Grafiche Pacini • Pisa

ISSN: 2611-2876 (online)

Registration at the Court of Pisa no. 2/18 dated 23/2/2018

EDITORIAL

VITAMIN D
UpDates
2022;5(4):134-135

Maurizio Rossini
Department of Medicine,
Rheumatology Section, University of Verona

Dear Colleagues,

In this issue we look at several aspects linked to the possible role of vitamin D in gastroenterology, with the usual contributions of experts. The question of a potential interaction between vitamin D and intestinal microbiota is complex and still for the most part uncertain – and therefore fascinating – especially in cases of qualitative and quantitative alterations of the latter.
In the context of the physiology of the intestinal absorption of vitamin D, we must recall that any anatomical or functional alteration impacting the digestive tract can have an effect on microbiota and vitamin D status. On the other hand, given vitamin D's recognised immunomodulatory role, we cannot exclude that the role attributed to microbiota in the pathogenesis of many inflammatory bowel diseases (IBDs) is at least in part caused by a changed local availability of vitamin D.
As we shall see, many studies have assessed the effects of vitamin D on intestinal microbiota, in particular – though not exclusively – in connection with IBDs: in this case, an association between vitamin D deficiency and disease activity, risk of relapse and failure of therapy has been documented.
At the same time, significant effects of microbiota on vitamin D have been predicted and described. We need only recall the possible consequences of qualitative and/or quantitative modifications of intestinal microbiota on vitamin D absorption, which are secondary to, for example, hypochylia, alterations in intestinal motility or the administration of probiotics.
Intestinal dysbiosis also seems to be involved in the pathogenesis of non-alcoholic fatty liver disease, (NAFLD). In the last few years, many epidemiological studies have reported that patients affected by NAFLD have significantly lower circulating 25(OH)D levels compared to control populations.
Low vitamin D_3 levels have also been linked to increased histological severity of NAFLD. Although the aetiopathogenesis of the mechanisms that can account for this association are still not clear, it has been proposed that vitamin D_3 can have important hepatoprotective effects. In particular, *in vitro* studies have shown that vitamin D_3 is able to positively modulate insulin signalling (by improving insulin resistance at the hepatic level as well) and reduce the proliferation of fibroblasts and collagen production. To date, however, the literature has not provided us with broad prospective cohort studies or ample randomised clinical studies which have assessed a possible correlation between circulating vitamin D_3 levels and the risk of developing or aggravating NAFLD. Such studies are necessary in order to confirm the biological plausibility and possible causal role of vitamin D_3 in the development and progression of NAFLD.
Nonetheless, as you will read below, the recently published results of prospective cohort and Mendelian randomization studies effectively suggest that maintaining sufficient 25(OH)D levels may constitute an efficient approach in the primary and secondary prevention of NAFLD.
In addition, let me point out that we should begin considering NAFLD as one of the pathologies that causes secondary osteoporosis. This finding has emerged from a meta-analysis that was recently published in *Osteoporosis International* [1], which reports a significant correlation between

Correspondence
Maurizio Rossini
maurizio.rossini@univr.it

How to cite this article: Rossini M. Editorial. Vitamin D - UpDates 2022;5(4):134-135.

NAFLD and the prevalence and risk of osteoporosis and fractures, especially in males. This represents another reason to consider administering vitamin D to these patients.
What do you think?

Bibliography

1 Pan B, Cai J, Zhao P, Liu J, Fu S, Jing G, Niu Q, Li Q. Relationship between prevalence and risk of osteoporosis or osteoporotic fracture with non-alcoholic fatty liver disease: A systematic review and meta-analysis. Osteoporos Int. 2022 Nov;33(11):2275-2286. https://doi.org/10.1007/s00198-022-06459-y

The complex (and unknown) interaction between vitamin D and intestinal microbiota

VITAMIN D
UpDates
2022;5(4):136-141
https://doi.org/10.30455/2611-2876-2022-7e

Giorgio Carlino[1], Rachele Ciccocioppo[2]

[1] Digestive Endoscopy Unit, Fondazione Policlinico Universitario Agostino Gemelli IRCCS, Rome; [2] Gastroenterology Unit, Department of Medicine, AOUI Policlinico G.B. Rossi, University of Verona; Italy

Summary

Both developed and developing countries are witnessing a critical increase in chronic inflammatory diseases that target different organs and especially affect productive age people. Therefore, it is implicit that environmental factors – modes of delivery and breastfeeding, nutrition, pollution, food additives, medicines, and smoking, to name just a few – play an important role in the origin and persistence of organ damage. The main way by which these factors carry out their actions is represented by intestinal microbiota, which constitutes a complex and changing living ecosystem located in the digestive tract and which performs basic functions of homeostasis not only for the intestine but also for the entire human organism. Parallel to this phenomenon, in the last few years, researchers have become aware of the extra-skeletal effects of vitamin D, above all regarding the maintenance of immunological tolerance and strengthening of the intestinal barrier. In addition, a large portion of circulating vitamin D comes through diet and must therefore be absorbed at the intestinal level. The hypothesis of an interaction between vitamin D and intestinal microbiota, therefore, seems plausible, especially in cases of qualitative or quantitative alterations of the latter. Likewise, the possible effects of vitamin D supplementation on the composition of the microbiota itself must be taken into consideration. These are the topics discussed in this article.

INTRODUCTION

When we talk about vitamin D, or calciferol, we are referring to a family of lipid compounds that derive from steroids, which are indispensable for the human organism, whose recommended serum levels are > 30 ng/mL [1]. Daily requirements are satisfied both through exposure to sunlight and diet. In the first case, the 7-dehydrocholesterol at the skin level is transformed into vitamin D_3 (cholecalciferol) by means of a photochemical reaction, while in the second the vitamin is absorbed from foods of animal origin (D_3, cholecalciferol), such as milk and dairy products, and vegetables (D_2, ergocalciferol), such as fresh or dried mushrooms [1].

The latter forms are structurally different – because of the characteristics of the lateral chain connected to the sterol – but functionally similar. They need to be emulsified and incorporated into micelles through the activity of lecithin and bile salts to be absorbed by the intestine. Here they cross the apical membrane of enterocytes by means of both a passive diffusion mechanism and specific protein transporters (Niemann-Pick C1-Like 1, Scavenger receptor class B type 1, *CD36*, ATP-Binding Cassette transporter A1) [2]. Once inside the enterocyte, vitamin D is incorporated into the chylomicrons, which cross the basal membrane and reach the lymphatic circulation. Whether it is produced in the skin or absorbed through nutrition, vitamin D is biologically inactive: for this reason, it is considered a prohormone. To become active, it requires two-step-hydroxylation, which is first carried

Correspondence
Rachele Ciccocioppo
rachele.ciccocioppo@univr.it

Conflict of interest
The authors state that there are no conflicts of interest.

How to cite this article: Carlino G, Ciccocioppo R. The complex (and little known) interaction between vitamin D and intestinal microbiota. Vitamin D – Updates 2022;5(4):136-141. https://doi.org/10.30455/2611-2876-2022-7e

out by the 25-hydroxylase at the 25(OH) position in the liver and later by the vitamin D 1alpha-hydroxylase enzyme at the 1(OH) position in the kidneys, giving rise to the form 1,25$(OH)_2$ D (calcitriol) [1].
From this basis, we see that any disturbance to the digestive tract – meant not anatomically as a mucosal layer but rather functionally as the intestinal barrier, microbiota, and bile salts – has effects on vitamin D availability. In addition, the effect of oral vitamin D supplementation on intestinal microbiota is little known. The aim of this article is therefore to summarise our current state of knowledge on the interaction between vitamin D and intestinal microbiota, considering that both carry out important roles in modulating the immune system and in the pathogenesis of many chronic inflammatory diseases.

INTESTINAL MICROBIOTA

At birth, a multitude of microorganisms populates the human body: these include bacteria, funguses, viruses, phages, and archaea, collectively known as microbiota. Along its surface of approximately 400 m^2, the digestive tract hosts the most abundant and diverse microbial community of our organism, which is made up of more than 100 trillion microorganisms [3]. These encode more than three million genes, which in turn are responsible for synthesising thousands of metabolites [4]. This ecosystem plays an important role in basic functions for the homeostasis of our organism, such as resistance to colonisation by pathogenic microorganisms, maintenance of the integrity of the intestinal barrier and epithelial turnover, synthesis and absorption of nutrients and metabolites (vitamins, amino acids, lipids, bile salts, and short-chain fatty acids), development and modulation of the peripheral immune system, and regulation of nutritional status [3].
Thanks to the possibility to identify the hypervariable regions of the 16S subunit of bacterial rRNA [5], the best known is the bacterial population, which is classified based on its taxonomy in phyla, classes, orders, families, genera, and species [4]. Studies focusing on its qualitative and quantitative characterisation have shown that its composition changes according to

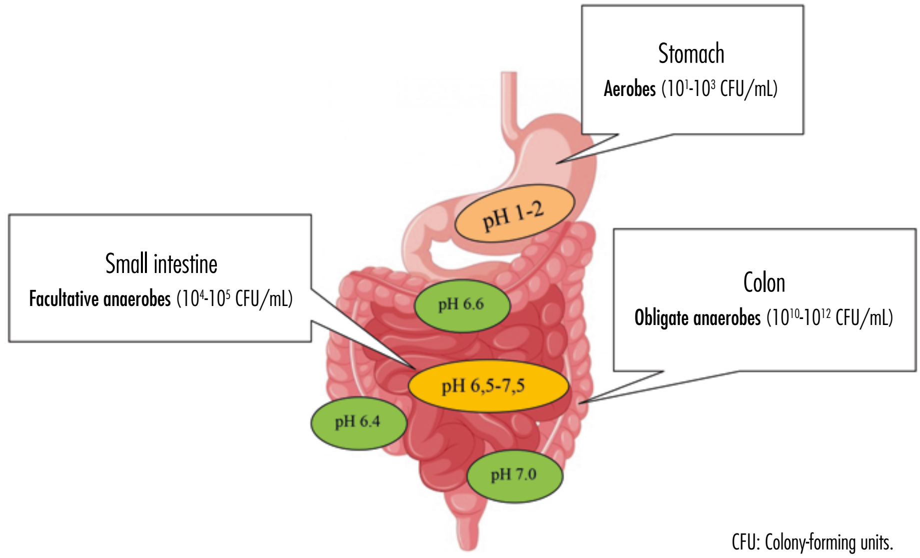


FIGURE 1.
The qualitative/quantitative composition of intestinal microbiota changes in different sections of the digestive tract according to such variables as pH, partial oxygen tension and intestinal motility. Alterations in these factors result from such conditions as gastric hypochylia, intestinal dysmotility, presence of blind loops and modifications of the ileocecal valve. They cause bacterial overgrowth of the small intestine via the descending or ascending pathway.

the section of the digestive tract (Fig. 1), as it is affected by both intrinsic factors (such as pH, oxygen tension, and intestinal motility) and extrinsic ones (modes of delivery, types of breastfeeding, diet, urban or rural environment, number of components of the nuclear family, physical activity and exposure to xenobiotics) [3,4].
Although each individual develops specific microbiota, numerous studies have allowed researchers to establish the profile of "healthy" ("eubiotic") microbiota, characterised by a relative abundance of the phyla *Bacteroidetes* (in particular the *Bacteroides* and *Prevotella* genera) and *Firmicutes* (in particular the *Lactobacillus*, *Clostridium*, *Enterococcus*, and *Faecalibacterium* genera), and above all possessing richness and diversity [3,4]. On the other hand, all conditions which contribute to disturbing this state are called "dysbiotic".
Due to the extraordinary ability of intestinal microbiota to affect the homeostasis of the human organism, it is not surprising that dysbiosis has been identified in various pathological conditions, both intestinal – such as irritable bowel syndrome (IBS), inflammatory bowel diseases (IBDs), celiac disease – and extra-intestinal – such as obesity and metabolic syndrome, rheumatological diseases, psoriasis, Alzheimer's disease, and Parkinson's disease, to name only a few [3,4]. To date, however, it is still not completely clear whether alterations of the intestinal microbiota are the cause or effect of pathological conditions, and above all by which mechanisms microbiota trigger and maintain a pathological state. In this regard, because of the immunomodulatory role of vitamin D, we cannot exclude the possibility that the influence of microbiota in the pathogenesis of many chronic inflammatory conditions occurs at least in part through variations in the availability of vitamin D and/or that the latter can cause qualitative and quantitative modifications in the composition of the microbiota.

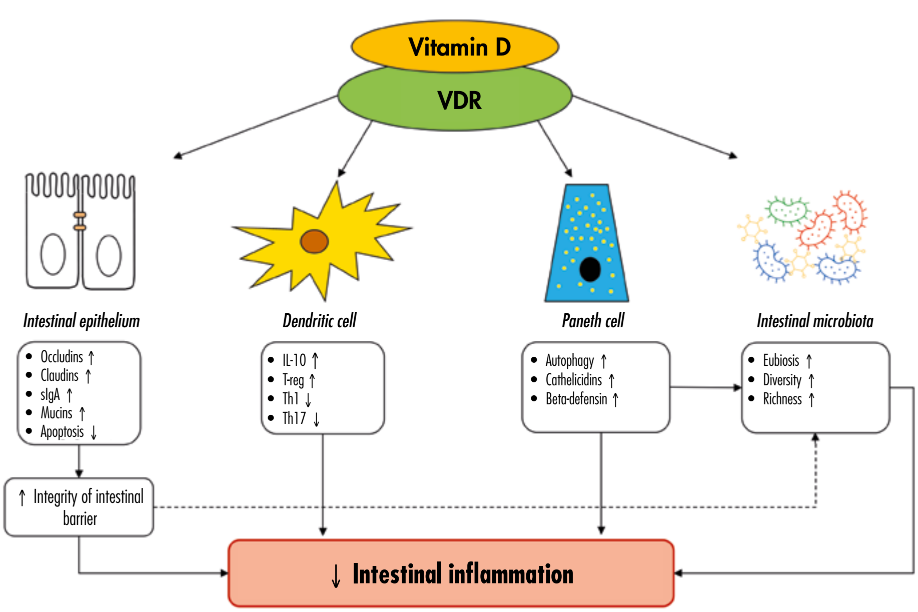
EFFECTS OF VITAMIN D ON MICROBIOTA

An increasing number of studies have evaluated the effects of vitamin D on intestinal microbiota, in particular regarding IBDs, a multifactorial disease in which dysbiosis plays a leading role in causing and maintaining lesions [6]. At the same time, the find of low levels of vitamin D levels in patients affected by these conditions and, especially, the association of serum levels with disease activity, risk of relapse and response, and/or failure of therapies [7,8] have sparked a growing interest in the possible role of vitamin D in the pathogenesis of IBDs. Scientific evidence derived mainly from experimental models suggests, on the one hand, that epigenetic modifications triggered by intestinal inflammation can reduce the expression of the gene which encodes vitamin D's nuclear receptor (VDR) [9] and, on the other, that the signaling pathway of vitamin D/VDR can regulate various factors involved in intestinal inflammation [7,10]. In particular, vitamin D appears to influence the integrity of the intestinal barrier by modulating the expression of components of tight and anchoring junction [7] and stimulating the release of antimicrobial peptides (cathelicidins and beta-defensins) on the part of Paneth cells [11] and mucins; in this context, it has an immunomodulatory effect, both by inhibiting the release of pro-inflammatory cytokines and stimulating the release of anti-inflammatory cytokines and the induction of regulatory T-lymphocytes [7,10,11] (Fig. 2).

Regarding its effects on intestinal microbiota, vitamin D supplementation in a small cohort of subjects affected by ulcerative colitis reduced *Ruminococcus gnavus*, even though it did not modify alpha diversity (the bacterial diversity index within a sample) [12]; meanwhile, in subjects affected by Crohn's disease – but not in the control group – supplementation caused a relative increase in such eubiotic bacteria as *Alistipes, Parabacteroides, Roseburia* and *Faecalibacterium* [13]. The absence of modifications in faecal microbiota following vitamin D supplementation in healthy patients was confirmed by one study [14], but not in others: in these, by contrast, an increase in eubiotic indices was found, such as alpha and beta diversity (the index of bacterial diversity between different samples). Furthermore, the latter group of studies showed an increase in the *Bacteroides/Firmicutes* ratio as well as an increase in protective strains such as *Akkermansia muciniphila* [15,16]. A possible explanation for this apparent discrepancy might be found in vitamin D's ability to especially influence the microbiota adhering to the intestinal mucous: this discrepancy would thus be evaluated by endoscopic tissue sampling more than by using luminal microbiota faecal samples. In particular, the most important effects seem to occur in the upper intestinal tract, where following eight weeks of supplementation a decrease in opportunistic pathogens (such as the *Pseudomonas, Escherichia*, and *Shigella species*), as well as an increase in richness, were found [17].

These findings have stimulated interest in investigating the potential role of vitamin D in IBS as well. This is a chronic condition that affects at least 10% of the world's population; it is characterised by symptoms such as abdominal pain or discomfort, intestinal meteorism, and alterations in defecation, especially constipation and/or diarrhoea [18]. Its aetiopathogenesis involves factors that influence the function of the gut-brain axis and which include altered intestinal permeability and dysbiosis [18,19]. In addition, vitamin D deficiency has often been detected in this condition, which is probably linked to changes in eating habits, mostly the exclusion of milk and dairy products. On the opposite, proper supplementation has been shown to contribute to an improvement in both quality of life and intestinal symptoms [19]. Nonetheless, in light of the dearth of clinical studies, differences in their designs, the heterogeneous nature of the subjects examined, and inadequate attention paid to confounding factors – such as exposure to sunlight and diet – we are not able to establish the role played by vitamin D in IBS and, above all, to determine whether this role is in part mediated by alterations in intestinal microbiota.

Intestinal dysbiosis also seems to be involved in the pathogenesis of fatty liver disease associated with metabolic syndrome [20], the main cause of chronic liver disease in the western world as well as the condition associated with a greater risk of vitamin D deficiency [21]. In particular, vitamin D supplementation in this pathology seems to contrast the fibrogenesis resulting from the activation of the transforming growth factor B pathway in hepatic stellate cells [22]. In addition, supplementation appears to improve several laboratory parameters, such as levels of transaminases, triglycerides, fasting glycaemia, and insulin [23].



IL: Interleukin; sIgA: Secretory immunoglobulin A; T-reg: Regulatory T lymphocytes; Th: T helper lymphocytes; VDR: Vitamin D receptor.

FIGURE 2.
Effects on vitamin D on intestinal ecosystem: see text.

At the same time, the possible effect of vitamin D supplementation on intestinal microbiota in this specific clinical setting has still not been investigated. Regarding the metabolic syndrome, *in vivo* studies on both animal models and humans suggest that intestinal microbiota plays a role in the pathogenesis of obesity. In this regard, transplanting the microbiota of obese subjects clearly causes obesity in experimental animals [4]. Furthermore, an increased *Firmicutes/Bacteroidetes* ratio, high levels of *Ruminococcaceae* and *Lactobacillus*, and low ones of *Bacteroidaceae*, *Bacteroides*, and *Bifidobacterium vulgatus* seem to be connected with obesity [4]. In this connection, we should recall those findings which show that vitamin D supplementation (though not the placebo) caused an increase in the genera *Lachnospira* and *Coprococcus* (which were found to be associated with a state of health) and a reduction of the genera *Blautia* and *Ruminococcus* (which are relatively abundant in inflammatory and dysmetabolic conditions) in a cohort of overweight and/or obese subjects (body mass index ≥ 25 kg/m^2) [24].

Ageing also represents a condition frequently linked to both vitamin D deficiency [25] and variations in the composition of intestinal microbiota [4]. A cross-sectional, multi-centric study of 567 community-dwelling elderly Americans showed that higher serum concentrations of calcitriol were connected to greater alpha and beta diversity [26]. In addition, serum levels of calcitriol were positively correlated to microorganisms belonging above all to the *Firmicutes* phylum [26], producers of butyric acid, a short-chain fatty acid with known beneficial effects on intestinal homeostasis [3,4].

Finally, an elegantly designed, randomised, double-blind study was conducted on 41 subjects affected by cystic fibrosis, a chronic, genetic disease that causes secretion thickening, especially in the lungs, skin, and digestive system (above all the pancreas) as a result of the functional loss of the cystic fibrosis transmembrane conductance regulator (CFTR), an ionic channel which regulates the flow of chloride ions – and therefore also of water – in epithelial cells. The results of this study showed a relative abundance of the Bacteroida class in subjects with normal vitamin D levels, while in those with low levels a relative abundance of *Gammaproteobacteria* was detected, a class of gram-negative bacteria which includes such pathogens as *Yersinia Pestis*, *Vibrio Cholera*, *E. coli*, and *Pseudomonas aeruginosa*; the last named is often responsible for pulmonary infections in such patients [27]. In addition, successive vitamin D supplementation to normalise serum levels caused a relative increase of the *Lactococcus* genus and a reduction of the *Veillonella* (belonging to the *Erysipelotrichaceae* family), whose detection in broncho-alveolar lavage samples was associated with a subclinical inflammatory status [27].

EFFECTS OF MICROBIOTA ON VITAMIN D

Moving to consider the consequences that qualitative and quantitative modifications of intestinal microbiota or the administration of probiotics can have on the absorption and therefore on the availability of vitamin D, an example is provided by bacterial overgrowth of the small intestine: as a result of the presence of one or more predisposing factors, such as gastric hypochylia (caused by chronic prazole therapy, atrophic gastritis, and surgeries), alterations of gut motility (mostly in diabetes, systemic autoimmune diseases such as scleroderma, diverticulosis, stenosis, and intestinal by-passes) and ileocecal valve anatomy (Crohn's disease, surgery), an overgrowth/contamination of the intestinal flora via descending or ascending way, respectively, has been found [28]. In the ascending way, in particular, the contamination of the small intestine by anaerobic and Gram-negative bacteria causes the breakdown of micelles, resulting in poor absorption of fat-soluble vitamins, including vitamin D. This results in a clinical picture characterised not only by intestinal meteorism and diarrhoea, but also – over time – osteoporosis, anaemia and peripheral neuropathies due to vitamin B12 deficiency [28]. Furthermore, the breakdown of micelles alters the enterohepatic circulation of bile salts. Upon reaching the colon in great quantities, these cause the onset of "choleretic" diarrhoea, which is linked to heightened intracellular production of cyclic AMP and GMP, which in turn increase the active secretion of water and electrolytes. Finally, microbial flora can also damage the apical portion of the enterocytes, with the loss or reduction of potential enzymatic activity, including lactase, and the consequent development of symptoms of lactose intolerance.

Regarding the possibility that probiotics (defined by the World Health Organisation as live organisms able to produce beneficial effects) can influence circulating vitamin D levels, let us now consider the sparse evidence presented by the literature. In a post hoc analysis of a randomised controlled clinical study, administration of the probiotic *Lactobacillus reuteri* NCIMB 30242 BSH-active [expressing the enzyme accountable for the hydrolase of bile salts (BSH) and their deconjugation [29], with a resulting decreased ability to form micelles] for nine weeks to dyslipidaemic subjects produced a statistically significant increase in circulating vitamin D levels compared to those who received a placebo. It is worth noting here that the effect was selective on vitamin D and not on other fat-soluble vitamins [30]. In addition, in clinical studies conducted on patients who underwent bariatric surgery (with one anastomosis gastric bypass or with Roux-en-Y anastomosis) administration of probiotics (including the association of *Lactobacillus acidophilus* NCFM and *Bifidobacterium lactis* Bi-07) up until three months after surgery caused an increase in serum vitamin D levels [31,32]. Among possible explanations, the authors propose increased absorption of vitamin D thanks to the acidification of the intestinal content secondary to the synthesis of lactic acid, stimulation of the 25-hydroxylase vitamin D enzyme, and/or an increase of the 7-dehydrocholesterol synthesis [30].

Finally, we should note a possible functional interaction between resident microbiota and/or probiotics and VDR. In animal models of colitis, anti-inflammatory actions of butyric acid may be linked to the increased gene expression of VDR triggered by the same compound [7,33].

EFFECTS OF MICROBIOTA ON LACTOSE ABSORPTION

Lactose is the main sugar present in the milk of mammals. It is a disaccharide composed of glucose and galactose, whose intestinal absorption depends on the hydrolysis carried out by the lactase enzyme (beta-galactosidase) present on the brush borders of enterocytes. Deficiency of this enzyme, whether congenital (a quite rare condition, typically found in children) or acquired (a very frequent condition, typical of adults), causes inadequate digestion of lactose: remaining in the intestinal lumen, it is catabolized by resident flora, with the production of small, osmotically active molecules (short-chain fatty acids) and gas (carbon dioxide, methane, and hydrogen), with the resulting development of symptoms of intolerance, such as diarrhea, intestinal meteorism and abdominal cramps [34]. In particular, acquired deficiency can be primary – and therefore linked to a genetically determined deficiency, which affects roughly two-thirds of Caucasians – or secondary to enteropathies such as coeliac disease and Crohn's disease, or drug- and radiation-induced enteropathies, to cite the most frequent cases. In addition, it can also result from bacterial contamination of the small intestine because of the above-mentioned capacity of bacteria to damage the brush borders of enterocytes, where the activity of disaccharides takes place.

It is well known that the onset of ailments linked to undigested milk and dairy products induces subjects to avoid these foodstuffs, with significant nutritional repercussions resulting above all from inadequate vitamin D intake [34]. Some of these consequences are secondary to qualitative and quantitative modifications of intestinal microbiota, which are deprived of their share of *Lactobacillaceae*, with the resulting loss of their important immunomodulatory role.

Equally well known is that the development of symptoms of lactose intolerance depends not only on quantities consumed but also on the capacity of the individual's microbiota to break down disaccharides [34,35]. To date, strains with recognised lactose activity include *Bacteroides/Prevotella*, *Bifidobacterium*, and *Eubacterium rectale/Clostridium coccoides* [36]. For this reason, a possible therapeutic strategy consists of the use of probiotics, as shown in some cases in which intake of *Lactobacillus casei Shirota* and *Bifidobacterium breve Yakult* for 4 weeks [37] or *Lactobacillus reuteri* for 10 days [38] led to a reduction of intolerance symptoms and of hydrogen levels in breath tests for lactose. Finally, it is worth noting that some findings show that milk intake in subjects with lactase insufficiency is connected to increased levels of indolepropionic acid, a metabolite of tryptophan produced by intestinal microbiota, in particular by *Bifidobacterium*, and inversely linked to the risk of developing type 2 diabetes mellitus [39].

CONCLUSIONS

Growing evidence shows that vitamin D could play a physiological role in the modulation of intestinal microbiota and that several of its systemic immunoregulatory effects are linked to this latter. Nonetheless, the complexity of the universe represented by intestinal microbiota, together with the limited methods available to explore it, makes difficult a full understanding of its possible role in various clinical scenarios. As a result, identifying preventive or therapeutic strategies is problematic. We, therefore, recommend supplementation for subjects with vitamin D deficiency, since the persistence of this state over time could lead to an alteration of not only osteo-metabolic but also nutritional and immunological homeostasis.

References

1 Holick MF. Vitamin D deficiency. N Engl J Med 2007;357:266-281. https://doi.org/10.1056/NEJMra070553
2 Silva MC, Furlanetto TW. Intestinal absorption of vitamin D: a systematic review. Nutr Rev 2018;76:60-76. https://doi.org/10.1093/nutrit/nux034
3 Hou K, Wu ZX, Chen, XY, et al. Microbiota in health and diseases. Sig Transduct Target Ther 2022;7:135. https://doi.org/10.1038/s41392-022-00974-4
4 Rinninella E, Raoul P, Cintoni M, et al. What is the healthy gut microbiota composition? A changing ecosystem across age, environment, diet, and diseases. Microorganisms 2019;7:14. https://doi.org/10.3390/microorganisms7010014
5 Takahashi S, Tomita J, Nishioka K, et al. Development of a prokaryotic universal primer for simultaneous analysis of Bacteria and Archaea using next-generation sequencing. PLoS ONE 2014;9:e105592. https://doi.org/10.1371/journal.pone.0105592
6 Nishida A, Inoue R, Inatomi O, et al. Gut microbiota in the pathogenesis of inflammatory bowel disease. Clin J Gastroenterol 2018;11:1-10. https://doi.org/10.1007/s12328-017-0813-5
7 Vernia F, Valvano M, Longo S, et Al. Vitamin D in inflammatory bowel diseases. Mechanisms of action and therapeutic implications. Nutrients 2022;14:269. https://doi.org/10.3390/nu14020269
8 Cusato J, Bertani L, Antonucci M, et Al. Vitamin D-Related genetics as predictive biomarker of clinical remission in adalimumab-treated patients affected by Crohn's disease: a pilot study. Pharmaceuticals 2021;14:1230. https://doi.org/10.3390/ph14121230
9 Kosinsky RL, Zerche M, Kutschat AP, et al. RNF20 and RNF40 regulate vitamin D receptor-dependent signaling in inflammatory bowel disease. Cell Death Differ 2021;28:3161-3175. https://doi.org/10.1038/s41418-021-00808-w
10 Wellington VNA, Sundaram VL, Singh S, et al. Dietary supplementation with vitamin D, fish oil or resveratrol modulates the gut microbiome in inflammatory bowel disease. Int J Mol Sci 202;23:206. https://doi.org/10.3390/ijms23010206
11 White JH. Emerging roles of vitamin D-induced antimicrobial peptides in antiviral innate immunity. Nutrients 2022;14:284. https://doi.org/10.3390/nu14020284
12 Garg M, Hendy P, Ding JN, et al. The effect of vitamin D on intestinal inflammation and faecal microbiota in patients with ulcerative colitis. J Crohns Colitis 2018;12:963-972. https://doi.org/10.1093/ecco-jcc/jjy052
13 Schäffler H, Herlemann DP, Klinitzke P, et al. Vitamin D administration leads to a shift of the intestinal bacterial composition in Crohn's disease patients, but not in healthy controls. J Dig Dis 2018;19:225-234. https://doi.org/10.1111/1751-2980.12591
14 Shieh A, Lee SM, Lagishetty V, et al. Pilot trial of vitamin D_3 and calcifediol in healthy vitamin d deficient adults: does it change

the fecal microbiome? J Clin Endocrinol Metab 2021;106:3464-3476. https://doi.org/10.1210/clinem/dgab573

15 Singh P, Rawat A, Alwakeel M, et al. The potential role of vitamin D supplementation as a gut microbiota modifier in healthy individuals. Sci Rep 2020;10:21641. https://doi.org/10.1038/s41598-020-77806-4

16 Charoenngam N, Shirvani A, Kalajian TA, et al. The Effect of various doses of oral vitamin D_3 supplementation on gut microbiota in healthy adults: a randomized, double-blinded, dose-response study. Anticancer Res 2020;40:551-556. https://doi.org/10.21873/anticanres.13984

17 Bashir M, Prietl B, Tauschmann M, et al. Effects of high doses of vitamin D_3 on mucosa-associated gut microbiome vary between regions of the human gastrointestinal tract. Eur J Nutr 2016;55:1479-1489. https://doi.org/10.1007/s00394-015-0966-2

18 Ford AC, Lacy BE, Talley NJ. Irritable bowel syndrome. N Engl J Med 2017;376:2566-2578. https://doi.org/10.1056/NEJMra1607547

19 Matthews SW, Heitkemper MM, Kamp K. Early evidence indicates vitamin D Improves symptoms of irritable bowel syndrome: nursing implications and future research opportunities. Gastroenterol Nurs 2021;44:426-436. https://doi.org/10.1097/SGA.0000000000000634

20 Wieland A, Frank DN, Harnke B, et al. Systematic review: microbial dysbiosis and nonalcoholic fatty liver disease. Aliment Pharmacol Ther 2015;42:1051-1063. https://doi.org/10.1111/apt.13376

21 Eliades M, Spyrou E, Agrawal N, et al. Meta-analysis: vitamin D and non-alcoholic fatty liver disease. Aliment Pharmacol Ther 2013;38:246-254. https://doi.org/10.1111/apt.12377

22 Beilfuss A, Sowa JP, Sydor S, et al. Vitamin D counteracts fibrogenic TGF-β signalling in human hepatic stellate cells both receptor-dependently and independently. Gut 2015;64:791-799. https://doi.org/10.1136/gutjnl-2014-307024

23 Guo XF, Wang C, Yang T, et al. Vitamin D and non-alcoholic fatty liver disease: a meta-analysis of randomized controlled trials. Food Funct 2020;11:7389-7399. https://doi.org/10.1039/d0fo01095b

24 Naderpoor N, Mousa A, Fernanda Gomez Arango L, et al. Effect of vitamin D supplementation on faecal microbiota: a randomised clinical trial. Nutrients 2019;11:2888. https://doi.org/10.3390/nu11122888

25 Holick MF. The vitamin D deficiency pandemic: Approaches for diagnosis, treatment and prevention. Rev Endocr Metab Disord 2017;18:153-165. https://doi.org/10.1007/s11154-017-9424-1

26 Thomas RL, Jiang L, Adams JS, et al. Vitamin D metabolites and the gut microbiome in older men. Nat Commun 2020;11:5997. https://doi.org/10.1038/s41467-020-19793-8

27 Kanhere M, He J, Chassaing B, et al. Bolus weekly vitamin D_3 supplementation impacts gut and airway microbiota in adults with cystic fibrosis: a double-blind, randomized, placebo-controlled clinical trial. J Clin Endocrinol Metab 2018;103:564-574. https://doi.org/10.1210/jc.2017-01983

28 Ciccocioppo R, Biagi F, Corazza GR. Malattie del tenue, Alterazioni da agenti biologici: Contaminazione batterica dell'intestino tenue. In: Rugarli C, Caligaris Cappio F, Cappelli G, et al. Medicina Interna Sistematica. Milano: EDRA LSWR S.p.A. 2017, pp. 703-705.

