VITAMIN D

UpDates Vol. 7 - N. 4 - 2024

Sito Web www.vitamind-journal.it

www.pacinimedicina.it

VITAMIN D
UpDates

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Pacini Editore srl

Direttore Responsabile
Patrizia Pacini

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Stampa
Industrie Grafiche Pacini • Pisa

ISSN: 2611-2876 (online)

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

EDITORIALE

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VITAMIN D
UpDates
2024;7(4):74-75

Cari Lettori,
in questo numero torniamo a parlare di possibili effetti extra scheletrici della vitamina D, in ambiti tra l'altro completamente diversi: quello dermatologico e quello neurologico.
In due malattie infiammatorie cutanee, in particolare psoriasi e dermatite atopica, l'alterazione della barriera cutanea sembra giuocare un ruolo importante nella loro patogenesi. L'Autore, partendo dall'osservazione che la psoriasi migliora con l'esposizione ai raggi solari e che la cute, irradiata dal sole, sintetizza vitamina D aveva precedentemente condotto delle indagini sulla psoriasi evidenziando che la vitamina D, oltre le sue note funzioni, giuoca un ruolo sull'espressione di alcune delle proteine costituenti le *Tight junctions* (TJ), strutture fondamentali dell'"organo barriera". Anche la dermatite atopica migliora con l'esposizione ai raggi solari e l'esposizione a fonti artificiali di raggi UV è considerata tra le possibili terapie di questa dermatosi. Per spiegare questo fenomeno sono state avanzate varie ipotesi: azione immunomodulatoria dei raggi UV che inducono apoptosi delle cellule infiammatorie, inibiscono le cellule di Langerhans e modificano la produzione di citochine oppure azione diretta dei raggi UV che riducono la colonizzazione dello *Staphylococcus aureus*, ma si poteva considerare anche l'effetto dell'esposizione ai raggi solari sulla sintesi di vitamina D. In questo numero l'Autore ci sintetizza i risultati di un suo recente lavoro [1] che fornisce nuove evidenze sulla relazione tra polimorfismi del recettore della vitamina D, l'espressione delle proteine costituenti le TJ e alcune manifestazioni cliniche in pazienti adulti affetti da dermatite atopica.
È noto che la vitamina D è importante per il mantenimento della forza muscolare attraverso la sua azione sugli specifici recettori nel tessuto muscolare. I pazienti sottoposti a riabilitazione, specie in ambito neurologico e sia in regime di ricovero che ambulatoriale, sono una popolazione ad alto rischio incline a sviluppare un deficit di vitamina D e a manifestare le conseguenze di tale condizione. Nel secondo articolo di questo numero vengono presi in considerazione gli studi riguardanti l'efficacia della supplementazione con vitamina D in corso di riabilitazione dopo ictus cerebrale. L'Autore conclude che attualmente i risultati sono contradditori ma che le ricerche disponibili presentano molte limitazioni, tra cui soprattutto, come spesso avvenuto anche in altri ambiti di studio, la ridotta dimensione del campione, l'insufficiente durata del periodo di osservazione o la mancata valutazione preliminare dello stato vitaminico per la quale non si può escludere che siano stati inclusi pazienti non carenti. L'articolo, riassumendo i metodi indagati e i risultati sino a ora disponibili, fornisce informazioni utili per la pianificazione della supplementazione nel percorso riabilitativo di pazienti con ictus ischemico, anche se sono necessarie ulteriori ricerche per l'implementazione di queste conoscenze nella pratica clinica.
Nel recente rapporto OsMed relativo all'anno 2023 dell'Agenzia Italiana del Farmaco (AIFA) [2], nonostante la contrazione del consumo (DDD/1000 abitanti/die, Fig. 1)) e della spesa di circa il 15% rispetto all'anno precedente, la spesa a carico del Servizio Sani-

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How to cite this article: Rossini M. Editoriale. Vitamin D - UpDates 2024;7(4):74-75.

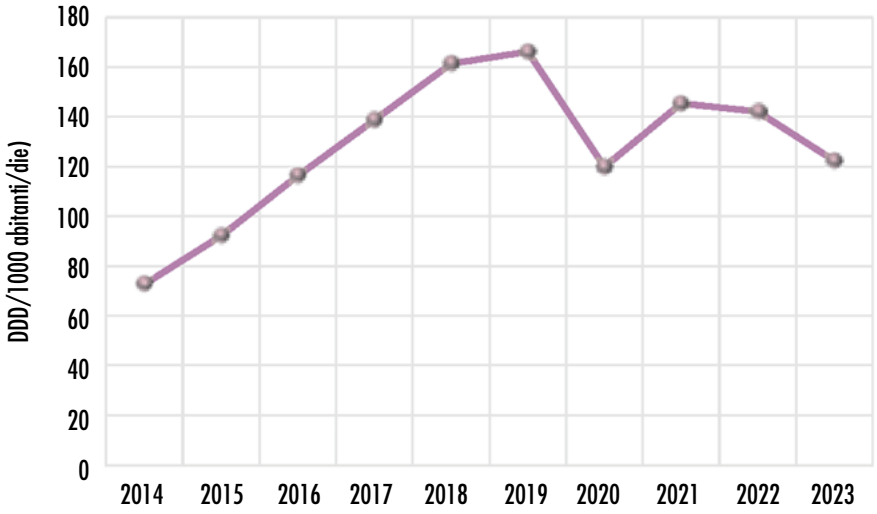

FIGURA 1.
Andamento temporale 2014-2023 del consumo (DDD/1000 abitanti/die) di vitamina D e analoghi (da AIFA, 2023, mod.) [2].

tario Nazionale per la vitamina D risulta di circa 200 milioni di euro/anno. Vi si afferma che i dati "confermano l'utilizzo di colecalciferolo e metaboliti per indicazioni extra-scheletriche per le quali gli RCT non hanno fornito prove di efficacia". Vi si afferma inoltre che "la ricca letteratura riguardante l'utilizzo della vitamina D nel COVID-19 non ha dimostrato alcun beneficio". Per entrambe queste affermazioni, come si può notare dalla selezione bibliografica della nostra rivista, mi pare che la letteratura in merito sia in realtà perlomeno contraddittoria. Nello stesso rapporto vi invito a osservare la curva nel consumo di vitamina D post nota 96 nel 2020, primo anno del COVID-19, il recupero negli anni successivi 2021 e 2022 e il successivo calo nell'anno post-COVID 2023 (Fig. 1). Nel citato rapporto OsMed è riportato inoltre che la vitamina D risulta al terzo posto tra le categorie terapeutiche di classe A acquistate privatamente dal cittadino con una spesa ulteriore pari a 76 milioni di euro (26% sul totale della spesa), in aumento rispetto all'anno precedente.
Cosa ne pensate?
Buona lettura… e Buon Anno

Bibliografia

1. Grieco T, Moliterni E, Paolino G, et al. Association between Vitamin D Receptor Polymorphisms, Tight Junction Proteins and Clinical Features of Adult Patients with Atopic Dermatitis. Dermatol Pract Concept 2024;14:e2024214. https://doi.org/10.5826/dpc.1403a214
2. Osservatorio Nazionale sull'impiego dei Medicinali. L'uso dei farmaci in Italia. Rapporto Nazionale Anno 2023. Roma: Agenzia Italiana del Farmaco 2024. https://www.aifa.gov.it/-/aifa-pubblica-il-rapporto-osmed-2023-l-uso-dei-farmaci-in-italia-

Dermatite atopica e vitamina D

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VITAMIN D
UpDates
2024;7(4):76-79
https://doi. org/10.30455/2611-2876-2024-7

Con il termine "organo barriera" intendiamo l'insieme degli epiteli dell'organismo, dalla cui integrità dipende la nostra sopravvivenza. Numerosi componenti contribuiscono alla costituzione della barriera. Infatti, si riconosce una barriera chimica, immunologica, microbica e una fisica. Quest'ultima a livello della cute è decisamente più complessa rispetto a quella degli altri epiteli ed è regolata da un ben definito insieme di molecole coinvolte nel metabolismo della filaggrina, nella formazione dell'involucro corneo, nella sintesi delle lamelle lipidiche intercellulari, nell'organizzazione dei corneodesmosomi, nella desquamazione e nella formazione delle *tight junctions* (TJ), che riducono gli spazi intercellulari tra le cellule epiteliali fino alla loro scomparsa. In particolare, proprio lo strato corneo e le TJ, presenti in esso soprattutto nello strato compatto [1], sono responsabili della permeabilità [2-5], che negli altri epiteli è garantita dal sistema delle TJ. Inoltre, recenti indagini hanno dimostrato che l'inibizione parziale o totale delle proteine costituenti le TJ modifica la permeabilità epiteliale intervenendo nel metabolismo della filaggrina e dei lipidi con anomala formazione dello strato corneo [1,2].
In due malattie infiammatorie cutanee, in particolare psoriasi e dermatite atopica, l'alterazione della barriera sembra giuocare un ruolo importante nella loro patogenesi.

Infatti, una serie di indagini da noi condotte sulla psoriasi ha evidenziato che la vitamina D, oltre le sue note funzioni, giuoca un ruolo sull'espressione di alcune delle proteine costituenti le TJ. Partendo dall'osservazione che la psoriasi migliora con l'esposizione ai raggi solari e che la cute, irradiata dal sole, sintetizza vitamina D, abbiamo indagato il ruolo di questa vitamina. In particolare, abbiamo dimostrato che nei pazienti affetti da psoriasi la vitamina D è ridotta e correla inversamente con il PASI (*Psoriasis Area Severity Index*) [6] e con il livello ematico dei linfociti T reg [7]; i VDR (*Vitamin D Receptor*) nelle lesioni psoriasiche sono ridotti del 50% rispetto alla cute sana; i VDR presentano polimorfismi che correlano con la clinica [8]; infine, la riduzione dei VDR si associa alla ridotta espressione di alcune proteine costituenti le TJ, in particolare claudina-1, occludina e zonulina-1 [9]. In conclusione, nella psoriasi risulta una correlazione tra il deficit di vitamina D e l'alterazione delle TJ e, quindi, un'alterata permeabilità della cute.
In base a questi risultati abbiamo rivolto la nostra attenzione alla dermatite atopica (DA). La dermatosi è la manifestazione cutanea dell'atopia, tratto ereditario poligenico ad alta prevalenza che può interessare altri epiteli (rinite allergica, asma, ecc.) in cui, come già detto, l'integrità della barriera è garantita anche dalle TJ. È più frequente in età pediatrica con una prevalenza che oscilla tra il 10 e il 30% e decisamente meno frequente nell'adulto (5-7%). È una patologia infiammatoria caratterizzata da alterazione della permeabilità della barriera per il deficit di filaggrina, il cui gene risulta mutato nel 30-50% dei pazienti. Nella DA è predominante una risposta immunologica di tipo Th2 con aumento di alcune citochine, come IL-4, IL-5 e IL-13, che svolgono un ruolo essenziale nel reclutamento degli eosinofili e nella sintesi di IgE. A tal riguardo si deve ricordare che si riconoscono due forme di DA: quella estrinseca, decisamente più frequente e caratterizzata da aumento delle IgE circolanti, e la forma intrinseca, circa il 20% dei casi, con valori di IgE nella norma. Infine, si deve ricordare che la DA è gravata da alcune comorbidità, come la psoriasi [10].

Inoltre, anche la DA migliora con l'esposizione ai raggi solari [11]. Infatti, l'esposizione a fonti artificiali di raggi UV è considerata tra le possibili terapie di questa dermatosi [12]. Il lavoro di Napolitano et al. [13], in particolare, evidenzia che negli adulti affetti da DA 6 su 10 migliorano dopo esposizione ai raggi UV. Per spiegare questo fenomeno sono state avanzate varie ipotesi: azione immunomodulatoria dei raggi UV che inducono apoptosi delle cellule infiammatorie, inibiscono le cellule di Langerhans e modificano la produzione di citochine [14]; azione diretta dei raggi UV che riducono la colonizzazione dello *Staphylococcus aureus*, ma si deve considerare anche l'effetto dell'esposizione ai raggi solari sulla sintesi di vitamina D. Inoltre, alcuni studi hanno dimostrato una correlazione tra

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Conflitto di interessi
L'Autore dichiara nessun conflitto di interessi.

How to cite this article: Calvieri S. Dermatite atopica e vitamina D. Vitamin D – Updates 2024;7(4):76-79. https://doi.org/10.30455/2611-2876-2024-7

severità della DA e la concentrazione ematica di vitamina D senza riuscire a evidenziare un legame tra queste variabili. Inoltre, differenti trial clinici sulla supplementazione di vitamina D in bambini hanno dato risultati contraddittori.

Pertanto, al fine di chiarire un eventuale ruolo della vitamina D abbiamo arruolato 43 adulti affetti da DA moderata o severa non in terapia sistemica da almeno tre mesi, ai quali sono stati effettuati, dopo la raccolta di dati anamnestici, prelievi ematici, biopsie della cute in zona lesionale (LS) e non (NLS). Inoltre, per ognuno di essi è stato valutato l'indice di severità EASI (*Eczema Area Severity Index*) e tutti hanno eseguito *prick tests* (STP) (Tab. I). Sono state eseguite valutazioni con PCR (*Polymerase Chain Reaction*) per lo studio di alcuni polimorfismi del VDR (Tab. II) su sangue, ed esami istochimici per studiare l'espressione dei VDR, dell'occludina, della claudina e della ZO-1 sia su NLS che su LS e la relativa espressione genica. La regressione logistica multivariata è stata utilizzata per esplorare l'associazione tra vari polimorfismi del VDR (variabili dipendenti) o proteine TJ (variabili dipendenti) e caratteristiche cliniche e patologiche dei pazienti con DA (variabili indipendenti). In questo articolo riporteremo la parte dei risultati relativi ai polimorfismi del VDR [15] perché non tutti sono stati ancora oggetto di pubblicazione.

I risultati di questo studio trasversale identificano un legame tra i polimorfismi del VDR, l'espressione delle proteine VDR e TJ e le caratteristiche cliniche in una coorte di pazienti con DA. In particolare, abbiamo osservato un OR più basso per l'insorgenza di DA in individui con il polimorfismo del VDR eterozigote A1012G, mentre i polimorfismi del VDR omozigoti cumulativi ≥ 2 (Tab. III) erano collegati a una maggiore probabilità di sviluppare reazioni allergiche.

Tra le proteine costituenti le TJ, la claudina e ZO-1 erano quelle maggiormente espresse. L'espressione della proteina VDR è stata associata alla presenza di lesioni generalizzate di DA, mentre la claudina ha dimostrato un'associazione significativa con un SPT positivo. Mentre studi precedenti hanno indagato le differenze nella frequenza del polimorfismo del VDR e nei livelli di espressione di VDR e TJ tra pazienti con DA e controlli sani, lo scopo del nostro studio è stato quello di caratterizzare le interrelazioni tra SNP (*single-nucleotide polymorphism*), VDR e l'espressione delle proteine TJ nelle biopsie cutanee di questa coorte di pazienti affetti da DA e associarle alle loro caratteristiche cliniche. Ad oggi, infatti, nessun lavoro ha correlato i polimorfismi del VDR con le caratteristiche cliniche della dermatosi. I nostri risultati suggeriscono che i polimorfismi del VDR possono effettivamente essere associati alle caratteristiche cliniche della DA. Abbiamo scoperto che gli individui con stato eterozigote A1012G avevano probabilità significativamente più basse di sviluppare la DA precocemente (OR: 0,046, IC 95%: 0,004-0,510, p = 0,012), suggerendo un potenziale effetto protettivo di questo polimorfismo sull'insorgenza della malattia. Del resto, Richetta et al. hanno riportato un minor rischio di sviluppare psoriasi quando questo polimorfismo, sia in eterozigosi che in omozigosi, era presente rispetto al genotipo *wild-type* [16].

Abbiamo anche osservato che la presenza di ApaI in omozigosi mostrava una tendenza a probabilità più elevate (OR di 5,99) di sviluppare la malattia precocemente, indicando un potenziale rischio associato a questo polimorfismo. È interessante notare che ApaI (rs7975232) è associato a livelli più bassi di espressione e ridotta stabilità del mRNA VDR [17], e bassi livelli di vitamina D sono associati alla DA. Inoltre, Heine et al. [18] hanno dimostrato un'associazione tra il polimorfismo ApaI e le forme gravi di DA.

I nostri risultati hanno mostrato un'associazione statisticamente significativa tra la presenza di polimorfismi cumulativi omozigoti > 2 del VDR e un SPT positivo (10/20, 50%) rispetto a SPT negativo (1/23, 4,3%; p = 0,0003). A sostegno di questa osservazione, è stato riportato che un basso livello di vitamina D è associato a livelli più elevati di IgE negli atopici [19,20].

I polimorfismi del VDR sono stati anche correlati con l'espressione del recettore nelle biopsie cutanee lesionali (LS) della nostra coorte di pazienti con DA. Abbiamo osservato un'associazione positiva per il polimorfismo ApaI quando si trova nello stato eterozigote con l'espressione di VDR. Questo risultato è in contrasto con altri che riportano che i polimorfismi in ApaI sono associati a una ridotta stabilità del RNA messaggero e a livelli più bassi di espressione [21,22]. Tuttavia, un altro studio su bambini turchi ha descritto un legame significativo tra ApaI in eterozigosi e rischio di asma [23]. Da notare che mancano studi funzionali sull'associazione tra i polimorfismi ApaI e l'espressione della proteina VDR.

TABELLA I.
Caratteristiche cliniche e di laboratorio.

Sesso, n (%)	
• Maschi	17 (39,5)
• Femmine	26 (60,5)
Età	
• < 60 anni	36 (83,7)
• ≥ 60 anni	7 (16,3)
Età di insorgenza della malattia n (%)	
• Infanzia/adolescenza	28 (65,1)
• Adulti	15 (34,9)
***Body Mass Index* (BMI)**	
• < 30 kg/m^2	35 (81,4)
• ≥ 30 kg/m^2	8 (18,6)
Localizzazione n (%)	
• Flessure	9 (20,9)
• Generalizzato	18 (41,9)
• Testa/collo	14 (32,6)
• Mani	2 (4,7)
EASI score	
• Mild (EASI < 16)	5 (11,6)
• *Moderate-to-severe* (EASI ≥ 16 o < 16 con coinvolgimento del viso e delle mani)	38 (88,4)
Asma, n (%)	
• Presente	8 (18,6)
• Assente	35 (81,4)
Rinocongiuntivite, n (%)	
• Presente	14 (32,6)
• Assente	29 (67,4)
***Skin prick test*, n (%)**	
• Positivo	20 (46,5)
• Negativo	23 (53,5)
IgE totali (IU/ml), n (%)	
• < 100 IU/ml	18 (41,9)
• ≥ 100 IU/ml	25 (58,1)
25(OH)D	
• ≥ 30 ng/ml	15 (34,9)
• < 30 ng/ml	28 (65,1)

TABELLA II.
Polimorfismi target.

Gene	Polimorfismo	SNP ID	Posizione sul cromosoma 12 (assemblaggio hg38)	Localizzazione genetica (NM 000376)	Posizione ATG in VDR (NM_000376)
VDR	A-1012G	rs4516045	47906043	Promotore VDR	c.-1172A>G
VDR	FokI	rs2228570 rs107365810	47879112	Esone 3 (codifica)	c.2T>C
VDR	BsmI	rs1544410	47846052	Introne 9	c.1024+283G>T
VDR	ApaI	rs7975232	47845054	Introne 9	c.1025-49G>T
VDR	TaqI	rs731236	47844974	Esone 10 (codifica)	c.1056T>C

TABELLA III.
Frequenza di genotipi specifici per diversi polimorfismi a singolo nucleotide del VDR nei pazienti con AD.

Polimorfismo	Numero di casi (%)
rs4516035 A1012G	
Genotipo	N (%)
AA (tipo selvatico)	15 (34,9)
AG (eterozigote)	23 (53,5)
GG (omozigote)	5 (11,6)
rs2228570 FokI	
Genotipo	N (%)
TT (tipo selvaggio)	5 (11,6)
TC (eterozigote)	17 (39,5)
CC (omozigote)	21 (48,8)
rs1544410 BsmI	
Genotipo	N (%)
GG (tipo selvatico)	18 (41,9)
GT (eterozigote)	20 (46,5)
TT (omozigote)	5 (11,6)
rs7975232 ApaI	
Genotipo	N (%)
GG (tipo selvatico)	10 (23,3)
GT (eterozigote)	19 (44,2)
TT (omozigote)	14 (32,6)
rs731236 TaqI	
Genotipo	N (%)
TT (tipo selvaggio)	19 (44,2)
TC (eterozigote)	19 (44,2)
CC (omozigote)	5 (11,6)

Per quanto riguarda le indagini sulle proteine costituenti le TJ, abbiamo osservato che la claudina e la ZO-1 erano le più espresse nelle biopsie cutanee delle lesioni di pazienti con DA, mentre il VDR e l'occludina erano le più basse. Nessuno studio ha riportato i livelli di espressione relativi a queste proteine. In letteratura sono presenti solo studi caso-controllo. Inoltre, il nostro lavoro ha rivelato una correlazione negativa tra la vitamina D e l'espressione di ZO-1 (rho = -0,43; p = 0,0058). In uno studio di Yuki et al. [24], i livelli di proteina TJ sono stati quantificati nei tessuti epidermici di tre pazienti con DA e tre soggetti normali. Le biopsie cutanee sono state prelevate da siti non lesionali di DA (NLS) e siti cutanei lesionati (LS). Nel NLS di DA, la claudina-1, l'occludina e le proteine ZO-1, hanno rilevato condizioni simili a quelle della pelle normale. Tuttavia, nei LS, le intensità del segnale di claudina-1 e ZO-1 erano marcatamente ridotte. Questi dati sembrano essere in contrasto con i nostri risultati, anche se sono stati esaminati solo tre campioni di pazienti e la nostra analisi è stata limitata ai LS.
Meckel et al. [25] hanno osservato una correlazione inversa tra le concentrazioni sieriche di 25(OH)D e l'infiammazione della mucosa in 230 soggetti con colite ulcerosa, insieme a un'alterazione dell'espressione proteica di VDR, occludina e diminuzione dell'espressione proteica di ZO-1. Questi risultati sono in linea con i nostri risultati. Abbiamo anche trovato un'associazione positiva tra l'espressione di ZO-1 e il BMI (*body mass index*) ≥ 30. La zonulina è considerata l'unico mediatore fisiologico noto per regolare la permeabilità intestinale in modo reversibile modulando le TJ intercellulari e l'obesità ed è stata associata a un aumento della permeabilità e dell'assorbimento intestinale [26].
Abbiamo anche osservato un livello più elevato di espressione di claudina nei pazienti che presentavano SPT positivo. De Benedetto et al. [27] hanno riportato una ridotta espressione di claudina-1 nei NLS di DA, mentre Gruber et al. [28] e Yuki et al. [24] hanno dimostrato che la claudina-1 era sovraregolata nel NLS di soggetti con DA. Nel complesso, questi risultati suggeriscono un ruolo complesso e dipendente dal contesto della claudina-1 nella DA, influenzato da fattori genetici e considerazioni ambientali.

In conclusione, nel nostro studio su pazienti italiani con DA abbiamo identificato associazioni significative tra polimorfismi del VDR, espressione di VDR, proteine TJ e caratteristiche cliniche della DA. Questi risultati forniscono importanti informazioni sulla complessa interazione tra fattori genetici, carenza di vitamina D e proteine TJ nella patologia della DA, sottolineando la natura complessa della fisiopatologia di questa dermatosi e l'identificazione di potenziali marcatori per la diagnosi precoce della DA.

Infine, malgrado alcune analogie con la psoriasi da noi evidenziate, come il ruolo protettivo di A1012G eterozigote, la ridotta espressione del VDR, ecc., emergono differenze che, se correttamente interpretate, potrebbero ulteriormente chiarire il ruolo della vitamina D nei complessi meccanismi che regolano la permeabilità degli epiteli.

Bibliografia

1. Igawa S, Kishibe M, Murakami M et al. Tight junctions in the stratum corneum explain spatial differences in corneodesmosome degradation. Exp Dermatol 2011;20:53-57. https://doi.org/10.1111/j.1600-0625.2010.01170.x
2. Haftek M, Oji V, Feldmeyer L, et al. The fate of epidermalTight Junctions in the stratum corneum:Their involvement in trh regulation of desquamation and phenotipic

rxpression of certain skin conditions. Int J Mol Sci 2022;23:7486. https://doi.org/10.3390/ijms23137486

3 Yokouchi M, Kubo A. Maintenance of tight junction barrier integrity in cell turnover and skin disease. Exp Dermatol 2018;27:876-883. https://doi.org/10.1111/exd.13742

4 Taieb A. Skin barrier in neonate. Pediatric Dermatol 2018;35:s5-s9 https://doi.org/10.1111/pde.13482

5 De Benedetto A. Tight junctions in the skin. Br J Dermatol 2021;184:388-389 https://doi.org/10.1111/bjd.19390

6 Mattozzi C, Paolino G, Salvi M, et al. Correlation between plasmatic levels of vitamin D and PASI score. G Ital Dermatol Venereol 2018;153:155-160. https://doi.org/10.23736/S0392-0488.17.05622-X

7 Mattozzi C, Paolino G, Salvi M, et al. Peripheral blood regulatory T cell measurements correlate with serum vitamin D level in patients with psoriasis. Eur Rev Med Pharmacol Sci 2016;20:1675-9.

8 Richetta AG, Silvestri V, Giancristoforo S, et al. A-1012G promoter polymorphism of vitamin D receptor gene is associated with psoriasis risk and lower allele-specific expression. DNA Cell Biol 2014;33:102-109. https://doi.org/10.1089/dna.2013.2217

9 Visconti B, Paolino G, Carotti S, et al. Immunohistochemical expression of VDR is associated with reduced integrity of tight junction complex in psoriatic skin.J Eur Acad Dermatol Venereol 2015;29:2038-2042. https://doi.org/10.1111/jdv.12736

10 von Kobyletzki L, Henrohn D, Ballardini N, et al. Comorbidities in childhood atopic dermatitis: a polulation-based study. JEADV 2024;38;354-364. https://doi.org/10.1111/jdv.19569

11 Bonamonte D, Filoni A, Vestita M, et al. The role of the enviromental risk factors in the pathogenesis and clinical outcome of atopic dermatitis. Bio Med Res Int 2019;2029:245060. https://doi.org/10.1155/2019/2450605

12 Wollenberg A, et al. Consensus -based European guidelines for treatment of atopic eczema (atopic dermatitis) in adults and children:part 1. J Eur Acad Dermatol Venereol 2018;32:657-682. https://doi.org/10.1111/jdv.14891

13 Napolitano M, Monfrecola G, Fabbrocini G, et al. Impact of sun exposure on adult patients affected by atopic dermatitis. It J Dermatol Venereol 2021;156:558-561.

14 Gambichler T, Kreuter A, Tomi NS, et al. Gene expression of cytokines in atopic eczema before and after ultraviolet A1 phototherapy. Br J Dermat 2008;158:1117-20. https://doi.org/10.1111/j.1365-2133.2008.08498.x

15 Grieco T, Moliterni E, Paolino G, et a. Association between Vitamin D Receptor Polymorphisms, Tight Junction Proteins and Clinical Features of Adult Patients with Atopic Dermatitis. Dermatol Pract Concept 2024;14:e2024214. https://doi.org/10.5826/dpc.1403a214

16 Richetta A, Silvestri V, Giancristoforo S, et al. A-1012G promoter polymorphism of vitamin D receptor gene is associated with psoriasis risk and lower allele-specific expression. DNA and cell biology 2014;33(2). https://doi.org/10.1089/dna.2013.2217

17 Tamasauskiene L, Golubickaite I, Ugenskiene R, et al. Vitamin D receptor gene polymorphisms in atopy. Immun Inflamm Dis 2021;9:1153-1159. https://doi.org/10.1002/iid3.487

18 Heine G, Hoefer N, Franke A, et al. Association of vitamin D receptor gene polymorphisms with severe atopic dermatitis in adults. Br J Dermatol 2013;168:855-858. https://doi.org/10.1111/bjd.12077

19 Manousaki D, Paternoster L, Standl M, et al. Vitamin D levels and susceptibility to asthma, elevated immunoglobulin E levels, and atopic dermatitis: A Mendelian randomization study. PLoS Med 2017;14(5):e1002294. https://doi.org/10.1371/journal.pmed.100229

20 Bastyte D, Tamasauskiene L, Golubickaite I, et al. Vitamin D receptor and vitamin D binding protein gene polymorphisms in patients with asthma: a pilot study. BMC Pulm Med 2023;23:245. https://doi.org/10.1186/s12890-023-02531-3

21 Zhang L, Zhang S, He C, Wang X. VDR Gene Polymorphisms and Allergic Diseases: Evidence from a Meta-analysis. Immunological Investigations 2020;49:166-177. https://doi.org/10.1080/08820139.201.

