### PRACTICAL CLINICAL COURSES

A Service of the Gordon J. Christensen Career Development Program

# V1925 Optimal Fixed Prosthodontic Tooth Preparations

Gordon J. Christensen, DDS, MSD, PhD

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## Gordon J. Christensen PRACTICAL CLINICAL COURSES

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## Gordon J. Christensen PRACTICAL CLINICAL COURSES

Sources of Products Discussed in

### V1925 Optimal Fixed Prosthodontic Tooth Preparations

Presented by: Gordon J. Christensen, DDS, MSD, PhD

### 1. Blu-Mousse (Super Fast)

Parkell, Inc. 300 Executive Drive Edgewood, NY 11717 (800)243-7446 (631)249-1134 www.parkell.com

### 2. Brush & Bond

Parkell, Inc. 300 Executive Drive Edgewood, NY 11717 (800)243-7446 (631)249-1134 www.parkell.com

### 3. Burs (1170, 1171, 1171L, 330)

Dentsply Professional 1301 Smile Way York, PA 17404 (800)800-2888 (717)767-8500 www.professional.dentsply.com

### 4. Christensen Crown Remover

Hu-Friedy Mfg. Co. 3232 North Rockwell Street Chicago, IL 60618-5935 (800)483-7433 (773)975-6100 www.hu-friedy.com

#### Clearfil DC Bond

Kuraray America, Inc. Dental Department 33 Maiden Lane Suite 600-D New York, NY 10038 (800)879-1676 (212)986-2230 www.kuraraydental.com

### 6. Copper Bands

Parkell, Inc. 300 Executive Drive Edgewood, NY 11717 (800)243-7446 (631)249-1134 www.parkell.com

#### 7. Core Paste

DenMat Holdings, LLC P.O. Box 1729 Lompoc, CA 93438 (800)433-6628 (805)346-3700 www.denmat.com

### 8. **Diamond (Two Striper)**

Premier Dental Products Co. 1710 Romano Drive Plymouth Meeting, PA 19462 (888)670-6100 (610)239-6000 www.premusa.com

### 9. Dyract eXtra

Dentsply Caulk 38 West Clarke Avenue Milford, DE 19963-0359 (800)532-2855 (302)422-4511 www.caulk.com

### 10. Electric Handpieces:

Brasseler USA Dental One Brasseler Blvd. Savannah, GA 31419 (800)841-4522 (912)925-8525 www.brasselerusa.com

> KaVo Dental 11729 Fruehauf Drive Charlotte, NC 28273 (888)275-5286 (847)550-6800 www.kavousa.com

### 11. **F2000 Componer** Restorative

3M ESPE Dental Products 3M Center Bldg. 275-2SE-03 St. Paul, MN 55144 (800)634-2249 (651)575-5144 www.3mespe.com

### 12. FibreKor Post

Pentron Clinical 1717 West Collins Avenue Orange, CA 92867 (800)551-0283 (714)516-7557 www.pentron.com

### 13. Filpin

Filhol Dental USA 19 West 34<sup>th</sup> Street Suite 916 New York, NY 10001 (212)714-9250 www.filhol.com

### 14. GC Fuji Lining LC

GC America 3737 West 127<sup>th</sup> Street Alsip, IL 60803 (800)323-7063 (708)597-0900 www.gcamerica.com

### 15. Gingi-Pak

Gingi-Pak 4825 Calle Alto P.O. Box 240 Camarillo, CA 93011-0240 (800)437-1514 (805)484-1051 www.gingi-pak.com

### 16. ½ Hollenbeck Carver

Local Dental Supplier

### 17. Micro-Fill Composite Finishing Kit

E.C. Moore Company 13325 Leonard Street Dearborn, MI 48126 (800)331-3548 (313)581-7878 www.ecmoore.com

### 18. Neodiamond (Round End Taper #1116.8C)

Microcopy

3120 Moon Station Road N.W. Kennesaw, GA 30144 (800)235-1863 (770)425-5715 www.microcopydental.com

### 19. **Optibond All-In-One**

Kerr Corporation 1717 West Collins Avenue Orange, CA 92867 (800)537-7123 (714)516-7400 www.kerrdental.com

