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

Divisione Pacini Editore Medicina
Andrea Tognelli
Medical Projects and Publishing Director
Tel. 050 3130255
atognelli@pacinieditore.it

Redazione
Lucia Castelli
Tel. 050 3130224
lcastelli@pacinieditore.it

Grafica e impaginazione
Massimo Arcidiacono
Tel. 050 3130231
marcidiacono@pacinieditore.it

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EDITORIALE

Maurizio Rossini

Dipartimento di Medicina,
Sezione di Reumatologia, Università di Verona

Cari Lettori, come state? Spero bene.
Anche in questo numero raccogliamo importanti contributi su due tematiche di grande attualità nel campo dei possibili effetti extra-scheletrici della vitamina D: un update sulla relazione tra vitamina D e muscolo e un altro sulla sua relazione con l'asma e una delle maggiori cause della sua esacerbazione rappresentata dalle infezioni respiratorie. Quest'ultimo topic non poteva non fare riferimento anche alla tematica del momento rappresentata dall'infezione da COVID-19.
Come potete vedere dalla selezione bibliografica di questo numero abbiamo ritenuto opportuno dedicare uno spazio riservato alle pubblicazioni in tema di vitamina D e COVID-19, tante erano. La discussione tuttora in corso è relativa in particolare a due aspetti: è possibile che lo stato vitaminico D possa condizionare il rischio di infettarsi e/o la manifestazione clinica del COVID-19?
Come sapete i presupposti razionali ci sono e allo stato delle attuali conoscenze sono qui sintetizzabili e differenziabili in generici e specifici:

- generici:
  - studi in vitro hanno evidenziato che la vitamina D migliora la risposta immune innata, quale la risposta macrofagica, e può aumentare le difese antivirali, favorendo la produzione di peptidi antimicrobici come la catelicidina e la β-defensina;
  - studi osservazionali hanno documentato un'associazione tra bassi livelli sierici di 25(OH)D e la suscettibilità alle infezioni respiratorie;
  - una recente metanalisi ha mostrato che la supplementazione giornaliera o settimanale di vitamina D riduce significativamente il rischio di incorrere in un'infezione acuta delle vie respiratorie, non sorprendentemente in particolare nei soggetti carenti;
  - alla vitamina D è riconosciuto, anche da AIFA, un effetto "immunomodulante"; la vitamina D è risultata in grado di attenuare in particolare la risposta immunitaria adattativa e in particolare citochinica (tra cui soprattutto IL-6), riducendo la reazione di fase acuta post-virale, che, se esagerata, contribuisce alla patogenesi delle più gravi manifestazioni cliniche dell'infezione virale (il cosiddetto danno da "fuoco amico");
  - la supplementazione con vitamina D di pazienti sottoposti a ventilazione meccanica per varie cause è risultata in grado di ridurre la durata del ricovero e i livelli di PCR e IL6;
- specifici per COVID-19:
  - maggiore mortalità nelle Nazioni del Sud Europa (Italia, Spagna), notoriamente con una maggiore prevalenza del deficit di vitamina D, rispetto a Nazioni del Nord Europa (Germania, Norvegia, Finlandia, Islanda) che hanno un introito alimentare di vitamina D maggiore, grazie anche alla usuale fortificazione dei cibi;
  - maggiore prevalenza dell'infezione da COVID-19 nelle Regioni del Nord Italia, rispetto alle più soleggiate Regioni del Sud o alle popolazioni sotto il 35° parallelo;
  - particolare incidenza e gravità dell'infezione nella popolazione anziana nella quale l'ipovitaminosi D è notoriamente e storicamente endemica, specie nei mesi invernali e nella prima primavera, e drammaticamente e cronicamente presente in condizioni di lungodegenza;

Corrispondenza
Maurizio Rossini
maurizio.rossini@univr.it

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- l'obesità, notoriamente associata spesso a ipovitaminosi D, è risultata un fattore di rischio significativo per morbilità e mortalità da COVID-19;
- correlazione inversa tra i livelli sierici di vitamina con incidenza e mortalità da COVID-19;
- associazione inversa tra livelli di 25(OH)D e severità dell'infiammazione sistemica e delle manifestazioni cliniche in ricoverati per COVID-19, anche se va onestamente considerato che è noto che la flogosi di per sé riduce i livelli di 25(OH)D dosabili;
- modulazione da parte della vitamina D del sistema renina-angiotensina e dell'espressione del recettore ACE2, noto come punto d'ingresso del virus nelle cellule umane.

Come vedete la plausibilità biologica di un ruolo protettivo della vitamina D nei confronti del rischio e/o della gravità delle manifestazioni cliniche dell'infezione da COVID-19 c'è.
Ciò tuttavia non basta.
Proclami anticipati e generici di un ruolo protettivo della vitamina D, non supportati da adeguata documentazione scientifica specifica, ne hanno determinato la classificazione tra le bufale da parte del Ministero della Salute. Io non ne sarei tuttavia così sicuro perché non vi è neppure evidenza scientifica che ciò non sia vero… e scoraggiare, in attesa dei risultati dei trial specifici in corso, una supplementazione sicura ed economica con vitamina D, in particolare negli anziani o se costretti a casa o lungodegenti, non mi sembra opportuno in condizioni di emergenza da COVID-19, specie se si considerano perlomeno i riconosciuti benefici scheletrici.
Mi preoccupa tra l'altro la riduzione di oltre il 30% della supplementazione con vitamina D osservata nei primi mesi dell'anno anche negli anziani in seguito alla pubblicazione della nota AIFA 96, che ignora l'età avanzata come fattore di rischio di ipovitaminosi D, non considerando la documentata progressiva riduzione dai 60 anni (sic…la mia età…) della capacità della pelle di sintetizzare vitamina D e il nadir stagionale. Trattasi di una perlomeno sfortunata coincidenza con il picco dell'infezione da COVID-19 in Italia… e comunque di un ulteriore motivo di preoccupazione per la salute dello scheletro dell'anziano.
Cosa ne pensate?
Buona lettura!

Vitamina D e muscolo

Giovanni Iolascon, Antimo Moretti

Università degli Studi della Campania "Luigi Vanvitelli", Dipartimento Multidisciplinare di Specialità Medico-Chirurgiche e Odontoiatriche

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VITAMINA D E MUSCOLO

Negli ultimi decenni si è assistito a un crescente interesse scientifico per gli effetti extrascheletrici del sistema della vitamina D, incluso il suo ruolo sulla funzione muscolare. L'ipotesi che questo ormone secosteroideo fosse coinvolto nell'attività muscolare è nata dall'osservazione che i bambini con carenza vitaminica, affetti da rachitismo, sperimentano un grave *impairment* muscolare, definito come "miopatia rachitica" [1]. Per comprendere meglio i meccanismi fisiopatologici del danno muscolare, nella prima metà del secolo scorso è stata formulata una teoria basata sul ruolo chiave delle alterazioni della concentrazione di estere fosforico nel tessuto muscolare [2]. Tuttavia, tale teoria non teneva conto degli effetti dell'iperparatiroidismo secondario all'ipovitaminosi D sul muscolo scheletrico, poiché è noto che l'iperparatiroidismo porta a un significativo danno muscolare, caratterizzato da atrofia dovuta a una perdita preferenziale delle fibre di tipo II [3], che si differenzia dalle alterazioni patognomoniche della miopatia primaria, in cui si assiste alla degenerazione, fino alla necrosi, delle fibre muscolari accompagnata dalla proliferazione del tessuto connettivo endomisiale.

La scoperta dei recettori della vitamina D (VDR) è una pietra miliare dello studio degli effetti pleiotropici della vitamina D [4]. A livello del target muscolare, i VDR sono stati identificati non solo in mioblasti, miotubi e fibrocellule muscolari di modelli animali, ma anche nei miociti umani [5,6]. La vitamina D agirebbe, di conseguenza, su molteplici componenti cellulari del muscolo scheletrico durante le diverse fasi della vita dell'individuo, a partire dallo sviluppo embrionale, particolarmente nella riparazione tissutale post-danno che avviene durante tutta la vita, fino alla modulazione dell'involuzione legata all'invecchiamento.

Gli effetti della vitamina D sul tessuto muscolare si realizzano principalmente attraverso due meccanismi: uno a lungo termine, che coinvolge una via genomica, e un altro a breve termine, che coinvolge una via non genomica [7]. Entrambi i meccanismi agiscono in modo sinergico sia sulla contrazione muscolare in risposta ai flussi intracellulari di calcio (risposta rapida), sia sulla massa e forza muscolare (risposta a lungo termine).

Attraverso il primo meccanismo, la vitamina D stimola la proliferazione e la differenziazione delle cellule muscolari modulando la trascrizione genica nei mioblasti, con conseguente aumento della sintesi di specifiche proteine muscolari, come la miosina e la proteina legante il calcio (*calcium-binding protein*, CBP). Questo meccanismo comporta il legame diretto della vitamina D attivata dal complesso VDR nucleare/recettore retinoide (*retinoid-X receptor*, RXR) a specifiche sequenze di DNA, note come elementi di risposta alla vitamina D (*vitamin D response element*, VDRE), con conseguente regolazione della trascrizione. Oltre a modulare l'assorbimento di calcio, la vitamina D regola il metabolismo del fosfato a livello muscolare, per far fronte alle esigenze strutturali ed energetiche cellulari. Shirvani et al. [8] hanno recentemente dimostrato che il meccanismo genomico attivato dalla vitamina D è proporzionale in quantità alla dose di vitamina assunta come supplemento, infatti viene regolata l'espressione di 162 geni (86 up-regolati e 76 down-regolati) nelle cellule ematiche della serie bianca di individui adulti normali che assumono 600 UI/die per 6 mesi, mentre il numero di tali geni raddoppia se vengono assunte 4.000 UI/die e addirittura viene moltiplicato per un fattore di 8 se la dose sale a 10.000 UI/die.

Attraverso il meccanismo a breve termine, invece, la vitamina D regola l'azione calcio-mediata di secondi messaggeri, che interviene sia nell'interazione tra citosol e mitocondri per modulare il metabolismo energetico muscolare, sia influenzando i meccanismi alla base della contrazione muscolare [9]. I meccanismi non genomici, che si realizzano in seguito al legame della vitamina D con il VDR nuclerare (nVDR) e/o con quello di membrana (mVDR) legato alla caveolina 1, includono l'attivazione di molecole di segnale intracellulari come PKC, PI3K, MAPK, CaMKII e PLA2 [10]. Nella sua forma attiva, il calcitriolo, influenza la funzione muscolare agendo sui canali voltag-

Corrispondenza
Giovanni Iolascon
giovanni.iolascon@unicampania.it

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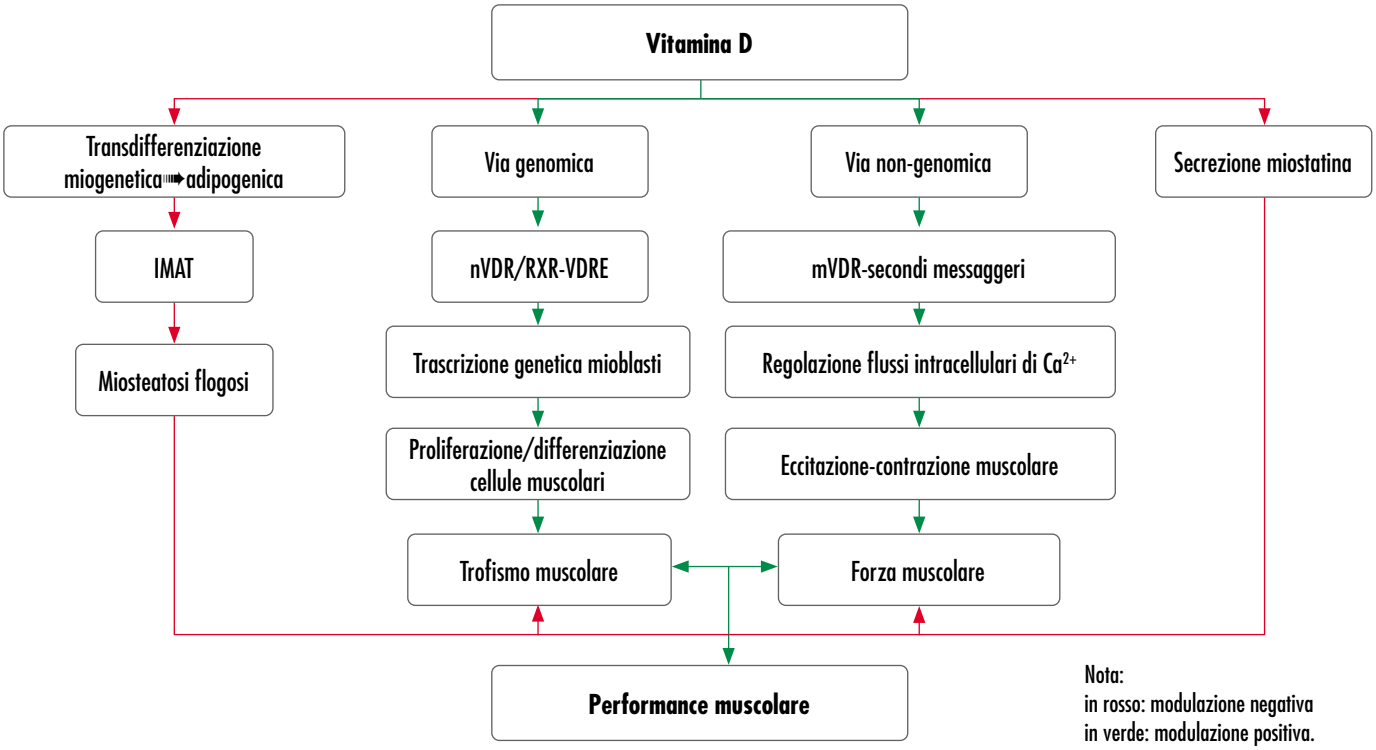

FIGURA 1.
Meccanismi biologici alla base degli effetti della vitamina D sul muscolo scheletrico.

gio dipendenti SOC/TRPC3 per regolare i livelli intracellulari di calcio e conseguentemente l'accoppiamento eccitazione-contrazione delle fibre muscolari scheletriche. Più recentemente è stato ipotizzato un terzo meccanismo mediante il quale la vitamina D eserciterebbe effetti benefici sulla funzione muscolare, ovvero inibendo la transdifferenziazione dei precursori miogenici nelle cellule adipogeniche riducendo così l'accumulo di tessuto adiposo intra- e intermuscolare (*intermuscular adipose tissue*, IMAT) [11]. Un altro ipotetico effetto indiretto della vitamina D deriva dall'inibizione della secrezione di miostatina, regolatore negativo chiave della massa muscolare, da parte delle cellule muscolari, come dimostrato da studi in vitro su mioblasti esposti al calcitriolo [12] (Fig. 1).
Dal punto di vista clinico, l'evidenza che la vitamina D possa giocare un ruolo essenziale sulla funzione muscolare deriva soprattutto dalla mole di studi condotti sulla controversa associazione tra ipovitaminosi D e rischio di caduta, in particolare nel periodo dell'invecchiamento. Come è noto, nella popolazione anziana, specialmente in quella istituzionalizzata, sia l'espressione di VDR a livello muscolare sia le concentrazioni sieriche di 25(OH)D sono ridotte [13]. È stato ipotizzato che la carenza di vitamina D svolga un ruolo fondamentale nella perdita di massa muscolare legata all'età e che l'*impairment* muscolare preceda la comparsa dei segni biochimici di osteomalacia [14]. L'ipovitaminosi D si associa in modo significativo sia alla riduzione del trofismo muscolare sia al peggioramento della forza appendicolare, in particolare dei muscoli antigravitari, e della performance fisica [15,16]. È interessante notare che negli anziani con una carenza di vitamina D prolungata nel tempo si assiste allo stesso pattern miopatico riscontrato in corso di rachitismo, con una riduzione preferenziale delle fibre di tipo II, peraltro riscontrato anche in corso di sarcopenia, sindrome caratterizzata dalla riduzione della massa e della performance muscolare. Tale condizione aumenta il rischio di cadute e di fratture da fragilità [17], eventi che a loro volta, contribuiscono a ridurre la mobilità e l'autonomia, esacerbando lo stato di ipovitaminosi D, a causa della riduzione delle attività all'aperto e quindi dell'esposizione alla luce solare [18].
Il sistema vitamina D, attraverso i numerosi recettori ed enzimi presenti ubiquitariamente nel corpo umano, contribuisce a modulare la performance muscolare regolando diverse funzioni legate alle prestazioni fisiche, alla sintesi di androgeni, alle prestazioni cognitive e alla neuroprotezione. La deplezione di vitamina D attiva e disponibile per espletare le sue funzioni fisiologiche nell'organismo condiziona la comparsa di una sequela di eventi patologici che caratterizzano la compromissione della funzione muscolare (Fig. 2).
Anche se è noto che condizioni di ipovitaminosi, e di alterata funzionalità muscolare, sono più comuni nell'età avanzata, è da sottolineare che la vitamina D ha un ruolo importante nella performance fisica e cognitiva anche in soggetti più giovani. Recentemente, infatti, è stato preconizzato l'uso di supplementazione di vitamina D anche in popolazioni selezionate nelle quali è richiesta una prestazione fisica e psico-emozionale di notevole impatto, come quella dei militari coinvolti in scenari di guerra. Wentz et al. [19] sostengono che la supplementazione di vitamina D ai soldati ipovitaminosici costituisce un intervento non invasivo e a basso costo per l'implementazione della performance di combattimento.
È indubbio che tra le tante azioni extrascheletriche attribuite al sistema vitaminico D, quella sulla muscolatura striata rappresenta un intrigante elemento nella conoscenza dei meccanismi alla base della sua complessa attività biologica. Gli studi preclinici, gli studi clinici e gli studi osservazionali sembrerebbero confermare uno stretto rapporto

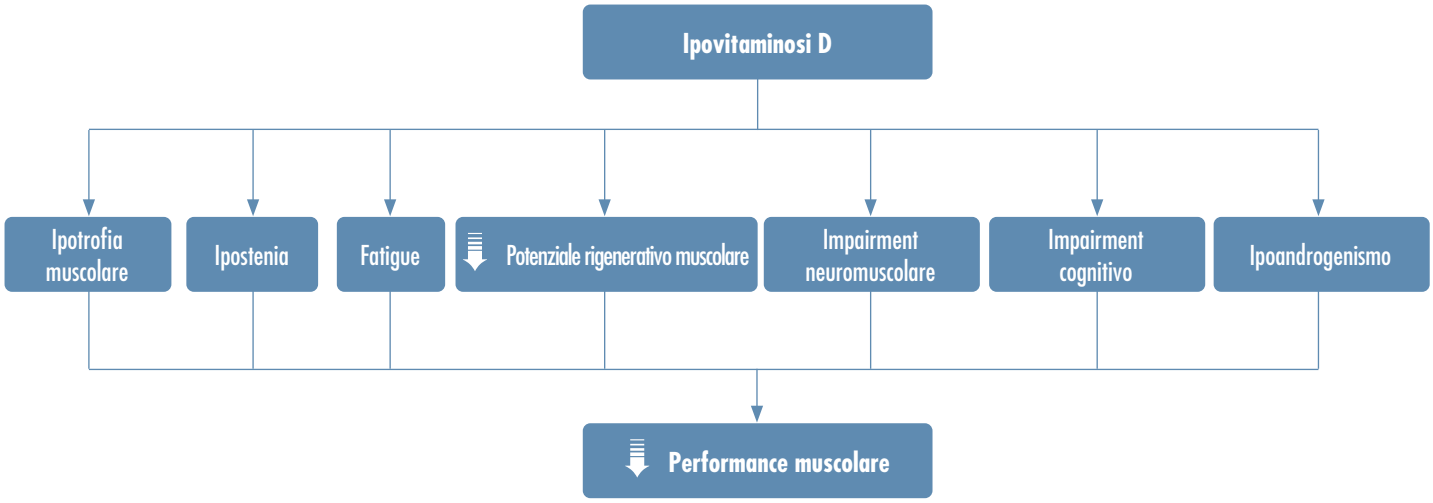

FIGURA 2.
Meccanismi patoclinici dell'ipovitaminosi D nella compromissione della performance muscolare.

tra tasso sierico di 25(OH)D e attività muscolare, in particolare nel migliorare la prestazione funzionale e nel ridurre il rischio di caduta e di disabilità.
Al momento, comunque, non vi è consenso in merito ai livelli sierici ottimali da raggiungere, alla dose da supplementare e alla frequenza di somministrazione per ottenere i potenziali effetti benefici della vitamina D sulla funzione muscolare.

Bibliografia

1 Bing R. Myopathia rachitica. J Kinderheilk 1908;68:64.

2 Peitsara H. Tierexperimentelle Rachitisuntersuchungen mit besonderer Berticksichtigung der Muskeltatigkeit. Acta Paediatr 1944;31(Suppl III):1.

3 Patten BM, Bilezikian JP, Mallettfe LE, et al. Neuromuscular disease in primary hyperparathyroidism. Ann Intern Med 1974;80:182. https://doi.org/10.7326/0003-4819-80-2-182

4 Haussler MR, Norman AW. Chromosomal receptor for a vitamin D metabolite. Proc Natl Acad Sci USA 1969;62:155-62. https://doi.org/10.1073/pnas.62.1.155

5 Simpson R, Thomas G, Arnold A. Identification of 1,25-dihydroxyvitamin D3 receptors and activities in muscle. J Biol Chem 1985;260:8882-91.

6 Pojednic R, Ceglia L, Olsson K, et al. Effects of 1,25-dihydroxyvitamin D and vitamin D on the expression of the vitamin D receptor in human skeletal muscle cells. Calcif Tissue Int 2015;96:256-63. https://doi.org/10.1007/s00223-014-9932-x

7 Christakos S, Hewison M, Gardner DG, et al. Vitamin D: beyond bone. Ann NY Acad Sci 2013;1287:45-58. https://doi.org/10.1111/nyas.12129

8 Shirvani, A, Kalajian, TA, Song, A, et al. Disassociation of vitamin D's calcemic activity and non-calcemic genomic activity and individual responsiveness: a randomized controlled double-blind clinical trial. Sci Rep 2019;9:17685. https://doi.org/10.1038/s41598-019-53864-1

9 Dzik KP, Kaczor JJ. Mechanisms of vitamin D on skeletal muscle function: oxidative stress, energy metabolism and anabolic state. Eur J Appl Physiol 2019;119:825-39. https://doi.org/10.1007/s00421-019-04104-x

10 Hii CS, Ferrante A. The non-genomic actions of vitamin D. Forum Nutr 2016;8:135. https://doi.org/10.3390/nu8030135

11 Ryan KJ, Daniel ZC, Craggs LJ, et al. Dose dependent effects of vitamin D on transdifferentiation of skeletal muscle cells to adipose cells. J Endocrinol 2013;217:45-58. https://doi.org/10.1530/JOE-12-0234

12 Garcia LA, King KK, Ferrini MG, et al. 1,25(OH)2vitamin D3 stimulates myogenic differentiation by inhibiting cell proliferation and modulating the expression of pro myogenic growth factors and myostatin in C2C12 skeletal muscle cells. Endocrinology 2011;152:2976-86. https://doi.org/10.1210/en.2011-0159

13 Bischoff-Ferrari HA, Borchers M, Gudat F, et al. Vitamin D receptor expression in human muscle tissue decreases with age. J Bone Miner Res 2004;19:265-9. https://doi.org/10.1359/jbmr.2004.19.2.265

14 Glerup H, Mikkelsen K, Poulsen L, et al. Hypovitaminosis D myopathy without biochemical signs of osteomalacic bone involvement. Calcif Tissue Int 2000;66:419-24. https://doi.org/10.1007/s002230010085

15 Iolascon G, de Sire A, Calafiore D, et al. Hypovitaminosis D is associated with a reduction in upper and lower limb muscle strength and physical performance in post-menopausal women: a retrospective study. Aging Clin Exp Res 2015;27(Suppl 1):S23-30. https://doi.org/10.1007/s40520-015-0405-5

16 Iolascon G, Mauro GL, Fiore P, et al. Can vitamin D deficiency influence muscle performance in postmenopausal women? A multicenter retrospective study. Eur J Phys Rehabil Med 2018;54:676-82. https://doi.org/10.23736/S1973-9087.17.04533-6

17 Anagnostis P, Dimopoulou C, Karras S, et al. Sarcopenia in post-menopausal women: is there any role for vitamin D? Maturitas 2015;82:56-64. https://doi.org/10.1016/j.maturitas.2015.03.014

18 Artaza-Artabe I, Sáez-López P, Sánchez-Hernández N, et al. The relationship between nutrition and frailty: effects of protein intake, nutritional supplementation, vitamin D and exercise on muscle metabolism in the elderly. A systematic review. Maturitas 2016;93:89-99. https://doi.org/10.1016/j.maturitas.2016.04.009

19 Wentz LM, Eldred JD, Henry MD, et al. Clinical relevance of optimizing vitamin D status in soldiers to enhance physical and cognitive performance. J Spec Oper Med 2014;14:58-66.

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Vitamina D e asma

Gianenrico Senna[1], Fabiana Furci[2]

[1] Dipartimento ad Attività Integrata di Medicina, Azienda Ospedaliera Universitaria Integrata Verona; [2] Scuola di Specialità di Allergologia e Immunologia Clinica di Messina

L'asma è un complesso disturbo respiratorio di origine infiammatoria la cui insorgenza e il cui decorso sono influenzati da molteplici elementi tra cui fattori genetici, ambientali ed etnici, oltre che da condizioni socio-economiche [1]. È caratterizzata da una eterogeneità individuale che si manifesta con diverse risposte a diversi *trigger* e a diverse terapie. Riconoscere l'eterogeneità dell'asma e la relativa caratterizzazione aiuta a selezionare un percorso terapeutico specifico per ogni paziente [2].

Per spiegare la crescente prevalenza dell'asma e delle malattie allergiche nei paesi occidentali a partire dagli anni '70 sono state formulate l'ipotesi dell'igiene, l'ipotesi del microbioma intestinale e altre teorie che hanno associato la vitamina D allo sviluppo di asma, *wheezing*, rinite allergica, allergie alimentari e dermatite atopica [3]. Il ruolo dell'occidentalizzazione, di uno stile di vita in cui si trascorre più tempo al chiuso nella carenza di vitamina D, e nell'aumento di asma e allergie è stato analizzato dall'*International Study of Asthma and Allergies in Childhood* (ISAAC) che ha evidenziato l'altissima incidenza dei sintomi dell'asma in paesi quali la Gran Bretagna, l'Australia, la Nuova Zelanda e l'Irlanda [4,5]. Alcuni studi condotti in diverse città cinesi con vari profili socioeconomici hanno riscontrato la prevalenza dell'asma e dei sintomi allergici a Hong Kong, la città più occidentalizzata tra quelle studiate [6].

In anni recenti la vitamina D, in virtù delle sue proprietà immunomodulanti tramite la regolazione delle funzioni del sistema immunitario adattivo e innato, è stata considerata come un nuovo fattore potenzialmente in grado di inibire l'infiammazione delle vie aeree; in effetti la carenza di vitamina D è correlata a un aumento delle infiammazioni delle vie aeree, a una compromessa funzionalità polmonare, a un aumento delle esacerbazioni e delle prognosi infauste nei pazienti asmatici [7,8]. In particolare, l'interesse per la possibile funzione immunomodulante della vitamina D nell'asma è scaturito dalla considerazione della presenza del recettore per la vitamina D (VDR) sulle cellule immunitarie e su vari tessuti delle vie respiratorie. I recettori VDR si ritrovano nelle cellule epiteliali del tratto respiratorio e nelle cellule immunitarie (cellule B, cellule T, macrofagi e monociti) e la forma attiva della vitamina D [$1,25(OH)_2D_3$] esplica i suoi effetti fisiologici legandosi ai recettori VDR [9,10].

EFFETTI DELLA VITAMINA D SUL SISTEMA IMMUNITARIO

Le attività biologiche più note della vitamina D sono l'omeostasi del calcio e il metabolismo osseo. Ma considerato che il recettore della vitamina D, un membro della famiglia dei recettori nucleari, è stato localizzato in diversi tessuti e cellule del corpo umano, incluse le cellule dendritiche (DC), importanti cellule che presentano l'antigene, è lecito supporre che le attività della vitamina D siano numerose [11,12]. Queste attività hanno sede nel sistema immunitario, dal momento che la vitamina D svolge un ruolo ben preciso nel decorso delle patologie immuno-mediate, inibendo la risposta e la proliferazione dei linfociti Th1 e Th17 [13]. La vitamina D ha un ruolo determinante nel differenziamento delle cellule T regolatorie (Treg) [14]. Diversi studi riportano gli effetti positivi della vitamina D sulle patologie che comportano una iperattivazione dei linfociti Th1, come l'artrite reumatoide, la sclerosi multipla, la psoriasi [15].

È stato riportato un effetto benefico della vitamina D sul decorso delle patologie allergiche in cui i linfociti Th2 svolgono un ruolo fondamentale, a prescindere dai meccanismi patogenetici soggiacenti [16]. Uno studio di Pichler et al. ha preso in esame il ruolo della $1,25(OH)_2D_3$ sui linfociti T CD4+ helper naïve, e sui linfociti T CD8+ citotossici in colture cellulari isolate dal cordone ombelicale umano, riscontrando gli effetti inibitori della $1,25(OH)_2D_3$ sulla produzione di IFN-γ indotta da IL-12 e sulla produzione di IL-4 e IL-13 indotta da IL-4 nelle cellule naïve [17]. Oltre a essere coinvolta in questi meccanismi, la vitamina D ha la facoltà di inibire IL-17A e di prevenire la conversione dei linfociti T CD8+ da cellule che produco-

Corrispondenza
Gianenrico Senna
gianenrico.senna@aovr.veneto.it

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no IFN-γ a cellule che producono IL-13 documentata nei pazienti asmatici resistenti ai corticosteroidi [18-20].
Nel valutare il possibile ruolo della vitamina D nella risposta immunitaria eosinofila, è stata documentata la sua capacità di prolungare la sopravvivenza delle cellule che esprimono il recettore della vitamina D [11]. Inoltre, la vitamina D riduce la necrosi eosinofila e il rilascio citolitico della perossidasi. Sono stati riscontrati inoltre una ridotta produzione dell'immunoglobulina E (IgE) e un incremento nell'espressione di IL-10 [21]. Filho et al., analizzando una popolazione non selezionata, non dominata da pazienti allergici, riportano che i pazienti affetti da carenza di vitamina D presentano un aumento nella conta di eosinofili nel sangue. È stata riscontrata una correlazione inversa della vitamina D con i livelli sierici di basofili e neutrofili [22].

MODULAZIONE GENETICA DELLA VITAMINA D

Il legame della vitamina D e dei suoi analoghi al recettore VDR regola l'espressione di numerosi geni associati con l'infiammazione e l'immunomodulazione [23] (Fig. 1). Gli effetti biologici della vitamina D possono essere alterati da polimorfismi a singolo nucleotide (SNP) del gene VDR e potrebbero essere coinvolti negli effetti biologici della vitamina D. Nello specifico, molti studi ipotizzano che i polimorfismi a singolo nucleotide (SNP) nel gene VDR quali rs2228570 (FokI), rs731236 (TaqI), rs1544410 (BsmI) e rs7975232 (ApaI), rappresentino dei fattori di rischio per l'insorgenza dell'asma. Masoud Hassanzadeh Makoui et al. hanno riscontrato un'associazione statisticamente rilevante tra i polimorfismi genici FokI e TaqI e il rischio asmatico [24,25]. In aggiunta, nello stesso studio, l'analisi dei sottogruppi è stata stratificata al fine di valutare un potenziale effetto specifico correlato all'etnia, rivelando che la presenza del polimorfismo FokI in una popolazione africana riduce il rischio asmatico sotto il modello dominante (OR = 0,60) e il modello allelico (OR = 0,54). Il genotipo TT del polimorfismo TaqI è stato associato all'aumento del rischio di asma in una popolazione asiatica (OR = 2,94) e a una diminuzione del rischio nelle popolazioni americane (OR = 0,64). Questo risultato ha evidenziato una differenza di outcome tra le etnie che potrebbe essere causata da modelli nutrizionali diversi, discrepanza geografica, diversità etnica e da una significativa influenza dell'etnia sull'espressione del gene VDR e sui livelli sierici di vitamina D [25,26]. Ognuno di questi quattro SNP può disturbare la stabilità mRNA del VDR, che a sua volta induce uno squilibrio tra Th1 e Th2, con la conseguente riduzione della produzione di IL-12 e di IFN-γ, con una produzione predominante delle citochine Th2, quali IL-4 e IL-13 [25].

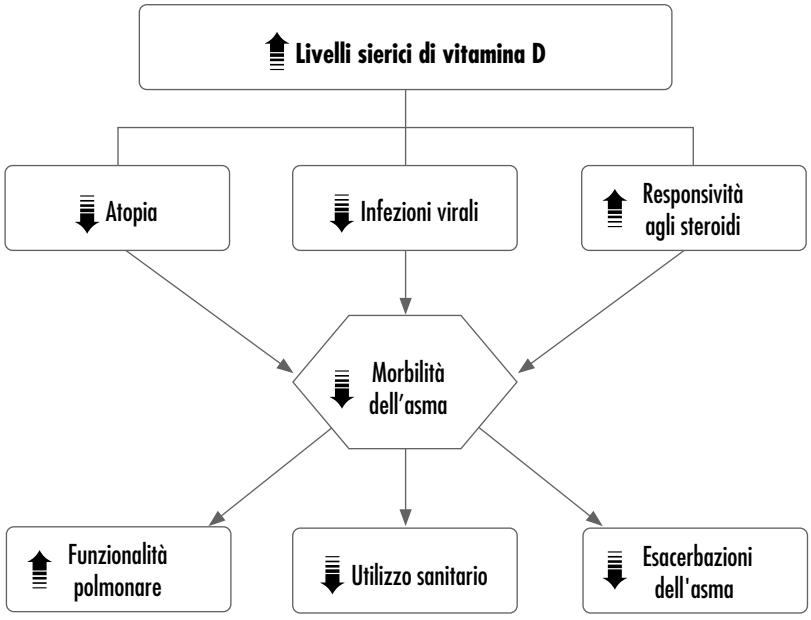

FIGURA 1.
La vitamina D e il suo network.

IL RUOLO DELLA VITAMINA D E LA RISPOSTA ALLA TERAPIA NEI PAZIENTI ASMATICI

La vitamina D potrebbe svolgere un ruolo anche nella risposta alla terapia anti-infiammatoria nei pazienti asmatici, in particolare ai glucocorticoidi (GC) [27]. Valutando la risposta ai GC nei pazienti asmatici, fino al 50% dei pazienti potrebbe non avere una buona risposta ai corticosteroidi inalati (ICS), e fino al 25% dei pazienti con asma difficile da controllare potrebbe non rispondere positivamente ai GC orali, con elevata morbilità e un decorso della malattia potenzialmente mortale [28,29]. I difetti nella trascrizione genica GC-indotta dei mediatori anti-infiammatori come IL-10 e le proteinchinasi fosfatasi attivate da mitogeni (MKP-1) potrebbero avere un ruolo nei pazienti affetti da asma resistente agli steroidi [30,31].
A conferma di quanto appena detto, Xystrakis et al. hanno constatato che l'aggiunta della vitamina D e del desametasone (Dex) in colture di cellule Treg CD4+ di pazienti affetti da asma resistente agli steroidi ha aumentato la secrezione di IL-10 a livelli comparabili a quelli secreti dalle cellule di pazienti sensibili agli steroidi trattati solo con il Dex [30]. Zhang et al. hanno confermato che la vitamina D ha aumentato l'induzione da GC di MKP-1 e IL-10 nelle cellule mononucleate da sangue periferico di bambini asmatici [32].