22 Valdivielso JM, Fernandez E. Vitamin D receptor polymorphisms and diseases. Clin Chim Acta 2006;371:1-12. https://doi.org/10.1016/j.cca.2006.02.016

23 Kilic M, Ecin S, Taskin E, et al. The Vitamin D Receptor Gene Polymorphisms in Asthmatic Children: A Case-Control Study. Pediatr Allergy Immunol Pulmonol 2019;32:63-69. https://doi.org/10.1089/ped.2018.094833

24 Yuki T, Tobiishi M, Kusaka-Kikushima A, et al. Impaired Tight Junctions in Atopic Dermatitis Skin and in a Skin-Equivalent Model Treated with Interleukin-17. PLoS One 2016;11:e0161759. https://doi.org/10.1371/journal.pone.0161759

25 Meckel K, Li YC, Lim J, et al. Serum 25-hydroxyvitamin D concentration is inversely associated with mucosal inflammation in patients with ulcerative colitis1,2. Am J Clin Nutrition 2016;104:113-120. https://doi.org/10.3945/ajcn.115.123786

26 Moreno-Navarrete JM, Sabater M, Ortega F, et al. Circulating zonulin, a marker of intestinal permeability, is increased in association with obesity-associated insulin resistance. PLoS One 2012;7:e37160. https://doi.org/10.1371/journal.pone.0037160

27 De Benedetto A, Rafaels NM, McGirt LY, et al. Tight Junction Defects in Atopic Dermatitis. J Allergy Clin Immuno 2011;127:773–786.e7. https://doi.org/10.1016/j.jaci.2010.10.018

28 Gruber R, Börnchen C, Rose K, et al. Diverse Regulation of Claudin-1 and Claudin-4 in Atopic Dermatitis. Am J Pathol2015;185:2777–2789. https://doi.org/10.1016/j.ajpath.2015.06.021

VITAMIN D
UpDates
2024;7(4):80-83
https://doi. org/10.30455/2611-2876-2024-8

Il ruolo della vitamina D nella riabilitazione post ictus: tra luci e ombre

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Nonostante i progressi della medicina del XX secolo, la carenza di vitamina D è ancora una pandemia [1]: circa 1 miliardo di persone in tutto il mondo soffrono di carenza di vitamina D. Classicamente, la carenza di vitamina D è associata al rachitismo nei bambini mentre, negli adulti, la carenza di vitamina D si manifesta come osteomalacia, una condizione dolorosa di mineralizzazione scheletrica difettosa, o come osteoporosi che causa fragilità scheletrica e fratture [1,2]. La vitamina D svolge anche un ruolo importante nella regolazione della proliferazione e della differenziazione in una varietà di cellule e tessuti non associati al metabolismo del calcio [1-4]. I recettori per la vitamina D (VDR) sono stati trovati in una varietà di tessuti e cellule corporee, tra cui cervello, cuore, seno, prostata, gonadi, colon, pancreas, monociti e linfociti T e B attivati [3-6]. La vitamina D è importante per il mantenimento della forza muscolare attraverso la sua azione sui VDR nel tessuto muscolare [7].

I pazienti sottoposti a riabilitazione, sia in regime di ricovero che ambulatoriale, sono una popolazione ad alto rischio incline a sviluppare un deficit di vitamina D e a manifestare le conseguenze di tale condizione [8,9]. I risultati funzionali di questi pazienti dipenderanno dalla diagnosi corretta e dal trattamento appropriato del deficit vitaminico.

Al fine di valutare l'efficacia dell'integrazione di vitamina D nei pazienti sottoposti a programmi riabilitativi, abbiamo preso in considerazione gli studi riguardanti la riabilitazione dopo ictus cerebrale. È stata studiata l'efficacia della riabilitazione dopo l'integrazione di vitamina D nei pazienti con ictus, sono stati verificati i risultati delle ricerche, l'efficacia dell'integrazione, il tipo, la forma e la quantità di vitamina D somministrata. Sono stati confrontati i criteri per l'inclusione negli studi, la durata e le scale utilizzate (Fig. 1).

L'EFFETTO DELL'INTEGRAZIONE DI VITAMINA D SULLA RIABILITAZIONE POST-ICTUS

La carenza di vitamina D può essere associata a un rischio aumentato di insorgenza, gravità e prognosi futura dell'ictus. Influisce anche sul declino cognitivo e sulle prestazioni fisiche, che si osservano nei pazienti con ictus che hanno esiti peggiori nella riabilitazione neurologica [10].

A causa delle numerose limitazioni del test della vitamina D nel siero e del metodo e della quantità della sua somministrazione, vi è poca certezza sulla possibilità di migliorare gli esiti della riabilitazione nei sopravvissuti all'ictus in ogni caso [11]. Molti studi hanno presentato risultati ottimisti e hanno dimostrato che l'integrazione di vitamina D dopo l'ictus ha migliorato i livelli di qualità della vita e ha facilitato il ritorno alla vita normale dei pazienti.

Studi su piccoli campioni hanno mostrato risultati migliori per i pazienti che hanno assunto un'integrazione con vitamina D dopo l'ictus [12,13].

Due piccoli studi in aperto condotti da Gupta et al. in India hanno dimostrato che l'iniezione intramuscolare di colecalciferolo ad alto dosaggio (600.000 UI) migliorava i punteggi su varie scale di ictus e aumentava la sopravvivenza dei pazienti post-ictus. Uno studio randomizzato, controllato, in aperto ha incluso 73 pazienti con ictus ischemico acuto. Ogni paziente è stato sottoposto a test per i livelli sierici di 25(OH)D prima di entrare nello studio. Un totale di 53 pazienti con 25(OH)D basale < 75 nmol/L sono stati assegnati in modo casuale ai due studi. Il primo gruppo ha ricevuto un'iniezione intramuscolare di 600.000 UI di colecalciferolo una sola volta e colecalciferolo orale a una dose di 60.000 UI una volta al mese con

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Conflitto di interessi
L'Autore dichiara nessun conflitto di interessi.

How to cite this article: Triggiani L. Il ruolo della vitamina D nella riabilitazione post ictus: tra luci e ombre. Vitamin D – Updates 2024;7(4):80-83. https://doi.org/10.30455/2611-2876-2024-8

Benefici di livelli adeguati di vitamina D

Sempre più studi suggeriscono che mantenere un livello normale di vitamina D migliora la funzione cardio- e cerebrovascolare. Inoltre, la vitamina D influenza la progressione, lo sviluppo e la prognosi dell'ictus.

ICTUS EMORRAGICO

- **Non ci sono prove scientifiche che bassi livelli di vitamina D influenzino il rischio di ictus emorragico.**
- **I pazienti con ictus emorragico spesso soffrono di carenza di vitamina D e l'integrazione di vitamina D riduce gli effetti dannosi della malattia.**

ICTUS ISCHEMICO

- **Studi scientifici suggeriscono che bassi livelli di vitamina D possono essere associati con un aumentato rischio di ictus ischemico. $1,25(OH)_2D_3$ può indurre l'espressione dell'IGF-, che contribuisce al controllo e alla protezione delle cellule nervose.**
- **L'IGF-1 ha dimostrato di avere proprietà anticoagulanti mediante l'attivazione del plasminogeno.**

FIGURA 1.
Ruolo della vitamina D nell'ictus ischemico ed emorragico.

un grammo di calcio elementare al giorno insieme alla consueta cura post-ictus. Il secondo gruppo di controllo ha ricevuto solo le normali cure ospedaliere. I livelli sierici di vitamina D e iPTH sono stati testati a 3 e 6 mesi dallo studio, e il follow-up stesso è durato 6 mesi. Nello studio è stata utilizzata la scala di Rankin modificata (mRS) e sono stati ottenuti punteggi elevati dopo 6 mesi. Questo risultato conferma l'effetto benefico dell'integrazione di vitamina D nei pazienti post-ictus [10].

Uno studio randomizzato, controllato e non in cieco di Narasimhan e Balasubramanian ha confrontato i risultati nei pazienti con ictus ischemico che assumevano integrazione di vitamina D con quelli senza integrazione. Lo studio ha utilizzato la *Scandinavian Stroke Scale* (SSS), una scala affidabile e ampiamente utilizzata nei pazienti con malattia cerebrovascolare ischemica. Il primo gruppo di pazienti ha ricevuto una dose di 60.000 UI di colecalciferolo somministrata tramite iniezione intramuscolare; il secondo gruppo non ha ricevuto vitamina D. I pazienti di entrambi i gruppi sono stati esaminati all'inizio dello studio e dopo tre mesi. I risultati indicavano un significativo miglioramento nei risultati tra i pazienti post-ictus che hanno assunto integratori di vitamina D [13]. L'integrazione di vitamina D nei pazienti post-ictus ha avuto un effetto positivo sui risultati della riabilitazione.

Un piccolo studio giapponese di Momosaki et al. su 100 pazienti non ha mostrato alcun miglioramento nei pazienti con ictus trattati con vitamina D. Dopo la randomizzazione, ciascuno dei 100 soggetti ha assunto una forma orale di vitamina D_3 a una dose di 2000 UI/giorno o un placebo. Ogni paziente ha ricevuto 450 capsule, ciascuna contenente 400 UI di vitamina D_3, il che significa che i pazienti hanno assunto le capsule cinque volte al giorno. La vitamina D_3 è stata sempre assunta alla stessa ora, dopo pranzo. Lo studio con riabilitazione e integrazione di vitamina D è durato 8 settimane. Durante il ricovero del paziente e 8 settimane dopo la dimissione, il personale riabilitativo ha valutato l'indice di Barthel di ogni paziente, lo stadio di Brunnstrom (braccio, mano e gamba sul lato interessato), la forza di prensione della mano (bilateralmente) e la circonferenza del polpaccio (bilateralmente). Un totale di 97 pazienti ha completato lo studio giapponese. Si è riscontrato un miglioramento nei punteggi dell'indice di Barthel all'ottava settimana di riabilitazione come endpoint primario; sono stati osservati outcome secondari nella prestazione dell'indice di Barthel, nella forza di compressione della mano e nella circonferenza del polpaccio. Non sono state riscontrate differenze negli altri endpoint secondari tra i gruppi. Nessuna di queste differenze era statisticamente significativa, il che indica che l'integrazione giornaliera con 2000 UI di vitamina D_3 nei pazienti dopo un ictus acuto era inefficace e non forniva i benefici previsti. Un potenziale errore era dovuto al fatto che i livelli sierici di 25-idrossivitamina D non erano considerati come criterio di inclusione dei pazienti per lo studio; i ricercatori hanno giustificato la scelta con l'ipotesi che quasi tutti i pazienti anziani sottoposti a riabilitazione hanno una carenza di vitamina D e, quindi, lo studio sulla carenza in sé non è stato incluso nei pazienti che hanno partecipato allo studio [14,15]. Altri limiti evidenziati dagli autori includono la piccola numerosità del gruppo di studio, la breve durata dell'integrazione e dell'intero studio, rendendo impossibile determinare con precisione il ruolo a lungo termine e sporadico dell'integrazione di vitamina D nei pazienti con ictus. Un'altra limitazione estremamente importante è stata il confronto di un solo campione di vitamina D con un campione di placebo [11].

Lo studio del 2021 di Torrisi et al. ha evidenziato miglioramenti nei pazienti con ictus sottoposti a neuroriabilitazione intensiva e integrazione di vitamina D, nonché

dopo la neuroriabilitazione stessa. È stato condotto uno studio randomizzato, in doppio cieco, parallelo, monocentrico, della durata di 12 settimane, su 40 pazienti dopo ictus ischemico ed emorragico. I partecipanti sono stati assegnati in modo casuale, in una proporzione 1:1, tra due gruppi paralleli: il gruppo sperimentale in cui sono state somministrate per via orale 2000 UI/giorno di colecalciferolo e il gruppo di controllo in cui i pazienti non hanno ricevuto alcuna integrazione di vitamina D. Tutti i pazienti arruolati nello studio hanno eseguito una neuroriabilitazione intensiva consistente in training cognitivo e motorio. Tutti i pazienti hanno completato il ciclo riabilitativo. Tutti i partecipanti allo studio sono stati sottoposti a screening in due fasi, all'inizio e alla fine della riabilitazione. I pazienti sono stati valutati utilizzando la scala GSE, la scala di valutazione della depressione *Montgomery Aasberg* (MADRS) e la *Functional Independence Measure* (FIM). Sono stati monitorati i livelli sierici di vitamina D e calcio. Sono stati osservati miglioramenti significativi nei pazienti del gruppo sperimentale e del gruppo di controllo sia nelle prestazioni psicologiche che funzionali. I pazienti che assumevano integratori di vitamina D hanno mostrato una maggiore variabilità rispetto ai pazienti che non li assumevano. I risultati hanno indicato che la neuroriabilitazione intensiva aveva un effetto benefico sul recupero funzionale dopo un ictus; inoltre, è stato dimostrato un netto miglioramento nel gruppo sperimentale, suggerendo che anche l'integrazione di vitamina D può svolgere un ruolo positivo [16]. Tuttavia, l'integrazione di vitamina D nei pazienti con ictus non ha migliorato i risultati in maniera statisticamente significativa.

Secondo Utkan Karasu e Kaymak Karataş, l'integrazione di vitamina D può aumentare l'efficacia della riabilitazione nei pazienti post-ictus. Ciò è particolarmente importante nei pazienti che si trovano nei primi tre mesi dopo un ictus e che saranno sottoposti a riabilitazione neurologica per la prima volta. Lo studio retrospettivo ha incluso 76 pazienti con ictus. I pazienti nello studio hanno avuto un ictus (ischemico/emorragico) per la prima volta nella loro vita. Sono stati utilizzati il *Brunnstrom Recovery Stage* (BRS) per l'arto inferiore e la scala *Functional Assessment of Movement* (FAC) per misurare i risultati in termini di funzione motoria. I livelli sierici di 25(OH)D misurati in ng/mg sono stati esaminati durante la prima settimana dello studio. I pazienti sono stati divisi in due gruppi: quelli sottoposti a integrazione di vitamina D durante la riabilitazione e quelli che non hanno ricevuto tale integrazione. Per 4-12 settimane, i pazienti hanno assunto vitamina D orale (50.000 UI) durante la riabilitazione e la dose totale di vitamina D variava da 200.000 a 600.000 UI. I livelli di vitamina D prima della riabilitazione e i punteggi BRS e FAC, nonché i cambiamenti nei punteggi prima e dopo il processo di riabilitazione, nei pazienti con ictus sono stati registrati e confrontati sia nel gruppo di controllo che in quello di studio. Dopo il periodo di riabilitazione è stato riscontrato un cambiamento positivo e statisticamente significativo nei punteggi FAC e BRS nel gruppo che ha ricevuto vitamina D. Inoltre, è stato confrontato l'effetto dell'integrazione di vitamina D sui punteggi FAC e BRS nei pazienti che hanno iniziato il trattamento riabilitativo entro i primi 3 mesi dopo l'ictus. È stato riscontrato che il cambiamento nei punteggi FAC e BRS era statisticamente significativo nei pazienti trattati con vitamina D. Questi risultati hanno dimostrato l'effetto benefico dell'assunzione di vitamina D nei pazienti durante il percorso di riabilitazione dopo l'ictus. L'integrazione di vitamina D durante la riabilitazione post-ictus può avere un effetto positivo sulla mobilità degli arti inferiori e sulla funzione motoria secondo Utkan Karasu e Kaymak Karataş [17]. In questo studio, l'integrazione di vitamina D nei pazienti con ictus ha avuto un effetto positivo e i pazienti hanno avuto risultati migliori nella riabilitazione.

Sari et al. [12] hanno studiato gli effetti dell'integrazione di vitamina D sui risultati della riabilitazione e sull'equilibrio nei pazienti con emiplegia dovuta a ictus ischemico. Sono stati inclusi nello studio settantadue pazienti con ictus ischemico con bassi livelli ematici di vitamina D ricoverati in ospedale per la riabilitazione dell'emiplegia. È stata fatta una suddivisione in due gruppi: il gruppo A ha ricevuto vitamina D tramite iniezione intramuscolare (300.000 UI di vitamina D); il gruppo B ha ricevuto soluzione salina tramite iniezione intramuscolare. I pazienti sono stati esaminati all'inizio del processo di studio e al terzo mese. Per esaminare gli effetti sono stati utilizzati la scala di Brunnstrom, l'indice di Barthel modificato, la scala di equilibrio di Berg e la scala di deambulazione funzionale (FAS). Entro la fine del terzo mese, è stata riscontrata una differenza significativa tra i due gruppi nell'indice di Barthel modificato e nella scala di equilibrio di Berg. Non è stata osservata alcuna modifica statisticamente significativa nei punteggi della scala di Brunnstrom o della scala di deambulazione funzionale (FAS). Nei pazienti dopo ictus ischemico, l'integrazione di vitamina D (300.000 UI) non ha influenzato in modo significativo il recupero motorio e la mobilità. Lo studio ha dimostrato che l'integrazione di vitamina D ha accelerato il recupero e aumentato i livelli di attività nei pazienti. Il risultato conferma la validità dell'ipotesi che sarebbe appropriato estendere gli studi di follow-up con più pazienti dopo ictus [12]. L'integrazione di vitamina D nei pazienti post-ictus non ha chiaramente migliorato i risultati.

Un recente studio è stato condotto in Polonia su 94 pazienti sottoposti a trattamento riabilitativo dopo un ictus ischemico. I soggetti inclusi nello studio (n = 80) sono stati sottoposti a un periodo di riabilitazione di 6 settimane utilizzando la facilitazione neuromuscolare propriocettiva (PNF, 60 minuti al giorno), la terapia dello specchio (MT, 30 minuti al giorno) e la terapia occupazionale (OT, 45 minuti al giorno). L'indice di Barthel (BI) e la scala di Rankin modificata (mRS) sono stati utilizzati per le valutazioni funzionali. Sono stati condotti esami di laboratorio per i livelli sierici di vitamina D e dell'*Insulin-like Growth Factor-1* (IGF-1). C'è stato un aumento significativo nei punteggi BI (differenza mediana = 2,0 punti [pz]; P < 0,001) e nei livelli di IGF (differenza mediana = 124,6 ng/ml; P < 0,001) dopo la riabilitazione. C'è stata una diminuzione significativa nei punteggi mRS (differenza mediana = 7,0 pz; P < 0,001), ma non c'è stata alcuna differenza significativa nei livelli di vitamina D (P = 0,40). È stato dimostrato l'effetto dell'età (B = -0,01, P = 0,04) e del livello di vitamina D nel siero (B = -0,02, P = 0,01) sul punteggio BI. È stato osservato l'effetto dei risultati dell'indice di massa corporea (BMI) (B = -0,07, P = 0,02) sul punteggio mRS. Livelli di vitamina D nel siero più bassi ed età più avanzata possono essere associati a peggiori risultati funzionali nei pazienti con primo ictus ischemico [18].

CONCLUSIONI

C'è una mancanza di coerenza nei risultati ottenuti tra gli studi che hanno indagato la correlazione tra integrazione con vitamina D nei pazienti con ictus e miglioramento dei risultati della riabilitazione. Le ricerche presentano molte limitazioni. A volte, i livelli sierici di 25-idrossivitamina D non sono stati misurati nei pazienti inclusi nello studio, il che significa che gli autori hanno selezionato pazienti con livelli di vitamina D alti o normali piuttosto che con carenza. Un'altra grande limitazione è la dimensione del campione, che è spesso troppo piccola. Un numero maggiore di partecipanti potrebbe aver determinato risultati differenti, inoltre, gli autori hanno preso in considerazione modelli differenti, diversi regimi di somministrazione, quantità di vitamina D o persino tempi di trattamento più lunghi per i pazienti. Spesso il breve periodo di studio non ha permesso di esaminare gli effetti a lungo termine dell'integrazione.

Poiché l'ictus è la principale causa di disabilità e gli anziani hanno spesso gravi carenze di vitamina D, gli studi che valutano l'efficacia dell'integrazione di vitamina D dovrebbero essere estesi. I risultati presentati sopra includono molte informazioni rilevanti per la pianificazione della riabilitazione nei pazienti con ictus ischemico nel periodo di recupero e compensazione, ma sono necessarie ulteriori ricerche per l'implementazione di queste conoscenze nella pratica clinica.

Ci sono sempre più prove che la vitamina D ha un impatto positivo sulla prevenzione delle malattie cardiovascolari e contribuisce a migliori risultati riabilitativi nei pazienti con ictus. Numerosi studi che testano l'efficacia dell'integrazione di vitamina D nei pazienti post-ictus si scontrano con le molte limitazioni nella metodologia che inficiano i risultati. A causa del basso numero di studi e di altre limitazioni, non è univoco che l'integrazione di vitamina D nei pazienti con ictus abbia sempre un effetto positivo sul miglioramento della riabilitazione. Considerando che l'ictus è la prima causa di disabilità e che gli anziani hanno elevate carenze di vitamina D, è necessario espandere gli studi che testano l'efficacia dell'integrazione di vitamina D. È auspicabile che gli studi futuri sull'integrazione di vitamina D in soggetti sottoposti a trattamento riabilitativo siano controllati e randomizzati, condotti con un ampio campione di oltre 1000 pazienti e con almeno 5 anni di follow-up.

Bibliografia

1. Holick MF. High prevalence of vitamin D inadequacy and implications for health. Mayo Clin Proc 2006;81:353-373. https://doi.org/10.4065/81.3.353
2. Holick MF. The role of vitamin D for bone health and fracture prevention. Curr Osteoporos Rep 2006;4:96-102. https://doi.org/10.1007/s11914-996-0028-z
3. Holick MF. Sunlight and vitamin D for bone health and preven tion of autoimmune diseases, cancers, and cardiovascular disease. Am JClin Nutr 2004;80(Suppl 6):S1678-S1688. https://doi.org/10.1093/ajcn/80.6.1678S
4. Holick MF, Garabedian M. Vitamin D: photobiology, metabolism, mechanism of action, and clinical applications. In: Primer on the Metabolic Bone Diseases and Disorders of Mineral Metabolism. 6th ed. Philadelphia, PA: Lippincott 2006, pp. 106-113.
5. Stumpf WE, Sar M, Reid FA, et al. Target cells for 1,25-dihydroxyvitamin D3 in intestinal tract, stomach, kidney, skin, pituitary, and parathyroid. Science 1979;206:1188-1190. https://doi.org/10.1126/science.505004
6. DeLuca HF. Overview of general physiologic features and func tions of vitamin D. Am J Clin Nutr 2004;80(Suppl 6):1689S-1696S. https://doi.org/10.1093/ajcn/80.6.1689S
7. Venning G. Recent developments in vitamin D deficiency and muscle weakness among elderly people. BMJ 2005;330:524-526. https://doi.org/10.1136/bmj.330.7490.524
8. Shinchuk LM, Morse L, Huancahuari N, et al. Vitamin D deficiency and osteoporosis in rehabilitation inpatients. Arch Phys Med Rehabil 2006;87:904-908. https://doi.org/10.1016/j.apmr.2006.03.009
9. Heath KM, Elovic EP. Vitamin D deficiency: implications in the rehabilitation setting. Am J Phys Med Rehabil 2006;85:916-923. https://doi.org/10.1097/01.phm.0000242622.23195.61
10. Gupta A, Prabhakar S, Modi M, et al. Effect of Vitamin D and calcium supplementation on ischaemic stroke outcome: A randomised controlled open-label trial. Int J Clin Pract 2016;70:764-770. https://doi.org/10.1111/ijcp.12866
11. Momosaki R, Abo M, Urashima M. Vitamin D Supplementation and Post-Stroke Rehabilitation: a Randomized, Dou-ble-Blind, Placebo-Controlled Trial. Nutrients 2019;11:1295. https://doi.org/10.3390/nu11061295
12. Sari A, Durmus B, Karaman CA, et al. A randomized, double-blind study to assess if vitamin D treatment affects the outcomes of rehabilitation and balance in hemiplegic patients. J Phys Ther Sci 2018;30:874-878. https://doi.org/10.1589/jpts.30.874
13. Narasimhan S, Balasubramanian P. Role of Vitamin D in the Outcome of Ischemic Stroke – A Randomized Controlled Trial. J Clin Diagn Res 2017;11:CC06-CC10. https://doi.org/10.7860/JCDR/2017/24299.9346
14. Schilling, S. Epidemic vitamin D deficiency among patients in an elderly care rehabilitation facility. Dtsch Arztebl Int 2012;109:33-38. https://doi.org/10.3238/arztebl.2012.0033
15. Neo JJ, Kong KH. Prevalence of Vitamin D Deficiency in Elderly Patients Admitted to an Inpatient Rehabilitation Unit in Tropical Singapore. Rehabil Res Pract 2016;2016:9689760. https://doi.org/10.1155/2016/9689760
16. Torrisi M, Bonanno L, Formica C, et al. The role of rehabilitation and vitamin D supplementation on motor and psychological outcomes in poststroke patients. Medicine 2021;100:e27747. https://doi.org/10.1097/MD.0000000000027747
17. Utkan Karasu A, Kaymak Karataş G. Effect of vitamin D supplementation on lower extremity motor function and ambulation in stroke patients. Turk J Med Sci 2021;51:1413-1419. https://doi.org/10.3906/sag-2010-287
18. Borowicz W, Ptaszkowski K, Ptaszkowska L, et al. Association Between Serum Vitamin D Levels and Physical Outcomes of Patients Who Underwent Rehabilitation Following Ischemic Stroke. Med Sci Monit 2023;29:e940115. https://doi.org/10.12659/MSM.940115

