

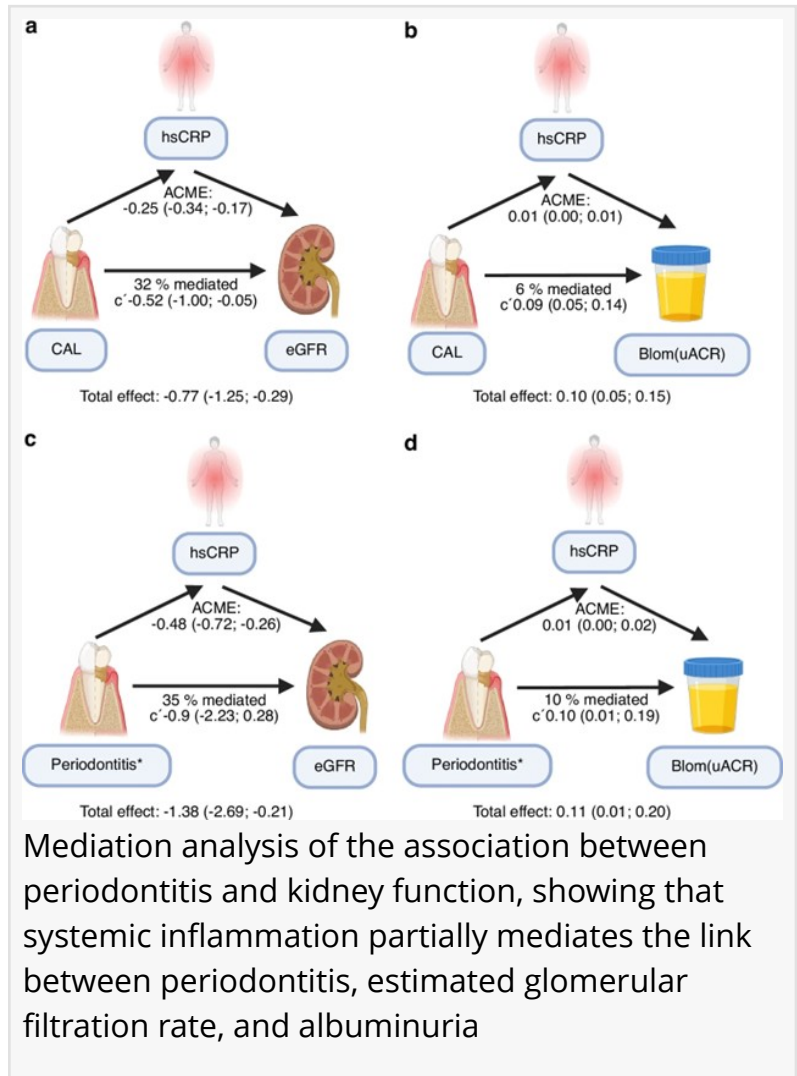
Bleeding Gums and Kidney Disease? Study Uncovers a Surprising Link

Researchers found that severe periodontitis was associated with poorer kidney health and increased albuminuria in adults

CHINA, July 2, 2026 /EINPresswire.com/ -- A growing body of research suggests that the effects of periodontitis extend far beyond the mouth. In a large population-based study from Germany, researchers found that severe gum disease was associated with reduced kidney function and higher levels of kidney damage markers, even in the early stages of chronic kidney disease. The findings indicate that oral health may play a broader role in overall health than previously recognized.

Periodontitis is often viewed as a disease limited to the oral cavity, characterized by bleeding gums, progressive tissue destruction, and eventual tooth loss. However, growing evidence suggests that its impact may extend well beyond the mouth. The chronic inflammatory burden associated with periodontitis has been linked to several systemic conditions, including cardiovascular disease and diabetes, prompting researchers to investigate its potential role in chronic kidney disease (CKD). Although previous studies have reported associations between periodontitis and advanced CKD, whether this relationship is already present during the early stages of kidney dysfunction remains less clear.

To address this question, researchers from the University Medical Center Hamburg-Eppendorf, led by Dr. Christian Schmidt-Lauber and Prof. Dr. Ghazal Aarabi, conducted a large population-based study examining the relationship between periodontal disease and early markers of



kidney impairment. Dr. Schmidt-Lauber, explains the motivation behind the study, “We aimed to evaluate the relationship between periodontitis and markers of early kidney dysfunction, including reduced renal function and albuminuria, and to explore the potential mediating role of systemic inflammatory markers.” The findings were published in Volume 18 of [International Journal of Oral Science](#) on April 6, 2026.