29 Guzior DV, Quinn RA. Review: microbial transformations of human bile acids. Microbiome 2021;9:140. https://doi.org/10.1186/s40168-021-01101-1

30 Jones ML, Martoni CJ, Prakash S. Oral supplementation with probiotic L. reuteri NCIMB 30242 increases mean circulating 25-hydroxyvitamin D: a post hoc analysis of a randomized controlled trial. J Clin Endocrinol Metab 2013;98:2944-2951. https://doi.org/10.1210/jc.2012-4262

31 Karbaschian Z, Mokhtari Z, Pazouki A, et al. Probiotic supplementation in morbid obese patients undergoing One Anastomosis Gastric Bypass-Mini Gastric Bypass (OAGB-MGB) surgery: a randomized, double-blind, placebo-controlled, clinical trial. Obes Surg 2018;28:2874-2885. https://doi.org/10.1007/s11695-018-3280-2

32 Ramos MRZ, de Oliveira Carlos L, Wagner NRF, et al. Effects of Lactobacillus acidophilus NCFM and Bifidobacterium lactis bi-07 supplementation on nutritional and metabolic parameters in the early postoperative period after roux-en-y gastric bypass: a randomized, double-blind, placebo-controlled trial. Obes Surg 2021;31:2105-2114. https://doi.org/10.1007/s11695-021-05222-2

33 Pagnini C, Di Paolo MC, Graziani MG, et al. Probiotics and vitamin D/vitamin D receptor pathway interaction: potential therapeutic implications in inflammatory bowel disease. Front Pharmacol 2021;12:747856. https://doi.org/10.3389/fphar.2021.747856

34 Misselwitz B, Butter M, Verbeke K, et al. Update on lactose malabsorption and intolerance: pathogenesis, diagnosis and clinical management. Gut 2019;68:2080-2091. https://doi.org/10.1136/gutjnl-2019-318404

35 Hertzler SR, Savaiano DA. Colonic adaptation to daily lactose feeding in lactose maldigesters reduces lactose intolerance. Am J Clin Nutr 1996;64:232-236. https://doi.org/10.1093/ajcn/64.2.232

36 Tao He, Marion GP, Roel JV, et al. Identification of bacteria with β-galactosidase activity in faeces from lactase non-persistent subjects. FEMS Microbiol Ecol 2005;54:463-469. https://doi.org/10.1016/j.femsec.2005.06.001

37 Almeida CC, Lorena SL, Pavan CR, et al. Beneficial effects of long-term consumption of a probiotic combination of Lactobacillus casei Shirota and Bifidobacterium breve Yakult may persist after suspension of therapy in lactose-intolerant patients. Nutr Clin Pract 2012;27:247-251. https://doi.org/10.1177/0884533612440289

38 Ojetti V, Gigante G, Gabrielli M, et al. The effect of oral supplementation with Lactobacillus reuteri or tilactase in lactose intolerant patients: randomized trial. Eur Rev Med Pharmacol Sci 2010;14:163-170.

39 Qi Q, Li J, Yu B, et al. Host and gut microbial tryptophan metabolism and type 2 diabetes: an integrative analysis of host genetics, diet, gut microbiome and circulating metabolites in c≠ort studies. Gut 2022;71:1095-1105. https://doi.org/10.1136/gutjnl-2021-324053

Circulating vitamin D_3 levels and risk of non-alcoholic fatty liver disease: is there a connection?

VITAMIN D
UpDates
2022;5(4):142-144
https://doi.org/10.30455/2611-2876-2022-8e

Giovanni Targher

Section of Diabetes and Endocrinology, Department of Medicine, University of Verona

Vitamin D_3 deficiency has been associated with the co-existence of many non-skeletal chronic pathologies (including obesity, type 2 diabetes, cardiovascular disease, several types of tumours and non-alcoholic fatty liver disease), suggesting the possibility that this vitamin can have multiple and beneficial pleiotropic effects in extra-skeletal contexts, thanks to the ubiquitous distribution of its specific receptor [1-5].

Non-alcoholic fatty liver disease (NAFLD) is one of these extra-skeletal chronic pathologies associated with low circulating vitamin D_3 levels. This disease has been the focus of significant scientific research, especially in the last 6-7 years [6].

NAFLD includes a broad spectrum of liver pathologies characterised by an accumulation of triglycerides in the liver in subjects without excessive alcohol consumption. The range of these pathologies includes simple steatosis and non-alcoholic steatohepatitis (NASH), which can lead to cirrhosis and even to hepatocellular carcinoma [7]. Today, NAFLD represents the most common form of chronic liver disease in western countries: it is estimated that it is present in roughly 25-30% of the general adult population [8,9]. Globally, its prevalence is progressively increasing in many parts of the world, similar to what has been observed for the incidence of obesity and type 2 diabetes, two metabolic pathologies with which NAFLD is closely connected, as they represent the most important risk factors for the disease [9,10].

The natural onset and progression of NAFLD toward its most advanced histological stages is explained by several risk factors (genetic, epigenetic, environmental and clinical) which take into account a broad range of pathological phenotypes resulting from it and for which different individual therapeutic approaches may be necessary [7]. This characteristic distinguishes NAFLD from other chronic liver diseases, in which the aetiological agent is well defined (as in the liver pathology caused by alcohol abuse or viral hepatitis), or for which there exists a specific pharmacological treatment (as in the case of viral and autoimmune hepatitis). The increasing importance of NAFLD from clinical and public health points of view is also determined by the fact that this pathology is not only linked to an increased risk of progression toward NASH and cirrhosis but that it is also frequently correlated to an increased risk of developing significant extrahepatic complications, including cardiovascular disease (which represents the main cause of death in this population of patients), chronic kidney disease, type 2 diabetes and the development of some types of tumours (especially colorectal, pancreas and breast cancers) [7,11]. For these reasons, from a clinical point of view it is particularly important to know the natural evolution of NAFLD and to identify the main risk factors which can modify its progression toward hepatic and extrahepatic complications.

Many epidemiological studies of the last 6-7 years have shown that patients with NAFLD have significantly lower circulating 25-hydroxyvitamin D_3 levels compared to control populations without fatty liver disease; these studies have further correlated low vitamin D_3 levels with greater histological severity of NAFLD, independently of the coexistence of obesity, diabetes and other typical features of metabolic syndrome [6,12]. Although the aetiopathogenetic mechanisms which can explain this association are still not completely clear, it has been hypothesised that vitamin D_3 can play an important hepatoprotective role. Findings from both experimental and

Correspondence
Giovanni Targher
giovanni.targher@univr.it

Conflict of interest
The author declares no conflict of interest.

How to cite this article: Targher G. Circulating vitamin D_3 levels and risk of non-alcoholic fatty liver disease: is there a connection? Vitamin D – Updates 2022;5(4):142-144. https://doi.org/10.30455/2611-2876-2022-8e

in vitro studies have shown that vitamin D_3 is able to positively modulate insulin signalling (by improving insulin resistance at the muscular and hepatic levels), reduce the production of multiple prothrombotic, procoagulant and pro-oxidant factors and perform immunomodulatory actions, in addition to reducing the proliferation of fibroblasts and the production of collagen [6,12]. To date, however, the literature has not produced broad prospective cohort studies or ample randomised clinical trials which evaluate a possible correlation between circulating vitamin D_3 levels and risk of developing NAFLD; nor have researchers examined whether extended vitamin D_3 supplementation is able to reduce the risk of the development or progression of NAFLD/NASH (which is documented by means of a hepatic biopsy, the 'gold standard' for the diagnosis and staging of this liver pathology). Such data is clinically important so as to be able to confirm the biological plausibility and possible causal role of vitamin D_3 in the development and progression of NAFLD.

A recent observational study conducted by Kim et al. aimed to provide an answer to one of these specific points. The "Kangbuk Samsung Health Study", an interesting analysis of a broad cohort of Korean subjects [13], had two main objectives: (1) to determine if circulating baseline levels of 25-hydroxyvitamin D_3 could predict the risk of developing new incident forms of NAFLD and/or the probability of resolving known forms of NAFLD at follow-up; and (2) to examine the correlation of temporal variations of 25-hydroxyvitamin D_3 levels, measured at baseline and follow-up, with the probability of developing and/or resolving NAFLD [13].

With regard to the first objective (evaluation of the association between baseline vitamin D_3 levels and incidence of NAFLD), the authors screened a cohort of over 139,000 adult subjects (~44% males, average age 36.8 years, average BMI 22 kg/m^2) who had no history of alcohol abuse, NAFLD or other known liver pathologies [13]. These subjects were not selected on the basis of their baseline vitamin status: ~77% of the sample had baseline 25-hydroxyvitamin D_3 levels < 20 ng/mL. Circulating levels of 25-hydroxyvitamin D_3 were measured in all participants, and a liver ultrasound was performed at both baseline and follow-up. In the first part of the study, as reported in Table I, the authors clearly showed the existence of an inverse relation between circulating 25-hydroxyvitamin D_3 levels and risk of developing NAFLD (upon performance of the liver ultrasound) during the follow-up period (median time of roughly four years). This risk was independent of multiple known risk factors and other possible confounding influences [13]. To examine the link between baseline circulating levels of 25-hydroxyvitamin D_3 and the probability of resolving known forms of NAFLD during follow-up, a sample of roughly 48,700 subjects affected by NAFLD at baseline was analysed. In this case – as summarised in Table II – the authors reported a positive correlation of dose-effect type between circulating levels of 25-hydroxyvitamin D_3 at baseline and the probability of observing resolution of NAFLD at follow-up [13].

In connection with the second objective of the study (examination of the correlation between temporal variations of vitamin D_3 levels and the probability of developing and/or resolving NAFLD), the authors found that an increase in circulating levels of 25-hydroxyvitamin D_3 – passing, that is, from insufficient baseline values (< 20 ng/mL) to adequate ones (≥ 20 ng/mL) at follow-up (median period of 1.8 years) – was associated with a significantly reduced risk of developing NAFLD (adjusted Hazard Ratio [HR] 0.87, 95% confidence interval [IC] 0.82-0.91) in subjects who did not have NAFLD at baseline; on the contrary, consistently adequate values of 25-hydroxyvitamin D_3, at both baseline and follow-up (≥ 20 ng/mL), were correlated to a greater probability of resolution of NAFLD (adjusted HR 1.10, 95% IC 1.02-1.20) in subjects with NAFLD at baseline [13].

The results of this broad prospective cohort study therefore suggest that maintaining sufficient levels of 25-hydroxyvitamin D_3 can constitute an efficient approach in the primary and secondary prevention of NAFLD [13]. Nonetheless, the observational design of this study does not allow us to posit any causal inference regarding the observed correlation between levels of 25-hydroxyvitamin D_3 and risk of NAFLD, although it is in line with the recent observations of a Mendelian randomisation study, conducted on three European populations, which found a significant inverse relation between genetically predicted levels of 25-hydroxyvitamin D_3 and risk of NAFLD [14]. Other crucial limitations of the study by Kim et al. [13] include the fact that

TABLE I.
Risk of developing NAFLD (at the liver ultrasound) at follow-up based on circulating levels of hydroxyvitamin D_3 in subjects without NAFLD at baseline (n = 139,599) (from Kim et al., 2022 [13], modified).

Baseline 25(OH)D, ng/mL	Persons-years	Incident cases of NAFLD (n)	HR (95% CI) adjusted for gender and age	HR (95% CI) adjusted for multiple confounding factors
< 10	114,688	4,310	1.00 (reference)	1.00 (reference)
10-19	343,137	16,487	0,95 (95% IC 0,92-0,99)	0,89 (95% IC 0,86-0,92)
20-29	102,627	5,740	0,91 (95% IC 0,88-0,95)	0,81 (95% IC 0,78-0,85)
≥ 30	20,569	994	0,76 (95% IC 0,71-0,82)	0,72 (95% IC 0,67-0,77)
P–value per trend			< 0.001	< 0.001

TABLE II.
Resolution of NAFLD (at liver ultrasound) at follow-up based on circulating levels of hydroxyvitamin D_3 in subjects with NAFLD at baseline (n = 48,702) (from Kim et al., 2022 [13], modified).

Baseline 25(OH)D, ng/mL	Persons-years	Cases with resolution of NAFLD (n)	HR (95% CI) adjusted for gender and age	HR (95% CI) adjusted for multiple confounding factors
< 10	25,318	1,819	1,00 (reference)	1.00 (reference)
10-19	118,651	8,202	1.12 (95% IC 1.06-1.18)	1.09 (95% IC 1.03-1.15)
20-29	41,262	2,929	1.17 (95% IC 1.10-1.24)	1.13 (95% IC 1.06-1.21)
≥ 30	6,140	499	1.23 (95% IC 1.12-1.36)	1.21 (95% IC 1.09-1.35)
P-value per trend			< 0.001	< 0.001

the NAFLD diagnosis was established by means of a liver ultrasound, which may not be sufficiently accurate to show the presence of a slightly fatty liver, and that the population of the study was made up exclusively of Korean subjects (therefore limiting the extendibility of these observations to different ethnicities).

In spite of these defects, the findings of this broad longitudinal study [13] convincingly demonstrate the need to conduct broad randomised clinical trials in the near future with an adequate treatment duration in order to evaluate the possible benefits of vitamin D_3 supplementation on the risk of the development and progression of NAFLD/NASH (studies in which these hepatic outcomes are examined by liver biopsies). In addition, such trials must also take into account the vitamin D status of the participants, given that it is reasonable to suppose the any benefits from high-dose vitamin D_3 supplementation on NAFLD/NASH can be greater in patients with vitamin D deficiency with respect to those with normal circulating vitamin D_3 levels.

References

1. Autier P, Boniol M, Pizot C, et al. Vitamin D status and ill health: a systematic review. Lancet Diabetes Endocrinol 2014;2:76-89. https://doi.org/10.1016/S2213-8587(13)70165-7
2. Targher G, Pichiri I, Lippi G. Vitamin D, thrombosis, and hemostasis: more than skin deep. Semin Thromb Hemost 2012;38:114-124. https://doi.org/10.1055/s-0031-1300957
3. Lips P, Eekhoff M, van Schoor N, et al. Vitamin D and type 2 diabetes. J Steroid Biochem Mol Biol 2017;173:280-285. https://doi.org/10.1016/j.jsbmb.2016.11.021
4. Zittermann A, Trummer C, Theiler-Schwetz V, et al. Vitamin D and cardiovascular disease: an updated narrative review. Int J Mol Sci 2021;22:2896. https://doi.org/10.3390/ijms22062896
5. Marquina C, Mousa A, Scragg R, et al. Vitamin D and cardiometabolic disorders: a review of current evidence, genetic determinants and pathomechanisms. Obes Rev 2019;20:262-277. https://doi.org/10.1111/obr.12793
6. Targher G, Scorletti E, Mantovani A, et al. Nonalcoholic fatty liver disease and reduced serum vitamin D_3 levels. Metab Syndr Relat Disord 2013;11:217-228. https://doi.org/10.1089/met.2013.0044
7. Mantovani A, Scorletti E, Mosca A, et al. Complications, morbidity and mortality of nonalcoholic fatty liver disease. Metabolism 2020;111S:154170. https://doi.org/10.1016/j.metabol.2020.154170
8. Younossi ZM, Koenig AB, Abdelatif D, et al. Global epidemiology of nonalcoholic fatty liver disease-Meta-analytic assessment of prevalence, incidence, and outcomes. Hepatology 2016;64:73-84. https://doi.org/10.1002/hep.28431
9. Le MH, Yeo YH, Li X, et al. 2019 Global NAFLD prevalence: a systematic review and meta-analysis. Clin Gastroenterol Hepatol 2021:S1542-3565(21)01280-5. https://doi.org/10.1016/j.cgh.2021.12.002
10. Estes C, Anstee QM, Arias-Loste MT, et al. Modeling NAFLD disease burden in China, France, Germany, Italy, Japan, Spain, United Kingdom, and United States for the period 2016-2030. J Hepatol 2018;69:896-904. https://doi.org/10.1016/j.jhep.2018.05.036
11. Targher G, Tilg H, Byrne CD. Non-alcoholic fatty liver disease: a multisystem disease requiring a multidisciplinary and holistic approach. Lancet Gastroenterol Hepatol 2021;6:578-588. https://doi.org/10.1016/S2468-1253(21)00020-0
12. Zhang Z, Thorne JL, Moore JB. Vitamin D and nonalcoholic fatty liver disease. Curr Opin Clin Nutr Metab Care 2019;22:449-458. https://doi.org/10.1097/MCO.0000000000000605
13. Kim Y, Chang Y, Ryu S, et al. Resolution of, and risk of incident non-alcoholic fatty liver disease with changes in serum 25-hydroxy vitamin D status. J Clin Endocrinol Metab 2022;107;e3437-e3447. https://doi.org/10.1210/clinem/dgac255
14. Yuan S, Larsson SC. Inverse association between serum 25-hydroxyvitamin D and nonalcoholic fatty liver disease. Clin Gastroenterol Hepatol 2022;S1542-3565(22)00075-1. https://doi.org/10.1016/j.cgh.2022.01.021
15. Lippi G, Targher G. Are we overrating the extra-skeletal benefits of oral vitamin D supplementation? Ann Transl Med 2019;7:499. https://doi.org/10.21037/atm.2019.08.93

VITAMIN D
UpDates
2021;5(4):145-174

BIBLIOGRAPHIC SELECTION

CARDIOLOGY

- Bai L, Qu C, Feng Y, et al. Evidence of a casual relationship between vitamin D deficiency and hypertension: a family-based study. Hypertens Res. 2022 Sep 5. https://doi.org/10.1038/s41440-022-01004-0. Online ahead of print.PMID: 36064589
- Chen S, Gemelga G, Yeghiazarians Y. Is Vitamin D Supplementation an Effective Treatment for Hypertension? Curr Hypertens Rep. 2022 Oct;24(10):445-453. https://doi.org/10.1007/s11906-022-01204-6. Epub 2022 Jun 23.PMID: 35737199
- Cortese F, Costantino MF, Luzi G, et al. Vitamin D and cardiovascular disease risk. A literature overview. Mol Biol Rep. 2022 Sep;49(9):8925-8942. https://doi.org/10.1007/s11033-022-07373-6. Epub 2022 Apr 1.PMID: 35364717 Review
- Cuffee YL, Wang M, Geyer NR, et al. Vitamin D and family history of hypertension in relation to hypertension status among college students. J Hum Hypertens. 2022 Sep;36(9):839-845. https://doi.org/10.1038/s41371-021-00577-6. Epub 2021 Jul 20.PMID: 34285353
- Dziedzic EA, Gąsior JS, Tuzimek A, et al. The Association between Serum Vitamin D Concentration and New Inflammatory Biomarkers-Systemic Inflammatory Index (SII) and Systemic Inflammatory Response (SIRI)-In Patients with Ischemic Heart Disease. Nutrients. 2022 Oct 10;14(19):4212. https://doi.org/10.3390/nu14194212.PMID: 36235864
- Fliri AF, Kajiji S. Functional characterization of nutraceuticals using spectral clustering: Centrality of caveolae-mediated endocytosis for management of nitric oxide and vitamin D deficiencies and atherosclerosis. Front Nutr. 2022 Aug 15;9:885364. https://doi.org/10.3389/fnut.2022.885364. eCollection 2022.PMID: 36046126
- Gharib AF, Askary AE, Almehmadi M, et al. Association of Vitamin D Deficiency, Dyslipidemia, and Obesity with the Incidence of Coronary Artery Diseases in Type 2 Diabetic Saudi Patients. Clin Lab. 2022 Oct 1;68(10). https://doi.org/10.7754/Clin.Lab.2022.211104.PMID: 36250846
- Gonzalez PE, Hlatky MA, Manson JE, et al. Statin-associated muscle symptoms in the VITamin D and OmegA-3 TriaL (VITAL). Am Heart J. 2022 Oct;252:39-41. https://doi.org/10.1016/j.ahj.2022.06.001. Epub 2022 Jun 16.PMID: 35717999
- González Rojo P, Pérez Ramírez C, Gálvez Navas JM, et al. Vitamin D-Related Single Nucleotide Polymorphisms as Risk Biomarker of Cardiovascular Disease. Int J Mol Sci. 2022 Aug 4;23(15):8686. https://doi.org/10.3390/ijms23158686.PMID: 35955825
- Hazique M, Khan KI, Ramesh P, et al. A Study of Vitamin D and Its Correlation With Severity and Complication of Congestive Heart Failure: A Systematic Review. Cureus. 2022 Sep 6;14(9):e28873. https://doi.org/10.7759/cureus.28873. eCollection 2022 Sep.PMID: 36225454
- Huyut Z, Alp HH, Bakan N, et al. Stimulating effects of vardenafil, tadalafil, and udenafil on vascular endothelial growth factor, angiogenesis, vitamin D3, bone morphogenic proteins in ovariectomized rats. Arch Physiol Biochem. 2022 Aug;128(4):1121-1127. https://doi.org/10.1080/13813455.2020.1755695. Epub 2020 Apr 21.PMID: 32314927
- Huyut Z, Bakan N, Akbay Hİ, et al. Zaprinast and avanafil increase the vascular endothelial growth factor, vitamin D3, bone morphogenic proteins 4 and 7 levels in the kidney tissue of male rats applied the glucocorticoid. Arch Physiol Biochem. 2022 Oct;128(5):1290-1296. https://doi.org/10.1080/13813455.2020.1767149. Epub 2020 May 18.PMID: 32421396
- Kassis N, Hariri E, Kapadia S. Response to: Rapid response by Diehl on 'Supplemental calcium and vitamin D and long-term mortality in aortic stenosis'. Heart. 2022 Aug 11;108(17):1415. https://doi.org/10.1136/heartjnl-2022-321395. PMID: 35725299
- Khansari N, Bagheri M, Homayounfar S, et al. Influence of Vitamin D Status on the Main-

tenance Dose of Warfarin in Patients Receiving Chronic Warfarin Therapy. Cardiol Ther. 2022 Sep;11(3):421-432. https://doi.org/10.1007/s40119-022-00268-4. Epub 2022 Jun 20.PMID: 35718837

- Khater WA, Alfarkh MA, Allnoubani A. The Association Between Vitamin D Level and Chest Pain, Anxiety, and Fatigue in Patients With Coronary Artery Disease. Clin Nurs Res. 2022 Oct 7:10547738221126325. https://doi.org/10.1177/10547738221126325. Online ahead of print.PMID: 36205377
- Kose M, Senkal N, Tukek T, et al. Severe vitamin D deficiency is associated with endothelial inflammation in healthy individuals even in the absence of subclinical atherosclerosis. Eur Rev Med Pharmacol Sci. 2022 Oct;26(19):7046-7052. https://doi.org/10.26355/eurrev_202210_29888.PMID: 36263552
- Levy PD, Twiner MJ, Brody AM, et al. Does Vitamin D Provide Added Benefit To Antihypertensive Therapy In Reducing LVH Determined By CMR? Am J Hypertens. 2022 Aug 26:hpac096. https://doi.org/10.1093/ajh/hpac096. Online ahead of print.PMID: 36008108
- Luo Q, Yan W, Nie Q, et al. Vitamin D and heart failure: A two-sample mendelian randomization study. Nutr Metab Cardiovasc Dis. 2022 Nov;32(11):2612-2620. https://doi.org/10.1016/j.numecd.2022.08.003. Epub 2022 Aug 11.PMID: 36064684
- Nudy M, Xie R, O'Sullivan DM, et al. Association between coronary artery vitamin D receptor expression and select systemic risks factors for coronary artery atherosclerosis. Climacteric. 2022 Aug;25(4):369-375. https://doi.org/10.1080/13697137.2021.1985992. Epub 2021 Oct 25.PMID: 34694941
- Olivencia MA, Esquivel-Ruiz S, Callejo M, et al. Cardiac and Pulmonary Vascular Dysfunction in Vitamin D-Deficient Bmpr2-Mutant Rats. Am J Respir Cell Mol Biol. 2022 Sep;67(3):402-405. https://doi.org/10.1165/rcmb.2022-0001LE. PMID: 36047774
- Rüdiger IH, Andersen MK, Vestergaard AL, et al. Is Vitamin D Deficiency Prothrombotic? A Systematic Review. Semin Thromb Hemost. 2022 Sep 29. https://doi.org/10.1055/s-0042-1756701. Online ahead of print.PMID: 36174611
- Said MA. Vitamin D attenuates endothelial dysfunction in streptozotocin induced diabetic rats by reducing oxidative stress. Arch Physiol Biochem. 2022 Aug;128(4):959-963. https://doi.org/10.1080/13813455.2020.1741645. Epub 2020 Apr 1.PMID: 32233807
- Sen A, Vincent V, Thakkar H, et al. Beneficial Role of Vitamin D on Endothelial Progenitor Cells (EPCs) in Cardiovascular Diseases. J Lipid Atheroscler. 2022 Sep;11(3):229-249. https://doi.org/10.12997/jla.2022.11.3.229. Epub 2022 Apr 29
- Uguz B, Oztas S, Zengin I, et al. Relationship between vitamin D deficiency and thrombus load in patients with ST-elevation myocardial infarction. Eur Rev Med Pharmacol Sci. 2022 Oct;26(19):7015-7023. https://doi.org/10.26355/eurrev_202210_29885.PMID: 36263549
- Wolf ST, Dillon GA, Alexander LM, et al. Skin pigmentation is negatively associated with circulating vitamin D concentration and cutaneous microvascular endothelial function. Am J Physiol Heart Circ Physiol. 2022 Sep 1;323(3):490-498. https://doi.org/10.1152/ajpheart.00309.2022. Epub 2022 Aug 5.PMID: 35930446
- Yan X, Wei Y, Wang D, et al. Four common vitamin D receptor polymorphisms and coronary artery disease susceptibility: A trial sequential analysis. PLoS One. 2022 Oct 3;17(10):e0275368. https://doi.org/10.1371/journal.pone.0275368. eCollection 2022.PMID: 36190985
- Zhou Y, Jiang M, Sun JY, et al. The Association Between Vitamin D Levels and the 10-Year Risk of Atherosclerotic Cardiovascular Disease: A Population-Based Study. J Cardiovasc Nurs. 2022 Sep 29. https://doi.org/10.1097/JCN.0000000000000943. Online ahead of print.PMID: 36178328

CORONAVIRUS DISEASE

- Anuroj K. Vitamin D Deficiency and Depression in Thai Medical Students During COVID-19 Pandemic: a Cross-Sectional Study. East Asian Arch Psychiatry. 2022 Sep;32(3):51-56. https://doi.org/10.12809/eaap2209.PMID: 36172722
- Araújo TSS, Santos CS, Soares JKB, et al. Vitamin D: a potentially important secosteroid for coping with COVID-19. An Acad Bras Cienc. 2022 Aug 19;94(2):e20201545. https://doi.org/10.1590/0001-3765202220201545. eCollection 2022.PMID: 36000671
- Bahmani E, Hoseini R, Amiri E. The Effect of Home-Based Aerobic Training and Vitamin D Supplementation on Fatigue and Quality of Life in Patients with Multiple Sclerosis During COVID-19 Outbreak. Sci Sports. 2022 Sep 12. https://doi.org/10.1016/j.scispo.2021.12.014. Online ahead of print.PMID: 36119949
- Barrett R, Youssef M, Shah I, et al. Vitamin D Status and Mortality from SARS CoV-2: A Prospective Study of Unvaccinated Caucasian Adults. Nutrients. 2022 Aug 9;14(16):3252. https://doi.org/10.3390/nu14163252.PMID: 36014757
- Ben-Eltriki M, Hopefl R, Wright JM, et al. Association between Vitamin D Status and Risk of Developing Severe COVID-19 Infection: A Meta-Analysis of Observational Studies. J Am Nutr Assoc. 2022 Sep-Oct;41(7):679-689. https://doi.org/10.1080/07315724.2021.1951891. Epub 2021 Aug 31.PMID: 34464543
- Bičíková M, Máčová L, Hill M. Vitamin D as a Possible COVID-19 Prevention Strategy. Int J Mol Sci. 2022 Sep 11;23(18):10532. https://doi.org/10.3390/ijms231810532.PMID: 36142443
- Brenner H, Schöttker B, Niedermaier T. Vitamin D3 for reducing mortality from cancer and other outcomes before, during and beyond the COVID-19 pandemic: A plea for harvesting low-hanging fruit. Cancer Commun (Lond). 2022 Aug;42(8):679-682. https://doi.org/10.1002/cac2.12328. Epub 2022 Jul 6.PMID: 35792358
- Brunvoll SH, Nygaard AB, Ellingjord-Dale M, et al. Prevention of covid-19 and other acute respiratory infections with cod liver oil supplementation, a low dose vitamin D supplement: quadruple blinded, randomised placebo controlled trial. BMJ. 2022 Sep 7;378:e071245. https://doi.org/10.1136/bmj-2022-071245.PMID: Free PMC article. Clinical Trial
- Chambers P. Comment on Huţanu et al. Low Serum Vitamin D in COVID-19 Patients Is Not Related to Inflammatory Markers and Patients' Outcomes-A Single-Center Experience and a Brief Review of the Literature. Nutrients 2022, 14, 1998. Nutrients. 2022 Aug 18;14(16):3387. https://

doi.org/10.3390/nu14163387.PMID: 36014893

- Cicero AFG, Fogacci F, Borghi C. Vitamin D Supplementation and COVID-19 Outcomes: Mounting Evidence and Fewer Doubts. Nutrients. 2022 Aug 31;14(17):3584. https://doi.org/10.3390/nu14173584.PMID: 36079842
- Crandell I, Rockwell M, Whitehead P, et al. Examination of the Moderating Effect of Race on the Relationship between Vitamin D Status and COVID-19 Test Positivity Using Propensity Score Methods. J Am Nutr Assoc. 2022 Sep-Oct;41(7):646-657. https://doi.org/10.1080/07315724.2021.1948932. Epub 2021 Sep 2.PMID: 34473011
- Dana N, Nasirian M, Vaseghi G, et al. Vitamin D Level in Laboratory Confirmed COVID-19 and Disease Progression. Eurasian J Med. 2022 Aug 11. https://doi.org/10.5152/eurasianjmed.2022.21088. Online ahead of print.PMID: 35950827
- Del Giudice MM, Indolfi C, Dinardo G, et al. Vitamin D status can affect COVID-19 outcomes also in pediatric population. PharmaNutrition. 2022 Oct 14:100319. https://doi.org/10.1016/j.phanu.2022.100319. Online ahead of print. PMID: 36268528
- Desai KB, Karumuri K, Mondkar SA, et al. Influence of vitamin D levels on outcomes and nosocomial COVID-19 infection in patients undergoing total knee arthroplasty- a cohort study. J Orthop. 2022 Nov-Dec;34:8-13. https://doi.org/10.1016/j.jor.2022.07.022. Epub 2022 Aug 2.PMID: 35935447
- Dhawan M, Priyanka, Choudhary OP. Immunomodulatory and therapeutic implications of vitamin D in the management of COVID-19. Hum Vaccin Immunother. 2022 Dec 31;18(1):2025734. https://doi.org/10.1080/21645515.2022.2025734. Epub 2022 Jan 24.PMID: 35072581
- Doğan A, Dumanoğlu Doğan İ, Uyanık M, et al. The Clinical Significance of Vitamin D and Zinc Levels with Respect to Immune Response in COVID-19 Positive Children. J Trop Pediatr. 2022 Aug 4;68(5):fmac072. https://doi.org/10.1093/tropej/fmac072.PMID: 35994727
- Durmuş ME, Kara Ö, Kara M, et al. The relationship between vitamin D deficiency and mortality in older adults before and during COVID-19 pandemic. Heart Lung. 2022 Sep 19;57:117-123. https://doi.org/10.1016/j.hrtlng.2022.09.007. Online ahead of print.PMID: 36182862
- Fernandes AL, Sales LP, Santos MD, et al. Persistent or new symptoms 1 year after a single high dose of vitamin D3 in patients with moderate to severe COVID-19. Front Nutr. 2022 Sep 13;9:979667. https://doi.org/10.3389/fnut.2022.979667. eCollection 2022.PMID: 36176639
- Ganta A, Pillai SS, Fredette ME, et al. Severe Vitamin D Deficiency in Youth with Autism Spectrum Disorder During the COVID-19 Pandemic. J Dev Behav Pediatr. 2022 Oct-Nov 01;43(8):461-464. https://doi.org/10.1097/DBP.0000000000001096. Epub 2022 Jun 15.PMID: 35943373
- Gholi Z, Yadegarynia D, Eini-Zinab H, et al. Vitamin D deficiency is Associated with Increased Risk of Delirium and Mortality among Critically Ill, Elderly Covid-19 Patients. Complement Ther Med. 2022 Nov;70:102855. https://doi.org/10.1016/j.ctim.2022.102855. Epub 2022 Jul 19.PMID: 35868492
- Hafez W. Commentary: Vitamin D status in relation to the clinical outcome of hospitalized COVID-19 patients. Front Med (Lausanne). 2022 Aug 12;9:977540. https://doi.org/10.3389/fmed.2022.977540. eCollection 2022.PMID: 36035432
- Hafezi S, Saheb Sharif-Askari F, et al. Vitamin D enhances type I IFN signaling in COVID-19 patients. Sci Rep. 2022 Oct 22;12(1):17778. https://doi.org/10.1038/s41598-022-22307-9. PMID: 36273032
- Hafkamp FMJ, Mol S, Waqué I, et al. Dexamethasone, but Not Vitamin D or A, Dampens the Inflammatory Neutrophil Response to Protect At-risk COVID-19 Patients. Immune Netw. 2022 Apr 19;22(4):e36. https://doi.org/10.4110/in.2022.22.e36. eCollection 2022 Aug.PMID: 36081524
- Huţanu A, Georgescu AM, Voidăzan S, et al. Reply to Chambers, P. Comment on "Huţanu et al. Low Serum Vitamin D in COVID-19 Patients Is Not Related to Inflammatory Markers and Patients' Outcomes-A Single-Center Experience and a Brief Review of the Literature. Nutrients 2022, 14, 1998". Nutrients. 2022 Aug 18;14(16):3389. https://doi.org/10.3390/nu14163389.PMID: 36014895
- Jahangirimehr A, Abdolahi Shahvali E, Rezaeijo SM, et al. Machine learning approach for automated predicting of COVID-19 severity based on clinical and paraclinical characteristics: Serum levels of zinc, calcium, and vitamin D. Clin Nutr ESPEN. 2022 Oct;51:404-411. https://doi.org/10.1016/j.clnesp.2022.07.011. Epub 2022 Jul 31.PMID: 36184235
- Jolliffe DA, Holt H, Greenig M, et al. Effect of a test-and-treat approach to vitamin D supplementation on risk of all cause acute respiratory tract infection and covid-19: phase 3 randomised controlled trial (CORONAVIT). BMJ. 2022 Sep 7;378:e071230. https://doi.org/10.1136/bmj-2022-071230
- Jolliffe DA, Vivaldi G, Chambers ES, et al. Vitamin D Supplementation Does Not Influence SARS-CoV-2 Vaccine Efficacy or Immunogenicity: Sub-Studies Nested within the CORONAVIT Randomised Controlled Trial. Nutrients. 2022 Sep 16;14(18):3821. https://doi.org/10.3390/nu14183821.PMID: 36145196
- Khorasanchi Z, Jafazadeh Esfehani A, Sharifan P, et al. The effects of high dose vitamin D supplementation as a nutritional intervention strategy on biochemical and inflammatory factors in adults with COVID-19: Study protocol for a randomized controlled trial. Nutr Health. 2022 Sep;28(3):311-317. https://doi.org/10.1177/02601060221082384. Epub 2022 Mar 24.PMID: 35322711
- Kwok T. Vitamin D supplementation to prevent COVID-19 in older people. Hong Kong Med J. 2022 Sep 21. https://doi.org/10.12809/hkmj2210186. Online ahead of print.PMID: 36127800
- Lee KC, Kim JS, Kwak YS. Relation of pandemics with solar cycles through ozone, cloud seeds, and vitamin D. Environ Sci Pollut Res Int. 2022 Sep 23:1-10. https://doi.org/10.1007/s11356-022-22982-1. Online ahead of print.PMID: 36149564
- Li B, Yang S, Hou N. Could vitamin D supplementation play a role against COVID-19? Front Immunol. 2022 Sep 12;13:967215. https://doi.org/10.3389/fimmu.2022.967215. eCollection 2022.PMID: 36172345

