“Prevention is not just for children and young people”
An interview with Prof. Ivo Krejci on lifelong dental coaching

Three years ago, Professor of Cariology and Endodontology Ivo Krejci (University of Geneva, Switzerland) published an article titled “Lebenslanges ‘DentalCoaching’ anstelle ästhetischer Zahnmedizin” [lifelong dental coaching instead of aesthetic dentistry] in which he made the case that professional motivation, instruction and check-ups, as well as precise, non-invasive therapies, should be the core competence of a practice team in order to maintain oral health, prevention spoke with him about his assertions.

Prof. Krejci, what is your main message when it comes to modern caries prophylaxis?
Prof. Ivo Krejci: The aim of modern dentistry is not the temporary repair of heavy clinical symptoms in the form of large decaying lesions and deep periodontal pockets, but rather the lifelong dental health of the population, which I define as the absence of clinical symptoms. My article focused on one aspect of this concept, namely the causes, symptoms and treatment of caries, a chronic lifelong infection of the biofilm, the clinical symptoms of which, in the form of decaying lesions, are still some of the most common reasons for extractions. I am aware that I am speaking against the common teaching opinion, which treats caries and periodontitis as non-communicable diseases, but it would be too much for this interview to explain the reasons for this stance in detail.

Besides increasingly criticised fluoridation, bioavailable calcium, acid neutralisation and harmless sugar substitutes can be identified as important factors in preventing caries symptoms in so far as the patient doesn’t want to curb excess sugar consumption. Three further measures are at least just as important: firstly, early diagnosis of the initial caries; secondly, the lifelong, periodical professional motivation, instruction and monitoring of an efficient, atraumatic home dental care routine in the sense of primary prevention; and thirdly, the use of non-invasive adhesive composite restoration to stop or at least delay subclinical caries symptoms in the sense of secondary prophylaxis. Direct and indirect minimally invasive composite restoration complement this philosophy in patients entering into this concept with existing large decaying lesions or with existing restorations.

Why do we still separate periodontitis prophylaxis and caries prophylaxis?
It’s difficult to say, as both problems have to do with immunology and a pathogenic biofilm. This separation makes no sense at all. We should always speak of simultaneous caries and periodontitis prophylaxis, not of separate problems. Depending on the individual patient’s situation, the focus may be more on caries and/or periodontitis prophylaxis, but it shouldn’t be forgotten that a lifelong prevention-orientated concept should take not just caries and periodontitis into account, but also erosion, abrasion, trauma, dental misalignment and infection.

You mentioned pathogenic biofilm. What do you recommend: completely remove or disrupt the biofilm?
The biofilm actually protects our teeth, so is vital for survival. Its permanent removal from the mouth would therefore be counter-productive. Through its currently unpreventable infection with bacteria that cause caries and periodontitis, it becomes potentially pathogenic. This pathogenicity can only develop if two conditions are present: firstly, the biofilm must be sufficiently structured, which requires around 24 to 48 hours after its formation, and secondly, certain parameters must be present. An example of this is the repeated excess of sugar in the caries process.

These deductions form the basis of the preventative concept: we accept the infected and potentially pathogenic biofilm and do not remove it permanently from the mouth. We acknowledge that a change in the conditions—for example, through a drastic reduction in sugar consumption—would be very welcome, but difficult to implement in the long term in practice. We therefore approach the structure of the biofilm and prevent its pathogenicity from developing. The solution is simple: we just have to regularly, that is every 24 hours, disrupt the structure of the biofilm intensively on all surfaces of the tooth. Chemicals and medications don’t help a great deal, as the biofilm has very potent defence mechanisms.

In your article, you spoke about lifelong dental coaching. What do you mean by that?
Prevention is not just for children and young people. As caries and periodontitis are lifelong infections and decaying lesions, periodontal pockets, erosion, abrasions, trauma and dental infractions can arise at any age, lifelong prophy- laxis is unavoidable. This lifelong dental coaching is based on the preventative measures already mentioned, complemented by regular professional monitoring with high-tech diagnostics to catch symptoms in the subclinical stage, thereby allowing non-invasive therapy where needed.
Therapy, diagnostics, prevention—what are your concrete recommendations?

We cannot predict reliably enough how much of a risk a patient has of developing symptoms in the form of decaying lesions or periodontal pockets. It is even more difficult to do this for specific areas of the tooth. And even if we could, things can change at any time. The risk of too little or too much prevention on the wrong tooth surface is therefore very high. This applies to erosion, abrasions and infractions in the same way. That’s why it is more efficient in today’s dentistry to wait for symptoms to develop, providing site-specific risk information. However, if we wait long enough for the symptoms to be clinically visible, it’s already too late and we fall back on dentistry from the nineteenth century. If one has the diagnostic opportunity to recognize symptoms long before their clinical manifestation, such a concept suddenly becomes very interesting.

We know that it takes years for clinically evident symptoms to develop in caries and periodontitis alike. If diagnostics are carried out with sufficient reliability and if diagnostic methods are available that catch symptoms in the subclinical stage, one will have enough time to tackle these with non-invasive methods.

As dentists, we only tackle the symptoms of caries with our restorative methods. For technical and practical reasons, we used to only treat symptoms at a later stage, when the decaying lesions had already developed into cavities, because diagnostics weren’t as advanced and restorative therapy was based on macro-mechanical principles. We needed the hole so that we had something to fill. Today, this concept hasn’t really changed in principle. From a professional perspective, we are still treating symptoms, but we have other diagnostic tools and therapies, so we don’t need macro-retentions for restoration. This lets us act much earlier and use non-invasive therapies.

Should we be concentrating on primary or secondary prophylaxis?

Individual primary prophylaxis is the foundation of everything, but nobody’s perfect. With the primary prophylaxis tools we have today alone, we will not be able to save humanity; despite our best efforts, symptoms will arise. That’s why our concept is not solely based on primary prophylaxis. It also integrates secondary prophylaxis, which aims to halt symptoms non-invasively in the early stages so that they do not become more clinically serious. Non-invasive secondary prevention seems to me the tool of choice, given our current circumstances and the resources we have available today.

What role does individual home oral hygiene play in caries prophylaxis in your opinion?

Individual home oral care by the patient is the most important aspect for me. It might sound presumptuous, but many people can’t brush and don’t know which tools, products and techniques are the best and most efficient for their individual situations. I am convinced that oral care at home can only have a long-term effect when it is overseen by a dental professional. This professional cannot heal the patient, and it wouldn’t make sense for the professional to perfectly remove the patient’s biofilm each day, as this would require that the patient come to the practice every day. Even if he or she could afford this, it would lead to public transport chaos and would make very little sense. Therefore, it is more sensible to delegate this job to the patient and inform, educate and monitor him or her as needed, as well as correct and motivate when necessary, not just once, but again and again.

Manual or electric toothbrush, floss or interdental brush, toothpaste with or without fluoride—the individual case should stipulate what tools are needed. As dental professionals, we have the knowledge to provide the correct diagnosis and to advise the patient on which tools, products and techniques would be the most effective, quickest and cheapest for his or her individual circumstances. We can still get involved if professional therapy is needed and before clinically visible symptoms arise.

Finally, how’s your own oral hygiene?

Very good. Although I had to live through the dentistry of the 1960s as a child, I still have all my own vital teeth and they’re all doing well. It helps that my wife is a dental hygienist. She’s the best thing that could have happened to me in many respects.