Dental Crowns for Endodontically Treated and Vital Teeth: A Review

Context
A dental crown is a cap placed over a damaged tooth. This method of dental restoration protects the tooth while improving its appearance. A crown can be used on a vital tooth — a tooth with an intact nerve — but it can also be used on an endodontically treated tooth. Endodontics is the branch of dentistry that deals with diseases of the tooth root, dental pulp, and surrounding tissue. Following endodontic treatment, the nerve and pulp are no longer “living” and the tooth is not vital. The restoration of endodontically treated teeth compared to vital teeth is complicated by a loss of tooth structure and changes in physical characteristics.

Technology
During an endodontic procedure, commonly called a root canal, the nerve and other tissue of the pulp cavity are removed, the cavity is cleaned, and then it is filled with a dental core and sealed. A core is a built-up structure that compensates for the lost tooth structure. If considerable tooth structure is missing, the procedure may also involve the placement of an endodontic post — a partial prosthesis that is fixed inside the root canal and helps to retain a crown or other type of dental restoration (i.e., post–core-crown restoration).

Issue
A review of the clinical and cost-effectiveness of dental crowns for vital teeth and the use of post–core-crown restorations for endodontically treated teeth will help to guide decisions about their clinical use, as well as coverage decisions for these procedures.

Methods
A limited literature search of key resources was conducted, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages
For vital teeth:
- The short-term (two to three years) survival rate of crowns ranged between 88% and 98% and depended on the materials used.

For endodontically treated teeth:
- Survival rates of post–core-crown restorations depended on the amount of remaining tooth (survival increases with more remaining tooth).
- Post–core-crown procedures showed better survival than restorations without posts or crowns for teeth with less of a remaining structure.

No evidence-based clinical practice guidelines or cost-effectiveness information was found.

Results
The literature search produced 832 studies, with no additional studies identified from the grey literature. Of these, 39 articles were deemed potentially relevant, with 7 meeting the criteria for inclusion in this review: 3 systematic reviews, 2 randomized controlled trials, and 2 retrospective cohort studies.

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