

# The Perio/Heart Connection Report

## The Heart - Gum Disease Connection

The evidence linking periodontitis to heart disease began in 1989 by a study in Finland, which observed that patients who had heart attacks had more severe oral conditions including periodontal disease and tooth decay. Several studies since then there have shown that a preexisting periodontal disease results in an increased risk for a heart attack or stroke.

These studies suggest that periodontal disease is not only associated with cardiovascular events like heart attack and stroke, but it is also associated with subclinical evidence of atherosclerosis including thickening of the vessel wall. These controlled studies indicate that periodontitis remains an independent contributor to heart disease. Caution is in order because these associations do not establish causality.

Recent evidence shows the relationship between gum disease and heart disease by demonstrating the presence of periodontal pathogens (bacteria & microorganisms) within the atheromatous plaque lesions of the vessels. We have long known that gum disease is associated with transient exposures of the bacteria into the blood (bacteria) and this is the reason why antibiotics are used as a prophylactic prevention prior to dental treatment for patients with heart murmurs and valve problems. New evidence is suggesting that these organisms can lodge in the vessel walls and persist. Thus the bacteria is associated with the plaques within the vessels themselves.

Other new information links gum disease with systemic inflammation, as measured by the production of liver proteins such as C-reactive protein. This protein has been known to be a risk factor for myocardial infarction or diagnosis of peripheral artery disease in otherwise healthy individuals. Mild elevations in C-reactive protein appear to confer risk for these cardiovascular complications. New research links gum disease as one potential cause for these elevations in this protein, thus suggesting another link between gum disease pathogens and heart disease risk.

There is also an association with known cardiovascular risk factors that are involved in systemic inflammation, and there is also evidence that the organisms are within the plaques. This represents a body of circumstantial evidence suggesting that this may be directly involved in the pathology associated with cardiovascular disease.

Yet another strong theory lies in the arena of nutrition. They suggest that the health of collagen protein fibers in vascular walls determines the course and progression of vascular disease. With vascular wall damage occurring as a consequence of 1)- homocystein (an amino acid), or 2)- oxidative damage from molecules called "free radicals," and with a concomitant nutritional deficit of vitamin C, it leaves the vascular wall unstable and in disrepair. The body's natural response is to "repair" the vascular wall lesions by using sticky lipoprotein(a) and LDL cholesterol to patch these "holes" or lesions, much like a scab would repair a wound on the

external skin. Over time, and uncorrected or uncontrolled, this builds up to produce atherosclerosis and heart disease. Antioxidant vitamins prevent oxidative damage to cell walls and cholesterol molecules. Vitamin B protects against homocystein damage. Vitamin C builds strong connective tissue which keeps in good repair the vascular wall.

Because the health of periodontal tissues also depend upon having strong connective and elastic fiber proteins, and Vitamin C is critical for the hydroxylation of proline amino acid (the primary amino acid of collagen) it stands to reason that perhaps another connection between gum disease and heart disease rests in the nutritional status and repair of the connective tissue components that are inherent within both gum tissue and cardiovascular system tissues.

Regardless of the root causes for cardiovascular diseases, it stands to reason that good nutrition and good oral hygiene control of bacterial inflammation in the mouth, are essential ingredients to help lower risk factors and prevent heart disease and its complications. Removing the oral bacteria meticulously well on a daily basis, and having regular periodic professional cleanings and dental checkups, as well as providing oneself with a diet high in necessary nutrients, will help reduce unnecessary risk factors that can lead to heart disease and stroke.