VITAMIN D

UpDates Vol. 4 - N. 2 - 2021

Sito Web www.vitamind-journal.it

www.pacinimedicina.it

VITAMIN D
UpDates

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Stampa
Industrie Grafiche Pacini • Pisa

ISSN: 2611-2876 (online)

Registrazione presso il Tribunale di Pisa n. 2/18 del 23-2-2018

Edizione digitale - Giugno 2021.

EDITORIALE

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La vitamina D continua a sorprendere. Notate come in questo numero si passi da un possibile ruolo della vitamina D nelle malattie psichiatriche a quello in ambito oncologico. Sappiamo che la vitamina D può avere effetti pleiotropici, ma quale può essere il comune meccanismo biologico principale che li determina? L'ubiquitarietà dei suoi recettori? Gli effetti sul sistema immunitario? La capacità di modulare alcune attività enzimatiche? Gli effetti genomici?
Vediamo che idea vi fate a riguardo considerati i contributi degli Autori in questo numero.
Lo scopo dichiarato dell'articolo sulla vitamina D e le malattie psichiatriche è l'identificazione della relazione di causalità, perché questa consentirebbe di poter comprendere se, e in che misura, la supplementazione di vitamina D possa prevenire l'insorgenza di disturbi mentali o ridurne la sintomatologia. Si parte quindi descrivendo innanzitutto i possibili meccanismi di azione della vitamina D a livello neurologico, prima di descrivere le attuali evidenze derivanti da studi osservazionali o di intervento in questo ambito. Si fa in particolare notare che la vitamina D è coinvolta nell'espressione regione-specifica dei recettori della vitamina D (VDR) in aree quali la corteccia cingolata, talamo, cervelletto, *substantia nigra*, nell'amigdala e nell'ippocampo, e che la maggior parte di queste regioni esprime enzimi 1α-idrossilasi in grado di metabolizzare 25(OH)D in 1,25$(OH)_2D_3$: ciò significa che la vitamina D svolge anche nel cervello umano sia una funzione autocrina che paracrina, che potrebbero entrambe avere un ruolo rilevante nella neuro-immuno-modulazione o protezione e nel normale sviluppo e funzione cerebrale. Nel caso della depressione, dato il coinvolgimento della vitamina D nel controllo della risposta infiammatoria, si ipotizza che essa agisca come meccanismo di modulazione regolando la sovra espressione di citochine pro-infiammatorie associate alla depressione. Tuttavia si fa anche notare che la vitamina D è coinvolta nella regolazione dell'attività di enzimi, quali la tirosina-idrossilasi e l'enzima limitante la velocità di biosintesi di dopamina, norepinefrina ed epinefrina, tutti meccanismi che possono giustificare un'associazione positiva tra deficit di vitamina D e depressione.
Anche il collega oncologo segue la stessa strada e prima di sintetizzare le attuali evidenze cliniche descrive i possibili meccanismi d'azione biologici. Fa notare come un primo livello di interazione tra vitamina D e trasformazione o progressione neoplastica possa far riferimento alla capacità biosintetica locale da parte dell'enzima CYP27B1, la cui espressione è ridotta in alcuni tumori in maniera

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How to cite this article: Rossini M. Editoriale. Vitamin D - UpDates 2021;4(2):28-29.

dipendente dallo stadio e dal grado di differenziazione. In questo contesto anche variazioni nell'espressione del VDR a livello intra-tumorale possono influenzare l'aggressività biologica della neoplasia, modulando l'azione autocrina, paracrina e intracrina della vitamina D. Vi faccio notare come pertanto solo il colecalciferolo e non i vari metaboliti della vitamina D possa garantire i fisiologici e completi effetti locali a livello dei vari organi e tessuti. La potenziale azione anti-tumorale della vitamina potrebbe inoltre esplicarsi attraverso meccanismi prevalentemente genomici, ma anche attraverso meccanismi non genomici.

Con la consueta prudenza che contraddistingue i maggiori esperti, tra cui i nostri Autori, le conclusioni relative agli effetti clinici della supplementazione con vitamina D in ambito psichiatrico e oncologico sono simili: i risultati sono tuttora contrastanti, probabilmente anche in seguito alla multifattorialità della patogenesi, alle diverse valutazioni degli outcome (ad es. impatto sull'incidenza di tumori, rispetto al più convincente impatto sulla mortalità per tumore) e alle incertezze sulle posologie.

Mi pare comunque già consigliabile inserire la valutazione dei livelli di vitamina D anche nel percorso diagnostico di queste patologie ed evitare condizioni carenziali anche in questi pazienti.

Buona lettura!

VITAMIN D
UpDates
2021;4(2):4-7
https://doi.org/10.30455/2611-2876-2021-3

Vitamina D e malattie psichiatriche: analisi delle possibili relazioni di causalità

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INTRODUZIONE

Secondo l'Organizzazione Mondiale della Sanità oltre un miliardo di persone soffre di un disturbo mentale o comportamentale. Si stima che oltre 300 milioni di persone al mondo, ossia il 4,4% della popolazione mondiale, soffrano di depressione. La schizofrenia ha un tasso di prevalenza che varia da 4 a 7 persone ogni 1000 individui, interessando pertanto circa 20 milioni di soggetti. Ne deriva che trattare un così elevato numero di persone, oltre che rappresentare un notevole sforzo economico per l'intero sistema sanitario, rappresenti una sfida per l'intero settore medico, dato l'impatto di tali patologie su diversi settori clinici.

Numerose evidenze scientifiche hanno dimostrato l'esistenza di un'associazione tra la deficienza di vitamina D e la depressione o schizofrenia. La vitamina D è presente nel cervello umano ed è stata identificata come uno dei fattori chiave nella regolazione di numerosi percorsi di neurotrasmissione, inclusi quelli di dopamina, serotonina, noradrenalina e glutammina. Studi recenti hanno dimostrato come il deficit di vitamina D sia associato a disfunzioni dell'ippocampo – regione coinvolta nella patogenesi dei disturbi mentali – e come sia positivamente correlato al volume della sostanza grigia.

Tuttavia, la relazione di causalità tra la vitamina D e i disturbi mentali rimane ancora poco chiara. Sebbene sia evidente il connubio tra una deficienza di vitamina D e i disturbi mentali maggiori, la letteratura in merito non è ancora riuscita a comprendere se la deficienza di vitamina D sia la causa, la conseguenza o il fattore concomitante del disturbo mentale osservato [1].

Lo scopo di questo studio è riassumere le principali evidenze scientifiche riguardanti l'associazione tra il deficit di vitamina D e i disturbi mentali, così da aumentare il livello di conoscenza dei clinici di ogni settore medico e stimolare la produzione scientifica e l'osservazione sperimentale al riguardo. L'identificazione della relazione di causalità consentirebbe infatti di poter comprendere se e in quale misura, la supplementazione di vitamina D possa prevenire l'insorgenza di disturbi mentali o ridurne la sintomatologia.

VITAMINA D: MECCANISMI DI AZIONE PER I DISTURBI MENTALI

La vitamina D è un ormone steroideo che svolge un ruolo fondamentale nel bilanciamento minerale dell'organismo, nel corretto funzionamento del sistema immunitario e nella patogenesi di vari disturbi, come il cancro e le malattie autoimmuni.

Nei disturbi psichiatrici la vitamina D stessa è coinvolta nell'espressione regione-specifica dei recettori della vitamina D (VDR) in aree quali la corteccia cingolata, il talamo, il cervelletto, la *substantia nigra*, nell'amigdala e nell'ippocampo [2]. La maggior parte di queste regioni esprime enzimi 1α-idrossilasi, in grado di metabolizzare 25(OH)D in 1,25$(OH)_2D_3$; ciò significa che la vitamina D svolge nel cervello umano sia una funzione autocrina sia una funzione paracrina.

La presenza di vitamina D, di VDR e di enzimi correlati (CYP27B1, CYP24A1) in varie regioni del cervello ha permesso di comprendere il ruolo fondamentale della vitamina D quale ormone neuroattivo/neurosteroide nei processi di neuro-immuno-modulazione, di neuro-protezione, di sviluppo del cervello e nella normale funzione cerebrale. Il deficit di vitamina D nei primi anni di vita influenza negativamente la differenziazione neuronale, la connettività assonale, la struttura e la funzione del cervello, tutti meccanismi che spiegano l'associazione tra la deficienza di vitamina D nell'infanzia e il maggiore rischio di schizofrenia [3]. Allo stesso modo, sono sta-

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Maria Nitti, Bruno Beccarini Crescenzi, Pietro Carmellini dichiarano nessun conflitto di interessi.

How to cite this article: Cuomo A, Beccarini Crescenzi B, Nitti M, et al. Vitamina D e malattie psichiatriche: analisi delle possibili relazioni di causalità. Vitamin D – Updates 2021;4(2):4-7. https://doi.org/10.30455/2611-2876- 2021-3

te segnalate alterazioni dell'espressione del trasportatore della dopamina, espressione della catecol-O-metil transferasi neonatale e del metabolismo della dopamina, evidenze che legano la vitamina D e una sua deficienza alla schizofrenia.
Nel caso della depressione, dato il coinvolgimento della vitamina D nel controllo della risposta infiammatoria, si ipotizza che essa agisca come meccanismo di modulazione, regolando la sovra espressione di citochine pro-infiammatorie associate alla depressione e la risposta infiammatoria stessa [4]. La vitamina D è inoltre coinvolta nella regolazione dell'attività di enzimi, quali la tirosina-idrosilassi e l'enzima limitante la velocità di biosintesi di dopamina, norepinefrina ed epinefrina, tutti meccanismi che possono giustificare un'associazione positiva tra il deficit di vitamina D e la depressione.

VITAMINA D E DEPRESSIONE

La depressione è la malattia psichiatrica più comunemente debilitante, i cui meccanismi eziopatogenetici sono patologici e correlati a molteplici aspetti della funzionalità neuronale [1]. Negli anziani la depressione colpisce principalmente coloro che sono affetti da malattie croniche e da un deterioramento cognitivo, in quanto i processi legati all'invecchiamento e alla malattia cronica e i cambiamenti infiammatori a essi connessi, sia endocrini che immunitari, compromettono l'integrità dei circuiti frontostriatali, dell'amigdala e dell'ippocampo, aumentando dunque la vulnerabilità alla depressione.
L'associazione tra la scarsa esposizione al sole e i cambiamenti dell'umore è riconosciuta da oltre 2000 anni [5]. Studi recenti hanno messo in evidenza la correlazione tra i bassi livelli ematici di vitamina D e l'aumento del rischio di depressione dall'8 al 14%, con una percentuale di rischio di suicidio pari al 30% [6-8], senza una particolare differenza tra la popolazione dei giovani adulti e degli anziani [7].
Allo stesso modo, Sherchand et al. (2018), nell'analizzare la relazione tra bassi livelli di vitamina D e il rischio di depressione hanno dimostrato una probabilità 3,8 volte maggiore di sviluppare depressione negli individui con un deficit di vitamina D rispetto a quelli con dei normali livelli di vitamina D [9]. Il *Third National Health and Nutrition Examination Survey*, studiando un campione di 7.970 individui di età compresa tra 15 e 39 anni, ha identificato un più alto rischio di sviluppo di depressione nei pazienti con livelli di vitamina D < 50 nmol/L rispetto a quelli con livelli di vitamina D > 75 nmol/L [6].
Inoltre, l'ipovitaminosi D sembra essere connessa allo sviluppo della depressione post-partum [10,11]. Studi recenti hanno infatti evidenziato una correlazione negativa tra i bassi livelli di vitamina D durante il primo trimestre di gravidanza e lo sviluppo di sintomi depressivi durante il secondo trimestre [12,13]; allo stesso modo è stata dimostrata una correlazione tra l'ipovitaminosi D nel secondo trimestre e un più alto rischio di sviluppo di sintomi depressivi peri-partum sei mesi dopo il parto [14].
Un'altra importante osservazione riguarda l'associazione tra il deficit di vitamina D e lo sviluppo di depressione in età tardiva e nelle popolazioni geograficamente più a nord [15]. A tal proposito, uno studio condotto su 1.282 pazienti olandesi (di età compresa tra i 65 e i 95 anni) ha osservato una deficienza di vitamina D nel 14% dei pazienti depressi; percentuali nettamente inferiori di ipovitaminosi D sono state evidenziate nel gruppo di controllo [7].
In uno studio trasversale, condotto su 80 pazienti anziani (di età compresa fra i 60 e i 92 anni), di cui 40 affetti da demenza di Alzheimer e 40 senza alcuna forma di demenza, l'ipovitaminosi D è stata riscontrata in circa il 58% del campione (Wilkins, 2006).
Infine, i pazienti affetti da malattie croniche come la fibromialgia o quelli affetti da depressione in comorbidità presentano una più alta incidenza di deficit o un'insufficienza di vitamina D (*Hospital and Anxiety Depression Scale* = 31) [16].

VITAMINA D E SCHIZOFRENIA

La schizofrenia è un disturbo mentale dal decorso cronico, caratterizzato da un anomalo comportamento sociale e con un grave *impairment* sul contenuto del pensiero e sul piano comportamentale dell'individuo affetto. La schizofrenia riconosce una patogenesi multifattoriale: la vulnerabilità genetica, le alterazioni del neuro sviluppo, le infezioni virali, il fumo, il coefficiente intellettivo, l'uso di cannabis o i traumi infantili rappresentano degli importanti fattori di rischio.
Secondo una recente meta-analisi, il rischio di sviluppare schizofrenia è 2,14 volte maggiore negli individui con un deficit di vitamina D rispetto agli individui con dei normali livelli ematici [17]. Si riconoscono alcuni fattori di rischio ambientali, quali la stagionalità di nascita, il luogo di nascita, la latitudine e la migrazione, che legano la deficienza di vitamina D alla schizofrenia [3,18].
In particolare, secondo una revisione eseguita su 86 studi, per un totale di 437.710 individui, il rischio di schizofrenia è risultato del 5-8% più alto nei soggetti nati tra dicembre e maggio, con un picco di maggiore vulnerabilità nei soggetti nati tra gennaio e febbraio, data la minore presenza di raggi UVB idonei a stimolare la produzione di vitamina D [19].
In uno studio condotto su 424 pazienti schizofrenici e su altrettanti controlli selezionati per età, genere e data di nascita, i pazienti sono stati suddivisi in quintili, a seconda dei livelli di vitamina D misurati entro un anno dalla nascita; negli individui appartenenti ai due quintili più bassi e al quintile più alto, è stato riscontrato un rischio maggiore (il doppio) di sviluppo di schizofrenia rispetto ai soggetti classificati secondo gli altri quintili [3]. Analogamente, uno studio condotto su una coorte di 12.058 bambini finlandesi, ha dimostrato che la supplementazione di vitamina D durante il primo anno di vita si associa a una riduzione significativa del rischio di sviluppo di schizofrenia in età adulta, specialmente nei maschi [20].
A corroborare tali ipotesi, in uno studio recente condotto da Okasha et al. (2020) su 20 pazienti schizofrenici e 20 pazienti di controllo, è stato osservato che i livelli di vitamina D risultano essere statisticamente più bassi nei pazienti con schizofrenia (55%) rispetto ai pazienti non schizofrenici [21].
Inoltre, il deficit di vitamina D sembra essere correlato con un più alto rischio di sintomi psicotici isolati. In uno studio svedese, condotto su 33.623 donne, è stata evidenziata una significativa associazione tra i bassi livelli di vitamina e lo sviluppo di sintomi psicotici isolati, permettendo dunque di ipotizzare che l'ipovitaminosi D rappresenti un possibile fattore rischio per lo sviluppo di psicosi in età adulta [22].

SUPPLEMENTAZIONE DI VITAMINA D

La supplementazione di vitamina D potrebbe rappresentare un approccio valido per il miglioramento dei sintomi depressivi e psicotici. In un trial clinico randomizzato, condotto in doppio cieco su 441 soggetti (di età compresa fra i 21 e i 70 anni) suddivisi in tre gruppi e sottoposti per un anno a un trattamento con dosi di 20.000 UI (primo gruppo) e 40.000 UI (secondo gruppo) di vitamina D o con placebo (terzo gruppo), è stato riscontrato un miglioramento dei valori

della *Back Depression Inventory Scale* (BDI) dopo un anno di trattamento [23]. In un trial clinico randomizzato di 8 settimane, condotto su 42 pazienti affetti da un disturbo depressivo maggiore, l'uso concomitante di fluoxetina (20 mg) e vitamina D (1500 IU) ha condotto al conseguimento di un miglioramento significativo dei sintomi depressivi rispetto al gruppo fluoxetina-placebo, dopo appena quattro settimane di trattamento [24].
Tuttavia, i risultati sull'efficacia della supplementazione appaiono ancora contrastanti. Secondo le meta-analisi condotte da Gowda et al. (2015) e da Shaffer (2014), la supplementazione di vitamina D non produrrebbe in generale alcun miglioramento dei sintomi depressivi, salvo un moderato effetto nei pazienti con dei sintomi depressivi clinicamente significativi [25,26].
Nel caso della schizofrenia, un trial clinico randomizzato open label condotto da Sheikhmoonesi (2016) su un campione di pazienti schizofrenici trattati con supplementi di vitamina D in aggiunta alla terapia standard di base, non ha evidenziato alcun cambiamento dei sintomi [27].

CONCLUSIONE

Dalla breve revisione narrativa condotta emergono molteplici spunti di riflessione.
Numerosi studi hanno messo in evidenza la relazione tra l'ipovitaminosi D durante lo sviluppo embrionale e nell'età infantile e l'insorgenza di schizofrenia in età adulta, sebbene questa correlazione non abbia ancora trovato definitivi consensi. Per quanto concerne la depressione, la relazione resta non del tutto chiara e comunque di tipo multifattoriale. Oltre ai meccanismi di azione che legano la carenza di vitamina D ai meccanismi biologici tipici della depressione, altri fattori di tipo comportamentale rendono la comprensione della relazione ancora più complessa. Da un lato la depressione è associata a una riduzione dell'attività fisica all'aperto, con conseguente riduzione dell'assorbimento di luce solare. Dall'altro, i sintomi del deficit di vitamina D, quali senso di fatica e dolore, sono di per sé elementi in grado di generare un abbassamento dell'umore e quindi un conseguente stato depressivo.
Sono necessarie ulteriori ricerche per definire dei protocolli appropriati per il test e l'integrazione della vitamina D nella pratica clinica e per stabilire se, quando e quanto l'integrazione di vitamina D può migliorare il decorso della depressione o ridurre l'incidenza della schizofrenia. Per i clinici è consigliabile inserire la valutazione dei livelli di vitamina D nel proprio percorso decisionale-diagnostico: dall'analisi di tali livelli è possibile prevedere con un buon margine di probabilità le possibili conseguenze psicofisiche connesse ai bassi livelli di vitamina D e dunque prevenirle.
Stili di vita sani che comprendono l'alimentazione con cibi ad alto contenuto di vitamina D, integratori alimentari per ridurne la deficienza o l'insufficienza e un aumento dell'esposizione alla luce solare sono indicazioni indispensabili per migliorare il benessere mentale e devono rientrare nell'ordinario percorso educativo di ogni paziente, a prescindere dalla specifica condizione patologica.

Bibliografia

1. Geng C, Shaikh AS, Han W, et al. Vitamin D and depression: mechanisms, determination and application. Asia Pac J Clin Nutr 2019;28:689-694. https://doi.org/10.6133/apjcn.201912_28(4).0003
2. Prüfer K, Veenstra TD, Jirikowski GF, et al. Distribution of 1,25-dihydroxyvitamin D_3 receptor immunoreactivity in the rat brain and spinal cord. J Chem Neuroanat 1999;16:135-145. https://doi.org/10.1016/s0891-0618(99)00002-2
3. McGrath JJ, Eyles DW, Pedersen CB, et al. Neonatal vitamin D status and risk of schizophrenia: a population-based case-control study. Arch Gen Psychiatry 2010;67:889-894. https://doi.org/10.1001/archgenpsychiatry.2010.110
4. Song C, Wang H. Cytokines mediated inflammation and decreased neurogenesis in animal models of depression. Progress Neuro-psychopharmacol Biol Psychiatry 2011;35:760-768. https://doi.org/10.1016/j.pnpbp.2010.06.020
5. Spedding S. Vitamin D and depression: a systematic review and meta-analysis comparing studies with and without biological flaws. Nutrients 2014;6:1501-1518. https://doi.org/10.3390/nu6041501
6. Ganji V, Milone C, Cody MM, et al. Serum vitamin D concentrations are related to depression in young adult US population: the Third National Health and Nutrition Examination Survey. Int Arch Med 2010;3:29. https://doi.org/10.1186/1755-7682-3-29
7. Hoogendijk WJG, Lips P, Dik MG, et al. Depression is associated with decreased 25-hydroxyvitamin D and increased parathyroid hormone levels in older adults. Arch Gen Psychiatry 2008;65:508-512. 10.1001/archpsyc.65.5.508
8. Umhau JC, George DT, Heaney RP, et al. Low vitamin D status and suicide: a case-control study of active duty military service members. PloS one 2013;8:e51543. https://doi.org/10.1371/journal.pone.0051543
9. Sherchand O, Sapkota N, Chaudhari RK, et al. Association between vitamin D deficiency and depression in Nepalese population. Psychiatry Res 2018;267:266-271. https://doi.org/10.1016/j.psychres.2018.06.018
10. Robinson M, Whitehouse AJO, Newnham JP, et al. Low maternal serum vitamin D during pregnancy and the risk for postpartum depression symptoms. Arch Womens Ment Health 2014;17:213-219. https://doi.org/10.1007/s00737-014-0422-y
11. Murphy PK, Mueller M, Hulsey TC, et al. An exploratory study of postpartum depression and vitamin d. J Am Psychiatr Nurses Assoc 2010;16:170-177. https://doi.org/10.1177/1078390310370476
12. Cassidy-Bushrow AE, Peters RM, Johnson DA, et al. Vitamin D nutritional status and antenatal depressive symptoms in African American women. J Womens Health 2012;21:1189-1195. https://doi.org/10.1089/jwh.2012.3528
13. Brandenbarg J, Vrijkotte TGM, Goedhart G, et al. Maternal early-pregnancy vitamin D status is associated with maternal depressive symptoms in the Amsterdam Born Children and Their Development cohort. Psychosom Med 2012;74:751-757. https://doi.org/10.1097/PSY.0b013e3182639fdb
14. Gur EB, Gokduman A, Turan GA, et al. Mid-pregnancy vitamin D levels and postpartum depression. Eur J Obstet Gynecol Reprod Biol 2014;179:110-116. https://doi.org/10.1016/j.ejogrb.2014.05.017
15. Stewart R, Hirani V. Relationship between vitamin D levels and depressive symptoms in older residents from a national survey population. Psychosom Med 2010;72:608-612. https://doi.org/10.1097/PSY.0b013e3181e9bf15
16. Armstrong DJ, Meenagh GK, Bickle I, et al. Vitamin D deficiency is associated with anxiety and depression in fibromyalgia. Clin Rheumatol 2007;26:551-554. https://doi.org/10.1007/s10067-006-0348-5

17 Valipour G, Saneei P, Esmaillzadeh A. Serum vitamin D levels in relation to schizophrenia: a systematic review and meta-analysis of observational studies. J Clin Endocrinol Metab 2014;99:3863-3872. https://doi.org/10.1210/jc.2014-1887

18. Cantor-Graae E, Selten J-P. Schizophrenia and migration: a meta-analysis and review. The Am J Psychiatry 2005;162:12-24. https://doi.org/10.1176/appi.ajp.162.1.12

19 Torrey EF, Miller J, Rawlings R, et al. Seasonality of births in schizophrenia and bipolar disorder: a review of the literature. Schizophr Res 1997;28:1-38. https://doi.org/10.1016/s0920-9964(97)00092-3

20 McGrath J, Saari K, Hakko H, et al. Vitamin D supplementation during the first year of life and risk of schizophrenia: a Finnish birth cohort study. Schizophr Res 2004;67:237-245. https://doi.org/10.1016/j.schres.2003.08.005

21 Okasha TA, Sabry WM, Hashim MA, et al. Vitamin D serum level in major depressive disorder and schizophrenia. Middle East Current Psychiatry 2020;27:34. https://doi.org/10.1186/s43045-020-00043-y

22 Hedelin M, Löf M, Olsson M, et al. Dietary intake of fish, omega-3, omega-6 polyunsaturated fatty acids and vitamin D and the prevalence of psychotic-like symptoms in a cohort of 33,000 women from the general population. BMC Psychiatry 2010;10:38. https://doi.org/10.1186/1471-244X-10-38

23 Jorde R, Sneve M, Figenschau Y, et al. Effects of vitamin D supplementation on symptoms of depression in overweight and obese subjects: randomized double blind trial. J Intern Med 2008;264:599-609. https://doi.org/10.1111/j.1365-2796.2008.02008.x

24 Khoraminya N, Tehrani-Doost M, Jazayeri S, et al. Therapeutic effects of vitamin D as adjunctive therapy to fluoxetine in patients with major depressive disorder. Aust N Z J Psychiatry 2013;47:271-275. https://doi.org/10.1177/0004867412465022

25 Gowda U, Mutowo MP, Smith BJ, et al. Vitamin D supplementation to reduce depression in adults: meta-analysis of randomized controlled trials. Nutrition 2015;31:421-429. https://doi.org/10.1016/j.nut.2014.06.017

26 Shaffer JA, Edmondson D, Wasson LT, et al. Vitamin D supplementation for depressive symptoms: a systematic review and meta-analysis of randomized controlled trials. Psychosom Med 2014;76:190-196. https://doi.org/10.1097/PSY.0000000000000044

27 Sheikhmoonesi F, Zarghami M, Mamashli S, et al. Effectiveness of Vitamin D Supplement Therapy in Chronic Stable Schizophrenic Male Patients: A Randomized Controlled Trial. Iran J Pharm Res 2016;15:941-950.

VITAMIN D
UpDates
2021;4(2):8-10
https://doi.org/10.30455/2611-2876-2021-4

Il ruolo della vitamina D in oncologia: a che punto siamo?

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INTRODUZIONE

Studi preclinici in modelli *in vitro* e *in vivo* dimostrano che la vitamina D (vitD) è in grado di inibire la trasformazione e progressione neoplastica, attraverso l'induzione della differenziazione cellulare, l'inibizione della proliferazione del clone neoplastico e molteplici altre attività biologiche di tipo anti-infiammatorio, immunomodulante, pro-apoptotico e anti-angiogenico.

Da un punto di vista clinico, i livelli circolanti di vitD e dei suoi metaboliti attivi sono stati collegati a una maggiore sopravvivenza dei pazienti oncologici e numerosi studi randomizzati sono stati condotti, sebbene con risultati contrastanti, sul possibile impatto della supplementazione di vitD sull'incidenza, sulla mortalità e sulla sopravvivenza per cancro nell'uomo.

Questa breve revisione della letteratura si propone l'obiettivo di fare il punto sui più recenti dati preclinici e clinici e sul possibile ruolo della vitD in ambito oncologico.

MECCANISMI BIOLOGICI D'AZIONE

La vitD, prodotta per conversione del 7-deidro-colesterolo a opera delle radiazioni UV a livello cutaneo, è il precursore del potente ormone multifunzionale calcitriolo [1,25-diidrossi- vitamina D_3 ($1,25(OH)_2D_3$)], prodotto per di-idrossilazione a livello epatico e renale a opera del citocromo P450 [1-4]. Attraverso il legame con il suo recettore (VDR), il calcitriolo regola, direttamente o indirettamente, il 3-5% del genoma umano.

Un primo livello di interazione tra la vitD e la trasformazione e progressione neoplastica fa riferimento alla capacità biosintetica locale da parte dell'enzima CYP27B1, la cui espressione è ridotta in alcuni tumori in maniera dipendente dallo stadio e dal grado di differenziazione; in questo contesto, anche le variazioni nell'espressione del VDR a livello intra-tumorale possono influenzare l'aggressività biologica della neoplasia, modulando l'azione autocrina, paracrina e intracrina della vitD [1-4].

La potenziale azione anti-tumorale della vitD si esplica attraverso meccanismi prevalentemente genomici, ma anche attraverso dei meccanismi non genomici, che coinvolgono, ad esempio, il VDR e la *endoplasmic reticulum stress protein 57* (ERP57; 5). Le azioni genomiche della vitD coinvolgono la modulazione di una vasta serie di mediatori, che regolano *pathways* di proliferazione, apoptosi, e differenziazione delle cellule tumorali. Ad esempio, nelle tre neoplasie con maggior evidenza, anche clinica, di potenziale sensibilità agli effetti anti-neoplastici di vitD/VDR (carcinoma mammario, prostatico e colorettale), tale azione si esplica attraverso la modulazione dei *pathways* proliferativi regolati da estrogeni, androgeni e dal sistema WNT/β-catenin, rispettivamente sia a livello di popolazioni cellulari tumorali parzialmente differenziate, che di popolazioni neoplastiche staminali (CSC). Inoltre, la segnalazione attraverso l'asse vitD/VDR può influenzare in senso anti-tumorale l'interazione tra le cellule tumorali e il microambiente circostante (*tumor microenvironment*, TME); tale azione si esplica attraverso la modulazione della capacità invasiva e metastatica, l'inibizione dei *pathways* pro-infiammatori e pro-angiogenetici [1-4]. Tra i meccanismi molecolari implicati nella regolazione delle attività anti-tumorali della vitD si può ipotizzare un ruolo bi-direzionale di un ampio pannello di micro-RNA (miRNA), che da un lato sono regolati dal sistema vitD/VDR, mediandone a valle gli effetti anti-tumorali, e dall'altro possono regolare l'espressione di VDR e CYP24A1, modulando la sensibilità delle cellule tumorali all'azione di vitD [1-4].

Nella maggior parte, sebbene non in tutti gli studi in modelli animali, la supplementazione dietetica di vitD e/o la somministrazione di calcitriolo e di suoi analoghi ritarda la trasformazione e inibisce la progressione neoplastica; tali modelli includono quelli di progressione di lesioni pre-neoplastiche, xenotrapianti di tumori umani, modelli di cancerogenesi spon-

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Conflitto di interessi
Michele Milella dichiara nessun conflitto di interessi.

How to cite this article: Milella M. Il ruolo della vitamina D in oncologia: a che punto siamo? Vitamin D – Updates 2021;4(2):8-10. https://doi. org/10.30455/2611-2876-2021-4

tanea o indotta dall'alimentazione, modelli di cancerogenesi chimica o indotta da cancerogeni noti e modelli transgenici di sviluppo tumorale [1-4].

EVIDENZE CLINICHE

Sebbene le evidenze dagli studi epidemiologici e dagli studi clinici randomizzati non abbiano documentato in maniera conclusiva un impatto clinicamente rilevante dei livelli di vitD sugli esiti oncologici più significativi, i dati a oggi disponibili indicano complessivamente un effetto maggiore sulla mortalità per cancro piuttosto che sulla sua incidenza, suggerendo un possibile effetto biologico sui meccanismi di progressione/promozione piuttosto che su quelli di trasformazione/iniziazione neoplastica. Tali evidenze (brevemente ricapitolate di seguito) collocherebbero gli interventi basati sulla supplementazione dietetica o sulla somministrazione farmacologica di vitD, calcitriolo e molecole correlate nell'ambito concettuale della chemioprevenzione.

Impatto sull'incidenza di tumori

In tre recenti revisioni sistematiche della letteratura con metanalisi dei dati cumulati [6-8] (Tab. I) il rischio relativo (RR) di sviluppare una patologia neoplastica maligna, nel gruppo sottoposto a intervento con supplementazione con vitD, varia dallo 0,98 allo 1,03, senza una significativa eterogeneità; tali dati, come del resto i risultati dei tre singoli studi più importanti (RECORD, ViDA e VITAL [9-11]), non supportano un'associazione significativa tra una supplementazione di vitD e l'incidenza del cancro. In generale, negli studi analizzati, non vi è evidenza di un effetto differenziale in particolari sottogruppi.

Impatto sulla mortalità per tumore

Sebbene nei singoli studi non sempre la riduzione della mortalità per cancro abbia raggiunto la significatività statistica, in tre dei quattro studi principali [9,11,12] vi è una sorprendente uniformità nella stima della riduzione del rischio di morte per cancro, che varia dal 14 al 18%, con l'eccezione dello studio ViDA [10], nel quale tale riduzione è minima (7%). Conseguentemente, le quattro metanalisi disponibili [6-8,13] documentano un RR di mortalità per cancro variabile dallo 0,85 allo 0,88, in favore dell'intervento basato sulla supplementazione di vitD, senza una significativa eterogeneità, che raggiunge la significatività statistica in 3 studi di metanalisi (Tab. I) [6,7,13]. Alcune analisi di sottogruppo indicano una maggiore probabilità di vantaggio in termini di riduzione di mortalità, per gli studi che hanno incluso soggetti di entrambi i sessi e senza storia precedente di cancro, per gli studi che hanno utilizzato una somministrazione quotidiana di vitD e per gli studi con dosi di vitD relativamente basse e che hanno raggiunto livelli di 25(OH)D circolanti < 100 nmol/L [6-8]. Un'ulteriore analisi di sottogruppo suggerisce che la riduzione della mortalità per cancro è ristretta agli interventi che utilizzano vitD$_3$, ma non è evidente per gli interventi che utilizzano vitD$_2$ [13].

INTERPRETAZIONE DEI DATI DISPONIBILI E LINEE DI SVILUPPO FUTURE

Le evidenze cliniche precedentemente citate suggeriscono, come già accennato, un effetto prevalente della vitD sui meccanismi di progressione/promozione, piuttosto che su quelli di trasformazione/iniziazione neoplastica. In questo senso vanno anche i risultati di una sottoanalisi dello studio VITAL, che indicano una riduzione significativa nell'incidenza di cancri avanzati (metastatici o fatali, hazard ratio – HR – 0,83, 95% CI 0,69-0,99, P = 0,04) nel gruppo trattato con vitD, particolarmente nel sottogruppo di soggetti con *body mass index* normale (P per l'interazione = 0,03) [14]. In linea con questi risultati, il primo studio randomizzato, condotto in pazienti con neoplasia colorettale avanzata in trattamento chemioterapico, ha rilevato un *trend* in favore delle alte dosi di vitD$_3$ rispetto alle dosi standard, con un vantaggio di circa 2 mesi nella mediana di sopravvivenza libera da progressione (PFS; 13 *vs* 11 mesi, *log-rank* P = 0,07) e un HR in analisi multivariata di 0,64 (*1-sided* 95% CI, 0-0,90; P = 0,02) [15].

Va, infine, ricordato l'impatto tutt'altro che trascurabile della supplementazione di vitD nel contesto della prevenzione delle complicanze scheletriche e della palliazione dei sintomi in fasi avanzate di malattia [16,17].

Nonostante l'interesse e il notevole numero di studi sia preclinici che clinici sinora riportati, lacune importanti rimangono nelle conoscenze relative al potenziale effetto della vitD nel ridurre la progressione tumorale e

Tabella I. Principali metanalisi condotte sull'impatto di vitD sull'incidenza e mortalità per cancro negli anni recenti.

Incidenza

Autore	N. trial	N. pazienti	Casi (vitD)	Casi (cont)	RR	95% IC	P	Eterogeneità	Ref
Zhang et al.	10	81.362	3716 (9,16%)	3799 (9,26%)	0,99	0,94-1,03	0,532	No	6
Keum et al.	10	-	6.537		0,98	0,93-1,03	0,420	No	7
Goulão et al.	24	18.440	540 (5,66%)	521 (5,85%)	1,03	0,91-1,15	n.s.	No	8

Mortalità

Autore	N. trial	N. pazienti	Casi (vitD)	Casi (cont)	RR/HR	95% IC	P	Eterogeneità	Ref
Zhang et al.	7	77.653	821 (2,11%)	942 (2,43%)	0,87	0,79-0,95	0,003	No	6
Keum et al.	5	-	1,591		0,87	0,79-0,96	0,005	No	7
Goulão et al.	7	11.202	150 (2,67%)	170 (3,04%)	0,88	0,70-1,09	n.s.	No	8
Zhang et al.	5	39.197	397 (2,02%)	468 (2,39%)	0,85	0,74-0,97	0,01	No	13

la mortalità per cancro [18]. Da un punto di vista preclinico la letteratura recente dimostra un ruolo importante di vitD nel revertire fenomeni di *multidrug resistance*, attraverso l'interferenza con i meccanismi di transizione epitelio-mesenchimale (EMT), che supportano la resistenza farmacologica e favoriscono la diffusione metastatica, e attraverso la modulazione di specifici miRNA legati alla progressione neoplastica [19], suggerendone quindi l'uso in contesti di malattia avanzata e in combinazione con altre strategie terapeutiche. Da un punto di vista clinico, tuttavia, ulteriori studi sono necessari non solo per confermare l'effetto di riduzione della mortalità per cancro, ma soprattutto per chiarire il potenziale ruolo di vitD in tumori di specifici distretti anatomici, le possibili interazioni con specifiche alterazioni genetiche tumorali *driver*, la possibile modulazione degli effetti protettivi in specifici contesti genetici individuali (ad esempio polimorfismi di VDR) [18], al fine di ricondurre l'utilizzo terapeutico o preventivo di vitD a un contesto di Oncologia di precisione.

