

Other journals in brief

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by Paul Hellyer.

Longevity of fibre vs titanium posts

Bruhne M, Wierichs R J, von Stein-Lausnitz M *et al.* Long-term survival of adhesively post-endodontically treated teeth. *J Endod* 2022; DOI: 10.1016/j.joen.2022.02.006.

Type of material appears irrelevant.

Many different types of post and core systems for endodontically treated teeth have been used over the years, including gold, stainless steel, titanium, zirconia and glass fibre. The restoration of the tooth with a structural unit with similar mechanical properties to dentine theoretically leads to a favourable stress distribution within the root.

This prospective study compared the longevity of two different glass fibre-reinforced post systems with those manufactured from titanium. Subjects were aged 18+ (n = 128) and requiring restoration of a root-filled tooth with two or fewer cavity walls with a single crown, where a 2mm ferrule was possible. Between 2003 and 2008, post spaces were prepared with a parallel-tapered post system, posts bonded into place and a composite core built up by two calibrated operators. Definitive restorations were self-adhesively cemented.

Mean observation time was 7.7 years. The type of post had no statistically significant impact on tooth survival of these post-endodontic restorations. A higher survival rate was noted for canines. In common with other long-term studies, a high drop-out rate was recorded.

<https://doi.org/10.1038/s41415-022-4162-5>

Pulpotomy and pulpitis

Anta S, Diouma N, Ousmane N S, Fatou L B, Florence F, Babacar T. Evaluation of complete pulpotomy with Biodentine on mature permanent molars with signs and symptoms of symptomatic irreversible pulpitis: 12 months follow up. *J Endod* 2022; **48**: 312–329.

Faster procedure than full pulpectomy for relief of pain?

Conventional endodontic treatment for pulpitic teeth decreases the elasticity and defensive properties of the tooth. Histological studies show that pulpal inflammation is frequently located close to the carious lesion but normal histology is present in the root canals. There is evidence that pulpal tissue can heal itself after removal of the irritation.

In this observational study, 66 molars with symptoms of acute, irreversible pulpitis were treated by one operator with a standardised technique for pulpotomy and insertion of Biodentine and a coronal composite restoration. At 12-month review, of the 52 remaining cases, clinical success rate (no symptoms or signs) was 94% (n = 49) and radiographic success rate (no radiographic evidence of periapical disease) was 87% (n = 45). Success was significantly more likely in younger patients.

Whilst longer-term follow-up studies are needed, pulpotomy as described is easier and faster in emergency situations, and maintains the viability of the pulpal immune system within the roots of the tooth.

<https://doi.org/10.1038/s41415-022-4164-3>

The longevity of composite restorations

Da Rosa Rodolfo P A, Rodolfo B, Collares K *et al.* Clinical performance of posterior resin composite restorations after up to 33 years. *Dent Mater* 2022; DOI: 10.1016/j.dental.2022.02.009.

Manufacturer's improvements may not be of benefit to survival.

This practice-based study retrospectively evaluated the performance of posterior composite resin restorations over a period of up to 33 years. Despite the disadvantage of the restorations being placed and assessed by one operator, in-house studies have the advantage of allowing such extended follow-up.

Clinical records of patients attending the practice in Southern Brazil between January 1986 and December 1992 were searched. One hundred patients who had received at least one posterior Class I or Class II restoration and had at least one follow-up appointment were identified. Restorations (n = 683) were placed, mostly under rubber dam, using a variety of materials and systems (matrices etc) which were 'state of the art at the time'.

The annual failure rate was around 2.5%, in line with other similar longitudinal studies. Restorations which had been in place for 30+ years all showed signs of ageing (staining, loss of contour) but were still clinically acceptable. The authors note that none of the material used are still on the market and it remains a moot point whether manufacturers' 'improved' formulations will actually produce any better survival rates.

<https://doi.org/10.1038/s41415-022-4163-4>

The more heavily restored the tooth to be crowned...

Won K, Berlin-Broner Y. Factors associated with the need for a primary endodontic treatment after a single unit crown cementation: a retrospective case-control study. *J Endod* 2022; DOI: 10.1016/j.joen.2022.02.001.

...the more likely to need endodontic treatment within three years.

Teeth requiring crowns frequently have an extensive dental history, being already heavily restored, and may have a stressed pulp, leading to a high likelihood for the need of endodontic treatment later. Endodontic treatment through a crown may be challenging due to altered crown morphology.

This case-control study identified all non-endodontically treated teeth which were crowned in 20 years from January 1999 (n = 5,677) at the School of Dentistry, Alberta, Canada. Cases were identified as those teeth which received subsequent endodontic treatment (n = 69). Controls (n = 69) were matched by age of subject and tooth.

Cases had a significantly higher mean number of restored surfaces prior to crown placement, and those with three or more restored surfaces had a six times higher risk for endodontic treatment than the controls. The mean time for a tooth requiring intervention was 3.85 years, with 25% requiring treatment within a year of crown placement.

<https://doi.org/10.1038/s41415-022-4165-2>