

Individuals with complications of diabetes are at higher risk of gum disease, Danish study finds

September 10 2024



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Gum disease is more common in individuals with microvascular complications of diabetes, new research being presented at the annual

meeting of the European Association for the Study of Diabetes ([EASD](#)) in Madrid, Spain (9-13 September) and published in *The Journal of Dental Research* has found.

Periodontitis is a chronic inflammatory disease that affects the gums and the bones supporting the teeth. It is caused by the accumulation of bacterial plaque, and if left untreated, it can lead to the destruction of the tissues that hold the teeth in place, ultimately resulting in tooth loss.

"This tooth loss can affect essential functions like chewing and speaking, while also affecting [self-esteem](#)," says researcher Dr. Fernando Valentim Bitencourt, from the Department of Dentistry and Oral Health, Aarhus University, Aarhus, Denmark.

"As a result, periodontitis can significantly reduce a person's quality of life, leading to difficulties with nutrition, communication, and social interactions.

"Understanding who is at higher risk, such as individuals with diabetes complications, is crucial for early intervention and prevention of these far-reaching effects."

Some studies have found that individuals with microvascular complications of diabetes such as retinopathy (damage to the blood vessels of the retina) and neuropathy (damage to the nerves) are at higher risk of periodontitis.

However, the results have been inconsistent and the studies have been small and have failed to take into account important confounding variables—factors such as sociodemographic status, smoking and diabetes duration—that can affect their outcome.

In addition, the joint impact of microvascular complications and

dyslipidemia (unhealthy levels of blood fats) has not been evaluated.

To address this, Dr. Bitencourt and colleagues from Steno Diabetes Center Aarhus and National Dental Centre Singapore, analyzed data on more than 15,000 individuals from the Health in Central Denmark study of people with type 2 diabetes.

The analysis involved 15,922 individuals (with a mean age of 63.7 years) with type 2 diabetes who had completed a questionnaire and a comprehensive laboratory examination.

The results, which were adjusted for potential confounding variables including sociodemographic status, lifestyle habits (including smoking and physical activity levels) and health conditions, found a clear link between microvascular complications and moderate/severe cases of periodontitis.

Individuals with diabetic retinopathy were 21% more likely to have moderate/severe periodontitis than those without complications of diabetes.

Diabetic neuropathy was associated with a 36% increase in risk of having severe [gum disease](#). When the participants had both [diabetic retinopathy](#) and neuropathy, their likelihood of having moderate/severe periodontitis was 51% higher than in those without complications of diabetes.

The presence of dyslipidemia further increased the odds of having moderate/severe periodontitis in those with diabetes complications.

Dr. Bitencourt says, "When diabetes is poorly controlled, high blood sugar levels can lead to inflammation which, over time, can affect the eyes, leading to retinopathy, or the nerves in the feet, causing

neuropathy, or the gums, contributing to the development of severe periodontitis.

"Dyslipidemia, which is very common, further increases the risk of severe gum disease.

"Importantly, the role of inflammation means that that periodontitis might not only serve as a marker for [oral health](#) issues but could also help identify individuals with a higher systemic inflammatory burden, who are therefore at greater risk of diabetes-associated microvascular complications."

The researchers say that the take-home message for dentists and health care practitioners is clear: it is important to have a multidisciplinary approach when treating individuals with type 2 diabetes.

"For dentists, in particular, this means recognizing that patients with type 2 diabetes and moderate/severe periodontitis, especially those with dyslipidemia, may be at a higher risk for microvascular complications such as neuropathy and retinopathy," says Dr. Bitencourt. "Dentists should consider recommending that these patients be screened for microvascular complications.

"By working together, health care providers can help ensure that patients with type 2 diabetes, especially those who are at an elevated risk of [diabetes complications](#), receive more comprehensive oral health care—potentially improving both their oral and overall health."

More information: *The Journal of Dental Research* (2024)

Provided by Diabetologia

Citation: Individuals with complications of diabetes are at higher risk of gum disease, Danish study finds (2024, September 10) retrieved 11 September 2024 from <https://medicalxpress.com/news/2024-09-individuals-complications-diabetes-higher-gum.html>

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