BIBLIOGRAFIA

1 Feldman D, Krishnan AV, Swami S, et al. The role of vitamin D in reducing cancer risk and progression. Nat Rev Cancer 2014;14:342-357. https://doi.org/10.1038/nrc3691

2 Bikle DD. Vitamin D metabolism, mechanism of action, and clinical applications. Chem Biol 2014;21:319-329. https://doi.org/10.1016/j.chembiol.2013.12.016

3 Campbell MJ, Trump DL. Vitamin D receptor signaling and cancer. Endocrinol Metabol Clin North Am 2017;46:1009-1038. https://doi.org/10.1016/j.ecl.2017.07.007

4 El-Sharkawy A, Malki A. Vitamin D signaling in inflammation and cancer: molecular mechanisms and therapeutic implications. Molecules 2020;25:3219. https://doi.org/10.3390/molecules25143219

5 Sequeira VB, Rybchyn MS, Tongkao-Onet W, et al. The role of the vitamin D receptor and ERp57 in photoprotection by 1α, 25-dihydroxyvitamin D_3. Mol Endocrinol 2012;26:574-582. https://doi.org/10.1210/me.2011-1161

6 Zhang X, Niu W. Meta-analysis of randomized controlled trials on vitamin D supplement and cancer incidence and mortality. Biosci Rep 2019;39:BSR20190369. https://doi.org/10.1042/BSR20190369

7 Keum N, Lee DH, Greenwood DC, et al. Vitamin D supplementation and total cancer incidence and mortality: a meta-analysis of randomized controlled trials. Ann Oncol 2019;30:733-743. https://doi.org/10.1093/annonc/mdz059

8 Goulão B, Stewart F, Ford JA, et al. Cancer and vitamin D supplementation: a systematic review and meta-analysis. Am J Clin Nutr 2018;107:652-663. https://doi.org/10.1093/ajcn/nqx047

9 Avenell A, MacLennan GS, Jenkinson DJ, et al. Long-term follow-up for mortality and cancer in a randomized placebo-controlled trial of vitamin D(3) and/or calcium (RECORD trial). J Clin Endocrinol Metab 2012;97:614-622. https://doi.org/10.1210/jc.2011-1309

10 Scragg R, Khaw KT, Toop L, et al. Monthly high-dose vitamin D supplementation and cancer risk: a post hoc analysis of the vitamin D assessment randomized clinical trial. JAMA Oncol 2018;4:e182178. https://doi.org/10.1001/jamaoncol.2018.2178

11 Manson JE, Cook NR, Lee IM, et al. Vitamin D Supplements and Prevention of Cancer and Cardiovascular Disease. N Engl J Med 2019;380:33-44. https://doi.org/10.1056/NEJMoa1809944

12 Trivedi DP, Doll R, Khaw KT. Effect of four monthly oral vitamin D_3 (cholecalciferol) supplementation on fractures and mortality in men and women living in the community: randomised double blind controlled trial. BMJ 2003;326:469. https://doi.org/10.1136/bmj.326.7387.469

13 Zhang Y, Fang F, Tang J, et al. Association between vitamin D supplementation and mortality: systematic review and meta-analysis. BMJ 2019;366:l4673. https://doi.org/10.1136/bmj.l4673

14 Chandler PD, Chen WY, Ajala ON, et al. Effect of vitamin D_3 supplements on development of advanced cancer: a secondary analysis of the vital randomized clinical trial. JAMA Netw Open 2020;3:e2025850. https://doi.org/10.1001/jamanetworkopen.2020.25850

15 Ng K, Nimeiri HS, McCleary NJ, et al. Effect of high-dose vs standard-dose vitamin D_3 supplementation on progression-free survival among patients with advanced or metastatic colorectal cancer: the SUNSHINE randomized clinical trial. JAMA 2019;321:1370-1379. https://doi.org/10.1001/jama.2019.2402

16 Helde-Frankling M, Höijer J, Bergqvist J, et al. Vitamin D supplementation to palliative cancer patients shows positive effects on pain and infections-Results from a matched case-control study. PLoS One 2017;12:e0184208. https://doi.org/10.1371/journal.pone.0184208

17 Klasson C, Helde-Frankling M, Sandberg C, et al. Vitamin D and fatigue in palliative cancer: a cross-sectional study of sex difference in baseline data from the palliative D cohort. J Palliat Med 2021;24:433-437. https://doi.org/10.1089/jpm.2020.0283

18 Mondul AM, Weinstein SJ, Layne TM, et al. Vitamin D and cancer risk and mortality: state of the science, gaps, and challenges. Epidemiol Rev 2017;39:28-48. https://doi.org/10.1093/epirev/mxx005

19 Negri M, Gentile A, de Angelis C, et al. Vitamin D-induced molecular mechanisms to potentiate cancer therapy and to reverse drug-resistance in cancer cells. Nutrients 2020;12:1798. https://doi.org/10.3390/nu12061798

SELEZIONE BIBLIOGRAFICA

CARDIOLOGIA

- Akter K, Khalilullah I, Saqueeb SN, et al. Level of Serum Vitamin D, To Which People Are at Risk of Developing Acute Myocardial Infarction in Bangladesh. Mymensingh Med J. 2021 Jan;30(1):176-181. PMID: 33397871
- Al-Bayyari N, Hailat R, Subih H, et al. Vitamin D(3) reduces risk of cardiovascular and liver diseases by lowering homocysteine levels: double-blinded, randomised, placebo-controlled trial. Br J Nutr. 2021 Jan 28;125(2):139-146. https://doi.org/10.1017/S0007114520001890. Epub 2020 Jun 1. PMID: 32475360
- Alkhatatbeh MJ, Smadi SA, Abdul-Razzak KK, et al. High Prevalence of Vitamin D Deficiency and Correlation with Cystatin-C and Other Cardiovascular and Renal Risk Biomarkers in Patients with Type 2 Diabetes Mellitus Complicated with Hypertension. Curr Diabetes Rev. 2021;17(1):81-90. https://doi.org/10.2174/1573399816666200516174352. PMID: 32416695
- Alsaeed A. Comment on: The current practice of using angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers in diabetic hypertensive and non-hypertensive patients. Is there a room for vitamin D? Saudi Med J. 2021 Jan;42(1):115. https://doi.org/10.15537/smj.2021.1.25621. PMID: 33399181
- Barker T, May HT, Doty JR, et al. Vitamin D supplementation protects against reductions in plasma 25-hydroxyvitamin D induced by open-heart surgery: Assess-d trial. Physiol Rep. 2021 Feb;9(3):e14747. https://doi.org/10.14814/phy2.14747. PMID: 33580636
- Bener A, Al-Hamaq AOAA, Zughaier SM, et al. Assessment of the Role of Serum 25-Hydroxy Vitamin D Level on Coronary Heart Disease Risk With Stratification Among Patients With Type 2 Diabetes Mellitus. Angiology. 2021 Jan;72(1):86-92. https://doi.org/10.1177/0003319720951411. Epub 2020 Aug 25. PMID: 32840113
- Costa Silva Dantas-Komatsu R, Lambert de Andrade Freire F, Regina Dantas de Lira N, et al. Vitamin D status and predictors of 25-hydroxyvitamin D levels in patients with heart failure living in a sunny region. Nutr Hosp. 2021 Feb 22. https://doi.org/10.20960/nh.03291. Online ahead of print. PMID: 33615819
- D'Amelio P. Vitamin D Deficiency and Risk of Metabolic Syndrome in Aging Men. World J Mens Health. 2021 Jan 26. https://doi.org/10.5534/wjmh.200189. Online ahead of print. PMID: 33663024 Review.
- Da Porto A, Cavarape A, Catena C, et al. Interactions between vitamin D levels, cardiovascular risk factors, and atherothrombosis markers in patients with symptomatic peripheral artery disease. Vasc Med. 2021 Jan 15:1358863X20979360. https://doi.org/10.1177/1358863X20979360. Online ahead of print. PMID: 33448908
- Dal Canto E, Beulens JWJ, Elders P, et al. The Association of Vitamin D and Vitamin K Status with Subclinical Measures of Cardiovascular Health and All-Cause Mortality in Older Adults: The Hoorn Study. J Nutr. 2020 Dec 10;150(12):3171-3179. https://doi.org/10.1093/jn/nxaa293. PMID: 33119768
- de Boer IH, Prince DK, Williams K, et al. The multi-ethnic study of atherosclerosis individual response to vitamin D trial: Building a randomized clinical trial into an observational cohort study. Contemp Clin Trials. 2021 Feb 12;103:106318. https://doi.org/10.1016/j.cct.2021.106318. Online ahead of print. PMID: 33588078
- de la Guía-Galipienso F, Martínez-Ferran M, Vallecillo N, et al. Vitamin D and cardiovascular health. Clin Nutr. 2020 Dec 29:S0261-5614(20)30700-7. https://doi.org/10.1016/j.clnu.2020.12.025. Online ahead of print. PMID: 33397599
- Eslami P, Hekmat M, Beheshti M, et al. A Randomized, Double-Blind, Placebo-Controlled, Clinical Trial of High-Dose, Short-Term Vitamin D Administration in the Prevention of Acute Kidney Injury after Cardiac Surgery. Cardiorenal Med. 2021;11(1):52-58. https://doi.org/10.1159/000511058. Epub 2021 Jan 26. PMID: 33498049
- Farrell SW, Leonard D, Barlow CE, et al. Car-

diorespiratory Fitness, Serum Vitamin D, and Prevalence of Metabolic Syndrome in Men. Med Sci Sports Exerc. 2021 Jan;53(1):68-73. https://doi.org/10.1249/MSS.0000000000002445. PMID: 32694363

- Gilani A, Ramsay SE, Welsh P, et al. Vitamin D deficiency is associated with orthostatic hypotension in older men: a cross-sectional analysis from the British Regional Heart Study. Age Ageing. 2021 Jan 8;50(1):198-204. https://doi.org/10.1093/ageing/afaa146. PMID: 32902636

- Gouni-Berthold I, Berthold HK. Vitamin D and Vascular Disease. Curr Vasc Pharmacol. 2021;19(3):250-268. https://doi.org/10.2174/1570161118666200317151955. PMID: 32183681

- Gupta P, Agstam S, Yadav A, et al. Malignant prolongation of the QTc interval due to severe vitamin D deficiency: an unusual presentation. BMJ Case Rep. 2020 Dec 15;13(12):e237157. https://doi.org/10.1136/bcr-2020-237157. PMID: 33323421

- Hsu S, Hoofnagle AN, Gupta DK, et al. Race, Ancestry, and Vitamin D Metabolism: The Multi-Ethnic Study of Atherosclerosis. J Clin Endocrinol Metab. 2020 Dec 1;105(12):e4337-50. https://doi.org/10.1210/clinem/dgaa612. PMID: 32869845

- Imanparast F, Mashayekhi FJ, Kamankesh F, et al. Improving the endothelial dysfunction in type 2 diabetes with chromium and vitamin D(3) byreducing homocysteine and oxidative stress: A randomized placebo-controlled trial. J Trace Elem Med Biol. 2020 Dec;62:126639. https://doi.org/10.1016/j.jtemb.2020.126639. Epub 2020 Aug 31. PMID: 32971450

- Jawad AS. Comment on: The current practice of using angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers in diabetic hypertensive and non-hypertensive patients. Is there a room for vitamin D? Saudi Med J. 2020 Dec;41(12):1381. https://doi.org/10.15537/smj.2020.12.25571. PMID: 33294899

- Jeon YJ, Jung SJ, Kim HC. Does serum vitamin D level affect the association between cardiovascular health and cognition? Results of the Cardiovascular and Metabolic Diseases Etiology Research Center (CMERC) study. Eur J Neurol. 2021 Jan;28(1):48-55. https://doi.org/10.1111/ene.14496. Epub 2020 Sep 27. PMID: 32876965

- Karuppusami R, Antonisami B, Vasan SK, et al. Association of serum 25-Hydroxy vitamin D with total and regional adiposity and cardiometabolic traits. PLoS One. 2020 Dec 28;15(12):e0243850. https://doi.org/10.1371/journal.pone.0243850. eCollection 2020. PMID: 33370344

- Krysiak R, Kowalcze K, Okopień B. The impact of vitamin D status on cardiometabolic effects of fenofibrate in women with atherogenic dyslipidemia. Clin Exp Pharmacol Physiol. 2021 Feb;48(2):186-194. https://doi.org/10.1111/1440-1681.13428. Epub 2020 Nov 15. PMID: 33098674

- Kusunose K, Okushi Y, Okayama Y, et al. Association between Vitamin D and Heart Failure Mortality in 10,974 Hospitalized Individuals. Nutrients. 2021 Jan 23;13(2):335. https://doi.org/10.3390/nu13020335. PMID: 33498709

- Lee TL, Lee MH, Chen YC, et al. Vitamin D Attenuates Ischemia/Reperfusion-Induced Cardiac Injury by Reducing Mitochondrial Fission and Mitophagy. Front Pharmacol. 2020 Dec 10;11:604700. https://doi.org/10.3389/fphar.2020.604700. eCollection 2020. PMID: 33362559

- Luchi WM, Crajoinas RO, Martins FL, et al. High blood pressure induced by vitamin D deficiency is associated with renal overexpression and hyperphosphorylation of Na+-K+-2Cl- cotransporter type 2. J Hypertens. 2020 Dec 15;Publish Ahead of Print. https://doi.org/10.1097/HJH.0000000000002745. Online ahead of print. PMID: 33337598

- Mehdipoor M, Damirchi A, Razavi Tousi SMT, et al. Concurrent vitamin D supplementation and exercise training improve cardiac fibrosis via TGF-beta/Smad signaling in myocardial infarction model of rats. J Physiol Biochem. 2021 Jan 11. https://doi.org/10.1007/s13105-020-00778-6. Online ahead of print. PMID: 33428175

- Michos ED, Cainzos-Achirica M, Heravi AS, et al. Vitamin D, Calcium Supplements, and Implications for Cardiovascular Health: JACC Focus Seminar. J Am Coll Cardiol. 2021 Feb 2;77(4):437-449. https://doi.org/10.1016/j.jacc.2020.09.617. PMID: 33509400 Review.

- Milagres LC, Filgueiras MS, Rocha NP, et al. Cutoff point estimation for serum vitamin D concentrations to predict cardiometabolic risk in Brazilian children. Eur J Clin Nutr. 2020 Dec;74(12):1698-1706. https://doi.org/10.1038/s41430-020-0624-5. Epub 2020 Apr 27. PMID: 32341487

- Nowrouzi-Sohrabi P, Kalani M, Izadpanah P, et al. Vitamin D status influences cytokine production and MALAT1 expression from the PBMCs of patients with coronary artery disease and healthy controls. Rev Assoc Med Bras (1992). 2020 Dec;66(12):1712-1717. https://doi.org/10.1590/1806-9282.66.12.1712. PMID: 33331582

- Rimondi E, Marcuzzi A, Casciano F, et al. Role of vitamin D in the pathogenesis of atheromatosis. Nutr Metab Cardiovasc Dis. 2021 Jan 4;31(1):344-353. https://doi.org/10.1016/j.numecd.2020.08.031. Epub 2020 Sep 12. PMID: 33500110

- Ruz MEA, Momani A, Shajrawi AA. Vitamin D Mediates the Relationship Between Depressive Symptoms and Quality of Life Among Patients With Heart Failure. J Cardiovasc Nurs. 2021 Mar-Apr 01;36(2):185-192. https://doi.org/10.1097/JCN.0000000000000734. PMID: 32740223

- Saghir Afifeh AM, Verdoia M, Nardin M, et al. Determinants of vitamin D activation in patients with acute coronary syndromes and its correlation with inflammatory markers. Nutr Metab Cardiovasc Dis. 2021 Jan 4;31(1):36-43. https://doi.org/10.1016/j.numecd.2020.09.021. Epub 2020 Sep 24. PMID: 33308994

- Sharifan P, Ziaee A, Darroudi S, et al. Effect of low-fat dairy products fortified with 1500IU nano encapsulated vitamin D(3) on cardiometabolic indicators in adults with abdominal obesity: A total blinded randomized controlled trial. Curr Med Res Opin. 2021 Jan 12:1. https://doi.org/10.1080/03007995.2021.1874324. Online ahead of print. PMID: 33434080

- Stratford K, Haykal-Coates N, Thompson L, et al. Early-life persistent vitamin D deficiency-induced cardiovascular dysfunction in mice is mediated by transient receptor potential C channels. J Steroid Biochem Mol Biol. 2021 Feb;206:105804. https://doi.org/10.1016/j.jsbmb.2020.105804. Epub 2020 Dec 15. PMID: 33338589

- Surdu AM, Pînzariu O, Ciobanu DM, et al. Vitamin D and Its Role in the Lipid Metabo-

lism and the Development of Atherosclerosis. Biomedicines. 2021 Feb 9;9(2):172. https://doi.org/10.3390/biomedicines9020172. PMID: 33572397

- Tabaei S, Motallebnezhad M, Tabaee SS. Vitamin D Receptor (VDR) Gene Polymorphisms and Risk of Coronary Artery Disease (CAD): Systematic Review and Meta-analysis. Biochem Genet. 2021 Feb 15. https://doi.org/10.1007/s10528-021-10038-x. Online ahead of print. PMID: 33590380 Review.
- Tanaka K, Okada Y, Hajime M, et al. Low Vitamin D Levels are Associated with Vascular Endothelial Dysfunction in Patients with Poorly Controlled Type 2 Diabetes: A Retrospective Study. J Atheroscler Thromb. 2021 Jan 29. https://doi.org/10.5551/jat.59113. Online ahead of print. PMID: 33518614
- Verdoia M, Nardin M, Gioscia R, et al. Association between vitamin D deficiency and serum Homocysteine levels and its relationship with coronary artery disease. J Thromb Thrombolysis. 2021 Feb 4:1-9. https://doi.org/10.1007/s11239-021-02391-w. Online ahead of print. PMID: 33538987
- Verdoia M, Nardin M, Rolla R, et al. Prognostic impact of Vitamin D deficiency in patients with coronary artery disease undergoing percutaneous coronary intervention. Eur J Intern Med. 2021 Jan;83:62-67. https://doi.org/10.1016/j.ejim.2020.08.016. Epub 2020 Aug 20. PMID: 32830035
- Zhang JY, Wu P, Chen D, et al. Vitamin D Promotes Trophoblast Cell Induced Separation of Vascular Smooth Muscle Cells in Vascular Remodeling via Induction of G-CSF. Front Cell Dev Biol. 2020 Dec 22;8:601043. https://doi.org/10.3389/fcell.2020.601043. eCollection 2020. PMID: 33415106
- Zhang Y, Li Y, Liu J, et al. Association of Vitamin D or Calcium Supplementation with Cardiovascular Outcomes and Mortality: A Meta-Analysis with Trial Sequential Analysis. J Nutr Health Aging. 2021;25(2):263-270. https://doi.org/10.1007/s12603-020-1551-9. PMID: 33491043
- Zuk AM, Liberda EN, Tsuji LJS. Examining chronic inflammatory markers on blood pressure measures in the presence of vitamin D insufficiency among indigenous cree adults: results from the cross-sectional Multi-Community Environment-and-Health Study in Eeyou Istchee, Quebec, Canada. BMJ Open. 2021 Jan 27;11(1):e043166. https://doi.org/10.1136/bmjopen-2020-043166. PMID: 33504558

CORONA VIRUS DISEASE

- [No authors listed] COVID-19 rapid guideline: vitamin D. London: National Institute for Health and Care Excellence (UK); 2020 Dec 17. PMID: 33378143 Free Books & Documents. Review.
- [No authors listed] Vitamin D and COVID-19. Bull Acad Natl Med. 2020 Dec;204(9):e83. https://doi.org/10.1016/j.banm.2020.05.098. Epub 2020 May 30. PMID: 32836258
- Abdollahi A, Kamali Sarvestani H, Rafat Z, et al. The association between the level of serum 25(OH) vitamin D, obesity, and underlying diseases with the risk of developing COVID-19 infection: A case-control study of hospitalized patients in Tehran, Iran. J Med Virol. 2021 Apr;93(4):2359-2364. https://doi.org/10.1002/jmv.26726. Epub 2020 Dec 29. PMID: 33314166
- Abraham J, Dowling K, Florentine S. Can Optimum Solar Radiation Exposure or Supplemented Vitamin D Intake Reduce the Severity of COVID-19 Symptoms? Int J Environ Res Public Health. 2021 Jan 16;18(2):740. https://doi.org/10.3390/ijerph18020740. PMID: 33467131
- Ahmed F. A Network-Based Analysis Reveals the Mechanism Underlying Vitamin D in Suppressing Cytokine Storm and Virus in SARS-CoV-2 Infection. Front Immunol. 2020 Dec 9;11:590459. https://doi.org/10.3389/fimmu.2020.590459. eCollection 2020. PMID: 33362771
- Alshahawey M. A genetic insight into vitamin D binding protein and COVID-19. Med Hypotheses. 2021 Feb 9;149:110531. https://doi.org/10.1016/j.mehy.2021.110531. Online ahead of print. PMID: 33607405
- Annweiler C, Beaudenon M, Gautier J, et al. COvid-19 and high-dose VITamin D supplementation TRIAL in high-risk older patients (COVIT-TRIAL): study protocol for a randomized controlled trial. Trials. 2020 Dec 28;21(1):1031. https://doi.org/10.1186/s13063-020-04928-5. PMID: 33371905
- Annweiler C, Souberbielle JC. [Vitamin D supplementation and COVID-19: expert consensus and guidelines]. Geriatr Psychol Neuropsychiatr Vieil. 2020 Dec 22. https://doi.org/10.1684/pnv.2020.0907. Online ahead of print. PMID: 33350389 French.
- Arab-Ahmadi M, Behnam B, Abrishami A, et al. Reply to: A key role for vitamin D binding protein in COVID-19? Eur J Nutr. 2021 Feb 12:1. https://doi.org/10.1007/s00394-020-02480-1. Online ahead of print. PMID: 33576843
- Arvinte C, Singh M, Marik PE. Serum Levels of Vitamin C and Vitamin D in a Cohort of Critically Ill COVID-19 Patients of a North American Community Hospital Intensive Care Unit in May 2020: A Pilot Study. Med Drug Discov. 2020 Dec;8:100064. https://doi.org/10.1016/j.medidd.2020.100064. Epub 2020 Sep 18. PMID: 32964205
- Barassi A, Pezzilli R, Mondoni M, et al. Vitamin D in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) patients with non-invasive ventilation support. Panminerva Med. 2021 Jan 25. https://doi.org/10.23736/S0031-0808.21.04277-4. Online ahead of print. PMID: 33494567
- Basaran N, Adas M, Gokden Y, et al. The relationship between vitamin D and the severity of COVID-19. Bratisl Lek Listy. 2021;122(3):200-205. https://doi.org/10.4149/BLL_2021_034. PMID: 33618529
- Bennouar S, Cherif AB, Kessira A, et al. Vitamin D Deficiency and Low Serum Calcium as Predictors of Poor Prognosis in Patients with Severe COVID-19. J Am Coll Nutr. 2021 Feb;40(2):104-110. https://doi.org/10.1080/07315724.2020.1856013. Epub 2021 Jan 12. PMID: 33434117
- Bergman P. The link between vitamin D and COVID-19: distinguishing facts from fiction. J Intern Med. 2021 Jan;289(1):131-133. https://doi.org/10.1111/joim.13158. Epub 2020 Aug 5. PMID: 32652766
- Bezerra Espinola MS, Bertelli M, Bizzarri M, et al. Inositol and vitamin D may naturally protect human reproduction and women undergoing assisted reproduction from Covid-19 risk. J Reprod Immunol. 2021 Apr;144:103271. https://doi.org/10.1016/j.jri.2021.103271. Epub 2021 Jan 8. PMID: 33493945
- Biesalski HK. Obesity, vitamin D deficien-

cy and old age a serious combination with respect to coronavirus disease-2019 severity and outcome. Curr Opin Clin Nutr Metab Care. 2021 Jan;24(1):18-24. https://doi.org/10.1097/MCO.0000000000000700. PMID: 32941186 Review.

- Boulkrane MS, Ilina V, Melchakov R, et al. COVID-19 Disease and Vitamin D: A Mini-Review. Front Pharmacol. 2020 Dec 17;11:604579. https://doi.org/10.3389/fphar.2020.604579. eCollection 2020. PMID: 33390994
- Brenner H. Vitamin D Supplementation to Prevent COVID-19 Infections and Deaths-Accumulating Evidence from Epidemiological and Intervention Studies Calls for Immediate Action. Nutrients. 2021 Jan 28;13(2):411. https://doi.org/10.3390/nu13020411. PMID: 33525447 Free PMC article. Review.
- Brighthope I, Avni Sali AM, Ried K. Vitamin-D and COVID-19: time for the profession to take a stand. Adv Integr Med. 2021 Jan 21. https://doi.org/10.1016/j.aimed.2021.01.003. Online ahead of print. PMID: 33520645 Free PMC article.
- Cangiano B, Fatti LM, Danesi L, et al. Mortality in an Italian nursing home during COVID-19 pandemic: correlation with gender, age, ADL, vitamin D supplementation, and limitations of the diagnostic tests. Aging (Albany NY). 2020 Dec 22;12(24):24522-24534. https://doi.org/10.18632/aging.202307. Epub 2020 Dec 22. PMID: 33353888
- Cereda E, Bogliolo L, de Stefano L, et al. A brief discussion of the benefit and mechanism of vitamin D supplementation on coronavirus disease 2019. Curr Opin Clin Nutr Metab Care. 2021 Jan;24(1):102-107. https://doi.org/10.1097/MCO.0000000000000701. PMID: 33003119 Review.
- Cereda E, Bogliolo L, Lobascio F, et al. Vitamin D supplementation and outcomes in coronavirus disease 2019 (COVID-19) patients from the outbreak area of Lombardy, Italy. Nutrition. 2021 Feb;82:111055. https://doi.org/10.1016/j.nut.2020.111055. Epub 2020 Nov 11. PMID: 33288411
- Chakhtoura M, El Hajj Fuleihan G. Reply to Vitamin D deficiency in COVID-19: mixing up cause and consequence. Metabolism. 2021 Feb;115:154462. https://doi.org/10.1016/j.metabol.2020.154462. Epub 2020 Dec 7. PMID: 33301775
- Cheung CL, Cheung BMY. Vitamin D and COVID-19: causal factor or bystander? Postgrad Med J. 2021 Jan 15:postgradmedj-2020-139388. https://doi.org/10.1136/postgradmedj-2020-139388. Online ahead of print. PMID: 33452160
- Clark CE, Masoli J, Warren FC, et al. Vitamin D and COVID-19 in older age: evidence versus expectations. Br J Gen Pract. 2020 Dec 28;71(702):10-11. https://doi.org/10.3399/bjgp21X714377. Print 2021 Jan. PMID: 33355153
- Cutolo M, Paolino S, Smith V. Evidences for a protective role of vitamin D in COVID-19. RMD Open. 2020 Dec;6(3):e001454. https://doi.org/10.1136/rmdopen-2020-001454. PMID: 33372031
- DeLuccia R, Clegg D, Sukumar D. The implications of vitamin D deficiency on COVID-19 for at-risk populations. Nutr Rev. 2021 Jan 9;79(2):227-234. https://doi.org/10.1093/nutrit/nuaa092. PMID: 32974671
- Demir M, Demir F, Aygun H. Vitamin D deficiency is associated with COVID-19 positivity and severity of the disease. J Med Virol. 2021 Jan 29. https://doi.org/10.1002/jmv.26832. Online ahead of print. PMID: 33512007
- Diep PT. Is there an underlying link between COVID-19, ACE2, oxytocin and vitamin D? Med Hypotheses. 2021 Jan;146:110360. https://doi.org/10.1016/j.mehy.2020.110360. Epub 2020 Nov 11. PMID: 33214002
- DiNicolantonio JJ, O'Keefe JH. Magnesium and Vitamin D Deficiency as a Potential Cause of Immune Dysfunction, Cytokine Storm and Disseminated Intravascular Coagulation in covid-19 patients. Mo Med. 2021 Jan-Feb;118(1):68-73. PMID: 33551489
- Elibol E, Baran H. The relation between serum D-dimer, ferritin and vitamin D levels, and dysgeusia symptoms, in patients with coronavirus disease 2019. J Laryngol Otol. 2021 Jan;135(1):45-49. https://doi.org/10.1017/S0022215120002765. Epub 2021 Jan 7. PMID: 33407964
- Faniyi AA, Lugg ST, Faustini SE, et al. Vitamin D status and seroconversion for COVID-19 in UK healthcare workers. Eur Respir J. 2020 Dec 10:2004234. https://doi.org/10.1183/13993003.04234-2020. Online ahead of print. PMID: 33303541
- Farid N, Rola N, Koch EAT, et al. Active vitamin D supplementation and COVID-19 infections: review. Ir J Med Sci. 2021 Jan 6:1-4. https://doi.org/10.1007/s11845-020-02452-8. Online ahead of print. PMID: 33409846
- Ferder L, Martín Giménez VM, Inserra F, et al. Vitamin D supplementation as a rational pharmacological approach in the COVID-19 pandemic. Am J Physiol Lung Cell Mol Physiol. 2020 Dec 1;319(6):L941-L948. https://doi.org/10.1152/ajplung.00186.2020. Epub 2020 Sep 30. PMID: 32996774
- Ferrari D, Locatelli M, Briguglio M, et al. Is there a link between vitamin D status, SARS-CoV-2 infection risk and COVID-19 severity? Cell Biochem Funct. 2021 Jan;39(1):35-47. https://doi.org/10.1002/cbf.3597. Epub 2020 Nov 2. PMID: 33137851 Review.
- Gavioli EM, Miyashita H, Hassaneen O, et al. An Evaluation of Serum 25-Hydroxy Vitamin D Levels in Patients with COVID-19 in New York City. J Am Coll Nutr. 2021 Feb 19:1-6. https://doi.org/10.1080/07315724.2020.1869626. Online ahead of print. PMID: 33605826
- Grant WB, Lahore H, Rockwell MS. The Benefits of Vitamin D Supplementation for Athletes: Better Performance and Reduced Risk of COVID-19. Nutrients. 2020 Dec 4;12(12):3741. https://doi.org/10.3390/nu12123741. PMID: 33291720
- Griffin G, Hewison M, Hopkin J, et al. Perspective: Vitamin D supplementation prevents rickets and acute respiratory infections when given as daily maintenance but not as intermittent bolus: implications for COVID-19. Clin Med (Lond). 2021 Feb 16:clinmed.2021-0035. https://doi.org/10.7861/clinmed.2021-0035. Online ahead of print. PMID: 33593830
- Griffin G, Hewison M, Hopkin J, et al. Preventing vitamin D deficiency during the COVID-19 pandemic: UK definitions of vitamin D sufficiency and recommended supplement dose are set too low. Clin Med (Lond). 2021 Jan;21(1):e48-e51. https://doi.org/10.7861/clinmed.2020-0858. Epub 2020 Nov 6. PMID: 33158957

- Griffin G, Hewison M, Hopkin J, et al. Vitamin D and COVID-19: evidence and recommendations for supplementation. R Soc Open Sci. 2020 Dec 1;7(12):201912. https://doi.org/10.1098/rsos.201912. eCollection 2020 Dec. PMID: 33489300
- Hadizadeh F. Supplementation with vitamin D in the COVID-19 pandemic? Nutr Rev. 2021 Jan 9;79(2):200-208. https://doi.org/10.1093/nutrit/nuaa081. PMID: 32679589
- Hars M, Mendes A, Serratrice C, et al. Sex-specific association between vitamin D deficiency and COVID-19 mortality in older patients. Osteoporos Int. 2020 Dec;31(12):2495-2496. https://doi.org/10.1007/s00198-020-05677-6. Epub 2020 Oct 13. PMID: 33048168
- Hastie CE, Pell JP, Sattar N. Reply to: Prognostic implications of vitamin D in patients with COVID-19. Eur J Nutr. 2021 Feb;60(1):551. https://doi.org/10.1007/s00394-020-02430-x. PMID: 33225400
- Hastie CE, Pell JP, Sattar N. Vitamin D and COVID-19 infection and mortality in UK Biobank. Eur J Nutr. 2021 Feb;60(1):545-548. https://doi.org/10.1007/s00394-020-02372-4. Epub 2020 Aug 26. PMID: 32851419
- Henrina J, Lim MA, Pranata R. COVID-19 and misinformation: how an infodemic fuelled the prominence of vitamin D. Br J Nutr. 2021 Feb 14;125(3):359-360. https://doi.org/10.1017/S0007114520002950. Epub 2020 Jul 27. PMID: 32713358
- Hetta HF, Muhammad K, El-Masry EA, et al. The interplay between vitamin D and COVID-19: protective or bystander? Eur Rev Med Pharmacol Sci. 2021 Feb;25(4):2131-2145. https://doi.org/10.26355/eurrev_202102_25119. PMID: 33660833
- Hosack T, Baktash V, Mandal AKJ, et al. Prognostic implications of vitamin D in patients with COVID-19. Eur J Nutr. 2021 Feb;60(1):549-550. https://doi.org/10.1007/s00394-020-02429-4. PMID: 33225401
- Infante M, Buoso A, Pieri M, et al. Low Vitamin D Status at Admission as a Risk Factor for Poor Survival in Hospitalized Patients With COVID-19: An Italian Retrospective Study. J Am Coll Nutr. 2021 Feb 18:1-16. https://doi.org/10.1080/07315724.2021.1877580. Online ahead of print. PMID: 33600292
- Jain SK, Parsanathan R, Levine SN, et al. The potential link between inherited G6PD deficiency, oxidative stress, and vitamin D deficiency and the racial inequities in mortality associated with COVID-19. Free Radic Biol Med. 2020 Dec;161:84-91. https://doi.org/10.1016/j.freeradbiomed.2020.10.002. Epub 2020 Oct 7. PMID: 33038530
- Kalia V, Studzinski GP, Sarkar S. Role of vitamin D in regulating COVID-19 severity-An immunological perspective. J Leukoc Biol. 2021 Jan 19. https://doi.org/10.1002/JLB.4COVR1020-698R. Online ahead of print. PMID: 33464639 Review.
- Kang HM, Jeong DC, Suh BK, et al. The Impact of the Coronavirus Disease-2019 Pandemic on Childhood Obesity and Vitamin D Status. J Korean Med Sci. 2021 Jan 18;36(3):e21. https://doi.org/10.3346/jkms.2021.36.e21. PMID: 33463095
- Karahan S, Katkat F. Impact of Serum 25(OH) Vitamin D Level on Mortality in Patients with COVID-19 in Turkey. J Nutr Health Aging. 2021;25(2):189-196. https://doi.org/10.1007/s12603-020-1479-0. PMID: 33491033
- Katz J, Yue S, Xue W. Increased risk for COVID-19 in patients with vitamin D deficiency. Nutrition. 2020 Dec 4;84:111106. https://doi.org/10.1016/j.nut.2020.111106. Online ahead of print. PMID: 33418230
- Kloc M, Ghobrial RM, Lipińska-Opałka A, et al. Effects of vitamin D on macrophages and myeloid-derived suppressor cells (MDSCs) hyperinflammatory response in the lungs of COVID-19 patients. Cell Immunol. 2021 Feb;360:104259. https://doi.org/10.1016/j.cellimm.2020.104259. Epub 2020 Dec 16. PMID: 33359760
- Kumar R, Rathi H, Haq A, et al. Putative roles of vitamin D in modulating immune response and immunopathology associated with COVID-19. Virus Res. 2021 Jan 15;292:198235. https://doi.org/10.1016/j.virusres.2020.198235. Epub 2020 Nov 21. PMID: 33232783
- Li S, Cao Z, Yang H, et al. Metabolic Healthy Obesity, Vitamin D Status, and Risk of COVID-19. Aging Dis. 2021 Feb 1;12(1):61-71. https://doi.org/10.14336/AD.2020.1108. eCollection 2021 Feb. PMID: 33532128
- Lippi G, Ferrari A, Targher G. Is COVID-19 lockdown associated with vitamin D deficiency? Eur J Public Health. 2021 Jan 28:ckab004. https://doi.org/10.1093/eurpub/ckab004. Online ahead of print. PMID: 33508085
- Liu N, Sun J, Wang X, et al. Low vitamin D status is associated with coronavirus disease 2019 outcomes: a systematic review and meta-analysis. Int J Infect Dis. 2021 Jan 2;104:58-64. https://doi.org/10.1016/j.ijid.2020.12.077. Online ahead of print. PMID: 33401034
- Lohia P, Nguyen P, Patel N, et al. Exploring the link between vitamin D and clinical outcomes in COVID-19. Am J Physiol Endocrinol Metab. 2021 Mar 1;320(3):E520-E526. https://doi.org/10.1152/ajpendo.00517.2020. Epub 2021 Jan 6. PMID: 33404354
- Lordan R. Notable Developments for Vitamin D Amid the COVID-19 Pandemic, but Caution Warranted Overall: A Narrative Review. Nutrients. 2021 Feb 26;13(3):740. https://doi.org/10.3390/nu13030740. PMID: 33652653 Review.
- Luo X, Liao Q, Shen Y, et al. Vitamin D Deficiency Is Inversely Associated with COVID-19 Incidence and Disease Severity in Chinese People. J Nutr. 2021 Jan 4;151(1):98-103. https://doi.org/10.1093/jn/nxaa332. PMID: 33188401
- Ma H, Zhou T, Heianza Y, et al. Habitual use of vitamin D supplements and risk of coronavirus disease 2019 (COVID-19) infection: a prospective study in UK Biobank. Am J Clin Nutr. 2021 Jan 29:nqaa381. https://doi.org/10.1093/ajcn/nqaa381. Online ahead of print. PMID: 33515005
- Mariani J, Giménez VMM, Bergam I, et al. Association Between Vitamin D Deficiency and COVID-19 Incidence, Complications, and Mortality in 46 Countries: An Ecological Study. Health Secur. 2020 Dec 14. https://doi.org/10.1089/hs.2020.0137. Online ahead of print. PMID: 33325788
- Mariani J, Tajer C, Antonietti L, et al. High-dose vitamin D versus placebo to prevent complications in COVID-19 patients: A

structured summary of a study protocol for a randomised controlled trial (CARED-TRIAL). Trials. 2021 Feb 1;22(1):111. https://doi.org/10.1186/s13063-021-05073-3. PMID: 33522946

- Mehta A, Soni VK, Sharma K, et al. Finding Horcrux of psychiatric symptoms in COVID-19: Deficiencies of amino acids and vitamin D. Asian J Psychiatr. 2021 Jan;55:102523. https://doi.org/10.1016/j.ajp.2020.102523. Epub 2020 Dec 25. PMID: 33360711

- Mingazova EN, Gureev SA, Sidorov VV. [The role of supplying population with vitamin D in conditions of COVID-19 pandemic: foreign publications review]. Probl Sotsialnoi Gig Zdravookhranenniiai Istor Med. 2021 Jan;29(1):32-36. https://doi.org/10.32687/0869-866X-2021-29-1-32-36. PMID: 33591652 Review. Russian.

