

# In favour of pre-endodontic build-up

Creating a pre-endodontic build-up is an important first step in carrying out effective endodontic treatment, says **Dhiraj Arora**

**T**he concept here changes our focus to considering the structure, stability and integrity of the tooth and treating that before any endodontic work is undertaken. Instead of attending to the tooth structure afterwards, a really solid and common-sense approach is to use a little pre-endodontic build-up magic at the outset.

Teeth that are subject to endodontic treatment generally demonstrate a distinctive loss of structure. This can be due to existing carious lesions, large fillings, fractures, bruxism or previous prosthetic restoration.

The exception is traumatised teeth, which may not have been subject to dental treatment before the time of the accident.

## ANTIBACTERIAL

An important building block in endodontic treatment is the use of a pre-endodontic build-up that creates an antibacterial seal, preventing further bacteria from the oral cavity getting into the pulp chamber and root canal system.

After anaesthetising the patient, the first step should be to isolate the affected region using a rubber dam.

It's advisable to use the rubber dam on the tooth to be treated – and also the neighbouring teeth. Only in this way is it possible to place a matrix cleanly. This in turn makes it possible to achieve the optimum isolation of the proximal contact point and ensure the filling fits the edges of the cavity walls precisely.

Another benefit of carrying out multiple teeth isolation is that it allows

for improved orientation and the decisive shaping of the access cavity.

Teeth that really can't be isolated using a rubber dam should be subject to a critical examination to assess whether the tooth is actually restorable or not.

After positioning the rubber dam, all existing restorative materials must be removed. This and all other steps should take place ideally using magnification and, preferably, a dental microscope.

All carious hard tooth tissue structures must also be removed at this stage. Removing all carious lesions at this early stage of treatment is crucial, as this is the only way to prevent reinfection of the pulp chamber system by the bacteria that cause caries.

It is advisable to use a caries detector dye, which can help clearly identify any existing areas (Figure 1).

## ASSESSMENT

After this essential preparation work you can accurately assess the remaining tooth structure. It also allows for the discovery and assessment of any existing fracture lines. At this point you can classify the tooth in terms of its restorability (Figure 2).

The presence of healthy tooth structure allows for the repair of the hard tooth tissue defects with a restoration that adheres to dentine and provides an antibacterial seal. This is crucial for all further steps in endodontic treatment and the creation of an effective biobase.

If there are no proximal contacts, a matrix system must be used before an adhesive build-up. There are many modern sectional matrix systems

available, as well as the classic Tofflemire matrix with specific deep margin elevation (DME) bands.

In any case, it is important to ensure that the matrix is applied to the cavity edge with a tight seal and that there is good proximal contact to the neighbouring tooth (Figure 3).

If the pulp chamber has already been removed, or if root canal orifices are visible during restoration treatment, a sterilised Teflon film can be used as a placeholder in the pulp chamber. This will reliably prevent unintentional influx of composite into the pulp chamber.

This is followed by the layer-by-layer reconstruction of the missing cavity walls with a composite resin restoration (Figure 4).

## SUMMARY

To sum up so far: creating a pre-endodontic build-up is an important first step in carrying out effective endodontic treatment. Doing this paves the way for further treatment and allows:

- The ability to create a reservoir while carrying out irrigation and disinfection with NaOCl
- The creation of reproducible reference points for the subsequent endodontic treatment
- The creation of slightly conical, smooth cavity walls for the access cavity
- The option of using a tight-sealing, adhesive seal with composites between the treatment sessions
- The option of using a timesaving, tight-sealing, post-endodontic seal at the end of the obturation session.



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Dhiraj is a London-based endodontist who works between his three practices in Harley Street, Gerrards Cross and Twickenham. He has a passion for endodontics: carefully treating referred patients and enthusiastically passing on skills to other dental practitioners. He runs training courses in London and is hoping to set up a study club focused on endo in 2022. His next training course, Mindful Mechanical Preparation, is in March 2022 and is for dentists who want to gain the confidence to transition away from manual filing.



**FIGURE 1:** Caries indicator dye for caries removal



**FIGURE 2:** Caries removal endpoint with the presence of a palatal crack evident



**FIGURE 3:** Matrix band adaptation



**FIGURE 4:** Pre-endodontic build-up complete



**FIGURE 5:** Preoperative radiograph



**FIGURE 6:** Postoperative radiograph

Exactly the same care should be taken during pre-endodontic build-up as in all other steps of an endodontic treatment. Completion of this step fulfils the following objectives:

1. It prevents contamination of the root canal space by bacteria present in the carious lesions
2. It prevents contamination of the canal space by oral fluids and saliva between appointments

3. It allows the intracanal medicaments to function at their best. At the same time, the medicaments will not leach out into the oral cavity. This ensures that the root canal space remains in a medicated state between appointments
4. It provides four good walls to enable the tooth to sustain the strength of a rubber dam clamp
5. It is possible to re-establish a regular and stable contour of the tooth, to provide regular and easily locatable reference points to

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- determine, with the use of rubber stops, the working length of the canals
6. A meticulous preoperative tooth build-up will reduce the possibility of a postoperative tooth fracture and improve the prognosis of the treatment.

There are obvious benefits to this approach. It prepares the tooth well for endodontic treatment by protecting and stabilising it. It is also much more stable between appointments – with less likelihood of marginal leakage, fracture or dislodgment than a temporary material. However, it can lengthen treatment time.

Given the pros and cons, and the likelihood of more predictable patient outcomes due to early restorability assessment, it's something I recommend as the very best patient care is always the ultimate goal. [📄](#)

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