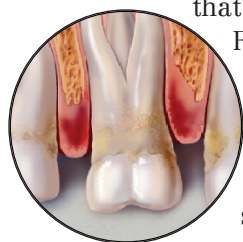


Helping Patients Understand the Suspected Link Between Gum Disease and Heart Attack/Stroke

As your health-care providers, we believe that patient education is one of the best ways we can help you stay healthy. Therefore, we would like to share with you that there is a growing body of research that suggests that infection from the oral cavity may increase the risk and complications for a number of serious diseases and conditions. Heart disease and stroke are among these. Although this research is relatively new and there are a number of questions which remain unanswered at this time, it does appear that there may be a link between gum disease and increased risk for heart disease and stroke.

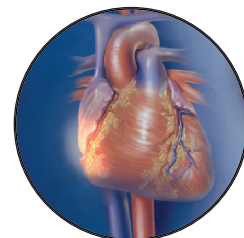


Research to better understand the relationship between gum disease and cardiovascular diseases such as heart disease and stroke is currently underway. While we wait for the findings of this research, it is important to identify those individuals who may be at greater risk for heart disease or stroke because of undiagnosed and untreated gum infection. First, it is important to point out the risk factors for heart disease and stroke which medical research has already identified.

What are the most highly recognized risk factors for heart disease or stroke?

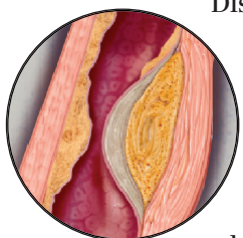
The American Heart Association has identified certain factors that increase the risk of heart and blood vessel diseases. These include the following:¹

- Increasing age
- Family history of premature coronary artery disease
- High blood pressure
- Low HDL cholesterol
- Obesity and overweight
- African American ethnicity
- Alcohol
- Male gender
- Tobacco smoke
- High LDL cholesterol
- Diabetes
- Physical inactivity
- Stress



It has been estimated that each year 250,000 sudden deaths from coronary heart disease occur before the victim reaches the hospital. For many of these victims there was no previous recognition of cardiovascular diseases;² therefore, it is extremely important that you discuss these risk factors and your specific risk profile with your medical care provider. It is also significant that of the 1.5 million heart attacks and 600,000 strokes that occur in the U.S. each year, almost half will affect people who appear to be healthy with normal or low cholesterol levels.³ As a result, scientists are now searching for other risk factors for heart disease and stroke. Whether gum disease is categorized as a risk factor for heart disease and stroke remains undetermined at this time. So what do we already know about how gum infections may affect cardiovascular health?

How might gum disease affect cardiovascular health?



Diseases of the heart and blood vessels are most commonly related to thickening of the walls of arteries, a condition called atherosclerosis. It is believed that atherosclerosis results from damage to the artery wall that, in turn, results from inflammation within the artery wall along with deposits of fat. The combination of fat deposits and artery wall inflammation leads to the development of an "atheroma" or plaque.