IL RUOLO DELLA VITAMINA D CONTRO LE INFEZIONI RESPIRATORIE

La vitamina D svolge un ruolo fondamentale anche nel proteggere dalle infezioni respiratore e dunque nella prevenzione delle esacerbazioni asmatiche. Studi osservazionali hanno documentato un'associazione tra basse concentrazioni sieriche di 25(OH)D e una suscettibilità alle infezioni respiratorie acute e alle esacerbazioni nei pazienti asmatici [33,34]. In particolare, gli studi in vitro in linee cellulari epiteliali e nelle colture primarie di cellule epiteliali bronchiali infettate da virus del genere Rhinovirus dimostrano che la vitamina D può aumentare le difese antivirali, migliorando la produzione di peptidi antimicrobici (AMP) come la catelicidina e la β-defensina [35,36]. L'attivazione

dei recettori dell'immunità innata *Pathogen Recognition Receptor* (PRR) sulle cellule epiteliali dell'apparato respiratorio upregola la secrezione di peptidi antimicrobici tramite le cellule epiteliali, la morte cellulare programmata e altre vie di risposta intracellulare, rilasciando mediatori proinfiammatori, citochine e chemochine. La vitamina D può interferire con molte azioni svolte dai recettori PRR [37,38].

Diversi studi riportano che i supplementi di vitamina D assunti per via orale da bambini soggetti a infezioni ricorrenti del tratto respiratorio (RRTI) riduce il numero delle infezioni e il loro impatto socioeconomico globale, con un ruolo di prevenzione [39]. Martineau et al., in una meta-analisi dei dati individuali dei partecipanti (*individual participant data IPD*) condotta nell'ambito di studi controllati randomizzati, hanno evidenziato che la supplementazione con vitamina D induce una riduzione del rischio di sperimentare almeno una infezione acuta delle vie respiratorie. Le somministrazioni giornaliere o settimanali di vitamina D hanno offerto grandi benefici ai pazienti affetti da una grave carenza di vitamina D al basale, e anche i pazienti con più alte concentrazioni di 25(OH)D ne hanno tratto evidenti vantaggi) [34]. Diversi studi documentano una connessione tra la carenza di vitamina D e una elevata suscettibilità e gravità della tubercolosi (TB) [40].

VITAMINA D ED ESACERBAZIONI

Alcune meta-analisi hanno evidenziato il ruolo della supplementazione con vitamina D nel ridurre la frequenza di esacerbazioni, soprattutto nei pazienti affetti da carenza di vitamina D [41]. In effetti, riacutizzazioni di moderata entità sono state riscontrate dopo il trattamento mediante supplementazioni con vitamina D solo nei pazienti con livelli di 25(OH)D al basale inferiori a 25 nmol/l e non nei pazienti che presentavano livelli più elevati di 25(OH)D in circolo [33].

Alcuni studi condotti sulle cellule mononucleate da sangue periferico (*peripheral blood mononuclear cell*, PBMC) dei pazienti affetti da asma di grado severo hanno riportato una inibizione della produzione di citochine espresse dalle cellule Th17 (IL-17 e IL-22) a seguito del trattamento con $1,25(OH)_2D_3$. L'importanza di questo risultato è evidente data l'impossibilità dei corticosteroidi a inibire le citochine espresse dalle Th17, in quanto suggerisce che la vitamina possa migliorare la risposta alla terapia steroidea nei pazienti asmatici [33,42].

VITAMINA D E SARS-COV-2

Alla luce del ruolo protettivo della vitamina D riportato in molte condizioni associate alla polmonite, l'ipercitochinemia e la sindrome da distress respiratorio acuto (ARDS) e dunque dei suoi effetti antivirali che interferiscono direttamente con la replicazione virale, è lecito supporre che la vitamina D potrebbe avere effetti decisivi sull'infezione da SARS-CoV-2. Il virus SARS-CoV-2 inizialmente adotta meccanismi di evasione della risposta immunitaria, innescando l'iperreazione immunitaria e la tempesta citochinica [43-46].

Il trattamento preventivo con vitamina D ha effetti positivi documentati nei modelli animali di ARDS, riducendo la permeabilità dei polmoni, modulando l'attività del sistema renina-angiotensina e l'espressione del recettore ACE2, noto come punto d'ingresso nelle cellule umane per il virus SARS-CoV-2 [47,48].

Pertanto andrebbe valutato l'utilizzo della vitamina D come possibile terapia adiuvante o come profilassi [49].

CONCLUSIONI

Alla luce dei diversi meccanismi attivati nella patologia respiratoria, dei diversi *pathway* che possono influenzare la capacità di un individuo di produrre adeguati livelli di vitamina D attiva a livello locale, della variabilità del siero "benefico" in ogni paziente (considerati anche gli effetti collaterali della supplementazione con vitamina D quali l'ipercalcemia, l'ipercalciuria e i calcoli renali), il messaggio principale è l'importanza di diagnosticare, prevenire e trattare la carenza di vitamina D. Queste considerazioni dovrebbero portarci a considerare la vitamina D non tanto come un fattore "universale" e indipendente dell'asma, ma come un importante "regolatore" nel nostro sistema immunitario.

Bibliografia

1. Liu J, Dong Y-Q, Yin J, et al. Meta-analysis of vitamin D and lung function in patients with asthma. Respir Res 2019;20:161. https://doi.org/10.1186/s12931-019-1072-4
2. Robinson D, Humbert M, Buhl R, et al. Revisiting Type 2-high and Type 2-low airway inflammation in asthma: current knowledge and therapeutic implications. Clin Exp Allergy 2017;47:161-75. https://doi.org/10.1111/cea.12880
3. Bacharier LB. Vitamin D status at birth: an important and potentially modifiable determinant of atopic disease in childhood? J Allergy Clin Immunol 2014;133:154-5. https://doi.org/10.1111/cea.12880
4. Worldwide variations in the prevalence of asthma symptoms: the International Study of Asthma and Allergies in Childhood (ISAAC) Eur Respir J 1998;12:315-35. https://doi.org/10.1183/09031936.98.12020315
5. Von Mutius E, Leung DYM, Sampson HA, et al. Pediatric Allergy Principles and Practice. In: Epidemiology of allergic disease. St. Louis: Mosby 2003.
6. Zhao T, Wang HJ, Chen Y, et al. Prevalence of childhood asthma, allergic rhinitis and eczema in Urumqi and Beijing. J Paediatr Child Health 2000;36:128-33. https://doi.org/10.1046/j.1440-1754.2000.00457.x
7. Bikle DD. Vitamin D: newly discovered actions require reconsideration of physiologic requirements. Trends Endocrinol Metabol. 2010;21:375-84. https://doi.org/10.1016/j.tem.2010.01.003
8. Sirufo M, Suppa M, Ginaldi L, et al M. Does allergy break bones? Osteoporosis and Its Connection to Allergy. Int J Mol Sci 2020;21:712. https://doi.org/10.3390/ijms21030712
9. Li F, Peng M, Jiang L, et al. Vitamin D deficiency is associated with decreased lung function in Chinese adults with asthma. Respiration 2011;81:469-75. https://doi.org/10.1159/000322008
10. Lange NE, Litonjua A, Hawrylowicz CM, et al. Vitamin D, the immune system and asthma. Expert Rev Clin Immunol 2009;5:693-702. https://doi.org/10.1586/eci.09.53
11. Baker AR, McDonnell DP, Hughes M, et al. Cloning and expression of fullength cDNA encoding human vitamin D receptor. Proc Natl Acad Sci USA 1988;85:3294-98. https://doi.org/10.1073/pnas.85.10.3294
12. Bhalla AK, Amento EP, Clemens TL, et al. Specific high-affinity receptors for 1,25-dihydroxyvitamin D3 in human peripheral blood mononuclear cells: presence in monocytes and induction in T lymphocytes following activation. J Clin Endocrinol Metab 1983;57:1308-10. https://doi.org/10.1210/jcem-57-6-1308
13. Bivona G, Agnello L, Ciaccio M. The immunological implication of the new vitamin D metabolism. Central Eur J Immunol 2018;43:331-4. https://doi.org/10.5114/ceji.2018.80053

14 Baeke F, Takiishi T, Korf H, et al. Vitamin D: modulator of the immune system. Curr Opin Pharmacol 2010;10:482-96. https://doi.org/10.1016/j.coph.2010.04.001

15 Ciccarelli F, De Martinis M, Sirufo MM, et al. Psoriasis Induced by anti-tumor necrosis factor alpha agents: a comprehensive review of the literature. Acta Dermatovenerol Croat ADC 2016;24:169-74.

16 Muehleisen B, Gallo RL. Vitamin D in allergic disease: shedding light on a complex problem. J Allergy Clin Immunol 2013;131:324-9. https://doi.org/10.1016/j.jaci.2012.12.1562

17 Pichler J, Gerstmayr M, Szépfalusi Z, et al. 1 alpha, 25(OH)2D3 inhibits not only Th1 but also Th2 differentiation in human cord blood T cells. Pediatr Res 2002;52:12-8. https://doi.org/10.1203/00006450-200207000-00005

18 Urry Z, Chambers ES, Xystrakis E, et al. The role of 1a,25-dihydroxyvitamin D3 and cytokines in the promotion of distinct Foxp3(1) and IL-10(1) CD4(1) T cells. Eur J Immunol 2012;42:2697-708. https://doi.org/10.1002/eji.201242370

19 Banerjee A, Damera G, Bhandare R, et al. Vitamin D and glucocorticoids differentially modulate chemokine expression in human airway smooth muscle cells. Br J Pharmacol 2008;155:84-92. https://doi.org/10.1038/bjp.2008.232

20 Schedel M, Jia Y, Michel S, et al. 1,25D3 prevents CD8+Tc2 skewing and asthma development through VDR binding changes to the Cyp11a1 promoter. Nat Commun 2016;7:10213. https://doi.org/10.1038/ncomms10213

21 Matheu V, Back O, Mondoc E, et al. Dual effects of vitamin D-induced alteration of TH1/TH2 cytokine expression: enhancing IgE production and decreasing airway eosinophilia in murine allergic airway disease. J Allergy Clin Immunol 2003;112:585-92. https://doi.org/10.1016/s0091-6749(03)01855-4

22 Souto Filho JTD, de Andrade AS, Ribeiro FM, et al. Impact of vitamin D deficiency on increased blood eosinophil counts. Hematol Oncol Stem Cell Ther 2018;11:25-9. https://doi.org/10.1016/j.hemonc.2017.06.003

23 Banerjee P, Chatterjee MJM. Antiproliferative role of vitamin D and its analogs-a brief overview. Mol Cell Biochem 2003;253:247-54. https://doi.org/10.1023/a:1026072118217

24 Zhou TB, Jiang ZP, Huang MF, et al. Association of vitamin D receptor Fok1 (rs2228570), TaqI (rs731236) and ApaI (rs7975232) gene polymorphism with the risk of chronic kidney disease. J Recept Signal Transduct Res 2015;35:58-62. https://doi.org/10.3109/10799893.2014.926928

25 Makoui MH, Imani D, Motallebnezhad M, et al. Vitamin D receptor gene polymorphism and susceptibility to asthma: meta-analysis based on 17 case-control studies. Ann Allergy Asthma Immunol 2020;124:57-69. https://doi.org/10.1016/j.anai.2019.10.014

26 O Neil V, Asani FF, Jeffery TJ, et al. Vitamin D receptor gene expression and function in a South African population: ethnicity, vitamin D and FokI. PLOS One 2013;8:67663. https://doi.org/10.1371/journal.pone.0067663

27 National Asthma Education and Prevention Program. Expert panel report: Guidelines for the diagnosis and management of asthma update on selected topics. J Allergy Clin Immunol 2002;110(5 Suppl):S141-219.

28 Martin RJ, Szefler SJ, King TS, et al. The predicting response toinhaled corticosteroid efficacy (PRICE) trial. J Allergy Clin Immunol 2007;119:73-80. https://doi.org/10.1016/j.jaci.2006.10.035

29 Kalra N, Ishmael FT. Cross-talk between vitamin D, estrogen and corticosteroids in glucocorticoid resistant asthma. OA Inflammation 2014;2:2.

30 Xystrakis E, Kusumakar S, Boswell S, et al. Reversing the defective induction of IL-10-secreting regulatory T cells in glucocorticoid resistant asthma patients. J Clin Invest 2006;116:146-55. https://doi.org/10.1172/JCI21759

31 Barnes PJ. Corticosteroid resistance in patients with asthma and chronic obstructive pulmonary disease. J Allergy Clin Immunol 2013;131:636-45. https://doi.org/10.1016/j.jaci.2012.12.1564

32 Zhang Y, Goleva E, Leung D. Vitamin D has corticosteroid sparing effects by enhancing glucocorticoid induced mitogen-activated protein kinase phosphatase-1. J Allergy Clin Immunol 2010; 125(Suppl 1):AB54.

33 Maes K, SerrJé, Mathyssen C, et al. Targeting vitamin D deficiency to limit exacerbations in respiratory diseases: utopia or strategy with potential? Calcif Tissue Int 2019;106:76-87. https://doi.org/10.1007/s00223-019-00591-4

34 Martineau AR, Jolliffe DA, Greenberg L, et al. Vitamin D supplementation to prevent acute respiratory infections: individual participant data meta-analysis. Health Technol Assess Winch Engl 2019;23:1-44. https://doi.org/10.3310/hta23020

35 Hansdottir S, Monick MM. Vitamin D effects on lung immunity and respiratory diseases. Vitam Horm 2011;86:217-37. https://doi.org/10.1016/B978-0-12-386960-9.00009-5

36 Tjabringa GS, Rabe KF, Hiemstra PS. The human cathelicidin LL-37: a multifunctional peptide involved in infection and inflammation in the lung. Pulm Pharmacol Ther 2005;18:321-7. https://doi.org/10.1016/j.pupt.2005.01.001

37 Newton AH, Cardani A, Braciale TJ. The host immune response in respiratory virus infection: balancing virus clearance and immunopathology. Semin Immunopathol 2016;38:471-82. https://doi.org/10.1007/s00281-016-0558-0

38 Crane MJ, Xu Y, Henry WL, et al. Pulmonary influenza A virus infection leads to suppression of the innate immune response to dermal injury. PLoS Pathog 2018.14:1007212. https://doi.org/10.1371/journal.ppat.1007212

39 Di Mauro Baldassarre ME, Capozza M, Nicolardi A, et al. The impact of Vitamin D supplementation in paediatric primary care on recurrent respiratory infections: a randomized controlled trial. EuroMediterranean Biomedical Journal 2018;13:194-9. https://doi.org/10.3269/1970-5492.2018.13.44

40 Morcos MM, Gabr AA, Samuel S, et al. Vitamin D administration to tuberculosis children and its value. Bol Chim Farm 1998;137:157-64.

41 Wang M, Liu M, Wang C, et al. Association between vitamin D status and asthma control: a meta-analysis of randomized trials. Respir Med 2019;50:85-94. https://doi.org/10.1016/j.rmed.2019.02.016

42 Nanzer AM, Chambers ES, Ryanna K, et al. Enhanced production of IL-17A in patients with severe asthma is inhibited by 1alfa,25-dihydroxyvitamin D3 in a glucocorticoid-independent fashion. J Allergy Clin Immunol 2013;132:297-304. https://doi.org/10.1016/j.jaci.2013.03.037

43 Hong M, Xiong T, Huang J, Wu Y, Lin L, Zhang Z, Huang L, Gao D, Wang H, Kang C, Gao Q, Yang X, Yang N, Hao L. Association of vitamin D supplementation with respiratory tract infection in infants. Matern Child Nutr.2020; 5: e12987. https://doi.org/10.1111/mcn.12987

44 Tsujino I, Ushikoshi-Nakayama R, Yamazaki T, et al. Pulmonary activation of vitamin D3 and preventive effect against

interstitial pneumonia. J Clin Biochem Nutr 2019;65:245-51. https://doi.org/10.3164/jcbn.19-48

45 Zhou YF, Luo BA, Qin LL. The association between vitamin D deficiency and community-acquired pneumonia: a meta-analysis of observational studies. Medicine (Baltimore) 2019;98:17252. https://doi.org/10.1097/MD.0000000000017252

46 Teymoori-Rad M, Shokri F, Salimi V, et al. The interplay between vitamin D and viral infections. Rev Med Virol 2019;29:2032. https://doi.org/10.1002/rmv.2032

47 Xu J, Yang J, Chen J, et al. Vitamin D alleviates lipopolysaccharide-induced acute lung injury via regulation of the renin-angiotensin system. Mol Med Rep 2017;16:7432-8. https://doi.org/10.3892/mmr.2017.754

48 Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 2020;579:270-3. https://doi.org/10.1038/s41586-020-2012-7

49 Jakovac H. COVID-19 and vitamin D-Is there a link and an opportunity for intervention? Am J Physiol Endocrinol Metab 2020;318:589. https://doi.org/10.1152/ajpendo.00138.2020

SELEZIONE BIBLIOGRAFICA

CARDIOLOGIA

- Abboud M. Vitamin D Supplementation and Blood Pressure in Children and Adolescents: A Systematic Review and Meta-Analysis. Nutrients. 2020 Apr 22;12(4):E1163. https://doi.org/10.3390/nu12041163.PMID: 32331233 Free article. Review.

- 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. 2020 May 16. https://doi.org/10.2174/1573399816666200516174352. Online ahead of print. PMID: 32416695

- Brahmbhatt S, Mikhail M, Islam S, et al. Vitamin D and Abdominal Aortic Calcification in Older African American Women, the PODA Clinical Trial. Nutrients. 2020 Mar 24;12(3):861. https://doi.org/10.3390/nu12030861.PMID: 32213826

- Chen NC, Hsu CY, Mao PC, et al. The effects of correction of vitamin D deficiency on arterial stiffness: A systematic review and updated meta-analysis of randomized controlled trials. J Steroid Biochem Mol Biol. 2020 Apr;198:105561. https://doi.org/10.1016/j.jsbmb.2019.105561. Epub 2019 Dec 3.PMID: 31809869 Review.

- Cutie S, Payumo AY, Lunn D, et al. In vitro and in vivo roles of glucocorticoid and vitamin D receptors in the control of neonatal cardiomyocyte proliferative potential. J Mol Cell Cardiol. 2020 Apr 11;142:126-134. https://doi.org/10.1016/j.yjmcc.2020.04.013. Online ahead of print. PMID: 32289320

- Damsgaard CT. Can vitamin D supplementation improve childhood cardiometabolic status?-data from 2 randomized trials. Am J Clin Nutr. 2020 Apr 1;111(4):737-738. https://doi.org/10.1093/ajcn/nqaa021. PMID: 32005985

- Dohain AM, Almogati J, Al-Radi OO, et al. Serum vitamin D status following pediatric cardiac surgery and association with clinical outcome. Eur J Pediatr. 2020 Apr;179(4):635-643. https://doi.org/10.1007/s00431-019-03538-x. Epub 2019 Dec 21.PMID: 31865429

- Ganji V, Tangpricha V, Zhang X. Serum Vitamin D Concentration ≥75 nmol/L Is Related to Decreased Cardiometabolic and Inflammatory Biomarkers, Metabolic Syndrome, and Diabetes; and Increased Cardiorespiratory Fitness in US Adults. Nutrients. 2020 Mar 10;12(3):730. https://doi.org/10.3390/nu12030730.PMID: 32164233

- Gonçalves MDCR, Miranda Neto M, Cavalcante IGM, et al. 200.000 IU of vitamin D does not reduce resting Blood Pressure and Inhibit Post-Exercise Hypotension in elderly women: a pilot study. An Acad Bras Cienc. 2020 Mar 16;92(1):e20190227. https://doi.org/10.1590/0001-3765202020190227. eCollection 2020. PMID: 32187256

- Gouni-Berthold I, Berthold HK. Vitamin D and vascular disease. Curr Vasc Pharmacol. 2020 Mar 17. https://doi.org/10.2174/1570161118666200317151955. Online ahead of print. PMID:32183681

- Guo X, Lin H, Liu J, et al. 1,25-Dihydroxyvitamin D attenuates diabetic cardiac autophagy and damage by vitamin D receptor-mediated suppression of FoxO1 translocation. J Nutr Biochem. 2020 Mar 19;80:108380. https://doi.org/10.1016/j.jnutbio.2020.108380. Online ahead of print. PMID: 32299030

- Hauger H, Laursen RP, Ritz C, et al. Effects of vitamin D supplementation on cardiometabolic outcomes in children and adolescents: a systematic review and meta-analysis of randomized controlled trials. Eur J Nutr. 2020 Apr;59(3):873-884. https://doi.org/10.1007/s00394-019-02150-x. Epub 2020 Feb 14.PMID: 32060613 Review.

- Hou YC, Lu CL, Zheng CM, et al. The Role of Vitamin D in Modulating Mesenchymal Stem Cells and Endothelial Progenitor Cells for Vascular Calcification. Int J Mol Sci. 2020 Apr 2;21(7):2466. https://doi.org/10.3390/ijms21072466.PMID: 32252330

- Hunter L, Ferguson R, McDevitt H. Vitamin D deficiency cardiomyopathy in Scotland: a retrospective review of the last decade. Arch Dis Child. 2020 Mar 2:archdischild-2019-317794. https://doi.org/10.1136/archdischild-2019-317794. Online ahead of print. PMID: 32122880

- Jones P, Lucock M, Martin C, et al. Independent and Interactive Influences of Environmental UVR, Vitamin D Levels, and Folate Variant MTHFD1-rs2236225 on Homocysteine Levels. Nutrients. 2020 May 18;12(5):E1455. https://doi.org/10.3390/nu12051455.PMID: 32443475

- Joukar F, Naghipour M, Hassanipour S, et al. Association of Serum Levels of Vitamin D with Blood Pressure Status in Northern Iranian Population: The PERSIAN Guilan Cohort Study (PGCS). Int J Gen Med. 2020 Mar 11;13:99-104. https://doi.org/10.2147/IJGM.S244472. eCollection 2020.PMID: 32210606

- Kara H, Yasim A. Effects of high-dose vitamin D supplementation on the occurrence of post-operative atrial fibrillation after coronary artery bypass grafting: randomized controlled trial. Gen Thorac Cardiovasc Surg. 2020 May;68(5):477-484. https://doi.org/10.1007/s11748-019-01209-0. Epub 2019 Sep 26.PMID: 31559589

- Kiourtzidis M, Kühn J, Schutkowski A, et al. Inhibition of Niemann-Pick C1-like protein 1 by ezetimibe reduces uptake of deuterium-labeled vitamin D in mice. J Steroid Biochem Mol Biol. 2020 Mar;197:105504. https://doi.org/10.1016/j.jsbmb.2019.105504. Epub 2019 Nov 1.PMID: 31682937

- Kouvari M, Panagiotakos DB, Chrysohoou C, et al. Dietary vitamin D intake, cardiovascular disease and cardiometabolic risk factors: a sex-based analysis from the ATTICA cohort study. J Hum Nutr Diet. 2020 Apr 7. https://doi.org/10.1111/jhn.12748. Online ahead of print. PMID: 32266756

- Lai CC, Juang WC, Sun GC, et al. Vitamin D Attenuates Loss of Endothelial Biomarker Expression in Cardio-Endothelial Cells. Int J Mol Sci. 2020 Mar 22;21(6):2196. https://doi.org/10.3390/ijms21062196.PMID: 32235811

- Lopez-Mayorga A, Hauger H, Petersen RA, et al. Vitamin D-related genes and cardiometabolic markers in healthy children: a Mendelian randomisation study. Br J Nutr. 2020 May 28;123(10):1138-1147. https://doi.org/10.1017/S0007114520000148. Epub 2020 Jan 21.PMID: 31959263

- Ma L, Wang S, Chen H, et al. Diminished 25-OH vitamin D(3) levels and vitamin D receptor variants are associated with susceptibility to type 2 diabetes with coronary artery diseases. J Clin Lab Anal. 2020 Apr;34(4):e23137. https://doi.org/10.1002/jcla.23137. Epub 2019 Dec 3.PMID: 31793694 Free PMC article.

- 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 Apr 27. https://doi.org/10.1038/s41430-020-0624-5. Online ahead of print. PMID: 32341487

- Morvaridzadeh M, Sepidarkish M, Fazelian S, et al. Effect of Calcium and Vitamin D Co-supplementation on Blood Pressure: A Systematic Review and Meta-Analysis. Clin Ther. 2020 Mar;42(3):e45-e63. https://doi.org/10.1016/j.clinthera.2020.01.005. Epub 2020 Feb 14.PMID: 32067744 Review.

- Nudy M, Krakowski G, Ghahramani M, et al. Vitamin D supplementation, cardiac events and stroke: A systematic review and meta-regression analysis. Int J Cardiol Heart Vasc. 2020 May 20;28:100537. https://doi.org/10.1016/j.ijcha.2020.100537. eCollection 2020 Jun.PMID: 32462077

- Pelczyńska M, Grzelak T, Sperling M, et al. Evaluation of Vitamin D Fractions in Obese Hypertensive Patients. Int J Environ Res Public Health. 2020 Mar 4;17(5):1660. https://doi.org/10.3390/ijerph17051660. PMID: 32143350

- Pungsornruk K, Fedorko L, Djaiani G. Vitamin D: Defense Against Delirium? J Cardiothorac Vasc Anesth. 2020 Apr 15:S1053-0770(20)30283-4. https://doi.org/10.1053/j.jvca.2020.03.034. Online ahead of print. PMID: 32359712

- Säidifard N, Tangestani H, Djafarian K, et al. Serum Vitamin D Level and Carotid Intima-Media Thickness: A Systematic Review and Meta-Analysis of Observational Studies and Randomized Control Trials. Horm Metab Res. 2020 May;52(5):305-315. https://doi.org/10.1055/a-1153-0657. Epub 2020 May 13.PMID: 32403145

- Sanz R, Mazzei L, Santino N, et al. Vitamin D-mitochondria cross-talk could modulate the signaling pathway involved in hypertension development: a translational integrative overview. Clin Investig Arterioscler. 2020 May 23:S0214-9168(20)30023-1. https://doi.org/10.1016/j.arteri.2020.02.002. Online ahead of print. PMID: 32456803 Review. English, Spanish.

- Savastio S, Pozzi E, Tagliaferri F, et al. Vitamin D and Cardiovascular Risk: which Implications in Children? Int J Mol Sci. 2020 May 16;21(10):E3536. https://doi.org/10.3390/ijms21103536.PMID: 32429489 Review.

- Tasdighi E, Hekmat M, Beheshti M, et al. Vitamin D Treatment Attenuates Heart Apoptosis After Coronary Artery Bypass Surgery: A Double-Blind, Randomized, Placebo-Controlled Clinical Trial. J Cardiovasc Pharmacol Ther. 2020 Apr 23:1074248420920495. https://doi.org/10.1177/1074248420920495. Online ahead of print. PMID: 32323557

- Djoussé L, Cook NR, Kim E, et al. Supplementation With Vitamin D and Omega-3 Fatty Acids and Incidence of Heart Failure Hospitalization: VITAL-Heart Failure. 2020 Mar 3;141(9):784-786. https://doi.org/10.1161/CIRCULATIONAHA.119.044645. Epub 2019 Nov 11.PMID: 31709816

- Xu R, Li YY, Ma LL, et al. Association of vitamin D status with coronary artery disease in postmenopausal women. Medicine (Baltimore). 2020 Mar;99(11):e19544. https://doi.org/10.1097/MD.0000000000019544.PMID: 32176108 Free article.

COVID-19

- Arya A, Dwivedi VD. Synergistic effect of Vitamin D and Remdesivir can fight COVID-19. J Biomol Struct Dyn. 2020 May 27:1-2. https://doi.org/10.1080/07391102.2020.1773929. Online ahead of print. PMID: 32456606

- Aygun H. Vitamin D can prevent COVID-19 infection-induced multiple organ damage. Naunyn Schmiedebergs Arch Pharma-

col. 2020 May 25:1-4. https://doi.org/10.1007/s00210-020-01911-4. Online ahead of print. PMID: 32451597

- Bigman G. Age-related Smell and Taste Impairments and Vitamin D Associations in the U.S. Adults National Health and Nutrition Examination Survey. Nutrients. 2020 Apr 2;12(4):E984. https://doi.org/10.3390/nu12040984.PMID: 32252288

- Cao Z, Wu Y, Faucon E, et al. SARS-CoV-2 & Covid-19: Key-Roles of the 'Renin-Angiotensin' System / Vitamin D Impacting Drug and Vaccine Developments. Infect Disord Drug Targets. 2020 May 5. https://doi.org/10.2174/1871526520999200505174704. Online ahead of print. PMID: 32370727

- Carter SJ, Baranauskas MN, Fly AD. Considerations for obesity, vitamin D, and physical activity amidst the COVID-19 pandemic. Obesity (Silver Spring). 2020 Apr 16. https://doi.org/10.1002/oby.22838. Online ahead of print. PMID:32299148

- Chakhtoura M, Napoli N, Fuleihan GEH. Myths and Facts on Vitamin D Amidst the COVID-19 Pandemic. Metabolism. 2020 May 26:154276. https://doi.org/10.1016/j.metabol.2020.154276. Online ahead of print. PMID: 32470350 Free PMC article.

- Ebadi M, Montano-Loza AJ. Perspective: improving vitamin D status in the management of COVID-19. Eur J Clin Nutr. 2020 May 12:1-4. https://doi.org/10.1038/s41430-020-0661-0. Online ahead of print. PMID: 32398871 Free PMC article. Review.

- Ekiz T, Kara M, Özçakar L. Revisiting vitamin D and home-based exercises for patients with sleep apnea facing the COVID-19 quarantine. J Clin Sleep Med. 2020 May 20. https://doi.org/10.5664/jcsm.8586. Online ahead of print. PMID: 32432542

- Garg M, Al-Ani A, Mitchell H, et al. Editorial: low population mortality from COVID-19 in countries south of latitude 35 degrees North - supports vitamin D as a factor determining severity. Authors' reply. Aliment Pharmacol Ther. 2020 Apr 30. https://doi.org/10.1111/apt.15796. Online ahead of print. PMID: 32352178

- Garg M, Al-Ani A, Mitchell H, et al. Editorial: low population mortality from COVID-19 in countries south of latitude 35 degrees North-supports vitamin D as a factor determining severity. Authors' reply. Aliment Pharmacol Ther. 2020 Jun;51(12):1438-1439. https://doi.org/10.1111/apt.15796. Epub 2020 May 12.PMID: 32352178

- Glinsky GV. Tripartite Combination of Candidate Pandemic Mitigation Agents: Vitamin D, Quercetin, and Estradiol Manifest Properties of Medicinal Agents for Targeted Mitigation of the COVID-19 Pandemic Defined by Genomics-Guided Tracing of SARS-CoV-2 Targets in Human Cells. Biomedicines. 2020 May 21;8(5):E129. https://doi.org/10.3390/biomedicines8050129.PMID: 32455629

- Grant WB, Lahore H, McDonnell SL, et al. Evidence that Vitamin D Supplementation Could Reduce Risk of Influenza and COVID-19 Infections and Deaths. Nutrients. 2020 Apr 2;12(4):E988. https://doi.org/10.3390/nu12040988. PMID:32252338 Free article. Review.

- Hastie CE, Mackay DF, Ho F, et al. Vitamin D concentrations and COVID-19 infection in UK Biobank. Diabetes Metab Syndr. 2020 May 7;14(4):561-565. https://doi.org/10.1016/j.dsx.2020.04.050. Online ahead of print. PMID: 32413819

- Hribar CA, Cobbold PH, Church FC. Potential Role of Vitamin D in the Elderly to Resist COVID-19 and to Slow Progression of Parkinson's Disease. Brain Sci. 2020 May 8;10(5):E284. https://doi.org/10.3390/brainsci10050284.PMID: 32397275 Review.

- Ilie PC, Stefanescu S, Smith L. The role of vitamin D in the prevention of coronavirus disease 2019 infection and mortality. Aging Clin Exp Res. 2020 May 6:1-4. https://doi.org/10.1007/s40520-020-01570-8. Online ahead of print. PMID: 32377965

- Jakovac H. COVID-19 and vitamin D-Is there a link and an opportunity for intervention? Am J Physiol Endocrinol Metab. 2020 May 1;318(5):E589. https://doi.org/10.1152/ajpendo.00138.2020. PMID: 32297519 Free PMC article.

- Kara M, Ekiz T, Ricci V, et al. 'Scientific Strabismus' or Two Related Pandemics: COVID-19 & Vitamin D Deficiency. Br J Nutr. 2020 May 12:1-20. https://doi.org/10.1017/S0007114520001749. Online ahead of print. PMID: 32393401

- Kumar D, Gupta P, Banerjee D. Letter: does vitamin D have a potential role against COVID-19? Aliment Pharmacol Ther. 2020 May 20. https://doi.org/10.1111/apt.15801. Online ahead of print. PMID: 32432810

- Maestri E, Formoso G, Da Cas R, et al. [Vitamin D and coronavirus: a new field of use?]. Recenti Prog Med. 2020 Apr;111(4):253-256. https://doi.org/10.1701/3347.33188. PMID: 32319447 Italian.

- Mansur J. Letter: low population mortality from COVID-19 in countries south of latitude 35 degrees North supports vitamin D as a factor determining severity. Aliment Pharmacol Ther. 2020 May 13. https://doi.org/10.1111/apt.15820. Online ahead of print. PMID: 32402107

- Marik PE, Kory P, Varon J. Does vitamin D status impact mortality from SARS-CoV-2 infection? Med Drug Discov. 2020 Apr 29:100041. https://doi.org/10.1016/j.medidd.2020.100041. Online ahead of print. PMID: 32352080 Free PMC article.

- Martín Giménez VM, Inserra F, Tajer CD, et al. Lungs as target of COVID-19 infection: Protective common molecular mechanisms of vitamin D and melatonin as a new potential synergistic treatment. Life Sci. 2020 May 15;254:117808. https://doi.org/10.1016/j.lfs.2020.117808. Online ahead of print. PMID: 32422305 Free PMC article. Review.

- McCartney DM, Byrne DG. Optimisation of Vitamin D Status for Enhanced Immuno-protection Against Covid-19. Ir Med J. 2020 Apr 3;113(4):58.PMID:32268051

- Mitchell F. Vitamin-D and COVID-19: do deficient risk a poorer outcome? Lancet Diabetes Endocrinol. 2020 May 20:S2213-8587(20)30183-2. https://doi.org/10.1016/S2213-8587(20)30183-2. Online ahead of print. PMID: 32445630 Free PMC article.

