Journal of Pharmacovigilance

Toth et al., J Pharmacovigil 2017, 5:4
DOI: 10.4172/2329-6887.1000233

Research Article OMICS International

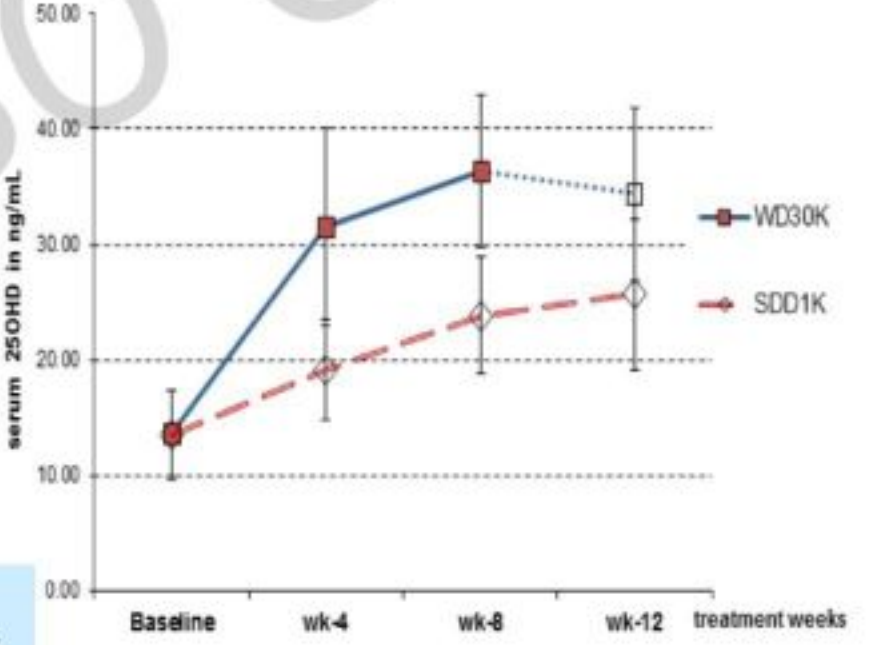
Safety and Efficacy of Weekly 30,000 IU Vitamin D Supplementation as a Slower Loading Dose Administration Compared to a Daily Maintenance Schedule in Deficient Patients: A Randomized, Controlled Clinical Trial

Bela E Toth[1*], Istvan Takacs[2], Laszlo Szekeres[3], Boglarka Szabo[2], Bence Bakos[2] and Peter Lakatos[2]

Baseline serum 25OHD levels were less than 20 ng/ml)

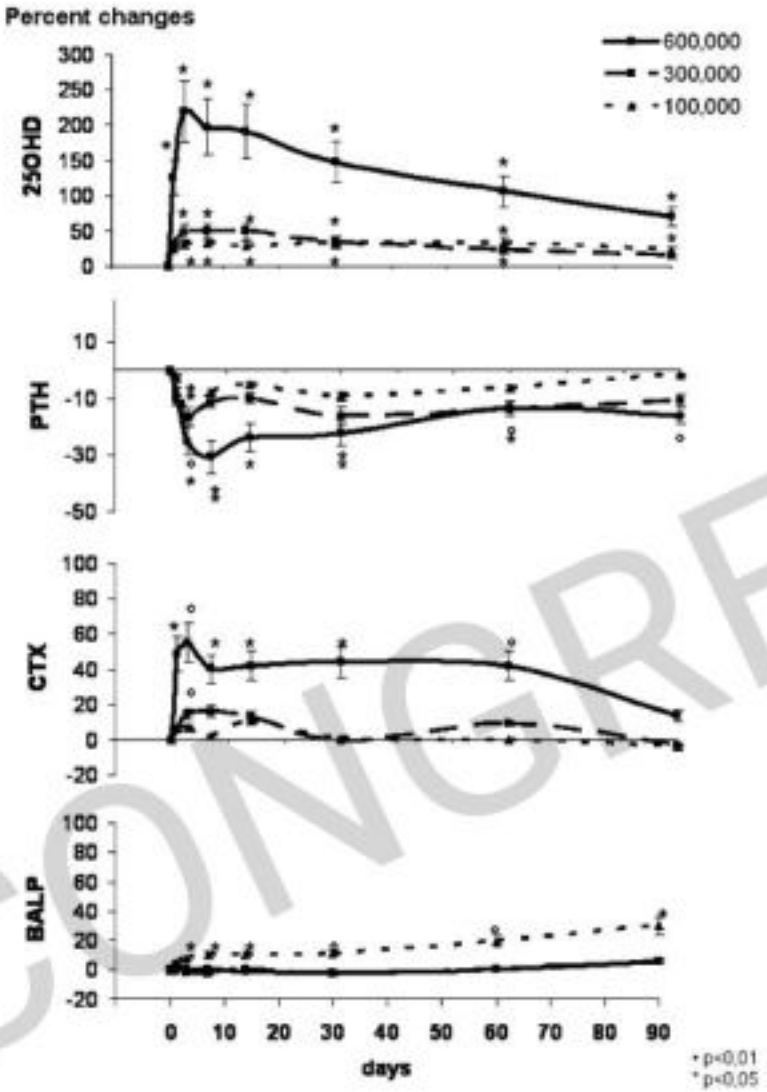
WD30K group received weekly dosing of 30,000 IU vitamin D3 for 8 weeks (solid line, filled symbols). Upon reaching the 32 ng/mL limit subjects continued with 1000 IU/day (dotted line, empty square).

Dashed line with empty symbols (SDD1K) represents the daily maintenance dose of 1000 IU.



Loading regimens for treatment of deficiency may be scheduled as faster loading a total dose of approx. 300,000 IU within 5 days and aimed for treating hospitalized patients.

Effetti acuti dose-dipendenti sui markers di turnover osseo di diversi boli di vitamina D3 per os

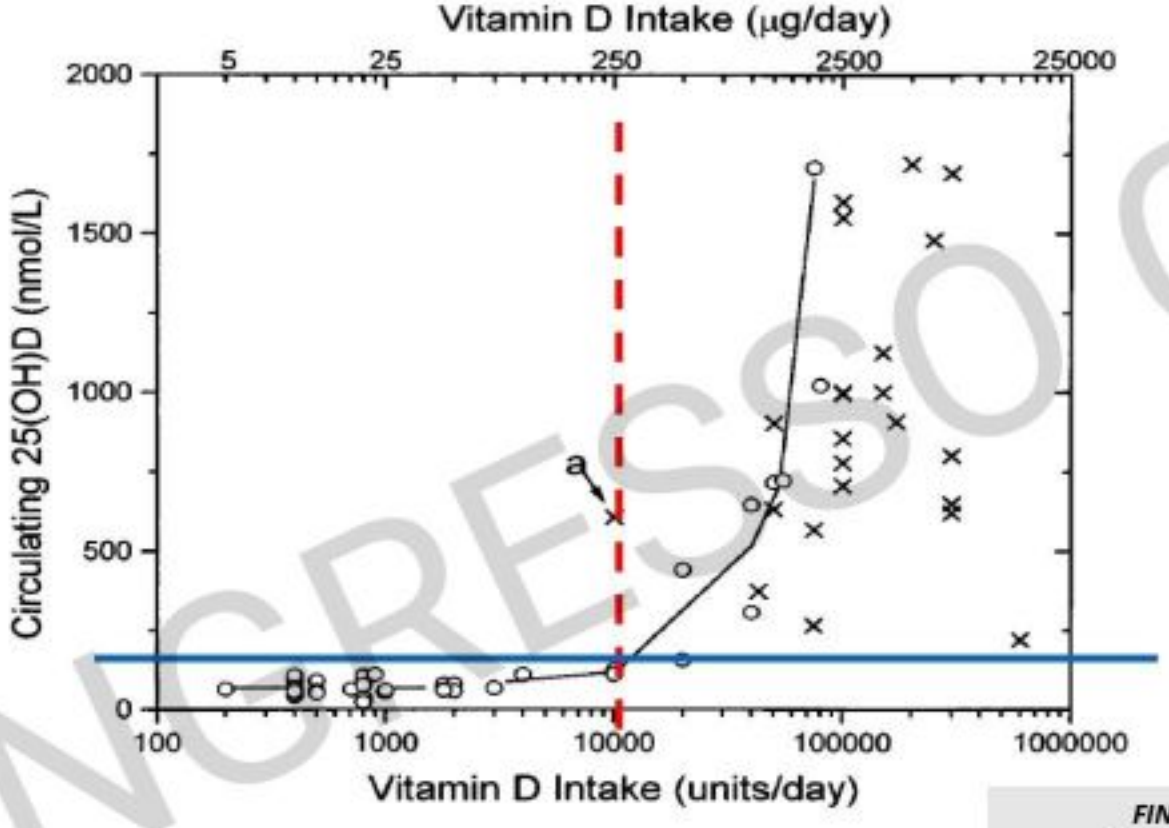


Non andrebbe superata la dose in bolo in un giorno di 100.000 UI di colecalciferolo. Linee Guida SIOMMMS **(LGS)**

Come dose di carico, si consiglia colecalciferolo 3.000- 10.000 UI/die (media 5000 UI/ die) per 1-2 mesi, o colecalciferolo in una singola dose da 60.000 a 150.000 UI seguita dalla dose di mantenimento (2000 UI/die)

