

EDITORS

John W. Farah, D.D.S., Ph.D.
John M. Powers, Ph.D.

EDITORIAL BOARD

Peter Yaman, D.D.S., M.S.
William A. Gregory, D.D.S., M.S.
Santine Anderson, D.D.S.
Sabiha Bunek, D.D.S.
Lori Brown, D.D.S.
Alexandra Jacquery, D.D.S., M.S.
Brent Kolb, D.D.S.
Nizar Mansour, D.D.S.
Charles I. McLaren, D.D.S., M.S.
Thomas Poirier, D.D.S.

Kathy O'Keefe, D.D.S., M.S.
John Shamraj, D.D.S.
William T. Stevenson, D.D.S.
Robert Stevenson, D.D.S.
Victoria Thompson, D.D.S.
David Traynor, D.D.S.
Gytis Udrys, D.D.S.

EXECUTIVE TEAM

Mary E. Yakas, B.A., CMC
Annette M. Frederick
Jackie Lane, M.A.Ed.
Jennifer Kalasz
Pari Karani
Jennifer Lill, M.A.Ed.

Tony Malmsten
Tricia G. Price
Nelson Williams

DIRECTOR OF RESEARCH

Ron Yapp, M.S.

THE DENTAL ADVISOR

3110 West Liberty
Ann Arbor, MI 48103
Toll free: 800.347.1330
E-mail: info@dentaladvisor.com
Web Site: www.dentaladvisor.com

NUMBER 3 • JULY 2009

TOOTH PREPARATION GUIDELINES FOR ZIRCONIA CROWNS

Tooth Preparation Guidelines

- Uniform, circumferential, tooth reduction of 1.0-1.5 mm
- Circumferential chamfer
- Occlusal reduction of 1.5-2.0 mm
- Rounded line angles
- Reduce linguals of anteriors with football diamond to create concave lingual

Why Tooth Preparation Design is Important

- Uniform reduction results in optimum ceramic strength
- Adequate reduction leads to better esthetics
- Smooth edges result in lower stress
- Lower stress decreases potential for fracture
- Ceramic restorations require a passive fit
- Scanners read smooth preparations more accurately

Tooth reduction for shaded zirconia-core crowns is less than that for PFM or traditional all-ceramic crowns. Zirconia is very strong (>900 MPa) and an opaque layer is not required.

Figure 1. Tooth reduction guidelines for anterior (1A) and posterior (1B) teeth.