- Molloy EJ, Murphy N. Vitamin D, Covid-19 and Children. Ir Med J. 2020 Apr 3;113(4):64.PMID:32268052

- Panarese A, Shahini E. Letter: Covid-19, and vitamin D. Aliment Pharmacol Ther. 2020 May;51(10):993-995. https://doi.org/10.1111/apt.15752. Epub 2020 Apr 12.PMID:32281109

- Rhodes JM, Subramanian S, Laird E, et al. Editorial: low population mortality from COVID-19 in countries south of latitude 35 degrees North supports vitamin D as a factor determining severity. Aliment Pharmacol Ther. 2020 Apr 20. https://doi.org/10.1111/apt.15777. Online ahead of print. PMID:32311755

- Rhodes JM, Subramanian S, Laird E, et al. Letter: low population mortality from COVID-19 in countries south of latitude 35° North supports vitamin D as a factor determining severity-authors' reply. Aliment Pharmacol Ther. 2020 May 13. https://doi.org/10.1111/apt.15823. Online ahead of print. PMID: 32402109

- Silberstein M. Vitamin D: A simpler alternative to tocilizumab for trial in COVID-19? Med Hypotheses. 2020 Apr 23;140:109767. https://doi.org/10.1016/j.mehy.2020.109767. Online ahead of print. PMID: 32353742

- Speeckaert MM, Delanghe JR. Association between low vitamin D and COVID-19: don't forget the vitamin D binding protein. Aging Clin Exp Res. 2020 May 28. https://doi.org/10.1007/s40520-020-01607-y. Online ahead of print. PMID: 32468505

- Tian Y, Rong L. Letter: Covid-19, and vitamin D. Authors' reply. Aliment Pharmacol Ther. 2020 May;51(10):995-996. https://doi.org/10.1111/apt.15764. PMID: 32286694

- Tian Y, Rong L. Letter: does vitamin D have a potential role against COVID-19? Authors' reply. Aliment Pharmacol Ther. 2020 May 13. https://doi.org/10.1111/apt.15817. Online ahead of print. PMID: 32402098

- Zemb P, Bergman P, Camargo CA Jr, et al. Vitamin D deficiency and COVID-19 pandemic. J Glob Antimicrob Resist. 2020 May 28:S2213-7165(20)30132-6. https://doi.org/10.1016/j.jgar.2020.05.006. Online ahead of print. PMID: 32474141

DERMATOLOGIA

- Ahmed Mohamed A, Hussein MS, Salah EM, et al. Efficacy and Safety of Active Vitamin D Supplementation in Chronic Spontaneous Urticaria Patients. J Dermatolog Treat. 2020 Apr 29:1-22. https://doi.org/10.1080/09546634.2020.1762838. Online ahead of print. PMID: 32345077

- Chaiprasongsuk A, Janjetovic Z, Kim TK, et al. CYP11A1-derived vitamin D3 products protect against UVB-induced inflammation and promote keratinocytes differentiation. Free Radic Biol Med. 2020 May 21:S0891-5849(20)30890-X. https://doi.org/10.1016/j.freeradbiomed.2020.05.016. Online ahead of print. PMID: 32447000

- de Gruijl FR, Webb AR, Rhodes LE. Everyday sunscreen use may compromise vitamin D in temperate climes. Br J Dermatol. 2020 May;182(5):1312-1313. https://doi.org/10.1111/bjd.18811. Epub 2020 Feb 11.PMID: 31853945

- El Sayed MH, Sayed FS, Afify AA. Intralesional zinc sulfate 2% vs intralesional vitamin D in plantar warts: A clinicodermoscopic study. Dermatol Ther. 2020 Mar 12:e13308. https://doi.org/10.1111/dth.13308. Online ahead of print. PMID: 32162438

- El-Hamd MA, El Saied ARA, Ahmed SH, et al. Effect of narrow-band ultraviolet B phototherapy, methotrexate, and combined narrow-band ultraviolet B phototherapy with methotrexate on serum cathelicidin and vitamin D in patients with psoriasis vulgaris. J Dermatolog Treat. 2020 Apr 28:1-7. https://doi.org/10.1080/09546634.2020.1757018. Online ahead of print. PMID: 32297558

- Gholizadeh N, Pirzadeh F, Mirzaii-Dizgah I, et al. Relationship between salivary vitamin D deficiency and oral lichen planus. Photodermatol Photoimmunol Photomed. 2020 Apr 26. https://doi.org/10.1111/phpp.12567. Online ahead of print. PMID: 32335958

- Kemeriz F, Tuncer SÇ, Acar EM, et al. Evaluation of 25-hydroxy Vitamin D levels and Disease Severity in Patients with Acne Vulgaris. Dermatol Ther. 2020 Apr 8:e13393. https://doi.org/10.1111/dth.13393. Online ahead of print. PMID: 32268447

- Kim S, Carson KA, Chien AL. Prevalence and correlates of sun protections with sunburn and vitamin D deficiency in sun-sensitive individuals. J Eur Acad Dermatol Venereol. 2020 May 26. https://doi.org/10.1111/jdv.16681. Online ahead of print. PMID: 32453868

- Megna M, Ferrillo M, Barrea L, et al. Vitamin D and psoriasis: an update for dermatologists and nutritionists. Minerva Endocrinol. 2020 Apr 27. https://doi.org/10.23736/S0391-1977.20.03190-9. Online ahead of print. PMID: 32340428

- Mony A, Chandrashekar L, Rajappa M, et al. Effect of vitamin D supplementation on clinical outcome and biochemical profile in South Indian population with vitamin D-deficient chronic urticarial - A randomized double-blind placebo controlled trial. Clin Chim Acta. 2020 May;504:1-6. https://doi.org/10.1016/j.cca.2020.01.003. Epub 2020 Jan 9.PMID: 31926152

- Orekoya O, Rhodes LE, Osman JE, et al. A qualitative study of knowledge, behaviour and attitudes regarding vitamin Dacquisition among patients with photosensitivity disorders. Photodermatol Photoimmunol Photomed. 2020 Apr 10. https://doi.org/10.1111/phpp.12561. Online ahead of print. PMID: 32274870

- Pancar Yüksel E, Aydın F. Letter to the editor regarding article "El-Hamd MA, El Taieb MA, Ibrahim HM, Aly SS. Vitamin D levels in acne vulgaris patients treated with oral isotretinoin. J Cosmet Dermatol 2019;18(1):16-20". J Cosmet Dermatol. 2020 Mar;19(3):763. https://doi.org/10.1111/jocd.13053. Epub 2019 Jun 21.PMID: 31225689

- Piotrowska A, Wierzbicka J, Kwiatkowska K, et al. Antiproliferative activity of side-chain truncated vitamin D analogs (PRI-1203 and PRI-1204) against human malignant melanoma cell lines. Eur J Pharmacol. 2020 May 20:173170. https://doi.org/10.1016/j.ejphar.2020.173170. Online ahead of print. PMID: 32445704

- Slominski AT, Chaiprasongsuk A, Janjetovic Z, et al. Photoprotective Properties of Vitamin D and Lumisterol Hydroxyderivatives. Cell Biochem Biophys. 2020 May 22. https://doi.org/10.1007/s12013-020-00913-6. Online ahead of print. PMID: 32441029 Review.

- Sorour NE, Elesawy FM, Abdou AG, et al. Intralesional injection of vitamin D in verruca vulgaris increases cathelicidin (LL37) expression; therapeutic and immunohistochemical study. J Dermatolog Treat. 2020 Apr 21:1-6. https://doi.org/10.1080/09546634.2020.1750554. Online ahead of print. PMID: 32237947

- Thompson KG, Kim N. Dietary supplements in dermatology: a review of the evidence for zinc, biotin, vitamin D, nicotinamide, and polypodium. J Am Acad Dermatol. 2020 Apr 29:S0190-9622(20)30744-1. https://doi.org/10.1016/j.jaad.2020.04.123. Online ahead of print. PMID: 32360756

- Vishlaghi N, Lisse TS. Exploring vitamin D signalling within skin cancer. Clin Endocrinol (Oxf). 2020 Apr;92(4):273-281. https://doi.org/10.1111/cen.14150. Epub 2020 Jan 16.PMID:31889334 Review.

- Wang LC, Chiang BL, Huang YM, et al. Lower vitamin D levels in the breast milk is associated with atopic dermatitis in early infancy. Pediatr Allergy Immunol. 2020 Apr;31(3):258-264. https://doi.org/10.1111/pai.13179. Epub 2019 Dec 11.PMID: 31758588

- Young AR, Passeron T. Everyday sunscreen use may compromise vitamin D in temperate climes: reply from authors. Br J Dermatol. 2020 May;182(5):1313-1314. https://doi.org/10.1111/bjd.18815. Epub 2020 Feb 13.PMID: 31858587

- Zhao JW, Ping JD, Wang YF, et al. Vitamin D suppress the production of vascular endothelial growth factor in mast cell by inhibiting PI3K/Akt/p38 MAPK/HIF-1α pathway in chronic spontaneous urticaria. Clin Immunol. 2020 Apr 24:108444. https://doi.org/10.1016/j.clim.2020.108444. Online ahead of print. PMID: 32339669

EPIDEMIOLOGIA

- Adebayo FA, Itkonen ST, Lilja E, et al. Prevalence and determinants of vitamin D deficiency and insufficiency among three immigrant groups in Finland: evidence from a population-based study using standardised 25-hydroxyvitamin D data. Public Health Nutr. 2020 May;23(7):1254-1265. https://doi.org/10.1017/S1368980019004312. Epub 2020 Mar 19.PMID: 32188532

- Adebayo FA, Itkonen ST, Lilja E, et al. Prevalence and determinants of vitamin D deficiency and insufficiency among three immigrant groups in Finland: evidence from a population-based study using standardised 25-hydroxyvitamin D data. Public Health Nutr. 2020 May;23(7):1254-1265. https://doi.org/10.1017/S1368980019004312. Epub 2020 Mar 19.PMID: 32188532

- Aguiar M, Andronis L, Pallan M, et al. The economic case for prevention of population vitamin D deficiency: a modelling study using data from England and Wales. Eur J Clin Nutr. 2020 May;74(5):825-833. https://doi.org/10.1038/s41430-019-0486-x. Epub 2019 Aug 20.PMID: 31427760

- Alathari BE, Bodhini D, Jayashri R, et al. A Nutrigenetic Approach to Investigate the Relationship between Metabolic Traits and Vitamin D Status in an Asian Indian Population. Nutrients. 2020 May 9;12(5):E1357. https://doi.org/10.3390/nu12051357.PMID: 32397403

- Alyahya KO. Poor dietary consumption and limited sun exposure are risk factors for vitamin D deficiency in premenopausal Kuwaiti women: A cross-sectional study. Qatar Med J. 2020 May 4;2020(1):15. https://doi.org/10.5339/qmj.2020.15. eCollection 2020.PMID: 32391251

- Asakura K, Etoh N, Imamura H, et al. Vitamin D Status in Japanese Adults: Relationship of Serum 25-Hydroxyvitamin D with Simultaneously Measured Dietary Vitamin D Intake and Ultraviolet Ray Exposure. Nutrients. 2020 Mar 11;12(3):743. https://doi.org/10.3390/nu12030743.PMID: 32168939

- Casella A, Long C, Zhou J, et al. Differential Frequency of CYP2R1 Variants Across Populations Reveals Pathway Selection for Vitamin D Homeostasis. J Clin Endocrinol Metab. 2020 May 1;105(5):1302-15. https://doi.org/10.1210/clinem/dgaa056.PMID: 32115644

- Childs-Sanford SE, Makowski AJ, Wakshlag JJ. THE VITAMIN D STATUS OF ASIAN ELEPHANTS (ELEPHAS MAXIMUS) MANAGED IN A NORTHERN TEMPERATE CLIMATE. J Zoo Wildl Med. 2020 Mar 17;51(1):1-12. https://doi.org/10.1638/2019-0097.PMID: 32212541

- Courraud J, Quist JS, Kontopodi E, et al. Dietary habits, metabolic health and vitamin D status in Greenlandic children. Public Health Nutr. 2020 Apr;23(5):904-913. https://doi.org/10.1017/S1368980019002799. Epub 2019 Oct 1.PMID: 31573464

- Dimakopoulos I, Magriplis E, Mitsopoulou AV, et al. Intake and contribution of food groups to vitamin D intake in a representative sample of adult Greek population. Nutrition. 2020 Apr;72:110641. https://doi.org/10.1016/j.nut.2019.110641. Epub 2019 Nov 15.PMID: 31918051

- Duarte C, Carvalheiro H, Rodrigues AM, et al. Correction to: Prevalence of vitamin D deficiency and its predictors in the Portuguese population: a nationwide population-based study. Arch Osteoporos. 2020 Apr 2;15(1):55. https://doi.org/10.1007/s11657-020-00728-1. PMID: 32240376

- Duarte C, Carvalheiro H, Rodrigues AM, et al. Prevalence of vitamin D deficiency and its predictors in the Portuguese population: a nationwide population-based study. Arch Osteoporos. 2020 Mar 2;15(1):36. https://doi.org/10.1007/s11657-020-0695-x.PMID: 32124071

- Fatturi AL, Menoncin BL, Reyes MT, et al. The relationship between molar incisor hypomineralization, dental caries, socioeconomic factors, and polymorphisms in the vitamin D receptor gene: a population-based study. Clin Oral Investig. 2020 Mar 31. https://doi.org/10.1007/s00784-020-03263-y. Online ahead of print. PMID: 32236726

- Griffin TP, Wall D, Blake L, et al. Higher risk of vitamin D insufficiency/deficiency for rural than urban dwellers. J Steroid Biochem Mol Biol. 2020 Mar;197:105547. https://doi.org/10.1016/j.jsbmb.2019.105547. Epub 2019 Nov 19.PMID: 31756419

- Gromova O, Doschanova A, Lokshin V, et al. Vitamin D deficiency in Kazakhstan: Cross-Sectional study. J Steroid Biochem Mol Biol. 2020 May;199:105565. https://doi.org/10.1016/j.jsbmb.2019.105565. Epub 2019 Dec 5.PMID: 31812522

- Gunnarsdottir B, Hrafnkelsson H, Johannsson E, et al. [Vitamin D status of Icelandic children and youngsters: Longitudinal study]. 2020 May;106(5):235-240. https://doi.org/10.17992/lbl.2020.05.579.PMID: 32367810 Icelandic.

- Hatchell KE, Lu Q, Mares JA, et al. Multi-ethnic analysis shows genetic risk and environmental predictors interact to influence 25(OH)D concentration and optimal vitamin D intake. Genet Epidemiol. 2020 Mar;44(2):208-217. https://doi.

org/10.1002/gepi.22272. Epub 2019 Dec 12.PMID: 31830327

- Holten-Andersen MN, Haugen J, Oma I, et al. Vitamin D Status and Its Determinants in A Paediatric Population in Norway. Nutrients. 2020 May 12;12(5):E1385. https://doi.org/10.3390/nu12051385.PMID: 32408637

- Hurst EA, Homer NZ, Gow AG, et al. Vitamin D status is seasonally stable in northern European dogs. Vet Clin Pathol. 2020 May 20. https://doi.org/10.1111/vcp.12859. Online ahead of print. PMID: 32432371

- Jones KS, Meadows SR, Schoenmakers I, et al. Vitamin D Status Increases During Pregnancy and in Response to Vitamin DSupplementation in Rural Gambian Women. J Nutr. 2020 Mar 1;150(3):492-504. https://doi.org/10.1093/jn/nxz290. PMID: 31834380 Free PMC article.

- Jones P, Lucock M, Chaplin G, et al. Distribution of variants in multiple vitamin D-related loci (DHCR7/NADSYN1, GC, CYP2R1, CYP11A1, CYP24A1, VDR, RXRα and RXRα) vary between European, East-Asian and Sub-Saharan African-ancestry populations. Genes Nutr. 2020 Mar 13;15(1):5. https://doi.org/10.1186/s12263-020-00663-3.PMID: 32169032

- Liu X, Ke L, Ho J, et al. Sleep duration is associated with vitamin D deficiency in older women living in Macao, China: A pilot cross-sectional study. PLoS One. 2020 Mar 4;15(3):e0229642. https://doi.org/10.1371/journal.pone.0229642. eCollection 2020.PMID: 32130235 Free

- Lourenço BH, Silva LL, Fawzi WW, et al. Vitamin D sufficiency in young Brazilian children: associated factors and relationship with vitamin A corrected for inflammatory status. Public Health Nutr. 2020 May;23(7):1226-1235. https://doi.org/10.1017/S1368980019002283. Epub 2019 Aug 23.PMID: 31439064

- Masoud MS, Yakout SM, Al-Attas OS, et al. The association between iron and vitamin D status in Arab adolescents. Public Health Nutr. 2020 May;23(7):1208-1213. https://doi.org/10.1017/S1368980019001113. Epub 2019 May 17.PMID: 31097054

- 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. 2020 Mar 21. https://doi.org/10.1007/s12011-020-02119-6. Online ahead of print. 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. 2020 May 21. https://doi.org/10.1007/s12011-020-02189-6. Online ahead of print. PMID: 32440993

- Nakamura K, Kitamura K, Watanabe Y, et al. Predictors of decline in vitamin D status in middle-aged and elderly individuals: A 5-year follow-up study. Br J Nutr. 2020 May 7:1-18. https://doi.org/10.1017/S0007114520001580. Online ahead of print. PMID: 32378497

- Osorio Landa HK, Pérez Díaz I, Laguna Bárcenas SDC, et al. Association of serum vitamin D levels with chronic disease and mortality. Nutr Hosp. 2020 Apr 16;37(2):335-342. https://doi.org/10.20960/nh.02512.PMID: 32054282 Free article. English.

- Osorio Landa HK, Pérez Díaz I, Laguna Bárcenas SDC, et al. Association of serum vitamin D levels with chronic disease and mortality. Nutr Hosp. 2020 Apr 16;37(2):335-342. https://doi.org/10.20960/nh.02512.PMID: 32054282 Free article. English.

- Petrenya N, Lamberg-Allardt C, Melhus M, et al. Vitamin D status in a multi-ethnic population of northern Norway: the SAMINOR 2 Clinical Survey. Public Health Nutr. 2020 May;23(7):1186-1200. https://doi.org/10.1017/S1368980018003816. Epub 2019 Feb 15.PMID: 30767841

- Rizza S, Pietroiusti A, Farcomeni A, et al. Monthly fluctuations in 25-hydroxy-vitamin D levels in day and rotating night shift hospital workers. J Endocrinol Invest. 2020 Apr 27. https://doi.org/10.1007/s40618-020-01265-x. Online ahead of print. PMID: 32342444

- Sedhain A, Bhattarai GR, Yadav SR, et al. Geographic and Seasonal Variation of Vitamin D: A Retrospective Study in Two Centers of Nepal. J Nepal Health Res Counc. 2020 Apr 20;18(1):103-107. https://doi.org/10.33314/jnhrc.v18i1.1873. PMID: 32335602

- Sharif Y, Sadeghi O, Dorosty A, et al. Association of vitamin D, retinol and zinc deficiencies with stunting in toddlers: findings from a national study in Iran. Public Health. 2020 Apr;181:1-7. https://doi.org/10.1016/j.puhe.2019.10.029. Epub 2019 Dec 27.PMID: 31887436

- Shen M, Li Z, Lv D, et al. Seasonal variation and correlation analysis of vitamin D and parathyroid hormone in Hangzhou, Southeast China. J Cell Mol Med. 2020 May 16. https://doi.org/10.1111/jcmm.15330. Online ahead of print. PMID: 32415728

- Suchanecka A, Chmielowiec K, Chmielowiec J, et al. Vitamin D Receptor Gene Polymorphisms and Cigarette Smoking Impact on Oral Health: A Case-Control Study. Int J Environ Res Public Health. 2020 May 4;17(9):E3192. https://doi.org/10.3390/ijerph17093192.PMID: 32375337

- Tariq A, Khan SR, Basharat A. Assessment of knowledge, attitudes and practice towards Vitamin D among university students in Pakistan. BMC Public Health. 2020 Mar 18;20(1):355. https://doi.org/10.1186/s12889-020-8453-y. PMID: 32183774

- Vallejo MS, Blümel JE, Arteaga E, et al. Gender differences in the prevalence of vitamin D deficiency in a southern Latin American country: a pilot study. Climacteric. 2020 May 5:1-7. https://doi.org/10.1080/13697137.2020.1752171. Online ahead of print. PMID: 32367772

- Voo VTF, Stankovich J, O'Brien TJ, et al. Vitamin D status in an Australian patient population: a large retrospective case series focusing on factors associated with variations in serum 25(OH)D. BMJ Open. 2020 Mar 4;10(3):e032567. https://doi.org/10.1136/bmjopen-2019-032567. PMID: 32139482

- Zhang H, Li Z, Wei Y, et al. Status and influential factors of vitamin D among children aged 0 to 6 years in a Chinese population. BMC Public Health. 2020 Apr 1;20(1):429. https://doi.org/10.1186/s12889-020-08557-0.PMID: 32238156

- Zupo R, Lampignano L, Lattanzio A, et

al. Association between adherence to the Mediterranean Diet and circulating VitaminD levels. Int J Food Sci Nutr. 2020 Mar 29:1-7. https://doi.org/10.1080/09637486.2020.1744533. Online ahead of print. PMID: 32223463

EMATOLOGIA

- Ahmad Fuzi SF, Mushtaq S. Response to invited commentary : Vitamin D3 supplementation for 8 weeks leads to improved haematological status following the consumption of an iron-fortified breakfast cereal: a double-blind randomised controlled trial in iron-deficient women. Br J Nutr. 2020 May 14:1-7. https://doi.org/10.1017/S0007114520001683. Online ahead of print. PMID: 32406343

- Brown B, Long K, Agdere L, et al. The association between vitamin D deficiency and hospitalization outcomes in pediatric patients with sickle cell disease. Blood Cells Mol Dis. 2020 May;82:102415. https://doi.org/10.1016/j.bcmd.2020.102415. Epub 2020 Feb 15.PMID: 32169623

- Chiengthong K, Cheungpasitporn W, Thongprayoon C, et al. Vitamin D deficiency is not associated with graft versus host disease after hematopoietic stem cell transplantation: A meta-analysis. J Evid Based Med. 2020 May 5. https://doi.org/10.1111/jebm.12383. Online ahead of print. PMID: 32369679

- Gamal Andrawes N, Hashem Fayek M, Salah El-Din N, et al. Effect of low-dose factor VIII prophylaxis therapy on bone mineral density and 25(OH) vitamin D level in children with severe haemophilia A. Haemophilia. 2020 Mar;26(2):325-332. https://doi.org/10.1111/hae.13917. Epub 2019 Dec 29.PMID: 31884718

- Garrido C, Bardón-Cancho EJ, Fajardo-Sánchez VLÁ, et al. Evaluation of the effectiveness of prophylactic oral vitamin D (cholecalciferol) in children with sickle cell disease. Bone. 2020 Apr;133:115228. https://doi.org/10.1016/j.bone.2020.115228. Epub 2020 Jan 20.PMID: 31972313

- Hong S, Ferraro CS, Hamilton BK, et al. To D or not to D: vitamin D in hematopoietic cell transplantation. Bone Marrow Transplant. 2020 Apr 25. https://doi.org/10.1038/s41409-020-0904-7. Online ahead of print. PMID: 32335583 Review.

- Hood AM, Quinn CT, King CD, et al. Vitamin D supplementation and pain-related emergency department visits in children with sickle cell disease. Complement Ther Med. 2020 Mar;49:102342. https://doi.org/10.1016/j.ctim.2020.102342. Epub 2020 Feb 15.PMID: 32147073

- Jackmann N, Mäkitie O, Harila-Saari A, et al. Vitamin D status in children with leukemia, its predictors, and association with outcome. Pediatr Blood Cancer. 2020 Apr;67(4):e28163. https://doi.org/10.1002/pbc.28163. Epub 2020 Jan 11.PMID:31925904

- Luebbering N, Abdullah S, Lounder D, et al. Endothelial injury, F-actin and vitamin-D binding protein after hematopoietic stem cell transplant and association with clinical outcomes. Haematologica. 2020 Apr 2:haematol.2019.233478. https://doi.org/10.3324/haematol.2019.233478. Online ahead of print. PMID: 32241849

- Nath K, Ganeshalingam V, Ewart B, et al. A retrospective analysis of the prevalence and clinical outcomes of vitamin Ddeficiency in myeloma patients in tropical Australia. Support Care Cancer. 2020 Mar;28(3):1249-1254. https://doi.org/10.1007/s00520-019-04942-7. Epub 2019 Jun 21.PMID: 31227990

- Normando P, Santos-Rebouças C, Leung C, et al. Variants in gene encoding for vitamin D binding protein were associated with leukocyte telomere length: The Pró-Saúde Study. Nutrition. 2020 Mar;71:110618. https://doi.org/10.1016/j.nut.2019.110618. Epub 2019 Oct 25.PMID: 31881507

- 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. 2020 Apr 13. https://doi.org/10.1097/MPH.0000000000001801. Online ahead of print. PMID: 32287103

- Soe HHK, Abas AB, Than NN, et al. Vitamin D supplementation for sickle cell disease. Cochrane Database Syst Rev. 2020 May 28;5:CD010858. https://doi.org/10.1002/14651858.CD010858.pub3.PMID: 32462740 Review.

- Velleuer E, Carlberg C. Impact of Epigenetics on Complications of Fanconi Anemia: The Role of Vitamin D-Modulated Immunity. Nutrients. 2020 May 9;12(5):E1355. https://doi.org/10.3390/nu12051355.PMID: 32397406 Review.

- Vetter VM, Spira D, Banszerus VL, et al. Epigenetic Clock and Leukocyte Telomere Length are Associated with Vitamin DStatus, but not with Functional Assessments and Frailty in the Berlin Aging Study II. J Gerontol A Biol Sci Med Sci. 2020 Apr 23:glaa101. https://doi.org/10.1093/gerona/glaa101. Online ahead of print. PMID: 32324874

- Xu DM, Liang JH, Wang L, et al. 25-Hydroxy vitamin D deficiency predicts inferior prognosis in mantle cell lymphoma. J Cancer Res Clin Oncol. 2020 Apr;146(4):1003-1009. https://doi.org/10.1007/s00432-020-03125-w. Epub 2020 Jan 8.PMID: 31915915

- Yellapragada SV, Fillmore NR, Frolov A, et al. Vitamin D deficiency predicts for poor overall survival in white but not African American patients with multiple myeloma. Blood Adv. 2020 Apr 28;4(8):1643-1646. https://doi.org/10.1182/bloodadvances.2019001411.PMID: 32315398

ENDOCRINOLOGIA

- Afarid M, Ghattavi N, Johari M. Serum Levels of Vitamin D in Diabetic Patients With and Without Retinopathy. J Ophthalmic Vis Res. 2020 Apr 6;15(2):172-177. https://doi.org/10.18502/jovr.v15i2.6734. eCollection 2020 Apr-Jun. PMID: 32308951 Free PMC article. Review.

- Ahi S, Dehdar MR, Hatami N. Vitamin D deficiency in non-autoimmune hypothyroidism: a case-control study. BMC Endocr Disord. 2020 Mar 20;20(1):41. https://doi.org/10.1186/s12902-020-0522-9. PMID: 32192469

- Ahmed LHM, Butler AE, Dargham SR, et al. Association of vitamin D2 and D3 with type 2 diabetes complications. BMC Endocr Disord. 2020 May 15;20(1):65. https://doi.org/10.1186/s12902-020-00549-w.PMID: 32414363

- Barrea L, Colao A, Savastano S, et al. Specific cut-off for the 25-OH vitamin D levels to predict the highest body mass index and fat mass: a sex prospective in patients with obesity. Minerva Endocrinol. 2020 Mar 27. https://doi.org/10.23736/S0391-

1977.20.03177-6. Online ahead of print. PMID: 32221277

- Bhavya Swetha RV, Samal R, George CE. The Effect of Vitamin D Supplementation on Improving Glycaemic Control in Diabetic Vitamin D-Deficient Pregnant Women: A Single-Blinded Randomized Control Trial. J Obstet Gynaecol India. 2020 Apr;70(2):119-125. https://doi.org/10.1007/s13224-019-01289-1. Epub 2019 Dec 14.PMID: 32255949

- Bornstedt ME, Gjerlaugsen N, Olstad OK, et al. Vitamin D metabolites influence expression of genes concerning cellular viability and function in insulin producing β-cells (INS1E). Gene. 2020 Jul 1;746:144649. https://doi.org/10.1016/j.gene.2020.144649. Epub 2020 Apr 3.PMID: 32251702

- Brzeziński M, Jankowska A, Słomińska-Frączek M, et al. Long-Term Effects of Vitamin D Supplementation in Obese Children During Integrated Weight-Loss Programme-A Double Blind Randomized Placebo-Controlled Trial. Nutrients. 2020 Apr 15;12(4):E1093. https://doi.org/10.3390/nu12041093.PMID: 32326621

- Calapkulu M, Sencar ME, Sakiz D, et al. The importance of vitamin d level in subacute thyroiditis disease and the effect of vitamin d on disease prognosis. Endocr Pract. 2020 May 14. https://doi.org/10.4158/EP-2020-0046. Online ahead of print. PMID: 32407662

- Chen L, Dong Y, Bhagatwala J, et al. Vitamin D(3) Supplementation Increases Long-Chain Ceramide Levels in Overweight/Obese African Americans: A Post-Hoc Analysis of a Randomized Controlled Trial. Nutrients. 2020 Apr 2;12(4):E981. https://doi.org/10.3390/nu12040981.PMID: 32252241 Free article. Clinical Trial.

- 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. 2020 Apr 28. https://doi.org/10.4103/aja.aja_9_20. Online ahead of print. PMID: 32341213

- Corcoy R, Mendoza LC, Simmons D, et al. The DALI vitamin D randomized controlled trial for gestational diabetes mellitus prevention: No major benefit shown besides vitamin D sufficiency. Clin Nutr. 2020 Mar;39(3):976-984. https://doi.org/10.1016/j.clnu.2019.04.006. Epub 2019 Apr 11.PMID: 31053513

- Crafa A, Cannarella R, Condorelli RA, et al. Is There an Association Between Vitamin D Deficiency and Erectile Dysfunction? A Systematic Review and Meta-Analysis. Nutrients. 2020 May 14;12(5):E1411. https://doi.org/10.3390/nu12051411.PMID: 32422943 Review.

- Dakroury Y, Butler AE, Dargham SR, et al. Association of Differing Qatari Genotypes with Vitamin D Metabolites. Int J Endocrinol. 2020 Apr 13;2020:7831590. https://doi.org/10.1155/2020/7831590. eCollection 2020.PMID: 32351562

- de Oliveira LF, de Azevedo LG, da Mota Santana J, et al. Obesity and overweight decreases the effect of vitamin D supplementation in adults: systematic review and meta-analysis of randomized controlled trials. Rev Endocr Metab Disord. 2020 Mar;21(1):67-76. https://doi.org/10.1007/s11154-019-09527-7. PMID: 31832878 Review.

- Dimova R, Chakarova N, Kirilov G, et al. Vitamin D binding protein is related to cardiac autonomic function and metabolic status in prediabetes. Nutr Res. 2020 Mar;75:56-66. https://doi.org/10.1016/j.nutres.2019.12.008. Epub 2019 Dec 27.PMID: 31982803

- Duntas LH. Back to the Drawing Board? Effects of High-Dose Vitamin D Supplementation in Graves' Disease on Muscle Strength, Lean Mass Gain, and Quality of Life. Thyroid. 2020 Apr 9. https://doi.org/10.1089/thy.2020.0162. Online ahead of print. PMID: 32122259

- Durá-Travé T, Gallinas-Victoriano F, Moreno-González P, et al. Vitamin D status and response to growth hormone treatment in prepubertal children with growth hormone deficiency. J Endocrinol Invest. 2020 Mar 25. https://doi.org/10.1007/s40618-020-01227-3. Online ahead of print. PMID: 32215862

- Ebrahimkhani S, Ghavamzadeh S, Mehdizadeh A. The effects of vitamin D and curcuminoids supplementation on anthropometric measurements and blood pressure in type 2 diabetic patients with coexisting hypovitaminosis D: A double-blind, placebo-controlled randomized clinical trial. Clin Nutr ESPEN. 2020 Jun;37:178-186. https://doi.org/10.1016/j.clnesp.2020.02.017. Epub 2020 Mar 20.PMID: 32359741

- Emadzadeh M, Sahebi R, Khedmatgozar H, et al. A systematic review and meta-analysis of the effect of Vitamin D-fortified food on glycemic indices. Biofactors. 2020 Apr 29. https://doi.org/10.1002/biof.1632. Online ahead of print. PMID: 32350957 Review.

- Feng Y, Qiu T, Chen H, et al. Association of serum IL-21 and vitamin D concentrations in Chinese children with autoimmune thyroid disease. Clin Chim Acta. 2020 Apr 28:S0009-8981(20)30185-6. https://doi.org/10.1016/j.cca.2020.04.030. Online ahead of print. PMID: 32360157

- Flores Ruelas Y, Del Toro Equihua M, Alejandra Jiménez Solís N, et al. Vitamin D status and its relation to insulin resistance in a Mexican pediatric population. J Pediatr Endocrinol Metab. 2020 Apr 28;33(4):481-486. https://doi.org/10.1515/jpem-2019-0510.PMID: 32112703

- Gallo D, Mortara L, Gariboldi MB, et al. Immunomodulatory effect of vitamin D and its potential role in the prevention and treatment of thyroid autoimmunity: a narrative review. Et al. J Endocrinol Invest. 2020 Apr;43(4):413-429. https://doi.org/10.1007/s40618-019-01123-5. Epub 2019 Oct 4.PMID:31584143 Review.

- Gangloff A, Bergeron J, Lemieux I, et al. Adiposity, lifestyle and vitamin D levels: the quest for answers. Int J Obes (Lond). 2020 May 21. https://doi.org/10.1038/s41366-020-0600-0. Online ahead of print. PMID: 32439910

- Gao X, Wang H, Bidulescu A. Lifestyle interventions along with vitamin D supplements on reducing leptinemia in obese man. Int J Obes (Lond). 2020 May 19. https://doi.org/10.1038/s41366-020-0599-2. Online ahead of print. PMID: 32427980

- Garcia-Carretero R, Vigil-Medina L, Barquero-Perez O, et al. Logistic LASSO and Elastic Net to Characterize Vitamin D Deficiency in a Hypertensive Obese Population. Metab Syndr Relat Disord. 2020 Mar;18(2):79-85. https://doi.org/10.1089/met.2019.0104. Epub 2020 Jan 13.PMID: 31928513

- Grove-Laugesen D, Cramon PK, Malmstroem S, et al. Effects of Supplemental Vitamin D on Muscle Performance and Quality of Life in Graves' Disease: A Randomized Clinical Trial. Thyroid. 2020 May;30(5):661-671. https://doi.org/10.1089/thy.2019.0634. Epub 2020 Feb 7.PMID: 31910101

- Gulati S, Misra A, Tiwari R, et al. The influence of polymorphisms of fat mass and obesity (FTO, rs9939609) and vitamin D receptor (VDR, BsmI, TaqI, ApaI, FokI) genes on weight loss by diet and exercise interventions in non-diabetic overweight/obese Asian Indians in North India. Eur J Clin Nutr. 2020 Apr;74(4):604-612. https://doi.org/10.1038/s41430-020-0560-4. Epub 2020 Jan 30.PMID: 32001813

- Guo Y, Zhu L, Ge Y, et al. Improving effect of vitamin D supplementation on obesity-related diabetes in rats. Minerva Endocrinol. 2020 Mar;45(1):29-35. https://doi.org/10.23736/S0391-1977.18.02914-0. Epub 2018 Dec 7.PMID: 30531693

- Hanel A, Malmberg HR, Carlberg C. Genome-wide effects of chromatin on vitamin D signaling. J Mol Endocrinol. 2020 May;64(4):R45-R56. https://doi.org/10.1530/JME-19-0246.PMID: 32229699 Review.

