



▶ Healthcare Professionals Agree - Diabetes is a System Wide Event



▶ Control and Care are Key in Preventing Periodontal Disease



▶ What's Clicking? Lifestyle Factors — Risk and Control in Oral Care

From Your Dentistry for Diabetics (DFD) Professional
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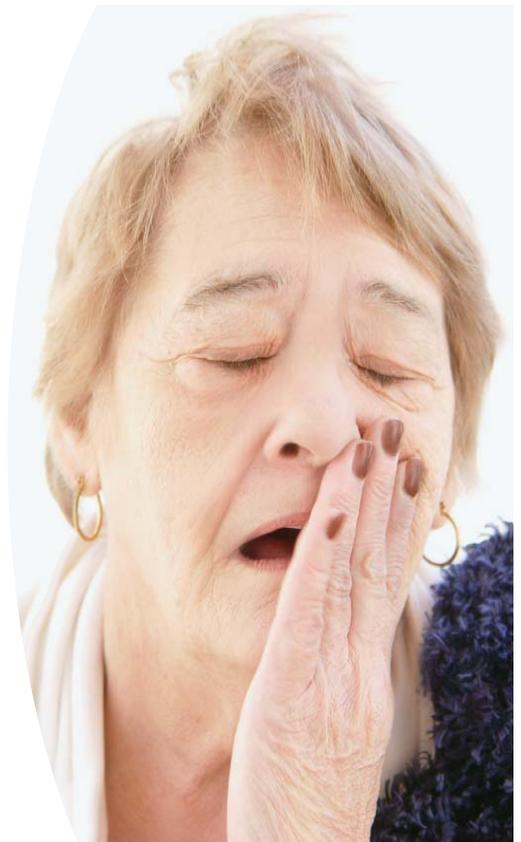
Informed

The truth about diabetic & oral care

What You Don't Know... ... May Hurt Your Patients

As a medical professional treating diabetic patients, you are expected to know virtually everything about EVERYTHING for the health and welfare of your patients and clients. The consequences of not having the answers can range from a patient's loss of confidence in you to ancillary disease and even early death (not to mention litigation). And yet when you consider the range of topics you need to understand and treat, it is clear that it is not humanly possible for one diabetic counselor, one nurse, or one doctor to be an expert in every facet of diabetes. That is why having a

network of reliable resources at your disposal is key to providing the best care possible for diabetic patients. This newsletter is designed to supply you with up-to-date information related to diabetes and oral health – from the latest studies to proven treatments, to firsthand knowledge handed down by some of the world's foremost authorities on diabetes and oral health.



Did You Know?

According to multiple studies, there is little difference between the bacteria present in the peridontium of diabetic patients with periodontal disease and perio bacteria in non-diabetics. Yet diabetic patients (both type 1 and type 2) contract gingivitis and periodontal disease at a much higher rate than non-diabetics — suggesting that the difference may lie in the inhibited immune response of diabetics.

Healthcare Professionals Agree - Diabetes is a System Wide Affliction

What healthcare professionals ultimately concur on, given the preponderance of evidence, is that diabetes mellitus is a system wide affliction with many inter-related factors. Local problems are not just local. Complications in one area can affect the health of the overall system. Infection in the periodontium, for example, can throw a patient's immune response out of balance and trigger ketoacidosis (even in Type 2 patients). While chronic inflammation anywhere in the body over an extended period, can affect both local and system host health, further stressing the patient's immune response and triggering mediator expression, oxidative stress and LDL oxidation.

There are many complications associated with diabetes. "Classic" complications include retinopathy, nephropathy, neuropathy, macro vascular disease and altered wound healing. However, periodontitis may just be the sixth complication, according to a growing body of evidence.

While at first glance, oral health may be dismissed as a "lesser" issue when compared against heart disease and retinopathy, researchers might disagree. According to a summary study performed at the University of Texas, periodontal disease has a reciprocal (and destructive) relationship with diabetes. On the one hand, diabetics are 2.8 – 3.4

times more likely to contract periodontal disease than are non-diabetics (according to a multivariate risk analysis). While on the other, inflammation and infection that occur during periodontitis can create a "chronic inflammatory burden" at the system level. Whole bacterial pathogens can enter local host tissue where an area of the epithelial layer has been breached. According to experts, perio pathogens have evolved virulence factors that allow for direct tissue invasion. It is this insidious quality that can deliver serious impact to the overall system, exposing other tissue to gram-negative pathogens, LPS, etc. with the potential to trigger mediator expression and inflammation that can affect the integrity of other organs.