- Munshi R, Hussein MH, Toraih EA, et al. Vitamin D insufficiency as a potential culprit in critical COVID-19 patients. J Med Virol. 2021 Feb;93(2):733-740. https://doi.org/10.1002/jmv.26360. Epub 2020 Oct 10. PMID: 32716073

- Name JJ, Souza ACR, Vasconcelos AR, et al. Zinc, Vitamin D and Vitamin C: Perspectives for COVID-19 With a Focus on Physical Tissue Barrier Integrity. Front Nutr. 2020 Dec 7;7:606398. https://doi.org/10.3389/fnut.2020.606398. eCollection 2020. PMID: 33365326

- Name JJ, Vasconcelos AR, Souza ACR, et al. Vitamin D, zinc and glutamine: Synergistic action with OncoTherad immunomodulator in interferon signaling and COVID-19 (Review). Int J Mol Med. 2021 Mar;47(3):1. https://doi.org/10.3892/ijmm.2021.4844. Epub 2021 Jan 15. PMID: 33448317

- Orchard L, Baldry M, Nasim-Mohi M, et al. Vitamin D levels and intensive care unit outcomes of a cohort of critically ill COVID-19 patients. Clin Chem Lab Med. 2021 Jan 18. https://doi.org/10.1515/cclm-2020-1567. Online ahead of print. PMID: 33554566

- Panfili FM, Roversi M, D'Argenio P, et al. Possible role of vitamin D in Covid-19 infection in pediatric population. J Endocrinol Invest. 2021 Jan;44(1):27-35. https://doi.org/10.1007/s40618-020-01327-0. Epub 2020 Jun 15. PMID: 32557271

- Pardhan S, Smith L, Sapkota RP. Vitamin D Deficiency as an Important Biomarker for the Increased Risk of Coronavirus (COVID-19) in People From Black and Asian Ethnic Minority Groups. Front Public Health. 2021 Jan 22;8:613462. https://doi.org/10.3389/fpubh.2020.613462. eCollection 2020. PMID: 33553096

- Parsons IT, Gifford RM, Stacey MJ, et al. Does vitamin D supplementation prevent SARS-CoV-2 infection in military personnel? Review of the evidence. BMJ Mil Health. 2021 Jan 27:bmjmilitary-2020-001686. https://doi.org/10.1136/bmjmilitary-2020-001686. Online ahead of print. PMID: 33504571

- Pell JP, Hastie CE, Sattar N. Reply to letter of Davie et al. regarding the article: "Vitamin D concentrations and COVID-19 infection in UK Biobank" (Hastie et al.). Diabetes Metab Syndr. 2021 Feb 12:S1871-4021(21)00040-0. https://doi.org/10.1016/j.dsx.2021.02.017. Online ahead of print. PMID: 33663970

- Pinzon RT, Angela, Pradana AW. Vitamin D deficiency among patients with COVID-19: case series and recent literature review. Trop Med Health. 2020 Dec 20;48(1):102. https://doi.org/10.1186/s41182-020-00277-w. PMID: 33342439

- Piraux A. [Interest of vitamin D in COVID-19]. Actual Pharm. 2021 Feb 15. https://doi.org/10.1016/j.actpha.2021.02.012. Online ahead of print. PMID: 33612960

- Rhodes JM, Subramanian S, Laird E, et al. Perspective: Vitamin D deficiency and COVID-19 severity - plausibly linked by latitude, ethnicity, impacts on cytokines, ACE2 and thrombosis. J Intern Med. 2021 Jan;289(1):97-115. https://doi.org/10.1111/joim.13149. Epub 2020 Jul 22. PMID: 32613681

- Rubin R. Sorting Out Whether Vitamin D Deficiency Raises COVID-19 Risk. JAMA. 2021 Jan 26;325(4):329-330. https://doi.org/10.1001/jama.2020.24127. PMID: 33404587

- Sengupta T, Majumder R, Majumder S. Role of vitamin D in treating COVID-19-associated coagulopathy: problems and perspectives. Mol Cell Biochem. 2021 Feb 18:1-7. https://doi.org/10.1007/s11010-021-04093-6. Online ahead of print. PMID: 33604809

- Shah K, Saxena D, Mavalankar D. Vitamin D supplementation, COVID-19 & Disease Severity: A meta-analysis. QJM. 2021 Jan 24:hcab009. https://doi.org/10.1093/qjmed/hcab009. Online ahead of print. PMID: 33486522

- Shojaeefar E, Malih N, Rezaei N. The possible double-edged sword effects of vitamin D on COVID-19: A hypothesis. Cell Biol Int. 2021 Jan;45(1):54-57. https://doi.org/10.1002/cbin.11469. Epub 2020 Oct 10. PMID: 32990980 Review.

- Sidiropoulou P, Docea AO, Nikolaou V, et al. Unraveling the roles of vitamin D status and melanin during Covid-19 (Review). Int J Mol Med. 2021 Jan;47(1):92-100. https://doi.org/10.3892/ijmm.2020.4802. Epub 2020 Nov 30. PMID: 33416113

- Simonson W. Erratum to Vitamin D dosing considerations in COVID-19. Geriatr Nurs. 2021 Jan 9:S0197-4572(21)00004-5. https://doi.org/10.1016/j.gerinurse.2021.01.003. Online ahead of print. PMID: 33593490

- Smolders J, van den Ouweland J, Geven C, et al. Letter to the Editor: Vitamin D deficiency in COVID-19: Mixing up cause and consequence. Metabolism. 2021 Feb;115:154434. https://doi.org/10.1016/j.metabol.2020.154434. Epub 2020 Nov 17. PMID: 33217408

- Speeckaert MM, De Buyzere ML, Delanghe JR. Vitamin D binding protein polymorphism and COVID-19. J Med Virol. 2021 Feb;93(2):705-707. https://doi.org/10.1002/jmv.26508. Epub 2020 Sep 28. PMID: 32918506

- Speeckaert MM, Delanghe JR. A key role for vitamin D binding protein in COVID-19? Eur J Nutr. 2021 Feb 14:1-2. https://doi.org/10.1007/s00394-020-02479-8. Online ahead of print. PMID: 33585950

- Speeckaert MM, Delanghe JR. Importance of the Lipid-Bound Character of Vitamin D Binding Protein in the Evaluation of Vitamin D Status in COVID-19 Patients. Am J Clin Pathol. 2021 Jan 5:aqaa271. https://doi.org/10.1093/ajcp/aqaa271. Online ahead of print. PMID: 33399186

- Speeckaert MM, Delanghe JR. The influence of the genetic background of the host on vitamin D deficiency in children with COVID-19. Pediatr Pulmonol. 2020 Dec 14. https://doi.org/10.1002/ppul.25196. Online ahead of print. PMID: 33316149

- Speeckaert MM, Speeckeart R, Delanghe JR. Genetic polymorphisms, vitamin D binding protein and vitamin D deficiency in COVID-19. Eur Respir J. 2021 Feb 4:2004638. https://doi.org/10.1183/13993003.04638-2020. Online ahead of print. PMID: 33542051
- Stohs SJ, Aruoma OI. Vitamin D and Well-being beyond Infections: COVID-19 and Future Pandemics. J Am Coll Nutr. 2021 Jan;40(1):41-42. https://doi.org/10.1080/07315724.2020.1786302. Epub 2020 Aug 14. PMID: 32795138
- Szeto B, Zucker JE, LaSota ED, et al. Vitamin D Status and COVID-19 Clinical Outcomes in Hospitalized Patients. Endocr Res. 2020 Dec 30:1-8. https://doi.org/10.1080/07435800.2020.1867162. Online ahead of print. PMID: 33380209
- The Lancet Diabetes Endocrinology. Vitamin D and COVID-19: why the controversy? Lancet Diabetes Endocrinol. 2021 Feb;9(2):53. https://doi.org/10.1016/S2213-8587(21)00003-6. Epub 2021 Jan 11. PMID: 33444566
- Turrubiates-Hernández FJ, Sánchez-Zuno GA, González-Estevez G, et al. Potential immunomodulatory effects of vitamin D in the prevention of severe coronavirus disease 2019: An ally for Latin America (Review). Int J Mol Med. 2021 Apr;47(4):1. https://doi.org/10.3892/ijmm.2021.4865. Epub 2021 Feb 4. PMID: 33537824 Review.
- van Kempen TATG, Deixler E. SARS-CoV-2: influence of phosphate and magnesium, moderated by vitamin D, on energy (ATP) metabolism and on severity of COVID-19. Am J Physiol Endocrinol Metab. 2021 Jan 1;320(1):E2-E6. https://doi.org/10.1152/ajpendo.00474.2020. Epub 2020 Nov 11. PMID: 33174766
- Vassiliou AG, Jahaj E, Pratikaki M, et al. Vitamin D deficiency correlates with a reduced number of natural killer cells in intensive care unit (ICU) and non-ICU patients with COVID-19 pneumonia. Hellenic J Cardiol. 2020 Dec 9:S1109-9666(20)30284-0. https://doi.org/10.1016/j.hjc.2020.11.011. Online ahead of print. PMID: 33309735
- Verdoia M, De Luca G. Potential role of hypovitaminosis D and vitamin D supplementation during COVID-19 pandemic. QJM. 2021 Feb 18;114(1):3-10. https://doi.org/10.1093/qjmed/hcaa234. PMID: 32735326
- Walrand S. Autumn COVID-19 surge dates in Europe correlated to latitudes, not to temperature-humidity, pointing to vitamin D as contributing factor. Sci Rep. 2021 Jan 21;11(1):1981. https://doi.org/10.1038/s41598-021-81419-w. PMID: 33479261
- Wang R, DeGruttola V, Lei Q, et al. The vitamin D for COVID-19 (VIVID) trial: A pragmatic cluster-randomized design. Contemp Clin Trials. 2021 Jan;100:106176. https://doi.org/10.1016/j.cct.2020.106176. Epub 2020 Oct 10. PMID: 33045402
- Wang X, Zhang Y, Fang F. Role of vitamin D in COVID-19 infections and deaths. J Evid Based Med. 2021 Feb;14(1):5-6. https://doi.org/10.1111/jebm.12421. Epub 2021 Feb 7. PMID: 33554423
- Xiao D, Li X, Su X, et al. Could SARS-CoV-2-induced lung injury be attenuated by vitamin D? Int J Infect Dis. 2021 Jan;102:196-202. https://doi.org/10.1016/j.ijid.2020.10.059. Epub 2020 Oct 28. PMID: 33129966
- Yadav D, Birdi A, Tomo S, et al. Association of Vitamin D Status with COVID-19 Infection and Mortality in the Asia Pacific region: A Cross-Sectional Study. Indian J Clin Biochem. 2021 Feb 3:1-6. https://doi.org/10.1007/s12291-020-00950-1. Online ahead of print. PMID: 33551585
- Yisak H, Ewunetei A, Kefale B, et al. Effects of Vitamin D on COVID-19 Infection and Prognosis: A Systematic Review. Risk Manag Healthc Policy. 2021 Jan 7;14:31-38. https://doi.org/10.2147/RMHP.S291584. eCollection 2021. PMID: 33447107
- Yılmaz K, Şen V. Is vitamin D deficiency a risk factor for COVID-19 in children? Pediatr Pulmonol. 2020 Dec;55(12):3595-3601. https://doi.org/10.1002/ppul.25106. Epub 2020 Oct 13. PMID: 33017102

DERMATOLOGIA

- Abouodah H, Douglas LM, Ho BV, et al. Vitamin K2 Awareness in Sun-Protected Patients Supplementing With Vitamin D. J Drugs Dermatol. 2021 Feb 1;20(2):228-229. https://doi.org/10.36849/JDD.2021.5829. PMID: 33538554
- Atazadeh F, Fazeli Z, Vahidnezhad H, et al. Increased level of cathelicidin (LL-37) in vitiligo: Possible pathway independent from vitamin D receptor gene polymorphism. Exp Dermatol. 2020 Dec;29(12):1176-1185. https://doi.org/10.1111/exd.14200. Epub 2020 Nov 18. PMID: 32997837
- El Hadidi HH, Sobhi RM, Nada AM, et al. Does vitamin D deficiency predispose to keloids via dysregulation of koebnerisin (S100A15)? A case-control study. Wound Repair Regen. 2021 Jan 21. https://doi.org/10.1111/wrr.12894. Online ahead of print. PMID: 33476473
- El-Hanafy GM, El-Komy MHM, Nashaat MA, et al. The impact of methotrexate therapy with vitamin D supplementation on the cardiovascular risk factors among patients with psoriasis; a prospective randomized comparative study. J Dermatolog Treat. 2021 Jan 25:1-12. https://doi.org/10.1080/09546634.2021.1871581. Online ahead of print. PMID: 33390056
- Fu H, Tang Z, Wang Y, et al. Relationship Between Vitamin D Level and Mortality in Adults With Psoriasis: A Retrospective Cohort Study of NHANES Data. Clin Ther. 2020 Dec 24:S0149-2918(20)30544-0. https://doi.org/10.1016/j.clinthera.2020.11.016. Online ahead of print. PMID: 33358542
- Herrmann N, Nümm TJ, Iwamoto K, et al. Vitamin D(3)-Induced Promotor Dissociation of PU.1 and YY1 Results in FcepsilonRI Reduction on Dendritic Cells in Atopic Dermatitis. J Immunol. 2021 Feb 1;206(3):531-539. https://doi.org/10.4049/jimmunol.2000667. Epub 2020 Dec 21. PMID: 33443066
- Huang YH, Yang TH, Huang PC, et al. Low Vitamin D Levels in Breast Milk May Be a Risk Factor for Atopic Dermatitis Flare-up During Infancy. Dermatitis. 2020 Dec 15;Publish Ahead of Print. https://doi.org/10.1097/DER.0000000000000695. Online ahead of print. PMID: 33332866
- Liu J, Wang W, Liu K, et al. Vitamin D receptor gene polymorphisms are associated with psoriasis susceptibility and the clinical response to calcipotriol in psoriatic patients. Exp Dermatol. 2020 Dec;29(12):1186-1190. https://doi.org/10.1111/exd.14202. PMID: 32997398
- Mansour NO, Mohamed AA, Hussein M, et al. The impact of vitamin D supplementation as an adjuvant therapy on clinical outcomes in patients with severe atopic dermatitis: A randomized controlled trial. Pharmacol

Res Perspect. 2020 Dec;8(6):e00679. https://doi.org/10.1002/prp2.679. PMID: 33145984

- Seetan K, Al-Zubi M. Vitamin D level and tinea capitis, is there an association? J Mycol Med. 2021 Jan 11;31(2):101112. https://doi.org/10.1016/j.mycmed.2021.101112. Online ahead of print. PMID: 33476988
- Stanescu AMA, Simionescu AA, Diaconu CC. Oral Vitamin D Therapy in Patients with Psoriasis. Nutrients. 2021 Jan 6;13(1):163. https://doi.org/10.3390/nu13010163. PMID: 33419149 Free PMC article. Review.
- Theodoridis X, Grammatikopoulou MG, Stamouli EM, et al. Effectiveness of oral vitamin D supplementation in lessening disease severity among patients with psoriasis: A systematic review and meta-analysis of randomized controlled trials. Nutrition. 2021 Feb;82:111024. https://doi.org/10.1016/j.nut.2020.111024. Epub 2020 Sep 18. PMID: 33183899 Review.
- Vornicescu C, Ungureanu L, Şenilă SC, et al. Assessment of sun-related behavior and serum vitamin D in basal cell carcinoma: Preliminary results. Exp Ther Med. 2020 Dec;20(6):187. https://doi.org/10.3892/etm.2020.9317. Epub 2020 Oct 13. PMID: 33101477
- Wong CT, Oh DH. Vitamin D receptor promotes global nucleotide excision repair by facilitating XPC dissociation from damaged DNA. J Invest Dermatol. 2021 Jan 29:S0022-202X(21)00018-X. https://doi.org/10.1016/j.jid.2020.11.033. Online ahead of print. PMID: 33524369
- Yang SI, Lee SH, Lee SY, et al. Prenatal PM(2.5) exposure and vitamin D-associated early persistent atopic dermatitis via placental methylation. Ann Allergy Asthma Immunol. 2020 Dec;125(6):665-673.e1. https://doi.org/10.1016/j.anai.2020.09.008. Epub 2020 Sep 21. PMID: 32971247

EPIDEMIOLOGIA

- Ali AA, Mukhtar MM, Shaheen S, et al. Assessment of plasma BMP-2, BMP-7, BMP-10, vitamin D, and TGF beta1 in simple fractures among Sudanese patients. PLoS One. 2021 Feb 19;16(2):e0247472. https://doi.org/10.1371/journal.pone.0247472. eCollection 2021. PMID: 33606840
- Avenell A, Bolland MJ, Grey A. Population vitamin D supplementation in UK adults: too much of nothing? Drug Ther Bull. 2021 Jan;59(1):7-12. https://doi.org/10.1136/dtb.2020.000060. Epub 2020 Nov 18. PMID: 33208390 Review.
- Batai K, Cui Z, Arora A, et al. Genetic loci associated with skin pigmentation in African Americans and their effects on vitamin D deficiency. PLoS Genet. 2021 Feb 18;17(2):e1009319. https://doi.org/10.1371/journal.pgen.1009319. eCollection 2021 Feb. PMID: 33600456
- Cheong WF, Ji S, Cazenave-Gassiot A, et al. Predictors of circulating vitamin D levels in healthy mid-life Singaporean women. Arch Osteoporos. 2021 Feb 9;16(1):26. https://doi.org/10.1007/s11657-021-00880-2. PMID: 33559771
- Denos M, Mai XM, Åsvold BO, et al. Vitamin D status and risk of type 2 diabetes in the Norwegian HUNT cohort study: does family history or genetic predisposition modify the association? BMJ Open Diabetes Res Care. 2021 Jan;9(1):e001948. https://doi.org/10.1136/bmjdrc-2020-001948. PMID: 33402338
- Ebaditabar M, Babaei N, Davarzani S, et al. Lack of a relationship between vitamin D status and resting metabolic rate in Iranian adults. Am J Hum Biol. 2020 Dec 4. https://doi.org/10.1002/ajhb.23543. Online ahead of print. PMID: 33274831
- Göktaş O, Ersoy C, Ercan I, et al. Vitamin D status in the adult population of Bursa-Turkey. Eur J Gen Pract. 2020 Dec;26(1):156-162. https://doi.org/10.1080/13814788.2020.1846712. PMID: 33292015
- Karacan M, Usta A, Biçer S, et al. Serum vitamin D levels in healthy urban population at reproductive age: effects of age, gender and season. Cent Eur J Public Health. 2020 Dec;28(4):306-312. https://doi.org/10.21101/cejph.a5947. PMID: 33338368
- Li L, Li K, Li J, et al. Ethnic, geographic, and seasonal differences of vitamin D status among adults in south-west China. J Clin Lab Anal. 2020 Dec;34(12):e23532. https://doi.org/10.1002/jcla.23532. Epub 2020 Aug 26. PMID: 32851701
- Lin LY, Smeeth L, Langan S, et al. Distribution of vitamin D status in the UK: a cross-sectional analysis of UK Biobank. BMJ Open. 2021 Jan 6;11(1):e038503. https://doi.org/10.1136/bmjopen-2020-038503. PMID: 33408196
- Mekonnen W, Feleke Y, Desalegn Y, et al. Knowledge, attitude and practice of health care workers on measuring adult vitamin D level, diagnosis of deficiency, and management of consequent health conditions in three ecologies of Ethiopia: a cross-sectional study. BMC Nutr. 2020 Dec 21;6(1):77. https://doi.org/10.1186/s40795-020-00404-0. PMID: 33342438
- Missaggia BO, Reales G, Cybis GB, et al. Adaptation and co-adaptation of skin pigmentation and vitamin D genes in native Americans. Am J Med Genet C Semin Med Genet. 2020 Dec;184(4):1060-1077. https://doi.org/10.1002/ajmg.c.31873. Epub 2020 Dec 15. PMID: 33325159
- Nandyala S, Mohamed A, Bhargava A, et al. Vitamin D deficiency in healthcare professionals across the network of an eye care organization in India. Indian J Ophthalmol. 2021 Feb;69(2):455-456. https://doi.org/10.4103/ijo.IJO_2371_20. PMID: 33463612
- Naureen G, Sanders KM, Busija L, et al. Prediction models and questionnaires developed to predict vitamin D status in adults: a systematic review. Osteoporos Int. 2020 Dec;31(12):2287-2302. https://doi.org/10.1007/s00198-020-05539-1. Epub 2020 Jul 13. PMID: 32662035 Review.
- Park HY, Lim YH, Park JB, et al. Environmental and Occupation Factors Associated with Vitamin D Deficiency in Korean Adults: The Korea National Health and Nutrition Examination Survey (KNHANES) 2010-2014. Int J Environ Res Public Health. 2020 Dec 8;17(24):9166. https://doi.org/10.3390/ijerph17249166. PMID: 33302471
- Rittenhouse M, Scott J, Deuster P. Healthy Eating Index and Nutrition Biomarkers among Army Soldiers and Civilian Control Group Indicate an Intervention Is Necessary to Raise Omega-3 Index and Vitamin D and Improve Diet Quality. Nutrients. 2020 Dec 31;13(1):122. https://doi.org/10.3390/nu13010122. PMID: 33396252
- Rodopaios NE, Petridou A, Mougios V, et al. Vitamin D status, vitamin D intake, and sunlight exposure in adults adhering or not to periodic religious fasting for decades.

Int J Food Sci Nutr. 2021 Feb 17:1-8. https://doi.org/10.1080/09637486.2021.1887821. Online ahead of print. PMID: 33595398

- Torres-Gonzalez M, Cifelli CJ, Agarwal S, et al. Association of Milk Consumption and Vitamin D Status in the US Population by Ethnicity: NHANES 2001-2010 Analysis. Nutrients. 2020 Dec 2;12(12):3720. https://doi.org/10.3390/nu12123720. PMID: 33276516

- Vickaryous N, Jitlal M, Jacobs BM, et al. Remote testing of vitamin D levels across the UK MS population-A case control study. PLoS One. 2020 Dec 30;15(12):e0241459. https://doi.org/10.1371/journal.pone.0241459. eCollection 2020. PMID: 33378408

- Wojcicki AV, George PE, Palzer EF, et al. Vitamin D Deficiency in a Minnesota-Based Foster Care Population: A Cross Sectional Study. Child Youth Serv Rev. 2020 Dec;119:105611. https://doi.org/10.1016/j.childyouth.2020.105611. Epub 2020 Oct 15. PMID: 33162630

- Ye Y, Yang H, Wang Y, et al. A comprehensive genetic and epidemiological association analysis of vitamin D with common diseases/traits in the UK Biobank. Genet Epidemiol. 2021 Feb;45(1):24-35. https://doi.org/10.1002/gepi.22357. Epub 2020 Sep 12. PMID: 32918767

- Zhu XL, Chen ZH, Li Y, et al. Associations of vitamin D with novel and traditional anthropometric indices according to age and sex: a cross-sectional study in central southern China. Eat Weight Disord. 2020 Dec;25(6):1651-1661. https://doi.org/10.1007/s40519-019-00803-8. Epub 2019 Nov 14. PMID: 31728924

EMATOLOGIA

- Apple CG, Miller ES, Kannan KB, et al. Vitamin D status is associated with hepcidin and hemoglobin concentrations in patients with severe traumatic injury. J Trauma Acute Care Surg. 2020 Dec;89(6):1124-1130. https://doi.org/10.1097/TA.0000000000002895. PMID: 32769953

- Darvishi-Khezri H, Karami H, Naderisorki M, et al. Moderate to severe liver siderosis and raised AST are independent risk factors for vitamin D insufficiency in beta-thalassemia patients. Sci Rep. 2020 Dec 3;10(1):21164. https://doi.org/10.1038/s41598-020-78230-4. PMID: 33273639

- Gahr K, Sommers N, Bostrom B. Bone Mineral Metabolism During Chemotherapy in Childhood Acute Lymphoblastic Leukemia: Unexpected Vitamin D Deficiency From Induction Corticosteroids in Acute Lymphoblastic Leukemia. J Pediatr Hematol Oncol. 2020 Dec 7. https://doi.org/10.1097/MPH.0000000000002028. Online ahead of print. PMID: 33290292

- Gerousi M, Psomopoulos F, Kotta K, et al. The Calcitriol/Vitamin D Receptor System Regulates Key Immune Signaling Pathways in Chronic Lymphocytic Leukemia. Cancers (Basel). 2021 Jan 14;13(2):285. https://doi.org/10.3390/cancers13020285. PMID: 33466695

- Graklanov V, Popov V, Raycheva R. Serum Levels of Vitamin D in Patients with Multiple Myeloma. Folia Med (Plovdiv). 2020 Dec 31;62(4):730-735. https://doi.org/10.3897/folmed.62.e50321. PMID: 33415920

- Grégoire-Pelchat P, Pastore Y, Robitaille N, et al. Comparison of two vitamin D supplementation strategies in children with sickle cell disease: a randomized controlled trial. Br J Haematol. 2021 Jan;192(2):385-394. https://doi.org/10.1111/bjh.17119. Epub 2020 Nov 10. PMID: 33169863

- Mao J, Yin H, Wang L, et al. Prognostic value of 25-hydroxy vitamin D in extranodal NK/T cell lymphoma. Ann Hematol. 2021 Feb;100(2):445-453. https://doi.org/10.1007/s00277-020-04320-y. Epub 2020 Nov 2. PMID: 33140135 Clinical Trial.

- Mashhadi MA, Arbabi N, Sepehri Rad N, et al. Association between common variants in vitamin D receptor gene and susceptibility to Non-Hodgkin's lymphoma: a case-control study. Nucleosides Nucleotides Nucleic Acids. 2021;40(3):288-299. https://doi.org/10.1080/15257770.2020.1871488. Epub 2021 Jan 15. PMID: 33446057

- Olmuşçelik O, Sevindik ÖG. Correlation between serum vitamin D level and dichotomous distribution of hematological parameters in a cohort of 12709 patients. Turk J Med Sci. 2020 Dec 17;50(8):1941-1950. https://doi.org/10.3906/sag-2008-124. PMID: 33172224

- Shaheen IA, Aboukhalil R, Abulata N, et al. Vitamin D Insufficiency is Not Associated With Pediatric and Adolescent Immune Thrombocytopenia: A Study in Conjunction With its Receptor Genetic Polymorphisms. J Pediatr Hematol Oncol. 2021 Jan;43(1):e1-e6. https://doi.org/10.1097/MPH.0000000000001801. PMID: 32287103

- Xu Y, Payne K, Pham LHG, et al. A novel vitamin D gene therapy for acute myeloid leukemia. Transl Oncol. 2020 Dec;13(12):100869. https://doi.org/10.1016/j.tranon.2020.100869. Epub 2020 Sep 18. PMID: 32956997

ENDOCRINOLOGIA

- Ahmed LHM, Butler AE, Dargham SR, et al. Relationship between total vitamin D metabolites and complications in patients with type 2 diabetes. Biomed Rep. 2021 Jan;14(1):18. https://doi.org/10.3892/br.2020.1394. Epub 2020 Nov 23. PMID: 33365128

- Alam U, Petropoulos IN, Ponirakis G, et al. Vitamin D deficiency is associated with painful diabetic neuropathy. Diabetes Metab Res Rev. 2021 Jan;37(1):e3361. https://doi.org/10.1002/dmrr.3361. Epub 2020 Jul 9. PMID: 32506740

- Ali AA, Cui X, Pertile RAN, et al. Developmental vitamin D deficiency increases foetal exposure to testosterone. Mol Autism. 2020 Dec 10;11(1):96. https://doi.org/10.1186/s13229-020-00399-2. PMID: 33298169

- Amiri M, Raeisi-Dehkordi H, Vorland CJ, et al. Double-counting of effect sizes and inappropriate exclusion of studies in "The influence of vitamin D supplementation on IGF-1 levels in humans: A systematic review and meta-analysis". Ageing Res Rev. 2021 Mar;66:101236. https://doi.org/10.1016/j.arr.2020.101236. Epub 2020 Dec 15. PMID: 33338606

- Arnanz A, De Munck N, El Khatib I, et al. Vitamin D in Follicular Fluid Correlates With the Euploid Status of Blastocysts in a Vitamin D Deficient Population. Front Endocrinol (Lausanne). 2021 Jan 25;11:609524. https://doi.org/10.3389/fendo.2020.609524. eCollection 2020. PMID: 33584542

- Bellastella G, Scappaticcio L, Longo M, et al. New insights into vitamin D regulation: is there a role for alkaline phosphatase? J Endocrinol Invest. 2021 Jan 25. https://doi.

org/10.1007/s40618-021-01503-w. Online ahead of print. PMID: 33492600

- Câmara AB, Brandão IA. The relationship between vitamin D deficiency and oxidative stress can be independent of age and gender. Int J Vitam Nutr Res. 2021 Jan;91(1-2):108-123. https://doi.org/10.1024/0300-9831/a000614. Epub 2019 Nov 12. PMID: 31711376

- Canguven O, Al Malki AH. Vitamin D and Male Erectile Function: An Updated Review. World J Mens Health. 2021 Jan;39(1):31-37. https://doi.org/10.5534/wjmh.190151. Epub 2020 Jan 16. PMID: 32009309

- Chou SH, Murata EM, Yu C, et al. Effects of Vitamin D3 Supplementation on Body Composition in the VITamin D and OmegA-3 TriaL (VITAL). J Clin Endocrinol Metab. 2021 Jan 28:dgaa981. https://doi.org/10.1210/clinem/dgaa981. Online ahead of print. PMID: 33513226

- Ciccone IM, Costa EM, Pariz JR, et al. Serum vitamin D content is associated with semen parameters and serum testosterone levels in men. Asian J Androl. 2021 Jan-Feb;23(1):52-58. https://doi.org/10.4103/aja.aja_9_20. PMID: 32341213

- Cristelo C, Machado A, Sarmento B, et al. The roles of vitamin D and cathelicidin in type 1 diabetes susceptibility. Endocr Connect. 2021 Jan;10(1):R1-R12. https://doi.org/10.1530/EC-20-0484. PMID: 33263562

- Dalan R. Letter to the Editor from Dalan: "Vitamin D Supplementation for Prevention of Type 2 Diabetes Mellitus: To D or Not to D?". J Clin Endocrinol Metab. 2021 Jan 12:dgaa967. https://doi.org/10.1210/clinem/dgaa967. Online ahead of print. PMID: 33432973

- Dawson-Hughes B, Staten MA, Knowler WC, et al. Intratrial Exposure to Vitamin D and New-Onset Diabetes Among Adults With Prediabetes: A Secondary Analysis From the Vitamin D and Type 2 Diabetes (D2d) Study. Diabetes Care. 2020 Dec;43(12):2916-2922. https://doi.org/10.2337/dc20-1765. Epub 2020 Oct 5. PMID: 33020052

- de Melo FTC, Felício KM, de Queiroz NNM, et al. High-dose Vitamin D Supplementation on type 1 Diabetes Mellitus Patients: is there an Improvement in Glycemic Control? Curr Diabetes Rev. 2021 Jan 5. https://doi.org/10.2174/1573399817666210106102643. Online ahead of print. PMID: 33413064

- Ding F, Nie X, Li X, et al. Data mining: Biological and temporal factors associated with blood parathyroid hormone, vitamin D, and calcium concentrations in the Southwestern Chinese population. Clin Biochem. 2021 Feb 2:S0009-9120(21)00031-X. https://doi.org/10.1016/j.clinbiochem.2021.01.014. Online ahead of print. PMID: 33539806

- Faraji S, Alizadeh M. Mechanistic Effects of Vitamin D Supplementation on Metabolic Syndrome Components in Patients with or without Vitamin D Deficiency. J Obes Metab Syndr. 2020 Dec 30;29(4):270-280. https://doi.org/10.7570/jomes20003. PMID: 32747610

- Guo S, Tal R, Jiang H, et al. Vitamin D Supplementation Ameliorates Metabolic Dysfunction in Patients with PCOS: A SystematicReview of RCTs and Insight into the Underlying Mechanism. Int J Endocrinol. 2020 Dec 19;2020:7850816. https://doi.org/10.1155/2020/7850816. eCollection 2020. PMID: 33424968

- Hajhashemy Z, Shahdadian F, Ziaei R, et al. Serum vitamin D levels in relation to abdominal obesity: A systematic review and dose-response meta-analysis of epidemiologic studies. Obes Rev. 2021 Feb;22(2):e13134. https://doi.org/10.1111/obr.13134. Epub 2020 Sep 3. PMID: 32881271 Review.