- Liao TH, Wu HC, Liao MT, et al. The Perspective of Vitamin D on suPAR-Related AKI in COVID-19. Int J Mol Sci. 2022 Sep 14;23(18):10725. https://doi.org/10.3390/ijms231810725.PMID: 36142634
- Lu RJ, Shirvani P, Holick MF. A Novel Immunomodulatory Mechanism by Which Vitamin D Influences Folate Receptor 3 Expression to Reduce COVID-19 Severity. Anticancer Res. 2022 Oct;42(10):5043-5048. https://doi.org/10.21873/anticanres.16013.PMID: 36192006 Review
- Lugg ST, Mackay WR, Faniyi AA, et al. Vitamin D status: a U-shaped relationship for SARS-CoV-2 seropositivity in UK healthcare workers. BMJ Open Respir Res. 2022 Sep;9(1):e001258. https://doi.org/10.1136/bmjresp-2022-001258. PMID: 36167472
- Manca A, Cosma S, Palermiti A, et al. Pregnancy and COVID-19: The Possible Contribution of Vitamin D. Nutrients. 2022 Aug 10;14(16):3275. https://doi.org/10.3390/nu14163275.PMID: 36014781
- Martineau AR, Cantorna MT. Vitamin D for COVID-19: where are we now? Nat Rev Immunol. 2022 Sep;22(9):529-530. https://doi.org/10.1038/s41577-022-00765-6.PMID: 35869321
- Mazaheri-Tehrani S, Mirzapour MH, Yazdi M, et al. Serum vitamin D levels and COVID-19 during pregnancy: A systematic review and meta-analysis. Clin Nutr ESPEN. 2022 Oct;51:120-127. https://doi.org/10.1016/j.clnesp.2022.09.008. Epub 2022 Sep 9.PMID: 36184196
- McKenna MJ, Lyons OC, Flynn MA, et al. COVID-19 pandemic and vitamin D: rising trends in status and in daily amounts of vitamin D provided by supplements. BMJ Open. 2022 Aug 4;12(8):e059477. https://doi.org/10.1136/bmjopen-2021-059477.PMID: 35926985
- Mungmunpuntipantip R, Wiwanitkit V. Vitamin D deficiency and vitamin D receptor FokI polymorphism as risk factors for COVID-19: correspondence. Pediatr Res. 2022 Oct 19:1. https://doi.org/10.1038/s41390-022-02348-6. Online ahead of print.PMID: 36261502
- Neves FF, Pott-Junior H, de Sousa Santos S, et al. Vitamin D deficiency predicts 30-day hospital mortality of adults with COVID-19. Clin Nutr ESPEN. 2022 Aug;50:322-325. https://doi.org/10.1016/j.clnesp.2022.05.027. Epub 2022 Jun 14.PMID: 35871942
- Notz Q, Stoppe C. Reply - Letter to the Editor: Vitamin D deficiency in critically ill COVID-19 ARDS patients. Clin Nutr. 2022 Sep;41(9):2038-2039. https://doi.org/10.1016/j.clnu.2022.01.006. Epub 2022 Jan 17.PMID: 35120775
- Pini S, Scaparrotta G, DI Vico V, et al. Vitamin D intoxication induced severe hypercalcemia from self-medication for COVID-19 infection: a public health problem? Minerva Endocrinol (Torino). 2022 Sep;47(3):371-374. https://doi.org/10.23736/S2724-6507.22.03795-2. Epub 2022 Jul 1.PMID: 35775886
- Santos MERA, Barros WMA, Fernandes MSS, et al. Letter to the editor: Vitamin D deficiency in critically ill COVID-19 ARDS patients. Clin Nutr. 2022 Sep;41(9):2036-2037. https://doi.org/10.1016/j.clnu.2022.01.003. Epub 2022 Jan 17.PMID: 35123824
- Seal KH, Bertenthal D, Bikle DD. Response to Letters to the Editor RE: Association of Vitamin D Status and COVID-19-Related Hospitalization and Mortality. J Gen Intern Med. 2022 Oct;37(13):3494. https://doi.org/10.1007/s11606-022-07661-8. Epub 2022 Jun 1.PMID: 35727478
- Sharif-Askari FS, Hafezi S, Sharif-Askari NS, et al. Vitamin D modulates systemic inflammation in patients with severe COVID-19. Life Sci. 2022 Oct 15;307:120909. https://doi.org/10.1016/j.lfs.2022.120909. Epub 2022 Aug 24.PMID: 36028169
- Sharma KK, Partap U, Mistry N, et al. Randomised trial to determine the effect of vitamin D and zinc supplementation for improving treatment outcomes among patients with COVID-19 in India: trial protocol. BMJ Open. 2022 Aug 29;12(8):e061301. https://doi.org/10.1136/bmjopen-2022-061301.PMID: 36038172
- Speeckaert MM, Delanghe JR. Association of Vitamin D Status and COVID-19-Related Hospitalization and Mortality. J Gen Intern Med. 2022 Oct;37(13):3491-3492. https://doi.org/10.1007/s11606-022-07658-3. Epub 2022 May 17.PMID: 35581451
- Subramanian S, Griffin G, Hewison M, et al. Vitamin D and COVID-19-Revisited. J Intern Med. 2022 Oct;292(4):604-626. https://doi.org/10.1111/joim.13536. Epub 2022 Jul 15.PMID: 35798564
- Suo Y. Re. "Cohort study to evaluate the effect of vitamin D, magnesium, and vitamin B12 in combination on progression to severe outcomes in older patients with coronavirus (COVID-19)" by Tan et al. (2020). Nutrition. 2022 Aug 31:111831. https://doi.org/10.1016/j.nut.2022.111831. Online ahead of print.PMID: 36175259
- Szerszeń MD, Kucharczyk A, Bojarska-Senderowicz K, et al. Effect of Vitamin D Concentration on Course of COVID-19. Med Sci Monit. 2022 Oct 3;28:e937741. https://doi.org/10.12659/MSM.937741.PMID: 36184836
- Tangwonglert T, Davenport A. The effect of prescribing vitamin D analogues and serum vitamin D status on both contracting COVID-19 and clinical outcomes in kidney dialysis patients'. Nephrology (Carlton). 2022 Oct;27(10):815-822. https://doi.org/10.1111/nep.14071. Epub 2022 Jun 18.PMID: 35665987
- Tiwari A, Singh G, Choudhir G, et al. Deciphering the Potential of Pre and Pro-Vitamin D of Mushrooms against Mpro and PLpro Proteases of COVID-19: An In Silico Approach. Molecules. 2022 Aug 31;27(17):5620. https://doi.org/10.3390/molecules27175620. PMID: 36080385
- Torpoco Rivera D, Misra A, Sanil Y, et al. Vitamin D and morbidity in children with Multisystem inflammatory syndrome related to Covid-19. Prog Pediatr Cardiol. 2022 Sep;66:101507. https://doi.org/10.1016/j.ppedcard.2022.101507. Epub 2022 Mar 1.PMID: 35250251
- Vasheghani M, Rekabi M, Sadr M. Protective role of vitamin D status against COVID-19: a mini-review. Endocrine. 2022 Oct 18:1-8. https://doi.org/10.1007/s12020-022-03203-8. Online ahead of print.PMID: 36258153
- Vaughan M, Trott M, Sapkota R, et al. Changes in 25-hydroxyvitamin D levels post-vitamin D supplementation in people of Black and Asian ethnicities and its implications during COVID-19 pandemic: A systematic review. J Hum Nutr Diet. 2022 Oct;35(5):995-1005. https://doi.org/10.1111/jhn.12949. Epub 2021 Oct 6.PMID: 34617343

- Vieth R. Critique of Public Health Guidance for Vitamin D and Sun Exposure in the Context of Cancer and COVID-19. Anticancer Res. 2022 Oct;42(10):5027-5034. https://doi.org/10.21873/anticanres.16011.PMID: 36191997 Review
- Zeidan NMS, Lateef HMAE, Selim DM, et al. Vitamin D deficiency and vitamin D receptor FokI polymorphism as risk factors for COVID-19. Pediatr Res. 2022 Sep 9:1-8. https://doi.org/10.1038/s41390-022-02275-6. Online ahead of print.PMID: 36085364
- Zelini P, d'Angelo P, Cereda E, et al. Association between Vitamin D Serum Levels and Immune Response to the BNT162b2 Vaccine for SARS-CoV-2. Biomedicines. 2022 Aug 17;10(8):1993. https://doi.org/10.3390/biomedicines10081993. PMID: 36009540

DERMATOLOGY

- AbdElneam AI, Al-Dhubaibi MS, Bahaj SS, et al. TaqI polymorphism T/t genotypes at the vitamin D receptor gene (VDR) are associated with increased serum vitamin D levels in mild and moderate psoriasis vulgaris: A pilot study. J Gene Med. 2022 Oct;24(10):e3449. https://doi.org/10.1002/jgm.3449. Epub 2022 Sep 21.PMID: 36108165
- Afvari S, Kazlouskaya M, Cline A. Reply to "Vitamin D status in scarring and nonscarring alopecia". J Am Acad Dermatol. 2022 Aug;87(2):e89-e90. https://doi.org/10.1016/j.jaad.2022.04.055. Epub 2022 May 5.PMID: 35526652
- Ali S, Collins M, Wiss IP, et al. Vitamin D deficiency among patients with lichen planopilaris or frontal fibrosing alopecia. JAAD Int. 2022 Jul 20;8:109-110. https://doi.org/10.1016/j.jdin.2022.05.010. eCollection 2022 Sep.PMID: 35875397
- Barlianto W, Wulandari D, Sari TL, et al. Vitamin D, cytokine profiles, and disease severity in infants with atopic dermatitis: a single centre, cross-sectional study. Postepy Dermatol Alergol. 2022 Aug;39(4):793-799. https://doi.org/10.5114/ada.2022.118923. Epub 2022 Sep 1.PMID: 36090733
- Bhat GH, Guldin S, Khan MS, et al. Vitamin D status in Psoriasis: impact and clinical correlations. BMC Nutr. 2022 Oct 19;8(1):115. https://doi.org/10.1186/s40795-022-00610-y.PMID: 36261848
- Bikle DD. Role of vitamin D and calcium signaling in epidermal wound healing. J Endocrinol Invest. 2022 Aug 13. https://doi.org/10.1007/s40618-022-01893-5. Online ahead of print.PMID: 35963983
- Brożyna AA, Slominski RM, Nedoszytko B, et al. Vitamin D Signaling in Psoriasis: Pathogenesis and Therapy. Int J Mol Sci. 2022 Aug 2;23(15):8575. https://doi.org/10.3390/ijms23158575.PMID: 35955731
- Cabalín C, Pérez-Mateluna G, Iturriaga C, et al. Oral vitamin D modulates the epidermal expression of the vitamin D receptor and cathelicidin in children with atopic dermatitis. Arch Dermatol Res. 2022 Oct 22. https://doi.org/10.1007/s00403-022-02416-1. Online ahead of print.PMID: 36273083
- Collins MS, Ali S, Wiss IP, et al. Increased risk of vitamin D deficiency and insufficiency in Black patients with central centrifugal cicatricial alopecia. J Am Acad Dermatol. 2022 Sep;87(3):689-691. https://doi.org/10.1016/j.jaad.2022.02.018. Epub 2022 Feb 15.PMID: 35176399
- Collins MS, Ezemma O, Senna MM. Response to Weinstein's "Reply of Increased risk of vitamin D deficiency and insufficiency in Black patients with central centrifugal cicatricial alopecia.". J Am Acad Dermatol. 2022 Aug 13:S0190-9622(22)02537-3. https://doi.org/10.1016/j.jaad.2022.08.016. Online ahead of print.PMID: 35973596
- Gamonal SBL, Gamonal ACC, Marques NCV, et al. 25-Hydroxyvitamin D as a biomarker of vitamin D status in plaque psoriasis and other dermatological diseases: a cross-sectional study. Sao Paulo Med J. 2022 Aug 12:S1516-31802022005020205. https://doi.org/10.1590/1516-3180.2022.0164.R1.19052022. Online ahead of print. PMID: 35976371
- Garner KM, Zavala S, Pape KO, et al. A multicenter study analyzing the association of vitamin D deficiency and replacement with infectious outcomes in patients with burn injuries. Burns. 2022 Sep;48(6):1319-1324. https://doi.org/10.1016/j.burns.2021.10.020. Epub 2021 Nov 6.PMID: 34903417
- Gilaberte Y, Moreno R, Juarranz A, et al. Significant improvement of facial actinic keratoses after blue light photodynamic therapy with oral vitamin D pretreatment. J Am Acad Dermatol. 2022 Nov;87(5):e165. https://doi.org/10.1016/j.jaad.2022.05.064. Epub 2022 Jun 17.PMID: 35724893
- Gracia-Darder I, Carrera C, Alamon-Reig F, et al. Vitamin D deficiency in melanoma patients is associated with worse overall survival: a retrospective cohort study. Melanoma Res. 2022 Oct 1;32(5):384-387. https://doi.org/10.1097/CMR.0000000000000842. Epub 2022 Aug 17.PMID: 35979670
- Hassan GFR, Sadoma MET, Elbatsh MM, et al. Treatment with oral vitamin D alone, topical minoxidil, or combination of both in patients with female pattern hair loss: A comparative clinical and dermoscopic study. J Cosmet Dermatol. 2022 Sep;21(9):3917-3924. https://doi.org/10.1111/jocd.14743. Epub 2022 Jan 10.PMID: 35001510
- Kaushik H, Mahajan R, Dabas G, et al. A cross-sectional study to find association of VDR gene polymorphism with non-syndromic congenital ichthyosis and with vitamin D deficiency. Arch Dermatol Res. 2022 Oct 3. https://doi.org/10.1007/s00403-022-02399-z. Online ahead of print. PMID: 36192561
- Lee YH, Song GG. Association between vitamin D receptor polymorphisms and vitiligo susceptibility: An updated meta-analysis. J Cosmet Dermatol. 2022 Oct 17. https://doi.org/10.1111/jocd.15474. Online ahead of print.PMID: 36254395
- Liu X, Yao Z, Wang Y, et al. Vitamin D analogs combined with different types of phototherapy in the treatment of vitiligo: A systematic review of randomized trials and within-patient studies. Int Immunopharmacol. 2022 Aug;109:108789. https://doi.org/10.1016/j.intimp.2022.108789. Epub 2022 Apr 22.PMID: 35468365
- Moisejenko-Goluboviča J, Groma V, Svirskis Š, et al. Serum Vitamin D Levels Explored in the Latvian Cohort of Patients with Basal Cell Carcinoma Linked to the Sonic Hedgehog and Vitamin D Binding Protein Cutaneous Tissue Indices. Nutrients. 2022 Aug 16;14(16):3359. https://doi.org/10.3390/nu14163359.PMID: 36014865
- Moreno-Alonso de Celada R, Gracia-Cazaña T, et al. Influence of serum vitamin D level in the response of actinic keratosis to ingenol mebutate. Dermatol Ther. 2022 Oct

19:e15949. https://doi.org/10.1111/dth.15949. Online ahead of print.PMID: 36261393

- Orchard D. Preventing atopic eczema: vitamin D supplementation another piece of the puzzle? Br J Dermatol. 2022 Aug 20. https://doi.org/10.1111/bjd.21806. Online ahead of print.PMID: 35986638
- Patel S, Patel S, Shah RM, et al. Effects of sun protection on serum vitamin D deficiency. Photodermatol Photoimmunol Photomed. 2022 Oct 1. https://doi.org/10.1111/phpp.12838. Online ahead of print.PMID: 36181727
- Pokharel R, Agrawal S, Pandey P, et al. Assessment of Vitamin D Level in Patients with Psoriasis and Its Correlation with Disease Severity: A Case-Control Study. Psoriasis (Auckl). 2022 Sep 13;12:251-258. https://doi.org/10.2147/PTT.S369426. eCollection 2022.PMID: 36124338
- Slominski AT, Brożyna AA, Kim TK, et al. CYP11A1-derived vitamin D hydroxyderivatives as candidates for therapy of basal and squamous cell carcinomas. Int J Oncol. 2022 Aug;61(2):96. https://doi.org/10.3892/ijo.2022.5386. Epub 2022 Jul 1.PMID: 35775377
- Song Y, Lu H, Cheng Y. To identify the association between dietary vitamin D intake and serum levels and risk or prognostic factors for melanoma-systematic review and meta-analysis. BMJ Open. 2022 Aug 26;12(8):e052442. https://doi.org/10.1136/bmjopen-2021-052442. PMID: 36028262
- Weinstein AH. Reply to Increased risk of vitamin D deficiency and insufficiency in Black patients with central centrifugal cicatricial alopecia. J Am Acad Dermatol. 2022 Aug 12:S0190-9622(22)02538-5. https://doi.org/10.1016/j.jaad.2022.07.059. Online ahead of print.PMID: 35964829

ENDOCRINOLOGY

- Aladel A, Verma AK, Dabeer S, et al. Association of lncRNA LINC01173 Expression with Vitamin-D and Vitamin B12 Level Among Type 2 Diabetes Patients. Diabetes Metab Syndr Obes. 2022 Aug 19;15:2535-2543. https://doi.org/10.2147/DMSO.S369012. eCollection 2022.PMID: 36016630
- Alfaqih MA, Melhem NY, F Khabour O, et al. Normalization of Vitamin D Serum Levels in Patients with Type Two Diabetes Mellitus Reduces Levels of Branched Chain Amino Acids. Medicina (Kaunas). 2022 Sep 13;58(9):1267. https://doi.org/10.3390/medicina58091267. PMID: 36143944
- Alhawari H, Jarrar Y, Abulebdah D, et al. Effects of Vitamin D Receptor Genotype on Lipid Profiles and Retinopathy Risk in Type 2 Diabetes Patients: A Pilot Study. J Pers Med. 2022 Sep 11;12(9):1488. https://doi.org/10.3390/jpm12091488.PMID: 36143273
- Alrefai AA, Elsalamony E, Fatani SH, et al. The Association between Vitamin D Hypovitaminosis and Cardiovascular Disease Risk in Saudi Diabetic Patients Type II. Biochem Res Int. 2022 Sep 23;2022:6097864. https://doi.org/10.1155/2022/6097864. eCollection 2022.PMID: 36193546
- Awad EA, Torky MA, Bassiouny RM, et al. Thyroid gland dysfunction and vitamin D receptor gene polymorphism in keratoconus. Eye (Lond). 2022 Aug 1. https://doi.org/10.1038/s41433-022-02172-6. Online ahead of print.PMID: 35915233
- Bennour I, Haroun N, Sicard F, et al. Recent insights into vitamin D, adipocyte, and adipose tissue biology. Obes Rev. 2022 Aug;23(8):e13453. https://doi.org/10.1111/obr.13453. Epub 2022 Apr 2.PMID: 35365943 Review
- Bueno AC, More CB, Marrero-Gutiérrez J, et al. Vitamin D receptor activation is a feasible therapeutic target to impair adrenocortical tumorigenesis. Mol Cell Endocrinol. 2022 Dec 1;558:111757. https://doi.org/10.1016/j.mce.2022.111757. Epub 2022 Aug 29.PMID: 36049598
- Calagna G, Catinella V, Polito S, et al. Vitamin D and Male Reproduction: Updated Evidence Based on Literature Review. Nutrients. 2022 Aug 10;14(16):3278. https://doi.org/10.3390/nu14163278.PMID: 36014783
- Chang CH, Lu CH, Hsieh CH, et al. Reply to "Is it real of lower incidence of vitamin D deficiency in T2DM patients?". J Chin Med Assoc. 2022 Sep 1;85(9):960. https://doi.org/10.1097/JCMA.0000000000000787. Epub 2022 Jul 29.PMID: 35904559
- Chang E. Effects of Vitamin D Supplementation on Adipose Tissue Inflammation and NF-κB/AMPK Activation in Obese Mice Fed a High-Fat Diet. Int J Mol Sci. 2022 Sep 18;23(18):10915. https://doi.org/10.3390/ijms231810915.PMID: 36142842
- Chen LY, Ye XH, Cheng JL, et al. The association between vitamin D levels and heart rate variability in patients with type 2 diabetes mellitus. Medicine (Baltimore). 2022 Aug 26;101(34):e30216. https://doi.org/10.1097/MD.0000000000030263.PMID: 36042638
- Chen X, Wan Z, Geng T, et al. Vitamin D Status, Vitamin D Receptor Polymorphisms, and Risk of Microvascular Complications Among Individuals With Type 2 Diabetes: A Prospective Study. Diabetes Care. 2022 Sep 28:dc220513. https://doi.org/10.2337/dc22-0513. Online ahead of print.PMID: 36169213
- Chen Y, Chen YQ, Zhang Q. Association between vitamin D and insulin resistance in adults with latent tuberculosis infection: Results from the National Health and Nutrition Examination Survey (NHANES) 2011-2012. J Infect Public Health. 2022 Aug;15(8):930-935. https://doi.org/10.1016/j.jiph.2022.07.007. Epub 2022 Jul 21.PMID: 35878516
- Ciftel S, Bilen A, Yanıkoglu ND, et al. Vitamin B12, folic acid, vitamin D, iron, ferritin, magnesium, and HbA1c levels in patients with diabetes mellitus and dental prosthesis. Eur Rev Med Pharmacol Sci. 2022 Oct;26(19):7135-7144. https://doi.org/10.26355/eurrev_202210_29899.PMID: 36263561
- Cocolos AM, Muresan A, Caragheorgheopol A, et al. Vitamin D Status and VDR Polymorphisms as Prognostic Factors in Differentiated Thyroid Carcinoma. In Vivo. 2022 Sep-Oct;36(5):2434-2441. https://doi.org/10.21873/invivo.12977.PMID: 36099120
- Coperchini F, Greco A, Denegri M, et al. Vitamin D and interferon-γ co-operate to increase the ACE-2 receptor expression in primary cultures of human thyroid cells. J Endocrinol Invest. 2022 Nov;45(11):2157-2163. https://doi.org/10.1007/s40618-022-01857-9. Epub 2022 Jul 12.PMID: 35829990
- Cordeiro A, Pereira SE, Saboya CJ, et al. Vitamin D Supplementation and Its Relationship with Loss of Visceral Adiposity. Obes Surg. 2022 Oct;32(10):3419-3425.

https://doi.org/10.1007/s11695-022-06239-x. Epub 2022 Aug 11.PMID: 35953634

- Cruciani S, Garroni G, Pala R, et al. Metformin and vitamin D modulate adipose-derived stem cell differentiation towards the beige phenotype. Adipocyte. 2022 Dec;11(1):356-365. https://doi.org/10.1080/21623945.2022.2085417. PMID: 35734882
- de Tejada-Romero MJG, Saavedra-Santana P, de la Rosa-Fernández F, et al. Effect of obesity on fragility fractures, BMD and vitamin D levels in postmenopausal women. Influence of type 2 diabetes mellitus. Acta Diabetol. 2022 Sep;59(9):1201-1208. https://doi.org/10.1007/s00592-022-01923-x. Epub 2022 Jul 4.PMID: 35789433
- Desouza C, Chatterjee R, Vickery EM, et al. The effect of vitamin D supplementation on cardiovascular risk in patients with prediabetes: A secondary analysis of the D2d study. J Diabetes Complications. 2022 Aug;36(8):108230. https://doi.org/10.1016/j.jdiacomp.2022.108230. Epub 2022 Jun 12.PMID: 35753926
- Dominoni LADC, Gabiatti MP, Piazza FRG, et al. Vitamin D is associated with body composition and fat intake, but not with cardiometabolic parameters in adults with obesity. Nutr Res. 2022 Sep;105:97-104. https://doi.org/10.1016/j.nutres.2022.06.006. Epub 2022 Jun 30.PMID: 35908376
- Dong C, Hu X, Tripathi AS. A brief review of vitamin D as a potential target for the regulation of blood glucose and inflammation in diabetes-associated periodontitis. Mol Cell Biochem. 2022 Sep;477(9):2257-2268. https://doi.org/10.1007/s11010-022-04445-w. Epub 2022 Apr 27.PMID: 35478388
- Dosi MCMC, McGorum BC, Kirton RD, et al. The effect of season, management and endocrinopathies on vitamin D status in horses. Equine Vet J. 2022 Aug 12. https://doi.org/10.1111/evj.13873. Online ahead of print.PMID: 36054781
- Durá-Travé T, Gallinas-Victoriano F. Vitamin D status and parathyroid hormone assessment in girls with central precocious puberty. J Endocrinol Invest. 2022 Nov;45(11):2069-2075. https://doi.org/10.1007/s40618-022-01838-y. Epub 2022 Jun 24.PMID: 35750999
- Ebrahimof S, Angoorani P, Shab-Bidar S, et al. The interactive effect of vitamin D3 supplementation and vitamin D receptor polymorphisms on weight and body composition in overweight women with hypovitaminosis D: a randomized, double-blind, placebo-controlled clinical trial. Can J Physiol Pharmacol. 2022 Aug 19. https://doi.org/10.1139/cjpp-2022-0192. Online ahead of print.PMID: 35985037
- Ermec B, Culha MG, Kocak G, et al. The effect of vitamin D replacement in patients with lower urinary tract complaint/erectile dysfunction resistant to Tadalafil 5 mg treatment: A pilot clinical study. Andrologia. 2022 Sep;54(8):e14473. https://doi.org/10.1111/and.14473. Epub 2022 May 20.PMID: 35593536
- Fathi FEZM, Sadek KM, Khafaga AF, et al. Correction to: Vitamin D regulates insulin and ameliorates apoptosis and oxidative stress in pancreatic tissues of rats with streptozotocin-induced diabetes. Environ Sci Pollut Res Int. 2022 Aug 6. https://doi.org/10.1007/s11356-022-22427-9. Online ahead of print.PMID: 35932351
- Fekri S, Soheilian M, Roozdar S, et al. The effect of vitamin D supplementation on the outcome of treatment with bevacizumab in diabetic macular edema: a randomized clinical trial. Int Ophthalmol. 2022 Nov;42(11):3345-3356. https://doi.org/10.1007/s10792-022-02333-2. Epub 2022 May 11.PMID: 35543853
- Gaddas M, Latiri I, Kebaili R, et al. Reversibility of pancreatic β-cells dysfunction after vitamin D and calcium supplementation: a pilot study in a population of obese and prepubescent North-African children. Libyan J Med. 2022 Dec;17(1):2059896. https://doi.org/10.1080/19932820.2022.2059896.PMID: 35388742
- Gillis A, Zmijewski P, Ramonell K, et al. Vitamin D deficiency is associated with single gland parathyroid disease. Am J Surg. 2022 Sep;224(3):914-917. https://doi.org/10.1016/j.amjsurg.2022.04.005. Epub 2022 Apr 15.PMID: 35489873
- Harahap IA, Landrier JF, Suliburska J. Interrelationship between Vitamin D and Calcium in Obesity and Its Comorbid Conditions. Nutrients. 2022 Aug 3;14(15):3187. https://doi.org/10.3390/nu14153187.PMID: 35956362
- Hasan M, Oster M, Reyer H, et al. Tissue-Wide Expression of Genes Related to Vitamin D Metabolism and FGF23 Signaling following Variable Phosphorus Intake in Pigs. Metabolites. 2022 Aug 6;12(8):729. https://doi.org/10.3390/metabo12080729.PMID: 36005601
- Hoseini R, Rahim HA, Ahmed JK. Decreased inflammatory gene expression accompanies the improvement of liver enzyme and lipid profile following aerobic training and vitamin D supplementation in T2DM patients. BMC Endocr Disord. 2022 Oct 8;22(1):245. https://doi.org/10.1186/s12902-022-01152-x.PMID: 36209084
- Hu Z, Zhi X, Li J, et al. Effects of long-term vitamin D supplementation on metabolic profile in middle-aged and elderly patients with type 2 diabetes. J Steroid Biochem Mol Biol. 2022 Sep 29;225:106198. https://doi.org/10.1016/j.jsbmb.2022.106198. Online ahead of print.PMID: 36181990
- Jamshidi S, Masoumi SJ, Abiri B, et al. The effects of synbiotic and/or vitamin D supplementation on gut-muscle axis in overweight and obese women: a study protocol for a double-blind, randomized, placebo-controlled trial. Trials. 2022 Aug 4;23(1):631. https://doi.org/10.1186/s13063-022-06598-x.PMID: 35927757
- Johnson KC, Pittas AG, Margolis KL, et al. Correction to: Safety and tolerability of high-dose daily vitamin D3 supplementation in the vitamin D and type 2 diabetes (D2d) study-a randomized trial in persons with prediabetes. Eur J Clin Nutr. 2022 Oct;76(10):1491. https://doi.org/10.1038/s41430-022-01130-5. PMID: 35418608
- Johnson KC, Pittas AG, Margolis KL, et al. Safety and tolerability of high-dose daily vitamin D3 supplementation in the vitamin D and type 2 diabetes (D2d) study-a randomized trial in persons with prediabetes. Eur J Clin Nutr. 2022 Aug;76(8):1117-1124. https://doi.org/10.1038/s41430-022-01068-8. Epub 2022 Feb 9.PMID: 35140313
- Joseph JJ, Langan S, Lunyera J, et al. The association of serum vitamin D with incident diabetes in an African American population. Nutr Diabetes. 2022 Oct 13;12(1):43. https://doi.org/10.1038/s41387-022-00220-4.PMID: 36229458
- Khademi Z, Hamedi-Shahraki S, Amirkhizi F. Vitamin D insufficiency is associated with inflammation and deregulation of adipokines in patients with metabolic syn-

drome. BMC Endocr Disord. 2022 Sep 7;22(1):223. https://doi.org/10.1186/s12902-022-01141-0.PMID: 36071429

