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Comparison of Bacteria and Their Location in the Mouth Between Individuals with and without Gingivitis and/or Periodontitis: Systematic Review

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We use this protocol and it's working

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Keywords: periodontal pathogens, periodontitis, gingivitis, systemic diseases, microorganisms, bacteria, oral bacteria, other bacteria present in the oral cavity, periodontal pathogen, healthy individuals with gingivitis, periodontitis, oral cavity studies of healthy individual, connection between oral health, gingivitis, periodontitis in order, oral health, present in different oral tissue, oral cavity study, microbiota present in different tissue, microbiota present, metagenomics study, different oral tissue, rise of metagenomics study, oral cavity, different lists of bacteria, comparison of bacteria, diversity of microorganism, other bacteria, bacteria, specificities of each microorganism, microorganism, location in the mouth, mouth, richness of microorganism

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Abstract

Studies have reported that periodontal pathogens and other bacteria present in the oral cavity are associated with cardiovascular diseases, neurodegenerative pathologies, and rheumatoid arthritis, among others. The rise of metagenomics studies allows identifying the microbiota present in different tissues, mainly intestinal and oral, from healthy individuals and those with pathologies to identify bacteria with etiological, diagnostic, prognostic, or therapeutic potential. Different studies have independently analyzed the richness of microorganisms present in different oral tissues in healthy individuals with gingivitis or periodontitis. The richness and diversity of microorganisms in different tissues can vary depending on the specificities of each microorganism to survive. A systematic review of the literature is necessary to integrate the different lists of bacteria identified in oral cavity studies of healthy individuals, with gingivitis or periodontitis in order to use it as input for the discussion of metagenomics studies that generate a large amount of information and seek a connection between oral health and general health.

Attachments



[20250522 Protocol en...](#)

129KB



Guidelines

The PRISMA guidelines for writing systematic reviews will be followed. The search and quality assessment will be conducted using a modified version of the STROBE guideline. Fifteen quality criteria will be evaluated, and one point will be assigned for each criterion met; articles with 70% or more points will be included.

Materials

The search for articles will be conducted in the Pubmed and Lilacs databases. The databases' 'free full text' filter tools will be used.



Aim

- 1 To compare bacteria and their location in the mouth between individuals with and without gingivitis and/or periodontitis based on a systematic review.

Methods

- 2 Research question
 - 2.1 The PECO version of the PICO question (Population-Exposure-Comparison-Outcome) was used to construct the research question.
 - 2.2 Population: Individuals with gingivitis and/or periodontitis
 - 2.3 Exposure: Presence of bacteria in different locations in the mouth
 - 2.4 Comparison: Presence of bacteria in different locations of the mouth in healthy people (without gingivitis and/or periodontitis)
 - 2.5 Outcome: Differential richness and diversity of bacteria
- 3 Protocol
 - 3.1 The PRISMA guidelines for writing systematic reviews will be followed.
 - 3.2 The search and quality assessment will be conducted using a modified version of the STROBE guideline.
 - 3.3 Fifteen quality criteria will be evaluated, and one point will be assigned for each criterion met; articles with 70% or more points will be included.
- 4 Eligibility criteria

- 4.1 Inclusion criteria: Open-access, full-text primary research articles that identified bacteria in the oral cavity of healthy adults with gingivitis or periodontitis.
- 4.2 Exclusion criteria: In vitro studies, systematic or narrative reviews.
- 5 Sources of information
 - 5.1 The search for articles will be conducted in the Pubmed and Lilacs databases.
 - 5.2 The databases' 'free full text' filter tools will be used.
- 6 Article search
 - 6.1 A preliminary search was conducted to refine the search strategy using the following keywords: periodontitis, gingivitis, periodontal pathogens, oral cavity, bacteria, and to generate the search equation.
 - 6.2 The search will be conducted from January 2015 to June 2024, in order to obtain updated information to answer the research question.
 - 6.3 The search equation in Pubmed will be [("periodontal pathogen"[Title/Abstract] OR microorganism[Title/Abstract] OR bacteria[Title/Abstract] OR "periodontal pathogen"[Title/Abstract] OR periodontopathogen[Title/Abstract] OR metagenomics[Title/Abstract] OR microbiome[Title/Abstract] OR microbiota[Title/Abstract]) AND (periodontitis[Title/Abstract] OR "periodontal disease"[Title/Abstract] OR gingivitis[Title/Abstract] OR "oral cavity"[Title/Abstract]) NOT (review[Publication Type]) NOT (systematic review[Publication Type])] (January 2015-June 2024).
 - 6.4 The search equation in Lilacs will be [("periodontal pathogen" or microorganism OR bacteria OR "periodontal pathogen" OR periodontopathogen OR metagenomics OR microbiome OR microbiota) AND (periodontitis OR "periodontal disease" OR gingivitis OR "oral cavity")]
- 7 Studies selection

- 7.1 The selection process will be conducted by the authors to include relevant studies that address the research question of this review.
- 7.2 After applying the eligibility criteria, two authors will jointly conduct a manual selection of studies for this project, beginning with the download of the metadata of the articles useful for the study in Excel, followed by their respective filtering, which will be based on: 1) Title, 2) Abstract, and finally 3) Full text.
- 7.3 Once the review of the articles is complete, any questions will be clarified with the principal investigator.
- 8 Information and variables to extract
 - 8.1 During data collection, the following elements of each article will be taken into account: Authors of the article, year of publication, journal, inclusion and exclusion criteria, title, type of article, keywords, abstract, hypothesis, objectives, and conclusions.
 - 8.2 The information will be collected in an Excel document manually.
 - 8.3 The following variables will be extracted: patient age, periodontal diagnosis, classification used for diagnosis, total population studied, patient origin, methodology, cellular or molecular technique used, tissue studied, and reported microorganisms.
 - 8.4 The lists of bacteria will be extracted from the text of the main article or from the metadata in the supplementary material, if available.
- 9 Risk of bias
 - 9.1 Risk of bias will be assessed based on the analysis of each article using the modified version of the STROBE criteria mentioned above and using RevMan's Risk of Bias Assessment tool, in accordance with Cochrane guidelines for generating bias assessment charts.
 - 9.2 Risks of selection, performance, detection, attrition, and reporting will be assessed.
- 10 Diagnosis criteria

- 10.1 The diagnosis of gingivitis and periodontitis will be taken into account according to what the articles report and according to the year of publication, some articles may use the 1999 or 2018 classification.
- 11 Analysis
 - 11.1 For qualitative variables, frequencies will be obtained for the categories; for quantitative variables, ranges, means, and standard deviations will be obtained.
 - 11.2 Species, genera, and phyla will be reported for the healthy, gingivitis, and periodontitis groups.
 - 11.3 Basic information about the articles will be recorded in summary tables and graphs using Excel.

Protocol references

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