Rossini M et al, Calcif Tissue Int, 2012

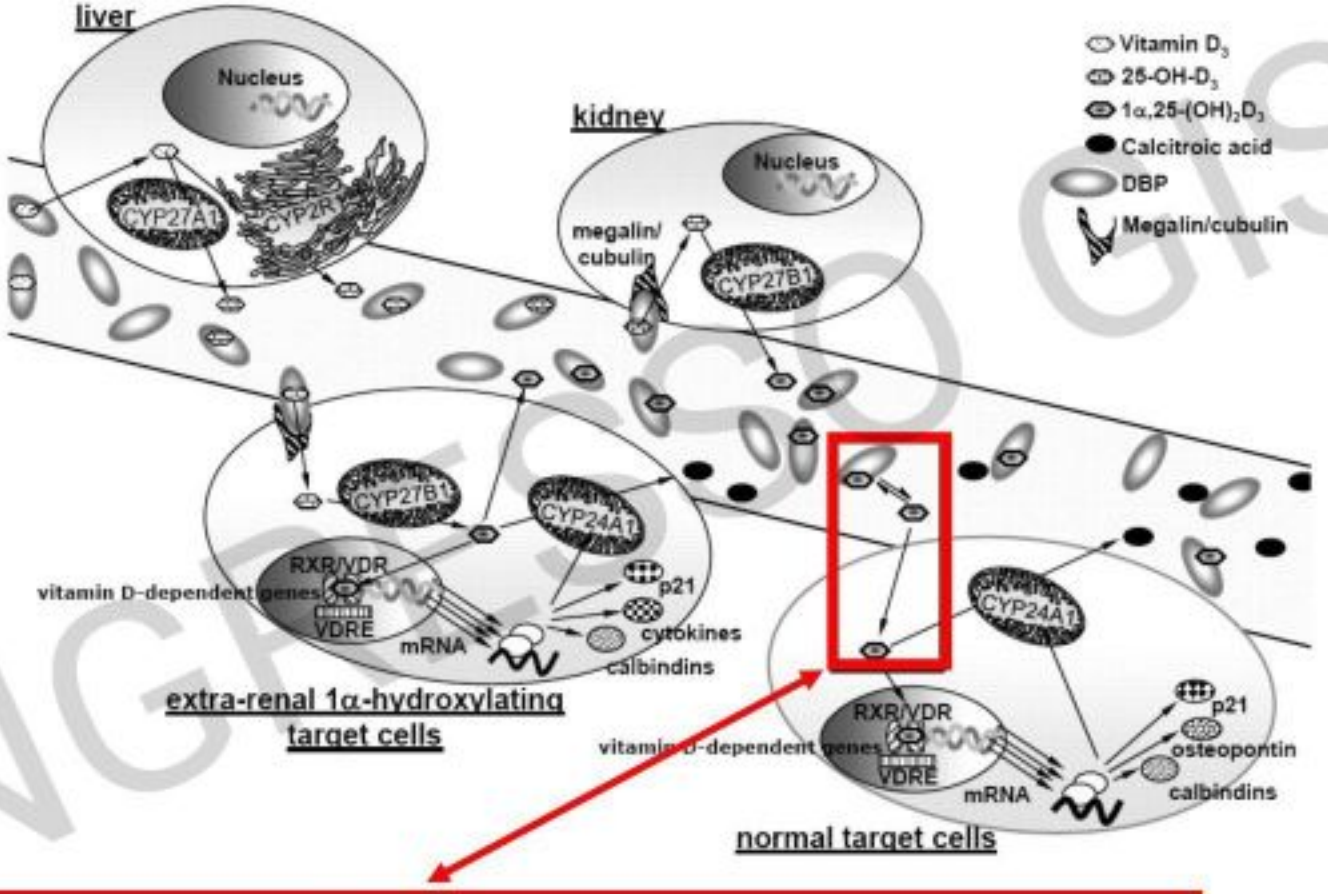
Supplementazione di Vitamina D e 25(OH)D concentration



FINO A 10.000 UI/die IL MECCANISMO OMEOSTATICO FISIOLOGICO E' IN GRADO DI EVITARE PROBLEMI DI SOVRADOSAGGIO

Am J Clin Nutr 1999;69:842–56.

Free 1,25-dihydroxyvitamin D theory of target cell entry

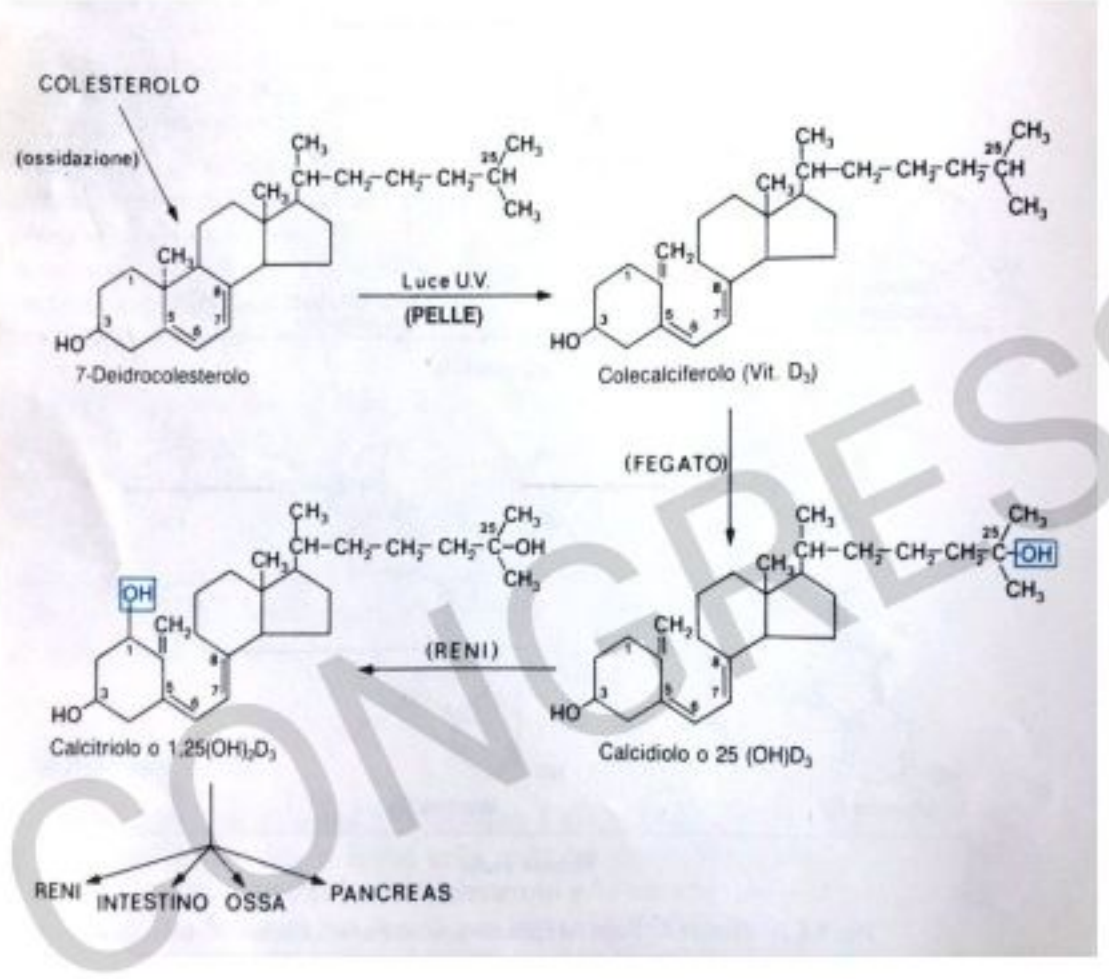


The displacement of 1,25(OH)2D becomes excessive at plasma 25(OH)D concentrations higher than at least 600 nmol/L (240 ng/ml)

Jones, G. Am J Clin Nutr 2008;88:582S-586S

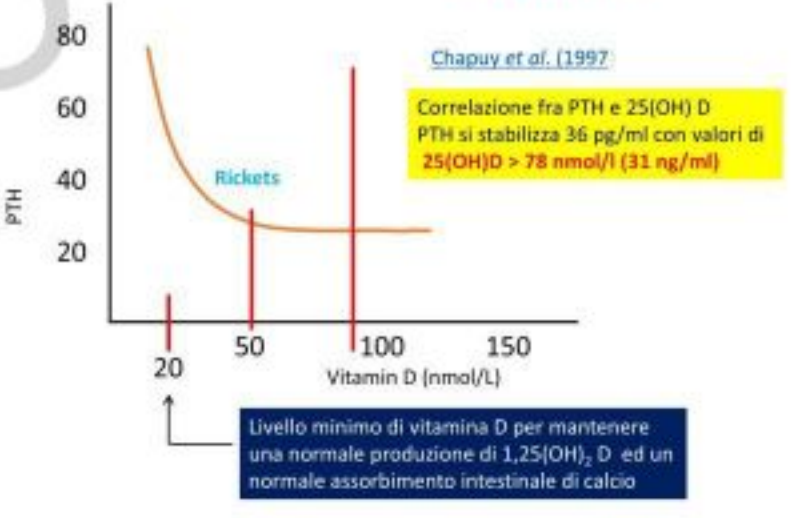
Calcifediolo

IDROSOLUBILE



Regolazione del PTH

Per molti anni la carenza di Vitamina D è stata definita per livelli sierici di 25-hydroxyvitamin D (25OHD) <8ng/ml or 20 nM/L



