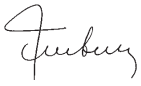
Caries Excavation – How do you do it?

In one of our previous editorials, we highlighted the meaning of true minimally invasive restorative dentistry. It consists of excavation, preparation, longevity, and restoration repair. Again, minimal intervention does not (solely) mean drilling smaller holes – it already starts during excavation. When an aggressive excavation mode is applied in an 18-year-old, followed by pulp exposure and finally the most beautiful endodontic treatment ever, do you think this individual tooth will still be in place when the patient is 60? The best and most successful endo treatment is still to maintain the pulp complex vital, which guarantees a maximum of biomechanically stable, hard tooth tissues.

For many decades now, one of the fundamental jobs of dentists all over the world has been caries excavation. Following tradition, conventional treatment of carious lesions means complete removal of decayed tissue and subsequent restoration. So far, so good. However, when we stick to that tradition during the management of deep lesions, the risk of pulp exposure is rather high. Therefore, today more conservative methods of caries excavation are favorable when teeth are asymptomatic. This may consist of stepwise excavation strategy with parapulpal incomplete caries removal and re-opening after 6–9 months, or so-called selective or partial caries removal where no re-entry is needed and the cavity is immediately sealed, the latter on the condition that this treatment is recorded in the patient's record as well as clearly communicated to the patient, thus avoiding rapid re-entry based on residual radiolucency in a future radiographic examination.

No matter which way we go in order to act more defensively, successful adhesion is always the key. To our knowledge, far more than 90% of studies in adhesive dentistry are based on caries-free human teeth. Of course, they are the model substrate to screen adhesive materials for their intrinsic bonding potential under ideal conditions and are relatively easily available for our laboratories – but we are convinced that research involving enamel and dentin in different excavation stages is desperately needed as well. So, when you read this Editorial, just remember that adhesive dentistry does not necessarily have to be conducted on sound teeth. The excavation story is also full of suspense in terms of innovative ideas for the restorative future. Please feel welcome to submit your papers dealing with bonding to non-model tooth structure to our Journal.



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