



▶ A Review of Specific Oral Health Diseases Associated with Diabetes Mellitus



▶ What's Clicking? Indicators for Oral Diseases Associated with Diabetes

From Your Dentistry for Diabetics (DFD) Professional  
Share this newsletter with other health professionals in your office

Pass it on!

# Informed

*The truth about the diabetic & oral care*

## Identifying Oral-Systemic Connections

As we all know, diabetes has far-reaching effects on the human system, contributing to retinopathy, nephropathy, neuropathy, macrovascular diseases, and inhibited wound healing.

Due to a growing base of research, many physicians and diabetic care specialists are now acknowledging a relationship between oral health and systemic health for the diabetic patient.

However, it may still be perplexing to identify the

relationships between various diseases of the oral cavity and the systemic health of the individual.

In the following pages, we will review the top four oral health diseases associated with diabetes mellitus and discuss causal relationship between the two (if there is one). Lastly, we will review recommended treatments for each.



### Did You Know?

Diabetic patients with poor metabolic control are many times more vulnerable to oral and systemic health complications than well-controlled patients.

# A Review of Specific Oral Health Diseases Associated with Diabetes Mellitus

## XEROSTOMIA (Dry Mouth)

While not often the first oral disease referred to in association with diabetes mellitus, xerostomia (according to research) may have systemic impact far beyond the immediate discomfort typically associated with the disease.

Xerostomia, more commonly known as “dry mouth”, develops in the diabetic patient when the salivary glands of the mouth slow or cease production of saliva, due to degenerative effects of diabetes. While reduction in salivary production may appear minor on the surface, its impact may be severe. Reduction in salivary supply may result in increased microbial count and plaque build up.

For systemically healthy individuals, the increase in bacteria and plaque may result in a rise in dental caries (a.k.a. cavities), as well as onset of gingivitis. However, for the patient living with diabetes mellitus, xerostomia may speed the advance of periodontal disease, contribute to mouth lesions and ulcers, inhibit the patient’s ability to wear prosthetic teeth.

What may be far worse, is diabetes may also affect blood glucose levels.

### **Etiology of xerostomia and worsening glucose management**

The peptide, salivatan, found in human saliva, is believed to help lower blood sugar after meals and to aid in blood sugar normalization. This occurs through glucose-stimulated release of insulin. When salivary function is inhibited, glucose levels may rise inexplicably and make management more difficult (perhaps creating greater dependence on medication).

In addition, research has shown that many medications used to treat diabetic complications may trigger further degeneration of salivary glands.<sup>1</sup>

**Research has shown that many medications used to treat diabetic complications may trigger further degeneration of salivary glands.**

### **Recommended Treatment**

Managing xerostomia can be achieved with saliva substitutes, salivary stimulants and other dental therapies, which may also help to prevent future dental caries.

All oral treatments should be performed in collaboration with a dentist trained the care of the diabetic individual.

## CANDIDA (Oral Thrush)

As you may already know, Candida Albicans is a common microorganism within the oral cavity. Under normal circumstances, the candida albicans organism is harmless. However, when diabetes mellitus is present (especially when combined with poor glucose management), the it may multiply quickly. At the same time, due to altered response by neutrophils, monocytes and macrophages — microbial killing is inhibited.

### **Check it out**

**While glycemic control remains the first step in preventing oral health disease, regular visits to a dentist trained in diabetic care is also highly important.**

**Without regular check ups and deep probing oral care to remove plaque and fight infection, patients with diabetes increase their risk of contracting oral diseases — even with well-managed glyce-mic levels.**

**A study performed on 263 subjects with type 1 diabetes (13-18 years of age) had a 13.6% incidence of periodontal disease. By 32 years of age, prevalence increased to 39%.**

**Suggesting that the longer the patient lives with diabetes, the greater the risk of developing oral complications.**

These circumstances may triggered uncontrolled growth of fungal organisms and spread of the disease Candida. The disease presents as a white or yellow film on the tongue and palate that covers painful lesions and sores. It may also trigger burning mouth syndrome, a painful burning sensation throughout the oral cavity.

From a systemic point of view, oral candida may inhibit the patient's ability to eat a healthy diet, and may most notably inhibit consumption of roughage and citrus foods that may cause discomfort or pain to affected areas.

### **Recommended treatment**

Oral candida should be treated immediately with anti-fungal medication, administered by a qualified dentist. It is also highly recommended that the treating dentist consult carefully with the patient's primary physician to ensure the affects of other treatment and medications are considered before oral treatment occurs.

### **ORAL GINGIVITIS**

Oral Gingivitis is a mild form of oral disease, limited to the gingival tissue within the mouth. Gingivitis often develops when plaque builds up on teeth at the gum line. If diagnosed early, treatment consists of

simple scraping of bacterial plaque and in some cases antimicrobial treatment.