- Khamisi S, Lundqvist M, Rasmusson AJ, et al. Vitamin D and bone metabolism in Graves' disease: a prospective study. J Endocrinol Invest. 2022 Sep 27. https://doi.org/10.1007/s40618-022-01927-y. Online ahead of print.PMID: 36166168
- Klashami ZN, Ahrabi NZ, Ahrabi YS, et al. The vitamin D receptor gene variants, ApaI, TaqI, BsmI, and FokI in diabetic foot ulcer and their association with oxidative stress. Mol Biol Rep. 2022 Sep;49(9):8627-8639. https://doi.org/10.1007/s11033-022-07698-2. Epub 2022 Jul 20.PMID: 35857173
- Lari F, Alabduljaleel T, Mojiminiyi O, et al. Exploring the relationship between vitamin D and leptin hormones in type 2 diabetes mellitus patients from Kuwait. Horm Mol Biol Clin Investig. 2022 Apr 14;43(3):273-280. https://doi.org/10.1515/hmbci-2021-0091. eCollection 2022 Sep 1.PMID: 35417932
- Lazzara F, Longo AM, Giurdanella G, et al. Vitamin D3 preserves blood retinal barrier integrity in an in vitro model of diabetic retinopathy. Front Pharmacol. 2022 Aug 26;13:971164. https://doi.org/10.3389/fphar.2022.971164. eCollection 2022.PMID: 36091806
- Lee M, Lee HI, Song K, et al. Association of hypercalciuria with vitamin D supplementation in patients undergoing ketogenic dietary therapy. Front Nutr. 2022 Sep 2;9:970467. https://doi.org/10.3389/fnut.2022.970467. eCollection 2022.PMID: 36118750
- Lee Y, Yoon JW, Kim YA, et al. A Genome-Wide Association Study of Genetic Variants of Apolipoprotein A1 Levels and Their Association with Vitamin D in Korean Cohorts. Genes (Basel). 2022 Aug 29;13(9):1553. https://doi.org/10.3390/genes13091553.PMID: 36140721
- Li YT, Yang ST, Wang PH. Is it real of lower incidence of vitamin D deficiency in T2DM patients? J Chin Med Assoc. 2022 Sep 1;85(9):958. https://doi.org/10.1097/JCMA.0000000000000776. Epub 2022 Jul 11.PMID: 35816290
- McCarthy K, Laird E, O'Halloran AM, et al. Association between vitamin D deficiency and the risk of prevalent type 2 diabetes and incident prediabetes: A prospective cohort study using data from The Irish Longitudinal Study on Ageing (TILDA). EClinicalMedicine. 2022 Sep 17;53:101654. https://doi.org/10.1016/j.eclinm.2022.101654. eCollection 2022 Nov.PMID: 36147626
- Mousa H, Elrayess MA, Diboun I, et al. Metabolomics Profiling of Vitamin D Status in Relation to Dyslipidemia. Metabolites. 2022 Aug 22;12(8):771. https://doi.org/10.3390/metabo12080771.PMID: 36005643
- Murata T, Chiba S, Kawaminami M. Changes in the expressions of annexin A1, annexin A5, inhibin/activin subunits, and vitamin D receptor mRNAs in pituitary glands of female rats during the estrous cycle: correlation analyses among these factors. J Vet Med Sci. 2022 Aug 1;84(8):1065-1073. https://doi.org/10.1292/jvms.22-0141. Epub 2022 Jun 15.PMID: 35705304
- Musazadeh V, Zarezadeh M, Ghalichi F, et al. Vitamin D supplementation positively affects anthropometric indices: Evidence obtained from an umbrella meta-analysis. Front Nutr. 2022 Sep 7;9:980749. https://doi.org/10.3389/fnut.2022.980749. eCollection 2022.PMID: 36159504
- Musella M, Berardi G, Vitiello A, et al. Vitamin D Deficiency in Patients with Morbid Obesity before and after Metabolic Bariatric Surgery. Nutrients. 2022 Aug 13;14(16):3319. https://doi.org/10.3390/nu14163319.PMID: 36014825
- Oku Y, Noda S, Yamada A, et al. Twenty-eight days of vitamin D restriction and/or a high-fat diet influenced bone mineral density and body composition in young adult female rats. Ann Anat. 2022 Aug;243:151945. https://doi.org/10.1016/j.aanat.2022.151945. Epub 2022 Apr 18.PMID: 35447335
- Pang Z, Yi Y, Qu T, et al. The beneficial cutoffs of vitamin D for metabolic syndrome varies by sex among the elderly Chinese population: A cross-sectional study. Nutr Res. 2022 Aug;104:91-100. https://doi.org/10.1016/j.nutres.2022.05.002. Epub 2022 May 15.PMID: 35671618
- Patriota P, Rezzi S, Guessous I, et al. Association between anthropometric markers of adiposity, adipokines and vitamin D levels. Sci Rep. 2022 Sep 14;12(1):15435. https://doi.org/10.1038/s41598-022-19409-9.PMID: 36104384
- Patriota P, Rezzi S, Guessous I, et al. No Association between Vitamin D and Weight Gain: A Prospective, Population-Based Study. Nutrients. 2022 Aug 3;14(15):3185. https://doi.org/10.3390/nu14153185.PMID: 35956360
- Portales-Castillo I, Simic P. PTH, FGF-23, Klotho and Vitamin D as regulators of calcium and phosphorus: Genetics, epigenetics and beyond. Front Endocrinol (Lausanne). 2022 Sep 29;13:992666. https://doi.org/10.3389/fendo.2022.992666. eCollection 2022.PMID: 36246903
- Rahimpour Z, Hoseini R, Behpour N. Alterations of liver enzymes and lipid profile in response to exhaustive eccentric exercise: vitamin D supplementation trial in overweight females with non-alcoholic fatty liver disease. BMC Gastroenterol. 2022 Aug 5;22(1):372. https://doi.org/10.1186/s12876-022-02457-w.PMID: 35927637
- Razzaque MS. Interactions between FGF23 and vitamin D. Endocr Connect. 2022 Sep 26;11(10):e220239. https://doi.org/10.1530/EC-22-0239. Print 2022 Oct 1.PMID: 36040459
- Santoro AM, Simpson CA, Cong E, et al. Differing effects of oral conjugated equine estrogen and transdermal estradiol on vitamin D metabolism in postmenopausal women: a 4-year longitudinal study. Menopause. 2022 Oct 1;29(10):1200-1203. https://doi.org/10.1097/GME.0000000000002045. Epub 2022 Aug 20.PMID: 35969885
- Schmitt EB, Orsatti CL, Cangussu L, et al. Isolated vitamin D supplementation improves the adipokine profile of postmenopausal women: a randomized clinical trial. Menopause. 2022 Oct 18. https://doi.org/10.1097/GME.0000000000002084. Online ahead of print.PMID: 36256949
- Sharma P, Rani N, Gangwar A, et al. Diabetic Neuropathy: A Repercussion of Vitamin D Deficiency. Curr Diabetes Rev. 2022 Aug 17. https://doi.org/10.2174/1573399819666220817121551. Online ahead of print.PMID: 35980059
- Soares MJ, Calton EK, Pathak K, et al. Hypothesized pathways for the association of

vitamin D status and insulin sensitivity with resting energy expenditure: a cross sectional mediation analysis in Australian adults of European ancestry. Eur J Clin Nutr. 2022 Oct;76(10):1457-1463. https://doi.org/10.1038/s41430-022-01123-4. Epub 2022 Apr 1.PMID: 35365764

- Solomon R, Anne P, Swisher J, et al. Evaluating Statin Tolerability in Historically Intolerant Patients After Correcting for Subclinical Hypothyroidism and Vitamin D Insufficiency. High Blood Press Cardiovasc Prev. 2022 Sep;29(5):409-415. https://doi.org/10.1007/s40292-022-00537-2. Epub 2022 Sep 5.PMID: 36063342
- Sun X, Xiao W, Li Z, et al. Does vitamin D supplementation improve bone health, body composition and physical performance beyond endurance exercise in patients with type 2 diabetes: A secondary analysis of randomized controlled trial. Front Physiol. 2022 Sep 28;13:1003572. https://doi.org/10.3389/fphys.2022.1003572. eCollection 2022.PMID: 36246136
- Tang W, Chen L, Ma W, et al. Association of vitamin D status with all-cause mortality and outcomes among Chinese individuals with diabetic foot ulcers. J Diabetes Investig. 2022 Oct 6. https://doi.org/10.1111/jdi.13917. Online ahead of print.PMID: 36200877
- Trivedi MK, Mondal S, Jana S. Cannabidiol improves thyroid function via modulating vitamin D3 receptor in vitamin D3 deficiency diet-induced rat model. J Food Sci Technol. 2022 Aug;59(8):3237-3244. https://doi.org/10.1007/s13197-022-05492-3. Epub 2022 Jun 23.PMID: 35872737
- Wang L, Lu H, Wang S, et al. Vitamin D Receptor affects male mouse fertility via regulation of lipid metabolism and testosterone biosynthesis in testis. Gene. 2022 Aug 5;834:146589. https://doi.org/10.1016/j.gene.2022.146589. Epub 2022 May 20.PMID: 35598688
- Williams A, Zhao S, Brock G, et al. Vitamin D, parathyroid hormone, glucose metabolism and incident diabetes in the multiethnic study of atherosclerosis. BMJ Open Diabetes Res Care. 2022 Sep;10(5):e002931. https://doi.org/10.1136/bmjdrc-2022-002931.PMID: 36162866
- Wu X, Zhang Y, Zhang W, et al. The relationship between serum 25-hydroxy vitamin D and arteriogenic erectile dysfunction. Andrologia. 2022 Aug 29:e14568. https://doi.org/10.1111/and.14568. Online ahead of print.PMID: 36054412
- Zhao X, Deng C, Li Z, et al. Monocyte/High-Density Lipoprotein Cholesterol Ratio Predicts Vitamin D Deficiency in Male Patients with Type 2 Diabetes Mellitus. Diabetes Metab Syndr Obes. 2022 Aug 12;15:2455-2466. https://doi.org/10.2147/DMSO.S376127. eCollection 2022.PMID: 35982762
- Zhu A, Kuznia S, Niedermaier T, et al. Consistent Inverse Associations of Total, "Bioavailable", Free, and "Non-Bioavailable" Vitamin D with Incidence of Diabetes among Older Adults with Lower Baseline HbA1c (≤6%) Levels. Nutrients. 2022 Aug 11;14(16):3282. https://doi.org/10.3390/nu14163282. PMID: 36014788

EPIDEMIOLOGY

- Ahluwalia N, Raghavan R, Zhang G, et al. Vitamin D status and prevalence of metabolic syndrome by race and Hispanic origin in U.S. adults: findings from 2007-2014 NHANES. Am J Clin Nutr. 2022 Aug 29:nqac234. https://doi.org/10.1093/ajcn/nqac234. Online ahead of print. PMID: 36036472
- Al-Daghri NM, Alfawaz H, Khan N, et al. Association of Vitamin D Knowledge, Behavior and Attitude with BMI Status among Arab Adults. Int J Environ Res Public Health. 2022 Sep 5;19(17):11107. https://doi.org/10.3390/ijerph191711107.PMID: 36078823
- ALbuloshi T, Kamel AM, Spencer JPE. Factors Associated with Low Vitamin D Status among Older Adults in Kuwait. Nutrients. 2022 Aug 15;14(16):3342. https://doi.org/10.3390/nu14163342.PMID: 36014846
- Boucher BJ. Vitamin D deficiency in British South Asians, a persistent but avoidable problem associated with many health risks (including rickets, T2DM, CVD, COVID-19 and pregnancy complications): the case for correcting this deficiency. Endocr Connect. 2022 Oct 18;11(12):e220234. https://doi.org/10.1530/EC-22-0234. Print 2022 Dec 1.PMID: 36149836
- Cui A, Xiao P, Ma Y, et al. Prevalence, trend, and predictor analyses of vitamin D deficiency in the US population, 2001-2018. Front Nutr. 2022 Oct 3;9:965376. https://doi.org/10.3389/fnut.2022.965376. eCollection 2022.PMID: 36263304
- Dong Y, Chen L, Huang Y, et al. Sixteen-Week Vitamin D3 Supplementation Increases Peripheral T Cells in Overweight Black Individuals: Post hoc Analysis of a Randomized, Double-Blinded, Placebo-Controlled Trial. Nutrients. 2022 Sep 22;14(19):3922. https://doi.org/10.3390/nu14193922.PMID: 36235575
- Frost P. The Problem of Vitamin D Scarcity: Cultural and Genetic Solutions by Indigenous Arctic and Tropical Peoples. Nutrients. 2022 Sep 30;14(19):4071. https://doi.org/10.3390/nu14194071.PMID: 36235726
- Khadilkar A, Kajale N, Oza C, et al. Vitamin D status and determinants in Indian children and adolescents: a multicentre study. Sci Rep. 2022 Oct 6;12(1):16790. https://doi.org/10.1038/s41598-022-21279-0.PMID: 36202910
- Kibirige D, Sekitoleko I, Balungi P, et al. Clinical, metabolic, and immunological characterisation of adult Ugandan patients with new-onset diabetes and low vitamin D status. BMC Endocr Disord. 2022 Sep 15;22(1):230. https://doi.org/10.1186/s12902-022-01148-7. PMID: 36109715
- Kim B, Hwang J, Lee H, et al. Associations between ambient air pollution, obesity, and serum vitamin D status in the general population of Korean adults. BMC Public Health. 2022 Sep 17;22(1):1766. https://doi.org/10.1186/s12889-022-14164-y. PMID: 36115935
- Lachowicz K, Stachoń M. Determinants of Dietary Vitamin D Intake in Population-Based Cohort Sample of Polish Female Adolescents. Int J Environ Res Public Health. 2022 Sep 26;19(19):12184. https://doi.org/10.3390/ijerph191912184. PMID: 36231482
- Li H, Han D, Wang H, et al. The Relationship Between Vitamin D and Activity of Daily Living in the Elderly. Int J Gen Med. 2022 Aug 1;15:6357-6364. https://doi.org/10.2147/IJGM.S366203. eCollection 2022.PMID: 35935099
- Luo J, Wang N, Hua L, et al. The Anti-Sepsis Effect of Isocorydine Screened from Guizhou Ethnic Medicine is Closely Related to Upregulation of Vitamin D Receptor Expression and Inhibition of NFκB p65 Translocation into the Nucleus. J Inflamm Res. 2022 Oct 3;15:5649-5664. https://doi.

org/10.2147/JIR.S365191. eCollection 2022.PMID: 36211222

- Martínez Torres J, Barajas Lizarazo MA, Cárdenas Malpica PA, et al. [Prevalence of vitamin D deficiency and insufficiency and associated factors in Colombian women in 2015]. Nutr Hosp. 2022 Aug 25;39(4):843-851. https://doi.org/10.20960/nh.03928.PMID: 35388705
- Mobarki AA, Dobie G, Saboor M, et al. Prevalence and Correlation of Vitamin D Levels with Hematological and Biochemical Parameters in Young Adults. Ann Clin Lab Sci. 2022 Sep;52(5):815-824.PMID: 36261180
- Park JY, Kim JH, Sim YJ, et al. The association between the serum vitamin D levels and the stroke lesion size, functional ability, and cognition in elderly Korean ischemic stroke patients. Medicine (Baltimore). 2022 Sep 2;101(35):e04086. https://doi.org/10.1097/MD.0000000000030402.PMID: 36107604
- Patel L, Vecchia C, Alicandro G. Serum vitamin D and cardiometabolic risk factors in the UK population. J Hum Nutr Diet. 2022 Aug 23. https://doi.org/10.1111/jhn.13075. Online ahead of print.PMID: 35997254
- Pham H, Waterhouse M, Baxter C, et al. Vitamin D Supplementation and Antibiotic Use in Older Australian Adults: An Analysis of Data From the D-Health Trial. J Infect Dis. 2022 Sep 21;226(6):949-957. https://doi.org/10.1093/infdis/jiac279.PMID: 35780325 Clinical Trial
- Salim N, Abdul Sattar M, Adnan A. High prevalence of vitamin D deficiency in Pakistan and miscarriages: A hazard to pregnancies. Ann Med Surg (Lond). 2022 Sep 9;82:104634. https://doi.org/10.1016/j.amsu.2022.104634. eCollection 2022 Oct.PMID: 36124218
- Seminario AL, Kemoli A, Fuentes W, et al. The effect of antiretroviral therapy initiation on vitamin D levels and four oral diseases among Kenyan children and adolescents living with HIV. PLoS One. 2022 Oct 13;17(10):e0275663. https://doi.org/10.1371/journal.pone.0275663. eCollection 2022.PMID: 36227876
- Sherchand O, Baranwal JK, Gelal B. Epidemiology and Determinants of Vitamin D Deficiency in Eastern Nepal: A Community-Based, Cross-Sectional Study. Int J Endocrinol. 2022 Sep 9;2022:1063163. https://doi.org/10.1155/2022/1063163. eCollection 2022.PMID: 36118616
- Shin HR, Park HJ, Song S, et al. Dietary vitamin D intake in low ultraviolet irradiation seasons is associated with a better nutritional status of vitamin D in Korean adults according to the 2013-2014 National Health and Nutrition Examination Survey. Nutr Res. 2022 Sep;105:53-65. https://doi.org/10.1016/j.nutres.2022.06.002. Epub 2022 Jun 9.PMID: 35803074
- Singleton RJ, Day GM, Thomas TK, et al. Impact of a Prenatal Vitamin D Supplementation Program on Vitamin D Deficiency, Rickets and Early Childhood Caries in an Alaska Native Population. Nutrients. 2022 Sep 22;14(19):3935. https://doi.org/10.3390/nu14193935.PMID: 36235588
- Sluyter JD, Raita Y, Hasegawa K, et al. Prediction of Vitamin D Deficiency in Older Adults: The Role of Machine Learning Models. J Clin Endocrinol Metab. 2022 Sep 28;107(10):2737-2747. https://doi.org/10.1210/clinem/dgac432.PMID: 35876536
- Smirnova DV, Rehm CD, Fritz RD, et al. Vitamin D status of the Russian adult population from 2013 to 2018. Sci Rep. 2022 Oct 5;12(1):16604. https://doi.org/10.1038/s41598-022-21221-4. PMID: 36198864
- Sparks AM, Johnston SE, Handel I, et al. Vitamin D status is heritable and under environment-dependent selection in the wild. Mol Ecol. 2022 Sep;31(18):4607-4621. https://doi.org/10.1111/mec.16318. Epub 2022 Jan 7.PMID: 34888965
- Trollfors B. Ethnicity, gender and seasonal variations all play a role in vitamin D deficiency. Acta Paediatr. 2022 Aug;111(8):1596-1602. https://doi.org/10.1111/apa.16372. Epub 2022 May 2.PMID: 35472253
- Xyda SE, Kotsa K, Doumas A, et al. Could the Majority of the Greek and Cypriot Population Be Vitamin D Deficient? Nutrients. 2022 Sep 13;14(18):3778. https://doi.org/10.3390/nu14183778.PMID: 36145154
- Zhang H, Zhu A, Liu L, et al. Assessing the effects of ultraviolet radiation, residential greenness and air pollution on vitamin D levels: A longitudinal cohort study in China. Environ Int. 2022 Nov;169:107523. https://doi.org/10.1016/j.envint.2022.107523. Epub 2022 Sep 15.PMID: 36137427
- Zhang J, Hu J, Zhou R, et al. Cognitive Function and Vitamin D Status in the Chinese Hemodialysis Patients. Comput Math Methods Med. 2022 Sep 9;2022:2175020. https://doi.org/10.1155/2022/2175020. eCollection 2022.PMID: 36118837
- Zhu A, Kuznia S, Niedermaier T, et al. Vitamin D-binding protein, total, "nonbioavailable," bioavailable, and free 25-hydroxyvitamin D, and mortality in a large population-based cohort of older adults. J Intern Med. 2022 Sep;292(3):463-476. https://doi.org/10.1111/joim.13494. Epub 2022 Apr 13.PMID: 35373871

GASTROENTEROLOGY

- Abboud M, Haidar S, Mahboub N, et al. Association between Serum Vitamin D and Irritable Bowel Syndrome Symptoms in a Sample of Adults. Nutrients. 2022 Oct 6;14(19):4157. https://doi.org/10.3390/nu14194157.PMID: 36235809
- Ametejani M, Masoudi N, Homapour F, et al. Association between Pre-Operative 25-Hydroxy Vitamin D Deficiency and Surgical Site Infection after Right Hemicolectomy Surgery. Surg Infect (Larchmt). 2022 Oct 10. https://doi.org/10.1089/sur.2022.122. Online ahead of print. PMID: 36219723
- Anapali M, Kaya-Dagistanli F, Akdemir AS, et al. Combined resveratrol and vitamin D treatment ameliorate inflammation-related liver fibrosis, ER stress, and apoptosis in a high-fructose diet/streptozotocin-induced T2DM model. Histochem Cell Biol. 2022 Sep;158(3):279-296. https://doi.org/10.1007/s00418-022-02131-y. Epub 2022 Jul 18.PMID: 35849204
- Bin Y, Kang L, Lili Y. Vitamin D status in irritable bowel syndrome and the impact of supplementation on symptoms: a systematic review and meta-analysis. Nutr Hosp. 2022 Oct 17;39(5):1144-1152. https://doi.org/10.20960/nh.04044. PMID: 35546472 English
- Brusilovsky M, Rochman M, Shoda T, et al. Vitamin D receptor and STAT6 interactome

governs oesophageal epithelial barrier responses to IL-13 signalling. Gut. 2022 Aug 2:gutjnl-2022-327276. https://doi.org/10.1136/gutjnl-2022-327276. Online ahead of print.PMID: 35918104

- Grozić A, Coker K, Dussik CM, et al. Identification of putative transcriptomic biomarkers in irritable bowel syndrome (IBS): Differential gene expression and regulation of TPH1 and SERT by vitamin D. PLoS One. 2022 Oct 20;17(10):e0275683. https://doi.org/10.1371/journal.pone.0275683. eCollection 2022.PMID: 36264926
- H E, Cr H, S D, et al. 2D Shear Wave Elastography, a promising screening tool for Cystic Fibrosis liver disease, shows a correlation between vitamin D and liver stiffness. J Cyst Fibros. 2022 Sep;21(5):873-877. https://doi.org/10.1016/j.jcf.2022.06.009. Epub 2022 Jul 3.PMID: 35794060
- Jaroenlapnopparat A, Suppakitjanusant P, Ponvilawan B, et al. Vitamin D-Related Genetic Variations and Nonalcoholic Fatty Liver Disease: A Systematic Review. Int J Mol Sci. 2022 Aug 14;23(16):9122. https://doi.org/10.3390/ijms23169122.PMID: 36012386
- Liu X, Wang S, Jin S, et al. Vitamin D3 attenuates cisplatin-induced intestinal injury by inhibiting ferroptosis, oxidative stress, and ROS-mediated excessive mitochondrial fission. Food Funct. 2022 Oct 3;13(19):10210-10224. https://doi.org/10.1039/d2fo01028c. PMID: 36111853
- Matias JN, Lima VM, Nutels GS, et al. The use of vitamin D for patients with inflammatory bowel diseases. Int J Vitam Nutr Res. 2022 Aug 26. https://doi.org/10.1024/0300-9831/a000764. Online ahead of print. PMID: 36017738 Review
- Mokhtari Z, Hosseini E, Zaroudi M, et al. The Effect of Vitamin D Supplementation on Serum 25-Hydroxy Vitamin D in the Patients Undergoing Bariatric Surgery: a Systematic Review and Meta-Analysis of Randomized Clinical Trials. Obes Surg. 2022 Sep;32(9):3088-3103. https://doi.org/10.1007/s11695-022-06121-w. Epub 2022 Jul 1.PMID: 35776240
- Pop TL, Sîrbe C, Benţa G, et al. The Role of Vitamin D and Vitamin D Binding Protein in Chronic Liver Diseases. Int J Mol Sci. 2022 Sep 14;23(18):10705. https://doi.org/10.3390/ijms231810705.PMID: 36142636
- Ratajczak AE, Szymczak-Tomczak A, Michalak M, et al. The associations between vitamin D, bone mineral density and the course of inflammatory bowel disease in Polish patients. Pol Arch Intern Med. 2022 Aug 26:16329. https://doi.org/10.20452/pamw.16329. Online ahead of print.PMID: 36026616
- Ravaioli F, Pivetti A, Di Marco L, et al. Role of Vitamin D in Liver Disease and Complications of Advanced Chronic Liver Disease. Int J Mol Sci. 2022 Aug 12;23(16):9016. https://doi.org/10.3390/ijms23169016.PMID: 36012285
- Szymczak-Tomczak A, Ratajczak AE, Kaczmarek-Ryś M, et al. Pleiotropic Effects of Vitamin D in Patients with Inflammatory Bowel Diseases. J Clin Med. 2022 Sep 27;11(19):5715. https://doi.org/10.3390/jcm11195715.PMID: 36233580
- Taban L, Stoian D, Timar B, et al. Vitamin D Status and Steatohepatitis in Obese Diabetic and Non-Diabetic Patients. J Clin Med. 2022 Sep 18;11(18):5482. https://doi.org/10.3390/jcm11185482.PMID: 36143129
- Triantos C, Aggeletopoulou I, Mantzaris GJ, et al. Molecular basis of vitamin D action in inflammatory bowel disease. Autoimmun Rev. 2022 Aug;21(8):103136. https://doi.org/10.1016/j.autrev.2022.103136. Epub 2022 Jul 2.PMID: 35792343
- Wu D, Rao Q, Xie Z, et al. Decreased vitamin D-binding protein level portends poor outcome in acute-on-chronic liver failure caused by hepatitis B virus. Clin Mol Hepatol. 2022 Oct;28(4):912-925. https://doi.org/10.3350/cmh.2022.0121. Epub 2022 Jul 28.PMID: 35896280
- Wu KC, Cao S, Weaver CM, et al. Intestinal Calcium Absorption Decreases After Laparoscopic Sleeve Gastrectomy Despite Optimization of Vitamin D Status. J Clin Endocrinol Metab. 2022 Oct 5:dgac579. https://doi.org/10.1210/clinem/dgac579. Online ahead of print.PMID: 36196648
- Xiong X, Cheng Z, Zhou Y, et al. HuanglianGanjiang Tang alleviates DSS-induced colitis in mice by inhibiting necroptosis through vitamin D receptor. Wu F, Xie L, Lawless L, Dong R, Zhao Y, Yu L, Chen GJ Ethnopharmacol. 2022 Nov 15;298:115655. https://doi.org/10.1016/j.jep.2022.115655. Epub 2022 Aug 19.PMID: 35988837
- Zhang JJ, Yu HC, Li Y, et al. Association between serum 25-hydroxy vitamin D concentrations and mortality among individuals with metabolic dysfunction-associated fatty liver disease: a prospective cohort study. Am J Clin Nutr. 2022 Sep 15:nqac260. https://doi.org/10.1093/ajcn/nqac260. Online ahead of print.PMID: 36107812
- Zhang Y, Li CN, Jiang WD, et al. An emerging role of vitamin D3 in amino acid absorption in different intestinal segments of on-growing grass carp (Ctenopharyngodon idella). Anim Nutr. 2022 May 28;10:305-318. https://doi.org/10.1016/j.aninu.2022.05.004. eCollection 2022 Sep.PMID: 35891684
- Zhao S, Wan D, Zhong Y, et al. 1α, 25-Dihydroxyvitamin D3 protects gastric mucosa epithelial cells against Helicobacter pylori-infected apoptosis through a vitamin D receptor-dependent c-Raf/MEK/ERK pathway. Pharm Biol. 2022 Dec;60(1):801-809. https://doi.org/10.1080/13880209.2022.2058559.PMID: 35587225

HEMATOLOGY

- Asoubar S, Esfahani A, Vahedi A, et al. Responsible enzymes for metabolizing vitamin D in patients with acute leukemia and the relationship with treatment outcomes: a case-control study. Leuk Lymphoma. 2022 Aug;63(8):1949-1955. https://doi.org/10.1080/10428194.2022.2056174. Epub 2022 May 4.PMID: 35508323
- Nath K, Tomas AA, Flynn J, et al. Vitamin D Insufficiency and Clinical Outcomes with Chimeric Antigen Receptor T-Cell Therapy in Large B-cell Lymphoma. Transplant Cell Ther. 2022 Aug 6:S2666-6367(22)01517-2. https://doi.org/10.1016/j.jtct.2022.08.001. Online ahead of print.PMID: 35944603

IMMUNOLOGY

- Alsufiani HM, AlGhamdi SA, AlShaibi HF, et al. A Single Vitamin D3 Bolus Supplementation Improves Vitamin D Status and Reduces Proinflammatory Cytokines in Healthy Females. Nutrients. 2022 Sep 24;14(19):3963. https://doi.org/10.3390/nu14193963. PMID: 36235615
- Bergman P. Vitamin D and Antibiotic Consumption: Another Piece in the Puzzle? J Infect Dis. 2022 Sep 21;226(6):947-948. https://doi.org/10.1093/infdis/jiac280.PMID: 35780326
- Bhat IA, Mir IR, Malik GH, et al. Com-

parative study of TNF-α and vitamin D reveals a significant role of TNF-α in NSCLC in an ethnically conserved vitamin D deficient population. Cytokine. 2022 Dec;160:156039. https://doi.org/10.1016/j.cyto.2022.156039. Epub 2022 Oct 3.PMID: 36201891

- Chan H, Li Q, Wang X, et al. Vitamin D3 and carbamazepine protect against Clostridioides difficile infection in mice by restoring macrophage lysosome acidification. Autophagy. 2022 Sep;18(9):2050-2067. https://doi.org/10.1080/15548627.2021.2016004. Epub 2022 Jan 6.PMID: 34989311
- Chen X, Zhang Z, Sun N, et al. Vitamin D receptor enhances NLRC4 inflammasome activation by promoting NAIPs-NLRC4 association. EMBO Rep. 2022 Sep 5;23(9):e54611. https://doi.org/10.15252/embr.202254611. Epub 2022 Jul 14.PMID: 35833522
- Chen Z, Huang D, Yongyut P, et al. Vitamin D3 deficiency induced intestinal inflammatory response of turbot through nuclear factor-κB/inflammasome pathway, accompanied by the mutually exclusive apoptosis and autophagy. Front Immunol. 2022 Sep 8;13:986593. https://doi.org/10.3389/fimmu.2022.986593. eCollection 2022.PMID: 36159807
- Ding Y, Yang S, Fan S, et al. Is Vitamin D Deficiency the Cause or the Effect of Systemic Lupus Erythematosus: Evidence from Bidirectional Mendelian Randomization Analysis. J Immunol Res. 2022 Sep 21;2022:8689777. https://doi.org/10.1155/2022/8689777. eCollection 2022.PMID: 36189146
- Fernandez GJ, Ramírez-Mejía JM, Urcuqui-Inchima S. Vitamin D boosts immune response of macrophages through a regulatory network of microRNAs and mRNAs. J Nutr Biochem. 2022 Nov;109:109105. https://doi.org/10.1016/j.jnutbio.2022.109105. Epub 2022 Jul 17.PMID: 35858666
- Fernandez JC, Luce S, Floch VB, et al. Correlation of serum vitamin D concentration with humoral-specific IgG2 and IgG4 levels in high responders to immunotherapy with a 300 IR sublingual house dust mite tablet. Clin Exp Allergy. 2022 Oct;52(10):1219-1224. https://doi.org/10.1111/cea.14201. Epub 2022 Jul 27.PMID: 35861410
- Grossi de Oliveira AL, Chaves AT, Cardoso MS, et al. Reduced vitamin D receptor (VDR) and cathelicidin antimicrobial peptide (CAMP) gene expression contribute to the maintenance of inflammatory immune response in leprosy patients. Microbes Infect. 2022 Sep;24(6-7):104981. https://doi.org/10.1016/j.micinf.2022.104981. Epub 2022 Apr 21.PMID: 35462022
- He W, Deng Y, Luo X. Bibliometric analysis of the global research status and trends of the association between Vitamin D and infections from 2001 to 2021. Front Public Health. 2022 Aug 4;10:934106. https://doi.org/10.3389/fpubh.2022.934106. eCollection 2022.PMID: 35991038
- Hu J, Wu Z, Wang H, et al. Vitamin D Ameliorates Apoptosis and Inflammation by Targeting the Mitochondrial and MEK1/2-ERK1/2 Pathways in Hyperoxia-Induced Bronchopulmonary Dysplasia. J Inflamm Res. 2022 Aug 25;15:4891-4906. https://doi.org/10.2147/JIR.S371906. eCollection 2022.PMID: 36046664
- Infante M, Fabbri A, Della-Morte D, et al. The importance of vitamin D and omega-3 PUFA supplementation: a nonpharmacologic immunomodulation strategy to halt autoimmunity. Eur Rev Med Pharmacol Sci. 2022 Sep;26(18):6787-6795. https://doi.org/10.26355/eurrev_202209_29780.PMID: 36196727
- Kim H, Kim J, Sa JK, et al. Calcipotriol, a synthetic Vitamin D analog, promotes antitumor immunity via CD4+T-dependent CTL/NK cell activation. Biomed Pharmacother. 2022 Oct;154:113553. https://doi.org/10.1016/j.biopha.2022.113553. Epub 2022 Aug 19.PMID: 35994815
- Krysiak R, Kowalcze K, Okopień B. Gluten-free diet attenuates the impact of exogenous vitamin D on thyroid autoimmunity in young women with autoimmune thyroiditis: a pilot study. Scand J Clin Lab Invest. 2022 Oct 6:1-7. https://doi.org/10.1080/00365513.2022.2129434. Online ahead of print.PMID: 36200764
- Lei J, Xiao W, Zhang J, et al. Antifungal activity of vitamin D3 against Candida albicans in vitro and in vivo. Microbiol Res. 2022 Dec;265:127200. https://doi.org/10.1016/j.micres.2022.127200. Epub 2022 Sep 20.PMID: 36162148
- Li H, Xie X, Bai G, et al. Vitamin D deficiency leads to the abnormal activation of the complement system. Immunol Res. 2022 Sep 30. https://doi.org/10.1007/s12026-022-09324-6. Online ahead of print.PMID: 36178657
- Luo J, Chen H, Ma F, et al. Vitamin D metabolism pathway polymorphisms are associated with efficacy and safety in patients under anti-PD-1 inhibitor therapy. Front Immunol. 2022 Sep 12;13:937476. https://doi.org/10.3389/fimmu.2022.937476. eCollection 2022.PMID: 36172344
- Luo X, Deng Y, He W. Visual analysis of the research trend and status on the association between vitamin D and immunity: From 2012 to 2021. Front Nutr. 2022 Sep 21;9:1000400. https://doi.org/10.3389/fnut.2022.1000400. eCollection 2022
- Marques LA, Semprebon SC, Biazi BI, et al. Vitamin D3 and Salinomycin synergy in MCF-7 cells cause cell death via endoplasmic reticulum stress in monolayer and 3D cell culture. Toxicol Appl Pharmacol. 2022 Oct 1;452:116178. https://doi.org/10.1016/j.taap.2022.116178. Epub 2022 Jul 29.PMID: 35914560
- Nygaard RH, Nielsen MC, Antonsen KW, et al. Metabolism of 25-Hydroxy-Vitamin D in Human Macrophages Is Highly Dependent on Macrophage Polarization. Int J Mol Sci. 2022 Sep 19;23(18):10943. https://doi.org/10.3390/ijms231810943. PMID: 36142855
- Pavel-Tanasa M, Constantinescu D, Cianga CM, et al. Adipokines, and not vitamin D, associate with antibody immune responses following dual BNT162b2 vaccination within individuals younger than 60 years. Front Immunol. 2022 Sep 2;13:1000006. https://doi.org/10.3389/fimmu.2022.1000006. eCollection 2022. PMID: 36119038
- Peters C, Klein K, Kabelitz D. Vitamin C and Vitamin D-friends or foes in modulating γδ T-cell differentiation? Cell Mol Immunol. 2022 Oct;19(10):1198-1200. https://doi.org/10.1038/s41423-022-00895-w. Epub 2022 Jul 7.PMID: 35799058
- Robat-Jazi B, Mobini S, Chahardoli R, et al. The Impact of Vitamin D Supplementation on the IFNγ-IP10 Axis in Women with Hashimoto's Thyroiditis Treated with Levothyroxine: A Double-blind Randomized Placebo-controlled Trial. Iran J Allergy Asthma Immunol. 2022 Aug 12;21(4):407-417. https://doi.org/10.18502/ijaai.v21i4.10288.PMID: 36243929