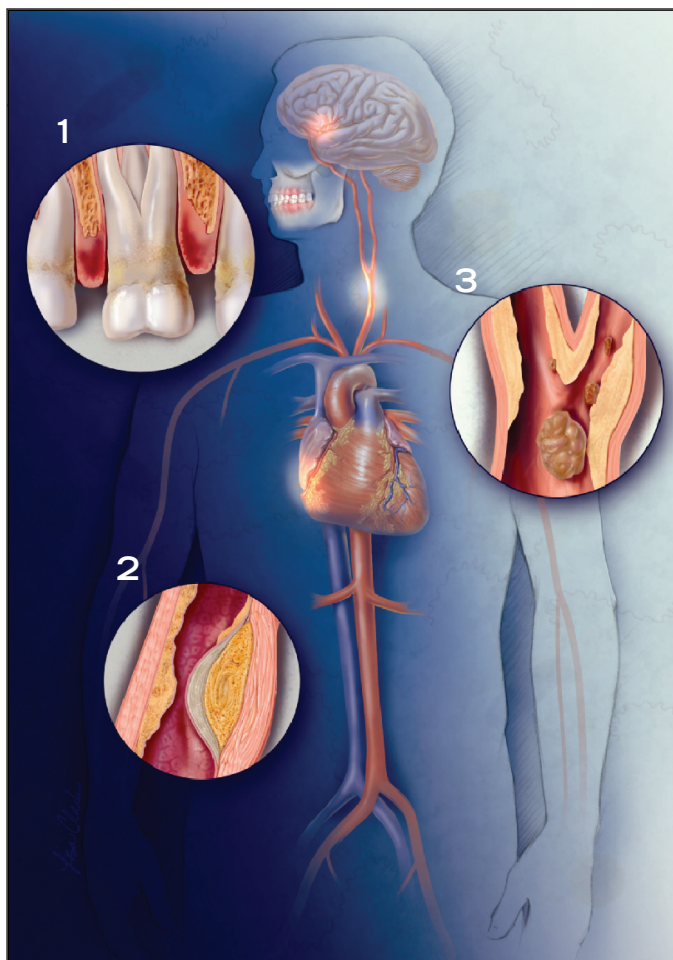
Part of this inflammatory damage is from infections of various sources. Many researchers believe that bacteria from gum infections (illustrated in circle 1) could be one of the infec-

tions involved with this injury to the artery wall. Bacteria cause an inflammatory tissue response that allows the bacteria to enter the blood stream from the gum pockets. Simply put, when your gums bleed, a path for bacteria to enter your blood stream is created. This bacteria can move through blood vessels to distant sites in the body, including the heart. When this happens the artery becomes less elastic and the inside of the artery becomes smaller and smaller (illustrated in circle 2). What happens next is small blood clots may form (illustrated in circle 3) and arteries get clogged which causes blood flow to be cut off. This results in a heart attack or stroke depending on the location of the blood clot. The role that gum disease plays in this process is an area of research which is under investigation at this time. In the meantime it is important for you to recognize the following warning signs of gum disease.⁴

What are the warning signs of gum disease?

- Gums that bleed during brushing or eating
- Increased space that starts to develop between teeth
- Gums that feel swollen or tender
- Gums that are receding (pulling back from your teeth)
- Persistent bad breath
- Pus between your teeth and gums
- Changes in the way your teeth fit together when you bite
- Sores in your mouth

You should discuss warning signs of gum disease and risk factors for heart disease with your dental- and medical-care providers, and it is recommended that adults be evaluated by their dentist or dental hygienist for periodontal disease. More information about gum disease and its relationship to cardiovascular disease may be found on the Web site of the American Academy of Periodontology, which may be accessed at www.perio.org. More information on heart disease and stroke may be accessed from the American Heart Association at www.americanheart.org; the Web site of the National Heart, Lung and Blood Institute at www.nhlbi.nih.gov/index.htm; and from the American College of Cardiology at www.acc.org.



References

1. American Heart Association. Risk factors and coronary heart disease. Available at: <http://www.americanheart.org/presenter.jhtml?identifier=500>. Accessed Dec 13, 2005.
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Adult and Community Health. Cardiovascular Health: A Public Health Action Plan to Prevent Heart Disease and Stroke. Section 1. Heart Disease and Stroke Prevention: Time for Action. Myths and Misconceptions. June 2005. Available at: http://www.cdc.gov/cvh/Action_Plan/full_sec1_myths.htm. Accessed Dec 11, 2005.
3. Ridker PM. Cardiology Patient Page. C-reactive protein: A simple test to help predict risk of heart attack and stroke. *Circulation*. 2003;108(12):e81-e85.
4. American Academy of Periodontology. Take a self-evaluation quiz. Available at: <http://www.perio.org/consumer/4a.html>. Accessed Dec. 12, 2005.