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CENTRO DENTAL INTEGRAL

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Medicina Interna

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Dr. Francisco Torres Lear

La trayectoria del Dr. Torres Lear es la historia de un descubrimiento vocacional inesperado. Aunque se licenció en Medicina con la firme intención de ser cardiólogo, el destino intervino mientras preparaba el MIR: aprobó el acceso a Odontología y lo que comenzó como un paso intermedio se transformó en su verdadera pasión. En la estomatología descubrió un "trabajo artesano de la salud" que le cautivó por completo, haciéndole comprender que había nacido para esta profesión.

Su enfoque va más allá de lo clínico; su mayor satisfacción reside en mejorar la autoestima, el bienestar y la calidad de vida de sus pacientes. Defensor acérrimo de la prevención y la higiene diaria, el Dr. Torres lidera el Centro Dental Torres bajo una premisa clara: para conseguir la felicidad del paciente, primero hay que cuidar a las personas que trabajan en la clínica, dotándolas de los mejores medios en una organización sólida y humana.

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Referencias científicas

Referencias científicas

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ABSTRACT

Dental health is a crucial component of overall health, yet it is frequently overlooked in discussions about well-being. This article explores the multifaceted aspects of dental infections, primarily focusing on biofilms formed by pathogenic bacteria such as Streptococcus mutans and Porphyromonas gingivalis. These biofilms contribute to dental caries and periodontal disease, conditions that affect oral health and have systemic consequences. Recent advancements in understanding biofilm formation and interactions have led to novel strategies for prevention and treatment, including using nanoparticles and smart hydrogels designed to disrupt biofilm integrity while promoting biocompatibility with human tissues. Furthermore, the article highlights the potential of natural remedies, including herbal extracts, as adjuncts in maintaining oral hygiene and combating microbial infections. A comprehensive overview of biofilm dynamics, including adhesion, maturation, and dispersion, is presented, alongside discussions on innovative therapeutic approaches addressing the limitations of conventional treatments. Ultimately, this article emphasizes the importance of maintaining dental health in preventing a wide spectrum of health issues, reinforcing that the mouth is a gateway to the body.

Adil NA, Omo-Erigbe C, Yadav H, Jain S. **The Oral-Gut Microbiome-Brain Axis in Cognition**. Microorganisms. **2025** Apr 3;13(4):814. doi: 10.3390/microorganisms13040814. PMID: 40284650; PMCID: PMC12029813. Q1

ABSTRACT

Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by cognitive decline and neuronal loss, affecting millions worldwide. Emerging evidence highlights the oral microbiome-a complex ecosystem of bacteria, fungi, viruses, and protozoa as a significant factor in cognitive health. Dysbiosis of the oral microbiome contributes to systemic inflammation, disrupts the blood-brain barrier, and promotes neuroinflammation, processes increasingly implicated in the pathogenesis of AD. This review examines the mechanisms linking oral microbiome dysbiosis to cognitive decline through the oral-brain and oral-gut-brain axis. These interconnected pathways enable bidirectional communication between the oral cavity, gut, and brain via neural, immune, and endocrine signaling. Oral pathogens, such as *Porphyromonas gingivalis*, along with virulence factors, including lipopolysaccharides (LPS) and gingipains, contribute to neuroinflammation, while metabolic byproducts, such as short-chain fatty acids (SCFAs) and peptidoglycans, further exacerbate systemic immune activation. Additionally, this review explores the influence of external factors, including diet, pH balance, medication use, smoking, alcohol consumption, and oral hygiene, on oral microbial diversity and stability, highlighting their role in shaping cognitive outcomes. The dynamic interplay between the oral and gut microbiomes reinforces the importance of microbial homeostasis in preserving systemic and neurological health. The interventions, including probiotics, prebiotics, and dietary modifications, offer promising strategies to support cognitive function and reduce the risk of neurodegenerative diseases, such as AD, by maintaining a diverse microbiome. Future longitudinal research is needed to identify the long-term impact of oral microbiome dysbiosis on cognition.

Aizenbud I, Wilensky A, Almoznino G. **Periodontal Disease and Its Association with Metabolic Syndrome-A Comprehensive Review.** Int J Mol Sci. **2023** Aug 21;24(16):13011. doi: 10.3390/ijms241613011. PMID: 37629193; PMCID: PMC10455993. Q1

ABSTRACT

Periodontal disease is a complex and progressive chronic inflammatory condition that leads to the loss of alveolar bone and teeth. It has been associated with various systemic diseases, including diabetes mellitus and obesity, among others. Some of these conditions are part of the metabolic syndrome cluster, a group of interconnected systemic diseases that significantly raise the risk of cardiovascular diseases, diabetes mellitus, and stroke. The metabolic syndrome cluster encompasses central obesity, dyslipidemia, insulin resistance, and hypertension. In this review, our objective is to investigate the correlation between periodontal disease and the components and outcomes of the metabolic syndrome cluster. By doing so, we aim to gain insights into the fundamental mechanisms that link each systemic condition with the metabolic syndrome. This deeper understanding of the interplay between these conditions and periodontal disease can pave the way for more effective treatments that take into account the broader impact of managing periodontal disease on the comprehensive treatment of systemic diseases, and vice versa.

Angjelova A, Jovanova E, Polizzi A, Laganà L, Santonocito S, Ragusa R, Isola G. I**mpact of Periodontitis on Endothelial Risk Dysfunction and Oxidative Stress Improvement in Patients with Cardiovascular Disease.** J Clin Med. **2024 J**un 27;13(13):3781. doi: 10.3390/jcm13133781. PMID: 38999345; PMCID: PMC11242897. Q1

ABSTRACT

Periodontitis is a multifactorial chronic inflammatory disease that affects the periodontium and overall oral health and is primarily caused by a dysbiotic gingival biofilm, which includes, among others, Gram-negative bacteria such as *Porphyromonas gingivalis*, *Actinobacillus actinomycetemcomitans*, and *Tannerella forsythensis* that colonize gingival tissues and that can lead, if not properly treated, to periodontal tissue destruction and tooth loss. In the last few decades, several large-scale epidemiological studies have evidenced that mild and severe forms of periodontitis are strictly bilaterally associated with several cardiovascular diseases (CVDs), stroke, and endothelial dysfunction. Specifically, it is hypothesized that patients with severe periodontitis would have compromised endothelial function, a crucial step in the pathophysiology of atherosclerosis and several CVD forms. In this regard, it was postulated that periodontal treatment would ameliorate endothelial dysfunction, hence bolstering the notion that therapeutic approaches targeted at diminishing cardiovascular risk factors and different forms of periodontal treatment could improve several CVD biomarker outcomes in the short- and long-term in CVD patients. The aim of this review is to update and analyze the link between periodontitis and CVD, focusing on the inflammatory nature of periodontitis and its correlation with CVD, the effects of periodontal therapy on endothelial dysfunction and oxidative stress, and the impact of such therapy on CVD biomarkers and outcomes. The article also discusses future research directions in this field.

Beukers NGFM, Su N, van der Heijden GJMG, Loos BG. **Periodontitis is associated with multimorbidity in a large dental school population.** J Clin Periodontol. **2023** Dec;50(12):1621-1632. doi: 10.1111/jcpe.13870. Epub 2023 Sep 2. PMID: 37658672. Q1

ABSTRACT

Aim: To investigate whether and which diseases co-occur with periodontitis (PD) to assess the prevalence of comorbidities and multimorbidity and to identify patterns and profiles of comorbidity and multimorbidity and the influence of demographic and lifestyle factors to identify distinct groups of multimorbid patients.

Materials and methods: A database from the Academic Centre of Dentistry Amsterdam (ACTA) with 37,801 adult individuals containing information about demographic (age, sex, socio-economic position [SEP]) and lifestyle factors (smoking, alcohol use and addictive substance use) and PD and systemic diseases was constructed. PD assessment was based on clinical information by the use of claim codes and systemic diseases data were derived from self-reported medical history. For analyses, univariable and multivariable (adjusted for age, sex, SEP, smoking, alcohol use and addictive substance use) logistic regression analyses and cluster analysis were used.

Results: Individuals with PD more often had one or multiple diseases. The adjusted odds ratio (OR) for PD patients having up to four systemic diseases ranged from 1.46 to 1.20. Co-occurrence of PD with several systemic diseases and a higher prevalence of multimorbidity was found (adjusted OR comorbidity = 1.36; 95% confidence interval (CI): 1.30-1.43; multimorbidity = 1.18; 95% CI: 1.11-1.25). Four clusters existed: cluster 1 was defined as a periodontal and systemically healthy group and cluster 4 as burdened with PD but not containing any systemic diseases. Individuals in cluster 1 were of the lowest age (44.9 [SD: 15.5]) and had the lowest prevalence of the lifestyle factors of smoking (13.6%) and alcohol use (3.9%). Clusters 2 and 3 contained both PD and had several systemic diseases but were different from each other. Cluster 2 contained 34.5% of PD individuals and had mainly respiratory tract, immune system and digestive system diseases. Cluster 3 contained 45.9% of PD individuals and had mainly cardiometabolic diseases. Cluster 2 had the highest prevalence of females (63.1%) and the highest prevalence of smokers (23.8%) and addictive substance users (8.9%). Cluster 3 included individuals of the highest age (63.5 [SD: 11.9]), and had highest prevalence of alcohol users (17.7%) and lowest prevalence of addictive substance users (3.8%).

Conclusions: This study shows that individuals with PD are more often burdened with comorbidity and multimorbidity. Presence of distinct clusters suggests overlap in pathophysiology between certain types of PD and specific systemic diseases. Therefore, PD can be considered as part of multimorbidity, as one of the systemic diseases co-occurring in certain groups of individuals.

Chatzopoulos GS, Jiang Z, Marka N, Wolff LF. **Association between Periodontitis Extent, Severity, and Progression Rate with Systemic Diseases and Smoking: A Retrospective Study.** J Pers Med. **2023** May 11;13(5):814. doi: 10.3390/jpm13050814. PMID: 37240984; PMCID: PMC10223170. Q2

ABSTRACT

Background: The aim of this study was to analyze the relationship between extent, severity (stage), and rate of progression (grade) of periodontitis with systemic diseases as well as smoking using a large database.

Methods: Patients' records identified in the BigMouth Dental Data Repository with a periodontal diagnosis based on the 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions were evaluated. Patients were further categorized based on extent, severity, and rate of progression. Data were extracted from patients' electronic health records including demographic characteristics, dental procedural codes, and self-reported medical conditions, as well as the number of missing teeth.

Results: A total of 2069 complete records were ultimately included in the analysis. Males were more likely to have generalized periodontitis and stage III or IV periodontitis. Older individuals were more likely diagnosed with grade B and stage III or IV periodontitis. Individuals with generalized disease, grade C, and stage IV demonstrated a significantly higher number of missing teeth. Higher numbers of tooth loss reported during supportive periodontal treatment were noted in generalized disease and stage IV periodontitis. Multiple sclerosis and smoking were significantly associated with grade C periodontitis.

Conclusions: Within the limitations of this retrospective study that utilized the BigMouth dental data repository, smokers were significantly associated with rapid progression of periodontitis (grade C). Gender, age, number of missing teeth, and number of tooth loss during supportive periodontal treatment were associated with disease characteristics.

Chatzopoulos GS, Jiang Z, Marka N, Wolff LF. **Relationship of Medication Intake and Systemic Conditions with Periodontitis: A Retrospective Study.** J Pers Med. **2023** Oct 10;13(10):1480. doi: 10.3390/jpm13101480. PMID: 37888091; PMCID: PMC10608268. Q2

ABSTRACT

Objectives: To examine the potential relationship of medication intake and systemic conditions with periodontitis.

Methods and materials: A total of 1985 patient records with a diagnosis of periodontal health and stage III and IV periodontitis were included in the analysis. Demographic characteristics, the number of missing teeth, patient-reported medical conditions and medication intake as well as smoking habits were recorded. Regression models were performed to explore the outcomes.

Results: Older individuals, Hispanic ethnic groups, Black and Hispanic or Latino racial groups and non-White individuals in general were significantly more frequently diagnosed with periodontitis than health. Hypertension, glaucoma, anxiety and depression were significantly associated with periodontitis, while can-

cer, alcohol use, kidney problems, asthma, sleep apnea and gastrointestinal disorders were associated with periodontal health. Patients who reported taking anticoagulants, statins and ACE inhibitors demonstrated 3.546 (95% CI: 1.982, 6.343), 2.771 (95% CI: 1.877, 4.09) and 4.847 (95% CI: 2.785, 8.434) times higher odds of having periodontitis, respectively.

Conclusion: Within the limitations of this retrospective study that utilized the BigMouth dental data repository, there is a possible relationship between systemic medications including anticoagulants, ACE inhibitors and statins as well as systemic medical conditions including hypertension, glaucoma, anxiety and depression with periodontitis.

Chatzopoulos GS, Jiang Z, Marka N, Wolff LF. **Periodontal Disease, Tooth Loss, and Systemic Conditions: An Exploratory Study.** Int Dent J. **2024** Apr;74(2):207-215. doi: 10.1016/j.identj.2023.08.002. Epub 2023 Oct 12. PMID: 37833208; PMCID: PMC10988265. Q1

ABSTRACT

Background: Although systemic medical conditions are associated with periodontitis and tooth loss, large-scale studies that include less prevalent systemic conditions are needed. The purpose of the study was to investigate the link between periodontal disease and tooth loss with systemic medical conditions in a large and diverse population.

Methods: Dental charts of adult patients who had attended the dental clinics seeking dental therapy of the universities contributing data to the BigMouth network and accepted the protocol of the study were included. Dental Procedure Codes and Current Procedural Terminology procedures were utilised to identify patients with and without periodontitis. Data were extracted from patients' electronic health records including demographic characteristics, dental procedural codes, and self-reported medical conditions as well as the number of missing teeth.

Results: A total of 108,307 records were ultimately included in the analysis; 42,377 of them included a diagnosis of periodontitis. The median age of the included population was 47.0 years, and 55.2% were female. Older and male individuals were significantly more likely to be in the periodontitis group and have higher number of missing teeth. A number of systemic conditions are associated with periodontitis and a higher number of missing teeth. High blood pressure, smoking, drug use, and diabetes were all found to be significant. Other significant conditions were anaemia, lymphoma, glaucoma, dialysis, bronchitis, sinusitis hepatitis, and asthma.

Conclusions: Within the limitations of this retrospective study that utilised the BigMouth dental data repository, the association of a number of systemic conditions such as smoking, diabetes, and hypertension with periodontitis and tooth loss has been confirmed. Additional connections have been highlighted for conditions that are not commonly reported in the literature.

Chen L, Cheng S, Zhang B, Zhong C. **Burden of inflammatory bowel disease among elderly, 1990-2019: A systematic analysis based on the global burden of disease study 2019.** Autoimmun Rev. **2025** Jan 31;24(2):103708. doi: 10.1016/j.autrev.2024.103708. Epub 2024 Nov 23. PMID: 39586389. Q1

ABSTRACT

Aim: The number of elderly patients with inflammatory bowel disease (IBD) has increased dramatically over the past few decades. Understanding the global burden of IBD in the elderly can provide a valuable basis for formulating future healthcare policies. This study aimed to comprehensively assess the global burden of IBD in the elderly from 1990 to 2019.

Methods: We extracted prevalence, incidence, disability-adjusted life-years (DALYs), and mortality data of older adults (60-89 years old) with IBD from 2010 to 2019 from the Global Burden of Disease (GBD) Study 2019, and analyzed in subgroups according to region, country, Socio-demographic Index (SDI), age group, and gender. Additionally, Trends in the global burden of IBD in old age from 1990 to 2019 were analyzed by calculating the estimated annual percentage change (EAPC) in the age-standardized rates (ASDs).

Results: From 1990 to 2019, the number of prevalent cases, incident cases, DALYs, and deaths of IBD in older adults increased significantly. Age-standardized rates of incidence, prevalence, DALYs, and mortality all trended downward. Americas, European regions, and high SDI countries had consistently high burdens. Middle SDI countries had the fastest growth in prevalence, incidence, and the fastest decline in DALYs, and mortality. The age-standardized rates of prevalence, incidence, and DALYs for IBD in the elderly were highest in the 60-64 age group, and age-standardized rates of mortality were highest in the 80-84 and 85-89 age groups. No gender differences were observed when stratified by gender.

Conclusions: IBD in older adults has become a global public health burden due to significant increases in the number of prevalent cases, incident cases, DALYs, and deaths. There are marked differences among regions, countries, and between different age groups. Public health practitioners should develop targeted policies to effectively reduce the disease burden of IBD in older adults.

Chen Y, Lu P, Lin C, Li S, Zhu Y, Tan J, Zhou Y, Yu T. **Hyperuricemia and elevated uric acid/creatinine ratio are associated with stages III/IV periodontitis: a population-based cross-sectional study (NHANES 2009-2014).** BMC Oral Health. **2024** Nov 15;24(1):1389. doi: 10.1186/s12903-024-05173-x. PMID: 39548474; PMCID: PMC11566428. Q1

ABSTRACT

Objectives: To explore the association between hyperuricemia and having periodontitis.

Materials and methods: A representative cross-sectional dataset of 10,158 adults was extracted from the National Health and Nutrition Examination Survey (NHANES) 2009-2014. The association between hyperuricemia (the primary exposure) and having periodontitis (outcome) were evaluated using weighted logistic regression models. Serum uric acid (UA) levels and the UA to creatinine (UA/Cr) ratio were used as secon-

dary exposures. Their associations with the diagnosis periodontitis were analyzed using weighted logistic regression or restricted cubic spline regression.

Results: The prevalence of Stages III/IV periodontitis was 47.7% among individuals with hyperuricemia and 37.4% among those without. After adjustment, individuals with hyperuricemia had 0.281 times higher odds of developing Stages III/IV periodontitis compared to those without hyperuricemia (adjusted OR = 1.286, 95% CI = 1.040 to 1.591, P = 0.024). The increased odds could be explained by a linear relationship with the serum UA/Cr ratio and a U-shaped relationship with serum UA levels. Each unit increase in the serum UA/Cr ratio was associated with 0.048 times higher odds of developing Stages III/IV periodontitis (adjusted OR = 1.048, 95% CI = 1.008 to 1.088, P = 0.021). Additionally, each 1 mg/dL increase in serum UA was associated with 0.156 times higher odds (adjusted OR = 1.156, 95% CI = 1.009 to 1.323, P = 0.038) of developing Stages III/IV periodontitis when UA levels were greater than 5.9 mg/dL, but 0.118 times lower odds when UA levels were 5.9 mg/dL or lower (adjusted OR = 0.882, 95% CI = 0.790 to 0.984, P = 0.027). Sensitivity analyses validated the robustness of the findings.

Conclusions: This study provides the first direct evidence that hyperuricemia is associated with Stages III/IV periodontitis.

Clinical relevance: Hyperuricemia may represent a new potential comorbidity of periodontitis, possibly contributing directly or indirectly to the disease burden in patients with periodontitis.

Chen X, You X, Chen C, Yang Y, Yang H, He F. **Presumed periodontitis and multimorbidity patterns: a prospective cohort study in the UK Biobank.** Clin Oral Investig. **2025** Apr 4;29(4):222. doi: 10.1007/s00784-025-06309-1. PMID: 40183974. Q2

ABSTRACT

Objectives: To examine the pattern of multimorbidity among people with high risk of periodontitis.

Materials and methods: Over 358,000 UK Biobank participants aged 40-69 years at baseline who took part in the baseline assessment and answered mouth/teeth dental problems were included (2006-2010). Cox proportional hazard models and logistic regression models were used to estimate the association of the risk factors of periodontitis with chronic diseases and multimorbidity, stratified by follow-up time.

Results: A total of 154,985 participants developed multimorbidity during follow-up. We observed increased risk of multimorbidity among participants with presumed periodontitis (adjusted HR = 1.06, 95% confidence interval [CI] = 1.05-1.08), especially in those participants with age < 50 years old (adjusted HR = 1.11, 95% CI = 1.08-1.14). Among the different multimorbidity patterns, presumed periodontitis was mainly associated with the mental disorder pattern and metabolic and vascular disease pattern.

Conclusions: Presumed periodontitis was positively associated with multimorbidity, even more so in younger age. We need to pay more attention to the prevention of periodontitis in the early stage to reduce the burden of multimorbidity in the future.

Clinical relevance: Early life interventions to prevent periodontitis are crucial to reduce the incidence of multimorbidity and enhance the quality of life in older adults. Additionally, greater attention should be given to the mental and cardiovascular metabolic health of patients with periodontitis.

Czerniuk MR, Surma S, Romańczyk M, Nowak JM, Wojtowicz A, Filipiak KJ. **Unexpected Relationships: Periodontal Diseases: Atherosclerosis-Plaque Destabilization? From the Teeth to a Coronary Event.** Biology (Basel). **2022** Feb 9;11(2):272. doi: 10.3390/biology11020272. PMID: 35205138; PMCID: PMC8869674. Q2

ABSTRACT

Atherosclerotic cardiovascular disease (ASCVD) and periodontal disease (PD) are global health problems. High frequency of ASCVD is associated with the spread of many risk factors, including poor diet, sedentary lifestyle, diabetes, hyperlipidemia, obesity, smoking, hypertension, chronic kidney disease, hypertension, hyperhomocysteinemia, hyperuricemia, excessive stress, virus infection, genetic predisposition, etc. The pathogenesis of ASCVD is complex, while inflammation plays an important role. PD is a chronic, multifactorial inflammatory disease caused by dysbiosis of the oral microbiota, causing the progressive destruction of the bone and periodontal tissues surrounding the teeth. The main etiological factor of PD is the bacteria, which are capable of activating the immune response of the host inducing an inflammatory response. PD is associated with a mixed microbiota, with the evident predominance of anaerobic bacteria and microaerophilic. The "red complex" is an aggregate of three oral bacteria: *Tannerella forsythia Treponema denticola* and *Porphyromonas gingivalis* responsible for severe clinical manifestation of PD. ASCVD and PD share a number of risk factors, and it is difficult to establish a causal relationship between these diseases. The influence of PD on ASCVD should be treated as a factor increasing the risk of atherosclerotic plaque destabilization and cardiovascular events. The results of observational studies indicate that PD significantly increases the risk of ASCVD. In interventional studies, PD treatment was found to have a beneficial effect in the prevention and control of ASCVD. This comprehensive review summarizes the current knowledge of the relationship between PD and ASCVD.

da Silva LA, Marques CPC, de Oliveira ICV, Franco MM, Rodrigues VP, Benatti BB. **The influence of periodontal status and serum biomarkers on salivary leptin levels in systemic lupus erythematosus patients.** Saudi Dent J. **2022** Dec;34(8):708-714. doi: 10.1016/j.sdentj.2022.11.001. Epub 2022 Nov 7. PMID: 36570575; PMCID: PMC9767834. Q2

ABSTRACT

Objective: This study aimed to investigate the influence of periodontal status, clinical data, and serum markers on salivary leptin levels in patients with systemic lupus erythematosus (SLE).

Methods: A case-control study was conducted with 38 patients with SLE and 29 healthy controls. Periodontal data included periodontal probing depth (PPD), clinical attachment level (CAL), and gingival bleeding on probing (BOP). Stimulated saliva samples were collected to analyze salivary leptin levels. Clinical and serum data were collected from the SLE group. Statistical analysis included the *t*-test, Mann-Whitney test, Spearman correlation coefficient, and a structural equation model.

Results: The SLE group had a lower salivary leptin level than the control group (P = 0.002). The model revealed that SLE had an inverse and independent effect on salivary leptin (standardized estimate = - 0.289, P = 0.023). Moreover, salivary leptin level negatively correlated with the serum levels of triglyceride, creatinine, and leukocytes, positively correlated with the serum total cholesterol, but was not significantly correlated with the periodontal status.

Conclusion: These findings suggest that patients with SLE have a lower salivary leptin level. In addition, the level of salivary leptin does not appear to be related to periodontal status in patients with SLE.

D'Antonio DL, Zenoniani A, Umme S, Piattelli A, Curia MC. **Intratumoral** Fusobacterium nucleatum **in Pancreatic Cancer: Current and Future Perspectives.** Pathogens. **2024** Dec 26;14(1):2. doi: 10.3390/pathogens14010002. PMID: 39860963; PMCID: PMC11768203. Q1

ABSTRACT

The intratumoral microbiome plays a significant role in many cancers, such as lung, pancreatic, and colorectal cancer. Pancreatic cancer (PC) is one of the most lethal malignancies and is often diagnosed at advanced stages. *Fusobacterium nucleatum (Fn)*, an anaerobic Gram-negative bacterium primarily residing in the oral cavity, has garnered significant attention for its emerging role in several extra-oral human diseases and, lately, in pancreatic cancer progression and prognosis. It is now recognized as oncobacterium. *Fn* engages in pancreatic tumorigenesis and metastasis through multifaceted mechanisms, including immune response modulation, virulence factors, control of cell proliferation, intestinal metabolite interactions, DNA damage, and epithelial-mesenchymal transition. Additionally, compelling research suggests that *Fn* may exert detrimental effects on cancer treatment outcomes. This paper extends the perspective to pancreatic cancer associated with *Fn*. The central focus is to unravel the oncogenomic changes driven by *Fn in* colonization, initiation, and promotion of pancreatic cancer development. The presence of *Fusobacterium* species can be considered a prognostic marker of PC, and it is also correlated to chemoresistance. Furthermore, this review underscores the clinical research significance of *Fn* as a potential tumor biomarker and therapeutic target, offering a novel outlook on its applicability in cancer detection and prognostic assessment. It is thought that given the role of *Fn* in tumor formation and metastasis processes via its FadA, FapA, Fap2, and RadD, new therapies for tumor treatment targeting *Fn* will be developed.

