



Dż

D3

For follow-up of Vitamin D deficiency treatment D 25(OH) Vitamin D test





What is vitamin D deficiency?

CB&&[¦åā]*Át[Áx@ÁÄS[¦^æApæaā]}æAP^ædo@AsejåÁp>`dãaā]}ÁÖ¢æa{ājæaā]}ÁÙ`¦ç^^+Eốx@Áseç^¦æ*^Ár^¦`{ÁdĺË @å¦[¢^çãaæ{ājÁÖÁŽdíQUPDÖÁ&[}&^}dæaā]}ÁãAÁPÈCAYÁĨĚÁy*EŷŠÁājÁ{^}ÁæaÁPÈCAYÁIÈEÁYÁQ ,[{^}ÈÁY@}}ÁseÁr^¦`{ÁdíQUPDÖÁ&[}&^}dæaā]}Á[-ÁGEÁ}*EŷŠÁjæaÁ`•^åÁse Ác@Á&čq[--Á[¦Áçãaæ{ājÁÖÁ å^-æ3&ār}&ÊÁIÏÈHÃÁj-Á{\^}ÁsejåÂIIĚÃÁj-Á{[{^}Á@{_^åáçãaæ{ājÄÖAs^-æ3&ār}&ÈÁ

Vitamin D deficiency and other associated diseases

Higher vitamin D concentrations are associated with a lower incidence of cardiovascular disease. Given that vitamin D functions as a hormone that regulates cell growth, it has been found to be linked to various tumors, including breast and colorectal cancer.

The relationship between Alzheimer's disease and vitamin D_3 insufficiency has also been suggested, and reports indicate that vitamin D_3 insufficiency is associated with the onset and exacerbation of immune-related disorders (e.g., multiple sclerosis, allergic rhinitis, and atopic dermatitis).



Vitamin D synthesis and metabolism

Xãæ (∄ ÁÖ Á á Á æ) • [¦à^å Á ∄ ([Á ∄ c^• c]) æ Á Á (]• Á æ (] }* Á í ã @ Á -æ cî Á æ 8 ã â • Á æ) å Á d æ) •] [¦c^å Á (‡ Á c@ Á |ã c,^¦É Å @ \^Á ã A à ∄ å • Á (‡ Á çãæ (‡ ∄ Á Ö Ë à ∄ å ∄ * Á] ¦[c^∄, Á æ) å Á ã Á (^/ ~ æ ^ å Á ∄ (‡ Á @ Á à |[[å • d ^ æ (‡ Ě Å

QLÁ c@ Á |ãc^¦ÉÁ çãuae;ã;Á ÖÁ ã=Á &[}c^¦c^åÁ d[Á GÍË @ål[¢^çãæa;ā;ÁÖÁÇCÍŽUP áÖDÉAaa)åÁā;Ác@Á;ãá}^^•ÉÃãAãa;Á -~'¦c@∿¦Á&{[}ç^¦c^åÁq[Áãa•Áæ&aãç^Á-{[¦{ÊÄFÊGÍË åã@å¦[¢^çãzæ; ã;Á ÖÁ CFÉGÍŽUPáÖDDÁ Due to differences in binding protein affinity, 25(OH)D₃ is 3 times more effective than 25(OH)D2 in maintaining reaching and peak serum FÊGÍQUPDÖÁ ã¦&¦^æ^•Á c@A concentrations. æà•[¦]@ā}Á[~Á&æa&ã{ Áæ}åÁ]@[•]@[¦`•Áã;Ác@•Á 㦠c^∙cãj ^∙ĖĂ



Utility of vitamin D₂/D₃ test using LC-MS/MS

V@ Á&[}&^}dæaā[}Á[-ÁGÍË@ å|[¢^çãazet ā]ÁÖÁQGÍŽUP áÖDÁ+ ^¦ç^•Áæe ÁæÁ\^|ãada|^Áā] åã8æat[¦Á[-Áçãazet ā]ÁÖÁ |^ç^|•Êáee ÁsaÁar Ák@ Á[æab]¦Á&aā&`|æaā]*Á[¦{ Á[-Áçãazet ā]ÁÖÁ§JÁ@ Ás[å^ÊÁ]šã@Á[ā]ā] æbásæaāî Á† & čæaā]}•Éáea)åÁ ãrĂ/••Aā]-†`^}&^åÁa`Á+`}|ā® @A^¢][•`¦^Á[¦Áåã?cæô^Á6]cæb ^Ě4Q {`}[æ•æô•Á`•ā]*Á+]^&ãã&Aáey cãa[åã∿A æ)åÁ|ã ĭãåÁ&@[{ æat[*¦æa]@ Á]šã@Ácæ)å^{ Á{ æ•A•]^&c[{ ^d^AÇSÔËT ÙET ÙDÁæb^Á&[{ { [}|^Áĭ•^åÁã]Á |æaa[¦ãv•Á{ ¦ãv=4]ák]sazet ā]ÁÖÁx•cā]*ĚÁ

Reimbursement criteria for vitamin D testing

[MOHW bulletin 2022-204 (practice), enforced Sep 1, 2022]

The reimbursement criteria for Nu4900a vitamin-[high-quality immunoassay]-D2, D3, total vitamin D, 25-OH -Vitamin D(total), Nu490Da vitamin -[High-quality LC-MS]-D2, D3 test are as follows:

- A. Eligibilit for reimbursement
 - 1) Gastrointestinal disorders and malabsorption conditions that can cause vitamin D malabsorption
 - 2) Current use of antiepileptic drugs (such as phenytoin, phenobarbital), tuberculosis medications, antiretroviral agents, antifungal drugs (ketoconazole), and lipid-lowering agents (cholestyramine)
 - 3) Liver failurg, cirrhosis
 - 4) Chronic kidney disease
 - 5) Malignant tumors
 - 6) Rickets
 - 7) After the diagnosis of osteoporosis (including cases requiring differentiation of secondary osteoporosis causes)
 - 8) Osteomalacia
 - 9) Burns involving more than 40% of the body surface area
 - 10) Parathyroid dysfunction (hypo, hyper)
 - 11) Calcium metabolism disorders (hypercalcemia, hypocalcemia, hypercalciuria, hypophosphatemia)
- B. Reimbursement calgulation

1) Only one test for D2, D3, total vitamin D, and 25-OH-Vitamin D(total) is eligible for reimbursement. 2) Number of reimbursed tests:

- a) 1 test for diagnosis before drug therapy, 1 test for treatment response evaluation 3-6 months into drug therapy
 b) 2 times a year for follow-up of continuous drug therapy
- C. Other screening tests for Nu490Da vitamin- [High-quality LC-MS] are not reimbursed.

Test information

Code No.	Test Name	Specimen	Schedule	Method
I F€GHÁ	FÊGÍ ÇU PD&Xãæ (ã) ÁÖÁ	Ù^¦č{ ÁFÈEÁ{ ŠÁ	Y^å ÆxG 4åæê∙Á	ÜQDEÁ
I F€G Á	GÍ ÇU PDÁXãaæŧã, ÁÖÁ	Ù^¦č{ ÁFÈ€Á{ ŠÁ	T[}ËÜæa ∲Ø ∓ÁåæÂÁ	ÔŠQDEÁ
ÌFFIÌÁ	GÍ QU P DÁXãæ (ã) ÁÖ GEÖ HÁ	Ù^¦č{ ÁFÈ€Á{ ŠÁ	T[}Ë2∜äÁbÁ≂ÁåaæÂÁ	ŠÔËT ÙÐT ÙÁ

Reference

- 1. Ú[•ããį} ÂÛcæe^{ ^} ơ∮ ~ÁSÙÓT ÜĖÁG€FÍ È
- $2. \mathbb{Z} \textcircled{a} * \texttt{AT} \texttt{Y} \textcircled{b} \texttt{AZ} \texttt{A$ OB;æ¢^•ãrÁ;-ÁJà•^¦çææaj}æ¢ÁÜčåã∿•ÈAP`dā?}o•ÈKG€FÍШ`ÇF€DX`HÎÎËİİÈ
- 3. Ôæ¦c[ĒÜ[{ ^![ÁRT ÊŴæ; ǎ[ĒŠ[:æ][ÁRT ÈŇ ^œeù]|褪糸~~&o*/(Á*]]|^{{ ^2(A*)}}]/{ ^2@;iaze; 3, #Ö/\$j, &]^/O\$iaieù^@;iaze; 3, #Ö/\$j, &] å^-á&ðar}&`ÈÐÖðanaà^ơ∿•ÁBĂ(^œaaà[|&&Á^^}}å¦[{ ^ÈGĒFÍÈ
- 4. Õ[&^\ ÁÔÊÙc å:ā,•\ ǎÃÕÚĖV@ÁÚ[c^}@aaká, Áxãæ;ā, ÁÕĖÜ^** |æe*åÁQclæ&^||*|ækÂJã }ækā *ÁUæc@, æê•Áæ•Á/æ*^o, Á{ ¦ÁT^^|[ãaÁŠ^*\^{ ãæV@;ka}^È R[``¦}æ¢4(,~4&|a) a&æ¢4(, ^åa&a) ^ÈG€EFÍ∐ (ÇDÝK €I ЁH È
- 5. Sǐàã ÁŒ ÉÚã [, æhÁŒŽ/@;Á,^,Á§) + 君 @;Á} Á@:Á^*´|æt[|^Á, Á@ ķāæt; ǎ, ÁÖ+Á§, Á, ^œæi[|混A, ææ@, æ° + Á&@eb æ&c/¦ǎcã&Á[¦Á&æ), &^* ǎ, Åeb;å }^`;[å^*^} / ææī/Ásã^æ-^ HÁE ^∄ * Á^• ^ æ&@;Á^çã\, ĚΘ=FÍ È
- 6. OE{ ze ĂSOEÉP[||ǎ ÁÝY ÊP ^ z) ^ ÁUÚĚK ãzet 3 ÁÖzá Á; * &@Á^••Á~~&&ã; ^ Ás@a Áçãzet 3 ÁÖziÁ\$ Ác@ 4 z) •ĚV@ÁR[* |} zeh(; -Ásl3 zBaehA^) å[&l3 [[[* ^ Ás] å {^cæà[|ãr{ ÈÅGë∈∃ LÌ JQFFDK ́HÌ Ï ËJFÈ
- æ{ ^ [[ãiàà^cæ) € Áset * | ^ * æsaī] ŧ Áşãt [ĒÔ` | | ^ } ơ ЮĘ: @`ā[^ | Á^• ^ æ & @ežOEFI LFFÇ DKI I É I È