JBMR | ASBMR

Original Article | Free Access

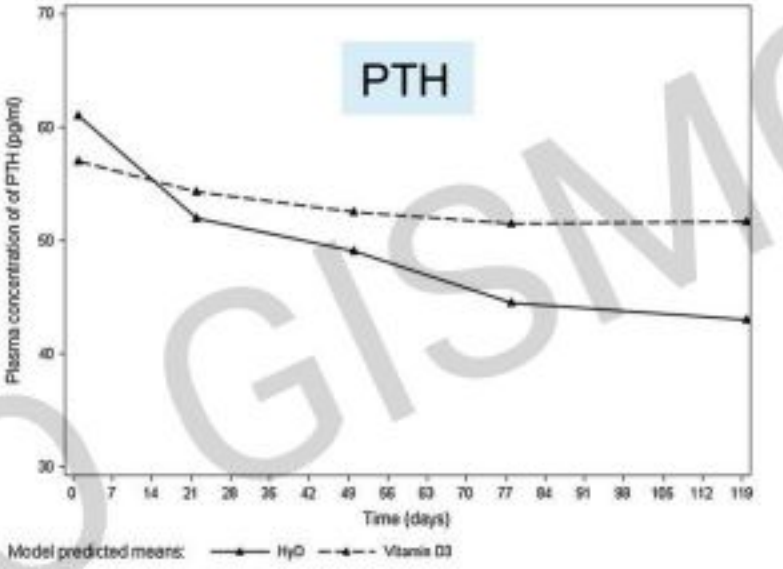
Oral supplementation with 25(OH)D_3 versus vitamin D_3: Effects on 25(OH)D levels, lower extremity function, blood pressure, and markers of innate immunity

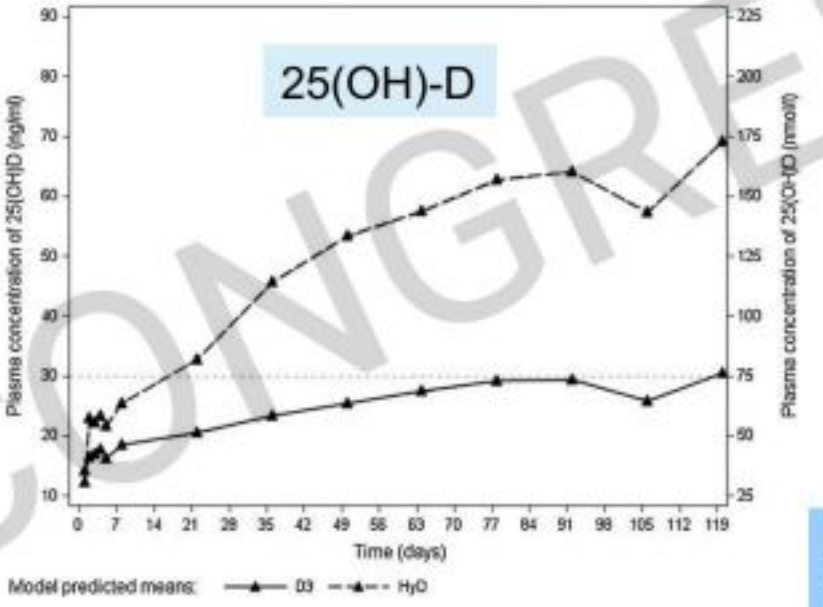
Heike Annette Bischoff-Ferrari ✉ Bess Dawson-Hughes, Elisabeth Stöcklin, Eduard Sidelnikov, Walter Churchill Willett, John Orav Edel, Hannes Balthasar Stähelin, Swen Wolfram ... See all authors

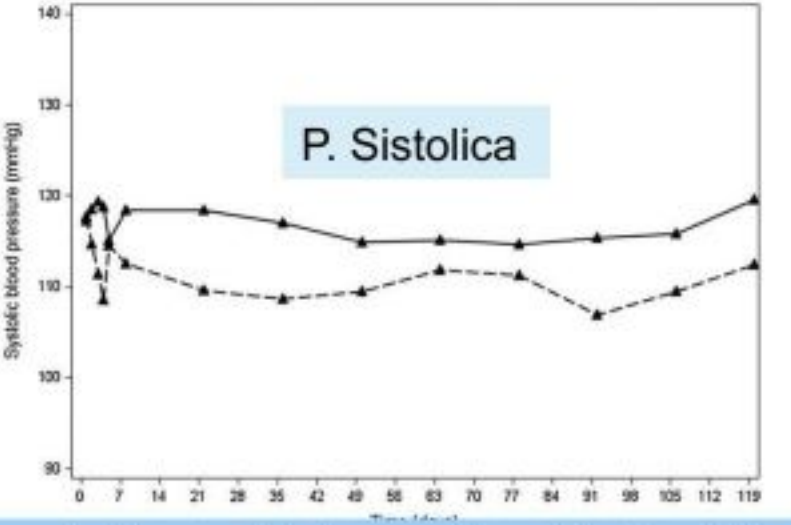
First published: 25 October 2011 | https://doi.org/10.1002/jbmr.551 | Citations: 153

20 donne in post-menopausa di età compresa tra 50 e 70 anni 25(OH)D basale tra 8 e 24 ng/mL
BMI tra 18 e 29 kg/m2

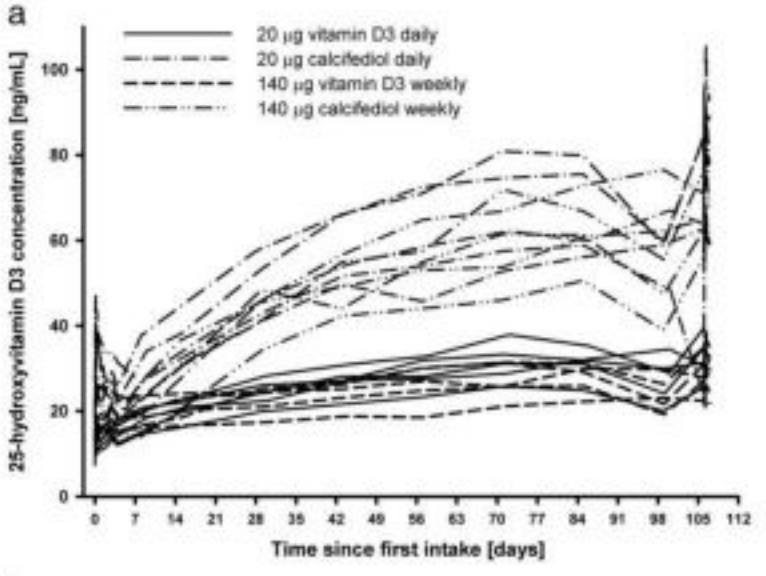
20 µg di calcifediolo/die o 20 µg (800 UI) Colecalicerolo /die
140 µg calcifediolo/sett o 140 µg (5600 UI) di colecalciferolo/sett

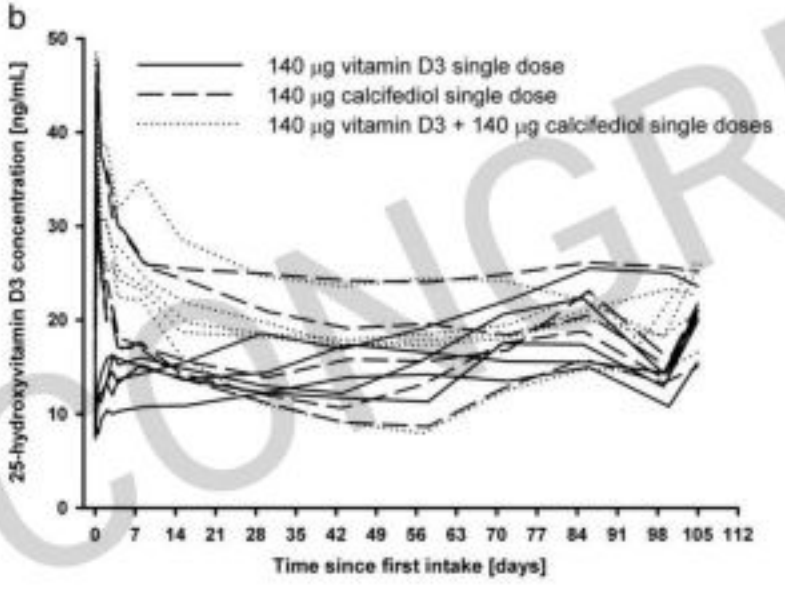






5 µg di calcifediolo equivalgono all'incirca a 15 µg di colecalciferolo
1 goccia di calcifediolo = 2,5 gocce di colecalciferolo





Contents lists available at ScienceDirect

Bone

journal homepage: www.elsevier.com/locate/bone

Original Full Length Article

Pharmacokinetics of oral vitamin D_3 and calcifediol☆

Alexander Jetter [a], Andreas Egli [b,c,1], Bess Dawson-Hughes [d], Hannes B. Staehelin [e], Elisabeth Stoecklin [f], Richard Goessl [g], Jana Henschkowski [b,c], Heike A. Bischoff-Ferrari [b,g,*]

[a] Department of Clinical Pharmacology and Toxicology, University Hospital Zurich, Zurich, Switzerland
[b] Centre on Aging and Mobility, University of Zurich, Zurich, Switzerland
[c] Centre on Aging and Mobility, City Hospital Waid, Zurich Switzerland
[d] Jean Mayer USDA Human Nutrition Research Centre on Aging, Tufts University, Boston, MA, USA
[e] Department of Geriatrics, University of Basel, Basel, Switzerland
[f] DSM Nutritional Products Ltd, Basel, Switzerland
[g] Dept. of Geriatrics, University Hospital Zurich, Switzerland

Una singola dose di 140µg di calcifediolo determina un incremento del 117 % dei livelli di 25(OH)D3 (AUC0 - 96h) rispetto a quelli ottenuti con 140µg di vitamina D3, mentre l'assunzione contemporanea di entrambe non determina aumenti ulteriori.

