

# **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

### **Materials Included**

C.E. Instruction Sheet  
Products List  
Clinician Responsible  
Goals & Objectives  
Overview  
References  
AGD Post Test

**Gordon J. Christensen**  
**PRACTICAL CLINICAL COURSES**

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Gordon J. Christensen  
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*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](http://www.parkell.com)
2. **Brush & Bond**  
Parkell, Inc.  
300 Executive Drive  
Edgewood, NY 11717  
(800)243-7446  
(631)249-1134  
[www.parkell.com](http://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](http://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](http://www.hu-friedy.com)
5. **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](http://www.kuraraydental.com)
6. **Copper Bands**  
Parkell, Inc.  
300 Executive Drive  
Edgewood, NY 11717  
(800)243-7446  
(631)249-1134  
[www.parkell.com](http://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](http://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](http://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](http://www.caulk.com)
10. **Electric Handpieces:**  
Brasseler USA Dental  
One Brasseler Blvd.  
Savannah, GA 31419  
(800)841-4522  
(912)925-8525  
[www.brasselerusa.com](http://www.brasselerusa.com)
11. **F2000 Compomer Restorative**  
3M ESPE Dental Products  
3M Center  
Bldg. 275-2SE-03  
St. Paul, MN 55144  
(800)634-2249  
(651)575-5144  
[www.3mespe.com](http://www.3mespe.com)
12. **FibreKor Post**  
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1717 West Collins Avenue  
Orange, CA 92867  
(800)551-0283  
(714)516-7557  
[www.pentron.com](http://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](http://www.filhol.com)

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|---|--|--|
| <p>14. <b>GC Fuji Lining LC</b><br/>GC America<br/>3737 West 127<sup>th</sup> Street<br/>Alsip, IL 60803<br/>(800)323-7063<br/>(708)597-0900<br/><a href="http://www.gcamerica.com">www.gcamerica.com</a></p>                             | <p>19. <b>Optibond All-In-One</b><br/>Kerr Corporation<br/>1717 West Collins Avenue<br/>Orange, CA 92867<br/>(800)537-7123<br/>(714)516-7400<br/><a href="http://www.kerrdental.com">www.kerrdental.com</a></p>                | <p>24. <b>Ultrapak</b><br/>Ultradent Products, Inc.<br/>505 West 10200 South<br/>South Jordan, UT 84095<br/>(888)230-1420<br/>(801)572-4200<br/><a href="http://www.ultradent.com">www.ultradent.com</a></p>       |
| <p>15. <b>Gingi-Pak</b><br/>Gingi-Pak<br/>4825 Calle Alto<br/>P.O. Box 240<br/>Camarillo, CA 93011-0240<br/>(800)437-1514<br/>(805)484-1051<br/><a href="http://www.gingi-pak.com">www.gingi-pak.com</a></p>                              | <p>20. <b>Protemp™ 3 Garant™</b><br/>3M ESPE Dental Products<br/>3M Center<br/>Bldg. 275-2SE-03<br/>St. Paul, MN 55144<br/>(800)634-2249<br/>(651)575-5144<br/><a href="http://www.3mespe.com">www.3mespe.com</a></p>          | <p>25. <b>Vitrebond</b><br/>3M ESPE Dental Products<br/>3M Center<br/>Bldg. 275-2SE-03<br/>St. Paul, MN 55144<br/>(800)634-2249<br/>(651)575-5144<br/><a href="http://www.3mespe.com">www.3mespe.com</a></p>       |
| <p>16. <b>½ Hollenbeck Carver</b><br/>Local Dental Supplier</p>   | <p>21. <b>Roeko Stay-Put</b><br/>Coltene/Whaledent<br/>235 Ascot Parkway<br/>Cuyahoga Falls, OH 44223<br/>(800)221-3046<br/>(330)916-8800<br/><a href="http://www.coltene.com">www.coltene.com</a></p>                         | <p>26. <b>Zekrya Gingival Protector</b><br/>DMG America<br/>242 South Dean Street<br/>Englewood, NJ 07631<br/>(800)662-6383<br/>(201)894-5505<br/><a href="http://www.dmg-america.com">www.dmg-america.com</a></p> |
| <p>17. <b>Micro-Fill Composite Finishing Kit</b><br/>E.C. Moore Company<br/>13325 Leonard Street<br/>Dearborn, MI 48126<br/>(800)331-3548<br/>(313)581-7878<br/><a href="http://www.ecmoore.com">www.ecmoore.com</a></p>                  | <p>22. <b>Sideless Triple Tray</b><br/>Premier Dental Products Co.<br/>1710 Romano Drive<br/>Plymouth Meeting, PA 19462<br/>(888)670-6100<br/>(610)239-6000<br/><a href="http://www.premusa.com">www.premusa.com</a></p>       |  |
| <p>18. <b>Neodiamond (Round End Taper #1116.8C)</b><br/>Microcopy<br/>3120 Moon Station Road N.W.<br/>Kennesaw, GA 30144<br/>(800)235-1863<br/>(770)425-5715<br/><a href="http://www.microcopydental.com">www.microcopydental.com</a></p> | <p>23. <b>Triad TruTray</b><br/>Dentsply Prosthetics<br/>570 West College Avenue<br/>York, PA 17405<br/>(800)786-0085<br/>(717)845-7511<br/><a href="http://www.prosthetics.dentsply.com">www.prosthetics.dentsply.com</a></p> |  |

*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 dentiform 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.

**POST TEST (cont.)**

**V1925 Optimal Fixed Prosthodontic Tooth Preparations**

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.
  
8. Occlusal reduction of tooth structure for crowns was suggested to be:
  - 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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