1. Paquette D.W., Madianos P., The Concept of "Risk" and the Emerging Discipline of Periodontal Medicine; *The Journal of Contemporary Dental Practice*, 1999. **Vol. 1 No. 1**
2. Loe H, Periodontal disease: The sixth complication of diabetes mellitus; *Diabetes Care*, 1993. **Vol. 16** (Suppl. 1), 329-334
3. Mealey B.L., Oates T.W., Diabetes mellitus and periodontal disease; *J Periodontol*, **Vol. 77**. 1289-1298
4. Brian L. Mealey* and Thomas W. Oates*, AAP Commissioned Review: Diabetes Mellitus and Periodontal Disease; *J. Periodontol*, Aug. 2006. **Vol. 77 No. 8**, 1292-1293

Control and Care are Key in Preventing Periodontal Disease

Of concern to many diabetic patients, beyond the fact that they are much more likely to contract periodontitis than their non-diabetic kin, is that the severity and extent of periodontitis is multiplied by diabetes.¹⁻⁴ One of the best known studies in the area of diabetes and periodontitis took place among the Pima Indians of Arizona, a population with the highest occurrence

of type 2 diabetes in the world. Researchers followed a group of 701 type 2 diabetic Pimas for two years and found they had 4X greater incidence of alveolar bone loss than their non-diabetic counterparts, who also had periodontitis.

Did You Know?

Even in adolescence, diabetics are susceptible to periodontitis at a much higher rate than their non-diabetic counterparts, according to a study published in the Journal of American Dental Association.

13.6% of diabetic youngsters between the ages of 13 and 18 were found to have periodontal disease. While for non-diabetics, the incidence was less than 3%!

Those findings have been confirmed by multiple studies, including a cross-sectional study of patients who had type 1 diabetes for a mean duration of 16.5 years. Subjects with poor glycemic control had more interproximal attachment loss and bone loss than well-controlled subjects.⁵ The result of bone and attachment loss can be tooth loss, ongoing infection and associated inflammation that impacts the wellbeing of the overall system.

That is not all, though, according to studies comparing diabetics displaying poor glycemic control and those with good glycemic management, even those with good control showed a higher incidence of periodontal disease over time.

In Sum: Control and Care are Key

The data appears indisputable that diabetics are more vulnerable to periodontal disease than non-diabetics. It should not be forgotten, that “attachment loss” and

“alveolar bone loss” have real and terrible affects on patients. With these effects can come pain, extended inflammation, tooth loss and disfigurement.

When the negative effects of diabetes are coupled with the rate at which diabetics contract periodontitis versus non-diabetics, it is clear that diabetic dentistry is a necessity within a diabetic treatment program.

1. 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.
2. 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.
3. Tervonen T, Karjalainen K, Knuutila M, Huuononen S. Alveolar bone loss in type 1 diabetic subjects. J Clin Periodontol 2000;27:567-571.
4. Campus G, Salem A, Uzzau S, Baldoni E, Tonolo G. Diabetes and periodontal disease: A case-control study. J Periodontol 2005;76:418-425.
5. Safkan-Seppala B, Ainamo J. Periodontal conditions in insulin-dependent diabetes mellitus. J Clin Periodontol 1992;19:24-29

What's Clicking? Identifying Lifestyle Factors — Risk and Control in Oral Care

Diabetes care is a highly complex disease that requires many issues, beyond glycemic control, be addressed.

While glycemic control has been proven to be the foremost preventative measure diabetics can take against gingivitis and periodontal disease, lifestyle choices also play a crucial role in the success or failure of a diabetes management program. This is true for oral health as well as overall health. Not surprisingly, many of the same risk factors associated with medical complications affect oral health, as well. And while treating periodontitis, gingivitis, xeristoma, candidiasis, etc. is the purview of dentists, periodontists and oral surgeons, identification of increased risk by physicians and other medical personnel, and referral to

a diabetic dentist can help avoid serious and irreversible oral damage.

