

## The digitisation of caries activity

As we are all undoubtedly aware, dental caries can cause tooth loss, the formation of abscesses and the development of periodontal disease. Caused by the demineralisation of a tooth's enamel structure, caries can be avoided with appropriate preventive care and a good personal oral hygiene routine. However, in order to treat dental caries preventively, patients and dental professionals must identify it early, before cavitation becomes irreversible.

Indeed, when cavitation is reached, there is nothing that can be done to restore the natural composition of the tooth and operative treatment must be undertaken in order to prevent the lesion from escalating.

Unfortunately, the detection of active demineralization (sites that are actively losing mineral content) at an early stage is notoriously difficult. Despite the fact that there are a number of methods – including the NYVAD and International Caries Detection and Assessment System (ICDAS) – which have been established as being effective for the detection of active caries, these still present a significant margin for error due to the relative subjectivity of each method, as well as their tactile-visual nature. They require a dental professional to probe a suspected lesion and make a clinical judgement based upon their experience and professional acumen. Naturally, this can result in inconsistency, leading to many patients not receiving preventive treatment in time to reverse the process or, conversely, some who receive unnecessary treatment on inactive sites.

It is evident that the profession requires a system that allows for an objective assessment of demineralization activity. This way, a more predictable method to identify lesions that will respond to early remineralisation therapy can be adopted.

Preventive dentistry is already being given a strong emphasis in the UK and the introduction of new technologies that will help practitioner's combat dental caries will undoubtedly be a significant step forward for the country's oral health.

New technologies, such as the CALCIVIS® imaging system, which uses a unique bioluminescent photoprotein to identify active demineralisation, have already been shown to be as effective as more traditional methods<sup>1</sup> at identifying active caries – indicating that the digitisation of caries assessment holds a great deal of promise for the future of true preventive dentistry.

As in many other areas of dentistry, digital technology is having a positive impact on the accuracy and overall efficacy of identification and treatment. With dental caries, the need to identify active demineralisation early is key. New technologies are facilitating more objective, evidence-based diagnosis and assessment – enabling preventive dentistry which brings us significant closer towards a caries free future.

For more information visit [www.calcivis.com](http://www.calcivis.com)

---

<sup>1</sup> A. Jablonski-Momeni and L. Kneib, *Assessment of Caries Activity Using the CALCIVIS® Caries Activity Imaging System*: The Open Access Journal of Science and Technology. Vol. 4 (2016) Link: <http://www.agialpress.com/journals/oajost/2016/101241/#B1>