SELEZIONE BIBLIOGRAFICA

CARDIOLOGIA

- Aghasizadeh M, Ghanei M, Ghoflchi S, et al. Association of Genotypes of ANGPTL3 with Vitamin D and Calcium Concentration in Cardiovascular Disease. Biochem Genet. 2024 Aug;62(4):2482-2494. https://doi.org/10.1007/s10528-023-10533-3. Epub 2023 Nov 13. PMID: 37955843
- Alirezaei T, Ansari Aval Z, Karamian A, et al. Effect of preoperative vitamin D on postoperative atrial fibrillation incidence after coronary artery bypass grafting. Gen Thorac Cardiovasc Surg. 2024 Oct;72(10):649-655. https://doi.org/10.1007/s11748-024-02020-2. Epub 2024 Mar 15. PMID: 38485852
- Anilkumar S A, Dutta S, Aboo S, et al. Vitamin D as a modulator of molecular pathways involved in CVDs: Evidence from preclinical studies. Life Sci. 2024 Sep 16;357:123062. https://doi.org/10.1016/j.lfs.2024.123062. Online ahead of print. PMID: 39288869
- Avila M, Mora C, Prado-Uribe MDC, et al. Inflammation and Vitamin D Receptor Polymorphism: Impact on All-Cause and Cardiovascular Mortality in Mexican Women on Dialysis. Biomedicines. 2024 Sep 2;12(9):1990. https://doi.org/10.3390/biomedicines12091990. PMID: 39335504
- Bugeja A, Hundemer GL. Vitamin D and Hypertension: An Uncertain Relationship at Best. Am J Hypertens. 2024 Aug 22:hpae114. https://doi.org/10.1093/ajh/hpae114. Online ahead of print. PMID: 39171442
- Chen LY, Wang CW, Chen LA, et al. Association of vitamin D deficiency with post-exercise hypotension and arterial stiffness following prolonged endurance exercise in healthy young men. J Int Soc Sports Nutr. 2024 Dec;21(1):2410426. https://doi.org/10.1080/15502783.2024.2410426. Epub 2024 Sep 30. PMID: 39350604
- Deng C, Wu Y. Vitamin D-Parathyroid Hormone-Fibroblast Growth Factor 23 Axis and Cardiac Remodeling. Am J Cardiovasc Drugs. 2024 Oct 11. https://doi.org/10.1007/s40256-024-00688-8. Online ahead of print. PMID: 39392562
- Fucile I, Mancusi C, Visco V, et al. Serum parathormone, vitamin D and cardiovascular risk factors and markers: A pilot study. Nutr Metab Cardiovasc Dis. 2024 Oct;34(10):2298-2304. https://doi.org/10.1016/j.numecd.2024.05.019. Epub 2024 May 27. PMID: 39069469
- Fusaro M, De Caterina R, Tripepi G. New Insight into the Role of Vitamin D in the Stroke Risk: A Meta-Analysis of Stratified Data by 25(OH)D Levels. Curr Vasc Pharmacol. 2024 Oct 8. https://doi.org/10.2174/0115701611331890241007112502. Online ahead of print. PMID: 39385423
- Huang F, Zhou Y, Li T, et al. Association between vitamin D and cardiovascular health in Chinese children and adolescents: Basing on Life's Essential 8. Nutr Metab Cardiovasc Dis. 2024 Nov;34(11):2579-2588. https://doi.org/10.1016/j.numecd.2024.06.014. Epub 2024 Jun 24. PMID: 39069467
- Iqhrammullah M, Gusti N, Andika FF, et al. Association of serum vitamin D and the risk of cardiovascular diseases among diabetic patients: A systematic review and meta-analysis. Clin Nutr ESPEN. 2024 Aug;62:66-75. https://doi.org/10.1016/j.clnesp.2024.04.018. Epub 2024 May 15. PMID: 38901950
- Ito M, Katoh M, Sassa T, et al. LMNA Q353R Mutation Causes Dilated Cardiomyopathy Through Impaired Vitamin D Signaling. Circulation. 2024 Sep 17;150(12):971-974. https://doi.org/10.1161/CIRCULATIONAHA.124.069972. Epub 2024 Sep 16. PMID: 39283931
- Khasawneh RR, Al-Soudi HS, Abu-El-Rub E, et al. The potential protective role of vitamin D and calcium supplements in reducing cardiovascular disease risk among elderly patients with osteopenia. Ir J Med Sci. 2024 Oct;193(5):2195-2202. https://doi.org/10.1007/s11845-024-03709-2. Epub 2024 May 14. PMID: 38740674
- Kocaman N. Evaluating the therapeutic effect of vitamin D and nerolidol on lung injury due to experimental myocardial infarction: The potential role of asprosin and spexin. Tissue Cell. 2024 Aug;89:102444. https://

doi.org/10.1016/j.tice.2024.102444. Epub 2024 Jun 20. PMID: 38945090

- Lee MJ, Jung H, Shin SD, et al. Vitamin D deficiency as a risk factor for sudden cardiac arrest: A multicenter case-control study. Nutr Metab Cardiovasc Dis. 2024 Sep;34(9):2182-2189. https://doi.org/10.1016/j.numecd.2024.05.007. Epub 2024 May 10. PMID: 38866622

- Nejabat A, Emamat H, Afrashteh S, et al. Association of serum 25-hydroxy vitamin D status with cardiometabolic risk factors and total and regional obesity in southern Iran: evidence from the PoCOsteo study. Sci Rep. 2024 Aug 3;14(1):17983. https://doi.org/10.1038/s41598-024-68773-1. PMID: 39097599

- Shokri F, Ramezani-Aliakbari K, Zarei M, et al. Cardioprotective effect of Vitamin D on cardiac hypertrophy through improvement of mitophagy and apoptosis in an experimental rat model of levothyroxine -induced hyperthyroidism. Mol Biol Rep. 2024 Sep 9;51(1):969. https://doi.org/10.1007/s11033-024-09897-5. PMID: 39249564

- Ștef A, Bodolea C, Bocșan IC, et al. Perioperative Modulation of Left Ventricular Systolic Performance: A Retrospective Study on Ionized Calcium and Vitamin D in Cardiac Surgery Patients. J Pers Med. 2024 Aug 10;14(8):850. https://doi.org/10.3390/jpm14080850. PMID: 39202041

- Wang L, Cook NR, Manson JAE, et al. Associations Of Vitamin D-Related Biomarkers With Hypertension And The Renin-Angiotensin System In Men And Women. Am J Hypertens. 2024 Aug 9:hpae103. https://doi.org/10.1093/ajh/hpae103. Online ahead of print. PMID: 39120701

- Wattanachayakul P, Srikulmontri T, Prasitsumrit V, et al. Vitamin D as a predictor of clinical response among patients with cardiac resynchronization therapy (CRT). J Arrhythm. 2024 Jul 16;40(4):975-981. https://doi.org/10.1002/joa3.13116. eCollection 2024 Aug. PMID: 39139866

- Xie S, You R. Navigating complexities in vitamin D and cardiovascular health: a call for comprehensive analysis. Clin Chem Lab Med. 2024 Oct 10. https://doi.org/10.1515/cclm-2024-1004. Online ahead of print. PMID: 39383102

CORONA VIRUS DISEASE

- Adil M, Saleem MM, Vijay S, et al. Efficacy of vitamin D supplementation in the treatment of patients with COVID-19: a systematic review and meta-analysis of randomized controlled trials. Ann Med Surg (Lond). 2024 Aug 14;86(10):6079-6090. https://doi.org/10.1097/MS9.0000000000002445. eCollection 2024 Oct. PMID: 39359793

- Bandyopadhyay U, Sen D, Ahuja D, et al. Interplay of calcium, vitamin D, and parathormone in the milieu of infections and immunity: Reassessed in the context of COVID-19. J Steroid Biochem Mol Biol. 2024 Oct 9;245:106624. https://doi.org/10.1016/j.jsbmb.2024.106624. Online ahead of print. PMID: 39389269

- Charoenporn V, Tungsukruthai P, Teacharushatakit P, et al. Effects of an 8-week high-dose vitamin D supplementation on fatigue and neuropsychiatric manifestations in post-COVID syndrome: A randomized controlled trial. Psychiatry Clin Neurosci. 2024 Oct;78(10):595-604. https://doi.org/10.1111/pcn.13716. Epub 2024 Jul 28. PMID: 39072958

- Chen J, Lu F, Shen B, et al. Associations between pre-infection serum vitamin D concentrations and Omicron COVID-19 incidence, severity and reoccurrence in elderly individuals. Public Health Nutr. 2024 Oct 7;27(1):e197. https://doi.org/10.1017/S1368980024001873. PMID: 39370947

- Chen Y, Kong G. Changes in vitamin D status among adults from the COVID-19 pandemic to post-pandemic normality. Front Nutr. 2024 Aug 2;11:1407890. https://doi.org/10.3389/fnut.2024.1407890. eCollection 2024. PMID: 39155929

- Choi J, Choe Y, Lee K, et al. Effects of the COVID-19 pandemic on serum vitamin D concentration in Korean children. Ann Pediatr Endocrinol Metab. 2024 Aug;29(4):220-226. https://doi.org/10.6065/apem.2346196.098. Epub 2024 Aug 31. PMID: 39231483

- Daungsupawong H, Wiwanitkit V. Active vitamin D analog and SARS-CoV-2 IgG after BNT162b2 vaccination in patients with hemodialysis: Correspondence. Ther Apher Dial. 2024 Oct;28(5):810-811. https://doi.org/10.1111/1744-9987.14171. Epub 2024 May 27. PMID: 38803053

- di Filippo L, Terenzi U, Di Ienno G, et al. Novel protective circulating miRNA are associated with preserved vitamin D levels in patients with mild COVID-19 presentation at hospital admission not progressing into severe disease. Endocrine. 2024 Oct;86(1):119-123. https://doi.org/10.1007/s12020-024-03900-6. Epub 2024 Jun 10. PMID: 38856841

- Elnady M, Hafeez AA, Assal H, et al. Serum vitamin D levels and the severity and clinical course of COVID-19. Monaldi Arch Chest Dis. 2024 Sep 26. https://doi.org/10.4081/monaldi.2024.2978. Online ahead of print. PMID: 39324744

- Engin MMN, Özdemir Ö. Role of vitamin D in COVID-19 and other viral infections. World J Virol. 2024 Sep 25;13(3):95349. https://doi.org/10.5501/wjv.v13.i3.95349. PMID: 39323448

- Ghoreshi ZA, Charostad J, Arefinia N, et al. Association Between the Level of Vitamin D and COVID-19 Infection in Children and Adolescents: A Systematic Review. Am J Trop Med Hyg. 2024 Sep 3:tpmd240206. https://doi.org/10.4269/ajtmh.24-0206. Online ahead of print. PMID: 39226905

- Ghoreshi ZA, Charostad J, Arefinia N, et al. Effect of vitamin D supplementation on clinical outcomes in adult patients with COVID-19: A GRADE-assessed systematic review and meta-analysis of randomized controlled trials. Pharmacol Res Perspect. 2024 Oct;12(5):e70013. https://doi.org/10.1002/prp2.70013. PMID: 39350561

- Karcıoğlu Batur L, Dokur M, Koç S, et al. Investigation of the Relationship between Vitamin D Deficiency and Vitamin D-Binding Protein Polymorphisms in Severe COVID-19 Patients. Diagnostics (Basel). 2024 Sep 3;14(17):1941. https://doi.org/10.3390/diagnostics14171941. PMID: 39272727

- Kow CS, Ramachandram DS, Hasan SS, et al. The impact of vitamin D administration on mortality in COVID-19 patients: a systematic review and meta-analysis of randomized controlled trials. Inflammopharmacology. 2024 Oct;32(5):3205-3212. https://doi.org/10.1007/s10787-024-01564-2. Epub 2024 Sep 3. PMID: 39225947

- Kumar PK, Japa P, Tomo S, et al. Exploring Micronutrient Dynamics in COVID-19 Severity and Mortality: Unraveling the Roles of Vitamin D, Calcium, Phosphorus, Magnesium and ALP. Indian J Clin Biochem. 2024 Oct;39(4):548-556. https://doi.

org/10.1007/s12291-024-01225-9. Epub 2024 Apr 21. PMID: 39346709

- Nakashima A, Yamamoto I, Kobayashi A, et al. Active vitamin D analog and SARS-CoV-2 IgG after BNT162b2 vaccination in patients with hemodialysis. Ther Apher Dial. 2024 Aug;28(4):599-607. https://doi.org/10.1111/1744-9987.14121. Epub 2024 Mar 19. PMID: 38504452
- Ochoa-Ramírez LA, Corona-Angulo AL, Ríos-Burgueño ER, et al. Vitamin D receptor gene polymorphisms role in COVID-19 severity: Results of a Mexican patients' cohort. Int J Immunogenet. 2024 Aug;51(4):235-241. https://doi.org/10.1111/iji.12674. Epub 2024 Apr 28. PMID: 38679820
- Rachman A, Iriani A, Irawan A, et al. Adequate serum 25-hydroxy-vitamin D levels are correlated with low anti-PF4 levels in mild COVID-19 Patients: An observational study. Medicine (Baltimore). 2024 Sep 13;103(37):e39252. https://doi.org/10.1097/MD.0000000000039252. PMID: 39287233
- Roohi A, Gharagozlou S. Vitamin D supplementation and calcium: Many-faced gods or nobody in fighting against Corona Virus Disease 2019. Clin Nutr ESPEN. 2024 Aug;62:172-184. https://doi.org/10.1016/j.clnesp.2024.05.015. Epub 2024 May 28. PMID: 38901939
- Sales LP, Souza LVB, Fernandes AL, et al. Effect of vitamin D(3) on antiphospholipid antibodies in hospitalized patients with moderate to severe COVID-19. Clinics (Sao Paulo). 2024 Aug 27;79:100474. https://doi.org/10.1016/j.clinsp.2024.100474. eCollection 2024. PMID: 39208655
- Torres M, Casado G, Vigón L, et al. Corrigendum to: "Changes in the immune response against SARS-CoV-2 in individuals with severe COVID-19 treated with high dose of vitamin D" [Biomed. Pharmacother. 150 (2022) 1-11]. Biomed Pharmacother. 2024 Sep;178:117251. https://doi.org/10.1016/j.biopha.2024.117251. Epub 2024 Aug 3. PMID: 39097476
- Wang H, Tao L, Cui L, et al. Randomized trial of influence of vitamin D on the prevention and improvement of symptomatic COVID-19. Sci Rep. 2024 Sep 3;14(1):20519. https://doi.org/10.1038/s41598-024-66267-8. PMID: 39227626
- Zhang X, Wu J, Dong H, et al. The impact of supplementing vitamin D through different methods on the prognosis of COVID-19 patients: a systematic review and meta-analysis. Front Nutr. 2024 Sep 25;11:1441847. https://doi.org/10.3389/fnut.2024.1441847. eCollection 2024. PMID: 39385791

DERMATOLOGIA

- Bakr RM, Mahran AM, Mokhtar AA, et al. Serum Vitamin D levels in acne vulgaris patients and the impact of patient's clinical characteristics: a case-control study. Arch Dermatol Res. 2024 Sep 18;316(9):629. https://doi.org/10.1007/s00403-024-03368-4. PMID: 39292298
- Cao Y, Zhou X, Yang H. Association of vitamin D with risk of warts: A retrospective and Mendelian randomization study. Skin Res Technol. 2024 Aug;30(8):e13911. https://doi.org/10.1111/srt.13911. PMID: 39121007
- Dahlan NH, Sitohang IBS, Indriatmi W, et al. Correlation Between Reduced IL-1beta Levels in Acne Lesions and the Decrease in Acne Inflammatory Lesions Following Topical Vitamin D Administration: A Double-Blind Randomized Controlled Trial. Clin Cosmet Investig Dermatol. 2024 Oct 1;17:2183-2195. https://doi.org/10.2147/CCID.S475068. eCollection 2024. PMID: 39372262
- Dhaffouli F, Elloumi N, Tahri S, et al. Unraveling the role of the vitamin D-VDR pathway in pemphigus vulgaris from Tunisian patients. Steroids. 2024 Sep;209:109454. https://doi.org/10.1016/j.steroids.2024.109454. Epub 2024 Jun 13. PMID: 38878876
- Droitcourt C, Arellano J. Atopic dermatitis and vitamin D supplementation: The end of the story? J Eur Acad Dermatol Venereol. 2024 Sep;38(9):1677-1678. https://doi.org/10.1111/jdv.20218. PMID: 39177320
- Durusu Turkoglu IN, Turkoglu AK, Soylu S, et al. A comprehensive investigation of biochemical status in patients with telogen effluvium: Analysis of Hb, ferritin, vitamin B12, vitamin D, thyroid function tests, zinc, copper, biotin, and selenium levels. J Cosmet Dermatol. 2024 Aug 6. https://doi.org/10.1111/jocd.16512. Online ahead of print. PMID: 39107936
- Egido-Moreno S, Valls-Roca-Umbert J, Parra-Moreno FJ, et al. Association of vitamin D levels and oral lichen planus. Systematic review and meta-analysis. Med Oral Patol Oral Cir Bucal. 2024 Sep 1;29(5):e626-e633. https://doi.org/10.4317/medoral.26603. PMID: 38907640
- Elmelid A, Vandikas MS, Gillstedt M, et al. The Effect of Phototherapy on Systemic Inflammation Measured with Serum Vitamin D-Binding Protein and hsCRP in Patients with Inflammatory Skin Disease. Int J Mol Sci. 2024 Aug 8;25(16):8632. https://doi.org/10.3390/ijms25168632. PMID: 39201319
- García-Pola M, Rodríguez-Fonseca L. Role of Vitamin D in Oral Lichen Planus: A Case Control Study. Nutrients. 2024 Aug 19;16(16):2761. https://doi.org/10.3390/nu16162761. PMID: 39203896
- Goyal A, Mehta H, Narang T, et al. A double-blinded randomised control study to compare the effectiveness and safety of intralesional vitamin D(3) with intralesional triamcinolone and its correlation with tissue expression of vitamin D receptors in patients with keloid. Wound Repair Regen. 2024 Sep 11. https://doi.org/10.1111/wrr.13209. Online ahead of print. PMID: 39262166
- Grimes PE, Dias S, Kyei A, et al. A retrospective clinical and laboratory analysis including vitamin D and antinuclear antibodies in central centrifugal cicatricial alopecia and nonscarring alopecia in African Americans. J Am Acad Dermatol. 2024 Sep 7:S0190-9622(24)02716-6. https://doi.org/10.1016/j.jaad.2024.08.029. Online ahead of print. PMID: 39182675
- Hemrajani P, Sharma M, B C SK, et al. Vitamin D Supplementation in Congenital Ichthyosis: A Case Series. Adv Skin Wound Care. 2024 Aug 1;37(8):440-443. https://doi.org/10.1097/ASW.0000000000000179. PMID: 39037099
- Kluijver LG, Nekouei Shahraki M, Wagenmakers MAEM, et al. The effects of cholecalciferol and afamelanotide on vitamin D levels in erythropoietic protoporphyria: a multicentre cohort study. Br J Dermatol. 2024 Aug 14;191(3):357-364. https://doi.org/10.1093/bjd/ljae148. PMID: 38634774
- Lackner L, Zyriax BC, Stephan B. To what

Extent does Vitamin D and its Serum Levels Influence the Severity of Hidradenitis Suppurativa: A Literature Review. Acta Derm Venereol. 2024 Sep 10;104:adv40321. https://doi.org/10.2340/actadv.v104.40321. PMID: 39254290

- Li CP, Huang SC, Hsiao Y, et al. Evaluating the Role of Vitamin D in Alleviating Chronic Pruritus: A Meta-Analysis. Int J Mol Sci. 2024 Sep 16;25(18):9983. https://doi.org/10.3390/ijms25189983. PMID: 39337471
- Rhodes LE. Vitamin D status in patients with erythropoietic protoporphyria taking the systemic photoprotective agent afamelanotide. Br J Dermatol. 2024 Aug 14;191(3):317-318. https://doi.org/10.1093/bjd/ljae191. PMID: 38736212
- Ruikchuchit T, Juntongjin P. Role of vitamin D supplement adjunct to topical benzoyl peroxide in acne: a randomized double-blinded controlled study. Int J Womens Dermatol. 2024 Jul 1;10(3):e163. https://doi.org/10.1097/JW9.0000000000000163. eCollection 2024 Oct. PMID: 38957412
- Slominski AT, Kim TK, Janjetovic Z, et al. Biological Effects of CYP11A1-Derived Vitamin D and Lumisterol Metabolites in the Skin. J Invest Dermatol. 2024 Oct;144(10):2145-2161. https://doi.org/10.1016/j.jid.2024.04.022. Epub 2024 Jul 12. PMID: 39001720
- Thompson M, Jones G, Venn A, et al. Prior Nonmelanoma Skin Cancer is Associated with Fewer Fractures, More Vitamin D Sufficiency, Greater Bone Mineral Density, and Improved Bone Microarchitecture in Older Adults. Am J Med. 2024 Oct;137(10):974-982.e1. https://doi.org/10.1016/j.amjmed.2024.05.036. Epub 2024 Jun 10. PMID: 38866304
- Wang H, Li H, Li Z, et al. Crisaborole combined with vitamin D demonstrates superior therapeutic efficacy over either monotherapy in mice with allergic contact dermatitis. Sci Rep. 2024 Aug 29;14(1):20092. https://doi.org/10.1038/s41598-024-71135-6. PMID: 39209980
- Wu Y, Gong Y, Ma Y, et al. Effects of vitamin D status on cutaneous wound healing through modulation of EMT and ECM. J Nutr Biochem. 2024 Aug 9;134:109733. https://doi.org/10.1016/j.jnutbio.2024.109733. Online ahead of print. PMID: 39127309

EMATOLOGIA

- Gujarathi R, Lakhanpal MR, Chelikam N, et al. Prevalence, outcomes, and complications of vitamin D deficiency among patients with multiple myeloma: Nationwide burden of disease. J Investig Med. 2024 Oct;72(7):674-683. https://doi.org/10.1177/10815589241249998. Epub 2024 Jun 16. PMID: 38632835
- Mancin S, Cangelosi G, Matteucci S, et al. The Role of Vitamin D in Hematopoietic Stem Cell Transplantation: Implications for Graft-versus-Host Disease-A Narrative Review. Nutrients. 2024 Sep 3;16(17):2976. https://doi.org/10.3390/nu16172976. PMID: 39275291
- Nakamura N, Kanemura N, Matsumoto T, et al. Effect of Vitamin D and Skeletal Muscle Mass on Prognosis of Patients with Diffuse Large B-Cell Lymphoma. Nutrients. 2024 Aug 11;16(16):2653. https://doi.org/10.3390/nu16162653. PMID: 39203790
- Radwan RA, Elsalakawy WA, Abdelaziz DM, et al. BsmI, ApaI and FokI variants of vitamin D receptor gene polymorphism as predictors of response to treatment in immune thrombocytopenia patients. Mol Cell Biochem. 2024 Sep 23. https://doi.org/10.1007/s11010-024-05100-2. Online ahead of print. PMID: 39312029
- Sagara Y, Nakamura H, Sagara Y, et al. Plasma vitamin D levels are correlated with the pathogenesis of human T-cell leukemia virus type 1-associated diseases. J Med Virol. 2024 Sep;96(9):e29898. https://doi.org/10.1002/jmv.29898. PMID: 39221490
- Xu D, Hu X, Zhang R, et al. Effect of sunlight on vitamin D and hemoglobin levels among the residents of Ningbo, China. Nutr Hosp. 2024 Aug 29;41(4):850-857. https://doi.org/10.20960/nh.04969. PMID: 38666347

EPIDEMIOLOGIA

- Abulafia O, Ashkenazi E, Epstein Y, et al. Characteristics of Vitamin D Concentration in Elite Israeli Olympic Athletes. Nutrients. 2024 Aug 9;16(16):2627. https://doi.org/10.3390/nu16162627. PMID: 39203764
- AlGhamdi SA, Ghosh Dastidar R, Rybiński M, et al. Evaluation of the vitamin D response index in a Saudi cohort. Saudi Pharm J. 2024 Aug;32(8):102137. https://doi.org/10.1016/j.jsps.2024.102137. Epub 2024 Jun 22. PMID: 39040871
- Altasan A, Aljahdali A, Ramadoss R, et al. Ethnic differences in vitamin D status, bone and body composition in South Asian indian and caucasian men. Metabol Open. 2024 Jul 18;23:100302. https://doi.org/10.1016/j.metop.2024.100302. eCollection 2024 Sep. PMID: 39161755
- Bigué RA, Ribot I, Brickley MB, et al. Heterogeneity in experiences of vitamin D deficiency in an early to mid-19th century population from Montreal, Quebec. Int J Paleopathol. 2024 Aug 14;47:1-11. https://doi.org/10.1016/j.ijpp.2024.07.003. Online ahead of print. PMID: 39146828
- Elghazaly A, Widyan A, Alsahali S, et al. Knowledge, attitudes and practices (KAP) of medical university students towards vitamin D deficiency in Saudi Arabia: a cross-sectional study. J Pharm Policy Pract. 2024 Aug 5;17(1):2381699. https://doi.org/10.1080/20523211.2024.2381699. eCollection 2024. PMID: 39109357
- Kelly DC, Fan M, Langton RS, et al. Vitamin D deficiency trends, risk factors, and occupational risk in active component service members of the U.S. Armed Forces, 2018-2022. MSMR. 2024 Aug 20;31(8):2-7. PMID: 39255511
- Kuwabara A, Nakatani E, Nakajima H, et al. Development of a predictive scoring system for vitamin D deficiency 'Vitamin D Deficiency Predicting Scoring (ViDDPreS)' based on the vitamin D status in young Japanese women: a nationwide cross-sectional study. Public Health Nutr. 2024 Sep 27;27(1):e185. https://doi.org/10.1017/S1368980024001708. PMID: 39327919
- Langley CK, Morse CI, Buffey AJ. The Prevalence of Low Vitamin D in Elite Para-Athletes: A Systematic Review. Sports Med Open. 2024 Sep 4;10(1):96. https://doi.org/10.1186/s40798-024-00756-y. PMID: 39230661
- Seneviratne R, Gunawardena N, Arambepola C. Prevalence of low vitamin D status in an urban district in Sri Lanka: a population-based study. BMC Nutr. 2024 Aug 29;10(1):115. https://doi.org/10.1186/s40795-024-00923-0. PMID: 39210458
- Sreenivasulu K, Banerjee M, Tomo S, et al.

