Science has shown a link between the *health of oral tissues* and *overall systemic health.*

The best source for new information about the connection between antioxidants, dental health, and systemic health — on the web.

A vital, emerging field of scientific and clinical study is the interrelationship of antioxidants, dental health and systemic health. The purpose of dentalANTIOXIDANTS.com is to present information about free radicals, antioxidants, oxidative stress, inflammation and oral and systemic disease, especially vascular disease. As research develops, this site provides links to important references in both the popular press and peer-reviewed scientific journals.

Science has pinpointed inflammation as a major factor in oral and systemic diseases. Inflammation—often caused by infection— speeds up oxidation in the body, including in the oral tissues. Other factors also increase oxidation, also called oxidative stress, including nicotine, alcohol, and even dental materials such as bleach or metals. Antioxidants counteract oxidation, and topical antioxidants applied to the oral tissues can help reduce the oxidation associated with inflammation from infection or harmful substances.

Oral Health Linked to Systemic Health

The link between inflammation, oxidative stress and systemic disease is an important area of interest in medicine, particularly in vascular medicine. Oral infection and periodontal disease have been identified as risk factors and studies published by the New England Journal of Medicine and Journal of the American College of Cardiology affirm the link between periodontal disease and vascular disease, including heart attack and stroke. Other diseases associated with inflammation include rheumatoid arthritis, diabetes, Alzheimer's disease, miscarriage, and more.

Oxidative Stress in the Oral Tissue

When there are too many free radical molecules, or "oxidants," in the body, the imbalance is called "oxidative stress." In the oral cavity, oxidative stress is associated with infection or inflammation of the gums (gingivitis) and other soft tissues (periodontitis). But factors including alcohol consumption, exposure to nicotine, dental procedures, bleaching agents, dental cements, composite fillings and metals used in dentistry also lead to oxidative stress. Inflammation and sensitivity around sites of dental work or foreign materials such as implants may be due to oxidative stress. And oxidative stress in the oral cavity can be a major contributor to systemic oxidative stress—which may lead to chronic diseases, such as rheumatoid arthritis or vascular disease including heart attack or stroke.

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Free Radicals

Just what is a "free radical"? It's an unstable molecule with an unpaired electron. In a process called oxidation, the unpaired electron "steals" electrons from other molecules, creating new unstable free radicals. Sometimes free radicals are called "oxidants" because they cause the oxidation process.

Free radicals occur naturally in the body but can be increased by environmental and lifestyle factors, such as stress, pollutants or poor diet, and other substances, such as nicotine or alcohol. The continual free radical – antioxidant balancing process happens in everyone even those whose oral tissue appear healthy. In the oral cavity, dental procedures and materials such as bleaching agents, dental cements and composite fillings can also increase the level of free radicals.

Antioxidants

Antioxidants are molecules that counteract the process of oxidation. The large, complex antioxidant molecules can bond with the unpaired electrons of free radicals, effectively neutralizing the oxidation process. Some of the most effective antioxidants come from fruits and vegetables; dietary antioxidant supplements are also available. For many people, these sources of antioxidants are not enough.

Another highly effective way of reducing the effects of free radicals is topical antioxidants, which are applied and not ingested. Research has already proven the effectiveness of topical antioxidants on skin cells. New research is demonstrating that combinations of antioxidants can be applied topically to oral cells to neutralize free radicals in oral tissues.