

TOOTH DECAY AND GUM DISEASE



Recommendations for researchers



Highlights of Perio Workshop 2016 on the Boundaries Between Dental Caries and Periodontal Diseases - jointly organised by the EFP and ORCA

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Gum Disease and Tooth Decay

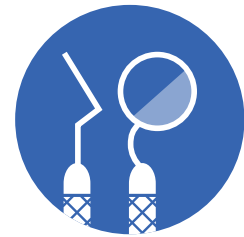
interactions and similarities between
the most widespread oral conditions



Gum Disease and Tooth Decay
(Caries) continue to be major
public health problems worldwide.



Severe Periodontitis
is a leading cause
of tooth loss
in adult population.



Untreated Caries and
Periodontitis may have
severe consequences
and lead to tooth loss.

 **Perio
& Caries**

Gum Disease and Caries
are both
preventable

10%

10% of the global population are
affected by Severe Periodontitis.
743 million people affected.



1 person in 3
is affected by caries.

6

Severe Periodontitis is
the sixth most common
disease globally.

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Teeth are **for a lifetime**

Periodontal diseases and dental caries are the most common non-communicable diseases of mankind and the main cause of tooth loss. Both diseases can lead to nutritional compromise and negative impact on self-esteem and quality of life.

The dental biofilm is a major biological determinant common to development of both diseases, which share common risk factors and social determinants, important for their prevention and control.

Most recent scientific discussion points out that similar preventive approaches, based around routinely-performed oral hygiene using a fluoride toothpaste, are effective with for both periodontal diseases and dental caries.

Due to worldwide population growth and increased tooth retention, the number of people affected by dental caries and periodontitis is growing, thus increasing the total burden of these diseases globally, particularly in the older population.

Fortunately, effective preventive and therapeutic interventions are available for managing both dental caries and periodontal diseases. There are numerous groups of healthcare professionals that need to know more about these diseases and understand the ongoing balance between risk factors (e.g. smoking), protective factors (e.g. fluoride in dental caries, high levels of oral hygiene in periodontal diseases) and pathological factors.

New areas of research are emerging that will further inform and support clinical decision making and effective interventions at individual and population level. Research priorities should be placed on increasing understanding of the boundaries between caries and periodontal diseases and on how preventive and therapeutic regimens may preserve oral health, and improve quality of life and nutrition from childhood, through adulthood into older age.

Teeth are for a lifetime. Help your patients take action!

Research recommendations for periodontal disease and caries

Periodontal diseases

- ✓ **Trend studies** to understand whether there is a decline in periodontitis or not; and if so, what is driving this potential decrease of periodontitis in different populations.
- ✓ Authoritative evidence on whether **interdental cleaning aids** help prevent periodontitis and tooth loss.
- ✓ Studies to address the gap in knowledge in **gingivitis in children**.
- ✓ Further high-quality research in **the elderly**, to ascertain whether risk factors for periodontal diseases change during the life course, and to elucidate strategies to reduce risk factor in frail and dependent older people.
- ✓ Studies to investigate the **effects of sugar** upon periodontal diseases, through mechanisms other than those impacting on the biofilm (e.g. inflammatory response).
- ✓ Studies to determine the efficacy of **other dietary interventions** such as functional foods, pro/prebiotics, and sugar alcohols in the prevention and management of periodontal diseases.

Dental caries

- ✓ Studies on **caries in adults** to better understand what the most important acquired risk factors are and whether their modification (where feasible) improves caries outcomes.
- ✓ Studies to assess the efficacy of **other dietary interventions** such as functional foods, pro and prebiotics and sugar alcohols in preventing and managing caries.
- ✓ Randomised control trials (RCTs) on the inactivation and monitoring of **active caries lesions**.

Research recommendations for the simultaneous study of dental caries and periodontal diseases

Studies assessing the role played by **genetics** in caries and periodontal disease initiation and/or progression.

Development of **clear definitions of diseases** in order to facilitate the identification of individuals at the highest risk of developing caries and periodontal diseases.

Methodological development and consensus on suitable and robust **epidemiologic measures** for:

- Several aspects of disease burden.
- Disease surveillance over time within and across national and geographical boundaries.
- Aetiologic research.

Adequately-powered studies that allow both diseases to be measured.

Studies that employ longitudinal designs to better inform questions of **causality**.

Research in **diverse populations** covering different geographical origins and different age groups.

Additional **analysis of existing epidemiological data** sets to determine whether dental caries and periodontitis co- occur due to the effect of common risk factors.

Robust studies on the **incidence of chronic periodontitis** and **increment of dental caries** to improve understanding of risk factors for periodontitis and dental caries in adults.

Link existing registries (education, socio-economic conditions, general health) with **dental registries** (caries and periodontitis) to evaluate the effect of risk factors on dental caries and periodontitis or the effect of dental caries and periodontitis on general health, to circumvent the problem of decreasing response rate in epidemiological studies.