- Santa K. Healthy Diet, Grape Phytochemicals, and Vitamin D: Preventing Chronic Inflammation and Keeping Good Microbiota. Endocr Metab Immune Disord Drug Targets. 2022 Oct 17. https://doi.org/10.2174/1871530323666221017151705. Online ahead of print.PMID: 36263483
- Sîrbe C, Rednic S, Grama A, et al. An Update on the Effects of Vitamin D on the Immune System and Autoimmune Diseases. J Mol Sci. 2022 Aug 29;23(17):9784. https://doi.org/10.3390/ijms23179784.PMID: 36077185
- Stecher C, Maurer KP, Kastner MT, et al. Human Cytomegalovirus Induces Vitamin-D Resistance In Vitro by Dysregulating the Transcriptional Repressor Snail. Viruses. 2022 Sep 10;14(9):2004. https://doi.org/10.3390/v14092004.PMID: 36146811
- Valdés-López JF, Velilla P, Urcuqui-Inchima S. Vitamin D modulates the expression of Toll-like receptors and pro-inflammatory cytokines without affecting Chikungunya virus replication, in monocytes and macrophages. Acta Trop. 2022 Aug;232:106497. https://doi.org/10.1016/j.actatropica.2022.106497. Epub 2022 May 1.PMID: 35508271
- Verma P, Shrivastava A, Siddiqui SA, et al. Effect of Vitamin D Supplementation on CD4 Count in HIV-Infected Children and Adolescents in North India: A Non-Randomized Comparative Study. J Trop Pediatr. 2022 Aug 4;68(5):fmac066. https://doi.org/10.1093/tropej/fmac066.PMID: 35944184
- Wherry TLT, Stabel JR. Bovine Immunity and Vitamin D3: An Emerging Association in Johne's Disease. Microorganisms. 2022 Sep 18;10(9):1865. https://doi.org/10.3390/microorganisms10091865.PMID: 36144467
- Yang H, Chen H, Ma Y, et al. Effects of 25-hydroxy vitamin D on T lymphocyte subsets and sputum smear conversion during antituberculosis treatment. Int J Infect Dis. 2022 Aug;121:17-23. https://doi.org/10.1016/j.ijid.2022.04.056. Epub 2022 Apr 28.PMID: 35490953
- Yang Y, Wei S, Li Q, et al. Vitamin D protects silica particles induced lung injury by promoting macrophage polarization in a KLF4-STAT6 manner. J Nutr Biochem. 2022 Aug 29;110:109148. https://doi.org/10.1016/j.jnutbio.2022.109148. Online ahead of print.PMID: 36049670
- Yeh CL, Wu JM, Chen KY, et al. Effects of Different Routes and Forms of Vitamin D Administration on Mesenteric Lymph Node CD4+ T Cell Polarization and Intestinal Injury in Obese Mice Complicated with Polymicrobial Sepsis. Nutrients. 2022 Aug 29;14(17):3557. https://doi.org/10.3390/nu14173557.PMID: 36079813
- Youssry S, Shalaby T, Maher AS, et al. Association of hepatitis B vaccine response to vitamin D supplementation and ultraviolet B (UVB) exposure during different time intervals in experimental animals. Immunol Res. 2022 Aug;70(4):537-545. https://doi.org/10.1007/s12026-022-09287-8. Epub 2022 May 19.PMID: 35585421
- Zhang X, Zhang Y, Yin Z, et al. Relationship between vitamin D receptor gene polymorphisms and second acid-fast bacilli smear-positive during treatment for tuberculosis patients. Infect Genet Evol. 2022 Sep;103:105324. https://doi.org/10.1016/j.meegid.2022.105324. Epub 2022 Jun 28.PMID: 35777530

LABORATORY

- Abdi SAH, Ali A, Sayed SF, et al. Sunscreen Ingredient Octocrylene's Potency to Disrupt Vitamin D Synthesis. Int J Mol Sci. 2022 Sep 5;23(17):10154. https://doi.org/10.3390/ijms231710154.PMID: 36077552
- Al-Bishari AM, Al-Shaaobi BA, Al-Bishari AA, et al. Vitamin D and curcumin-loaded PCL nanofibrous for engineering osteogenesis and immunomodulatory scaffold. Front Bioeng Biotechnol. 2022 Aug 8;10:975431. https://doi.org/10.3389/fbioe.2022.975431. eCollection 2022.PMID: 36003534
- Alizadeh T, Akhoundian M. An ultra-sensitive and highly selective impedimetric sensor for vitamin D measurement based on a novel imprinted polymer synthesized utilizing template-derived functional monomer. Anal Chim Acta. 2022 Aug 29;1223:340206. https://doi.org/10.1016/j.aca.2022.340206. Epub 2022 Jul 31.PMID: 35999009
- Charoenngam N, Mueller PM, Holick MF. Evaluation of 14-day Concentration-time Curves of Vitamin D3 and 25-Hydroxyvitamin D3 in Healthy Adults With Varying Body Mass Index. Anticancer Res. 2022 Oct;42(10):5095-5100. https://doi.org/10.21873/anticanres.16019.PMID: 36191982 Clinical Trial
- Chen YC, He YY, Li YM, et al. The importance of analyzing the serum C3-epimer level for evaluating vitamin D storage in some special populations. Eur Rev Med Pharmacol Sci. 2022 Aug;26(15):5334-5343. https://doi.org/10.26355/eurrev_202208_29399.PMID: 35993626
- Christofi C, Lamnis L, Stark A, et al. Crosstalk of Aryl Hydrocarbon Receptor (AHR)- and Vitamin D Receptor (VDR)-signaling in Human Keratinocytes. Anticancer Res. 2022 Oct;42(10):5049-5067. https://doi.org/10.21873/anticanres.16014. Epub 2022 Oct 3.PMID: 36191995
- Favresse J, Schiettecatte J, Wolff F, et al. Two-site evaluation of the Roche Elecsys Vitamin D total III assay. Clin Chem Lab Med. 2022 Jul 15;60(10):1598-1606. https://doi.org/10.1515/cclm-2022-0177. Print 2022 Sep 27.PMID: 35849629
- Fernández-Lázaro D, Hernández JLG, Lumbreras E, et al. 25-Hydroxyvitamin D Serum Levels Linked to Single Nucleotide Polymorphisms (SNPs) (rs2228570, rs2282679, rs10741657) in Skeletal Muscle Aging in Institutionalized Elderly Men Not Supplemented with Vitamin D. Int J Mol Sci. 2022 Oct 6;23(19):11846. https://doi.org/10.3390/ijms231911846.PMID: 36233147
- Findeisen P, Leis M, Bendig G, et al. A multicenter performance evaluation of the new Elecsys Vitamin D total III assay versus reference isotope dilution liquid chromatography tandem mass spectrometry and commercially available comparators. J Clin Lab Anal. 2022 Sep;36(9):e24610. https://doi.org/10.1002/jcla.24610. Epub 2022 Jul 19.PMID: 35852988
- Hall DB, Vakkasoglu AS, Hales LM, et al. D-VITylation: Harnessing the biology of vitamin D to improve the pharmacokinetic properties of peptides and small proteins. Int J Pharm. 2022 Aug 25;624:122031. https://doi.org/10.1016/j.ijpharm.2022.122031. Epub 2022 Jul 19.PMID: 35863594
- Jensen ME, Murphy VE, Harvey S, et al. Response to '25-OH Vitamin D concentrations measured by LC-MS/MS are equivalent in serum and EDTA plasma'. Steroids. 2022 Nov;187:109097. https://doi.

org/10.1016/j.steroids.2022.109097. Epub 2022 Aug 3.PMID: 35933038

- Kattner L, Rauch E. Synthesis of 13C Labeled Vitamin D Metabolites for Their Use in LC-MS/MS: Valuable Tools for Cancer Research and Other Applications. Anticancer Res. 2022 Oct;42(10):5077-5081. https://doi.org/10.21873/anticanres.16016.PMID: 36191978
- Kattner L. Novel approach to A-ring synthon for Pd-catalyzed synthesis of 1α-hydroxylated vitamin D metabolites. J Steroid Biochem Mol Biol. 2022 Oct;223:106134. https://doi.org/10.1016/j.jsbmb.2022.106134. Epub 2022 Jun 2.PMID: 35662670
- Kim TE, Yoo G, Hyeock Lee M, et al. Novel QuEChERS-ultra-performance liquid chromatography-atmospheric-pressure chemical ionization tandem mass spectrometry method for the simultaneous determination of vitamin D and vitamin K in vitamin-fortified nanoemulsions. Food Chem. 2022 Sep 30;389:133009. https://doi.org/10.1016/j.foodchem.2022.133009. Epub 2022 Apr 20.PMID: 35490514
- Leung HS, Ng WY, Tseung SB, et al. Interference of Biotin Supplement Mimicking Vitamin D Intoxication and the use of Streptavidin-Coated Microparticles to Deplete Biotin in Samples. Clin Lab. 2022 Sep 1;68(9). https://doi.org/10.7754/Clin.Lab.2022.220114.PMID: 36125154
- Lucock M. Vitamin-related phenotypic adaptation to exposomal factors: The folate-vitamin D-exposome triad. Mol Aspects Med. 2022 Oct;87:100944. https://doi.org/10.1016/j.mam.2021.100944. Epub 2021 Feb 4.PMID: 33551238 Review
- Mulrooney SL, O'Neill GJ, Brougham DF, et al. Enhancing the bioaccessibility of vitamin D using mixed micelles - An in vitro study. Food Chem. 2022 Nov 30;395:133634. https://doi.org/10.1016/j.foodchem.2022.133634. Epub 2022 Jul 6.PMID: 35830776
- Nagamani S, Jaiswal L, Sastry GN. Deciphering the importance of MD descriptors in designing Vitamin D Receptor agonists and antagonists using machine learning. J Mol Graph Model. 2022 Sep 29;118:108346. https://doi.org/10.1016/j.jmgm.2022.108346. Online ahead of print.PMID: 36208593
- Polli F, D'Agostino C, Zumpano R, et al. ASu@MNPs-based electrochemical immunosensor for vitamin D3 serum samples analysis. Talanta. 2023 Jan 1;251:123755. https://doi.org/10.1016/j.talanta.2022.123755. Epub 2022 Aug 2.PMID: 35932635
- Shri Preethi M, Premkumar K, Asha Devi S. Molecular docking study on vitamin D supplements to understand their interaction with VDR-RXRα heterodimer and VDRE of TAGAP gene. J Biomol Struct Dyn. 2022 Aug 24:1-10. https://doi.org/10.1080/07391102.2022.2114939. Online ahead of print.PMID: 36002290
- Sosa-Díaz E, Hernández-Cruz EY, Pedraza-Chaverri J. The role of vitamin D on redox regulation and cellular senescence. Free Radic Biol Med. 2022 Oct 18:S0891-5849(22)00633-5. https://doi.org/10.1016/j.freeradbiomed.2022.10.003. Online ahead of print.PMID: 36270517 Review
- Takada K, Hagiwara Y, Togashi M, et al. 23,25-Dihydroxyvitamin D3 is liberated as a major vitamin D3 metabolite in human urine after treatment with β-glucuronidase: Quantitative comparison with 24,25-dihydroxyvitamin D3 by LC/MS/MS. J Steroid Biochem Mol Biol. 2022 Oct;223:106133. https://doi.org/10.1016/j.jsbmb.2022.106133. Epub 2022 May 30.PMID: 35654380
- van der Vorm LN, Le Goff C, Peeters S, et al. 25-OH Vitamin D concentrations measured by LC-MS/MS are equivalent in serum and EDTA plasma. Steroids. 2022 Nov;187:109096. https://doi.org/10.1016/j.steroids.2022.109096. Epub 2022 Aug 2.PMID: 35931233
- Wang Z, Zeng Y, Jia H, et al. Bioconversion of vitamin D3 to bioactive calcifediol and calcitriol as high-value compounds. Biotechnol Biofuels Bioprod. 2022 Oct 13;15(1):109. https://doi.org/10.1186/s13068-022-02209-8. PMID: 36229827

MISCELLANEOUS

- AlGhamdi SA, Enaibsi NN, Alsufiani HM, et al. A Single Oral Vitamin D3 Bolus Reduces Inflammatory Markers in Healthy Saudi Males. Int J Mol Sci. 2022 Oct 9;23(19):11992. https://doi.org/10.3390/ijms231911992.PMID: 36233290
- Alizadeh K, Ahmadi S, Sarchahi AA, et al. The effects of age, sex, breed, diet, reproductive status and housing condition on the amounts of 25(OH) vitamin D in the serum of healthy dogs: Reference values. Vet Med Sci. 2022 Sep 22. https://doi.org/10.1002/vms3.943. Online ahead of print.PMID: 36137283
- Ammar M, Heni S, Tira MS, et al. Variability in response to vitamin D supplementation according to vitamin D metabolism related gene polymorphisms in healthy adults. Eur J Clin Nutr. 2022 Sep 27:1-6. https://doi.org/10.1038/s41430-022-01218-y. Online ahead of print.PMID: 36167979
- Antoine T, El Aoud A, Alvarado-Ramos K, et al. Impact of pulses, starches and meat on vitamin D and K postprandial responses in mice. Food Chem. 2022 Aug 10;402:133922. https://doi.org/10.1016/j.foodchem.2022.133922. Online ahead of print.PMID: 36162171
- Arikan S, Kamis F. Effect of vitamin D deficiency on spatial contrast sensitivity function. Clin Exp Optom. 2022 Sep;105(7):733-739. https://doi.org/10.1080/08164622.2021.1969212. Epub 2021 Aug 29.PMID: 34459358
- Azarpeykan S, Gee EK, Thompson KG, et al. Undetectable vitamin D3 in equine skin irradiated with ultraviolet light. J Equine Sci. 2022 Sep;33(3):45-49. https://doi.org/10.1294/jes.33.45. Epub 2022 Sep 21.PMID: 36196139
- Azizi F, Karami N, Golshah A, et al. Effect of Serum Level of Vitamin D on External Apical Root Resorption in Maxillary Anterior Teeth in Patients under Fixed Orthodontic Treatment. Int J Dent. 2022 Sep 27;2022:7942998. https://doi.org/10.1155/2022/7942998. eCollection 2022.PMID: 36203821
- Bailer AC, Philipp S, Staudt S, et al. UVB-exposed wheat germ oil increases serum 25-hydroxyvitamin D2 without improving overall vitamin D status: a randomized controlled trial. Eur J Nutr. 2022 Aug;61(5):2571-2583. https://doi.org/10.1007/s00394-022-02827-w. Epub 2022 Feb 27.PMID: 35220442
- Bazal-Bonelli S, Sánchez-Labrador L, Cortés-Bretón Brinkmann J, et al. Influence of Serum Vitamin D Levels on Survival Rate and Marginal Bone Loss in Dental Implants: A Systematic Review. Int J Environ Res Public Health. 2022 Aug 16;19(16):10120. https://

doi.org/10.3390/ijerph191610120. PMID: 36011753

- Blaseg E, Von Wald T, Hansen KA. Vitamin D levels and human sperm DNA fragmentation: a prospective, cohort study. Basic Clin Androl. 2022 Sep 13;32(1):14. https://doi.org/10.1186/s12610-022-00166-8.PMID: 36096748
- Breth-Petersen M, Bell K, Pickles K, et al. Health, financial and environmental impacts of unnecessary vitamin D testing: a triple bottom line assessment adapted for healthcare. BMJ Open. 2022 Aug 23;12(8):e056997. https://doi.org/10.1136/bmjopen-2021-056997. PMID: 35998953
- Brzeziański M, Migdalska-Sęk M, Stuss M, et al. Effect of physical training on parathyroid hormone and bone turnover marker profile in relation to vitamin D supplementation in soccer players. Biol Sport. 2022 Oct;39(4):921-932. https://doi.org/10.5114/biolsport.2022.109956. Epub 2021 Nov 10.PMID: 36247934
- Buttriss JL, Lanham-New SA. Vitamin D: One hundred years on. Nutr Bull. 2022 Sep;47(3):282-287. https://doi.org/10.1111/nbu.12575. Epub 2022 Aug 9.PMID: 36045106
- Calvo MS, Whiting SJ. Perspective: School Meal Programs Require Higher Vitamin D Fortification Levels in Milk Products and Plant-Based Alternatives-Evidence from the National Health and Nutrition Examination Surveys (NHANES 2001-2018). Adv Nutr. 2022 Oct 2;13(5):1440-1449. https://doi.org/10.1093/advances/nmac068. PMID: 35671093
- Chae B, Kim YJ, Kim SM, et al. Vitamin D deficiency on admission to the emergency department is a mortality predictor for patients with septic shock treated with early protocol-driven resuscitation bundle therapy. Am J Med Sci. 2022 Oct 17:S0002-9629(22)00434-7. https://doi.org/10.1016/j.amjms.2022.10.005. Online ahead of print.PMID: 36265656
- Chauhan K, Shahrokhi M, Huecker MR. Vitamin D. 2022 Sep 9. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan–.PMID: 28722941
- Chen J, Zhang M, Mujumdar AS, et al. 4D printing induced by microwave and ultrasound for mushroom mixtures: Efficient conversion of ergosterol into vitamin D2. Food Chem. 2022 Sep 1;387:132840. https://doi.org/10.1016/j.foodchem.2022.132840. Epub 2022 Mar 29.PMID: 35405556
- Chen X, An Z, Wei L, et al. Vitamin D3 Metabolic Enzymes in Plateau Zokor (Myospalax baileyi) and Plateau Pika (Ochotona curzoniae): Expression and Response to Hypoxia. Animals (Basel). 2022 Sep 11;12(18):2371. https://doi.org/10.3390/ani12182371.PMID: 36139230
- Clemenceau A, Chang SL, Hanna M, et al. Association between vitamin D and calcium intakes, breast microcalcifications, breast tissue age-related lobular involution and breast density. Menopause. 2022 Oct 11. https://doi.org/10.1097/GME.0000000000002070. Online ahead of print.PMID: 36219808
- Crescioli C. Vitamin D, exercise, and immune health in athletes: A narrative review. Front Immunol. 2022 Sep 23;13:954994. https://doi.org/10.3389/fimmu.2022.954994. eCollection 2022. PMID: 36211340
- da Silva TBP, Luiz MM, Delinocente MLB, et al. Is Abdominal Obesity a Risk Factor for the Incidence of Vitamin D Insufficiency and Deficiency in Older Adults? Evidence from the ELSA Study. Nutrients. 2022 Oct 7;14(19):4164. https://doi.org/10.3390/nu14194164. PMID: 36235815
- Dehghan-Manshadi M, Azarbayjani MA, Atashak S, et al. Effect of resistance training with and without vitamin D calcium chitosan nanoparticle supplements on apoptosis markers in ovariectomized rats: An experimental study. Int J Reprod Biomed. 2022 Aug 8;20(7):549-560. https://doi.org/10.18502/ijrm.v20i7.11557. eCollection 2022 Jul.PMID: 36187741
- Diego-Taboada A, Sathyapalan T, Courts F, et al. Spore exines increase vitamin D clinical bioavailability by mucoadhesion and bile triggered release. J Control Release. 2022 Oct;350:244-255. https://doi.org/10.1016/j.jconrel.2022.08.017. Epub 2022 Aug 24.PMID: 35973473
- Duchow EG, Sibilska-Kaminski IK, Plum LA, et al. Vitamin D esters are the major form of vitamin D produced by UV irradiation in mice. Photochem Photobiol Sci. 2022 Aug;21(8):1399-1404. https://doi.org/10.1007/s43630-022-00230-2. Epub 2022 Apr 30.PMID: 35488978
- Dunlop E, Shepherd CCJ, Cunningham J, et al. Vitamin D composition of Australian game products. Food Chem. 2022 Sep 1;387:132965. https://doi.org/10.1016/j.foodchem.2022.132965. Epub 2022 Apr 12.PMID: 35429940
- Espersen R, Correia BSB, Rejnmark L, et al. The Diurnal Blood Metabolome and Effects of Vitamin D Supplementation: A Randomised Crossover Trial in Postmenopausal Women. Int J Mol Sci. 2022 Aug 28;23(17):9748. https://doi.org/10.3390/ijms23179748.PMID: 36077145
- Fatemi SA, Macklin KS, Zhang L, et al. Improvement in the Immunity- and Vitamin D3-Activity-Related Gene Expression of Coccidiosis-Challenged Ross 708 Broilers in Response to the In Ovo Injection of 25-Hydroxyvitamin D3 . Animals (Basel). 2022 Sep 22;12(19):2517. https://doi.org/10.3390/ani12192517.PMID: 36230268
- Fleet JC. Vitamin D-Mediated Regulation of Intestinal Calcium Absorption. Nutrients. 2022 Aug 16;14(16):3351. https://doi.org/10.3390/nu14163351.PMID: 36014856
- Ganie MA, Sidana S, Baba MS, et al. Efficacy and safety of various oral regimens (three oral doses) and schedules (daily vs. monthly) of cholecalciferol in north Indian adults with low vitamin D status: Evidence from a randomized controlled trial. Br J Nutr. 2022 Aug 19:1-22. https://doi.org/10.1017/S0007114522002641. Online ahead of print.PMID: 35983775
- Gautier J, Riou J, Schott AM, et al. Higher dietary vitamin D intake is associated with better survival among older women: Results from the French EPIDOS cohort. Front Nutr. 2022 Sep 8;9:974909. https://doi.org/10.3389/fnut.2022.974909. eCollection 2022.PMID: 36159467
- Ghiasvand R, Rashidian A, Abaj F, et al. Genetic variations of vitamin D receptor and vitamin D supplementation interaction in relation to serum vitamin D and metabolic traits: a systematic review and meta-analysis. Int J Vitam Nutr Res. 2022 Aug 23. https://doi.org/10.1024/0300-9831/a000762. Online ahead of print.PMID: 35997204 Review
- Gilliland DL, Gill BD, Kissling RC, et al. Assessment of Regulatory Compliance Test-

ing for Vitamin D in Infant Formula-Impact of Delegated Regulation (EU) 2019/828. J AOAC Int. 2022 Sep 6;105(5):1360-1366. https://doi.org/10.1093/jaoacint/qsac060.PMID: 35604099

- Grant WB, Boucher BJ, Al Anouti F, et al. Comparing the Evidence from Observational Studies and Randomized Controlled Trials for Nonskeletal Health Effects of Vitamin D. Nutrients. 2022 Sep 15;14(18):3811. https://doi.org/10.3390/nu14183811.PMID: 36145186
- Gratton MP, Londono I, Rompré P, et al. Effect of vitamin D on bone morphometry and stability of orthodontic tooth movement in rats. Am J Orthod Dentofacial Orthop. 2022 Oct 7:S0889-5406(22)00579-0. https://doi.org/10.1016/j.ajodo.2022.08.019. Online ahead of print.PMID: 36216621
- Hajipoor S, Hekmatdoost A, Pasdar Y, et al. Consumption of probiotic yogurt and vitamin D-fortified yogurt increases fasting level of GLP-1 in obese adults undergoing low-calorie diet: A double-blind randomized controlled trial. Food Sci Nutr. 2022 Jul 27;10(10):3259-3271. https://doi.org/10.1002/fsn3.2816. eCollection 2022 Oct.PMID: 36249978
- Harju T, Gray B, Mavroeidi A, et al. Correction to: Prevalence and novel risk factors for vitamin D insufficiency in elite athletes: systematic review and meta-analysis. Eur J Nutr. 2022 Oct 11. https://doi.org/10.1007/s00394-022-03021-8. Online ahead of print.PMID: 36219235
- Hemmati F, Abbasi A, Bedeltavana A, et al. Development of fortified probiotic dairy desserts with added date extract, whey protein, inulin, folic acid, vitamin D and calcium. J Food Sci Technol. 2022 Oct;59(10):3754-3764. https://doi.org/10.1007/s13197-022-05356-w. Epub 2022 Feb 25.PMID: 36193381
- Herrera-Quintana L, Vázquez-Lorente H, Molina-López J, et al. Vitamin D Status in Critically Ill Patients with SIRS and Its Relationship with Circulating Zn and Related Parameters during ICU Stay. Nutrients. 2022 Aug 30;14(17):3580. https://doi.org/10.3390/nu14173580.PMID: 36079837
- Herrmann S, Küchler EC, Reis CLB, et al. Association of third molar agenesis and microdontia with genetic polymorphisms in vitamin-D-related genes. Ann Anat. 2022 Oct;244:151972. https://doi.org/10.1016/j.aanat.2022.151972. Epub 2022 Jun 20.PMID: 35738313
- Holick MF, Stoddard PK. Mosquitoes Exposed to Sunlight in Florida Are Capable of Making Vitamin D3. Anticancer Res. 2022 Oct;42(10):5091-5094. https://doi.org/10.21873/anticanres.16018.PMID: 36191977
- Hribar M, Žlavs K, Pravst I, et al. Validation of the food frequency questionnaire for the assessment of dietary vitamin D intake. Front Nutr. 2022 Sep 23;9:950874. https://doi.org/10.3389/fnut.2022.950874. eCollection 2022
- Huggins B, Farris M. Vitamin D3 promotes longevity in Caenorhabditis elegans. Geroscience. 2022 Aug 24. https://doi.org/10.1007/s11357-022-00637-w. Online ahead of print.PMID: 36001277
- Icel E, Ucak T, Ugurlu A, et al. Changes in optical coherence tomography angiography in patients with vitamin D deficiency. Eur J Ophthalmol. 2022 Nov;32(6):3514-3521. https://doi.org/10.1177/11206721221086240. Epub 2022 Mar 7.PMID: 35253469
- Jonsdottir GM, Kvaran RB, Skarphedinsdottir SJ, et al. Changes in vitamin D metabolites at the time of critical illness and 6 months later-A prospective observational study. Acta Anaesthesiol Scand. 2022 Nov;66(10):1202-1210. https://doi.org/10.1111/aas.14137. Epub 2022 Aug 29.PMID: 36054671
- Karimi S, Parvizi F, Arabi A, et al. Oral Vitamin D Supplementation and Clinical Outcomes of Intravitreal Bevacizumab Injection for Macular Edema Secondary to Retinal Vein Occlusions. J Ophthalmic Vis Res. 2022 Aug 15;17(3):376-383. https://doi.org/10.18502/jovr.v17i3.11575. eCollection 2022 Jul-Sep. PMID: 36160093
- Kessi-Pérez EI, González A, Palacios JL, et al. Yeast as a biological platform for vitamin D production: A promising alternative to help reduce vitamin D deficiency in humans. Yeast. 2022 Sep;39(9):482-492. https://doi.org/10.1002/yea.3708. Epub 2022 Jun 2.PMID: 35581681 Review
- Kido S, Chosa E, Tanaka R. The effect of six dried and UV-C-irradiated mushrooms powder on lipid oxidation and vitamin D contents of fish meat. Food Chem. 2023 Jan 1;398:133917. https://doi.org/10.1016/j.foodchem.2022.133917. Epub 2022 Aug 10.PMID: 35987007
- Kühn J, Brandsch C, Kiourtzidis M, et al. Microalgae-derived sterols do not reduce the bioavailability of oral vitamin D3 in mice. Int J Vitam Nutr Res. 2022 Sep 20. https://doi.org/10.1024/0300-9831/a000766. Online ahead of print.PMID: 36124519
- Łabędź N, Stachowicz-Suhs M, Psurski M, et al. Modulation of Fibroblast Activity via Vitamin D3 Is Dependent on Tumor Type-Studies on Mouse Mammary Gland Cancer. Cancers (Basel). 2022 Sep 21;14(19):4585. https://doi.org/10.3390/cancers14194585.PMID: 36230508
- Lerche CM, Pinto FE, Philipsen PA, et al. High Oral Vitamin D3 Intake Does Not Protect Against UVR-induced Squamous Cell Carcinoma in Mice. Anticancer Res. 2022 Oct;42(10):5083-5090. https://doi.org/10.21873/anticanres.16017.PMID: 36192014
- Li P, Wang Y, Li P, et al. Maternal vitamin D deficiency aggravates the dysbiosis of gut microbiota by affecting intestinal barrier function and inflammation in obese male offspring mice. Nutrition. 2022 Aug 30;105:111837. https://doi.org/10.1016/j.nut.2022.111837. Online ahead of print.PMID: 36257082
- Lin Y, Su H, Wu J, et al. Oral vitamin D3 supplementation for femtosecond LASIK-associated dry eye vitamin D for LASIK dry eye syndrome. Int Ophthalmol. 2022 Oct;42(10):3145-3152. https://doi.org/10.1007/s10792-022-02314-5. Epub 2022 May 12.PMID: 35551580 Clinical Trial
- Liu D, Meng X, Tian Q, et al. Vitamin D and Multiple Health Outcomes: An Umbrella Review of Observational Studies, Randomized Controlled Trials, and Mendelian Randomization Studies. Adv Nutr. 2022 Aug 1;13(4):1044-1062. https://doi.org/10.1093/advances/nmab142. PMID: 34999745 Review
- Liu H, Shen X, Yu T, et al. A putative causality of vitamin D in common diseases: A mendelian randomization study. Front Nutr. 2022 Aug 2;9:938356. https://doi.org/10.3389/fnut.2022.938356. eCollection 2022.PMID: 35983488

