

CALCIUM-

Proper calcium intake is important for tooth health for several reasons. First, a lack of proper calcium intake can lead to a health problem called osteoporosis, which is a bone condition characterized by a loss of bone density and bone weakening. When osteoporosis affects the jawbone, it can make the jaw too weak to support the roots of teeth properly, which can lead to tooth loss.

A calcium deficiency, also called hypocalcemia, can also increase your risk of tooth decay and general tooth brittleness.

VITAMIN D DEFICIENCY-

Effects on dental treatment-

Infection—It is well known that vitamin D deficiency can impair the immune response to oral microbial infections, increasing the risk of oral infections and periodontitis. The antimicrobial protein synthesis by immune and epithelial cells as well as nonspecific immune responses are activated by vitamin D. Vitamin D also takes part in the specific immune response and suppresses the destructive effects of chronic periodontitis.

Bone metabolism—Vitamin D plays an important role in the metabolism of bone. In the bone, vitamin D stimulates the activity of osteoclasts and increases the production of extracellular matrix proteins by osteoblasts. Deficient vitamin D levels have been correlated with low bone density, pathologic fracture, and poor bone healing after dental surgery. In addition, case reports have suggested that low vitamin D levels can be correlated with failure of bone grafts and regenerative materials.

Periodontium—Because vitamin D has antimicrobial and anti-inflammatory effects, it has been shown that patients with low levels are more susceptible to developing gingival and periodontal disease. Because of the vitamin's positive influence on bone metabolism, periodontal patients with low levels of vitamin D have also demonstrated poor responses to periodontal surgery. Studies have shown that patients with a vitamin D deficiency in blood plasma have worse results (i.e., lower tissue attachment level and probing depth change) after periodontal surgery.

Dental implants—Since osseointegration of dental implants depends on bone metabolism, there is a possibility that low levels of vitamin D in the blood can negatively affect healing processes and new bone formation on the implant surface. The relationship between serum levels of vitamin D and osseointegration of dental implants is controversial and has been evaluated in a few case reports and animal studies. Most studies suggest that adequate serum levels of vitamin D can enhance the healing of peri-implant bone tissue. VDD is highly implicated with oral diseases and has been linked with a higher risk of tooth defects, caries, periodontitis and oral treatments failure.

Numerous studies have shown that vitamin D deficiency also increases the risk of dental decay. This is because vitamin D helps the body absorb calcium and phosphate — both of which are crucial for building and keeping strong tooth enamel. Without an adequate intake of vitamin D, our teeth are at risk for weakening and developing cavities.

Teeth are mineralized organs, surrounded by alveolar bone, and formed by three distinctive hard tissues: enamel, dentin, and cementum. The tooth mineralization process occurs parallel to skeletal mineralization, yet if mineral metabolism is disturbed then failures will occur similarly to those that occur in bone tissue. Vitamin D plays a key role in bone and tooth mineralization, and when levels are unregulated it can lead to the “rachitic tooth”, which is a defective and hypomineralized organ highly susceptible to fracture and decay.

HYPOTHYROIDISM-

Hemostasis - Patients with long standing hypothyroidism may have increased subcutaneous mucopolysaccharides due to decrease in the degradation of these substances. The presence of excess subcutaneous mucopolysaccharides may decrease the ability of small blood vessels to constrict when cut and may result in increased bleeding from infiltrated tissues, including mucosa and skin. Local pressure for an extended time will probably control the bleeding from the small vessels adequately.

Susceptibility to infection - Patient with hypothyroidism may have delayed wound healing due to decreased metabolic activity in fibroblasts. Delayed wound healing may be associated with an increased risk for infection because of the longer exposure of the unhealed tissue to pathogenic organisms. Hypothyroid patients are not considered to be immunocompromised.

Patients who have hypothyroidism are susceptible to cardiovascular disease from arteriosclerosis and elevated LDL. Before treating such patients, consult with their primary care providers who can provide information on their cardiovascular statuses. Patients who have atrial fibrillation can be on anticoagulation therapy and might require antibiotic prophylaxis before invasive procedures, depending on the severity of the arrhythmia. If valvular pathology is present, the need for antibiotic prophylaxis must be assessed.

Hypothyroidism

- Salivary gland enlargement
- Compromised periodontal health
- delayed bone resorption
- Macroglossia
- Glossitis
- Dysgeusia
- Delayed dental eruption
- Enamel hypoplasia in both dentitions, (being less intense in the permanent dentition)
- Anterior open bite
- Micrognathia
- Thick lips
- Mouth breathing

Hyperthyroidism

- Increased susceptibility to caries
- Increased susceptibility to periodontal disease
- Enlargement of extraglandular thyroid tissue
- Burning mouth syndrome
- Accelerated dental eruption
- Maxillary and mandibular osteoporosis
- Development of connective tissue diseases like Sjogren's syndrome or Systemic lupus erythematosus