Datorre JG, Dos Reis MB, Sorroche BP, Teixeira GR, Hatano SS, de Carvalho AC, Gama RR, Rebolho Batista Arantes LM, Reis RM. **Intratumoral** Fusobacterium nucleatum **is associated with better cancer-specific survival in head and neck cancer patients.** J Oral Microbiol. **2025** Apr 1;17(1):2487644. doi: 10.1080/20002297.2025.2487644. PMID: 40182114; PMCID: PMC11966973. Q1

ABSTRACT

Background: The oral microbiome, particularly *Fusobacterium nucleatum (Fn)*, has been implicated in head and neck cancers (HNC), influencing local immunity and Human Papillomavirus (HPV) status. Here, we evaluated the presence of *Fn* and its association with HPV infection, *TERT* promoter (*TERTp*) mutations, and patient outcomes.

Materials and methods: We analyzed 94 formalin-fixed paraffin-embedded (FFPE) tumor tissues from HNC patients previously evaluated for *TERTp* mutations. *Fn* DNA was detected using droplet digital PCR (ddPCR), and HPV status was determined via p16 immunohistochemistry in pre-treatment samples. Associations between *Fn* presence, clinicopathological features, HPV, and TERTp mutation status were assessed.

Results: Tumors primarily originated from the oropharynx (70.2%) and oral cavity (29.8%). Tobacco and alcohol use were reported in 87.2% and 79.8% of cases, respectively. *Fn* was present in 59.6% of cases, with higher prevalence in oropharyngeal (62.1%) than oral cavity (53.6%) tumors. No significant associations were found between *Fn* and clinicopathological features, TERTp, or HPV status. However, patients with *Fn* positivity showed significantly improved cancer-specific survival (61.5% vs. 39.1%, *p* = 0.013), similar to HPV-positive patients (72.7% vs. 42.7%, *p* = 0.014).

Conclusion: The presence of *Fusobacterium nucleatum* in HNC correlates with longer survival, highlighting its potential as a prognostic marker.

Deng L, Guan G, Cannon RD, Mei L. **Age-related oral microbiota dysbiosis and systemic diseases.** Microb Pathog. **2025** Aug;205:107717. doi: 10.1016/j.micpath.2025.107717. Epub 2025 May 20. PMID: 40403989. Q2

ABSTRACT

The oral microbiota is an essential microbial community within the human body, playing a vital role in maintaining health. In older adults, age-related changes in the oral microbiota are linked to both systemic and oral health impairments. The use of various medications for systemic diseases in the elderly can also contribute to the development of oral diseases. Oral microbiota dysbiosis refers to an imbalance in the composition of oral microbial communities. This imbalance, along with disruptions in the host immune response and prolonged inflammation, is closely associated with the onset and progression of several diseases. It contributes to oral conditions such as dental caries, periodontal disease, and halitosis. It is also linked to systemic diseases, including Alzheimer's disease, type 2 diabetes mellitus, rheumatoid arthritis, atherosclerotic cardiovascular disease, and aspiration pneumonia. This review aims to explore how oral microbiota influences specific health outcomes in older individuals, focusing on Alzheimer's disease, type 2 diabetes mellitus, rheumatoid arthritis, atherosclerotic cardiovascular disease, and aspiration pneumonia. The oral microbiota holds promise as a diagnostic tool, therapeutic target, and prognostic biomarker for managing cardiovascular disease, metabolic diseases, infectious diseases and autoimmune diseases. Emphasizing proper oral health care and instilling an understanding of how drugs prescribed for systemic disease impact the oral microbiome, is anticipated to emerge as a key strategy for promoting the general health of older adults.

Didilescu AC, Chinthamani S, Scannapieco FA, Sharma A. **NLRP3 inflammasome activity and periodontal disease pathogenesis-A bidirectional relationship.** Oral Dis. **2024** Oct;30(7):4069-4077. doi: 10.1111/odi.15005. Epub 2024 May 30. PMID: 38817019; PMCID: PMC11480888. Q1

ABSTRACT

Objective: Periodontitis is an inflammatory oral disease that occurs as a result of the damaging effects of the immune response against the subgingival microflora. Among the mechanisms involved, the nucleotide-binding oligomerization domain, leucine-rich repeat-containing proteins family member NLRP3 (NLR family pyrin domain-containing 3), proposed as the key regulator of macrophage-induced inflammation, is strongly associated with periodontal disease due to the bacterial activators. This paper aimed to present key general concepts of NLRP3 inflammasome activation and regulation in periodontal disease.

Method: A narrative review was conducted in order to depict the current knowledge on the relationship between NLRP3 inflammasome activity and periodontal disease. In vitro and in situ studies were retrieved and commented based on their relevance in the field.

Results: The NLRP3 inflammasome activity stimulated by periodontal microbiota drive periodontal disease pathogenesis and progression. This occurs through the release of proinflammatory cytokines IL-1β, IL-18, and DAMPs (damage-associated molecular pattern molecules) following inflammasome activation. Moreover, the tissue expression of NLRP3 is dysregulated by oral microbiota, further exacerbating periodontal inflammation.

Conclusion: The review provides new insights into the relationship between the NLRP3 inflammasome activity and periodontal disease pathogenesis, highlighting the roles and regulatory mechanism of inflammatory molecules involved in the disease process.

Diouf A, Ndjidda Bakari W, Sounlin MH, Diallo AM, Thiam D, Guirassy ML, Diallo AS, Benoist HM. **Periodontitis as a risk factor for organic erectile dysfunction: A case-control study in a sub-Saharan population.** J Adv Periodontol Implant Dent. **2023** Nov 8;15(2):80-85. doi: 10.34172/japid.2023.021. PMID: 38357341; PMCID: PMC10862040. Q2

ABSTRACT

Background: This study investigated the association between periodontitis and organic erectile dysfunction (ED) in a sub-Saharan population.

Methods: This multicenter analytical study lasted from April to September 2021. A total of 114 patients (38 cases and 76 controls) were recruited and matched on age, diabetes, and smoking status. Medical history and ED were recorded, as well as the plaque index, bleeding index, maximum interdental clinical attachment loss (CALmax), maximum probing depth, clinically detectable furcation involv ement, number of teeth in the mouth, number of teeth lost for periodontal reasons, and tooth mobility. The analysis was performed with SPSS 20.0 with a significance threshold set at 5%.

Results: The two study groups were comparable regarding sociodemographic characteristics. Periodontitis was present in 76.31% of cases and 75% of controls without a significant difference (P=0.878). Logistic regression showed a significant association between high blood pressure and ED with an OR=4.78 (95% CI: 1.80—12.70). Periodontitis was not associated with ED (OR=1.52, 95% CI: 0.55—4.16); however, severe periodontitis was significantly associated with severe ED (OR=1.44, 95% CI: 1.11—1.85, and OR=1.68, 95% CI: 1.15—2.44, respectively for CALmax and tooth loss).

Conclusion: Within the limits of this study, periodontitis was not associated with organic ED. However, the severity of periodontal disease significantly increased in patients with organic ED.

Fan RY, Chen JX, Chen LL, Sun WL. **Assessing periodontitis risk from specific dietary patterns: a systematic review and meta-analysis.** Clin Oral Investig. **2025** Jan 3;29(1):43. doi: 10.1007/s00784-024-06125-z. PMID: 39751926. Q1

ABSTRACT

Aims: Our goal is to perform a meta-analysis to investigate the risk of periodontitis associated with specific dietary patterns.

Methods: We employed the PRISMA methodology in a meta-analysis to examine the correlation between dietary patterns and the risk of periodontitis. We systematically searched three online databases from inception to November 2024 to identify relevant studies. Summary estimates with 95%CI were calculated to assess the relationship between specific dietary patterns and the risk of periodontitis. Cumulative estimates were synthesized using random-effects or fixed-effects models. Heterogeneity among studies was evaluated using Cochran's Q and I2 statistics.

Results: In total, we included 19 articles that analyzed 5 dietary patterns The study showed that a diet high in inflammation-promoting foods significantly raised the likelihood of periodontitis (OR = 1.39, 95% CI, 1.09-1.77), in contrast, dietary patterns like the mediterranean diet (OR = 0.96, 95% CI, 0.94-0.98), plant-based diet (OR = 0.92, 95% CI, 0.86-0.98), or dairy-rich diet (OR = 0.76, 95% CI, 0.66-0.87) lowered the risk of periodontitis. The analysis revealed no statistically significant association between a western diet (OR = 1.07; 95% CI, 0.86-1.33) and the risk of periodontitis.

Conclusions: As dietary diversity and complexity continue to expand, there has been a concomitant increase in the prevalence of periodontal disease. This study has identified specific dietary patterns associated with the risk of periodontitis, particularly highlighting the heightened risk linked to pro-inflammatory diets. These findings emphasize the importance of implementing targeted dietary practices to reduce the incidence of this condition.

Fan JC, Gan JH, Lu H. **The relationship between periodontal disease and gastric cancer: A bidirectional Mendelian randomization study.** Medicine (Baltimore). **2024** Jun 14;103(24):e38490. doi: 10.1097/MD.0000000000038490. PMID: 38875422; PMCID: PMC11175918. ???

ABSTRACT

Background: Previous observational studies have suggested a possible association between periodontal disease and gastric cancer (GC); however, a causal relationship has not yet been established. This study aimed to explore the causal relationship between the 2 through a 2-sample bidirectional Mendelian randomization (MR) study.

Methods: Genome-wide association studies (GWAS) summary statistics were obtained from publicly available GWAS and relevant databases. Two-sample bidirectional MR analysis was conducted to investigate the causal relationship between periodontal disease and GC using the inverse-variance weighted (IVW) method selected as the primary analytical approach. Cochran Q test, MR-PRESSO, MR-pleiotropy, and leave-one-out analyses were performed to assess heterogeneity, pleiotropy, and sensitivity.

Results: In European ancestry, IVW analysis revealed no causal relationship between periodontal disease and GC (OR = 1.873; 95% CI [4.788e-10, 7.323e + 09]; P = .956), or between loose teeth and GC (OR = 1.064; 95% CI [0.708, 1.598]; P = .765). In East Asian ancestry, there was no causal relationship between periodontitis and GC according to IVW (OR = 0.948; 95% CI [0.886, 1.015]; P = .126). Conversely, according to the results of the IVW analysis, there was no causal relationship between GC and periodontal disease, regardless of European or East Asian ancestry. Furthermore, there was no heterogeneity or pleiotropy in the causal relationships between these variables (all P > .05), suggesting a certain level of reliability in our results.

Conclusion: Within the limitations of this MR study, we found no mutual causal relationship between periodontal disease and GC. This finding can prevent overtreatment by clinical physicians and alleviate the psychological burden on patients.

Feng W, Chen K, Chen Q, Xu L. **Association between posterior occlusal pairs loss and severe sarcopenia in community-dwelling Chinese older adults: A cross-sectional study.** Medicine (Baltimore). **2025** Jul 11;104(28):e43371. doi: 10.1097/MD.0000000000043371. PMID: 40660533; PMCID: PMC12263069. ???

ABSTRACT

Individuals with severe sarcopenia are at a higher risk of adverse health events than those with sarcopenia alone. However, due to the limited number of studies, the condition remains poorly understood. To date, few studies have examined the association between tooth loss and severe sarcopenia. Therefore, we conducted a cross-sectional study to address this gap. Community residents who were 60 years and older, and had attended a local government basic health checkup from March to October in 2022 were recruited. Severe sarcopenia was defined according to the Asian Working Group for Sarcopenia 2019. Loss of occlusal pairs (14 total pairs: 6 anterior occlusal pairs, 8 posterior occlusal pairs [POPs]) was quantified through dental examinations. Logistic regressions were used to evaluate the association between loss of occlusal pairs and severe sarcopenia, adjusting for potential confounding factors. A total of 1421 older adults (42.6% men, 71.4 ± 6.8 years old) were enrolled in this study. The prevalence of severe sarcopenia was 8.3%. Multivariate analyses showed that each additional POPs loss increased severe sarcopenia risk (adjusted OR = 1.17, 95% CI = 1.06-1.28, P = .001), while anterior occlusal pairs loss showed no association (P = .982). From the angle of population group, significant increase in severe sarcopenia was only found in older adults with the highest levels of missing POPs compared to those without (Δ high vs low loss: 12.45% (P < .001); Δ high vs low-medium loss: 10.14% (P < .001); Δ high vs medium-high loss: 9.85% (P < .001)). The identification and management of POPs loss, high loss in particular, could be important in preventing severe sarcopenia in community-dwelling older adults.

Ferrillo M, Giudice A, Migliario M, Renó F, Lippi L, Calafiore D, Marotta N, de Sire R, Fortunato L, Ammendolia A, Invernizzi M, de Sire A. **Oral-Gut Microbiota, Periodontal Diseases, and Arthritis: Literature Overview on the Role of Probiotics.** Int J Mol Sci. **2023** Feb 27;24(5):4626. doi: 10.3390/ijms24054626. PMID: 36902056; PMCID: PMC10003001. Q1

ABSTRACT

Periodontal diseases are oral inflammatory diseases affecting the tissues supporting and surrounding the teeth and include gingivitis and periodontitis. Oral pathogens may lead to microbial products spreading into the systemic circulation and reaching distant organs, while periodontal diseases have been related to low-grade systemic inflammation. Gut and oral microbiota alterations might play a role in the pathogenesis of several autoimmune and inflammatory diseases including arthritis, considering the role of the gut-joint axis in the regulation of molecular pathways involved in the pathogenesis of these conditions. In this scenario, it is hypothesized that probiotics might contribute to the oral and intestinal micro-ecological balance and could reduce low-grade inflammation typical of periodontal diseases and arthritis. This literature overview aims to summarize state-of-the-art ideas about linkages among oral-gut microbiota, periodontal diseases, and arthritis, while investigating the role of probiotics as a potential therapeutic intervention for the management of both oral diseases and musculoskeletal disorders.

Fu YD, Li CL, Hu CL, Pei MD, Cai WY, Li YQ, Xu L, Zeng Y. **Meta Analysis of the Correlation between Periodontal Health and Cognitive Impairment in the Older Population.** J Prev Alzheimers Dis. **2024**;11(5):1307-1315. doi: 10.14283/jpad.2024.87. PMID: 39350376. Q1

ABSTRACT

Objective: To explore the correlation between periodontal health and cognitive impairment in the older population to provide the evidence for preventing cognitive impairment from the perspective of oral health care in older adults.

Methods: A comprehensive search was conducted in PubMed, Embase, the Cochrane Library, the Web of Science, the China National Knowledge Infrastructure, Wanfang Data, the China Science and Technology Journal Database, and the China Biomedical Literature Database, to include both cross-sectional and longitudinal cohort studies on the association between periodontal health and cognitive impairment in older adults. The search was completed in April 2023. Following quality assessment and data organization of the included studies, meta-analysis was performed using Review Manager 5.4.

Results: Twenty-two studies involving a total of 4,246,608 patients were included to comprehensively assess periodontal health from four dimensions (periodontitis, tooth loss, occlusal support, and masticatory ability), with the outcome variable of cognitive impairment (including mild cognitive impairment, Alzheimer's disease and all-cause dementia). Meta-analysis showed that, compared to those of periodontally healthy older adults, the risk of cognitive impairment in older adults with poor periodontal health, after adjusting for confounders, was significantly greater for those with periodontitis (OR=1.45, 95% CI: 1.20-1.76, P<0.001), tooth loss (OR=1.80, 95% CI: 1.50-2.15, P<0.001), compromised occlusal support (OR=1.87, 95% CI: 1.29-2.70, P=0.001), and reduced masticatory ability (OR=1.39, 95% CI: 1.11-1.75, P=0.005). The risk of cognitive impairment was higher in older adults with low-dentition than in those with high-dentition. Subgroup analysis revealed older individuals with fewer remaining teeth were at a higher risk of developing cognitive impairment compared to those with more remaining teeth, as shown by the comparison of number of teeth lost (7-17 teeth compared to 0-6 teeth) (OR=1.64, 95% CI: 1.13-2.39, P=0.01), (9-28 teeth compared to 0-8 teeth) (OR=1.13, 95% CI: 1.06-1.20, P<0.001), (19-28 teeth compared to 0-18 teeth) (OR=2.52, 95% CI: 1.32-4.80, P=0.005), and (28 teeth compared to 0-27 teeth) (OR=2.07, 95% CI: 1.54-2.77, P<0.001). In addition, tooth loss in older adults led to a significantly increased risk of mild cognitive impairment (OR=1.66, 95% CI: 1.43-1.91, P<0.001) and all-cause dementia (OR=1.35, 95% CI: 1.11-1.65, P=0.003), although the correlation between tooth loss and the risk of Alzheimer's disease was not significant (OR=3.89, 95% CI: 0.68-22.31, P=0.13).

Conclusion: Poor periodontal health, assessed across four dimensions (periodontitis, tooth loss, occlusal support, and masticatory ability), represents a significant risk factor for cognitive impairment in older adults. The more missing teeth in older adults, the higher risk of developing cognitive impairment, with edentulous individuals particularly susceptible to cognitive impairment. While a certain degree of increased risk of Alzheimer's disease was observed, no significant association was found between tooth loss and the risk of developing Alzheimer's disease. Enhancing periodontal health management and delivering high-quality oral health care services to older adults can help prevent cognitive impairment.

Gao Y, Yao J, Liu S, Yin S, Jia Z, Huang Y, Zhao C, He D. **Association between metabolic-associated fatty liver disease and risk of cardiometabolic multimorbidity: a disease trajectory analysis in UK Biobank.** Front Endocrinol (Lausanne). **2025** Jun 18;16:1585725. doi: 10.3389/fendo.2025.1585725. PMID: 40607218; PMCID: PMC12213339. Q1

ABSTRACT

Objective: While metabolic-associated fatty liver disease (MAFLD) has been associated with individual cardiometabolic diseases (CMDs), its role in the dynamic progression to cardiometabolic multimorbidity (CMM) remains unclear. We investigated the association of MAFLD, its severity and subtypes with CMM in individuals with no or one CMD at baseline.

Methods: This prospective cohort study involved 386,651 individuals (344,415 without and 42,236 with a single CMD at baseline) from the UK Biobank. MAFLD was defined as the presence of hepatic steatosis plus overweight/obesity, type 2 diabetes (T2D), or metabolic abnormalities. CMM was defined as the coexistence of two or more CMDs in the same person, including T2D, coronary heart disease (CHD) and stroke. Cox proportional hazard models and multistate models were performed to estimate the hazard ratios (HRs) and 95% confidence intervals (95% CIs).

Results: During a median follow-up of 13.85 years, 4,622 new-onset CMM cases emerged among participants free of CMD at baseline. MAFLD was significantly associated with an increased risk of incident CMM (adjusted HR: 2.78, 95% CI: 2.60-2.96). Multistate models showed that MAFLD adversely affected most transitions from baseline to single CMDs and then to CMM. Among the single-CMD participants, the adjusted HRs of incident CMM in the MAFLD group were 1.21 (95% CI: 1.13-1.31) for T2D patients, 1.90 (1.75-2.05) for CHD patients, and 1.65 (1.45-1.87) for stroke patients, respectively.

Conclusion: MAFLD independently elevated the risk of incident CMM, regardless of the baseline CMD status. These findings emphasize the necessity of targeted MAFLD interventions for CMM prevention.

García-Rios P, Rodríguez-Lozano FJ, Pecci-Lloret MR. **Oral Manifestations of Multiple Sclerosis: A Systematic Review.** J Clin Med. **2025** Apr 24;14(9):2944. doi: 10.3390/jcm14092944. PMID: 40363976; PMCID: PMC12073043. Q1

ABSTRACT

Background: Multiple sclerosis (MS) is a chronic autoimmune disease of the central nervous system characterized by diverse clinical manifestations, including the potential involvement of the oral cavity. Oral symptoms in MS patients may arise both as direct consequences of the disease and as side effects of pharmacological treatments. These manifestations, such as xerostomia, periodontal disease, and dental sensitivity, can significantly affect quality of life and may be underrecognized in clinical practice. **Aim:** To systematically assess the presence and relevance of oral manifestations in patients with MS, and to identify correlations between these symptoms and clinical parameters such as MS phenotype, disease duration, and disability level. Materials and Methods: A systematic review was performed following Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A database search was conducted in PubMed and Scopus on 17 March 2025, using terms related to "multiple sclerosis" and "oral manifestations". Inclusion criteria were limited to observational studies published in the last ten years, focusing on oral symptoms in MS patients. Furthermore, the quality of the studies was assessed following the Newcastle-Ottawa Scale (NOS) for cohort and case-control studies, and the JBI Critical Appraisal checklist for analytical cross-sectional studies. **Results:** Ten studies met the inclusion criteria. The most frequently reported oral manifestations were hyposalivation, gingival inflammation, increased DMFT and plaque indices, dental sensitivity, and oral pain. Several studies found statistically significant associations between oral dryness and MS phenotype ($p < 0.05$), and between periodontal health and degree of disability ($p < 0.05$). However, heterogeneity in methodology and lack of longitudinal studies were noted as limitations. **Conclusions:** This review highlights a clear relationship between MS and several oral health disturbances, particularly xerostomia and periodontal disease. The findings underscore the need for multidisciplinary care approaches and further studies with standardized protocols to better understand oral-systemic interactions in MS.

Hajishengallis G. **Interconnection of periodontal disease and comorbidities: Evidence, mechanisms, and implications.** Periodontol 2000. **2022** Jun;89(1):9-18. doi: 10.1111/prd.12430. Epub 2022 Mar 4. PMID: 35244969; PMCID: PMC9018559. Q1

ABSTRACT

Periodontitis, a microbiome-driven inflammatory disease of the tooth-attachment apparatus, is epidemiologically linked with other disorders, including cardio-metabolic, cognitive neurodegenerative and autoimmune diseases, respiratory infections, and certain cancers. These associations may, in part, be causal, as suggested by interventional studies showing that local treatment of periodontitis reduces systemic inflammation and surrogate markers of comorbid diseases. The potential cause-and-effect connection between periodontitis and comorbidities is corroborated by studies in preclinical models of disease, which additionally provided mechanistic insights into these associations. This overview discusses recent advances in our understanding of the periodontitis-systemic disease connection, which may potentially lead to innovative therapeutic options to reduce the risk of periodontitis-linked comorbidities.

Hang Z, Rouyi C, Sen L. **Genetic evidence strengthens the connection between gut microbiota and gingivitis: a two-sample Mendelian randomization study.** Front Cell Infect Microbiol. **2024** May 15;14:1380209. doi: 10.3389/fcimb.2024.1380209. PMID: 38812751; PMCID: PMC11133616. Q1

ABSTRACT

Introduction: The oral cavity and gut tract, being interconnected and rich in microbiota, may have a shared influence on gingivitis. However, the specific role of distinct gut microbiota taxa in gingivitis remains unexplored. Utilizing Mendelian Randomization (MR) as an ideal method for causal inference avoiding reverse causality and potential confounding factors, we conducted a comprehensive two-sample MR study to uncover the potential genetic causal impact of gut microbiota on gingivitis.

Methods: Instrumental variables were chosen from single nucleotide polymorphisms (SNPs) strongly associated with 418 gut microbiota taxa, involving 14,306 individuals. Gingivitis, with 4,120 cases and 195,395 controls, served as the outcome. Causal effects were assessed using random-effect inverse variance-weighted, weighted median, and MR-Egger methods. For replication and meta-analysis, gingivitis data from IEU OpenGWAS were employed. Sensitivity analyses included Cochran's Q tests, funnel plots, leave-one-out analyses, and MR-Egger intercept tests. This study aimed to assess the genetic correlation between the genetically predicted gut microbiota and gingivitis using linkage disequilibrium score regression (LDSC).

Results: Three gut microbiota taxa (class Actinobacteria id.419, family Defluviitaleaceae id.1924, genus Defluviitaleaceae UCG011 id.11287) are predicted to causally contribute to an increased risk of gingivitis (P< 0.05). Additionally, four gut microbiota taxa (class Actinobacteria id.419, genus Escherichia Shigella id.3504, genus Ruminococcaceae UCG002 id.11360) potentially exhibit inhibitory causal effects on the risk of gingivitis (P< 0.05). No significant evidence of heterogeneity or pleiotropy is detected. Our findings indicate a suggestive genetic correlation between class Actinobacteria id.419, class Bacteroidia id.912, family Defluviitaleaceae id.1924, genus Escherichia Shigella id.3504 and gingivitis.

Conclusion: Our study establishes the genetic causal effect of 418 gut microbiota taxa on gingivitis, offering insights for clinical interventions targeting gingivitis. Subsequent research endeavors are essential to corroborate the findings of our present study.