- Il calcifediolo somministrato in modo giornaliero o settimanale, o come singolo bolo è di circa 2-3 volte più potente nell'aumentare i livelli plasmatici di 25(OH)D3 rispetto ai valori ottenuti con la vitamina D3.
- I livelli plasmatici di 25(OH)D3 di 30ng/mL sono stati raggiunti più rapidamente e in modo affidabile con il calcifediolo

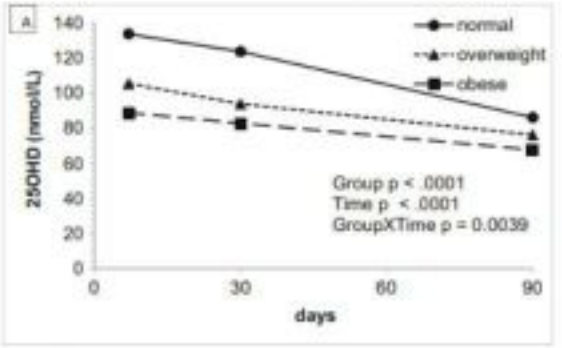
Jetter A et al. Bone (59), Febb 2014, pp 14-19

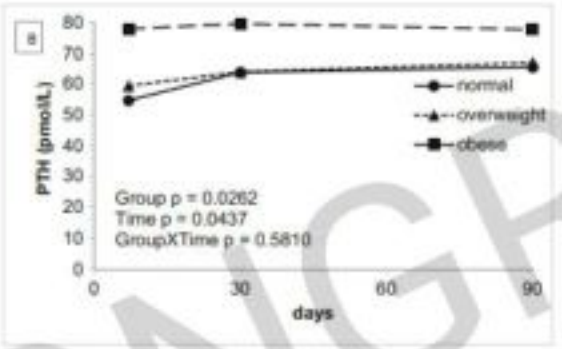
Osteoporos Int
DOI 10.1007/s00198-016-3574-y

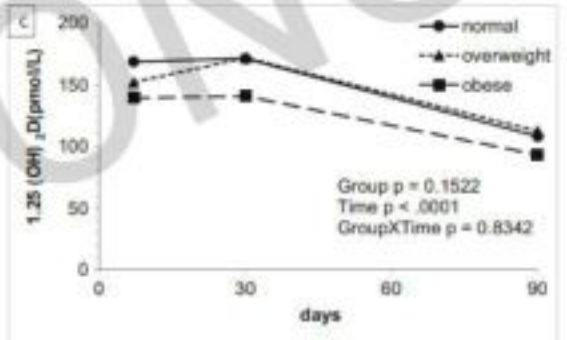
ORIGINAL ARTICLE

25-Hydroxycholecalciferol response to single oral cholecalciferol loading in the normal weight, overweight, and obese

V. Camozzi[1] · A. C. Frigo[2] · M. Zanimotto[3] · F. Sanguin[1] · M. Plebani[3] · M. Boscaro[1] · L. Schiavon[1] · G. Luisetto[1]

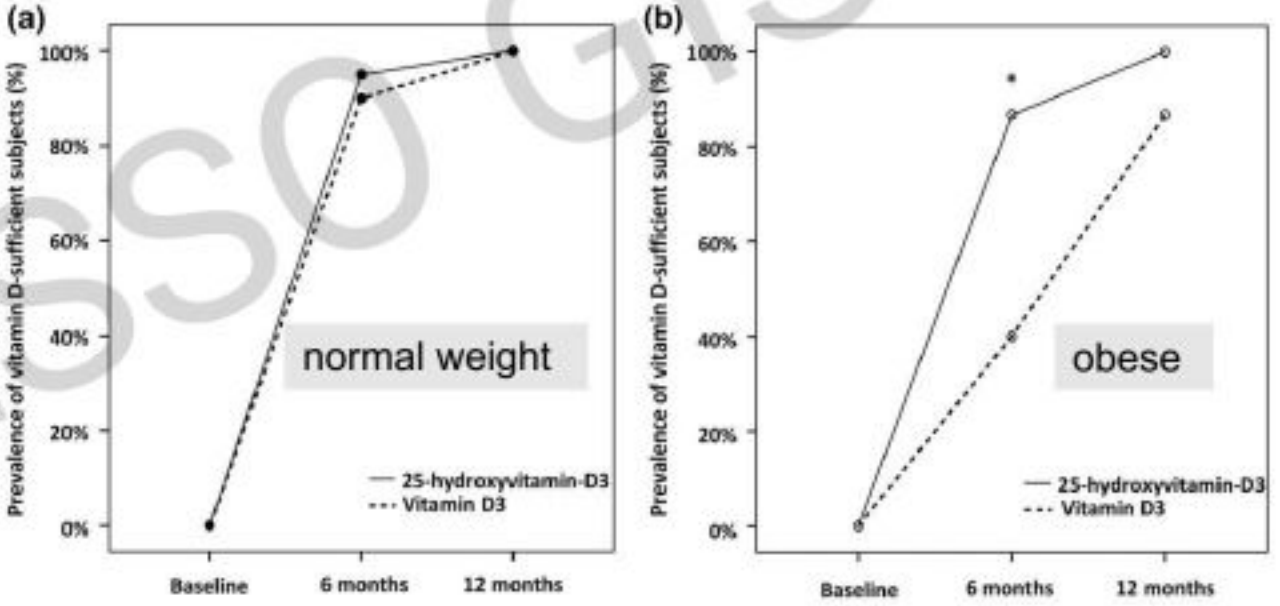






Impaired Release of Vitamin D in Dysfunctional Adipose Tissue: New Cues on Vitamin D Supplementation in Obesity

150 µg colecalciferolo/sett
50 µg calcifediol/sett



25-Hydroxyvitami D3 (straightline) or vitamin D3 (dottedline) was orally administrated to (a) normal weight and (b)obese males ubjects.

Di Nisio A. et J Clin Endocrinol Metab, July 2017, 102(7):2564–2574
al.

Effects of Cholecalciferol vs Calcifediol on Total and Free 25-Hydroxyvitamin D and Parathyroid Hormone

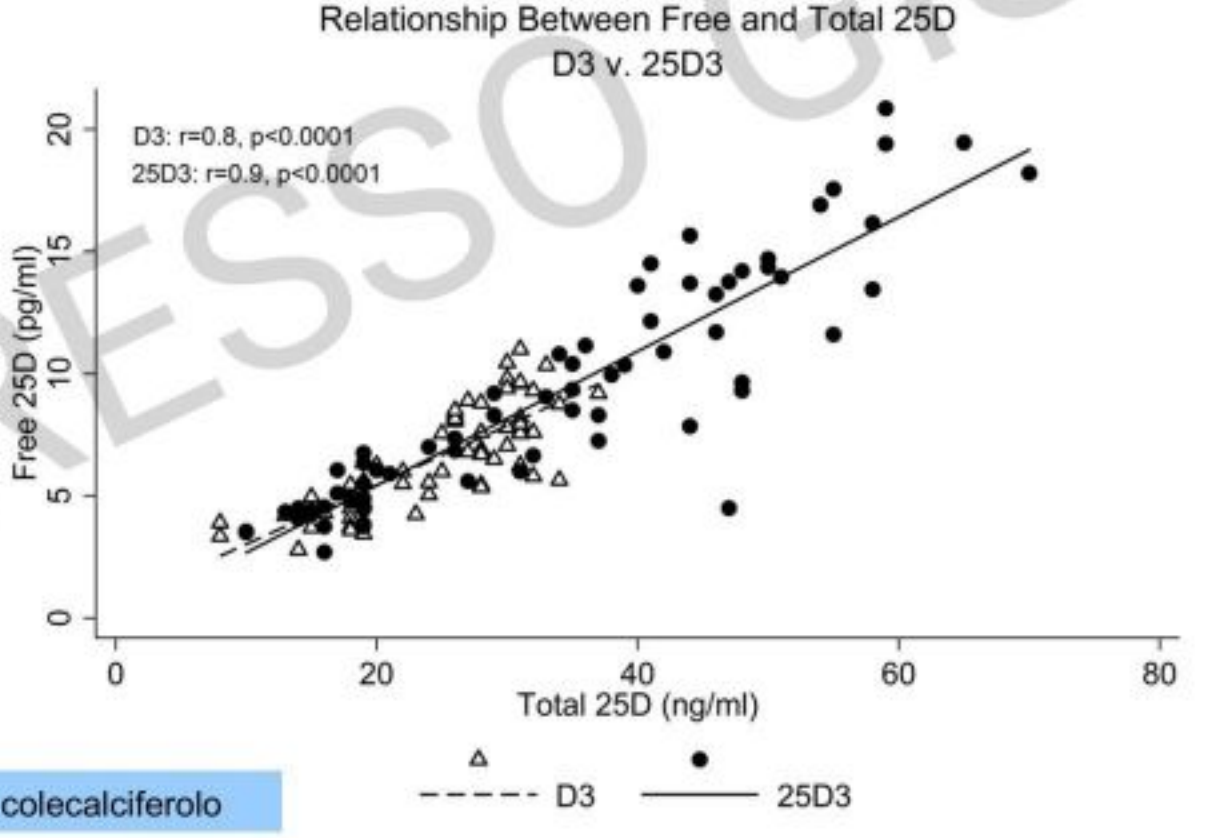
The Journal of Clinical Endocrinology & Metabolism, Volume 102, Issue 4, 1 April 2017

Relationship between free and total 25D levels, stratified by supplementation regimen

- ✓ 35 adulti di età superiore a 18 anni multietnica
- ✓ 25D levels basale = 20 ng/mL.
- ✓ Intervento: 16 settimane
- ❑ 60 µg D3 al giorno (2400 IU)
- ❑ 20 µg 25-D3