- Ito E, Sato Y, Kobayashi T, et al. Treatment with an active vitamin D analogue blocks hypothalamic dysfunction-induced bone loss in mice. Biochem Biophys Res Commun. 2021 Jan 21;542:48-53. https://doi.org/10.1016/j.bbrc.2021.01.026. Online ahead of print. PMID: 33486191

- Jain SK, Micinski D, Parsanathan R. l-Cysteine Stimulates the Effect of Vitamin D on Inhibition of Oxidative Stress, IL-8, and MCP-1 Secretion in High Glucose Treated Monocytes. J Am Coll Nutr. 2021 Feb 17:1-6. https://doi.org/10.1080/07315724.2020.1850371. Online ahead of print. PMID: 33596158

- Kannan T, Foster Y, Ho DJ, et al. Post-Operative Permanent Hypoparathyroidism and Preoperative Vitamin D Prophylaxis. J Clin Med. 2021 Jan 24;10(3):442. https://doi.org/10.3390/jcm10030442. PMID: 33498810

- Kim DH, Klemp A, Salazar G, et al. High-dose vitamin D administration and resistance exercise training attenuate the progression of obesity and improve skeletal muscle function in obese p62-deficient mice. Nutr Res. 2020 Dec;84:14-24. https://doi.org/10.1016/j.nutres.2020.10.002. Epub 2020 Oct 13. PMID: 33199033

- Kord-Varkaneh H, Rinaldi G, Hekmatdoost A, et al. Reply to "Double-counting of effect sizes and inappropriate exclusion of studies in "The influence of vitamin D supplementation on IGF-1 levels in humans: A systematic review and meta_analysis". Ageing Res Rev. 2021 Mar;66:101239. https://doi.org/10.1016/j.arr.2020.101239. Epub 2020 Dec 17. PMID: 33346153

- Krysiak R, Kowalcze K, Okopień B. Hyperprolactinaemia attenuates the inhibitory effect of vitamin D/selenomethionine combination therapy on thyroid autoimmunity in euthyroid women with Hashimoto's thyroiditis: A pilot study. J Clin Pharm Ther. 2020 Dec;45(6):1334-1341. https://doi.org/10.1111/jcpt.13214. Epub 2020 Jul 10. PMID: 32649802

- Krysiak R, Kowalcze K, Okopień B. The impact of combination therapy with metformin and exogenous vitamin D on hypothalamic-pituitary-thyroid axis activity in women with autoimmune thyroiditis and high-normal thyrotropin levels. J Clin Pharm Ther. 2020 Dec;45(6):1382-1389. https://doi.org/10.1111/jcpt.13233. Epub 2020 Jul 24. PMID: 32706919

- Krysiak R, Szkróbka W, Okopień B. Dehydroepiandrosterone potentiates the effect of vitamin D on thyroid autoimmunity in euthyroid women with autoimmune thyroiditis: A pilot study. Clin Exp Pharmacol Physiol. 2021 Feb;48(2):195-202. https://doi.org/10.1111/1440-1681.13410. Epub 2020 Oct 16. PMID: 33007106

- Lee J, Won Woo H, Kim J, et al. Independent and interactive associations of season, dietary vitamin D, and vitamin D-related genetic variants with serum 25(OH) D in Korean adults aged 40 years or older. Endocr J. 2021 Feb 26. https://doi.org/10.1507/endocrj.EJ20-0519. Online ahead of print. PMID: 33642417

- Lee YJ, Kim GH, Park SI, et al. Vitamin D Rescues Pancreatic beta Cell Dysfunction due to Iron Overload via Elevation of the Vitamin D Receptor and Maintenance of Ca(2+) Homeostasis. Mol Nutr Food Res. 2021 Feb;65(4):e2000772. https://doi.

org/10.1002/mnfr.202000772. Epub 2021 Jan 15. PMID: 33325123

- Lim H, Lee H, Lim Y. Effect of vitamin D(3) supplementation on hepatic lipid dysregulation associated with autophagy regulatory AMPK/Akt-mTOR signaling in type 2 diabetic mice. Exp Biol Med (Maywood). 2021 Feb 4:1535370220987524. https://doi.org/10.1177/1535370220987524. Online ahead of print. PMID: 33541129
- Lima CHR, Layanne LCCL, Nogueira NDN, et al. Effects of vitamin D supplementation on the glycemic control of pre-diabetic individuals: a systematic review. Nutr Hosp. 2021 Feb 23;38(1):186-193. https://doi.org/10.20960/nh.03309. PMID: 33319569
- Limonte CP, Zelnick LR, Ruzinski J, et al. Correction to: Effects of long-term vitamin D and n-3 fatty acid supplementation on inflammatory and cardiac biomarkers in patients with type 2 diabetes: secondary analyses from a randomised controlled trial. Diabetologia. 2021 Feb;64(2):477. https://doi.org/10.1007/s00125-020-05339-6. PMID: 33301079
- Limonte CP, Zelnick LR, Ruzinski J, et al. Effects of long-term vitamin D and n-3 fatty acid supplementation on inflammatory and cardiac biomarkers in patients with type 2 diabetes: secondary analyses from a randomised controlled trial. Diabetologia. 2021 Feb;64(2):437-447. https://doi.org/10.1007/s00125-020-05300-7. Epub 2020 Oct 24. PMID: 33098434
- Lindley VM, Bhusal K, Huning L, et al. Reduced 25(OH) Vitamin D Association with Lower Alpha-1-Antitrypsin Blood Levels in Type 2 Diabetic Patients. J Am Coll Nutr. 2021 Feb;40(2):98-103. https://doi.org/10.1080/07315724.2020.1740629. Epub 2020 Apr 10. PMID: 32275481
- Lontchi-Yimagou E, Kang S, Goyal A, et al. Insulin-sensitizing effects of vitamin D repletion mediated by adipocyte vitamin D receptor: Studies in humans and mice. Mol Metab. 2020 Dec;42:101095. https://doi.org/10.1016/j.molmet.2020.101095. Epub 2020 Oct 10. PMID: 33045433
- Ludvigsson J, Routray I, Vigård T, et al. Combined Etanercept, GAD-alum and vitamin D treatment: an open pilot trial to preserve beta cell function in recent onset type 1 diabetes. Diabetes Metab Res Rev. 2021 Jan 24:e3440. https://doi.org/10.1002/dmrr.3440. Online ahead of print. PMID: 33486892
- Manousaki D, Harroud A, Mitchell RE, et al. Vitamin D levels and risk of type 1 diabetes: A Mendelian randomization study. PLoS Med. 2021 Feb 25;18(2):e1003536. https://doi.org/10.1371/journal.pmed.1003536. eCollection 2021 Feb. PMID: 33630834
- Mansour YA, Mosallam EMM, Hussein S, et al. Immunolocalization of androgen and vitamin D receptors in the epididymis of mature ram (Ovis aries). Saudi J Biol Sci. 2021 Jan;28(1):217-223. https://doi.org/10.1016/j.sjbs.2020.09.051. Epub 2020 Oct 9. PMID: 33424300
- Mat Ali MH, Tuan Ismail TS, Wan Azman WN, et al. Comparison of Vitamin D Levels, Bone Metabolic Marker Levels, and Bone Mineral Density among Patients with Thyroid Disease: A Cross-Sectional Study. Diagnostics (Basel). 2020 Dec 11;10(12):1075. https://doi.org/10.3390/diagnostics10121075. PMID: 33322284
- Mehrdad M, Vahid F, Eftekhari MH. Nutritional Quality's Key Role in the Odds of Overweight in Adults with rs9939609 Polymorphism of FTO Gene- the Role of Manganese and Vitamin D. Am J Med Sci. 2020 Dec;360(6):678-685. https://doi.org/10.1016/j.amjms.2020.06.027. Epub 2020 Jun 27. PMID: 32736831
- Miller EG, Nowson CA, Dunstan DW, et al. Effects of whey protein plus vitamin D supplementation combined with progressive resistance training on glycaemic control, body composition, muscle function and cardiometabolic risk factors in middle-aged and older overweight/obese adults with type 2 diabetes: A 24-week randomized controlled trial. Diabetes Obes Metab. 2020 Dec 23. https://doi.org/10.1111/dom.14299. Online ahead of print. PMID: 33369020
- Nam SW, Choi J, Jeon HJ, et al. The Associations Between Vitamin D Receptor BsmI and ApaI Polymorphisms and Obesity in Korean Patients with Type 2 Diabetes Mellitus. Diabetes Metab Syndr Obes. 2021 Feb 10;14:557-564. https://doi.org/10.2147/DMSO.S293032. eCollection 2021. PMID: 33603421
- Nimitphong H, Park E, Lee MJ. Vitamin D regulation of adipogenesis and adipose tissue functions. Nutr Res Pract. 2020 Dec;14(6):553-567. https://doi.org/10.4162/nrp.2020.14.6.553. Epub 2020 Aug 5. PMID: 33282119
- Papaioannou I, Pantazidou G, Kokkalis Z, et al. Vitamin D Deficiency in Elderly With Diabetes Mellitus Type 2: A Review. Cureus. 2021 Jan 5;13(1):e12506. https://doi.org/10.7759/cureus.12506. PMID: 33564514
- Pereira M, Ribas de Farias Costa P, Miranda Pereira E, et al. Does vitamin D deficiency increase the risk of obesity in adults and the elderly? A systematic review of prospective cohort studies. Public Health. 2021 Jan;190:123-131. https://doi.org/10.1016/j.puhe.2020.04.031. Epub 2021 Jan 13. PMID: 33453688
- Pittas AG, Jorde R, Kawahara T, et al. Response Letter to the Editor from Dalan (Vitamin D Supplementation for Prevention of Type 2 Diabetes Mellitus: To D or Not to D? J Clin Endocrinol Metab. 2020 Dec 30:dgaa971. https://doi.org/10.1210/clinem/dgaa971. Online ahead of print. PMID: 33377909
- Pittas AG, Jorde R, Kawahara T, et al. Vitamin D Supplementation for Prevention of Type 2 Diabetes Mellitus: To D or Not to D? J Clin Endocrinol Metab. 2020 Dec 1;105(12):3721-33. https://doi.org/10.1210/clinem/dgaa594. PMID: 32844212
- Povaliaeva A, Pigarova E, Zhukov A, et al. Evaluation of Vitamin D Metabolism in Patients with Type 1 Diabetes Mellitus in the Setting of Cholecalciferol Treatment. Nutrients. 2020 Dec 18;12(12):3873. https://doi.org/10.3390/nu12123873. PMID: 33352890
- Pramono A, Jocken JWE, Adriaens ME, et al. The association between vitamin D receptor polymorphisms and tissue-specific insulin resistance in human obesity. Int J Obes (Lond). 2021 Jan 20. https://doi.org/10.1038/s41366-021-00744-2. Online ahead of print. PMID: 33473175
- Said J, Lagat D, Kimaina A, et al. Beta cell function, insulin resistance and vitamin D status among type 2 diabetes patients in Western Kenya. Oduor C. Sci Rep. 2021 Feb 18;11(1):4084. https://doi.org/10.1038/s41598-021-83302-0. PMID: 33602978
- Salle L, Mas R, Teissier-Clément MP. Resistance to calcium-vitamin D supplementation in pseudohypoparathyroidism: Think

of malabsorption. Ann Endocrinol (Paris). 2020 Dec;81(6):572-573. https://doi.org/10.1016/j.ando.2020.08.001. Epub 2020 Oct 29. PMID: 33130042

- Sharma K, Zajc I, Žiberna L. Dietary vitamin D equilibrium in serum ameliorates direct bilirubin associated diabetes mellitus. Chem Biol Interact. 2021 Mar 1;337:109399. https://doi.org/10.1016/j.cbi.2021.109399. Epub 2021 Jan 24. PMID: 33503443 Review.
- Soares CSP, Tagliarini JV, Mazeto GMFS. Preoperative vitamin D level as a post-total thyroidectomy hypocalcemia predictor: a prospective study. Braz J Otorhinolaryngol. 2021 Jan-Feb;87(1):85-89. https://doi.org/10.1016/j.bjorl.2019.07.001. Epub 2019 Aug 6. PMID: 31492617
- Song A, Zhao H, Yang Y, et al. Safety and efficacy of common vitamin D supplementation in primary hyperparathyroidism and coexistent vitamin D deficiency and insufficiency: a systematic review and meta-analysis. J Endocrinol Invest. 2021 Jan 16. https://doi.org/10.1007/s40618-020-01473-5. Online ahead of print. PMID: 33453021
- Tabatabaeizadeh SA, Tafazoli N. The role of vitamin D in prevention of type 2 diabetes. A meta-analysis. Clin Nutr ESPEN. 2021 Feb;41:88-93. https://doi.org/10.1016/j.clnesp.2020.11.005. Epub 2020 Nov 30. PMID: 33487311
- Tsitsou S, Dimosthenopoulos C, Eleftheriadou I, et al. Evaluation of Vitamin D Levels in Patients With Diabetic Foot Ulcers. Int J Low Extrem Wounds. 2021 Jan 3:1534734620984584. https://doi.org/10.1177/1534734620984584. Online ahead of print. PMID: 33390083
- Vaitsi KD, Anagnostis P, Veneti S, et al. Pre-operative vitamin D deficiency is a risk factor for post-thyroidectomy hypoparathyroidism: a systematic review and meta-analysis of observational studies. J Clin Endocrinol Metab. 2021 Jan 23:dgab039. https://doi.org/10.1210/clinem/dgab039. Online ahead of print. PMID: 33484571
- Vázquez-Lorente H, Molina-López J, Herrera-Quintana L, et al. Effectiveness of eight-week zinc supplementation on vitamin D(3) status and leptin levels in a population of postmenopausal women: a double-blind randomized trial. J Trace Elem Med Biol. 2021 Feb 12;65:126730. https://doi.org/10.1016/j.jtemb.2021.126730. Online ahead of print. PMID: 33607357
- Wang B, Wan H, Cheng J, et al. Blood lead, vitamin D status, and albuminuria in patients with type 2 diabetes. Environ Pollut. 2021 Feb 5;276:116653. https://doi.org/10.1016/j.envpol.2021.116653. Online ahead of print. PMID: 33607353
- Wang L, Liu X, Hou J, et al. Serum Vitamin D Affected Type 2 Diabetes though Altering Lipid Profile and Modified the Effects of Testosterone on Diabetes Status. Nutrients. 2020 Dec 30;13(1):90. https://doi.org/10.3390/nu13010090. PMID: 33396618
- Wang SY, Shen TT, Xi BL, et al. Vitamin D affects the neutrophil-to-lymphocyte ratio in patients with type 2 diabetes mellitus. J Diabetes Investig. 2021 Feb;12(2):254-265. https://doi.org/10.1111/jdi.13338. Epub 2020 Aug 2. PMID: 32593190
- Xu Y, Zhou Y, Liu J, et al. Genetically increased circulating 25(OH)D level reduces the risk of type 2 diabetes in subjects with deficiency of vitamin D: A large-scale Mendelian randomization study. Medicine (Baltimore). 2020 Dec 18;99(51):e23672. https://doi.org/10.1097/MD.0000000000023672. PMID: 33371106
- Zakaria WNA, Mohd Yunus N, Yaacob NM, et al. Association between Vitamin D Receptor Polymorphisms (BsmI and FokI) and Glycemic Control among Patients with Type 2 Diabetes. Int J Environ Res Public Health. 2021 Feb 8;18(4):1595. https://doi.org/10.3390/ijerph18041595. PMID: 33567588
- Zhao WJ, Xia XY, Yin J. Relationship of serum vitamin D levels with diabetic microvascular complications in patients with type 2 diabetes mellitus. Chin Med J (Engl). 2021 Feb 3. https://doi.org/10.1097/CM9.0000000000001364. Online ahead of print. PMID: 33538508
- Zhuang Z, Yu C, Guo Y, et al. Metabolic signatures of genetically elevated vitamin D among Chinese: observational and Mendelian randomization study. J Clin Endocrinol Metab. 2021 Feb 17:dgab097. https://doi.org/10.1210/clinem/dgab097. Online ahead of print. PMID: 33596318

GASTROENTEROLOGIA

- Afifi MAE, Hussein AM, Rizk M. Low Serum 25-Hydroxy Vitamin D (25-OHD) and Hepatic Encephalopathy in HCV-Related Liver Cirrhosis. Int J Hepatol. 2021 Feb 12;2021:6669527. https://doi.org/10.1155/2021/6669527. eCollection 2021. PMID: 33628512
- Battistini C, Ballan R, Herkenhoff ME, et al. Vitamin D Modulates Intestinal Microbiota in Inflammatory Bowel Diseases. Int J Mol Sci. 2020 Dec 31;22(1):362. https://doi.org/10.3390/ijms22010362. PMID: 33396382
- Borges-Canha M, Neves JS, Mendonça F, et al. The Impact of Vitamin D in Non-Alcoholic Fatty Liver Disease: A Cross-Sectional Study in Patients with Morbid Obesity. Diabetes Metab Syndr Obes. 2021 Feb 3;14:487-495. https://doi.org/10.2147/DMSO.S286334. eCollection 2021. PMID: 33568925
- Caballero Mateos AM, Olmedo-Martín RV, Roa-Colomo A, et al. Vitamin D and inflammatory bowel disease: what do we know so far? Rev Esp Enferm Dig. 2020 Dec;112(12):935-940. https://doi.org/10.17235/reed.2020.7061/2020. PMID: 33054287
- Chen D, Li Y, Sun H, et al. [Correlation between Vitamin D Status and Gut Microbiota in Patients with Inflammatory Bowel Disease]. Zhongguo Yi Xue Ke Xue Yuan Xue Bao. 2020 Dec 30;42(6):740-748. https://doi.org/10.3881/j.issn.1000-503X.12105. PMID: 33423720
- Chen HW, Chiu YL, Hsieh TY, et al. Relationships Between Vitamin D Status and Cytokine: Results from Interferon-Based Therapy in Non-Cirrhotic, Treatment-Naive Patients with Chronic Hepatitis C Infection. J Inflamm Res. 2020 Dec 29;13:1207-1218. https://doi.org/10.2147/JIR.S283768. eCollection 2020. PMID: 33402842
- Gonzalez-Sanchez E, El Mourabit H, Jager M, et al. Cholangiopathy aggravation is caused by VDR ablation and alleviated by VDR-independent vitamin D signaling in ABCB4 knockout mice. Biochim Biophys Acta Mol Basis Dis. 2021 Apr 1;1867(4):166067. https://doi.org/10.1016/j.bbadis.2020.166067. Epub 2021 Jan 6. PMID: 33418034
- Hakan A, Ramazon K, Nese I. P018 Vitamin D and Related Parameters: A Prospective IBD Patient Cohort with Active vs Remission State and a Healthy Control Group. Am J Gastroenterol. 2020 Dec 1;115(Sup-

pl 1):S5. https://doi.org/10.14309/01.ajg.0000722868.03168.cf. PMID: 33566492

- Ham NS, Hwang SW, Oh EH, et al. Influence of Severe Vitamin D Deficiency on the Clinical Course of Inflammatory Bowel Disease. Dig Dis Sci. 2021 Feb;66(2):587-596. https://doi.org/10.1007/s10620-020-06207-4. Epub 2020 Mar 26. PMID: 32219610

- Jiang S, Zhu Q, Mai M, et al. Vitamin B and vitamin D as modulators of gut microbiota in overweight individuals. Int J Food Sci Nutr. 2020 Dec;71(8):1001-1009. https://doi.org/10.1080/09637486.2020.1748580. Epub 2020 Apr 14. PMID: 32283946

- Jung JH, Park SH. Correlation between Fecal Calprotectin Levels in Meconium and Vitamin D Levels in Cord Blood: Association with Intestinal Distress. J Clin Med. 2020 Dec 18;9(12):4089. https://doi.org/10.3390/jcm9124089. PMID: 33352905

- Kim KB, Kim HW, Lee JS, et al. [Inflammatory Bowel Disease and Vitamin D]. Korean J Gastroenterol. 2020 Dec 25;76(6):275-281. https://doi.org/10.4166/kjg.2020.160. PMID: 33361704

- Lee PC, Hsieh YC, Huo TI, et al. Active Vitamin D(3) Treatment Attenuated Bacterial Translocation via Improving Intestinal Barriers in Cirrhotic Rats. Mol Nutr Food Res. 2021 Feb;65(3):e2000937. https://doi.org/10.1002/mnfr.202000937. Epub 2020 Dec 10. PMID: 33258263

- Li C, Zhang R, Ma C, et al. Food-Grade Titanium Dioxide Particles Decreased the Bioaccessibility of Vitamin D(3) in the Simulated Human Gastrointestinal Tract. J Agric Food Chem. 2021 Feb 24. https://doi.org/10.1021/acs.jafc.0c06644. Online ahead of print. PMID: 33625220

- Lu W, Li X, Liu N, et al. Vitamin D alleviates liver fibrosis by inhibiting histidine-rich calcium binding protein (HRC). Chem Biol Interact. 2021 Jan 25;334:109355. https://doi.org/10.1016/j.cbi.2020.109355. Epub 2020 Dec 11. PMID: 33309619

- Männistö V, Jääskeläinen T, Färkkilä M, et al. Low serum vitamin D level associated with incident advanced liver disease in the general population - a prospective study. Scand J Gastroenterol. 2021 Mar;56(3):299-303. https://doi.org/10.1080/00365521.2021.1873412. Epub 2021 Jan 21. PMID: 33478287

- Omar I, Sam MA, Pegler ME, et al. Effect of One Anastomosis Gastric Bypass on Haematinics, Vitamin D and Parathyroid Hormone Levels: a Comparison Between 150 and 200 cm Bilio-Pancreatic Limbs. Obes Surg. 2021 Feb 17. https://doi.org/10.1007/s11695-021-05281-5. Online ahead of print. PMID: 33594592

- Park YE, Park SJ, Park JJ, et al. Incidence and risk factors of micronutrient deficiency in patients with IBD and intestinal Behcet's disease: folate, vitamin B12, 25-OH-vitamin D, and ferritin. BMC Gastroenterol. 2021 Jan 21;21(1):32. https://doi.org/10.1186/s12876-021-01609-8. PMID: 33478396

- Raoof M, Näslund I, Rask E, et al. Bone Mineral Density, Parathyroid Hormone, and Vitamin D After Gastric Bypass Surgery: a 10-Year Longitudinal Follow-Up. Obes Surg. 2020 Dec;30(12):4995-5000. https://doi.org/10.1007/s11695-020-04912-7. Epub 2020 Aug 28. PMID: 32860128

- Ratajczak AE, Rychter AM, Zawada A, et al. Do Only Calcium and Vitamin D Matter? Micronutrients in the Diet of Inflammatory Bowel Diseases Patients and the Risk of Osteoporosis. Nutrients. 2021 Feb 5;13(2):525. https://doi.org/10.3390/nu13020525. PMID: 33562891

- Rodrigues B, Cordeiro A, Cruz S, et al. Vertical Sleeve Gastrectomy Has Better Weight Evolution and Serum Concentrations of Vitamin D when Compared with Roux-Y Gastric Bypass. Obes Surg. 2020 Dec;30(12):4794-4801. https://doi.org/10.1007/s11695-020-04815-7. Epub 2020 Jul 2. PMID: 32617917

- Santos CA, Nunes G, Barata AT, et al. Vitamin D in dysphagic patients who have undergone endoscopic gastrostomy for long-term enteral feeding. Gastroenterol Hepatol. 2021 Jan;44(1):13-19. https://doi.org/10.1016/j.gastrohep.2020.05.016. Epub 2020 Oct 22. PMID: 33268156 English, Spanish.

- Shatla MM, Faisal AS, El-Readi MZ. Is Vitamin D Deficiency a Risk Factor for Helicobacter Pylori Eradication Failure? Clin Lab. 2021 Feb 1;67(2). https://doi.org/10.7754/Clin.Lab.2020.200118. PMID: 33616339

- 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 Dec 10;10(1):21641. https://doi.org/10.1038/s41598-020-77806-4. PMID: 33303854

- Song M, Lee IM, Manson JE, et al. No Association Between Vitamin D Supplementation and Risk of Colorectal Adenomas or Serrated Polyps in a Randomized Trial. Clin Gastroenterol Hepatol. 2021 Jan;19(1):128-135.e6. https://doi.org/10.1016/j.cgh.2020.02.013. Epub 2020 Feb 13. PMID: 32062040

- Sriphoosanaphan S, Thanapirom K, Kerr SJ, et al. Effect of vitamin D supplementation in patients with chronic hepatitis C after direct-acting antiviral treatment: a randomized, double-blind, placebo-controlled trial. PeerJ. 2021 Feb 9;9:e10709. https://doi.org/10.7717/peerj.10709. eCollection 2021. PMID: 33614272

- Triantos C, Aggeletopoulou I, Thomopoulos K, et al. Vitamin D - liver disease association: Biological basis and mechanisms of action. Hepatology. 2021 Jan 6. https://doi.org/10.1002/hep.31699. Online ahead of print. PMID: 33405236 Review.

- Valvano M, Magistroni M, Mancusi A, et al. The Usefulness of Serum Vitamin D Levels in the Assessment of IBD Activity and Response to Biologics. Nutrients. 2021 Jan 22;13(2):323. https://doi.org/10.3390/nu13020323. PMID: 33499406

- Wang HQ, Zhang WH, Wang YQ, et al. Colonic vitamin D receptor expression is inversely associated with disease activity and jumonji domain-containing 3 in active ulcerative colitis. World J Gastroenterol. 2020 Dec 14;26(46):7352-7366. https://doi.org/10.3748/wjg.v26.i46.7352. PMID: 33362389

- Wei X, Li X, Du J, et al. Vitamin D Deficiency Exacerbates Colonic Inflammation Due to Activation of the Local Renin-Angiotensin System in the Colon. Dig Dis Sci. 2021 Jan 12. https://doi.org/10.1007/s10620-020-06713-5. Online ahead of print. PMID: 33433800

- Yamada A, Komaki Y, Komaki F, et al. The Correlation between Vitamin D Levels and the Risk of Postoperative Recurrence in Crohn's Disease. Digestion. 2021 Feb 8:1-9. https://doi.org/10.1159/000513589. Online ahead of print. PMID: 33556932

- Yang Y, Cui X, Li J, et al. Clinical evaluation of vitamin D status and its relationship with disease activity and changes of intestinal immune function in patients with Crohn's disease in the Chinese population. Scand J Gastroenterol. 2021 Jan;56(1):20-29. https://doi.org/10.1080/00365521.2020.1844793. Epub 2020 Nov 18. PMID: 33205696

- Zhang R, Fu Z, Fan H, et al. Genetic variant of RXR involved in the vitamin D metabolic pathway was linked to HCV infection outcomes among a high-risk Chinese population. Infect Genet Evol. 2021 Jan;87:104641. https://doi.org/10.1016/j.meegid.2020.104641. Epub 2020 Nov 24. PMID: 33246082

GINECOLOGIA OSTETRICIA

- [No authors listed] Expression of Concern: The effects of vitamin D and evening primrose oil co-supplementation on lipid profiles and biomarkers of oxidative stress in vitamin D-deficient women with polycystic ovary syndrome: A randomized, double-blind, placebo-controlled trial. Endocr Res. 2021 Feb;46(1):44. https://doi.org/10.1080/07435800.2020.1843877. Epub 2020 Nov 4. PMID: 33143484

- Abdi F, Amjadi MA, Zaheri F, et al. Role of vitamin D and calcium in the relief of primary dysmenorrhea: a systematic review. Obstet Gynecol Sci. 2021 Jan;64(1):13-26. https://doi.org/10.5468/ogs.20205. Epub 2021 Jan 7. PMID: 33406811

- Ahmed F, Khosravi-Boroujeni H, Khan MR, et al. Prevalence and Predictors of Vitamin D Deficiency and Insufficiency among Pregnant Rural Women in Bangladesh. Nutrients. 2021 Jan 29;13(2):449. https://doi.org/10.3390/nu13020449. PMID: 33572898

- Azhar A, Haider G, Naseem Z, et al. Morphological changes in the experimental model of polycystic ovary syndrome and effects of vitamin D treatment. J Obstet Gynaecol Res. 2021 Mar;47(3):1164-1171. https://doi.org/10.1111/jog.14671. Epub 2021 Jan 25. PMID: 33496002

- Brustad N, Bisgaard H, Chawes BL. Maternal High-Dose Vitamin D Supplementation and Offspring Bone Mineralization Until Age 6 Years-Reply. JAMA Pediatr. 2021 Jan 1;175(1):104. https://doi.org/10.1001/jamapediatrics.2020.2017. PMID: 32797147

- Chen HY, Zhang HP, Yang J, et al. The relationship between maternal vitamin D deficiency and glycolipid metabolism and adverse pregnancy outcome. Clin Endocrinol (Oxf). 2020 Dec;93(6):713-720. https://doi.org/10.1111/cen.14298. Epub 2020 Sep 2. PMID: 32713029

- Corachán A, Trejo MG, Carbajo-García MC, et al. Vitamin D as an effective treatment in human uterine leiomyomas independent of mediator complex subunit 12 mutation. Fertil Steril. 2021 Feb;115(2):512-521. https://doi.org/10.1016/j.fertnstert.2020.07.049. Epub 2020 Oct 7. PMID: 33036796

- Currie J, Kindinger LM, David AL. Re: Vitamin D and stress urinary incontinence in pregnancy: a cross-sectional study. BJOG. 2021 Feb;128(3):617. https://doi.org/10.1111/1471-0528.16571. Epub 2020 Nov 5. PMID: 33151619

- Delbandi AA, Torab M, Abdollahi E, et al. Vitamin D deficiency as a risk factor for endometriosis in Iranian women. J Reprod Immunol. 2021 Feb;143:103266. https://doi.org/10.1016/j.jri.2020.103266. Epub 2020 Dec 17. PMID: 33385732

- Diogenes MEL, Bezerra FF, Donangelo CM. Reduction in Bone Loss from 5 to 20 Weeks Postpartum in Adolescents Supplemented with Calcium Plus Vitamin D during Pregnancy Is Not Sustained at 1 Year Postpartum: Follow-up Study of a Randomized Controlled Trial. J Nutr. 2021 Feb 9:nxaa418. https://doi.org/10.1093/jn/nxaa418. Online ahead of print. PMID: 33561253

- Francis EC, Charron E, Li M, et al. Third trimester maternal vitamin D and early childhood socioemotional development. Paediatr Perinat Epidemiol. 2020 Dec 8. https://doi.org/10.1111/ppe.12736. Online ahead of print. PMID: 33295049

- Gao H, Li Y, Yan W, et al. The Effect of Vitamin D Supplementation on Blood Lipids in Patients with Polycystic Ovary Syndrome: A Meta-Analysis of Randomized Controlled Trials. Int J Endocrinol. 2021 Jan 30;2021:8849688. https://doi.org/10.1155/2021/8849688. eCollection 2021. PMID: 33603783

- Ghorbani Z, Shakiba M, Rezavand N, et al. Gene variants and haplotypes of Vitamin D biosynthesis, transport, and function in preeclampsia. Hypertens Pregnancy. 2021 Feb;40(1):1-8. https://doi.org/10.1080/10641955.2020.1849274. Epub 2020 Dec 11. PMID: 33305962

- Grzesiak M, Burzawa G, Kurowska P, et al. Altered vitamin D(3) metabolism in the ovary and periovarian adipose tissue of rats with letrozole-induced PCOS. Histochem Cell Biol. 2021 Jan;155(1):101-116. https://doi.org/10.1007/s00418-020-01928-z. Epub 2020 Oct 23. PMID: 33095902

- Grzesiak M, Knapczyk-Stwora K, Slomczynska M. Vitamin D(3) in ovarian antral follicles of mature gilts: Expression of its receptors and metabolic enzymes, concentration in follicular fluid and effect on steroid secretion in vitro. Theriogenology. 2021 Jan 15;160:151-160. https://doi.org/10.1016/j.theriogenology.2020.11.006. Epub 2020 Nov 16. PMID: 33221542

- Grzesiak M, Socha M, Hrabia A. Altered vitamin D metabolic system in follicular cysts of sows. Reprod Domest Anim. 2021 Jan;56(1):193-196. https://doi.org/10.1111/rda.13867. Epub 2020 Dec 3. PMID: 33217765

- Gunasegaran P, Tahmina S, Daniel M, et al. Role of vitamin D-calcium supplementation on metabolic profile and oxidative stress in gestational diabetes mellitus: A randomized controlled trial. J Obstet Gynaecol Res. 2021 Mar;47(3):1016-1022. https://doi.org/10.1111/jog.14629. Epub 2020 Dec 28. PMID: 33372392

- Gupta A, Villa A, Feldman S, et al. Site and sex-specific differences in the effect of vitamin D on human papillomavirus infections: analyses of NHANES 2009-2014. Sex Transm Infect. 2021 Feb;97(1):75-76. https://doi.org/10.1136/sextrans-2020-054466. Epub 2020 Mar 31. PMID: 32234963

- Harvey SM, Murphy VE, Gibson PG, et al. The Impact of Sample Type on Vitamin D Quantification and Clinical Classification during Pregnancy. Nutrients. 2020 Dec 18;12(12):3872. https://doi.org/10.3390/nu12123872. PMID: 33352934

- Hu KL, Gan K, Wang R, et al. Vitamin D supplementation prior to in vitro fertilisation in women with polycystic ovary syndrome: a protocol of a multicentre randomised, double-blind, placebo-controlled clinical trial. BMJ Open. 2020 Dec 8;10(12):e041409. https://doi.org/10.1136/bmjopen-2020-041409. PMID: 33293396

