

The Importance of Dietary Antioxidants for Maintaining Periodontal Health

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Abstract

Periodontal disease is a chronic inflammatory condition that affects the tissues surrounding and supporting the teeth. It is a major cause of tooth loss in adults and has been linked to a number of systemic health conditions, including cardiovascular disease, diabetes, and stroke. While poor oral hygiene is a major risk factor for periodontal disease, recent research has also highlighted the importance of dietary antioxidants in maintaining periodontal health. In this article, we will explore the role of dietary antioxidants in preventing and treating periodontal disease. Antioxidants are substances that protect cells from the damage caused by free radicals. Free radicals are unstable molecules that can damage cells and contribute to chronic diseases such as cancer, heart disease, and diabetes. Antioxidants neutralize free radicals and help prevent or repair this damage.

Keywords: Periodontal health • Dietary antioxidants • Chronic inflammatory condition

Introduction

Sources of antioxidants

There are many different types of antioxidants, including vitamins A, C, and E, beta-carotene, selenium, and flavonoids. These antioxidants can be found in a variety of foods, including:

- Fruits and vegetables: Berries, citrus fruits, tomatoes, leafy greens, and bell peppers are all good sources of antioxidants.
- Nuts and seeds: Almonds, walnuts, and sunflower seeds are all high in antioxidants.
- Whole grains: Brown rice, quinoa, and whole-wheat bread are all good sources of antioxidants.
- Herbs and spices: Turmeric, ginger, and cinnamon are all high in antioxidants.
- The Importance of Antioxidants for Periodontal Health

Periodontal disease is a chronic inflammatory condition that is caused by bacteria in the mouth. The immune system responds to these bacteria by releasing inflammatory molecules, which can damage the tissues surrounding the teeth. This damage can lead to gum recession, tooth loss, and bone loss. Research has shown that antioxidants can help reduce inflammation in the body, including inflammation in the gums. This can help prevent or treat periodontal disease by reducing the damage caused by inflammation. In addition to reducing inflammation, antioxidants can also help prevent the growth of bacteria in the mouth. This is important because the bacteria that cause periodontal disease thrive in an environment that is high in free radicals. Antioxidants can help neutralize these free radicals and create an environment that is less hospitable to these bacteria [1].

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Literature Review

Specific antioxidants and periodontal health

Some specific antioxidants have been shown to be particularly beneficial for maintaining periodontal health. These include:

Vitamin C: Vitamin C is essential for the health of the gums and can help prevent gum disease by reducing inflammation and supporting the immune system.

Vitamin E: Vitamin E is a powerful antioxidant that can help prevent oxidative damage to the gums and reduce inflammation.

Beta-carotene: Beta-carotene is a precursor to vitamin A and has been shown to be effective in reducing inflammation and preventing gum disease.

Flavonoids: Flavonoids are a group of antioxidants that are found in fruits and vegetables. They have been shown to have anti-inflammatory and antimicrobial effects, making them effective in preventing and treating periodontal disease.

How to incorporate antioxidants into your diet

Incorporating antioxidants into your diet is easy and can be done by eating a variety of fruits, vegetables, nuts, and seeds. Some tips for incorporating more antioxidants into your diet include:

- ▶ Eating a rainbow of fruits and vegetables: Aim to eat a variety of different colored fruits and vegetables each day to ensure that you are getting a range of antioxidants.
- ▶ Choosing whole grains: Whole grains are a good source of antioxidants, as well as fiber and other nutrients.
- ▶ Snacking on nuts and seeds: Almonds, walnuts, and sunflower seeds are all good sources of antioxidants and make for a healthy snack

Discussion

Periodontitis is a common chronic inflammatory condition that affects the tissues that support the teeth. It is among the most prevalent chronic illnesses that afflict people. The periodontal ligament (PDL) and alveolar bone gradually begin to deteriorate as a result of the infection brought on by a particular microbe or a collection of bacteria. This disease's destructive course seems to be influenced by the host's aberrant response to the biofilm organisms. Hyperinflammation, specifically the excessive generation of oxygen-free radicals by inflammatory cells, particularly polymorphonuclear leucocytes

(PMNLs), is a characteristic of periodontitis. The first line of defence against any microbial incursion is provided by PMNLs. There is a spike in oxygen consumption during microbial attacks that is nonmitochondrial and occurs at about 10 to 20 minutes [2,3].

