Vitamin D, 25 OH

CPT Code 82306
Sample Type Serum

Order Code C339
Tube Typ Tiger Top

Low levels of vitamin D are associated with:

- Osteoporosis
- Metabolic syndrome
- Cardiovascular disease

Dietary sources of vitamin D include:

- Salmon
- Mushrooms (dried in sunlight)
- Fortified milk
- Cheese

Description

Vitamin D is a fat-soluble vitamin naturally present in some foods, but the main source is synthesis within the body after exposure to sunlight[1]. Vitamin D has various roles within the body, but primarily regulates the absorption of calcium in the gut, maintaining adequate serum calcium and phosphate concentrations that contribute to mineralization of bone[2-4].

Vitamin D is available in two forms. Vitamin D3 (cholecalciferol) is mainly made in the skin upon exposure to UV light, and is also found in fish. The main source of Vitamin D2 (ergoalciferol) is fortified foods and supplements. Although commonly considered bioequivalent, Vitamin D2 may not be as bioavailable to the body as Vitamin D3[5]. Vitamin D is metabolized in the liver to the prohormone Vitamin D, 25 OH which is the primary circulating form of Vitamin D.

Clinical Use

The Vitamin D, 25-OH test is used to determine the levels of Vitamin D in blood, particularly in individuals with bone weakness or malformation, or those with impaired calcium metabolism. The test may also be used to monitor Vitamin D levels in individuals with conditions that impair fat absorption.

Clinical Significance

- Vitamin D deficiency is implicated in increased risk for CVD[6,7].
- Vitamin D deficiency is associated with an increased risk for hypertension, common cancers, autoimmune diseases and infectious diseases[8].
- Vitamin D is critical for the maintenance of healthy bones, and deficiency can cause osteoporosis, muscle weakness and muscle wasting[8-10].

Sample Type

The Vitamin D, 25 OH test is performed on a serum sample.

Commercial Insurance or Medicare Coverage

Coverage guidelines, also known as NCD (National Coverage Determination) or LCD (Local Coverage Determination), have been established or posted by CMS (Medicare & Medicaid). Limited information has been posted by the majority of the larger Carriers (Aetna, United HealthCare, Cigna, Blues). Medical necessity and specificity of diagnosis should be provided when ordering this test.

Understanding Medical Necessity

The following ICD-10 codes for vitamin D are listed as a convenience for the ordering physician. The ordering physician should report the diagnosis code that best describes the reason for performing the test.

Diagnosis	Diagnosis Code
Idiopathic Hypoparathyroidism	E20.0
Other Hypoparathyroidism	E20.8
Hypoparathyroidism, Unspecified	E20.9
Primary Hyperparathyroidism	E21.0
Secondary hyperparathyroidism, Not Elsewhere Classified	E21.1
Other Hyperparathyroidism	E21.2
Hyperparathyroidism, Unspecified	E21.3
Rickets, Active	E55.0
Vitamin D Deficiency, Unspecified (only allowed once per lifetime for Medicare patients)	E55.9
Pure Hypercholesterolemia, Unspecified	E78.00
Familial Hypercholesterolemia	E78.01
Other Hyperlipidemia	E78.4
Hyperlipidemia, Unspecified	E78.5
Familial Hypophosphatemia	E83.31
Hereditary Vitamin D-Dependent Rickets (type 1) (type 2)	E83.32
Other disorders of phosphorus metabolism	E83.39
Hypocalcemia	E83.51
Hypercalcemia	E83.52
Postprocedural Hypoparathyroidism	E89.2
Essential (primary) Hypertension	I10
Age-related Osteoporosis without Current Pathological Fracture	M81.0
Localized Osteoporosis [Lequesne]	M81.6
Other Osteoporosis without Current Pathological Fracture	M81.8
Other Adult Osteomalacia	M83.8
Disorder of Bone Density and Structure, Unspecified	M85.9
Disorder of Bone, Unspecified	M89.9
Disorder of Cartilage, Unspecified	M94.9

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RELATIVE RISK

Status of Vitamin D Sufficiency

Vitamin D, 25 OH

(ng/mL)

30.0-80.0 Sufficient	10.0-29.9 Insufficient 80.1-100.0 Excess	<10.0 Deficient >100.0 Potential Toxicity

Treatment Considerations

These treatment considerations are for educational purposes only. Specific treatment plans should be provided and reviewed by the treating practitioner.

✓ **Assess dietary intake of Vitamin D.**

- If not at goal, consider Vitamin D-rich foods such as cheese, Vitamin D-fortified milk, shiitake and button mushrooms (dried by sunlight), or supplementation with Vitamin D3 (cholecalciferol) or Vitamin D2 (ergocalciferol).

✓ **Consider an increase in direct sun exposure to 10-15 minutes a day.**

References

1. Holick MF. Resurrection of vitamin D deficiency and rickets. *J Clin Invest.* 2006; 116: 2062-2072.
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3. Bouillon R. Vitamin D: From photosynthesis, metabolism, and action to clinical applications. In: DeGroot LJ, Jameson JL, eds. Endocrinology. Philadelphia: W.B. Saunders, 2001: 1009-1028.
4. Dusso AS et al. Vitamin D. *Am J Physiol Renal Physiol.* 2005; 289: F8-F28.
5. Houghton LA and Vieth R. The cases against ergocalciferol (vitamin D2) as a vitamin supplement. *Am J Clin Nutr.* 2006; 84: 694-697.
6. Grandi NC et al. Vitamin D and cardiovascular disease: Systematic review and meta-analysis of prospective studies. *Prev Med*. 2010; 51: 228-233.
7. Wang TJ et al. Vitamin D deficiency and risk of cardiovascular disease. *Circulation*. 2008; 117: 503-511.
8. Holick MF and Chen TC. Vitamin D deficiency: A worldwide problem with health consequences. *Am J Clin Nutr.* 2008; 87 (suppl): 1080S-1086S.
9. Bischoff-Ferrari HA et al. Higher 25-hydroxyvitamin D concentrations are associated with better lower extremity function in both active and inactive persons aged > or = 60 y. *Am J Clin Nutr.* 2004; 80: 752-758.
10. Visser M et al. Low vitamin D and high parathyroid hormone levels as determinants of loss of muscle strength and muscle mass (sarcopenia): The Longitudinal Aging Study Amsterdam. *J Clin Endocrinol Metab.* 2003; 88: 5766-5772.

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