Dosaggi 4-8-16 sett

Total and free 25D, and PTH

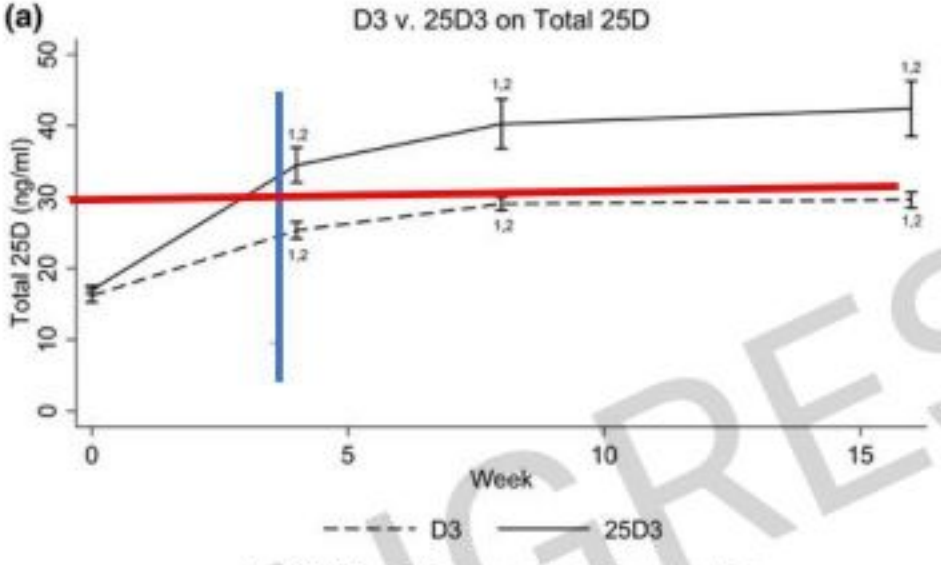


5 µg di calcifediolo equivalgono all'incirca a 15 µg di colecalciferolo

Effects of Cholecalciferol vs Calcifediol on Total and Free 25-Hydroxyvitamin D and Parathyroid Hormone

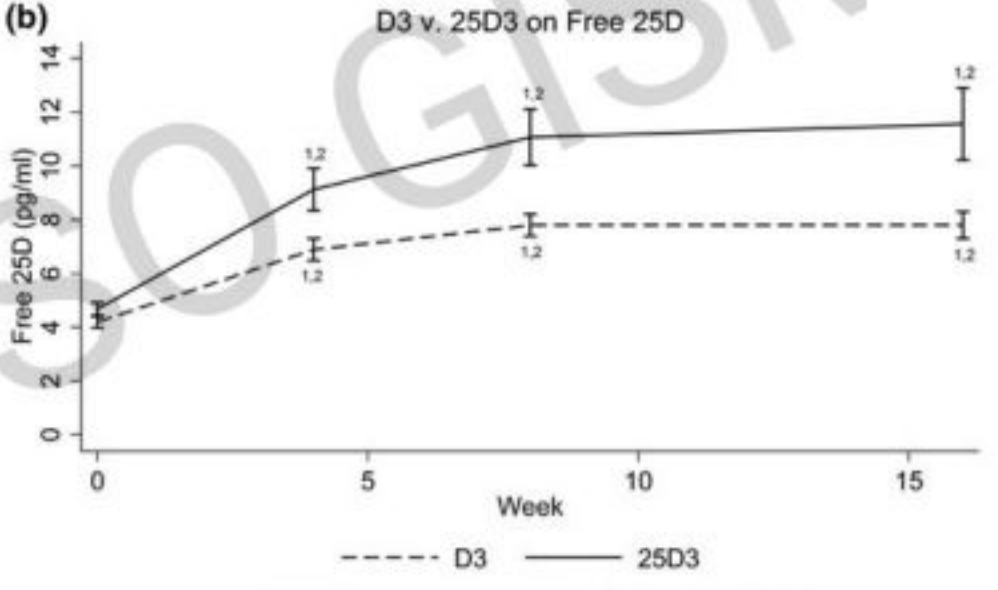
The Journal of Clinical Endocrinology & Metabolism, Volume 102, Issue 4, 1 April 2017

Total 25(OH)D



1: p<0.05 for within-group change from baseline
2: p<0.05 for between-group difference at given time point

Free 25-D



1: p<0.05 for within-group change from baseline
2: p<0.05 for between-group difference at given time point

Rapidità e stabilità di azione

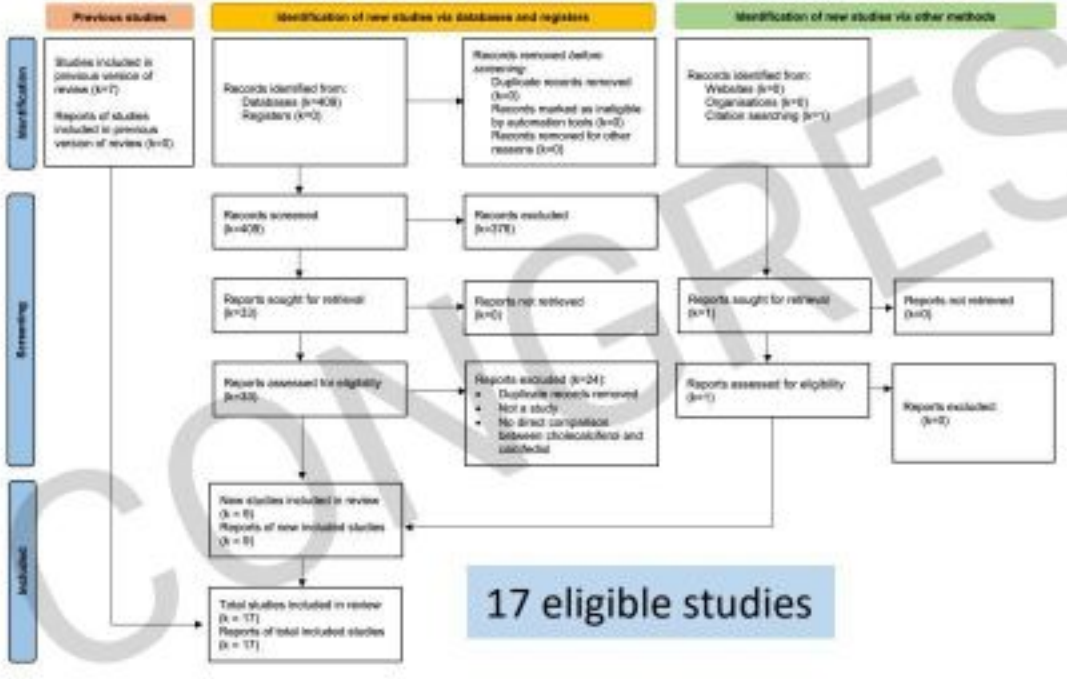
Review Article | Published: 09 October 2024

Effect of cholecalciferol versus calcifediol on serum 25(OH)D concentrations: a systematic review with meta-analysis

Selma Bouden, Meriam Ben Messaoud ✉, Olfa Saidane, Leila Rouached, Aïcha Ben Tekaya, Ines Mahmoud, Rawdha Tekaya, Chedly Dziri & Leila Abdelmoula

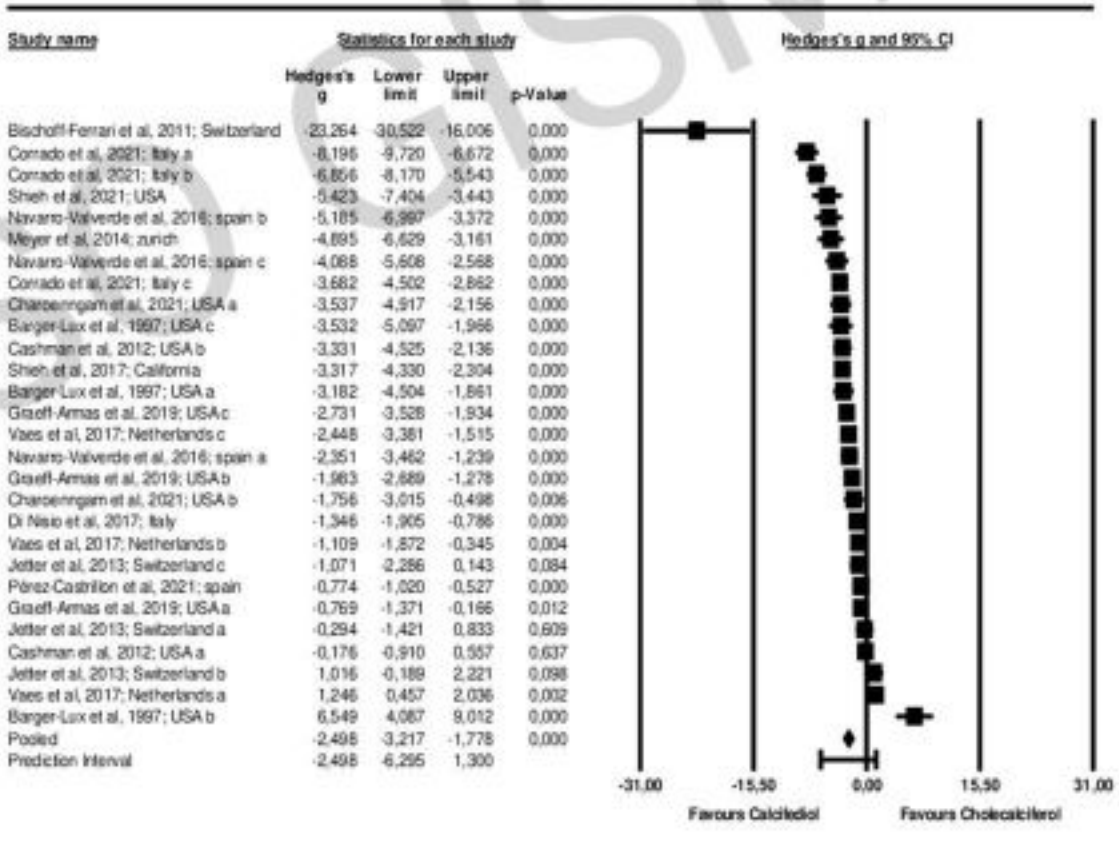
European Journal of Clinical Nutrition (2024) | Cite this article

A systematic review and meta-analysis adhering to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines was conducted on the published literature