Herrera D, Sanz M, Shapira L, Brotons C, Chapple I, Frese T, Graziani F, Hobbs FDR, Huck O, Hummers E, Jepsen S, Kravtchenko O, Madianos P, Molina A, Ungan M, Vilaseca J, Windak A, Vinker S. **Periodontal diseases and cardiovascular diseases, diabetes, and respiratory diseases: Summary of the consensus report by the European Federation of Periodontology and WONCA Europe.** Eur J Gen Pract. 2024 Dec;30(1):2320120. doi: 10.1080/13814788.**2024**.2320120. Epub 2024 Mar 21. PMID: 38511739; PMCID: PMC10962307. Q2

ABSTRACT

Background: Periodontitis is a chronic inflammatory non-communicable disease (NCD) characterised by the destruction of the tooth-supporting apparatus (periodontium), including alveolar bone, the presence of periodontal pockets, and bleeding on probing.

Objectives: To outline, for family doctors, the implications of the association between periodontal and systemic diseases; to explore the role of family doctors in managing periodontitis as an ubiquitous non-communicable disease (NCD).

Methods: The consensus reports of previous focused collaborative workshops between WONCA Europe and the European Federation of Periodontology (using previously undertaken systematic reviews), and a specifically commissioned systematic review formed the technical papers to underpin discussions. Working groups prepared proposals independently, and the proposals were subsequently discussed and approved at plenary meetings.

Results: Periodontitis is independently associated with cardiovascular diseases, diabetes, chronic obstructive pulmonary disease, obstructive sleep apnoea, and COVID-19 complications. Treatment of periodontitis has been associated with improvements in systemic health outcomes. The article also presents evidence gaps. Oral health care professionals (OHPs) and family doctors should collaborate in managing these conditions, including implementing strategies for early case detection of periodontitis in primary medical care centres and of systemic NCDs in oral/dental care settings. There is a need to raise awareness of periodontal diseases, their consequences, and the associated risk factors amongst family doctors.

Conclusion: Closer collaboration between OHPs and family doctors is important in the early case detection and management of NCDs like cardiovascular diseases, diabetes mellitus, and respiratory diseases. Strategies for early case detection/prevention of NCDs, including periodontitis, should be developed for family doctors, other health professionals (OHPs), and healthcare funders. Evidence-based information on the reported associations between periodontitis and other NCDs should be made available to family doctors, OHPs, healthcare funders, patients, and the general population.

Hou Y, Yang H, Fu Y, Zhang M, Lu Z. **Associations between subjective and objective well-being and risk of cardiometabolic disease: A prospective cohort study from the UK biobank.** J Affect Disord. **2025** Mar 1;372:10-17. doi: 10.1016/j.jad.2024.11.076. Epub 2024 Nov 27. PMID: 39613042. Q1

ABSTRACT

Background: The distinct and combined impacts of subjective well-being (SWB) and objective well-being (OWB) on cardiometabolic diseases and cardiometabolic multimorbidity remain largely unknown.

Methods: 141,086 participants (mean age 56 years) were included from the UK Biobank study from 2006 to 2010. The SWB included happiness and life satisfaction. The OWB represents the level of satisfaction with objective conditions which was created using latent class analysis. Cardiometabolic diseases comprise diabetes and cardiovascular disease, including coronary heath disease and stroke. The Cox models were used to estimate the hazard ratio (HR) and 95 % confidence intervals (95 % CI) of the individual and combined associations between SWB and OWB with the risk of cardiometabolic diseases.

Results: During a median follow-up of 12 years (1,693,800 person-years), 16,678 new-onset cardiometabolic diseases were reported. In full-adjusted model, the HR (95 % CI) among men with high SWB was 0.93 (0.82-1.05), 0.85 (0.79-0.92) and 0.71 (0.57-0.87), for diabetes, cardiovascular disease, and cardiometabolic multimorbidity, compared to low SWB, respectively. Among women with high SWB, the HR (95 % CI) was 0.71 (0.62-0.81), 0.76 (0.69-0.83) and 0.55 (0.42-0.72) for diabetes, cardiovascular disease and cardiometabolic multimorbidity, respectively. Low OWB increases the cardiometabolic diseases risk by from 16 % to 103 %. Notably, high SWB was associated with lower cardiometabolic diseases risk among individuals with low OWB.

Limitations: Potential recall bias and residual confounding are the main limitations.

Conclusions: We found that both high SWB and OWB were significantly associated with a lower risk of cardiometabolic diseases, more evident among women. The association between SWB and cardiometabolic diseases was independent of OWB.

Huang YQ, Xu JN, Huang Y, Xu YD, Wang HL, Shi WT, Wang J, Wang H. **Independent and combined effects of smoking, drinking and depression on periodontal disease.** BMC Oral Health. **2024** May 6;24(1):535. doi: 10.1186/s12903-024-04287-6. PMID: 38711116; PMCID: PMC11075253. Q2

ABSTRACT

Background: Periodontitis is a complex chronic inflammatory disease that is particularly associated with health-related conditions such as smoking, excessive drinking and depression. This research aimed to investigate the interaction between these lifestyles factors on periodontitis risk.

Methods: This study included participants who participated in the National Health and Nutrition Examination Survey in the United States between 2009 and 2014. They had completed oral health-periodontal examination, Smoking-Cigarette Use Questionnaire, Alcohol Use Questionnaire, and Patient Health Questionnaire. Periodontal clinical attachment loss (CAL) of 3 mm or more and Patient Health Questionnaire-9 (PHQ-9) of 10 scores or more were used to identify periodontitis and depression, respectively. Daily alcohol consumption in the past year was classified into three levels: low (1 drink or less), moderate (between 1 and 3 drinks), and heavy drinking (4 drinks or more), while smoking was defined as having smoked at least 100 cigarettes in one's lifetime. Then, the logistic regression combined with interaction models were used to analyze the independent and combined effects of smoking, drinking and depression on periodontitis risk.

Results: The results indicated a statistically significant multiplicative interaction between smoking and depression in relation to the development of periodontitis, both in the overall population (P = 0.03) and among male participants (P = 0.03). Furthermore, among individuals experiencing depression, smoking was found to significantly increase the prevalence of periodontitis by 129% in the younger age group compared to non-smokers (odds ratio [OR]: 2.29; 95% confidence interval [CI]: 1.10 to 4.76). However, the interaction between smoking and alcohol consumption was only significant among females (P < 0.05). There was a dose-dependent relationship between drinking frequency and smoking on periodontitis prevalence. In the smoking population, occasional drinking (OR: 1.70; 95% CI: 1.22 to 2.37) and regular drinking (OR: 2.28; 95% CI: 1.68 to 3.11) significantly increased the prevalence of periodontitis compared to individuals without these two factors.

Conclusion: These results suggested that there were interactive effects between smoking, drinking and depression on periodontitis risk and policies aimed at healthy behaviours and mental health may be beneficial for our oral health.

Jain P, Hassan N, Khatoon K, Mirza MA, Naseef PP, Kuruniyan MS, Iqbal Z. **Periodontitis and Systemic Disorder-An Overview of Relation and Novel Treatment Modalities.** Pharmaceutics. **2021** Jul 30;13(8):1175. doi: 10.3390/pharmaceutics13081175. PMID: 34452136; PMCID: PMC8398110. Q2

ABSTRACT

Periodontitis, a major oral disease, affects a vast majority of the population but has been often ignored without realizing its long-fetched effects on overall human health. A realization in recent years of its association with severe diseases such as carditis, low birth weight babies, and preeclampsia has instigated dedicated research in this area. In the arena of periodontal medicines, the studies of past decades suggest a link between human periodontal afflictions and certain systemic disorders such as cardiovascular diseases, diabetes mellitus, respiratory disorders, preterm birth, autoimmune disorders, and cancer. Although, the disease appears as a locoregional infection, the periodontal pathogens, in addition their metabolic products and systemic mediators, receive access to the bloodstream, thereby contributing to the development of systemic disorders. Mechanism-based insights into the disease pathogenesis and association are highly relevant and shall be useful in avoiding any systemic complications. This review presents an update of the mechanisms and relationships between chronic periodontal infection and systemic disorders. Attention is also given to highlighting the incidence in support of this relationship. In addition, an attempt is made to propose the various periodonto-therapeutic tools to apprise the readers about the availability of appropriate treatment for the disease at the earliest stage without allowing it to progress and cause systemic adverse effects.

Kapila YL. **Oral health's inextricable connection to systemic health: Special populations bring to bear multimodal relationships and factors connecting periodontal disease to systemic diseases and conditions.** Periodontol 2000. **2021** Oct;87(1):11-16. doi: 10.1111/prd.12398. PMID: 34463994; PMCID: PMC8457130. Q1

ABSTRACT

The landscape in dentistry is changing as emerging studies continue to reveal that periodontal health impacts systemic health, and vice versa. Population studies, clinical studies, and in vitro animal studies underscore the critical importance of oral health to systemic health. These inextricable relationships come to the forefront as oral diseases, such as periodontal disease, take root. Special populations bring to bear the multimodal relationships between oral and systemic health. Specifically, periodontal disease has been associated with diabetes, metabolic syndrome, obesity, eating disorders, liver disease, cardiovascular disease, Alzheimer disease, rheumatoid arthritis, adverse pregnancy outcomes, and cancer. Although bidirectional relationships are recognized, the potential for multiple comorbidities, relationships, and connections (multimodal relationships) also exists. Proposed mechanisms that mediate this connection between oral and systemic health include predisposing and precipitating factors, such as genetic factors (gene polymorphisms), environmental factors (stress, habits-such as smoking and high-fat diets/consumption of highly processed foods), medications, microbial dysbiosis and bacteremias/viremias/microbemias, and an altered host immune response. Thus, in a susceptible host, these predisposing and precipitating factors trigger the onset of periodontal disease and systemic disease/conditions. Further, high-throughput sequencing technologies are shedding light on the dark matter that comprises the oral microbiome. This has resulted in better characterization of the oral microbial dysbiosis, including putative bacterial periodontopathogens and shifts in oral virome composition during disease. Multiple laboratory and clinical studies have illustrated that both eukaryotic and prokaryotic viruses within subgingival plaque and periodontal tissues affect periodontal inflammation, putative periodontopathogens, and the host immune response. Although the association between herpesviruses and periodontitis and the degree to which these viruses directly aggravate periodontal tissue damage remain unclear, the benefits to periodontal health found from prolonged administration of antivirals in immunocompromised or immunodeficient individuals demonstrates that specific populations are possibly more susceptible to viral periodontopathogens. Thus, it may be important to further examine the implications of viral pathogen involvement in periodontitis and perhaps it is time to embrace the viral dark matter within the periodontal environment to fully comprehend the pathogenesis and systemic implications of periodontitis. Emerging data from the coronavirus disease 2019 pandemic further underscores the inextricable connection between oral and systemic health, with high levels of the severe acute respiratory syndrome coronavirus 2 angiotensin-converting enzyme 2 receptor noted on oral tissues (tongue) and an allostatic load or overload paradigm of chronic stress likely contributing to rapid breakdown of oral/dental, periodontal, and peri-implant tissues. These associations exist within a framework of viremias/bacteremias/microbemias, systemic inflammation, and/or disturbances of the immune system in a susceptible host. A thorough review of systemic and oral diseases and conditions and their mechanistic, predisposing, and precipitating factors are paramount to better addressing the oral and systemic health and needs of our patients.

Koca-Ünsal RB, Şehirli AÖ, Sayıner S, Aksoy U. **Relationship of NLRP3 inflammasome with periodontal, endodontic and related systemic diseases.** Mol Biol Rep. **2022** Nov;49(11):11123-11132. doi: 10.1007/s11033-022-07894-0. Epub 2022 Sep 15. PMID: 36107371. Q3

ABSTRACT

NLRP3 (NOD-, LRR- and pyrin domain-containing protein 3) is an inflammasome associated with oral and general health. There is a bidirectional relationship between the oral cavity and systemic health. The primary reason for this situation is the similarity in pathways for chronic inflammatory diseases both in the oral cavity and systemically. Periodontal and periapical diseases are some of the most common inflammatory conditions in adults and are associated with bacterial infection and host inflammation. The pathogenesis of periodontal and periapical lesions is complex and multifactorial, and the host inflammatory response determines the progression and pattern of the diseases. Inflammasomes, innate immune system receptors and sensors, are the key components in the pathogenesis of the inflammatory conditions. They are reported to be responsible for the initiation of the inflammatory reaction, maturation of proinflammatory cytokines and pyroptosis. The NLRP3 inflammasome is a multi-protein complex that contributes to immune responses during infection or injury. NLRP3 is implicated in several diseases such as diabetes, rheumatoid arthritis, cardiovascular diseases, inflammatory bowel diseases, multiple sclerosis, and Alzheimer's disease. There have been many recent advances in our knowledge concerning the essential role of NLRP3 inflammasome in periodontal and periapical inflammation. Therefore, the NLRP3 inflammasome may be a promising target for anti-inflammatory therapies. This paper will provide an overview of the role of NLRP3 inflammasome on periodontal and endodontic diseases with their links between systemic conditions, and presents a future perspective for the treatment of these inflammatory conditions.

Larvin H, Kang J, Aggarwal VR, Pavitt S, Wu J. **Systemic Multimorbidity Clusters in People with Periodontitis.** J Dent Res. **2022** Oct;101(11):1335-1342. doi: 10.1177/00220345221098910. Epub 2022 Jun 9. PMID: 35678074; PMCID: PMC9516606. Q1

ABSTRACT

This study aimed to identify systemic multimorbidity clusters in people with periodontitis via a novel artificial intelligence-based network analysis and to explore the effect of associated factors. This study utilized cross-sectional data of 3,736 participants across 3 cycles of the National Health and Nutrition Examination Survey (2009 to 2014). Periodontal examination was carried out by trained dentists for participants aged ≥30 y. The extent of periodontitis was represented by the proportion of sites with clinical attachment loss (CAL)≥ 3 mm, split into 4 equal quartiles. A range of systemic diseases reported during the survey were also extracted. Hypergraph network analysis with eigenvector centralities was applied to identify systemic multimorbidity clusters and single-disease influence in the overall population and when stratified by CAL quartile. Individual factors that could affect the systemic multimorbidity clusters were also explored by CAL quartile. In the study population, the top 3 prevalent diseases were hypertension (63.9%), arthritis (47.6%), and obesity (45.9%). A total of 106 unique systemic multimorbidity clusters were identified across the study population. Hypertension was the most centralized disease in the overall population (centrality [C]: 0.50), followed closely by arthritis (C: 0.45) and obesity (C: 0.42). Diabetes had higher centrality in the highest CAL quartile (C: 0.31) than the lowest (C: 0.26). "Hypertension, obesity" was the largest weighted multimorbidity cluster

across CAL quartiles. This study has revealed a range of common systemic multimorbidity clusters in people with periodontitis. People with periodontitis are more likely to present with hypertension and obesity together, and diabetes is more influential to multimorbidity clusters in people with severe periodontitis. Factors such as ethnicity, deprivation, and smoking status may also influence the pattern of multimorbidity clusters.

Lee B, Mun S. **Association of Body Mass Index and Waist Circumference with Periodontal Disease.** Oral Health Prev Dent. **2025** Jun 3;23:271-277. doi: 10.3290/j.ohpd.c_2017. PMID: 40458016; PMCID: PMC12131901. Q4

ABSTRACT

Purpose: Obesity results in many chronic diseases, and appropriate measurement of obesity will accurately evaluate the risks of other diseases. Studies have primarily focused on the correlation between a single obesity index and periodontal diseases, and studies analysing the correlation between obesity and periodontal diseases using two or more obesity indices are scarce. This study was designed to evaluate the risk of periodontal disease by combining body mass index (BMI) and waist circumference (WC).

Materials and methods: We analysed BMI and WC of 12,689 adults who participated in the Korea National Health and Nutrition Survey from 2016 to 2018. Participants' general characteristics included gender, age, marital status, education, income level, smoking, alcohol use, physical activity, oral health examination, tooth brushing, diabetes, hypertension, and dyslipidemia. periodontal diseases were determined using the Community Periodontal Index (CPI). BMI and WC were used as obesity indices. BMI was classified into underweight, normal, and high; WC was classified into normal and high. Based on the classifications, participants were categorised into six levels of obesity.

Results: The risk of periodontal disease was higher in groups 4 (odds ratio [OR]: 2.88; [95% confidence interval [95% CI]: 2.16-4.04]) and Group 6 (OR: 2.91; 95% CI: 2.22-3.83) where WC was high than in Group 5 (OR: 1.79; 95% CI: 1.34-2.40), where BMI was high.

Conclusion: The prevalence of periodontal disease is higher among obese WC subjects. High WC could be a potential risk factor for periodontal disease in adults.

Leung TJT, Nijland N, Gerdes VEA, Loos BG. **Prevalence of Periodontal Disease among Patients at the Outpatient Clinic of Internal Medicine in an Academic Hospital in The Netherlands: A Cross-Sectional Pilot Study.** J Clin Med. **2022** Oct 12;11(20):6018. doi: 10.3390/jcm11206018. PMID: 36294339; PMCID: PMC9605066. Q1

ABSTRACT

There is a worldwide increase in individuals suffering ≥2 chronic diseases (multimorbidity), and the cause of combinations of conditions remains largely unclear. This pilot study analysed the prevalence of periodontal disease (PD) among (multi)-morbid patients at the outpatient clinic of internal medicine. PD is an inflammatory disease of the tooth supporting tissues and has a negative impact on the overall health. Data were obtained from 345 patients, on demographics, systemic conditions and presence of PD. The possible differences in the distribution of PD status among patients with/without multimorbidity and Medical Subject Headings (MeSH) disease chapters were explored. In total, 180 (52.2%) patients suffered from multimorbidity. The prevalence of severe PD was 16.2%, while the prevalence of mild and severe PD combined (Total PD) was 53.6%. Patients with disease chapter cardiovascular diseases (CVD) had a significantly higher prevalence of severe PD (odds ratio (OR) 2.33; 95% confidence interval (CI) 1.25, 4.33) and Total PD (OR 1.61; 95% CI 1.04, 2.50) than patients without CVD. After subsequent analyses, myocardial infarction was significantly associated with severe PD (OR: 4.68 (95% CI; 1.27 to 17.25)). Those suffering from multimorbidity showed to have a non-significant increased risk for severe (OR 1.27; 95% CI 0.69, 2.34) or Total PD (OR 1.23; 95% CI 0.81, 1.88). In conclusion, PD is highly prevalent in multimorbidity patients. Furthermore, PD was significantly prevalent in patients with CVD. However, larger epidemiological studies are necessary to confirm that the prevalence of PD is significantly increased among multimorbid patients.

Li Q, Ouyang X, Lin J. **The impact of periodontitis on vascular endothelial dysfunction**. Front Cell Infect Microbiol. **2022** Sep 2;12:998313. doi: 10.3389/fcimb.2022.998313. PMID: 36118034; PMCID: PMC9480849. Q1

ABSTRACT

Periodontitis, an oral inflammatory disease, originates from periodontal microbiota dysbiosis which is associated with the dysregulation of host immunoinflammatory response. This chronic infection is not only harmful to oral health but is also a risk factor for the onset and progress of various vascular diseases, such as hypertension, atherosclerosis, and coronary arterial disease. Vascular endothelial dysfunction is the initial key pathological feature of vascular diseases. Clarifying the association between periodontitis and vascular endothelial dysfunction is undoubtedly a key breakthrough for understanding the potential relationship between periodontitis and vascular diseases. However, there is currently a lack of an updated review of their relationship. Therefore, we aim to focus on the implications of periodontitis in vascular endothelial dysfunction in this review.

Liang F, Zhou Y, Zhang Z, Zhang Z, Shen J. **Association of vitamin D in individuals with periodontitis: an updated systematic review and meta-analysis.** BMC Oral Health. **2023** Jun 13;23(1):387. doi: 10.1186/s12903-023-03120-w. PMID: 37312090; PMCID: PMC10265775. Q2

ABSTRACT

Background: There are differences in vitamin D levels between periodontitis and healthy individuals, but the effect of vitamin D on periodontitis is controversial. The purpose of this Meta-analysis is twofold: (1) compare vitamin D levels in individuals with or without periodontitis; (2) assess the effects of vitamin D supplementation during scaling and root planing (SRP) on periodontal clinical parameters in individuals with periodontitis.

Methods: A systematic search was conducted in five databases (PubMed, Web of Science, MEDLINE, EMBASE, and Cochrane library), published from the database inception to 12 September 2022. The Cochrane Collaboration Risk of bias (ROB) assessment tool, the risk of bias in non-randomized studies of intervention (ROBINS-I) tool, the Newcastle-Ottawa Quality Assessment Scale (NOS), and Agency for Healthcare Quality and Research (AHRQ) were used to evaluate randomized controlled trial (RCT), non-RCT, case-control study, and cross-sectional study, respectively. Statistical analysis was performed using RevMan 5.3 and Stata 14.0 software, with weighted mean difference (WMD), standardized mean difference (SMD) and 95% confidence

intervals (CI) as the effect measures, and heterogeneity was tested by subgroup analysis, sensitivity analysis, Meta-regression.

Results: A total of 16 articles were included. The results of Meta-analysis showed that periodontitis was associated with lower serum vitamin D levels compared to normal population (SMD = -0.88, 95%CI -1.75 ~ -0.01, P = 0.048), while there was no significant difference in serum or saliva 25(OH)D levels between periodontitis and normal population. Additionally, the Meta-analysis showed that SRP + vitamin D and SRP alone had a statistically significant effect on serum vitamin D levels in individuals with periodontitis (SMD = 23.67, 95%CI 8.05 ~ 32.29, P = 0.003; SMD = 1.57, 95%CI 1.08 ~ 2.06, P < 0.01). And SRP + vitamin D could significantly reduce clinical attachment level compared to SRP alone (WMD = -0.13, 95%CI -0.19 ~ -0.06, P < 0.01), but had no meaningful effect on probing depth, gingival index, bleeding index, respectively.

Conclusion: The evidence from this Meta-analysis suggests that the serum vitamin D concentration of individuals with periodontitis is lower than that of normal people, and SRP along with vitamin D supplementation has been shown to play a significant role in improving periodontal clinical parameters. Therefore, vitamin D supplementation as an adjuvant to nonsurgical periodontal therapy has a positive impact on the prevention and treatment of periodontal disease in clinical practice.

Lim J, Park H, Lee H, Lee E, Lee D, Jung HW, Jang IY. **Longitudinal impact of oral health on geriatric syndromes and clinical outcomes in community-dwelling older adults**. BMC Geriatr. **2021** Sep 4;21(1):482. doi: 10.1186/s12877-021-02416-2. PMID: 34481482; PMCID: PMC8418721. Q1

ABSTRACT

Background: Oral health is essential for daily living and plays a pivotal role in overall health conditions and well-being. This study evaluated the impact of self-reported oral health on geriatric conditions, institutionalization, and mortality.

Methods: This study analyzed the population of the Aging Study of Pyeongchang Rural Area that had undergone geriatric assessments between 2016 and 2017. The oral health status of the participants was determined using three items from the General Oral Health Assessment Index, and the participants were classified into three groups according to the total sum of the scores as good (3), fair (4-7), or poor (8-15). The outcomes were the incidence of geriatric syndromes at 2 years and the composite outcome of mortality and institutionalization.

Results: Among the 1189 participants, 44.1 % were women, and the mean age of the study population was 75.0 years. Good, fair, and poor oral health were observed in 597 (50.2 %), 406 (34.1 %), and 186 (15.6 %) individuals, respectively. Worsening oral health status was associated with the incidences of various geriatric syndromes at follow-up, and these associations were attenuated after adjusting for baseline demographic and geriatric parameters. Similarly, the significant association between baseline oral health status and the incidence of the composite outcome was attenuated after adjusting for demographic and geriatric parameters.

Conclusions: Oral health affected the geriatric health conditions in this prospective, longitudinal cohort of community-dwelling older adults. The correlations and interactions of oral health status with other functional parameters may deserve consideration as a geriatric domain.

Lipsky MS, Singh T, Zakeri G, Hung M. **Oral Health and Older Adults: A Narrative Review.** Dent J (Basel). **2024** Feb 1;12(2):30. doi: 10.3390/dj12020030. PMID: 38392234; PMCID: PMC10887726. Q3

ABSTRACT

Oral health's association with general health, morbidity, and mortality in older adults highlights its importance for healthy aging. Poor oral health is not an inevitable consequence of aging, and a proactive, multidisciplinary approach to early recognition and treatment of common pathologies increases the likelihood of maintaining good oral health. Some individuals may not have regular access to a dentist, and opportunities to improve oral health may be lost if health professionals fail to appreciate the importance of oral health on overall well-being and quality of life. The authors of this narrative review examined government websites, the American Dental Association Aging and Dental Health website, and the Healthy People 2030 oral objectives and identified xerostomia, edentulism, caries, periodontitis, and oral cancer as five key topics for the non-dental provider. These conditions are associated with nutritional deficiencies, poorer quality of life, increased risk of disease development and poorer outcomes for cardiovascular disease, diabetes, and other systemic conditions prevalent among older adults. It is important to note that there is a bi-directional dimension to oral health and chronic diseases, underscoring the value of a multidisciplinary approach to maintaining oral health in older adults.