Seasonal variation and Vitamin-D status in ostensibly healthy Indian population: An experience from a tertiary care institute. Metabol Open. 2024 Jun 28;23:100298. https://doi.org/10.1016/j.metop.2024.100298. eCollection 2024 Sep. PMID: 39045138

- Velazquez-Kronen R, MacDonald LA, Millen AE. Sex and race disparities in the association between work characteristics and vitamin D deficiency: findings from the National Health and Nutrition Examination Survey, 2005-2010. Occup Environ Med. 2024 Aug 16;81(7):339-348. https://doi.org/10.1136/oemed-2024-109473. PMID: 38955482
- Winning L, Scarlett S, Crowe M, et al. Vitamin D, periodontitis and tooth loss in older Irish adults. Br J Nutr. 2024 Sep 18:1-9. https://doi.org/10.1017/S000711452400148X. Online ahead of print. PMID: 39290089
- Yang W, Chandra M, Gordon NP, et al. Prevalence of low vitamin D levels among older US Asian and Pacific Islander adults. Osteoporos Int. 2024 Aug 29. https://doi.org/10.1007/s00198-024-07197-z. Online ahead of print. PMID: 39207531

ENDOCRINOLOGIA

- [No authors listed] Correction to: "Evaluation, Treatment, and Prevention of Vitamin D Deficiency: An Endocrine Society Clinical Practice Guideline". J Clin Endocrinol Metab. 2024 Sep 16;109(10):e1991. https://doi.org/10.1210/clinem/dgae373. PMID: 38838193
- [No authors listed] Correction to: "Vitamin D Deficiency Increases Vulnerability to Canagliflozin-induced Adverse Effects on 1,25-Dihydroxyvitamin D and PTH". J Clin Endocrinol Metab. 2024 Sep 16;109(10):e1988. https://doi.org/10.1210/clinem/dgae436. PMID: 38949921
- [No authors listed] Correction to: "Vitamin D Status, Vitamin D Receptor Polymorphisms, and Risk of Type 2 Diabetes: A Prospective Cohort Study". J Clin Endocrinol Metab. 2024 Aug 13;109(9):e1816. https://doi.org/10.1210/clinem/dgae321. PMID: 38738690
- Abdulrahim HA, Odetayo AF, Owootori EA, et al. Metformin and vitamin D combination therapy ameliorates type 2 diabetes mellitus-induced renal injury in male Wistar rats. Naunyn Schmiedebergs Arch Pharmacol. 2024 Sep 30. https://doi.org/10.1007/s00210-024-03478-w. Online ahead of print. PMID: 39347801
- Afraie M, Bahrami P, Kohnepoushi P, et al. The Effect of Vitamin D Supplementation on Glycemic Control and Cardiovascular Risk Factors in Type 2 Diabetes: An Updated Systematic Review and Meta-Analysis of Clinical Trials. J Diabetes Res. 2024 Sep 10;2024:9960656. https://doi.org/10.1155/2024/9960656. eCollection 2024. PMID: 39290798
- Alharazy S. Genetic Variants in Vitamin-D Metabolism Genes (rs1155563, rs12785878 and rs10500804) among Females with Type-2 Diabetes Mellitus in Saudi Arabia. Pak J Med Sci. 2024 Sep;40(8):1753-1758. https://doi.org/10.12669/pjms.40.8.9318. PMID: 39281257
- Arabi A, Nasrallah D, Mohsen S, et al. The interplay between vitamin D status, subclinical inflammation, and prediabetes. Heliyon. 2024 Aug 3;10(15):e35764. https://doi.org/10.1016/j.heliyon.2024.e35764. eCollection 2024 Aug 15. PMID: 39170232
- Bennouar S, Bachir Cherif A, Aoudia Y, et al. Additive Interaction Between Insulin Resistance, Chronic Low-Grade Inflammation and Vitamin D Deficiency on the Risk of Type 2 Diabetes Mellitus: A Cohort Study. J Am Nutr Assoc. 2024 Sep-Oct;43(7):571-581. https://doi.org/10.1080/27697061.2024.2352401. Epub 2024 May 13. PMID: 38739850
- Chakhtoura MT, Nakhoul NF, Akl EA, et al. Oral vitamin D supplementation for adults with obesity undergoing bariatric surgery. Cochrane Database Syst Rev. 2024 Oct 1;10(10):CD011800. https://doi.org/10.1002/14651858.CD011800.pub2. PMID: 39351881
- Chen C, Meng S, Wu X, et al. Vitamin D deficiency and the risk of diabetic retinopathy in patients with type 2 diabetes in Tibet: a cross-sectional analysis. BMC Endocr Disord. 2024 Aug 2;24(1):139. https://doi.org/10.1186/s12902-024-01668-4. PMID: 39095726
- Chen W, Liu L, Hu F. Efficacy of vitamin D supplementation on glycaemic control in type 2 diabetes: An updated systematic review and meta-analysis of randomized controlled trials. Diabetes Obes Metab. 2024 Oct 2. https://doi.org/10.1111/dom.15941. Online ahead of print. PMID: 39355942
- Chen X, Xu J, Wan Z, et al. Vitamin D and heart failure risk among individuals with type 2 diabetes: observational and Mendelian randomization studies. Am J Clin Nutr. 2024 Sep;120(3):491-498. https://doi.org/10.1016/j.ajcnut.2024.07.019. Epub 2024 Jul 23. PMID: 39053885
- Chen Y, Zhang H, Pan Y, et al. Association between cardiovascular health and serum vitamin D and its interaction with prediabetes and diabetes. Am J Med Sci. 2024 Aug 24:S0002-9629(24)01414-9. https://doi.org/10.1016/j.amjms.2024.08.021. Online ahead of print. PMID: 39186977
- Chiloiro S, Costanza F, Riccardi E, et al. Vitamin D in pituitary driven osteopathies. Pituitary. 2024 Aug 24. https://doi.org/10.1007/s11102-024-01439-3. Online ahead of print. PMID: 39180644
- Chou SK, Loke SS, Lan C, et al. Association Between Decreased Serum Vitamin D Level and Dyslipidemia: A Cross-Sectional Study in Southern Taiwan. Int J Gen Med. 2024 Sep 27;17:4369-4376. https://doi.org/10.2147/IJGM.S480241. eCollection 2024. PMID: 39355338
- Das S, Agarwal V, Prusty B, et al. Vitamin D-dependent Rickets Type 1A Mimicking Pseudohypoparathyroidism in Presence of Active Tuberculosis. JCEM Case Rep. 2024 Sep 30;2(10):luae176. https://doi.org/10.1210/jcemcr/luae176. eCollection 2024 Oct. PMID: 39351120
- Daungsupawong H, Wiwanitkit V. Polymorphism of vitamin D receptor and risk of infections in type 2 diabetes. Am J Clin Nutr. 2024 Oct;120(4):987. https://doi.org/10.1016/j.ajcnut.2024.07.035. Epub 2024 Sep 16. PMID: 39362732
- di Filippo L, Bilezikian JP, Canalis E, et al. New insights into the vitamin D/PTH axis in endocrine-driven metabolic bone diseases. Endocrine. 2024 Sep;85(3):1007-1019. https://doi.org/10.1007/s12020-024-03784-6. Epub 2024 Apr 17. PMID: 38632163
- Fu Y, Lu M, Zhang K, et al. Vitamin D Status, Vitamin D Receptor Polymorphisms, and Risk of Type 2 Diabetes: A Prospective Cohort Study. J Clin Endocrinol Metab. 2024 Aug 13;109(9):2173-2181. https://doi.org/10.1210/clinem/dgae221. PMID: 38571313

- Giustina A, Bilezikian JP, Adler RA, et al. Consensus Statement on Vitamin D Status Assessment and Supplementation: Whys, Whens, and Hows. Endocr Rev. 2024 Sep 12;45(5):625-654. https://doi.org/10.1210/endrev/bnae009. PMID: 38676447

- Gouveia HJCB, da Silva MM, Manhães de Castro R, et al. Vitamin D supplementation does not alter inflammatory markers in overweight and obese individuals: A systematic review and meta-analysis of randomized controlled trials. Nutr Res. 2024 Aug;128:24-37. https://doi.org/10.1016/j.nutres.2024.06.005. Epub 2024 Jun 17. PMID: 39002359

- Hadgu A, Yan F, Mayberry R. The Association Between Vitamin D Deficiency and Diabetes in Adult African Americans and Whites: An NHANES Study. J Racial Ethn Health Disparities. 2024 Sep 23. https://doi.org/10.1007/s40615-024-02144-4. Online ahead of print. PMID: 39312091

- He LP, Li CP, Liu CW, et al. The Regulatory Effect of Vitamin D on Pancreatic Beta Cell Secretion in Patients with Type 2 Diabetes. Curr Med Chem. 2024 Aug 7. https://doi.org/10.2174/0109298673270429240805050928. Online ahead of print. PMID: 39113297

- Hussein S, Bandarian F, Salehi N, et al. The Effect of Vitamin D Deficiency on Immune-Related Hub Genes: A Network Analysis Associated With Type 1 Diabetes. Cureus. 2024 Sep 4;16(9):e68611. https://doi.org/10.7759/cureus.68611. eCollection 2024 Sep. PMID: 39371824

- Jaffey JA, Backus RC, Kreisler R, et al. Evaluation of serum vitamin D metabolites, phagocytosis, and biomarkers of inflammation in dogs with naturally occurring diabetes mellitus. Front Vet Sci. 2024 Aug 21;11:1441993. https://doi.org/10.3389/fvets.2024.1441993. eCollection 2024. PMID: 39234180

- Jia R, Liang L, Yin Y, et al. Vitamin D supplementation could enhance the effectiveness of glibenclamide in treating type 2 diabetes by improving the function of pancreatic beta-cells through the NF-kappaB pathway. Biochem Biophys Res Commun. 2024 Nov 12;733:150596. https://doi.org/10.1016/j.bbrc.2024.150596. Epub 2024 Aug 27. PMID: 39197196

- Kaur P, Hegde D, Singh P, et al. mRNA expression of vitamin D receptor, calcium-sensing receptor, cyclin D1, and PTH in symptomatic and asymptomatic primary hyperparathyroidism. Eur J Endocrinol. 2024 Oct 1:lvae122. https://doi.org/10.1093/ejendo/lvae122. Online ahead of print. PMID: 39353070

- Kawahara T. Prediabetes and insulin resistance: effect of vitamin D. Curr Opin Clin Nutr Metab Care. 2024 Nov 1;27(6):509-514. https://doi.org/10.1097/MCO.0000000000001070. Epub 2024 Aug 26. PMID: 39302318

- Krysiak R, Kowalcze K, Szkróbka W, et al. The Association between Vitamin D Status and the Impact of Metformin on Hypothalamic-Pituitary-Thyroid Axis Activity in Women with Subclinical Hypothyroidism. Pharmaceutics. 2024 Aug 20;16(8):1093. https://doi.org/10.3390/pharmaceutics16081093. PMID: 39204438

- Kühn J, Schutkowski A, Rayo-Abella LM, et al. Dietary cholesterol increases body levels of oral administered vitamin D(3) in mice. J Nutr Sci. 2024 Sep 25;13:e50. https://doi.org/10.1017/jns.2024.32. eCollection 2024. PMID: 39345242

- Kurian SJ, Baral T, Benson R, et al. Association of vitamin D status and vitamin D receptor polymorphism in diabetic foot ulcer patients: A prospective observational study in a South-Indian tertiary healthcare facility. Int Wound J. 2024 Aug;21(8):e70027. https://doi.org/10.1111/iwj.70027. PMID: 39140454

- Lhilali I, Zouine N, Godderis L, et al. Relationship between Vitamin D Insufficiency, Lipid Profile and Atherogenic Indices in Healthy Women Aged 18-50 Years. Eur J Investig Health Psychol Educ. 2024 Aug 9;14(8):2337-2357. https://doi.org/10.3390/ejihpe14080155. PMID: 39194949

- Li P, Wang Y, Liang Y, et al. Imbalance of early-life vitamin D intake targets ROS-mediated crosstalk between mitochondrial dysfunction and differentiation potential of MSCs associated the later obesity. Stem Cell Res Ther. 2024 Aug 13;15(1):252. https://doi.org/10.1186/s13287-024-03860-8. PMID: 39135105

- Liang Z, Wang Z, Liu X, et al. Confronting the global obesity epidemic: investigating the role and underlying mechanisms of vitamin D in metabolic syndrome management. Front Nutr. 2024 Aug 9;11:1416344. https://doi.org/10.3389/fnut.2024.1416344. eCollection 2024. PMID: 39183985

- Ma Y, Liu B, Yin F, et al. Vitamin D level as a predictor of dysmobility syndrome with type 2 diabetes. Sci Rep. 2024 Aug 26;14(1):19792. https://doi.org/10.1038/s41598-024-70400-y. PMID: 39187642

- Masoud RM, Abdel-Kader NM, Abdel-Ghaffar AB, et al. Association between partial remission phase in type 1 diabetes and vitamin D receptor Fok1 rs2228570 polymorphism. J Pediatr Endocrinol Metab. 2024 Sep 3. https://doi.org/10.1515/jpem-2024-0324. Online ahead of print. PMID: 39237104

- Meyer MB, Lee SM, Towne JM, et al. In vivo contribution of Cyp24a1 promoter vitamin D response elements. Endocrinology. 2024 Oct 4:bqae134. https://doi.org/10.1210/endocr/bqae134. Online ahead of print. PMID: 39363152

- Mitu MM, Toma TR, Nesa F, et al. Analysis of genetic association of vitamin D receptor (VDR) gene FokI polymorphism in Bangladeshi patients with type 2 diabetes mellitus. Gene. 2024 Dec 20;930:148863. https://doi.org/10.1016/j.gene.2024.148863. Epub 2024 Aug 15. PMID: 39153706

- Modi M, Garg P. Relationship between thyroid-stimulating hormone levels and the severity of vitamin D deficiency by age group. Clin Exp Reprod Med. 2024 Aug 19. https://doi.org/10.5653/cerm.2023.06779. Online ahead of print. PMID: 39301768

- Odetayo AF, Abdulrahim HA, Yusuf AM, et al. Combination Therapy with Vitamin D and Metformin: A Potential Approach to Mitigate Testicular Dysfunction in Type 2 Diabetes Mellitus. Reprod Sci. 2024 Sep 25. https://doi.org/10.1007/s43032-024-01708-3. Online ahead of print. PMID: 39317887

- Oliveira INN, Macedo-Silva A, Coutinho-Cruz L, et al. Effects of vitamin D supplementation on metabolic syndrome parameters in patients with obesity or diabetes in Brazil, Europe, and the United States: A systematic review and meta-analysis. J Steroid Biochem Mol Biol. 2024 Oct;243:106582. https://doi.org/10.1016/j.jsbmb.2024.106582. Epub 2024 Jul 9. PMID: 38992391

- Oussaada SM, Akkermans I, Chohan S, et al. The effect of active vitamin D supplementation on body weight and composition: A meta-analysis of individual participant data. Clin Nutr. 2024 Sep 21;43(11):99-105. https://doi.org/10.1016/j.clnu.2024.08.031. Online ahead of print. PMID: 39357088
- Park CY, Shin S, Han SN. Multifaceted Roles of Vitamin D for Diabetes: From Immunomodulatory Functions to Metabolic Regulations. Nutrients. 2024 Sep 20;16(18):3185. https://doi.org/10.3390/nu16183185. PMID: 39339785
- Povaliaeva A, Zhukov A, Bogdanov V, et al. Evaluation of the age-specific relationship between PTH and vitamin D metabolites. Bone Rep. 2024 Aug 26;22:101800. https://doi.org/10.1016/j.bonr.2024.101800. eCollection 2024 Sep. PMID: 39281298
- Rohold CK, Jørgensen HL, Vojdeman FJ, et al. Levels of plasma 25-hydroxy vitamin D and risk of developing type 2 diabetes in a large Danish primary health care population. Acta Diabetol. 2024 Sep 3. https://doi.org/10.1007/s00592-024-02368-0. Online ahead of print. PMID: 39227489
- Saad-Omer SI, Singh S, Olayinka OT, et al. The Effect of Vitamin D Supplementation on Thyroid Hormone Levels in Patients With Autoimmune Thyroid Disease: A Systematic Review. Cureus. 2024 Aug 3;16(8):e66062. https://doi.org/10.7759/cureus.66062. eCollection 2024 Aug. PMID: 39224736
- Shen ZJ, Liu M, Zhang JX, et al. Comparison of Serum Vitamin D Levels in Obese Subjects with and without Type 2 Diabetes Mellitus. J Inflamm Res. 2024 Sep 2;17:5915-5922. https://doi.org/10.2147/JIR.S475180. eCollection 2024. PMID: 39247834
- Stevens CM, Weeks K, Jain SK. Potential of Vitamin D and l-Cysteine Co-supplementation to Downregulate Mammalian Target of Rapamycin: A Novel Therapeutic Approach to Diabetes. Metab Syndr Relat Disord. 2024 Sep 16. https://doi.org/10.1089/met.2024.0146. Online ahead of print. PMID: 39279596
- Taha SI, Salem L, Hassan RM, et al. Periorbital melanosis and its possible association with insulin resistance and vitamin D deficiency: A pilot case-control study. J Int Med Res. 2024 Aug;52(8):3000605241270648. https://doi.org/10.1177/03000605241270648. PMID: 39161263
- Tang W, Chen D, Chen L, et al. The correlation between serum vitamin D status and the occurrence of diabetic foot ulcers: a comprehensive systematic review and meta-analysis. Sci Rep. 2024 Sep 20;14(1):21932. https://doi.org/10.1038/s41598-024-73133-0. PMID: 39304728
- Tarfeen N, Ul Nisa K, Masoodi SR, et al. Correlation of Diabetes Related Factors with Vitamin D and Immunological Parameters in T2DM Kashmiri Population. Indian J Clin Biochem. 2024 Oct;39(4):586-592. https://doi.org/10.1007/s12291-023-01144-1. Epub 2023 Jul 28. PMID: 39346716
- Usama N, El-Sayed A, Gamal M, et al. The independent association between 25 (OH) vitamin D deficiency, HOMA-IR, and lipid profile with APOE genotyping in obese cases with and without T2DM. Diabetol Metab Syndr. 2024 Aug 13;16(1):195. https://doi.org/10.1186/s13098-024-01427-4. PMID: 39138505
- Valer-Martinez A, Sayon-Orea C, Martinez JA, et al. Vitamin D and risk of developing type 2 diabetes in the SUN project: a prospective cohort study. J Endocrinol Invest. 2024 Sep;47(9):2313-2323. https://doi.org/10.1007/s40618-024-02324-3. Epub 2024 Mar 8. PMID: 38459212
- Wu X, Zeng J, Ye X, et al. Effects of vitamin D supplementation on diabetic foot ulcer healing: a meta-analysis. Postgrad Med J. 2024 Aug 31:qgae107. https://doi.org/10.1093/postmj/qgae107. Online ahead of print. PMID: 39215492
- Xiong J, Luo X, Liu L, et al. A bibliometric analysis and visualization of literature on the relationship between vitamin D and obesity over the last two decades. Complement Ther Med. 2024 Oct 1:103093. https://doi.org/10.1016/j.ctim.2024.103093. Online ahead of print. PMID: 39362306
- Xu R, Shao X, Qiao H, et al. Research trends in the relationship between vitamin D and type 2 diabetes mellitus: a 20-year bibliometric and visualization analysis. Front Endocrinol (Lausanne). 2024 Aug 13;15:1421953. https://doi.org/10.3389/fendo.2024.1421953. eCollection 2024. PMID: 39193371
- Yu YF, Shangguan XL, Tan DN, et al. Vitamin D and selenium for type 2 diabetes mellitus with Hashimoto's thyroiditis: Dosage and duration insights. World J Diabetes. 2024 Aug 15;15(8):1824-1828. https://doi.org/10.4239/wjd.v15.i8.1824. PMID: 39192860
- Zhang JJ, Yu HC, Geng TT, et al. Serum 25-hydroxyvitamin D concentrations, vitamin D receptor polymorphisms, and risk of infections among individuals with type 2 diabetes: a prospective cohort study. Am J Clin Nutr. 2024 Aug;120(2):398-406. https://doi.org/10.1016/j.ajcnut.2024.06.007. Epub 2024 Jun 22. PMID: 38914226
- Zhang L, Hu C, Lin X, et al. Relationship between serum vitamin D levels and thyroid- and parathyroid-related diseases: a Mendelian randomisation study. Br J Nutr. 2024 Sep 30:1-11. https://doi.org/10.1017/S0007114524001843. Online ahead of print. PMID: 39344000
- Zhang Y, Ni P, Miao Y, et al. Vitamin D(3) improves glucose metabolism and attenuates inflammation in prediabetic human and mice. J Nutr Biochem. 2024 Aug;130:109659. https://doi.org/10.1016/j.jnutbio.2024.109659. Epub 2024 Apr 27. PMID: 38685284
- Zhao B, Yang S. Exploring the unique association between high-density lipoprotein cholesterol and vitamin D deficiency in adults aged 20-59: findings based on the NHANES database. BMC Endocr Disord. 2024 Sep 18;24(1):192. https://doi.org/10.1186/s12902-024-01719-w. PMID: 39294624

GASTROENTEROLOGIA

- Adiri WN, Basil B, Onyia CP, et al. Association between serum vitamin D status and severity of liver cirrhosis: implications for therapeutic targeting in Nigerian patients. BMC Gastroenterol. 2024 Aug 12;24(1):259. https://doi.org/10.1186/s12876-024-03353-1. PMID: 39135191
- Ammirata G, Arigoni M, Licastro D, et al. Extracellular Vesicle-Enclosed Oxidative Stress- and Inflammation-Related microRNAs as Potential Biomarkers of Vitamin D Responsivity: A Pilot Study on Inflammatory Bowel Disease Patients with or without COVID-19. Antioxidants (Basel). 2024 Aug 28;13(9):1047. https://doi.org/10.3390/antiox13091047. PMID: 39334706
- Bin C, Zhang C. The association between

vitamin D consumption and gallstones in US adults: A cross-sectional study from the national health and nutrition examination survey. J Formos Med Assoc. 2024 Sep 10:S0929-6646(24)00430-3. https://doi.org/10.1016/j.jfma.2024.09.010. Online ahead of print. PMID: 39261120

- Cara KC, Taylor SF, Alhmly HF, et al. The effects of vitamin D intake and status on symptom severity and quality-of-life in adults with irritable bowel syndrome (IBS): a systematic review and meta-analysis. Crit Rev Food Sci Nutr. 2024 Sep 5:1-14. https://doi.org/10.1080/10408398.2024.2400603. Online ahead of print. PMID: 39235428

- Centner S, Wu C, Zaw T, et al. The Role of Vitamin D Levels in Optimizing Treatment for Pediatric Inflammatory Bowel Disease (IBD) Patients and an Examination Into Different Factors That Influence IBD Treatment Outcomes. Cureus. 2024 Aug 28;16(8):e68055. https://doi.org/10.7759/cureus.68055. eCollection 2024 Aug. PMID: 39206328

- Jouët P, Altman C, Bruley DES Varannes S, et al. Probiotics plus vitamin D in irritable bowel syndrome: a prospective multicentric non-interventional study. Minerva Gastroenterol (Torino). 2024 Sep;70(3):332-341. https://doi.org/10.23736/S2724-5985.24.03581-2. Epub 2024 Mar 6. PMID: 38445822

- Koch KL, Parkman HP, Yates KP, et al. Low Vitamin D Levels in Patients with Symptoms of Gastroparesis: Relationships with Nausea and Vomiting, Gastric Emptying and Gastric Myoelectrical Activity. Dig Dis Sci. 2024 Aug;69(8):2904-2915. https://doi.org/10.1007/s10620-024-08520-8. Epub 2024 Jun 14. PMID: 38877334

- Mihele AI, Hocopan SC, Matei SD, et al. Exploring the Correlation Between Vitamin D Levels and Serological Markers in Liver Diseases: Insights from a Cross-Sectional Study. In Vivo. 2024 Sep-Oct;38(5):2271-2283. https://doi.org/10.21873/invivo.13692. PMID: 39187343

- Miwa T, Hanai T, Hirata S, et al. Vitamin D deficiency stratifies the risk of covert and overt hepatic encephalopathy in patients with cirrhosis: A retrospective cohort study. Clin Nutr ESPEN. 2024 Oct;63:267-273. https://doi.org/10.1016/j.clnesp.2024.06.055. Epub 2024 Jul 2. PMID: 38972037

- Roth B, Ohlsson B. Overweight and vitamin D deficiency are common in patients with irritable bowel syndrome - a cross-sectional study. BMC Gastroenterol. 2024 Sep 3;24(1):296. https://doi.org/10.1186/s12876-024-03373-x. PMID: 39227769

- Song F, Lu J, Chen Z, et al. Vitamin D and CRP are associated in hospitalized inflammatory bowel disease (IBD) patients in Shanghai. Asia Pac J Clin Nutr. 2024 Sep;33(3):370-380. https://doi.org/10.6133/apjcn.202409_33(3).0007. PMID: 38965724

- Song X, Zhang H, Song J, et al. Evaluating the predictive effect of vitamin D on clinical outcomes of infliximab-treated Crohn's disease patients in western China. Clin Exp Med. 2024 Oct 4;24(1):237. https://doi.org/10.1007/s10238-024-01483-0. PMID: 39365401

- Sun X, Wu Y, Han C, et al. Intestinal epithelial vitamin D receptor defense against inflammatory bowel disease via regulating microfold cells. Immunol Lett. 2024 Sep 10;270:106925. https://doi.org/10.1016/j.imlet.2024.106925. Online ahead of print. PMID: 39260525

- Wang H, Gong W, Gao J, et al. Effects of vitamin D deficiency on chronic alcoholic liver injury. Free Radic Biol Med. 2024 Aug 28;224:220-231. https://doi.org/10.1016/j.freeradbiomed.2024.08.037. Online ahead of print. PMID: 39209135

- Wang P, Li J, Ji M, et al. Vitamin D receptor attenuates carbon tetrachloride-induced liver fibrosis via downregulation of YAP. J Hazard Mater. 2024 Oct 5;478:135480. https://doi.org/10.1016/j.jhazmat.2024.135480. Epub 2024 Aug 10. PMID: 39146589

- Yang L, Zhou C, Qin C, et al. Concerns regarding the study on vitamin D consumption and gallstones. J Formos Med Assoc. 2024 Oct 5:S0929-6646(24)00451-0. https://doi.org/10.1016/j.jfma.2024.09.031. Online ahead of print. PMID: 39370365

- Zhang C. Reply to comment on "The association between vitamin D consumption and gallstones in US adults: A cross-sectional study from the national health and nutrition examination survey". J Formos Med Assoc. 2024 Sep 30:S0929-6646(24)00450-9. https://doi.org/10.1016/j.jfma.2024.09.030. Online ahead of print. PMID: 39353747

- Zhang H, Xiao Y, Wen Q, et al. Washed microbiota transplantation improved the level of serum vitamin D in ulcerative colitis. J Gastroenterol Hepatol. 2024 Aug 20. https://doi.org/10.1111/jgh.16717. Online ahead of print. PMID: 39162211

GINECOLOGIA OSTETRICIA

- Asemi R, Ahmadi Asouri S, Aghadavod E, et al. The beneficial influences of vitamin D intake on inflammation and oxidative stress in infertile women with polycystic ovary syndrome. Ann Med Surg (Lond). 2024 Jul 5;86(9):5218-5223. https://doi.org/10.1097/MS9.0000000000002349. eCollection 2024 Sep. PMID: 39239011

- Bai Y, Wang X, Xu Y, et al. Vitamin D and Gestational Diabetes Mellitus in the IEU OpenGWAS Project: A Two-Sample Bidirectional Mendelian Randomization Study. Nutrients. 2024 Aug 24;16(17):2836. https://doi.org/10.3390/nu16172836. PMID: 39275154

- Begum S, Prince N, Mínguez-Alarcón L, et al. Pregnancy complications and birth outcomes following low-level exposure to per- and polyfluoroalkyl substances in the vitamin D antenatal asthma reduction trial. Env Sci Adv. 2024 Aug 12;3(10):1426-1437. https://doi.org/10.1039/d4va00001c. eCollection 2024 Oct 2. PMID: 39156222

- Chakraborty S, Naskar TK, Basu BR. Vitamin D deficiency, insulin resistance, and antimullerian hormone level: a tale of trio in the expression of polycystic ovary syndrome. F S Sci. 2024 Aug;5(3):252-264. https://doi.org/10.1016/j.xfss.2024.06.002. Epub 2024 Jun 12. PMID: 38876205

- Chane E, Teketlew BB, Berta DM, et al. A comparative study of hormonal contraceptive use and vitamin D levels at Gondar Town 2023. Sci Rep. 2024 Sep 27;14(1):22162. https://doi.org/10.1038/s41598-024-73014-6. PMID: 39333152

- Chen Q, Chu Y, Liu R, et al. Predictive value of Vitamin D levels in pregnant women on gestational length and neonatal weight in China: a population-based retrospective study. Reprod Biol Endocrinol. 2024 Aug 13;22(1):102. https://doi.org/10.1186/s12958-024-01276-w. PMID: 39138489

- Cochrane KM, Bone JN, Williams BA, et

al. Optimizing vitamin D status in polycystic ovary syndrome: a systematic review and dose-response meta-analysis. Nutr Rev. 2024 Sep 1;82(9):1176-1186. https://doi.org/10.1093/nutrit/nuad117. PMID: 37769789

- Consuegra-Asprilla JM, Chaverra-Osorio M, Torres B, et al. Landscape of in situ cytokine expression, soluble C-type lectin receptors, and vitamin D in patients with recurrent vulvovaginal candidiasis. Med Mycol. 2024 Sep 6;62(9):myae091. https://doi.org/10.1093/mmy/myae091. PMID: 39237447

- Dincgez B, Ozgen G, Kartal Golcuk E. Effect of passive smoking on birth weight in pregnant women with vitamin D deficiency living in Turkey: A case control study. J Obstet Gynaecol Res. 2024 Oct;50(10):1841-1847. https://doi.org/10.1111/jog.16069. Epub 2024 Sep 3. PMID: 39228189

- DiTosto JD, Caniglia EC, Hinkle SN, et al. Target trial emulation of preconception serum vitamin D status on fertility outcomes: a couples-based approach. Fertil Steril. 2024 Aug 20:S0015-0282(24)01963-0. https://doi.org/10.1016/j.fertnstert.2024.08.332. Online ahead of print. PMID: 39173703

- Gu S, Chen X, Liu Y. Vitamin D Prevents Gestational Diabetes Mellitus via Modulating Glucose Metabolism in a Mouse Model. Physiol Res. 2024 Aug 31;73(4):609-619. https://doi.org/10.33549/physiolres.935287. PMID: 39264081