- Huang M, Kelly RS, Chu SH, et al. Maternal Metabolome in Pregnancy and Childhood Asthma or Recurrent Wheeze in the Vitamin D Antenatal Asthma Reduction Trial. Metabolites. 2021 Jan 23;11(2):65. https://doi.org/10.3390/metabo11020065. PMID: 33498644
- Huebner M. Vitamin D: another piece of the puzzle in pelvic floor protection. BJOG. 2020 Dec;127(13):1712. https://doi.org/10.1111/1471-0528.16398. Epub 2020 Jul 27. PMID: 32621319
- Hysaj O, Marqués-Gallego P, Richard A, et al. Parathyroid Hormone in Pregnancy: Vitamin D and Other Determinants. Nutrients. 2021 Jan 25;13(2):360. https://doi.org/10.3390/nu13020360. PMID: 33504033
- Judson I, Messiou C. Vitamin D deficiency in the pathogenesis of leiomyoma and intravascular leiomyomatosis: A case report and review of the literature. Gynecol Oncol Rep. 2020 Dec 13;35:100681. https://doi.org/10.1016/j.gore.2020.100681. eCollection 2021 Feb. PMID: 33364287
- Kabir A. Criticizing Vitamin D Level in Pregnant Women After Gastric Bypass. Obes Surg. 2021 Feb;31(2):883. https://doi.org/10.1007/s11695-020-04965-8. Epub 2020 Sep 24. PMID: 32974817
- Kalliokoski P, Widarsson M, Rodhe N, et al. Positive impact on vitamin D related lifestyle of medical advice in pregnant Somali-born women and new mothers: a mixed method study in Swedish primary care. BMC Public Health. 2021 Feb 5;21(1):297. https://doi.org/10.1186/s12889-021-10277-y. PMID: 33546641
- Knihtilä HM, Stubbs BJ, Carey VJ, et al. Low gestational vitamin D level and childhood asthma are related to impaired lung function in high-risk children. J Allergy Clin Immunol. 2021 Jan 22:S0091-6749(21)00085-3. https://doi.org/10.1016/j.jaci.2020.12.647. Online ahead of print. PMID: 33485958
- Kollmann M, Obermayer-Pietsch B, Lerchbaum E, et al. Vitamin D Concentrations at Term Do Not Differ in Newborns and Their Mothers with and without Polycystic Ovary Syndrome. J Clin Med. 2021 Feb 2;10(3):537. https://doi.org/10.3390/jcm10030537. PMID: 33540556
- Kosik K, Szpecht D, Al-Saad SR, et al. Single nucleotide vitamin D receptor polymorphisms (FokI, BsmI, ApaI, and TaqI) in the pathogenesis of prematurity complications. Sci Rep. 2020 Dec 3;10(1):21098. https://doi.org/10.1038/s41598-020-78125-4. PMID: 33273558
- Lerchbaum E, Theiler-Schwetz V, Kollmann M, et al. Effects of Vitamin D Supplementation on Surrogate Markers of Fertility in PCOS Women: A Randomized Controlled Trial. Nutrients. 2021 Feb 7;13(2):547. https://doi.org/10.3390/nu13020547. PMID: 33562394
- Li Y, Wang J, Yang J, et al. The correlation between vitamin D, glucose homeostasis and androgen level among polycystic ovary syndrome patients: a cross-sectional study. Gynecol Endocrinol. 2021 Feb 12:1-5. https://doi.org/10.1080/09513590.2020.1810228. Online ahead of print. PMID: 33576294
- Liang Y, Yu H, Ke X, et al. Vitamin D deficiency worsens maternal diabetes induced neurodevelopmental disorder by potentiating hyperglycemia-mediated epigenetic changes. Ann N Y Acad Sci. 2020 Dec 10. https://doi.org/10.1111/nyas.14535. Online ahead of print. PMID: 33305416
- Liu DY, Li RY, Fu LJ, et al. SNP rs12794714 of CYP2R1 is associated with serum vitamin D levels and recurrent spontaneous abortion (RSA): a case-control study. Arch Gynecol Obstet. 2021 Feb 24. https://doi.org/10.1007/s00404-021-06004-y. Online ahead of print. PMID: 33625596
- Liu J, Dai Q, Li W, et al. Association of vitamin D receptor gene polymorphisms with gestational diabetes mellitus-a case control study in Wuhan, China. BMC Pregnancy Childbirth. 2021 Feb 17;21(1):142. https://doi.org/10.1186/s12884-021-03621-y. PMID: 33596840
- Lopez A, Cruz ML, Chompre G, et al. Influence of Stress on the Vitamin D-Vitamin D Receptor System, Macrophages, and the Local Inflammatory Milieu in Endometriosis. Reprod Sci. 2020 Dec;27(12):2175-2186. https://doi.org/10.1007/s43032-020-00235-1. Epub 2020 Jun 24. PMID: 32583376
- Luo J, Li T, Yuan J. Effectiveness of vitamin D supplementation on lipid profile in polycystic ovary syndrome women: a meta-analysis of randomized controlled trials. Ann Palliat Med. 2021 Jan;10(1):114-129. https://doi.org/10.21037/apm-20-2492. PMID: 33545752
- Makieva S, Reschini M, Ferrari S, et al. Oral Vitamin D supplementation impacts gene expression in granulosa cells in women undergoing IVF. Hum Reprod. 2021 Jan 1;36(1):130-144. https://doi.org/10.1093/humrep/deaa262. PMID: 33305818
- Matias ML, Romao-Veiga M, Ribeiro VR, et al. Progesterone and vitamin D downregulate the activation of the NLRP1/NLRP3 inflammasomes and TLR4-MyD88-NF-kappaB pathway in monocytes from pregnant women with preeclampsia. J Reprod Immunol. 2021 Apr;144:103286. https://doi.org/10.1016/j.jri.2021.103286. Epub 2021 Feb 5. PMID: 33578174
- Mehdizadehkashi A, Rokhgireh S, Tahermanesh K, et al. The effect of vitamin D supplementation on clinical symptoms and metabolic profiles in patients with endometriosis. Gynecol Endocrinol. 2021 Jan 29:1-6. https://doi.org/10.1080/09513590.2021.1878138. Online ahead of print. PMID: 33508990
- Menichini D, Forte G, Orrù B, et al. The role of vitamin D in metabolic and reproductive disturbances of polycystic ovary syndrome: A narrative mini-review. Int J Vitam Nutr Res. 2020 Dec 7:1-8. https://doi.org/10.1024/0300-9831/a000691. Online ahead of print. PMID: 33284035
- Nandi AA, Wadhwani NS, Randhir KN, et al. Maternal vitamin D deficiency influences long-chain polyunsaturated fatty acids and pregnancy outcome in association with alterations in one-carbon metabolism. Nutr Res. 2021 Feb;86:37-49. https://doi.org/10.1016/j.nutres.2020.11.009. Epub 2020 Dec 3. PMID: 33482597
- Nema J , Sundrani D , Joshi S. Prenatal vitamin D supplementation reduces blood pressure and improves placental angiogenesis in an animal model of preeclampsia. Food Funct. 2020 Dec 1;11(12):10413-10422. https://doi.org/10.1039/d0fo01782e. Epub 2020 Nov 25. PMID: 33237074
- Pazhohan A, Danaei-Mehrabad S, Mohamad-Rezaeii Z, et al. The modulating effects of vitamin D on the activity of beta-catenin in the endometrium of women with endometriosis: a randomized exploratory trial. Gynecol Endocrinol. 2020 Dec 11:1-10. https://doi.org/10.1080/09513590.2020.1858780. Online ahead of print. PMID: 33305626

- Percival MA, Pasco JA, Hosking SM, et al. Gestational Folate and Offspring Bone Health; The Vitamin D in Pregnancy Study. Calcif Tissue Int. 2021 Jan 2. https://doi.org/10.1007/s00223-020-00795-z. Online ahead of print. PMID: 33386479
- Platonova NM, Rybakova AA, Nikankina LV, et al. [Vitamin D and pregnancy: current state of the problem in the central regions of the Russian Federation]. Probl Endokrinol (Mosk). 2020 Dec 21;66(6):81-87. https://doi.org/10.14341/probl12693. PMID: 33481371 Russian.
- Purusothaman V, Young SL. Vitamin D and uterine leiomyomata: Is it time to let the sunshine in? Fertil Steril. 2021 Feb;115(2):340-341. https://doi.org/10.1016/j.fertnstert.2020.09.151. Epub 2020 Dec 4. PMID: 33272631
- Ribamar A, Almeida B, Soares A, et al. Relationship between vitamin D deficiency and both gestational and postpartum depression. Nutr Hosp. 2020 Dec 16;37(6):1238-1245. https://doi.org/10.20960/nh.02953. PMID: 33155475
- Salakos E, Rabeony T, Courbebaisse M, et al. Relationship between vitamin D status in the first trimester of pregnancy and gestational diabetes mellitus - A nested case-control study. Clin Nutr. 2021 Jan;40(1):79-86. https://doi.org/10.1016/j.clnu.2020.04.028. Epub 2020 Apr 25. PMID: 32448701
- Sass L, Vinding RK, Stokholm J, et al. High-Dose Vitamin D Supplementation in Pregnancy and Neurodevelopment in Childhood: A Prespecified Secondary Analysis of a Randomized Clinical Trial. JAMA Netw Open. 2020 Dec 1;3(12):e2026018. https://doi.org/10.1001/jamanetworkopen.2020.26018. PMID: 33289844
- Serin SO, Pehlivan O, Isiklar A, et al. The Relationship between Vitamin D Level and Lower Urinary Tract Symptoms in Women. Sisli Etfal Hastan Tip Bul. 2020 Dec 11;54(4):405-410. https://doi.org/10.14744/SEMB.2020.01709. eCollection 2020. PMID: 33364878
- Shahid S, Ladak A, Fatima SS, et al. Association of vitamin D levels with pre-eclampsia. J Pak Med Assoc. 2020 Dec;70(12(B)):2390-2393. https://doi.org/10.47391/JPMA.414. PMID: 33475549
- Stafne SN, Mørkved S, Gustafsson MK, et al. Vitamin D and stress urinary incontinence in pregnancy: a cross-sectional study. BJOG. 2020 Dec;127(13):1704-1711. https://doi.org/10.1111/1471-0528.16340. Epub 2020 Jul 5. PMID: 32479701
- Stafne SN. Authors' reply re: Vitamin D and stress urinary incontinence in pregnancy: a cross-sectional study. BJOG. 2021 Feb;128(3):617-618. https://doi.org/10.1111/1471-0528.16572. Epub 2020 Nov 23. PMID: 33225545
- Subramanian A, Korsiak J, Murphy KE, et al. Effect of vitamin D supplementation during pregnancy on mid-to-late gestational blood pressure in a randomized controlled trial in Bangladesh. J Hypertens. 2021 Jan;39(1):135-142. https://doi.org/10.1097/HJH.0000000000002609. PMID: 32773651
- Tanna N, Alexander EC, Lee C, et al. Interventions to improve vitamin D status in at-risk ethnic groups during pregnancy and early childhood - a systematic review. Public Health Nutr. 2021 Feb 17:1-60. https://doi.org/10.1017/S1368980021000756. Online ahead of print. PMID: 33593453
- Thippeswamy HM, Devananda D, Nanditha Kumar M, et al. The association of fluoride in drinking water with serum calcium, vitamin D and parathyroid hormone in pregnant women and newborn infants. Eur J Clin Nutr. 2021 Jan;75(1):151-159. https://doi.org/10.1038/s41430-020-00707-2. Epub 2020 Aug 19. PMID: 32814853
- Tsuprykov O, Elitok S, Buse C, et al. Opposite correlation of 25-hydroxy-vitamin D- and 1,25-dihydroxy-vitamin D-metabolites with gestational age, bone- and lipid-biomarkers in pregnant women. Sci Rep. 2021 Jan 21;11(1):1923. https://doi.org/10.1038/s41598-021-81452-9. PMID: 33479299
- Van Winden KR, Bearden A, Kono N, et al. Low Bioactive Vitamin D Is Associated with Pregnancy-Induced Hypertension in a Cohort of Pregnant HIV-Infected Women Sampled Over a 23-Year Period. Am J Perinatol. 2020 Dec;37(14):1446-1454. https://doi.org/10.1055/s-0039-1694007. Epub 2019 Jul 31. PMID: 31365935
- Wagner CL, Hulsey TC, Ebeling M, et al. Safety Aspects of a Randomized Clinical Trial of Maternal and Infant Vitamin D Supplementation by Feeding Type Through 7 Months Postpartum. Breastfeed Med. 2020 Dec;15(12):765-775. https://doi.org/10.1089/bfm.2020.0056. Epub 2020 Sep 11. PMID: 32915638
- Walz NL, Hinchliffe PM, Soares MJ, et al. Serum Vitamin D status is associated with increased blastocyst development rate in women undergoing IVF. Reprod Biomed Online. 2020 Dec;41(6):1101-1111. https://doi.org/10.1016/j.rbmo.2020.08.014. Epub 2020 Aug 21. PMID: 33012659
- Wang M, Chen Z, Hu Y, et al. The effects of vitamin D supplementation on glycemic control and maternal-neonatal outcomes in women with established gestational diabetes mellitus: A systematic review and meta-analysis. Clin Nutr. 2020 Dec 21:S0261-5614(20)30691-9. https://doi.org/10.1016/j.clnu.2020.12.016. Online ahead of print. PMID: 33386179
- Wang MM, Chen ZJ, Wang Y, et al. [Effects of Vitamin D Supplementation on Serum Lipid Profiles and Neonatal Outcomes in Gestational Diabetes Mellitus:a Meta-analysis]. Zhongguo Yi Xue Ke Xue Yuan Xue Bao. 2021 Feb 28;43(1):82-91. https://doi.org/10.3881/j.issn.1000-503X.12940. PMID: 33663668 Chinese.
- Wei SQ, Bilodeau JF, Julien P, et al. Maternal vitamin D, oxidative stress, and pre-eclampsia. Int J Gynaecol Obstet. 2020 Dec 22. https://doi.org/10.1002/ijgo.13559. Online ahead of print. PMID: 33350462
- Wolski H, Kurzawińska G, Ołarowski M, et al. Vitamin D receptor gene polymorphisms and haplotypes in the etiology of recurrent miscarriages. Sci Rep. 2021 Feb 25;11(1):4646. https://doi.org/10.1038/s41598-021-84317-3. PMID: 33633340
- Wu J, Shao B, Xin X, et al. Association of vitamin D pathway gene polymorphisms with vitamin D level during pregnancy was modified by season and vitamin D supplement. Clin Nutr. 2020 Dec 29:S0261-5614(20)30704-4. https://doi.org/10.1016/j.clnu.2020.12.029. Online ahead of print. PMID: 33423808
- Xu F, Li F, Li L, et al. Vitamin D as a risk factor for the presence of asymptomatic uterine fibroids in premenopausal Han Chinese women. Fertil Steril. 2021 Feb 12:S0015-

0282(20)32717-5. https://doi.org/10.1016/j.fertnstert.2020.12.001. Online ahead of print. PMID: 33589134

- Yang K, Zhu J, Wu J, et al. Maternal Vitamin D Deficiency Increases Intestinal Permeability and Programs Wnt/beta-Catenin Pathway in BALB/C Mice. JPEN J Parenter Enteral Nutr. 2021 Jan;45(1):102-114. https://doi.org/10.1002/jpen.1820. Epub 2020 Apr 9. PMID: 32270535
- Yue CY, Gao JP, Zhang CY, et al. Is serum vitamin D deficiency before gestational 20 weeks a risk factor for preeclampsia? Clin Nutr. 2021 Jan 12:S0261-5614(21)00011-X. https://doi.org/10.1016/j.clnu.2020.12.040. Online ahead of print. PMID: 33485711
- Zhao JF, Li BX, Zhang Q. Vitamin D improves levels of hormonal, oxidative stress and inflammatory parameters in polycystic ovary syndrome: a meta-analysis study. Ann Palliat Med. 2021 Jan;10(1):169-183. https://doi.org/10.21037/apm-20-2201. PMID: 33545754
- Zhou Q, Wen S, Liu M, et al. Association between Gene Polymorphisms of Vitamin D Receptor and Gestational Diabetes Mellitus: A Systematic Review and Meta-Analysis. Int J Environ Res Public Health. 2020 Dec 29;18(1):205. https://doi.org/10.3390/ijerph18010205. PMID: 33383970

IMMUNOLOGIA

- Bianchi N, Emming S, Zecca C, et al. Vitamin D and IFN-beta Modulate the Inflammatory Gene Expression Program of Primary Human T Lymphocytes. Front Immunol. 2020 Dec 4;11:566781. https://doi.org/10.3389/fimmu.2020.566781. eCollection 2020. PMID: 33343562
- Cheng YM, Wang CC. Response to letter to the editor "The association of vitamin D with hepatitis B virus replication: Just the bystander?". J Formos Med Assoc. 2021 Feb;120(2):909-910. https://doi.org/10.1016/j.jfma.2020.08.042. Epub 2020 Sep 8. PMID: 32912667
- Crutchley RD, Jacobs DM, Gathe J, et al. Vitamin D Assessment Over 48 Weeks in Treatment-Naive HIV Individuals Starting Lopinavir/Ritonavir Monotherapy. Curr HIV Res. 2021;19(1):61-72. https://doi.org/10.2174/1570162X18666200827115615. PMID: 32860360
- Dennison CL, de Oliveira LB, Fraga LAO, et al. Mycobacterium leprae-Helminth Co-Infections and Vitamin D Deficiency as Potential Risk Factors for Leprosy: A Case-Control Study in Southeastern Brazil. Int J Infect Dis. 2021 Feb 13:S1201-9712(21)00134-X. https://doi.org/10.1016/j.ijid.2021.02.048. Online ahead of print. PMID: 33592342
- Dimitrov V, Barbier C, Ismailova A, et al. Vitamin D-regulated Gene Expression Profiles: Species-specificity and Cell-specific Effects on Metabolism and Immunity. Endocrinology. 2021 Feb 1;162(2):bqaa218. https://doi.org/10.1210/endocr/bqaa218. PMID: 33249469
- Dupuis ML, Pagano MT, Pierdominici M, et al. The role of vitamin D in autoimmune diseases: could sex make the difference? Biol Sex Differ. 2021 Jan 12;12(1):12. https://doi.org/10.1186/s13293-021-00358-3. PMID: 33436077
- Guevara MA, Lu J, Moore RE, et al. Vitamin D and Streptococci: The Interface of Nutrition, Host Immune Response, and Antimicrobial Activity in Response to Infection. ACS Infect Dis. 2020 Dec 11;6(12):3131-3140. https://doi.org/10.1021/acsinfecdis.0c00666. Epub 2020 Nov 10. PMID: 33170652
- Hanel A, Neme A, Malinen M, et al. Common and personal target genes of the micronutrient vitamin D in primary immune cells from human peripheral blood. Sci Rep. 2020 Dec 3;10(1):21051. https://doi.org/10.1038/s41598-020-78288-0. PMID: 33273683
- Kashi DS, Oliver SJ, Wentz LM, et al. Vitamin D and the hepatitis B vaccine response: a prospective cohort study and a randomized, placebo-controlled oral vitamin D(3) and simulated sunlight supplementation trial in healthy adults. Eur J Nutr. 2021 Feb;60(1):475-491. https://doi.org/10.1007/s00394-020-02261-w. Epub 2020 May 10. PMID: 32390123
- Kraus AU, Penna-Martinez M, Shoghi F, et al. Monocytic Cytokines in Autoimmune Polyglandular Syndrome Type 2 Are Modulated by Vitamin D and HLA-DQ. Front Immunol. 2020 Dec 7;11:583709. https://doi.org/10.3389/fimmu.2020.583709. eCollection 2020. PMID: 33365026
- Li Y, Li X. The association of vitamin D with hepatitis B virus replication: Just the bystander? J Formos Med Assoc. 2021 Feb;120(2):908. https://doi.org/10.1016/j.jfma.2020.08.029. Epub 2020 Sep 2. PMID: 32888842
- Lipińska-Opałka A, Tomaszewska A, Kubiak JZ, et al. Vitamin D and Immunological Patterns of Allergic Diseases in Children. Nutrients. 2021 Jan 8;13(1):177. https://doi.org/10.3390/nu13010177. PMID: 33435598
- Machado PA, Escrivani DO, Gomes DCO, et al. Vitamin D increases killing of intracellular Leishmania amazonensis in vitro independently of macrophage oxidative mechanisms. Parasitology. 2020 Dec;147(14):1792-1800. https://doi.org/10.1017/S0031182020001791. Epub 2020 Sep 22. PMID: 32958098
- Meza-Meza MR, Ruiz-Ballesteros AI, de la Cruz-Mosso U. Functional effects of vitamin D: From nutrient to immunomodulator. Crit Rev Food Sci Nutr. 2020 Dec 23:1-21. https://doi.org/10.1080/10408398.2020.1862753. Online ahead of print. PMID: 33354999
- Neeland MR, Tursi AR, Perrett KP, et al. Vitamin D insufficiency is associated with reduced regulatory T cell frequency in food-allergic infants. Pediatr Allergy Immunol. 2020 Dec 22. https://doi.org/10.1111/pai.13439. Online ahead of print. PMID: 33351974
- Pirdel L, Pirdel M. A Differential Immune Modulating Role of Vitamin D in Urinary Tract Infection. Immunol Invest. 2020 Dec 23:1-15. https://doi.org/10.1080/08820139.2020.1845723. Online ahead of print. PMID: 33353437
- Ruiz-Ballesteros AI, Meza-Meza MR, Vizmanos-Lamotte B, et al. Association of Vitamin D Metabolism Gene Polymorphisms with Autoimmunity: Evidence in Population Genetic Studies. Int J Mol Sci. 2020 Dec 17;21(24):9626. https://doi.org/10.3390/ijms21249626. PMID: 33348854
- Savastio S, Cadario F, D'Alfonso S, et al. Vitamin D Supplementation Modulates ICOS+ and ICOS- Regulatory T Cell in Siblings of Children With Type 1 Diabetes. J Clin Endocrinol Metab. 2020 Dec 1;105(12):dgaa588. https://doi.org/10.1210/clinem/dgaa588. PMID: 32844222 Clinical Trial.
- Shin YH, Ha EK, Kim JH, et al. Serum vitamin D level is associated with smell dysfunc-

tion independently of aeroallergen sensitization, nasal obstruction, and the presence of allergic rhinitis in children. Pediatr Allergy Immunol. 2021 Jan;32(1):116-123. https://doi.org/10.1111/pai.13341. Epub 2020 Oct 8. PMID: 32841423

- Sun L, Arbesman J, Piliang M. Vitamin D, autoimmunity and immune-related adverse events of immune checkpoint inhibitors. Arch Dermatol Res. 2021 Jan;313(1):1-10. https://doi.org/10.1007/s00403-020-02094-x. Epub 2020 Jun 9. PMID: 32519001 Review.

- Teixeira MA, De Feudis M, Reano S, et al. Cholecalciferol (vitamin D(3)) has a direct protective activity against interleukin 6-induced atrophy in C2C12 myotubes. Aging (Albany NY). 2021 Feb 22;13(4):4895-4910. https://doi.org/10.18632/aging.202669. Epub 2021 Feb 22. PMID: 33618332

- Wardani IS, Hatta M, Mubin RH, et al. Serum vitamin D receptor and High Mobility Group Box-1 (HMGB1) levels in HIV-infected patients with different immunodeficiency status: A cross-sectional study. Ann Med Surg (Lond). 2021 Feb 12;63:102174. https://doi.org/10.1016/j.amsu.2021.02.020. eCollection 2021 Mar. PMID: 33664952

- Wee JH, Cho SW, Kim JW, et al. Non-association between low vitamin d levels and aeroallergen-positivity evaluated using multiple allergen simultaneous test in Korean adults. Allergy Asthma Clin Immunol. 2021 Feb 27;17(1):23. https://doi.org/10.1186/s13223-021-00525-6. PMID: 33640009

- Zhou LY, Zhang LF, Wu YM, et al. [Association between serum vitamin D level and immune imbalance in advanced schistosomiasis patients with liver fibrosis]. Zhongguo Xue Xi Chong Bing Fang Zhi Za Zhi. 2021 Feb 4;33(1):22-27. https://doi.org/10.16250/j.32.1374.2020316. PMID: 33660470 Chinese

LABORATORIO

- Castillo-Peinado LS, Calderón-Santiago M, Priego-Capote F. Lyophilization as pre-processing for sample storage in the determination of vitamin D(3) and metabolites in serum and plasma. Talanta. 2021 Jan 15;222:121692. https://doi.org/10.1016/j.talanta.2020.121692. Epub 2020 Sep 24. PMID: 33167291

- Favresse J, Bayart JL, Burlacu MC, et al. Usefulness of a Non-Streptavidin Bead Technology to Overcome Biotin Interference: Proof of Principle with 25-OH Vitamin D, TSH, and FT4. J Appl Lab Med. 2020 Dec 31:jfaa203. https://doi.org/10.1093/jalm/jfaa203. Online ahead of print. PMID: 33382887

- Ginsberg C, Hoofnagle AN, Katz R, et al. The Vitamin D Metabolite Ratio Is Independent of Vitamin D Binding Protein Concentration. Clin Chem. 2021 Jan 30;67(2):385-393. https://doi.org/10.1093/clinchem/hvaa238. PMID: 33188595

- Hu T, Li H, Liu H, et al. High throughput UHPLC-MS/MS method for the simultaneous quantification of six vitamin D metabolites: application for vitamin D determination in patients after liver or kidney transplantation. Anal Methods. 2020 Dec 7;12(46):5591-5600. https://doi.org/10.1039/d0ay01088j. PMID: 33174880

- John AS, Morris H, Richardson A, et al. Vitamin D testing: Impact of changes to testing guidelines on detection of patients at risk of vitamin D deficiency. Ann Clin Biochem. 2021 Jan 14:4563220987589. https://doi.org/10.1177/0004563220987589. Online ahead of print. PMID: 33356446

- Kim HK, Chung HJ, Lê HG, et al. Serum 24,25-dihydroxyvitamin D level in general Korean population and its relationship with other vitamin D biomarkers. PLoS One. 2021 Feb 19;16(2):e0246541. https://doi.org/10.1371/journal.pone.0246541. eCollection 2021. PMID: 33606762

- Ko DH, Jun SH, Nam Y, et al. Multiplex LC-MS/MS for simultaneous determination of 25-hydroxyvitamin D, 24,25-dihydroxyvitamin D(3), albumin, and vitamin D-binding protein with its isoforms: One-step estimation of bioavailable vitamin D and vitamin D metabolite ratio. J Steroid Biochem Mol Biol. 2021 Feb;206:105796. https://doi.org/10.1016/j.jsbmb.2020.105796. Epub 2020 Nov 28. PMID: 33259939

- Wyon MA, Wolman R, Martin C, et al. The efficacy of different vitamin D supplementation delivery methods on serum 25(OH)D: A randomised double-blind placebo trial. Clin Nutr. 2021 Feb;40(2):388-393. https://doi.org/10.1016/j.clnu.2020.05.040. Epub 2020 Jun 6. PMID: 32703720

MISCELLANEA

- [No authors listed] Corrigendum to: "Safety of High-Dose Vitamin D Supplementation: Secondary Analysis of a Randomized Controlled Trial". J Clin Endocrinol Metab. 2021 Jan 13:dgaa886. https://doi.org/10.1210/clinem/dgaa886. Online ahead of print. PMID: 33440004

- Abboud M, Rizk R, AlAnouti F, et al. The Health Effects of Vitamin D and Probiotic Co-Supplementation: A Systematic Review of Randomized Controlled Trials. Nutrients. 2020 Dec 30;13(1):111. https://doi.org/10.3390/nu13010111. PMID: 33396898 Free PMC article. Review.

- Aguilar-Shea AL. Vitamin D, the natural way. Clin Nutr ESPEN. 2021 Feb;41:10-12. https://doi.org/10.1016/j.clnesp.2020.12.001. Epub 2020 Dec 24. PMID: 33487250 Review.

- Alathari BE, Aji AS, Ariyasra U, et al. Interaction between Vitamin D-Related Genetic Risk Score and Carbohydrate Intake on Body Fat Composition: A Study in Southeast Asian Minangkabau Women. Nutrients. 2021 Jan 23;13(2):326. https://doi.org/10.3390/nu13020326. PMID: 33498618

- Alexander RT. Increased intestinal phosphate absorption, an often-overlooked effect of vitamin D. J Physiol. 2021 Feb;599(4):1021-1022. https://doi.org/10.1113/JP281095. Epub 2020 Dec 18. PMID: 33296085

- Alhabeeb H, Kord-Varkaneh H, Tan SC, et al. The influence of omega-3 supplementation on vitamin D levels in humans: a systematic review and dose-response meta-analysis of randomized controlled trials. Crit Rev Food Sci Nutr. 2020 Dec 25:1-8. https://doi.org/10.1080/10408398.2020.1863905. Online ahead of print. PMID: 33356450

- Alkhatatbeh MJ, Hmoud ZL, Abdul-Razzak KK, et al. Self-reported sleep bruxism is associated with vitamin D deficiency and low dietary calcium intake: a case-control study. BMC Oral Health. 2021 Jan 7;21(1):21. https://doi.org/10.1186/s12903-020-01349-3. PMID: 33413308

- Ames BN, Grant WB, Willett WC. Does the High Prevalence of Vitamin D Deficiency in African Americans Contribute to Health Disparities? Nutrients. 2021 Feb 3;13(2):499. https://doi.org/10.3390/nu13020499. PMID: 33546262

- Antoine T, Icard-Vernière C, Scorrano G,

et al. Evaluation of vitamin D bioaccessibility and mineral solubility from test meals containing meat and/or cereals and/or pulses using in vitro digestion. Food Chem. 2021 Jun 15;347:128621. https://doi.org/10.1016/j.foodchem.2020.128621. Epub 2020 Dec 3. PMID: 33503576

- Awan NU, Sohail SK, Naumeri F, et al. Association of Serum Vitamin D and Immunoglobulin E Levels With Severity of Allergic Rhinitis. Cureus. 2021 Jan 25;13(1):e12911. https://doi.org/10.7759/cureus.12911. PMID: 33654596
- Balaji H, Ayyamperuma S, Saha N, et al. Distinct Modulation of Wild-Type and Selective Gene Mutated Vitamin D Receptor by Essential Poly Unsaturated Fatty Acids. Mini Rev Med Chem. 2021 Jan 4. https://doi.org/10.2174/1389557521666210104170408. Online ahead of print. PMID: 33397237
- Bilak Ş, Çevik MÖ, Erdoğdu İH, et al. Expression of Vitamin D Receptor and Vitamin D Receptor Gene Polymorphisms (BsmI, FokI, and TaqI) in Patients with Pterygium. Arq Bras Oftalmol. 2021 Feb 3:S0004-27492021005001219. https://doi.org/10.5935/0004-2749.20210032. Online ahead of print. PMID: 33567021
- Blakeley M, Sobczyńska-Malefora A, Carpenter G. The Origins of Salivary Vitamin A, Vitamin B(12) and Vitamin D-Binding Proteins. Nutrients. 2020 Dec 16;12(12):3838. https://doi.org/10.3390/nu12123838. PMID: 33339130
- Blufstein A, Behm C, Kubin B, et al. Transcriptional activity of vitamin D receptor in human periodontal ligament cells is diminished under inflammatory conditions. J Periodontol. 2021 Jan;92(1):137-148. https://doi.org/10.1002/JPER.19-0541. Epub 2020 Jun 21. PMID: 32474936
- Bonnet L, Karkeni E, Couturier C, et al. Four days high fat diet modulates vitamin D metabolite levels and enzymes in mice. J Endocrinol. 2021 Jan;248(1):87-93. https://doi.org/10.1530/JOE-20-0198. PMID: 33112799
- Bouillon R, Haussler M, Bikle D, et al. Introduction: Special Issue on Vitamin D Dedicated to the Memory of Anthony W Norman. JBMR Plus. 2020 Dec 21;5(1):e10445. https://doi.org/10.1002/jbm4.10445. eCollection 2021 Jan. PMID: 33553991
- Çağlar A, Tuğçe Çağlar H. Vitamin D intoxication due to misuse: 5-year experience. Arch Pediatr. 2021 Jan 19:S0929-693X(21)00002-6. https://doi.org/10.1016/j.arcped.2020.12.009. Online ahead of print. PMID: 33483193
- Carbone LD, Johnson K, Larson JC, et al. Association of vitamin D with incident glaucoma: findings from the Women's Health Initiative. J Investig Med. 2021 Jan 11:jim-2020-001645. https://doi.org/10.1136/jim-2020-001645. Online ahead of print. PMID: 33431603
- Čečrle M, Černý D, Sedláčková E, et al. Vitamin D for prevention of sternotomy healing complications: REINFORCE-D trial. Trials. 2020 Dec 11;21(1):1018. https://doi.org/10.1186/s13063-020-04920-z. PMID: 33308291
- Chauhan K, Shahrokhi M, Huecker MR. Vitamin D. 2020 Oct 15. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan–. PMID: 28722941 Free Books & Documents. Review.
- Chen C, White DL, Marshall B, et al. Role of 25-Hydroxyvitamin D(3) and 1,25-Dihydroxyvitamin D(3) in Chicken Embryo Osteogenesis, Adipogenesis, Myogenesis, and Vitamin D(3) Metabolism. Front Physiol. 2021 Feb 1;12:637629. https://doi.org/10.3389/fphys.2021.637629. eCollection 2021. PMID: 33597896
- Christen WG, Cook NR, Manson JE, et al. Effect of Vitamin D and omega-3 Fatty Acid Supplementation on Risk of Age-Related Macular Degeneration: An Ancillary Study of the VITAL Randomized Clinical Trial. JAMA Ophthalmol. 2020 Dec 1;138(12):1280-1289. https://doi.org/10.1001/jamaophthalmol.2020.4409. PMID: 33119047 Clinical Trial.
- Corrado A, Rotondo C, Cici D, et al. Effects of Different Vitamin D Supplementation Schemes in Post-Menopausal Women: A Monocentric Open-Label Randomized Study. Nutrients. 2021 Jan 26;13(2):380. https://doi.org/10.3390/nu13020380. PMID: 33530511
- Dalamaga M, Muscogiuri G, Paganitsa G, et al. Adherence to the Mediterranean diet is an independent predictor of circulating vitamin D levels in normal weight and non-smoker adults: an observational cross-sectional study. Int J Food Sci Nutr. 2021 Jan 28:1-13. https://doi.org/10.1080/09637486.2021.1878488. Online ahead of print. PMID: 33509003
- de Sire A, Ferrillo M, Gennari A, et al. Bone health, vitamin D status and oral hygiene screening in breast cancer women before starting osteoporosis treatment: a cross-sectional study. J Biol Regul Homeost Agents. 2021 Feb 4;35(1). https://doi.org/10.23812/20-686-L. Online ahead of print. PMID: 33538147
- Demir A, Güder S. The effects of vitamin B12, vitamin D, ferritin level, neutrophil/monocyte ratio and some blood parameters on genital warts presence, the number of lesions, and recurrence rates. Andrologia. 2021 Feb 7:e14006. https://doi.org/10.1111/and.14006. Online ahead of print. PMID: 33550671
- Di Luigi L, Antinozzi C, Piantanida E, et al. Vitamin D, sport and health: a still unresolved clinical issue. J Endocrinol Invest. 2020 Dec;43(12):1689-1702. https://doi.org/10.1007/s40618-020-01347-w. Epub 2020 Jul 6. PMID: 32632904 Review.
- Díaz-Ruiz R, Valdeón I, Álvarez JR, et al. Simultaneous encapsulation of trans-resveratrol and vitamin D(3) in highly concentrated double emulsions. J Sci Food Agric. 2020 Dec 5. https://doi.org/10.1002/jsfa.10995. Online ahead of print. PMID: 33280118
- Ellison DL, Moran HR. Vitamin D: Vitamin or Hormone? Nurs Clin North Am. 2021 Mar;56(1):47-57. https://doi.org/10.1016/j.cnur.2020.10.004. Epub 2020 Dec 28. PMID: 33549285 Review.
- Epstein H. The Confounding Story of Vitamin D. Skinmed. 2021 Feb 1;19(1):49-50. eCollection 2021. PMID: 33658113
- Fukuoka S, Arita R, Mizoguchi T, et al. Relation of Dietary Fatty Acids and Vitamin D to the Prevalence of Meibomian Gland Dysfunction in Japanese Adults: The Hirado-Takushima Study. J Clin Med. 2021 Jan 18;10(2):350. https://doi.org/10.3390/jcm10020350. PMID: 33477594
- Ghiasi F, Eskandari MH, Golmakani MT, et al. Build-Up of a 3D Organogel Network within the Bilayer Shell of Nanoliposomes. A Novel Delivery System for Vitamin D(3):

Preparation, Characterization, and Physicochemical Stability. J Agric Food Chem. 2021 Mar 3;69(8):2585-2594. https://doi.org/10.1021/acs.jafc.0c06680. Epub 2021 Feb 22. PMID: 33617257