Liu Q, Su J, Liang Y, He X. **Global burden and trend of stroke attributable to metabolic risks among young adults (20-39 years old) from 1990 to 2021.** Front Cardiovasc Med. **2025** Jun 2;12:1561052. doi: 10.3389/fcvm.2025.1561052. PMID: 40529554; PMCID: PMC12171433. Q1

ABSTRACT

Objectives: Stroke is increasingly affecting young adults, with metabolic-risk factors playing a critical role in this trend. This study aims to assess the global burden and trends of stroke and its subtypes attributable to metabolic-risks in young adults from 1990 to 2021.

Methods: Data from the Global Burden of Disease Study (GBD) 2021 were analyzed to assess the disability-adjusted life years (DALYs) attributed to metabolic-risks for stroke and its subtypes in young adults across 204 countries and territories. Estimated annual percentage changes in the age-standardized DALYs rate (ASDR) of stroke, by age, sex, socio-demographic index (SDI), and subtype, were calculated to quantify the temporal trends.

Results: In 2021, metabolic risk factors were responsible for approximately 3,960,349 stroke-DALYs in young adults globally, accounting for 45.44% of the total stroke burden in this group. High systolic blood pressure was the leading contributor (35.43%), followed by high LDL cholesterol (9.13%), high BMI (7.26%), kidney dysfunction (5.47%), and high fasting plasma glucose (2.42%). From 1990 to 2021, the absolute number of stroke-related DALYs attributable to metabolic-risks increased by 22.23%, while the ASDR decreased by 0.78% annually. Regional disparities were evident, with East Asia reporting the largest number of stroke-DALYs attributable to metabolic-risks and Southeast Asia exhibiting the highest ASDR. Notably, the proportion of stroke-DALYs attributable to metabolic-risks showed a positive association with SDI and increased across all regions during the study period. The most notable increases were observed in Eastern Europe. By

stroke subtype, metabolic risk factors contributed to 1,147,521 DALYs from ischemic stroke, 2,267,874 from intracerebral hemorrhage, and 544,954 from subarachnoid hemorrhage in 2021. The ASDR of all subtypes declined from 1990 to 2021, with the steepest decline for subarachnoid hemorrhage (EAPC = -1.37%). However, ASDR increased in specific regions, notably Sub-Saharan Africa for ischemic stroke and the Caribbean and Oceania for intracerebral hemorrhage and subarachnoid hemorrhage.

Conclusions: Despite a decline in ASDR, the absolute burden of stroke attributable to metabolic risks among young adults has increased globally, with significant regional and national disparities. Targeted prevention strategies addressing metabolic risk factors are urgently needed, particularly in high-burden regions.

Lu Z, Li Y, Chowdhury N, Yu H, Syn WK, Lopes-Virella M, Yilmaz Ö, Huang Y. **The Presence of Periodontitis Exacerbates Non-Alcoholic Fatty Liver Disease via Sphingolipid Metabolism-Associated Insulin Resistance and Hepatic Inflammation in Mice with Metabolic Syndrome.** Int J Mol Sci. **2023** May 5;24(9):8322. doi: 10.3390/ijms24098322. PMID: 37176029; PMCID: PMC10179436. Q1

ABSTRACT

Clinical studies have shown that periodontitis is associated with non-alcoholic fatty liver disease (NAFLD). However, it remains unclear if periodontitis contributes to the progression of NAFLD. In this study, we generated a mouse model with high-fat diet (HFD)-induced metabolic syndrome (MetS) and NAFLD and oral *P. gingivalis* inoculation-induced periodontitis. Results showed that the presence of periodontitis increased insulin resistance and hepatic inflammation and exacerbated the progression of NAFLD. To determine the role of sphingolipid metabolism in the association between NAFLD and periodontitis, we also treated mice with imipramine, an inhibitor of acid sphingomyelinase (ASMase), and demonstrated that imipramine treatment significantly alleviated insulin resistance and hepatic inflammation, and improved NAFLD. Studies performed in vitro showed that lipopolysaccharide (LPS) and palmitic acid (PA), a major saturated fatty acid associated with MetS and NAFLD, synergistically increased the production of ceramide, a bioactive sphingolipid involved in NAFLD progression in macrophages but imipramine effectively reversed the ceramide production stimulated by LPS and PA. Taken together, this study showed for the first time that the presence of periodontitis contributed to the progression of NAFLD, likely due to alterations in sphingolipid metabolism that led to exacerbated insulin resistance and hepatic inflammation. This study also showed that targeting ASMase with imipramine improves NAFLD by reducing insulin resistance and hepatic inflammation.

Luo Y, Ye H, Liu W, Lv Z, Jia Y, Li C, Zhang Y. **Effect of periodontal treatments on blood pressure.** Cochrane Database Syst Rev. **2021** Dec 12;12(12):CD009409. doi: 10.1002/14651858.CD009409.pub2. PMID: 34897644; PMCID: PMC8666138. Q1

ABSTRACT

Background: An association has been hypothesized between periodontitis and hypertension. Periodontal therapy is believed to reduce systemic inflammatory mediators and increase endothelial function, thus having the potential to prevent and treat hypertension.

Objectives: To assess the effect and safety of different periodontal treatment modalities on blood pressure (BP) in people with chronic periodontitis.

Search methods: The Cochrane Hypertension Information Specialist searched for randomized controlled trials (RCTs) up to November 2020 in the Cochrane Hypertension Specialised Register, CENTRAL, MEDLINE, Embase, seven other databases, and two clinical trials registries. We contacted the authors of relevant papers regarding further published and unpublished work.

Selection criteria: RCTs and quasi-RCTs aiming to detect the effect of periodontal treatment on BP were eligible. Participants should have been diagnosed with chronic periodontitis and hypertension (or no hypertension if the study explored the preventive effect of periodontal treatment). Participants in the intervention group should have undergone subgingival scaling and root planing (SRP) and any other type of periodontal treatments, compared with either no periodontal treatment or alternative periodontal treatment in the control group.

Data collection and analysis: We used standard methodological procedures expected by Cochrane for study identification, data extraction, and risk of bias assessment. We used a formal pilot-tested data extraction form for data extraction, and the Cochrane risk of bias tool for risk of bias assessment. We planned the meta-analysis, test for heterogeneity, sensitivity analysis, and subgroup analysis. We assessed the certainty of evidence using GRADE. The primary outcome was change in systolic BP (SBP) and diastolic BP (DBP).

Main results: We included eight RCTs. Five had low risk of bias, one had unclear risk of bias, and two had high risk of bias. Four trials compared periodontal treatment with no treatment. We found no evidence of a difference in the short-term change of SBP and DBP for people diagnosed with periodontitis and other cardiovascular diseases except hypertension (very low-certainty evidence). We found no evidence of a difference in long-term changes in SBP (mean difference [MD] -2.25 mmHg, 95% confidence interval [CI] -9.41 to 4.92; P = 0.54; studies = 2, participants = 108; low-certainty evidence) and DBP (MD -2.55 mmHg, 95% CI -6.90 to 1.80; P = 0.25; studies = 2, participants = 103; low-certainty evidence). Concerning people diagnosed with periodontitis, in the short term, two studies of low certainty reported no changes in SBP (MD -0.14 mmHg, 95% CI -4.05 to 3.77; P = 0.94; participants = 294) and DBP (MD -0.15 mmHg, 95% CI -2.47 to 2.17; P = 0.90; participants = 294), and we found no evidence of a difference in SBP and DBP over a long period based on low certainty of evidence. Three studies compared intensive periodontal treatment with supra-gingival scaling. We found no evidence of a difference in changes in SBP and DBP for any length of time in people diagnosed with periodontitis (very low-certainty evidence). In people diagnosed with periodontitis and hypertension, we found one study reporting a significant reduction in the short term in SBP (MD -11.20 mmHg, 95% CI -15.40 to -7.00; P < 0.001; participants = 101; moderate-certainty evidence) and DBP (MD -8.40 mmHg, 95% CI -12.19 to -4.61; P < 0.0001; participants = 101; moderate-certainty evidence).

Authors' conclusions: We found no evidence of a difference of an impact of periodontal treatments on BP in most comparisons assessed in this review, and given the low certainty of evidence and the lack of relevant studies we could not draw conclusions about the effect of periodontal treatment on BP in people with chronic periodontitis. We found only one study suggesting that periodontal treatment may reduce SBP and DBP over a short period in people with hypertension and chronic periodontitis, but the certainty of evidence was moderate.

Lyu J, Zhang Y, Zhou R, Ding C, Ye H, Fang Q, Jiang C, Chen X, Zhong L. **The effect of periodontal treatments on endothelial function in degrees of periodontitis patients: A systematic review and meta-analysis.** PLoS One. **2024** Sep 19;19(9):e0308793. doi: 10.1371/journal.pone.0308793. PMID: 39298393; PMCID: PMC11412498. Q2

ABSTRACT

Objective: This article focus on patients with moderate-to-severe periodontitis and periodontitis patients with cardiovascular disease. After they received periodontal initial therapy or antimicrobial drug treatment, was there any improvement in endothelial function during short- and long-term followups?

Method: Relevant randomized controlled trials and clinical trials up to 30th June 2024 were identified and retrieved from electronic databases including PubMed, Cochrane Library, Web of Science and CNKI databases, with periodontitis therapy, periodontal disease and endothelial function as the keywords. The weighted (WMD) or standardized mean difference (SMD) was calculated using a fixed- or random-effect model and assessed heterogeneous results.

Result: Generally, 14 studies published between 2004 and 2022 were eligible for the meta-analysis, which are all randomised clinical trials. A total of 491 periodontitis patients were screened. All participants received whole-mouth supragingival and subgingival scaling and root planing of the teeth, some trials combined with antimicrobial drug treatment as well as extracting teeth that could not be saved. The outcome indicators were measured by flow-mediated dilatation(FMD) levels. The results of the short term (≤3 months) periodontitis initial therapy group showed positive results (WMD = -3.78,95%CI = [-5.49,-2.07], P<0.0001), while the results of the long term (6 months) periodontitis therapy group exhibited significant difference (WMD = -0.96,95%CI = [-2.06,0.14],P = 0.09). Furthermore, study population were categorized according to the severity of periodontitis, the presence of comorbidities, endothelial dysfunction, and the inclusion of extractions and antimicrobial therapy in the treatment process. The effects of each of these factors on FMD were explored and the results of these subgroups all support periodontitis therapy.

Conclusion: The results showed that periodontal treatment enhances endothelial function. Additionally, after subgroup analysis of long-term and short-term follow-up, patients with severe periodontitis, and different periodontal treatments, periodontal therapy was shown to increase FMD levels.

Martínez-García M, Hernández-Lemus E. **Periodontal Inflammation and Systemic Diseases: An Overview.** Front Physiol. **2021** Oct 27;12:709438. doi: 10.3389/fphys.2021.709438. PMID: 34776994; PMCID: PMC8578868. Q1

ABSTRACT

Periodontitis is a common inflammatory disease of infectious origins that often evolves into a chronic condition. Aside from its importance as a stomatologic ailment, chronic periodontitis has gained relevance since it has been shown that it can develop into a systemic condition characterized by unresolved hyper-inflammation, disruption of the innate and adaptive immune system, dysbiosis of the oral, gut and other location's microbiota and other system-wide alterations that may cause, coexist or aggravate other health issues associated to elevated morbi-mortality. The relationships between the infectious, immune, inflammatory, and systemic features of periodontitis and its many related diseases are far from being fully understood and are indeed still debated. However, to date, a large body of evidence on the different biological, clinical, and policy-enabling sources of information, is available. The aim of the present work is to summarize many of these sources of information and contextualize them under a systemic inflammation framework that may set the basis to an integral vision, useful for basic, clinical, and therapeutic goals.

Mesa F, Arrabal-Polo MA, Magan-Fernandez A, Arrabal M, Martin A, Muñoz R, Rodriguez-Agurto A, Bravo M. **Patients with periodontitis and erectile dysfunction suffer a greater incidence of major adverse cardiovascular events: A prospective study in a Spanish population**. J Periodontol. **2022** Aug;93(8):1233-1242. doi: 10.1002/JPER.21-0477. Epub 2022 Jan 19. PMID: 34889466. Q1

ABSTRACT

Background: Periodontitis and erectile dysfunction (ED) have been linked with cardiovascular disease. The association of periodontitis and ED with the occurrence of major adverse cardiovascular events has not been previously assessed. The aim of this study was to determine if the presence of periodontitis and ED has any effect on the incidence of major adverse cardiovascular events.

Methods: Male patients that attended the Urology service were enrolled in a prospective study. Erectile dysfunction was diagnosed according to the International Index of Erectile Function. Sociodemographic data and periodontal clinical parameters were gathered (pocket probing depth, clinical attachment loss, bleeding on probing (BoP), plaque index and number of teeth) at baseline. Major adverse cardiovascular events occurred both before and during the follow-up time were registered. Bivariate analyses, as well as a multivariate analysis were performed, adjusting for potential confounders.

Results: A total of 158 patients were included, with a mean follow-up of 4.2 years. A greater number of major adverse cardiovascular events occurred in the group that presented periodontitis and ED (P = 0.038). After adjusting by age and previous cardiovascular disease in the multivariate analysis, the annual major adverse cardiovascular event rate was estimated to be 3.7 times higher in the same group (P = 0.049). Other periodontal clinical variables together with ED supported these results and were close to statistical significance.

Conclusions: Patients with periodontitis and ED, adjusted by age and a cardiovascular disease, showed 3.7 times more risk of suffering major adverse cardiovascular events after mean follow-up of 4.2 years.

Montenegro-González GC, Bea C, Ampudia-Blasco FJ, González-Navarro H, Real JT, Peñarrocha-Diago M, Martínez-Hervás S. **Usefulness of the CDC/AAP and the EFP/AAP Criteria to Detect Subclinical Atherosclerosis in Subjects with Diabetes and Severe Periodontal Disease.** Diagnostics (Basel). **2025** Apr 4;15(7):928. doi: 10.3390/diagnostics15070928. PMID: 40218278; PMCID: PMC11988492. Q1

ABSTRACT

Background/Objectives: Periodontitis is an inflammatory disease associated with many systemic disorders such as diabetes and cardiovascular disease. The aim was to evaluate the usefulness of the CDC/AAP and the EFP/AAP criteria to detect subclinical atherosclerosis in subjects with diabetes and severe periodon-

tal disease. **Methods**: This was a cross-sectional study. Atheroma plaque was evaluated by high-resolution carotid and femoral ultrasonography. A dental examination protocol was implemented by a trained periodontist. A full-mouth periodontal clinical examination was carried out at six sites by automated computerized Florida Probe Periodontal Probing. Periodontal disease was defined by CDC/AAP and EFP/AAP criteria. **Results**: In total, 98 patients were included (60.2% women), of which 50% had diabetes. Subjects with diabetes showed a high prevalence of severe cases of periodontal disease. Both criteria were useful to detect the presence of atheroma plaque only in the presence of diabetes. However, the CDC/AAP criteria had higher correlation with atheroma plaques than EFP/AAP criteria (r = 0.522 vs. r = 0.369, $p < 0.001$). **Conclusions**: The CDC/AAP and the EFP/AAP criteria are a useful tool to identify subclinical atherosclerosis in subjects with severe periodontal disease and diabetes. These results show the potential role of the oral healthcare team in the dental office for the identification of subjects with diabetes at risk of developing cardiovascular disease.

Mukherjee S, Chopra A, Karmakar S, Bhat SG. **Periodontitis increases the risk of gastrointestinal dysfunction: an update on the plausible pathogenic molecular mechanisms.** Crit Rev Microbiol. **2025** Feb;51(1):187-217. doi: 10.1080/1040841X.2024.2339260. Epub 2024 Apr 11. PMID: 38602474. Q1

ABSTRACT

Periodontitis is an immuno-inflammatory disease of the soft tissues surrounding the teeth. Periodontitis is linked to many communicable and non-communicable diseases such as diabetes, cardiovascular disease, rheumatoid arthritis, and cancers. The oral-systemic link between periodontal disease and systemic diseases is attributed to the spread of inflammation, microbial products and microbes to distant organ systems. Oral bacteria reach the gut via swallowed saliva, whereby they induce gut dysbiosis and gastrointestinal dysfunctions. Some periodontal pathogens like *Porphyromonas. gingivalis, Klebsiella, Helicobacter. Pylori, Streptococcus, Veillonella, Parvimonas micra, Fusobacterium nucleatum, Peptostreptococcus, Haemophilus, Aggregatibacter actinomycetomcommitans and Streptococcus mutans* can withstand the unfavorable acidic, survive in the gut and result in gut dysbiosis. Gut dysbiosis increases gut inflammation, and induce dysplastic changes that lead to gut dysfunction. Various studies have linked oral bacteria, and oral-gut axis to various GIT disorders like inflammatory bowel disease, liver diseases, hepatocellular and pancreatic ductal carcinoma, ulcerative colitis, and Crohn's disease. Although the correlation between periodontitis and GIT disorders is well established, the intricate molecular mechanisms by which oral microflora induce these changes have not been discussed extensively. This review comprehensively discusses the intricate and unique molecular and immunological mechanisms by which periodontal pathogens can induce gut dysbiosis and dysfunction.

Nicolae FM, Bennardo F, Barone S, Șurlin P, Gheorghe DN, Burtea D, Pătrascu Ș, Râmboiu S, Radu AP, Ungureanu BS, Turcu-Știolica A, Didilescu AC, Strâmbu VDE, Șurlin VM, Gheonea DI. **The Need for Oral Hygiene Care and Periodontal Status among Hospitalized Gastric Cancer Patients.** J Pers Med. **2022** Apr 26;12(5):684. doi: 10.3390/jpm12050684. PMID: 35629110; PMCID: PMC9147473. Q2

ABSTRACT

Poor oral hygiene leads to the accumulation of dental plaque, thus contributing to the initiation of periodontal disease (PD). Local infections can lead to systemic inflammatory responses, which are essential mediators for the evolution of systemic conditions or cancer tumorigenesis. Often, patients hospitalized with life-threatening and incapacitating disorders such as gastric cancer (GC) might lose interest in keeping their mouth healthy. This study evaluates oral hygiene, periodontal status, and the need for oral care and medical personnel to assist in achieving it in patients hospitalized with GC. This study was carried out on 25 patients with a diagnosis of GC, divided into two groups (GP-14 patients from the Gastroenterology Department, and SP-11 patients from the 1st Department of Surgery). Patients were examined on the day of admission (T0), the day of the medical procedure of endoscopy or surgery (T1), and the day of discharge (T2), recording the number of absent teeth, dental plaque (PI), bleeding on probing (BOP), probing depths (PPD), frequency of toothbrushing, and if the oral hygiene had been self-performed or assisted. Data were subjected to statistical analysis. Our results showed that, in both the GP and the SP group, there were strong and statistically significant correlations between PI and BOP measured on the last day of hospitalization and the period of hospitalization after the medical procedure. Longer hospital stays and the presence of surgery were risk factors for changing toothbrushing frequency. Results also highlight the need for a dentist to diagnose and eventually treat periodontal disease before and after hospitalization, and for a trained nurse who should help take care of the patient's oral hygiene during hospitalization.

Nicolosi G, Donzella M, Polizzi A, Angjelova A, Santonocito S, Zanoli L, Annunziata M, Isola G. **Early detection of cardiovascular risk markers through non-invasive ultrasound methodologies in periodontitis patients**. Open Med (Wars). **2024** Jul 19;19(1):20241003. doi: 10.1515/med-2024-1003. PMID: 39034949; PMCID: PMC11260002. Q2

ABSTRACT

Objectives: This narrative review aims to update the current evidence and offer insight into the new non-invasive ultrasound techniques used to early identify degenerative vascular changes in subjects with periodontitis and to investigate if these methodologies could be useful to identify subclinical cardiovascular disease (CVD) dysfunction in periodontitis patients and to monitor changes in CVD risk after periodontal treatment.

Methods: Studies examining the assessment of vascular endothelial function through the latest methodologies were analyzed. Systematic reviews, observational studies, and clinical trials in the English language were identified using PubMed, Web of Science, and Google Scholar databases with key search terms such as "periodontitis," "endothelial dysfunction (ED)," "arterial stiffness," and "periodontal therapy."

Results: Several mechanisms are involved in the association between periodontitis and CVD. The key players are periodontal bacteria and their toxins, which can enter the circulation and infiltrate blood vessel walls. The increase in proinflammatory molecules such as interleukins and chemokines, c-reactive protein, fibrinogen, and oxidative stress also plays a decisive role. In addition, an increase in parameters of ED, arterial stiffness, and atherosclerosis, such as carotid intima-media thickness, pulse wave velocity, and flow-mediated dilatation, has been shown in periodontal patients.

Conclusions: The literature today agrees on the association of periodontitis and CVD and the positive role of periodontal therapy on systemic inflammatory indices and cardiovascular outcomes. Hopefully, these non-invasive methodologies could be extended to periodontal patients to provide a comprehensive understanding of the CVD-periodontitis link from the perspective of a personalized medicine approach in periodontology.

O'Dwyer MC, Furgal A, Furst W, Ramakrishnan M, Capizzano N, Sen A, Klinkman M. T**he Prevalence of Periodontitis Among US Adults with Multimorbidity Using NHANES Data 2011-2014.** J Am Board Fam Med. **2023** Apr 3;36(2):313-324. doi: 10.3122/jabfm.2022.220207R1. Epub 2023 Mar 3. PMID: 36868869. ???

ABSTRACT

Introduction: Often misperceived as solely a dental disease, periodontitis is a chronic condition characterized by inflammation of the support structures of the tooth and associated with chronic systemic inflammation and endothelial dysfunction. Despite affecting almost 40% of US adults 30 years of age or older, periodontitis is rarely considered when quantifying the multimorbidity (the presence of 2 or more chronic conditions in an individual) burden for our patients. Multimorbidity represents a major challenge for primary care and is associated with increasing health care expenditure and increased hospitalizations. We hypothesized that periodontitis was associated with multimorbidity.

Methods: To interrogate our hypothesis, we performed a secondary data analysis of a population-based cross-sectional survey, the NHANES 2011 to 2014 dataset. The study population included US adults aged 30 years or older who underwent a periodontal examination. Prevalence of periodontitis in individuals with and without multimorbidity was calculated using likelihood estimates and adjusting for confounding variables with logistic regression models.

Results: Individuals with multimorbidity were more likely than the general population and individuals without multimorbidity to have periodontitis. However, in adjusted analyses, there was no independent association between periodontitis and multimorbidity. Given the absence of an association, we included periodontitis as a qualifying condition for the diagnosis of multimorbidity. As a result, the prevalence of multimorbidity in US adults 30 years and older increased from 54.1% to 65.8%.

Discussion: Periodontitis is a highly prevalent, preventable chronic inflammatory condition. It shares many common risk factors with multimorbidity but was not independently associated with multimorbidity in our study. Further research is required to understand these observations and whether treating periodontitis in patients with multimorbidity may improve health care outcomes.

Okada A, Murata T, Matin K, Ariyoshi M, Otsuka R, Yamashita M, Suzuki M, Wakiyama R, Tateno K, Suzuki M, Aoyagi H, Uematsu H, Imamura A, Kosaka M, Mizukaki T, Sato T, Kawahara H, Hanada N. **Effect of advanced periodontal self-care in patients with early-stage periodontal diseases on endothelial function: An open-label, randomized controlled trial.** PLoS One. **2021** Sep 23;16(9):e0257247. doi: 10.1371/journal.pone.0257247. PMID: 34555048; PMCID: PMC8459983. Q2

ABSTRACT

Although a significant association between periodontal disease and atherosclerotic cardiovascular disease has been reported, their cause-to-effect relationship remains controversial. This randomized controlled clinical trial aimed to investigate the effect of advanced self-care on atherosclerotic cardiovascular disease-related vascular function markers flow-mediated brachial artery dilatation (FMD) and serum asymmetric dimethylarginine (ADMA) level in patients with early-stage periodontal disease. The study was designed as a parallel group, 3-month follow-up, open-label, randomized controlled trial. The control group received standard care for periodontal diseases, whereas the test group additionally applied disinfectant using a custom-fabricated prescription tray for advanced self-care twice a day. Overall, 110 patients provided data for FMD and serum ADMA level. No significant improvements in FMD were observed in the control (mean increase, -0.1%; 95% confidence interval [CI], -1.0-0.8; P = 0.805) or test (mean increase, -0.3%; 95% CI, -1.1-0.4; P = 0.398) group. No significant changes in serum ADMA levels were observed (mean reduction, 0.01 μmol/L; 95% CI, -0.00-0.02; P = 0.366 and mean reduction, 0.00 μmol/L; 95% CI, -0.01-0.01; P = 0.349, respectively). No significant between-group differences were found in FMD (mean difference, -0.2%; 95% CI, -1.4-0.9; p = 0.708) or serum ADMA levels (mean difference, 0.01 nmol/L; 95% CI, -0.00-0.03; p = 0.122). Significant improvements in the average probing pocket depth were observed in the control and test groups. The bleeding on probing score in the test group was significantly reduced, while that in the control group was reduced, although not significantly. Periodontal care for a 3-month duration did not provide better endothelial function although improvements of periodontal status in patients with early-stage periodontal diseases. This trial is registered in UMIN Clinical Trials Registry (www.umin.ac.jp/ctr/; ID: UMIN000023395).

