Improving our – and our patient's – knowledge of the oral microbiome

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Introduction

The digestive health market has shown steady recent growth, with people increasingly taking the initiative when it comes to gut health and recognising the importance of the microbiome in areas such as supporting immune health. Interestingly, research shows that 60% of patients acknowledge the link between digestive health and overall health, however the mouth and the oral microbiome has been somewhat left out of the conversation.[1]

BDJ In Practice spoke to **Surina Sehgal**, aka The Foodie Dentist, who works at Bond Dental, London about how dental professionals can educate themselves and their patients about the link.

What is the dental relevance?

SS To start with, not all bacteria are bad. We tend to focus on bacteria being the culprit but we actually need bacteria to help maintain health and fight off disease in the mouth and in the rest of the body. The mouth contains around 500-1,000 different types of bacteria with various functions, some pathogenic (harmful) and some beneficial.

Like the other microbiomes of the body (gut, skin, vaginal) the oral microbiome is a collection of bacteria, viruses, fungi and protozoa. The mouth has a variety of microenvironments that host different bacterial populations: the tongue, the hard palate, the teeth, and the area around the tooth surfaces, above and below the gums.

The oral microbiome is a major player in the mouth-body connection. There was a study in 2019 in the *Journal of Oral Maxillofacial Pathology* that discovered bacterial populations from the mouth can make their way to other parts of the body, including the gut microbiota. This can alter immune responses and potentially lead to systemic diseases.

However, many approaches to dental care still don't consider the importance of supporting a balanced flora within the mouth, instead they focus still on eradicating all bacteria.

There are ways to boost 'good' bacteria in the mouth through natural means. Intake of dietary fibre, prebiotics and probiotics have been proven to improve bacterial diversity while interesting research has shown lifestyle changes like stress and sleep, can also change the microbial balance in the body.

What are the clinical benefits for our patients?

SS As dental professionals it is our duty to give tailored preventative advice to our patients. It requires a blended approach including oral hygiene and dietary/lifestyle advice. In the oral microbiome, organisms associated with health exist side-by-side

with those associated with disease. Maintaining a state of harmony within this population is crucial, to prevent the overgrowth of disease-associated bacteria and keep oral problems at bay. When we give advice to try to improve the balance of the oral microbiome, we can expect to see improved oral health, including improved gingival health and fewer carious lesions.

This lifestyle advice can have oral health benefits and general health benefits too! The training I received at university was limited for this, so I decided to do my own research and I was truly blown away at what I found and how really important a 360 degree approach is.

Has dentistry improved on it, given the increased research out there?

SS Lifestyle medicine is being well taught and implemented by doctors all around the world, but dentistry seems to be behind.

Who would benefit from an improved microbiome?

SS The short answer is absolutely everyone. The lifestyle advice I talk through with my patients has only beneficial effects and causes absolutely no harm. I would always recommend patients to see a dietician or nutritionist to aid them in transitioning towards a healthier lifestyle and making better food choices, as they are best qualified at doing this. However there a few simple things which we can all benefit from.

How can patients and practitioners help nurture the microbiome?

SS Practitioners can begin the conversation by asking open ended questions about their patients' lifestyle, not just about their sugar intake but also whether they are getting adequate nutrition in their diet. As dental professionals we see our patients very regularly, which is a huge advantage as we can follow up and review the advice we give them.

The science on how to improve levels of good bacteria is developing all the time including around the role of diet in promoting good bacteria. There are a few things which can help ensure that the microbiome is healthy and balanced.

I would advise eating a diverse range of foods, which leads to a diverse microbiome. In particular, legumes, beans and fruit contain lots of fibre and promote the growth of good bacteria. Eat fermented foods such as yogurt, sauerkraut and kefir which all contain healthy bacteria and can reduce the prevalence of pathogenic bacteria. I would encourage people to have prebiotic food. Prebiotics such as fibre stimulate the growth of healthy bacteria, these include artichokes, bananas, asparagus, oats and apples. It is important to reduce sugary intake. A high sugar diet can encourage the growth of acid-loving bacteria like *Streptococcus Mutans* which contributes to caries and periodontal disease and inhibits good bacteria.

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Avoid fizzy drinks and diet drinks as these can contribute towards dental erosion and caries and alter the balance of microorganisms and upset the good bacteria. Finally choose a microbiome-boosting toothpaste. Good oral hygiene is the foundation of all mouth care. The advice we give is to brush twice daily, floss and use mouthwash but the products we use are very important. A daily fluoride toothpaste which contains natural enzymes and proteins which are clinically proven to boost good bacteria in the mouth and reduce bad bacteria would be great.

What science is out there to back up what you're saying?

SS the microbiome is not a new concept, but one dentists should be actively considering to stay ahead of the curve. Previous research has shown the benefits of *Zendium* toothpaste, for example, against a standard fluoride toothpaste without enzymes and proteins to evaluate its effect on bacterial species in the mouth. The results were striking: After 14 weeks of use, *Zendium* shifted the balance of the oral microbiome towards a state of health, reflecting a significant increase in the proportion of gum health-associated bacterial species and a significant decrease in the proportion of gum disease-associated species. Given these results, I personally use *Zendium* twice a day and recommend it to my patients.

Isn't it a relatively complex topic for patients to understand, let alone embrace?

SS Patients seem to over complicate their oral hygiene regimes and can rely solely on over-the-counter products to help prevent dental problems and improve their oral hygiene. In fact, it does not require much expense, it requires small simple steps daily to improve oral health and in turn general health.

However, we know that gut health and immune health are topics which are increasingly being researched by consumers, so the appetite for learning more is there, and we, as professionals, are best placed to relay preventive advice to our patients who are becoming more receptive to ways to enhance their own health. ◆

Reference

1. FMCG Gurus Insights and Opportunities, Global Digestive Health, 2019.

Bio

Dr Surina is a general and cosmetic dentist and passionate about oral health and nutrition. She believes having a healthy mouth is so important and the foundation to make dental work last longer.

She graduated from King's College London in 2016 and is passionate about creating beautiful, natural looking smiles.

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