

## Periodontal Disease and Nutritional Supplementation

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Periodontal Disease is a problematic culprit in approximately 2 out of 5 Americans. Up to 50% of the population over the age of thirty have some form of periodontal disease. Globally 40 to 90% affected [1].

Periodontal Disease is a breakdown of the periodontal ligament that holds the tooth in the alveolar bone in the maxilla and mandible. When the ligament is damaged atrophy of the area resulting in a risk of tooth loss and diseased tissue in the mouth. There is a plethora of different issues that can cause ligament damage and periodontium destruction [2].

Bodily organs are at risk to disease and damage when this breakdown occurs. There have been studies linking periodontal disease to heart, brain, vascular and connective tissues as well as diabetes mellitus, autoimmune diseases, and premature birth for pregnant women [3-5,8,9].

When diagnosed with periodontal disease at any stage it is important to investigate strong risk factors. Stressors linked can be genetic, systemic and or emotional. Systemically noting medications, medical diagnoses, emotional stress, dietary and environmental stressors should all be examined [6].

While undergoing therapy for periodontal disease with your dental care provider, getting a baseline blood panel is a good place to start to see where you may be lacking in nutrients. This will allow the patient to become more familiar with the importance of nutrients and how they work together to keep one healthy. Often times the first sign of nutrient deficiencies show up in the mouth. Getting your nutritional values through dietary foods on a daily basis is optimal, but when they are lacking, supplementation is needed to ensure a healthy homeostasis [8].

For connective tissue and immune function considerations levels of vitamins A, C, D, E, zinc along with others should be evaluated. They possess antioxidant properties. Antioxidant properties help with oxidative stresses, they scavenge for free radicals and help with inflammation [9,10].

Vitamin A deficiencies have been known to cause xerostomia, hyperkeratosis, and oral leukoplakia. Vitamin A aids in immune function and is an important antioxidant [10].

Vitamin C helps with the production of collagen. Collagen is an essential part of healthy periodontal tissue. Deficiencies of vitamin C can cause bleeding inflamed gum tissue called ascorbic acid gingivitis [6,9,10].

Vitamin D has shown through studies that people with periodontal disease have lower levels of vitamin D. Vitamin D benefits with anti-inflammatory properties [6,9,10].

Calcium is necessary for formation of teeth and bones. Supplementation improves outcomes of non-surgical periodontal therapy [9].

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Magnesium is beneficial for cell metabolism and bone formation [9].

Iron has antioxidant effect on the periodontium [9].

Zinc has antioxidant properties on the periodontium and lessens the impact of diabetes-induced periodontitis [9,10].

Omega-3s exhibit anti-inflammatory and antibacterial effects. A 2020 review of six studies shows that people who took omega-3 had healthy improvement in the measurements of periodontal disease pockets [10].

Co Q 10 deficiency has been associated to periodontal disease. While receiving periodontal therapy treatment and supplementing with CoQ10 showed reduction in inflammation more than just periodontal therapy alone. CoQ10 gels also have results in reduced gingival bleeding and elevated levels of antioxidant enzymes in the gingiva of people with periodontal disease [10].

Probiotic aids with gut health and the digestion. Having a healthy gut promotes health and immunity throughout the whole body. Probiotics have been known to help with the overgrowth of bacteria levels that aid in the progression of periodontal disease. Along with therapy there have been significant drops of the bacteria *P. gingivalis* to just receiving therapy alone [10].

Curcumin has been known to inhibit growth of *P. gingivalis*, a harmful bacteria found in periodontal infections [10].

Melatonin is a hormone the body makes naturally and is available in supplement form. Melatonin aids in the sleep-wake rhythm, immune system, and blood pressure regulation. Known properties are anti-inflammatory, antioxidant and anti-swelling. Studies have shown patients with periodontal disease have lower levels of melatonin in their saliva than healthy periodontal patients [6,7].

Finding a Certified Nutritional Counselor at your dental provider is a good place to start to help guide you in the right direction for a healthy outcome of periodontal therapy. Once diagnosed with periodontal disease getting your immune system strong will help with your prognosis of treatment.

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