

Vitamin D deficiency: Impact on wound healing and implant failure

Dr. Scott Froum explains how vitamin D deficiency can adversely affect wound healing after dental surgery and alter implant success rates. He advises about adequate levels of the vitamin and discusses its importance to periodontal health.

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Vitamin D in its inactive form (vitamin D3 or cholecalciferol) is a steroid hormone that is synthesized in the skin with adequate exposure to the sun (ultraviolet light) and/or acquired through diet (figure 1). Vitamin D is a key player in bone growth and metabolism as it promotes the intestinal absorption of calcium and phosphorous. Additionally, vitamin D is vital for the health of the brain, cardiovascular system, respiratory tract, skin, and the immune and endocrine systems.

It also plays an important role in the dental field in the development of teeth, promotion of the immune response to oral microbial infections, and healing after periodontal, oral, and implant surgery. It is estimated that vitamin D insufficiency and deficiency have a prevalence as high as 50%–75% in the United States alone (especially during the winter months) and has been associated with numerous dental treatment complications.¹ This article will briefly review the causes of vitamin D deficiency and its impact on dental treatment.

Vitamin D is considered deficient when serum 25(OH) levels are <10 ng/mL, insufficient when serum levels are 10–30 ng/mL, and optimal with serum levels >30 ng/mL. Many commercially available tests can be used to test vitamin D levels (figure 2).

Causes of vitamin D deficiency

Vitamin D deficiency is mainly due to three causes:

Diet—Most natural sources of vitamin D are animal based. Foods such as fatty fish (salmon and mackerel), fish oil, egg yolks, fortified milk/orange juice, and beef liver are high in this vitamin. Approximately 90 IU of vitamin D may be absorbed from food every day without the consumption of supplements.² People who are strict vegans or lack intake of these foods need to find alternative sources to remain sufficient in this vitamin.

Sun exposure—The human body synthesizes approximately 10,000 IU of vitamin D from tanning under natural sunlight until light redness of the skin. The recommended dosage of vitamin D may be absorbed by exposing the face, hands, and palms to natural sunlight two to three times a week. The common thought in the medical community is that one only needs to be in the sun for half the time it takes for the skin to turn pink. In other words, if it takes 30 minutes for the skin to start to turn red, only 15 minutes of sun exposure is necessary to receive adequate

Reference

* A small, easy-to-swallow MEGASSEUM Forte containing seaweed calcium, vitamin D, and magnesium. Take 2 tablets per day to maintain health.

- Calcium is a typical inorganic substance with a low absorption rate in the body.
- Calcium is essential for bone and tooth formation, nerve and muscle function, and normal blood clotting. Contains vitamin D to help absorb and use calcium.

1. MEGASSEUM FORTE contains 10µg of vitamin D. It helps the success and recovery of dental treatment including healing after implantation.
2. Vitamin D affects mouth infection, bone metabolism, periodontal recovery, dental implant healing.

- Source: *Vitamin D Deficiency and dental implant failure* (by Dr. Scott Forum)

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|----------------|--|
| Manufacture | BIOFARM CO.,LTD |
| Distributor | Megagen Implant Co.,Ltd 45, Secheon-ro 7-gil, Dasa-eup, Dalsung-gun, Daegu, KOREA (42921) +82-1544-2285 |
| Import company | |



Take 2 tablets per day
to maintain health

A small, easy-to-swallow Megasseum Forte containing seaweeds calcium, vitamin D, and magnesium.

MEGASSEUM FORTE E



Symptoms of vitamin D deficiency & Risk group of vitamin D deficiency

1. Vitamin D is very important to the immune system – If vitamin D is insufficient, the body is vulnerable to sicknesses or have a high risk of infection.
→ Strengthen immunity through vitamin D intake – Help prevent infectious diseases
2. Low vitamin D levels are more susceptible to coronavirus
3. Chronic vitamin D deficiency can cause lung fibrosis.
Source: SCIENTIFIC REPORTS – Chronic vitamin D deficiency induces lung fibrosis through activation of the renin-angiotensin system.
4. High-risk group of vitamin D deficiency:
 - Elderly
 - Body mass index 30 or higher (A group of obesity)
 - Patients with high blood pressure
 - People who don't eat a lot of fish or dairy products
 - People who stay indoors most of the time



Guide to the main ingredients of MEGASSEUM

Use of Seaweed Calcium

Good digestion & absorption in the body with calcium derived from nature

2:1 Golden ratio of calcium & magnesium

Calcium 300mg and magnesium 150mg 2:1 ratio

Vitamin D (10µg / 100% of the recommended daily requirement for Koreans)

1. Vitamin D helps the absorption of calcium in the mucous membranes of the small intestine, promotes the reuse of calcium in the body, and helps improve immunity.
2. Strengthen bones & teeth and helps restore and maintain healthy gums after surgery.
3. In Europe, the amount of sunlight in Winter is low. Therefore, from October to June (especially January to March), the body's vitamin D content is the lowest and might cause low levels of immunity.
→ Increased incidence of viral diseases such as colds.
→ It is necessary to increase immunity through normal intake of vitamin D (It may boost immunity against coronavirus)

Intake amount and intake method / precaution

1. Take 2 tablets a day with water
2. Stop intake if abnormal symptoms occur depending on the individual's physical condition.
3. If you have allergies or asthma, make sure to check the ingredients before taking them.
-Manufactured in the facilities that also produces eggs (poultry), milk, buckwheat, soybeans, wheat, crab, shrimp, peaches, tomatoes, pork, chicken, and shellfish (oysters, abalone, mussels)
4. Refrain intake with drinks containing caffeine such as coffee, energy drinks, etc.
5. This product is not a medicine for the prevention or treatment of diseases.

Nutrition information

Content per Daily Intake:

Calories 0Kcal, Carbohydrates less than 1g (0%), Protein 0g (0%), Fat 0g (0%) Sodium 10mg (1%), Calcium 300mg (43%), Magnesium 150mg (48%) Vitamin D10ug (100%), Manganese 3mg (100%)

MEGASSEUM FORTE is necessary for these people;

- Those who need bone and tooth formation.
- Those who decreased calcium absorption with menopausal symptom and old aged.
- Middle-aged, pregnant, and nursing women who are prone to debilitating bone and tooth health.
- Those who have a lack of vitamin D with diet.
- Vegetarian.
- Those who want to reduce the risk of osteoporosis.
- Anyone who is or has had an implant surgery.

WHY? MEGASSEUM FORTE!

- MEGASSEUM is a health supplement containing mainly seaweed calcium, which is rapidly absorbed by the body. The vitamin D helps absorb and activate calcium and magnesium, which is necessary for maintaining nerve and muscle function.
- MEGASSEUM helps the patient's gum and periodontal function maintenance and recovery before and after the implant surgery. It increases the success rate and recovery of implants, helps strengthen immunity and maintain the healthy life style.

Recommend this prescription for patients 2 weeks before the surgery and 3 months after the surgery.

