



VITAMIN D TESTING

ASSESSING VITAMIN D SUFFICIENCY
IN YOUR PATIENTS



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The Emerging Link Between Vitamin D Sufficiency and General Health or Disease Incidence

A Closer Look at the Mounting Research

For many years, clinicians have been aware that vitamin D sufficiency plays a critical role in bone remodeling; however, volumes of recent studies have shown that vitamin D also plays a key role in maintaining other aspects of overall health. Research confirms that adequate vitamin D is critical for normal cellular functions in other organ systems.

Studies have also revealed that higher levels of vitamin D are associated with reduced risk of certain malignancies, including:¹⁻⁴

- Prostate cancer
- Endometrial cancer
- Skin cancer
- Pancreatic cancer
- Colorectal cancer

Vitamin D deficiency has been linked to increased risk of developing:^{3,5}

- Autoimmune diseases
- Multiple sclerosis
- Type 1 diabetes

Deficiency has also been associated with:^{3,6,7}

- Hypertension
- Cardiovascular disease

Vitamin D deficiency in pregnancy is associated with:⁸

- Increased odds of primary cesarean delivery

The Historic Link Between Vitamin D Sufficiency and Healthy Bone Structure

Vitamin D Classic Physiology

Providers have known that vitamin D sufficiency is important to calcium homeostasis and in the maintenance of healthy bone. Vitamin D stimulates the absorption of calcium and may also serve to increase calcium and phosphate resorption. Deficiency of vitamin D leads to the mobilization of calcium from bone, which can lead to osteoporosis, osteomalacia, and rickets.^{3,9}

It is estimated that up to 50% of apparently healthy children and young adults are vitamin D deficient.⁷ The prevalence of vitamin D deficiency in the US has been reported at 25% to 57% in adults.⁷

What risk factors contribute to vitamin D deficiency?^{3,9}

- Age: older adults are at increased risk
- Inadequate sun exposure
- Insufficient dietary intake of vitamin D
- Living at higher latitudes
- A dark complexion (increased skin pigmentation/high-melanin levels)
- Malabsorption syndromes, liver diseases and kidney disease



Rethinking **Vitamin D Sufficiency: detection and treatment**

Which Patients are Vitamin D Sufficient, Insufficient, or Deficient?

Assessing Vitamin D Levels

LabCorp offers DiaSorin's Vitamin D immunochemiluminometric (ICMA) assay for the assessment of vitamin D. The cleared DiaSorin Vitamin D assays have been used in major clinical studies where vitamin D is measured.¹⁰ The majority of seminal epidemiological studies, including the Centers for Disease Control (CDC) National Health and Nutrition Examination Survey (NHANES) data base, the Women's Health Initiative (WHI) studies, and the Harvard-based Health Professionals Studies, employed DiaSorin reagents. The automated test measures both vitamin D₂ and D₃ together and reports a total 25-hydroxy vitamin D.

Maintaining Vitamin D Sufficiency

There are two sources of vitamin D: diet and exposure to sunlight. Energy from the sun converts a precursor in the skin to vitamin D₃.^{3,9} Vitamin D levels can be increased by spending some time in the sun. The normal diet is very low in vitamin D. Most foods, with the exception of fatty fish oils, contain little vitamin D. Some recent studies have shown that vitamin D supplementation with D₃ may be more effective than supplementation with D₂.¹¹ Vitamin D is available without prescription.

Testing provides the answers

DiaSorin Classification of 25-OH Vitamin D Status¹⁰

Deficiency	less than 10 ng/mL
Insufficiency	10-30 ng/mL
Sufficiency	30-100 ng/mL



Test Name**Test No.****Vitamin D, 25-Hydroxy****081950****Synonyms** Cholecalciferol Metabolite; 25-Hydroxycalciferol; 25-OH-D; Vitamin D₃ Metabolite**Special Instructions** This is not the same as calcitriol or 1,25 dihydroxy vitamin D₃. Calcitriol must be ordered separately.**Specimen** Serum**Volume** 0.5 mL**Minimum Volume** 0.3 mL (**Note:** This volume does **not** allow for repeat testing.)**Container** Red-top tube or gel-barrier tube**Collection** If tube other than a gel-barrier tube is used, transfer separated serum to a plastic transport tube.**Storage Instructions** Refrigerate.

Stability	Temperature	Period
	Room temperature	7 days
	Refrigerated	14 days
	Frozen	14 days
	Freeze/thaw cycles	Stable X3

Causes for Rejection Plasma specimen, gross hemolysis, gross lipemia**Reference Interval** 30-100 ng/mL**Use** Rule out vitamin D deficiency**Limitations** Values of vitamin D vary with exposure to sunlight. The assay measures other vitamin D metabolites, including dihydroxylated metabolites such as 24,25,25,26, and 1,25 dihydroxy vitamin D; however, since the physiological concentrations of these metabolites are insignificant compared to those of 25-hydroxy vitamin D, the accuracy in assessing vitamin D levels is not compromised.**Methodology** Immunochemiluminometric assay (ICMA). This assay is performed on the DiaSorin LIAISON® instrument in multiple laboratories throughout LabCorp. This highly automated test measures both D₂ and D₃ together and reports a total 25-hydroxy vitamin D. Major clinical studies, including (but not limited to) the Centers for Disease Control (CDC) National Health and Nutrition Examination Survey (NHANES) data base, the Women's Health Initiative (WHI) studies, and the Harvard-based Health Professionals Studies, employed DiaSorin reagents.

Note: LabCorp also offers the Vitamin D, 25-OH, Fractionated (Total, D₂, D₃) by HPLC/MS-MS assay. This test provides clinicians with the levels of vitamin D₂ and vitamin D₃, as well as the total and is available through our Endocrine Sciences laboratory in Calabasas, Calif. For ordering information, please contact your local representative.

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