The study included 6,179 participants from the Hamburg City Health Study, a population-based cohort in Germany. All participants underwent detailed periodontal examinations, with disease severity classified according to the 2017 American Academy of Periodontology/European Federation of Periodontology (AAP/EFP) staging system. Kidney health was assessed using estimated glomerular filtration rate (eGFR) and urinary albumin-to-creatinine ratio (uACR), while circulating levels of high-sensitivity C-reactive protein (hsCRP) and interleukin-6 (IL-6) were measured to evaluate the contribution of systemic inflammation.

The analysis revealed a consistent association between poorer periodontal health and worsening kidney function. The prevalence of severe periodontitis increased from 14% among individuals with normal kidney function to 36% among those with moderately reduced kidney function. A similar pattern was observed for albuminuria, with more advanced periodontal disease becoming increasingly common as urinary albumin levels rose. Measures of cumulative periodontal damage, including clinical attachment loss and tooth loss, also worsened across stages of kidney dysfunction.

Notably, these associations persisted after adjustment for major confounding factors such as age, sex, diabetes, and smoking status. Severe periodontitis remained independently associated with lower eGFR and higher uACR, while greater clinical attachment loss was linked to both declining kidney function and increased albuminuria. These findings suggest that the observed relationship is not simply the result of shared risk factors.

Systemic inflammation appeared to contribute to the association, but only partially. Levels of hsCRP and IL-6 increased with both worsening periodontal disease and declining kidney health. However, mediation analyses indicated that hsCRP accounted for approximately 35% of the association between severe periodontitis and reduced eGFR, and only about 10% of the association with albuminuria. These results imply that additional biological mechanisms may be involved, including microbial dissemination from periodontal tissues, endothelial dysfunction, oxidative stress, and metabolic alterations.

Because CKD frequently progresses without symptoms until substantial kidney damage has occurred, identifying early indicators of risk remains a major clinical challenge. “By demonstrating an association between periodontitis and markers of early kidney dysfunction, this study highlights oral health as a potential window into kidney health,” shares Prof. Dr. Aarabi. The findings may inform future screening approaches and provide a rationale for interventional studies investigating whether periodontal treatment can help preserve renal function. The study’s large sample size, standardized periodontal assessments, and

comprehensive evaluation of kidney biomarkers further strengthen the reliability of the results.

In conclusion, the study provides strong evidence that periodontitis is independently associated with reduced kidney function and increased albuminuria, even at early stages of CKD. While systemic inflammation appears to explain part of this relationship, much of the association likely involves additional biological pathways. Together, these findings reinforce the growing recognition that oral and kidney health are closely interconnected and underscore the importance of considering periodontal disease within the broader context of systemic health.

Reference

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About University Medical Center Hamburg-Eppendorf

University Medical Center Hamburg-Eppendorf (UKE) is one of Germany's leading academic medical centers and a major hub for patient care, medical education, and biomedical research. It is affiliated with the University of Hamburg and combines a large tertiary care hospital with advanced research institutes. UKE is particularly known for its strengths in neuroscience, oncology, cardiovascular medicine, infection and immunology, and nephrology. The institution hosts a wide range of interdisciplinary research centers that translate laboratory findings into clinical applications. It also plays a key role in training medical students, doctoral researchers, and healthcare professionals. UKE is internationally recognized for high-impact clinical research and innovation in translational medicine.

Website: <https://www.uke.de/english/index.html>

About Dr. Christian Schmidt-Lauber from University Medical Center Hamburg-Eppendorf

Dr. Christian Schmidt-Lauber, is a physician-scientist affiliated with the III Department of Medicine and the Hamburg Center for Kidney Health (HCKH) at the University Medical Center Hamburg-Eppendorf. A board-certified specialist in nephrology and internal medicine, his research focuses on chronic kidney disease, acute kidney injury, kidney transplantation, and the renal consequences of COVID-19. He has authored more than 30 peer-reviewed publications, reflecting over five years of active research experience in kidney medicine. His notable contributions include studies on kidney outcomes following COVID-19, acute and chronic kidney disease epidemiology, helping advance understanding of kidney disease mechanisms and population health.

About Prof. Dr. Ghazal Aarabi from University Medical Center Hamburg-Eppendorf

Prof Dr. Ghazal Aarabi is an executive senior physician with the Department of Periodontics, Preventive and Restorative Dentistry University Medical Centre Hamburg-Eppendorf. She has long been scientifically engaged in two areas of dental research: the oral health of people with a migration background and the long-term effects of oral inflammation such as periodontitis on

general health. Prof Aarabi has successfully secured several interdisciplinary third-party funding grants, for example, from the German Research Foundation, with her own contribution amounting to more than €3.500.000. She is author of more than 90 international peer-reviewed publications, with a strong focus on the association between periodontitis and systemic diseases.

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