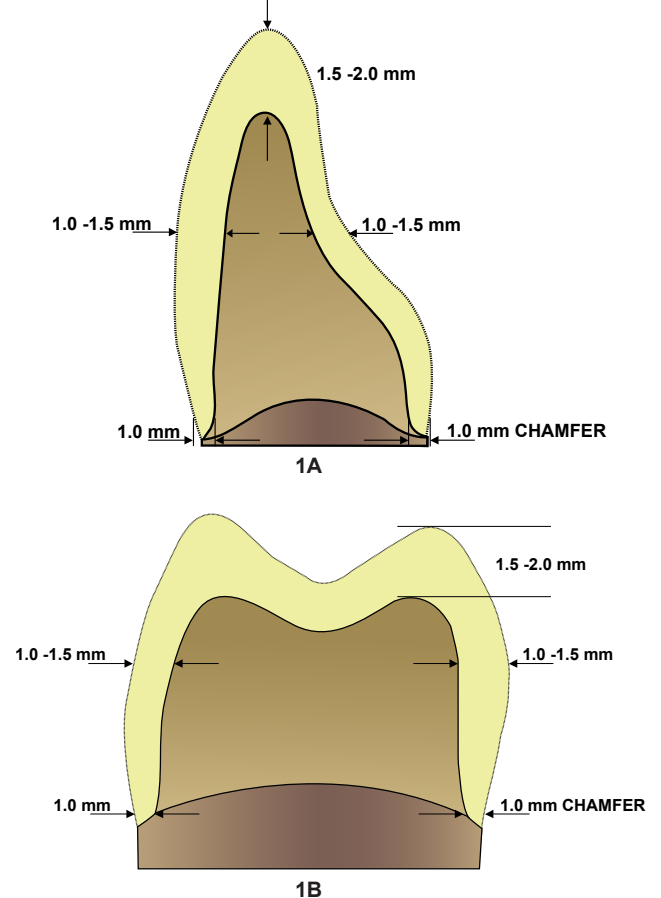
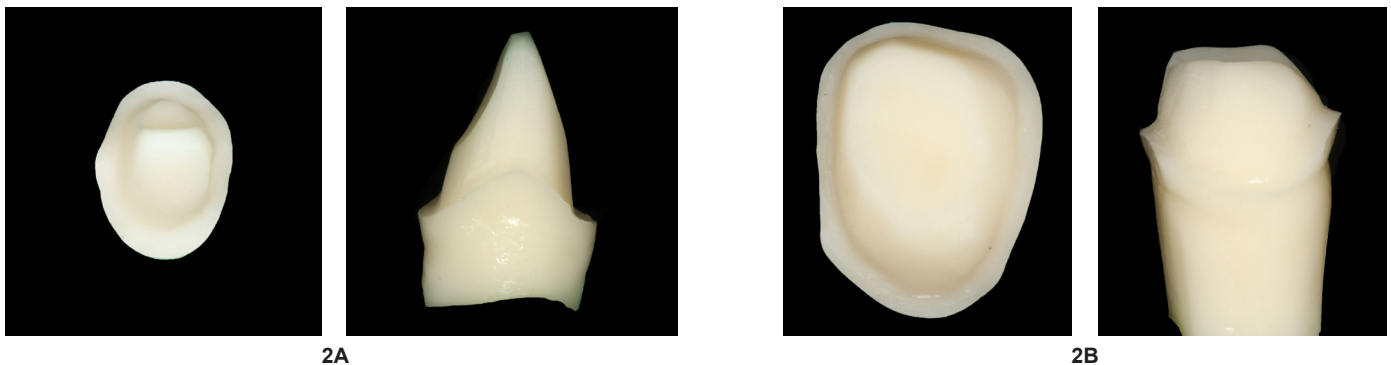


Figure 2. Sample preparations for anterior (2A) and posterior (2B) teeth.



Anterior Preparations

- Incisal Reduction - Long Round End Taper, Medium or Coarse
- Facial Reduction - Long Round End Taper, Medium or Coarse
- Interproximal - Long Round End Taper, Medium or Coarse
- Lingual Reduction - Football, Medium or Coarse
- Rounding Corners - Long Round End Taper, Fine
- Margin Finish - End Cut, Fine



Facial Reduction

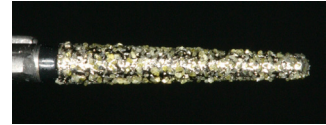


Lingual Reduction

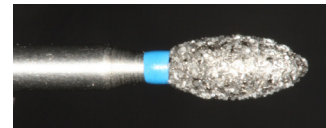


Margin Finish

Long Round End Taper
#850 / HS-16 / HL-10



Football
#379 / HS-23 / HL - 4.2



Wide Chamfer
#855L / HS-18 / HL - 7.0



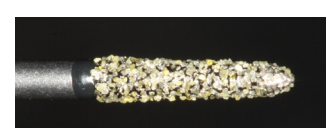
Barrel
#811 / HS-33 / HL - 4.2



Narrow Chamfer
#856L / HS-18 / HL - 9.0



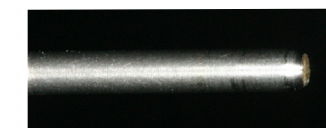
Pointed Taper
#878K / HS-16 / HL - 8.0



Long Round End Taper - Fine
#850 / HS-16 / HL-10



End Cut - Fine
#839 / HS-12



Posterior Preparations

- Occlusal Reduction - Wide Chamfer, Barrel or Football, Medium or Coarse
- Axial Wall Reduction - Narrow Chamfer, Medium or Coarse
- Interproximal - Long Round End Taper, Medium or Coarse
- Rounding Corners - Long Round End Taper, Fine
- Margin Finish - End Cut, Fine



Occlusal Reduction



Axial Wall Reduction



Interproximal