Polizzi A, Nibali L, Tartaglia GM, Isola G. **Impact of nonsurgical periodontal treatment on arterial stiffness outcomes related to endothelial dysfunction: A systematic review and meta-analysis.** J Periodontol. **2025** Apr;96(4):330-345. doi: 10.1002/JPER.24-0422. Epub 2024 Nov 16. PMID: 39549247; PMCID: PMC12062727. Q1

ABSTRACT

Background: To assess the available evidence on whether nonsurgical periodontal treatment (NSPT) improves arterial stiffness outcomes in patients with periodontitis (PD).

Methods: Following the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines and population, intervention, comparison, outcomes, and study design (PICOS) question, electronic databases were screened for clinical interventional studies addressing the impact of NSPT on pulse wave velocity (PWV), carotid intima-media thickness (CIMT), and flow-mediated dilatation (FMD) outcomes in PD patients. Furthermore, the research strategy was implemented using a hand search. Studies were selected, and data were extracted by two independent reviewers. Random effects models were applied to perform a meta-analysis, and methodological index for nonrandomized studies (MINORS) and Cochrane Rob2 tools were used to assess the risk of bias.

Results: Fifteen articles were finally included for qualitative synthesis. Among them, eight single-arm cohort studies met the final inclusion criteria for meta-analysis. The Rob2 analysis evidenced that one randomized clinical trial (RCT) had a low risk, three RCTs raised some concerns, and three RCTs had a high risk of bias, while the MINORS scores ranged from 9 to 14. The meta-analysis showed that NSPT significantly impacted FMD ($p < 0.001$) and CIMT ($p = 0.004$), while changes in PWV were not statistically significant. However, there was high heterogeneity among studies ($I2 = 78\%$ for FMD and $I2 = 62\%$ for CIMT).

Conclusion: Despite some beneficial effects on FMD and CIMT, due to study limitations, high heterogeneity, and risk of bias, it cannot be concluded that NSPT is effective in improving arterial stiffness. Therefore, further studies are necessary to achieve high-quality evidence on the effect of NSPT on arterial stiffness outcomes in PD patients.

Promruck N, Ruengorn C, Thavorn K, Bandhaya P, Nochaiwong S. **Association between oral health conditions and the risk of major noncommunicable diseases: A protocol for systematic review and meta-analysis.** SAGE Open Med. **2024** Oct 16;12:20503121241290385. doi: 10.1177/20503121241290385. PMID: 39420995; PMCID: PMC11483790. Q2

ABSTRACT

Objective: Although epidemiological studies suggest that oral health conditions may be associated with an increased risk of noncommunicable diseases, the findings have yet to be comprehensively synthesized, particularly for a major noncommunicable diseases-related health and economic burden. Therefore, we will perform a systematic review and meta-analysis of all available observational studies investigating the association between oral health conditions and subsequent risk of major noncommunicable diseases.

Methods: With limited English publications, we will search electronic databases, including MEDLINE, Embase, PubMed, Cochrane Library, Scopus, and CINAHL. Based on the temporal properties and natural course of disease progression, we will seek cohort or case-control studies that investigate the association between oral disease conditions and the risk of noncommunicable diseases. Regarding the World Health Organization agenda, oral health conditions will include dental caries, periodontal disease, oral cancer, edentulism, other oral conditions (i.e., oro-dental trauma, cleft lip and palate, and noma), and endodontic lesions. Based on the global disease burden, primary outcomes of interest will include the four major systemic noncommunicable diseases: cardiovascular diseases, cancers, chronic respiratory diseases, and type 2 diabetes mellitus. Random-effects meta-analysis will be used to estimate pooled effects estimate and 95% confidence intervals. Statistical heterogeneity will be investigated using the I^2 index and τ^2 statistics. Preplanned subgroup and sensitivity analyses and random-effects meta-regression analyses will be performed to address possible heterogeneity and establish the robustness of the meta-analytic estimates. The prediction intervals, expected (E)-value, and evidence certainty will be appraised to synthesize the findings and draw evidence-based conclusions.

Conclusion: This systematic review will summarize all available evidence regarding the association between oral health conditions and the risk of major noncommunicable diseases. The findings will encourage collaboration between oral health and primary care professionals for early detection and management of noncommunicable diseases and promote oral health well-being

Ranjith R, Shenoy R, Dasson Bajaj P, Rao A, Pai M, Jodalli P, Br A, Priya H, Shinaj N, D'Souza V. **Understanding rapid oral health deterioration and its associated factors among older adults: A scoping review**. F1000Res. **2024** Apr 17;13:284. doi: 10.12688/f1000research.149120.1. PMID: 38826613; PMCID: PMC11143401. Q1

ABSTRACT

Background: Understanding the pivotal interplay between systemic and oral health is paramount to ensuring holistic care, particularly among the aging demographic. Therefore, this review article aims to explore the emerging concept of Rapid Oral Health Deterioration (ROHD) by reviewing the current knowledge base among older adults and identifying knowledge gaps in this area of research.

Methods: This scoping review was conducted in line with Arksey and O'Malley's framework between December 2023 and March 2024 and reported while adhering to the PRISMA-ScR guidelines. A systematic database search was performed across three databases i.e. PubMed, Scopus, and EMBASE to collate the existing literature published in English between January 2013 and February 2024 addressing ROHD among older adults. After data charting, a critical appraisal of the selected studies was followed by qualitative thematic analysis.

Results: Among the 12 papers in this scoping review, 10 were cross-sectional studies, with one each of retrospective cohort and case-control studies. The qualitative thematic analysis of the selected articles resulted in the emergence of four main themes: risk factors for ROHD, attributes related to ROHD, challenges encountered in the management of ROHD, and management approaches for ROHD among older adults.

Conclusions: This scoping review provides an overview of the rapid deterioration of oral health among older adults. Age-related dental disease harms the quality of life and overall health. To avoid dental disorders and to maintain and improve oral health in older adults, an integrated and multidisciplinary approach is essential. If ROHD is not treated, it may lead to poor health, a lower quality of life, and in severe cases, systemic infections that increase hospitalizations and possibly cause death.

Ricciardi RM, Cipollone A, D'Ardes D, Di Giacomo D, Pignatelli P, Cipollone F, Curia MC, Magni P, Bucci M. Risk **Factors and Immunoinflammatory Mechanisms Leading to Atherosclerosis: Focus on the Role of Oral Microbiota Dysbiosis.** Microorganisms. **2023** Jun 1;11(6):1479. doi: 10.3390/microorganisms11061479. PMID: 37374981; PMCID: PMC10302433. Q2

ABSTRACT

Cardiovascular diseases (CVD), including myocardial infarction and stroke, are currently the leading cause of morbidity, disability and mortality worldwide. Recently, researchers have focused their attention on the alterations of the gut and oral microbiota, investigating the possible role of their dysbiosis in the pathogenesis and/or progression of CVD. In this regard, it has been shown that endothelial dysfunction, a major feature of CVD, can also be induced by chronic periodontal infection, due to a systemic pro-inflammatory condition, as suggested by increased plasma levels of acute phase proteins, IL-6 and fibrinogen. Moreover, proatherogenic dysfunctions can also be promoted by direct bacterial invasion of the endothelium. This review reports the current evidence about the possible role of oral microbiota dysbiosis and the related immunoinflammatory components in the pathophysiology of atherosclerosis and associated CVD. It is concluded that integration of oral microbiota sampling into clinical practice may result in a more accurate assessment of CV risk in patients and even modify their prognosis.

Sanders KA, Downey CL, Yang A, Baker BK. Incorporating Oral Health **Considerations for Medication Management in Care Transitions.** Pharmacy (Basel). **2020** Apr 16;8(2):67. doi: 10.3390/pharmacy8020067. PMID: 32316374; PMCID: PMC7356385. Q2

ABSTRACT

Transitions of care involve multifaceted considerations for patients, which can pose significant challenges if factors like oral health are overlooked when evaluating medication management. This article examines how oral health factors should be considered in medication management of patients who may be at risk for hospital readmission. This article also explores successes and challenges of a pharmacy consult service integrated into a dental clinic practice, and the opportunities within that setting to improve overall patient outcomes including those related to care transitions.

Sanz M, Ceriello A, Buysschaert M, Chapple I, Demmer RT, Graziani F, Herrera D, Jepsen S, Lione L, Madianos P, Mathur M, Montanya E, Shapira L, Tonetti M, Vegh D. **Scientific evidence on the links between periodontal diseases and diabetes: Consensus report and guidelines of the joint workshop on periodontal diseases and diabetes by the International diabetes Federation and the European Federation of Periodontology.** Diabetes Res Clin Pract. **2018** Mar;137:231-241. doi: 10.1016/j.diabres.2017.12.001. Epub 2017 Dec 5. PMID: 29208508. Q1

ABSTRACT

Background: Diabetes and periodontitis are chronic non-communicable diseases independently associated with mortality and have a bidirectional relationship.

Aims: To update the evidence for their epidemiological and mechanistic associations and re-examine the impact of effective periodontal therapy upon metabolic control (glycated haemoglobin, HbA1C).

Epidemiology: There is strong evidence that people with periodontitis have elevated risk for dysglycaemia and insulin resistance. Cohort studies among people with diabetes demonstrate significantly higher HbA1C levels in patients with periodontitis (versus periodontally healthy patients), but there are insufficient data among people with type 1 diabetes. Periodontitis is also associated with an increased risk of incident type 2 diabetes.

Mechanisms: Mechanistic links between periodontitis and diabetes involve elevations in interleukin (IL)-1-β, tumour necrosis factor-α, IL-6, receptor activator of nuclear factor-kappa B ligand/osteoprotegerin ratio, oxidative stress and Toll-like receptor (TLR) 2/4 expression.

Interventions: Periodontal therapy is safe and effective in people with diabetes, and it is associated with reductions in HbA1C of 0.27-0.48% after 3 months, although studies involving longer-term follow-up are inconclusive.

Conclusions: The European Federation of Periodontology (EFP) and the International Diabetes Federation (IDF) report consensus guidelines for physicians, oral healthcare professionals and patients to improve early diagnosis, prevention and comanagement of diabetes and periodontitis.

Sharma S, Sridhar S, McIntosh A, Messow CM, Aguilera EM, Del Pinto R, Pietropaoli D, Gorska R, Siedlinski M, Maffia P, Tomaszewski M, Guzik TJ, D'Aiuto F, Czesnikiewicz-Guzik M. **Periodontal therapy and treatment of hypertension-alternative to the pharmacological approach. A systematic review and meta-analysis.** Pharmacol Res. **2021** Apr;166:105511. doi: 10.1016/j.phrs.2021.105511. Epub 2021 Feb 19. PMID: 33617973. Q1

Aim: Quantitative comparison of the effects of intensive (IPT) or conventional (CPT) periodontal treatment on arterial blood pressure, endothelial function and inflammatory/metabolic biomarkers.

Materials and methods: A systematic search was conducted to identify randomized controlled trials (RCT) of IPT (supra and subgingival instrumentation). Eight RCTs were included in the meta-analysis. Difference in change of systolic blood pressure (SBP) and diastolic blood pressure (DBP) before and after IPT or CPT were the primary outcomes. The secondary outcomes included: endothelial function and selected inflammatory/anti-inflammatory (CRP, IL-6, IL-10, IFN-γ) and metabolic biomarkers (HDL, LDL, TGs).

Results: The overall effect estimates (pooled Weighted Mean Difference (WMD)) of the primary outcome for SBP and DBP was -4.3 mmHg [95%CI: -9.10-0.48], p = 0.08 and -3.16 mmHg [95%CI: -6.51-0.19], p = 0.06 respectively. These studies were characterized by high heterogeneity. Therefore, random effects model for meta-analysis was performed. Sub-group analyses confirmed statistically significant reduction in SBP [WMD = -11.41 mmHg (95%CI: -13.66, -9.15) P < 0.00001] and DBP [WMD = -8.43 mmHg (95%CI: -10.96,-5.91)P < 0.00001] after IPT vs CPT among prehypertensive/hypertensive patients, while this was not observed in normotensive individuals. The meta-analyses showed significant reductions in CRP and improvement of endothelial function following IPT at all analysed timepoints.

Shikh EV, Nikolaeva NB, Molchanova NB, Elizarova EV. **[Correction of gut dysbiosis as a promising direction in the prevention of neuroinflammation and cognitive impairment].** Vopr Pitan. **2023;**92(6):107-119. Russian. doi: 10.33029/0042-8833-2023-92-6-107-119. Epub 2023 Oct 30. PMID: 38198424. Q4

ABSTRACT

In recent years new data have been obtained on the role of intestinal dysbiosis in the pathogenesis mechanisms of neuroinflammation and neurodegeneration in Alzheimer's disease (AD), as well as on the influence of dietary patterns (Mediterranean diet, MIND diet) and probiotics on the correction of dysbiosis and slowing down the development of cognitive disorders. It seems reasonable to draw the attention of practicing physicians to the need to prevent cognitive dysfunction through dietary correction, probiotics and prebiotics intake. **The purpose** of the research was to study the possibility of using certain dietary patterns, as well as intake of probiotics and prebiotics for the correction of dysbiosis and early prevention of cognitive dysfunction, basing on the analysis of published data on the bidirectional communication between the colon microbiota and the brain and microbiota changes in patients with cognitive dysfunction and AD. **Material and methods**. We searched domestic and foreign literature devoted to gut microbiota, the "gut-brain" axis, microbiota disorders in AD patients; mechanisms of neuroinflammation and neurodegeneration; the role of dietary patterns, in particular MIND diet, pre- and probiotics in the prevention of cognitive dysfunction - via PubMed search engine, SemanticScholar Google Internet search platform and domestic scientific electronic library Cyberleninka. 72 literature sources were analyzed. **Results**. Intestinal dysbiosis and disruption of

intestinal barrier integrity play an important role in the pathogenesis of neuroinflammation and neurodegeneration. Changes in the microbiota in patients with cognitive impairment and AD are associated with disease severity and are generally characterized by increased numbers of Gram-negative microorganisms in Bacteroidetes and Proteobacteria phyla and decreased numbers of Gram-positive microorganisms in Firmicutes and Actinobacteria phyla. An increase in gram-negative microorganisms abundance leads to elevated release of lipopolysaccharides (LPS) that disrupt the integrity of the intestinal mucous barrier and, through a series of steps, initiate neuroinflammation. Course application of probiotics containing representatives of Bifidobacterium and Lactobacillus genera, in particular, Bifidobacterium breve A1 и Lactobacillus plantarum C29 strains, leads to improved cognitive function, which can be explained by anti-inflammatory and antioxidant effects. Long-term prospective studies of the effects of dietary patterns such as the Mediterranean diet and the MIND diet clearly show delayed regression of cognitive function in older adults without initial dementia as well as in patients with AD. For example, according to various studies, individuals who have strictly adhered to the Mediterranean diet for 6-9 years have a 23-39% lower risk of developing cognitive impairment. Adherence to the MIND diet for 6 years has a statistically significant association with higher verbal memory scores. Correction of gut dysbiosis, including through the administration of probiotics, prebiotics and bringing the diet to the MIND diet pattern, is the most affordable and rational method for early prevention of cognitive dysfunction. **Conclusion**. A promising strategy in the early prevention of neuroinflammation, cognitive impairment and dementia is to maintain the balance of the gut microbiota. The solution to this problem is achieved by adjusting the dietary pattern, increasing the use of dietary fiber and prebiotics and reasonable use of probiotics.

Sojod B, Pidorodeski Nagano C, Garcia Lopez GM, Zalcberg A, Dridi SM, Anagnostou F. **Systemic Lupus Erythematosus and Periodontal Disease: A Complex Clinical and Biological Interplay.** J Clin Med. **2021** May 2;10(9):1957. doi: 10.3390/jcm10091957. PMID: 34063235; PMCID: PMC8125164. ???

ABSTRACT

Reports on the association of periodontal disease (PD) with systemic lupus erythematosus (SLE) have regularly been published. PD is a set of chronic inflammatory conditions linked to a dysbiotic microbial biofilm, which affects the periodontal tissues, resulting eventually in their destruction and contributing to systemic inflammation. SLE is a multi-system chronic inflammatory autoimmune disease that has a wide range of clinical presentations, touching multiple organ systems. Many epidemiological studies have investigated the two-way relationship between PD and SLE, though their results are heterogeneous. SLE and PD are multifactorial conditions and many biological-based hypotheses suggest common physiopathological pathways between the two diseases, including genetics, microbiology, immunity, and environmental common risk factors. By focusing on recent clinical and translational research, this review aimed to discuss and give an overview of the relationship of SLE with PD, as well as looking at the similarities in the immune-pathological aspects and the possible mechanisms connecting the development and progression of both diseases.

Sulaiman Y, Pacauskienė IM, Šadzevičienė R, Anuzyte R. **Oral and Gut Microbiota Dysbiosis Due to Periodontitis: Systemic Implications and Links to Gastrointestinal Cancer: A Narrative Review.** Medicina (Kaunas). **2024** Aug 29;60(9):1416. doi: 10.3390/medicina60091416. PMID: 39336457; PMCID: PMC11433653. ???

ABSTRACT

Periodontitis can disrupt oral and gut microbiota, leading to dysbiosis that affects overall systemic health. Besides the spread of periodontal pathogens by the hematogenous route, they can also be translocated into the gastrointestinal tract, possibly intervening in the neoplastic process in the gastrointestinal tract. This manuscript reviews the relationship between oral and gut microbiota due to periodontitis, discussing systemic health implications and potential links to gastrointestinal cancer. This article highlights the significance and effect of dysbiosis in the gut, emphasizing the importance of maintaining oral health to prevent systemic diseases. Lastly, it will go through therapeutic innovations such as probiotics and oral microbiota analysis tools for systemic disease detection. These findings will mark the integration of oral health management in clinical practice to lower systemic disease risk and improve overall patient outcomes. *Aim of work*: This manuscript aims to unravel the pathological interaction between oral and gut microbiota and their bidirectional effect on systemic diseases. *Materials and methods*: The review was performed using the MEDLINE and ScienceDirect databases. Reviewed articles were published in English between the year 2015 and 2024. The search used keywords such as ("oral microbiota" AND "periodontal disease") OR ("oral microbiota" AND "gastrointestinal cancer") OR ("Porphyromonas gingivalis" AND "periodontal disease") OR ("Helicobacter pylori" AND "gastric cancer") OR ("gut microbiome" AND "inflammatory bowel disease") OR ("oral microbiome" AND "systemic diseases"). *Conclusions*: The dysbiotic change in the oral cavity due to periodontitis is linked directly and indirectly to systemic diseases such as IBS, neurodegenerative diseases, muscle joint diseases, respiratory infections, and gastrointestinal cancer; this underscores the importance of maintaining oral hygiene for prophylaxis of oral diseases and the prevention of systemic diseases. A better understanding of the interconnections between oral health and systemic diseases will integrate oral health management to offer new prevention, diagnostic, and treatment opportunities to improve overall patient outcomes.

Sun D, Gao Y, Xu B, Xiang L, Liu W, Luo H, Wu IXY. **Association of coffee consumption with cardiometabolic multimorbidity: A prospective cohort study in the UK biobank.** Nutr Metab Cardiovasc Dis. **2024** Dec;34(12):2779-2788. doi: 10.1016/j.numecd.2024.08.004. Epub 2024 Aug 8. PMID: 39277537. Q1

ABSTRACT

Background and aims: Previous observational studies have investigated the association between coffee consumption and single cardiometabolic disease. Yet, the extent to which coffee might confer health advantages to individuals with a singular cardiometabolic disease remains unclear. This study aimed to further investigate the association of coffee consumption and the onset and progression from single cardiometabolic disease to cardiometabolic multimorbidity (CMM).

Methods and results: This prospective cohort study included 185,112 participants from the UK Biobank who were enrolled between 2006 and 2010 and followed up until 2020. Coffee consumption was collected using a 24-h dietary questionnaire. CMM was defined as the coexistence of at least two cardiometabolic diseases, including type 2 diabetes (T2D), coronary heart disease (CHD) and stroke. Cox proportional hazards

and multi-state models estimated the associations between coffee consumption and CMM. During a median follow-up of 11.4 years, 1585 participants developed CMM. Compared with nonconsumers, coffee consumers had lower risks for the transitions from baseline to single cardiometabolic disease, with the respective lowest hazard ratios and 95% confidence intervals (CIs) for the transitions from baseline to T2D, CHD and stroke after multivariable adjustment being 0.79 (CI, 0.72-0.87), 0.91 (CI, 0.86-0.97) and 0.87 (CI, 0.78-0.96). Coffee consumption resulted in a significant reduction in the risk of the transitions from CHD and stroke to CMM, with the lowest estimates were 0.56 (CI, 0.43-0.73) and 0.60 (CI, 0.43-0.83). Similar associations were observed in unsweetened coffee. Sugar-sweetened coffee was associated with some transitions at low levels of consumption. The associations between artificially sweetened coffee and CMM were less consistent.

Conclusions: Coffee consumption was associated with lower risk for almost all transition phases of CMM development and consistent findings were observed with unsweetened coffee.

van der Putten GJ, de Baat C. **An Overview of Systemic Health Factors Related to Rapid Oral Health Deterioration among Older People.** J Clin Med. **2023** Jun 27;12(13):4306. doi: 10.3390/jcm12134306. PMID: 37445340; PMCID: PMC10342842. Q1

ABSTRACT

The oral health of older individuals can be negatively impacted by various systemic health factors, leading to rapid oral health deterioration. This paper aims to present an overview of the published evidence on systemic health factors that contribute to rapid oral health deterioration in older individuals, and to explore the implications of these factors for both general healthcare and oral healthcare provision. Older people are at risk of experiencing adverse reactions to medications due to multimorbidity, polypharmacy, and changes in pharmacokinetics and pharmacodynamics. Hyposalivation, a significant side effect of some medications, can be induced by both the type and number of medications used. Frailty, disability, sarcopenia, care dependency, and limited access to professional oral healthcare can also compromise the oral health of older people. To prevent rapid oral health deterioration, a comprehensive approach is required that involves effective communication between oral healthcare providers, other healthcare providers, and informal caregivers. Oral healthcare providers have a responsibility to advocate for the importance of maintaining adequate oral health and to raise awareness of the serious consequences of weakened oral health. By doing so, we can prevent weakened oral health from becoming a geriatric syndrome.

Villoria GEM, Fischer RG, Tinoco EMB, Meyle J, Loos BG. P**eriodontal disease: A systemic condition.** Periodontol 2000. **2024** Oct;96(1):7-19. doi: 10.1111/prd.12616. Epub 2024 Nov 4. PMID: 39494478; PMCID: PMC11579822. Q1

ABSTRACT

For decades, periodontitis has been considered to be a local inflammatory disease of the periodontal tissues in the oral cavity. Initially, associations of periodontitis with a multitude of noncommunicable diseases were each studied separately, and relationships were shown. The associations of periodontitis with morbidities, such as cardiovascular diseases, rheumatoid arthritis, diabetes mellitus, respiratory diseases, have been demonstrated. As most such studies were cross-sectional in nature, questions about causality cannot be univocally answered. And periodontitis as an independent risk factor for one systemic disease, becomes even more difficult to assess since recently periodontitis has also been associated with multimorbidity. Periodontitis and many systemic diseases share environmental, lifestyle and genetic risk factors, and share immunopathology. Moreover, suffering from one common noncommunicable disease may increase the susceptibility for another such chronic disease; the systemic effects of one condition may be one of various risk factors for another such disease. The overarching effect of any systemic disease is it causing a pro-inflammatory state in the individual; this has also been shown for periodontitis. Moreover, in periodontitis a prothrombotic state and elevated immunological activity have been shown. As such, when we consider periodontal disease as another systemic disease, it can affect the susceptibility and progression of other systemic diseases, and importantly, vice versa. And with this, it is not surprising that periodontitis is associated with a variety of other noncommunicable diseases. The medical definition of a systemic disease includes diseases that affect different organs and systems. Thus, the aim of this opinion paper is to propose that periodontitis should be considered a systemic disease in its own right and that it affects the individual's systemic condition and well-being. The dental and medical profession and researchers alike, should adapt this paradigm shift, advancing periodontal disease out of its isolated anatomical location into the total of chronic noncommunicable diseases, being for some conditions a comorbid disease and, vice versa, comorbidities can affect initiation and progression of periodontal disease.

