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V1572
Onlays vs. Crowns

Gordon J. Christensen, DDS, MSD, PhD

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PROGRAM

V1572 Onlays vs. Crowns

CLINICIAN RESPONSIBLE:

Gordon J. Christensen, DDS, MSD, PhD
Founder and CEO, Practical Clinical Courses
Senior Consultant & Previous CEO, CR Foundation
Practicing Prosthodontist, Provo, Utah

GOALS & OBJECTIVES

At the completion of this video presentation, viewers should be able to:

1. Describe the characteristics of tooth preparations for inlays, onlays, and crowns.
2. Describe why crowns are done more than onlays.
3. Discuss the differences between laboratory made and in-office milled onlays.
4. Draw the tooth preparation for an onlay on a mandibular molar.
5. Discuss liners and bases for inlays and onlays.
6. Discuss soft-tissue management for inlays and onlays.
7. Describe the suggested impression technique for one onlay.
8. Discuss provisional materials for inlays and onlays.
9. Describe the technique for making provisional restorations for onlays.
10. List the types of cements for provisional restorations.
11. Describe why some provisional materials do not require cement.
12. Compare strength of onlays with the strength of uncut teeth.
13. Discuss materials for inlays and onlays.
14. Compare materials for inlays and onlays.
15. Describe zirconia.
16. Describe lithium disilicate.
17. Describe resin nano ceramic.
18. Compare cements for inlays and onlays.
19. List the technique steps for prepping an onlay.
20. List the technique steps for seating an onlay.

OVERVIEW

V1572 Onlays vs. Crowns

This presentation demonstrates the steps in diagnosis and treatment for tooth-colored inlays and onlays using zirconia, lithium disilicate, and resin nano ceramic. The following topics are included:

- Typical teeth needing major restoration
- What are the characteristics of inlays, onlays, and crowns?
- Why crowns are more commonly placed than onlays
- Laboratory made onlays
- In-office milled onlays
- Tooth preparations
- Liners and bases
- Soft-tissue management
- Impressions, conventional and scanned
- Provisional restoration materials
- Cements for provisional restorations
- Seating provisional restorations
- Materials for onlays
- Strength of onlays
- Demonstration of three onlay types
- Cements for onlays
- Cementing lithium disilicate onlays/inlays
- Cementing zirconia onlays/inlays
- Cementing resin nano ceramic inlays/onlays
- Acid etching enamel
- Tooth preparation disinfection and desensitization
- Bonding agents for onlays/inlays
- Seating onlays
- Occlusal considerations
- Long-term maintenance and repair
- Additional educational information
- Conclusions

SUPPLEMENTAL MATERIALS

V1572 Onlays vs. Crowns

1. Mynampati P, Babu MR, Saraswathi DD, Kumar JR, Gudugunta L, Gaddam D. Comparison of fracture resistance and failure pattern of endodontically treated premolars with different esthetic onlay systems: An in vitro study. *J Conserv Dent*. 2015 Mar-Apr;18(2):140-3. doi: 10.4103/0972-0707.153072.
2. Chen C, Trindade FZ, de Jager N, Kleverlaan CJ, Feilzer AJ. The fracture resistance of a CAD/CAM Resin Nano Ceramic (RNC) and a CAD ceramic at different thicknesses. *Dent Mater*. 2014 Sep;30(9):954-62. doi: 10.1016/j.dental.2014.05.018. Epub 2014 Jul 15.
3. Oilo M, Hardang AD, Ulsund AH, Gjerdet NR. Fractographic features of glass-ceramic and zirconia-based dental restorations fractured during clinical function. *Eur J Oral Sci*. 2014 Jun;122(3):238-44. doi: 10.1111/eos.12127. Epub 2014 Apr 4.
4. Belli R, Geinzer E, Muschweck A, Petschelt A, Lohbauer U. Mechanical fatigue degradation of ceramics versus resin composites for dental restorations. *Dent Mater*. 2014 Apr;30(4):424-32. doi: 10.1016/j.dental.2014.01.003. Epub 2014 Feb 17.
5. Fabbri G, Zarone F, Dellificorelli G, Cannistraro G, De Lorenzi M, Mosca A, Sorrentino R. Clinical evaluation of 860 anterior and posterior lithium disilicate restorations: retrospective study with a mean follow-up of 3 years and a maximum observational period of 6 years. *Int J Periodontics Restorative Dent*. 2014 Mar-Apr;34(2):165-77. doi: 10.11607/prd.1769.
6. Joda T, Huber S, Bürki A, Zysset P, Brägger U. Influence of Abutment Design on Stiffness, Strength, and Failure of Implant-Supported Monolithic Resin Nano Ceramic (RNC) Crowns. *Clin Implant Dent Relat Res*. 2014 Mar 14. doi: 10.1111/cid.12215. [Epub ahead of print].
7. Yu W, Guo K, Zhang B, Weng W. Fracture resistance of endodontically treated premolars restored with lithium disilicate CAD/CAM crowns or onlays and luted with two luting agents. *Dent Mater J*. 2014;33(3):349-54. Epub 2014 Apr 17.
8. Saridag S, Sevimay M, Pekkan G. Fracture resistance of teeth restored with all-ceramic inlays and onlays: an in vitro study. *Oper Dent*. 2013 Nov-Dec;38(6):626-34. doi: 10.2341/12-211-L. Epub 2013 Feb 7.
9. Ma L, Guess PC, Zhang Y. Load-bearing properties of minimal-invasive monolithic lithium disilicate and zirconia occlusal onlays: finite element and theoretical analyses. *Dent Mater*. 2013 Jul;29(7):742-51. doi: 10.1016/j.dental.2013.04.004. Epub 2013 May 15.
10. Fabianelli A, Goracci C, Bertelli E, Davidson CL, Ferrari M. A clinical trial of Empress II porcelain inlays luted to vital teeth with a dual-curing adhesive system and a self-curing resin cement. *J Adhes Dent*. 2006 Dec;8(6):427-31.