Harmonise epidemiological data sets across cohorts to allow **common analysis** to improve understanding of the prevalence, as well as incidence of periodontitis and dental caries or the influence of risk factors on these diseases.

Efficiency evaluation of **tailored, multifaceted and comprehensive preventive programmes** for dental caries and periodontal diseases in groups other than children.

Monitoring of changes in dental disease prevalence, subsequent to the introduction of **new dietary guidelines**, such as those recommended by the WHO.

Design **hypothesis-driven** (candidate gene) or **hypothesis-free** (GWAS) studies of caries and periodontal diseases within the same population cohorts taking into account interaction between different factors.

Studies to unravel the mechanisms underlying genetic associations, in order to determine the role of **gene variants**, including gene expression and other mechanisms of controlling gene function (epigenetics).

Clearly **state limitations** regarding a low “strength” of association due to low study power in genetics studies reporting low p values but employing small sample sizes. These studies should not conclusively exclude potential gene associations.

Research to improve understanding of **potentially-modifiable risk factors** for both caries and periodontal diseases, specifically in relation to the following:

- Hyposalivation and reduced salivary flow.
- Smoking/tobacco use.
- Carbohydrate (sucrose and starches) impact on biological pathways to disease.
- The effects of sugar frequency/quantity in relation to caries and periodontal diseases.
- Micronutrient deficiencies and their impact upon disease initiation - and progression, specifically on vitamin's C, D and K, B6, B12, docosahexaenoic acid, eicosapentaenoic acid as well as trace elements and minerals including magnesium, calcium and phosphate.
- The influence of dietary fats and fat types, as well as proteins, on caries and periodontal diseases.
- Multi-centre intervention studies analysing the efficacy of micronutrient supplementation and carbohydrate restriction on disease status.
- Metabolic syndrome (including diabetes and obesity) and the impact of its management upon periodontal diseases and caries.

Studies to evaluate whether caries and /or periodontal diseases can be managed through diet changes with the help of **behavioural interventions** (e.g. motivational interviewing).

Evaluation of the efficiency of legislation, restrictions, guidelines and public campaigns on **changes in behaviour** and improved parameters of oral health.

Comparative studies on the efficacy and efficiency of different types of **psychological approaches** in different groups.

Evidence on the long-term, successful change in behaviour due to the use of **interactive devices** to aid oral hygiene, such as electronic support systems for power toothbrushes and timers.

Properly designed RCTs addressing the **simultaneous management of gingivitis and dental caries**, assessing:

- The efficacy of self-performed oral hygiene, including tooth brushing with fluoridated toothpaste and interdental cleaning.
- Different intervals between recall appointments in structured prevention programmes.

- The adjunctive use of chemical plaque control agents including tooth brushing with fluoridated toothpaste as the control.

Epidemiological surveillance of caries, periodontal diseases, tooth loss and oral health-related quality of life in **older populations**.

Studies assessing the influence of **elderly comorbidities** in delivering effective oral health preservation strategies.

Retaining healthy teeth for life has multiple benefits



allows chewing, eating speaking and smiling to be optimal



reduces the risk of general health issues



improves the quality of life and wellbeing



positively impacts health economics

Perio & Caries at a glance



1 Caries and periodontal diseases are the most common human diseases - and both are preventable.



2 The burden of these diseases is high and increases as the population ages.



3 Dental Professionals should be consulted regularly to prevent and treat effectively caries and periodontal diseases.



4 Bleeding gums are not normal. Dental professionals should be consulted immediately.



5 The oral healthcare team can advise on weight loss, smoking cessation, exercise, and controlling diabetes and glycaemia in general.



6 Periodontal disease should be seen as an indicator to general health issues.



7 Education for oral health should target children, as well as mothers to be, new mothers, care home workers and other caregivers.



8 The oral health status in aged individuals is influenced by their level of dependence, rather than by their chronological age.



9 Reducing sugar and starch intake in amount and frequency is important in preventing periodontal disease and caries. Intake should be limited to mealtimes.



10 Brushing twice daily with fluoride toothpaste is essential and can also be supplemented with additional effective agents to reduce plaque such as those found in mouthwash and toothpastes.

Perio & Caries, a joint **EFP-Colgate** initiative



*The **European Federation of Periodontology (EFP)** is the leading global voice on gum health and gum disease and the driving force behind EuroPerio – the most important international periodontal congress – and the European Workshop on periodontology, a world-leading meeting on periodontal science. The EFP also edits the Journal of Clinical Periodontology, one of the most authoritative scientific publications in this field.*

The EFP comprises 30 national societies of periodontology in Europe, northern Africa, Caucasia, and the Middle East. Together this represents around 14,000 periodontists, dentists, researchers, and other members of the dental team focused on improving periodontal science and practice.

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Colgate-Palmolive continues to build success through innovation in oral care and stronger partnerships with dental profession and public health. Its core values, "caring", "global teamwork", and "continuous improvement", are reflected not only in the quality of its products and the reputation of the company, but also in its dedication to improve the quality of life of its consumers and serve the communities where it does business.

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