### 20. **Protemp<sup>™</sup> 3 Garant<sup>™</sup>**

3M ESPE Dental Products 3M Center Bldg. 275-2SE-03 St. Paul, MN 55144 (800)634-2249 (651)575-5144 www.3mespe.com

### 21. Roeko Stay-Put

Coltene/Whaledent 235 Ascot Parkway Cuyahoga Falls, OH 44223 (800)221-3046 (330)916-8800 www.coltene.com

### 22. Sideless Triple Tray

Premier Dental Products Co. 1710 Romano Drive Plymouth Meeting, PA 19462 (888)670-6100 (610)239-6000 www.premusa.com

#### 23. Triad TruTray

Dentsply Prosthetics 570 West College Avenue York, PA 17405 (800)786-0085 (717)845-7511

 $\underline{www.prosthetics.dentsply.com}$ 

### 24. Ultrapak

Ultradent Products, Inc. 505 West 10200 South South Jordan, UT 84095 (888)230-1420 (801)572-4200 www.ultradent.com

#### 25. Vitrebond

3M ESPE Dental Products 3M Center Bldg. 275-2SE-03 St. Paul, MN 55144 (800)634-2249 (651)575-5144 www.3mespe.com

### 26. Zekrya Gingival Protector

DMG America 242 South Dean Street Englewood, NJ 07631 (800)662-6383 (201)894-5505 www.dmg-america.com

Product names, the products themselves, and company names change rapidly. Please contact the companies shown to confirm current information.

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### **PROGRAM**

### V1925 Optimal Fixed Prosthodontic Tooth Preparations

### **CLINICIAN RESPONSIBLE**

Gordon J. Christensen, DDS, MSD, PhD CEO, Practical Clinical Courses CEO, CR Foundation Practicing Prosthodontist, Provo, Utah

### **GOALS & OBJECTIVES**

At the completion of this video presentation, participants should be able to accomplish the following:

- 1. Describe the importance of fixed prosthodontics in current dental practice.
- 2. Discuss the nature of current challenges in fixed prosthodontic procedures.
- 3. Describe and draw an ideal tooth preparation for ceramic veneers.
- 4. Describe and draw an ideal tooth preparation for a full-metal crown.
- 5. Describe and draw an ideal tooth preparation for a porcelain-fused-to-metal crown.
- 6. Describe and draw an ideal tooth preparation for a three-quarter crown.
- 7. Describe and draw an ideal tooth preparation for an all-ceramic crown.
- 8. Discuss the instruments necessary for tooth preparations for crowns.
- 9. Compare air-driven handpieces with electric handpieces.
- 10. Discuss the types of diamond rotary instruments necessary for tooth preparations.
- 11. Describe several types of soft-tissue management techniques for fixed prosthodontic procedures.
- 12. List ten ways that dental pulp tissue may be harmed during fixed prosthodontic procedures.
- 13. Describe the differences between fillers and build-ups.
- 14. List the steps in placing a filler.
- 15. List the steps in placing a build-up.
- 16. Discuss the state-of-the-art in posts and cores.
- 17. Discuss frequently occurring errors in crown preparations.
- 18. Describe the difference between tooth preparation for a full-metal crown and a porcelain-fused-to-metal crown.
- 19. Describe the differences between tooth preparation for a porcelain-fused-to-metal crown and an all-ceramic crown.
- 20. Describe the differences between tooth preparation for a full-metal crown and an all-ceramic crown.

### **OVERVIEW**

### V1925 Optimal Fixed Prosthodontic Tooth Preparations

Tooth preparation is one of the ongoing challenges in fixed prosthodontic procedures. When visiting dental laboratories, inadequate tooth preparations are often encountered when stone dies are observed. This presentation includes tooth preparations for the following restorations: ceramic veneers, three-quarter crowns, full-metal crowns, porcelain-fused-to-metal crowns, and all-ceramic crowns. The following list includes the most common errors in tooth preparation for the aforementioned restorations:

- Inadequate incisal or occlusal tooth reduction
- Inadequate tooth reduction on axial walls
- Over reduction of tooth structure
- Too much taper
- Inadequate fillers or build-ups
- Indistinct margins
- Too much subgingival reduction
- Sharp angles on the tooth preparation
- Undercuts in the tooth preparation
- Tooth preparation too short

The presentation includes a demonstration of tooth preparations on dentoform teeth, followed by an actual clinical case requiring crowns. All of the steps in optimal tooth preparation are demonstrated in the clinical example.