- Holzer M, Massa E, Ghersevich S. Relationship between serum vitamin D concentration and parameters of gonadal function in infertile male patients. Curr Urol. 2024 Sep;18(3):237-243. https://doi.org/10.1097/CU9.0000000000000075. Epub 2024 Sep 20. PMID: 39219637

- Ivanova M, Soule A, Pudwell J, et al. The Association of Vitamin D with Uterine Fibroids in Premenopausal Patients: A Systematic Review and Meta-Analysis. J Obstet Gynaecol Can. 2024 Aug 10;46(11):102632. https://doi.org/10.1016/j.jogc.2024.102632. Online ahead of print. PMID: 39128544

- Katyal G, Kaur G, Ashraf H, et al. Systematic Review of the roles of Inositol and Vitamin D in improving fertility among patients with Polycystic Ovary Syndrome. Clin Exp Reprod Med. 2024 Sep;51(3):181-191. https://doi.org/10.5653/cerm.2023.06485. Epub 2024 Apr 11. PMID: 38599886

- Kim MJ, Kim S, Kim JJ, et al. Accelerated bone loss in late reproductive-aged and perimenopausal women with vitamin D insufficiency. J Bone Miner Metab. 2024 Sep 30. https://doi.org/10.1007/s00774-024-01556-w. Online ahead of print. PMID: 39349871

- Ko JKY, Chen SPL, Lam KKW, et al. Association of serum vitamin D concentration and miscarriage rate in women with first-trimester threatened miscarriage. Reprod Biomed Online. 2024 Sep;49(3):104076. https://doi.org/10.1016/j.rbmo.2024.104076. Epub 2024 Apr 20. PMID: 38959531

- Kohlhoff G, Kirwan R, Mushtaq S. The effect of vitamin D supplementation on markers of insulin resistance in women with polycystic ovarian syndrome: a systematic review. Eur J Nutr. 2024 Sep 14. https://doi.org/10.1007/s00394-024-03489-6. Online ahead of print. PMID: 39276209

- Lauer JM, Kirby MA, Muhihi A, et al. Effects of Vitamin D-3 Supplementation During Pregnancy and Lactation on Maternal and Infant Biomarkers of Environmental Enteric Dysfunction, Systemic Inflammation, and Growth: A Secondary Analysis of a Randomized Controlled Trial. J Nutr. 2024 Sep 13:S0022-3166(24)01020-4. https://doi.org/10.1016/j.tjnut.2024.08.032. Online ahead of print. PMID: 39278411

- Madanchi N, Fava A, Goldman DW, et al. Association Between 25(OH) Vitamin D Levels and Adverse Pregnancy Outcomes in Systemic Lupus Erythematosus. Arthritis Care Res (Hoboken). 2024 Sep 23. https://doi.org/10.1002/acr.25440. Online ahead of print. PMID: 39313480

- Mayrink J, Miele MJ, Souza RT, et al. Are vitamin D intake and serum levels in the mid-trimester of pregnancy associated with preeclampsia? Results from a Brazilian multicentre cohort. Pregnancy Hypertens. 2024 Sep;37:101150. https://doi.org/10.1016/j.preghy.2024.101150. Epub 2024 Aug 14. PMID: 39146694

- Moieni A, Haghollahi F, Dashtkoohi M, et al. Vitamin D levels and lipid profiles in patients with polycystic ovary syndrome. BMC Womens Health. 2024 Aug 27;24(1):472. https://doi.org/10.1186/s12905-024-03294-7. PMID: 39192256

- Mustafa A. Assessment of Vitamin D, Vitamin B12, and Folate Levels in Recently Identified Pregnant Females. Cureus. 2024 Sep 3;16(9):e68514. https://doi.org/10.7759/cureus.68514. eCollection 2024 Sep. PMID: 39364513

- Nadeem A, Sadiqa A, Saeed M. Effect of Vitamin-D on Glycemic Parameters and Adiponectin in gestational diabetes. Pak J Med Sci. 2024 Sep;40(8):1786-1790. https://doi.org/10.12669/pjms.40.8.9308. PMID: 39281255

- Najafi Chamgordani S, Esmaeil N, Hashemi M, et al. Evaluation of the natural killer cell subsets and their relationship with serum interferon gamma and vitamin D levels in women with stages III and IV endometriosis: A case-control study. Int J Reprod Biomed. 2024 Sep 12;22(7):593-604. https://doi.org/10.18502/ijrm.v22i7.16933. eCollection 2024 Jul. PMID: 39355310

- Naowar M, Dickton D, Francis J. Cardiometabolic Risk Factors Associated with Magnesium and Vitamin D Nutrients during Pregnancy-A Narrative Review. Nutrients. 2024 Aug 9;16(16):2630. https://doi.org/10.3390/nu16162630. PMID: 39203767

- Neves SCD, Auharek SA, Gomes RDS, et al. Supplementation of high doses of vitamin D during the gestational period do not cause reproductive, teratogenic and genotoxic damage in mice. Food Chem Toxicol. 2024 Sep 26;193:115007. https://doi.org/10.1016/j.fct.2024.115007. Online ahead of print. PMID: 39332591

- Piao C, Li J, Liang C, et al. Effect of vitamin D on pregnancy in women with polycystic ovary syndrome: retrospective and prospective studies. Reprod Biomed Online. 2024 Aug;49(2):103909. https://doi.org/10.1016/j.rbmo.2024.103909. Epub 2024 Feb 23. PMID: 38776748

- Qiu H, Li J, Chen C, et al. Insulin aspart plus high-dose vitamin D supplementation for gestational diabetes mellitus: analysis of efficacy and risk factors for maternal and infant outcomes. Am J Transl Res. 2024 Aug 15;16(8):4200-4207. https://doi.org/10.62347/PKAY4284. eCollection 2024. PMID: 39262735

- Qiu Y, Ainiwan D, Huang Y, et al. 25-Hydroxyvitamin D, Vitamin D Binding Protein and Gestational Diabetes Mellitus: A Two-Sample Mendelian Randomization Study. Nutrients. 2024 Aug 7;16(16):2603. https://

doi.org/10.3390/nu16162603. PMID: 39203740

- Rafati M, Bazrafshan E, Shaki F, et al. The relationship between serum vitamin D, testosterone, and oxidative stress levels in women with sexual dysfunction: A case-controlled study. Taiwan J Obstet Gynecol. 2024 Sep;63(5):673-678. https://doi.org/10.1016/j.tjog.2024.06.004. PMID: 39266147
- Reynolds CJ, Dyer RB, Oberhelman-Eaton SS, et al. Sulfated vitamin D metabolites represent prominent roles in serum and in breastmilk of lactating women. Clin Nutr. 2024 Sep;43(9):1929-1936. https://doi.org/10.1016/j.clnu.2024.07.008. Epub 2024 Jul 14. PMID: 39024772
- Talida V, Tudor SS, Mihaela I, et al. The Impact of Vitamin D Receptor Gene Polymorphisms (FokI, ApaI, TaqI) in Correlation with Oxidative Stress and Hormonal and Dermatologic Manifestations in Polycystic Ovary Syndrome. Medicina (Kaunas). 2024 Sep 14;60(9):1501. https://doi.org/10.3390/medicina60091501. PMID: 39336541
- Tunçcan E, Mohri P, Dikeç M, et al. Effects of preconceptional vitamin D levels on in vitro fertilization outcomes in infertile patients with polycystic ovary syndrome: A retrospective cohort study. J Obstet Gynaecol Res. 2024 Sep 27. https://doi.org/10.1111/jog.16092. Online ahead of print. PMID: 39329337
- Wang J, Chen Q, Zhang S. Influence of vitamin D-calcium on metabolic profile for gestational diabetes: a meta-analysis of randomized controlled trials. Gynecol Endocrinol. 2024 Dec;40(1):2409139. https://doi.org/10.1080/09513590.2024.2409139. Epub 2024 Sep 28. PMID: 39340384
- Wierzejska RE, Szymusik I, Bomba-Opoń D, et al. Vitamin D concentration in the blood of women with twin pregnancies and in the umbilical cord blood of newborns in relation to environmental factors. Front Nutr. 2024 Sep 18;11:1433203. https://doi.org/10.3389/fnut.2024.1433203. eCollection 2024. PMID: 39360287
- Zhang J, Bai S, Lin S, et al. The association between preterm birth and the supplementation with vitamin D and calcium during pregnancy. Clin Nutr ESPEN. 2024 Oct;63:748-756. https://doi.org/10.1016/j.clnesp.2024.08.007. Epub 2024 Aug 17. PMID: 39159832
- Zhao J, Li X, Chen Q. Effects of MTHFR C677T polymorphism on homocysteine and vitamin D in women with polycystic ovary syndrome. Gene. 2024 Aug 15;919:148504. https://doi.org/10.1016/j.gene.2024.148504. Epub 2024 Apr 25. PMID: 38670392

IMMUNOLOGIA

- Arora J, Froelich NE, Tang M, et al. Developmental Vitamin D Deficiency and the Vitamin D Receptor Control Hematopoiesis. J Immunol. 2024 Sep 25:ji2400292. https://doi.org/10.4049/jimmunol.2400292. Online ahead of print. PMID: 39320233
- Artusa P, Nguyen Yamamoto L, et al. Skewed epithelial cell differentiation and premature aging of the thymus in the absence of vitamin D signaling. Sci Adv. 2024 Sep 27;10(39):eadm9582. https://doi.org/10.1126/sciadv.adm9582. Epub 2024 Sep 25. PMID: 39321290
- Baba SM, Shafi T, Rasool R, et al. Molecular investigation of vitamin D receptor (VDR) genetic variants and their impact on VDR mRNA and serum vitamin D levels in allergic rhinitis in an Indian population: A case-control study. Int J Immunogenet. 2024 Oct;51(5):300-309. https://doi.org/10.1111/iji.12679. Epub 2024 May 29. PMID: 38809236
- Bastyte D, Tamasauskiene L, Stakaitiene I, et al. Relation of T Cell Profile with Vitamin D Receptor and Vitamin D-Binding Protein Gene Polymorphisms in Atopy. Int J Mol Sci. 2024 Aug 20;25(16):9021. https://doi.org/10.3390/ijms25169021. PMID: 39201708
- Franks SJ, Dunster JL, Carding SR, et al. Modelling the influence of vitamin D and probiotic supplementation on the microbiome and immune response. Math Med Biol. 2024 Oct 1:dqae017. https://doi.org/10.1093/imammb/dqae017. Online ahead of print. PMID: 39353402
- Gerhards C, Teufel A, Gerigk M, et al. Potential role of Vitamin D in immune response in patients with viral hepatitis. Nutrition. 2024 Aug;124:112447. https://doi.org/10.1016/j.nut.2024.112447. Epub 2024 Mar 30. PMID: 38669827
- Iwata M, Takada A, Sakamoto R, et al. The active form of vitamin D (calcitriol) promotes CXCR5 expression during follicular helper T cell differentiation. Int Immunol. 2024 Aug 5:dxae045. https://doi.org/10.1093/intimm/dxae045. Online ahead of print. PMID: 39101520
- Izquierdo JM. Vitamin D-dependent microbiota-enhancing tumor immunotherapy. Cell Mol Immunol. 2024 Oct;21(10):1083-1086. https://doi.org/10.1038/s41423-024-01184-4. Epub 2024 May 31. PMID: 38822077
- Luo C, Yan X, Yang S, et al. Antiviral activity of vitamin D derivatives against severe fever with thrombocytopenia syndrome virus in vitro and in vivo. Virol Sin. 2024 Aug 20:S1995-820X(24)00134-2. https://doi.org/10.1016/j.virs.2024.08.007. Online ahead of print. PMID: 39168248
- Martins BL, Perico J, Bertoluci DFF, et al. Iron and vitamin D intake on a diet are able to modify the in vitro immune response to Mycobacterium leprae. Mem Inst Oswaldo Cruz. 2024 Aug 16;119:e230178. https://doi.org/10.1590/0074-02760230178. eCollection 2024. PMID: 39166620
- Oliveira KKDS, Torres DJL, Barros MDS, et al. Vitamin D treatment distinctly modulates cytokine production by peripheral blood mononuclear cells among patients with chronic cardiac and indeterminate clinical forms of Chagas disease. Immun Inflamm Dis. 2024 Sep;12(9):e1330. https://doi.org/10.1002/iid3.1330. PMID: 39267468
- Tao R, Xiao S, Wang L, et al. Association between vitamin D receptor gene polymorphisms and susceptibility to tuberculosis: a systematic review and meta-analysis. Front Genet. 2024 Aug 20;15:1382957. https://doi.org/10.3389/fgene.2024.1382957. eCollection 2024. PMID: 39228416
- Ueda K, Chin SS, Sato N, et al. Prenatal vitamin D deficiency exposure leads to long-term changes in immune cell proportions. Sci Rep. 2024 Aug 27;14(1):19899. https://doi.org/10.1038/s41598-024-70911-8. PMID: 39191975

LABORATORIO

- Amithabh GS, Gireesh Kumar MP, Selvapandian K, et al. Recent development on the extraction, detection, and quantification of vitamin D from various sources - an update. Anal Methods. 2024 Oct 10;16(39):6654-6675. https://doi.org/10.1039/d4ay01114g. PMID: 39314119

- Cavalier E, Makris K, Heijboer AC, et al. Vitamin D: Analytical Advances, Clinical Impact, and Ongoing Debates on Health Perspectives. Clin Chem. 2024 Sep 3;70(9):1104-1121. https://doi.org/10.1093/clinchem/hvae056. PMID: 38712647

- Chae H, Lee S, Choi AR, et al. Effect of Blood Collection Tubes on Vitamin D Immunoassay Results. Ann Lab Med. 2024 Nov 1;44(6):611-613. https://doi.org/10.3343/alm.2024.0234. Epub 2024 Jul 23. PMID: 39038914

- Chen W, Lynch JNC, Bustamante C, et al. Selective Oxidation of Vitamin D(3) Enhanced by Long-Range Effects of a Substrate Channel Mutation in Cytochrome P450(BM3)(CYP102A1). Chemistry. 2024 Sep 11;30(51):e202401487. https://doi.org/10.1002/chem.202401487. Epub 2024 Aug 22. PMID: 38963680

- Cheng WL, Chew S, Sethi SK, et al. Methanol interference in LC-MS/MS vitamin D: need for lot-to-lot verification. Pathology. 2024 Aug;56(5):730-732. https://doi.org/10.1016/j.pathol.2023.10.025. Epub 2024 Jan 18. PMID: 38395678

- Gallo M, Banchero M, Cerbella V, et al. The order affects the release of vitamin D from hybrid self-assembled silica systems. Heliyon. 2024 Aug 14;10(16):e36080. https://doi.org/10.1016/j.heliyon.2024.e36080. eCollection 2024 Aug 30. PMID: 39253207

- Hendi NN, Bengoechea-Alonso MT, Ericsson J, et al. Functional characterization of the SDR42E1 reveals its role in vitamin D biosynthesis. Heliyon. 2024 Aug 17;10(17):e36466. https://doi.org/10.1016/j.heliyon.2024.e36466. eCollection 2024 Sep 15. PMID: 39263177

- Kamińska K, Świderska B, Malinowska A, et al. Tandem mass tag-based proteomic analysis of granulosa and theca interna cells of the porcine ovarian follicle following in vitro treatment with vitamin D(3) and insulin alone or in combination. J Proteomics. 2024 Sep 14;310:105318. https://doi.org/10.1016/j.jprot.2024.105318. Online ahead of print. PMID: 39284438

- Kobayashi H, Amrein K, Mahmoud SH, et al. Metabolic phenotypes and vitamin D response in the critically ill: A metabolomic cohort study. Clin Nutr. 2024 Sep 18;43(11):10-19. https://doi.org/10.1016/j.clnu.2024.09.030. Online ahead of print. PMID: 39307095

- Lazris A, Roth A, Haskell H, et al. Routine Vitamin D Testing: Unnecessary and Ineffective. Am Fam Physician. 2024 Sep;110(3):302-304. PMID: 39283855

- Mbese Z, Choene M, Morifi E, et al. Hybrid Molecules Containing Methotrexate, Vitamin D, and Platinum Derivatives: Synthesis, Characterization, In VitroCytotoxicity, In Silico ADME Docking, Molecular Docking and Dynamics. Chem Biodivers. 2024 Sep 15:e202400373. https://doi.org/10.1002/cbdv.202400373. Online ahead of print. PMID: 39278836

- Piccolini A, Grizzi F, Monari M, et al. Preliminary findings on vitamin D 25-OH levels in urine analysis: implications for clinical practice. BJU Int. 2024 Oct;134(4):561-563. https://doi.org/10.1111/bju.16443. Epub 2024 Jun 24. PMID: 38923282

- Plebani M, Zaninotto M, Giannini S, et al. Vitamin D assay and supplementation: still debatable issues. Diagnosis (Berl). 2024 Sep 20. https://doi.org/10.1515/dx-2024-0147. Online ahead of print. PMID: 39295160

- Shadid ILC, Guchelaar HJ, Weiss ST, et al. Vitamin D beyond the blood: Tissue distribution of vitamin D metabolites after supplementation. Life Sci. 2024 Oct 15;355:122942. https://doi.org/10.1016/j.lfs.2024.122942. Epub 2024 Aug 10. PMID: 39134205

- Sheerin S. Verifying the nonreporting hemolysis index for potassium, phosphate, magnesium, AST, LDH, iron, CA 19-9, and vitamin D, using Beckman Coulter AU5800 and DxI800 automated analyzers. Lab Med. 2024 Sep 4;55(5):624-626. https://doi.org/10.1093/labmed/lmae027. PMID: 38639324

- Smith AC, Plazola M, Hudson PS, et al. Membrane Stabilization of Helical Previtamin D Conformers as Possible Enhancement of Vitamin D Photoproduction. J Phys Chem B. 2024 Sep 19;128(37):8956-8965. https://doi.org/10.1021/acs.jpcb.4c03835. Epub 2024 Sep 6. PMID: 39240094

MISCELLANEA

- [No authors listed] Correction: Long-Term Effect of Randomization to Calcium and Vitamin D Supplementation on Health in Older Women. Ann Intern Med. 2024 Sep;177(9):1295. https://doi.org/10.7326/ANNALS-24-01296. Epub 2024 Jul 23. PMID: 39038295

- Aberger S, Schreiber N, Pilz S, et al. Targeting Calcitriol Metabolism in Acute Vitamin D Toxicity-A Comprehensive Review and Clinical Insight. Int J Mol Sci. 2024 Sep 17;25(18):10003. https://doi.org/10.3390/ijms251810003. PMID: 39337491

- Abraham B, Shakeela H, Devendra LP, et al. Lignin nanoparticles from Ayurvedic industry spent materials: Applications in Pickering emulsions for curcumin and vitamin D(3) encapsulation. Food Chem. 2024 Nov 15;458:140284. https://doi.org/10.1016/j.foodchem.2024.140284. Epub 2024 Jul 2. PMID: 38970952

- Agarwal N, Lohani P, Singh S. Oral vs. injected: which vitamin D boost works best for low levels? J Basic Clin Physiol Pharmacol. 2024 Aug 20. https://doi.org/10.1515/jbcpp-2024-0018. Online ahead of print. PMID: 39174041

- Aggeletopoulou I, Kalafateli M, Geramoutsos G, et al. Recent Advances in the Use of Vitamin D Organic Nanocarriers for Drug Delivery. Biomolecules. 2024 Aug 30;14(9):1090. https://doi.org/10.3390/biom14091090. PMID: 39334856

- Ashoor TM, Abd Elazim AEH, Mustafa ZAE, et al. Outcomes of High-Dose Versus Low-Dose Vitamin D on Prognosis of Sepsis Requiring Mechanical Ventilation: A Randomized Controlled Trial. J Intensive Care Med. 2024 Oct;39(10):1012-1022. https://doi.org/10.1177/08850666241250319. Epub 2024 May 5. PMID: 38706151

- Azizian S, Khezri S, Shabani M, et al. Vitamin D ameliorates celecoxib cardiotoxicity in a doxorubicin heart failure rat model via enhancement of the antioxidant defense and minimizing mitochondrial dysfunction. Naunyn Schmiedebergs Arch Pharmacol. 2024 Aug;397(8):5861-5873. https://doi.org/10.1007/s00210-024-02998-9. Epub 2024 Feb 9. PMID: 38334825

- Birinci M, Hakyemez ÖS, Geçkalan MA, et al. Effect of Vitamin D Deficiency on Periprosthetic Joint Infection and Complications After Primary Total Joint Arthroplasty. J Arthroplasty. 2024 Sep;39(9S2):S151-S157. https://doi.org/10.1016/j.

arth.2024.05.012. Epub 2024 May 10. PMID: 38734328

- Boccia M, Ploß K, Kunert M, et al. Metabolic engineering of vitamin D(3) in Solanaceae plants. Plant Biotechnol J. 2024 Sep 16. https://doi.org/10.1111/pbi.14459. Online ahead of print. PMID: 39283754
- Bortolussi-Courval É, Prosty C, Lee JJ, et al. Efficacy of weekly versus daily cholecalciferol for repleting serum vitamin D (25(OH) D) deficiency: A systematic review and meta-analysis of randomized controlled trials. Basic Clin Pharmacol Toxicol. 2024 Oct 13. https://doi.org/10.1111/bcpt.14092. Online ahead of print. PMID: 39396907
- Bournot L, Payet T, Marcotorchino J, et al. Vitamin D metabolism is altered during aging alone or combined with obesity in male mice. Biofactors. 2024 Sep-Oct;50(5):957-966. https://doi.org/10.1002/biof.2047. Epub 2024 Feb 24. PMID: 38401051
- Bowles SD, Jacques R, Hill TR, et al. Effects of High Dose Bolus Cholecalciferol on Free Vitamin D Metabolites, Bone Turnover Markers and Physical Function. Nutrients. 2024 Aug 29;16(17):2888. https://doi.org/10.3390/nu16172888. PMID: 39275206
- Buttriss J. Is it time to routinely fortify food or drink with vitamin D in the UK? Nutr Bull. 2024 Sep;49(3):251-256. https://doi.org/10.1111/nbu.12697. Epub 2024 Jul 21. PMID: 39034614
- Chaves AV, Rybchyn MS, Mason RS, et al. Short communication: Metabolic synthesis of vitamin D(2) by the gut microbiome. Comp Biochem Physiol A Mol Integr Physiol. 2024 Sep;295:111666. https://doi.org/10.1016/j.cbpa.2024.111666. Epub 2024 May 17. PMID: 38763476
- Chen H, Zhang Y, Miao Y, et al. Vitamin D inhibits ferroptosis and mitigates the kidney injury of prediabetic mice by activating the Klotho/p53 signaling pathway. Apoptosis. 2024 Oct;29(9-10):1780-1792. https://doi.org/10.1007/s10495-024-01955-4. Epub 2024 Apr 1. PMID: 38558206
- Chen Z, Zhang C, Jiang J, et al. The efficacy of vitamin D supplementation in dry eye disease: A systematic review and meta-analysis. Cont Lens Anterior Eye. 2024 Oct;47(5):102169. https://doi.org/10.1016/j.clae.2024.102169. Epub 2024 Jul 18. PMID: 39025755
- Chua KW, Huang X, Koh XH, et al. Randomized Controlled Trial Assessing Vitamin D's Role in Reducing BPPV Recurrence in Older Adults. Otolaryngol Head Neck Surg. 2024 Aug 28. https://doi.org/10.1002/ohn.954. Online ahead of print. PMID: 39194424
- Cinkilli Aktağ E, Yalçin SS, Yirün A, et al. Unveiling connections: bisphenol A and vitamin D dynamics in breast milk among healthy lactating mothers. Int J Environ Health Res. 2024 Oct 10:1-13. https://doi.org/10.1080/09603123.2024.2412118. Online ahead of print. PMID: 39388217
- Coelho MS, Lopes GC, Sichi LGB, et al. Influence of vitamin D on muscle strength and botulinum toxin dosage through surface electromyography. Acta Cir Bras. 2024 Oct 7;39:e396824. https://doi.org/10.1590/acb396824. eCollection 2024. PMID: 39383419
- Daungsupawong H, Wiwanitkit V. Genetic variants in key vitamin-D-pathway genes and external apical root resorption linked to orthodontic treatment: Correspondence. Eur J Oral Sci. 2024 Oct;132(5):e13011. https://doi.org/10.1111/eos.13011. Epub 2024 Aug 7. PMID: 39113475
- Davey Smith G. Non-linear Mendelian randomization publications on vitamin D report spurious findings and require major correction. Eur Heart J. 2024 Aug 3;45(29):2677-2678. https://doi.org/10.1093/eurheartj/ehae264. PMID: 38881101
- Davies SE, Perkin OJ, Betts JA, et al. The effect of an acute bout of exercise on circulating vitamin D metabolite concentrations: a randomised crossover study in healthy adults. J Physiol. 2024 Sep;602(17):4157-4170. https://doi.org/10.1113/JP286395. Epub 2024 Aug 4. PMID: 39097829
- de Jesus Costa T, Thomazini M, Cristina José J, et al. Impact of plasmolysis process on the enrichment of brewer's spent yeast biomass with vitamin D(3) by biosorption followed by spray-drying process. Food Res Int. 2024 Sep;191:114677. https://doi.org/10.1016/j.foodres.2024.114677. Epub 2024 Jun 27. PMID: 39059906
- Doms S, Verlinden L, Janssens I, et al. Co-activator-independent vitamin D receptor signaling causes severe rickets in mice, that is not prevented by a diet high in calcium, phosphate, and lactose. Bone Res. 2024 Aug 20;12(1):44. https://doi.org/10.1038/s41413-024-00343-7. PMID: 39164247
- Dong S, Yang F, Zhang Y, et al. Effect of X-ray irradiation on renal excretion of bestatin through down-regulating organic anion transporters via the vitamin D receptor in rats. Chem Biol Interact. 2024 Aug 25;399:111123. https://doi.org/10.1016/j.cbi.2024.111123. Epub 2024 Jul 2. PMID: 38964638
- Eijken M, Krautzberger AM, Scholze-Wittler M, et al. Vasorin-deficient mice display disturbed vitamin D and mineral homeostasis in combination with a low bone mass phenotype. Bone Rep. 2024 Jul 18;22:101792. https://doi.org/10.1016/j.bonr.2024.101792. eCollection 2024 Sep. PMID: 39157725
- Elmorsy EM, Al-Ghafari AB, Al Doghaither HA, et al. Vitamin D Alleviates Heavy Metal-Induced Cytotoxic Effects on Human Bone Osteoblasts Via the Induction of Bioenergetic Disruption, Oxidative Stress, and Apoptosis. Biol Trace Elem Res. 2024 Sep 5. https://doi.org/10.1007/s12011-024-04337-8. Online ahead of print. PMID: 39235540
- Elshahid AR, Zaky AM, Goda YMH, et al. Relationship between vitamin D receptors gene polymorphism and arteriogenic erectile dysfunction. Urologia. 2024 Aug;91(3):592-597. https://doi.org/10.1177/03915603241241430. Epub 2024 Mar 23. PMID: 38520301
- Faradina A, Tinkov AA, Skalny AV, et al. Micronutrient (iron, selenium, vitamin D) supplementation and the gut microbiome. Curr Opin Clin Nutr Metab Care. 2024 Sep 1;27(5):421-427. https://doi.org/10.1097/MCO.0000000000001046. Epub 2024 May 21. PMID: 38836886 Review.
- Farrash WF, Idris S, Elzubier ME, et al. Enhanced hepatoprotective effects of empagliflozin and vitamin D dual therapy against metabolic dysfunction-associated steatohepatitis in mice by boosted modulation of metabolic, oxidative stress, and inflammatory pathways. Int J Exp Pathol. 2024 Oct 13. https://doi.org/10.1111/iep.12519. Online ahead of print. PMID: 39397269
- Fiege JL, Ohrt A, Hebig S, et al. Vitamin D(3)

formation in milk by UV treatment - Novel insights into a rediscovered process. J Dairy Sci. 2024 Aug 29:S0022-0302(24)01088-9. https://doi.org/10.3168/jds.2024-25097. Online ahead of print. PMID: 39216521

- Fu S, Bi J, Jiang X, et al. Effect of different food matrices on the bioaccessibility of vitamin D(3) in beverage systems: Comparison between juice and liquid milk. Food Chem. 2024 Dec 1;460(Pt 3):140756. https://doi.org/10.1016/j.foodchem.2024.140756. Epub 2024 Aug 5. PMID: 39121782

- Geiger C, McNally JD, Christopher KB, et al. Vitamin D in the critically ill - update 2024. Curr Opin Clin Nutr Metab Care. 2024 Nov 1;27(6):515-522. https://doi.org/10.1097/MCO.0000000000001068. Epub 2024 Aug 26. PMID: 39302310

- Han SY, Kim YH. Associations Between Tinnitus and Systemic Disease in Adolescents: Implications of Vitamin D Deficiency and Anaemia. Clin Otolaryngol. 2024 Nov;49(6):748-753. https://doi.org/10.1111/coa.14203. Epub 2024 Jul 24. PMID: 39048535

- Huang JR, Song JR, Cai WS, et al. Enhancing vitamin D(3) bioaccessibility: Unveiling hydrophobic interactions in soybean protein isolate and vitamin D(3) binding via an infant in vitro digestion model. Food Chem. 2024 Sep 1;451:139507. https://doi.org/10.1016/j.foodchem.2024.139507. Epub 2024 Apr 29. PMID: 38696940

- Jiang J, Tan H, Xia Z, et al. Serum vitamin D concentrations and sleep disorders: insights from NHANES 2011-2016 and Mendelian Randomization analysis. Sleep Breath. 2024 Aug;28(4):1679-1690. https://doi.org/10.1007/s11325-024-03031-2. Epub 2024 May 13. PMID: 38739211

- Jue Z, Xu Z, Yuen VL, et al. Association between vitamin D level and cataract: A systematic review and meta-analysis. Graefes Arch Clin Exp Ophthalmol. 2024 Aug 23. https://doi.org/10.1007/s00417-024-06592-w. Online ahead of print. PMID: 39179900

- Kalia S, Magnuson AD, Sun T, et al. Potential and Metabolic Impacts of Double Enrichments of Docosahexaenoic Acid and 25-Hydroxy Vitamin D(3) in Tissues of Broiler Chickens. J Nutr. 2024 Sep 25:S0022-3166(24)01039-3. https://doi.org/10.1016/j.tjnut.2024.09.022. Online ahead of print. PMID: 39332774

- Kanso N, Hashimi M, Amin HA, et al. No Evidence That Vitamin D Levels or Deficiency Are Associated with the Risk of Open-Angle Glaucoma in Individuals of European Ancestry: A Mendelian Randomisation Analysis. Day AC, Drenos F. Genes (Basel). 2024 Aug 16;15(8):1084. https://doi.org/10.3390/genes15081084. PMID: 39202443

- Karateke F, Karateke A, Topdagi B, et al. The Role of Mannitol and Vitamin D in Ovarian Ischemia/Reperfusion Injury in Rats with Acute Abdominal. Curr Issues Mol Biol. 2024 Aug 15;46(8):8903-8913. https://doi.org/10.3390/cimb46080526. PMID: 39194743 Free PMC article.