- Holland LC, Gabrielsen JS. A bone to pick with vitamin D deficiency and erectile dysfunction. Int J Impot Res. 2020 Mar;32(2):248-250. https://doi.org/10.1038/s41443-018-0100-0. Epub 2019 Jan 3.PMID: 30607004

- Holt R, Juel Mortensen L, Harpelunde Poulsen K, et al. Vitamin D and sex steroid production in men with normal or impaired Leydig cell function. J Steroid Biochem Mol Biol. 2020 May;199:105589. https://doi.org/10.1016/j.jsbmb.2020.105589. Epub 2020 Jan 15.PMID: 31953167

- Imanparast F, Javaheri J, Kamankesh F, et al. The effects of chromium and vitamin D3 co-supplementation on insulin resistance and tumor necrosis factor-alpha in type 2 diabetes: a randomized placebo-controlled trial. Appl Physiol Nutr Metab. 2020 May;45(5):471-477. https://doi.org/10.1139/apnm-2019-0113. Epub 2019 Oct 8.PMID: 31593637

- Inal HA, Ozturk Inal Z, Mermer S, et al. Investigation of serum vitamin D and ischaemia-modified albumin levels in infertile Turkish men. Andrologia. 2020 Apr;52(3):e13507. https://doi.org/10.1111/and.13507. Epub 2020 Jan 14.PMID: 31943308

- Jääskeläinen T, Männistö S, Härkänen T, et al. Does vitamin D status predict weight gain or increase in waist circumference? Results from the longitudinal Health 2000/2011 Survey. Public Health Nutr. 2020 May;23(7):1266-1272. https://doi.org/10.1017/S1368980019004403. Epub 2020 Mar 24.PMID: 32204746

- Jayashri R, Venkatesan U, Shanthirani CS, et al. Prevalence of vitamin D deficiency in urban south Indians with different grades of glucose tolerance. Br J Nutr. 2020 Mar 26:1-8. https://doi.org/10.1017/S0007114520001129. Online ahead of print. PMID: 32213226

- Jorde R, Grimnes G. Serum PTH is not a good marker for defining a threshold for vitamin D deficiency. Endocr Connect. 2020 May;9(5):396-404. https://doi.org/10.1530/EC-20-0067.PMID: 32412426

- Kasabri V, Akour A, Bulatova N, et al. A Pre-Post Study of Vitamin D Supplements effects on Urinary megalin: The emerging predictive role of megalin in diabetic nephropathy progression. Endocr Metab Immune Disord Drug Targets. 2020 May 24. https://doi.org/10.2174/1871530320666200525012811. Online ahead of print. PMID: 32448110

- Kerksick CM, Roberts MD, Campbell BI, et al. Differential Impact of Calcium and Vitamin D on Body Composition Changes in Post-Menopausal Women Following a Restricted Energy Diet and Exercise Program. Nutrients. 2020 Mar 7;12(3):713. https://doi.org/10.3390/nu12030713.PMID: 32156010

- Kheirouri S, Alizadeh M. Vitamin D and advanced glycation end products and their receptors. Pharmacol Res. 2020 May 13;158:104879. https://doi.org/10.1016/j.phrs.2020.104879. Online ahead of print. PMID: 32413483

- Kim H, Chandler P, Ng K, et al. Obesity and efficacy of vitamin D(3) supplementation in healthy black adults. Cancer Causes Control. 2020 Apr;31(4):303-307. https://doi.org/10.1007/s10552-020-01275-3. Epub 2020 Feb 12.PMID: 32052217

- Kwak JH, Choi YH, Paik JK. Vitamin D Status, Fiber Intake, and Type 2 Diabetes in U.S. Adults. J Med Food. 2020 May 11. https://doi.org/10.1089/jmf.2019.4528. Online ahead of print. PMID: 32392443

- Li H, Huang T, Xiao P, et al. Widespread vitamin D deficiency and its sex-specific association with adiposity in Chinese children and adolescents. Nutrition. 2020 Mar;71:110646. https://doi.org/10.1016/j.nut.2019.110646. Epub 2019 Nov 9.PMID: 31896064

- Li J, Gao Y, Yu T, et al. Obesity and leptin influence vitamin D metabolism and action in human marrow stromal cells. J Steroid Biochem Mol Biol. 2020 Apr;198:105564. https://doi.org/10.1016/j.jsbmb.2019.105564. Epub 2019 Dec 3.PMID: 31809868

- 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. 2020 Apr 10:1-6. https://doi.org/10.1080/07315724.2020.1740629. Online ahead of print. PMID: 32275481

- Lu X, Vick S, Chen Z, et al. Effects of Vitamin D Receptor Knockout and Vitamin D Deficiency on Corneal Epithelial Wound Healing and Nerve Density in Diabetic Mice. Diabetes. 2020 May;69(5):1042-1051. https://doi.org/10.2337/db19-1051. Epub 2020 Mar 5.PMID: 32139594

- Lu X, Vick S, Chen Z, et al. Effects of Vitamin D Receptor Knockout and Vitamin D Deficiency on Corneal Epithelial Wound Healing and Nerve Density in Diabetic Mice. Diabetes. 2020 May;69(5):1042-1051. https://doi.org/10.2337/db19-1051. Epub 2020 Mar 5.PMID: 32139594

- Maciejewski A, Kowalczyk MJ, Gasińska T, et al. The Role of Vitamin D Receptor Gene Polymorphisms in Thyroid-Associated Orbitopathy. Ocul Immunol Inflamm. 2020 Apr 2;28(3):354-361. https://doi.org/10.1080/09273948.2019.1629605. Epub 2019 Aug 19.PMID: 31424978

- Mele C, Caputo M, Bisceglia A, et al. Immunomodulatory Effects of Vitamin D in Thyroid Diseases. Nutrients. 2020

May 16;12(5):E1444. https://doi.org/10.3390/nu12051444.PMID: 32429416 Review.

- Mendes MM, Hart KH, Lanham-New SA, et al. Suppression of Parathyroid Hormone as a Proxy for Optimal Vitamin D Status: Further Analysis of Two Parallel Studies in Opposite Latitudes. Nutrients. 2020 Mar 28;12(4):E942. https://doi.org/10.3390/nu12040942.PMID: 32231092

- Meshkini F, Abdollahi S, Clark CCT, et al. The effect of vitamin D supplementation on insulin-like growth factor-1: A systematic review and meta-analysis of randomized controlled trials. Complement Ther Med. 2020 May;50:102300. https://doi.org/10.1016/j.ctim.2020.102300. Epub 2020 Jan 7.PMID: 32444034 Review.

- Miettinen ME, Niinistö S, Honkanen J, et al. The role of vitamin D in the aetiology of type 1 diabetes. Reply to Korsgren O [letter]. Diabetologia. 2020 Mar 31. https://doi.org/10.1007/s00125-020-05135-2. Online ahead of print. PMID: 32236733

- Mirzavandi F, Talenezhad N, Razmpoosh E, et al. The effect of intramuscular megadose of vitamin D injections on E-selectin, CRP and biochemical parameters in vitamin D-deficient patients with type-2 diabetes mellitus: A randomized controlled trial. Complement Ther Med. 2020 Mar;49:102346. https://doi.org/10.1016/j.ctim.2020.102346. Epub 2020 Feb 25.PMID: 32147032

- Moridi I, Chen A, Tal O, et al. The Association between Vitamin D and Anti-Müllerian Hormone: A Systematic Review and Meta-Analysis. Nutrients. 2020 May 28;12(6):E1567. https://doi.org/10.3390/nu12061567.PMID: 32481491 Review.

- Morró M, Vilà L, Franckhauser S, et al. Vitamin D Receptor Overexpression in β-Cells Ameliorates Diabetes in Mice. Diabetes. 2020 May;69(5):927-939. https://doi.org/10.2337/db19-0757. Epub 2020 Feb 21.PMID: 32086292

- Muhammad MH, Hussien NI, Elwia SK. Vitamin D Replacement Mitigates Menopause-Associated Dyslipidaemia and Atherogenic Indices in Ovariectomized Rats; A Biochemical Study.Exp Clin Endocrinol Diabetes. 2020 Mar;128(3):144-151. https://doi.org/10.1055/a-0934-5666. Epub 2019 Jun 24.PMID: 31234220

- Niculescu DA, Deacu LG, Caragheorgheopol A, et al. Seasonal periodicity of serum parathyroid hormone and its relation with vitamin D in Romania. Arch Osteoporos. 2020 May 4;15(1):66. https://doi.org/10.1007/s11657-020-00744-1. PMID: 32367244

- Palaniswamy S, Gill D, De Silva NM, et al. Could vitamin D reduce obesity-associated inflammation? Observational and Mendelian randomization study. Am J Clin Nutr. 2020 Mar 31:nqaa056. https://doi.org/10.1093/ajcn/nqaa056. Online ahead of print. PMID: 32232398

- Palaniswamy S, Gill D, De Silva NM, et al. Could vitamin D reduce obesity-associated inflammation? Observational and Mendelian randomization study. Am J Clin Nutr. 2020 May 1;111(5):1036-1047. https://doi.org/10.1093/ajcn/nqaa056.PMID: 32232398

- Pilone V, Tramontano S, Cutolo C, et al. Clinical factors correlated with vitamin D deficiency in patients with obesity scheduled for bariatric surgery: A single center experience. Int J Vitam Nutr Res. 2020 May 26:1-7. https://doi.org/10.1024/0300-9831/a000662. Online ahead of print. PMID: 32450764

- Pinardo H, Rubin SJ, Hashemi S, et al. The Use of Vitamin D in Preventing Post-thyroidectomy Hypocalcemia: An Endocrinologist Survey Study. Clin Endocrinol (Oxf). 2020 May 29. https://doi.org/10.1111/cen.14259. Online ahead of print. PMID: 32469425

- Pott-Junior H, Nascimento CMC, Costa-Guarisco LP, et al. Vitamin D Deficient Older Adults Are More Prone to Have Metabolic Syndrome, but Not to a Greater Number of Metabolic Syndrome Parameters. Nutrients. 2020 Mar 12;12(3):748. https://doi.org/10.3390/nu12030748.PMID: 32178228

- Rajabi-Naeeni M, Dolatian M, Qorbani M, et al. The effect of omega-3 and vitamin D co-supplementation on glycemic control and lipid profiles in reproductive-aged women with pre-diabetes and hypovitaminosis D: a randomized controlled trial. Diabetol Metab Syndr. 2020 May 12;12:41. https://doi.org/10.1186/s13098-020-00549-9. eCollection 2020.PMID: 32435279

- Ramouz A, Hosseini M, Hosseinzadeh SS, et al. Preoperative Vitamin D Supplementation in Patients With Vitamin D Deficiency Undergoing Total Thyroidectomy. Am J Med Sci. 2020 May 6:S0002-9629(20)30169-5. https://doi.org/10.1016/j.amjms.2020.04.036. Online ahead of print. PMID: 32466854

- Rao SD, Miragaya J, Parikh N, et al. Effect of vitamin D nutrition on disease indices in patients with primary hyperparathyroidism. J Steroid Biochem Mol Biol. 2020 May 12;201:105695. https://doi.org/10.1016/j.jsbmb.2020.105695. Online ahead of print. PMID: 32407867

- Rossi GP, Lenzini L. Vitamin D supplementation: a novel therapy for aldosteronism? Nat Rev Endocrinol. 2020 Apr 14. https://doi.org/10.1038/s41574-020-0359-3. Online ahead of print. PMID: 32286517

- Rubin SJ, Park JH, Pearce EN, et al. Vitamin D Status as a Predictor of Postoperative Hypocalcemia after Thyroidectomy. Otolaryngol Head Neck Surg. 2020 Apr 21:194599820917907. https://doi.org/10.1177/0194599820917907. Online ahead of print. PMID: 32312160

- Said MA. Vitamin D attenuates endothelial dysfunction in streptozotocin induced diabetic rats by reducing oxidative stress. Arch Physiol Biochem. 2020 Apr 1:1-5. https://doi.org/10.1080/13813455.2020.1741645. Online ahead of print. PMID: 32233807

- Salazar DA, Ferreira MJS, Neves JS, et al. Variable Thresholds of Vitamin D Plasma Levels to Suppress PTH: the Effect of Weight and Bariatric Surgery. Obes Surg. 2020 Apr;30(4):1551-1559. https://doi.org/10.1007/s11695-019-04351-z. PMID: 31858392

- Samouda H, De Beaufort C, Gilson G, et al. Relationship of oxidative stress to visceral adiposity in youth and role played by vitamin D. Pediatr Diabetes. 2020 May 16. https://doi.org/10.1111/pedi.13055. Online ahead of print. PMID: 32418334

- Santos HO, Howell S, Nichols K, et al. Reviewing the Evidence on Vitamin D Supplementation in the Management

of Testosterone Status and Its Effects on Male Reproductive System (Testis and Prostate): Mechanistically Dazzling but Clinically Disappointing. Clin Ther. 2020 May 20:S0149-2918(20)30183-1. https://doi.org/10.1016/j.clinthera.2020.03.016. Online ahead of print. PMID: 32446600 Review.

- Santos LO, Laranjeira R, Borborema MEBA, et al. Vitamin D receptor (VDR) gene polymorphisms and expression profile influence upon the immunological imbalance in Turner syndrome. J Endocrinol Invest. 2020 Apr;43(4):505-513. https://doi.org/10.1007/s40618-019-01135-1. Epub 2019 Nov 4.PMID: 31686401

- Sattar NA, Hussain F. Vitamin D receptor FokI polymorphism in a Pakistani population with type 2 diabetes mellitus. Pak J Pharm Sci. 2020 Mar;33(2):605-610.PMID: 32276904

- Sergeev IN. Vitamin D Status and Vitamin D-Dependent Apoptosis in Obesity. Nutrients. 2020 May 13;12(5):E1392. https://doi.org/10.3390/nu12051392.PMID: 32413960 Review.

- Tohari AM, Almarhoun M, Alhasani RH, et al. Protection by vitamin D against high-glucose-induced damage in retinal pigment epithelial cells. Exp Cell Res. 2020 Apr 20:112023. https://doi.org/10.1016/j.yexcr.2020.112023. Online ahead of print. PMID: 32325079

- Trummer C, Theiler-Schwetz V, Kollmann M, et al. Effects of vitamin D supplementation on metabolic and endocrine parameters in healthy premenopausal women: A randomized controlled trial. Clin Nutr. 2020 Mar;39(3):718-726. https://doi.org/10.1016/j.clnu.2019.03.007. Epub 2019 Mar 20.PMID: 30940404

- Tsekmekidou X, Tsetsos F, Koufakis T, et al. Association between CUBN gene variants, type 2 diabetes and vitamin Dconcentrations in an elderly Greek population. J Steroid Biochem Mol Biol. 2020 Apr;198:105549. https://doi.org/10.1016/j.jsbmb.2019.105549. Epub 2019 Nov 23.PMID: 31770575

- Villa A, Corsello A, Cintoni M, et al. Effect of vitamin D supplementation on TSH levels in euthyroid subjects with autoimmune thyroiditis. Endocrine. 2020 Apr 1. https://doi.org/10.1007/s12020-020-02274-9. Online ahead of print. PMID: 32239452

- Wang PQ, Pan DX, Hu CQ, et al. Vitamin D-vitamin D receptor system downregulates expression of uncoupling proteins in brown adipocyte through interaction with hairless protein. Biosci Rep. 2020 May 26:BSR20194294. https://doi.org/10.1042/BSR20194294. Online ahead of print. PMID: 32452516

- Wang S, Cai B, Han X, et al. Vitamin D supplementation for nonalcoholic fatty liver disease in type 2 diabetes mellitus: A protocol for a systematic review and meta-analysis. Medicine (Baltimore). 2020 May;99(19):e20148. https://doi.org/10.1097/MD.0000000000020148.PMID: 32384501

- Yang K, Liu J, Fu S, et al. Vitamin D Status and Correlation with Glucose and Lipid Metabolism in Gansu Province, China. Diabetes Metab Syndr Obes. 2020 May 7;13:1555-1563. https://doi.org/10.2147/DMSO.S249049. eCollection 2020.PMID: 32440184

- Yang YY, Liu JM. What can we learn from the Vitamin D and Type 2 Diabetes (D2d) Study? J Diabetes. 2020 Mar;12(3):259-261. https://doi.org/10.1111/1753-0407.12997. Epub 2019 Nov 21.PMID: 31755248

- Yaribeygi H, Maleki M, Sathyapalan T, et al. The molecular mechanisms by which vitamin D improve glucose homeostasis: A mechanistic review. Life Sci. 2020 Mar 1;244:117305. https://doi.org/10.1016/j.lfs.2020.117305. Epub 2020 Jan 14.PMID: 31953161 Review.

- Yu S, Feng Y, Qu C, et al. CYP27B1 as an instrument gene to investigate the causal relationship between vitamin D deficiency and obesity: a family-based study. Eur J Clin Nutr. 2020 Mar 3. https://doi.org/10.1038/s41430-020-0594-7. Online ahead of print. PMID: 32127688

- Yu S, Feng Y, Qu C, et al. CYP27B1 as an instrument gene to investigate the causal relationship between vitamin D deficiency and obesity: a family-based study. Eur J Clin Nutr. 2020 May;74(5):806-810. https://doi.org/10.1038/s41430-020-0594-7. Epub 2020 Mar 3.PMID: 32127688

- Yu S, Li X, Yu F, et al. New evidence for associations between vitamin D receptor polymorphism and obesity: case-control and family-based studies. J Hum Genet. 2020 Mar;65(3):281-285. https://doi.org/10.1038/s10038-019-0702-5. Epub 2019 Dec 9.PMID: 31813936

- Zhang Q, Wu Y, Lu Y, et al. Role of vitamin D in risk factors of patients with type 2 diabetes mellitus. Med Clin (Barc). 2020 Mar 13;154(5):151-156. https://doi.org/10.1016/j.medcli.2019.04.019. Epub 2019 Jun 26.PMID: 31255367 English, Spanish.

GASTROENTEROLOGIA

- Abou Saleh M, Alkhayyat M, Mansoor E, et al. The Risk of Vitamin D Deficiency, Osteoporosis, and Fractures in Acute Pancreatitis. Pancreas. 2020 May/Jun;49(5):629-633. https://doi.org/10.1097/MPA.0000000000001538.PMID: 32433399

- Ahlawat R, Weinstein T, Markowitz J, et al. Response to Letter to the Editor on " Should We Assess Vitamin D Status in Pediatric Patients With Celiac Disease?". Pettei MJ.J Pediatr Gastroenterol Nutr. 2020 Apr 3. https://doi.org/10.1097/MPG.0000000000002718. Online ahead of print. PMID: 32265409

- Altieri B, Di Dato C, Modica R, et al. Bone Metabolism and Vitamin D Implication in Gastroenteropancreatic Neuroendocrine Tumors. Nutrients. 2020 Apr 8;12(4):E1021. https://doi.org/10.3390/nu12041021. PMID: 32276412

- Barera G, Maruca K, Sgaramella P, et al. Short-term, low dose vitamin D supplementation in young patients with celiac disease: a pilot study. Eur J Gastroenterol Hepatol. 2020 May;32(5):663-664. https://doi.org/10.1097/MEG.0000000000001627.PMID: 32251205

- Brennan Laing B, Cavadino A, Ellett S, et al. Effects of an Omega-3 and Vitamin D Supplement on Fatty Acids and Vitamin DSerum Levels in Double-Blinded, Randomized, Controlled Trials in Healthy and Crohn's Disease Populations. Nutrients. 2020 Apr 18;12(4):E1139. https://doi.org/10.3390/nu12041139.PMID: 32325778

- Chen T, Zuo X, Wang S, et al. The effect

of vitamin D supplementation on the progression of fibrosis in patients with chronic liver disease: A protocol for a systematic review and meta-analysis. Medicine (Baltimore). 2020 May;99(19):e20296. https://doi.org/10.1097/MD.0000000000020296.PMID: 32384521

- de Bruyn JR, Bossuyt P, Ferrante M, et al. HIGH-DOSE VITAMIN D DOES NOT PREVENT POSTOPERATIVE RECURRENCE OF CROHN'S DISEASE IN A RANDOMIZED PLACEBO-CONTROLLED TRIAL. Clin Gastroenterol Hepatol. 2020 May 24:S1542-3565(20)30698-4. https://doi.org/10.1016/j.cgh.2020.05.037. Online ahead of print. PMID: 32461138

- Dong B, Zhou Y, Wang W, et al. Vitamin D Receptor Activation in Liver Macrophages Ameliorates Hepatic Inflammation, Steatosis, and Insulin Resistance in Mice. Hepatology. 2020 May;71(5):1559-1574. https://doi.org/10.1002/hep.30937. Epub 2020 Feb 23.PMID: 31506976

- El-Boshy M, Refaat B, Almaimani RA, et al. Vitamin D(3) and calcium cosupplementation alleviates cadmium hepatotoxicity in the rat: Enhanced antioxidative and anti-inflammatory actions by remodeling cellular calcium pathways. J Biochem Mol Toxicol. 2020 Mar;34(3):e22440. https://doi.org/10.1002/jbt.22440. Epub 2020 Jan 11.PMID: 31926057

- Emami MR, Sharifi A, Yaseri M, et al. Vitamin D suppresses proangiogenic factors in patients with ulcerative colitis: A randomized double blind placebo controlled clinical trial. Complement Ther Clin Pract. 2020 May;39:101086. https://doi.org/10.1016/j.ctcp.2020.101086. Epub 2020 Jan 7.PMID: 31957666

- Fakhoury HMA, Kvietys PR, AlKattan W, et al. Vitamin D and intestinal homeostasis: Barrier, microbiota, and immune modulation. J Steroid Biochem Mol Biol. 2020 Mar 16;200:105663. https://doi.org/10.1016/j.jsbmb.2020.105663. Online ahead of print. PMID:32194242

- Falak S, Aftab L, Saeed M, et al. Prevalence of Vitamin-D deficiency is related to severity of liver damage in Hepatitis-C patients. Pak J Med Sci. 2020 Mar-Apr;36(3):445-450. https://doi.org/10.12669/pjms.36.3.1490.PMID: 32292450

- Fox A, Slater C, Ahmed B, et al. Vitamin D Status After Gastric Bypass or Sleeve Gastrectomy over 4 Years of Follow-up. Obes Surg. 2020 Apr;30(4):1473-1481. https://doi.org/10.1007/s11695-019-04318-0.PMID: 31820405

- Garcia PM, Moore J, Kahan D, et al. Effects of Vitamin D Supplementation on Inflammation, Colonic Cell Kinetics, and Microbiota in Colitis: A Review. Molecules. 2020 May 14;25(10):E2300. https://doi.org/10.3390/molecules25102300. PMID: 32422882 Review.

- Gubatan J, Mehigan GA, Villegas F, et al. Cathelicidin Mediates a Protective Role of Vitamin D in Ulcerative Colitis and Human Colonic Epithelial Cells. Inflamm Bowel Dis. 2020 May 12;26(6):885-897. https://doi.org/10.1093/ibd/izz330.PMID: 31955203

- Guzman-Prado Y, Samson O, Segal JP, et al. Vitamin D Therapy in Adults With Inflammatory Bowel Disease: A Systematic Review and Meta-Analysis. Inflamm Bowel Dis. 2020 May 9:izaa087. https://doi.org/10.1093/ibd/izaa087. Online ahead of print. PMID: 32385487

- Hamdy RC. Bone Health, Calcium, Vitamin D Metabolism, and Gastro-Intestinal Diseases. J Clin Densitom. 2020 Apr-Jun;23(2):153-154. https://doi.org/10.1016/j.jocd.2020.03.001. Epub 2020 Mar 7.PMID: 32220592

- Hewitt S, Kristinsson J, Aasheim ET, et al. Relationships Between Vitamin D Status and PTH over 5 Years After Roux-en-Y Gastric Bypass: a Longitudinal Cohort Study. Obes Surg. 2020 Apr 18. https://doi.org/10.1007/s11695-020-04582-5. Online ahead of print. PMID: 32306297

- Jackson RI, Cardigan T, Duncan H, et al. Letter: Using One-Off Dosing To Treat Vitamin D Deficiency in Paediatric Coeliac Disease. J Pediatr Gastroenterol Nutr. 2020 Mar 20. https://doi.org/10.1097/MPG.0000000000002717. Online ahead of print. PMID: 32205772

- 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 Apr 14:1-9. https://doi.org/10.1080/09637486.2020.1748580. Online ahead of print. PMID: 32283946

- Karimi S, Tabataba-Vakili S, Ebrahimi-Daryani N, et al. Inflammatory biomarkers response to two dosages of vitamin Dsupplementation in patients with ulcerative colitis: A randomized, double-blind, placebo-controlled pilot study. Clin Nutr ESPEN. 2020 Apr;36:76-81. https://doi.org/10.1016/j.clnesp.2020.02.003. Epub 2020 Feb 22.PMID: 32220372

- Ko WS, Yang YP, Shen FP, et al. The Study of Correlation Between Serum Vitamin D(3) Concentrations and HBV DNA Levels and Immune Response in Chronic Hepatitis Patients. Nutrients. 2020 Apr 16;12(4):E1114. https://doi.org/10.3390/nu12041114.PMID: 32316365

- Li W, Peregrina K, Houston M, et al. Vitamin D and the nutritional environment in functions of intestinal stem cells: Implications for tumorigenesis and prevention. J Steroid Biochem Mol Biol. 2020 Apr;198:105556. https://doi.org/10.1016/j.jsbmb.2019.105556. Epub 2019 Nov 26.PMID: 31783155 Review.

- Lin H, Huang Y, Tian T, et al. Propionate promotes vitamin D receptor expression via yes-associated protein in rats with short bowel syndrome. Biochem Biophys Res Commun. 2020 Mar 12;523(3):645-650. https://doi.org/10.1016/j.bbrc.2019.12.127. Epub 2020 Jan 12.PMID: 31941599

- Liu Y, Wang B, Xu H, et al. Synergistic Effect of Diacylglycerol and Vitamin D in Ameliorating Dextran Sodium Sulfate-Induced Colitis in Rats. Lipids. 2020 May 18. https://doi.org/10.1002/lipd.12248. Online ahead of print. PMID: 32419184

- Martínez-Sena T, Soluyanova P, Guzmán C, et al. The Vitamin D Receptor Regulates Glycerolipid and Phospholipid Metabolism in Human Hepatocytes. Biomolecules. 2020 Mar 24;10(3):493. https://doi.org/10.3390/biom10030493.PMID: 32213983

- Moos C, Duus KS, Frederiksen P, et al. Exposure to the Danish Mandatory Vitamin D Fortification Policy in Prenatal Life and the Risk of Developing Coeliac Disease-The Importance of Season: A Semi Ecological Study. Nutrients. 2020 Apr 27;12(5):E1243. https://doi.org/10.3390/nu12051243.PMID: 32349457

- Pott-Junior H, Luzeiro C, Senise JF, et al. Association of seasonality and serum albumin concentration with vitamin D deficiency in subjects with chronic hepatitis C infection living in a sunny country. Public Health Nutr. 2020 May;23(7):1247-1253. https://doi.org/10.1017/S1368980019004178. Epub 2020 Mar 9.PMID: 32148208

- Raafat Rowida I, Eshra KA, El-Sharaby RM, et al. Apa1 (rs7975232) SNP in the vitamin D receptor is linked to hepatocellular carcinoma in hepatitis C virus cirrhosis. Br J Biomed Sci. 2020 Apr;77(2):53-57. https://doi.org/10.1080/09674845.2019.1680166. Epub 2019 Nov 25.PMID: 31682785

- Salhab A, Amer J, Yinying L, et al. 25(OH) D3 alleviate liver NK cytotoxicity in acute but not in chronic fibrosis model of BALB/c mice due to modulations in vitamin D receptor. BMC Gastroenterol. 2020 Apr 10;20(1):102. https://doi.org/10.1186/s12876-020-01248-5. PMID: 32276660

- Sutherland RL, Ormsbee J, Pader J, et al. Vitamin D supplementation reduces the occurrence of colorectal polyps in high-latitude locations. Prev Med. 2020 Jun;135:106072. https://doi.org/10.1016/j.ypmed.2020.106072. Epub 2020 Apr 1.PMID: 32247012

- Tao S, Zhang H, Zhao Q, et al. Correlation of vitamin D with inflammatory factors, oxidative stress and T cell subsets in patients with autoimmune hepatitis. Exp Ther Med. 2020 May;19(5):3419-3424. https://doi.org/10.3892/etm.2020.8601. Epub 2020 Mar 12.PMID: 32266042

- Vici G, Camilletti D, Polzonetti V. Possible Role of Vitamin D in Celiac Disease Onset.Nutrients. 2020 Apr 10;12(4):E1051. https://doi.org/10.3390/nu12041051.PMID: 32290294 Free article. Review.

- Wu J, Lin S, Liu S, et al. The association between vitamin D-related gene polymorphisms and hepatitis B virus-related liver cirrhosis. J Int Med Res. 2020 Apr;48(4):300060520910906. https://doi.org/10.1177/0300060520910906. PMID: 32264749

- Yang K, Zhu J, Wu J, et al. Maternal Vitamin D Deficiency Increases Intestinal Permeability and Programs Wnt/β-Catenin Pathway in BALB/C Mice. JPEN J Parenter Enteral Nutr. 2020 Apr 9. https://doi.org/10.1002/jpen.1820. Online ahead of print. PMID: 32270535

- Yodoshi T, Orkin S, Arce-Clachar AC, et al. Vitamin D deficiency: prevalence and association with liver disease severity in pediatric nonalcoholic fatty liver disease. Eur J Clin Nutr. 2020 Mar;74(3):427-435. https://doi.org/10.1038/s41430-019-0493-y. Epub 2019 Aug 23.PMID: 31444465

- Zeng Y, Luo M, Pan L, et al. Vitamin D signaling maintains intestinal innate immunity and gut microbiota: potential intervention for metabolic syndrome and NAFLD. Am J Physiol Gastrointest Liver Physiol. 2020 Mar 1;318(3):G542-G553. https://doi.org/10.1152/ajpgi.00286.2019. Epub 2020 Jan 27.PMID: 31984787

- Zhou Y, Dong B, Kim KH, et al. Vitamin D Receptor Activation in Liver Macrophages Protects Against Hepatic Endoplasmic Reticulum Stress in Mice. Hepatology. 2020 Apr;71(4):1453-1466. https://doi.org/10.1002/hep.30887. Epub 2020 Jan 2.PMID: 31381163

- Cai J, Zhang Z, Liu J, et al. Correlation between serum 25-OH vitamin D expression and non-alcoholic fatty liver disease. Exp Ther Med. 2020 Mar;19(3):1681-1686. https://doi.org/10.3892/etm.2020.8411. Epub 2020 Jan 2.PMID: 32104220

- Chen D, Li J, Zhang XY, et al. [Study of the correlation between vitamin D status and cytokine levels in patients with Crohn's disease] Zhonghua Yi Xue Za Zhi. 2020 Mar 17;100(10):757-762. https://doi.org/10.3760/cma.j.cn112137-20190917-02050. PMID: 32192288 Chinese.

- Domazetovic V, Iantomasi T, Bonanomi AG, et al. Vitamin D regulates claudin-2 and claudin-4 expression in active ulcerative colitis by p-Stat-6 and Smad-7 signaling. Int J Colorectal Dis. 2020 Apr 20. https://doi.org/10.1007/s00384-020-03576-0. Online ahead of print. PMID: 32314188

- Fletcher J, Swift A, Hewison M, et al. Screening and Treatment of Vitamin D Deficiency in UK Patients with Crohn's Disease: Self-Reported Practice among Gastroenterologists. Nutrients. 2020 Apr 11;12(4):E1064. https://doi.org/10.3390/nu12041064.PMID: 32290515

- Gisbert-Ferrándiz L, Cosín-Roger J, Hernández C, et al. Diminished Vitamin D Receptor Protein Levels in Crohn's Disease Fibroblasts: Effects of Vitamin D. Nutrients. 2020 Apr 1;12(4):E973. https://doi.org/10.3390/nu12040973.PMID: 32244667

- 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. 2020 Mar 26. https://doi.org/10.1007/s10620-020-06207-4. Online ahead of print. PMID: 32219610

- Lee I, Park E, Cho J. Association of nonalcoholic fatty liver disease with serum vitamin D levels in combination of physical fitness in korean older adults.J Steroid Biochem Mol Biol. 2020 Apr;198:105569. https://doi.org/10.1016/j.jsbmb.2019.105569. Epub 2019 Dec 28.PMID: 31891747

- Lu R, Shang M, Zhang YG, et al. Lactic Acid Bacteria Isolated From Korean Kimchi Activate the Vitamin DReceptor-autophagy Signaling Pathways. Inflamm Bowel Dis. 2020 Mar 14:izaa049. https://doi.org/10.1093/ibd/izaa049. Online ahead of print. PMID: 32170938

- Morton H, Pedley KC, Stewart RJ, et al. Vitamin D concentrations in New Zealanders with and without inflammatory bowel disease: do they differ? N Z Med J. 2020 Mar 13;133(1511):61-70.PMID: 32161422

- Zhang H, Shen Z, Lin Y, et al. Vitamin D receptor targets hepatocyte nuclear factor 4α and mediates protective effects of vitamin D in nonalcoholic fatty liver disease. J Biol Chem. 2020 Mar 20;295(12):3891-3905. https://doi.org/10.1074/jbc.RA119.011487. Epub 2020 Feb 12.PMID: 32051143

GINECOLOGIA OSTETRICIA

- Abdi F, Ozgoli G, Rahnemaei FA. Correction of the name of author: A systematic review of the role of vitamin Dand calcium in premenstrual syndrome. Obstet Gynecol Sci. 2020 Mar;63(2):213. https://doi.org/10.5468/ogs.2020.63.2.213. Epub 2020 Mar 2.PMID: 32206663

- Abdollahi E, Rezaee R, Saghafi N, et al. Evaluation of the effects of 1,25 vitamin D3 on regulatory T cells and T helper 17 cells in Vitamin D-deficient women with unexplained recurrent pregnancy loss. Curr Mol Pharmacol. 2020 Mar 3. https://doi.org/10.2174/1874467213666200303130153. Online ahead of print. PMID: 32124705

- Aguilar-Cordero MJ, Lasserrot-Cuadrado A, Mur-Villar N, et al. Vitamin D, preeclampsia and prematurity: A systematic review and meta-analysis of observational and interventional studies. Midwifery. 2020 May 6;87:102707. https://doi.org/10.1016/j.midw.2020.102707. Online ahead of print. PMID: 32438283 Review.

