

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.

Compiled by **Prof Nicola West** from the consensus reports of the working groups chaired by **Prof Mariano Sanz**, **Prof Søren Jepsen**, **Prof Iain Chapple**, and **Prof Maurizio Tonetti**.



Gum Disease and Tooth Decay

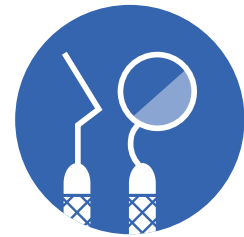
interactions and similarities between
the most widespread oral conditions



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



Severe Periodontitis is a major 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 can be both preventable

10%

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



1 in 3 people are 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 in 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 the 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 with 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 has grown, thus increasing the total burden of these diseases globally, mainly in the older population.

Fortunately, effective preventive and therapeutic interventions are available to manage 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.

*This group of healthcare workers includes **physicians** (from paediatricians to general practitioners, to geriatricians), **nurses** (from public health nurses to community health visitors, to those working in oncology and geriatric settings), **pharmacists** (that are aware of the cariogenicity associated with salivary depletion and the dangers of medicines with added sugar and the importance of smoking cessation to periodontal diseases), **dieticians** (including those involved with diet and nutrition), **nursery care workers** and **midwives**.*

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

Recommendations about periodontal diseases and dental caries

Periodontal diseases

- ✓ There is a need to have more trend studies in periodontitis to understand whether there is a decline in periodontitis or not, and if so what drives the potential decrease of periodontitis in different populations.
- ✓ There is a need for authoritative evidence whether interdental cleaning aids help to prevent periodontitis and tooth loss.
- ✓ There is a gap of knowledge on gingivitis in children that should be addressed.
- ✓ Conduct further high quality research in the elderly, in order to ascertain whether risk factors for periodontal diseases change across the life course. Also, to elucidate strategies for risk factor reduction in frail older people and those living in care homes who lack independence.
- ✓ Investigate the effects of sugar through mechanisms other than those impacting on the

biofilm upon periodontal diseases (inflammatory response).

- ✓ Determine the efficacy of other dietary interventions such as functional foods pro/prebiotics, and sugar alcohols in periodontal disease with regards to prevention/ management.

Dental caries

- ✓ Conduct 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.
- ✓ Determine the efficacy of other dietary interventions such as functional foods, pro/prebiotics and sugar alcohols in caries with regards to prevention/ management.
- ✓ RCTs on the inactivation and monitoring of active caries lesions are needed.

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

Both Dental Caries and Periodontal Diseases are preventable.

- In order to advance understanding of the role played by genetics in caries and periodontal disease initiation and/or progression, further research is required.
- Develop clear definitions of disease in order to facilitate the identification of individuals that are at the highest risk for the development of the disease.
- Methodological development and consensus on suitable and robust epidemiologic measures are needed for:
 - Several aspects of disease burden.
 - Disease surveillance over time within and across national and geographical boundaries.
 - Aetiologic research.
- Conduct studies that are sufficiently powered.
- Undertake studies that employ longitudinal designs to better inform questions around causality.
- Conduct research in diverse populations of different geographical origins and different age groups.
- Existing epidemiological data sets should be analysed 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 are highly desirable for a better understanding of risk factors for periodontitis and dental caries in adults.
- Efforts should be undertaken to 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 vice versa the effect of dental caries and periodontitis on general health to circumvent the problem of decreasing response rate in epidemiological studies.
- The dental scientific community should harmonize epidemiological data sets across cohorts to allow common analysis for an improved understanding of the prevalence as well incidence of periodontitis and dental caries or the influence of risk factors on these diseases.
- Tailored multifaceted and comprehensive preventive programmes for dental caries and periodontal diseases should be implemented and evaluated on the efficiency level. Such approaches have already been proven to be efficacious and efficient in early childhood caries.
- Monitor 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 and take into account interaction between different factors.
- Attempts to unravel the mechanisms underlying genetic associations should be undertaken in search of the role of gene variants, including gene expression and other mechanisms of controlling gene function (epigenetics).
- Genetics studies that report low p values but have employed small sample sizes should clearly state their limitations regarding a low “strength” of association due to low study power, or similarly, they should not conclusively exclude potential gene associations.
- Undertake research designed 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) impacts upon biological pathways to disease, specifically exploring the effects of sugar frequency/ amount in relation to caries and periodontal diseases
 - Micronutrient deficiencies and their impact upon disease initiation
 - and progression, specifically in relation to vitamin's C, D and K, B6, B12, docosahexaenoic acid, eicosapentaenoic acid and trace elements and minerals such as magnesium, calcium and phosphate
 - Longitudinal controlled studies focusing on the influence of dietary fats and fat types, and proteins on caries and periodontal diseases
 - Multi-centre intervention studies analysing the efficacy of micronutrient supplementation and carbohydrate restriction upon disease status.
 - Metabolic syndrome (including diabetes and obesity) and the impact of its management upon periodontal diseases and caries.

- Evaluate whether caries and /or periodontal diseases can be managed through diet changes with the help of motivational interviewing.
- There is a need for the evaluation of the effect of legislation, restrictions, guidelines and public campaigns on the change in behaviour and improved parameters of oral health on the efficiency level.
- Comparative superiority studies with different types of psychological approaches in different groups both on the efficacy and the efficiency level are recommended.
- Evidence is needed on the use of interactive devices to aid oral hygiene such as electronic support systems for power toothbrushes and timers which are currently promoted. At present, evidence for a long-term successful change in behaviour is not available.
- There is a need for properly designed RCTs addressing the simultaneous management of gingivitis and dental caries on the efficacy of:
 - Self-performed oral hygiene including toothbrushing considering fluoridated toothpaste and interdental cleaning.
 - Different intervals between recall appointments in structured prevention programmes.
 - The adjunctive use of chemical plaque control agents including toothbrushing with fluoridated toothpaste as the control.
- There is an urgent need for epidemiological surveillance of caries, periodontal diseases, tooth loss and oral health related quality of life in older populations.
- Research priorities should be placed on how preventive and therapeutic regimens may preserve oral health, quality of life and nutrition into older age as comorbidities present unique challenge to the delivery of intrinsically efficacious and effective strategies.

Perio & Caries at a glance

-  **Caries and periodontal** diseases are the most common human diseases - and both are preventable.
-  **Benefits of tooth** retention relate to nutritional status, speech, self-confidence and quality of life.
-  **The burden of** these diseases increases as the population ages.
-  **The oral health** status in aged individuals is influenced by their level of dependence, rather than by their chronological age.
-  **The oral healthcare** team can advise on weight loss, smoking cessation, exercise, and controlling diabetes and glycaemia in general.
-  **Reducing sugar and** starch intake in amount and frequency is important in preventing periodontal disease and caries. Intake should be limited to mealtimes
-  **Bleeding gums are** *not* normal. You should immediately visit a dentalcare professional.
-  **Education for oral** health should target children, as well as mothers to be, new mothers, care home workers and other groups who care for those with dependence.
-  **Periodontal disease** should be seen as an indicator to other general health issues.
-  **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, which together represent about 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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European
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Periodontology

The EFP thanks Colgate
for its support and its unrestricted grant.