SUPPLEMENTAL MATERIALS (CONT'D)

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11. Thordrup M, Isidor F, Hörsted-Bindslev P. A prospective clinical study of indirect and direct composite and ceramic inlays: ten-year results. *Quintessence Int.* 2006 Feb;37(2):139-44.
12. Krämer N, Frankenberger R. Clinical performance of bonded leucite-reinforced glass ceramic inlays and onlays after eight years. *Dent Mater.* 2005 Mar;21(3):262-71.
13. Hayashi M, Wilson NH, Yeung CA, Worthington HV. Systematic review of ceramic inlays. *Clin Oral Investig.* 2003 Mar;7(1):8-19. Epub 2002 Dec 21.
14. Thordrup M, Isidor F, Hörsted-Bindslev P. A 5-year clinical study of indirect and direct resin composite and ceramic inlays. *Quintessence Int.* 2001 Mar;32(3):199-205.
15. Heymann HO, Bayne SC, Sturdevant JR, Wilder Jr AD, Roberson TM. The clinical performance of CAD-CAM-generated ceramic inlays: a four-year study. *J Am Dent Assoc.* 1996 Aug;127(8):1171-81.

POST-TEST

V1572 Onlays vs. Crowns

1. An onlay is described by third-party payment organizations as a restoration that:
 - a. covers all tooth cusps.
 - b. covers at least one cusp.
 - c. covers at least the chewing (pestle) cusp.
 - d. is any indirectly made partial coverage restoration.

2. Which is strongest?
 - a. Bonded inlay
 - b. Onlay covering at least half of the cusps
 - c. Onlay covering all of the cusps
 - d. Bonded resin-based composite

3. Tooth preparations for onlays should have:
 - a. at least 1.5 mm of reduction on the occlusal surfaces.
 - b. more divergence than cast gold alloy restorations.
 - c. no gingival bevels.
 - d. all of the above.

4. Impressions for one onlay are best made in:
 - a. a double-arch tray.
 - b. the centric relation position.
 - c. a full-arch tray.
 - d. light curing vinyl polysiloxane.

5. Provisional restorations for onlays:
 - a. should always be made in bis-acryl.
 - b. should always be cemented.
 - c. can be made in bis-acryl, if retention of the prep is low.
 - d. always have good retention.

6. Which was the strongest material (numerically) in the CR study reported in the video?
 - a. Resin nano ceramic
 - b. Zirconia
 - c. Uncut tooth
 - d. Lithium disilicate

7. The most adequate cement for onlays is usually:
 - a. resin-modified glass ionomer.
 - b. glass ionomer.
 - c. resin.
 - d. bonded resin-modified glass ionomer.

POST-TEST (CONT'D)

V1572 Onlays vs. Crowns

- 8. Soft-tissue management for inlays and onlays:
 - a. uses ferric sulfate styptic.
 - b. is minimal.
 - c. requires cord placement.
 - d. requires aluminum chloride styptic.

- 9. Lithium disilicate restorations should be cleaned before cementation with:
 - a. sandblasting.
 - b. hydrofluoric acid etch for at least 10 seconds.
 - c. hydrochloric acid.
 - d. Ivoclean or phosphoric acid.

- 10. Zirconia should be cleaned before cementation with:
 - a. phosphoric acid.
 - b. hydrofluoric acid.
 - c. Ivoclean or sandblast.
 - d. hydrochloric acid.

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