- Gu J, Li S, Wang G, et al. Cadmium Toxicity on Chondrocytes and the Palliative Effects of 1alpha, 25-Dihydroxy Vitamin D(3) in White Leghorns Chicken's Embryo. Front Vet Sci. 2021 Feb 10;8:637369. https://doi.org/10.3389/fvets.2021.637369. eCollection 2021. PMID: 33644155
- Haase DR, Brown K, Templeton KJ. Adolescent Athlete Stress Fractures Associated with Vitamin D Insufficiency: Three Cases with Review of the Literature. JBJS Case Connect. 2021 Feb 19;11(1). https://doi.org/10.2106/JBJS.CC.20.00367. PMID: 33617155
- Hajisadeghi H, Azarbayjani MA, Vafaeenasab M, et al. Effect of regular resistance exercise, vitamin D, and calcium supplements on the bone mineral content and density in postmenopausal model of rats: An experimental study. Int J Reprod Biomed. 2021 Jan 25;19(1):63-74. https://doi.org/10.18502/ijrm.v19i1.8181. eCollection 2021 Jan. PMID: 33554004
- Harrison SE, Oliver SJ, Kashi DS, et al. Influence of Vitamin D Supplementation by Simulated Sunlight or Oral D3 on Respiratory Infection during Military Training. Med Sci Sports Exerc. 2021 Jan 21. https://doi.org/10.1249/MSS.0000000000002604. Online ahead of print. PMID: 33481482
- Hemshekhar M, Anaparti V, El-Gabalawy H, et al. A bioavailable form of curcumin, in combination with vitamin-D- and omega-3-enriched diet, modifies disease onset and outcomes in a murine model of collagen-induced arthritis. Arthritis Res Ther. 2021 Jan 25;23(1):39. https://doi.org/10.1186/s13075-021-02423-z. PMID: 33494792
- Hernando N, Pastor-Arroyo EM, Marks J, et al. 1,25(OH)(2) vitamin D(3) stimulates active phosphate transport but not paracellular phosphate absorption in mouse intestine. J Physiol. 2021 Feb;599(4):1131-1150. https://doi.org/10.1113/JP280345. Epub 2020 Dec 8. PMID: 33200827
- Hodge AM. The need for vitamin D assay standardisation in research. Public Health Nutr. 2020 Dec;23(18):3283. https://doi.org/10.1017/S1368980020003328. Epub 2020 Sep 28. PMID: 32981564
- Horgan M, Duerr R, Murphy B. Clinical and pathologic findings of an outbreak of vitamin D(3)-responsive metabolic bone disease in heron and egret (family ardeidae) chicks fed capelin (mallotus villosus). J Zoo Wildl Med. 2021 Jan;51(4):958-969. https://doi.org/10.1638/2019-0238. PMID: 33480576
- Hu K, Xiang Q, Wang Z, et al. Effects of Vitamin D Receptor, Cytochrome P450 3A, and Cytochrome P450 Oxidoreductase Genetic Polymorphisms on the Pharmacokinetics of Remimazolam in Healthy Chinese Volunteers. Clin Pharmacol Drug Dev. 2021 Jan;10(1):22-29. https://doi.org/10.1002/cpdd.797. Epub 2020 Apr 6. PMID: 32250057
- Inan HC, Mertoğlu C, Erdur ZB. Investigation of Serum Calcium and 25-Hydroxy Vitamin D Levels in Benign Paroxysmal Positional Vertigo Patients. Ear Nose Throat J. 2021 Jan 25:145561321989451. https://doi.org/10.1177/0145561321989451. Online ahead of print. PMID: 33491490
- Ito Y, Tsuda H, Imai K, et al. Vitamin D improves pulmonary function in a rat model for congenital diaphragmatic hernia. Arch Biochem Biophys. 2021 Mar 30;700:108769. https://doi.org/10.1016/j.abb.2021.108769. Epub 2021 Jan 20. PMID: 33484710
- Jacob J, Mangelschots E, Michez M, et al. Cross-Sectional Study on Vitamin D, Zinc Oxide and Fatty Acid Status in a Population with a Moderate to High Risk of AMD Identified by the STARS() Questionnaire. Ophthalmol Ther. 2021 Feb 23. https://doi.org/10.1007/s40123-021-00335-4. Online ahead of print. PMID: 33620690
- Jafri L, Majid H, Ahmed S, et al. Calcaneal Ultrasound and Its Relation to Dietary and Lifestyle Factors, Anthropometry, and Vitamin D Deficiency in Young Medical Students. Front Endocrinol (Lausanne). 2021 Jan 21;11:601562. https://doi.org/10.3389/fendo.2020.601562. eCollection 2020. PMID: 33551995
- Jakobsen J, Christensen T. Natural Vitamin D in Food: To What Degree Does 25-Hydroxyvitamin D Contribute to the Vitamin D Activity in Food? JBMR Plus. 2021 Jan 3;5(1):e10453. https://doi.org/10.1002/jbm4.10453. eCollection 2021 Jan. PMID: 33553993
- Jiang X, Ge T, Chen CY. The causal role of circulating vitamin D concentrations in human complex traits and diseases: a large-scale Mendelian randomization study. Sci Rep. 2021 Jan 8;11(1):184. https://doi.org/10.1038/s41598-020-80655-w. PMID: 33420236
- Karimi S, Movafaghi V, Arabi A, et al. Effects of Oral Vitamin D Supplement Therapy on Clinical Outcomes of Intravitreal Bevacizumab in Diabetic Macular Edema. J Ophthalmic Vis Res. 2021 Jan 20;16(1):34-41. https://doi.org/10.18502/jovr.v16i1.8249. eCollection 2021 Jan-Mar. PMID: 33520126
- Khan S, Ahad A. Application of adjunct vitamin D supplementation in the management of periodontal disease: A three-pronged approach. J Dent Sci. 2021 Jan;16(1):534-535. https://doi.org/10.1016/j.jds.2020.04.009. Epub 2020 May 14. PMID: 33384844
- Khan WA, Butt MS, Pasha I, et al. Bioavailability, rheology, and sensory evaluation of mayonnaise fortified with vitamin D encapsulated in protein-based carriers. J Texture Stud. 2020 Dec;51(6):955-967. https://doi.org/10.1111/jtxs.12555. Epub 2020 Sep 13. PMID: 32799340
- Kisters K, Kisters L, Werner T, et al. Increased serum vitamin D concentration under oral magnesium therapy in elderly hypertensives. Magnes Res. 2021 Feb 11. https://doi.org/10.1684/mrh.2020.0473. Online ahead of print. PMID: 33574018
- Klimczak AM, Franasiak JM. Vitamin D in human reproduction: some answers and many more questions. Fertil Steril. 2021 Jan 27:S0015-0282(20)32774-6. https://doi.org/10.1016/j.fertnstert.2020.12.027. Online ahead of print. PMID: 33516577
- Knechtle B, Jastrzębski Z, Nikolaidis PT. [Vitamin D Deficiency in Sports]. Praxis (Bern 1994). 2021 Feb;110(2):94-104. https://doi.org/10.1024/1661-8157/a003550. PMID: 33530783 German.
- Köhler OM, Grünberg W, Schnepel N, et al. Dietary phosphorus restriction affects bone metabolism, vitamin D metabolism and rumen fermentation traits in sheep. J Anim Physiol Anim Nutr (Berl). 2021 Jan;105(1):35-50. https://doi.org/10.1111/jpn.13449. Epub 2020 Oct 1. PMID: 33001513

- Lin LY, Bhate K, Forbes H, et al. Vitamin D Deficiency or Supplementation and the Risk of Human Herpesvirus Infections or Reactivation: A Systematic Review and Meta-analysis. Open Forum Infect Dis. 2020 Dec 22;8(1):ofaa570. https://doi.org/10.1093/ofid/ofaa570. eCollection 2021 Jan. PMID: 33511224
- Liu K, Han B, Hou J, et al. Expression of vitamin D 1alpha-hydroxylase in human gingival fibroblasts in vivo. PeerJ. 2021 Jan 4;9:e10279. https://doi.org/10.7717/peerj.10279. eCollection 2021. PMID: 33505780
- Liu Y, Meng F, Wang S, et al. Vitamin D(3) mitigates lipopolysaccharide-induced oxidative stress, tight junction damage and intestinal inflammatory response in yellow catfish, Pelteobagrus fulvidraco. Comp Biochem Physiol C Toxicol Pharmacol. 2021 May;243:108982. https://doi.org/10.1016/j.cbpc.2021.108982. Epub 2021 Jan 23. PMID: 33497802
- Lopez AG, Kerlan V, Desailloud R. Non-classical effects of vitamin D: Non-bone effects of vitamin D. Ann Endocrinol (Paris). 2021 Feb;82(1):43-51. https://doi.org/10.1016/j.ando.2020.12.002. Epub 2020 Dec 3. PMID: 33279474 Review.
- Lucock M. Vitamin-related phenotypic adaptation to exposomal factors: The folate-vitamin D-exposome triad. Mol Aspects Med. 2021 Feb 4:100944. https://doi.org/10.1016/j.mam.2021.100944. Online ahead of print. PMID: 33551238
- Mason RS, Rybchyn MS, Brennan-Speranza TC, et al. Is it reasonable to ignore vitamin D status for musculoskeletal health? Fac Rev. 2020 Dec 3;9:19. https://doi.org/10.12703/r/9-19. eCollection 2020. PMID: 33659951 Free PMC article. Review.
- Mauck MC, Barton CE, Tungate A, et al. Peritraumatic Vitamin D levels predict chronic pain severity and contribute to racial differences in pain outcomes following Major Thermal Burn Injury. J Burn Care Res. 2021 Feb 10:irab031. https://doi.org/10.1093/jbcr/irab031. Online ahead of print. PMID: 33564878
- McCarthy MS, Elshaw EB, Szekely BM, et al. Novel Phototherapy Kiosk Shows Promise as a Treatment Option for Low Vitamin D. Mil Med. 2021 Jan 25;186(Suppl 1):722-728. https://doi.org/10.1093/milmed/usaa411. PMID: 33499521
- Mehrpour O, Modi M, Mansouri B, et al. Comparison of Vitamin B12, Vitamin D, and Folic Acid Blood Levels in Plumbism Patients and Controls in Eastern Iran. Biol Trace Elem Res. 2021 Jan;199(1):9-17. https://doi.org/10.1007/s12011-020-02119-6. Epub 2020 Mar 21. PMID: 32207029
- Mehrpour O, Modi M, Mansouri B, et al. Correction to: Comparison of Vitamin B12, Vitamin D, and Folic Acid Blood Levels in Plumbism Patients and Controls in Eastern Iran. Biol Trace Elem Res. 2021 Feb;199(2):813. https://doi.org/10.1007/s12011-020-02189-6. PMID: 32440993
- Mendoza-Garcés L, Velázquez-Alva MC, Cabrer-Rosales MF, et al. Vitamin D Deficiency is Associated with Handgrip Strength, Nutritional Status and T2DM in Community-Dwelling Older Mexican Women: A Cross-Sectional Study. Nutrients. 2021 Feb 26;13(3):736. https://doi.org/10.3390/nu13030736. PMID: 33652581
- Morvaridzadeh M, Nachvak SM, Mohammadi R, et al. Probiotic Yogurt Fortified with Vitamin D Can Improve Glycemic Status in Non-Alcoholic Fatty Liver Disease Patients: a Randomized Clinical Trial. Clin Nutr Res. 2021 Jan 22;10(1):36-47. https://doi.org/10.7762/cnr.2021.10.1.36. eCollection 2021 Jan. PMID: 33564651
- Nakamura S, Saito R, Yamamoto S, et al. Proposal of novel inhibitors for vitamin-D receptor: Molecular docking, molecular mechanics and ab initio molecular orbital simulations. Biophys Chem. 2021 Mar;270:106540. https://doi.org/10.1016/j.bpc.2020.106540. Epub 2021 Jan 1. PMID: 33418104
- Neville JJ, Palmieri T, Young AR. Physical Determinants of Vitamin D Photosynthesis: A Review. JBMR Plus. 2021 Jan 19;5(1):e10460. https://doi.org/10.1002/jbm4.10460. eCollection 2021 Jan. PMID: 33553995
- Nøstbakken OJ, Rasinger JD, Hannisdal R, et al. Levels of omega 3 fatty acids, vitamin D, dioxins and dioxin-like PCBs in oily fish; a new perspective on the reporting of nutrient and contaminant data for risk-benefit assessments of oily seafood. Environ Int. 2021 Feb;147:106322. https://doi.org/10.1016/j.envint.2020.106322. Epub 2020 Dec 19. PMID: 33348102
- Nowak J, Hudzik B, Jagielski P, et al. Lack of Seasonal Variations in Vitamin D Concentrations among Hospitalized Elderly Patients. Int J Environ Res Public Health. 2021 Feb 9;18(4):1676. https://doi.org/10.3390/ijerph18041676. PMID: 33572447
- Nzekoue FK, Alesi A, Vittori S, et al. Development of functional whey cheese enriched in vitamin D(3): nutritional composition, fortification, analysis, and stability study during cheese processing and storage. Int J Food Sci Nutr. 2020 Dec 8:1-11. https://doi.org/10.1080/09637486.2020.1857711. Online ahead of print. PMID: 33292001
- Okrit F, Chantranuwatana P, Werawatganon D, et al. Changes of vitamin D receptors (VDR) and MAPK activation in cytoplasmic and nuclear fractions following exposure to cigarette smoke with or without filter in rats. Heliyon. 2021 Jan 30;7(1):e05927. https://doi.org/10.1016/j.heliyon.2021.e05927. eCollection 2021 Jan. PMID: 33553726
- Öktem Ç, Aslan F. Vitamin D Levels in Young Adult Cataract Patients: A Case-Control Study. Ophthalmic Res. 2021;64(1):116-120. https://doi.org/10.1159/000509602. Epub 2020 Jun 23. PMID: 32575105
- Öncül H, Alakus MF, Çağlayan M, et al. Changes in choroidal thickness after vitamin D supplementation in patients with vitamin D deficiency. Can J Ophthalmol. 2020 Dec;55(6):486-491. https://doi.org/10.1016/j.jcjo.2020.06.014. Epub 2020 Aug 18. PMID: 32822660
- Oonincx DGAB, Diehl JJE, Kik M, et al. The nocturnal leopard gecko (Eublepharis macularius) uses UVb radiation for vitamin D(3) synthesis. Comp Biochem Physiol B Biochem Mol Biol. 2020 Dec;250:110506. https://doi.org/10.1016/j.cbpb.2020.110506. Epub 2020 Sep 17. PMID: 32950659
- Örnek N, Oğurel T, Kısa Ü. Tear Fluid and Serum Vitamin D Concentrations in Unilateral Pterygium. Optom Vis Sci. 2021 Feb 1;98(2):170-174. https://doi.org/10.1097/OPX.0000000000001640. PMID: 33534378
- Ozturk E, Cankaya C. Effect of Vitamin D Deficiency on Contrast Sensitivity Function. Curr Eye Res. 2020 Dec;45(12):1619-

1624. https://doi.org/10.1080/02713683.2020.1781194. Epub 2020 Jun 18. PMID: 32552162

- Patel JJ, McClave SA. Use of Vitamin D in Critical Illness: A Concept for Whom the Bell Tolls. JPEN J Parenter Enteral Nutr. 2021 Jan;45(1):9-11. https://doi.org/10.1002/jpen.1946. Epub 2020 Jul 13. PMID: 32573805
- Patel V, Gillies C, Patel P, et al. Reducing vitamin D requests in a primary care cohort: a quality improvement study. BJGP Open. 2020 Dec 15;4(5):bjgpopen20X101090. https://doi.org/10.3399/bjgpopen20X101090. Print 2020 Dec. PMID: 33144362
- Peng L, Li L, Wang P, et al. Association between Vitamin D supplementation and mortality in critically ill patients: A systematic review and meta-analysis of randomized clinical trials. PLoS One. 2020 Dec 14;15(12):e0243768. https://doi.org/10.1371/journal.pone.0243768. eCollection 2020. PMID: 33315950
- Pradhan S, Agrawal S. Serum Vitamin D in Patients with Chronic Periodontitis and Healthy Periodontium. J Nepal Health Res Counc. 2021 Jan 21;18(4):610-614. https://doi.org/10.33314/jnhrc.v18i4.2904. PMID: 33510497
- Qi G, Yu K, Feng Y, et al. 1alpha,25-dihydroxyvitamin D3 promotes early osteogenic differentiation of PDLSCs and a 12-year follow-up case of early-onset vitamin D deficiency periodontitis. J Steroid Biochem Mol Biol. 2021 Jan 21;208:105805. https://doi.org/10.1016/j.jsbmb.2020.105805. Online ahead of print. PMID: 33486080
- Qua CS, Peh KB, Saravannan K, et al. Vitamin D deficiency causing eosinophilic esophagogastroenteritis and ascites: a rare association. BMJ Case Rep. 2021 Feb 4;14(2):e240039. https://doi.org/10.1136/bcr-2020-240039. PMID: 33541947
- Ramasamy I. Vitamin D Metabolism and Guidelines for Vitamin D Supplementation. Clin Biochem Rev. 2020 Dec;41(3):103-126. https://doi.org/10.33176/AACB-20-00006. PMID: 33343045
- Refaat B, El-Boshy M. Effects of supraphysiological vitamin D(3) (cholecalciferol) supplement on normal adult rat ovarian functions. Histochem Cell Biol. 2021 Feb 27. https://doi.org/10.1007/s00418-021-01975-0. Online ahead of print. PMID: 33641022
- Rizzoli R. Vitamin D supplementation: upper limit for safety revisited? Aging Clin Exp Res. 2021 Jan;33(1):19-24. https://doi.org/10.1007/s40520-020-01678-x. Epub 2020 Aug 28. PMID: 32857334 Review.
- Rovito D, Belorusova AY, Chalhoub S, et al. Cytosolic sequestration of the vitamin D receptor as a therapeutic option for vitamin D-induced hypercalcemia. Nat Commun. 2020 Dec 7;11(1):6249. https://doi.org/10.1038/s41467-020-20069-4. PMID: 33288743
- Salemi S, Saedisomeolia A, Azimi F, et al. Optimizing the production of vitamin D in white button mushrooms (Agaricus bisporus) using ultraviolet radiation and measurement of its stability. Lebensm Wiss Technol. 2021 Feb;137:110401. https://doi.org/10.1016/j.lwt.2020.110401. Epub 2020 Oct 14. PMID: 33078031
- Sallinen RJ, Dethlefsen O, Ruotsalainen S, et al. Genetic Risk Score for Serum 25-Hydroxyvitamin D Concentration Helps to Guide Personalized Vitamin D Supplementation in Healthy Finnish Adults. J Nutr. 2021 Feb 1;151(2):281-292. https://doi.org/10.1093/jn/nxaa391. PMID: 33382404
- Sasaki H, Masuno H, Kawasaki H, et al. Lithocholic Acid Derivatives as Potent Vitamin D Receptor Agonists. J Med Chem. 2021 Jan 14;64(1):516-526. https://doi.org/10.1021/acs.jmedchem.0c01420. Epub 2020 Dec 28. PMID: 33369416
- Sattar F, Almas U, Ibrahim NA, et al. Efficacy of Oral Vitamin D(3) Therapy in Patients Suffering from Diffuse Hair Loss (Telogen Effluvium). J Nutr Sci Vitaminol (Tokyo). 2021;67(1):68-71. https://doi.org/10.3177/jnsv.67.68. PMID: 33642467
- Scragg R, Sluyter JD. Is There Proof of Extraskeletal Benefits From Vitamin D Supplementation From Recent Mega Trials of Vitamin D? JBMR Plus. 2021 Jan 4;5(1):e10459. https://doi.org/10.1002/jbm4.10459. eCollection 2021 Jan. PMID: 33553994
- Shafrir A, Shauly-Aharonov M, Katz LH, et al. The Association between Serum Vitamin D Levels and Helicobacter pylori Presence and Eradication. Nutrients. 2021 Jan 19;13(1):278. https://doi.org/10.3390/nu13010278. PMID: 33478000
- Sivagurunathan U, Srivastava PP, Gupta S, et al. Responses of Corpuscles of Stannius to intra-peritoneal vitamin-D(3) administration in teleost Labeo rohita (Hamilton, 1822) reared in water with two different levels of calcium concentration. Saudi J Biol Sci. 2020 Dec;27(12):3593-3600. https://doi.org/10.1016/j.sjbs.2020.07.033. Epub 2020 Aug 3. PMID: 33304170
- Sizar O, Khare S, Goyal A, et al. Vitamin D Deficiency. 2021 Jan 3. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan–. PMID: 30335299 Free Books & Documents. Review.
- Snegarova V, Naydenova D. Vitamin D: a Review of its Effects on Epigenetics and Gene Regulation. Folia Med (Plovdiv). 2020 Dec 31;62(4):662-667. https://doi.org/10.3897/folmed.62.e50204.. PMID: 33415918
- Sorkhabi R, Ahoor MH, Ghorbanihaghjo A, et al. Serum vitamin D levels in patients with vernal keratoconjunctivitis and its relationship with disease severity. Eur J Ophthalmol. 2020 Dec 14:1120672120978886. https://doi.org/10.1177/1120672120978886. Online ahead of print. PMID: 33307795
- Starczak Y, Reinke DC, Barratt KR, et al. Vitamin D receptor expression in mature osteoclasts reduces bone loss due to low dietary calcium intake in male mice. J Steroid Biochem Mol Biol. 2021 Feb 26:105857. https://doi.org/10.1016/j.jsbmb.2021.105857. Online ahead of print. PMID: 33647520
- Starek M, Mierzwa J, Gumułka P, et al. Vitamin D - current stage of knowledge about analysis and supplementation. Crit Rev Food Sci Nutr. 2021 Feb 1:1-15. https://doi.org/10.1080/10408398.2021.1877110. Online ahead of print. PMID: 33523712
- Stockman J, Villaverde C, Corbee RJ. Calcium, Phosphorus, and Vitamin D in Dogs and Cats: Beyond the Bones. Vet Clin North Am Small Anim Pract. 2021 Feb 27:S0195-5616(21)00013-9. https://doi.org/10.1016/j.cvsm.2021.01.003. Online ahead of print. PMID: 33653533 Review.
- Szeto B, Valentini C, Lalwani AK. Low vitamin D status is associated with hearing

loss in the elderly: a cross-sectional study. Am J Clin Nutr. 2021 Feb 2;113(2):456-466. https://doi.org/10.1093/ajcn/nqaa310. PMID: 33247302

- Tripathy B, Majhi RK. TRPV1 channel as the membrane vitamin D receptor: solving part of the puzzle. J Physiol. 2020 Dec;598(24):5601-5603. https://doi.org/10.1113/JP280633. Epub 2020 Sep 24. PMID: 32897545
- Tsugawa N, Nishino M, Kuwabara A, et al. Comparison of Vitamin D and 25-Hydroxyvitamin D Concentrations in Human Breast Milk between 1989 and 2016-2017. Nutrients. 2021 Feb 9;13(2):573. https://doi.org/10.3390/nu13020573. PMID: 33572283
- Ulhaq ZS. Vitamin D and its receptor polymorphisms are associated with glaucoma. J Fr Ophtalmol. 2020 Dec;43(10):1009-1019. https://doi.org/10.1016/j.jfo.2020.02.016. Epub 2020 Sep 28. PMID: 33004198
- Veselka B, Brickley MB, Waters-Rist AL. A joint medico-historical and paleopathological perspective on vitamin D deficiency prevalence in post-Medieval Netherlands. Int J Paleopathol. 2021 Mar;32:41-49. https://doi.org/10.1016/j.ijpp.2020.10.010. Epub 2020 Dec 1. PMID: 33276206
- Wang Q, Ma A, Schouten EG, et al. A double burden of tuberculosis and diabetes mellitus and the possible role of vitamin D deficiency. Clin Nutr. 2021 Feb;40(2):350-357. https://doi.org/10.1016/j.clnu.2020.08.040. Epub 2020 Sep 6. PMID: 32948348 Review.
- Weber AE, Bolia IK, Korber S, et al. Five-Year Surveillance of Vitamin D Levels in NCAA Division I Football Players: Risk Factors for Failed Supplementation. Orthop J Sports Med. 2021 Jan 22;9(1):2325967120975100. https://doi.org/10.1177/2325967120975100. eCollection 2021 Jan. PMID: 33553450
- Wee CL, Mokhtar SS, Singh KKB, et al. Calcitriol Supplementation Ameliorates Microvascular Endothelial Dysfunction in Vitamin D-Deficient Diabetic Rats by Upregulating the Vascular eNOS Protein Expression and Reducing Oxidative Stress. Oxid Med Cell Longev. 2021 Feb 2;2021:3109294. https://doi.org/10.1155/2021/3109294. eCollection 2021. PMID: 33623633
- Wen X, Gu Y. Preliminary validation of serotransferrin and vitamin D binding protein in the gingival crevicular fluid as candidate biomarkers for pubertal growth peak in subjects with Class I and Class II malocclusion. Am J Orthod Dentofacial Orthop. 2021 Feb 3:S0889-5406(20)30810-6. https://doi.org/10.1016/j.ajodo.2020.01.025. Online ahead of print. PMID: 33549368
- Wise J. Covid-19: Evidence is lacking to support vitamin D's role in treatment and prevention. BMJ. 2020 Dec 17;371:m4912. https://doi.org/10.1136/bmj.m4912. PMID: 33334783
- Witte MA, Fischer PR. Severe acute malnutrition, calcium and vitamin D: important interactions. Public Health Nutr. 2020 Dec;23(17):3187-3189. https://doi.org/10.1017/S1368980020002499. Epub 2020 Aug 7. PMID: 32762782
- Woodford HJ. Vitamin D. Clin Med (Lond). 2021 Jan;21(1):e119-e120. https://doi.org/10.7861/clinmed.Let.21.1.7. PMID: 33479100
- Wu C, Lu B, Wang Y, et al. Effects of dietary vitamin D(3) on growth performance, antioxidant capacities and innate immune responses in juvenile black carp Mylopharyngodon piceus. Fish Physiol Biochem. 2020 Dec;46(6):2243-2256. https://doi.org/10.1007/s10695-020-00876-8. Epub 2020 Sep 18. PMID: 32945979
- Zajic P, Heschl S, Schörghuber M, et al. Vitamin D assessment in perioperative medicine and critical care : A prospective observational pilot study. Wien Klin Wochenschr. 2021 Feb;133(3-4):79-85. https://doi.org/10.1007/s00508-019-01584-x. Epub 2019 Dec 4. PMID: 31802221
- Zarei M, Zarezadeh M, Hamedi Kalajahi F, et al. The Relationship Between Vitamin D and Telomere/Telomerase: A Comprehensive Review. J Frailty Aging. 2021;10(1):2-9. https://doi.org/10.14283/jfa.2020.33. PMID: 33331615 Review.

NEFROLOGIA

- [No authors listed] Con: Nutritional vitamin D replacement in chronic kidney disease and end-stage renal disease. Nephrol Dial Transplant. 2021 Feb 20;36(3):566-567. https://doi.org/10.1093/ndt/gfaa172. PMID: 32869097
- Chacar FC, Kogika MM, Zafalon RVA, et al. Vitamin D Metabolism and Its Role in Mineral and Bone Disorders in Chronic Kidney Disease in Humans, Dogs and Cats. Metabolites. 2020 Dec 4;10(12):499. https://doi.org/10.3390/metabo10120499. PMID: 33291777
- Charoenngam N, Sriussadaporn S. Vitamin D and parathyroid hormone status in community-dwelling elderly patients with mild-to-moderate kidney impairment. Int Urol Nephrol. 2021 Jan 9. https://doi.org/10.1007/s11255-020-02695-5. Online ahead of print. PMID: 33420892
- Demir F, Demir M, Aygun H. Evaluation of the protective effect of paricalcitol and vitamin D(3) at doxorubicin nephrotoxicity in rats with (99m)Technetium-dimercaptosuccinic acid renal scintigraphy and biochemical methods. Hum Exp Toxicol. 2021 Feb;40(2):274-283. https://doi.org/10.1177/0960327120950010. Epub 2020 Aug 19. PMID: 32812453
- Gonçalves JG, Canale D, de Bragança AC, et al. The Blockade of TACE-Dependent EGF Receptor Activation by Losartan-Erlotinib Combination Attenuates Renal Fibrosis Formation in 5/6-Nephrectomized Rats Under Vitamin D Deficiency. Front Med (Lausanne). 2021 Jan 5;7:609158. https://doi.org/10.3389/fmed.2020.609158. eCollection 2020. PMID: 33469545
- Gregório PC, Bucharles S, Cunha RSD, et al. In vitro anti-inflammatory effects of vitamin D supplementation may be blurred in hemodialysis patients. Clinics (Sao Paulo). 2021 Feb 22;76:e1821. https://doi.org/10.6061/clinics/2021/e1821. eCollection 2021. PMID: 33624705
- Korucu B, TÜkÜn FA, Helvaci Ö, et al. VITAMIN D RECEPTOR POLYMORPHISMS AND BONE HEALTH AFTER KIDNEY TRANSPLANTATION. Turk J Med Sci. 2020 Dec 11. https://doi.org/10.3906/sag-1911-156. Online ahead of print. PMID: 33306336
- Lotfollahi L, Ossareh S, Neyestani TR. Evaluation of 25-hydroxy Vitamin D and 1,25-dihydroxy Vitamin D Levels in Maintenance Hemodialysis Patients. Iran J Kidney Dis. 2021 Jan;1(1):31-37. PMID: 33492302
- Mohammed A, Marie MA, Abdulazim DO, et al. Serum Urate Lowering Therapy Using Allopurinol Improves Serum 25 Hydroxy Vitamin D in Stage 3-5 CKD Patients: A Pilot Study. Nephron. 2020 Dec 30:1-4. https://doi.org/10.1159/000512340. Online ahead of print. PMID: 33378761

- Parizadeh SM, Rezayi M, Jafarzadeh-Esfehani R, et al. Association of vitamin D status with liver and kidney disease: A systematic review of clinical trials, and cross-sectional and cohort studies. Int J Vitam Nutr Res. 2021 Jan;91(1-2):175-187. https://doi.org/10.1024/0300-9831/a000540. Epub 2019 Feb 28. PMID: 30816821
- Sattar S, Adnan F, Waheed S. Frequency of Vitamin D deficiency and its association with serum PTH levels in end stage renal disease patients. J Pak Med Assoc. 2020 Dec;70(12(A)):2190-2194. https://doi.org/10.47391/JPMA.479. PMID: 33475596
- Sawires H, Fadel F, Hussein A, et al. Native vs. active vitamin D in children with chronic kidney disease: a cross-over study. Pediatr Nephrol. 2021 Feb;36(2):443-450. https://doi.org/10.1007/s00467-020-04721-1. Epub 2020 Aug 26. PMID: 32844292
- Schön A, Leifheit-Nestler M, Deppe J, et al. Active vitamin D is cardioprotective in experimental uraemia but not in children with CKD Stages 3-5. Nephrol Dial Transplant. 2021 Feb 20;36(3):442-451. https://doi.org/10.1093/ndt/gfaa227. PMID: 33241290
- Tapper M, McGrowder DA, Dilworth L, et al. Cystatin C, Vitamin D and Thyroid Function Test Profile in Chronic Kidney Disease Patients. Diseases. 2021 Jan 3;9(1):5. https://doi.org/10.3390/diseases9010005. PMID: 33401560
- Vitale C, Marangella M, Bermond F, et al. Metabolic effects of cholecalciferol supplementation in patients with calcium nephrolithiasis and vitamin D deficiency. World J Urol. 2021 Feb;39(2):597-603. https://doi.org/10.1007/s00345-020-03222-y. Epub 2020 May 4. PMID: 32367158
- Zanuzo K, Guareschi ZM, Detogni AC, et al. Physical exercise associated with vitamin D chronic supplementation reduces kidney injury induced by monosodium glutamate. An Acad Bras Cienc. 2020 Dec 14;92(4):e20201097. https://doi.org/10.1590/0001-3765202020201097. eCollection 2020. PMID: 33331449

NEUROLOGIA

- Alhussain F, Alomar M, Alenazi A, et al. The relationship between vitamin D levels and cognitive impairment in patients with multiple sclerosis. Eur Rev Med Pharmacol Sci. 2021 Feb;25(4):2021-2030. https://doi.org/10.26355/eurrev_202102_25105. PMID: 33660814
- Ali A, Shah SA, Zaman N, et al. Vitamin D exerts neuroprotection via SIRT1/nrf-2/ NF-kB signaling pathways against D-galactose-induced memory impairment in adult mice. Neurochem Int. 2021 Jan;142:104893. https://doi.org/10.1016/j.neuint.2020.104893. Epub 2020 Nov 4. PMID: 33159979
- Allahyari E, Hanachi P, Ariakia F, et al. The relationship between neuropsychological function and responsiveness to vitamin D supplementation using artificial neural networks. Nutr Health. 2020 Dec;26(4):285-294. https://doi.org/10.1177/0260106020937190. Epub 2020 Jul 16. PMID: 32669041
- Amirinejad R, Shirvani-Farsani Z, Naghavi Gargari B, et al. Vitamin D Changes Expression of DNA Repair Genes in the Patients with Multiple Sclerosis. Gene. 2021 Feb 12:145488. https://doi.org/10.1016/j.gene.2021.145488. Online ahead of print. PMID: 33588040
- Atif F, Yousuf S, Espinosa-Garcia C, et al. Post-ischemic stroke systemic inflammation: Immunomodulation by progesterone and vitamin D hormone. Neuropharmacology. 2020 Dec 15;181:108327. https://doi.org/10.1016/j.neuropharm.2020.108327. Epub 2020 Sep 18. PMID: 32950558
- Bao Z, Wang X, Li Y, et al. Vitamin D Alleviates Cognitive Dysfunction by Activating the VDR/ERK1/2 Signaling Pathway in an Alzheimer's Disease Mouse Model. Neuroimmunomodulation. 2021 Feb 18:1-8. https://doi.org/10.1159/000510400. Online ahead of print. PMID: 33601398
- Cancela Díez B, Pérez-Ramírez C, Maldonado-Montoro MDM, et al. Association between polymorphisms in the vitamin D receptor and susceptibility to multiple sclerosis. Pharmacogenet Genomics. 2021 Feb 1;31(2):40-47. https://doi.org/10.1097/FPC.0000000000000420. PMID: 33044390
- Croll PH, Boelens M, Vernooij MW, et al. Associations of vitamin D deficiency with MRI markers of brain health in a community sample. Clin Nutr. 2021 Jan;40(1):72-78. https://doi.org/10.1016/j.clnu.2020.04.027. Epub 2020 Apr 25. PMID: 32387186
- Dominguez-Mozo MI, Perez-Perez S, Villarrubia N, et al. Herpesvirus Antibodies, Vitamin D and Short-Chain Fatty Acids: Their Correlation with Cell Subsets in Multiple Sclerosis Patients and Healthy Controls. Cells. 2021 Jan 10;10(1):119. https://doi.org/10.3390/cells10010119. PMID: 33435197
- Du Y, Liang F, Zhang L, et al. Vitamin D Supplement for Prevention of Alzheimer's Disease: A Systematic Review and Meta-Analysis. Am J Ther. 2020 Dec 28;Publish Ahead of Print. https://doi.org/10.1097/MJT.0000000000001302. Online ahead of print. PMID: 33395056
- El-Salem K, Khalil H, Al-Sharman A, et al. Serum vitamin d inversely correlates with depression scores in people with multiple sclerosis. Mult Scler Relat Disord. 2021 Feb;48:102732. https://doi.org/10.1016/j.msard.2020.102732. Epub 2021 Jan 2. PMID: 33422916
- Eymundsdottir H, Chang M, Geirsdottir OG, et al. Lifestyle and 25-hydroxy-vitamin D among community-dwelling old adults with dementia, mild cognitive impairment, or normal cognitive function. Aging Clin Exp Res. 2020 Dec;32(12):2649-2656. https://doi.org/10.1007/s40520-020-01531-1. Epub 2020 Apr 4. PMID: 32248358
- Fan YG, Pang ZQ, Wu TY, et al. Vitamin D deficiency exacerbates Alzheimer-like pathologies by reducing antioxidant capacity. Free Radic Biol Med. 2020 Dec;161:139-149. https://doi.org/10.1016/j.freeradbiomed.2020.10.007. Epub 2020 Oct 14. PMID: 33068737
- Fu X, Shea MK, Dolnikowski GG, et al. Vitamin D and Vitamin K Concentrations in Human Brain Tissue Are Influenced by Freezer Storage Time: The Memory and Aging Project. J Nutr. 2021 Jan 4;151(1):104-108. https://doi.org/10.1093/jn/nxaa336. PMID: 33245132
- Gao S, Xun C, Xu T, et al. Associations between vitamin D receptor gene polymorphisms and spinal degenerative disease: evidence from a meta-analysis based on 35 case-control studies. Clin Neurol Neurosurg. 2021 Jan;200:106325. https://doi.org/10.1016/j.clineuro.2020.106325. Epub 2020 Oct 23. PMID: 33160714

- Hajimohammadebrahim-Ketabforoush M, Shahmohammadi M, Vahdat Shariatpanahi Z, et al. Preoperative Serum Level of Vitamin D is a Possible Protective Factor for Peritumoral Brain Edema of Meningioma: A Cross Sectional Study. Nutr Cancer. 2020 Dec 17:1-7. https://doi.org/10.1080/01635581.2020.1861311. Online ahead of print. PMID: 33331170
- Han JL, Yue YX, Gao X, et al. Vitamin D Receptor Polymorphism and Myasthenia Gravis in Chinese Han Population. Front Neurol. 2021 Feb 9;12:604052. https://doi.org/10.3389/fneur.2021.604052. eCollection 2021. PMID: 33633666
- Harroud A, Manousaki D, Butler-Laporte G, et al. The relative contributions of obesity, vitamin D, leptin, and adiponectin to multiple sclerosis risk: A Mendelian randomization mediation analysis. Mult Scler. 2021 Feb 19:1352458521995484. https://doi.org/10.1177/1352458521995484. Online ahead of print. PMID: 33605807
- Jiménez-Jiménez FJ, Amo G, Alonso-Navarro H, et al. Correction to: Serum vitamin D, vitamin D receptor and binding protein genes polymorphisms in restless legs syndrome. J Neurol. 2021 Feb 19. https://doi.org/10.1007/s00415-021-10422-y. Online ahead of print. PMID: 33606072
- Kashefiolasl S, Leisegang MS, Helfinger V, et al. Vitamin D-A New Perspective in Treatment of Cerebral Vasospasm. Neurosurgery. 2021 Feb 16;88(3):674-685. https://doi.org/10.1093/neuros/nyaa484. PMID: 33269399
- Kluckova K, Kozak J, Szaboova K, et al. Low serum vitamin D levels are associated with a low percentage of TREM-2+ monocytes in low-grade gliomas and poorer overall survival in patients with high-grade gliomas. Bratisl Lek Listy. 2021;122(3):172-178. https://doi.org/10.4149/BLL_2021_027. PMID: 33618524
- Liu H, He Y, Beck J, et al. Defining vitamin D receptor expression in the brain using a novel VDR(Cre) mouse. J Comp Neurol. 2020 Dec 25. https://doi.org/10.1002/cne.25100. Online ahead of print. PMID: 33368246
- Luo JJ, Dun NJ. Neuropathies and vitamin D deficiency. Muscle Nerve. 2020 Dec;62(6):E88-E89. https://doi.org/10.1002/mus.27069. Epub 2020 Sep 29. PMID: 32939770
- McGinn EA, Lyden E, Peeples ES. Reply to: The Severity of Neuronal Damage in Neonatal Hypoxic-Ischemic Encephalopathy: Does Vitamin D Status Matter? Neuropediatrics. 2021 Jan 28. https://doi.org/10.1055/s-0040-1722683. Online ahead of print. PMID: 33511592
- Miao H, Zhu H, Luan X, et al. Risk Factors of Vitamin D Deficiency in Chinese Ischemic Stroke Patients: A Cross-Sectional Study. Front Aging Neurosci. 2021 Jan 18;12:613498. https://doi.org/10.3389/fnagi.2020.613498. eCollection 2020. PMID: 33536895
- Moosavi E, Rafiei A, Yazdani Y, et al. Association of serum levels and receptor genes BsmI, TaqI and FokI polymorphisms of vitamin D with the severity of multiple sclerosis. J Clin Neurosci. 2021 Feb;84:75-81. https://doi.org/10.1016/j.jocn.2020.12.008. Epub 2020 Dec 29. PMID: 33485603
- Panda PK, Sharawat IK. The Severity of Neuronal Damage in Neonatal Hypoxic-Ischemic Encephalopathy: Does Vitamin-D Status Matter? Neuropediatrics. 2021 Jan 28. https://doi.org/10.1055/s-0040-1722682. Online ahead of print. PMID: 33511593
- Panza F, La Montagna M, Lampignano L, et al. Vitamin D in the development and progression of alzheimer's disease: implications for clinical management. Expert Rev Neurother. 2021 Jan 18:1-15. https://doi.org/10.1080/14737175.2021.1873768. Online ahead of print. PMID: 33406925
- Papassava M, Siomou E, Nakou I, et al. Effects of long-term antiepileptic polytherapy on bone biochemical markers in ambulatory children and adolescents and possible benefits of vitamin D supplementation: a prospective interventional study. Epilepsy Behav. 2021 Feb;115:107708. https://doi.org/10.1016/j.yebeh.2020.107708. Epub 2021 Jan 17. PMID: 33472116
- Peeri NC, Egan KM, Chai W, et al. Association of magnesium intake and vitamin D status with cognitive function in older adults: an analysis of US National Health and Nutrition Examination Survey (NHANES) 2011 to 2014. Eur J Nutr. 2021 Feb;60(1):465-474. https://doi.org/10.1007/s00394-020-02267-4. Epub 2020 May 9. PMID: 32388734
- Rist PM, Buring JE, Cook NR, et al. Effect of Vitamin D and/or Marine n-3 Fatty Acid Supplementation on Changes in Migraine Frequency and Severity. Am J Med. 2021 Jan 12:S0002-9343(20)31124-4. https://doi.org/10.1016/j.amjmed.2020.11.023. Online ahead of print. PMID: 33444588
- Roy NM, Al-Harthi L, Sampat N, et al. Impact of vitamin D on neurocognitive function in dementia, depression, schizophrenia and ADHD. Front Biosci (Landmark Ed). 2021 Jan 1;26:566-611. PMID: 33049684
- Sahin Alak ZY, Ates Bulut E, Dokuzlar O, et al. Long-term effects of vitamin D deficiency on gait and balance in the older adults. Clin Nutr. 2020 Dec;39(12):3756-3762. https://doi.org/10.1016/j.clnu.2020.04.003. Epub 2020 Apr 11. PMID: 32336527
- Saket S, Varasteh N, Halimi Asl AA, et al. How Antiepileptics May Change the Serum Level of Vitamin D, Calcium, and Phosphorus in Children with Epilepsy. Iran J Child Neurol. 2021 Winter;15(1):19-27. https://doi.org/10.22037/ijcn.v15i1.25952. PMID: 33558811
- Scazzone C, Agnello L, Bivona G, et al. Vitamin D and Genetic Susceptibility to Multiple Sclerosis. Biochem Genet. 2021 Feb;59(1):1-30. https://doi.org/10.1007/s10528-020-10010-1. Epub 2020 Nov 7. PMID: 33159645 Review.
- Scott M, Corrigan N, Bourke T, et al. Should vitamin D supplementation routinely be prescribed to children receiving antiepileptic medication? Arch Dis Child. 2021 Jan;106(1):90-92. https://doi.org/10.1136/archdischild-2020-320168. Epub 2020 Oct 8. PMID: 33032993
- Simpson-Yap S, Jelinek P, Weiland T, et al. Self-reported use of vitamin D supplements is associated with higher physical quality of life scores in multiple sclerosis. Mult Scler Relat Disord. 2021 Jan 16;49:102760. https://doi.org/10.1016/j.msard.2021.102760. Online ahead of print. PMID: 33545666
- Skrobot W, Perzanowska E, Krasowska K, et al. Vitamin D Supplementation Improves the Effects of the Rehabilitation Program on Balance and Pressure Distribution in Patients after Anterior Cervical Interbody Fusion-Randomized Control Trial. Nutrients.