- Albejante MC, Kunz TCM, Ferreira MFC, et al. Proteinuria is Associated with Urinary Loss of Cubilin and Vitamin D-Binding Protein in Patients with Preeclampsia. Sci Rep. 2020 Mar 3;10(1):3956. https://doi.org/10.1038/s41598-020-60924-4. PMID: 32127613

- Amegah AK, Baffour FK, Appiah A, et al. Sunlight exposure, consumption of vitamin D-rich foods and vulvovaginal candidiasis in an African population: a prevalence case-control study. Eur J Clin Nutr. 2020 Mar;74(3):518-526. https://doi.org/10.1038/s41430-019-0517-7. Epub 2019 Oct 21.PMID: 31636409

- Amouzegar A, Azizi F, Ashrafivand S, et al. Prevalence of calcium and vitamin D deficiency and their association with feto-maternal outcomes in a sample of Iranian pregnant women. Hum Antibodies. 2020 May 15. https://doi.org/10.3233/HAB-200415. Online ahead of print. PMID: 32444536

- Arjeh S, Darsareh F, Asl ZA, et al. Effect of oral consumption of vitamin D on uterine fibroids: A randomized clinical trial. Complement Ther Clin Pract. 2020 May;39:101159. https://doi.org/10.1016/j.ctcp.2020.101159. Epub 2020 Apr 2.PMID: 32379687

- Bezerra Espinola MS, Bilotta G, Aragona C. Positive effect of a new supplementation of vitamin D3 with myo-inositol, folic acid and melatonin on IVF outcomes: a prospective randomized and controlled pilot study. Gynecol Endocrinol. 2020 May 5:1-4. https://doi.org/10.1080/09513590.2020.1760820. Online ahead of print. PMID: 32367738

- Bokharee N, Khan YH, Wasim T, et al. Daily versus stat vitamin D supplementation during pregnancy; A prospective cohort study. PLoS One. 2020 Apr 16;15(4):e0231590. https://doi.org/10.1371/journal.pone.0231590. eCollection 2020.PMID: 32298329

- Bozdag H, Akdeniz E. Does severe vitamin D deficiency impact obstetric outcomes in pregnant women with thyroid autoimmunity? J Matern Fetal Neonatal Med. 2020 Apr;33(8):1359-1369. https://doi.org/10.1080/14767058.2018.1519017. Epub 2018 Sep 25.PMID: 30173587

- Chen X, Diao L, Lian R, et al. Potential impact of maternal vitamin D status on peripheral blood and endometrium cellular immunity in women with recurrent implantation failure. Am J Reprod Immunol. 2020 Apr 10:e13243. https://doi.org/10.1111/aji.13243. Online ahead of print. PMID: 32277536

- Chen Y, Zhi X. Roles of Vitamin D in Reproductive Systems and Assisted Reproductive Technology. Endocrinology. 2020 Apr 1;161(4):bqaa023. https://doi.org/10.1210/endocr/bqaa023.PMID: 32067036

- Cito G, Cocci A, Micelli E, et al. Vitamin D and Male Fertility: An Updated Review. World J Mens Health. 2020 Apr;38(2):164-177. https://doi.org/10.5534/wjmh.190057. Epub 2019 May 17. PMID: 31190482

- Dehghan Shahreza F, Hajian M, Gharagozloo P, et al. Impact of vitamin D deficiency on mouse spermatozoa structure and function. Andrology. 2020 May 18. https://doi.org/10.1111/andr.12820. Online ahead of print. PMID: 32421931

- Fernando M, Ellery SJ, Marquina C, et al. Vitamin D-Binding Protein in Pregnancy and Reproductive Health. Nutrients. 2020 May 20;12(5):E1489. https://doi.org/10.3390/nu12051489.PMID: 32443760 Review.

- Fichera M, Török P, Tesarik J, et al. Vitamin D, reproductive disorders and assisted reproduction: evidences and perspectives. Int J Food Sci Nutr. 2020 May;71(3):276-285. https://doi.org/10.1080/09637486.2019.1661978. Epub 2019 Sep 5.PMID: 31928386

- Gallo S, McDermid JM, Al-Nimr RI, et al. Vitamin D Supplementation during Pregnancy: An Evidence Analysis Center Systematic Review and Meta-Analysis. J Acad Nutr Diet. 2020 May;120(5):898-924.e4. https://doi.org/10.1016/j.jand.2019.07.002. Epub 2019 Oct 25.PMID: 31669079

- Gopal-Kothandapani JS, Rigby AS, Harrison R, et al. Maternal pregnancy vitamin D supplementation increases offspring bone formation in response to mechanical loading: Findings from a MAVIDOS Trial sub-study. J Musculoskelet Neuronal Interact. 2020 Mar 3;20(1):4-11.PMID: 32131365

- Grant WB. Vitamin D Status May Help Explain Maternal Race and Ethnic Factors in Primary Cesarean Section Delivery. Am J Perinatol. 2020 Apr 24. https://doi.org/10.1055/s-0040-1709494. Online ahead of print. PMID: 32330967

- He M, Mirzakhani H, Chen L, et al. Vitamin D sufficiency has a limited effect on placental structure and histopathology: placental phenotypes in the VDAART trial. Endocrinology. 2020 Apr 9:bqaa057. https://doi.org/10.1210/endocr/bqaa057. Online ahead of print. PMID: 32270179

- Hou H, Zhang JY, Chen D, et al. Altered decidual and placental catabolism of vitamin D may contribute to the aetiology of spontaneous miscarriage. Placenta. 2020 Mar;92:1-8. https://doi.org/10.1016/j.placenta.2020.01.013. Epub 2020 Jan 26.PMID: 32056782

- Jani R, Knight-Agarwal CR, Bloom M, et al. The Association Between Pre-Pregnancy Body Mass Index, Perinatal Depression and Maternal Vitamin D Status: Findings from an Australian Cohort Study. Int J Womens Health. 2020 Mar 26;12:213-219. https://doi.org/10.2147/IJWH.S239267. eCollection 2020.PMID: 32273777

- Khatiwada A, Wolf BJ, Mulligan JK, et al. Effects of vitamin D supplementation on circulating concentrations of growth factors and immune-mediators in healthy women during pregnancy. Pediatr Res. 2020 Apr 20. https://doi.org/10.1038/s41390-020-0885-7. Online ahead of print. PMID: 32311700

- Kiely ME, Wagner CL, Roth DE. Vitamin D in pregnancy: Where we are and where we should go. J Steroid Biochem Mol Biol. 2020 Apr 14;201:105669. https://doi.org/10.1016/j.jsbmb.2020.105669. Online ahead of print. PMID:32302652 Review.

- Kim KS, Park SW, Cho YW, et al. Vitamin D Deficiency at Mid-Pregnancy Is Associated with a Higher Risk of Postpartum Glucose Intolerance in Women with Gestational Diabetes Mellitus. Endocrinol Metab (Seoul). 2020 Mar;35(1):97-105. https://doi.org/10.3803/EnM.2020.35.1.97. PMID: 32207269 Free PMC article.

- Kuyucu Y, Sencar L, Tap Ö, et al. Investigation of the effects of vitamin D treatment on the ovarian AMH receptors in a polycystic ovary syndrome experimental model: an ultrastructural and immunohistochemical study. Reprod Biol. 2020 Mar;20(1):25-32. https://doi.org/10.1016/j.repbio.2020.01.001. Epub 2020 Jan 8.PMID: 31924508

- Li S, Chen B, Sheng B, et al. The associations between serum vitamin D, calcium and uterine fibroids in Chinese women: a case-controlled study. J Int Med Res. 2020 May;48(5):300060520923492. https://doi.org/10.1177/0300060520923492. PMID: 32458705

- Lisi G, Ribolsi M, Siracusano A, et al. Maternal Vitamin D and its role in determining fetal origins of mental health. Curr Pharm Des. 2020 May 5. https://doi.org/10.2174/1381612826666200506093858. Online ahead of print. PMID: 32370709

- Liu Z, Liu H, Xu X, et al. Combined Effect of Maternal Vitamin D Deficiency and Gestational Diabetes Mellitus on Trajectories of Ultrasound-Measured Fetal Growth: A Birth Cohort Study in Beijing, China. J Diabetes Res. 2020 Mar 30;2020:4231892. https://doi.org/10.1155/2020/4231892. eCollection 2020.PMID: 32337290

- Lokki AI, Heikkinen-Eloranta J, Öhman H, et al. Smoking during pregnancy reduces vitamin D levels in a Finnish birth register cohort. Public Health Nutr. 2020 May;23(7):1273-1277. https://doi.org/10.1017/S1368980018003932. Epub 2019 Feb 8.PMID: 30732669

- Macdonald C, Upton T, Hunt P, et al. Vitamin D supplementation in pregnancy: A word of caution. Familial hypercalcaemia due to disordered vitamin D metabolism. Ann Clin Biochem. 2020 Mar;57(2):186-191. https://doi.org/10.1177/0004563219897691. Epub 2020 Jan 19.PMID: 31842586

- Mandell E, Ryan S, Seedorf GJ, et al. Maternal vitamin D deficiency induces transcriptomic changes in newborn rat lungs. J Steroid Biochem Mol Biol. 2020 May;199:105613. https://doi.org/10.1016/j.jsbmb.2020.105613. Epub 2020 Jan 30.PMID: 32007564

- Masjedi F, Keshtgar S, Zal F, et al. Effects of vitamin D on steroidogenesis, reactive oxygen species production, and enzymatic antioxidant defense in human granulosa cells of normal and polycystic ovaries. J Steroid Biochem Mol Biol. 2020 Mar;197:105521. https://doi.org/10.1016/j.jsbmb.2019.105521. Epub 2019 Nov 6.PMID: 31705961

- Meng DH, Zhang Y, Hu HL, et al. The role of PTH during pregnancy on the relationship between maternal vitaminD deficiency and foetal growth restriction: a prospective birth cohort study. Br J Nutr. 2020 Mar 26:1-32. https://doi.org/10.1017/S0007114520001105. Online ahead of print. PMID: 32213215

- Mesinovic J, Teede HJ, Shorakae S, et al. The Relationship between Vitamin D Metabolites and Androgens in Women with Polycystic Ovary Syndrome. Nutrients. 2020 Apr 26;12(5):E1219. https://doi.org/10.3390/nu12051219.PMID: 32357490

- Miao CY, Fang XJ, Chen Y, et al. Effect of vitamin D supplementation on polycystic ovary syndrome: A meta-analysis. Exp Ther Med. 2020 Apr;19(4):2641-2649. https://doi.org/10.3892/etm.2020.8525. Epub 2020 Feb 11.PMID: 32256745 Free PMC article.

- Mioni R, Gallea M, Granzotto M, et al. Ovarian 25OH-vitamin D production in young women affected by polycystic ovary syndrome. J Endocrinol Invest. 2020 Apr 21. https://doi.org/10.1007/s40618-020-01247-z. Online ahead of print. PMID: 32319048

- Nodler JL, DiVasta AD, Vitonis AF, et al. Supplementation with vitamin D or ω-3 fatty acids in adolescent girls and young women with endometriosis (SAGE): a double-blind, randomized, placebo-controlled trial. Am J Clin Nutr. 2020 May 26:nqaa096. https://doi.org/10.1093/ajcn/nqaa096. Online ahead of print. PMID: 32453393

- Osman OM, Gaafar T, Eissa TS, et al. Prevalence of vitamin D deficiency in Egyptian patients with pregnancy-induced hypertension. J Perinat Med. 2020 Apr 17:/j/jpme.ahead-of-print/jpm-2020-0055/jpm-2020-0055.xml. https://doi.org/10.1515/jpm-2020-0055. Online ahead of print. PMID: 32304313

- Perreault M, Atkinson SA, Meyre D, et al. Summer Season and Recommended Vitamin D Intake Support Adequate Vitamin D Status throughout Pregnancy in Healthy Canadian Women and Their Newborns. J Nutr. 2020 Apr 1;150(4):739-746. https://doi.org/10.1093/jn/nxz276. PMID: 31732740

- Porcaro G, Santamaria A, Giordano D, et al.Vitamin D plus epigallocatechin gallate: a novel promising approach for uterine myomas. Eur Rev Med Pharmacol Sci. 2020 Mar;24(6):3344-3351. https://doi.org/10.26355/eurrev_202003_20702.PMID: 32271452

- Qiu Y, Yuan S, Wang H. Vitamin D status in endometriosis: a systematic review and meta-analysis. Arch Gynecol Obstet. 2020 May 19. https://doi.org/10.1007/s00404-020-05576-5. Online ahead of print. PMID: 32430755

- Rasheedy R, Sammour H, Elkholy A, et al. The efficacy of vitamin D combined with clomiphene citrate in ovulation induction in overweight women with polycystic ovary syndrome: a double blind, randomized clinical trial. Endocrine. 2020 May 3. https://doi.org/10.1007/s12020-020-02315-3. Online ahead of print. PMID: 32363556

- Rudnicka A, Adoamnei E, Noguera-Velasco JA, et al. Vitamin D status is not associated with reproductive parameters in young Spanish men. Andrology. 2020 Mar;8(2):323-331. https://doi.org/10.1111/andr.12690. Epub 2019 Aug 5.PMID: 31380611

- Saki F, Sadeghian F, Kasaee SR, et al. Effect

of prolactin and estrogen on the serum level of 1,25-dihydroxy vitamin D and FGF23 in female rats. Arch Gynecol Obstet. 2020 May 14. https://doi.org/10.1007/s00404-020-05567-6. Online ahead of print. PMID: 32409924

- Schröder-Heurich B, Springer CJP, von Versen-Höynck F. Vitamin D Effects on the Immune System from Periconception through Pregnancy. Nutrients. 2020 May 15;12(5):E1432. https://doi.org/10.3390/nu12051432.PMID: 32429162 Review.

- Shaat N, Katsarou A, Shahida B, et al. Association between the rs1544410 polymorphism in the vitamin D receptor (VDR) gene and insulin secretion after gestational diabetes mellitus. PLoS One. 2020 May 14;15(5):e0232297. https://doi.org/10.1371/journal.pone.0232297. eCollection 2020.PMID: 32407388

- Shen Y, Pu L, Si S, et al. Vitamin D nutrient status during pregnancy and its influencing factors. Clin Nutr. 2020 May;39(5):1432-1439. https://doi.org/10.1016/j.clnu.2019.06.002. Epub 2019 Jun 8.PMID: 31229327

- Simner CL, Ashley B, Cooper C, et al. Investigating a suitable model for the study of vitamin D mediated regulation of human placental gene expression. J Steroid Biochem Mol Biol. 2020 May;199:105576. https://doi.org/10.1016/j.jsbmb.2019.105576. Epub 2020 Jan 2.PMID: 31904414

- Smith M, O'Brien EC, Alberdi G, et al. Association between vitamin D status in early pregnancy and atopy in offspring in a vitamin D deplete cohort. Ir J Med Sci. 2020 May;189(2):563-570. https://doi.org/10.1007/s11845-019-02078-5. Epub 2019 Aug 29.PMID: 31463897

- Szpunar MJ. Association of antepartum vitamin D deficiency with postpartum depression: a clinical perspective. Public Health Nutr. 2020 May;23(7):1173-1178. https://doi.org/10.1017/S136898001800366X. Epub 2019 Jan 18.PMID: 30657106

- Taneja A, Gupta S, Kaur G, et al. Vitamin D: Its Deficiency and Effect of Supplementation on Maternal Outcome. J Assoc Physicians India. 2020 Mar;68(3):47-50. PMID: 32138484

- Tanvig MH, Jensen DM, Andersen MS, et al. Vitamin D levels were significantly higher during and after lifestyle intervention in pregnancy: A randomized controlled trial. Acta Obstet Gynecol Scand. 2020 Mar;99(3):350-356. https://doi.org/10.1111/aogs.13722. Epub 2019 Sep 12.PMID: 31464343

- Wagner CL. Oral Maternal Vitamin D Megadoses to Prevent Vitamin Deficiency in Breastfeeding Mothers and Their Infants. Breastfeed Med. 2020 Apr;15(4):187-188. https://doi.org/10.1089/bfm.2020.0035. Epub 2020 Feb 27.PMID: 32105501

- Wang L, Lv S, Li F, et al. Vitamin D Deficiency Is Associated With Metabolic Risk Factors in Women With Polycystic Ovary Syndrome: A Cross-Sectional Study in Shaanxi China. Front Endocrinol (Lausanne). 2020 Mar 31;11:171. https://doi.org/10.3389/fendo.2020.00171. eCollection 2020.PMID: 32296394

- Wang P, Tan ZX, Fu L, et al. Gestational vitamin D deficiency impairs fetal lung development through suppressing type II pneumocyte differentiation. Reprod Toxicol. 2020 Apr 21;94:40-47. https://doi.org/10.1016/j.reprotox.2020.03.008. Online ahead of print. PMID: 32330513

- Williams A, Babu JR, Wadsworth DD, et al. The Effects of Vitamin D on Metabolic Profiles in Women with Polycystic Ovary Syndrome: A Systematic Review. Horm Metab Res. 2020 May 18. https://doi.org/10.1055/a-1160-9902. Online ahead of print. PMID: 32422661

- Woo J, Koenig MD, Engeland CG, et al. Neighborhood disorder predicts lower serum vitamin D levels in pregnant African American women: A pilot study. J Steroid Biochem Mol Biol. 2020 Mar 3;200:105648. https://doi.org/10.1016/j.jsbmb.2020.105648. Online ahead of print. PMID: 32142935

- Woo J, Penckofer S, Giurgescu C, et al. Vitamin D Deficiency and Sleep Quality in Minority Pregnant Women. MCN Am J Matern Child Nurs. 2020 May/Jun;45(3):155-160. https://doi.org/10.1097/NMC.0000000000000610.PMID: 32068537

IMMUNOLOGIA

- Akimbekov NS, Ortoski RA, Razzaque MS. Effects of sunlight exposure and vitamin D supplementation on HIV patients. J Steroid Biochem Mol Biol. 2020 Mar 27;200:105664. https://doi.org/10.1016/j.jsbmb.2020.105664. Online ahead of print. PMID:32229174 Review.

- Almeida Moreira Leal LK, Lima LA, Alexandre de Aquino PE, et al. Vitamin D (VD3) antioxidative and anti-inflammatory activities: Peripheral and central effects. Eur J Pharmacol. 2020 Apr 28:173099. https://doi.org/10.1016/j.ejphar.2020.173099. Online ahead of print. PMID: 32360837

- Anderson J, Do LAH, Toh ZQ, et al. Vitamin D Induces Differential Effects on Inflammatory Responses During Bacterial and/or Viral Stimulation of Human Peripheral Blood Mononuclear Cells. Front Immunol. 2020 Apr 7;11:602. https://doi.org/10.3389/fimmu.2020.00602. eCollection 2020.PMID: 32318074

- Behm C, Blufstein A, Gahn J, et al. Pleiotropic effects of vitamin D(3) on CD4(+) T lymphocytes mediated by human periodontal ligament cells and inflammatory environment. J Clin Periodontol. 2020 Mar 11. https://doi.org/10.1111/jcpe.13283. Online ahead of print. PMID: 32160330

- Bellan M, Andreoli L, Mele C, et al. Pathophysiological Role and Therapeutic Implications of Vitamin D in Autoimmunity: Focus on Chronic Autoimmune Diseases. Nutrients. 2020 Mar 17;12(3):789. https://doi.org/10.3390/nu12030789.PMID: 32192175

- Bouchemal M, Hakem D, Azzouz M, et al. Vitamin D levels correlate with Metabolic Syndrome Criteria in Algerian Patients: The Ex-vivo Immuomodulatory Effect of α, 25 Dihydroxyvitamin D3. Endocr Metab Immune Disord Drug Targets. 2020 Apr 2. https://doi.org/10.2174/1871530320666200402121917. Online ahead of print. PMID: 32238143

- Boylan M, O'Brien MB, Beynon C, et al. 1,25(OH)D vitamin D promotes NOS2 expression in response to bacterial and viral PAMPs in primary bovine salivary gland fibroblasts. Vet Res Commun. 2020 May 22. https://doi.org/10.1007/s11259-020-09775-y. Online ahead of print. PMID: 32440968

- Carbone T, Pafundi V, Bizzaro N, et al. As-

sessing vitamin D levels in an anti-DFS70 positive population: New insights emerging. Autoimmunity. 2020 Mar 13:1-6. https://doi.org/10.1080/08916934.2020.1736048. Online ahead of print. PMID: 32164458

- Chakravarti A, Bharara T, Kapoor N, et al. Levels of 25-hydroxy Vitamin D3 and Vitamin D Receptor Polymorphism in Severe Dengue Cases from New Delhi. Trop Med Infect Dis. 2020 May 3;5(2):E72. https://doi.org/10.3390/tropicalmed5020072. PMID: 32375246

- Chatterjee I, Lu R, Zhang Y, et al. Vitamin D receptor promotes healthy microbial metabolites and microbiome. Sci Rep. 2020 Apr 30;10(1):7340. https://doi.org/10.1038/s41598-020-64226-7. PMID: 32355205

- Cheng K, Tang Q, Guo X, et al. High dose of dietary vitamin D(3) modulated the yellow catfish (Pelteobagrus fulvidraco) splenic innate immune response after Edwardsiella ictaluri infection. Fish Shellfish Immunol. 2020 May;100:41-48. https://doi.org/10.1016/j.fsi.2020.03.005. Epub 2020 Mar 3.PMID: 32142874

- Cheng K, Tang Q, Huang Y, et al. Effect of vitamin D(3) on the immunomodulation of head kidney after Edwardsiella ictaluri challenge in yellow catfish (Pelteobagrus fulvidraco). Fish Shellfish Immunol. 2020 Apr;99:353-361. https://doi.org/10.1016/j.fsi.2020.02.023. Epub 2020 Feb 17.PMID: 32081806

- Costantini E, Sinjari B, Piscopo F, et al. Evaluation of Salivary Cytokines and Vitamin D Levels in Periodontopathic Patients. Int J Mol Sci. 2020 Apr 11;21(8):E2669. https://doi.org/10.3390/ijms21082669.PMID: 32290474 Free article.

- Currò M, Ferlazzo N, Costanzo MG, et al. Vitamin D status influences transcriptional levels of RANKL and inflammatory biomarkers which are associated with activation of PBMC. Clin Chim Acta. 2020 Aug;507:219-223. https://doi.org/10.1016/j.cca.2020.04.041. Epub 2020 May 1.PMID: 32371216

- Fabbri A, Infante M, Ricordi C. Editorial - Vitamin D status: a key modulator of innate immunity and natural defense from acute viral respiratory infections. Eur Rev Med Pharmacol Sci. 2020 Apr;24(7):4048-4052. https://doi.org/10.26355/eurrev_202004_20876.PMID: 32329882 Free article.

- 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. 2020 Mar 31:sextrans-2020-054466. https://doi.org/10.1136/sextrans-2020-054466. Online ahead of print. PMID: 32234963

- Hawrylowicz CM, Santos AF. Vitamin D: can the sun stop the atopic epidemic? Curr Opin Allergy Clin Immunol. 2020 Apr;20(2):181-187. https://doi.org/10.1097/ACI.0000000000000613. PMID:31895129

- Helde Frankling M, Norlin AC, Hansen S, et al. Are Vitamin D(3) Tablets and Oil Drops Equally Effective in Raising S-25-Hydroxyvitamin D Concentrations? A Post-Hoc Analysis of an Observational Study on Immunodeficient Patients. Nutrients. 2020 Apr 26;12(5):E1230. https://doi.org/10.3390/nu12051230.PMID: 32357579

- Hu S, Dai J, Chen X. Vitamin D reduces autophagy by regulating NF-κB resistance to Aspergillus fumigatus infection. Gene. 2020 May 30:144819. https://doi.org/10.1016/j.gene.2020.144819. Online ahead of print. PMID: 32485309

- Huyut Z, Alp HH, Bakan N, et al. Stimulating effects of vardenafil, tadalafil, and udenafil on vascular endothelial growth factor, angiogenesis, vitamin D(3), bone morphogenic proteins in ovariectomized rats. Arch Physiol Biochem. 2020 Apr 21:1-7. https://doi.org/10.1080/13813455.2020.1755695. Online ahead of print. PMID: 32314927

- Huyut Z, Bakan N, Akbay Hİ, et al. Zaprinast and avanafil increase the vascular endothelial growth factor, vitamin D3, bone morphogenic proteins 4 and 7 levels in the kidney tissue of male rats applied the glucocorticoid. Arch Physiol Biochem. 2020 May 18:1-7. https://doi.org/10.1080/13813455.2020.1767149. Online ahead of print. PMID: 32421396

- Joob B, Wiwanitkit V. Vitamin D receptor gene Foki polymorphism and glucocorticoid response. Int Forum Allergy Rhinol. 2020 Apr;10(4):577. https://doi.org/10.1002/alr.22531. Epub 2020 Feb 13.PMID: 32052922

- Josef R, Jitka P, Martina Z, et al. Concentration of NK cells after β-glucan and vitamin D supplementation in patients with diabetic retinopathy. Folia Microbiol (Praha) 2020 Apr 4. https://doi.org/10.1007/s12223-020-00789-2. Online ahead of print. PMID: 32248405

- 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 D3 and simulated sunlight supplementation trial in healthy adults. Eur J Nutr. 2020 May 10. https://doi.org/10.1007/s00394-020-02261-w. Online ahead of print. PMID: 32390123

- Kasprowicz K, Ratkowski W, Wołyniec W, et al. The Effect of Vitamin D(3) Supplementation on Hepcidin, Iron, and IL-6 Responses after a 100 km Ultra-Marathon. Int J Environ Res Public Health. 2020 Apr 24;17(8):E2962. https://doi.org/10.3390/ijerph17082962.PMID: 32344650

- Koivisto O, Hanel A, Carlberg C. Key Vitamin D Target Genes with Functions in the Immune System.Nutrients. 2020 Apr 19;12(4):E1140. https://doi.org/10.3390/nu12041140.PMID: 32325790 Free article.

- Lee C. Controversial Effects of Vitamin D and Related Genes on Viral Infections, Pathogenesis, and Treatment Outcomes.Nutrients. 2020 Mar 30;12(4):E962. https://doi.org/10.3390/nu12040962.PMID: 32235600 Free article. Review.

- Legitimo A, Bertini V, Costagliola G, et al. Vitamin D status and the immune assessment in 22q11.2 deletion syndrome.Clin Exp Immunol. 2020 Mar 9. https://doi.org/10.1111/cei.13429. Online ahead of print. PMID:32149392

- Li YP, Wang MQ, Deng HL, et al. Association of polymorphisms in the vitamin D receptor gene with susceptibility to and severity of hand, foot, and mouth disease caused by coxsackievirus A16. J Med Virol. 2020 Mar;92(3):271-278. https://doi.org/10.1002/jmv.25603. Epub 2019 Dec 2.PMID: 31587312

- Lowry MB, Guo C, Zhang Y, et al. A

mouse model for vitamin D-induced human cathelicidin antimicrobial peptide gene expression. J Steroid Biochem Mol Biol. 2020 Apr;198:105552. https://doi.org/10.1016/j.jsbmb.2019.105552. Epub 2019 Nov 26.PMID: 31783153

- Mailhot G, White JH. Vitamin D and Immunity in Infants and Children. Nutrients. 2020 Apr 27;12(5):E1233. https://doi.org/10.3390/nu12051233.PMID: 32349265 Free article. Review.

- Martens PJ, Gysemans C, Verstuyf A, et al. Vitamin D's Effect on Immune Function. Nutrients. 2020 Apr 28;12(5):E1248. https://doi.org/10.3390/nu12051248.PMID: 32353972 Review.

- Pastuszak-Lewandoska D, Domańska-Senderowska D, Kiszałkiewicz J, et al. Expression levels of selected cytokines and microRNAs in response to vitamin Dsupplementation in ultra-marathon runners. Eur J Sport Sci. 2020 Mar;20(2):219-228. https://doi.org/10.1080/17461391.2019.1635649. Epub 2019 Jul 16.PMID: 31241425

- Rafiq R, El Haddaoui H, de Mutsert R, et al. Adiposity is a confounding factor which largely explains the association of serum vitamin D concentrations with C-reactive protein, leptin and adiponectin. 2020 Apr 20;131:155104. https://doi.org/10.1016/j.cyto.2020.155104. Online ahead of print. PMID: 32325367

- Rohmer J, Hadjadj J, Bouzerara A, et al. Serum 1,25(OH)(2) Vitamin D and 25(OH) Vitamin D Ratio for the Diagnosis of Sarcoidosis-Related Uveitis. Ocul Immunol Inflamm. 2020 Apr 2;28(3):341-347. https://doi.org/10.1080/09273948.2018.1537399. Epub 2018 Nov 5.PMID:30395752

- Shabandoust H, Sharifi I, Raiesi O, et al. Serum 25-hydroxyvitamin D level and vitamin D receptor (VDR) polymorphisms in patients infected with Leishmania tropica: a case control study. J Parasit Dis. 2020 Mar;44(1):40-48. https://doi.org/10.1007/s12639-019-01159-7. Epub 2019 Sep 26.PMID: 32174704

- Wang F, Chang HM, Yi Y, et al. TGF-β1 promotes vitamin D-induced prostaglandin E2 synthesis by upregulating vitamin D receptor expression in human granulosa-lutein cells. Am J Physiol Endocrinol Metab. 2020 May 1;318(5):E710-E722. https://doi.org/10.1152/ajpendo.00361.2019. Epub 2020 Jan 21.PMID: 31961707

- Wessels I, Rink L. Micronutrients in autoimmune diseases: possible therapeutic benefits of zinc and vitamin D. J Nutr Biochem. 2020 Mar;77:108240. https://doi.org/10.1016/j.jnutbio.2019.108240. Epub 2019 Oct 30.PMID: 31841960 Review.

- Yang H, Zhan Y, Wu H, et al. Bacillus Calmette-Guérin (BCG) stimulates changes in dendritic cell surface marker expression in vitamin D-deficient mice. J Int Med Res. 2020 Mar;48(3):300060519896892. https://doi.org/10.1177/0300060519896892. PMID: 32223658 Free PMC article.

- Zhang Y, Cai JZ, Xiao L, et al. RNA-binding protein HuR regulates translation of vitamin D receptor modulating rapid epithelial restitution after wounding. Am J Physiol Cell Physiol. 2020 May 20. https://doi.org/10.1152/ajpcell.00009.2020. Online ahead of print. PMID: 32432928

LABORATORIO

- Abo El-Magd NF, Eraky SM. The molecular mechanism underlining the preventive effect of vitamin D against hepatic and renal acute toxicity through the NrF2/BACH1/ HO-1 pathway. Life Sci. 2020 Mar 1;244:117331. https://doi.org/10.1016/j.lfs.2020.117331. Epub 2020 Jan 20.PMID: 31972209

- DeFelice BC, Pedersen TL, Shorrosh H, et al. Utilizing cooled liquid chromatography and chemical derivatization to separate and quantify C3-epimers of 25-hydroxy vitamin D and low abundant 1α,25(OH)(2)D3: Application in a pediatric population. J Steroid Biochem Mol Biol. 2020 Mar;197:105519. https://doi.org/10.1016/j.jsbmb.2019.105519. Epub 2019 Nov 10.PMID: 31715316

- Farukhi ZM, Demler OV, Caulfield MP, et al. Comparison of nonfasting and fasting lipoprotein subfractions and size in 15,397 apparently healthy individuals: An analysis from the VITamin D and OmegA-3 TriaL. J Clin Lipidol. 2020 Mar-Apr;14(2):241-251. https://doi.org/10.1016/j.jacl.2020.02.005. Epub 2020 Feb 21.PMID: 32205068

- Gordon L, Waterhouse M, Reid IR, et al. The vitamin D testing rate is again rising, despite new MBS testing criteria. Med J Aust. 2020 May 20. https://doi.org/10.5694/mja2.50619. Online ahead of print. PMID: 32432346

- 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. 2020 Apr 6. https://doi.org/10.1002/cpdd.797. Online ahead of print. PMID: 32250057

- Jayaraj JM, Reteti E, Kesavan C, et al. Structural insights on Vitamin D receptor and screening of new potent agonist molecules: Structure and ligand-based approach. J Biomol Struct Dyn. 2020 May 28:1-20. https://doi.org/10.1080/07391102.2020.1775122. Online ahead of print. PMID: 32462983

- Kumar A, Wilderman PR, Tu C, et al. Evidence of Allosteric Coupling between Substrate Binding and Adx Recognition in the Vitamin D Carbon-24 Hydroxylase CYP24A1. Biochemistry. 2020 Apr 21;59(15):1537-1548. https://doi.org/10.1021/acs.biochem.0c00107. Epub 2020 Apr 13.PMID: 32259445

- Lu M, Hollis BW, Carey VJ, et al. Determinants and Measurement of Neonatal Vitamin D: Overestimation of 25(OH) D in Cord Blood Using CLIA Assay Technology. J Clin Endocrinol Metab. 2020 Apr 1;105(4):e1085-92. https://doi.org/10.1210/clinem/dgz299.PMID: 31872219

- Makris K, Sempos C, Cavalier E. The measurement of vitamin D metabolites part II-the measurement of the various vitamin D metabolites. Hormones (Athens). 2020 Mar 27. https://doi.org/10.1007/s42000-020-00188-9. Online ahead of print. PMID: 32221839 Review.

- Manousaki D, Mitchell R, Dudding T, et al. Genome-wide Association Study for Vitamin D Levels Reveals 69 Independent Loci. Am J Hum Genet. 2020 Mar 5;106(3):327-337. https://doi.org/10.1016/j.ajhg.2020.01.017. Epub 2020 Feb 13.PMID: 32059762

- Sebestyen VanSickle J, Srivastava T, Garg U, et al. Comparing directly measured versus mathematically calculated free serum 25-hydroxy vitamin D level in children. J

Bone Miner Metab. 2020 Mar;38(2):271-274. https://doi.org/10.1007/s00774-019-01054-4. Epub 2019 Nov 1.PMID: 31676954

- Seki M, Sato M, Takiwaki M, et al. A novel caged Cookson-type reagent toward a practical vitamin D derivatization method for mass spectrometric analyses. Rapid Commun Mass Spectrom. 2020 Apr 15;34(7):e8648. https://doi.org/10.1002/rcm.8648.PMID: 31715032

- Sempos CT, Binkley N. 25-Hydroxyvitamin D assay standardisation and vitamin D guidelines paralysis. Public Health Nutr. 2020 May;23(7):1153-1164. https://doi.org/10.1017/S1368980019005251. PMID: 32301688 Free PMC article.

- Shurpik DN, Aleksandrova YI, Zelenikhin PV, et al. Towards new nanoporous biomaterials: self-assembly of sulfopillar[5]arenes with vitamin D(3) into supramolecular polymers. Org Biomol Chem. 2020 Apr 6. https://doi.org/10.1039/d0ob00411a. Online ahead of print. PMID: 32250381

- Vu AA, Bose S. Vitamin D(3) Release from Traditionally and Additively Manufactured Tricalcium Phosphate Bone Tissue Engineering Scaffolds. Ann Biomed Eng. 2020 Mar;48(3):1025-1033. https://doi.org/10.1007/s10439-019-02292-3. Epub 2019 Jun 5.PMID: 31168676

- Wanat M, Malinska M, Kutner A, et al. Relation Between Crystal Structures of Precursors and Final Products: Example of Vitamin D Intermediates. Molecules. 2020 Apr 14;25(8):E1802. https://doi.org/10.3390/molecules25081802. PMID: 32295313

- Zakaria R, Allen KJ, Koplin JJ, et al. Candidate reference method for determination of vitamin D from dried blood spot samples. Clin Chem Lab Med. 2020 Apr 28;58(5):817-827. https://doi.org/10.1515/cclm-2019-0397.PMID: 31348755

MISCELLANEA

- Aguilar Shea AL, Muñoz Moreno-Arrones O, Palacios Martínez D, et al. [Vitamin D for daily practice]. 2020 Mar 28:S1138-3593(20)30065-4. https://doi.org/10.1016/j.semerg.2020.02.008. Online ahead of print. PMID:32234285 Spanish.

- Akkaya S, Ulusoy DM. Serum Vitamin D Levels in Patients with Keratoconus. Ocul Immunol Inflamm. 2020 Apr 2;28(3):348-353. https://doi.org/10.1080/09273948.2019.1604002. Epub 2019 Apr 22.PMID: 31009587 Clinical Trial.

- Al Anouti F, Pludowski P, White JH. Highlights from the Abu Dhabi International Conference on Vitamin D Deficiency and Human Health, "Health Consequences of Vitamin D Deficiency and Treatment", United Arab Emirates, March 14-15, 2019. J Steroid Biochem Mol Biol. 2020 Mar 9;200:105653. https://doi.org/10.1016/j.jsbmb.2020.105653. Online ahead of print. PMID: 32165311

- Al Saleh Y, Beshyah SA, Hussein W, et al. Diagnosis and management of vitamin D deficiency in the Gulf Cooperative Council (GCC) countries: an expert consensus summary statement from the GCC vitamin D advisory board. Arch Osteoporos. 2020 Mar 2;15(1):35. https://doi.org/10.1007/s11657-020-0709-8.PMID: 32124080

- Askari G, Rafie N, Miraghajani M, et al. Association between vitamin D and dry eye disease: a systematic review and meta-analysis of observational studies. Cont Lens Anterior Eye. 2020 Mar 10:S1367-0484(20)30039-4. https://doi.org/10.1016/j.clae.2020.03.001. Online ahead of print. PMID: 32169320 Review.