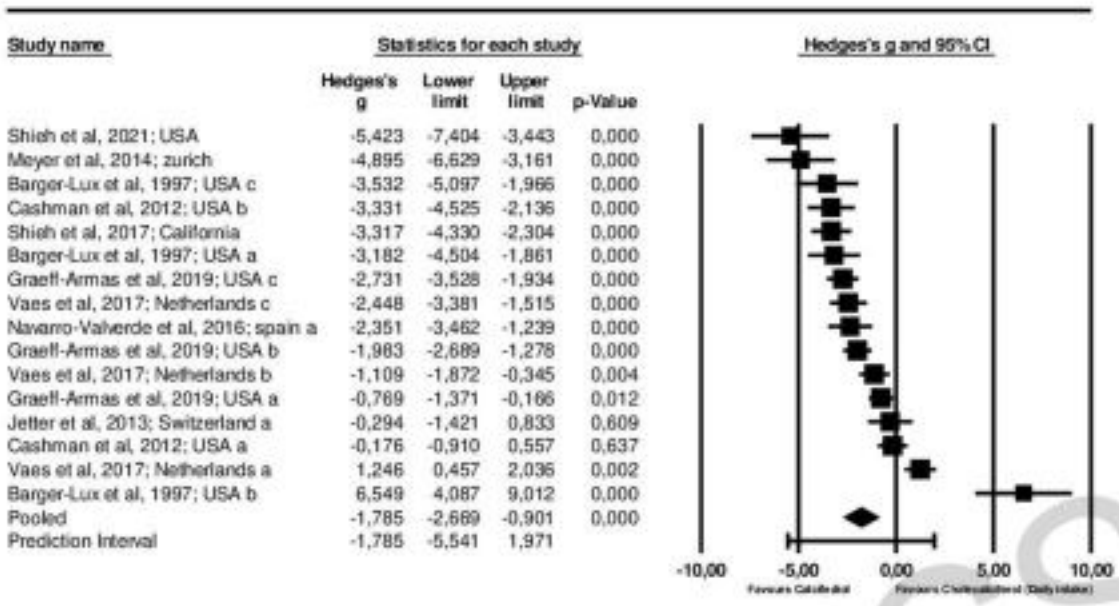


17 eligible studies

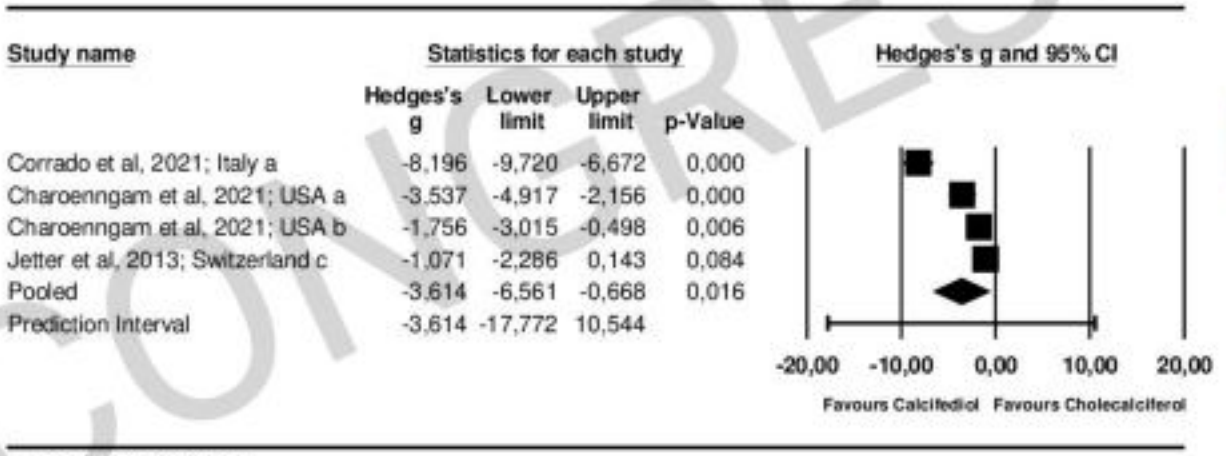
Forest plot: cholecalciferol versus calcifediol



Meta Analysis: Random Model



Cholecalciferol versus calcifediol (daily intake)



Cholecalciferol versus calcifediol (single dose)

Il calcifediolo aumenta i livelli sierici di 25 (OH)D indipendentemente dalla dose e dalla frequenza

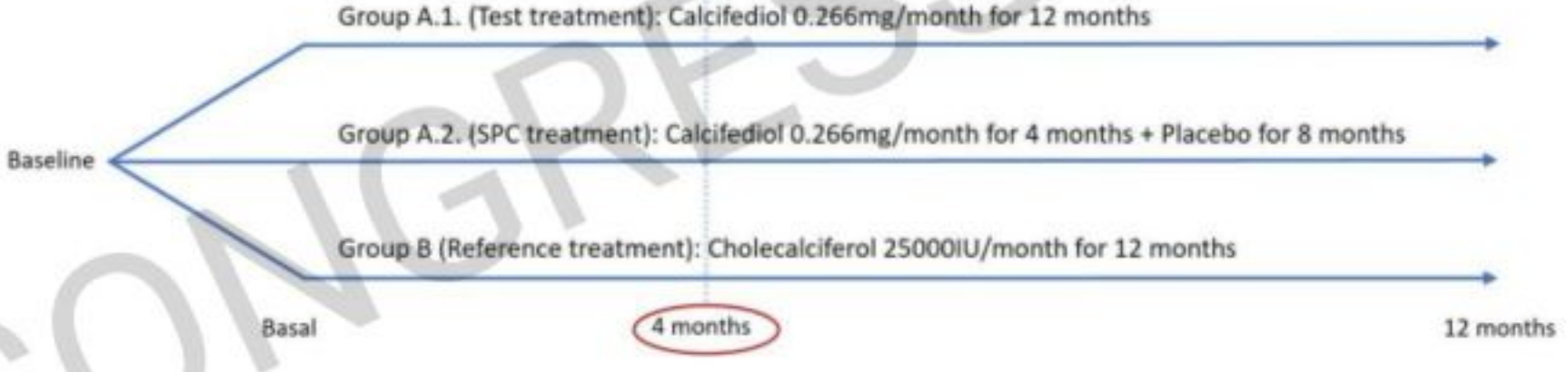
Livelli di 25(OH)D: posologie e sicurezza

JBMR
ASBMR
Clinical Trial | Open Access

Volume 36, Issue 10
October 2021
Pages 1967-1978

Calcifediol is superior to cholecalciferol in improving vitamin D status in postmenopausal women: a randomized trial

303 postmenopausal women with 25(OH)D levels <20 ng/ml were randomly assigned to different treatment groups.

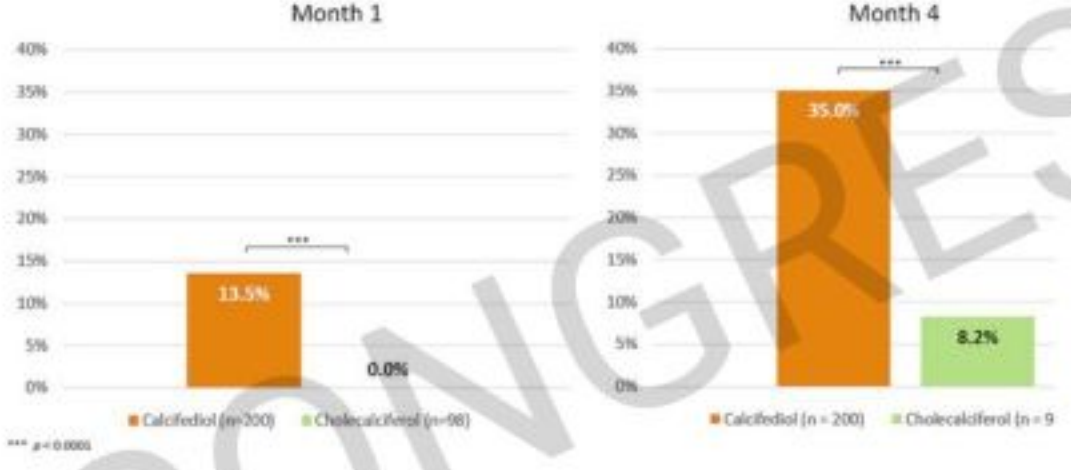


JBMR
ASBMR
Clinical Trial | Open Access

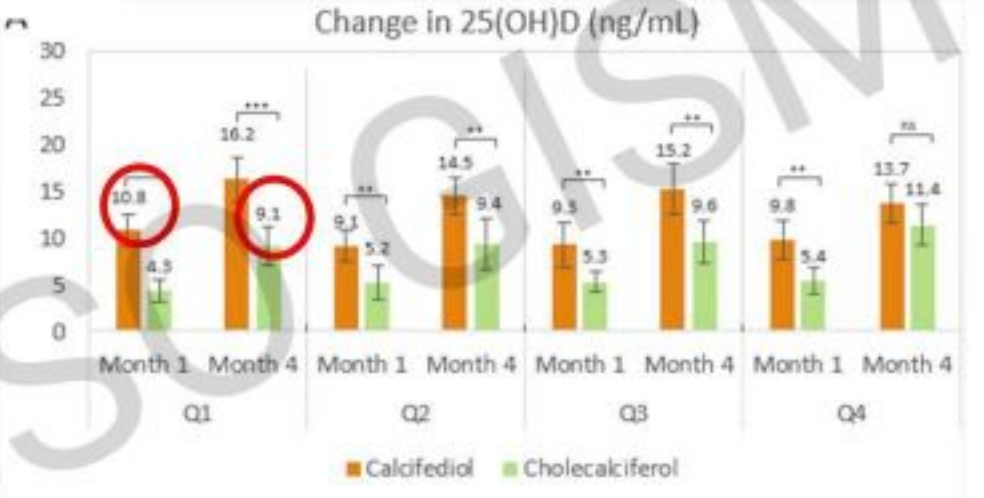
Volume 36, Issue 10
October 2021
Pages 1967-1978