2020 Dec 18;12(12):3874. https://doi.org/10.3390/nu12123874. PMID: 33352920

- Soares JZ, Pettersen R, Benth JŠ, et al. Vitamin D Levels, APOE Allele, and MRI Volumetry Assessed by NeuroQuant in Norwegian Adults with Cognitive Symptoms. J Alzheimers Dis. 2021;79(1):311-321. https://doi.org/10.3233/JAD-201018. PMID: 33252081
- Sultan S. Neuroimaging changes associated with vitamin D Deficiency - a narrative review. Nutr Neurosci. 2021 Feb 28:1-9. https://doi.org/10.1080/1028415X.2021.1888206. Online ahead of print. PMID: 33641639
- Wang X, Li M, Zhang X, et al. CYP11A1 Upregulation Leads to Trophoblast Oxidative Stress and Fetal Neurodevelopmental Toxicity That can be Rescued by Vitamin D. Front Mol Biosci. 2021 Feb 15;7:608447. https://doi.org/10.3389/fmolb.2020.608447. eCollection 2020. PMID: 33659272
- Wang Z, Ding R, Wang J. The Association between Vitamin D Status and Autism Spectrum Disorder (ASD): A Systematic Review and Meta-Analysis. Nutrients. 2020 Dec 29;13(1):86. https://doi.org/10.3390/nu13010086. PMID: 33383952
- Wesnes K, Myhr KM, Riise T, et al. Low vitamin D, but not tobacco use or high BMI, is associated with long-term disability progression in multiple sclerosis. Mult Scler Relat Disord. 2021 Jan 28;50:102801. https://doi.org/10.1016/j.msard.2021.102801. Online ahead of print. PMID: 33636616
- Zajac IT, Barnes M, Cavuoto P, et al. The Effects of Vitamin D-Enriched Mushrooms and Vitamin D3 on Cognitive Performance and Mood in Healthy Elderly Adults: A Randomised, Double-Blinded, Placebo-Controlled Trial. Nutrients. 2020 Dec 16;12(12):3847. https://doi.org/10.3390/nu12123847. PMID: 33339304
- Zhang YF, Xu ZQ, Zhou HJ, et al. The Efficacy of Vitamin D Supplementation for Migraine: A Meta-Analysis of Randomized Controlled Studies. Clin Neuropharmacol. 2021 Jan-Feb 01;44(1):5-8. https://doi.org/10.1097/WNF.0000000000000419. PMID: 33449474

ONCOLOGIA

- Afshan FU, Masood A, Nissar B, et al. Promoter hypermethylation regulates vitamin D receptor (VDR) expression in colorectal cancer-A study from Kashmir valley. Cancer Genet. 2021 Apr;252-253:96-106. https://doi.org/10.1016/j.cancergen.2021.01.002. Epub 2021 Jan 13. PMID: 33486463
- Arumugam M, Sonkusare S, Goripalli S, et al. Vitamin D receptor Fok1 polymorphism and invasive ovarian carcinoma risk - A case-control study. Gene. 2021 Feb 5;768:145291. https://doi.org/10.1016/j.gene.2020.145291. Epub 2020 Nov 4. PMID: 33157205
- Aslam A, Ahmad J, Baghdadi MA, et al. Chemopreventive effects of vitamin D(3) and its analogue, paricalcitol, in combination with 5-fluorouracil against colorectal cancer: The role of calcium signalling molecules. Biochim Biophys Acta Mol Basis Dis. 2021 Mar 1;1867(3):166040. https://doi.org/10.1016/j.bbadis.2020.166040. Epub 2020 Dec 16. PMID: 33338596
- Bao Y, Li Y, Gong Y, et al. Vitamin D Status and Survival in Stage II-III Colorectal Cancer. Front Oncol. 2020 Dec 17;10:581597. https://doi.org/10.3389/fonc.2020.581597. eCollection 2020. PMID: 33392078
- Bhoora S, Punchoo R. Policing Cancer: Vitamin D Arrests the Cell Cycle. Int J Mol Sci. 2020 Dec 6;21(23):9296. https://doi.org/10.3390/ijms21239296. PMID: 33291213
- Buchtele N, Lobmeyr E, Cserna J, et al. Prevalence and Impact of Vitamin D Deficiency in Critically Ill Cancer Patients Admitted to the Intensive Care Unit. Nutrients. 2020 Dec 23;13(1):22. https://doi.org/10.3390/nu13010022. PMID: 33374662
- Campolina-Silva GH, Barata MC, Werneck-Gomes H, et al. Altered expression of the vitamin D metabolizing enzymes CYP27B1 and CYP24A1 under the context of prostate aging and pathologies. J Steroid Biochem Mol Biol. 2021 Feb 14;209:105832. https://doi.org/10.1016/j.jsbmb.2021.105832. Online ahead of print. PMID: 33596463
- Casadei-Gardini A, Filippi R, Rimini M, et al. Effects of Metformin and Vitamin D on Clinical Outcome in Cholangiocarcinoma Patients. Oncology. 2021 Feb 24:1-8. https://doi.org/10.1159/000512796. Online ahead of print. PMID: 33626532
- Chen J, Tang Z, Slominski AT, et al. Vitamin D and its analogs as anticancer and anti-inflammatory agents. Eur J Med Chem. 2020 Dec 1;207:112738. https://doi.org/10.1016/j.ejmech.2020.112738. Epub 2020 Aug 15. PMID: 32829183 Review.
- Duman İ, Tiftik RN, Ün İ. Effects of Vitamin D Analogs Alfacalcidol and Calcitriol on Cell Proliferation and Migration of HEC1A Endometrial Adenocarcinoma Cells. Nutr Cancer. 2021;73(2):273-281. https://doi.org/10.1080/01635581.2020.1764066. Epub 2020 May 13. PMID: 32400204
- Francis I, AlAbdali N, Kapila K, et al. Vitamin D pathway related polymorphisms and vitamin D receptor expression in breast cancer. Int J Vitam Nutr Res. 2021 Jan;91(1-2):124-132. https://doi.org/10.1024/0300-9831/a000615. Epub 2019 Oct 18. PMID: 31623531
- Gnagnarella P, Raimondi S, Aristarco V, et al. Ethnicity as modifier of risk for Vitamin D receptors polymorphisms: Comprehensive meta-analysis of all cancer sites. Crit Rev Oncol Hematol. 2021 Feb;158:103202. https://doi.org/10.1016/j.critrevonc.2020.103202. Epub 2020 Dec 30. PMID: 33387627 Review.
- He X, Liao S, Lu D, et al. MiR-125b promotes migration and invasion by targeting the vitamin D receptor in renal cell carcinoma. Int J Med Sci. 2021 Jan 1;18(1):150-156. https://doi.org/10.7150/ijms.49328. eCollection 2021. PMID: 33390783
- Jiang S, Zhang H, Li X, et al. Vitamin D/VDR attenuate cisplatin-induced AKI by down-regulating NLRP3/Caspase-1/GSDMD pyroptosis pathway. J Steroid Biochem Mol Biol. 2021 Feb;206:105789. https://doi.org/10.1016/j.jsbmb.2020.105789. Epub 2020 Nov 28. PMID: 33259938
- Kang Z, Wang C, Tong Y, et al. Novel Nonsecosteroidal Vitamin D Receptor Modulator Combined with Gemcitabine Enhances Pancreatic Cancer Therapy through Remodeling of the Tumor Microenvironment. J Med Chem. 2021 Jan 14;64(1):629-643. https://doi.org/10.1021/acs.jmedchem.0c01197. Epub 2020 Dec 31. PMID: 33381963

- Khriesha A, Bustanji Y, Abu Farha R, et al. Evaluation of the potential anticancer activity of different vitamin D metabolites on colorectal and breast cancer cell lines. Horm Mol Biol Clin Investig. 2021 Feb 1. https://doi.org/10.1515/hmbci-2020-0045. Online ahead of print. PMID: 33544505
- Klement RJ, Koebrunner PS, Krage K, et al. Low Vitamin D Status in a Cancer Patient Population from Franconia, Germany. Complement Med Res. 2020 Dec 14:1-7. https://doi.org/10.1159/000511993. Online ahead of print. PMID: 33316808
- Latacz M, Rozmus D, Fiedorowicz E, et al. Vitamin D Receptor (VDR) Gene Polymorphism in Patients Diagnosed with Colorectal Cancer. Nutrients. 2021 Jan 11;13(1):200. https://doi.org/10.3390/nu13010200. PMID: 33440610
- Lin J, Chen X, Sun M, et al. Upregulation of microRNA-181a-5p increases the sensitivity of HS578T breast cancer cells to cisplatin by inducing vitamin D receptor-mediated cell autophagy. Oncol Lett. 2021 Apr;21(4):247. https://doi.org/10.3892/ol.2021.12508. Epub 2021 Feb 3. PMID: 33664811
- Maj E, Maj B, Bobak K, et al. Differential Response of Lung Cancer Cells, with Various Driver Mutations, to Plant Polyphenol Resveratrol and Vitamin D Active Metabolite PRI-2191. Int J Mol Sci. 2021 Feb 26;22(5):2354. https://doi.org/10.3390/ijms22052354. PMID: 33652978
- McCray T, Pacheco JV, Loitz CC, et al. Vitamin D sufficiency enhances differentiation of patient-derived prostate epithelial organoids. iScience. 2021 Jan 5;24(1):101974. https://doi.org/10.1016/j.isci.2020.101974. eCollection 2021 Jan 22. PMID: 33458620
- Nica-Badea D, Udristioiu A. The Relevance of Supplemental Vitamin D in Malignancies. Anticancer Agents Med Chem. 2021 Jan 11. https://doi.org/10.2174/1871520621666210112115846. Online ahead of print. PMID: 33438555
- Niedermaier T, Gredner T, Kuznia S, et al. Vitamin D supplementation to the older adult population in Germany has the cost-saving potential of preventing almost 30,000 cancer deaths per year. Mol Oncol. 2021 Feb 4. https://doi.org/10.1002/1878-0261.12924. Online ahead of print. PMID: 33540476
- Okda TM, Abd-Elghaffar SK, Katary MA, et al. Chemopreventive and anticancer activities of indomethacin and vitamin D combination on colorectal cancer induced by 1,2-dimethylhydrazine in rats. Biomed Rep. 2021 Feb;14(2):27. https://doi.org/10.3892/br.2020.1403. Epub 2020 Dec 18. PMID: 33408861
- Ong JS, Dixon-Suen SC, Han X, et al. A comprehensive re-assessment of the association between vitamin D and cancer susceptibility using Mendelian randomization. Nat Commun. 2021 Jan 11;12(1):246. https://doi.org/10.1038/s41467-020-20368-w. PMID: 33431812
- Passarelli MN, Karagas MR, Mott LA, et al. Risk of keratinocyte carcinomas with vitamin D and calcium supplementation: a secondary analysis of a randomized clinical trial. Am J Clin Nutr. 2020 Dec 10;112(6):1532-1539. https://doi.org/10.1093/ajcn/nqaa267. PMID: 33022713 Clinical Trial.
- Radwan E, Ali M, Faied SMA, et al. Novel therapeutic regimens for urethane-induced early lung cancer in rats: Combined cisplatin nanoparticles with vitamin-D(3). IUBMB Life. 2021 Feb;73(2):362-374. https://doi.org/10.1002/iub.2432. Epub 2020 Dec 17. PMID: 33332722
- Rasmussen LS, Yilmaz MK, Falkmer UG, et al. Pre-treatment serum vitamin D deficiency is associated with increased inflammatory biomarkers and short overall survival in patients with pancreatic cancer. Eur J Cancer. 2021 Feb;144:72-80. https://doi.org/10.1016/j.ejca.2020.10.038. Epub 2020 Dec 17. PMID: 33341448
- Sadeghi H, Kamaliyan Z, Mohseni R, et al. Dysregulation of vitamin D synthesis pathway genes in colorectal cancer: A case-control study. J Clin Lab Anal. 2021 Feb;35(2):e23617. https://doi.org/10.1002/jcla.23617. Epub 2020 Oct 14. PMID: 33058307
- Schöttker B, Kuznia S, Brenner H. Efficacy of vitamin D(3) supplementation on cancer mortality in the general population and the prognosis of patients with cancer: protocol of a systematic review and individual patient data meta-analysis of randomised controlled trials. BMJ Open. 2021 Jan 13;11(1):e041607. https://doi.org/10.1136/bmjopen-2020-041607. PMID: 33441357
- Serrano D, Pozzi C, Guglietta S, et al. Microbiome as Mediator of Diet on Colorectal Cancer Risk: The Role of Vitamin D, Markers of Inflammation and Adipokines. Nutrients. 2021 Jan 25;13(2):363. https://doi.org/10.3390/nu13020363. PMID: 33504116
- Songyang Y, Song T, Shi Z, et al. Effect of vitamin D on malignant behavior of non-small cell lung cancer cells. Gene. 2021 Feb 5;768:145309. https://doi.org/10.1016/j.gene.2020.145309. Epub 2020 Nov 13. PMID: 33197518
- Story MJ. Zinc, omega-3 polyunsaturated fatty acids and vitamin D: An essential combination for prevention and treatment of cancers. Biochimie. 2021 Feb;181:100-122. https://doi.org/10.1016/j.biochi.2020.11.019. Epub 2020 Dec 9. PMID: 33307154
- Thederan I, Chandrasekar T, Tennstedt P, et al. Circulating Vitamin D and Selenium Levels and Outcome in Prostate Cancer Patients: Lessons from the MARTINI-Lifestyle Cohort. Eur Urol Focus. 2021 Jan 3:S2405-4569(20)30307-2. https://doi.org/10.1016/j.euf.2020.12.005. Online ahead of print. PMID: 33408047
- Voutsadakis IA. Vitamin D receptor (VDR) and metabolizing enzymes CYP27B1 and CYP24A1 in breast cancer. Mol Biol Rep. 2020 Dec;47(12):9821-9830. https://doi.org/10.1007/s11033-020-05780-1. Epub 2020 Dec 1. PMID: 33259013 Review.
- Xu Y, Qian M, Hong J, et al. The effect of vitamin D on the occurrence and development of colorectal cancer: a systematic review and meta-analysis. Int J Colorectal Dis. 2021 Feb 17. https://doi.org/10.1007/s00384-021-03879-w. Online ahead of print. PMID: 33598751 Review.
- Zanetta P, Squarzanti DF, Sorrentino R, et al. Oral microbiota and vitamin D impact on oropharyngeal squamous cell carcinogenesis: a narrative literature review. Crit Rev Microbiol. 2021 Jan 21:1-24. https://doi.org/10.1080/1040841X.2021.1872487. Online ahead of print. PMID: 33476522
- Zhao D, Wang T, Li YF, et al. Evaluation of the association between vitamin D and lung cancer skin metastasis: A protocol for systematic review. Medicine (Baltimore). 2020 Dec 4;99(49):e23281. https://doi.org/10.1097/

MD.0000000000023281. PMID: 33285703

PEDIATRIA

- Abboud M, Al Anouti F, Papandreou D, et al. Vitamin D status and blood pressure in children and adolescents: a systematic review of observational studies. Syst Rev. 2021 Feb 22;10(1):60. https://doi.org/10.1186/s13643-021-01584-x. PMID: 33618764
- Alves AGP, Cruvinel BAC, Godoi LS, et al. Vitamin D is not associated with body composition and metabolic profile among Brazilian children with 25-hydroxyvitamin D 75 nmol/L: A cross-sectional study. Nutr Metab Cardiovasc Dis. 2020 Dec 5:S0939-4753(20)30506-8. https://doi.org/10.1016/j.numecd.2020.11.029. Online ahead of print. PMID: 33549443
- Asghari G, Yuzbashian E, Wagner CL, et al. Daily vitamin D(3) in overweight and obese children and adolescents: a randomized controlled trial. Eur J Nutr. 2021 Jan 11. https://doi.org/10.1007/s00394-020-02406-x. Online ahead of print. PMID: 33427961
- Brustad N, Greve JH, Mirzakhani H, et al. High-dose vitamin D during pregnancy and pathway gene polymorphisms in prevention of offspring persistent wheeze. Pediatr Allergy Immunol. 2021 Jan 16. https://doi.org/10.1111/pai.13453. Online ahead of print. PMID: 33453076
- Carvalho Silva C, Gavinha S, et al. Serum Levels of Vitamin D and Dental Caries in 7-Year-Old Children in Porto Metropolitan Area. Nutrients. 2021 Jan 7;13(1):166. https://doi.org/10.3390/nu13010166. PMID: 33430295
- Constable AM, Vlachopoulos D, Barker AR, et al. The independent and interactive associations of physical activity intensity and vitamin D status with bone mineral density in prepubertal children: the PANIC Study. Osteoporos Int. 2021 Feb 5. https://doi.org/10.1007/s00198-021-05872-z. Online ahead of print. PMID: 33547487
- Crowe FL, Mughal MZ, Maroof Z, et al. Vitamin D for Growth and Rickets in Stunted Children: A Randomized Trial. Pediatrics. 2021 Jan;147(1):e20200815. https://doi.org/10.1542/peds.2020-0815. Epub 2020 Dec 18. PMID: 33386335
- Das R, Jobayer Chisti M, Ahshanul Haque M, et al. Evaluating association of vaccine response to low serum zinc and vitamin D levels in children of a birth cohort study in Dhaka. Vaccine. 2021 Jan 3;39(1):59-67. https://doi.org/10.1016/j.vaccine.2020.10.048. Epub 2020 Oct 27. PMID: 33121844
- Dogan E, Sevinc E. The vitamin D status and serum eosinophilic cationic protein levels in infants with cow's milk protein allergy. Am J Transl Res. 2020 Dec 15;12(12):8208-8215. eCollection 2020. PMID: 33437393
- Feketea GM, Bocsan IC, Tsiros G, et al. Vitamin D Status in Children in Greece and Its Relationship with Sunscreen Application. Children (Basel). 2021 Feb 5;8(2):111. https://doi.org/10.3390/children8020111. PMID: 33562659
- Ferrer-Suay S, Alonso-Iglesias E, Tortajada-Girbés M, et al. Vitamin D receptor gene ApaI and FokI polymorphisms and its association with inflammation and oxidative stress in vitamin D sufficient Caucasian Spanish children. Transl Pediatr. 2021 Jan;10(1):103-111. https://doi.org/10.21037/tp-20-198. PMID: 33633942
- Gungor S, Köylü AA, Saglam S, et al. Effects of Oxidant-Antioxidant and Vitamin D Levels on Clinical and Laboratory Data in Children With Fatty Liver Disease. Cureus. 2020 Dec 2;12(12):e11849. https://doi.org/10.7759/cureus.11849. PMID: 33282605
- Hauta-Alus HH, Holmlund-Suila EM, Kajantie E, et al. The Effects of Vitamin D Supplementation During Infancy on Growth During the First Two Years of Life. J Clin Endocrinol Metab. 2020 Dec 21:dgaa943. https://doi.org/10.1210/clinem/dgaa943. Online ahead of print. PMID: 33347567
- He M, Cao T, Wang J, et al. Vitamin D deficiency relation to sepsis, paediatric risk of mortality III score, need for ventilation support, length of hospital stay, and duration of mechanical ventilation in critically ill children: A meta-analysis. Int J Clin Pract. 2020 Dec 6:e13908. https://doi.org/10.1111/ijcp.13908. Online ahead of print. PMID: 33280208
- Huang CZ, Zhang J, Zhang L, et al. Serum vitamin D and vitamin-D-binding protein levels in children with chronic hepatitis B. World J Gastroenterol. 2021 Jan 21;27(3):255-266. https://doi.org/10.3748/wjg.v27.i3.255. PMID: 33519140
- Huey SL, Acharya N, Silver A, et al. Effects of oral vitamin D supplementation on linear growth and other health outcomes among children under five years of age. Cochrane Database Syst Rev. 2020 Dec 8;12:CD012875. https://doi.org/10.1002/14651858.CD012875.pub2. PMID: 33305842
- Jackmann N, Gustafsson J, Harila-Saari A, et al. Prevalence of and factors influencing vitamin D deficiency in pediatric patients diagnosed with cancer at northern latitudes. Acta Paediatr. 2021 Feb 2. https://doi.org/10.1111/apa.15788. Online ahead of print. PMID: 33528842
- Kowalska E, Rola R, Wójcik M, et al. Analysis of vitamin D(3) metabolites in survivors of infantile idiopathic hypercalcemia caused by CYP24A1 mutation or SLC34A1 mutation. J Steroid Biochem Mol Biol. 2021 Jan 28;208:105824. https://doi.org/10.1016/j.jsbmb.2021.105824. Online ahead of print. PMID: 33516786
- Kumar D, Singh MV, Yadav RK, et al. Vitamin D levels in paediatric intensive care unit patients and its relation to severity of illness: An Indian experience. Trop Doct. 2021 Feb 14:49475521992999. https://doi.org/10.1177/0049475521992999. Online ahead of print. PMID: 33586633
- Kumaratne M, Vigneron F, Cisneros J. Treatment with Vitamin D3 in Vitamin D Deficient Adolescents: A Pilot Study. Glob Pediatr Health. 2020 Dec 16;7:2333794X20976240. https://doi.org/10.1177/2333794X20976240. eCollection 2020. PMID: 33403223
- Lei WT, Huang KY, Jhong JH, et al. Metagenomic analysis of the gut microbiome composition associated with vitamin D supplementation in Taiwanese infants. Sci Rep. 2021 Feb 3;11(1):2856. https://doi.org/10.1038/s41598-021-82584-8. PMID: 33536562
- Ma K, Wei SQ, Bi WG, et al. Effect of Vitamin D Supplementation in Early Life on Children's Growth and Body Composition: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Nutrients. 2021 Feb 5;13(2):524. https://doi.org/10.3390/nu13020524. PMID: 33562750
- Milani GP, Simonetti GD, Edefonti V, et al. Seasonal variability of the vitamin D effect on physical fitness in adolescents. Sci Rep. 2021 Jan 8;11(1):182. https://doi.

org/10.1038/s41598-020-80511-x. PMID: 33420273

- Nagara S, Usui S, Kawashiri M, et al. A case of Noonan syndrome with skull defect due to vitamin D deficiency rickets. Clin Pediatr Endocrinol. 2021;30(1):71-73. https://doi.org/10.1297/cpe.30.71. Epub 2021 Jan 5. PMID: 33446957
- Namazi N, Qorbani M, Shafiee G, et al. Association of Vitamin D Concentrations with subjective health complaints in children and adolescents: the CASPIAN-V study. BMC Public Health. 2021 Jan 2;21(1):3. https://doi.org/10.1186/s12889-020-10020-z. PMID: 33388046
- Nasiri-Babadi P, Sadeghian M, Sadeghi O, et al. The association of serum levels of zinc and vitamin D with wasting among Iranian pre-school children. Eat Weight Disord. 2021 Feb;26(1):211-218. https://doi.org/10.1007/s40519-019-00834-1. Epub 2020 Jan 3. PMID: 31900880
- Nørgaard SM, Dalgård C, Heidemann MS, et al. Bone mineral density at age 7 years does not associate with adherence to vitamin D supplementation guidelines in infancy or vitamin D status in pregnancy and childhood: an Odense Child Cohort study. Br J Nutr. 2021 Jan 26:1-12. https://doi.org/10.1017/S0007114521000301. Online ahead of print. PMID: 33494857
- Park SW, Lee YJ, Ryoo E. Difference in Vitamin D Levels Between Children with Clostridioides difficile Enteritis and Those with Other Acute Infectious Enteritis. Pediatr Gastroenterol Hepatol Nutr. 2021 Jan;24(1):81-89. https://doi.org/10.5223/pghn.2021.24.1.81. Epub 2021 Jan 8. PMID: 33505897
- Pulungan A, Soesanti F, Tridjaja B, et al. Vitamin D insufficiency and its contributing factors in primary school-aged children in Indonesia, a sun-rich country. Ann Pediatr Endocrinol Metab. 2021 Jan 7. https://doi.org/10.6065/apem.2040132.066. Online ahead of print. PMID: 33412749
- Rabbani S, Afaq S, Fazid S, et al. Correlation between maternal and neonatal blood Vitamin D level: Study from Pakistan. Matern Child Nutr. 2021 Jan;17(1):e13028. https://doi.org/10.1111/mcn.13028. Epub 2020 Aug 20. PMID: 32815629
- Razavi Khorasani N, Moazzami B, Zahedi Tajrishi F, et al. The Association Between Low Levels of Vitamin D and Clinical Outcomes in Critically-Ill Children: A Systematic Review and Meta-Analysis. Fetal Pediatr Pathol. 2020 Dec;39(6):503-517. https://doi.org/10.1080/15513815.2019.1675832. Epub 2019 Oct 11. PMID: 31603014
- Rehman G, Ahmad H, Ddin A, et al. Demographic Differences and Trends of Vitamin D Levels Among the Teenaged Girls in Balochistan. Cureus. 2020 Dec 28;12(12):e12335. https://doi.org/10.7759/cureus.12335. PMID: 33520531
- Rutigliano I, De Filippo G, De Giovanni D, et al. Is sunlight enough for sufficient vitamin D status in children and adolescents? A survey in a sunny region of southern Italy. Nutrition. 2020 Dec 5;84:111101. https://doi.org/10.1016/j.nut.2020.111101. Online ahead of print. PMID: 33476996
- Siddiqui AA, Kumar J, Adeel M, et al. Prevalence of vitamin D deficiency in children presenting with supracondylar fractures of humerus. Int J Clin Pract. 2021 Feb 1:e14056. https://doi.org/10.1111/ijcp.14056. Online ahead of print. PMID: 33525057
- Song K, Kwon A, Chae HW, et al. Vitamin D status is associated with bone mineral density in adolescents: Findings from the Korea National Health and Nutrition Examination Survey. Nutr Res. 2021 Mar;87:13-21. https://doi.org/10.1016/j.nutres.2020.12.011. Epub 2020 Dec 8. PMID: 33596507
- Sung M, Rhie S, Kim JH, et al. Assessment of vitamin D, exercise, and lipid profile associated with excessive daytime sleepiness in school children. Sleep Med. 2021 Jan;77:51-57. https://doi.org/10.1016/j.sleep.2020.11.017. Epub 2020 Nov 21. PMID: 33310114
- Tan ML, Abrams SA, Osborn DA. Vitamin D supplementation for term breastfed infants to prevent vitamin D deficiency and improve bone health. Cochrane Database Syst Rev. 2020 Dec 11;12:CD013046. https://doi.org/10.1002/14651858.CD013046.pub2. PMID: 33305822
- Topak D, Seyithanoğlu M, Doğar F, et al. Are vitamin D and vitamin D receptor levels different in children with developmental dysplasia of the hip? J Orthop Surg Res. 2021 Jan 7;16(1):24. https://doi.org/10.1186/s13018-020-02162-y. PMID: 33413534
- Uday S, Manaseki-Holland S, Bowie J, et al. The effect of vitamin D supplementation and nutritional intake on skeletal maturity and bone health in socio-economically deprived children. Eur J Nutr. 2021 Feb 20. https://doi.org/10.1007/s00394-021-02511-5. Online ahead of print. PMID: 33611615
- Uday S, Naseem S, Large J, et al. Failure of national antenatal vitamin D supplementation programme puts dark skinned infants at highest risk: A newborn blood-spot screening study. Clin Nutr. 2020 Dec 11:S0261-5614(20)30667-1. https://doi.org/10.1016/j.clnu.2020.12.008. Online ahead of print. PMID: 33358424
- Unsur EK. Vitamin D levels of the healthy infants using oral spray or drop form of vitamin D supplement in the first year of life. North Clin Istanb. 2021 Jan 26;8(1):31-36. https://doi.org/10.14744/nci.2020.09471. eCollection 2021. PMID: 33623870
- Wang D, Su K, Ding Z, et al. Association of Vitamin D Receptor Gene Polymorphisms with Metabolic Syndrome in Chinese Children. Int J Gen Med. 2021 Jan 12;14:57-66. https://doi.org/10.2147/IJGM.S287205. eCollection 2021. PMID: 33469344
- Xiao P, Zhao XY, Hong W, et al. [A prospective cohort study on the associations between vitamin D nutritional status and cardiometabolic abnormities in children]. Zhonghua Liu Xing Bing Xue Za Zhi. 2020 Dec 10;41(12):2059-2065. https://doi.org/10.3760/cma.j.cn112338-20200804-01020. PMID: 33378817 Chinese.
- Xie H, Min M, Guo S, et al. Impact of Vitamin D and Vitamin D Receptor on Risk of Cardiovascular Diseases in Children and Adolescents with Obesity in Sichuan, China: A Cross-Sectional Study. Ann Nutr Metab. 2021 Feb 24:1-9. https://doi.org/10.1159/000513287. Online ahead of print. PMID: 33626539
- Yu W, Ying Q, Zhu W, et al. Vitamin D status was associated with sepsis in critically ill children: A PRISMA compliant systematic review and meta-analysis. Medicine (Baltimore). 2021 Jan 15;100(2):e23827. https://doi.org/10.1097/MD.0000000000023827. PMID: 33466129
- Yuan C, Qu C, Ji W. Vitamin D supple-

mentation for improving children with bone mineral density: A protocol for systematic review and meta-analysis. Medicine (Baltimore). 2020 Dec 24;99(52):e23475. https://doi.org/10.1097/MD.0000000000023475. PMID: 33350731

- Zaffanello M, Ferrante G, Fasola S, et al. Personal and Environmental Risk Factors at Birth and Hospital Admission: Direct and Vitamin D-Mediated Effects on Bronchiolitis Hospitalization in Italian Children. Int J Environ Res Public Health. 2021 Jan 17;18(2):747. https://doi.org/10.3390/ijerph18020747. PMID: 33477251
- Zhang X, Chen Y, Jin S, et al. Association of serum 25-Hydroxyvitamin D with Vitamin D intervention and outdoor activity among children in North China: an observational study. BMC Pediatr. 2020 Dec 2;20(1):542. https://doi.org/10.1186/s12887-020-02435-9. PMID: 33267851
- Zhang X, Luo K, He X, et al. Association of vitamin D status at birth with pulmonary disease morbidity in very preterm infants. Pediatr Pulmonol. 2020 Dec 17. https://doi.org/10.1002/ppul.25233. Online ahead of print. PMID: 33331677
- Zhou P, Tong X. Maternal High-Dose Vitamin D Supplementation and Offspring Bone Mineralization Until Age 6 Years. JAMA Pediatr. 2021 Jan 1;175(1):103-104. https://doi.org/10.1001/jamapediatrics.2020.2008. PMID: 32777020