- Assimos DG. Re: Safety of High-Dose Vitamin D Supplementation: Secondary Analysis of a Randomized Controlled Trial. J Urol. 2020 Mar 10:101097JU0000000000000997. https://doi.org/10.1097/JU.0000000000000997. Online ahead of print. PMID: 32155372

- Aye Cho TZ, Sadiq MB, Srichana P, et al. Vitamin D(3) enhanced intestinal phosphate cotransporter genes in young and growing broilers. Poult Sci. 2020 Apr;99(4):2041-2047. https://doi.org/10.1016/j.psj.2019.11.038. Epub 2020 Feb 10.PMID: 32241489

- Beriain MJ, Gómez I, Sánchez M, et al. The Reformulation of a Beef Patty Enriched with n-3 Fatty Acids and Vitamin D(3) Influences Consumers' Response under Different Information Scenarios. Foods. 2020 Apr 17;9(4):E506. https://doi.org/10.3390/foods9040506.PMID: 32316480

- Bikle D, Christakos S. New aspects of vitamin D metabolism and action - addressing the skin as source and target. Nat Rev Endocrinol. 2020 Apr;16(4):234-252. https://doi.org/10.1038/s41574-019-0312-5. Epub 2020 Feb 6.PMID: 32029884 Review.

- Billington EO, Burt LA, Rose MS, et al. Safety of High-Dose Vitamin D Supplementation: Secondary Analysis of a Randomized Controlled Trial. J Clin Endocrinol Metab. 2020 Apr 1;105(4):dgz212. https://doi.org/10.1210/clinem/dgz212.PMID: 31746327

- 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. 2020 May 31. https://doi.org/10.1002/JPER.19-0541. Online ahead of print. PMID: 32474936

- Botelho J, Machado V, Proença L, et al. Vitamin D Deficiency and Oral Health: A Comprehensive Review. Nutrients. 2020 May 19;12(5):E1471. https://doi.org/10.3390/nu12051471.PMID: 32438644 Review.

- Bouillon R. Safety of High-Dose Vitamin D Supplementation. J Clin Endocrinol Metab. 2020 Apr 1;105(4):dgz282. https://doi.org/10.1210/clinem/dgz282.PMID: 31858106

- Cashman KD. Food-based strategies for prevention of vitamin D deficiency as informed by vitamin D dietary guidelines, and consideration of minimal-risk UVB radiation exposure in future guidelines. Photochem Photobiol Sci. 2020 May 15. https://doi.org/10.1039/c9pp00462a. Online ahead of print. PMID: 32412568

- Chauhan K, Huecker MR. Vitamin D. 2020 Mar 16. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan–.PMID: 28722941 Free Books & Documents. Review.

- Chou SH, LeBoff MS, Manson JE. Is the Sun Setting on Vitamin D? Clin Chem. 2020 May 1;66(5):635-637. https://doi.org/10.1093/clinchem/hvaa074.PMID: 32268365

- Cunningham ET Jr, Sobrin L, Hall AJ, et al. Vitamin D and Ocular Inflammation. Ocul Immunol Inflamm. 2020 Apr 2;28(3):337-

340. https://doi.org/10.1080/09273948.2020.1734421.PMID: 32255412

- Dikci S, Akatlı AN, Yıldırım T. Conjunctival impression cytology and tear-film changes in cases with vitamin Ddeficiency. Int Ophthalmol. 2020 Mar 23. https://doi.org/10.1007/s10792-020-01336-1. Online ahead of print. PMID: 32207046

- Fassio A, Adami G, Rossini M, et al. Pharmacokinetics of Oral Cholecalciferol in Healthy Subjects with Vitamin D Deficiency: A Randomized Open-Label Study. Nutrients. 2020 May 27;12(6):E1553. https://doi.org/10.3390/nu12061553.PMID: 32471106

- Fatemi SA, Elliott KEC, Bello A, et al. The effects of in ovo injected vitamin D(3) sources on the eggshell temperature and early posthatch performance of Ross 708 broilers(,)(). Poult Sci. 2020 Mar;99(3):1357-1362. https://doi.org/10.1016/j.psj.2019.10.055. Epub 2019 Dec 12.PMID: 32115025

- García-Nieto V, Ontoria Betancort MC, Carballo Martin P, et al. [Vitamin D and its receptor: Reflections on the unusual tendency to create supposed diseases]. An Pediatr (Barc). 2020 Mar;92(3):167-168. https://doi.org/10.1016/j.anpedi.2019.04.016. Epub 2019 Jun 4.PMID: 31175072 Free article. Spanish.

- Gatti D, Bertoldo F, Adami G, et al. Vitamin D supplementation: much ado about nothing. Gynecol Endocrinol. 2020 Mar;36(3):185-189. https://doi.org/10.1080/09513590.2020.1731452. Epub 2020 Feb 24.PMID: 32093515

- Ghazavi H, Kargoshaie AA, Jamshidi-Koohsari M. Investigation of vitamin D levels in patients with Sudden Sensory-Neural Hearing Loss and its effect on treatment. Am J Otolaryngol. 2020 Mar-Apr;41(2):102327. https://doi.org/10.1016/j.amjoto.2019.102327. Epub 2019 Nov 12.PMID: 31735446

- Ginde AA, Talmor D; VIOLET Investigators and members of the National Heart, Lung, and Blood Institute PETAL Clinical Trials Network. High-Dose Vitamin D3 for Critically Ill Vitamin D-Deficient Patients. Reply. N Engl J Med. 2020 Apr 23;382(17):1670-1671. https://doi.org/10.1056/NEJMc2000993.PMID: 32320585

- Giustina A, Adler RA, Binkley N, et al. Consensus statement from 2(nd) International Conference on Controversies in Vitamin D. Rev Endocr Metab Disord. 2020 Mar;21(1):89-116. https://doi.org/10.1007/s11154-019-09532-w. PMID: 32180081

- Goodroe AE, Fitz C, Power ML, et al. Evaluation of vitamin D(3) metabolites in Callithrix jacchus (common marmoset). Colman RJ, Capuano S 3rd, Ziegler TE.Am J Primatol. 2020 Apr 9:e23131. https://doi.org/10.1002/ajp.23131. Online ahead of print. PMID: 32270886

- Grammatikopoulou MG, Gkiouras K, Nigdelis MP, et al. Efficacy of Vitamin D(3) Buccal Spray Supplementation Compared to Other Delivery Methods: A Systematic Review of Superiority Randomized Controlled Trials. Nutrients. 2020 Mar 4;12(3):691. https://doi.org/10.3390/nu12030691.PMID: 32143526

- Grant WB, Al Anouti F, Moukayed M. Targeted 25-hydroxyvitamin D concentration measurements and vitamin D(3) supplementation can have important patient and public health benefits.Eur J Clin Nutr. 2020 Mar;74(3):366-376. https://doi.org/10.1038/s41430-020-0564-0. Epub 2020 Jan 29.PMID:31996793 Review.

- Grant WB, Boucher BJ. Health Outcomes With Vitamin D Supplementation. JAMA. 2020 Apr 28;323(16):1618-1619. https://doi.org/10.1001/jama.2020.2642.PMID: 32343324

- Grant WB, Boucher BJ. Yes, vitamin D can be a magic bullet. Clin Nutr. 2020 May;39(5):1627. https://doi.org/10.1016/j.clnu.2020.03.021. Epub 2020 Mar 31.PMID: 32280007

- Grant WB. The Latest Evidence from Vitamin D Intervention Trials for Non-skeletal Outcomes. Calcif Tissue Int. 2020 May;106(5):574-575. https://doi.org/10.1007/s00223-020-00667-6. Epub 2020 Feb 7.PMID: 32034453

- Grønborg IM, Tetens I, Christensen T, et al. Vitamin D-fortified foods improve wintertime vitamin D status in women of Danish and Pakistani origin living in Denmark: a randomized controlled trial. Eur J Nutr. 2020 Mar;59(2):741-753. https://doi.org/10.1007/s00394-019-01941-6. Epub 2019 Mar 9.PMID: 30852657

- Hanel A, Carlberg C. Vitamin D and evolution: Pharmacologic implications. Biochem Pharmacol. 2020 Mar;173:113595. https://doi.org/10.1016/j.bcp.2019.07.024. Epub 2019 Aug 1.PMID:31377232 Review.

- Haq A, Hasnain SE, Razzaque MS. Diverse functions of vitamin D in health and disease. J Steroid Biochem Mol Biol. 2020 Apr 4;200:105668. https://doi.org/10.1016/j.jsbmb.2020.105668. Online ahead of print. PMID: 32259571

- Hu D, Chen W, Li X, et al. Ultraviolet Irradiation Increased the Concentration of Vitamin D(2) and Decreased the Concentration of Ergosterol in Shiitake Mushroom (Lentinus edodes) and Oyster Mushroom (Pleurotus ostreatus) Powder in Ethanol Suspension. ACS Omega. 2020 Mar 23;5(13):7361-7368. https://doi.org/10.1021/acsomega.9b04321. eCollection 2020 Apr 7.PMID: 32280877

- Isola G, Alibrandi A, Rapisarda E, et al. Association of vitamin D in patients with periodontitis: A cross-sectional study. J Periodontal Res. 2020 Mar 16. https://doi.org/10.1111/jre.12746. Online ahead of print. PMID: 32173876

- Joh HK, Hwang SS, Cho B, et al. Effect of sun exposure versus oral vitamin D supplementation on serum 25-hydroxyvitamin D concentrations in young adults: A randomized clinical trial. Clin Nutr. 2020 Mar;39(3):727-736. https://doi.org/10.1016/j.clnu.2019.03.021. Epub 2019 Mar 21.PMID: 30987813

- Kidy F, Shehata M, Stanbrook R, et al. Potential excess spend in primary care due to NHS drug tariff variability in vitamin D preparations. JRSM Open. 2020 Mar 6;11(3):2054270419894850. https://doi.org/10.1177/2054270419894850. eCollection 2020 Mar.PMID: 32215212 Free PMC article.

- Kiourtzidis M, Kühn J, Brandsch C, et al. Markers Indicating Body Vitamin D Stores and Responses of Liver and Adipose Tissues to Changes in Vitamin D Intake in Male Mice. Nutrients. 2020 May 13;12(5):E1391. https://doi.org/10.3390/nu12051391. PMID: 32413956

- Knechtle B, Nikolaidis PT. Vitamin D and Sport Performance. Nutrients. 2020 Mar 21;12(3):841. https://

doi.org/10.3390/nu12030841. PMID:32245151 Free PMC article.

- Kocaturk T, Bekmez S, Unubol M. Effects of vitamin D deficiency on intraocular pressure values obtained by ocular response analyzer. Int Ophthalmol. 2020 Mar;40(3):697-701. https://doi.org/10.1007/s10792-019-01230-5. Epub 2019 Nov 23.PMID: 31758509

- Kolls JK, Ray A, Wenzel S. High-Dose Vitamin D3 for Critically Ill Vitamin D-Deficient Patients. N Engl J Med. 2020 Apr 23;382(17):1669-1670. https://doi.org/10.1056/NEJMc2000993.PMID: 32320583

- Le Moigno JM, Annweiler G, Karras SN, et al. Clinical identification of older adults with hypovitaminosis D: Feasibility, acceptability and accuracy of the 'Vitamin D Status Diagnosticator' in primary care. J Steroid Biochem Mol Biol. 2020 Mar;197:105523. https://doi.org/10.1016/j.jsbmb.2019.105523. Epub 2019 Nov 2.PMID: 31689505

- Lee YM, Kim SA, Lee DH. Can Current Recommendations on Sun Exposure Sufficiently Increase Serum Vitamin D Level?: One-Month Randomized Clinical Trial.J Korean Med Sci. 2020 Mar 2;35(8):e50. https://doi.org/10.3346/jkms.2020.35.e50. PMID: 32103645

- Ljubic A, Jacobsen C, Holdt SL, et al. Microalgae Nannochloropsis oceanica as a future new natural source of vitaminD(3). Food Chem. 2020 Aug 1;320:126627. https://doi.org/10.1016/j.foodchem.2020.126627. Epub 2020 Mar 19.PMID: 32213421

- López García-Franco A, Fraile Navarro D, Cardona Corrochano E. [Athor's reply: Vitamin D: The new suit of the Sun King]. Aten Primaria. 2020 May;52(5):363-364. https://doi.org/10.1016/j.aprim.2019.07.006. Epub 2019 Oct 31.PMID: 31677856 Free PMC article. Spanish.

- López-Baena MT, Pérez-Roncero GR, Pérez-López FR, et al. Vitamin D, menopause, and aging: quo vadis? Climacteric. 2020 Apr;23(2):123-129. https://doi.org/10.1080/13697137.2019.1682543. Epub 2019 Nov 18.PMID:31736391

- Lucas A, Wolf M. Health Outcomes With Vitamin D Supplementation-Reply. JAMA. 2020 Apr 28;323(16):1619. https://doi.org/10.1001/jama.2020.2645. PMID: 32343326

- Malihi Z, Wu Z, Lawes C, et al. Risk factors for reporting adverse events and for study withdrawal in a population-based trial of vitamin D supplementation. J Steroid Biochem Mol Biol. 2020 Mar;197:105546. https://doi.org/10.1016/j.jsbmb.2019.105546. Epub 2019 Nov 18.PMID: 31751782

- Mandlik R, Mughal Z, Khadilkar A, et al. Occurrence of infections in schoolchildren subsequent to supplementation with vitamin D-calcium or zinc: a randomized, double-blind, placebo-controlled trial. Nutr Res Pract. 2020 Apr;14(2):117-126. https://doi.org/10.4162/nrp.2020.14.2.117. Epub 2019 Oct 4.PMID: 32256986

- Manson JE, Bassuk SS, Buring JE, et al. Principal results of the VITamin D and OmegA-3 TriaL (VITAL) and updated meta-analyses of relevant vitamin D trials. J Steroid Biochem Mol Biol. 2020 Apr;198:105522. https://doi.org/10.1016/j.jsbmb.2019.105522. Epub 2019 Nov 13.PMID:31733345 Review.

- Maretzke F, Bechthold A, Egert S, et al. Role of Vitamin D in Preventing and Treating Selected Extraskeletal Diseases-An Umbrella Review. Nutrients. 2020 Mar 31;12(4):E969. https://doi.org/10.3390/nu12040969.PMID: 32244496 Free article. Review.

- Marley A, Grant MC, Babraj J. Weekly Vitamin D(3) supplementation improves aerobic performance in combat sport athletes. Eur J Sport Sci. 2020 Mar 31:1-9. https://doi.org/10.1080/17461391.2020.1744736. Online ahead of print. PMID: 32188366

- McCourt A, McNulty BA, Walton J, et al. Corrigendum to 'Efficacy and safety of food fortification to improve Vitamin D intakes of older adults' [Nutrition 75-76 (2020)]. Nutrition. 2020 May 18:110837. https://doi.org/10.1016/j.nut.2020.110837. Online ahead of print. PMID: 32434686

- Mehmood T, Ahmed A. Tween 80 and Soya-Lecithin-Based Food-Grade Nanoemulsions for the Effective Delivery of Vitamin D. Langmuir. 2020 Mar 24;36(11):2886-2892. https://doi.org/10.1021/acs.langmuir.9b03944. Epub 2020 Mar 12.PMID: 32118445

- Mendes MM, Charlton K, Thakur S, et al. Future perspectives in addressing the global issue of vitamin D deficiency. Proc Nutr Soc. 2020 May;79(2):246-251. https://doi.org/10.1017/S0029665119001538. PMID: 32090719

- Meng F, Bertucci C, Gao Y, et al. Fibroblast growth factor 23 counters vitamin D metabolism and action in human mesenchymal stem cells. J Steroid Biochem Mol Biol. 2020 May;199:105587. https://doi.org/10.1016/j.jsbmb.2020.105587. Epub 2020 Jan 28.PMID: 32004706

- Minisola S, Colangelo L, Pepe J, et al. Vitamin D screening. J Endocrinol Invest. 2020 Mar 18. https://doi.org/10.1007/s40618-020-01220-w. Online ahead of print. PMID:32189163 Review.

- Mocayar Marón FJ, Ferder L, Reiter RJ, et al. Daily and seasonal mitochondrial protection: Unraveling common possible mechanisms involving vitamin D and melatonin. J Steroid Biochem Mol Biol. 2020 May;199:105595. https://doi.org/10.1016/j.jsbmb.2020.105595. Epub 2020 Jan 16.PMID: 31954766 Review.

- Nishikawa M, Yasuda K, Takamatsu M, et al. Generation of novel genetically modified rats to reveal the molecular mechanisms of vitamin D actions. Sci Rep. 2020 Mar 30;10(1):5677. https://doi.org/10.1038/s41598-020-62048-1. PMID: 32231239

- Oliveri A, Glazer L, Mahapatra D, et al. Developmental exposure of zebrafish to vitamin D receptor acting drugs and environmental toxicants disrupts behavioral function. Neurotoxicol Teratol. 2020 May 27:106902. https://doi.org/10.1016/j.ntt.2020.106902. Online ahead of print. PMID: 32473203

- Omara II, Mou CT, Persia ME, et al. Effects of available phosphorus source and concentration on performance and expression of sodium phosphate type IIb cotransporter, vitamin D-1α-hydroxylase, and vitamin D-24-hydroxylase mRNA in broiler chicks. Poult Sci. 2020 Apr;99(4):1822-1831. https://doi.org/10.1016/j.psj.2019.12.035. Epub 2020 Feb 28.PMID: 32241462

- Preiser JC, Christopher K. High-Dose Vitamin D3 for Critically Ill Vitamin D-Deficient Patients. N Engl J Med. 2020

Apr 23;382(17):1670. https://doi.org/10.1056/NEJMc2000993.PMID: 32320584

- Reijven PLM, Soeters PB. Reply to Letter to Editor: Yes, vitamin D can be a magic bullet. Clin Nutr. 2020 May;39(5):1626. https://doi.org/10.1016/j.clnu.2020.03.023. Epub 2020 Apr 1.PMID: 32278592

- Reijven PLM, Soeters PB. Reply to Letter to Editor: Yes, vitamin D can be a magic bullet. Clin Nutr. 2020 May;39(5):1626. https://doi.org/10.1016/j.clnu.2020.03.023. Epub 2020 Apr 1.PMID: 32278592

- Roizen JD, Levine MA. Vitamin D Therapy and the Era of Precision Medicine. J Clin Endocrinol Metab. 2020 Mar 1;105(3):e891-3. https://doi.org/10.1210/clinem/dgz120.PMID: 31665328

- Rozario NL, Sparling A, Burns R, et al. Modifying Provider Vitamin D Screening Behavior in Primary Care. J Am Board Fam Med. 2020 Mar-Apr;33(2):252-261. https://doi.org/10.3122/jabfm.2020.02.190323.PMID: 32179608

- Rullo J, Pennimpede T, Mehraban Far P, et al. Intraocular calcidiol: Uncovering a role for vitamin D in the eye. J Steroid Biochem Mol Biol. 2020 Mar;197:105536. https://doi.org/10.1016/j.jsbmb.2019.105536. Epub 2019 Nov 14.PMID: 31734492

- Scragg R. The Vitamin D Assessment (ViDA) study - Design and main findings. J Steroid Biochem Mol Biol. 2020 Apr;198:105562. https://doi.org/10.1016/j.jsbmb.2019.105562. Epub 2019 Dec 3.PMID:31809866 Review.

- Serefoglu Cabuk K, Tunc U, Ozturk Karabulut G, et al. Serum calcium, magnesium, phosphorus, and vitamin D in benign essential blepharospasm. Graefes Arch Clin Exp Ophthalmol. 2020 Mar 31. https://doi.org/10.1007/s00417-020-04650-7. Online ahead of print. PMID:

- Torrungruang K, Chantarangsu S, Sura T, et al. Interplay between vitamin D receptor FokI polymorphism and smoking influences Porphyromonas gingivalis proportions in subgingival plaque. J Clin Periodontol. 2020 May 16. https://doi.org/10.1111/jcpe.13307. Online ahead of print. PMID: 32418218

- Vatanparast H, Patil RP, Islam N, et al. Vitamin D Intake from Supplemental Sources but Not from Food Sources Has Increased in the Canadian Population Over Time. J Nutr. 2020 Mar 1;150(3):526-535. https://doi.org/10.1093/jn/nxz291.PMID: 31825071

- Vaughan CP, Markland AD, Huang AJ, Vitamin D Intake and Progression of Urinary Incontinence in Women. Tangpricha V, Grodstein F.Urology. 2020 May 7:S0090-4295(20)30515-X. https://doi.org/10.1016/j.urology.2020.04.090. Online ahead of print. PMID: 32387293

- Veleva BI, Caljouw MAA, van der Steen JT, et al. The Effect of Ultraviolet B Irradiation Compared with Oral Vitamin DSupplementation on the Well-being of Nursing Home Residents with Dementia: A Randomized Controlled Trial. Int J Environ Res Public Health. 2020 Mar 5;17(5):1684. https://doi.org/10.3390/ijerph17051684. PMID: 32150855

- Vitamin D. 2020 Apr 20. Drugs and Lactation Database (LactMed) [Internet]. Bethesda (MD): National Library of Medicine (US); 2006–.PMID: 29999973 Free Books & Documents. Review.

- Xu Z, Meenu M, Xu B. Effects of UV-C treatment and ultrafine-grinding on the biotransformation of ergosterol to vitamin D(2), physiochemical properties, and antioxidant properties of shiitake and Jew's ear. Food Chem. 2020 Mar 30;309:125738. https://doi.org/10.1016/j.foodchem.2019.125738. Epub 2019 Oct 21.PMID: 31706679

- Zaidan J, Wang X. High-Dose Vitamin D3 for Critically Ill Vitamin D-Deficient Patients. N Engl J Med. 2020 Apr 23;382(17):1669. https://doi.org/10.1056/NEJMc2000993.PMID: 32320582

- Zhenqiang W, Camargo CA Jr, Reid IR, et al. What factors modify the effect of monthly bolus dose vitamin Dsupplementation on 25-hydroxyvitamin D concentrations? J Steroid Biochem Mol Biol. 2020 Apr 29:105687. https://doi.org/10.1016/j.jsbmb.2020.105687. Online ahead of print. PMID: 32360596

NEUROLOGIA

- Ali P, Labriffe M, Navasiolava N, et al. Vitamin D concentration and focal brain atrophy in older adults: a voxel-based morphometric study. Ann Clin Transl Neurol. 2020 Apr;7(4):554-558. https://doi.org/10.1002/acn3.50997. Epub 2020 Mar 9.PMID: 32150789

- Amini R, Karampoor S, Zahednasab H, et al. Serum levels of matrix metalloproteinase-2, -9, and vitamin D in patients with multiple sclerosis with or without herpesvirus-6 seropositivity. Braz J Infect Dis. 2020 Mar 31:S1413-8670(20)30020-9. https://doi.org/10.1016/j.bjid.2020.02.001. Online ahead of print. PMID: 32243867

- Atkinson SA, Fleet JC. Canadian recommendations for vitamin D intake for persons affected by multiple sclerosis. J Steroid Biochem Mol Biol. 2020 May;199:105606. https://doi.org/10.1016/j.jsbmb.2020.105606. Epub 2020 Jan 22.PMID: 31981800

- Atkinson SA. Recommendations on vitamin D needs in multiple sclerosis from the MS Society of Canada. Public Health Nutr. 2020 May;23(7):1278-1279. https://doi.org/10.1017/S1368980019005172. Epub 2020 Mar 5.PMID: 32131923

- Castle M, Fiedler N, Pop LC, et al. Three Doses of Vitamin D and Cognitive Outcomes in Older Women: A Double-Blind Randomized Controlled Trial. J Gerontol A Biol Sci Med Sci. 2020 Apr 17;75(5):835-842. https://doi.org/10.1093/gerona/glz041.PMID: 30951148

- Clark K, Goldstein RL, Hart JE, et al. Correction: Plasma vitamin D, past chest illness, and risk of future chest illness in chronic spinal cord injury (SCI): a longitudinal observational study. Spinal Cord. 2020 Apr;58(4):513. https://doi.org/10.1038/s41393-020-0437-3. PMID: 32055043

- Clark K, Goldstein RL, Hart JE, et al. Plasma vitamin D, past chest illness, and risk of future chest illness in chronic spinal cord injury (SCI): a longitudinal observational study. Spinal Cord. 2020 Apr;58(4):504-512. https://doi.org/10.1038/s41393-019-0409-7. Epub 2020 Jan 16.PMID: 31949283

- da Silva Teixeira S, Harrison K, Uzodike M, et al. Vitamin D actions in neurons require the PI3K pathway for both enhancing insulin signaling and rapid depolarizing effects. Steroid Biochem Mol Biol. 2020 May 11;200:105690. https://doi.

org/10.1016/j.jsbmb.2020.105690. Online ahead of print. PMID: 32408067

- 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 Apr 4. https://doi.org/10.1007/s40520-020-01531-1. Online ahead of print. PMID: 32248358

- Fan P, Qi X, Sweet RA, et al. Network Systems Pharmacology-Based Mechanism Study on the Beneficial Effects of Vitamin D against Psychosis in Alzheimer's Disease. Sci Rep. 2020 Apr 9;10(1):6136. https://doi.org/10.1038/s41598-020-63021-8.PMID: 32273551

- Feige J, Moser T, Bieler L, et al. Vitamin D Supplementation in Multiple Sclerosis: A Critical Analysis of Potentials and Threats. Nutrients. 2020 Mar 16;12(3):783. https://doi.org/10.3390/nu12030783.PMID: 32188044 Free PMC article. Review.

- Flemming KD, Kumar S, Brown RD Jr, et al. Cavernous Malformation Hemorrhagic Presentation at Diagnosis Associated with Low 25-Hydroxy-Vitamin D Level. Cerebrovasc Dis. 2020 Apr 29:1-7. https://doi.org/10.1159/000507789. Online ahead of print. PMID: 32348981

- Gorska-Ciebiada M, Ciebiada M. Association of hsCRP and vitamin D levels with mild cognitive impairment in elderly type 2 diabetic patients. Exp Gerontol. 2020 Jul 1;135:110926. https://doi.org/10.1016/j.exger.2020.110926. Epub 2020 Mar 17.PMID: 32194146 Free article.

- Iacopetta K, Collins-Praino LE, Buisman-Pijlman FTA, et al. Are the protective benefits of vitamin D in neurodegenerative disease dependent on route of administration? A systematic review. Nutr Neurosci. 2020 Apr;23(4):251-280. https://doi.org/10.1080/1028415X.2018.1493807. Epub 2018 Jul 9.PMID: 29985117

- Intiso D, Fontana A, Copetti M, et al. Vitamin D serum level in subjects with critical illness polyneuropathy and myopathy. J Musculoskelet Neuronal Interact. 2020 Mar 3;20(1):18-26.PMID: 32131367

- Jacobs BM, Noyce AJ, Giovannoni G, et al. BMI and low vitamin D are causal factors for multiple sclerosis: A Mendelian Randomization study. Neurol Neuroimmunol Neuroinflamm. 2020 Jan 14;7(2):e662. https://doi.org/10.1212/NXI.0000000000000662. Print 2020 Mar.PMID: 31937597

- Jasper EA, Nidey NL, Schweizer ML, et al. Gestational vitamin D and offspring risk of multiple sclerosis: a systematic review and meta-analysis. Ann Epidemiol. 2020 Mar;43:11-17. https://doi.org/10.1016/j.annepidem.2019.12.010. Epub 2020 Jan 3.PMID: 32014337 Review.

- Jésus P, Godet B, Darthou-Pouchard L, et al. Vitamin D status among patients with drug-resistant and non-drug-resistant epilepsy. Int J Vitam Nutr Res. 2020 Mar 13:1-5. https://doi.org/10.1024/0300-9831/a000459. Online ahead of print. PMID: 32167416

- Junges C, Machado TD, Nunes Filho PRS, et al. Vitamin D deficiency in pediatric patients using antiepileptic drugs: systematic review with meta-analysis. J Pediatr (Rio J). 2020 Mar 12:S0021-7557(19)30248-7. https://doi.org/10.1016/j.jped.2020.01.004. Online ahead of print. PMID: 32171475 Free article. Review.

- Kim HA, Perrelli A, Ragni A, et al. Vitamin D Deficiency and the Risk of Cerebrovascular Disease. Antioxidants (Basel). 2020 Apr 17;9(4):E327. https://doi.org/10.3390/antiox9040327.PMID: 32316584 Free article. Review.

- Liampas I, Siokas V, Brotis A, et al. Vitamin D serum levels in patients with migraine: A meta-analysis. Rev Neurol (Paris). 2020 Mar 30:S0035-3787(20)30464-1. https://doi.org/10.1016/j.neurol.2019.12.008. Online ahead of print. PMID: 32241571 Review.

- Liu HL, Chuang HY, Hsu CN, et al. Effects of Vitamin D Receptor, Metallothionein 1A, and 2A Gene Polymorphisms on Toxicity of the Peripheral Nervous System in Chronically Lead-Exposed Workers. Int J Environ Res Public Health. 2020 Apr 23;17(8):E2909. https://doi.org/10.3390/ijerph17082909.PMID: 32340109

- Martínez-Lapiscina EH, Mahatanan R, Lee CH, et al. Associations of serum 25(OH) vitamin D levels with clinical and radiological outcomes in multiple sclerosis, a systematic review and meta-analysis. J Neurol Sci. 2020 Apr 15;411:116668. https://doi.org/10.1016/j.jns.2020.116668. Epub 2020 Jan 25.PMID: 32004798

- McGinn EA, Powers A, Galas M, et al. Neonatal Vitamin D Status Is Associated with the Severity of Brain Injury in Neonatal Hypoxic-Ischemic Encephalopathy: A Pilot Study. Neuropediatrics. 2020 Mar 16. https://doi.org/10.1055/s-0040-1708535. Online ahead of print. PMID: 32176928

- Menninga N, Koukounas Y, Margolis A, et al. Effects of enzyme-inducing antiseizure medication on vitamin D dosing in adult veterans with epilepsy. Epilepsy Res. 2020 Mar;161:106287. https://doi.org/10.1016/j.eplepsyres.2020.106287. Epub 2020 Feb 5.PMID: 32088519

- Miclea A, Bagnoud M, Chan A, et al. A Brief Review of the Effects of Vitamin D on Multiple Sclerosis. Front Immunol. 2020 May 6;11:781. https://doi.org/10.3389/fimmu.2020.00781. eCollection 2020.PMID: 32435244 Free PMC article. Review.

- Mokhtari-Zaer A, Hosseini M, Salmani H, et al. Vitamin D(3) attenuates lipopolysaccharide-induced cognitive impairment in rats by inhibiting inflammation and oxidative stress. Life Sci. 2020 Apr 22;253:117703. https://doi.org/10.1016/j.lfs.2020.117703. Online ahead of print. PMID: 32334010

- Morello M, Pieri M, Zenobi R, et al. The Influence of Vitamin D on Neurodegeneration and Neurological Disorders: A Rationale for its Physio-pathological Actions. Curr Pharm Des. 2020 Mar 16. https://doi.org/10.2174/1381612826666200316145725. Online ahead of print. PMID: 32175837

- Nejm MB, Guimarães-Marques MJ, Oliveira LF, et al. Assessment of vitamin D and inflammatory markers profile in cardiac tissue on Parkinson disease animal model. Pharmacol Rep. 2020 Apr;72(2):296-304. https://doi.org/10.1007/s43440-020-00074-6. Epub 2020 Mar 2.PMID: 32124387

- 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. 2020 May 9. https://doi.org/10.1007/s00394-020-02267-4. Online ahead of print. PMID: 32388734

- Ribeiro MC, Moore SM, Kishi N, et al. Vitamin D Supplementation Rescues Aberrant NF-κB Pathway Activation and Partially Ameliorates Rett Syndrome Phenotypes in Mecp2 Mutant Mice. eNeuro. 2020 May 22;7(3):ENEURO.0167-20.2020. https://doi.org/10.1523/ENEURO.0167-20.2020. Print 2020 May/Jun. PMID: 32393583

- Saad El-Din S, Rashed L, Medhat E, et al. Active form of vitamin D analogue mitigates neurodegenerative changes in Alzheimer's disease in rats by targeting Keap1/Nrf2 and MAPK-38p/ERK signaling pathways. Steroids. 2020 Apr;156:108586. https://doi.org/10.1016/j.steroids.2020.108586. Epub 2020 Jan 23.PMID: 31982424

- Saçmaci H, Tanik N, Balbaloğlu Ö, et al. Electrophysiological evaluation of carpal tunnel syndrome female patients after vitamin D replacement. Arq Neuropsiquiatr. 2020 Apr 9:S0004-282X2020005008201. https://doi.org/10.1590/0004-282X20190193. Online ahead of print. PMID: 32294751

- Seo JG, Park SP. Vitamin D Deficiency and Its Correlates in Migraine Patients. Ann Indian Acad Neurol. 2020 Mar-Apr;23(2):233-235. https://doi.org/10.4103/aian.AIAN_229_19. Epub 2020 Feb 25.PMID: 32189870 Free PMC article.

- Sharma S, Kumar A, Choudhary A, et al. Neuroprotective Role of Oral Vitamin D Supplementation on Consciousness and Inflammatory Biomarkers in Determining Severity Outcome in Acute Traumatic Brain Injury Patients: A Double-Blind Randomized Clinical Trial. Clin Drug Investig. 2020 Apr;40(4):327-334. https://doi.org/10.1007/s40261-020-00896-5. PMID: 32172522

- Si Y, Kazamel M, Kwon Y, et al. The vitamin D activator CYP27B1 is upregulated in muscle fibers in denervating disease and can track progression in amyotrophic lateral sclerosis. J Steroid Biochem Mol Biol. 2020 Mar 3;200:105650. https://doi.org/10.1016/j.jsbmb.2020.105650. Online ahead of print. PMID: 32142934

- Specht IO, Thorsteinsdottir F, Walker KC, et al. Neonatal vitamin D status and risk of childhood epilepsy. Epilepsia. 2020 May 4. https://doi.org/10.1111/epi.16520. Online ahead of print. PMID: 32363640

- Talebi A, Amirabadizadeh A, Nakhaee S, et al. Cerebrovascular disease: how serum phosphorus, vitamin D, and uric acid levels contribute to the ischemic stroke. BMC Neurol. 2020 Mar 31;20(1):116. https://doi.org/10.1186/s12883-020-01686-4.PMID: 32234035

- Wasnik S, Sharma I, Baylink DJ, et al. Vitamin D as a Potential Therapy for Multiple Sclerosis: Where Are We? Int J Mol Sci. 2020 Apr 28;21(9):E3102. https://doi.org/10.3390/ijms21093102.PMID: 32354174 Review.

- Wu Z, Wu J, Lan Z. Comment on: Plasma vitamin D, past chest illness, and risk of future chest illness in chronic spinal cord injury (SCI): a longitudinal observational study. Spinal Cord. 2020 Mar 24. https://doi.org/10.1038/s41393-020-0452-4. Online ahead of print. PMID: 32210354

- Yan P, Zhang Z, Miao Y, et al. Changes of circulating neuregulin 4 and its relationship with 25-hydroxy vitamin D and other diabetic vascular complications in patients with diabetic peripheral neuropathy. Diabetol Metab Syndr. 2020 May 19;12:42. https://doi.org/10.1186/s13098-020-00550-2. eCollection 2020.PMID: 32477429

- Yorulmaz IS, Demiraran Y, Özlü O, et al. The effect of vitamin d status on different neuromuscular blocker agents reverse time.Dost B.Turk J Med Sci. 2020 Mar 10. https://doi.org/10.3906/sag-1901-115. Online ahead of print. PMID: 32151115

- Zou R, El Marroun H, McGrath JJ, et al. A prospective population-based study of gestational vitamin D status and brain morphology in preadolescents. Neuroimage. 2020 Apr 1;209:116514. https://doi.org/10.1016/j.neuroimage.2020.116514. Epub 2020 Jan 2.PMID: 31904491 Free article.

