

**Provider:**  
**Patient:** Sample  
**Accession #:**

**Sex:**  
**Age:**  
**Sample Type:**

**Collected:**  
**Received:**  
**Completed:**

## Your Test Results (ng/mL)



25-Hydroxy D Total	
45	
25-Hydroxy D2	25-Hydroxy D3
45	< 5

## What Your Results Mean

Vitamin D2 and D3 are metabolized in the liver and kidney to the metabolically active  $1\alpha,25$ -dihydroxyvitamin D, which acts in the body through specialized vitamin D receptors (VDRs). Vitamin D regulates bone metabolism, immune system and inflammatory responses.

Insufficient levels of vitamin D are associated with poor bone mineralization (rickets in children; osteoporosis or osteomalacia in adults). Lower levels of vitamin D have been associated with various inflammatory disorders such as cardiovascular disease and diabetes mellitus, and several autoimmune disorders such as rheumatoid arthritis, systemic lupus erythematosus and multiple sclerosis. Insufficient vitamin D levels may also increase the risk of certain types of cancer. Large population studies suggest that all-cause mortality is increased if vitamin D levels are  $< 17.8$  ng/mL. Medications such as cholestyramine, colestipol, orlistat, or mineral oil can decrease vitamin D absorption.

If the results of your vitamin D test indicate a deficiency, talk to your physician about how to increase your levels. Options include eating food high in vitamin D, getting more sunshine, and taking supplements. Food sources of vitamin D include fortified foods (milk, some eggs and cereal (bread) products) and fatty fish such as mackerel, salmon or sardines. The established Tolerable Upper Limit (UL) for vitamin D supplementation is 4,000 IU/day (100  $\mu$ g/day) for adults.

References: [1] Delage B. (2017) Vitamin D. Linus Pauling Institute, Oregon State University. <https://lpi.oregonstate.edu/mic/vitamins/vitamin-D> Accessed 21 February 2020. [2] Nair R, Maseeh A. Vitamin D: The "sunshine" vitamin. J Pharmacol Pharmacother. 2012;3(2):118–126. doi:10.4103/0976-500X.95506 [3] Zmijewski MA. Vitamin D and Human Health. Int J Mol Sci. 2019;20(1):145. doi:10.3390/ijms20010145 [4] Arch Intern Med. 2008 August 11; 168(15): 1629-1637

The dried blood spot reference values are sample type-specific and, for comparison purposes, have been found to be approximately 75% of the serum reference values recommended by the Endocrine Society Clinical Practice Guidelines. Method: LC/MS/MS, Lower limit of Quant: 5 ng/mL, Upper limit of Quant: 150 ng/mL. This test is not intended to diagnose, treat, cure, or prevent any disease or replace the medical advice and/or treatment obtained from a qualified healthcare practitioner. US BioTek Laboratories, LLC. has developed and determined the performance characteristics of this test under the Clinical Laboratory Improvement Amendments (CLIA). This test has not been evaluated by the U.S. Food and Drug Administration.