- Khatri S, Albright JA, Byrne RA, et al. Association of Vitamin D Deficiency With Distal Biceps Injury: A Retrospective Analysis of 336,320 Patients. Sports Health. 2024 Aug 27:19417381241273453. https://doi.org/10.1177/19417381241273453. Online ahead of print. PMID: 39189103

- Kim TK, Slominski RM, Pyza E, et al. Evolutionary formation of melatonin and vitamin D in early life forms: insects take centre stage. Biol Rev Camb Philos Soc. 2024 Oct;99(5):1772-1790. https://doi.org/10.1111/brv.13091. Epub 2024 Apr 30. PMID: 38686544

- Kirkwood KL, Van Dyke TE, Kirkwood CL, et al. Topical Vitamin D Prevents Bone Loss and Inflammation in a Mouse Model. J Dent Res. 2024 Aug;103(9):908-915. https://doi.org/10.1177/00220345241259417. Epub 2024 Aug 5. PMID: 39104028

- Korkmaz H, Pehlivanoğlu B. Is Vitamin D a Crucial Molecule for Musculoskeletal and Cardiovascular Systems in Postmenopausal Women? Front Biosci (Landmark Ed). 2024 Aug 15;29(8):281. https://doi.org/10.31083/j.fbl2908281. PMID: 39206904

- Kühn J, Brandsch C, Bailer AC, et al. UV light exposure versus vitamin D supplementation: A comparison of health benefits and vitamin D metabolism in a pig model. J Nutr Biochem. 2024 Aug 22;134:109746. https://doi.org/10.1016/j.jnutbio.2024.109746. Online ahead of print. PMID: 39178919

- Kumar J, Sharma A, Dasgupta A, et al. Unraveling the Relationship Between Vitamin D and Oxidative Stress: A Cross-Sectional Study. Cureus. 2024 Aug 26;16(8):e67818. https://doi.org/10.7759/cureus.67818. eCollection 2024 Aug. PMID: 39323715

- Li X, Liu Y, Chen X, et al. Target Values for 25-Hydroxy and 1,25-Dihydroxy Vitamin D Based on Their Associations with Inflammation and Calcium-Phosphate Metabolism. Nutrients. 2024 Aug 13;16(16):2679. https://doi.org/10.3390/nu16162679. PMID: 39203816

- Mahmoud E, Elsayed AM, Kaleem MZ, et al. Impact of phthalate metabolites on vitamin D levels and subclinical inflammation: national health and nutrition examination survey, 2013-2018. Int J Environ Health Res. 2024 Sep;34(9):3136-3146. https://doi.org/10.1080/09603123.2023.2299216. Epub 2024 Jan 5. PMID: 38179961

- Mäkitaipale J, Opsomer H, Steiner R, et al. Serum vitamin D concentrations in rabbits (Oryctolagus cuniculus) are more affected by UVB irradiation of food than irradiation of animals. Vet J. 2024 Aug;306:106149. https://doi.org/10.1016/j.tvjl.2024.106149. Epub 2024 May 28. PMID: 38815799

- Meyer MB, Lee SM, Towne JM, et al. In vivo contribution of Cyp24a1 promoter vitamin D response elements. bioRxiv [Preprint]. 2024 Aug 24:2024.08.23.609393. https://doi.org/10.1101/2024.08.23.609393. Update in: Endocrinology. 2024 Oct 04:bqae134. https://doi.org/10.1210/endocr/bqae134. PMID: 39229197

- Midttun M, Overgaard K, Zerahn B, et al. Beneficial effects of exercise, testosterone, vitamin D, calcium and protein in older men-A randomized clinical trial. J Cachexia Sarcopenia Muscle. 2024 Aug;15(4):1451-1462. https://doi.org/10.1002/jcsm.13498. Epub 2024 Jun 18. PMID: 38890228

- Mikulić P, Ogorevc M, Petričević M, et al. SOX2, JAGGED1, beta-Catenin, and Vitamin D Receptor Expression Patterns during Early Development and Innervation of the Human Inner Ear. Int J Mol Sci. 2024 Aug 9;25(16):8719. https://doi.org/10.3390/ijms25168719. PMID: 39201406

- Mortensen C, Beck AM, Tetens I, et al. Vitamin D Status and Physical Functioning in Nursing Home Residents after Improved Adherence to the Vitamin D and Calcium Recommendation-A Quasiexperimental Study. J Nutr Metab. 2024 Oct 5;2024:2405429. https://doi.org/10.1155/2024/2405429. eCollection 2024. PMID: 39398329
- Murashima M, Yamamoto R, Kanda E, et al. Associations of vitamin D receptor activators and calcimimetics with falls and effect modifications by physical activity: A prospective cohort study on the Japan Dialysis Outcomes and Practice Patterns Study. Ther Apher Dial. 2024 Aug;28(4):547-556. https://doi.org/10.1111/1744-9987.14122. Epub 2024 Mar 10. PMID: 38462749
- Nasirzadeh S, Hamidi GA, Banafshe HR, et al. The mutual effect of progesterone and vitamin D in an animal model of peripheral nerve injury. Res Pharm Sci. 2024 Aug 19;19(4):415-424. https://doi.org/10.4103/RPS.RPS_18_23. eCollection 2024 Aug. PMID: 39399728
- O'Leary TJ, Jackson S, Izard RM, et al. Iron status is associated with tibial structure and vitamin D metabolites in healthy young men. Bone. 2024 Sep;186:117145. https://doi.org/10.1016/j.bone.2024.117145. Epub 2024 Jun 3. PMID: 38838798
- Odetayo AF, Abdulrahim HA, Fabiyi OT, et al. Synergistic Effects of Vitamin D and Exercise on Diabetes-induced Gonadotoxicity in Male Wistar Rats: Role of Xanthine Oxidase/Uric Acid and Nrf2/NfkB Signaling. Cell Biochem Biophys. 2024 Sep;82(3):2065-2077. https://doi.org/10.1007/s12013-024-01313-w. Epub 2024 Jun 3. PMID: 38831172
- Ouedrhiri W, Bennis I, El Arroussi H. Recent advances in microalgae-based vitamin D metabolome: Biosynthesis, and production. Bioresour Technol. 2024 Sep;407:131078. https://doi.org/10.1016/j.biortech.2024.131078. Epub 2024 Jul 7. PMID: 38977035
- Park SY, Lee JK, Lee SH, et al. Multifunctional vitamin D-incorporated PLGA scaffold with BMP/VEGF-overexpressed tonsil-derived MSC via CRISPR/Cas9 for bone tissue regeneration. Mater Today Bio. 2024 Sep 14;28:101254. https://doi.org/10.1016/j.mtbio.2024.101254. eCollection 2024 Oct. PMID: 39328787
- Paul S, Kaushik R, Chawla P, et al. Vitamin-D as a multifunctional molecule for overall well-being: An integrative review. Clin Nutr ESPEN. 2024 Aug;62:10-21. https://doi.org/10.1016/j.clnesp.2024.04.016. Epub 2024 May 11. PMID: 38901929
- Pludowski P, Marcinowska-Suchowierska E, Togizbayev G, et al. Daily and Weekly "High Doses" of Cholecalciferol for the Prevention and Treatment of Vitamin D Deficiency for Obese or Multi-Morbidity and Multi-Treatment Patients Requiring Multi-Drugs-A Narrative Review. Nutrients. 2024 Aug 3;16(15):2541. https://doi.org/10.3390/nu16152541. PMID: 39125420
- Ryuno Y, Kobayashi JI, Fujimoto Y, et al. Effect of an Enteral Formula Enriched with omega-3 Fatty Acids, Carnitine, and Vitamin D on Body Weight, Heart Weight, and Blood Biochemical Parameters in a Dahl Rat Heart Failure Model. J Cardiovasc Pharmacol. 2024 Sep 26. https://doi.org/10.1097/FJC.0000000000001637. Online ahead of print. PMID: 39326053
- Sahu PK, Gautam P, Das GK, et al. Emerging role of vitamin D deficiency as a risk factor for retinal venous occlusions and need for public health measures for its prevention. J Family Med Prim Care. 2024 Aug;13(8):3298-3303. https://doi.org/10.4103/jfmpc.jfmpc_1885_23. Epub 2024 Jul 26. PMID: 39228653
- Sato Y, Hishiki T, Masugi Y, et al. Vitamin D administration increases serum alanine concentrations in thermally injured mice. Biochem Biophys Res Commun. 2024 Aug 6;736:150505. https://doi.org/10.1016/j.bbrc.2024.150505. Online ahead of print. PMID: 39128265
- Schiza S, Bouloukaki I, Kaditis A, et al. Vitamin D deficiency: A forgotten aspect in sleep disorders? A critical update. Sleep Med. 2024 Sep;121:77-84. https://doi.org/10.1016/j.sleep.2024.06.023. Epub 2024 Jun 24. PMID: 38941960
- Singh P, Gupta A. Letter Regarding: Safety and Efficacy of Topical Vitamin D in the Management of Dry Eye Disease Associated With Meibomian Gland Dysfunction: A Placebo-Controlled Double-Blind Randomized Controlled Trial. Cornea. 2024 Oct 1;43(10):e27. https://doi.org/10.1097/ICO.0000000000003582. Epub 2024 May 8. PMID: 38722672
- Singh S, Vimal Y, Srivastava S, et al. Prevalence of Vitamin D Deficiency in Orthopedic Trauma Patients: A Cross-Sectional Survey From a Tertiary Care Trauma Center. Cureus. 2024 Sep 11;16(9):e69174. https://doi.org/10.7759/cureus.69174. eCollection 2024 Sep. PMID: 39398769
- Sitar ME, Donmez Cakil Y, Ipek BO, et al. Experimental Vitamin D Deficiency in Rats: Clinical Chemistry, Histopathological, and Immunological Evaluation. Cureus. 2024 Aug 22;16(8):e67490. https://doi.org/10.7759/cureus.67490. eCollection 2024 Aug. PMID: 39310506
- Son MH, Park E, Yim HE, et al. Maternal exposure to airborne particulate matter during pregnancy and lactation induces kidney injury in rat dams and their male offspring: the role of vitamin D in pregnancy and beyond. Kidney Res Clin Pract. 2024 Sep;43(5):648-662. https://doi.org/10.23876/j.krcp.23.106. Epub 2024 Jan 2. PMID: 39390622
- Sun J. Bringing Vitamin D and the Vitamin D Receptor into the Limelight. Biomolecules. 2024 Aug 31;14(9):1094. https://doi.org/10.3390/biom14091094. PMID: 39334859
- Tallon E, Macedo JP, Faria A, et al. Can Vitamin D Levels Influence Bone Metabolism and Osseointegration of Dental Implants? An Umbrella Review. Healthcare (Basel). 2024 Sep 17;12(18):1867. https://doi.org/10.3390/healthcare12181867. PMID: 39337208
- Tang T, Lu T, Li B, et al. Deletion of vitamin D receptor exacerbated temporomandibular joint pathological changes under abnormal mechanical stimulation. Life Sci. 2024 Sep 15;353:122913. https://doi.org/10.1016/j.lfs.2024.122913. Epub 2024 Jul 14. PMID: 39004274
- Tini A, Kumar S, Arasu P, et al. Influence of vitamin D in orthodontic tooth movement-a systematic review and meta-analysis of randomized controlled trials in humans. Eur J Orthod. 2024 Oct 1;46(5):cjae043. https://doi.org/10.1093/ejo/cjae043. PMID: 39225083
- Trexler ET. Inflated effect estimates for vitamin D supplementation are driven by common meta-analytical errors. J Int Soc Sports Nutr. 2024 Dec;21(1):2413668. https://doi.org/10.1080/15502783.2024.2413668. Epub 2024 Oct 7. PMID: 39373459

- Tsukahara Y, Torii S, Taniguchi Y, et al. Link Between Ferritin, Vitamin D, Performance, and Eating Attitudes in Female Athletes. Int J Sports Med. 2024 Sep 24. https://doi.org/10.1055/a-2421-6891. Online ahead of print. PMID: 39317218

- Vázquez-Lorente H, Herrera-Quintana L, Jiménez-Sánchez L, et al. Antioxidant Functions of Vitamin D and CYP11A1-Derived Vitamin D, Tachysterol, and Lumisterol Metabolites: Mechanisms, Clinical Implications, and Future Directions. Antioxidants (Basel). 2024 Aug 17;13(8):996. https://doi.org/10.3390/antiox13080996. PMID: 39199241

- Wang D, He R, Song Q, et al. Calcitriol Inhibits NaAsO(2) Triggered Hepatic Stellate Cells Activation and Extracellular Matrix Oversecretion by Activating Nrf2 Signaling Pathway Through Vitamin D Receptor. Biol Trace Elem Res. 2024 Aug;202(8):3601-3613. https://doi.org/10.1007/s12011-023-03957-w. Epub 2023 Nov 16. PMID: 37968493

- Wang D, He R, Song Q, et al. Correction to: Calcitriol Inhibits NaAsO2 Triggered Hepatic Stellate Cells Activation and Extracellular Matrix Oversecretion by Activating Nrf2 Signaling Pathway Through Vitamin D Receptor. Biol Trace Elem Res. 2024 Sep;202(9):4334. https://doi.org/10.1007/s12011-023-03976-7. PMID: 38041723

- Wang JY, Chang HC, Lin CH. Vitamin D is involved in the regulation of Cl(-) uptake in zebrafish (Danio rerio). Comp Biochem Physiol A Mol Integr Physiol. 2024 Oct;296:111678. https://doi.org/10.1016/j.cbpa.2024.111678. Epub 2024 Jun 15. PMID: 38885808

- Wang L, Zhu B, Xue C, et al. Lower risk of the deterioration of muscle mass and function in oral active vitamin D users among Incident peritoneal dialysis patients: a 12-month follow-up cohort study. Sci Rep. 2024 Oct 14;14(1):23951. https://doi.org/10.1038/s41598-024-74709-6. PMID: 39397040

- Weaver CM, Wallace TC. Vitamin D-Do Diet Recommendations for Health Remain Strong? Curr Osteoporos Rep. 2024 Oct 2. https://doi.org/10.1007/s11914-024-00893-z. Online ahead of print. PMID: 39356464

- Wolf ST, Kenney WL, Jablonski NG. Comment on "Impact of Ultraviolet Radiation on Cardiovascular and Metabolic Disorders: The Role of Nitric Oxide and Vitamin D". Photodermatol Photoimmunol Photomed. 2024 Sep;40(5):e13000. https://doi.org/10.1111/phpp.13000. PMID: 39291830

- Wyatt M, Choudhury A, Von Dohlen G, et al. Randomized control trial of moderate dose vitamin D alters microbiota stability and metabolite networks in healthy adults. Microbiol Spectr. 2024 Oct 3;12(10):e0008324. https://doi.org/10.1128/spectrum.00083-24. Epub 2024 Aug 27. PMID: 39189761

- Yıldırım YA, Ozturk A, Doğruel F, et al. Serum vitamin D concentration is inversely associated with matrix metalloproteinase-9 level in periodontal diseases. J Periodontol. 2024 Sep 23. https://doi.org/10.1002/JPER.24-0106. Online ahead of print. PMID: 39311712

- You H, Shin U, Kwon DH, et al. The effects of in vitro vitamin D treatment on glycolytic reprogramming of bone marrow-derived dendritic cells from Ldlr knock-out mouse. Biochim Biophys Acta Mol Basis Dis. 2024 Oct;1870(7):167436. https://doi.org/10.1016/j.bbadis.2024.167436. Epub 2024 Jul 25. PMID: 39067537

- You T, Muhamad N, Jenner J, et al. The pharmacokinetic differences between 10- and 15-mug daily vitamin D doses. Br J Clin Pharmacol. 2024 Oct;90(10):2611-2620. https://doi.org/10.1111/bcp.16146. Epub 2024 Jun 26. PMID: 38926090

- Yousef S, Hayawi L, Hossain A, et al. Assessment of the quality and content of clinical practice guidelines for vitamin D and for immigrants using the AGREE II instrument: global systematic review. BMJ Open. 2024 Oct 10;14(10):e080233. https://doi.org/10.1136/bmjopen-2023-080233. PMID: 39389604

- Zhou QL, Ye D, Ren PC, et al. A multi-omics analysis reveals vitamin D supplementation since childhood modulates molecules for signal transductions in the mouse striatum. Biomed Pharmacother. 2024 Sep;178:117145. https://doi.org/10.1016/j.biopha.2024.117145. Epub 2024 Jul 21. PMID: 39038374

NEFROLOGIA

- Chao CT. Free Hormone Theory of Vitamin D Can Be an Important Alternative Consideration. Am J Kidney Dis. 2024 Sep 27:S0272-6386(24)00979-X. https://doi.org/10.1053/j.ajkd.2024.06.023. Online ahead of print. PMID: 39342981

- Ginsberg C, Ix JH. New Insights into Vitamin D Metabolism in Kidney Disease and Transplant. Am J Kidney Dis. 2024 Oct;84(4):400-402. https://doi.org/10.1053/j.ajkd.2024.06.003. Epub 2024 Jul 22. PMID: 39046404

- Holden RM, Norman PA, Day AG, et al. Vitamin D Status and Treatment in ESKD: Links to Improved CKD-MBD Laboratory Parameters in a Real-World Setting. Am J Nephrol. 2024 Sep 2:1-9. https://doi.org/10.1159/000541109. Online ahead of print. PMID: 39222615

- Holthoff JH, Alge JL, Arthur JM, et al. Urinary complement C3 and vitamin D binding protein predict adverse outcomes in patients with acute kidney injury after cardiac surgery. Nephron. 2024 Sep 30:1-23. https://doi.org/10.1159/000540664. Online ahead of print. PMID: 39348806

- Imani PD, Vega M, Pekkucuksen NT, et al. Vitamin D and metabolic bone disease in prolonged continuous kidney replacement therapy: a prospective observational study. BMC Nephrol. 2024 Aug 19;25(1):265. https://doi.org/10.1186/s12882-024-03705-9. PMID: 39160464

- Jørgensen HS, de Loor H, Billen J, et al. Vitamin D Metabolites Before and After Kidney Transplantation in Patients Who Are Anephric. Am J Kidney Dis. 2024 Oct;84(4):427-436.e1. https://doi.org/10.1053/j.ajkd.2024.03.025. Epub 2024 May 23. PMID: 38796137

- Kawai Y, Uneda K, Miyata S, et al. A pharmacovigilance study on clinical factors of active vitamin D(3) analog-related acute kidney injury using the Japanese Adverse Drug Event Report Database. Sci Rep. 2024 Sep 12;14(1):21356. https://doi.org/10.1038/s41598-024-72505-w. PMID: 39266636

- Kotowska K, Wojciuk B, Sieńko J, et al. The Role of Vitamin D Metabolism Genes and Their Genomic Background in Shaping Cyclosporine A Dosage Parameters after Kidney Transplantation. J Clin Med. 2024 Aug 22;13(16):4966. https://doi.org/10.3390/jcm13164966. PMID: 39201108

- Li J, Ke K, Zhang B, et al. Association of single nucleotide genetic polymorphisms

of vitamin D receptor and calcium-sensitive receptor with calcium-containing kidney stones in Chinese Dai populations: a prospective multi-center study. Int Urol Nephrol. 2024 Nov;56(11):3647-3655. https://doi.org/10.1007/s11255-024-04109-2. Epub 2024 Jun 17. PMID: 38886300

- Li XH, Luo YZ, Mo MQ, et al. Vitamin D deficiency may increase the risk of acute kidney injury in patients with diabetes and predict a poorer outcome in patients with acute kidney injury. BMC Nephrol. 2024 Oct 7;25(1):333. https://doi.org/10.1186/s12882-024-03781-x. PMID: 39375595
- Liu X, Liu Y, Zheng P, et al. Effects of active vitamin D analogs and calcimimetic agents on PTH and bone mineral biomarkers in hemodialysis patients with SHPT: a network meta-analysis. Eur J Clin Pharmacol. 2024 Oct;80(10):1555-1569. https://doi.org/10.1007/s00228-024-03730-5. Epub 2024 Jul 13. PMID: 39002024
- Ristic-Medic D, Takic M, Pokimica B, et al. Dietary Omega-3 PUFA Intake in Patients with Chronic Kidney Disease: The Association with Vitamin D Deficiency, Intima-Media Thickness and Blood Pressure. J Clin Med. 2024 Sep 20;13(18):5593. https://doi.org/10.3390/jcm13185593. PMID: 39337080
- Wang Y, Hu C, Li Y, et al. Association between serum vitamin D and the risk of diabetic kidney disease in patients with type 2 diabetes. Front Med (Lausanne). 2024 Aug 9;11:1445487. https://doi.org/10.3389/fmed.2024.1445487. eCollection 2024. PMID: 39185464
- Yeung WG, Toussaint ND, Badve SV. Vitamin D therapy in chronic kidney disease: a critical appraisal of clinical trial evidence. Clin Kidney J. 2024 Jul 18;17(8):sfae227. https://doi.org/10.1093/ckj/sfae227. eCollection 2024 Aug. PMID: 39119524
- Yeung WG, Toussaint ND, Lioufas N, et al. Vitamin D status and intermediate vascular and bone outcomes in chronic kidney disease: a secondary post hoc analysis of IMPROVE-CKD. Intern Med J. 2024 Sep 3. https://doi.org/10.1111/imj.16516. Online ahead of print. PMID: 39225105
- Zhang F, Li W. The complex relationship between vitamin D and kidney stones: balance, risks, and prevention strategies. Front Nutr. 2024 Sep 13;11:1435403. https://doi.org/10.3389/fnut.2024.1435403. eCollection 2024. PMID: 39346653
- Zhang M, Tao M, Cao Q, et al. Identification of crucial genes and possible molecular pathways associated with active vitamin D intervention in diabetic kidney disease. Heliyon. 2024 Sep 25;10(19):e38334. https://doi.org/10.1016/j.heliyon.2024.e38334. eCollection 2024 Oct 15. PMID: 39398062
- Zhang Z, Qian X, Sun Z, et al. Association between lipoprotein-associated phospholipase A2 and 25-hydroxy-vitamin D on early stage diabetic kidney disease in patients with type-2 diabetes mellitus. Heliyon. 2024 Aug 6;10(16):e35635. https://doi.org/10.1016/j.heliyon.2024.e35635. eCollection 2024 Aug 30. PMID: 39220926
- Zhou Y, Liao Q, Li D, et al. Vitamin D receptor alleviates lipid peroxidation in diabetic nephropathy by regulating ACLY/Nrf2/Keap1 pathway. FASEB J. 2024 Sep 30;38(18):e70060. https://doi.org/10.1096/fj.202401543R. PMID: 39302807

NEUROLOGIA

- Abbasi H, Khoshdooz S, Alem E, et al. Vitamin D in Multiple Sclerosis: A Comprehensive Umbrella Review. J Nutr. 2024 Oct 5:S0022-3166(24)01071-X. https://doi.org/10.1016/j.tjnut.2024.10.004. Online ahead of print. PMID: 39374790
- Abbasi H, Rahnemayan S, Alawfi JS, et al. The Link Between Vitamin D and the Risk of Aneurysmal Subarachnoid Hemorrhage: A Systematic Review. World Neurosurg. 2024 Sep;189:351-356.e1. https://doi.org/10.1016/j.wneu.2024.06.029. Epub 2024 Jun 12. PMID: 38876189
- Akram U, Ali Nadeem Z, Nadeem A, et al. Comment on: Vitamin D status and the risk of neuromyelitis optica spectrum disorders: A systematic review and meta-analysis. J Clin Neurosci. 2024 Oct;128:110647. https://doi.org/10.1016/j.jocn.2024.04.014. Epub 2024 Apr 18. PMID: 38641491
- Balasooriya NN, Elliott TM, Neale RE, et al. The association between vitamin D deficiency and multiple sclerosis: an updated systematic review and meta-analysis. Mult Scler Relat Disord. 2024 Oct;90:105804. https://doi.org/10.1016/j.msard.2024.105804. Epub 2024 Aug 8. PMID: 39180838
- Chan AA, Lam TL, Liu J, et al. Acute calcitriol treatment mitigates vitamin D deficiency-associated mortality after intracerebral haemorrhage. Neurosci Lett. 2024 Aug 24;838:137922. https://doi.org/10.1016/j.neulet.2024.137922. Epub 2024 Aug 8. PMID: 39127125
- Chen Y, Liu X, Yuan J, et al. Vitamin D accelerates the subdural hematoma clearance through improving the meningeal lymphatic vessel function. Mol Cell Biochem. 2024 Nov;479(11):3129-3140. https://doi.org/10.1007/s11010-023-04918-6. Epub 2024 Jan 31. PMID: 38294731
- Corsten CEA, Wokke BHA, Smolders J. Putative benefits of vitamin D supplements in multiple sclerosis out of reach due to sample size. Brain. 2024 Oct 3;147(10):e64-e65. https://doi.org/10.1093/brain/awae238. PMID: 39012817
- Doumit M, El-Mallah C, El-Makkawi A, et al. Vitamin D Deficiency Does Not Affect Cognition and Neurogenesis in Adult C57Bl/6 Mice. Nutrients. 2024 Sep 2;16(17):2938. https://doi.org/10.3390/nu16172938. PMID: 39275253
- Erratum to Vitamin D Deficiency-Associated Neuropathic Pain Examined in a Chronic Pain Management Program. Perm J. 2024 Sep 20:1. https://doi.org/10.7812/TPP/24.152. Online ahead of print. PMID: 39302696
- Fu LL, Vollkommer T, Fuest S, et al. The Role of 25-OH Vitamin D in Alzheimer's Disease through Mendelian Randomization and MRI. QJM. 2024 Aug 22:hcae166. https://doi.org/10.1093/qjmed/hcae166. Online ahead of print. PMID: 39171833
- Gill A, Orji C, Reghefaoui M, et al. The Effectiveness of Vitamin D Intake in Improving Symptoms and Relapses of Multiple Sclerosis: A Systematic Review. Cureus. 2024 Sep 3;16(9):e68565. https://doi.org/10.7759/cureus.68565. eCollection 2024 Sep. PMID: 39364460
- Hafiz AA. The neuroprotective effect of vitamin D in Parkinson's disease: association or causation. Nutr Neurosci. 2024 Aug;27(8):870-886. https://doi.org/10.1080/1028415X.2023.2259680. Epub 2023 Sep 20. PMID: 37731327
- Li L, Han B, Kong Y, et al. Vitamin D binding protein in psychiatric and neurological disorders: Implications for diag-

nosis and treatment. Genes Dis. 2024 Apr 15;11(5):101309. https://doi.org/10.1016/j.gendis.2024.101309. eCollection 2024 Sep. PMID: 38983447

