

Incisal preparation design for ceramic veneers

A critical review



Sy Yin Chai, BDS_c; Vincent Bennani, DDS, PhD; John M. Aarts, BEd, MHealSci;
Karl Lyons, BDS, MDS, PhD

ABSTRACT

Background. The authors reviewed and identified the evidence for the various incisal preparation designs for ceramic veneers.

Types of Studies Reviewed. The authors searched MEDLINE with PubMed and Ovid to identify any articles in the English language related to the topic up through March 2017 using a combination of key words: “porcelain veneer or ceramic veneer or dental veneer or labial veneer” AND “preparation,” NOT “composite veneer,” NOT “crown,” NOT “implant,” NOT “fixed partial denture or bridge or denture,” NOT “porcelain-fused-to-metal,” NOT “marginal gap or fit.”

Results. In vitro studies showed that the palatal chamfer preparation design increases the risk of developing ceramic fractures. The butt joint preparation design had the least effect on the strength of the tooth.

Conclusions. Surveys show the 2 most common incisal preparation designs provided are butt joint and feathered-edge. Clinical studies have identified that incisal ceramic is the most common location of ceramic fracture. In addition, there is a lack in standardization of the modeling structures and type of finite element analysis.

Practical Implications. The evidence seems to support the use of butt joint over palatal chamfer incisal preparation design. Fracture or chipping is the most frequent complication and the risk increases with time. Incisal ceramic is the most common location of ceramic fracture.

Key Words. Veneer preparation; porcelain laminate; incisal edge; teeth.

JADA 2018;149(1):25-37
<https://doi.org/10.1016/j.adaj.2017.08.031>

The dental literature has long reported various descriptions of different preparation designs for ceramic veneers.¹⁻⁷ In general, the preparation for ceramic veneers can be divided into buccal surface preparation (no preparation, minimal preparation, conservative, or conventional preparation); proximal finish (slice or chamfer margin); incisal preparation (overlap or nonoverlap); and cervical preparation (chamfer or knife edge).⁸⁻¹⁰

Although the incisal preparation design for ceramic veneers has been widely discussed, there is no consensus on whether incisal reduction is necessary and how much of the incisal overlap should be provided when an increase in incisal length is not required.¹⁰⁻¹⁴ Not only that but the amount of incisal reduction varies widely from 0.5 millimeter¹ to 2 mm.¹³ In retrospect, many recommendations for the incisal preparation design are likely based on either clinical experience or anecdotal reports.^{1-7,15-19}

Incisal preparation can be divided into 2 broad categories: overlap and nonoverlap. Four common incisal preparation designs that have been described are the window (or intraenamel), the feathered edge, the palatal chamfer (or overlapped), and the butt joint (or incisal bevel) (Figure 1). The window and the feathered-edge preparation designs belong to the nonoverlap category, and the butt joint and the palatal chamfer designs belong to the overlap category.^{4,14}

The demand for ceramic veneers has increased drastically in both general and specialist dental practice from an increase in esthetically driven patients, and from veneers' clinical success and conservative nature.^{12,20} The evolution of bonding systems, ceramic materials, and fabrication methods, particularly pressed and computer-aided design and computer-aided-manufacturing (CAD/CAM) technology, have changed the way we approach these restorations.

Copyright © 2018
American Dental
Association. All rights
reserved.

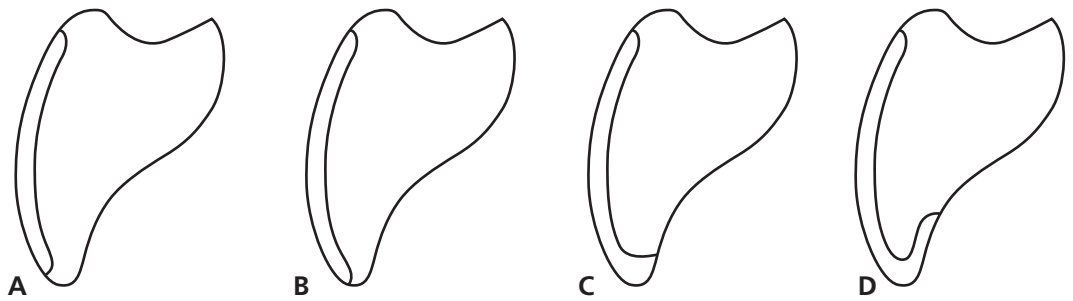


Figure 1. The window (A), feathered-edge (B), palatal chamfer (C), and butt joint incisal (D) preparation designs.