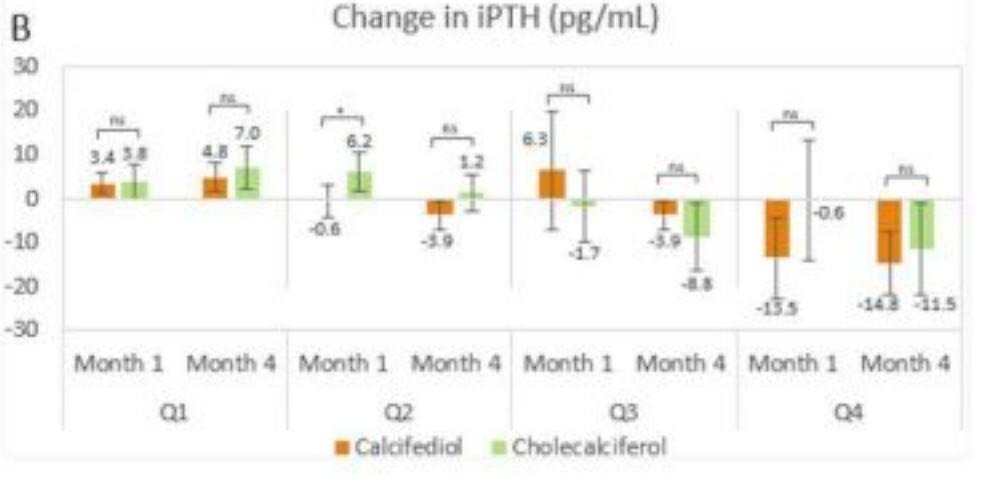
Calcifediol is superior to cholecalciferol in improving vitamin D status in postmenopausal women: a randomized trial

Percentage of subjects with 25(OH)D levels >30 ng/ml at months month 1 and 4, per treatment group. ***p < 0.0001



La percentuale nei quartili più bassi è raggiunta dopo
- ❑ 1 mese per il calcifediolo
- ❑ 4 mesi con il colecalciferolo



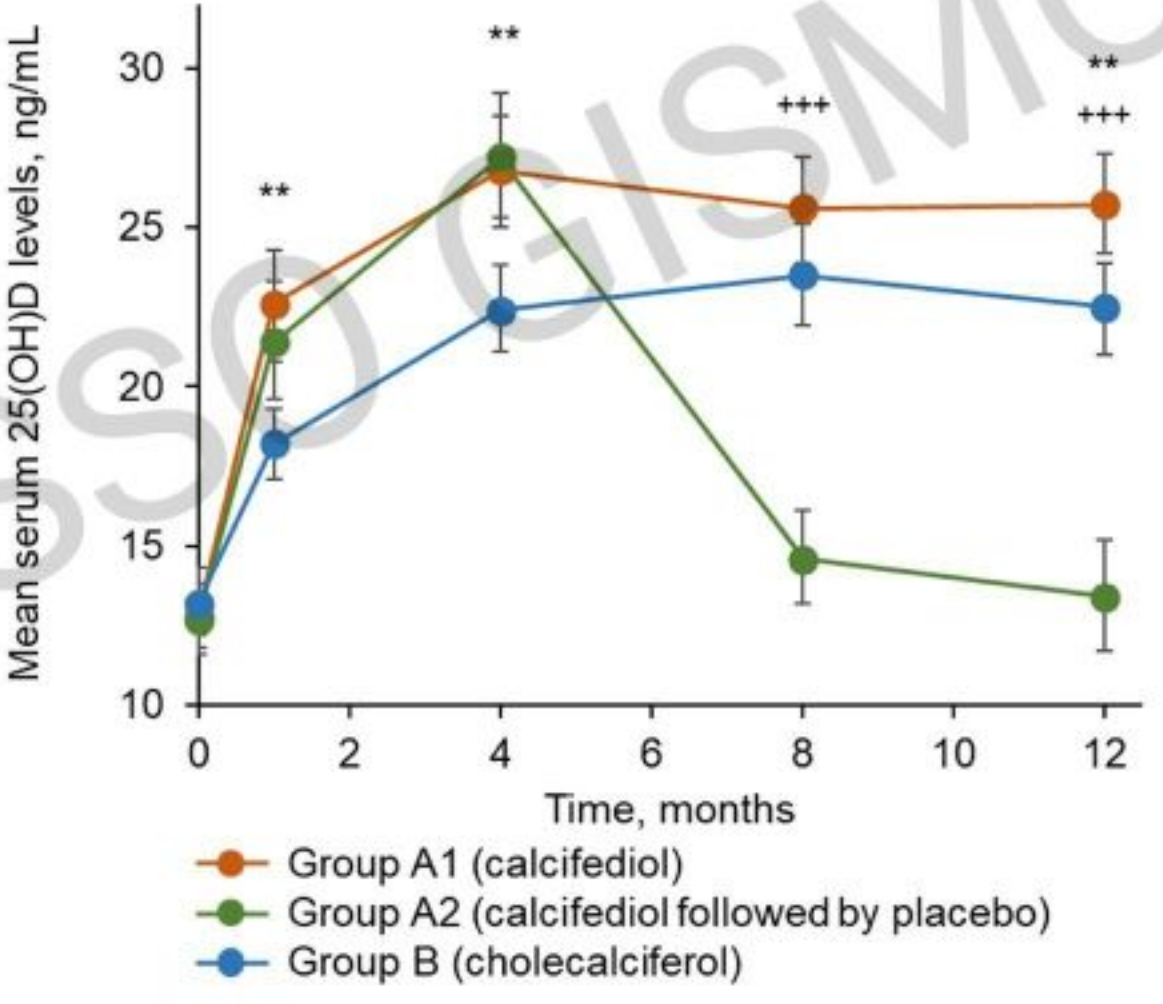


Clinical Trial > J Bone Miner Res. 2023 Apr;38(4):471-479. doi: 10.1002/jbmr.4776.
Epub 2023 Feb 13.

Long-Term Treatment and Effect of Discontinuation of Calcifediol in Postmenopausal Women with Vitamin D Deficiency: A Randomized Trial

Mean serum 25(OH)D concentrations during study (PP population, n = 170).

A strong decrease in 25(OH)D levels to baseline can be observed 4 months after calcifediol withdrawal (Group A2) compared with sustained administration (Group A1)



nutrients

MDPI

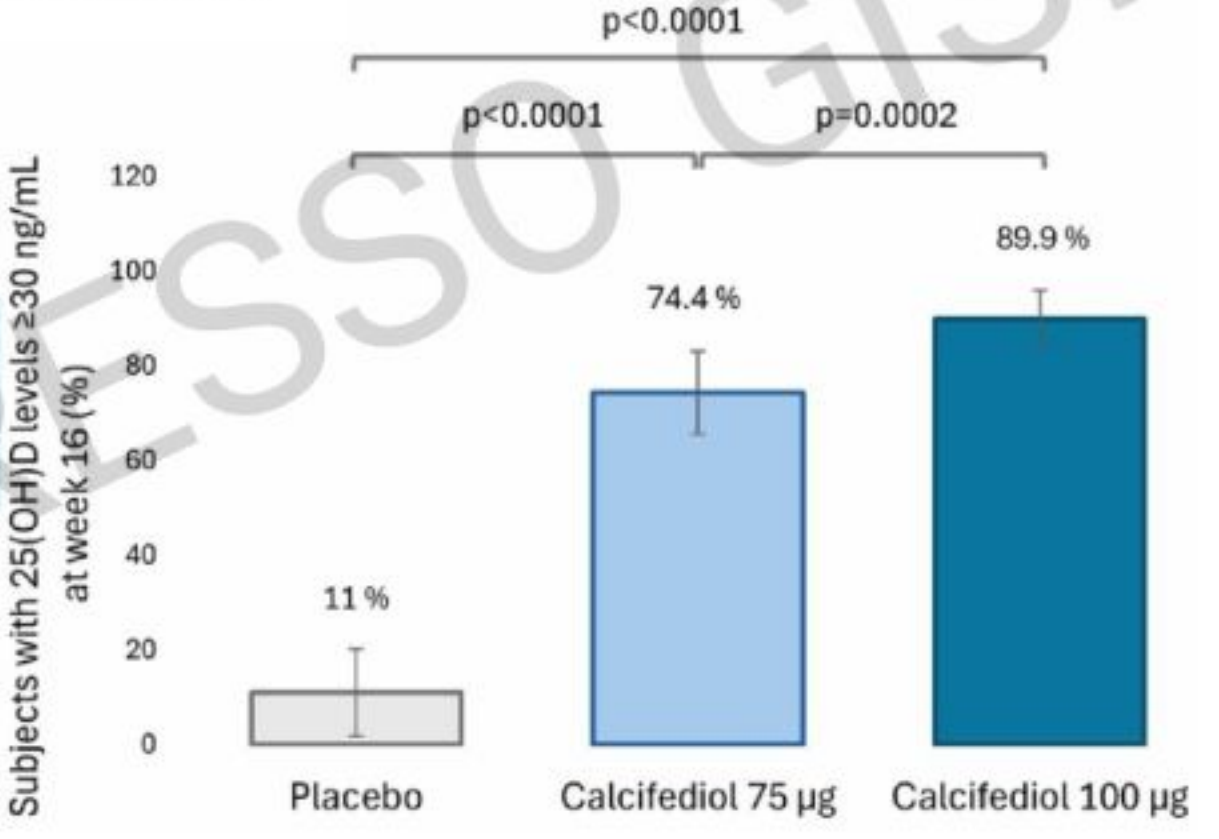
Article

Efficacy and Safety of Weekly Calcifediol Formulations (75 and 100 µg) in Subjects with Vitamin D Deficiency: A Phase II/III Randomised Trial