### **REFERENCES**

- 1. Christensen GJ. Ensuring retention for crowns and fixed prostheses. JADA 2003;134:993-95.
- 2. Christensen GJ. The confusing array of tooth-colored crowns. JADA 2003;134:1253-55.
- 3. Christensen GJ. Achieving optimum retention for restorations. JADA 2004;135:1143-45.
- 4. Christensen GJ. Post concepts are changing. JADA 2004;135:1308-10.
- 5. Christensen GJ. Restoring a single anterior tooth: solutions to a dental dilemma. JADA 2004;135:1725-27.
- 6. Christensen GJ. Longevity of posterior tooth dental restorations. JADA 2005;136:201-3.
- 7. Seymour KG, Samarawickrama DY, Zou L, Lynch E. Assessing the quality of shoulder preparations for metal ceramic crowns. Eur J Prosthodont Restor Dent. 1999 Dec;7(4):125-9.
- 8. Goodacre CJ, Campagni WV, Aquilino SA. Tooth preparations for complete crowns: an art form based on scientific principles. J Prosthet Dent. 2001 Apr;85(4):363-76.

### **POST-TEST**

### V1925 Optimal Fixed Prosthodontic Tooth Preparations

- 1. The facial surface of a crown preparation for a full crown on a mandibular molar:
  - a. is relatively straight up and down from the gingival margin to the occlusal surface.
  - b. is undercut for optimal strength.
  - c. follows the original contour of the facial surface of the tooth, tapering from the gingival margin toward the central aspect of the tooth.
  - d. none of the above.
- 2. The facial surface of a crown preparation for a full crown on a maxillary molar:
  - a. is relatively straight up and down from the gingival margin to the occlusal surface.
  - b. is undercut for optimum strength.
  - c. tapers from the gingival margin toward the central aspect of the tooth.
  - d. none of the above.
- 3. Which crown preparation has the deepest cut on the lingual surface?
  - a. full-metal crown
  - b. porcelain-fused-to-metal crown
  - c. all-ceramic crown
  - d. porcelain-fused-to-metal crown with ceramic margin
- 4. Fillers are needed:
  - a. to prevent impression material from having to spring out of undercuts and to reduce postoperative tooth sensitivity.
  - b. for added restoration strength.
  - c. for added crown retention.
  - d. to provide more income from third-party payers.
- 5. Build-ups are needed:
  - a. to prevent impression material from sticking to the tooth preparation.
  - b. for added restoration strength.
  - c. for added restoration retention.
  - d. for added restoration strength and retention.
- 6. In this video, it was suggested that:
  - a. several diamond rotary instruments should be used to make a crown preparation.
  - b. most crown preparations can be made with one shape of rotary diamond instruments.
  - c. tungsten steel burs should always be used for crown preparations.
  - d. one-use diamonds should not be used.
- 7. Crown margins should be placed:
  - a. slightly subgingival.
  - b. slightly supragingival.
  - c. either slightly subgingival, at the gingival line, or supragingival.
  - d. never on enamel.

### **POST-TEST** (cont.)

### V1925 Optimal Fixed Prosthodontic Tooth Preparations

<ol><li>Occlusal reduction of tooth structure for crowns was sugges</li></ol>	sted to be:
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- a. 1 mm.
- b. 2 mm.
- c. 2-½ mm.
- d. 3 mm.
- 9. Facial crown preparation margins for all-ceramic crowns should be:
  - a. beveled chamfers.
  - b. feather edges.
  - c. light chamfers.
  - d. heavy chamfers with a butt joint between tooth and crown.
- 10. Tooth preparations for ceramic veneers should be:
  - a. cut into dentin.
  - b. cut only into enamel, whenever possible.
  - c. cut about 1 mm deep.
  - d. cut about 1-½ mm deep.

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