- López-Sobaler AM, Larrosa M, Salas-González MD, et al. [Impact of vitamin D on health. Difficulties and strategies to reach the recommended intakes]. Nutr Hosp. 2022 Sep 1;39(Spec No3):30-34. https://doi.org/10.20960/nh.04307. PMID: 36040009
- Lorusso M, Micelli Ferrari L, Cicinelli MV, et al. Study of vitamin D penetration in the human aqueous after topical administration. Eur J Ophthalmol. 2022 Nov;32(6):3693-3698. https://doi.org/10.1177/11206721221090800. Epub 2022 Mar 29.PMID: 35345910
- Malik MA, Jan Y, Al-Keridis LA, et al. Effect of Vitamin-D-Enriched Edible Mushrooms on Vitamin D Status, Bone Health and Expression of CYP2R1, CYP27B1 and VDR Gene in Wistar Rats. J Fungi (Basel). 2022 Aug 17;8(8):864. https://doi.org/10.3390/jof8080864.PMID: 36012852
- Mario FM, Luca P, Domenico A, et al. Severe, Treatment-Refractory Periodontitis and Vitamin D Deficiency: A Multidisciplinary Case Report. Case Rep Dent. 2022 Oct 11;2022:6469214. https://doi.org/10.1155/2022/6469214. eCollection 2022.PMID: 36267055
- Mazur A, Koziorowska K, Dynarowicz K, et al. Vitamin D and Vitamin D3 Supplementation during Photodynamic Therapy: A Review. Nutrients. 2022 Sep 15;14(18):3805. https://doi.org/10.3390/nu14183805. PMID: 36145180
- McClung MR. Should vitamin D supplements be prescribed routinely for midlife women? Menopause. 2022 Oct 18. https://doi.org/10.1097/GME.0000000000002066. Online ahead of print.PMID: 36256920
- Menger J, Lee ZY, Notz Q, et al. Administration of vitamin D and its metabolites in critically ill adult patients: an updated systematic review with meta-analysis of randomized controlled trials. Crit Care. 2022 Sep 6;26(1):268. https://doi.org/10.1186/s13054-022-04139-1. PMID: 36068584
- Milan KL, Jayasuriya R, Harithpriya K, et al. Vitamin D resistant genes - promising therapeutic targets of chronic diseases. Food Funct. 2022 Aug 1;13(15):7984-7998. https://doi.org/10.1039/d2fo00822j. PMID: 35856462
- Minich DM, Henning M, Darley C, et al. Is Melatonin the "Next Vitamin D"?: A Review of Emerging Science, Clinical Uses, Safety, and Dietary Supplements. Nutrients. 2022 Sep 22;14(19):3934. https://doi.org/10.3390/nu14193934.PMID: 36235587
- Mishra SM, Ravishankar PL, Pramod V, et al. Effect of Supplementation of Vitamin D in Patients with Periodontitis Evaluated before and after Nonsurgical Therapy. Biomed Res Int. 2022 Aug 8;2022:5869676. https://doi.org/10.1155/2022/5869676. eCollection 2022.PMID: 35978636
- Mizuno T, Hosoyama T, Tomida M, et al. Influence of vitamin D on sarcopenia pathophysiology: A longitudinal study in humans and basic research in knockout mice. J Cachexia Sarcopenia Muscle. 2022 Oct 13. https://doi.org/10.1002/jcsm.13102. Online ahead of print.PMID: 36237134
- Moittié S, Jarvis R, Bandelow S, et al. Vitamin D status in chimpanzees in human care: a Europe wide study. Sci Rep. 2022 Oct 21;12(1):17625. https://doi.org/10.1038/s41598-022-21211-6. PMID: 36271125
- Morgante G, Darino I, Spanò A, et al. PCOS Physiopathology and Vitamin D Deficiency: Biological Insights and Perspectives for Treatment. J Clin Med. 2022 Aug 2;11(15):4509. https://doi.org/10.3390/jcm11154509.PMID: 35956124
- Moslemi E, Musazadeh V, Kavyani Z, et al. Efficacy of vitamin D supplementation as an adjunct therapy for improving inflammatory and oxidative stress biomarkers: An umbrella meta-analysis. Pharmacol Res. 2022 Oct 4:106484. https://doi.org/10.1016/j.phrs.2022.106484. Online ahead of print.PMID: 36206958 Review
- Moyad MA. Vitamin D and the vital need for more VITALs: Seeking causation amidst escalating association, inflammation, and supplementation. J Urol. 2022 Oct 18:101097JU0000000000003036. https://doi.org/10.1097/JU.0000000000003036. Online ahead of print.PMID: 36256545
- Neill HR, Gill CIR, McDonald EJ, et al. Impact of cooking on vitamin D3 and 25(OH)D3 content of pork products. Food Chem. 2022 Dec 15;397:133839. https://doi.org/10.1016/j.foodchem.2022.133839. Epub 2022 Aug 2.PMID: 35947937
- Nireeksha N, Hegde MN, Shetty SS, et al. FOK I Vitamin D Receptor Gene Polymorphism and Risk of Dental Caries: A Case-Control Study. Int J Dent. 2022 Aug 5;2022:6601566. https://doi.org/10.1155/2022/6601566. eCollection 2022.PMID: 36034480
- Patriota P, Rezzi S, Guessous I, et al. Vitamin D and Weight Change: A Mendelian Randomization, Prospective Study. Int J Mol Sci. 2022 Sep 21;23(19):11100. https://doi.org/10.3390/ijms231911100. PMID: 36232402
- Persico M, Sessa R, Cesaro E, et al. A multidisciplinary approach disclosing unexplored Aflatoxin B1 roles in severe impairment of vitamin D mechanisms of action. Cell Biol Toxicol. 2022 Sep 6. https://doi.org/10.1007/s10565-022-09752-y. Online ahead of print.PMID: 36066700
- Rahman ST, Waterhouse M, Romero BD, et al. Vitamin D supplementation and the incidence of cataract surgery in older Australian adults. Ophthalmology. 2022 Sep 26:S0161-6420(22)00753-9. https://doi.org/10.1016/j.ophtha.2022.09.015. Online ahead of print. PMID: 36174848
- Reichrath J, Holick MF, Friedrich M, et al. Proceedings of the Joint International Symposia: Vitamin D in Prevention and Therapy and Biologic Effects of Light May 04-06, 2022 Schlossberg Hotel, Homburg/Saar, Germany. Anticancer Res. 2022 Oct;42(10):5008.PMID: 36192010
- Reichrath J, März W, DE Gruijl FR, et al. An Appraisal to Address Health Consequences of Vitamin D Deficiency With Food Fortification and Supplements: Time to Act! Anticancer Res. 2022 Oct;42(10):5009-5015. https://doi.org/10.21873/anticanres.16008.PMID: Review
- Ribeiro LSFE, Araujo NS, Zilli Vieira CL, et al. Impact of serum vitamin D levels on periodontal healing outcomes: A preliminary cohort study. Int J Dent Hyg. 2022 Sep 1. https://doi.org/10.1111/idh.12619. Online ahead of print.PMID: 36048921
- Richardson TG, Power GM, Davey Smith G. Adiposity may confound the association between vitamin D and disease risk - a lifecourse Mendelian randomization study. Elife. 2022 Aug 8;11:e79798. https://doi.org/10.7554/eLife.79798.PMID: 35938910

- Rips L, Toom A, Kuik R, et al. Severe deficiency of vitamin D has no negative effect on physical performance during military training. J Sports Med Phys Fitness. 2022 Oct 7. https://doi.org/10.23736/S0022-4707.22.14123-X. Online ahead of print.PMID: 36205086
- Rogalnikovaite K, Bendoraitiene E, Andruskeviciene V. Associations of Prenatal Vitamin D status with Oral Health in Offspring: A Systematic Review. Oral Health Prev Dent. 2022 Oct 20;20(1):393-400. https://doi.org/10.3290/j.ohpd.b3505831.PMID: 36264559
- Rosenberg K. Supplemental Vitamin D Doesn't Reduce Risk of Fracture in Healthy Older Adults. Am J Nurs. 2022 Nov 1;122(11):62. https://doi.org/10.1097/01.NAJ.0000897160.68420.89.PMID: 36261913
- Sawyer CW, Tuey SM, West RE 3rd, et al. Physiologically Based Pharmacokinetic Modeling of Vitamin D3 and Metabolites in Vitamin D-Insufficient Patients. Drug Metab Dispos. 2022 Sep;50(9):1161-1169. https://doi.org/10.1124/dmd.121.000609. Epub 2022 Jul 2.PMID: 35779863
- Seyyar SA, Tokuc EO, Tıskaoğlu NS, et al. Do serum vitamin D levels correlate with Macular Edema or with Diabetic Retinopathy? Eur J Ophthalmol. 2022 Nov;32(6):3592-3598. https://doi.org/10.1177/11206721221076701. Epub 2022 Jan 28.PMID: 35088606
- Sha S, Nguyen TMN, Kuznia S, et al. Real-world evidence for the effectiveness of vitamin D supplementation in reduction of total and cause-specific mortality. J Intern Med. 2022 Oct 8. https://doi.org/10.1111/joim.13578. Online ahead of print.PMID: 36208176
- Silva C, Fung AWS, Masson V, et al. Vitamin D toxicity from an unusual and unexpected source: a report of 2 cases. Horm Res Paediatr. 2022 Aug 26. https://doi.org/10.1159/000526755. Online ahead of print.PMID: 36030768
- Song X, Wang Y, Wang J, et al. Metabolomic analysis reveals the influence of IC50 vitamin D3 on RAW264.7 cells based on 1 H NMR and UPLC-MS/MS. J Sci Food Agric. 2022 Sep;102(12):5288-5300. https://doi.org/10.1002/jsfa.11882. Epub 2022 Apr 4.PMID: 35306664
- St-Arnaud R, Arabian A, Kavame D, et al. Vitamin D and Diseases of Mineral Homeostasis: A Cyp24a1 R396W Humanized Preclinical Model of Infantile Hypercalcemia Type 1. Nutrients. 2022 Aug 6;14(15):3221. https://doi.org/10.3390/nu14153221.PMID: 35956396
- Tiller NB. Comment on: "Association of Vitamin D Supplementation in Cardiorespiratory Fitness and Muscle Strength in Adult Twins: A Randomized Controlled Trial". Int J Sport Nutr Exerc Metab. 2022 Jun 1;32(5):419-420. https://doi.org/10.1123/ijsnem.2022-0101. Print 2022 Sep 1.PMID: 35649514 Clinical Trial.
- Wang J, Kokinos BP, Lang PJ, et al. Vitamin D deficiency and anatomical region alters porcine growth plate properties. J Biomech. 2022 Sep 24;144:111314. https://doi.org/10.1016/j.jbiomech.2022.111314. Online ahead of print.PMID: 36182792
- Webb AR, VAN DER Zande BMI, Kift RC, et al. Ultra-low Ultraviolet Radiation in Office Lighting Can Moderate Seasonal Vitamin D Cycle: A Pilot Study. Anticancer Res. 2022 Oct;42(10):5101-5106. https://doi.org/10.21873/anticanres.16020. PMID: 36192005
- Wu Z, Wu Y, Rao J, et al. Associations among vitamin D, tobacco smoke, and hypertension: A cross-sectional study of the NHANES 2001-2016. Hypertens Res. 2022 Oct 6. https://doi.org/10.1038/s41440-022-01023-x. Online ahead of print.PMID: 36202982
- Zeng X, Chen X, Li C, et al. Preoperative Vitamin D Level is Associated with Acute Pain After Video-Assisted Thoracoscopic Surgery: A Retrospective Cohort Study. J Pain Res. 2022 Oct 12;15:3189-3196. https://doi.org/10.2147/JPR.S382407. eCollection 2022.PMID: 36258760
- Zgaga L, Shraim R, Bolger E, et al. Statistical power in vitamin D randomized control trials investigating biomarkers as continuous outcomes. J Steroid Biochem Mol Biol. 2022 Sep;222:106148. https://doi.org/10.1016/j.jsbmb.2022.106148. Epub 2022 Jul 6.PMID: 35809790
- Zhu A, Kuznia S, Boakye D, et al. Vitamin D-Binding Protein, Bioavailable, and Free 25(OH)D, and Mortality: A Systematic Review and Meta-Analysis. Nutrients. 2022 Sep 20;14(19):3894. https://doi.org/10.3390/nu14193894.PMID: 36235547

NEPHROLOGY

- Bouazza A, Tahar A, AitAbderrhmane S, et al. Modulation of cardiometabolic risk and CardioRenal syndrome by oral vitamin D3 supplementation in Black and White Southern Sahara residents with chronic kidney disease Stage 3: focus on racial and ethnic disparities. Ren Fail. 2022 Dec;44(1):1243-1262. https://doi.org/10.1080/0886022X.2022.2106244. PMID: 35930297
- Buyukdemirci S, Oguz EG, Cimen SG, et al. Vitamin D deficiency may predispose patients to increased risk of kidney transplant rejection. World J Transplant. 2022 Sep 18;12(9):299-309. https://doi.org/10.5500/wjt.v12.i9.299.PMID: 36187881
- Dhillon-Jhattu S, McGill RL, Ennis JL, et al. Vitamin D and Parathyroid Hormone Levels in CKD. Am J Kidney Dis. 2022 Aug 2:S0272-6386(22)00821-6. https://doi.org/10.1053/j.ajkd.2022.06.006. Online ahead of print.PMID: 35926776
- Ghaith MM, El-Boshy M, Almasmoum H, et al. Deferasirox and vitamin D3 co-therapy mitigates iron-induced renal injury by enhanced modulation of cellular anti-inflammatory, anti-oxidative stress, and iron regulatory pathways in rat. J Trace Elem Med Biol. 2022 Dec;74:127085. https://doi.org/10.1016/j.jtemb.2022.127085. Epub 2022 Sep 24.PMID: 36179462
- He J, Sun X, Nie R, et al. Relationship between serum parathyroid hormone levels and abdominal aortic calcification in patients starting hemodialysis who have never taken calcium tablets, calcitriol, or vitamin D analogs. Ren Fail. 2022 Dec;44(1):1409-1416. https://doi.org/10.1080/0886022X.2022.2114369. PMID: 36000910
- He L, Zhou L, Zhao TY, et al. Effect of Vitamin D on Urinary Albumin Excretion in Diabetic Nephropathy Patients: A Meta-analysis of Randomized Controlled Trials. Iran J Kidney Dis. 2022 Sep;16(5):273-279. PMID: 36178860
- Kang E, Yim HE, Nam YJ, et al. Exposure to airborne particulate matter induces renal tubular cell injury in vitro: the role of vitamin D signaling and renin-angiotensin system. Heliyon. 2022 Aug 11;8(8):e10184. https://doi.org/10.1016/j.heliy-

on.2022.e10184. eCollection 2022 Aug.PMID: 36033312

- Khan SS, Petkovich M, Holden RM, et al. Megalin and Vitamin D Metabolism-Implications in Non-Renal Tissues and Kidney Disease. Nutrients. 2022 Sep 7;14(18):3690. https://doi.org/10.3390/nu14183690. PMID: 36145066
- Liu W, Cao S, Ma J, et al. Exposures to volatile organic compounds, serum vitamin D, and kidney function: association and interaction assessment in the US adult population. Environ Sci Pollut Res Int. 2022 Aug 31. https://doi.org/10.1007/s11356-022-22637-1. Online ahead of print. PMID: 36044140
- Markland AD, Vaughan C, Huang AJ, et al. Effect of Vitamin D Supplementation on Overactive Bladder and Urinary Incontinence Symptoms in Older Men: Ancillary Findings From a Randomized Trial. J Urol. 2022 Sep 6:101097JU0000000000002942. https://doi.org/10.1097/JU.0000000000002942. Online ahead of print.PMID: 36067369
- Shi L, Xiao C, Zhang Y, et al. Vitamin D/vitamin D receptor/Atg16L1 axis maintains podocyte autophagy and survival in diabetic kidney disease. Ren Fail. 2022 Dec;44(1):694-705. https://doi.org/10.1080/0886022X.2022.2063744. PMID: 35469547
- Stathi D, Fountoulakis N, Panagiotou A, et al. Impact of treatment with active vitamin D calcitriol on bone turnover markers in people with type 2 diabetes and stage 3 chronic kidney disease. Bone. 2022 Oct 8;166:116581. https://doi.org/10.1016/j.bone.2022.116581. Online ahead of print.PMID: 36216304
- Zappulo F, Cappuccilli M, Cingolani A, et al. Vitamin D and the Kidney: Two Players, One Console. Int J Mol Sci. 2022 Aug 15;23(16):9135. https://doi.org/10.3390/ijms23169135.PMID: 36012412

NEUROLOGY

- Geng C, Yang Z, Kong X, et al. Correlation between vitamin D and poor sleep status in restless legs syndrome. Front Endocrinol (Lausanne). 2022 Sep 15;13:994545. https://doi.org/10.3389/fendo.2022.994545. eCollection 2022. PMID: 36187108
- Aparecida Nedel Pertile R, Kiltschewskij D, Geaghan M, et al. Developmental vitamin D-deficiency increases the expression of microRNAs involved in dopamine neuron development. Brain Res. 2022 Aug 15;1789:147953. https://doi.org/10.1016/j.brainres.2022.147953. Epub 2022 May 26.PMID: 35642827
- Bigman G. Deficiency in vitamin D is associated with bilateral hearing impairment and bilateral sensorineural hearing loss in older adults. Nutr Res. 2022 Sep;105:1-10. https://doi.org/10.1016/j.nutres.2022.05.008. Epub 2022 May 28.PMID: 35779352
- da Costa RO, Gadelha-Filho CVJ, de Aquino PEA, et al. Vitamin D (VD3) Intensifies the Effects of Exercise and Prevents Alterations of Behavior, Brain Oxidative Stress, and Neuroinflammation, in Hemiparkinsonian Rats. Neurochem Res. 2022 Aug 26. https://doi.org/10.1007/s11064-022-03728-4. Online ahead of print.PMID: 36028736
- Dimitrakis E, Katsarou MS, Lagiou M, et al. Association of vitamin D receptor gene haplotypes with late-onset Alzheimer's disease in a Southeastern European Caucasian population. Exp Ther Med. 2022 Jul 19;24(3):584. https://doi.org/10.3892/etm.2022.11521. eCollection 2022 Sep.PMID: 35949319
- Fioretti AC, Dsouki NA, do Vale B, et al. Vitamin D supplementation at different doses affects the vagal component of the baroreceptor reflex and the Bezold-Jarisch reflex in eutrophic rats. Front Physiol. 2022 Aug 5;13:934625. https://doi.org/10.3389/fphys.2022.934625. eCollection 2022.PMID: 35991180
- Fu J, Sun J, Zhang C. Vitamin D supplementation and risk of stroke: A meta-analysis of randomized controlled trials. Front Neurol. 2022 Aug 18;13:970111. https://doi.org/10.3389/fneur.2022.970111. eCollection 2022.PMID: 36062009
- Grut V, Biström M, Salzer J, et al. Free vitamin D3 index and vitamin D-binding protein in multiple sclerosis: A presymptomatic case-control study. Eur J Neurol. 2022 Aug;29(8):2335-2342. https://doi.org/10.1111/ene.15407. Epub 2022 Jun 4.PMID: 35582958
- Hong X, Christ-Franco M, Moher D, et al. Vitamin D Supplementation for Benign Paroxysmal Positional Vertigo: A Systematic Review. Otol Neurotol. 2022 Aug 1;43(7):e704-e711. https://doi.org/10.1097/MAO.0000000000003586.PMID: 35878631
- Hung KC, Wang LK, Lin YT, et al. Association of preoperative vitamin D deficiency with the risk of postoperative delirium and cognitive dysfunction: A meta-analysis. J Clin Anesth. 2022 Aug;79:110681. https://doi.org/10.1016/j.jclinane.2022.110681. Epub 2022 Mar 4.PMID: 35255352 Review
- Jung E, Ro YS, Park JH, et al. Vitamin D Deficiency and Prognosis after Traumatic Brain Injury with Intracranial Injury: A Multi-Center Observational Study. J Neurotrauma. 2022 Oct;39(19-20):1408-1416. https://doi.org/10.1089/neu.2022.0053. Epub 2022 Jul 21.PMID: 35678067
- Kakimoto A, Ogura H, Suenaga M, et al. Role of cytochrome P450 for vitamin D metabolisms in patients with neurodegenerative disorders. Clin Park Relat Disord. 2022 Aug 27;7:100162. https://doi.org/10.1016/j.prdoa.2022.100162. eCollection 2022.PMID: 36072127
- Küçük A, Bir LS, Tekin S, et al. Serum 25(OH) vitamin D level in Relapsing-Remitting Multiple Sclerosis and clinically isolated syndrome groups. Horm Mol Biol Clin Investig. 2022 Apr 11;43(3):281-288. https://doi.org/10.1515/hmbci-2021-0074. eCollection 2022 Sep 1.PMID: 35405046
- Kuhn W, Karp G, Müller T. No Vitamin D Deficiency in Patients with Parkinson's Disease. Degener Neurol Neuromuscul Dis. 2022 Sep 26;12:127-131. https://doi.org/10.2147/DNND.S362511. eCollection 2022.PMID: 36189178
- Lai RH, Hsu CC, Yu BH, et al. Vitamin D supplementation worsens Alzheimer's progression: Animal model and human cohort studies. Aging Cell. 2022 Aug;21(8):e13670. https://doi.org/10.1111/acel.13670. Epub 2022 Jul 12.PMID: 35822270
- Li N, Yao M, Liu J, et al. Vitamin D Promotes Remyelination by Suppressing c-Myc and Inducing Oligodendrocyte Precursor Cell Differentiation after Traumatic Spinal Cord Injury. Int J Biol Sci. 2022 Aug 29;18(14):5391-5404. https://doi.org/10.7150/ijbs.73673. eCollection 2022.PMID: 36147469
- Liampas I, Bourlios S, Siokas V, et al. Vitamin D and tension-type headache: causal association or epiphenomenon? Int J Neu-

rosci. 2022 Aug 9:1-11. https://doi.org/10.1080/00207454.2022.2110495. Online ahead of print.PMID: 35924588

- Libonati GA, Leone A, Martellucci S, et al. Prevention of Recurrent Benign Paroxysmal Positional Vertigo: The Role of Combined Supplementation with Vitamin D and Antioxidants. Audiol Res. 2022 Aug 22;12(4):445-456. https://doi.org/10.3390/audiolres12040045.PMID: 36004953
- Matsuo LH, Confortin SC, Ceolin G, et al. Association between lower serum vitamin D (25-hydroxy-cholecalciferol) concentrations and cognitive impairment in older adults: data from a populational-based cohort study in a middle-income country. Public Health Nutr. 2022 Sep;25(9):2507-2516. https://doi.org/10.1017/S1368980021004407. Epub 2021 Oct 25.PMID: 34689855
- Mehrdad M, Eftekhari MH, Jafari F, et al. Associations between FTO rs9939609 polymorphism, serum vitamin D, mental health, and eating behaviors in overweight adults. Nutr Neurosci. 2022 Sep;25(9):1889-1897. https://doi.org/10.1080/1028415X.2021.1913316. Epub 2021 May 3.PMID: 33939949
- Messina G, Amato A, Alioto A, et al. A new road to improve vitamin D and balance through Taopatch® and proprioceptive protocol in Multiple Sclerosis patients. Eur J Transl Myol. 2022 Sep 16. https://doi.org/10.4081/ejtm.2022.10774. Online ahead of print.PMID: 36112067
- Navale SS, Mulugeta A, Zhou A, et al. Vitamin D and brain health: an observational and Mendelian randomization study. Am J Clin Nutr. 2022 Aug 4;116(2):531-540. https://doi.org/10.1093/ajcn/nqac107.PMID: 35451454
- Patel P, Shah J. Vitamin D3 supplementation ameliorates cognitive impairment and alters neurodegenerative and inflammatory markers in scopolamine induced rat model. Metab Brain Dis. 2022 Sep 26. https://doi.org/10.1007/s11011-022-01086-2. Online ahead of print.PMID: 36156759
- Puangsricharoen B, Vanikieti K, Jindahra P, et al. Serum Vitamin D Levels and Status in Thai Optic Neuritis Subjects: A Case-Control Study. Clin Ophthalmol. 2022 Oct 12;16:3381-3389. https://doi.org/10.2147/OPTH.S383703. eCollection 2022.PMID: 36249444
- Strath LJ, Hernandez PV, Nodarse CL, et al. Clinical vitamin D levels are associated with insular volume and inferior temporal gyrus white matter surface area in community-dwelling individuals with knee pain. Front Neurosci. 2022 Aug 31;16:882322. https://doi.org/10.3389/fnins.2022.882322. eCollection 2022.PMID: 36117614
- Sultan S. Neuroimaging changes associated with vitamin D Deficiency - a narrative review. Nutr Neurosci. 2022 Aug;25(8):1650-1658. https://doi.org/10.1080/1028415X.2021.1888206. Epub 2021 Feb 28.PMID: 33641639 Review
- Vieira ADC, Medeiros EB, Zabot GC, et al. Neuroprotective effects of combined therapy with memantine, donepezil, and vitamin D in ovariectomized female mice subjected to dementia model. Prog Neuropsychopharmacol Biol Psychiatry. 2022 Oct 1:110653. https://doi.org/10.1016/j.pnpbp.2022.110653. Online ahead of print.PMID: 36195205
- Vieth R. Mistakes in terminology cause false conclusions: Vitamin D does not increase the risk of dementia. Aging Cell. 2022 Oct;21(10):e13722. https://doi.org/10.1111/acel.13722. Epub 2022 Sep 29.PMID: 36173739
- Wei S, Yuan X, Li D, et al. Vitamin D level is associated with rupture of intracranial aneurysm in patients with subarachnoid hemorrhage. Front Neurol. 2022 Aug 11;13:890950. https://doi.org/10.3389/fneur.2022.890950. eCollection 2022.PMID: 36034296
- Yu H, Xie Y, Dai M, et al. SMAD3 interacts with vitamin D receptor and affects vitamin D-mediated oxidative stress to ameliorate cerebral ischaemia-reperfusion injury. Eur J Neurosci. 2022 Sep 25. https://doi.org/10.1111/ejn.15833. Online ahead of print.PMID: 36161391
- Zhang Y, Wu Y, Guo J, et al. Correlation between vitamin D and cognitive function in patients with traumatic brain injury in China. Appl Neuropsychol Adult. 2022 Sep-Oct;29(5):1015-1019. https://doi.org/10.1080/23279095.2020.1842409. Epub 2020 Nov 25.PMID: 33237839
- Zorzella-Pezavento SFG, Mimura LAN, Denadai MB, et al. Is there a window of opportunity for the therapeutic use of vitamin D in multiple sclerosis? Neural Regen Res. 2022 Sep;17(9):1945-1954. https://doi.org/10.4103/1673-5374.335139. PMID: 35142671

OBSTETRICS GYNECOLOGY

- Adrien N, Orta OR, Nestoridi E, et al. Early pregnancy vitamin D status and risk of select congenital anomalies in the National Birth Defects Prevention Study. 2022 Oct 6. https://doi.org/10.1002/bdr2.2101. Online ahead of print.PMID: 36203383
- Aji AS, Lipoeto NI, Yusrawati Y, et al. Impact of maternal dietary carbohydrate intake and vitamin D-related genetic risk score on birth length: the Vitamin D Pregnant Mother (VDPM) cohort study. BMC Pregnancy Childbirth. 2022 Sep 7;22(1):690. https://doi.org/10.1186/s12884-022-05020-3.PMID: 36071390
- Alanazi M, Nabil Aboushady RM, Kamel AD. Association between different levels of maternal vitamin-D status during pregnancy and maternal outcomes. Clin Nutr ESPEN. 2022 Aug;50:307-313. https://doi.org/10.1016/j.clnesp.2022.04.024. Epub 2022 Apr 26.PMID: 35871939
- Amberntsson A, Bärebring L, Winkvist A, et al. Maternal vitamin D status in relation to infant BMI growth trajectories up to 2 years of age in two prospective pregnancy cohorts. Obes Sci Pract. 2022 Apr 8;8(5):670-681. https://doi.org/10.1002/osp4.602. eCollection 2022 Oct.PMID: 36238227
- Arshad R, Sameen A, Murtaza MA, et al. Impact of vitamin D on maternal and fetal health: A review. Food Sci Nutr. 2022 Jul 7;10(10):3230-3240. https://doi.org/10.1002/fsn3.2948. eCollection 2022 Oct.PMID: 36249984
- Aslan Çin NN, Yalçin M, Yardimci H. Vitamin D Deficiency During the First Trimester of Pregnancy and the Risk of Developing Gestational Diabetes Mellitus. J Obstet Gynecol Neonatal Nurs. 2022 Sep;51(5):526-535. https://doi.org/10.1016/j.jogn.2022.06.038. Epub 2022 Aug 4.PMID: 35932884
- Białka-Kosiec A, Orszulak D, Gawlik A, et al. The relationship between the level of vitamin D, leptin and FGF23 in girls and young women with polycystic ovary syndrome. 2022 Sep 30;13:1000261. https://doi.org/10.3389/fendo.2022.1000261. eCollection 2022.PMID: 36246904
- Brustad N, Yang L, Chawes BL, et al. Fish Oil and Vitamin D Supplementations in Preg-

nancy Protect Against Childhood Croup. J Allergy Clin Immunol Pract. 2022 Sep 29:S2213-2198(22)00965-5. https://doi.org/10.1016/j.jaip.2022.09.027. Online ahead of print.PMID: 36184023

- Cantio E, Bilenberg N, Nørgaard SM, et al. Vitamin D status in pregnancy and childhood associates with intelligence quotient at age 7years: An Odense child cohort study. Aust N Z J Psychiatry. 2022 Aug 15:48674221116027. https://doi.org/10.1177/00048674221116027. Online ahead of print.PMID: 35971641
- Celik S, Golbasi H, Gulucu S, et al. Role of Vitamin B12 and Vitamin D levels in intrahepatic cholestasis of pregnancy and correlation with total bile acid. J Obstet Gynaecol. 2022 Aug;42(6):1847-1852. https://doi.org/10.1080/01443615.2022.2042797. Epub 2022 Apr 28.PMID: 35482784
- Chee WF, Aji AS, Lipoeto NI, et al. Maternal Vitamin D Status and Its Associated Environmental Factors: A Cross-Sectional Study. Ethiop J Health Sci. 2022 Sep;32(5):885-894. https://doi.org/10.4314/ejhs.v32i5.3.PMID: 36262702
- Chen C, Wang S, Zhang C, et al. Association between serum vitamin D level during pregnancy and recurrent spontaneous abortion: A systematic review and meta-analysis. Am J Reprod Immunol. 2022 Sep;88(3):e13582. https://doi.org/10.1111/aji.13582. Epub 2022 Jul 1.PMID: 35662305
- Combs A, Singh B, Nylander E, et al. A Systematic Review of Vitamin D and Fibroids: Pathophysiology, Prevention, and Treatment. Reprod Sci. 2022 Aug 12. https://doi.org/10.1007/s43032-022-01011-z. Online ahead of print.PMID: 35960442 Review
- Erdoğan K, Sanlier NT, Çelik B, et al. Maternal plasma levels of vitamin D in postterm pregnancy. J Obstet Gynaecol. 2022 Aug;42(6):1996-2000. https://doi.org/10.1080/01443615.2022.2062226. Epub 2022 Jun 2.PMID: 35653770
- Faisal R, Alhalabi M, Alquobaili F. Correlation between 25-hydroxy vitamin D levels in women and in vitro fertilization outcomes: A cross-sectional study. Ann Med Surg (Lond). 2022 Jul 12;80:104126. https://doi.org/10.1016/j.amsu.2022.104126. eCollection 2022 Aug.PMID: 36045790
- Fisher M, Potter B, Little J, et al. Blood metals and vitamin D status in a pregnancy cohort: A bidirectional biomarker analysis. Environ Res. 2022 Aug;211:113034. https://doi.org/10.1016/j.envres.2022.113034. Epub 2022 Feb 28.PMID: 35240110
- Grzeczka A, Graczyk S, Skowronska A, et al. Relevance of Vitamin D and Its Deficiency for the Ovarian Follicle and the Oocyte: An Update. Nutrients. 2022 Sep 9;14(18):3712. https://doi.org/10.3390/nu14183712.PMID: 36145088
- Gu Y, Lin S, Morgan JA, et al. Aberrant endothelial expression of hnRNPC1/C2 and VDR and reduced maternal vitamin D levels in women with preeclampsia. J Steroid Biochem Mol Biol. 2022 Sep;222:106155. https://doi.org/10.1016/j.jsbmb.2022.106155. Epub 2022 Jul 20.PMID: 35868598
- Guo W, Dai M, Zhong Z, et al. The association between vitamin D and uterine fibroids: A mendelian randomization study. Front Genet. 2022 Sep 21;13:1013192. https://doi.org/10.3389/fgene.2022.1013192. eCollection 2022
- Gurkan N. Vitamin D supplementation during pregnancy inhibits the activation of fetal membrane NF-κB pathway. Eur Rev Med Pharmacol Sci. 2022 Aug;26(16):5926-5931. https://doi.org/10.26355/eurrev_202208_29532.PMID: 36066168
- Harmon QE, Patchel SA, Denslow S, et al. Vitamin D and uterine fibroid growth, incidence, and loss: a prospective ultrasound study. Fertil Steril. 2022 Sep 20:S0015-0282(22)01373-5. https://doi.org/10.1016/j.fertnstert.2022.08.851. Online ahead of print.PMID: 36150919
- Harreiter J, Mendoza LC, Simmons D, et al. Vitamin D3 Supplementation in Overweight/Obese Pregnant Women: No Effects on the Maternal or Fetal Lipid Profile and Body Fat Distribution-A Secondary Analysis of the Multicentric, Randomized, Controlled Vitamin D and Lifestyle for Gestational Diabetes Prevention Trial (DALI). Nutrients. 2022 Sep 14;14(18):3781. https://doi.org/10.3390/nu14183781.PMID: 36145157
- Hart MD, Girma M, Strong MD, et al. Vitamin D binding protein gene polymorphisms are associated with lower plasma 25-hydroxy-cholecalciferol concentrations in Ethiopian lactating women. Nutr Res. 2022 Sep 14;107:86-95. https://doi.org/10.1016/j.nutres.2022.09.003. Online ahead of print.PMID: 36206636
- Jora R. Bolus Dose of Vitamin D to Lactating Mother and Calcium Transfer in Human Breastmilk: Author's Reply. Indian Pediatr. 2022 Aug 15;59(8):660.PMID: 35962667 Free article.
- Khera S, Dhingra S. Bolus Dose of Vitamin D to Lactating Mother and Calcium Transfer in Human Breastmilk. Indian Pediatr. 2022 Aug 15;59(8):659-660.PMID: 35962666 Free article.
- Klöppel E, Sinzato YK, Rodrigues T, et al. Benefits of Vitamin D Supplementation on Pregnancy of Rats with Pregestational Diabetes and Their Offspring. Reprod Sci. 2022 Aug 23. https://doi.org/10.1007/s43032-022-01056-0. Online ahead of print.PMID: 35999443
- Legan M, Barbič M, Osredkar J, et al. Association of vitamin D deficiency and pelvic organ prolapse in postmenopausal women: a cross-sectional study. Womens Midlife Health. 2022 Aug 5;8(1):9. https://doi.org/10.1186/s40695-022-00078-7. PMID: 35927747
- Li C, Gong YQ, Xia YY, et al. Particulate matter may have a limited influence on maternal vitamin D levels. Sci Rep. 2022 Oct 7;12(1):16807. https://doi.org/10.1038/s41598-022-21383-1. PMID: 36207476
- Li JB, Guo MZ, Li WJ, et al. [Relationship between vitamin D receptor gene polymorphisms and gestational diabetes mellitus: a case-control study]. Zhonghua Liu Xing Bing Xue Za Zhi. 2022 Sep 10;43(9):1455-1461. https://doi.org/10.3760/cma.j.cn112338-20211210-00965. PMID: 36117354
- Lin S, Li J, Zhang Y, et al. Maternal Passive Smoking, Vitamin D Deficiency and Risk of Spontaneous Abortion. Nutrients. 2022 Sep 6;14(18):3674. https://doi.org/10.3390/nu14183674.PMID: 36145050
- Liu YY, Zhou XJ, Li YC. The relationship between vitamin D levels in umbilical cord blood and infantile eczema. J Obstet Gynaecol. 2022 Aug 18:1-5. https://doi.org/10.1080/01443615.2022.2109948. Online ahead of print.PMID: 35980725
- Lo ACQ, Lo CCW. The effect of vitamin