Esteban Jódar-Gimeno [1], Jose Luis Pérez-Castrillón [2], Ján Nociar [3], Michal Lojka [4], Dimitar Nikolov [5], Fernando Cereto-Castro [6], Snežana Novković [7], Umberto Tarantino [8], Nadia Mehsen-Cetre [9], Paula Arranz [10], Cristina Martínez Ostalé [10], Aintzane García-Bea [11] and Inmaculada Gilaberte [10,*]

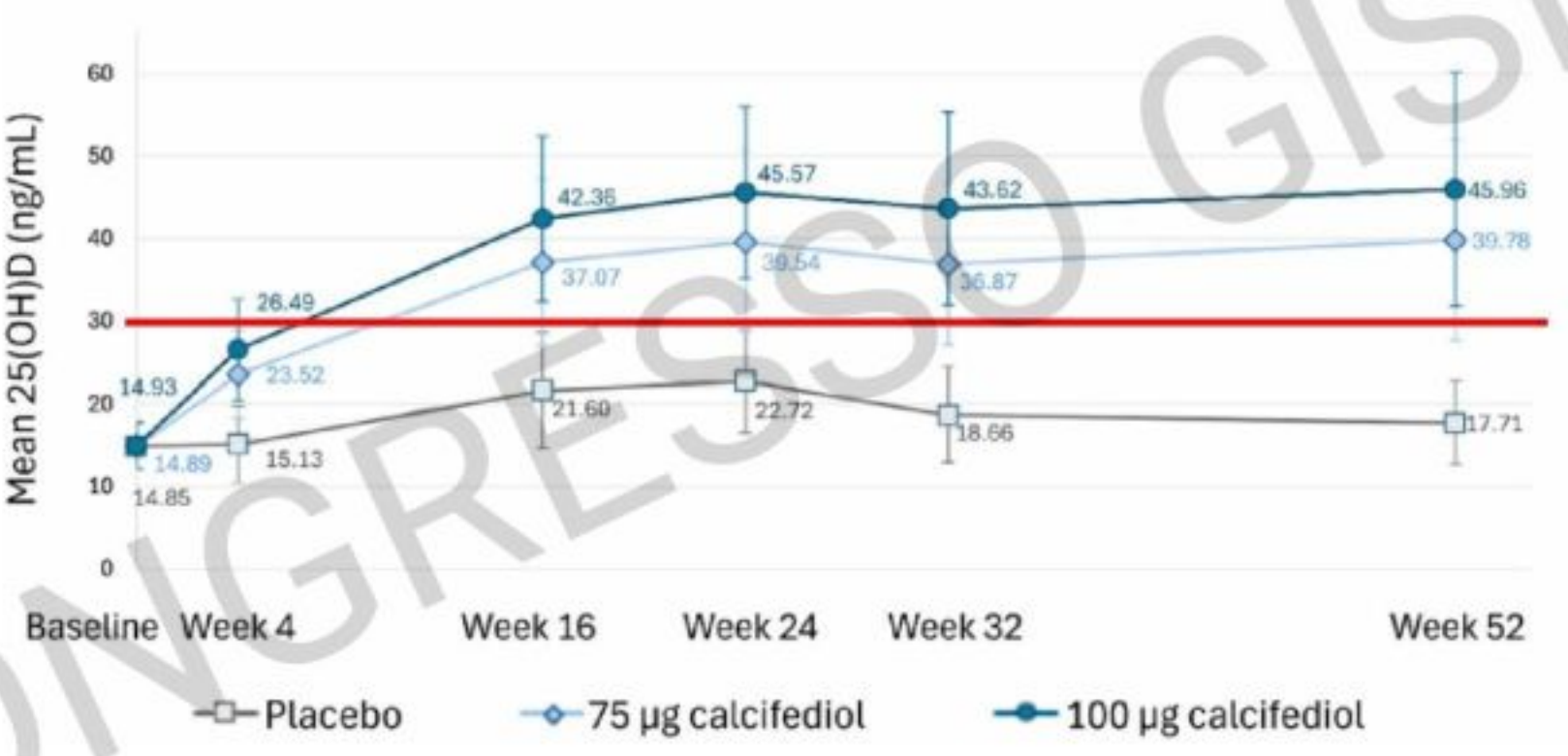
Studio 52 settimane

- 398 subjects (51.1 ± 15.9 years)
- 74.2%females
- **25(OH)D levels between 10 and 20ng/ml**



Nutrients 2024, 16,3796.https://doi.org/10.3390/nu1622379

Mean plasma25(OH)Dl evels(ng/mL) at each indicated time point



Nutrients 2024, 16,3796.https://doi.org/10.3390/nu1622379

Osteoporosis International
https://doi.org/10.1007/s00198-018-4520-y

REVIEW

Is calcifediol better than cholecalciferol for vitamin D supplementation?

J. M. Quesada-Gomez[1,2] · R. Bouillon[3]

Il calcifediolo orale determina un aumento più rapido della 25OHD sierica rispetto al colecalciferolo orale e riduce più velocemente il PTH.

Il calcifediolo è risultato circa 3,2 volte più potente del colecalciferolo orale.
Quando si utilizzano dosaggi ≤ 25 µg/giorno, la 25(OH)D sierica aumenta di 1,5±0,9 nmol/l per ogni 1µg di colecalciferolo, mentre aumenta di 4,8±1,2 nmol/l con il calcifediolo.

Il calcifediolo ha un tasso di assorbimento intestinale più elevato e presenta una curva dose-risposta lineare, indipendentemente dal livello basale 25(OH)D.

L'assunzione intermittente di calcifediolo risulta abbastanza stabile, senza sostanziale fluttuazione della 25(OH)D sierica.

5 µg di calcifediolo equivalgono all'incirca a 15 µg di colecalciferolo
1 goccia di calcifediolo = 2,5 gocce di colecalciferolo

Aging Clinical and Experimental Research (2022) 34:2603–2623
https://doi.org/10.1007/s40520-022-02279-6

REVIEW ARTICLE

Role of vitamin D supplementation in the management of musculoskeletal diseases: update from an European Society of Clinical and Economical Aspects of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO) working group

Considering the
well-recognized major musculoskeletal disorders associated with severe vitamin D defciency and taking into account a
possible biphasic effects of vitamin D on fracture and fall risks, an European Society for Clinical and Economic Aspects
of Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (ESCEO) working group convened, carefully reviewed, and analyzed the meta-analyses of randomized controlled trials on the effects of vitamin D on fracture risk, falls or osteoarthritis, and came to the conclusion that 1000 IU daily should be recommended in patients at increased risk of vitamin D defciency.

Conditions in which the administration of calcifediol may be preferable to cholecalciferol

Inactivating mutations of genes encoding hepatic 25-hydroxylase

Iatrogenic inhibition of hepatic 25-hydroxylase [e.g., anticonvulsants, antiretroviral drugs, glucocorticoids and bisphenol A]

Hepatic insufficiency

Decreased bioavailability (adipose tissue sequestration)

Fat malabsorption

CKD—renal osteodystrophy

Nephrotic syndrome (proteinuria)

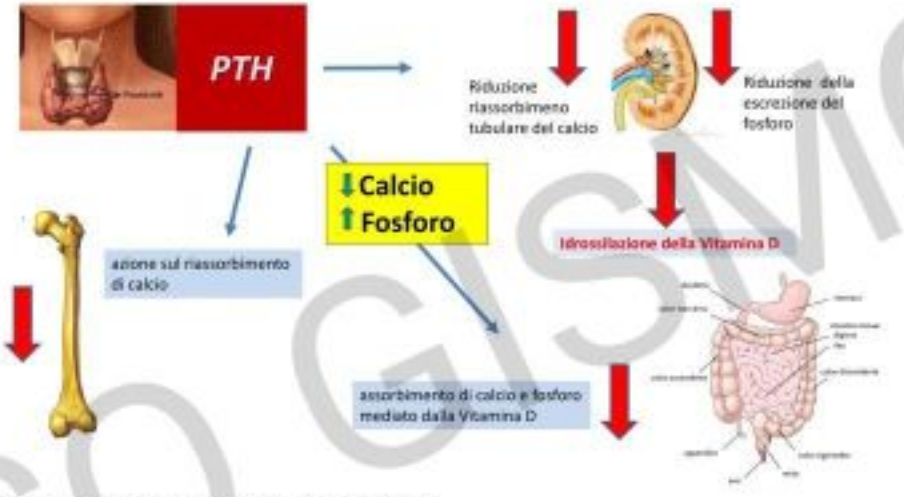
Male hypogonadism

Other conditions (e.g., diabetes mellitus I, transplant recipients)

Long-lasting osteomalacia

COVID-19

CALCITRIOLO E IPOPARATIROIDISMO
Terapia convenzionale



- ***Calcitriolo*** *per os alla dose di 0.5-2 µg/die o altri analoghi 1-alfa idrossilati 0,5-4 µg/die*

- Calcio citrato come alternativa al calcio carbonato, meglio assorbito

- **calcio carbonato** capsule da 500 mg (equivalente a 200 mg di calcio elementare) sino a un massimo di 3 g/die

L'obiettivo della terapia orale è quello di **evitare la comparsa di sintomi** da ipocalcemia e le complicanze a lungo termine, quali nefrolitiasi, nefrocalcinosi e deposizione di fosfato di calcio nei tessuti molli.

Mantenere la calcemia ai limiti inferiori della norma o appena ridotta, la calciuria nel range di norma ed il prodotto calcemia x fosfatemia (misurati entrambi in mg/dL) < 55.

Per controllare l'ipercalciuria possono essere consigliate dieta iposodica e piccole dosi di idroclorotiazide per favorire il riassorbimento tubulare di calcio.

Per l'iperfosfatemia, qualora non sia sufficiente il carbonato di calcio, sono consigliabili dieta a basso contenuto di fosfati ed altri chelanti del fosforo, come ad esempio il magnesio idrossido+algeldrato
Mantenere adeguata magnesiemia