Smoking

Lifestyle risks include smoking or use of tobacco products. Tobacco use inhibits the body’s immune response, enabling sub gingival micro flora bacteria to flourish with gum tissue and may **increase the risk of developing periodontal disease as much as eight percent.**¹

Irregular dental examinations

While glycemic control remains the first action diabetics should take in preventing oral health disease, regu-

**You May
have
Suspected**

According to new research by investigators at Wake Forest University School of Medicine, smoking may increase the risk of contracting diabetes by more than 10 percent. The surprising finding came when researchers examined the relationship between smoking and diabetes among participants in the Insulin Resistance Atherosclerosis Study (IRAS). Twenty-five percent of the participants who smoked and did not have diabetes when the study began had developed diabetes by the five-year follow-up, compared to 14 percent of the participants who had never smoked, according to Capri G. Foy, Ph.D., and her colleagues at the national IRAS coordinating center at the School of Medicine, Wake Forest.

lar visits to a dentist trained in diabetic care is of equal importance. Without regular check ups and deep probing oral care to remove plaque and fight infection, diabetic patients increase their risk of contracting perio diseases — even with well-managed glyceimic levels.

Having a **family history** of gum disease (in both diabetic and non-diabetic family members) increases the patient’s **disease by 30 percent!**

The **longer the patient lives with diabetes**, the greater the risk of developing oral complications. A study performed on 263 Type 1 diabetics (13-18 years of age) had a 13.6% incidence of periodontal disease. By 32 years of age the prevalence **increased to 39%.**²

While not a lifestyle choice, the overall effect of **drug interaction** should be considered when caring for diabetic patients. Common medications used in oral care such as steroidal treatment for Lichen planus can lead to hyperglycemia, if not managed carefully. While minocycline, a common prescription for acne and rheumatoid arthritis, can cause gums and teeth to appear blackish-blue in color. Cyclosporine (used following organ transplants) may also cause gingival overgrowth. In addition, there are more than **400 medications** in use today that produce dry mouth, which can be damaging to the gum tissue, in-

cluding periodontal disease and tooth decay. **Further adding to the challenges of managing the oral and medical health in diabetic patients.**

In sum, diabetes is a chronic illness, requiring ongoing medical and oral care, and preventive measures to avoid acute complications and to reduce the risk of long-term complications.

There are many factors that affect the health and wellbeing of the diabetic patient. While glyceimic control is first and foremost a management priority, lifestyle choice and associated patient self-management education are paramount. Additionally, awareness of treatment changes by all practitioners treating the diabetic will help prevent undue risk and will enable increased glyceimic control.

By working together, sharing patient histories and treatment changes, medical and oral

health care professionals can preserve the health of the patient while reducing the individual care load held by each practitioner.

A Sad Truth

A 2004 JAMA report found that:

- Only 37% of adults with diagnosed diabetes achieved an A1C of 7%
- Only 36% had a blood pressure 130/80 mmHg
- just 48% had a cholesterol 200 mg/dl.

Most distressing was that only **7.3%** of diabetes subjects **achieved all three treatment goals.**

1. Meinberg TA, Canarsky-Handley AM, McClenahan AK, Poulsen DD, Marx DB, Rheihardt RA, Outcomes associated with supportive periodontal therapy in smokers and nonsmokers. J. Dental Hygiene. 2001 Winter;75(1):15-9.
2. Cianciola L, Park B, Bruck E, Mosovich L, Genco R. Prevalence of periodontal disease in insulin-dependent diabetes mellitus (juvenile diabetes). J Am Dent Assoc 1982;104:653-660.

Check it Out:

To determine whether or not a patient has pre-diabetes or diabetes, a Fasting Plasma Glucose Test (FPG) or an Oral Glucose Tolerance Test (OGTT) is required. A fasting blood glucose level between 100 and 125 mg/dl signals pre-diabetes on an FPG test. A person with a fasting blood glucose level of 126 mg/dl or higher has diabetes. An oral glucose tolerance test measures the level of glucose after a fast and two hours after drinking a glucose-rich beverage. If the two-hour blood glucose level is between 140 and 199 mg/dl, the patient has pre-diabetes. If the two-hour blood glucose level is at 200 mg/dl or higher, the patient has diabetes.

From:	To:
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