D supplementation on glycemic control/glucose metabolism and maternal-neonatal outcomes in women with established gestational diabetes mellitus: An updated meta-analysis. Clin Nutr. 2022 Oct;41(10):2420-2423. https://doi.org/10.1016/j.clnu.2022.08.014. Epub 2022 Aug 24.PMID: 36085062

- Lo ACQ, Lo CCW. Vitamin D supplementation and incident preeclampsia: An updated meta-analysis of randomized clinical trials. Clin Nutr. 2022 Aug;41(8):1852-1853. https://doi.org/10.1016/j.clnu.2022.06.017. Epub 2022 Jun 14.PMID: 35773131
- Lu Y, Zhang X, Wu S, et al. A bibliometric analysis of global research on vitamin D and reproductive health between 2012 and 2021: Learning from the past, planning for the future. Front Nutr. 2022 Sep 8;9:973332. https://doi.org/10.3389/fnut.2022.973332. eCollection 2022.PMID: 36159484
- Markowska A, Kurzawa P, Bednarek W, et al. Immunohistochemical Expression of Vitamin D Receptor in Uterine Fibroids. Nutrients. 2022 Aug 17;14(16):3371. https://doi.org/10.3390/nu14163371.PMID: 36014877
- Mendoza LC, Harreiter J, Desoye G, et al. The Weak Relationship between Vitamin D Compounds and Glucose Homeostasis Measures in Pregnant Women with Obesity: An Exploratory Sub-Analysis of the DALI Study. Nutrients. 2022 Aug 9;14(16):3256. https://doi.org/10.3390/nu14163256.PMID: 36014761
- Mirzaei-Azandaryani Z, Mohammad-Alizadeh-Charandabi S, Shaseb E, et al. Effects of vitamin D on insulin resistance and fasting blood glucose in pregnant women with insufficient or deficient vitamin D: a randomized, placebo-controlled trial. BMC Endocr Disord. 2022 Oct 20;22(1):254. https://doi.org/10.1186/s12902-022-01159-4.PMID: 36266683
- Moin ASM, Sathyapalan T, Atkin SL, et al. Inflammatory Markers in Non-Obese Women with Polycystic Ovary Syndrome Are Not Elevated and Show No Correlation with Vitamin D Metabolites. Nutrients. 2022 Aug 27;14(17):3540. https://doi.org/10.3390/nu14173540.PMID: 36079796
- Moldassarina RS, Manabayeva GK, Akylzhanova ZY, et al. The importance of vitamin D in the diagnosis and treatment of adenomyosis. Mol Cell Biochem. 2022 Aug 11. https://doi.org/10.1007/s11010-022-04533-x. Online ahead of print.PMID: 35951150
- Morales-Suárez-Varela M, Uçar N, Soriano JM, et al. Vitamin D-Related Risk Factors for Maternal Morbidity and Mortality during Pregnancy: Systematic Review and Meta-Analysis. Nutrients. 2022 Oct 4;14(19):4124. https://doi.org/10.3390/nu14194124.PMID: 36235776
- Nunes PR, Romao-Veiga M, Ribeiro VR, et al. Vitamin D decreases cell death and inflammation in human umbilical vein endothelial cells and placental explants from pregnant women with preeclampsia cultured with TNF-α. Immunol Invest. 2022 Aug;51(6):1630-1646. https://doi.org/10.1080/08820139.2021.2017452 . Epub 2021 Dec 22.PMID: 34937520
- Rastegar M, Fateh M, Rahnama A, et al. Evaluation of the relationship between vitamin D level during pregnancy and the rate of fetal heart problems: a cross-sectional study. Clin Nutr ESPEN. 2022 Oct;51:262-266. https://doi.org/10.1016/j.clnesp.2022.08.018. Epub 2022 Aug 31.PMID: 36184213
- Rodrigues CZ, Cardoso MA, Maruyama JM, et al. Vitamin D insufficiency, excessive weight gain, and insulin resistance during pregnancy. Nutr Metab Cardiovasc Dis. 2022 Sep;32(9):2121-2128. https://doi.org/10.1016/j.numecd.2022.05.009. Epub 2022 May 27.PMID: 35843794
- Shang M, Zhao N. Early pregnancy vitamin D insufficiency and gestational diabetes mellitus. J Obstet Gynaecol Res. 2022 Sep;48(9):2353-2362. https://doi.org/10.1111/jog.15333. Epub 2022 Jul 13.PMID: 35830973
- Stenhouse C, Hurst E, Mellanby RJ, et al. Associations between maternal vitamin D status and porcine litter characteristics throughout gestation. J Anim Sci Biotechnol. 2022 Sep 20;13(1):106. https://doi.org/10.1186/s40104-022-00760-w. PMID: 36123748
- Subramanian A, Steiner AZ, Weinberg CR, et al. Preconception vitamin D and miscarriage in a prospective cohort study. Hum Reprod. 2022 Sep 30;37(10):2465-2473. https://doi.org/10.1093/humrep/deac155.PMID: 35834313
- Vaughan CP, Markland AD, Huang AJ, et al. Vitamin D supplements and prevalent overactive bladder in women from midlife through older ages. Menopause. 2022 Sep 27. https://doi.org/10.1097/GME.0000000000002077. Online ahead of print.PMID: 36166726
- Wang H, Wang HJ, Jiao M, et al. Associations between Dynamic Vitamin D Level and Thyroid Function during Pregnancy. Nutrients. 2022 Sep 14;14(18):3780. https://doi.org/10.3390/nu14183780.PMID: 36145156
- Wang J, Qiu F, Zhao Y, et al. Exploration of fetal growth restriction induced by vitamin D deficiency in rats via Hippo-YAP signaling pathway. Placenta. 2022 Oct;128:91-99. https://doi.org/10.1016/j.placenta.2022.08.062. Epub 2022 Sep 9.PMID: 36103800
- Weiler HA, Attar A, Farahnak Z, et al. Vitamin D Status of Infants of Mothers with Gestational Diabetes: Status at Birth and a Randomized Controlled Trial of Vitamin D Supplementation across Infancy. J Nutr. 2022 Sep 23:nxac194. https://doi.org/10.1093/jn/nxac194. Online ahead of print.PMID: 36149332
- Wong KK, Cheng F, Mao D, et al. Vitamin D Levels During Pregnancy Are Associated With Offspring Telomere Length: A Longitudinal Mother-Child Study. J Clin Endocrinol Metab. 2022 Aug 18;107(9):e3901-e3909. https://doi.org/10.1210/clinem/dgac320.PMID: 35588001
- Yıldız S, Tammo Ö. Comparison of Vitamin D Levels and Related Factors in Pregnant Women and Neonates Exposed to Second-Hand Smoke. Cureus. 2022 Aug 23;14(8):e28287. https://doi.org/10.7759/cureus.28287. eCollection 2022 Aug.PMID: 36168344
- Zhao R, Zhou L, Wang S, et al. Effect of maternal vitamin D status on risk of adverse birth outcomes: a systematic review and dose-response meta-analysis of observational studies. Eur J Nutr. 2022 Sep;61(6):2881-2907. https://doi.org/10.1007/s00394-022-02866-3. Epub 2022 Mar 22.PMID: 35316377 Review
- Zhu Y, Li L, Li P. Vitamin D in gestational

diabetes: A broadened frontier. Clin Chim Acta. 2022 Oct 1;537:51-59. https://doi.org/10.1016/j.cca.2022.09.025. Online ahead of print.PMID: 36191611 Review

ONCOLOGY

- Amiri M, Elieh Ali Komi D, Vaisi-Raygani A, et al. Association Between Vitamin D Binding Protein Gene Polymorphism (rs7041), Vitamin D Receptor, and 25-Hydroxyvitamin D Serum Levels With Prostate Cancer in Kurdish Population in West of Iran. Pathol Oncol Res. 2022 Aug 9;28:1610246. https://doi.org/10.3389/pore.2022.1610246. eCollection 2022.PMID: 36017197
- Braillon A. Vitamin D and breast cancer: Stop torturing the data! Cancer. 2022 Aug 1;128(15):2999. https://doi.org/10.1002/cncr.34272. Epub 2022 Jun 1.PMID: 35647740
- Chen QY, Kim S, Lee B, et al. Post-Diagnosis Vitamin D Supplement Use and Survival among Cancer Patients: A Meta-Analysis. Nutrients. 2022 Aug 19;14(16):3418. https://doi.org/10.3390/nu14163418.PMID: 36014928
- Chen X, Li L, Liang Y, et al. Relationship of vitamin D intake, serum 25(OH) D, and solar ultraviolet-B radiation with the risk of gastric cancer: A meta-analysis. J Cancer Res Ther. 2022 Sep;18(5):1417-1424. https://doi.org/10.4103/jcrt.jcrt_527_21. PMID: 36204891
- Dolin TG, Christensen IJ, Lund CM, et al. Preoperative plasma vitamin D in patients with localized colorectal cancer: Age-dependent association with inflammation, postoperative complications, and survival. Eur J Surg Oncol. 2022 Sep 11:S0748-7983(22)00651-5. https://doi.org/10.1016/j.ejso.2022.08.040. Online ahead of print.PMID: 36137882
- Emmanouilidou G, Kalopitas G, Bakaloudi DR, et al. Vitamin D as a chemopreventive agent in colorectal neoplasms. A systematic review and meta-analysis of randomized controlled trials. Pharmacol Ther. 2022 Sep;237:108252. https://doi.org/10.1016/j.pharmthera.2022.108252. Epub 2022 Aug 1.PMID: 35926664
- Ferrillo M, Migliario M, Marotta N, et al. Oral Health in Breast Cancer Women with Vitamin D Deficiency: A Machine Learning Study. J Clin Med. 2022 Aug 9;11(16):4662. https://doi.org/10.3390/jcm11164662.PMID: 36012901
- Guo LL, Chen SS, Zhong LX, et al. Vitamin D intake as well as circulating 25-hydroxyvitamin D level and risk for the incidence and recurrence of colorectal cancer precursors: A meta-analysis. Front Med (Lausanne). 2022 Aug 25;9:877275. https://doi.org/10.3389/fmed.2022.877275. eCollection 2022.PMID: 36091680
- Huang CY, Weng YT, Hsieh NT, et al. Bioactive Vitamin D Attenuates MED28-Mediated Cell Growth and Epithelial-Mesenchymal Transition in Human Colorectal Cancer Cells. Biomed Res Int. 2022 Aug 29;2022:2268818. https://doi.org/10.1155/2022/2268818. eCollection 2022.PMID: 36072467
- Huss L, Butt ST, Borgquist S, et al. Levels of Vitamin D and Expression of the Vitamin D Receptor in Relation to Breast Cancer Risk and Survival. Nutrients. 2022 Aug 16;14(16):3353. https://doi.org/10.3390/nu14163353. PMID: 36014861
- Kanaan Y, Copeland RL. The link between vitamin D and prostate cancer. Nat Rev Cancer. 2022 Aug;22(8):435. https://doi.org/10.1038/s41568-022-00493-y.PMID: 35761063
- Keum N, Chen QY, Lee DH, et al. Vitamin D supplementation and total cancer incidence and mortality by daily vs. infrequent large-bolus dosing strategies: a meta-analysis of randomised controlled trials. Br J Cancer. 2022 Sep;127(5):872-878. https://doi.org/10.1038/s41416-022-01850-2. Epub 2022 Jun 8.PMID: 35676320
- Kim MH, Yoo S, Choo MS, et al. The role of the serum 25-OH vitamin D level on detecting prostate cancer in men with elevated prostate-specific antigen levels. Sci Rep. 2022 Aug 18;12(1):14089. https://doi.org/10.1038/s41598-022-17563-8. PMID: 35982094
- Lawler T, Su T, Cai Q, et al. Associations between serum vitamin D biomarkers and tumor expression of Ki67, p53, and COX-2 in colorectal cancer cases from the Southern Community Cohort Study. J Steroid Biochem Mol Biol. 2022 Oct 6;225:106201. https://doi.org/10.1016/j.jsbmb.2022.106201. Online ahead of print. PMID: 36210028
- Liu X, Lv H, Shen H. Vitamin D enhances the sensitivity of breast cancer cells to the combination therapy of photodynamic therapy and paclitaxel. Tissue Cell. 2022 Aug;77:101815. https://doi.org/10.1016/j.tice.2022.101815. Epub 2022 May 16.PMID: 35623307
- McFarland DC, Fernbach M, Breitbart WS, et al. Prognosis in metastatic lung cancer: vitamin D deficiency and depression-a cross-sectional analysis. BMJ Support Palliat Care. 2022 Sep;12(3):339-346. https://doi.org/10.1136/bmjspcare-2020-002457. Epub 2020 Aug 27.PMID: 32855232
- Mego M, Vlkova B, Minarik G, et al. Vitamin D and circulating tumor cells in primary breast cancer. Front Oncol. 2022 Sep 7;12:950451. https://doi.org/10.3389/fonc.2022.950451. eCollection 2022.PMID: 36158648
- Na SY, Kim KB, Lim YJ, et al. Vitamin D and Colorectal Cancer: Current Perspectives and Future Directions. J Cancer Prev. 2022 Sep 30;27(3):147-156. https://doi.org/10.15430/JCP.2022.27.3.147. PMID: 36258716
- Neychev D, Pilichev B, Serteva D, et al. A rare case of a giant cell tumour caused by vitamin D deficiency. Folia Med (Plovdiv). 2022 Aug 31;64(4):676-681. https://doi.org/10.3897/folmed.64.e63623. PMID: 36045471
- Nguyen MT, Huynh NNY, Nguyen DD, et al. Vitamin D intake and gastric cancer in Viet Nam: a case-control study. BMC Cancer. 2022 Aug 1;22(1):838. https://doi.org/10.1186/s12885-022-09933-2. PMID: 35915393
- O'Brien KM, Sandler DP. Reply to "Vitamin D and breast cancer: Stop torturing the data!". Cancer. 2022 Aug 1;128(15):3000-3001. https://doi.org/10.1002/cncr.34274. Epub 2022 Jun 1.PMID: 35647759
- Oghabi Bakhshaiesh T, Nazeri E, Jafarbeik-Iravani N, et al. Vitamin D and breast cancer risk: A systematic review and meta-analysis in Iranian patients. Ann Med Surg (Lond). 2022 Jul 11;80:104162. https://doi.org/10.1016/j.amsu.2022.104162. eCollection 2022 Aug.PMID: 36045810
- Passarelli MN, Karagas MR. Some long-sought answers about vitamin D and

keratinocyte carcinoma. Br J Dermatol. 2022 Sep 1. https://doi.org/10.1111/bjd.21837. Online ahead of print.PMID: 36047297

- Piatek K, Schepelmann M, Kallay E. The Effect of Vitamin D and Its Analogs in Ovarian Cancer. Nutrients. 2022 Sep 18;14(18):3867. https://doi.org/10.3390/nu14183867. PMID: 36145244
- Robles LA, Harrison S, Tan VY, et al. Does testosterone mediate the relationship between vitamin D and prostate cancer progression? A systematic review and meta-analysis. Cancer Causes Control. 2022 Aug;33(8):1025-1038. https://doi.org/10.1007/s10552-022-01591-w. Epub 2022 Jun 26.PMID: 35752985
- Songyang Y, Song T, Shi Z, et al. Corrigendum to "Effect of vitamin D on malignant behavior of non-small cell lung cancer cells". [Gene 768 (2021) 145309]. Gene. 2022 Dec 20;846:146883. https://doi.org/10.1016/j.gene.2022.146883. Epub 2022 Sep 12.PMID: 36108359
- Zarrati M, Sohouli MH, Aleayyub S, et al. The Effect of Vitamin D Supplementation on Treatment-Induced Pain in Cancer Patients: A Systematic Review. Pain Manag Nurs. 2022 Aug;23(4):458-466. https://doi.org/10.1016/j.pmn.2022.02.001. Epub 2022 Mar 10.PMID: 35279360 Review
- Zhang ZH, Liu MD, Yao K, et al. Vitamin D deficiency aggravates growth and metastasis of prostate cancer through promoting EMT in two β-catenin-related mechanisms. J Nutr Biochem. 2022 Oct 9:109177. https://doi.org/10.1016/j.jnutbio.2022.109177. Online ahead of print.PMID: 36223833
- Zhao Z, Cai W, Xing J, et al. Lower vitamin D levels and VDR variants are risk factors for breast cancer: an updated meta-analysis. Nucleosides Nucleotides Nucleic Acids. 2022 Aug 9:1-21. https://doi.org/10.1080/15257770.2022.2107217. Online ahead of print.PMID: 35942872

PEDIATRICS

- [No authors listed] Corrigendum to: P169 Vitamin D levels are inversely associated with inflammation in pediatric Inflammatory Bowel Disease patients. J Crohns Colitis. 2022 Aug 22:jjac107. https://doi.org/10.1093/ecco-jcc/jjac107. Online ahead of print.PMID: 35993353
- Aksoy Aydemir G, Aydemir E, Asik A. Changes in Tear Meniscus Analysis of Children Who Have Type 1 Diabetes Mellitus, With and Without Vitamin D Deficiency. Cornea. 2022 Nov 1;41(11):1412-1417. https://doi.org/10.1097/ICO.0000000000002908. Epub 2021 Nov 22.PMID: 34812782
- Akter R, Afrose A, Sharmin S, et al. A comprehensive look into the association of vitamin D levels and vitamin D receptor gene polymorphism with obesity in children. Biomed Pharmacother. 2022 Sep;153:113285. https://doi.org/10.1016/j.biopha.2022.113285. Epub 2022 Jun 18.PMID: 35728355
- Bajpai A. Vitamin D Deficiency in Indian Adolescents-Time for Targeted Action. Indian J Pediatr. 2022 Aug;89(8):746. https://doi.org/10.1007/s12098-022-04307-9. Epub 2022 Jun 17.PMID: 35713771
- Balestra E, Traunero A, Barbi E. Investigating the role of Vitamin D in NAFLD: is liver biopsy justifiable in children? Eur J Pediatr. 2022 Nov;181(11):3985. https://doi.org/10.1007/s00431-022-04598-2. Epub 2022 Aug 24.PMID: 36001129 No abstract available
- Banerjee S, Sengupta J, Basu S. The clinical relevance of native vitamin D in pediatric kidney disease. Pediatr Nephrol. 2022 Aug 5. https://doi.org/10.1007/s00467-022-05698-9. Online ahead of print.PMID: 35930049 Review
- Beauchesne AR, Cara KC, Krobath DM, et al. Vitamin D intakes and health outcomes in infants and preschool children: Summary of an evidence report. Ann Med. 2022 Dec;54(1):2278-2301. https://doi.org/10.1080/07853890.2022.2111602. PMID: 35975961
- Behluli E, Spahiu L, Ismaili-Jaha V, et al. Correlation between level of vitamin D in serum and value of lung function in children diagnosed with bronchial asthma. Folia Med (Plovdiv). 2022 Aug 31;64(4):649-654. https://doi.org/10.3897/folmed.64.e67800.PMID: 36045472
- Bodea J, Beebe K, Campbell C, et al. Impact of Adequate Day 30 Post-Pediatric Hematopoietic Stem Cell Transplantation Vitamin D Level on Clinical Outcome: An Observational Cohort Study. Transplant Cell Ther. 2022 Aug;28(8):514.e1-514.e5. https://doi.org/10.1016/j.jtct.2022.05.032. Epub 2022 May 25.PMID: 35643349
- Børsting T, Schuller A, van Dommelen P, et al. Maternal vitamin D status in pregnancy and molar incisor hypomineralisation and hypomineralised second primary molars in the offspring at 7-9 years of age: a longitudinal study. Eur Arch Paediatr Dent. 2022 Aug;23(4):557-566. https://doi.org/10.1007/s40368-022-00712-y. Epub 2022 May 12.PMID: 35553398
- Calmarza P, Pérez Ajami RI, Prieto López C, et al. [Vitamin D concentration in type 1 diabetic children. Association with glycemic control, lipidic and bone metabolism]. Nutr Hosp. 2022 Oct 17;39(5):997-1003. https://doi.org/10.20960/nh.04040. PMID: 36134589
- Chakrabarty S. Prevalence and Covariates of Vitamin D Deficiencies (VDD) among Adolescents in India. Indian J Pediatr. 2022 Aug;89(8):751-758. https://doi.org/10.1007/s12098-021-04007-w. Epub 2021 Nov 27.PMID: 34837641
- Daniel JB, de Farias Costa PR, Pereira M, et al. Vitamin D deficiency and cardiometabolic risk factors in adolescents: systematic review and meta-analysis. Rev Endocr Metab Disord. 2022 Oct;23(5):995-1010. https://doi.org/10.1007/s11154-022-09736-7. Epub 2022 Jun 17.PMID: 35713809
- Diminick NP, Fey JM, Bourque J, et al. Interdisciplinary Quality Improvement Project Increases Vitamin D Supplementation in Infants. Pediatrics. 2022 Sep 1;150(3):e2021051252. https://doi.org/10.1542/peds.2021-051252.PMID: 36039691
- Doneray H, Akbulut OZ, Ozden A, et al. Plasma renin, aldosterone, and urinary prostaglandin E2 levels in children with hypocalcemia due to vitamin D deficiency rickets. Prostaglandins Other Lipid Mediat. 2022 Oct;162:106652. https://doi.org/10.1016/j.prostaglandins.2022.106652. Epub 2022 Jun 7.PMID: 35688409
- Dong N, Guo HL, Hu YH, et al. Association between serum vitamin D status and the anti-seizure treatment in Chinese children with epilepsy. Front Nutr. 2022 Aug 29;9:968868. https://doi.org/10.3389/fnut.2022.968868. eCollection 2022.PMID: 36105574
- El-Sheikh M, Elmahdy H, Nassar M, et al. Role of soluble triggering receptors expressed on myeloid cells-1 and 25-hydroxy vitamin D as early diagnostic markers of

neonatal Ventilator-associated pneumonia: A prospective cohort study. Pediatr Pulmonol. 2022 Sep;57(9):2147-2153. https://doi.org/10.1002/ppul.26016. Epub 2022 Jun 9.PMID: 35621053

- Ferolla FM, Yfran EW, Ballerini MG, et al. Serum Vitamin D Levels and Life-Threatening Respiratory Syncytial Virus Infection in Previously Healthy Infants. J Infect Dis. 2022 Sep 21;226(6):958-966. https://doi.org/10.1093/infdis/jiac033.PMID: 35106574

- Goyal A, Dabas A, Shah D, et al. Sunlight Exposure vs. Oral Vitamin D Supplementation for Prevention of Vitamin D Deficiency in Infancy: A Randomized Controlled Trial. Indian Pediatr. 2022 Sep 22:S097475591600459. Online ahead of print.PMID: 36148748

- Gracy NB, Kolisambeevi AA, Pournami F, et al. Vitamin D Drops Are Not Always Panacea: Life-Threatening Hypercalcemia in a Young Infant. Indian J Pediatr. 2022 Sep;89(9):926. https://doi.org/10.1007/s12098-022-04287-w. Epub 2022 Jul 2.PMID: 35779232

- Hauta-Alus HH, Holmlund-Suila EM, Valkama SM, et al. Collagen X Biomarker (CXM), Linear Growth, and Bone Development in a Vitamin D Intervention Study in Infants. J Bone Miner Res. 2022 Sep;37(9):1653-1664. https://doi.org/10.1002/jbmr.4650. Epub 2022 Aug 4.PMID: 35838180

- He L, Zhou P, Zhou X, et al. Evaluation of the clinical practice guidelines and consensuses on calcium and vitamin D supplementation in healthy children using the Appraisal of Guidelines for Research and Evaluation II instrument and Reporting Items for Practice Guidelines in Healthcare statement. Front Nutr. 2022 Sep 27;9:984423. https://doi.org/10.3389/fnut.2022.984423. eCollection 2022.PMID: 36238458

- He LP, Song YX, Zhu T, et al. Progress in the Relationship between Vitamin D Deficiency and the Incidence of Type 1 Diabetes Mellitus in Children. J Diabetes Res. 2022 Sep 2;2022:5953562. https://doi.org/10.1155/2022/5953562. eCollection 2022.PMID: 36090587

- Hekimoğlu B, Erin R, Yılmaz HK. Comparison of cord blood and 6-month-old vitamin D levels of healthy term infants supplemented with 400 IU/day dose of vitamin D. Eur J Clin Nutr. 2022 Oct 14. https://doi.org/10.1038/s41430-022-01220-4. Online ahead of print.PMID: 36241726

- Heo JS, Ahn YM, Kim AE, et al. Breastfeeding and vitamin D. Clin Exp Pediatr. 2022 Sep;65(9):418-429. https://doi.org/10.3345/cep.2021.00444. Epub 2021 Dec 14.PMID: 34902960

- Herzog K, Ordóñez-Mena JM. The association between vitamin D levels and caries experience in children and youth participating in National Health and Nutrition Examination Survey 2011-2016: A cross-sectional study. J Am Dent Assoc. 2022 Sep;153(9):848-858.e2. https://doi.org/10.1016/j.adaj.2022.03.008. Epub 2022 May 20.PMID: 35599046

- Huang YN, Chi H, Chiu NC, et al. A randomized trial of vitamin D supplementation to prevent seasonal influenza and enterovirus infection in children. J Microbiol Immunol Infect. 2022 Oct;55(5):803-811. https://doi.org/10.1016/j.jmii.2022.01.003. Epub 2022 Feb 25.PMID: 35283046

- Jaybhaye AP, Sangle AL, Ugra D, et al. A Hospital-Based Study of Vitamin D Levels in Children With Recurrent Respiratory Infections. Cureus. 2022 Aug 10;14(8):e27864. https://doi.org/10.7759/cureus.27864. eCollection 2022 Aug.PMID: 36110478

- Karras SN, Dursun E, Alaylıoğlu M, et al. Maternal and Neonatal Vitamin D Binding Protein Polymorphisms and 25-Hydroxyvitamin D Cutoffs as Determinants of Neonatal Birth Anthropometry. Nutrients. 2022 Sep 15;14(18):3799. https://doi.org/10.3390/nu14183799.PMID: 36145176

- Konuksever D, Yücel Karakaya SP, Bölük O, et al. The association of vitamin D deficiency with hemogram-derived inflammatory biomarkers in children. Nutr Metab Cardiovasc Dis. 2022 Oct;32(10):2418-2423. https://doi.org/10.1016/j.numecd.2022.07.012. Epub 2022 Jul 31.PMID: 35973886

- Kotb Elmala M, Suliman HA, Al-Shokary AH, et al. The Impact of Vitamin D3 Supplementation to Topiramate Therapy on Pediatric Migraine Prophylaxis. J Child Neurol. 2022 Oct;37(10-11):833-839. https://doi.org/10.1177/08830738221092882. Epub 2022 Jun 22.PMID: 35733373

- Kumar M, Shaikh S, Sinha B, et al. Enteral Vitamin D Supplementation in Preterm or Low Birth Weight Infants: A Systematic Review and Meta-analysis. Pediatrics. 2022 Aug 1;150(Suppl 1):e2022057092K. https://doi.org/10.1542/peds.2022-057092K.PMID: 35921678

- Kuraoka S, Oda M, Mitsubuchi H, et al. Impaired Height Growth Associated with Vitamin D Deficiency in Young Children from the Japan Environment and Children's Study. Environment And Children's Study Jecs Group.Nutrients. 2022 Aug 13;14(16):3325. https://doi.org/10.3390/nu14163325.PMID: 36014831

- Lai HJ, Song J, Lu Q, et al. Genetic factors help explain the variable responses of young children with cystic fibrosis to vitamin D supplements. Clin Nutr ESPEN. 2022 Oct;51:367-376. https://doi.org/10.1016/j.clnesp.2022.07.018. Epub 2022 Aug 8.PMID: 36184229

- Li Q, Zhou Q, Zhang G, et al. Vitamin D Supplementation and Allergic Diseases during Childhood: A Systematic Review and Meta-Analysis. Nutrients. 2022 Sep 23;14(19):3947. https://doi.org/10.3390/nu14193947. PMID: 36235600

- Lin TH, Lu HJ, Lin CH, et al. Nephrocalcinosis in children who received high-dose vitamin D. Pediatr Nephrol. 2022 Oct;37(10):2471-2478. https://doi.org/10.1007/s00467-022-05512-6. Epub 2022 Mar 29.PMID: 35352189

- Liu Y, Yang M, Ran Z, et al. Effect of Different Doses of Vitamin D on the Intestinal Flora of Babies with Eczema: An Experimental Study. Life (Basel). 2022 Sep 9;12(9):1409. https://doi.org/10.3390/life12091409.PMID: 36143444

- Mesquita EDL, Exupério IN, Agostinete RR, et al. The combined relationship of vitamin D and weight-bearing sports participation on areal bone density and geometry among adolescents: ABCD - Growth Study. J Clin Densitom. 2022 Sep 14:S1094-6950(22)00081-6. https://doi.org/10.1016/j.jocd.2022.09.001. Online ahead of print.PMID: 36184388

- Muzzammil M, Minhas MS, Mughal A, et al. Prevalence of inadequate vitamin D level and its predictors in children presenting with torus fractures. Eur J Orthop Surg Traumatol. 2022 Aug 10. https://doi.org/10.1007/s00590-022-03354-4. Online ahead of print.PMID: 35947197

- Nascimento BF, Moreira CFF, da Fonseca ER, et al. Effects of vitamin D supplementation on glycemic control of children and adolescents with type 1 diabetes mellitus: a systematic review. J Pediatr Endocrinol Metab. 2022 Jul 18;35(8):973-988. https://doi.org/10.1515/jpem-2022-0044. Print 2022 Aug 26.PMID: 35850934
- Noviandhari A, Faisal F, Dhamayanti M. Correlation of Maternal Prenatal Vitamin D Level with Postnatal Infant Growth in Length and Head Circumference: A Cohort Study on Vitamin D Status and Its Impact During Pregnancy and Childhood in Indonesia. Int J Gen Med. 2022 Oct 6;15:7631-7637. https://doi.org/10.2147/IJGM.S333380. eCollection 2022.PMID: 36226309
- Nwosu BU. Guidance for high-dose vitamin D supplementation for prolonging the honeymoon phase in children and adolescents with new-onset type 1 diabetes. Front Endocrinol (Lausanne). 2022 Aug 18;13:974196. https://doi.org/10.3389/fendo.2022.974196. eCollection 2022.PMID: 36060956
- Paker N, Yavuz Mollavelioglu T, Bugdaycı D, et al. Vitamin D levels in children with cerebral palsy. J Pediatr Rehabil Med. 2022 Aug 23. https://doi.org/10.3233/PRM-190622. Online ahead of print.PMID: 36031913
- Pecoraro L, Nisi F, Serafin A, et al. Vitamin D Supplementation in the Assessment of Cardiovascular Risk Factors in Overweight and Obese Children. Med Sci (Basel). 2022 Sep 5;10(3):49. https://doi.org/10.3390/medsci10030049.PMID: 36135834
- Pedersen JN, Dalgård C, Möller S, et al. Early pregnancy vitamin D status is associated with blood pressure in children: an Odense Child Cohort study. Am J Clin Nutr. 2022 Aug 4;116(2):470-481. https://doi.org/10.1093/ajcn/nqac118.PMID: 35511609
- Qi X, Yang T, Chen J, et al. Vitamin D status is primarily associated with core symptoms in children with autism spectrum disorder: A multicenter study in China. Psychiatry Res. 2022 Aug 22;317:114807. https://doi.org/10.1016/j.psychres.2022.114807. Online ahead of print.PMID: 36063750
- Raju A, Luthra G, Shahbaz M, et al. Role of Vitamin D Deficiency in Increased Susceptibility to Respiratory Infections Among Children: A Systematic Review. Cureus. 2022 Sep 15;14(9):e29205. https://doi.org/10.7759/cureus.29205. eCollection 2022 Sep.PMID: 36259029
- Richards G, Tan DW, Whitehouse AJO, et al. A longitudinal examination of perinatal testosterone, estradiol and vitamin D as predictors of handedness outcomes in childhood and adolescence. Laterality. 2022 Aug 6:1-34. https://doi.org/10.1080/1357650X.2022.2109656. Online ahead of print.PMID: 35938410
- Samadi M, Gholami F, Seyedi M, et al. Effect of Vitamin D Supplementation on Inflammatory Biomarkers in School-Aged Children with Attention Deficit Hyperactivity Disorder. Int J Clin Pract. 2022 Aug 22;2022:1256408. https://doi.org/10.1155/2022/1256408. eCollection 2022.PMID: 36052304
- Sangouni AA, Mirhosseini H, et al. Effect of vitamin D supplementation on brain waves, behavioral performance, nitric oxide, malondialdehyde, and high-sensitivity C-reactive protein in children with attention deficit/hyperactivity disorder: study protocol for a randomized clinical trial. Trials. 2022 Oct 22;23(1):890. https://doi.org/10.1186/s13063-022-06837-1.PMID: 36273218
- Sangüesa J, Sunyer J, Garcia-Esteban R, et al. Prenatal and child vitamin D levels and allergy and asthma in childhood. Pediatr Res. 2022 Sep 3. https://doi.org/10.1038/s41390-022-02256-9. Online ahead of print.PMID: 36057646
- Şener G, Koçer ZA, Bayrak T, et al. Serum Vitamin D, Zinc Levels and the Relationship between them in Children and Adolescents. Clin Lab. 2022 Aug 1;68(8). https://doi.org/10.7754/Clin.Lab.2021.211003. PMID: 35975493
- Sheriff A, Mathew G, Sinha A, et al. Short-Term Effects of Cholecalciferol Supplementation on cFGF23 Levels in Children with Chronic Kidney Disease and Vitamin D Insufficiency. Indian J Pediatr. 2022 Oct;89(10):1037-1039. https://doi.org/10.1007/s12098-022-04247-4. Epub 2022 Jun 30.PMID: 35771347
- Sohouli MH, Farahmand F, Alimadadi H, et al. Vitamin D therapy in pediatric patients with inflammatory bowel disease: a systematic review and meta-analysis. World J Pediatr. 2022 Sep 13. https://doi.org/10.1007/s12519-022-00605-6. Online ahead of print.PMID: 36100800 Review
- Steinman B, Cabana MD, Goilav B. 50 Years Ago in TheJournalofPediatrics: Resistance Is Futile-The Path to Discovery of the Cause of Rickets Not Amenable to Vitamin D Therapy. J Pediatr. 2022 Aug;247:159. https://doi.org/10.1016/j.jpeds.2022.05.055.PMID: 36058597
- Takahashi K, Arimitsu T, Hara-Isono K, et al. Seasonal variation in vitamin D status of Japanese infants starts to emerge at 2 months of age: a retrospective cohort study. Br J Nutr. 2022 Aug 26:1-8. https://doi.org/10.1017/S0007114522002744. Online ahead of print.PMID: 36017869
- Tareke AA, Alem A, Debebe W, et al. Maternal vitamin D and growth of under-five children: a systematic review and meta-analysis of observational and interventional studies. Glob Health Action. 2022 Dec 31;15(1):2102712. https://doi.org/10.1080/16549716.2022.2102712.PMID: 36043560
- Thams L, Hvid LG, Stounbjerg NG, et al. Vitamin D supplementation and increased dairy protein intake do not affect muscle strength or physical function in healthy 6-8-year-old children: the D-pro randomized trial. Eur J Nutr. 2022 Oct;61(7):3613-3623. https://doi.org/10.1007/s00394-022-02912-0. Epub 2022 May 28.PMID: 35643873
- Thorsteinsdottir F, Walker KC, Runstedt SE, et al. The role of prenatal vitamin D on the development of childhood asthma and wheeze: An umbrella review of systematic reviews and meta-analyses. Clin Nutr. 2022 Aug;41(8):1808-1817. https://doi.org/10.1016/j.clnu.2022.06.040. Epub 2022 Jun 30.PMID: 35834913
- Uday S, Högler W. The burden of vitamin D deficiency in household members of children presenting with symptomatic vitamin D deficiency. Front Endocrinol (Lausanne). 2022 Aug 30;13:958422. https://doi.org/10.3389/fendo.2022.958422. eCollection 2022.PMID: 36111298
- Varghese SB, Benoit J, McIntyre T. Vitamin D Levels in Ethnic Minority Adolescents in Primary Care. J Pediatr Health Care. 2022 Sep-Oct;36(5):443-448. https://doi.org/10.1016/j.pedhc.2022.05.002. Epub 2022 May 30.PMID: 35654708
- Viana Filho JMC, de Souza BF, Coêlho MC, et al. Polymorphism but not methylation status in the vitamin D receptor gene contributes to oral mucositis in children. Oral Dis.

