

Salivary Diagnostic Testing – BSP statement

There is growing interest in the oral microbiome, which has quickly become highly topical with widespread coverage in the UK media highlighting oral microbiome testing and its impact on overall health, from oral disease to broader systemic conditions. The British Society of Periodontology & Implant Dentistry (BSP) feel it is important to clarify current evidence-based research for our members and for patients and the public.

The European Federation of Periodontology (EFP) have recently conducted the 20th European Workshop on Periodontology entitled *Periodontal diagnosis: contemporary and emerging technologies*, which took place in La Granja de San Ildefonso, Spain, 10-13 November 2024. BSP members including Professors Chapple, West, Nibali, Preshaw and Kepschull were UK lead authors at the workshop. The Perio Workshops are annual scientific meetings of experts in periodontal science, aimed at encouraging the exchange and examination of evidence-based knowledge through systematic reviews and their discussion to reach consensus views and statements on issues of major relevance to periodontology and dentistry. The workshops are globally influential, as evidenced by high citation levels and incorporation of findings into national government healthcare policies.

We are currently awaiting publication of the consensus paper from this workshop, which includes evidence on oral microbiome testing for patients. However, the EFP Executive Committee have made the following statement regarding salivary biomarkers for the BSP:

“The salivary diagnostic capabilities of MMP-8 were not strongly supported in 20th European Workshop on Periodontology. Periodontal Diagnosis – From Advances in Technologies to the 2018 Classification November 2024.”

This statement will be updated once the workshop papers are published.

Currently, salivary testing does not predict future disease, does not predict the outcome of treatment, and does not change the treatment available/recommended. If there are significant advances in research, it is possible that in the future salivary testing may be useful as new ways of treating gum disease are discovered by researchers. The findings of research like this would be reviewed by the EFP/expert groups before recommendations can be made.

BSP SETS THE RECORD STRAIGHT

Many opinions can be found on the internet and on social media platforms. Not all of them are accurate or based on scientific or clinical evidence. Here we have presented a list of common questions that patients may ask after having read information online or on social media, with evidence-based responses that oral healthcare professionals may find helpful when discussing these matters with their patients.

I read on social media that...gum disease leads to tooth loss.

Periodontitis (advanced gum disease) is the number one cause of multiple tooth loss in adults in the UK. That said, tooth loss due to periodontitis is usually preventable. Achieving high quality of professional plaque removal, high quality patient implemented oral hygiene (plaque control), management of additional major risk factors including not smoking and controlling blood glucose levels in people with or without diabetes, and professional periodontal treatment, can stabilise periodontitis, and reduce the risk of further bone loss and tooth loss.

I read on social media that...doing a saliva test helps with the diagnosis of gum disease.

Periodontal diseases (including mild forms such as gingivitis and advanced forms such as periodontitis) are routinely and efficiently diagnosed by a dental professional. Your dentist, dental therapist or dental hygienist will examine your gums, looking for signs of inflammation (e.g., redness swelling or bleeding from the gums), increased pocket depths around your teeth and evidence of bone loss on X-rays. Currently, salivary testing is not needed or recommended for the diagnosis of periodontitis or any other form of periodontal disease such as gingivitis. Tests are being developed for use in non-dental settings that may help assess risk or detect cases early, but so far, no such tests can be recommended due to a lack of evidence for accuracy and due to unacceptable mis-classification rates.

I read on social media that...doing a saliva test before treatment of gum disease can help select the right treatment.

Whilst all treatment should be tailored to the individual, gum disease management always starts with controlling the modifiable risk factors like smoking and unstable diabetes, improving oral hygiene and non-surgical removal and disruption of the biofilm (dental plaque) above and below the gum line. Correcting factors that retain plaque in the mouth is also important.

Medications are not normally prescribed to assist in the management of gum disease. Based on currently available scientific evidence, saliva testing for biomarkers, for example MMPs (matrix metalloproteinases) is not sufficiently reliable and will not change how your clinician manages the disease and it is not recommended for selecting treatments for any form of periodontal disease, or for

treatment planning.

I read on social media that...a microbiological test (such as an oral microbiome test) should be carried out before treatment of gum disease.

Microbiological testing prior to periodontal disease treatment is not required or recommended and the information generated by microbiological testing does not change how your clinician will treat the disease; it is therefore an unnecessary cost.