- Cortese M, Munger KL, Martínez-Lapiscina EH, et al. Vitamin D, smoking, EBV, and long-term cognitive performance in MS: 11-year follow-up of BENEFIT. Neurology. 2020 Apr 16:10.1212/WNL.0000000000009371. https://doi.org/10.1212/WNL.0000000000009371. Online ahead of print. PMID: 32300060

- Retraction: High prevalence of vitamin D deficiency and reduced bone mass in Parkinson's disease. Neurology. 2020 Mar 30:10.1212/WNL.0000000000009358. https://doi.org/10.1212/WNL.0000000000009358. Online ahead of print. PMID: 32229622

- Wu Y, Cai Y, Liu M, et al. The Potential Immunoregulatory Roles of Vitamin D in Neuromyelitis Optica Spectrum Disorder. Mult Scler Relat Disord. 2020 May 16;43:102156. https://doi.org/10.1016/j.msard.2020.102156. Online ahead of print. PMID: 32474282 Review.

NEFROLOGIA

- Arfian N, Budiharjo S, Wibisono DP, et al. Vitamin D Ameliorates Kidney Ischemia Reperfusion Injury via Reduction of Inflammation and Myofibroblast Expansion. Kobe J Med Sci. 2020 Mar 9;65(4):E138-E143. PMID: 32201429

- Assimos DG. Re: Vitamin D and Calcium Supplementation Accelerates Randall's Plaque Formation in a Murine Model. J Urol. 2020 Mar;203(3):458-459. https://doi.org/10.1097/JU.0000000000000674.02. Epub 2019 Dec 10.PMID: 31821087

- Banerjee S, Basu S, Akhtar S, et al. Free vitamin D levels in steroid-sensitive nephrotic syndrome and healthy controls. Pediatr Nephrol. 2020 Mar;35(3):447-454. https://doi.org/10.1007/s00467-019-04433-1. Epub 2019 Dec 16.PMID: 31845055

- Brogan M, Astor BC, Melamed ML. Vitamin D in chronic kidney disease: is there a role outside of PTH control? Curr Opin Nephrol Hypertens. 2020 Mar;29(2):243-247. https://doi.org/10.1097/MNH.0000000000000591.PMID: 31996592

- Chen G, Hu C, Song Y, et al. Relationship Between the ApaI (rs7975232), BsmI (rs1544410), FokI (rs2228570), and TaqI (rs731236) Variants in the Vitamin D Receptor Gene and Urolithiasis Susceptibility:

An Updated Meta-Analysis and Trial Sequential Analysis. Front Genet. 2020 Apr 15;11:234. https://doi.org/10.3389/fgene.2020.00234. eCollection 2020. PMID: 32346382

- de Boer IH, Zelnick LR, Manson JE. Kidney Function in Patients With Type 2 Diabetes After Vitamin DSupplementation-Reply. JAMA. 2020 Apr 14;323(14):1411-1412. https://doi.org/10.1001/jama.2020.1400.PMID: 32286641

- Gembillo G, Cernaro V, Siligato R, et al. Protective Role of Vitamin D in Renal Tubulopathies. Metabolites. 2020 Mar 19;10(3):115. https://doi.org/10.3390/metabo10030115.PMID: 32204545 Free PMC article. Review.

- Geng X, Shi E, Wang S, et al. A comparative analysis of the efficacy and safety of paricalcitol versus other vitamin D receptor activators in patients undergoing hemodialysis: A systematic review and meta-analysis of 15 randomized controlled trials. PLoS One. 2020 May 29;15(5):e0233705. https://doi.org/10.1371/journal.pone.0233705. eCollection 2020.PMID: 32470067

- Ginsberg C, Zelnick LR, Block GA, et al. Differential effects of phosphate binders on vitamin D metabolism in chronic kidney disease. Nephrol Dial Transplant. 2020 Apr 1;35(4):616-623. https://doi.org/10.1093/ndt/gfaa010.PMID: 32160298

- Honore PM, Mugisha A, Kugener L, et al. Who may benefit most from future vitamin D intervention trials: do not forget patients on continuous renal replacement therapy. Crit Care. 2020 Apr 28;24(1):180. https://doi.org/10.1186/s13054-020-02910-w.PMID: 32345332

- Hsu HJ, Wu IW, Hsu KH, et al. Vitamin D deficiency, cardiothoracic ratio, and long-term mortality in hemodialysis patients. Sci Rep. 2020 May 5;10(1):7533. https://doi.org/10.1038/s41598-020-64359-9.PMID: 32371900

- Hu MC, Scanni R, Ye J, et al. Dietary vitamin D interacts with high phosphate-induced cardiac remodeling in rats with normal renal function. Nephrol Dial Transplant. 2020 Mar 1;35(3):411-421. https://doi.org/10.1093/ndt/gfz156.PMID: 31504790

- Kang SH, Do JY, Cho JH, et al. Association between Vitamin D Level and Muscle Strength in Patients Undergoing Hemodialysis. Kidney Blood Press Res. 2020 Apr 8:1-12. https://doi.org/10.1159/000506986. Online ahead of print. PMID: 32268325

- Khodir SA, Samaka RM, Ameen O. Autophagy and mTOR Pathways Mediate the Potential Renoprotective Effects of Vitamin D on Diabetic Nephropathy. Int J Nephrol. 2020 May 13;2020:7941861. https://doi.org/10.1155/2020/7941861. eCollection 2020.PMID: 32455017 Free PMC article.

- Kikuyama T, Susa T, Tamamori-Adachi M, et al. 25(OH)D3 stimulates the expression of vitamin D target genes in renal tubular cells when Cyp27b1 is abrogated. J Steroid Biochem Mol Biol. 2020 May;199:105593. https://doi.org/10.1016/j.jsbmb.2020.105593. Epub 2020 Jan 13.PMID: 31945466

- Kim J, Nam JS, Kim H, et al. No effect of vitamin D supplementation on metabolic parameters but on lipids in patients with type 2 diabetes and chronic kidney disease. Int J Vitam Nutr Res. 2020 Mar 9:1-10. https://doi.org/10.1024/0300-9831/a000642. Online ahead of print. PMID: 32149579

- Lim K, Thadhani R. Vitamin D Toxicity. J Bras Nefrol. 2020 Apr 3:S0101-28002020005009203. https://doi.org/10.1590/2175-8239-JBN-2019-0192. Online ahead of print. PMID:32255467 Free article. English, Portuguese.

- Maraj M, Hetwer P, Dumnicka P, et al. Acute Phase Proteins and Vitamin D Seasonal Variation in End-Stage Renal Disease Patients. J Clin Med. 2020 Mar 16;9(3):807. https://doi.org/10.3390/jcm9030807.PMID: 32188088

- Matsumoto AK, Maes M, Michelin AP, et al. Vitamin D deficiency is not associated with increased oxidative stress in chronic kidney disease pre-dialysis patients. J Bras Nefrol. 2020 May 11:S0101-28002020005014202. https://doi.org/10.1590/2175-8239-JBN-2019-0156. Online ahead of print. PMID: 32406474 English, Portuguese.

- Mehrotra S, Sharma RK, Mayya M. Vitamin D Receptor Activity, Vitamin D Status, and Development of De-novo Donor-specific Antibody after Renal Transplantation. Indian J Nephrol. 2020 Mar-Apr;30(2):72-76. https://doi.org/10.4103/ijn.IJN_353_18. Epub 2020 Feb 7.PMID: 32269429

- Memon S, Alam A, Iftikhar S. The frequency of vitamin D deficiency in chronic kidney disease and its relation with baseline mineral bone markers. J Pak Med Assoc. 2020 Mar;70(3):432-436. https://doi.org/10.5455/JPMA.302411.PMID: 32207420 Free article.

- Peiris AN. Kidney Function in Patients With Type 2 Diabetes After Vitamin DSupplementation. JAMA. 2020 Apr 14;323(14):1411. https://doi.org/10.1001/jama.2020.1391.PMID: 32286639

- Schulster ML, Goldfarb DS. Vitamin D and Kidney Stones. Urology. 2020 May;139:1-7. https://doi.org/10.1016/j.urology.2020.01.030. Epub 2020 Feb 4.PMID: 32032687 Review.

- Snyder S, Hollenbeak CS, Kalantar-Zadeh K, et al. Cost-Effectiveness and Estimated Health Benefits of Treating Patients with Vitamin D in Pre-Dialysis. Forum Health Econ Policy. 2020 Mar 5:/j/fhep.ahead-of-print/fhep-2019-0020/fhep-2019-0020.xml. https://doi.org/10.1515/fhep-2019-0020. Online ahead of print. PMID: 32134730

- Sözel H, Köksoy S, Ozdem S, et al. Lymphocyte and monocyte vitamin D receptor expression during paricalcitol or calcitriol treatments in patients with stage 5 chronic kidney disease. Int Urol Nephrol. 2020 May 13. https://doi.org/10.1007/s11255-020-02475-1. Online ahead of print. PMID: 32405698

- Thadhani RI, Rosen S, Ofsthun NJ, et al. Conversion from Intravenous Vitamin D Analogs to Oral Calcitriol in Patients Receiving Maintenance Hemodialysis. Clin J Am Soc Nephrol. 2020 Mar 6;15(3):384-391. https://doi.org/10.2215/CJN.07960719. Epub 2020 Feb 28.PMID: 32111702

- 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. 2020 May 4. https://doi.

org/10.1007/s00345-020-03222-y. Online ahead of print. PMID: 32367158

- Wu CC, Liao MT, Hsiao PJ, et al. Antiproteinuria Effect of Calcitriol in Patients With Chronic Kidney Disease and Vitamin D Deficiency: A Randomized Controlled Study. J Ren Nutr. 2020 May;30(3):200-207. https://doi.org/10.1053/j.jrn.2019.09.001. Epub 2019 Nov 6.PMID: 31704188

- Yavuz D, Demirağ MD, Yavuz R, et al. 25-Hydroxy vitamin D level is associated with sleep disturbances in patients with chronic kidney disease on hemodialysis: a cross-sectional study. Turk J Med Sci. 2020 Apr 9;50(2):298-303. https://doi.org/10.3906/sag-1908-87.PMID: 31887852

- You X, Zhou Y, Zhang J, et al. Effects of parathyroid hormone and vitamin D supplementation on stroke among patients receiving peritoneal dialysis. BMC Nephrol. 2020 May 18;21(1):183. https://doi.org/10.1186/s12882-020-01817-6. PMID: 32423377

ONCOLOGIA

- Al-Ghafari AB, Balamash KS, Al Doghaither HA. Serum vitamin D receptor (VDR) levels as a potential diagnostic marker for colorectal cancer. Saudi J Biol Sci. 2020 Mar;27(3):827-832. https://doi.org/10.1016/j.sjbs.2020.01.006. Epub 2020 Jan 21.PMID: 32127758

- Anbil S, Pigula M, Huang HC, et al. Vitamin D receptor activation and photodynamic priming enable durable low-dose chemotherapy. Mol Cancer Ther. 2020 Mar 27:molcanther.0791.2019. https://doi.org/10.1158/1535-7163.MCT-19-0791. Online ahead of print. PMID: 32220968

- Aristizabal P, Sherer M, Perdomo BP, et al. Sociodemographic and clinical characteristics associated with vitamin D status in newly diagnosed pediatric cancer patients. Pediatr Hematol Oncol. 2020 May;37(4):314-325. https://doi.org/10.1080/08880018.2020.1721629. Epub 2020 Mar 10.PMID: 32153233

- Blasiak J, Pawlowska E, Chojnacki J, et al. Vitamin D in Triple-Negative and BRCA1-Deficient Breast Cancer-Implications for Pathogenesis and Therapy. Int J Mol Sci. 2020 May 23;21(10):E3670. https://doi.org/10.3390/ijms21103670.PMID: 32456160 Review.

- Carlberg C, Muñoz A. An update on vitamin D signaling and cancer. Semin Cancer Biol. 2020 May 30:S1044-579X(20)30114-0. https://doi.org/10.1016/j.semcancer.2020.05.018. Online ahead of print. PMID: 32485310 Review.

- Carretero-González A, Lora D, Manneh R, et al. Combination of statin/vitamin D and metastatic castration-resistant prostate cancer (CRPC): a post hoc analysis of two randomized clinical trials. Clin Transl Oncol. 2020 Mar 20. https://doi.org/10.1007/s12094-020-02334-6. Online ahead of print. PMID: 32198642

- Ciulei G, Orasan OH, Coste SC, et al. Vitamin D and the insulin-like growth factor system: Implications for colorectal neoplasia. Eur J Clin Invest. 2020 May 7:e13265. https://doi.org/10.1111/eci.13265. Online ahead of print. PMID: 32379895 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. 2020 May 13:1-9. https://doi.org/10.1080/01635581.2020.1764066. Online ahead of print. PMID: 32400204

- Gibbs DC, Bostick RM, McCullough ML, et al. Association of prediagnostic vitamin D status with mortality among colorectal cancer patients differs by common, inherited vitamin D-binding protein isoforms. Int J Cancer. 2020 May 11. https://doi.org/10.1002/ijc.33043. Online ahead of print. PMID: 32391587

- Huang Z, Zhang Y, Li H, et al. Correction: Vitamin D promotes the cisplatin sensitivity of oral squamous cell carcinoma by inhibiting LCN2-modulated NF-κB pathway activation through RPS3. Cell Death Dis. 2020 Mar 17;11(3):190. https://doi.org/10.1038/s41419-020-2389-0. PMID: 32184381

- Jennaro TS, Fang F, Kidwell KM, et al. Vitamin D deficiency increases severity of paclitaxel-induced peripheral neuropathy. Breast Cancer Res Treat. 2020 Apr;180(3):707-714. https://doi.org/10.1007/s10549-020-05584-8. Epub 2020 Mar 12.PMID: 32166478

- Karagul MI, Aktas S, Yilmaz SN, et al. Perifosine and vitamin D combination induces apoptotic and non-apoptotic cell death in endometrial cancer cells. EXCLI J. 2020 May 4;19:532-546. https://doi.org/10.17179/excli2019-1834. eCollection 2020.PMID: 32483402

- Koole JL, Bours MJL, van Roekel EH, et al. Higher serum vitamin D concentrations are longitudinally associated with better global quality of life and less fatigue in colorectal cancer survivors up to 2 years after treatment. Cancer Epidemiol Biomarkers Prev. 2020 Apr 3:cebp.1522.2019. https://doi.org/10.1158/1055-9965.EPI-19-1522. Online ahead of print. PMID: 32245785

- Lai GR, Lee YF, Yan SJ, et al. Active vitamin D induces gene-specific hypomethylation in prostate cancer cells developing vitamin D resistance.Am J Physiol Cell Physiol. 2020 May 1;318(5):C836-C847. https://doi.org/10.1152/ajpcell.00522.2019. Epub 2020 Mar 11.PMID: 32159363

- Liang Y, Jiang L, Chi X, et al. The association of serum vitamin D-binding protein and 25-hydroxyvitamin D in pre-operative and post-operative colorectal cancer. J Clin Lab Anal. 2020 May;34(5):e23154. https://doi.org/10.1002/jcla.23154. Epub 2019 Dec 13.PMID: 31837045

- Männle H, Momm F, Münstedt K. Vitamin D and selenium blood levels and acute skin toxicity during radiotherapy for breast cancer. Complement Ther Med. 2020 Mar;49:102291. https://doi.org/10.1016/j.ctim.2019.102291. Epub 2019 Dec 31.PMID:32147042

- Meeker SM, Seamons A, Treuting PM, et al. Effect of Chronic Vitamin D Deficiency on the Development and Severity of DSS-Induced Colon Cancer in Smad3(-/-) Mice. Comp Med. 2020 Apr 1;70(2):120-130. https://doi.org/10.30802/AALAS-CM-19-000021. Epub 2020 Feb 3.PMID: 32014085

- Messaritakis I, Koulouridi A, Sfakianaki M, et al. The Role of Vitamin D Receptor Gene Polymorphisms in Colorectal Cancer Risk. Cancers (Basel). 2020 May 27;12(6):E1379. https://doi.org/10.3390/cancers12061379.PMID: 32471257

- Nair-Shalliker V, Bang A, Egger S, et al.

Post-treatment levels of plasma 25- and 1,25-dihydroxy vitamin D and mortality in men with aggressive prostate cancer. Sci Rep. 2020 May 8;10(1):7736. https://doi.org/10.1038/s41598-020-62182-w.PMID: 32385370

- Narvaez CJ, Grebenc D, Balinth S, et al. VITAMIN D REGULATION OF HAS2, HYALURONAN SYNTHESIS AND METABOLISM IN TRIPLE NEGATIVE BREAST CANCER CELLS. J Steroid Biochem Mol Biol. 2020 Apr 29:105688. https://doi.org/10.1016/j.jsbmb.2020.105688. Online ahead of print. PMID: 32360595

- Oak ASW, Bocheva G, Kim TK, et al. Noncalcemic Vitamin D Hydroxyderivatives Inhibit Human Oral Squamous Cell Carcinoma and Down-regulate Hedgehog and WNT/α-Catenin Pathways. Anticancer Res. 2020 May;40(5):2467-2474. https://doi.org/10.21873/anticanres.14216. PMID: 32366390

- Ribone SR, Ferronato MJ, Vitale C, et al. Vitamin D receptor exhibits different pharmacodynamic features in tumoral and normal microenvironments: A molecular modeling study. J Steroid Biochem Mol Biol. 2020 Mar 3;200:105649. https://doi.org/10.1016/j.jsbmb.2020.105649. Online ahead of print. PMID: 32142933

- Shan NL, Minden A, Furmanski P, et al. Analysis of the Transcriptome: Regulation of Cancer Stemness in Breast Ductal Carcinoma In Situ by Vitamin D Compounds. Cancer Prev Res (Phila). 2020 May 28:canprevres.0566.2019. https://doi.org/10.1158/1940-6207.CAPR-19-0566. Online ahead of print. PMID: 32467291

- Shi Q, Han XP, Yu J, et al. Decreased vitamin D receptor protein expression is associated with progression and poor prognosis of colorectal cancer patients. Int J Clin Exp Pathol. 2020 Apr 1;13(4):746-755. eCollection 2020.PMID: 32355523

- Tapia C, Suares A, De Genaro P, et al. In vitro studies revealed a downregulation of Wnt/β-catenin cascade by active vitamin D and TX 527 analog in a Kaposi's sarcoma cellular model. Toxicol In Vitro. 2020 Mar;63:104748. https://doi.org/10.1016/j.tiv.2019.104748. Epub 2019 Dec 12.PMID: 31838186

- Troja C, Hoofnagle AN, Szpiro AA, et al. Serum concentrations of emerging vitamin D biomarkers and detection of prevalent high-risk HPV infection in mid-adult women. Cancer Epidemiol Biomarkers Prev. 2020 Apr 21:cebp.0126.2020. https://doi.org/10.1158/1055-9965.EPI-20-0126. Online ahead of print. PMID: 32317302

- Udeabor SE, Albejadi AM, Al-Shehri WAK, et al. Serum levels of 25-hydroxy-vitamin D in patients with oral squamous cell carcinoma: Making a case for chemoprevention. Clin Exp Dent Res. 2020 Apr 4. https://doi.org/10.1002/cre2.294. Online ahead of print. PMID: 32246747

- Verma A, Vincent-Chong VK, DeJong H, et al. Impact of dietary vitamin D on initiation and progression of oral cancer. J Steroid Biochem Mol Biol. 2020 May;199:105603. https://doi.org/10.1016/j.jsbmb.2020.105603. Epub 2020 Jan 22.PMID: 31981799

- Wang L, Zhou S, Guo B. Vitamin D Suppresses Ovarian Cancer Growth and Invasion by Targeting Long Non-Coding RNA CCAT2. Int J Mol Sci. 2020 Mar 27;21(7):2334. https://doi.org/10.3390/ijms21072334.PMID: 32230936

- Wesselink E, Bours MJL, de Wilt JHW, et al. Chemotherapy and vitamin D supplement use are determinants of serum 25-hydroxyvitamin D levels during the first six months after colorectal cancer diagnosis. J Steroid Biochem Mol Biol. 2020 May;199:105577. https://doi.org/10.1016/j.jsbmb.2020.105577. Epub 2020 Jan 7.PMID: 31917319

- Wesselink E, Kok DE, Bours MJL, et al. Vitamin D, magnesium, calcium, and their interaction in relation to colorectal cancer recurrence and all-cause mortality. Am J Clin Nutr. 2020 Mar 19:nqaa049. https://doi.org/10.1093/ajcn/nqaa049. Online ahead of print. PMID:32190892

- Wesselink E, Kok DE, Bours MJL, et al. Vitamin D, magnesium, calcium, and their interaction in relation to colorectal cancer recurrence and all-cause mortality. Am J Clin Nutr. 2020 May 1;111(5):1007-1017. https://doi.org/10.1093/ajcn/nqaa049.PMID: 32190892

- Zhang X, Fang YJ, Feng XL, et al. Higher intakes of dietary vitamin D, calcium and dairy products are inversely associated with the risk of colorectal cancer: a case-control study in China. Br J Nutr. 2020 Mar 28;123(6):699-711. https://doi.org/10.1017/S000711451900326X. Epub 2019 Dec 12.PMID: 31826765

- Zhou L, Chen B, Sheng L, et al. The effect of vitamin D supplementation on the risk of breast cancer: a trial sequential meta-analysis. Breast Cancer Res Treat. 2020 May 13. https://doi.org/10.1007/s10549-020-05669-4. Online ahead of print. PMID: 32405914 Review.

- Zuo S, Wu L, Wang Y, et al. Long Non-coding RNA MEG3 Activated by Vitamin D Suppresses Glycolysis in Colorectal Cancer via Promoting c-Myc Degradation. Front Oncol. 2020 Mar 11;10:274. https://doi.org/10.3389/fonc.2020.00274. eCollection 2020.PMID: 32219064 Free PMC article.

PEDIATRIA

- Fulton A, Amlani M, Parekh S. Oral manifestations of vitamin D deficiency in children. Br Dent J. 2020 Apr;228(7):515-518. https://doi.org/10.1038/s41415-020-1424-y.PMID: 32277206

- Aguiar M, Andronis L, Pallan M, et al. Micronutrient deficiencies and health-related quality of life: the case of children with vitamin D deficiency. Public Health Nutr. 2020 May;23(7):1165-1172. https://doi.org/10.1017/S1368980018003841. Epub 2019 Feb 12.PMID: 30744725

- Alsiddiky A, Alfadhil R, Al-Aqel M, et al. Assessment of serum vitamin D levels in surgical adolescent idiopathic scoliosis patients. BMC Pediatr. 2020 May 11;20(1):202. https://doi.org/10.1186/s12887-020-02114-9.PMID: 32393207

- Brody J, Pinhas-Hamiel O, Landau Z, et al. Vitamin D status in Israeli pediatric type 1 diabetes patients: the AWeSoMe Study Group experience and literature review. J Pediatr Endocrinol Metab. 2020 Mar 26;33(3):323-330. https://doi.org/10.1515/jpem-2016-0137.PMID: 27760014

- Chibuzor MT, Graham-Kalio D, Osaji JO, et al. Vitamin D, calcium or a combination of vitamin D and calcium for the treatment of nutritional rickets in children. Cochrane Database Syst Rev. 2020 Apr 17;4(4):CD012581. https://doi.

org/10.1002/14651858.CD012581.pub2.PMID: 32303107 Review.

- Colak R, Anil M, Yasar F, et al. Metabolic disturbances and cardiovascular risk factors in obese children with vitamin D deficiency. Arch Pediatr. 2020 Apr;27(3):140-145. https://doi.org/10.1016/j.arcped.2019.12.005. Epub 2020 Jan 16.PMID: 31955958

- Correa-Rodríguez M, Schmidt-RioValle J, Ramírez-Vélez R, et al. Influence of Calcium and Vitamin D Intakes on Body Composition in Children and Adolescents. Clin Nurs Res. 2020 May;29(4):243-248. https://doi.org/10.1177/1054773818797878. Epub 2018 Aug 31.PMID: 30168345

- Czerwińska A, Krzyścin J. Numerical estimations of the daily amount of skin-synthesized vitamin D by pre-school children in Poland. J Photochem Photobiol B. 2020 May 16;208:111898. https://doi.org/10.1016/j.jphotobiol.2020.111898. Online ahead of print. PMID: 32460118

- Ekbom K, Lundback V, Marcus C. Follow-up study found that vitamin D deficiency and weight gain increased the risk of impaired fasting glycaemia. Acta Paediatr. 2020 Apr;109(4):847-848. https://doi.org/10.1111/apa.14999. Epub 2019 Nov 20.PMID: 31483890

- Fasihpour B, Moayeri H, Shariat M, et al. Vitamin D deficiency in school-age Iranian children with attention-deficit/hyperactivity disorder (ADHD) symptoms: A critical comparison with healthy controls. Child Neuropsychol. 2020 May;26(4):460-474. https://doi.org/10.1080/09297049.2019.1665638. Epub 2019 Sep 13.PMID: 31514566

- Gao T, Zhao M, Zhang C, et al. Association of Helicobacter pylori Infection with Vitamin D Deficiency in Infants and Toddlers. Am J Trop Med Hyg. 2020 Mar;102(3):541-546. https://doi.org/10.4269/ajtmh.19-0523.PMID: 31933468

- Grama A, Burac L, Aldea CO, et al. Vitamin D-Binding Protein (Gc-Globulin) in Acute Liver Failure in Children. Diagnostics (Basel). 2020 May 4;10(5):E278. https://doi.org/10.3390/diagnostics10050278. PMID: 32375318

- Isa H, Almaliki M, Alsabea A, et al. Vitamin D deficiency in healthy children in Bahrain: do gender and age matter? East Mediterr Health J. 2020 Mar 24;26(3):260-267. https://doi.org/10.26719/emhj.19.084.PMID: 32281634

- Kara Elitok G, Bulbul L, Bulbul A, et al. Vitamin D levels of 12-24-month-old healthy children in Turkey who received vitamin D supplementation until the age of one year. Arch Argent Pediatr. 2020 Apr;118(2):95-101. https://doi.org/10.5546/aap.2020.eng.95.PMID: 32199043 Free article. English, Spanish.

- Karras SN, Koufakis T, Antonopoulou V, et al. Characterizing neonatal vitamin D deficiency in the modern era: A maternal-neonatal birth cohort from Southern Europe. J Steroid Biochem Mol Biol. 2020 Apr;198:105555. https://doi.org/10.1016/j.jsbmb.2019.105555. Epub 2019 Nov 26.PMID: 31783152

- Karras SN, Koufakis T, Antonopoulou V, et al. Vitamin D receptor FokI polymorphism is a determinant of both maternal and neonatal vitamin D concentrations at birth. J Steroid Biochem Mol Biol. 2020 May;199:105568. https://doi.org/10.1016/j.jsbmb.2019.105568. Epub 2019 Dec 20.PMID: 31870913

- Khorasanchi Z, Bahrami A, Tavallaee S, et al. Effect of high-dose vitamin D supplementation on antibody titers to heat shock protein 27 in adolescent girls. J Pediatr Endocrinol Metab. 2020 May 26;33(5):613-621. https://doi.org/10.1515/jpem-2019-0288.PMID: 32352398

- Kong AN, Fong CY, Ng CC, et al. Association of common genetic variants with vitamin D status in Malaysian children with epilepsy. Seizure. 2020 May 20;79:103-111. https://doi.org/10.1016/j.seizure.2020.05.009. Online ahead of print. PMID: 32464532

- Kumar RK, Das H, Girish SV, et al. Prevalence of Vitamin D Deficiency Among Newborns. Indian Pediatr. 2020 Mar 15;57(3):258-259.PMID: 32198868

- 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 Mar 16. https://doi.org/10.1111/apa.15253. Online ahead of print. PMID: 32173905

- Leffler J, Gamez C, Jones AP, et al. In infants with sufficient vitamin D status at birth, vitamin D supplementation does not impact immune development. Pediatr Allergy Immunol. 2020 Apr 5. https://doi.org/10.1111/pai.13250. Online ahead of print. PMID: 32248591

- Liu S, Zhu X, Wang Y, et al. The association between vitamin D levels and precocious puberty: a meta-analysis. J Pediatr Endocrinol Metab. 2020 Mar 26;33(3):427-429. https://doi.org/10.1515/jpem-2019-0388.PMID: 32069239

- Loyal J, Cameron A. Vitamin D in Children: Can We Do Better? Pediatrics. 2020 Jun;145(6):e20200504. https://doi.org/10.1542/peds.2020-0504. Epub 2020 May 18.PMID: 32424079

- Mannhardt C, Rausch TK, Fortmann MI, et al. Genetic predisposition for vitamin D deficiency is not associated with adverse outcome of very low birth weight infants: A cohort study from the German Neonatal Network. PLoS One. 2020 Mar 31;15(3):e0230426. https://doi.org/10.1371/journal.pone.0230426. eCollection 2020.PMID: 32231377

- Milagres LC, Filgueiras MS, Rocha NP, et al. Vitamin D is associated with the hypertriglyceridemic waist phenotype in Brazilian children. Juvanhol LL, Franceschini SDCC, Farias de Novaes J.J Public Health (Oxf). 2020 Apr 23:fdaa041. https://doi.org/10.1093/pubmed/fdaa041. Online ahead of print. PMID: 32323726

- Öhlund I, Lind T, Hernell O, et al. Vitamin D status and cardiometabolic risk markers in young Swedish children: a double-blind randomized clinical trial comparing different doses of vitamin D supplements. Am J Clin Nutr. 2020 Apr 1;111(4):779-786. https://doi.org/10.1093/ajcn/nqaa031.PMID:32140704 Free PMC article.

- Parameswaran P, Vaidya PC, Attri SV, et al. Vitamin D Deficiency: Prevalence and Association with Intrathoracic Tuberculosis in Indian Children. Indian J Pediatr. 2020 May 28. https://doi.org/10.1007/s12098-020-03350-8. Online ahead of print. PMID: 32468388

- Patseadou M, Haller DM. [Vitamin D in adolescents: summarizing guidelines for general practice]. Rev Med Suisse. 2020 Apr

22;16(691):778-783.PMID: 32320153 French.

- Patseadou M, Haller DM. Vitamin D in Adolescents: A Systematic Review and Narrative Synthesis of Available Recommendations. J Adolesc Health. 2020 Apr;66(4):388-407. https://doi.org/10.1016/j.jadohealth.2019.08.025. Epub 2019 Nov 1.PMID: 31685374 Review.

- Rajakumar K, Moore CG, Khalid AT, et al. Effect of vitamin D3 supplementation on vascular and metabolic health of vitamin D-deficient overweight and obese children: a randomized clinical trial. Am J Clin Nutr. 2020 Apr 1;111(4):757-768. https://doi.org/10.1093/ajcn/nqz340.PMID: 31950134

- Sharawat IK, Dawman L. Vitamin D status of children in Kerala: do they have sufficient levels? Public Health Nutr. 2020 May;23(7):1184-1185. https://doi.org/10.1017/S1368980019001265. Epub 2019 May 21.PMID: 31109389

- Sharma N, Negandhi H, Kalra S, et al. Prophylactic Vitamin D Supplementation Practices for Infants: A Survey of Pediatricians From Delhi. Indian Pediatr. 2020 Mar 15;57(3):259-260.PMID: 32198869

- Simon AE, Ahrens KA. Adherence to Vitamin D Intake Guidelines in the United States. Pediatrics. 2020 Jun;145(6):e20193574. https://doi.org/10.1542/peds.2019-3574. Epub 2020 May 18.PMID: 32424077

- Singh P, Chaudhari V. Association of Early-Onset Sepsis and Vitamin D Deficiency in Term Neonates. Indian Pediatr. 2020 Mar 15;57(3):232-234.PMID: 32198863

- Traglia M, Windham GC, Pearl M, et al. Genetic Contributions to Maternal and Neonatal Vitamin D Levels. Genetics. 2020 Apr;214(4):1091-1102. https://doi.org/10.1534/genetics.119.302792. Epub 2020 Feb 11.PMID: 32047095

- Trivedi M, Faridi MMA, Aggarwal A, et al. Oral Vitamin D Supplementation to Mothers During Lactation-Effect of 25(OH)D Concentration on Exclusively Breastfed Infants at 6 Months of Age: A Randomized Double-Blind Placebo-Controlled Trial. Breastfeed Med. 2020 Apr;15(4):237-245. https://doi.org/10.1089/bfm.2019.0102. Epub 2020 Mar 16.PMID: 32181677

- Vijayakumar M, Bhatia V, George B. Vitamin D status of children in Kerala, southern India. Public Health Nutr. 2020 May;23(7):1179-1183. https://doi.org/10.1017/S1368980018003622. Epub 2019 Jan 10.PMID: 30628561

- Warren C. No Magic Bolus: What the History of Rickets and Vitamin D Can Teach Us About Setting Standards. J Adolesc Health. 2020 Apr;66(4):379-380. https://doi.org/10.1016/j.jadohealth.2020.01.011.PMID: 32199515

- Yarparvar A, Elmadfa I, Djazayery A, et al. The Effects of Vitamin D Supplementation on Lipid and Inflammatory Profile of Healthy Adolescent Boys: A Randomized Controlled Trial. Nutrients. 2020 Apr 25;12(5):E1213. https://doi.org/10.3390/nu12051213.PMID: 32344842

PNEUMOLOGIA

- Ahmed AE, Hassan MH, Toghan R, et al. Analysis of 25-hydroxy cholecalciferol, immunoglobulin E, and vitamin Dreceptor single nucleotide polymorphisms (Apa1, Taq1, and Bsm1), among sample of Egyptian children with bronchial asthma: A case-control study. Pediatr Pulmonol. 2020 Apr 20. https://doi.org/10.1002/ppul.24785. Online ahead of print. PMID: 32311846

- Arnedo-Pena A, Juan-Cerdán JV, Romeu-Garcia M, et al. Vitamin D status and latent tuberculosis infection: conversion in nursing homes, Spain. Int J Tuberc Lung Dis. 2020 Mar 1;24(3):278-286. https://doi.org/10.5588/ijtld.19.0365.PMID: 32228757

- Comberiati P, Peroni DG. Vitamin D Supplementation in Pregnancy Does Not Prevent School-Age Asthma. Allergy. 2020 Apr 26. https://doi.org/10.1111/all.14337. Online ahead of print. PMID: 32335931

- Cornfield DN. Vitamin D: Feel it in More Than Just Your Bones! Am J Respir Cell Mol Biol. 2020 Mar 11. https://doi.org/10.1165/rcmb.2020-0072ED. Online ahead of print. PMID: 32160008

- Dedicoat M. Where next with for vitamin D and tuberculosis? Int J Tuberc Lung Dis. 2020 Mar 1;24(3):265. https://doi.org/10.5588/ijtld.20.0045.PMID: 32228752

- Elsafi SSMS, Nour BM, Abakar AD, et al. Vitamin D level and it is association with the severity of pulmonary tuberculosis in patients attended to Kosti Teaching Hospital, Sudan. AIMS Microbiol. 2020 Mar 13;6(1):65-74. https://doi.org/10.3934/microbiol.2020004. eCollection 2020.PMID: 32226915 Free PMC article.