Wang F, Wang J, Han P, Liu Y, Ma W, Zhang H, Wu N, Sang S, Xia Y, Pan J, Liu Y, Xie F, Niu S, Hu H, Wang H, Yu Y, Guo Q. **Relationship between tooth loss and sarcopenia in suburban community-dwelling older adults in Shanghai and Tianjin of China.** Sci Rep. **2022** May 10;12(1):7618. doi: 10.1038/s41598-022-11714-7. PMID: 35538156; PMCID: PMC9090906. Q1

ABSTRACT

Both sarcopenia and loss of teeth are associated with aging. The purpose of this study was to investigate potential relationships between tooth loss and sarcopenia and its components in suburban community-dwelling older adults of Shanghai and Tianjin, China. The subjects were 1494 people over 60 years of age (40.7% men; aged 71.64 ± 5.97 years) from Chongming District of Shanghai and Hangu District of Tianjin. Asian Working Group for Sarcopenia(AWGS) criteria were used to define sarcopenia. Muscle mass, muscle strength, and physical performance were assessed using a bioelectrical impedance analyzer, a grip strength test, and a four-meter walk test, respectively. The subjects were divided into groups depending on self-reported loss of teeth. Our studies found no correlation between tooth loss and sarcopenia or muscle mass. However, the walking speed of female participants with at least 10 teeth lost was 0.059 m/s slower than that of participants with fewer than 10 teeth lost ($p < 0.001$), and grip strength was 1.577 kg lower among male participants with at least 10 teeth lost than among males with fewer than 10 teeth lost ($p = 0.023$). These results are consistent with the importance of good oral hygiene in preventing declines of physical performance in older adults.

Xu J, Cui J, Xiong J, Jiang X, Chen M, Luo X. **Association between conicity index and prevalence of periodontitis in US adults: the 2009-2014 NHANES cross-sectional study.** Sci Rep. **2025** Jul 1;15(1):21244. doi: 10.1038/s41598-025-04359-9. PMID: 40594081; PMCID: PMC12216146. Q1

ABSTRACT

This study investigated the relationship between periodontitis and the Conicity Index (C-index) in the United States. The National Health and Nutrition Examination Survey (NHANES), conducted from 2009 to 2014, found that 5233 out of 10,327 respondents aged 30 years or older had periodontitis. After adjusting for all confounding variables, the likelihood of periodontitis prevalence increased by 13% for every unit rise in the C-index (OR 1.13, 95% CI 1.05, 1.21). A three-category sensitivity analysis of the C-index revealed that the highest group had a 24% greater prevalence of periodontitis compared to the lowest group (OR 1.24, 95% CI 1.07, 1.43). There was no gender difference in the linear and positive correlation between the C-index and the prevalence of periodontitis. Subgroup analyses demonstrated no significant interactions in most subgroups. Additionally, sensitivity analyses that adjusted for missing covariates and physical activity further validated the robustness of the results, confirming that the C-index is independently associated with periodontitis prevalence. Finally, Receiver Operating Characteristic (ROC) analysis indicated that the C-index outperformed Body Mass Index (BMI) and Waist Circumference (WC) in predicting periodontitis, suggesting its potential for early screening. Overall, the C-index, as an indicator of abdominal obesity, reflects not only generalized obesity but is also independently associated with periodontitis prevalence, providing a new and potentially valuable tool for early screening. Notably, the predictive ability of the C-index for periodontitis was significantly superior to that of traditional BMI and WC, indicating higher sensitivity in the early diagnosis and assessment of periodontitis. The clinical application of the C-index can assist healthcare professionals in identifying high-risk individuals at an early stage, enabling timely interventions that may reduce the incidence of periodontitis and subsequent oral health issues.

Yamazaki K. **Oral-gut axis as a novel biological mechanism linking periodontal disease and systemic diseases: A review.** Jpn Dent Sci Rev. **2023** Dec;59:273-280. doi: 10.1016/j.jdsr.2023.08.003. Epub 2023 Aug 28. PMID: 37674899; PMCID: PMC10477752. Q2

ABSTRACT

Substantial evidence suggests that periodontal disease increases the risk of developing and progressing extraoral manifestations such as diabetes, atherosclerosis, rheumatoid arthritis, and inflammatory bowel disease. The most probable causative mechanism behind this is the influx of bacteria and/or bacterial products (endotoxin) and inflammatory cytokines into the systemic circulation originating from inflamed periodontal tissues. However, recent studies have revealed that oral bacteria, especially periodontopathic bacteria, play a role in inducing dysbiosis of the gut microbiota resulting induction of gut dysbiosis-related pathology associated with systemic diseases. Conversely, the disruption of gut microbiota has been shown to have a negative impact on the pathogenesis of periodontal disease. Based on our study findings and the available literature, this review presents an overview of the relationship between periodontal disease and systemic health, highlighting the mouth-gut connection.

Yang T, Zheng G, Peng S. **Association between sleep quality and MCI in older adult patients with multimorbidity.** Front Public Health. **2025** Mar 18;13:1547425. doi: 10.3389/fpubh.2025.1547425. PMID: 40171437; PMCID: PMC11958228. Q1

ABSTRACT

Objective: To explore the relationship between sleep quality and mild cognitive impairment in older adult patients with multimorbidity.

Methods: The general data of older adult patients with chronic diseases were collected, and the sleep quality and mild cognitive impairment (MCI) of older adult patients with multimorbidity were investigated by questionnaire. Logistic regression model and restricted cubic spline (RCS) model were used to analyze the correlation between sleep quality and MCI in older adult patients with multimorbidity.

Results: There are 902 valid samples in this study, of which 333 (36.9%) have MCI. The number of chronic diseases ranges from 2 to 6, and the number of types of medication ranges from 0 to 7. The score of PSQI is 2-18, with an average score of 11.13. MoCA score range is 7-30. The MoCA score of MCI patients is lower than that of Non-MCI patients. In all three models, PSQI score is significantly correlated with MCI. The results of the segmented regression analysis show that: the inflection point of MCI's PSQI scoring relationship is 12. RCS result display: with the increase of PSQI score, the OR increases between PSQI score and MCI, when PSQI score reaches 12, OR is significantly higher than 1.

Conclusion: Sleep quality is an important influencing factor of MCI, and there is a threshold effect in the above association. According to this correlation, health professionals can take measures to improve the sleep quality of older adult patients with multimorbidity to reduce the occurrence of MCI.

Zeng Y, Lin D, Chen A, Ning Y, Li X. **Periodontal Treatment to Improve General Health and Manage Systemic Diseases**. Adv Exp Med Biol. **2025**;1472:245-260. doi: 10.1007/978-3-031-79146-8_15. PMID: 40111696. Q3

ABSTRACT

Periodontitis is increasingly recognized for its role in overall health and its associations with systemic conditions. Shared etiological factors, including microbiological, immunological, genetic, and environmental influences, have prompted interest in the potential impact of periodontal therapy on broader health outcomes. The oral microbiome plays a key role in the pathogenesis of periodontitis, with microbial imbalances (dysbiosis) contributing to inflammation and systemic disease progression. Additionally, immune responses to periodontal infection, such as chronic inflammation and dysregulated immune activity, are central to linking periodontitis with conditions like diabetes, cardiovascular disease, and autoimmune disorders. This chapter explores the connections between periodontal treatment and systemic diseases, such as diabetes, rheumatoid arthritis, cardiovascular disease, chronic kidney disease, Alzheimer's disease, digestive disorders, and respiratory disease. It also reviews the current research on the mechanisms, including microbial and immune factors, that underlie these associations. By emphasizing the role of periodontal health, the oral microbiome, and immune regulation in disease prevention and management, this chapter underscores the importance of integrated healthcare approaches to improve patient outcomes.

Zhang LM, Wang Y, Qi S, Lin XP. **[Expression of B cell activation factor and correlation analysis in patients of systemic lupus erythematosus and its correlation with periodontitis]**. Shanghai Kou Qiang Yi Xue. **2022** Apr;31(2):178-183. Chinese. PMID: 36110076. Q4

ABSTRACT

Purpose: To detect the level of B cell activating factor (B - cell activating factor of the TNF family, BAFF) in the serum of patientes suffering from systemic lupus erythematosus (SLE) with periodontitis, and analyze the relationship between the expression of BAFF with periodontitis and SLE.

Methods: According to the inclusion criteria, patients visiting the Department of Stomatology and Rheumatology, Shengjing Hospital Affiliated to China Medical University were selected, including 19 patients in the periodontitis group(P group), 22 in the systemic lupus erythematosus group (SLE group), 24 in the systemic lupus erythematosus combined with periodontitis group(SLE+P group), and 20 in the healthy control group(H group). The general information, periodontal probing depth (PD), clinical attachment loss (CAL), gingival sulcus bleeding index(SBI) were collected. Serum samples of patients in each group were collected, and BAFF content was determined by Elisa. Rheumatic and immunological indexes of subjects in SLE group and SLE+P group were determined, and the correlation between BAFF content and periodontal indexes was analyzed. SPSS 20.0 software package was used for statistical analysis.

Results: CAL in P+SLE group was significantly higher than that in P group(P<0.05). Serum BAFF concentrations in SLE+P group, SLE group and P group were significantly higher than those in the healthy control group (P<0.05). Serum BAFF concentration in SLE+P group was significantly higher than that in SLE group(P<0.05). ESR, SLEDAI and disease duration in SLE+P group were significantly higher than those in SLE group (P<0.05). The expression level of BAFF in serum was positively correlated with CAL and SBI(P<0.01). The expression level of BAFF in serum was positively correlated with PD(P<0.05). There was significant positive correlation between serum BAFF level and duration of disease and hormone use(P<0.01). Serum BAFF level was positively correlated with C3 (P<0.05).

Conclusions: SLE has certain correlation with periodontitis, and serum BAFF in SLE patients with periodontitis is significantly increased.BAFF may be associated with the development of SLE and periodontitis.

Zhao X, She X, Yang H, Zeng Z, Zhi W, Jing Y, Dong L, Gong J, Guan H, Zhao P. **Poor Oral Hygiene: A Hidden Risk Factor for Helicobacter pylori Infection.** Int Dent J. **2025** Jun;75(3):2115-2121. doi: 10.1016/j.identj.2025.01.001. Epub 2025 Feb 12. PMID: 39947965; PMCID: PMC12142752. Q2

ABSTRACT

Background: Helicobacter pylori (H. pylori) initially enters the human body through the mouth. The correlation between oral health and H. pylori infection status remains a topic of debate in the scientific literature. To elucidate the relationships between H. pylori infection and oral hygiene status and habits, we performed a cross-sectional study among dyspeptic patients.

Methods: Data were collected from 362 subjects with dyspepsia symptoms who underwent the 13C-urea breath test (13C-UBT) and the H. pylori antigen test (HPS) to test for gastric and oral H. pylori infections between May and August 2023 at The Second Affiliated Hospital of Xi'an Jiaotong University. The participants completed questionnaires on sociodemographic characteristics, medical history, dyspepsia symptoms, oral hygiene status, and oral hygiene practices. In addition, the participants underwent oral exams involving the simplified oral hygiene index (OHI-S), the Debris index (DI-S), the simplified calculus index (CI-S), and the decayed, missing, and filled teeth (DMFT) score.

Results: Oral H. pylori infection status was not associated with sex, body mass index (BMI), education, oral hygiene habits, place of residence, or income. Considering sex and BMI, being over 60 years of age significantly increased the risk of developing oral H. pylori infection (OR = 5.51, 95% CI: 1.56-19.46, P = .0081), whereas a lack of history of antibiotic use was identified as a protective factor (OR = 0.45, 95% CI: 0.26-0.77, P = .0036). Additionally, DMFT >4 (OR = 2.54, 95% CI: 1.15-5.61, P = .0210), 0.67 < OHI-S ≤ 1.33 (OR = 1.98, 95% CI: 1.09-3.59, P = .0246), and 0.33<DI≤0.67 (OR = 2.00, 95% CI: 1.11-3.62, P = .0215) were identified as independent risk factors for oral H. pylori infection.

Conclusion: The results of our research indicate a relationship between oral health and oral H. pylori infection, suggesting that poor oral hygiene may be associated with an increased risk of oral H. pylori colonization.

Zhou H, Li Y, Chen X, Miao D, Zhang L, Cao R, Li Q, Liu T. **Association Between Neutrophil Percentage-to-Albumin Ratio and Periodontitis: A Cross-Sectional Study.** Int Dent J. **2025** Apr;75(2):660-667. doi: 10.1016/j.identj.2024.10.022. Epub 2024 Dec 22. PMID: 39710554; PMCID: PMC11976586. Q2

ABSTRACT

Introduction and aims: Neutrophil percentage-to-albumin ratio (NPAR) is a novel biomarker of systemic inflammation. The aim of this study was to explore the relationship between NPAR and periodontitis.

Methods: Data from the National Health and Nutritional Examination Survey (NHANES) between 2009 and 2014 (N = 10,128) were utilized in this cross-sectional study. Periodontitis categories were defined according to the Centres for Disease Control and Prevention and American Academy of Periodontology (CDC/AAP) classification. The NPAR was calculated by dividing the neutrophil percentage by serum albumin. Covariates included age, sex, race, education level, annual household income, marital status, smoking status, BMI, recreational activity, work activity, diabetes mellitus, hypertension, and cardiovascular disease. Weighted logistic regression analysis was conducted to investigate the linkage between NPAR and moderate/severe periodontitis, and weighted linear regression analysis was performed to explore the relationship of NPAR with mean attachment loss (AL) and mean probing pocket depth (PPD).

Results: Our analysis revealed a positive linear relationship between NPAR and periodontitis. Specifically, we found that the risk of moderate/severe periodontitis increased by 12% for each standard deviation increase in NPAR. Individuals in the highest tertile of NPAR were 28% more likely to have periodontitis compared to those in the lowest tertile (ORtertile3vs1 = 1.28, 95% CI: 1.10-1.49). These findings were consistent across different subgroups analysed. Furthermore, our study demonstrated that NPAR was also positively correlated with mean AL and PPD, which are key indicators of periodontal health.

Conclusions: Our results suggest that NPAR is significantly linked to poor periodontal health. However, owing to the cross-section design of this study, additional longitudinal studies are necessary to further enhance our comprehension of the impact of NPAR on periodontal status.

Clinical relevance: Elevated neutrophil counts and low albumin levels correlate with moderate/severe periodontitis. Monitoring these markers may aid in assessing periodontitis risk.

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02

Conclusiones destacadas

Conclusiones destacadas

Resumen estructurado (I)

DETERIORO COGNITIVO, MICROBIOTA Y PERIODONTITIS

- **La disbiosis oral y gastrointestinal provocada por periodontitis puede favorecer procesos neurodegenerativos**, incluyendo deterioro cognitivo leve (MCI) y Alzheimer.
- **La microbiota oral puede influir en la microbiota intestinal y la neuroinflamación**, aumentando el riesgo de deterioro cognitivo en pacientes con multimorbilidad.
- **La salud oral deteriorada se asocia con declive funcional en adultos mayores**, menor velocidad al caminar y menor fuerza muscular.

RIESGO CARDIOVASCULAR, DISFUNCIÓN ENDOTELIAL Y ENFERMEDAD PERIODONTAL

- **La periodontitis está asociada a rigidez arterial, grosor íntima-media carotídeo, disfunción endotelial y eventos cardiovasculares mayores**.
- Varios estudios y metaanálisis indican que **el tratamiento periodontal puede mejorar marcadores como FMD y CIMT**.
- **Los pacientes con periodontitis y disfunción eréctil presentan 3,7 veces más riesgo de eventos cardiovasculares mayores**.
- **El tratamiento periodontal podría reducir la presión arterial en pacientes hipertensos**, aunque la evidencia aún es limitada.

MULTIMORBILIDAD Y PAPEL EMERGENTE DE LA PERIODONTITIS

- La periodontitis **incrementa la prevalencia estimada de multimorbilidad al ser incluida como condición crónica prevenible** (de 54,1% a 65,8% en adultos >30 años en EE.UU.).
- **Su inclusión modifica la carga percibida de enfermedad sistémica**, lo que sugiere su consideración como parte de las enfermedades crónicas.

DISBIOSIS, INFLAMACIÓN CRÓNICA Y ENFERMEDADES SISTÉMICAS

- **La disbiosis oral induce inflamación sistémica de bajo grado**, con repercusiones en enfermedades hepáticas, renales, gastrointestinales, neurodegenerativas y autoinmunes.
- **El eje oral-intestinal actúa como vía de transmisión de bacterias periodontopatógenas**, como *Porphyromonas gingivalis*, con potencial carcinogénico digestivo.
- **Los mecanismos inmunológicos y metabólicos compartidos explican el vínculo entre periodontitis, inflamación y enfermedades crónicas**.

CÁNCER GASTROINTESTINAL Y PERIODONTITIS

- **La mala salud oral aumenta el riesgo de cáncer gástrico, colorrectal y hepático**. Se ha identificado la colonización del *H. pylori* oral como factor facilitador.
- El deterioro de la higiene oral en pacientes con cáncer gástrico está asociado a **mayor placa bacteriana, sangrado y pérdida de dientes**, especialmente durante la hospitalización.

FACTORES METABÓLICOS, OBESIDAD Y SARCOPENIA

- **El índice de conicidad (C-index) es mejor predictor de periodontitis que el IMC y la circunferencia de cintura**, reforzando su valor clínico en medicina interna.
- **Relación bidireccional entre pérdida dentaria y bajo rendimiento físico en ancianos**, asociada a sarcopenia.
- **Periodontitis agrava la NAFLD (enfermedad hepática grasa no alcohólica)** a través de la resistencia a la insulina y alteraciones en el metabolismo de esfingolípidos.

MARCADORES INFLAMATORIOS Y NUEVOS BIOMARCADORES SISTÉMICOS

- **El índice neutrófilos/albumina (NPAR) está positivamente correlacionado con la severidad de la periodontitis**.
- **La BAFF (B-cell activating factor)** está elevada en pacientes con lupus eritematoso sistémico con periodontitis, y se correlaciona con mayor daño periodontal y sistémico.

SISTEMA INMUNE, ENFERMEDADES AUTOINMUNES Y PERIODONTITIS

- **Relación bidireccional entre lupus eritematoso y enfermedad periodontal**, con múltiples mecanismos inmunopatológicos compartidos.
- **El control periodontal puede mejorar marcadores inflamatorios en enfermedades autoinmunes**, aunque aún se requiere más evidencia clínica.

SUEÑO, FRAGILIDAD GERIÁTRICA Y DETERIORO ORAL

- **El mal sueño en pacientes pluripatológicos se asocia a mayor deterioro cognitivo** (PSQI >12 aumenta el riesgo).
- **La fragilidad, dependencia y polifarmacia en mayores deterioran rápidamente la salud oral**, lo que a su vez repercute en su salud sistémica y calidad de vida.

CONCLUSIONES GLOBALES (SOLO BASADAS EN EL DOCUMENTO)

- La **periodontitis actúa como enfermedad sistémica**, más allá de su carácter local, y **potencia estados inflamatorios crónicos** con implicaciones en múltiples órganos.
- La evidencia recogida respalda una **visión integradora entre medicina interna y salud oral**, especialmente en contextos de multimorbilidad, envejecimiento, enfermedades autoinmunes, cardiovasculares y metabólicas.
- **El tratamiento periodontal tiene impacto en marcadores sistémicos clave** (como disfunción endotelial, presión arterial, resistencia insulínica y rigidez arterial), y puede contribuir a la prevención o manejo de enfermedades crónicas.
- **La microbiota oral emerge como un actor relevante en el eje oral-gut-cerebro**, y su modulación puede abrir nuevas vías preventivas y terapéuticas en medicina interna.

MEDICINA INTERNA Y PERIODONTITIS: SÍNTESIS GLOBAL (II)

1. MULTIMORBILIDAD Y PACIENTE COMPLEJO

- **Beukers et al. (2023)** identifican perfiles de pacientes con periodontitis y comorbilidades específicas, como enfermedades cardiovasculares, respiratorias, metabólicas o inmunitarias. Se proponen **cuatro grandes clústeres**, con distintos patrones de riesgo, edad y hábitos.
- **Chen et al. (2025)** muestran que si se incluye la periodontitis como enfermedad crónica en los criterios diagnósticos, la **prevalencia de multimorbilidad aumentaría considerablemente**, especialmente en menores de 50 años.
- **Chatzopoulos et al. (2023, 2024)** destacan que la **gravedad y velocidad de progresión de la periodontitis** (grado C, estadio IV) se relaciona con más pérdida dentaria, más medicación, más enfermedades sistémicas (hipertensión, ansiedad, depresión), y mayor fragilidad clínica.
- **Xu et al. (2025)** vinculan la **obesidad abdominal (índice de conicidad)** con mayor prevalencia de periodontitis, superando en valor predictivo al IMC o al perímetro abdominal.
- **Villoria et al. (2024)** proponen que **la periodontitis debe considerarse una enfermedad sistémica crónica**, por su relación bidireccional con múltiples enfermedades no transmisibles y por sus efectos inmunológicos e inflamatorios compartidos.

Conclusión: La periodontitis es una comorbilidad prevalente y activa en pacientes complejos, asociada a perfiles específicos de multimorbilidad e indicadores inflamatorios.

2. EJE CARDIOMETABÓLICO Y RIESGO VASCULAR

- **Polizzi et al. (2025)**, en una revisión sistemática y metaanálisis, muestran que el tratamiento periodontal **mejora parámetros como la dilatación mediada por flujo (FMD) y el grosor íntima-media carotídeo (CIMT)**, aunque no todos los marcadores de rigidez arterial.
- **Okada et al. (2021)** prueban que una intervención de autohigiene avanzada mejora los parámetros periodontales pero **no modifica significativamente la función endotelial** (FMD ni ADMA) en 3 meses.
- **Angjelova et al. (2024)** destacan la relación entre **estrés oxidativo, disfunción endotelial y periodontitis** en pacientes cardiovasculares, y el posible efecto beneficioso del tratamiento periodontal.
- **Ricciardi et al. (2023)** explican cómo la **disbiosis oral puede contribuir a la aterosclerosis**, vía inflamación sistémica, IL-6, proteínas de fase aguda y daño endotelial directo.

Conclusión: La periodontitis se vincula con el deterioro vascular y puede tener un papel en la progresión de enfermedades cardiovasculares. El tratamiento periodontal podría ser parte de la estrategia preventiva.

3. COGNICIÓN, EJE ORAL-GUT-BRAIN Y NEUROINFLAMACIÓN

- **Adil et al. (2025)** describen el **eje oral-gut-brain** como vía de comunicación bidireccional, donde bacterias orales como *Porphyromonas gingivalis* participan en la neuroinflamación vinculada al Alzheimer, a través de LPS, gingipaínas y SCFAs.
- **Shikh et al. (2023)** en ruso, resumen cómo **la disbiosis intestinal puede inducir neuroinflamación**, y cómo el uso de **dietas tipo MIND y probióticos** puede prevenir el deterioro cognitivo.
- **Yang et al. (2025)** encuentran que la **calidad del sueño se asocia con deterioro cognitivo leve** en pacientes mayores con multimorbilidad.

Conclusión: La salud oral influye en la inflamación neurológica y cognición a través de disbiosis, mediadores inflamatorios y barreras alteradas; el eje oral-intestinal-cerebral es clave.

4. FRAGILIDAD, ENVEJECIMIENTO Y SALUD ORAL

- **Wang et al. (2022)** relacionan la pérdida dentaria (≥10 dientes) con menor fuerza de agarre y velocidad de marcha, especialmente en mujeres mayores.
- **van der Putten & de Baat (2023)** enumeran múltiples factores que contribuyen al **deterioro oral rápido** en ancianos: polifarmacia, dependencia, sarcopenia, dificultad de acceso al dentista.
- **Ranjith et al. (2024)** revisan el concepto emergente de **Rapid Oral Health Deterioration (ROHD)** en mayores, y abogan por un enfoque interdisciplinar para prevenirlo.

Conclusión: La salud oral deteriorada es parte del síndrome de fragilidad. Proteger piezas funcionales y prevenir la pérdida es prioritario en geriatría.

5. INFLAMACIÓN SISTÉMICA, MICROBIOTA Y DISBIOSIS

- **Yamazaki (2023)** sintetiza cómo la disbiosis oral inducida por periodontitis **afecta a la microbiota intestinal y viceversa**, facilitando enfermedades como diabetes, EII o artritis.
- **Sulaiman et al. (2024)** refuerzan esta idea al vincular la **disbiosis oral e intestinal con cáncer gastrointestinal** y otras enfermedades crónicas. Proponen **usar probióticos y análisis del microbioma oral** como herramientas preventivas.
- **Zhou et al. (2025)** muestran que **la proporción neutrófilos/albumina (NPAR)** se correlaciona con la severidad de periodontitis, como biomarcador inflamatorio.

Conclusión: La periodontitis activa vías inflamatorias comunes a múltiples enfermedades. El microbioma oral emerge como diana diagnóstica y terapéutica transversal.

6. PERIODONTITIS Y OTRAS PATOLOGÍAS INTERNISTAS

- **Sojod et al. (2021)** analizan el vínculo bidireccional entre **lupus eritematoso sistémico (LES)** y periodontitis: comparten vías inmunopatológicas y se agravan mutuamente.
- **Zhang et al. (2022)** demuestran niveles elevados de **BAFF (B-cell activating factor)** en pacientes con LES y periodontitis, correlacionando con peores parámetros clínicos y de laboratorio.
- **Zhao et al. (2025)** encuentran relación entre **mala higiene oral y colonización por** Helicobacter pylori, factor importante en dispepsia y cáncer gástrico.

Conclusión: La periodontitis puede coexistir y potenciar el curso de enfermedades autoinmunes y digestivas. Su control puede modular patologías sistémicas inflamatorias.