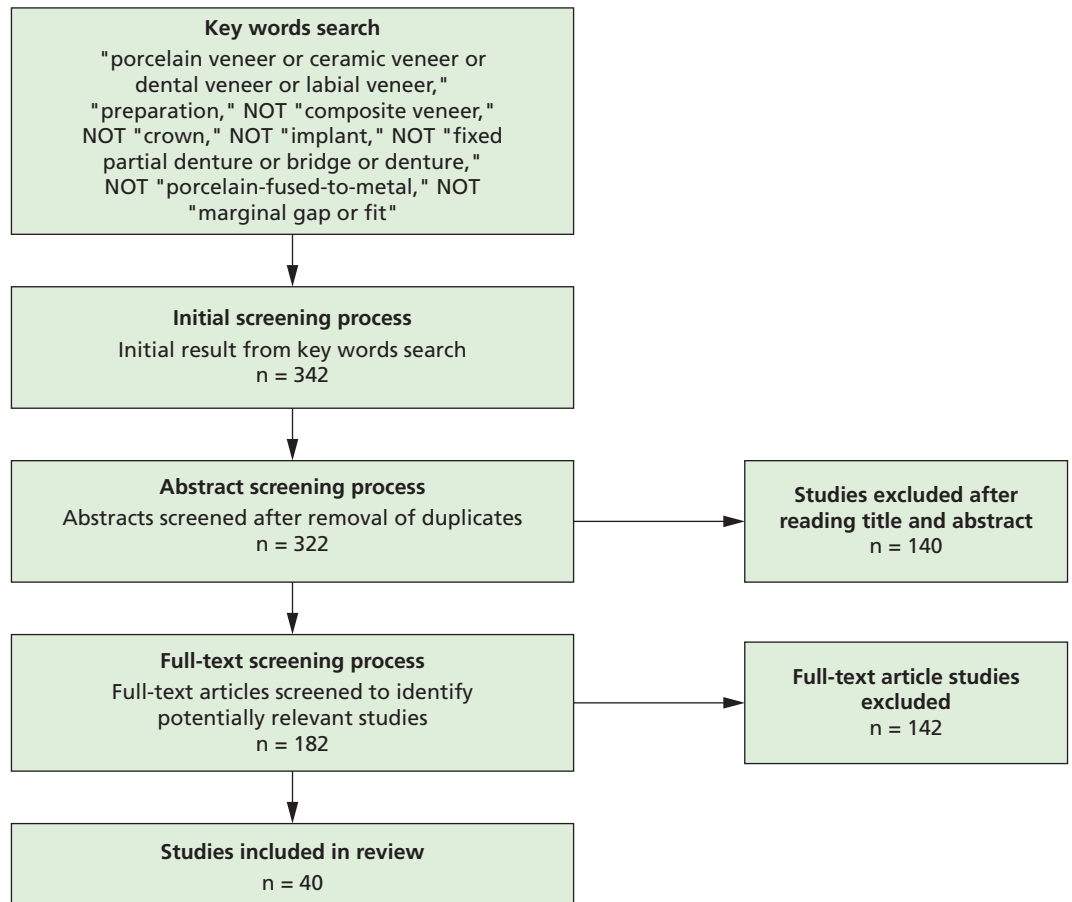


Figure 2. Search strategy diagram.

ABBREVIATION KEY

- BJ:** Butt joint.
- C:** Edge chipping cracks.
- CAD/** Computer-aided design
- CAM:** and computer-aided manufacturing.
- FE:** Feathered edge.
- I:** Asymmetric inner cone crack.
- M:** Median crack.
- O:** Asymmetric outer cone crack.
- P:** Partial cone crack.
- PC:** Palatal chamfer.
- PS:** Prospective study.
- R:** Radial cracks at cementation surface.
- RS:** Retrospective study.

The aim of this critical review of the literature on the various incisal preparation designs for ceramic veneers was to summarize the evidence for incisal preparation designs of ceramic veneers, based on clinical trials and laboratory studies published in the peer-reviewed literature. Studies on maxillary anterior teeth were considered only in terms of differences in biomechanics between maxillary and mandibular teeth. Early reports on ceramic veneers were included to provide an understanding of the evolution of preparation designs for these restorations.

METHODS

We adapted the review methodology outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement's item checklist and flowchart.²¹

Search strategy

We conducted a comprehensive literature search for studies on ceramic veneers and incisal preparation designs. We searched MEDLINE (PubMed) and Ovid databases from 1980 up through

Download English Version:

<https://daneshyari.com/en/article/8698387>

Download Persian Version:

<https://daneshyari.com/article/8698387>

[Daneshyari.com](https://daneshyari.com)