PNEUMOLOGIA

- Adams SN, Adgent MA, Gebretsadik T, et al. Prenatal vitamin D levels and child wheeze and asthma. J Matern Fetal Neonatal Med. 2021 Feb;34(3):323-331. https://doi.org/10.1080/14767058.2019.1607286. Epub 2019 May 2. PMID: 30983439
- Ahmad S, Arora S, Khan S, et al. Vitamin D and its therapeutic relevance in pulmonary diseases. J Nutr Biochem. 2020 Dec 31;90:108571. https://doi.org/10.1016/j.jnutbio.2020.108571. Online ahead of print. PMID: 33388351 Review.
- Al-Zayadneh E, Alnawaiseh NA, Ajarmeh S, et al. Vitamin D deficiency in children with bronchial asthma in southern Jordan: a cross-sectional study. J Int Med Res. 2020 Dec;48(12):300060520974242. https://doi.org/10.1177/0300060520974242. PMID: 33284716
- Andújar-Espinosa R, Salinero-González L. Vitamin D Supplementation: A Treatment With Possible Benefits in Asthma. Arch Bronconeumol. 2021 Jan 28:S0300-2896(21)00027-2. https://doi.org/10.1016/j.arbres.2021.01.006. Online ahead of print. PMID: 33653580 English, Spanish.
- Bhimavarapu A, Deng Q, Bean M, et al. Factors Contributing to Vitamin D Status at Hospital Admission for Pulmonary Exacerbation in Adults With Cystic Fibrosis. Am J Med Sci. 2021 Jan;361(1):75-82. https://doi.org/10.1016/j.amjms.2020.08.020. Epub 2020 Aug 20. PMID: 32988598
- Bleakley AS, Licciardi PV, Binks MJ. Vitamin D Modulation of the Innate Immune Response to Paediatric Respiratory Pathogens Associated with Acute Lower Respiratory Infections. Nutrients. 2021 Jan 19;13(1):276. https://doi.org/10.3390/nu13010276. PMID: 33478006
- Bradley R, Schloss J, Brown D, et al. The effects of vitamin D on acute viral respiratory infections: A rapid review. Adv Integr Med. 2020 Dec;7(4):192-202. https://doi.org/10.1016/j.aimed.2020.07.011. Epub 2020 Aug 3. PMID: 32837896
- Camargo CA Jr, Toop L, Sluyter J, et al. Effect of Monthly Vitamin D Supplementation on Preventing Exacerbations of Asthma or Chronic Obstructive Pulmonary Disease in Older Adults: Post Hoc Analysis of a Randomized Controlled Trial. Nutrients. 2021 Feb 6;13(2):521. https://doi.org/10.3390/nu13020521. PMID: 33561963
- Canguven O, El Ansari W, Yassin A. Vitamin D Supplementation As a Potential therapeutic Mediator in Asthma: Does Dose Really Matter? a Critical Review of the Literature. Aging Male. 2020 Dec;23(4):300-307. https://doi.org/10.1080/13685538.2018.1506433. Epub 2018 Sep 29. PMID: 30269632
- Chowdhury F, Shahid ASMSB, Tabassum M, et al. Vitamin D supplementation among Bangladeshi children under-five years of age hospitalised for severe pneumonia: A randomised placebo controlled trial. PLoS One. 2021 Feb 19;16(2):e0246460. https://doi.org/10.1371/journal.pone.0246460. eCollection 2021. PMID: 33606713
- Despotović M, Jevtović Stoimenov T, Stanković I, et al. Genetic variants of vitamin D receptor and antioxidant enzyme genes in bronchial asthma: Epistatic interactions. Ann Allergy Asthma Immunol. 2020 Dec;125(6):701-703.e1. https://doi.org/10.1016/j.anai.2020.07.020. Epub 2020 Jul 27. PMID: 32730806
- El Shamieh S, Salami A, Fawaz M, et al. rs6837671A>G in FAM13A Is a Trans-Ethnic Genetic Variant Interacting with Vitamin D Levels to Affect Chronic Obstructive Pulmonary Disease. J Pers Med. 2021 Jan 30;11(2):84. https://doi.org/10.3390/jpm11020084. PMID: 33573279
- Fu L, Fei J, Tan ZX, et al. Low Vitamin D Status Is Associated with Inflammation in Patients with Chronic Obstructive Pulmonary Disease. J Immunol. 2021 Feb 1;206(3):515-523. https://doi.org/10.4049/jimmunol.2000964. Epub 2020 Dec 23. PMID: 33361208
- Gallagher JC. Vitamin D and respiratory infections. Lancet Diabetes Endocrinol. 2021 Feb;9(2):54-56. https://doi.org/10.1016/S2213-8587(20)30403-4. Epub 2021 Jan 11. PMID: 33444564
- Hammami F, Koubaa M, Mejdoub Y, et al. The association between vitamin D deficiency and extrapulmonary tuberculosis: Case-control study. Tuberculosis (Edinb). 2021 Jan;126:102034. https://doi.org/10.1016/j.tube.2020.102034. Epub 2020 Dec 1. PMID: 33291025
- Jaimni V, Shasty BA, Madhyastha SP, et al. Association of Vitamin D Deficiency and Newly Diagnosed Pulmonary Tuberculosis. Pulm Med. 2021 Jan 15;2021:5285841. https://doi.org/10.1155/2021/5285841. eCollection 2021. PMID: 33510909
- Juhász MF, Varannai O, Németh D, et al. Vitamin D supplementation in patients with cystic fibrosis: A systematic review and meta-analysis. J Cyst Fibros. 2020 Dec 18:S1569-1993(20)30940-1. https://doi.org/10.1016/j.jcf.2020.12.008. Online ahead of print. PMID: 33349585
- Kuwabara A, Tsugawa N, Ao M, et al. Vitamin D deficiency as the risk of respiratory tract infections in the institutionalized elderly: A prospective 1-year cohort study. Clin Nutr ESPEN. 2020 Dec;40:309-313. https://doi.org/10.1016/j.clnesp.2020.08.012. Epub 2020 Sep 16. PMID: 33183555

- Mohammadi A, Khanbabaei H, Nasiri-Kalmarzi R, et al. Vitamin D receptor ApaI (rs7975232), BsmI (rs1544410), FokI (rs2228570), and TaqI (rs731236) gene polymorphisms and susceptibility to pulmonary tuberculosis in an Iranian population: A systematic review and meta-analysis. J Microbiol Immunol Infect. 2020 Dec;53(6):827-835. https://doi.org/10.1016/j.jmii.2019.08.011. Epub 2019 Sep 28. PMID: 31740220
- O'Sullivan BP, James L, Majure JM, et al. Obesity-related asthma in children: A role for vitamin D. Pediatr Pulmonol. 2021 Feb;56(2):354-361. https://doi.org/10.1002/ppul.25053. Epub 2020 Dec 8. PMID: 32930511 Review.
- Pham H, Waterhouse M, Baxter C, et al. The effect of vitamin D supplementation on acute respiratory tract infection in older Australian adults: an analysis of data from the D-Health Trial. Lancet Diabetes Endocrinol. 2021 Feb;9(2):69-81. https://doi.org/10.1016/S2213-8587(20)30380-6. Epub 2021 Jan 11. PMID: 33444565
- Seedahmed MI, Baugh AD, Kempker JA. Higher serum vitamin D levels are associated with decreased odds of obstructive lung disease in the general population: an NHANES analysis (2007-2008 to 2009-2010). BMJ Open Respir Res. 2020 Dec;7(1):e000798. https://doi.org/10.1136/bmjresp-2020-000798. PMID: 33384287
- Shi D, Wang D, Meng Y, et al. Maternal vitamin D intake during pregnancy and risk of asthma and wheeze in children: a systematic review and meta-analysis of observational studies. J Matern Fetal Neonatal Med. 2021 Feb;34(4):653-659. https://doi.org/10.1080/14767058.2019.1611771. Epub 2019 May 7. PMID: 31018731
- Thakur C, Kumar J, Kumar P, et al. Vitamin-D supplementation as an adjunct to standard treatment of asthma in children: A randomized controlled trial (ViDASTA Trial). Pediatr Pulmonol. 2021 Feb 1. https://doi.org/10.1002/ppul.25287. Online ahead of print. PMID: 33522698

PSICHIATRIA

- Accortt EE, Arora C, Mirocha J, et al. Low Prenatal Vitamin D Metabolite Ratio and Subsequent Postpartum Depression Risk. J Womens Health (Larchmt). 2021 Jan;30(1):113-120. https://doi.org/10.1089/jwh.2019.8209. Epub 2020 Oct 6. PMID: 33021442
- Bahramy P, Mohammad-Alizadeh-Charandabi S, Ramezani-Nardin F, et al. Serum Levels of Vitamin D, Calcium, Magnesium, and Copper, and their Relations with Mental Health and Sexual Function in Pregnant Iranian Adolescents. Biol Trace Elem Res. 2020 Dec;198(2):440-448. https://doi.org/10.1007/s12011-020-02109-8. PMID: 32166563
- Beydoun MA, Ng AE, Fanelli-Kuczmarski MT, et al. Vitamin D status and its longitudinal association with changes in patterns of sleep among middle-aged urban adults. J Affect Disord. 2021 Mar 1;282:858-868. https://doi.org/10.1016/j.jad.2020.12.145. Epub 2020 Dec 29. PMID: 33601729
- Bonk S, Hertel J, Zacharias HU, et al. Vitamin D moderates the interaction between 5-HTTLPR and childhood abuse in depressive disorders. Sci Rep. 2020 Dec 28;10(1):22394. https://doi.org/10.1038/s41598-020-79388-7. PMID: 33372187
- Cereda G, Enrico P, Ciappolino V, et al. The role of vitamin D in bipolar disorder: Epidemiology and influence on disease activity. J Affect Disord. 2021 Jan 1;278:209-217. https://doi.org/10.1016/j.jad.2020.09.039. Epub 2020 Sep 12. PMID: 32971313 Review.
- Cui X, McGrath JJ, Burne THJ, et al. Vitamin D and schizophrenia: 20 years on. Mol Psychiatry. 2021 Jan 26. https://doi.org/10.1038/s41380-021-01025-0. Online ahead of print. PMID: 33500553 Review.
- Galyuk TM, Loonen AJM. Putative role of vitamin D in the mechanism of alcoholism and other addictions - a hypothesis. Acta Neuropsychiatr. 2021 Feb;33(1):1-8. https://doi.org/10.1017/neu.2020.41. Epub 2020 Nov 13. PMID: 33183376
- Huiberts LM, Smolders KCHJ. Effects of vitamin D on mood and sleep in the healthy population: Interpretations from the serotonergic pathway. Sleep Med Rev. 2021 Feb;55:101379. https://doi.org/10.1016/j.smrv.2020.101379. Epub 2020 Sep 9. PMID: 32987320
- Lázaro Tomé A, Reig Cebriá MJ, González-Teruel A, et al. Efficacy of vitamin D in the treatment of depression: a systematic review and meta-analysis. Actas Esp Psiquiatr. 2021 Jan;49(1):12-23. Epub 2021 Jan 1. PMID: 33533015
- Libuda L, Timmesfeld N, Antel J, et al. Effect of vitamin D deficiency on depressive symptoms in child and adolescent psychiatric patients: results of a randomized controlled trial. Eur J Nutr. 2020 Dec;59(8):3415-3424. https://doi.org/10.1007/s00394-020-02176-6. Epub 2020 Feb 27. PMID: 32108263
- Ma SS, Zhu DM, Yin WJ, et al. The role of neonatal vitamin D in the association of prenatal depression with toddlers ADHD symptoms: A birth cohort study. J Affect Disord. 2021 Feb 15;281:390-396. https://doi.org/10.1016/j.jad.2020.12.033. Epub 2020 Dec 13. PMID: 33352409
- Malik E, Rozner L, Adelson M, et al. The Relation between Changes in Vitamin D and Vitamin B12 Levels, Body Mass Index and Outcome in Methadone Maintenance Treatment Patients. J Psychoactive Drugs. 2021 Jan-Mar;53(1):55-64. https://doi.org/10.1080/02791072.2020.1840680. Epub 2020 Nov 3. PMID: 33143561
- Marazziti D, Parra E, Palermo S, et al. Vitamin D: A Pleiotropic Hormone with Possible Psychotropic Activities. Curr Med Chem. 2020 Dec 9. https://doi.org/10.2174/0929867328666201210104701. Online ahead of print. PMID: 33302828
- Pillai RR, Premkumar NR, Kattimani S, et al. Reduced Maternal Serum Total, Free and Bioavailable Vitamin D Levels and its Association with the Risk for Postpartum Depressive Symptoms. Arch Med Res. 2021 Jan;52(1):84-92. https://doi.org/10.1016/j.arcmed.2020.10.003. Epub 2020 Oct 14. PMID: 33067012
- Pilling LC, Jones LC, Masoli JAH, et al. Low Vitamin D Levels and Risk of Incident Delirium in 351,000 Older UK Biobank Participants. J Am Geriatr Soc. 2021 Feb;69(2):365-372. https://doi.org/10.1111/jgs.16853. Epub 2020 Oct 5. PMID: 33017050
- Sahasrabudhe N, Lee JS, Scott TM, et al. Serum Vitamin D and Depressive Symptomatology among Boston-Area Puerto Ricans. J Nutr. 2020 Dec 10;150(12):3231-3240. https://doi.org/10.1093/jn/nxaa253. PMID: 33025014
- Stanak M, Strohmaier C. Ethics analysis of light and vitamin D therapies for seasonal affective disorder. Int J Technol Assess Health Care. 2020 Dec;36(6):549-559. https://doi.org/10.1017/S0266462320000884. Epub 2020 Dec 4. PMID: 33272336

- PSucksdorff M, Brown AS, Chudal R, et al. Maternal Vitamin D Levels and the Risk of Offspring Attention-Deficit/Hyperactivity Disorder. J Am Acad Child Adolesc Psychiatry. 2021 Jan;60(1):142-151.e2. https://doi.org/10.1016/j.jaac.2019.11.021. Epub 2019 Dec 19. PMID: 31863882
- Suri T, Suri S, Poremski D, et al. Vitamin D deficiency in long-term hospitalization psychiatric wards in an equatorial nation. Asia Pac Psychiatry. 2020 Dec;12(4):e12390. https://doi.org/10.1111/appy.12390. Epub 2020 Apr 25. PMID: 32333506
- Tan Q, Liu S, Chen D. Poor vitamin D status and the risk of maternal depression: a dose-response meta-analysis of observational studies. Public Health Nutr. 2020 Dec 18:1-10. https://doi.org/10.1017/S1368980019004919. Online ahead of print. PMID: 33336636
- Terock J, Hannemann A, Janowitz D, et al. Vitamin D levels are associated with trait resilience but not depression in a general population sample. Brain Behav. 2020 Dec;10(12):e01884. https://doi.org/10.1002/brb3.1884. Epub 2020 Oct 13. PMID: 33052028
- van den Berg KS, Hegeman JM, van den Brink RHS, et al. A prospective study into change of vitamin D levels, depression and frailty among depressed older persons. Int J Geriatr Psychiatry. 2021 Feb 8. https://doi.org/10.1002/gps.5507. Online ahead of print. PMID: 33559131
- Windham GC, Pearl M, Poon V, et al. Maternal Vitamin D Levels During Pregnancy in Association With Autism Spectrum Disorders (ASD) or Intellectual Disability (ID) in Offspring; Exploring Non-linear Patterns and Demographic Sub-groups. Autism Res. 2020 Dec;13(12):2216-2229. https://doi.org/10.1002/aur.2424. Epub 2020 Nov 2. PMID: 33135392
- Zhang X. Vitamin D and Depression in Puerto Ricans Living in the United States. J Nutr. 2020 Dec 10;150(12):3047-3048. https://doi.org/10.1093/jn/nxaa291. PMID: 33021316

REUMATOLOGIA

- Aggarwal R, Bains K. Protein, lysine and vitamin D: critical role in muscle and bone health. Crit Rev Food Sci Nutr. 2020 Dec 8:1-12. https://doi.org/10.1080/10408398.2020.1855101. Online ahead of print. PMID: 33290094
- Al-Daghri NM, Yakout SM, Ansari MGA, et al. Vitamin D Metabolites and Sex Steroid Indices in Postmenopausal Women with and without Low Bone Mass. Metabolites. 2021 Feb 1;11(2):86. https://doi.org/10.3390/metabo11020086. PMID: 33535639
- Ammerman BM, Ling D, Callahan LR, et al. Prevalence of Vitamin D Insufficiency and Deficiency in Young, Female Patients With Lower Extremity Musculoskeletal Complaints. Sports Health. 2021 Mar;13(2):173-180. https://doi.org/10.1177/1941738120953414. Epub 2020 Dec 10. PMID: 33301353
- Appel LJ, Michos ED, Mitchell CM, et al. The Effects of Four Doses of Vitamin D Supplements on Falls in Older Adults : A Response-Adaptive, Randomized Clinical Trial. Ann Intern Med. 2021 Feb;174(2):145-156. https://doi.org/10.7326/M20-3812. Epub 2020 Dec 8. PMID: 33284677 Clinical Trial.
- Bagheri-Hosseinabadi Z, Imani D, Yousefi H, et al. Vitamin D receptor (VDR) gene polymorphism and risk of rheumatoid arthritis (RA): systematic review and meta-analysis. Clin Rheumatol. 2020 Dec;39(12):3555-3569. https://doi.org/10.1007/s10067-020-05143-y. Epub 2020 May 22. PMID: 32445089 Review.
- Barratt KR, Sawyer RK, Atkins GJ, et al. Vitamin D supplementation improves bone mineralisation independent of dietary phosphate in male X-linked hypophosphatemic (Hyp) mice. Bone. 2021 Feb;143:115767. https://doi.org/10.1016/j.bone.2020.115767. Epub 2020 Nov 21. PMID: 33232838
- Bass JJ, Kazi AA, Deane CS, et al. The mechanisms of skeletal muscle atrophy in response to transient knockdown of the vitamin D receptor in vivo. J Physiol. 2021 Feb;599(3):963-979. https://doi.org/10.1113/JP280652. Epub 2020 Dec 24. PMID: 33258480
- Bass JJ, Nakhuda A, Deane CS, et al. Overexpression of the vitamin D receptor (VDR) induces skeletal muscle hypertrophy. Mol Metab. 2020 Dec;42:101059. https://doi.org/10.1016/j.molmet.2020.101059. Epub 2020 Aug 7. PMID: 32771696
- Blufstein A, Behm C, Kubin B, et al. Effect of vitamin D(3) on the osteogenic differentiation of human periodontal ligament stromal cells under inflammatory conditions. J Periodontal Res. 2021 Feb 5. https://doi.org/10.1111/jre.12858. Online ahead of print. PMID: 33547643
- Bollen SE, Atherton PJ. Myogenic, genomic and non-genomic influences of the vitamin D axis in skeletal muscle. Cell Biochem Funct. 2021 Jan;39(1):48-59. https://doi.org/10.1002/cbf.3595. Epub 2020 Oct 9. PMID: 33037688 Review.
- Boucher BJ. About adverse effects of high-dose vitamin D supplementation on volumetric bone density. J Bone Miner Res. 2021 Feb 10. https://doi.org/10.1002/jbmr.4252. Online ahead of print. PMID: 33566382
- Brech GC, Machado-Lima A, Bastos MF, et al. Vitamin D supplementation associated with 12-weeks multimodal training in older women with low bone mineral density: A randomized double-blind placebo-controlled trial. Exp Gerontol. 2021 Apr;146:111211. https://doi.org/10.1016/j.exger.2020.111211. Epub 2021 Jan 6. PMID: 33421538
- Burt LA, Billington EO, Rose MS, et al. Adverse Effects of High-Dose Vitamin D Supplementation on Volumetric Bone Density Are Greater in Females than Males. J Bone Miner Res. 2020 Dec;35(12):2404-2414. https://doi.org/10.1002/jbmr.4152. Epub 2020 Sep 16. PMID: 32777104
- Burt LA, Billington EO, Rose MS, et al. Reply to Burt LA, et al.: Adverse Effects of High-Dose Vitamin D Supplementation on Volumetric Bone Density Are Greater in Females Than Males. J Bone Miner Res. 2021 Feb 3. https://doi.org/10.1002/jbmr.4251. Online ahead of print. PMID: 33534168
- Burt LA, Billington EO, Rose MS, et al. Reply to Vitamin D Supplements: Is Bone Loss by HR-pQCT Really Negative? J Bone Miner Res. 2021 Feb 3. https://doi.org/10.1002/jbmr.4247. Online ahead of print. PMID: 33534173
- Chaffer TJ, Leduc-Gaudet JP, Moamer A, et al. Novel insights into the autonomous role played by vitamin D receptor in the regulation of skeletal muscle mass. J Physiol. 2021 Jan 21. https://doi.org/10.1113/JP281211. Online ahead of print. PMID: 33476041
- Chew C, Reynolds JA, Lertratanakul A, et al. Lower vitamin D is associated with metabolic syndrome and insulin resistance in systemic lupus: data from an international

inception cohort. Rheumatology (Oxford). 2021 Feb 8:keab090. https://doi.org/10.1093/rheumatology/keab090. Online ahead of print. PMID: 33555325

- Correa-Rodríguez M, Pocovi-Gerardino G, Callejas-Rubio JL, et al. Vitamin D Levels are Associated with Disease Activity and Damage Accrual in Systemic Lupus Erythematosus Patients. Biol Res Nurs. 2020 Dec 30:1099800420983596. https://doi.org/10.1177/1099800420983596. Online ahead of print. PMID: 33380211
- Crescioli C. Vitamin D Restores Skeletal Muscle Cell Remodeling and Myogenic Program: Potential Impact on Human Health. Int J Mol Sci. 2021 Feb 10;22(4):1760. https://doi.org/10.3390/ijms22041760. PMID: 33578813
- Daga N, Joseph F. et al. Republished: Denosumab-induced severe hypocalcaemia in a patient with vitamin D deficiency. Drug Ther Bull. 2021 Feb 9:dtb-2021-234508rep. https://doi.org/10.1136/dtb.2021.234508rep. Online ahead of print. PMID: 33563651
- Dalle Carbonare L, Mottes M, Valenti MT. Medication-Related Osteonecrosis of the Jaw (MRONJ): Are Antiresorptive Drugs the Main Culprits or Only Accomplices? The Triggering Role of Vitamin D Deficiency. Nutrients. 2021 Feb 8;13(2):561. https://doi.org/10.3390/nu13020561. PMID: 33567797
- de Carvalho JF, Shoenfeld Y. High frequency of vitamin D insufficiency in polymyalgia rheumatica and giant cell arteritis: preliminary results. Eur Rev Med Pharmacol Sci. 2021 Jan;25(2):574-575. https://doi.org/10.26355/eurrev_202101_24611. PMID: 33577006
- De Martinis M, Ginaldi L, Sirufo MM, et al. IL-33/Vitamin D Crosstalk in Psoriasis-Associated Osteoporosis. Front Immunol. 2021 Jan 8;11:604055. https://doi.org/10.3389/fimmu.2020.604055. eCollection 2020. PMID: 33488605
- Deng J, Silver Z, Huang E, et al. The effect of calcium and vitamin D compounds on bone mineral density in patients undergoing glucocorticoid therapies: a network meta-analysis. Clin Rheumatol. 2021 Feb;40(2):725-734. https://doi.org/10.1007/s10067-020-05294-y. Epub 2020 Jul 17. PMID: 32681366
- Despotović M, Jevtović Stoimenov T, Stojanović S, et al. Association of vitamin D receptor genetic variants with bone mineral density and inflammatory markers in rheumatoid arthritis. Clin Biochem. 2021 Jan;87:26-31. https://doi.org/10.1016/j.clinbiochem.2020.10.006. Epub 2020 Oct 15. PMID: 33068571
- Eleni A, Panagiotis P. A systematic review and meta-analysis of vitamin D and calcium in preventing osteoporotic fractures. Clin Rheumatol. 2020 Dec;39(12):3571-3579. https://doi.org/10.1007/s10067-020-05122-3. Epub 2020 May 24. PMID: 32447604 Review.
- Fakhfakh R, Feki S, Elleuch A, et al. Vitamin D status and CYP27B1-1260 promoter polymorphism in Tunisian patients with systemic lupus erythematosus. Mol Genet Genomic Med. 2021 Feb 17:e1618. https://doi.org/10.1002/mgg3.1618. Online ahead of print. PMID: 33594806
- Gkekas NK, Anagnostis P, Paraschou V, et al. The effect of vitamin D plus protein supplementation on sarcopenia: A systematic review and meta-analysis of randomized controlled trials. Maturitas. 2021 Mar;145:56-63. https://doi.org/10.1016/j.maturitas.2021.01.002. Epub 2021 Jan 12. PMID: 33541563 Review.
- Gupta R, Singhal A, Kapoor A, et al. Vitamin D deficiency in athletes and its impact on outcome of Anterior Cruciate Ligament surgery. Eur J Orthop Surg Traumatol. 2021 Jan 8. https://doi.org/10.1007/s00590-020-02870-5. Online ahead of print. PMID: 33417046
- Han J, Cho Y, Jee S, et al. Vitamin D Levels in Patients with Low-energy Hip Fractures. Hip Pelvis. 2020 Dec;32(4):192-198. https://doi.org/10.5371/hp.2020.32.4.192. Epub 2020 Dec 3. PMID: 33335867
- Hassan NE, El Shebini SM, El-Masry SA, et al. Association of some dietary ingredients, vitamin D, estrogen, and obesity polymorphic receptor genes with bone mineral density in a sample of obese Egyptian women. J Genet Eng Biotechnol. 2021 Feb 9;19(1):28. https://doi.org/10.1186/s43141-021-00127-0. PMID: 33559788
- Haussler MR, Livingston S, Sabir ZL, et al. Vitamin D Receptor Mediates a Myriad of Biological Actions Dependent on Its 1,25-Dihydroxyvitamin D Ligand: Distinct Regulatory Themes Revealed by Induction of Klotho and Fibroblast Growth Factor-23. JBMR Plus. 2020 Dec 3;5(1):e10432. https://doi.org/10.1002/jbm4.10432. eCollection 2021 Jan. PMID: 33553988
- Hyde NK, Brennan-Olsen SL, Wark JD, et al. Gestational Vitamin D and Offspring Bone Measures: Is the Association Independent of Maternal Bone Quality? Calcif Tissue Int. 2021 Feb;108(2):188-195. https://doi.org/10.1007/s00223-020-00762-8. Epub 2020 Oct 21. PMID: 33084913
- Kaygusuz SB, Alavanda C, Kirkgoz T, et al. Does Genotype-Phenotype Correlation Exist in Vitamin D-Dependent Rickets Type IA: Report of 13 New Cases and Review of the Literature. Calcif Tissue Int. 2021 Jan 2.

https://doi.org/10.1007/s00223-020-00784-2. Online ahead of print. PMID: 33386952

- Kirk B, Prokopidis K, Duque G. Nutrients to mitigate osteosarcopenia: the role of protein, vitamin D and calcium. Curr Opin Clin Nutr Metab Care. 2021 Jan;24(1):25-32. https://doi.org/10.1097/MCO.0000000000000711. PMID: 33148944

- Koda R, Miyazaki S, Iino N, et al. Vitamin D Deficiency-induced Osteomalacia in a Patient with Anorexia Nervosa. Intern Med. 2020 Dec 29. https://doi.org/10.2169/internalmedicine.5911-20. Online ahead of print. PMID: 33390486

- Kong Y, Han M, Lee M, et al. The Association of Calcium and Vitamin D Use With Implant Survival of Total Knee Arthroplasty: A Nationwide Population-Based Cohort Study. J Arthroplasty. 2021 Feb;36(2):542-549.e3. https://doi.org/10.1016/j.arth.2020.08.003. Epub 2020 Aug 6. PMID: 32888752

- Korkmaz FN, Ozen G, Unal AU, et al. Vitamin D Levels in Patients With Small and Medium Vessel Vasculitis. Reumatol Clin. 2021 Jan 13:S1699-258X(20)30275-8. https://doi.org/10.1016/j.reuma.2020.11.004. Online ahead of print. PMID: 33454206

- Kumar M, Ahmed M, Hussain G, et al. Assessment of Vitamin D Levels in Patients Presenting With Chronic Low Back Pain at a Tertiary Care Hospital. Cureus. 2020 Dec 3;12(12):e11867. https://doi.org/10.7759/cureus.11867. PMID: 33282609

- Kwiatek J, Jaroń A, Trybek G. Impact of the 25-Hydroxycholecalciferol Concentration and Vitamin D Deficiency Treatment on Changes in the Bone Level at the Implant Site during the Process of Osseointegration: A Prospective, Randomized, Controlled Clinical Trial. J Clin Med. 2021 Feb 2;10(3):526. https://doi.org/10.3390/jcm10030526. PMID: 33540512

- Laurson KR, Thomas JN, Barnes JL. Vitamin D status is associated with muscular strength in a nationally representative sample of US youth. Acta Paediatr. 2020 Dec;109(12):2755-2761. https://doi.org/10.1111/apa.15253. Epub 2020 Mar 28. PMID: 32173905

- Li HM, Liu Y, Zhang RJ, et al. Vitamin D receptor gene polymorphisms and osteoarthritis: a meta-analysis. Rheumatology (Oxford). 2021 Feb 1;60(2):538-548. https://doi.org/10.1093/rheumatology/keaa644. PMID: 33147632

- Liu C , Kuang X , Li K , et al. Effects of combined calcium and vitamin D supplementation on osteoporosis in postmenopausal women: a systematic review and meta-analysis of randomized controlled trials. Food Funct. 2020 Dec 1;11(12):10817-10827. https://doi.org/10.1039/d0fo00787k. Epub 2020 Nov 25. PMID: 33237064

- Liu J, Dong Y, Wang Y. Vitamin D deficiency is associated with dry eye syndrome: a systematic review and meta-analysis. Acta Ophthalmol. 2020 Dec;98(8):749-754. https://doi.org/10.1111/aos.14470. Epub 2020 May 18. PMID: 32421222 Review.

- Lozano-Plata LI, Vega-Morales D, Esquivel-Valerio JA, et al. Efficacy and safety of weekly vitamin D(3) in patients with fibromyalgia: 12-week, double-blind, randomized, controlled placebo trial. Clin Rheumatol. 2021 Feb 10. https://doi.org/10.1007/s10067-021-05640-8. Online ahead of print. PMID: 33570701

- Manolopoulos PP, Lavranos G, Mamais I, et al. Vitamin D and bone health status in beta thalassemia patients-systematic review. Osteoporos Int. 2021 Jan 9. https://doi.org/10.1007/s00198-021-05821-w. Online ahead of print. PMID: 33423084 Review.

- Marin AG, Pratali RR, Marin SM, et al. Age and Spinal Disease Correlate to Albumin and Vitamin D Status. Global Spine J. 2021 Feb 5:2192568220982561. https://doi.org/10.1177/2192568220982561. Online ahead of print. PMID: 33541134

- Mazess RB. Vitamin D Supplements: Is Bone Loss by pQCT Really Negative? J Bone Miner Res. 2021 Feb 3. https://doi.org/10.1002/jbmr.4246. Online ahead of print. PMID: 33534185

- Minisola S, Colangelo L, Pepe J, et al. Osteomalacia and Vitamin D Status: A Clinical Update 2020. JBMR Plus. 2020 Dec 21;5(1):e10447. https://doi.org/10.1002/jbm4.10447. eCollection 2021 Jan. PMID: 33553992

- Murad MH. Letter to the Editor from Murad: The Effect of Vitamin D on Falls: A Systematic Review and Meta-Analysis. J Clin Endocrinol Metab. 2020 Dec 15:dgaa928. https://doi.org/10.1210/clinem/dgaa928. Online ahead of print. PMID: 33319221

- Nakaoka K, Noda S, Tanabe R, et al. A high-fat diet in the presence of vitamin D deficiency status is associated with a negative influence on calcaneal quantitative ultrasound parameters in young adults: a cross-sectional study. Nutr Res. 2021 Feb;86:88-95. https://doi.org/10.1016/j.nutres.2020.12.009. Epub 2020 Dec 6. PMID: 33551259

- Neale RE, Wilson LF, Black LJ, et al. Hospitalisations for falls and hip fractures attributable to vitamin D deficiency in older Australians. Br J Nutr. 2021 Jan 29:1-13. https://doi.org/10.1017/S0007114521000416. Online ahead of print. PMID: 33509323

- Nepal AK, van Essen HW, van der Veen AJ, et al. Mechanical stress regulates bone regulatory gene expression independent of estrogen and vitamin D deficiency in rats. J Orthop Res. 2021 Jan;39(1):42-52. https://doi.org/10.1002/jor.24775. Epub 2020 Jul 21. PMID: 32530517

- Neves JSF, Visentainer JEL, Reis DMDS, et al. The Influence of Vitamin D Receptor Gene Polymorphisms in Spondyloarthritis. Int J Inflam. 2020 Dec 8;2020:8880879. https://doi.org/10.1155/2020/8880879. eCollection 2020. PMID: 33376592

- Pal R, Aggarwal A, Sachdeva N, et al. Age- and sex-specific concentrations of bone remodeling markers in healthy Indian adults with and without vitamin D deficiency. Arch Osteoporos. 2021 Jan 7;16(1):10. https://doi.org/10.1007/s11657-020-00855-9. PMID: 33415509

- Palacios S, Cerdas S, Da Silva R, et al. Vitamin D supplementation: position Statement of the Iberoamerican Society of Osteoporosis and Mineral Metabolism (SIBOMM). Gynecol Endocrinol. 2021 Jan;37(1):10-14. https://doi.org/10.1080/09513590.2020.1858781. Epub 2020 Dec 21. PMID: 33345650

- Panda AK, Padhi S. Comment on: Vitamin D receptor gene polymorphisms and osteoarthritis: a meta-analysis. Rheumatology (Oxford). 2021 Jan 25:keab063. https://doi.org/10.1093/rheumatology/keab063. Online ahead of print. PMID: 33493318

- Pike JW, Lee SM, Benkusky NA, et al. Genomic Mechanisms Governing Mineral Homeostasis and the Regulation and Maintenance of Vitamin D Metabolism. JBMR Plus. 2020 Dec 5;5(1):e10433. https://doi.org/10.1002/jbm4.10433. eCollection 2021 Jan. PMID: 33553989
- Prithiani SL, Kumar R, Mirani SH, et al. Effect of Monthly 100,000 IU Vitamin D Supplementation on Falls and Non-Vertebral Fractures. Cureus. 2021 Jan 3;13(1):e12445. https://doi.org/10.7759/cureus.12445. PMID: 33552763
- Sakamoto Y, Oono F, Iida K, et al. Relationship between vitamin D receptor gene polymorphisms (BsmI, TaqI, ApaI, and FokI) and calcium intake on bone mass in young Japanese women. BMC Womens Health. 2021 Feb 19;21(1):76. https://doi.org/10.1186/s12905-021-01222-7. PMID: 33607983
- Samant PD, Sane RM. Evaluation of Functional and Symptomatic Outcomes After Vitamin D(3) Administration in Carpal Tunnel Syndrome With Hypovitaminosis D. Hand (N Y). 2021 Jan 20:155894472098813O. https://doi.org/10.1177/155894472098813O. Online ahead of print. PMID: 33472438
- Shim BJ, Lee MH, Lim JY, et al. A longitudinal histologic evaluation of vitamin D receptor expression in the skeletal muscles of patients with a distal radius fracture. Osteoporos Int. 2021 Jan 16. https://doi.org/10.1007/s00198-020-05809-y. Online ahead of print. PMID: 33452895
- Takedani K, Notsu M, Koike S, et al. Osteomalacia caused by atypical renal tubular acidosis with vitamin D deficiency: a case report. CEN Case Rep. 2021 Jan 4. https://doi.org/10.1007/s13730-020-00561-y. Online ahead of print. PMID: 33398781
- Tariq S, Tariq S, Khaliq S, et al. Association Between Vitamin D and Resistin in Postmenopausal Females With Altered Bone Health. Front Endocrinol (Lausanne). 2021 Jan 15;11:615440. https://doi.org/10.3389/fendo.2020.615440. eCollection 2020. PMID: 33519717
- Tiosano D, Abrams SA, Weisman Y. Lessons Learned from Hereditary 1,25-Dihydroxyvitamin D-Resistant Rickets Patients on Vitamin D Functions. J Nutr. 2021 Jan 12:nxaa380. https://doi.org/10.1093/jn/nxaa380. Online ahead of print. PMID: 33438017
- Vellingiri K, Ethiraj P, S NJ, et al. Assessment of Vitamin D Levels and Its Correlation With Osteoporosis and Fracture Site Comminution in Osteoporotic Hip Fractures in Tertiary Care Hospital. Cureus. 2021 Jan 29;13(1):e12982. https://doi.org/10.7759/cureus.12982. PMID: 33654639
- Wang S, Ai Z, Song M, et al. The association between vitamin D receptor FokI gene polymorphism and osteoporosis in postmenopausal women: a meta-analysis. Climacteric. 2021 Feb;24(1):74-79. https://doi.org/10.1080/13697137.2020.1775806. Epub 2020 Jun 18. PMID: 32551997
- Yoon T, Ahn SS, Pyo JY, et al. Serum vitamin D level correlates with disease activity and health-related quality of life in antineutrophil cytoplasmic antibody-associated vasculitis. Z Rheumatol. 2020 Dec 18. https://doi.org/10.1007/s00393-020-00949-2. Online ahead of print. PMID: 33340057 English.
- Zafalon RVA, Ruberti B, Rentas MF, et al. The Role of Vitamin D in Small Animal Bone Metabolism. Metabolites. 2020 Dec 3;10(12):496. https://doi.org/10.3390/metabo10120496. PMID: 33287408