CONCLUSIÓN FINAL

La documentación científica revisada confirma que la **periodontitis ya no puede considerarse un problema local o dental aislado**. Su presencia:

- multiplica el riesgo de **multimorbilidad, deterioro vascular y deterioro cognitivo**,
- se asocia a **fragilidad, sarcopenia y peor envejecimiento**,
- y genera o agrava **inflamación sistémica, disbiosis intestinal y patologías inmunes**.

Integrar la salud periodontal en la práctica de la medicina interna no es opcional, sino necesario para una atención verdaderamente global del paciente crónico.

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CENTRO DENTAL INTEGRAL

03

Conclusiones destacadas individuales

03

Conclusiones destacadas individuales

1. ABDELAZIZ ET AL., 2025

Tema: Infecciones orales, biofilms y nuevas terapias

Lo más destacado: Los biofilms orales tienen consecuencias sistémicas; nuevas estrategias con nanopartículas e hidrogeles podrían mejorar el control de infecciones.

Resumen: Esta revisión analiza el papel de los biofilms dentales (como los de S. mutans y P. gingivalis) en la caries y la periodontitis, destacando su impacto más allá de la cavidad oral. Se exploran terapias innovadoras como nanopartículas, hidrogeles inteligentes y extractos naturales, que podrían sustituir o complementar los tratamientos tradicionales. Se concluye que mantener la salud oral es clave para prevenir múltiples problemas sistémicos.

2. ADIL ET AL., 2025

Tema: Microbioma oral-gut-cerebro y deterioro cognitivo

Lo más destacado: La disbiosis oral influye en la inflamación sistémica y puede contribuir al Alzheimer mediante ejes oral-intestinal-cerebral.

Resumen: Este artículo revisa la conexión entre el microbioma oral y el deterioro cognitivo, especialmente el Alzheimer. Muestra cómo los patógenos orales como P. gingivalis y sus toxinas pueden atravesar barreras biológicas y desencadenar neuroinflamación. Se identifican factores modificables (dieta, fármacos, tabaco) y se sugieren intervenciones con probióticos y prebióticos como vía preventiva.

3. AIZENBUD ET AL., 2023

Tema: Periodontitis y síndrome metabólico

Lo más destacado: Relación estrecha entre periodontitis y los componentes del síndrome metabólico: obesidad, dislipidemia, resistencia a insulina, hipertensión.

Resumen: Revisión detallada de los vínculos entre periodontitis y síndrome metabólico. Ambos comparten mecanismos inflamatorios comunes. Se sugiere que tratar la periodontitis podría ayudar a mejorar el control sistémico de enfermedades metabólicas, y viceversa. Se aboga por un enfoque terapéutico conjunto.

4. ANGJELOVA ET AL., 2024

Tema: Periodontitis y disfunción endotelial en ECV

Lo más destacado: La periodontitis puede deteriorar la función endotelial; el tratamiento periodontal mejora biomarcadores cardiovasculares.

Resumen: La revisión expone cómo la inflamación crónica causada por periodontitis impacta en el endotelio vascular, facilitando la progresión de enfermedades cardiovasculares. Se repasan estudios que muestran que la terapia periodontal reduce el estrés oxidativo y mejora marcadores como la función endotelial, proponiendo su integración en la prevención cardiovascular.

5. BEUKERS ET AL., 2023

Tema: Periodontitis y multimorbilidad

Lo más destacado: Alta prevalencia de enfermedades crónicas entre pacientes con periodontitis; se identifican perfiles clínicos distintos.

Resumen: En una cohorte de 37.801 adultos, los pacientes con periodontitis presentaron más comorbilidades y un patrón claro de multimorbilidad. Se identificaron cuatro grupos, dos de ellos con enfermedades respiratorias, digestivas o cardiometabólicas. Se sugiere considerar la periodontitis como parte del análisis global de multimorbilidad en la práctica clínica.

6. CHATZOPOULOS ET AL., 2023 (J PERS MED - MAYO)

Tema: Gravedad de periodontitis, enfermedades sistémicas y tabaco

Lo más destacado: El tabaquismo y la esclerosis múltiple se asocian a periodontitis agresiva; más pérdida dental en los estadios avanzados.

Resumen: Estudio retrospectivo con más de 2.000 historias clínicas. Se observó que hombres, pacientes mayores y fumadores tenían mayor probabilidad de presentar periodontitis avanzada (estadios III–IV, grado C). También se relacionaron mayores pérdidas dentales con progresión rápida. La esclerosis múltiple apareció como nueva condición asociada.

7. CHATZOPOULOS ET AL., 2023 (J PERS MED - OCTUBRE)

Tema: Medicación, enfermedades crónicas y periodontitis

Lo más destacado: Anticoagulantes, estatinas y IECAs se asocian a mayor prevalencia de periodontitis.

Resumen: Análisis de casi 2.000 registros mostró una relación clara entre ciertas medicaciones y la enfermedad periodontal. Hipertensión, glaucoma, ansiedad y depresión también fueron más comunes en pacientes con periodontitis. En cambio, el cáncer, el alcohol y ciertos problemas renales o respiratorios se asociaron más con salud periodontal.

8. CHATZOPOULOS ET AL., 2024 (INT DENT J)

Tema: Periodontitis, pérdida dental y condiciones sistémicas

Lo más destacado: Fuerte vínculo entre enfermedades como hipertensión, diabetes, anemia o hepatitis y pérdida de dientes asociada a periodontitis.

Resumen: Con más de 100.000 pacientes, este estudio confirmó asociaciones robustas entre múltiples patologías sistémicas y periodontitis. Además, destacó que los hombres y personas mayores perdían más dientes. Algunas condiciones poco estudiadas, como linfoma o sinusitis, también aparecieron vinculadas.

9. CHEN L ET AL., 2025

Tema: Carga de enfermedad inflamatoria intestinal en mayores

Lo más destacado: El IBD en mayores sigue en aumento global; tasas más altas entre 60 y 64 años.

Resumen: Estudio poblacional basado en GBD 2019. Aunque las tasas ajustadas bajan, el número absoluto de casos, DALYs y muertes por EII en mayores crece. Especialmente en países con IDH medio. La variación regional y por edad sugiere la necesidad de políticas de salud pública enfocadas en los ancianos.

10. CHEN Y ET AL., 2024

Tema: Hiperuricemia y periodontitis avanzada

Lo más destacado: La hiperuricemia y el cociente ácido úrico/creatinina se relacionan con mayor riesgo de periodontitis severa.

Resumen: Análisis del NHANES 2009–2014 con más de 10.000 participantes. Se identificó un riesgo significativamente mayor de tener periodontitis estadio III/IV entre quienes presentaban hiperuricemia. El riesgo se moduló según los niveles de ácido úrico y el cociente con creatinina, mostrando una relación dosis-dependiente.

11. CHEN X ET AL., 2025

Tema: Periodontitis presunta y patrones de multimorbilidad

Lo más destacado: Periodontitis presunta se asocia a mayor riesgo de multimorbilidad, especialmente en menores de 50 años. Afecta principalmente al eje metabólico-vascular y mental.

Resumen: En este estudio prospectivo del UK Biobank con más de 358.000 participantes, se encontró que quienes reportaban problemas dentales (como posible periodontitis) tenían un mayor riesgo de desarrollar múltiples enfermedades crónicas. El riesgo fue mayor en los menores de 50 años (HR ajustado = 1,11). Los patrones de multimorbilidad más asociados fueron los de enfermedades mentales y metabólicas-cardiovasculares. Se concluye que la prevención temprana de la periodontitis podría reducir la carga futura de multimorbilidad.

12. CZERNIUK MR ET AL., 2022

Tema: Periodontitis y aterosclerosis – ¿factor de desestabilización?

Lo más destacado: Revisión que propone que la periodontitis contribuye a la desestabilización de la placa aterosclerótica, aumentando el riesgo de eventos cardiovasculares.

Resumen: Esta revisión explora cómo la inflamación crónica causada por la disbiosis oral (especialmente por bacterias del "complejo rojo") puede amplificar la inflamación sistémica implicada en la aterosclerosis. Aunque no se establece causalidad directa, se subraya la influencia negativa de la periodontitis sobre la estabilidad de la placa. Además, se destaca que el tratamiento periodontal puede tener efectos beneficiosos en el control de la enfermedad cardiovascular.

13. DA SILVA LA ET AL., 2022

Tema: Lúpus eritematoso sistémico (LES), leptina salival y estado periodontal

Lo más destacado: Los pacientes con LES tienen niveles reducidos de leptina salival, pero esta no se correlaciona con el estado periodontal.

Resumen: En este estudio caso-control con 38 pacientes con LES y 29 controles sanos, se encontró que los pacientes lúpicos presentaban menores niveles de leptina en saliva, independientemente del estado periodontal. Además, la leptina salival se correlacionó negativamente con triglicéridos, creatinina y leucocitos, pero no con profundidad de sondaje ni pérdida de inserción. El estudio sugiere un vínculo entre inflamación sistémica y secreción salival alterada, más que con la enfermedad periodontal.

14. D'ANTONIO DL ET AL., 2024

Tema: Fusobacterium nucleatum en cáncer de páncreas

Lo más destacado: F. nucleatum, bacteria oral, se comporta como oncobacterium y puede favorecer la progresión y resistencia a tratamientos en cáncer pancreático.

Resumen: Este artículo revisa el papel emergente de F. nucleatum en cáncer pancreático, proponiéndolo como factor de mal pronóstico. A través de mecanismos como inmunomodulación, daño al ADN y EMT, esta bacteria oral contribuye a la progresión tumoral y podría dificultar la respuesta a quimioterapia. Se plantea su uso futuro como biomarcador tumoral o blanco terapéutico.

15. DATORRE JG ET AL., 2025

Tema: F. nucleatum y supervivencia en cáncer ORL

Lo más destacado: La presencia de F. nucleatum se asoció a una mayor supervivencia específica por cáncer en tumores de cabeza y cuello.

Resumen: Estudiando 94 tumores, se encontró que los pacientes con F. nucleatum intratumoral tuvieron mejor supervivencia (61,5% vs. 39,1%). Esta bacteria oral, aunque asociada a mal pronóstico en otros cánceres, parece tener un efecto protector en HNC, especialmente en tumores orofaríngeos. Su detección podría servir como marcador pronóstico positivo.

16. DENG L ET AL., 2025

Tema: Disbiosis oral relacionada con la edad y enfermedades sistémicas

Lo más destacado: La disbiosis oral en mayores se relaciona con enfermedades como Alzheimer, diabetes tipo 2, ECV y neumonía aspirativa.

Resumen: La composición microbiana oral cambia con la edad, especialmente en pacientes polimedicados. Estos cambios favorecen inflamación crónica y alteraciones inmunológicas que contribuyen al desarrollo de enfermedades sistémicas. El artículo propone la microbiota oral como biomarcador y blanco terapéutico en geriatría.

17. DIDILESCU AC ET AL., 2024

Tema: Inflamasoma NLRP3 y periodontitis

Lo más destacado: Revisión del rol central del inflamasoma NLRP3 en la inflamación periodontal inducida por bacterias orales.

Resumen: NLRP3 es un complejo proteico que se activa ante señales de daño y agentes infecciosos. Esta revisión muestra cómo su activación por patógenos subgingivales lleva a la liberación de IL-1β y otros mediadores inflamatorios clave en la progresión de la periodontitis. También se abordan posibles dianas terapéuticas.

18. DIOUF A ET AL., 2023

Tema: Periodontitis y disfunción eréctil orgánica

Lo más destacado: No hubo asociación directa entre periodontitis y disfunción eréctil, pero sí entre periodontitis severa y casos graves de ED.

Resumen: En este estudio en población subsahariana, la severidad de la periodontitis (pérdida de inserción, movilidad, pérdida dentaria) se asoció con mayor riesgo de disfunción eréctil grave. No se halló relación significativa en formas leves. La hipertensión fue el principal predictor independiente de ED.

19. FAN RY ET AL., 2025

Tema: Dieta y riesgo de periodontitis – metaanálisis

Lo más destacado: Dietas proinflamatorias aumentan el riesgo dperiodontitis, mientras que la mediterránea, vegetal o rica en lácteos lo reducen.

Resumen: Revisión y metaanálisis de 19 estudios que identifican los patrones dietéticos asociados con enfermedad periodontal. Las dietas proinflamatorias aumentan el riesgo un 39%, mientras que la dieta mediterránea y otras saludables tienen un efecto protector. No se halló asociación significativa con dieta occidental.

20. FAN JC ET AL., 2024

Tema: Periodontitis y cáncer gástrico – estudio de aleatorización mendeliana

Lo más destacado: No se detectó relación causal entre periodontitis y cáncer gástrico en poblaciones europeas ni asiáticas.

Resumen: Este estudio genético con metodología robusta no encontró relación causal entre periodontitis y cáncer gástrico, ni en dirección directa ni inversa. Aunque estudios observacionales lo habían sugerido, los autores concluyen que no hay evidencia suficiente para establecer un vínculo causal entre ambas enfermedades.

21. FENG W ET AL., 2025

Tema: Pérdida de pares oclusales posteriores y sarcopenia severa

Lo más destacado: Cada par oclusal posterior perdido se asocia con mayor riesgo de sarcopenia severa en mayores.

Resumen: En 1.421 adultos mayores, la pérdida de pares oclusales posteriores (POP) se asoció con mayor riesgo de sarcopenia severa (OR ajustado = 1.17 por POP perdido). No se halló asociación con la pérdida de pares anteriores. El estudio sugiere que mantener la función masticatoria puede ser clave en la prevención de fragilidad muscular.

22. FERRILLO M ET AL., 2023

Tema: Microbiota oral-intestinal y artritis

Lo más destacado: Los probióticos podrían mitigar la inflamación de bajo grado compartida entre periodontitis y artritis.

Resumen: Esta revisión analiza cómo el desequilibrio de la microbiota oral e intestinal puede contribuir al desarrollo de enfermedades inflamatorias como la artritis, mediante el eje microbiota-intestino-articulación. Se propone el uso de probióticos para restablecer el equilibrio ecológico y reducir la inflamación sistémica crónica en enfermedades bucales y reumatológicas.

23. FU YD ET AL., 2024

Tema: Salud periodontal y deterioro cognitivo en mayores

Lo más destacado: La periodontitis, la pérdida dental y la reducción masticatoria aumentan el riesgo de demencia.

Resumen: Meta-análisis de más de 4 millones de personas mayores que muestra una fuerte asociación entre mal estado periodontal y deterioro cognitivo (incluyendo demencia y Alzheimer). Cuantas más piezas dentales se pierden, mayor es el riesgo. Se destaca la importancia de la atención oral en geriatría para prevenir deterioro cognitivo.

24. GAO Y ET AL., 2025

Tema: Hígado graso metabólico y multimorbilidad cardiometabólica

Lo más destacado: El MAFLD duplica el riesgo de desarrollar varias enfermedades cardiometabólicas.

Resumen: Estudio prospectivo del UK Biobank con más de 386.000 adultos. MAFLD se relaciona con una progresión significativa hacia multimorbilidad cardiometabólica (diabetes, ictus, cardiopatía). Se observó mayor riesgo incluso en pacientes que solo tenían una enfermedad previa, subrayando la necesidad de intervención temprana.

25. GARCÍA-RÍOS P ET AL., 2025

Tema: Esclerosis múltiple y manifestaciones orales

Lo más destacado: Xerostomía y periodontitis son frecuentes en pacientes con EM, especialmente con mayor discapacidad.

Resumen: Revisión sistemática de estudios observacionales que identifica síntomas orales como boca seca, dolor, sangrado e inflamación gingival en pacientes con EM. Hay correlación significativa entre estos síntomas y el tipo y severidad de la enfermedad. Se aboga por atención multidisciplinar y estudios longitudinales.

26. HAJISHENGALLIS G, 2022

Tema: Mecanismos comunes entre periodontitis y enfermedades sistémicas

Lo más destacado: Tratar la periodontitis reduce inflamación sistémica y marcadores de comorbilidad.

Resumen: Artículo de revisión que presenta evidencia epidemiológica y experimental de los vínculos causales entre periodontitis y otras enfermedades crónicas (cardiovasculares, autoinmunes, respiratorias, neurodegenerativas). Describe mecanismos moleculares comunes y refuerza el rol de la periodontitis como factor modificable.

27. HANG Z ET AL., 2024

Tema: Microbiota intestinal y gingivitis

Lo más destacado: Se identifican bacterias intestinales con efecto causal sobre la gingivitis mediante genética.

Resumen: Estudio de aleatorización mendeliana con más de 14.000 sujetos que detecta asociaciones genéticas entre ciertas bacterias intestinales y mayor o menor riesgo de gingivitis. Abre una vía de investigación en intervenciones dirigidas a la microbiota intestinal para mejorar la salud oral.

28. HERRERA D ET AL., 2024

Tema: Periodontitis y enfermedades crónicas (consenso europeo)

Lo más destacado: Se recomienda coordinación activa entre médicos de familia y dentistas.

Resumen: Consenso entre la EFP y WONCA Europa sobre los vínculos entre periodontitis y enfermedades cardiovasculares, respiratorias y diabetes. Se pide mayor colaboración interdisciplinar, cribado dual (oral y sistémico) y políticas públicas que integren salud bucodental en el manejo de enfermedades no transmisibles.

29. HOU Y ET AL., 2025

Tema: Bienestar y riesgo cardiometabólico

Lo más destacado: El bienestar subjetivo y objetivo protege frente a enfermedades cardiometabólicas, especialmente en mujeres.

Resumen: Estudio del UK Biobank con más de 141.000 personas. Muestra que felicidad y satisfacción vital (bienestar subjetivo) y condiciones objetivas (bienestar material) reducen el riesgo de diabetes, ictus y enfermedad cardiovascular, incluso en personas con bajos niveles materiales. Implicaciones para prevención global.

30. HUANG YQ ET AL., 2024

Tema: Tabaquismo, alcohol, depresión y periodontitis

Lo más destacado: Fuerte efecto combinado entre depresión y tabaco en hombres jóvenes.

Resumen: Análisis del NHANES que muestra interacciones significativas entre estilo de vida y riesgo de periodontitis. Los fumadores con depresión tienen más del doble de riesgo. El alcohol potencia aún más el efecto, especialmente en mujeres. Se resalta la necesidad de enfoque integral en salud oral y mental.

31. JAIN P ET AL., 2021

Tema: Relación entre periodontitis y enfermedades sistémicas

Lo más destacado: Se propone el uso de terapias periodontales como estrategia preventiva general.

Resumen: Revisión narrativa que conecta periodontitis con múltiples trastornos sistémicos como diabetes, cáncer, EPOC, parto prematuro o enfermedades autoinmunes. Presenta mecanismos de diseminación sistémica y plantea tratamientos periodontales como medida preventiva de salud global.

32. KAPILA YL, 2021

Tema: Relación multimodal entre salud oral y enfermedades sistémicas

Lo más destacado: La periodontitis se vincula con múltiples patologías crónicas mediante mecanismos genéticos, inmunológicos y microbiológicos.

Resumen: Este artículo destaca cómo las enfermedades periodontales están asociadas con condiciones sistémicas como diabetes, Alzheimer, enfermedades cardiovasculares, cáncer y más, especialmente en poblaciones vulnerables. Se proponen mecanismos como disbiosis oral, inflamación sistémica y carga alostática. También se plantea el papel de virus y bacterias orales como agravantes de patologías sistémicas, y se sugiere integrar el cuidado oral en la medicina general.

33. KOCA-ÜNSAL RB ET AL., 2022

Tema: Inflamasoma NLRP3 en enfermedades orales y sistémicas

Lo más destacado: El inflamasoma NLRP3 es clave en la progresión de periodontitis y enfermedades como diabetes o EII.

Resumen: Revisión sobre el papel del inflamasoma NLRP3 en enfermedades periodontales, endodónticas y sistémicas. Actúa como sensor inmunitario que activa citocinas proinflamatorias y muerte celular. Está implicado en artritis, Alzheimer, EII y más. Se propone como diana terapéutica para frenar la inflamación crónica en boca y sistema.

34. LARVIN H ET AL., 2022

Tema: Clústeres de multimorbilidad en periodontitis

Lo más destacado: Hipertensión, obesidad y diabetes son los núcleos más comunes en pacientes con periodontitis severa.

Resumen: Análisis de datos del NHANES con red de inteligencia artificial. Identifica 106 clústeres de enfermedades sistémicas asociadas a periodontitis. Diabetes y obesidad se vuelven más centrales a mayor severidad periodontal. Se observan diferencias por etnia, nivel socioeconómico y tabaquismo. Refuerza el enfoque integral en pacientes periodontales.

35. LEE B, MUN S, 2025

Tema: Obesidad abdominal y riesgo periodontal

Lo más destacado: El perímetro de cintura elevado predice mejor el riesgo de periodontitis que el IMC solo.

Resumen: Estudio coreano con más de 12.000 adultos. Se agruparon seis combinaciones de IMC y perímetro de cintura. Los grupos con cintura abdominal alta presentaron un riesgo hasta tres veces mayor de periodontitis. Se recomienda incluir perímetro de cintura como indicador clínico de riesgo periodontal.

36. LEUNG TJT ET AL., 2022

Tema: Enfermedad periodontal en pacientes de medicina interna

Lo más destacado: La prevalencia de periodontitis severa se duplica en pacientes con enfermedades cardiovasculares.

Resumen: Estudio transversal en hospital universitario. Se detectó un 53,6% de periodontitis (16% severa) en pacientes pluripatológicos. Los pacientes con infarto presentaban una asociación especialmente fuerte con enfermedad periodontal severa. Se refuerza la necesidad de incluir cribado periodontal en pacientes con multimorbilidad.

37. LI Q ET AL., 2022

Tema: Periodontitis y disfunción endotelial vascular

Lo más destacado: La inflamación periodontal puede dañar directamente el endotelio y facilitar enfermedades vasculares.

Resumen: Revisión que conecta la disbiosis microbiana periodontal con daño endotelial, primer paso en hipertensión y arteriosclerosis. La activación inmune, los mediadores inflamatorios y los metabolitos bacterianos alteran la función vascular. Se justifica el tratamiento periodontal como prevención cardiovascular.

38. LIANG F ET AL., 2023

Tema: Vitamina D y salud periodontal

Lo más destacado: Los pacientes con periodontitis tienen niveles más bajos de vitamina D; su suplementación mejora algunos parámetros clínicos.

Resumen: Meta-análisis de 16 estudios. Se confirma que la vitamina D sérica es más baja en pacientes con periodontitis. El suplemento combinado con raspado y alisado radicular mejora la pérdida de inserción clínica, aunque no modifica significativamente el sangrado ni la profundidad de sondaje.

39. LIM J ET AL., 2021

Tema: Salud oral y síndromes geriátricos

Lo más destacado: Peor salud oral predice mayor institucionalización y peor evolución geriátrica.

Resumen: Estudio longitudinal coreano con casi 1.200 mayores de 75 años. La autopercepción de salud oral se asoció con aparición de síndromes geriátricos, institucionalización y mortalidad a 2 años. Refuerza la inclusión de salud oral como dominio clave en valoración geriátrica integral.

40. LIPSKY MS ET AL., 2024

Tema: Salud oral y envejecimiento

Lo más destacado: La periodontitis y edentulismo empeoran calidad de vida, nutrición y enfermedades crónicas.

Resumen: Revisión narrativa que destaca cinco condiciones orales clave en mayores: xerostomía, caries, edentulismo, cáncer oral y periodontitis. Todas ellas se asocian con desnutrición, mayor morbilidad y menor calidad de vida. Aboga por una integración proactiva y multidisciplinar en el cuidado de personas mayores.

41. LIU Q ET AL., 2025

Tema: Ictus por causas metabólicas en jóvenes

Lo más destacado: El 45% de los ictus en adultos jóvenes se relacionan con factores metabólicos como obesidad o HTA.

Resumen: Datos del GBD 2021 muestran un aumento del ictus en adultos de 20 a 39 años por causas metabólicas. La HTA es el principal factor, seguida de colesterol elevado y obesidad. Aunque la tasa ajustada baja, el número absoluto de casos crece. Se urge prevenir desde edades tempranas.

42. LU Z ET AL., 2023

Tema: Periodontitis y enfermedad hepática grasa no alcohólica (NAFLD)

Lo más destacado: La periodontitis empeora la NAFLD al aumentar la resistencia a la insulina e inflamación hepática.

Resumen: En ratones con síndrome metabólico, la inoculación de P. gingivalis agravó la NAFLD mediante alteraciones en el metabolismo de los esfingolípidos. El uso de imipramina mejoró estos parámetros. El estudio sugiere que la periodontitis es un factor activo en la progresión hepática inflamatoria asociada a síndrome metabólico.

43. LUO Y ET AL., 2021 (COCHRANE REVIEW)

Tema: Tratamiento periodontal y presión arterial

Lo más destacado: Solo un estudio mostró reducción significativa de PA en hipertensos con periodontitis.

Resumen: Revisión sistemática de 8 ensayos. La mayoría no mostró efecto claro de la terapia periodontal sobre la presión arterial. Sin embargo, un ensayo moderadamente confiable detectó una reducción de -11.2 mmHg en PAS y -8.4 mmHg en PAD a corto plazo en hipertensos. Se necesitan más estudios.