2022 Oct 6. https://doi.org/10.1111/odi.14394. Online ahead of print.PMID: 36200993

- Weiler HA, Hazell TJ, Majnemer A, et al. Vitamin D supplementation and gross motor development: A 3-year follow-up of a randomized trial. Early Hum Dev. 2022 Aug;171:105615. https://doi.org/10.1016/j.earlhumdev.2022.105615. Epub 2022 Jun 22.PMID: 35777122
- Xu E, Yin C, Yi X, et al. Lifestyle Improvements and Vitamin D Supplementation Play an Important Role in the Prevention of Childhood Diabetes. Dis Markers. 2022 Oct 4;2022:6133908. https://doi.org/10.1155/2022/6133908. eCollection 2022.PMID: 36246569
- Yadav B, Gupta N, Sasidharan R, et al. 800 IU versus 400 IU per day of vitamin D3 in term breastfed infants: a randomized controlled trial from an LMIC. Eur J Pediatr. 2022 Sep;181(9):3473-3482. https://doi.org/10.1007/s00431-022-04533-5. Epub 2022 Jun 21.PMID: 35726033 Clinical Trial
- Zhang Z, Liu J, Jiang G, et al. Vitamin D receptor gene variants and serum vitamin D in childhood autism spectrum disorder. Mol Biol Rep. 2022 Oct;49(10):9481-9488. https://doi.org/10.1007/s11033-022-07829-9. Epub 2022 Aug 11.PMID: 35953654

PNEUMOLOGY

- Ahmad S, Zaki A, Manda K, et al. Vitamin-D ameliorates sepsis-induced acute lung injury via augmenting miR-149-5p and downregulating ER stress. J Nutr Biochem. 2022 Aug 18;110:109130. https://doi.org/10.1016/j.jnutbio.2022.109130. Online ahead of print.PMID: 35988833
- Antonio Buendía J, Rodriguez-Martinez CE, Sossa-Briceño MP. Cost utility of vitamin D supplementation in adults with mild to moderate asthma. J Asthma. 2022 Sep 14:1-9. https://doi.org/10.1080/02770903.2022.2110113. Online ahead of print. PMID: 35920247
- Bantulà M, Tubita V, Roca-Ferrer J, et al. Weight loss and vitamin D improve hyporesponsiveness to corticosteroids in obese asthma. J Investig Allergol Clin Immunol. 2022 Sep 8:0. https://doi.org/10.18176/jiaci.0861. Online ahead of print.PMID: 36098275
- Gaudet M, Plesa M, Mogas A, et al. Recent advances in vitamin D implications in chronic respiratory diseases. Respir Res. 2022 Sep 19;23(1):252. https://doi.org/10.1186/s12931-022-02147-x. PMID: 36117182
- Huang C, Peng M, Tong J, et al. Vitamin D ameliorates asthma-induced lung injury by regulating HIF-1α/Notch1 signaling during autophagy. Food Sci Nutr. 2022 Apr 19;10(8):2773-2785. https://doi.org/10.1002/fsn3.2880. eCollection 2022 Aug.PMID: 35959262
- James L, O'Sullivan BP, Majure M, et al. Protocol for the Vitamin D Oral Replacement in Asthma (VDORA) study. Contemp Clin Trials. 2022 Sep;120:106861. https://doi.org/10.1016/j.cct.2022.106861. Epub 2022 Jul 28.PMID: 35907490
- Rafiq R, Aleva FE, Schrumpf JA, et al. Vitamin D supplementation in chronic obstructive pulmonary disease patients with low serum vitamin D: a randomized controlled trial. Am J Clin Nutr. 2022 Aug 4;116(2):491-499. https://doi.org/10.1093/ajcn/nqac083.PMID: 35383823
- Sapartini G, Wong GWK, Indrati AR, et al. Stunting as a Risk Factor for Asthma: The Role of Vitamin D, Leptin, IL-4, and CD23. Medicina (Kaunas). 2022 Sep 7;58(9):1236. https://doi.org/10.3390/medicina58091236.PMID: 36143913
- Sekhar Miraj S, Vyas N, Kurian SJ, et al. Vitamin D receptor gene polymorphism and vitamin D supplementation on clinical/ treatment outcome in tuberculosis: current and future perspectives. Expert Rev Anti Infect Ther. 2022 Sep;20(9):1179-1186. https://doi.org/10.1080/14787210.2022.2081546. Epub 2022 May 31.PMID: 35608034 Review
- Shukla A, Bromage S, Dholakia Y, et al. Case-control study of vitamin D status and adult multidrug-resistant pulmonary TB. Int J Tuberc Lung Dis. 2022 Sep 1;26(9):826-834. https://doi.org/10.5588/ijtld.21.0639.PMID: 35996288
- Sirufo MM, Magnanimi LM, Ginaldi L, et al. COPD and the IL-33/ST2 axis targeted therapy: A role for vitamin D? Cytokine. 2022 Oct;158:155995. https://doi.org/10.1016/j.cyto.2022.155995. Epub 2022 Aug 8.PMID: 35952594
- Zhou J, Chen H, Wang Q, et al. Sirt1 overexpression improves senescence-associated pulmonary fibrosis induced by vitamin D deficiency through downregulating IL-11 transcription. Aging Cell. 2022 Aug;21(8):e13680. https://doi.org/10.1111/acel.13680. Epub 2022 Jul 30.PMID: 35906886
- Zhu Y, Jing D, Liang H, et al. Vitamin D status and asthma, lung function, and hospitalization among British adults. Front Nutr. 2022 Aug 10;9:954768. https://doi.org/10.3389/fnut.2022.954768. eCollection 2022.PMID: 36034921

PSYCHIATRY

- Abiri B, Sarbakhsh P, Vafa M. Randomized study of the effects of vitamin D and/or magnesium supplementation on mood, serum levels of BDNF, inflammation, and SIRT1 in obese women with mild to moderate depressive symptoms. Nutr Neurosci. 2022 Oct;25(10):2123-2135. https://doi.org/10.1080/1028415X.2021.1945859. Epub 2021 Jul 2.PMID: 34210242 Clinical Trial
- Akpınar Ş, Karadağ MG. Is Vitamin D Important in Anxiety or Depression? What Is the Truth? Curr Nutr Rep. 2022 Sep 13:1-7. https://doi.org/10.1007/s13668-022-00441-0. Online ahead of print. PMID: 36097104
- Albiñana C, Boelt SG, Cohen AS, et al. Developmental exposure to vitamin D deficiency and subsequent risk of schizophrenia. Schizophr Res. 2022 Sep;247:26-32. https://doi.org/10.1016/j.schres.2021.06.004. Epub 2021 Jul 9.PMID: 34247885
- Banjac Baljak V, Mihajlovic G, Zivlak-Radulovic N, et al. Association between Vitamin D and Cognitive Deficiency in Alcohol Dependence. Healthcare (Basel). 2022 Sep 14;10(9):1772. https://doi.org/10.3390/healthcare10091772. PMID: 36141384
- Bemanian M, Chowdhury R, Stokke K, et al. Vitamin D status and associations with substance use patterns among people with severe substance use disorders in Western Norway. Sci Rep. 2022 Aug 11;12(1):13695. https://doi.org/10.1038/s41598-022-17804-w. PMID: 35953499
- Bond M, Moll N, Rosello A, et al. Vitamin D levels in children and adolescents with chronic tic disorders: a multicentre study. Child Adolesc Psychiatry. 2022 Aug;31(8):1-12. https://doi.org/10.1007/s00787-021-01757-y. Epub 2021 Apr 13.PMID: 33851280

- Esnafoglu E, Subaşı B. Association of low 25-OH-vitamin D levels and peripheral inflammatory markers in patients with autism spectrum disorder: Vitamin D and inflammation in Autism. Psychiatry Res. 2022 Oct;316:114735. https://doi.org/10.1016/j.psychres.2022.114735. Epub 2022 Jul 20.PMID: 35878480
- Fondjo LA, Osei O, Owiredu WKBA, et al. Assessment of vitamin D levels and adipokines mediated obesity among psychiatric patients on treatment and treatment naïve: A comparative cross-sectional study. Health Sci Rep. 2022 Oct 7;5(6):e858. https://doi.org/10.1002/hsr2.858. eCollection 2022 Nov.PMID: 36248351
- Freedman R, Hunter SK, Law AJ, et al. Choline, folic acid, Vitamin D, and fetal brain development in the psychosis spectrum. Schizophr Res. 2022 Sep;247:16-25. https://doi.org/10.1016/j.schres.2021.03.008. Epub 2021 Apr 8.PMID: 33838984 Review
- Gallardo-Carrasco MC, Jiménez-Barbero JA, Bravo-Pastor MDM, et al. Serum Vitamin D, Folate and Fatty Acid Levels in Children with Autism Spectrum Disorders: A Systematic Review and Meta-Analysis. J Autism Dev Disord. 2022 Nov;52(11):4708-4721. https://doi.org/10.1007/s10803-021-05335-8. Epub 2021 Nov 3.PMID: 34734376
- Khan B, Shafiq H, Abbas S, et al. Vitamin D status and its correlation to depression. Ann Gen Psychiatry. 2022 Aug 18;21(1):32. https://doi.org/10.1186/s12991-022-00406-1.PMID: 35982462
- Kim HJ, Kim HS, Kim S, et al. Effects of vitamin D on associations between air pollution and mental health outcomes in Korean adults: Results from the Korea National Health and Nutrition Examination Survey (KNHANES). J Affect Disord. 2022 Sep 30;320:390-396. https://doi.org/10.1016/j.jad.2022.09.144. Online ahead of print.PMID: 36183827
- Kumar PNS, Menon V, Andrade C. A randomized, double-blind, placebo-controlled, 12-week trial of vitamin D augmentation in major depressive disorder associated with vitamin D deficiency. J Affect Disord. 2022 Oct 1;314:143-149. https://doi.org/10.1016/j.jad.2022.07.014. Epub 2022 Jul 16.PMID: 35843459 Clinical Trial
- Lally J, Ajnakina O, Stubbs B, et al. Vitamin D and cardiometabolic outcomes in first episode psychosis (FEP): A prospective cohort study. Schizophr Res. 2022 Aug;246:26-29. https://doi.org/10.1016/j.schres.2022.05.019. Epub 2022 Jun 10.PMID: 35696858
- Muskens J, Klip H, Zinkstok JR, et al. Vitamin D status in children with a psychiatric diagnosis, autism spectrum disorders, or internalizing disorders. Front Psychiatry. 2022 Sep 14;13:958556. https://doi.org/10.3389/fpsyt.2022.958556. eCollection 2022.PMID: 36186854
- Rihal V, Khan H, Kaur A, et al. Therapeutic and mechanistic intervention of vitamin D in neuropsychiatric disorders. Psychiatry Res. 2022 Aug 14;317:114782. https://doi.org/10.1016/j.psychres.2022.114782. Online ahead of print.PMID: 36049434 Review
- Xie F, Huang T, Lou D, et al. Effect of vitamin D supplementation on the incidence and prognosis of depression: An updated meta-analysis based on randomized controlled trials. Front Public Health. 2022 Aug 1;10:903547. https://doi.org/10.3389/fpubh.2022.903547. eCollection 2022.PMID: 35979473
- Zhao W, Zhu DM, Li S, et al. The reduction of vitamin D in females with major depressive disorder is associated with worse cognition mediated by abnormal brain functional connectivity. Prog Neuropsychopharmacol Biol Psychiatry. 2022 Aug 30;118:110577. https://doi.org/10.1016/j.pnpbp.2022.110577. Epub 2022 May 21.PMID: 35605842

RHEUMATOLOGY

- Bertoldo F, Cianferotti L, Di Monaco M, et al. Definition, Assessment, and Management of Vitamin D Inadequacy: Suggestions, Recommendations, and Warnings from the Italian Society for Osteoporosis, Mineral Metabolism and Bone Diseases (SIOMMMS). Nutrients. 2022 Oct 6;14(19):4148. https://doi.org/10.3390/nu14194148.PMID: 36235800
- Perazzi M, Gallina E, Manfredi GF, et al. Vitamin D in Systemic Sclerosis: A Review. Nutrients. 2022 Sep 21;14(19):3908. https://doi.org/10.3390/nu14193908.PMID: 36235561
- Luo T, Lin Y, Lu J, et al. Effects of vitamin D supplementation during pregnancy on bone health and offspring growth: A systematic review and meta-analysis of randomized controlled trials. PLoS One. 2022 Oct 13;17(10):e0276016. https://doi.org/10.1371/journal.pone.0276016. eCollection 2022.PMID: 36227906
- Mio K, Haruhara K, Shimizu A, et al. Hypercalcemia worsened after vitamin D supplementation in a sarcoidosis patient: A case report. Medicine (Baltimore). 2022 Oct 7;101(40):e30883. https://doi.org/10.1097/MD.0000000000030883.PMID: 36221396
- Gamonal SBL, Gamonal ACC, Marques NCV, et al. Is vitamin D status relevant to psoriasis and psoriatic arthritis? A retrospective cross-sectional study. Sao Paulo Med J. 2022 Sep 6:S1516-31802022005000216. https://doi.org/10.1590/1516-3180.2022.0216.R1.01072022. Online ahead of print. PMID: 36214524
- Kitade K, Mawatari T, Baba S, et al. Vitamin D status-associated postoperative complications in patients with hip dysplasia after periacetabular osteotomy: A case-control study. Mod Rheumatol. 2022 Oct 5:roac120. https://doi.org/10.1093/mr/roac120. Online ahead of print.PMID: 36197741
- Dawson-Hughes B, Wang J, Barger K, et al. Effects of Vitamin D with Calcium and Associations of Mean 25-Hydroxyvitamin D Levels with 3-Year Change in Muscle Performance in Healthy Older Adults in the Boston STOP IT Trial. Calcif Tissue Int. 2022 Sep 26. https://doi.org/10.1007/s00223-022-01024-5. Online ahead of print.PMID: 36161344
- Lee YB, Baek KH, Chung HY, et al. Raloxifene/Vitamin D Combination Therapy vs. Raloxifene Monotherapy on Serum 25-Hydroxy-Vitamin D Level among Postmenopausal Women with Osteoporosis or Osteopenia: A Randomized Controlled Trial. J Bone Metab. 2022 Aug;29(3):155-163. https://doi.org/10.11005/jbm.2022.29.3.155. Epub 2022 Aug 31.PMID: 36153851
- Rojano-Ortega D, Berral-de la Rosa FJ. Effects of vitamin D supplementation on muscle function and recovery after exercise-induced muscle damage: A systematic review. J Hum Nutr Diet. 2022 Sep 23. https://doi.org/10.1111/jhn.13084. Online ahead of print.PMID: 36149089 Review

- Carballo-Casla A, de Paz-Cantos S, Ortolá R, et al. Dietary Vitamin D Intake, Pain Incidence, and Pain Changes in Older Adults: The Seniors-ENRICA-1 Cohort. Nutrients. 2022 Sep 13;14(18):3776. https://doi.org/10.3390/nu14183776.PMID: 36145150

- Albaik M, Khan JA, Sindi I, et al. Bone mass in Saudi women aged 20-40 years: the association with obesity and vitamin D deficiency. Arch Osteoporos. 2022 Sep 15;17(1):123. https://doi.org/10.1007/s11657-022-01164-z. PMID: 36107272

- Diao M, Peng J, Wang D, et al. Peripheral vitamin D levels in ankylosing spondylitis: A systematic review and meta-analysis. Front Med (Lausanne). 2022 Aug 26;9:972586. https://doi.org/10.3389/fmed.2022.972586. eCollection 2022.PMID: 36091702

- Książek A, Zagrodna A, Słowińska-Lisowska M, et al. Corrigendum: Relationship between metabolites of vitamin D, free 25-(OH)D, and physical performance in indoor and outdoor athletes. Front Physiol. 2022 Aug 26;13:1003648. https://doi.org/10.3389/fphys.2022.1003648. eCollection 2022.PMID: 36091382

- Prokopidis K, Giannos P, Katsikas Triantafyllidis K, et al. The authors' reply: 'Comment on: "Effect of vitamin D monotherapy on indices of sarcopenia in community-dwelling older adults: a systematic review and meta-analysis" by Prokopidis et al.'. J Cachexia Sarcopenia Muscle. 2022 Sep 9. https://doi.org/10.1002/jcsm.13087. Online ahead of print.PMID: 36082492

- Kim DS, Kim JH, Baek SW, et al. Controlled vitamin D delivery with injectable hyaluronic acid-based hydrogel for restoration of tendinopathy. J Tissue Eng. 2022 Sep 2;13:20417314221122089. https://doi.org/10.1177/20417314221122089. eCollection 2022 Jan-Dec.PMID: 36082312

- Jhun J, Woo JS, Kwon JY, et al. Vitamin D Attenuates Pain and Cartilage Destruction in OA Animals via Enhancing Autophagic Flux and Attenuating Inflammatory Cell Death. Immune Netw. 2022 Apr 19;22(4):e34. https://doi.org/10.4110/in.2022.22.e34. eCollection 2022 Aug.PMID: 36081528

- Jo JY, Lee YJ, Seo HK, et al. Vitamin D Status and Bone Health in Postmenopausal Women Working in Greenhouses. J Menopausal Med. 2022 Aug;28(2):70-77. https://doi.org/10.6118/jmm.21033.PMID: 36070872

- Mendes MM, Botelho PB, Ribeiro H. Vitamin D and musculoskeletal health: outstanding aspects to be considered in the light of current evidence. Endocr Connect. 2022 Sep 26;11(10):e210596. https://doi.org/10.1530/EC-21-0596. Print 2022 Oct 1.PMID: 36048470

- Ali M, Uddin Z. Factors associated with vitamin D deficiency among patients with musculoskeletal disorders seeking physiotherapy intervention: a hospital-based observational study. BMC Musculoskelet Disord. 2022 Aug 30;23(1):817. https://doi.org/10.1186/s12891-022-05774-z.PMID: 36042435

- Wei FL, Li T, Gao QY, et al. Association Between Vitamin D Supplementation and Fall Prevention. Front Endocrinol (Lausanne). 2022 Aug 10;13:919839. https://doi.org/10.3389/fendo.2022.919839. eCollection 2022.PMID: 36034418

- Murdaca G, Allegra A, Tonacci A, et al. Mast Cells and Vitamin D Status: A Clinical and Biological Link in the Onset of Allergy and Bone Diseases. Biomedicines. 2022 Aug 3;10(8):1877. https://doi.org/10.3390/biomedicines10081877.PMID: 36009422

- Tysoe O. Vitamin D supplementation and fracture risk. Nat Rev Endocrinol. 2022 Oct;18(10):589. https://doi.org/10.1038/s41574-022-00741-z. PMID: 36008624

- Kushwaha AC, Mohanbhai SJ, Sardoiwala MN, et al. Nanoemulsified Genistein and Vitamin D Mediated Epigenetic Regulation to Inhibit Osteoporosis. ACS Biomater Sci Eng. 2022 Sep 12;8(9):3810-3818. https://doi.org/10.1021/acsbiomaterials.2c00165. Epub 2022 Aug 25.PMID: 36005299

- Zalneraitis BH, Huuki E, Benavides LC, et al. Relation of Vitamin D Level, BMI, and Location of Lower Extremity Stress Fractures in Military Trainees. Mil Med. 2022 Aug 25:usac258. https://doi.org/10.1093/milmed/usac258. Online ahead of print. PMID: 36004444

- Zhou H, Zhou BY, Liang SR, et al. The relationship between vitamin D receptor gene polymorphisms and ankylosing spondylitis: a systematic review, meta-analysis and trial sequential analysis. Rheumatol Int. 2022 Aug 23. https://doi.org/10.1007/s00296-022-05189-y. Online ahead of print.PMID: 35999389

- Pan J, Bao Y, Pan S, et al. Hydroxysafflor Yellow A-Induced Osteoblast Differentiation and Proliferation of BM-MSCs by Up-Regulating Nuclear Vitamin D Receptor. Curr Mol Med. 2022 Aug 20. https://doi.org/10.2174/1566524023666220820125924. Online ahead of print.PMID: 35996252

- Weintraub MT, Guntin J, Yang J, et al. Vitamin D3 Supplementation Prior to Total Knee Arthroplasty: A Randomized Controlled Trial. J Arthroplasty. 2022 Aug 19:S0883-5403(22)00776-8. https://doi.org/10.1016/j.arth.2022.08.020. Online ahead of print.PMID: 35988825

- [No authors listed] Vitamin D Reduces Falls and Hip Fractures in Vascular Parkinsonism but Not in Parkinson's Disease [Retraction]. Ther Clin Risk Manag. 2022 Aug 10;18:787-788. https://doi.org/10.2147/TCRM.S385428. eCollection 2022.PMID: 35975130

- Takase R, Tsubouchi Y, Otsu T, et al. The effects of romosozumab combined with active vitamin D3 on fracture healing in ovariectomized rats. J Orthop Surg Res. 2022 Aug 12;17(1):384. https://doi.org/10.1186/s13018-022-03276-1. PMID: 35962437

- Susarla G, Chan W, Li A, et al. Mendelian Randomization Shows a Causal Effect of Low Vitamin D on Non-infectious Uveitis and Scleritis Risk. Am J Ophthalmol. 2022 Aug 7;244:11-18. https://doi.org/10.1016/j.ajo.2022.08.001. Online ahead of print.PMID: 35948088

- Cetrelli L, Bletsa A, Lundestad A, et al. Vitamin D, oral health, and disease characteristics in juvenile idiopathic arthritis: a multicenter cross-sectional study. BMC Oral Health. 2022 Aug 8;22(1):333. https://doi.org/10.1186/s12903-022-02349-1.PMID: 35941635

- Munipalli B, Strothers S, Rivera F, et al. Association of Vitamin B12, Vitamin D, and Thyroid-Stimulating Hormone With Fatigue and Neurologic Symptoms in Patients With Fibromyalgia. Mayo Clin Proc Innov Qual Outcomes. 2022 Jul 31;6(4):381-387. https://doi.org/10.1016/j.mayocpiqo.2022.06.003. eCollection 2022 Aug.PMID: 35938140

- Dong W, Postlethwaite BC, Wheller PA,

et al. Beta-caryophyllene prevents the defects in trabecular bone caused by Vitamin D deficiency through pathways instated by increased expression of klotho. Bone Joint Res. 2022 Aug;11(8):528-540. https://doi.org/10.1302/2046-3758.118.BJR-2021-0392.R1.PMID: 35920089

- Sakyi SA, Owusu-Yeboah M, Obirikorang C, et al. Profiling vitamin D, its mediators and proinflammatory cytokines in rheumatoid arthritis: A case-control study. Immun Inflamm Dis. 2022 Aug;10(8):e676. https://doi.org/10.1002/iid3.676.PMID: 35894711
- Cheng SH, Chen C, Chu WC, et al. Comment on: "Effect of vitamin D monotherapy on indices of sarcopenia in community-dwelling older adults: a systematic review and meta-analysis" by Prokopidis et al. J Cachexia Sarcopenia Muscle. 2022 Oct;13(5):2581-2583. https://doi.org/10.1002/jcsm.13038. Epub 2022 Jul 8.PMID: 35808899
- Carswell AT, Jackson S, Swinton P, et al. Vitamin D Metabolites Are Associated with Physical Performance in Young Healthy Adults. Med Sci Sports Exerc. 2022 Nov 1;54(11):1982-1989. https://doi.org/10.1249/MSS.0000000000002987. Epub 2022 Jun 28.PMID: 35766614
- Jin X, Ding C, Hunter DJ, et al. Effectiveness of vitamin D supplementation on knee osteoarthritis - A target trial emulation study using data from the Osteoarthritis Initiative cohort. Osteoarthritis Cartilage. 2022 Nov;30(11):1495-1505. https://doi.org/10.1016/j.joca.2022.06.005. Epub 2022 Jun 25.PMID: 35764205
- Oba M, Choe H, Yamada S, et al. Corrective osteotomy for complex tibial deformity in a patient with hereditary vitamin D-resistant hypophosphatemic rickets (HVDRR) using CT-based navigation system and 3D printed osteotomy model. Comput Assist Surg (Abingdon). 2022 Dec;27(1):84-90. https://doi.org/10.1080/24699322.2022.2086485.PMID: 35727185
- Murashima M, Hamano T, Nishiyama T, et al. Performance Status Modifies the Association Between Vitamin D Receptor Activator and Mortality or Fracture: A Prospective Cohort Study on the Japanese Society for Dialysis Therapy (JSDT) Renal Data Registry. J Bone Miner Res. 2022 Aug;37(8):1489-1499. https://doi.org/10.1002/jbmr.4621. Epub 2022 Jul 8.PMID: 35689819
- Lee WL, Lee FK, Wang PH. Vitamin D and systemic lupus erythematous. J Chin Med Assoc. 2022 Aug 1;85(8):811-812. https://doi.org/10.1097/JCMA.0000000000000746. Epub 2022 Aug 19.PMID: 35648165
- Cheng J, Zhai J, Zhong W, et al. Lactobacillus rhamnosus GG Promotes Intestinal Vitamin D Absorption by Upregulating Vitamin D Transporters in Senile Osteoporosis. Calcif Tissue Int. 2022 Aug;111(2):162-170. https://doi.org/10.1007/s00223-022-00975-z. Epub 2022 May 26.PMID: 35616697
- Bollen SE, Bass JJ, Fujita S, et al. The Vitamin D/Vitamin D receptor (VDR) axis in muscle atrophy and sarcopenia. Cell Signal. 2022 Aug;96:110355. https://doi.org/10.1016/j.cellsig.2022.110355. Epub 2022 May 17.PMID: 35595176
- Reis NG, Assis AP, Lautherbach N, et al. Maternal vitamin D deficiency affects the morphology and function of glycolytic muscle in adult offspring rats. J Cachexia Sarcopenia Muscle. 2022 Aug;13(4):2175-2187. https://doi.org/10.1002/jcsm.12986. Epub 2022 May 18.PMID: 35582969
- Seijo M, Bonanno MN, Bryk G, et al. Does Vitamin D Insufficiency Influence Prebiotic Effect on Calcium Absorption and Bone Retention? Calcif Tissue Int. 2022 Sep;111(3):300-312. https://doi.org/10.1007/s00223-022-00984-y. Epub 2022 May 3.PMID: 35505249
- Aoki H, Suzuki E, Nakamura T, et al. Induced pluripotent stem cells from homozygous Runx2-deficient mice show poor response to vitamin D during osteoblastic differentiation. Med Mol Morphol. 2022 Sep;55(3):174-186. https://doi.org/10.1007/s00795-022-00317-w. Epub 2022 Apr 23.PMID: 35461467
- Pękala PA, Jasińska M, Taterra D, et al. Vitamin D receptor gene polymorphism influence on lumbar intervertebral disc degeneration. Clin Anat. 2022 Sep;35(6):738-744. https://doi.org/10.1002/ca.23877. Epub 2022 Apr 12.PMID: 35384074
- Ikegami K, Hashiguchi M, Kizaki H, et al. Development of Risk Prediction Model for Grade 2 or Higher Hypocalcemia in Patients With Bone Metastasis Treated With Denosumab Plus Cholecalciferol (Vitamin D3)/Calcium Supplement. J Clin Pharmacol. 2022 Sep;62(9):1151-1159. https://doi.org/10.1002/jcph.2057. Epub 2022 May 2.PMID: 35383950
- Guralnik JM, Sternberg AL, Mitchell CM, et al. Effects of Vitamin D on Physical Function: Results From the STURDY Trial. J Gerontol A Biol Sci Med Sci. 2022 Aug 12;77(8):1585-1592. https://doi.org/10.1093/gerona/glab379.PMID: 34928336 Clinical Trial
- Chen H, Xu HW, Zhang SB, et al. Vitamin D inadequacy combined with high BMI affects paraspinal muscle atrophy and pain intensity in postmenopausal women. Climacteric. 2022 Aug;25(4):376-382. https://doi.org/10.1080/13697137.2021.1990257. Epub 2021 Oct 25.PMID: 34694955
- Koutalos AA, Chalatsis GI, Varsanis G, et al. The effect of zoledronic acid and high-dose vitamin D on function after hip fractures. A prospective cohort study. Eur J Orthop Surg Traumatol. 2022 Aug;32(6):1145-1152. https://doi.org/10.1007/s00590-021-03092-z. Epub 2021 Aug 13.PMID: 34387721
- Stojanović E, Jakovljević V, Scanlan AT, et al. Vitamin D3 supplementation reduces serum markers of bone resorption and muscle damage in female basketball players with vitamin D inadequacy. Eur J Sport Sci. 2022 Oct;22(10):1532-1542. https://doi.org/10.1080/17461391.2021.1953153. Epub 2021 Jul 25.PMID: 34240659 Clinical Trial
- Marin AG, Pratali RR, Marin SM, et al. Age and Spinal Disease Correlate to Albumin and Vitamin D Status. Global Spine J. 2022 Sep;12(7):1468-1474. https://doi.org/10.1177/2192568220982561. Epub 2021 Feb 5.PMID: 33541134