



Vitamin D Insufficiency

VITAMIN D INSUFFICIENCY IS NOW RECOGNISED AS A MAJOR HEALTH ISSUE.

Severe Vitamin D deficiency will result in Osteomalacia. Low Vitamin D levels are also associated with Osteoporosis, increased fracture risk and falls.

It is becoming increasingly evident that Vitamin D deficiency may also contribute to:

- Susceptibility to infection
- Various cancers including breast, colon and prostate
- Hypertension
- Infertility
- Diabetes
- Multiple Sclerosis
- Poor dentition.

SOURCES OF VITAMIN D

Under normal circumstances most of our Vitamin D requirements are met from daily exposure to sunshine.

For many people this is no longer achievable. Lack of direct sunshine exposure may occur due to work commitments, immobility, sunscreen lotion (slip, slop, slap campaigns) and covering the skin from sun exposure. Other factors that contribute to less than optimal Vitamin D levels can include malabsorption, darker skin pigment, anti-convulsant therapy, higher body mass index (BMI), older age and thin skin.

HOW COMMON IS VITAMIN D DEFICIENCY?

During the summer months approximately 50% of patients' Vitamin D results processed by Healthscope Pathology are less than the target range (60-160 nmol/L) and are considered Vitamin D insufficient. In late winter months this figure increases to around 70%.

Of the patients with Vitamin D insufficiency, 5% are frankly deficient with results of <20 nmol/L.

This pattern of patient results is consistent with other laboratories in Australia.

WHAT IS THE TARGET VITAMIN D LEVEL?

We suggest that the Vitamin D level should be greater than 60nmol/L. This figure is based on the level below which parathyroid hormone concentrations begin to rise and the risk of fractures increases.

It may be that the minimum value for optimal health is closer to 80nmol/L.

As for all tests, Healthscope's pathologists and scientists will continue to evaluate current literature and our target range may change as evidence emerges.

SUPPLEMENTATION

Frank Vitamin D deficiency (<20 nmol/L) may require 3000-5000 IU/day for 6-8 weeks.

A maintenance dose of up to 1000 IU/day may be adequate, however some individuals will require higher doses. There should be periodic follow up assays to check for therapeutic compliance and to exclude malabsorption or excessive intake.

Supplements should be Vitamin D3 (Cholecalciferol) as this is more effective than Vitamin D2. It is important to note that best health outcomes are achieved in the setting of adequate dietary calcium; this should be at least 1g/day and up to 1.3g/day in the older adult. Many, perhaps most people, will require supplementation to achieve this amount.

Note: *Calcium supplements are best taken before sleep to ensure maximum absorption and suppression of peak bone turnover which usually occurs between approximately 2:00 and 3:00am.*

BENEFITS OF THE TEST

Assess the Vitamin D status to ascertain which patients would benefit from Vitamin D supplementation and thus reduce the risk of falls, fractures and other sequelae of low Vitamin D.

FURTHER TESTING

A Serum Calcium Assessment and Parathyroid Tormone (PTH) will assist in placing the Vitamin D level within the context of overall calcium homeostasis.

If Osteoporosis is present, urine DPD (first morning void) or fasting serum crosslaps will provide a way of monitoring bone turnover and response to therapy.

An individual's response to Vitamin D supplementation can vary and should be checked after 2-3 months of therapy.

SPECIMEN REQUIREMENTS

Sample Type:

Vitamin D Gold Top Tube (Serum)

Frequency: Weekdays

REFERENCES

1. Holick M. Vitamin D Deficiency. NEJM 2007; 357, 266-281
2. Group of the Australian and New Zealand Bone and Mineral Society, Endocrine Society of Australia and Osteoporosis Australia. Vitamin D and Adult Bone Health in Australia and New Zealand: A Position Statement. Med J Aust 2005; 182: 281-285.
3. Nutrient Reference Values for Australia and New Zealand: Dept of Health & Aging. NHMRC: Online 2006.

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