- Li M, Lai KW. Vitamin D Deficiency-Associated Neuropathic Pain Examined in a Chronic Pain Management Program. Perm J. 2024 Sep 16;28(3):180-184. https://doi.org/10.7812/TPP/24.026. Epub 2024 Jun 4. PMID: 38980764
- Liu Y, Gong C, Li J, et al. Vitamin D content and prevalence of vitamin D deficiency in patients with epilepsy: a systematic review and meta-analysis. Front Nutr. 2024 Aug 30;11:1439279. https://doi.org/10.3389/fnut.2024.1439279. eCollection 2024. PMID: 39279896
- Lu T, Chen X, Zhang Q, et al. Vitamin D Relieves Epilepsy Symptoms and Neuroinflammation in Juvenile Mice by Activating the mTOR Signaling Pathway via RAF1: Insights from Network Pharmacology and Molecular Docking Studies. Neurochem Res. 2024 Sep;49(9):2379-2392. https://doi.org/10.1007/s11064-024-04176-y. Epub 2024 Jun 5. PMID: 38837094
- Melindah T, Sari DCR, Setiawan J, et al. Vitamin D ameliorates memory function in association with reducing senescence and upregulating neurotrophin mRNA expression in transient global cerebral ischemic injury model in rats. Med J Malaysia. 2024 Aug;79(Suppl 4):51-57. PMID: 39215415
- Semita IN, Fatmawati H, Munawir A, et al. Complete neurological recovery of spinal tuberculosis after spinal surgery and vitamin D supplementary: A case series. Int J Surg Case Rep. 2024 Sep;122:110053. https://doi.org/10.1016/j.ijscr.2024.110053. Epub 2024 Jul 18. PMID: 39033700
- Shi Y, Shi Y, Jie R, et al. Vitamin D: The crucial neuroprotective factor for nerve cells. Neuroscience. 2024 Sep 27;560:272-285. https://doi.org/10.1016/j.neuroscience.2024.09.042. Online ahead of print. PMID: 39343160
- Song T, Li J, Xia Y, et al. 1,25-D3 ameliorates ischemic brain injury by alleviating endoplasmic reticulum stress and ferroptosis: Involvement of vitamin D receptor and p53 signaling. Cell Signal. 2024 Oct;122:111331. https://doi.org/10.1016/j.cellsig.2024.111331. Epub 2024 Jul 31. PMID: 39094671
- Tan Y, Jing X, Wang J, et al. Vitamin D Deficiency in the Acute Phase of Stroke May Predict Post-stroke Depression: A Systematic Review and Meta-Analysis. J Geriatr Psychiatry Neurol. 2024 Aug 23:8919887241275044. https://doi.org/10.1177/08919887241275044. Online ahead of print. PMID: 39179523
- Taylor BV, Ponsonby AL, Stein M, et al. Reply: Putative benefits of vitamin D supplements in multiple sclerosis out of reach due to sample size. Brain. 2024 Oct 3;147(10):e66-e67. https://doi.org/10.1093/brain/awae246. PMID: 39028680
- Zahra F, Sari DCR, Yuniartha R, et al. Vitamin D treatment ameliorates memory function through downregulation of BAX and upregulation of SOD2 mRNA expression in transient global brain ischaemic injury in rats. Med J Malaysia. 2024 Aug;79(Suppl 4):31-37. PMID: 39215412
- Zali A, Hajyani S, Salari M, et al. Co-administration of probiotics and vitamin D reduced disease severity and complications in patients with Parkinson's disease: a randomized controlled clinical trial. Psychopharmacology (Berl). 2024 Sep;241(9):1905-1914. https://doi.org/10.1007/s00213-024-06606-9. Epub 2024 May 28. PMID: 38805039
- Zhang J, Zhang X, Wu J. The correlation between vitamin D and the occurrence of peripheral neuropathy induced by paclitaxel chemotherapy. Front Med (Lausanne). 2024 Sep 24;11:1466049. https://doi.org/10.3389/fmed.2024.1466049. eCollection 2024. PMID: 39380731
- Zhang W, Yu S, Jiao B, et al. Vitamin D(3) Attenuates Neuropathic Pain via Suppression of Mitochondria-Associated Ferroptosis by Inhibiting PKCalpha/NOX4 Signaling Pathway. CNS Neurosci Ther. 2024 Sep;30(9):e70067. https://doi.org/10.1111/cns.70067. PMID: 39328008
- Zhou Q. Deepening insights into the roles of 25-OH vitamin D in alzheimer's disease. QJM. 2024 Aug 28:hcae172. https://doi.org/10.1093/qjmed/hcae172. Online ahead of print. PMID: 39196758

ONCOLOGIA

- Akgun Z, Dogan E, Degirmenci C, et al. Evaluation of the effects of vitamin D analogs, bevacizumab, and radiotherapy in uveal melanoma cells. Exp Eye Res. 2024 Sep 10;248:110084. https://doi.org/10.1016/j.exer.2024.110084. Online ahead of print. PMID: 39260786
- Ali E, Helmy MW, Radwan EH, et al. Evaluation of the cytotoxic activity of chemically characterized propolis originating from different geographic regions and vitamin D co-supplementation against human ovarian cancer cells. J Ovarian Res. 2024 Sep 7;17(1):181. https://doi.org/10.1186/s13048-024-01500-6. PMID: 39244585
- Aloufi A, Aubee J, Vargas KM, et al. Vitamin D receptor polymorphisms and associated miRNAs in the development of breast cancer in African American women. Gene. 2024 Nov 15;927:148695. https://doi.org/10.1016/j.gene.2024.148695. Epub 2024 Jun 28. PMID: 38945313
- Brust LA, Linxweiler M, Schnatmann J, et al. Effects of Vitamin D on tumor cell proliferation and migration, tumor initiation and anti-tumor immune response in head and neck squamous cell carcinomas. Biomed Pharmacother. 2024 Sep 27;180:117497. https://doi.org/10.1016/j.biopha.2024.117497. Online ahead of print. PMID: 39341078
- Chao G, Lin A, Bao Y. A study of the association of vitamin D receptor (VDR) as a predictive biomarker for immune checkpoint inhibitor therapy with immune invasion in colon adenocarcinoma. J Pharm Biomed Anal. 2024 Oct 5;252:116510. https://doi.org/10.1016/j.jpba.2024.116510. Online ahead of print. PMID: 39378759
- Choi S, Iriarte C. High-dose oral vitamin D: An emerging therapeutic for skin toxicities associated with cancer treatment. J Am Acad Dermatol. 2024 Sep;91(3):596-597. https://doi.org/10.1016/j.jaad.2024.05.027. Epub 2024 May 18. PMID: 38763290
- Ciulei G, Orășan OH, Cozma A, et al. Exploring Vitamin D Deficiency and IGF Axis Dynamics in Colorectal Adenomas. Biomedicines. 2024 Aug 22;12(8):1922. https://doi.org/10.3390/biomedicines12081922. PMID: 39200386
- Ciulei G, Orășan OH, Cozma A, et al. Role of Vitamin D Receptor (BsmI-VDR) and Insulin Receptor (NsiI-A/G) Gene Polymorphisms in Colorectal Adenoma Susceptibility. Int J Mol Sci. 2024 Aug 17;25(16):8965. https://doi.org/10.3390/ijms25168965. PMID: 39201651

- Dallavalasa S, Tulimilli SV, Bettada VG, et al. Vitamin D in Cancer Prevention and Treatment: A Review of Epidemiological, Preclinical, and Cellular Studies. Cancers (Basel). 2024 Sep 20;16(18):3211. https://doi.org/10.3390/cancers16183211. PMID: 39335182
- Ding J, He X, Lin W, et al. Exploring the relationship between vitamin D and hepatic carcinoma in individuals diagnosed with hepatitis B virus infection. Clin Res Hepatol Gastroenterol. 2024 Oct;48(8):102457. https://doi.org/10.1016/j.clinre.2024.102457. Epub 2024 Aug 30. PMID: 39216591
- Etiévant L, Gail MH, Albanes D. Disentangling discordant vitamin D associations with prostate cancer incidence and fatality in a large, nested case-control study. Int J Epidemiol. 2024 Aug 14;53(5):dyae110. https://doi.org/10.1093/ije/dyae110. PMID: 39180769
- Guan M, Wang Y. Common variants of vitamin D receptor gene polymorphisms and risk of gastric cancer: A meta-analysis. Medicine (Baltimore). 2024 Aug 30;103(35):e39527. https://doi.org/10.1097/MD.0000000000039527. PMID: 39213223
- Gupta VK, Sahu L, Sonwal S, et al. Advances in biomedical applications of vitamin D for VDR targeted management of obesity and cancer. Biomed Pharmacother. 2024 Aug;177:117001. https://doi.org/10.1016/j.biopha.2024.117001. Epub 2024 Jun 26. PMID: 38936194
- Klena L, Galvankova K, Penesova A, et al. Vitamin D supplementation in cancer prevention and the management of cancer therapy. Neoplasma. 2024 Aug;71(4):307-318. https://doi.org/10.4149/neo_2024_240531N240. PMID: 39267542
- Lanitis S, Gkanis V, Peristeraki S, et al. Vitamin D deficiency and thyroid cancer: is there a true association? A prospective observational study. Ann R Coll Surg Engl. 2024 Sep 24. https://doi.org/10.1308/rcsann.2024.0041. Online ahead of print. PMID: 39316376
- Len-Tayon K, Beraud C, Fauveau C, et al. A vitamin D-based strategy overcomes chemoresistance in prostate cancer. A vitamin D-based strategy overcomes chemoresistance in prostate cancer. Br J Pharmacol. 2024 Nov;181(21):4279-4293. https://doi.org/10.1111/bph.16492. Epub 2024 Jul 9. PMID: 38982588
- Li Y, Zhang J, Tian F, et al. Association between vitamin D receptor polymorphism and breast cancer in women: An umbrella review of meta-analyses of observational investigations. Exp Gerontol. 2024 Sep;194:112502. https://doi.org/10.1016/j.exger.2024.112502. Epub 2024 Jun 29. PMID: 38917941
- Liang E, Beshara M, Sheng H, et al. A prospective study of vitamin D, proinflammatory cytokines, and risk of fragility fractures in women on aromatase inhibitors for breast cancer. Breast Cancer Res Treat. 2024 Nov;208(2):349-358. https://doi.org/10.1007/s10549-024-07423-6. Epub 2024 Jul 8. PMID: 38976164
- Lin Y, Chen J, Xin S, et al. CYP24A1 affected macrophage polarization through degradation of vitamin D as a candidate biomarker for ovarian cancer prognosis. Int Immunopharmacol. 2024 Sep 10;138:112575. https://doi.org/10.1016/j.intimp.2024.112575. Epub 2024 Jul 3. PMID: 38963981
- Nakamori Y, Takasawa A, Takasawa K, et al. Vitamin D-metabolizing enzyme CYP24A1 affects oncogenic behaviors of oral squamous cell carcinoma and its prognostic implication. Med Mol Morphol. 2024 Sep;57(3):185-199. https://doi.org/10.1007/s00795-024-00387-y. Epub 2024 May 21. PMID: 38772955
- Nakano S, Yamaji T, Hidaka A, et al. Dietary vitamin D intake and risk of colorectal cancer according to vitamin D receptor expression in tumors and their surrounding stroma. J Gastroenterol. 2024 Sep;59(9):825-835. https://doi.org/10.1007/s00535-024-02129-4. Epub 2024 Jun 20. PMID: 38900300
- Park KH, Kim HC, Won YS, et al. Vitamin D(3) Upregulated Protein 1 Deficiency Promotes Azoxymethane/Dextran Sulfate Sodium-Induced Colorectal Carcinogenesis in Mice. Cancers (Basel). 2024 Aug 23;16(17):2934. https://doi.org/10.3390/cancers16172934. PMID: 39272794
- Pereira TSS, Marques SSA, Olandoski M, et al. Vitamin D and Breast Cancer Risk: Evaluating the Association and Effective Risk Reduction. Breast Care (Basel). 2024 Aug;19(4):197-206. https://doi.org/10.1159/000539750. Epub 2024 Jun 12. PMID: 39185130
- Schömann-Finck M, Reichrath J. Umbrella Review on the Relationship between Vitamin D Levels and Cancer. Nutrients. 2024 Aug 15;16(16):2720. https://doi.org/10.3390/nu16162720. PMID: 39203855
- Shu J, Zhang M, Dong X, et al. Vitamin D receptor gene polymorphisms, bioavailable 25-hydroxyvitamin D, and hepatocellular carcinoma survival. J Natl Cancer Inst. 2024 Oct 1;116(10):1687-1696. https://doi.org/10.1093/jnci/djae116. PMID: 38830043
- Stachowicz-Suhs M, Łabędź N, Milczarek M, et al. Vitamin D(3) reduces the expression of M1 and M2 macrophage markers in breast cancer patients. Sci Rep. 2024 Sep 27;14(1):22126. https://doi.org/10.1038/s41598-024-73152-x. PMID: 39333342
- Tirgar A, Rezaei M, Ehsani M, et al. Exploring the synergistic effects of vitamin D and synbiotics on cytokines profile, and treatment response in breast cancer: a pilot randomized clinical trial. Sci Rep. 2024 Sep 12;14(1):21372. https://doi.org/10.1038/s41598-024-72172-x. PMID: 39266591
- Vaselkiv JB, Shui IM, Grob ST, et al. Intratumoral vitamin D signaling and lethal prostate cancer. Carcinogenesis. 2024 Oct 10;45(10):735-744. https://doi.org/10.1093/carcin/bgae055. PMID: 39120256
- Zárate-Pérez A, Cruz-Cázares AP, Ordaz-Rosado D, et al. The vitamin D analog EB1089 sensitizes triple-negative breast cancer cells to the antiproliferative effects of antiestrogens. Adv Med Sci. 2024 Sep 2;69(2):398-406. https://doi.org/10.1016/j.advms.2024.08.004. Online ahead of print. PMID: 39233278
- Zhang L, Li W, Wang X, et al. A real-world study of active vitamin D as a prognostic marker in patients with sarcoma. Discov Oncol. 2024 Aug 29;15(1):384. https://doi.org/10.1007/s12672-024-01152-4. PMID: 39207640

PEDIATRIA

- Abiramalatha T, Ramaswamy VV, Thanigainathan S, et al. Comparative efficacies of vitamin D supplementation regimens in infants: a systematic review and net-

work meta-analysis. Br J Nutr. 2024 Sep 16:1-13. https://doi.org/10.1017/S0007114524001685. Online ahead of print. PMID: 39279646

- Abuhamad AY, Almasri N, Al Karaghouli Y, et al. Vitamin D deficiency and associated demographic risk factors in children at a tertiary hospital in Abu Dhabi. Paediatr Int Child Health. 2024 Sep 8:1-6. https://doi.org/10.1080/20469047.2024.2396714. Online ahead of print. PMID: 39246017

- Akinci A, Karaburun MC, Kubilay E, et al. Urinary stone in infants; should vitamin D prophylaxis be stopped? J Pediatr Urol. 2024 Aug;20(4):604.e1-604.e6. https://doi.org/10.1016/j.jpurol.2024.04.006. Epub 2024 Apr 16. PMID: 38702222

- Albinsson E, Grönlund AB, Paulsson M, et al. Unpredictable supplementation of vitamin D to infants in the neonatal intensive care unit: An experimental study. Acta Paediatr. 2024 Nov;113(11):2398-2405. https://doi.org/10.1111/apa.17351. Epub 2024 Jul 7. PMID: 38972986

- Alenazi KA, Alanezi AA. Prevalence of Vitamin D Deficiency in Children With Cerebral Palsy: A Meta-Analysis. Pediatr Neurol. 2024 Oct;159:56-61. https://doi.org/10.1016/j.pediatrneurol.2024.03.021. Epub 2024 Mar 26. PMID: 39137591

- Atef Abdelsattar Ibrahim H, Sobhy Menshawy S, E Hassan F, et al. Vitamin D and vitamin B(12) profiles in children with primary nocturnal enuresis, an analytical cross-sectional study. Ann Med. 2024 Dec;56(1):2352030. https://doi.org/10.1080/07853890.2024.2352030. Epub 2024 Jun 10. PMID: 38857176

- Bandyopadhyay S, Jain N, Bandyopadhyay A. Anaesthetic concerns of a child with symptomatic vitamin D deficiency rickets with secondary hyperparathyroidism: A case report. J Perioper Pract. 2024 Oct;34(10):326-329. https://doi.org/10.1177/17504589241242229. Epub 2024 Apr 12. PMID: 38606917

- Berry SPD, Honkpèhedji YJ, Ludwig E, et al. Publisher Correction: Impact of helminth infections during pregnancy on maternal and newborn Vitamin D and on birth outcomes. Sci Rep. 2024 Aug 22;14(1):19494. https://doi.org/10.1038/s41598-024-70356-z. PMID: 39174621

- Biçer GY, Yılmaz Öztorun Z, Biçer KE, et al. Analysis of pupillary responses in pediatric patients with vitamin D deficiency. Graefes Arch Clin Exp Ophthalmol. 2024 Aug;262(8):2625-2632. https://doi.org/10.1007/s00417-024-06428-7. Epub 2024 Feb 28. PMID: 38416236

- Borzutzky A, Iturriaga C, Pérez-Mateluna G, et al. Effect of weekly vitamin D supplementation on the severity of atopic dermatitis and type 2 immunity biomarkers in children: A randomized controlled trial. J Eur Acad Dermatol Venereol. 2024 Sep;38(9):1760-1768. https://doi.org/10.1111/jdv.19959. Epub 2024 Mar 14. PMID: 38483248

- Bragg MG, Gorski-Steiner I, Song A, et al. Prenatal air pollution and children's autism traits score: Examination of joint associations with maternal intake of vitamin D, methyl donors, and polyunsaturated fatty acids using mixture methods. Environ Epidemiol. 2024 Jun 21;8(4):e316. https://doi.org/10.1097/EE9.0000000000000316. eCollection 2024 Aug. PMID: 38919264

- Calcaterra V, Fabiano V, De Silvestri A, et al. The impact of vitamin D status on lipid profiles and atherogenic dyslipidemia markers in children and adolescents with obesity. Nutr Metab Cardiovasc Dis. 2024 Nov;34(11):2596-2605. https://doi.org/10.1016/j.numecd.2024.07.015. Epub 2024 Jul 22. PMID: 39168806

- Chan KS, Farah NM, Yeo GS, et al. Association of adiposity, serum vitamin D, and dietary quality with cardiometabolic risk factors in children aged 6-12 years: findings from SEANUTS II Malaysia. Appl Physiol Nutr Metab. 2024 Oct 1;49(10):1328-1339. https://doi.org/10.1139/apnm-2023-0621. Epub 2024 Jul 4. PMID: 39251408

- Clemente MG, Argiolas D, Bassu S, et al. Vitamin D Status in an Italian Pediatric Cohort: Is There a Role for Tobacco Smoking Exposure? J Clin Res Pediatr Endocrinol. 2024 Sep 5;16(3):334-339. https://doi.org/10.4274/jcrpe.galenos.2024.2023-11-16. Epub 2024 Mar 25. PMID: 38523346

- Deschênes ÉR, Do J, Tsampalieros A, et al. Pediatric Headache Patients Are at High Risk of Vitamin D Insufficiency. J Child Neurol. 2024 Oct 9:8830738241284057. https://doi.org/10.1177/08830738241284057. Online ahead of print. PMID: 39380442

- Doumat G, El Zein J, Mehta GD, et al. Prospective Study of Vitamin D Status and Risk of Developing Specific Immunoglobulin E During Mid-Childhood. Clin Exp Allergy. 2024 Aug;54(8):627-630. https://doi.org/10.1111/cea.14511. Epub 2024 Jun 7. PMID: 38845508

- Dzavakwa NV, Simms V, Gregson CL, et al. Association Between Vitamin D Insufficiency and Impaired Bone Density Among Adolescents With Perinatally Acquired HIV Infection. Open Forum Infect Dis. 2024 Sep 19;11(9):ofae442. https://doi.org/10.1093/ofid/ofae442. eCollection 2024 Sep. PMID: 39301108

- Ganmaa D, Hemmings S, Jolliffe DA, et al. Influence of vitamin D supplementation on muscle strength and exercise capacity in Mongolian schoolchildren: secondary outcomes from a randomised controlled trial. BMJ Open Sport Exerc Med. 2024 Sep 26;10(3):e002018. https://doi.org/10.1136/bmjsem-2024-002018. eCollection 2024. PMID: 39345833

- Geng M, Yu Z, Wang B, et al. Associating prenatal antibiotics exposure with attention deficit hyperactivity disorder symptoms in preschool children: The role of maternal vitamin D. Ecotoxicol Environ Saf. 2024 Sep 12;285:117037. https://doi.org/10.1016/j.ecoenv.2024.117037. Online ahead of print. PMID: 39270477

- Grasemann C, Höppner J, Högler W, et al. High parathyroid hormone rather than low vitamin D is associated with reduced event-free survival in childhood cancer. Cancer Epidemiol Biomarkers Prev. 2024 Aug 14. https://doi.org/10.1158/1055-9965.EPI-24-0477. Online ahead of print. PMID: 39141058

- Guo H, Xie J, Yu X, et al. Effects of vitamin D supplementation on serum 25(OH)D(3) levels and neurobehavioral development in premature infants after birth. Sci Rep. 2024 Oct 14;14(1):23972. https://doi.org/10.1038/s41598-024-75191-w. PMID: 39397102

- Hanna D, Kamal DE, Fawzy HM, et al. Safety and efficacy of monthly high-dose vitamin D(3) supplementation in children and adolescents with sickle cell disease. Eur J Pediatr. 2024 Aug;183(8):3347-3357. https://doi.org/10.1007/s00431-024-05572-w. Epub 2024 May 14. PMID: 38743288

- Herdea A, Marie H, Ionescu A, et al.

