



The Hidden C-Factor Risk in Endodontic Restorations

By: Darren Jones, 22 August 2025



For both Endodontists and GPs performing endo, sealing the access cavity is one of the most important, and most overlooked, steps in ensuring long-term success.

Why High C-Factor matters in endo access cavities

The C-factor (configuration factor) describes the ratio of bonded to unbonded surfaces in a restoration. A higher C-factor means more stress builds up during polymerisation.

- Endo access cavities have extremely high C-factors - often higher than large Class I restorations.
- When light-cured composites shrink, the stress is concentrated at the adhesive interface.
- The result? Microleakage, bacterial ingress, sensitivity, and potential treatment failure.

This means that even after a technically perfect root canal, the final coronal seal can compromise the entire outcome.

Traditional approaches (and their limits)

Dentists have tried to manage this problem with:

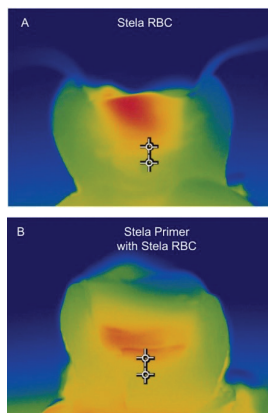
- Incremental layering (slows the procedure and still leaves shrinkage stress)
- Flowable liners (better adaptation but limited stress relief)
- Modified curing protocols (soft-start, ramp curing — only partially effective)

Despite best efforts, stress at the interface remains a weak link in endodontic restorations.

Stela: Designed for high C-Factor cases

Stela takes a different approach by changing where and how polymerisation starts:

- Self-cures from the tooth interface first - pulling composite toward the margins for a gap-free seal
- Unlimited depth of cure - fill the pulp chamber or access in one step, no layering required
- Efficient workflow - faster placement, without compromising seal integrity

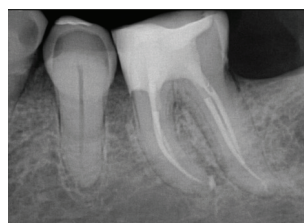


Backed by research:
Prof. Richard Price (Dec 2024)

Why it matters for Endodontists & GPs

For busy clinicians, where reliability and efficiency are critical:

- A stronger coronal seal protects your root canal therapy long-term.
- One-step placement saves chair time.
- Confidence that outcomes won't be compromised by microleakage.



» Stela Automix has consistency facilitating placement with needle tubes deeply into an endodontic cavity in a single increment. The initial catalyst reaction in at the interface mitigates contraction shrinkage in cavities with high C factor. «

Dr Richard Ellis

BDS, CertEndo Diplomat, American Board of Endodontics - New Zealand

Conclusion

High C-factor stress in endo access cavities is a hidden challenge that can undermine the success of even the best root canal treatment.

By addressing stress at the interface, Stela delivers stronger seals and better long-term outcomes, giving Endodontists and GPs greater confidence in their restorations.



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