- Ghosh AJ, Moll M, Hayden LP, et al. Vitamin D deficiency is associated with respiratory symptoms and airway wall thickening in smokers with and without COPD: a prospective cohort study. BMC Pulm Med. 2020 May 4;20(1):123. https://doi.org/10.1186/s12890-020-1148-4. PMID: 32366316

- Hiemstra PS, de Jongh RT. Vitamin D Deficiency in Asthma and Chronic Obstructive Pulmonary Disease: A Chicken or Egg Story. Am J Respir Crit Care Med. 2020 Apr 30. https://doi.org/10.1164/rccm.202004-1012ED. Online ahead of print. PMID: 32352312

- Hong M, Xiong T, Huang J, et al. Association of vitamin D supplementation with respiratory tract infection in infants. Matern Child Nutr. 2020 Mar 5:e12987. https://doi.org/10.1111/mcn.12987. Online ahead of print. PMID: 32141233

- Huang M, Kelly RS, Kachroo P, et al. Plasma 25-Hydroxyvitamin D Concentrations are Associated with Polyunsaturated Fatty Acid Metabolites in Young Children: Results from the Vitamin D Antenatal Asthma Reduction Trial. Metabolites. 2020 Apr 14;10(4):E151. https://doi.org/10.3390/metabo10040151.PMID: 32295265

- Jaura J, Kelsberg G, Safranek S. Does vitamin D supplementation reduce asthma exacerbations? J Fam Pract. 2020 May;69(4):E4-E6.PMID: 32437491

- Jolliffe DA, Stefanidis C, Wang Z, et al. Vitamin D Metabolism is Dysregulated in Asthma and Chronic Obstructive Pulmonary Disease. Am J Respir Crit Care Med. 2020 Mar 18. https://doi.org/10.1164/rccm.201909-1867OC. Online ahead of print. PMID: 32186892

- Kalemci S, Sarihan A, Simsek A, et al. Does low levels of vitamin D only show the severity of the disease in children with asthma? North Clin Istanb. 2020 Mar 18;7(2):201-202. https://doi.org/10.14744/

nci.2020.74318. eCollection 2020. PMID: 32259045 Free PMC article.

- Kim C, Ko Y, Jung JY, et al. Severe vitamin D deficiency is associated with emphysema progression in male patients with COPD. Respir Med. 2020 Mar;163:105890. https://doi.org/10.1016/j.rmed.2020.105890. Epub 2020 Jan 30.PMID: 32056836

- Kumar J, Yadav A. Effect of Vitamin D Supplementation in the Prevention of Recurrent Pneumonia in Under-Five Children - Correspondence 1. Indian J Pediatr. 2020 Mar 14. https://doi.org/10.1007/s12098-020-03245-8. Online ahead of print. PMID: 32172465

- Kumar P, Goyal JP. Effect of Vitamin D Supplementation in the Prevention of Recurrent Pneumonia in Under-Five Children - Correspondence 2. Indian J Pediatr. 2020 Mar 13. https://doi.org/10.1007/s12098-020-03244-9. Online ahead of print. PMID: 32170491

- Leiter K, Franks K, Borland ML, et al. Vitamin D receptor polymorphisms are associated with severity of wheezing illnesses and asthma exacerbations in children. J Steroid Biochem Mol Biol. 2020 May 5;201:105692. https://doi.org/10.1016/j.jsbmb.2020.105692. Online ahead of print. PMID: 32380236

- Li X, He J, Yu M, et al. The efficacy of vitamin D therapy for patients with COPD: a meta-analysis of randomized controlled trials. Ann Palliat Med. 2020 Mar;9(2):286-297. https://doi.org/10.21037/apm.2020.02.26. Epub 2020 Mar 5.PMID: 32156131 Free article.

- Lin Y, Bai Y, Zhang T, et al. Unfavourable treatment outcomes in tuberculosis patients with different vitaminD status and blood glucose levels in a programme setting in China. Trop Med Int Health. 2020 Mar;25(3):373-379. https://doi.org/10.1111/tmi.13355. Epub 2020 Jan 5.PMID: 31802572

- Malliaraki N, Lakiotaki K, Vamvoukaki R, et al. Translating vitamin D transcriptomics to clinical evidence: Analysis of data in asthma and chronic obstructive pulmonary disease, followed by clinical data meta-analysis. J Steroid Biochem Mol Biol. 2020 Mar;197:105505. https://doi.org/10.1016/j.jsbmb.2019.105505. Epub 2019 Oct 24.PMID: 31669573

- Mandell E, Ryan S, Seedorf GJ, et al. Maternal Vitamin D Deficiency Causes Sustained Impairment of Lung Structure and Function and Increases Susceptibility to Hyperoxia-Induced Lung Injury in Infant Rats. Am J Respir Cell Mol Biol. 2020 Mar 5. https://doi.org/10.1165/rcmb.2019-0295OC. Online ahead of print. PMID: 32135073

- Milne S, Sin DD. Vitamin D Deficiency in COPD: Biomarker, Treatable Trait, or Just a Common Comorbidity? Chest. 2020 Apr;157(4):755-756. https://doi.org/10.1016/j.chest.2019.12.007. PMID: 32252921

- Mohamed NA, Abdel-Rehim AS. Influence of vitamin D receptor gene FokI and ApaI polymorphisms on glucocorticoid response in patients with asthma. Int Forum Allergy Rhinol. 2020 Apr;10(4):556-563. https://doi.org/10.1002/alr.22511. Epub 2019 Dec 20.PMID: 31863554

- Niksarlıoğlu EY, Kılıç L, Bilici D, et al. Vitamin D Deficiency and Radiological Findings in Adult Non-Cystic Fibrosis Bronchiectasis. Turk Thorac J. 2020 Mar 1;21(2):87-92. https://doi.org/10.5152/TurkThoracJ.2019.18139.PMID: 32202997

- Sadykov M, Azizan A, Kozhamkulov U, et al. Association of genetic variations in the vitamin D pathway with susceptibility to tuberculosis in Kazakhstan. Mol Biol Rep. 2020 Mar;47(3):1659-1666. https://doi.org/10.1007/s11033-020-05255-3. Epub 2020 Jan 13.PMID: 31933264

- Sharif A, Haddad Kashani H, Sharif MR. Association of 25-hydroxy vitamin D with asthma and its severity in children: a case-control study. Clin Mol Allergy. 2020 May 4;18:7. https://doi.org/10.1186/s12948-020-00122-9. eCollection 2020. PMID: 32390767

- Thorsteinsdottir F, Cardoso I, Keller A, et al. Neonatal Vitamin D Status and Risk of Asthma in Childhood: Results from the D-Tect Study. Nutrients. 2020 Mar 21;12(3):842. https://doi.org/10.3390/nu12030842.PMID: 32245170 Free PMC article.

- Wagner CL. Editorial for the article entitled, "Vitamin D status in preterm neonates and the effects of its supplementation on respiratory distress syndrome," Al-Biltagi, et al. Pediatr Pulmonol. 2020 Apr;55(4):847-849. https://doi.org/10.1002/ppul.24681. Epub 2020 Feb 10.PMID: 32040890

- Zheng S, Yang J, Hu X, et al. Vitamin D attenuates lung injury via stimulating epithelial repair, reducing epithelial cell apoptosis and inhibits TGF-β induced epithelial to mesenchymal transition. Biochem Pharmacol. 2020 Apr 3:113955. https://doi.org/10.1016/j.bcp.2020.113955. Online ahead of print. PMID: 32251673

PSICHIATRIA

- Avinun R, Romer AL, Israel S. Vitamin D polygenic score is associated with neuroticism and the general psychopathology factor. Prog Neuropsychopharmacol Biol Psychiatry. 2020 Jun 8;100:109912. https://doi.org/10.1016/j.pnpbp.2020.109912. Epub 2020 Mar 6.PMID: 32151694

- 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 Mar 12. https://doi.org/10.1007/s12011-020-02109-8. Online ahead of print. PMID: 32166563

- Cheng YC, Huang YC, Huang WL. The effect of vitamin D supplement on negative emotions: A systematic review and meta-analysis. Depress Anxiety. 2020 May 4. https://doi.org/10.1002/da.23025. Online ahead of print. PMID: 32365423

- di Michele F, Talamo A, Niolu C, et al. Vitamin D and N-Acetyl cysteine supplementation in treatment resistant depressive disorder patients: a general review. Curr Pharm Des. 2020 Apr 5. https://doi.org/10.2174/1381612826666200406090051. Online ahead of print. PMID: 32250212

- Esnafoglu E, Ozturan DD. The relationship of severity of depression with homocysteine, folate, vitamin B12, and vitamin D levels in children and adolescents. Child Adolesc Ment Health. 2020 Apr 18. https://doi.org/10.1111/camh.12387. Online ahead of print. PMID: 32304285

- Ferrari D, Lombardi G, Strollo M, et al. A Possible Antioxidant Role for Vitamin D in Soccer Players: A Retrospective Analysis of Psychophysical Stress Markers in a Professional Team. Int J Environ Res Public Health. 2020 May 16;17(10):E3484. https://

doi.org/10.3390/ijerph17103484. PMID: 32429456

- Gokalp G. The association between low vitamin D levels and suicide attempts in adolescents. Ann Clin Psychiatry. 2020 May;32(2):106-113.PMID: 31990969

- Granlund LE, Ramnemark AK, Andersson C, et al. Vitamin D status was not associated with anxiety, depression, or health-related quality of life in Middle Eastern and African-born immigrants in Sweden. Nutr Res. 2020 Mar;75:109-118. https://doi.org/10.1016/j.nutres.2020.02.006. Epub 2020 Feb 8.PMID: 32120223

- Grudet C, Wolkowitz OM, Mellon SH, et al. Vitamin D and inflammation in major depressive disorder. J Affect Disord. 2020 Apr 15;267:33-41. https://doi.org/10.1016/j.jad.2020.01.168. Epub 2020 Jan 29.PMID: 32063570

- Guerini FR, Bolognesi E, Chiappedi M, et al. Vitamin D Receptor Polymorphisms Associated with Autism Spectrum Disorder. Autism Res. 2020 May;13(5):680-690. https://doi.org/10.1002/aur.2279. Epub 2020 Feb 21.PMID: 32083397

- Kaviani M, Nikooyeh B, Zand H, et al. Effects of vitamin D supplementation on depression and some involved neurotransmitters.Yaghmaei P, Neyestani TR.J Affect Disord. 2020 May 15;269:28-35. https://doi.org/10.1016/j.jad.2020.03.029. Epub 2020 Mar 13.PMID: 32217340

- Kim SY, Jeon SW, Lim WJ, et al. The Relationship between Serum Vitamin D Levels, C-Reactive Protein, and Anxiety Symptoms. Psychiatry Investig. 2020 Apr;17(4):312-319. https://doi.org/10.30773/pi.2019.0290. Epub 2020 Mar 27.PMID: 32213801

- Markland AD, Vaughan C, Huang A, et al. Vitamin D intake and the 10-year risk of urgency urinary incontinence in women. J Steroid Biochem Mol Biol. 2020 May;199:105601. https://doi.org/10.1016/j.jsbmb.2020.105601. Epub 2020 Jan 28.PMID: 32001360

- Matthews J, Torres SJ, Milte CM, et al. Effects of a multicomponent exercise program combined with calcium-vitaminD(3)-enriched milk on health-related quality of life and depressive symptoms in older men: secondary analysis of a randomized controlled trial. Eur J Nutr. 2020 Apr;59(3):1081-1091. https://doi.org/10.1007/s00394-019-01969-8. Epub 2019 Apr 16.PMID: 30993400

- Naifar M, Maalej Bouali M, Guidara W, et al. [Bipolar disorder vulnerability: The vitamin D path]. Can J Psychiatry. 2020 Mar;65(3):184-192. https://doi.org/10.1177/0706743719870513. Epub 2019 Aug 21.PMID: 31434497 French.

- Romano F, Muscogiuri G, Di Benedetto E, et al. Vitamin D and sleep regulation: is there a role for vitamin D? Curr Pharm Des. 2020 Mar 10. https://doi.org/10.2174/1381612826666200310145935. Online ahead of print. PMID:32156230

- Siracusano M, Riccioni A, Abate R, et al. Vitamin D Deficiency and Autism Spectrum Disorder. Curr Pharm Des. 2020 Apr 15. https://doi.org/10.2174/1381612826666200415174311. Online ahead of print. PMID:32294031

- Song L, Luo X, Jiang Q, et al. Vitamin D Supplementation is Beneficial for Children with Autism Spectrum Disorder: A Meta-analysis. Clin Psychopharmacol Neurosci. 2020 May 31;18(2):203-213. https://doi.org/10.9758/cpn.2020.18.2.203. PMID: 32329301

- 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 Apr 25:e12390. https://doi.org/10.1111/appy.12390. Online ahead of print. PMID: 32333506

- Todisco P, Meneguzzo P, Vogazianos P, et al. Relation between vitamin D and impulse behaviours in patients with eating disorder: a pilot observational study. Eur Eat Disord Rev. 2020 May 5. https://doi.org/10.1002/erv.2740. Online ahead of print. PMID: 32372472

- Wang MJ, Dunn EC, Okereke OI, et al. Maternal vitamin D status during pregnancy and offspring risk of childhood/adolescent depression: Results from the Avon Longitudinal Study of Parents and Children (ALSPAC). J Affect Disord. 2020 Mar 15;265:255-262. https://doi.org/10.1016/j.jad.2020.01.005. Epub 2020 Jan 7.PMID: 32090749

- Yosaee S, Soltani S, Esteghamati A, et al. Effects of zinc, vitamin D, and their co-supplementation on mood, serum cortisol, and brain-derived neurotrophic factor in patients with obesity and mild to moderate depressive symptoms: A phase II, 12-wk, 2 × 2 factorial design, double-blind, randomized, placebo-controlled trial. Nutrition. 2020 Mar;71:110601. https://doi.org/10.1016/j.nut.2019.110601. Epub 2019 Oct 15.PMID: 31837640

- Yu H, Zhang Z, Liu J, et al. Association study between genetic variants in vitamin D metabolism related genes and childhood autism spectrum disorder. Metab Brain Dis. 2020 Apr 15. https://doi.org/10.1007/s11011-020-00570-x. Online ahead of print. PMID: 32297168

- Yuan J, Chen T, Lei Y, et al. Association analysis between vitamin D level and depression in women perimenopause: A protocol of systematic review and meta-analysis. Medicine (Baltimore). 2020 May 22;99(21):e20416. https://doi.org/10.1097/MD.0000000000020416.PMID: 32481343

- Zhu JL, Luo WW, Cheng X, et al. Vitamin D deficiency and Schizophrenia in Adults: A Systematic Review and Meta-analysis of Observational Studies. Psychiatry Res. 2020 Apr 18;288:112959. https://doi.org/10.1016/j.psychres.2020.112959. Online ahead of print. PMID: 32335466 Review.

REUMATOLOGIA

- Abalı S, Tamura M, Turan S, et al. Hereditary vitamin D-resistant rickets: a report of four cases with two novel variants in the VDR gene and successful use of intermittent intravenous calcium via a peripheral route. J Pediatr Endocrinol Metab. 2020 Apr 28;33(4):557-562. https://doi.org/10.1515/jpem-2019-0466.PMID: 32049653

- Abshirini M, Mozaffari H, Kord-Varkaneh H, et al. The effects of vitamin D supplementation on muscle strength and mobility in postmenopausal women: a systematic review and meta-analysis of randomised controlled trials.Omidian M, Kruger MC.J Hum Nutr Diet. 2020 Apr;33(2):207-221. https://doi.org/10.1111/jhn.12717. Epub 2019 Nov 15.PMID: 31729817

- Arango Sancho P. Complications of Phosphate and Vitamin D Treatment in X-Linked

Hypophosphataemia. Adv Ther. 2020 May;37(Suppl 2):105-112. https://doi.org/10.1007/s12325-019-01170-7. Epub 2020 Mar 31.PMID: 32236871 Review.

- Arango Sancho P. Complications of Phosphate and Vitamin D Treatment in X-Linked Hypophosphataemia. Adv Ther. 2020 May;37(Suppl 2):105-112. https://doi.org/10.1007/s12325-019-01170-7. Epub 2020 Mar 31.PMID: 32236871 Review.

- Argyrou C, Karlafti E, Lampropoulou-Adamidou K, et al. Effect of calcium and vitamin D supplementation with and without collagen peptides on bone turnover in postmenopausal women with osteopenia. J Musculoskelet Neuronal Interact. 2020 Mar 3;20(1):12-17.PMID:32131366 Free PMC article.

- Arshi A, Shieh A, Adams JS, et al. Preoperative Vitamin D Repletion in Total Knee Arthroplasty: A Cost-Effectiveness Model. J Arthroplasty. 2020 May;35(5):1379-1383. https://doi.org/10.1016/j.arth.2019.12.037. Epub 2019 Dec 27.PMID: 31983566

- Ashcroft SP, Bass JJ, Kazi AA, et al. The vitamin D receptor regulates mitochondrial function in C2C12 myoblasts. Am J Physiol Cell Physiol. 2020 Mar 1;318(3):C536-C541. https://doi.org/10.1152/ajpcell.00568.2019. Epub 2020 Jan 15.PMID: 31940245

- Awal W, Bindra R, Price N, et al. Vitamin D deficiency in proximal femur fracture patients of South-East Queensland. Australas J Ageing. 2020 Mar 16. https://doi.org/10.1111/ajag.12791. Online ahead of print. PMID: 32180342

- 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 May 22. https://doi.org/10.1007/s10067-020-05143-y. Online ahead of print. PMID: 32445089 Review.

- Bauer JM, Mikušová L, Verlaan S, et al. Safety and tolerability of 6-month supplementation with a vitamin D, calcium and leucine-enriched whey protein medical nutrition drink in sarcopenic older adults. Clin Exp Res. 2020 Mar 12. https://doi.org/10.1007/s40520-020-01519-x. Online ahead of print. PMID: 32162241

- Ben-Shabat N, Watad A, Shabat A, et al. Low Vitamin D Levels Predict Mortality in Ankylosing Spondylitis Patients: A Nationwide Population-Based Cohort Study. Nutrients. 2020 May 13;12(5):E1400. https://doi.org/10.3390/nu12051400.PMID: 32414130 c

- Berardi S, Giardullo L, Corrado A, et al. Vitamin D and connective tissue diseases. Inflamm Res. 2020 May;69(5):453-462. https://doi.org/10.1007/s00011-020-01337-x. Epub 2020 Mar 14.PMID:32172354 Review.

- Bezrati I, Ben Fradj MK, Hammami R, et al. A single mega dose of vitamin D(3) improves selected physical variables in vitamin D-deficient young amateur soccer players: a randomized controlled trial. Appl Physiol Nutr Metab. 2020 May;45(5):478-485. https://doi.org/10.1139/apnm-2019-0525. Epub 2019 Oct 9.PMID: 31597046

- Biczo A, Szita J, McCall I, et al. Association of vitamin D receptor gene polymorphisms with disc degeneration. Eur Spine J. 2020 Mar;29(3):596-604. https://doi.org/10.1007/s00586-019-06215-7. Epub 2019 Nov 25.PMID: 31768839

- Biczo A, Szita J, McCall I, et al. Correction to: Association of vitamin D receptor gene polymorphisms with disc degeneration. Eur Spine J. 2020 Mar;29(3):648. https://doi.org/10.1007/s00586-019-06284-8.PMID: 31938946

- Bislev LS, Sundekilde UK, Kilic E, et al. Circulating Levels of Muscle-Related Metabolites Increase in Response to a Daily Moderately High Dose of a Vitamin D3 Supplement in Women with Vitamin DInsufficiency-Secondary Analysis of a Randomized Placebo-Controlled Trial. Nutrients. 2020 May 4;12(5):E1310. https://doi.org/10.3390/nu12051310.PMID: 32375334

- Borges RC, Barbeiro HV, Barbeiro DF, et al. Muscle degradation, vitamin D and systemic inflammation in hospitalized septic patients. J Crit Care. 2020 Apr;56:125-131. https://doi.org/10.1016/j.jcrc.2019.12.017. Epub 2019 Dec 21.PMID: 31896446

- Boroňová I, Bernasovská J, Mačeková S, et al. Association between vitamin D receptor gene polymorphisms (Fok I, Cdx-2) and bone mineral density in Slovak postmenopausal women. 2020 Apr 1. https://doi.org/10.1127/anthranz/2020/1048. Online ahead of print. PMID: 32236287

- Cațan L, Cerbu S, Amaricai E, et al. Assessment of Static Plantar Pressure, Stabilometry, Vitamin D and Bone Mineral Density in Female Adolescents with Moderate Idiopathic Scoliosis. Int J Environ Res Public Health. 2020 Mar 24;17(6):2167. https://doi.org/10.3390/ijerph17062167.PMID: 32214036

- Charoenngam N, Ponvilawan B, Ungprasert P. Vitamin D insufficiency and deficiency are associated with a higher level of serum uric acid: A systematic review and meta-analysis. Mod Rheumatol. 2020 Mar;30(2):385-390. https://doi.org/10.1080/14397595.2019.1575000. Epub 2019 Mar 4.PMID: 30689484

- Chhantyal K, He L, Mo J, et al. Free vitamin D correlate better with bone mineral density and thoracolumbar junction osteoporotic vertebral fractures than serum vitamin D. BMC Musculoskelet Disord. 2020 Mar 12;21(1):164. https://doi.org/10.1186/s12891-020-3179-7. PMID: 32164704

- Chogtu B, Ommurugan B, Thomson SR, et al. Effect of Vitamin D Analogue on Rosuvastatin-Induced Myopathy in Wistar Rats. ScientificWorldJournal. 2020 Mar 31;2020:4704825. https://doi.org/10.1155/2020/4704825. eCollection 2020.PMID: 32292293

- Choi W, Kim JH, Byun SE, et al. Effect of preoperative vitamin D deficiency on functional outcomes after high tibial osteotomy: a retrospective case control study. BMC Musculoskelet Disord. 2020 Apr 17;21(1):251. https://doi.org/10.1186/s12891-020-03295-1.PMID: 32303230

- Coskun Benlidayi I. Is vitamin D a panacea? Rheumatol Int. 2020 May;40(5):821-822. https://doi.org/10.1007/s00296-019-04328-2. Epub 2019 May 23.PMID: 31123812

- de la Torre Lossa P, Moreno Álvarez M, González Guzmán MDC, et al. Vitamin D is not useful as a biomarker for disease activity in rheumatoid arthritis. Reumatol Clin. 2020 Mar-Apr;16(2 Pt 1):110-115. https://doi.

org/10.1016/j.reuma.2018.02.016. Epub 2018 May 17.PMID: 29779702 Free article. English, Spanish.

- Donato AA, Nesfeder J. Supplementation with vitamin D plus calcium reduces fracture risk; vitamin Dalone does not. Ann Intern Med. 2020 May 19;172(10):JC51. https://doi.org/10.7326/ACPJ202005190-051.PMID: 32422096

- Duplan F, Maunder C. Unusual presentation of vitamin D(3)-dependent rickets type II in a kitten. JFMS Open Rep. 2020 Mar 19;6(1):2055116920910278. https://doi.org/10.1177/2055116920910278. eCollection 2020 Jan-Jun.PMID: 32231788

- Eleni A, Panagiotis P. A systematic review and meta-analysis of vitamin D and calcium in preventing osteoporotic fractures. Clin Rheumatol. 2020 May 24. https://doi.org/10.1007/s10067-020-05122-3. Online ahead of print. PMID: 32447604 Review.

- Fan H, Xiao J. Critical thinking about three meta-analyses: can vitamin D alone or with calcium prevent fractures? Curr Med Res Opin. 2020 Mar;36(3):497-501. https://doi.org/10.1080/03007995.2019.1687432. Epub 2019 Nov 19.PMID: 31670980

- Gao Y, Zhao Q, Qiu X, et al. Vitamin D levels are prognostic factors for connective tissue disease associated interstitial lung disease (CTD-ILD). Aging (Albany NY). 2020 Mar 12;12(5):4371-4378. https://doi.org/10.18632/aging.102890. Epub 2020 Mar 12.PMID: 32167486

- Giakoumis M. The Impact of Vitamin D Levels in Foot and Ankle Surgery. Clin Podiatr Med Surg. 2020 Apr;37(2):305-315. https://doi.org/10.1016/j.cpm.2019.12.009. Epub 2020 Feb 5.PMID: 32146986 Review.

- Gogulothu R, Nagar D, Gopalakrishnan S, et al. Disrupted expression of genes essential for skeletal muscle fibre integrity and energy metabolism in Vitamin D deficient rats. J Steroid Biochem Mol Biol. 2020 Mar;197:105525. https://doi.org/10.1016/j.jsbmb.2019.105525. Epub 2019 Nov 6.PMID: 31705962

- Guan SY, Pan F. Accurately assess vitamin D status in patients with systemic lupus erythematosus. Autoimmun Rev. 2020 May;19(5):102510. https://doi.org/10.1016/j.autrev.2020.102510. Epub 2020 Mar 12.PMID: 32171921

- Guida F, Boccella S, Belardo C, et al. Altered gut microbiota and endocannabinoid system tone in vitamin Ddeficiency-mediated chronic pain. Brain Behav Immun. 2020 Mar;85:128-141. https://doi.org/10.1016/j.bbi.2019.04.006. Epub 2019 Apr 3.PMID:30953765 Free article.

- Herly M, Stengaard-Pedersen K, Vestergaard P, et al. Impact of season on the association between vitamin D levels at diagnosis and one-year remission in early Rheumatoid Arthritis. Sci Rep. 2020 Apr 30;10(1):7371. https://doi.org/10.1038/s41598-020-64284-x. PMID: 32355224

- Hosny KM, Bahmdan RH, Alhakamy NA, et al. Physically Optimized Nano-Lipid Carriers Augment Raloxifene and Vitamin D Oral Bioavailability in Healthy Humans for Management of Osteoporosis. J Pharm Sci. 2020 Mar 17:S0022-3549(20)30135-0. https://doi.org/10.1016/j.xphs.2020.03.009. Online ahead of print. PMID: 32194094

- Jin X, Antony B, Wang X, et al. Effect of vitamin D supplementation on pain and physical function in patients with knee osteoarthritis (OA): an OA Trial Bank protocol for a systematic review and individual patient data (IPD) meta-analysis. BMJ Open. 2020 Apr 23;10(4):e035302. https://doi.org/10.1136/bmjopen-2019-035302. PMID: 32332006

- Kim J, Lee Y, Won CW, et al. Association of serum vitamin D with frailty in older Korean adults. Maturitas. 2020 Apr;134:15-20. https://doi.org/10.1016/j.maturitas.2020.01.008. Epub 2020 Jan 20.PMID: 32143771

- Ko S, Chae S, Choi W, et al. The effectiveness of vitamin D supplementation in functional outcome and quality of life (QoL) of lumbar spinal stenosis (LSS) requiring surgery. J Orthop Surg Res. 2020 Mar 24;15(1):117. https://doi.org/10.1186/s13018-020-01629-2. PMID: 32209124

- Kopiczko A, Łopuszańska-Dawid M, Gryko K. Bone mineral density in young adults: the influence of vitamin D status, biochemical indicators, physical activity and body composition. Arch Osteoporos. 2020 Mar 12;15(1):45. https://doi.org/10.1007/s11657-020-0684-0.PMID: 32166587

- Kositsawat J, Kuo CL, Barry LC, et al. Interaction Between Vitamin D and Interleukin 6 on Slow Gait Speed: 6-Year Follow-up Data of Older Adults From InCHIANTI. J Gerontol A Biol Sci Med Sci. 2020 May 22;75(6):1161-1166. https://doi.org/10.1093/gerona/glz165.PMID: 31282535

- Kuang X, Liu C, Guo X, et al. The combination effect of vitamin K and vitamin D on human bone quality: a meta-analysis of randomized controlled trials. Food Funct. 2020 Apr 30;11(4):3280-3297. https://doi.org/10.1039/c9fo03063h. PMID:32219282

- LeBoff MS, Chou SH, Murata EM, et al. Effects of Supplemental Vitamin D on Bone Health Outcomes in Women and Men in the VITamin D and OmegA-3 TriaL (VITAL). J Bone Miner Res. 2020 May;35(5):883-893. https://doi.org/10.1002/jbmr.3958. Epub 2020 Jan 30.PMID: 31923341

- Lin EL, Gottesman GS, McAlister WH, et al. Healing of vitamin D deficiency rickets complicating hypophosphatasia suggests a role beyond circulating mineral sufficiency for vitamin D in musculoskeletal health. Bone. 2020 Mar 19;136:115322. https://doi.org/10.1016/j.bone.2020.115322. Online ahead of print. PMID: 32200022

- Liu J, Dong Y, Wang Y. Vitamin D deficiency is associated with dry eye syndrome: a systematic review and meta-analysis. Acta Ophthalmol. 2020 May 18. https://doi.org/10.1111/aos.14470. Online ahead of print. PMID: 32421222 Review.

- Merlotti D, Rendina D, Muscariello R, et al. Preventive Role of Vitamin D Supplementation for Acute Phase Reaction after Bisphosphonate Infusion in Paget's Disease. J Clin Endocrinol Metab. 2020 Mar 1;105(3):dgz138. https://doi.org/10.1210/clinem/dgz138.PMID: 31634910

- Michos ED, Mitchell CM, Miller ER 3rd, et al. Corrigendum to "Rationale and design of the Study To Understand Fall Reduction and Vitamin D in You (STURDY): A randomized clinical trial of Vitamin Dsupplement doses for the prevention of

falls in older adults" [Contemp Clin Trials. 73 (2018) 111-122]. Contemp Clin Trials. 2020 Mar;90:105936. https://doi.org/10.1016/j.cct.2020.105936. Epub 2020 Jan 27.PMID: 32001213

- Miler M, Nikolac Gabaj N, Grazio S, et al. Lower concentration of vitamin D is associated with lower DAS28 and VAS-pain scores in patients with inflammatory rheumatic diseases treated with infliximab: a pilot study. Rheumatol Int. 2020 May 27. https://doi.org/10.1007/s00296-020-04607-3. Online ahead of print. PMID: 32462255

- Okubo T, Atsukawa M, Tsubota A, et al. Relationship between serum vitamin D level and sarcopenia in chronic liver disease. Hepatol Res. 2020 May;50(5):588-597. https://doi.org/10.1111/hepr.13485. Epub 2020 Jan 22.PMID: 31914479

- Plum LA, Zella J, Clagett-Dame M, et al. A New 1,25 Dihydroxy Vitamin D Analog with Strong Bone Anabolic Activity in OVX Rats with Little or no Bone Resorptive Activity. Gene. 2020 Jul 1;746:144649. https://doi.org/10.1016/j.gene.2020.144649. Epub 2020 Apr 3.PMID: 32251702

- Reid IR, Bolland MJ. Calcium and/or Vitamin D Supplementation for the Prevention of Fragility Fractures: Who Needs It? Nutrients. 2020 Apr 7;12(4):E1011. https://doi.org/10.3390/nu12041011. PMID:32272593

- Ren L, Xuan L, Han F, et al. Vitamin D supplementation rescues simvastatin induced myopathy in mice via improving mitochondrial cristae shape. Toxicol Appl Pharmacol. 2020 May 29:115076. https://doi.org/10.1016/j.taap.2020.115076. Online ahead of print. PMID: 32479918

- Rizzoli R, Biver E. Are Probiotics the New Calcium and Vitamin D for Bone Health?Curr Osteoporos Rep. 2020 Apr 13. https://doi.org/10.1007/s11914-020-00591-6. Online ahead of print. PMID:32285249 Review.

- 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 Apr 11:S0261-5614(20)30158-8. https://doi.org/10.1016/j.clnu.2020.04.003. Online ahead of print. PMID: 32336527

- Sapkota S, Baig S, Hess T, et al. Vitamin D and bisphosphonate therapy in systemic lupus erythematosus patients who receive glucocorticoids: are we offering the best care? Lupus. 2020 Mar;29(3):263-272. https://doi.org/10.1177/0961203320903086. Epub 2020 Jan 29.PMID: 31996109

- Srikuea R, Hirunsai M, Charoenphandhu N. Regulation of vitamin D system in skeletal muscle and resident myogenic stem cell during development, maturation, and ageing. Sci Rep. 2020 May 19;10(1):8239. https://doi.org/10.1038/s41598-020-65067-0.PMID: 32427932

- Suganthan N, Kumanan T, Kesavan V, et al. Vitamin D status among postmenopausal osteoporotic women: a hospital based cross-sectional study from Northern Sri Lanka. BMC Nutr. 2020 Mar 18;6:15. https://doi.org/10.1186/s40795-020-00341-y. eCollection 2020.PMID: 32206326

- Tsoumpra MK, Sawatsubashi S, Imamura M, et al. Dystrobrevin alpha gene is a direct target of the vitamin D receptor in muscle. J Mol Endocrinol. 2020 Apr;64(3):195-208. https://doi.org/10.1530/JME-19-0229.PMID: 31940280

- Udomsinprasert W, Manoy P, Yuktanandana P, et al. Decreased Serum Adiponectin Reflects Low Vitamin D, High Interleukin 6, and Poor Physical Performance in Knee Osteoarthritis. Arch Immunol Ther Exp (Warsz). 2020 May 24;68(3):16. https://doi.org/10.1007/s00005-020-00580-8.PMID: 32449055

- Welford AE, Lanham-New S, Lord J, et al. Influence of combined vitamin D(3) supplementation and resistance exercise training on musculoskeletal health in older men and women (EXVITD): protocol for a randomised controlled trial. BMJ Open. 2020 Mar 18;10(3):e033824. https://doi.org/10.1136/bmjopen-2019-033824. PMID: 32193264 Free article.

- Whiting SJ, Li W, Singh N, et al. Predictors of hip fractures and mortality in long-term care homes in Saskatchewan: Does vitamin D supplementation play a role? J Steroid Biochem Mol Biol. 2020 Mar 10;200:105654. https://doi.org/10.1016/j.jsbmb.2020.105654. Online ahead of print. PMID: 32169586

- Wiedemann A, Renard E, Molin A, et al. Prolonged 25-OH Vitamin D Deficiency Does Not Impair Bone Mineral Density in Adult Patients With Vitamin D 25-Hydroxylase Deficiency (CYP2R1). Calcif Tissue Int. 2020 May 19. https://doi.org/10.1007/s00223-020-00704-4. Online ahead of print. PMID: 32430692

- Xu HW, Yi YY, Zhang SB, et al. Does vitamin D status influence lumbar disc degeneration and low back pain in postmenopausal women? A retrospective single-center study. Menopause. 2020 May;27(5):586-592. https://doi.org/10.1097/GME.0000000000001499.PMID: 32049928

- Yashiro M, Ohya M, Mima T, et al. Active vitamin D and vitamin D analogs stimulate fibroblast growth factor 23 production in osteocyte-like cells via the vitamin D receptor. J Pharm Biomed Anal. 2020 Apr 15;182:113139. https://doi.org/10.1016/j.jpba.2020.113139. Epub 2020 Jan 31.PMID: 32045827

- Yu Y, Liu D, Feng D, et al. Association between Vitamin D and Knee Osteoarthritis: A PRISMA-Compliant Meta-analysis. Z Orthop Unfall. 2020 Mar 9. https://doi.org/10.1055/a-1098-8815. Online ahead of print. PMID: 32150754 English.

- Żebrowska A, Sadowska-Krępa E, Stanula A, et al. The effect of vitamin D supplementation on serum total 25(OH) levels and biochemical markers of skeletal muscles in runners. J Int Soc Sports Nutr. 2020 Apr 9;17(1):18. https://doi.org/10.1186/s12970-020-00347-8.PMID: 32272973