Although specific, primarily Gram-negative anaerobic or facultative bacteria are thought to be the primary cause of the disease, it is also thought that an inappropriate host response to those microorganisms and their byproducts is what leads to the majority of periodontal tissue damage. It can lead to tooth loss, decreased masticatory function, changes in nutritional intake, and malnutrition status if this incorrect host response is not treated and the disease is not quickly identified and controlled [4].

Periodontal health refers to the health and well-being of the tissues that support and surround the teeth, including the gums, periodontal ligaments, and alveolar bone. Maintaining good periodontal health is important for overall oral health, as well as for systemic health, as periodontal disease has been linked to a number of chronic diseases, including heart disease, stroke, and diabetes [5].

Periodontal disease

Periodontal disease is a chronic inflammatory condition that affects the tissues surrounding and supporting the teeth. It is caused by the bacteria that live in the plaque that forms on teeth. When plaque is not removed through regular brushing and flossing, it can harden into tartar, which cannot be removed by brushing alone. Tartar build-up can cause inflammation of the gums, leading to the first stage of periodontal disease, gingivitis. Gingivitis is characterized by red, swollen, and bleeding gums. It is often reversible with good oral hygiene practices, such as regular brushing and flossing and professional cleanings by a dental hygienist. However, if left untreated, gingivitis can progress to more severe forms of periodontal disease, including periodontitis. Periodontitis is characterized by the breakdown of the tissues that support the teeth, including the periodontal ligaments and alveolar bone. This can lead to gum recession, tooth loss, and bone loss. Periodontitis is a chronic condition that cannot be cured, but it can be managed with proper treatment and maintenance [6].

Symptoms of periodontal disease

The symptoms of periodontal disease can vary depending on the severity of the condition. Some common symptoms include:

- ▶ Red, swollen, or tender gums
- ▶ Bleeding gums, especially when brushing or flossing
- ▶ Receding gums
- ▶ Loose or shifting teeth
- ▶ Pain or discomfort when chewing
- ▶ Persistent bad breath
- ▶ Preventing and Treating Periodontal Disease

The best way to prevent periodontal disease is to practice good oral hygiene. This includes brushing your teeth twice a day for at least two minutes each time, flossing daily, and using an antiseptic mouthwash. Regular visits to the dentist for cleanings and check-ups are also important for maintaining good oral health. If you have gingivitis or periodontitis, your dentist or periodontist may recommend additional treatments, such as scaling and root planing, which involves deep cleaning below the gumline, or periodontal surgery, which may be necessary to repair damage caused by periodontitis.

In addition to good oral hygiene practices and professional treatments, there are also lifestyle changes that can help improve periodontal health. These include:

Quitting smoking: Smoking is a major risk factor for periodontal disease and can make it harder to treat.

Eating a healthy diet: A diet that is rich in fruits and vegetables and low in sugar and processed foods can help support overall oral health.

Managing stress: Chronic stress can weaken the immune system, making it harder to fight off infections like periodontal disease.

Conclusion

Research has shown that there is a strong connection between periodontal health and systemic health. Periodontal disease has been linked to a number of chronic diseases, including heart disease, stroke, and diabetes. While the exact mechanisms behind this connection are not fully understood, it is thought that inflammation caused by periodontal disease may contribute to the development of these conditions. In addition to the link between periodontal disease and chronic diseases, there is also evidence to suggest that treating periodontal disease can improve systemic health outcomes. For example, a study published in the Journal of the American Heart Association found that treating periodontal disease in patients

Acknowledgement

None.

Conflict of Interest

None.

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