The greatest impact from gingivitis may come if it is left untreated. When that is the case, gingivitis may quickly progress to periodontal disease.

### **PERIODONTAL DISEASE**

Sometimes called the "sixth complication of diabetes", individuals living with diabetes are 2.8—3.4 times more likely to develop periodontal disease.<sup>2-8</sup> This is especially true in those patients with marginal-to-poor control. Periodontitis may worsen diabetes due to over-response by pro-inflammatory cytokines.

In addition, people with periodontal disease are **270% more likely to suffer a heart attack** than those with healthy gums. That statistic is compounded by the fact that 2/3 of all people with diabetes die of cardiovascular-related issues.

Periodontal disease is caused by bacterial infection that attacks soft tissue, destroys attachment fibers and alveolar bone that hold teeth in place. Teeth may become unstable or detach completely. As the disease reaches advanced stages, gums separate from teeth to form pockets. These pockets, in turn, fill with bacteria-building plaque. And infection and inflammation may increase. This may have a confounding and sometimes devastating effect on glycemic control.

### **Recommended Treatment**

The end point of clinical therapy is the elimination of inflammation. Therefore, dentists trained in the unique health risks associated with diabetes will work to affect both local and systemic outcomes. Treatments may vary based on the stage of periodontal disease. However, scaling and root planing are standard treatment for perio

### **Did you know?**

**Individuals with diabetes type 1 & 2 are 2.8—3.4 times more likely to contract periodontal disease. They develop xerostomia more often. They are up to 11 times more likely to incur alveolar bone loss.**

**All of which affects the patients ability to manage their diabetes both through diet and glucose control.**

disease in order to achieve debridement of bacteria and calculus, and to removal of infected cementum and dentin.

In addition a shift in the microbial population is desirable in order to reduce inflammatory response and risk of systemic infection. The oral health practitioner will focus on decreasing pocket depth, smoothing root surfaces and reducing inflammatory levels. To achieve systemic health goals, additional treatment may be required – including antibacterial fiber placement in sub gingival layers to prevent bacterial growth.

## IN SUM

Each of these oral diseases brings with it an added risk to the overall health of the patient living with diabetes, suggesting that proper oral care should be a key component in the overall treatment and care of the patient. Because for all patients (those who are systemically healthy, as well as those living with diabetes, the quality of our lives is directly related to the health of our teeth.

## What's Clicking? Indicators for Oral Diseases Associated with Diabetes

Below is a listing of short list of visible oral health disease indicators. When patients present with any of the following, it is recommended the treating physician refer the patient to a diabetically-aware dentist (such as a *DentistryForDiabetics*-certified dentist).

To locate a *DentistryForDiabetics*-certified dentist in your area, contact the dentist who sent you this newsletter or visit

[www.DentistryForDiabetics.com/directory/index.php](http://www.DentistryForDiabetics.com/directory/index.php)

- Complaint by patient that he or she is having trouble swallowing

1. I. Kimua, et al. Reduction of incretin-like salivatin in saliva from patients with type 2 diabetes and in parotid glands of streptozotocin-diabetic BALB/c mice . *Daibetes, Obesity and Metabolism*, 2001. Vol. 3, No. 4, 254 - 258
2. Cutler CW, Machen RL, Jotwani R, Iacopino AM. Heightened gingival inflammation and attachment loss in type 2 diabetics with hyperlipidemia. *J Periodontol* 1999;70:1313-1321.
3. Bridges RB, Anderson JW, Saxe SR, Gregory K, Bridges SR. Periodontal status of diabetic and nondiabetic men: Effects of smoking, glycemic control, and socioeconomic factors. *J Periodontol* 1996;67:1185-1192.
4. Collin HL, Uusitupa M, Niskanen L, et al. Periodontal findings in elderly patients with non-insulin dependent diabetes mellitus. *J Periodontol* 1998;69:962-966.
5. Moore PA, Weyant RJ, Mongelluzzo MB, et al. Type 1 diabetes mellitus and oral health: Assessment of periodontal disease. *J Periodontol* 1999;70:409-417.
6. Tervonen T, Karjalainen K, Knuutila M, Huuonen S. Alveolar bone loss in type 1 diabetic subjects. *J Clin Periodontol* 2000;27:567-571.
7. Campus G, Salem A, Uzzau S, Baldoni E, Tonolo G. Diabetes and periodontal disease: A case-control study. *J Periodontol* 2005;76:418-425.

- Out-of-control glycemic levels with unknown source
- Dry mouth
- Cracked lips, including corners of mouth
- Loose teeth
- Receding gums
- Pain when chewing
- Red, inflamed gums
- Bleeding gums
- Complaints prosthetic teeth do not fit
- Oral Candida fungus
- Oral lesions

From:

To:

|  |  |
|--|--|
|  |  |
|--|--|