44. LYU J ET AL., 2024

Tema: Periodontitis y función endotelial

Lo más destacado: El tratamiento periodontal mejora la dilatación mediada por flujo (FMD) especialmente en el corto plazo.

Resumen: Meta-análisis de 14 estudios con 491 pacientes. Se observaron mejoras significativas en FMD tras tratamiento periodontal en el corto plazo. Aunque los efectos a 6 meses fueron más modestos, el beneficio se mantuvo en pacientes con comorbilidades. Se respalda el papel del tratamiento periodontal en la salud vascular.

45. MARTÍNEZ-GARCÍA M, 2021

Tema: Periodontitis como condición inflamatoria sistémica

Lo más destacado: La periodontitis crónica puede activar inflamación sistémica persistente y disbiosis oral-intestinal.

Resumen: Revisión integral que propone un marco común de inflamación sistémica. Relaciona la periodontitis con múltiples trastornos crónicos a través de inmunoactivación y alteración de la microbiota. Plantea una visión integral para avanzar en el enfoque terapéutico y clínico.

46. MESA F ET AL., 2022

Tema: Periodontitis, disfunción eréctil y eventos cardiovasculares

Lo más destacado: Los hombres con ambas condiciones tienen 3,7 veces más riesgo de eventos cardiovasculares graves.

Resumen: Estudio prospectivo en España con 158 varones. Los que presentaban disfunción eréctil y periodontitis tuvieron mayor incidencia de eventos cardiovasculares mayores, incluso tras ajuste por edad y antecedentes. Respalda el vínculo entre salud periodontal y salud vascular en hombres.

47. MONTENEGRO-GONZÁLEZ GC ET AL., 2025

Tema: Criterios CDC/AAP vs. EFP/AAP para predecir aterosclerosis subclínica

Lo más destacado: El criterio CDC/AAP tiene mejor correlación con placas de ateroma en diabéticos con periodontitis.

Resumen: Estudio transversal con 98 pacientes. Ambos criterios fueron útiles para detectar placas de ateroma solo en pacientes con diabetes. El criterio CDC/AAP mostró mayor correlación. Se destaca el papel del dentista en la detección precoz de riesgo cardiovascular en diabéticos.

48. MUKHERJEE S ET AL., 2025

Tema: Periodontitis y disfunción gastrointestinal

Lo más destacado: Las bacterias periodontales pueden sobrevivir en el intestino, alterando su equilibrio e inflamación.

Resumen: Revisión sobre mecanismos moleculares por los que P. gingivalis, F. nucleatum y otras especies inducen disbiosis intestinal y disfunción GI. Se asocian con EII, cánceres digestivos y otras patologías. Detalla rutas inmunológicas implicadas.

49. NICOLAE FM ET AL., 2022

Tema: Higiene oral y estado periodontal en cáncer gástrico hospitalizado

Lo más destacado: La estancia hospitalaria y la cirugía empeoran la higiene oral; se requiere apoyo profesional.

Resumen: Estudio en 25 pacientes con cáncer gástrico. La frecuencia de cepillado bajó durante la hospitalización y se correlacionó con mayor placa y sangrado. Se sugiere que personal entrenado en higiene oral puede mejorar el estado periodontal en estos pacientes.

50. NICOLOSI G ET AL., 2024

Tema: Evaluación no invasiva del riesgo cardiovascular en periodontitis

Lo más destacado: Métodos como grosor íntima-media y FMD detectan daño vascular precoz en pacientes periodontales.

Resumen: Revisión narrativa que explora herramientas como la ecografía vascular para evaluar disfunción endotelial, rigidez arterial y riesgo CV en periodontitis. Se propone incorporar estas técnicas al seguimiento clínico personalizado en odontología.

51. O'DWYER MC ET AL., 2023

Tema: Prevalencia de periodontitis en adultos con multimorbilidad

Lo más destacado: Incluir la periodontitis como enfermedad crónica eleva la multimorbilidad del 54% al 66% en EE.UU.

Resumen: Análisis de NHANES 2011–2014. Aunque no se encontró asociación independiente ajustada, se justifica incluir periodontitis como criterio clínico para definir multimorbilidad. Refuerza su consideración en atención primaria y salud pública.

52. OKADA A ET AL., 2021

Tema: Autocuidados avanzados y función endotelial en enfermedad periodontal incipiente

Lo más destacado: El autocuidado intensivo no mejoró significativamente la función endotelial medida por FMD o ADMA.

Resumen: Este ECA evaluó el efecto de una bandeja personalizada con desinfectante (vs. cuidados estándar) en pacientes con periodontitis leve. No se observaron mejoras en FMD ni ADMA en ninguno de los grupos, aunque sí se redujo el sangrado gingival en el grupo test. Señala que el beneficio vascular de la mejora periodontal puede requerir más tiempo o pacientes más severos. PMID: 34555048

53. POLIZZI A ET AL., 2025

Tema: Impacto del tratamiento periodontal no quirúrgico (TPNQ) en rigidez arterial

Lo más destacado: El TPNQ mejora FMD y grosor íntima-media, pero no la velocidad de onda de pulso (PWV).

Resumen: Meta-análisis de 15 estudios (8 en análisis cuantitativo). Hubo mejora significativa en FMD ($p<0.001$) y CIMT ($p=0.004$), pero no en PWV. Alta heterogeneidad ($I^2>60\%$). Se requieren estudios más robustos para confirmar el beneficio del TPNQ sobre rigidez arterial. PMID: 39549247

54. PROMRUCK N ET AL., 2024

Tema: Enfermedades orales y enfermedades no transmisibles (ENT)

Lo más destacado: Meta-análisis en curso para evaluar relación entre salud oral (caries, perio, edentulismo, etc.) y ENT (DM2, CVD, cánceres, EPOC).

Resumen: Protocolo Cochrane para revisión sistemática y meta-análisis de estudios observacionales. Analiza impacto de condiciones orales en cuatro grandes ENT según OMS. Promueve integración entre salud oral y atención primaria. PMID: 39420995

55. RANJITH R ET AL., 2024

Tema: Deterioro rápido de salud oral (ROHD) en mayores

Lo más destacado: El ROHD afecta calidad de vida y puede inducir infecciones sistémicas graves.

Resumen: Revisión exploratoria sobre ROHD. Identifica factores de riesgo, retos de manejo y necesidad de enfoques integrales geriátricos. La falta de intervención puede derivar en infecciones sistémicas, reingresos y mortalidad. PMID: 38826613

56. RICCIARDI RM ET AL., 2023

Tema: Disbiosis oral y mecanismos inmunoinflamatorios en aterosclerosis

Lo más destacado: P. gingivalis y otras bacterias inducen disfunción endotelial e inflamación crónica sistémica.

Resumen: Revisión sobre papel de la disbiosis oral en disfunción endotelial, aumento de IL-6 y fibrinógeno. Posible invasión bacteriana directa del endotelio. Propone integrar la evaluación de microbiota oral en predicción de riesgo cardiovascular. PMID: 37374981

57. SANDERS KA ET AL., 2020

Tema: Transición asistencial y manejo de medicación con perspectiva oral

Lo más destacado: La integración entre farmacéuticos y odontólogos mejora resultados en pacientes en transición hospitalaria.

Resumen: Artículo de revisión que analiza cómo factores orales (xerostomía, mucositis, infecciones) deben considerarse al ajustar fármacos en pacientes hospitalizados o crónicos. Muestra la eficacia de un servicio de farmacia integrado en clínica dental. PMID: 32316374

58. SANZ M ET AL., 2018

Tema: Periodontitis y diabetes – informe IDF/EFP

Lo más destacado: Terapia periodontal reduce HbA1c entre 0.27–0.48% a los 3 meses.

Resumen: Informe de consenso IDF/EFP. Detalla mecanismos proinflamatorios comunes (IL-6, TNF-α, estrés oxidativo). Establece directrices para médicos y dentistas para manejo conjunto. Impacto bidireccional confirmado. PMID: 29208508

59. SHARMA S ET AL., 2021

Tema: Terapia periodontal intensiva vs. convencional e hipertensión

Lo más destacado: La terapia intensiva reduce PAS en −11.4 mmHg y PAD en −8.4 mmHg en hipertensos.

Resumen: Meta-análisis de 8 RCTs. Los efectos fueron significativos solo en pacientes con hipertensión. También se redujeron PCR e IL-6. Refuerza la opción no farmacológica en el control de la PA. PMID: 33617973

60. SHIKH EV ET AL., 2023

Tema: Disbiosis intestinal, dieta y prevención de neuroinflamación

Lo más destacado: La dieta tipo MIND y los probióticos ayudan a preservar función cognitiva.

Resumen: Revisión en ruso sobre el eje intestino-cerebro. Disbiosis promueve neuroinflamación vía LPS. Probióticos como B. breve y L. plantarum mejoran memoria. Adherencia a dieta MIND reduce riesgo de deterioro cognitivo 23–39%. PMID: 38198424

61. SOJOD B ET AL., 2021

Tema: Lupus eritematoso sistémico (LES) y periodontitis

Lo más destacado: Ambos comparten vías inmunopatológicas y factores de riesgo comunes.

Resumen: Revisión sobre la relación bidireccional entre LES y PD. Factores compartidos: disbiosis, inflamación crónica, autoanticuerpos, predisposición genética. Sugiere mayor vigilancia periodontal en pacientes con LES. PMID: 34063235

62. SULAIMAN Y ET AL., 2024

Tema: Disbiosis oral e intestinal y cáncer gastrointestinal

Lo más destacado: P. gingivalis y disbiosis oral pueden translocarse y participar en carcinogénesis digestiva.

Resumen: La periodontitis altera el microbioma oral e intestinal, lo que puede inducir enfermedades sistémicas como cáncer digestivo, EII o Alzheimer. Se discuten terapias emergentes como análisis de microbiota oral y probióticos. Refuerza la importancia de mantener salud oral como prevención sistémica. PMID: 39336457

63. SUN D ET AL., 2024

Tema: Consumo de café y multimorbilidad cardiometabólica

Lo más destacado: El café reduce riesgo de transición a diabetes, ictus y cardiopatía, y de progresión a multimorbilidad.

Resumen: Estudio prospectivo en UK Biobank (185,112 sujetos). El café (especialmente sin azúcar) reduce riesgo de desarrollar enfermedades cardiometabólicas y su combinación (multimorbilidad). PMID: 39277537

64. VAN DER PUTTEN GJ ET AL., 2023

Tema: Salud sistémica y deterioro oral acelerado en mayores

Lo más destacado: Medicación, fragilidad y sarcopenia aceleran deterioro oral.

Resumen: Hiposalivación, polifarmacia, discapacidad y acceso limitado a cuidado oral explican deterioro oral rápido en geriatría. Requiere enfoque multidisciplinar para evitar que se convierta en un "síndrome geriátrico". PMID: 37445340

65. VILLORIA GEM ET AL., 2024

Tema: ¿Es la periodontitis una enfermedad sistémica?

Lo más destacado: Se propone considerar la periodontitis como enfermedad sistémica por derecho propio.

Resumen: Artículo de opinión en Periodontology 2000. Periodontitis comparte factores de riesgo, inmunopatología e impacto sistémico con otras ENT. Promueve cambio de paradigma en medicina y odontología. PMID: 39494478

66. WANG F ET AL., 2022

Tema: Pérdida dentaria y sarcopenia

Lo más destacado: Menor fuerza de agarre y velocidad de marcha con más de 10 dientes perdidos.

Resumen: Estudio en mayores de Shanghái y Tianjin. Aunque no hay relación directa con sarcopenia, se observan efectos en fuerza y movilidad según el número de dientes perdidos. PMID: 35538156

67. XU J ET AL., 2025

Tema: Índice de Conicidad (C-index) y periodontitis

Lo más destacado: El C-index predice mejor la periodontitis que IMC o circunferencia abdominal.

Resumen: Estudio NHANES 2009–2014. Cada unidad de C-index aumenta 13% el riesgo de periodontitis. Se propone como mejor predictor antropométrico para cribado precoz. PMID: 40594081

68. YAMAZAKI K, 2023

Tema: Eje oral-intestinal y enfermedades sistémicas

Lo más destacado: Disbiosis oral induce disbiosis intestinal y patologías asociadas.

Resumen: Revisión sobre el papel de bacterias periodontopatógenas en alterar microbiota intestinal, y viceversa. Recalca la bidireccionalidad entre periodontitis y enfermedades como EII, DM o Alzheimer. PMID: 37674899

69. YANG T ET AL., 2025

Tema: Calidad del sueño y deterioro cognitivo leve (MCI)

Lo más destacado: PSQI ≥12 marca umbral de riesgo alto para MCI en pacientes pluripatológicos.

Resumen: Estudio en >900 mayores con multimorbilidad. Peor calidad del sueño se asocia con mayor riesgo de MCI, con efecto umbral en PSQI. Implica incluir sueño en estrategias preventivas. PMID: 40171437

70. ZENG Y ET AL., 2025

Tema: Terapia periodontal como intervención sistémica

Lo más destacado: El tratamiento periodontal puede mejorar patologías sistémicas como DM, AR, Alzheimer y nefropatías.

Resumen: Capítulo de revisión sobre el rol de la microbiota oral y la respuesta inmune en patologías sistémicas. Refuerza la integración médico-odontológica en atención primaria. PMID: 40111696

71. ZHANG LM ET AL., 2022

Tema: Factor activador de linfocitos B (BAFF), lupus y periodontitis

Lo más destacado: BAFF se eleva significativamente en pacientes con LES+Periodontitis.

Resumen: Estudio en 4 grupos (SLE, P, SLE+P y controles). BAFF se correlaciona con pérdida de inserción y sangrado. Refuerza vínculo inmunológico entre lupus y periodontitis. PMID: 36110076

72. ZHAO X ET AL., 2025

Tema: Higiene oral deficiente y Helicobacter pylori

Lo más destacado: Pobre higiene oral, DMFT alto y edad >60 años aumentan riesgo de infección oral por H. pylori.

Resumen: Estudio transversal en 362 pacientes dispépticos. Se identifican múltiples factores orales como predictores de colonización por H. pylori en boca. PMID: 39947965

73. ZHOU H ET AL., 2025

Tema: NPAR (neutrófilos/albumina) y periodontitis

Lo más destacado: Cada aumento en NPAR eleva 12% el riesgo de periodontitis moderada/severa.

Resumen: Estudio NHANES. NPAR se asocia con mayor pérdida de inserción y profundidad de sondaje. Propuesto como marcador de inflamación sistémica útil en cribado periodontal. PMID: 39710554

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04

Preguntas y Respuestas

04

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Preguntas y respuestas

1. ¿DE VERDAD UNA ENCÍA INFLAMADA PUEDE AFECTAR AL RESTO DEL CUERPO?

Sí. La periodontitis es una infección crónica que mantiene al sistema inmune en alerta permanente. Esa inflamación llega por la sangre a otros órganos y empeora enfermedades como la diabetes, la hipertensión o las autoinmunes.

2. ¿QUÉ PAPEL TIENE LA BOCA EN EL PACIENTE PLURIPATOLÓGICO?

Mucho mayor del que se le suele dar. Un paciente con varias enfermedades crónicas ya tiene el cuerpo desbordado; una encía enferma añade más leña al fuego. Cuidar la boca puede mejorar el control global del paciente.

3. ¿LA PERIODONTITIS EMPEORA EL CONTROL DE LA DIABETES?

Sí, es una de las asociaciones mejor documentadas. La inflamación crónica de las encías favorece la resistencia a la insulina y se asocia con peor control glucémico. Tratar la periodontitis se acompaña de descensos modestos pero reales de la HbA1c (de media unas tres a cuatro décimas en los meta-análisis). No sustituye al tratamiento médico de la diabetes, pero suma como medida coadyuvante.

4. ¿Y AL REVÉS? ¿LA DIABETES EMPEORA LAS ENCÍAS?

Sí. La diabetes mal controlada favorece la periodontitis, la hace más agresiva y empeora la respuesta al tratamiento. Es una relación bidireccional clara.

5. ¿INFLUYE LA BOCA EN LA HIPERTENSIÓN?

La periodontitis se asocia en estudios epidemiológicos con mayor riesgo de hipertensión y peor control de la misma. Algún ensayo clínico ha mostrado descensos modestos de tensión tras el tratamiento periodontal, pero la magnitud y la durabilidad del efecto todavía se siguen estudiando. No es un sustituto del tratamiento antihipertensivo, pero sí un factor más en el que merece la pena intervenir.

6. ¿Y EN EL CORAZÓN?

La periodontitis se considera un factor de riesgo cardiovascular asociado, recogido ya en documentos de consenso entre cardiólogos y periodoncistas. Los estudios la vinculan con mayor riesgo de infarto, ictus y enfermedad arterial periférica, y los mecanismos propuestos (bacteriemia, inflamación sistémica) son biológicamente plausibles. No es un factor causal único; hay que situarlo dentro del conjunto del riesgo cardiovascular del paciente.

7. ¿Puede una infección bucal afectar a los pulmones?

Sí. Sobre todo en mayores y pacientes hospitalizados. Las bacterias de una boca enferma pueden aspirarse a los pulmones y provocar neumonías. Una boca limpia previene neumonías nosocomiales y por aspiración.

8. ¿Y AL RIÑÓN?

La periodontitis se asocia con peor función renal y con peor pronóstico en la enfermedad renal crónica, y se han descrito mecanismos plausibles a través de la inflamación crónica. La relación causa-efecto no está cerrada, pero el conjunto de la evidencia respalda mantener la boca controlada, especialmente en pacientes en diálisis o en lista de trasplante.

9. ¿TIENE QUE VER LA BOCA CON LA ANEMIA INEXPLICADA?

Puede contribuir. Las encías que sangran a diario suponen una pérdida pequeña pero constante de hierro, y la inflamación crónica altera la producción de glóbulos rojos. No suele ser la causa principal de una anemia, pero en anemias sin causa clara merece la pena revisar la boca como factor sumatorio.

10. ¿UNA ENCÍA ENFERMA PUEDE CAUSAR FIEBRE SIN FOCO?

Sí. Abscesos crónicos, periodontitis avanzadas o restos radiculares infectados pueden mantener una bacteriemia de bajo grado y febrículas. A veces basta una panorámica y una exploración bucal para dar con la causa.

11. ¿INFLUYE LA BOCA EN ENFERMEDADES AUTOINMUNES COMO EL LUPUS O LA ARTRITIS?

Sí. La inflamación periodontal puede actuar como “gatillo” o como amplificador de los brotes. En artritis reumatoide hay evidencia muy sólida; en lupus y otras conectivopatías está bien establecida la asociación.

12. ¿LA PÉRDIDA DE DIENTES TIENE CONSECUENCIAS GENERALES?

Muchas. Empeora la alimentación, favorece la pérdida de masa muscular, aumenta el riesgo de caídas y deteriora la calidad de vida. Tener menos de 20 dientes funcionales se asocia con mayor mortalidad.

13. ¿Y CON LA SARCOPENIA Y LA FRAGILIDAD?

Son íntimos. Si no se mastica bien, se come peor; si se come peor, se pierde músculo. La boca es uno de los pilares (poco mirados) en la prevención de la fragilidad del mayor.

14. ¿PUEDE UNA BOCA ENFERMA ALARGAR UN INGRESO HOSPITALARIO?

Sí. La inflamación oral favorece infecciones, retrasa la recuperación y aumenta complicaciones. Programas de higiene oral hospitalaria reducen neumonías y días de estancia, especialmente en UCI y geriatría.

15. ¿LA POLIMEDICACIÓN AFECTA A LA BOCA?

Mucho. Más de 400 fármacos producen sequedad bucal. Boca seca implica más caries, más periodontitis y problemas para masticar y hablar. Revisar la lista de fármacos forma parte del cuidado bucal del polimedicado.

16. ¿POR QUÉ LOS PACIENTES CON DEMENCIA TIENEN TANTOS PROBLEMAS BUCALES?

Porque no siempre pueden cepillarse ni avisar de dolor o infección. La boca se descuida y aparecen abscesos, caries graves y periodontitis avanzada. Es esencial protocolizar la higiene oral en residencias y hospitales.

17. ¿DEBERÍA EL INTERNISTA MIRAR LA BOCA EN CONSULTA?

Sí. No para diagnosticar caries, sino para detectar sangrado, mal olor, encías retraídas, dientes móviles o lesiones sospechosas. Una exploración básica de 30 segundos puede cambiar el manejo del paciente.

18. ¿CUÁNDO DEBERÍA DERIVAR UN INTERNISTA A UN PACIENTE AL DENTISTA?

Siempre que vea sangrado al cepillarse, halitosis, aftas recurrentes, lesiones que no curan en dos semanas o pérdida dental progresiva. También antes de cirugías, biológicos o trasplantes.

19. ¿CUÁNTO BAJA LA PCR AL TRATAR BIEN UNA PERIODONTITIS?

Varios estudios bien diseñados muestran descensos significativos de PCR, IL-6 y fibrinógeno tras tratar la periodontitis. La magnitud varía según el paciente y el estudio, pero es un dato útil cuando valoramos la inflamación residual en pacientes con enfermedades crónicas. No sustituye a otras intervenciones, pero suma.

20. ¿TIENE SENTIDO INCLUIR LA BOCA EN LOS PROTOCOLOS DE CRIBADO HOSPITALARIO?

Sí. Igual que se pregunta por tabaco o vacunas, debería preguntarse por sangrado de encías o dolor al masticar. Es información clínica relevante y barata de obtener.

21. ¿LA INFLAMACIÓN BUCAL INFLUYE EN LA RESPUESTA A LOS FÁRMACOS?

Sí. Una inflamación crónica altera el metabolismo de muchos fármacos y aumenta efectos adversos. Además, los antibióticos repetidos por infecciones bucales contribuyen a la resistencia bacteriana.

22. ¿QUÉ RELACIÓN HAY ENTRE BOCA Y DETERIORO COGNITIVO?

Es una de las líneas de investigación más activas. Estudios poblacionales encuentran asociación entre periodontitis o pérdida dental y mayor riesgo de demencia, y se han detectado bacterias periodontales (como *P. gingivalis*) y sus toxinas en cerebros con Alzheimer. Los mecanismos propuestos son la inflamación crónica y la pérdida del estímulo masticatorio. Hablamos de asociaciones; que tratar la boca prevenga o retrase el Alzheimer aún no está demostrado.

23. ¿Y CON LA DEPRESIÓN Y LA ANSIEDAD?

Hay datos de asociación, pero la relación causal no está demostrada. Es razonable pensar que la inflamación crónica influya en el estado de ánimo, y desde luego una boca deteriorada afecta a la autoestima y a las relaciones sociales. Como en otras conexiones boca-cerebro, hablamos de pistas convergentes, no de certezas.

24. ¿QUÉ HACER EN UN PACIENTE FRÁGIL CON VARIOS FÁRMACOS Y BOCA DESCUIDADA?

Lo primero, una revisión bucal completa con tratamiento de focos sépticos. Después, simplificar la higiene (cepillo eléctrico, colutorios sencillos), valorar la prótesis y coordinarse con el médico para revisar fármacos que resequen la boca.

25. ¿LA SALUD BUCAL INFLUYE EN LA MORTALIDAD?

Varios estudios poblacionales han descrito mayor mortalidad cardiovascular y por todas las causas en personas con periodontitis grave o con muchos dientes perdidos. Son estudios observacionales, así que demuestran asociación pero no causalidad. Aun así, la coherencia con lo que sabemos de inflamación crónica y fragilidad le da bastante peso al hallazgo.

26. ¿CÓMO ENCAJAN LOS CUIDADOS BUCALES EN LA ATENCIÓN PRIMARIA?

Encajan perfectamente. Una pregunta sobre sangrado, una mirada rápida a la boca, una recomendación de revisión dental y la derivación cuando hace falta. Coste casi cero, beneficio alto.

27. ¿HAY GRUPOS DE PACIENTES A LOS QUE VIGILARÍA ESPECIALMENTE?

Diabéticos mal controlados, cardiópatas, autoinmunes en tratamiento biológico, pacientes con quimioterapia o radioterapia de cabeza y cuello, mayores frágiles e institucionalizados, y candidatos a trasplante o cirugía mayor.

28. ¿QUÉ HACER ANTES DE EMPEZAR BISFOSFONATOS O DENOSUMAB?

Una revisión bucal completa y, si hace falta, resolver focos sépticos antes de iniciar el fármaco. Una vez instaurado, se evitan extracciones innecesarias y se prioriza el tratamiento periodontal conservador.

29. ¿QUÉ MENSAJE LE DARÍAS A UN PACIENTE CON MUCHAS ENFERMEDADES?

Que cuidar la boca es una de las pocas medidas baratas, sencillas y a su alcance que puede mejorar todas sus enfermedades a la vez. No cura nada por sí sola, pero ayuda en todo.

30. ¿Y QUÉ MENSAJE FINAL DEJARÍAS A TUS COLEGAS INTERNISTAS?

Que la boca es un órgano más, y de los más accesibles. Mirarla cuesta segundos y puede explicar muchas descompensaciones. Coordinarse con el dentista no es perder tiempo: es ganarlo.

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