Vitamin D Deficiency-A Public Health Issue in Children. Children (Basel). 2024 Aug 30;11(9):1061. https://doi.org/10.3390/children11091061. PMID: 39334594

- Isart FA, Isart-Infante FJ, Heidel RE. Association of Blood Calcidiol Levels and Metabolic Syndrome in Children and Adolescents With Vitamin D Deficiency. Clin Pediatr (Phila). 2024 Sep;63(8):1078-1088. https://doi.org/10.1177/00099228231204444. Epub 2023 Nov 18. PMID: 37978861

- Jiménez-Ortega AI, Martínez-García RM, Cuadrado-Soto E, et al. [Problems posed by vitamin D in early childhood]. Nutr Hosp. 2024 Sep 23;41(Spec No3):16-19. https://doi.org/10.20960/nh.05450. PMID: 39279745

- Jones G, Kaufmann M, St-Arnaud R. Infantile hypercalcemia type 1 (HCINF1): a rare disease resulting in nephrolithiasis and nephrocalcinosis caused by mutations in the vitamin D catabolic enzyme, CYP24A1. J Endocrinol Invest. 2024 Nov;47(11):2663-2670. https://doi.org/10.1007/s40618-024-02381-8. Epub 2024 May 23. PMID: 38780860

- Kalra G, Kumar Y, Langpoklakpam C, et al. Relationship between Maternal Prenatal Vitamin D Status and Early Childhood Caries in Their Children: A Cross-sectional Survey. Int J Clin Pediatr Dent. 2024 Aug;17(8):860-863. https://doi.org/10.5005/jp-journals-10005-2836. PMID: 39372353

- Kogon AJ, Ballester LS, Zee J, et al. Publisher Correction: Vitamin D supplementation in children and young adults with persistent proteinuria secondary to glomerular disease. Pediatr Nephrol. 2024 Sep 12. https://doi.org/10.1007/s00467-024-06475-6. Online ahead of print. PMID: 39264421

- Kumar J, Roem J, Furth SL, et al. Vitamin D and its associations with blood pressure in the Chronic Kidney Disease in Children (CKiD) cohort. Pediatr Nephrol. 2024 Nov;39(11):3279-3288. https://doi.org/10.1007/s00467-024-06434-1. Epub 2024 Jul 6. PMID: 38970659

- Li H, Tong J, Wang X, et al. Associations of prenatal exposure to individual and mixed organophosphate esters with ADHD symptom trajectories in preschool children: The modifying effects of maternal Vitamin D. J Hazard Mater. 2024 Oct 5;478:135541. https://doi.org/10.1016/j.jhazmat.2024.135541. Epub 2024 Aug 15. PMID: 39154480

- Marsubrin PMT, Firmansyah A, Rohsiswatmo R, et al. Vitamin D and gut microbiome in preterm infants. BMC Pediatr. 2024 Sep 16;24(1):588. https://doi.org/10.1186/s12887-024-05055-9. PMID: 39285348

- Mercy DJ, Girigoswami A, Girigoswami K. Relationship between urinary tract infections and serum vitamin D level in adults and children- a literature review. Mol Biol Rep. 2024 Sep 4;51(1):955. https://doi.org/10.1007/s11033-024-09888-6. PMID: 39230582

- Meshram RM, Salodkar MA, Yesambare SR, et al. Assessment of Serum Vitamin D and Parathyroid Hormone in Children With Beta Thalassemia Major: A Case-Control Study. Cureus. 2024 Aug 4;16(8):e66146. https://doi.org/10.7759/cureus.66146. eCollection 2024 Aug. PMID: 39233987

- Middelkoop K, Micklesfield L, Hemmings S, et al. Influence of vitamin D supplementation on muscle strength and exercise capacity in Mongolian schoolchildren: secondary outcomes from a randomised controlled trial. BMJ Open Sport Exerc Med. 2024 Sep 26;10(3):e002019. https://doi.org/10.1136/bmjsem-2024-002019. eCollection 2024. PMID: 39345832

- Mondal KAP, Singh P, Singh R, et al. Daily versus fortnightly oral vitamin D(3) in treatment of symptomatic vitamin D deficiency in children aged 1-10 years: An open labelled randomized controlled trial. Clin Endocrinol (Oxf). 2024 Aug 13. https://doi.org/10.1111/cen.15124. Online ahead of print. PMID: 39138889

- Moon RJ, D' Angelo S, Curtis EM, et al. Pregnancy vitamin D supplementation and offspring bone mineral density in childhood follow-up of a randomized controlled trial. Am J Clin Nutr. 2024 Sep 19:S0002-9165(24)00746-9. https://doi.org/10.1016/j.ajcnut.2024.09.014. Online ahead of print. PMID: 39306330

- O'Brien M, Koh E, Barsh GR, et al. Posterior Reversible Encephalopathy Syndrome Due to Vitamin D Toxicity. Pediatrics. 2024 Oct 1;154(4):e2024067126. https://doi.org/10.1542/peds.2024-067126. PMID: 39267608

- O'Hearn K, Menon K, Albrecht L, et al. Rapid normalization of vitamin D deficiency in PICU (VITdALIZE-KIDS): study protocol for a phase III, multicenter randomized controlled trial. Trials. 2024 Sep 19;25(1):619. https://doi.org/10.1186/s13063-024-08461-7. PMID: 39300483

- Okuyan O, Dumur S, Elgormus N, et al. The Relationship between Vitamin D, Inflammatory Markers, and Insulin Resistance in Children. Nutrients. 2024 Sep 5;16(17):3005. https://doi.org/10.3390/nu16173005. PMID: 39275320

- Ouyang S, Li Q, Liu Z, et al. The relationship between physical activity levels and serum vitamin D levels varies among children and adolescents in different age groups. Front Nutr. 2024 Aug 30;11:1435396. https://doi.org/10.3389/fnut.2024.1435396. eCollection 2024. PMID: 39279903

- Piippo S, Hauta-Alus H, Viljanen M, et al. Dairy consumption and vitamin D concentration in adolescents with challenge-confirmed cow's milk allergy during infancy. Eur J Clin Nutr. 2024 Oct;78(10):897-904. https://doi.org/10.1038/s41430-024-01477-x. Epub 2024 Jul 28. PMID: 39069532

- Qin X, Wang M, Wang L, et al. Association of vitamin D receptor gene polymorphisms with caries risk in children: a systematic review and meta-analysis. BMC Pediatr. 2024 Oct 11;24(1):650. https://doi.org/10.1186/s12887-024-05127-w. PMID: 39394075

- Reyes ML, Vizcaya C, Le Roy C, et al. Weekly Vitamin D Supplementation to Prevent Acute Respiratory Infections in Young Children at Different Latitudes: A Randomized Controlled Trial. J Pediatr. 2024 Aug 22;275:114249. https://doi.org/10.1016/j.jpeds.2024.114249. Online ahead of print. PMID: 39181322

- Romero-Lopez M, Naik M, Holzapfel LF, et al. Survey of vitamin D supplementation practices in extremely preterm infants. Pediatr Res. 2024 Aug 27. https://doi.org/10.1038/s41390-024-03514-8. Online ahead of print. PMID: 39191950

- Saleh C. Is carotid intima-media thickness associated with lower levels of vitamin D levels in children and adolescents with obesity? Nutr Hosp. 2024 Sep 12. https://doi.org/10.20960/nh.05467. Online ahead of print. PMID: 39268555

- Singh M, Shobhane H, Tiwari K, et al. To Study the Correlation of Maternal Serum Vitamin D Levels and Infant Serum Vitamin D Levels With Infant Birth Weight: A Single-Centre Experience From the Bundelkhand Region, India. Cureus. 2024 Sep 5;16(9):e68696. https://doi.org/10.7759/cureus.68696. eCollection 2024 Sep. PMID: 39371764
- Tavasoli A, Afsharkhas L, Parvini B. Evaluating the serum levels of zinc, copper, magnesium, and 25-hydroxy vitamin D in children with idiopathic drug-resistant epilepsy; a cross-sectional study. BMC Pediatr. 2024 Aug 10;24(1):518. https://doi.org/10.1186/s12887-024-04968-9. PMID: 39127646
- Thinggaard CM, Dalgård C, Möller S, et al. Vitamin D status in pregnancy and cord blood is associated with symptoms of attention-deficit hyperactivity disorder at age 5 years: Results from Odense Child Cohort. Aust N Z J Psychiatry. 2024 Aug 16:48674241272018. https://doi.org/10.1177/00048674241272018. Online ahead of print. PMID: 39152569
- Virú-Loza MA, Alvarado-Gamarra G, Zapata-Sequeiros RI, et al. Life-threatening hypercalcemia in a child with vitamin D intoxication due to parental self-medication: A case report. SAGE Open Med Case Rep. 2024 Aug 12;12:2050313X241269560. https://doi.org/10.1177/2050313X241269560. eCollection 2024. PMID: 39140026
- Wang S, Wang M, Yu X, et al. Nonlinear relationship between vitamin D status on admission and bronchopulmonary dysplasia in preterm infants. Pediatr Res. 2024 Oct 9. https://doi.org/10.1038/s41390-024-03621-6. Online ahead of print. PMID: 39379632
- Wang S, Zhang H, Xia L, et al. Executive function impairment is associated with low serum vitamin D levels in children with epilepsy. Epilepsy Behav. 2024 Aug;157:109894. https://doi.org/10.1016/j.yebeh.2024.109894. Epub 2024 Jun 21. PMID: 38908034
- Wolters M, Foraita R, Moreno LA, et al. Longitudinal associations between vitamin D status and biomarkers of inflammation in a pan-European cohort of children and adolescents. Eur J Nutr. 2024 Sep 4. https://doi.org/10.1007/s00394-024-03488-7. Online ahead of print. PMID: 39231874
- Yang L, Fang Y, Zheng J, et al. Correlation between serum vitamin D level and acute invasive enteritis in children. Immun Inflamm Dis. 2024 Sep;12(9):e70024. https://doi.org/10.1002/iid3.70024. PMID: 39315855
- Zhumalina A, Tusupkaliev B, Mania A, et al. The Importance of Determining the Level of Bone Metabolism Markers and Vitamin D in the First Year of Life in the Kazakh Population. J Pediatr Pharmacol Ther. 2024 Aug;29(4):410-416. https://doi.org/10.5863/1551-6776-29.4.410. Epub 2024 Aug 13. PMID: 39144381

PNEUMOLOGIA

- Chang-Chien J, Huang JL, Tsai HJ, et al. Vitamin D ameliorates particulate matter induced mitochondrial damages and calcium dyshomeostasis in BEAS-2B human bronchial epithelial cells. Respir Res. 2024 Aug 22;25(1):321. https://doi.org/10.1186/s12931-024-02951-7. PMID: 39174953
- Chatsirisupachai A, Muanjumpon P, Jeayeng S, et al. Calcitriol/vitamin D receptor system alleviates PM2.5-induced human bronchial epithelial damage through upregulating mitochondrial bioenergetics in association with regulation of HIF-1alpha/PGC-1alpha signaling. Environ Toxicol Pharmacol. 2024 Sep 21;111:104568. https://doi.org/10.1016/j.etap.2024.104568. Online ahead of print. PMID: 39307374
- Chen CW, Shu CC, Han YY, et al. Mediated relationship between Vitamin D deficiency and reduced pulmonary function by copper in Taiwanese young adults. Ecotoxicol Environ Saf. 2024 Sep 12;285:117034. https://doi.org/10.1016/j.ecoenv.2024.117034. Online ahead of print. PMID: 39270475
- El Abd A, Dasari H, Dodin P, et al. Associations between vitamin D status and biomarkers linked with inflammation in patients with asthma: a systematic review and meta-analysis of interventional and observational studies. Respir Res. 2024 Sep 19;25(1):344. https://doi.org/10.1186/s12931-024-02967-z. PMID: 39322954
- Enzel D, Kriventsov M, Sataieva T, et al. Cellular and Molecular Genetic Mechanisms of Lung Fibrosis Development and the Role of Vitamin D: A Review. Int J Mol Sci. 2024 Aug 16;25(16):8946. https://doi.org/10.3390/ijms25168946. PMID: 39201632
- Laaksi A, Kyröläinen H, Pihlajamäki H, et al. Effects of Vitamin D Supplementation and Baseline Vitamin D Status on Acute Respiratory Infections and Cathelicidin: A Randomized Controlled Trial. Open Forum Infect Dis. 2024 Aug 27;11(9):ofae482. https://doi.org/10.1093/ofid/ofae482. eCollection 2024 Sep. PMID: 39301110
- Murugesan H, Sampath P, A VK, et al. Association of CYP27B1 gene polymorphisms with pulmonary tuberculosis and vitamin D levels. Gene. 2024 Nov 15;927:148679. https://doi.org/10.1016/j.gene.2024.148679. Epub 2024 Jun 12. PMID: 38876405
- Ni X, Zhou S, Wang C, et al. Clinical value of Vitamin-D combined with budesonide/formoterol and theophylline sodium glycinate sustained-release tablets in the treatment of chronic obstructive pulmonary disease patients. Pak J Med Sci. 2024 Aug;40(7):1391-1396. https://doi.org/10.12669/pjms.40.7.9495. PMID: 39092061
- Putra AAP. Enhancing vitamin D levels in care homes: the role of healthy building design in preventing respiratory infections. J Public Health (Oxf). 2024 Sep 12:fdae254. https://doi.org/10.1093/pubmed/fdae254. Online ahead of print. PMID: 39270632
- Rathored J, Sharma SK, Banavaliker JN, et al. Response to treatment and low serum vitamin D levels in North Indian patients with treatment-naive category I and multi-drug resistant pulmonary tuberculosis. Ann Med. 2024 Dec;56(1):2407066. https://doi.org/10.1080/07853890.2024.2407066. Epub 2024 Sep 23. PMID: 39311013
- Wang CH, Porta L, Yang TK, et al. Optimal methods of vitamin D supplementation to prevent acute respiratory infections: a systematic review, dose-response and pairwise meta-analysis of randomized controlled trials. Nutr J. 2024 Aug 14;23(1):92. https://doi.org/10.1186/s12937-024-00990-w. PMID: 39143549
- Williamson A, Martineau AR, Jolliffe D, et al. Vitamin D for the management of chronic obstructive pulmonary disease. Cochrane Database Syst Rev. 2024 Sep 27;9(9):CD013284. https://doi.org/10.1002/14651858.CD013284.pub2. PMID: 39329240

- Yang Y, Zhang T, Li Q, et al. SQSTM1 improves acute lung injury via inhibiting airway epithelium ferroptosis in a vitamin D receptor/autophagy-mediated manner. Free Radic Biol Med. 2024 Sep;222:588-600. https://doi.org/10.1016/j.freeradbiomed.2024.07.009. Epub 2024 Jul 11. PMID: 38996820

PSICHIATRIA

- Alimohammadi-Kamalabadi M, Ziaei S, Hasani M, et al. Does vitamin D supplementation impact serotonin levels? A systematic review and meta-analysis. Health Sci Rep. 2024 Jul 30;7(8):e2276. https://doi.org/10.1002/hsr2.2276. eCollection 2024 Aug. PMID: 39086509

- Celikbilek A, Koysuren A, Konar NM. Correction to: Role of vitamin D in the association between pre-stroke sleep quality and post-stroke depression and anxiety. Sleep Breath. 2024 Oct;28(5):2323. https://doi.org/10.1007/s11325-024-03089-y. PMID: 38963519

- Domacassé D, de Rooij SR, Vrijkotte T, et al. Associations Between Early-Pregnancy Vitamin D Status and Postpartum Depressive and Anxiety Symptoms. Psychosom Med. 2024 Sep 1;86(7):648-657. https://doi.org/10.1097/PSY.0000000000001328. Epub 2024 Jul 3. PMID: 38973743

- Gao T, Dang W, Jiang Z, et al. Exploring the Missing link between vitamin D and autism spectrum disorder: Scientific evidence and new perspectives. Heliyon. 2024 Aug 22;10(17):e36572. https://doi.org/10.1016/j.heliyon.2024.e36572. eCollection 2024 Sep 15. PMID: 39281535

- Gu H, Chen Z, Zhou R, et al. Vitamin D deficiency may exacerbate the role of metal exposure in depression: A cross-sectional analysis of NHANES data from 2007 to 2018. J Affect Disord. 2024 Nov 15;365:265-275. https://doi.org/10.1016/j.jad.2024.08.004. Epub 2024 Aug 12. PMID: 39142580

- Sabião TDS, Valer-Martínez A, Sayon-Orea C, et al. Predicted vitamin D levels and risk of depression in the SUN Project: A prospective cohort study. J Psychiatr Res. 2024 Sep 24;179:314-321. https://doi.org/10.1016/j.jpsychires.2024.09.034. Online ahead of print. PMID: 39353292

- Shboul M, Darweesh R, Abu Zahraa A, et al. Association between vitamin D metabolism gene polymorphisms and schizophrenia. Biomed Rep. 2024 Jul 23;21(3):134. https://doi.org/10.3892/br.2024.1822. eCollection 2024 Sep. PMID: 39091598

- Shom S, Saha S, Chatterjee M, et al. Indian ASD probands with 25(OH)D and vitamin D binding protein deficiency exhibited higher severity. Sci Rep. 2024 Aug 20;14(1):19242. https://doi.org/10.1038/s41598-024-70188-x. PMID: 39164358

- Shuai J, Gao M, Zou Q, et al. Association between vitamin D, depression, and sleep health in the National Health and Nutrition Examination Surveys: a mediation analysis. Nutr Neurosci. 2024 Sep;27(9):934-941. https://doi.org/10.1080/1028415X.2023.2279363. Epub 2023 Nov 14. PMID: 37962262

- Sourander A, Upadhyaya S, Surcel HM, et al. Maternal vitamin D levels during pregnancy and offspring schizophrenia. Schizophr Res. 2024 Aug;270:289-294. https://doi.org/10.1016/j.schres.2024.06.039. Epub 2024 Jun 29. PMID: 38944975

- Tirani SA, Khorvash F, Saneei P, et al. Effects of probiotic and vitamin D co-supplementation on clinical symptoms, mental health, and inflammation in adult patients with migraine headache: a randomized, triple-blinded, placebo-controlled trial. BMC Med. 2024 Oct 11;22(1):457. https://doi.org/10.1186/s12916-024-03684-6. PMID: 39394141

- Todisco P, De Mico A, Meneguzzo P. Vitamin D Status and Behavioral Impulsivity in Anorexia Nervosa: Insights from a Longitudinal Study. Nutrients. 2024 Aug 2;16(15):2523. https://doi.org/10.3390/nu16152523. PMID: 39125402

- Wootton RE, Dack K, Jones HJ, et al. Testing maternal effects of vitamin-D and omega-3 levels on offspring neurodevelopmental traits in the Norwegian Mother, Father and Child Cohort Study. Psychol Med. 2024 Sep 9:1-11. https://doi.org/10.1017/S0033291724001466. Online ahead of print. PMID: 39248077

- Worhunsky PD, Mignosa MM, Gallezot JD, et al. Vitamin D's Capacity to Increase Amphetamine-Induced Dopamine Release in Healthy Humans: A Clinical Translational [(11)C]-PHNO Positron Emission Tomography Study. Biol Psychiatry. 2024 Oct 10:S0006-3223(24)01657-3. https://doi.org/10.1016/j.biopsych.2024.09.028. Online ahead of print. PMID: 39395473

- Yang X, Zhong Z. Vitamin D and 8 major psychiatric disorders: A two-sample Mendelian randomization study. Asian J Psychiatr. 2024 Aug;98:104141. https://doi.org/10.1016/j.ajp.2024.104141. Epub 2024 Jun 27. PMID: 38959547

- Yin H, Zhang J, Chen Y, et al. Placenta-specific CYP11A1 overexpression lead to autism-like symptom in offspring with altered steroid hormone biosynthesis in the placenta-brain axis and rescued by vitamin D intervention. Brain Behav Immun. 2024 Oct;121:13-25. https://doi.org/10.1016/j.bbi.2024.07.012. Epub 2024 Jul 16. PMID: 39025414

REUMATOLOGIA

- [No authors listed] Amirsardari Z, Amirsardari F, Kohansal E, et al. Exploring the association between serum Vitamin D levels and the development of coronary artery lesions in Kawasaki disease - a systematic review. Pediatr Rheumatol Online J. 2024 Aug 5;22(1):71. https://doi.org/10.1186/s12969-024-01010-1. PMID: 39103905

- Bae S, Schmitt LC, Burnett Z, et al. Vitamin D Deficiency after Anterior Cruciate Ligament Reconstruction Associates with Knee Osteoarthritis: A Retrospective Study. Nutrients. 2024 Sep 8;16(17):3029. https://doi.org/10.3390/nu16173029. PMID: 39275344

- Brudecki J, Rydzik Ł, Wąsacz W, et al. Somatic Structure and Ultrasound Parameters of the Calcaneus Bone in Combat Sports Athletes in Relation to Vitamin D(3) Levels. J Clin Med. 2024 Aug 22;13(16):4960. https://doi.org/10.3390/jcm13164960. PMID: 39201101

- Choudhury C, Sahib A, Karmakar P, et al. Correlation of Serum Vitamin D and High-Density Lipoprotein (HDL) Cholesterol Levels With Disease Activity in Rheumatoid Arthritis: A Single-Center Experience From Eastern India. Cureus. 2024 Sep 13;16(9):e69333. https://doi.org/10.7759/cureus.69333. eCollection 2024 Sep. PMID: 39398767

- Correction to: Calcifediol is superior to cholecalciferol in improving vitamin D status in postmenopausal women: a randomized trial. J Bone Miner Res. 2024 Aug 5;39(7):1043. https://doi.org/10.1093/jbmr/zjae081. PMID: 38832866
- Correction to "Effect of cholecalciferol supplementation on hand grip strength, walking speed, and expression of vitamin D receptor, interleukin-6, and insulin-like growth factor-1 in monocyte in pre-frail older adults: A randomized double-blind placebo-controlled trial". Geriatr Gerontol Int. 2024 Oct;24(10):1088. https://doi.org/10.1111/ggi.14960. Epub 2024 Aug 21. PMID: 39166366
- Correction to: 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. 2024 Sep 26;39(10):1518. https://doi.org/10.1093/jbmr/zjae130. PMID: 39324827
- Dabravolski SA, Churov AV, Starodubtseva IA, et al. Vitamin D in Primary Sjogren's Syndrome (pSS) and the Identification of Novel Single-Nucleotide Polymorphisms Involved in the Development of pSS-Associated Diseases. Diagnostics (Basel). 2024 Sep 13;14(18):2035. https://doi.org/10.3390/diagnostics14182035. PMID: 39335717
- Dawson-Hughes B. Effect of vitamin D on risk of falls and fractures - The contribution of recent mega-trials. Metabol Open. 2024 Jul 16;23:100300. https://doi.org/10.1016/j.metop.2024.100300. eCollection 2024 Sep. PMID: 39100895
- Duan X, Zhang Y, Xu T. CYP4A22 loss-of-function causes a new type of vitamin D-dependent rickets (VDDR1C). J Bone Miner Res. 2024 Aug 5;39(7):967-979. https://doi.org/10.1093/jbmr/zjae084. PMID: 38847469
- Formisano E, Proietti E, Borgarelli C, et al. Comment to "Vitamin D in psoriatic arthritis - A systematic review and meta-analysis". Semin Arthritis Rheum. 2024 Aug;67:152457. https://doi.org/10.1016/j.semarthrit.2024.152457. Epub 2024 Apr 27. PMID: 38696881
- Fu K, Cai Q, Jin X, et al. Association of serum calcium, vitamin D, and C-reactive protein with all-cause and cause-specific mortality in an osteoarthritis population in the UK: a prospective cohort study. BMC Public Health. 2024 Aug 22;24(1):2286. https://doi.org/10.1186/s12889-024-19825-8. PMID: 39175018
- Giustina A, Giustina A. Vitamin D and hip protectors in osteosarcopenia: a combined hip fracture preventing approach. Rev Endocr Metab Disord. 2024 Oct 1. https://doi.org/10.1007/s11154-024-09907-8. Online ahead of print. PMID: 39352578
- Gotelli E, Campitiello R, Hysa E, et al. The epigenetic effects of glucocorticoids, sex hormones and vitamin D as steroidal hormones in rheumatic musculoskeletal diseases. Clin Exp Rheumatol. 2024 Aug 20. https://doi.org/10.55563/clinexprheumatol/t03g31. Online ahead of print. PMID: 39212127
- Grove-Laugesen D, Ebbehoj E, Watt T, et al. Changes in bone density and microarchitecture following treatment of Graves' disease and the effects of vitamin D supplementation. A randomized clinical trial. Osteoporos Int. 2024 Sep 12. https://doi.org/10.1007/s00198-024-07241-y. Online ahead of print. PMID: 39264438
- Guan J, Li Z, Niu G, et al. Protective Effects of Vitamin D on Proteoglycans of Human Articular Chondrocytes through TGF-beta1 Signaling. Nutrients. 2024 Sep 4;16(17):2991. https://doi.org/10.3390/nu16172991. PMID: 39275306
- Gvozdenović N, Šarac I, Ćorić A, et al. Impact of Vitamin D Status and Nutrition on the Occurrence of Long Bone Fractures Due to Falls in Elderly Subjects in the Vojvodina Region of Serbia. Nutrients. 2024 Aug 14;16(16):2702. https://doi.org/10.3390/nu16162702. PMID: 39203838
- Harvey NC, Ward KA, Agnusdei D, et al. Optimisation of vitamin D status in global populations. Osteoporos Int. 2024 Aug;35(8):1313-1322. https://doi.org/10.1007/s00198-024-07127-z. Epub 2024 Jun 5. PMID: 38836946
- Ho LJ, Wu CH, Luo SF, et al. Vitamin D and systemic lupus erythematosus: Causality and association with disease activity and therapeutics. Biochem Pharmacol. 2024 Sep;227:116417. https://doi.org/10.1016/j.bcp.2024.116417. Epub 2024 Jul 10. PMID: 38996931
- Horas K, Hoxha M, Heinz T, et al. Prevalence and Risk Factors of Vitamin D Deficiency in Patients Scheduled to Undergo Revision Arthroplasty of the Hip, Knee and Shoulder-Data from a Single-Centre Analysis. Nutrients. 2024 Sep 11;16(18):3060. https://doi.org/10.3390/nu16183060. PMID: 39339662
- Jiang Y, Mei Y, Tian Y, et al. The vitamin D status in a Chinese osteogenesis imperfecta population and its correlation with bone metabolic markers and bone density. Front Nutr. 2024 Aug 5;11:1390668. https://doi.org/10.3389/fnut.2024.1390668. eCollection 2024. PMID: 39161912
- Kuwabara A, Matsumoto M, Hatamoto Y, et al. Vitamin D and muscle health: insights from recent studies. Curr Opin Clin Nutr Metab Care. 2024 Nov 1;27(6):499-506. https://doi.org/10.1097/MCO.0000000000001071. Epub 2024 Sep 4. PMID: 39302338
- Li W, Chen M, Chen F, et al. Vitamin D combined with whole-body vibration training for the treatment of osteo-sarcopenia: study protocol for a randomized controlled trial. Trials. 2024 Sep 30;25(1):638. https://doi.org/10.1186/s13063-024-08498-8. PMID: 39350307
- Mbuyi MK, Kavangh HS, Grubišić F, et al. Is vitamin D associated with disease activity in patients with axial or peripheral spondyloarthritis? A real-life study. Rheumatol Int. 2024 Oct;44(10):2079-2087. https://doi.org/10.1007/s00296-024-05674-6. Epub 2024 Aug 24. PMID: 39180527
- Mohammadzadeh E, Amiri AH, Fekrazad R, et al. The Effect of Photobiomodulation on Bone Mineral Density, Serum Vitamin D, and Bone Formation Markers in Individuals with Complete Spinal Cord Injuries with Osteoporosis. Photobiomodul Photomed Laser Surg. 2024 Oct 2. https://doi.org/10.1089/photob.2023.0195. Online ahead of print. PMID: 39358889
- Onishi Y, Akasaka H, Hatta K, et al. Association between serum vitamin D levels and skeletal muscle indices in an older Japanese population: the SONIC study. Geriatr Gerontol Int. 2024 Aug 1. https://doi.org/10.1111/ggi.14951. Online ahead of print. PMID: 39091107
- Pinto-Bonilla R, Baeza-Noci J, Blanco CC, et al. Real-world effectiveness and safety of combined calcium 600 mg and cholecalciferol 2000 IU for treating vitamin

d deficiency: Results from a nationwide study with focus in osteoporosis. Bone Rep. 2024 Jul 26;22:101796. https://doi.org/10.1016/j.bonr.2024.101796. eCollection 2024 Sep. PMID: 39247220

- Qi P, Fu X, Zhao D, et al. Effects of vitamin D supplementation on muscle strength in middle-aged and elderly individuals: a retrospective, propensity score-matched study. Front Nutr. 2024 Aug 23;11:1450265. https://doi.org/10.3389/fnut.2024.1450265. eCollection 2024. PMID: 39246393
- Radić M, Đogaš H, Kolak E, et al. Response to: Comment to "Vitamin D in psoriatic arthritis-A systematic review and meta-analysis". Semin Arthritis Rheum. 2024 Aug;67:152456. https://doi.org/10.1016/j.semarthrit.2024.152456. Epub 2024 Apr 25. PMID: 38729040
- Ruram AA, Chutia H, Bhattacharyya H, et al. Serum 25(OH) vitamin D deficiency among young adults in the East Khasi Hills district of Meghalaya and its influence on bone mineral density: Investigating the involvement of the RANKL/RANK/OPG system. J Family Med Prim Care. 2024 Aug;13(8):3042-3048. https://doi.org/10.4103/jfmpc.jfmpc_2000_23. Epub 2024 Jul 26. PMID: 39228587
- Şerifoğlu L, Yılmaz SG, Karaaslanlı A, et al. Association of TaqI (rs731236) Polymorphism of Vitamin D Receptor Gene with Lumbar Degenerative Disc Disease. World Neurosurg. 2024 Aug;188:e419-e423. https://doi.org/10.1016/j.wneu.2024.05.129. Epub 2024 May 25. PMID: 38802057
- Sponchiado IM, Limirio LS, de Branco FMS, et al. Sex-dependent association of serum vitamin D with muscle strength in older adults: NHANES 2001-2002. Eur J Clin Nutr. 2024 Oct;78(10):847-854. https://doi.org/10.1038/s41430-024-01472-2. Epub 2024 Jul 11. PMID: 38987658
- Wabe N, Meulenbroeks I, Firempong DC, et al. Vitamin D supplementation and falls in residential aged care: A longitudinal multisite cohort study. Bone Rep. 2024 Jul 23;22:101791. https://doi.org/10.1016/j.bonr.2024.101791. eCollection 2024 Sep. PMID: 39139591
- Xie Y, Farrell SF, Armfield N, et al. Serum Vitamin D and Chronic Musculoskeletal Pain: A Cross-Sectional Study of 349,221 Adults in the UK. J Pain. 2024 Sep;25(9):104557. https://doi.org/10.1016/j.jpain.2024.104557. Epub 2024 May 9. PMID: 38734042
- Yan Y, Yu F, Li Q, et al. Metabolic alterations in vitamin D deficient systemic lupus erythematosus patients. Sci Rep. 2024 Aug 14;14(1):18879. https://doi.org/10.1038/s41598-024-67588-4. PMID: 39143130
- Zhang F, Li W. Vitamin D and Sarcopenia in the Senior People: A Review of Mechanisms and Comprehensive Prevention and Treatment Strategies. Ther Clin Risk Manag. 2024 Sep 5;20:577-595. https://doi.org/10.2147/TCRM.S471191. eCollection 2024. PMID: 39253031
- Zhang P, Zhong J, Liu X, et al. The association between dynamic changes in vitamin D and frailty alterations: A prospective analysis of UK Biobank participants. J Cachexia Sarcopenia Muscle. 2024 Oct;15(5):1722-1732. https://doi.org/10.1002/jcsm.13525. Epub 2024 Jun 24. PMID: 38923848