This is because some bacteria in plaque trigger the body to produce inflammation in the gums and it is this inflammation that is mainly responsible for periodontal tissue damage, and for damaging the bone that supports the teeth. Humans are all different in terms of the range of types of different bacteria which are present in our mouths and therefore there is no single test which can define health nor describe disease for any individual. While it is known that certain types of bacteria are more strongly associated with periodontal diseases, it is important to note that many hundreds of bacterial species are present in the gum pockets (including in people with good gum health as well as those with periodontal diseases) and therefore there is no one type of bacteria, that if present causes the disease, or which if removed then reduces the risk of periodontal disease developing or progressing. It is important to note that periodontitis is an inflammatory disease that is triggered and perpetuated by the long-term presence of the bacterial biofilm (dental plaque) that consists of many hundreds of bacterial species present in the gum pockets around the teeth.

The dental plaque biofilm is vulnerable to physical disruption and the cornerstone of treatment for periodontal diseases is to regularly disrupt, reduce and remove the biofilm with effective oral hygiene at home and professional treatment provided by the oral healthcare professional (this treatment is referred to as PMPR – professional mechanical plaque removal). Microbiological testing of the oral microbiome does not change the treatment your dentist, dental therapist or dental hygienist will provide.

I read on social media that...treating gum disease can reduce the risk of heart attacks.

Gum disease is an acknowledged risk factor for cardiovascular disease due to the elevated circulating inflammation and there is early evidence that periodontal treatment can reduce the risk/likelihood of adverse cardiovascular events.

It is good practice to reduce inflammation anywhere in the body for your overall general health. The impact of periodontal treatment on the risk of cardiovascular disease and heart attacks is hard to study as it takes many years, but based on the current evidence base, the World Heart Federation and the World Organization of National Colleges and Assemblies of Family Doctors recommend high quality periodontal treatment to reduce the risk of adverse cardiovascular events.

I read on social media that...treating gum disease can cure rheumatoid arthritis.

In recent years there has been significant research linking periodontal disease to other conditions such as diabetes, cardiovascular disease, Alzheimer's and

rheumatoid arthritis.

Whilst treating gum disease can lead to improvements in arthritis symptoms and blood markers, we would not expect to achieve full resolution of rheumatoid arthritis simply by treating the gum problem. Similar to cardiovascular disease, treating gum disease well reduces inflammation in the body, which is a good thing to do if you suffer from rheumatoid arthritis and for your overall health.

I read on social media that...in case of advanced gum disease (periodontitis), it is better to take teeth out and replace them with implants, before more bone loss happens.

There is no evidence that taking teeth out that are affected by advanced gum disease will preserve more bone and improve the outlook for dental implants, and it is better to treat the advanced gum disease well in the first instance. There is research that shows that even periodontally involved teeth can last longer than dental implants do, if the gum disease is well managed. The decision to take teeth out and replace them with dental implants therefore should not be taken lightly. Patients with a history of periodontal disease are at increased risk of later developing a similar condition if they have implants placed. This is called peri-implantitis where bacteria in the plaque biofilm surrounding the implants trigger inflammation and lead to bone loss around the implant.

Multiple studies have shown that well treated, periodontally compromised teeth can outperform dental implants. If you and your dental team are unable to control your periodontal disease you may need to be referred to a Specialist Periodontist for consideration of advanced treatment options, that may include surgical periodontal treatments, or implant placement.

I read on social media that...gum disease should be treated with antibiotics.

Antibiotics are not appropriate and strongly not recommended for the management of the majority of periodontal conditions, and doctors and dentists need to reduce the unnecessary use of antibiotics to lower the risk of developing antibiotic resistance. The vast majority of gum disease will respond to controlling the modifiable risk factors like smoking and unstable diabetes, together with achieving an excellent level of oral hygiene, and non-surgical periodontal treatment (called PMPR – professional mechanical plaque removal) from your dentist, dental therapist or dental hygienist. On occasion, in very specific patient groups, i.e. young patients with rapidly progressing disease, antibiotics may be considered to be used alongside regular periodontal treatment, but this decision should only be made by a specialist or dentist with additional training in periodontology.

I read on social media that...gum disease (periodontitis) should be treated with lasers.

Lasers have long been investigated for their efficacy in treating gum disease. In a recent European Workshop, a meeting of Europe's foremost experts in the field of periodontology, looking at the treatment of periodontitis, their conclusion was that

based on current scientific and clinical evidence, lasers could not currently be recommended for the treatment of periodontal diseases.

BSP Council 2025 (www.bsperio.org.uk)