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Career Development Program

V1978

Fast, Accurate, Cost-Effective Digital Impressions

Gordon J. Christensen, DDS, MSD, PhD
Tim Palmer, BS Chief Scientific Officer, CR Foundation

Materials Included

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Sources of Products Discussed in

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Various Distributors
2. **BruxZir NOW Milling Blocks**
Glidewell Laboratories
4141 MacArthur Blvd.
Newport Beach, CA 92660
(800)854-7256
www.glidewell dental.com
3. **DiaShine**
VH Technologies
2100 196th Street SW
Suite 116
Lynnwood, WA 98036
(888)628-8300
www.vh technologies.com
4. **Expasyl**
Kerr Corporation
1717 West Collins
Orange, CA 92867
(800)537-7123
(714)516-7400
www.kerr dental.com
5. **FujiCEM 2**
GC America, Inc.
3737 West 127th Street
Alsip, IL 60803
(800)323-7063
(708)597-0900
www.gc america.com
6. **G5 All-Purpose Desensitizer**
Clinician's Choice Dental Products
P.O. Box 1706
New Milford, CT 06776
(800)265-3444
www.clinicianschoice.com
7. **Gingi-Pak**
Gingi-Pak
4825 Calle Alto
P.O. Box 240
Camarillo, CA 93012
(800)437-1514
(805)484-1051
www.gingi-pak.com
8. **GLUMA Desensitizer**
Heraeus Kulzer, LLC
300 Heraeus Way
South Bend, IN 46614-2517
(800)431-1785
www.heraeus-dental-us.com
9. **High-Resolution Scanning Spray**
3M ESPE Dental Products
3M Center
Building 275-2SE-03
St. Paul, MN 55144-1000
(800)634-2249
(651)575-5144
www.3mespe.com
10. **High-Resolution Sprayer**
3M ESPE Dental Products
3M Center
Building 275-2SE-03
St. Paul, MN 55144-1000
(800)634-2249
(651)575-5144
www.3mespe.com
11. **iLase**
Biolase Technology, Inc.
4 Cromwell
Irvine, CA 92618
(888)424-6527
(949)361-1200
www.biolase.com
12. **Ivoclean**
Ivoclar Vivadent Inc.
175 Pineview Drive
Amherst, NY 14228
(800)533-6825
(716)691-0010
www.ivoclarvivadent.us.com
13. **Joe Dandy Discs**
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14. **Lava Ultimate**
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(800)634-2249
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www.3mespe.com
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10200 East Easter Avenue
Centennial, CO 80112
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www.meisingerusa.com
16. **Maxcem Elite**
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(714)516-7400
www.kerr dental.com
17. **MicroEtcher IIA**
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San Ramon, CA 94583
(800)827-7940
(925)973-0710
www.danvillematerials.com
18. **MicroPrime**
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3420 Fostoria Way
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San Ramon, CA 94583
(800)827-7940
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www.danvillematerials.com
19. **Obsidian Milling Blocks**
Various Distributors

20. **Occlusal Indicator Wax**
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(800)634-2249
(651)575-5144
www.3mespe.com
28. **Roeko Stay-put**
Coltene/Whaledent Inc.
235 Ascot Parkway
Cuyahoga Falls, OH 44223
(800)221-3046
(330)916-8800
www.coltene.com
29. **Sensimatic 700SE Electrosurge**
Parkell, Inc.
300 Executive Drive
Edgewood, NY 11717
(800)243-7446
(631)249-1134
www.parkell.com
30. **SOLEA Laser**
Convergent Dental
2 Vision Drive
Natick, MA 01760
(800)880-8589
www.convergentdental.com
31. **Traxodent**
Premier Dental Products
1710 Romano Drive
Plymouth Meeting, PA 19462
(888)670-6100
(610)239-6000
www.premusa.com
32. **True Definition Scanner**
3M ESPE Dental Products
3M Center
Building 275-2SE-03
St. Paul, MN 55144-1000
(800)634-2249
(651)575-5144
www.3mespe.com
33. **TS150 IOS Milling Solution**
IOS Technologies, Inc.
3978 Sorrento Valley Blvd.
Suite 200
San Diego, CA 92121
(858)202-3360
www.ios3d.com
34. **VALO LED Curing Light**
Ultradent Products, Inc.
505 West 10200 South
South Jordan, UT 84095
(888)230-1420
(801)572-4200
www.ultradent.com
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Ultradent Products, Inc.
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South Jordan, UT 84095
(888)230-1420
(801)572-4200
www.ultradent.com
36. **VITA ENAMIC**
VITA North America
22705 Savi Ranch Parkway
Suite 100
Yorba Linda, CA 92887
(800)828-3839
(714)221-6782
www.vitanorthamerica.com

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PROGRAM

V1978 Fast, Accurate, Cost-Effective Digital Impressions

CLINICIAN RESPONSIBLE:

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CEO, Practical Clinical Courses

CEO, CR Foundation

Practicing Prosthodontist, Provo, Utah

Tim Palmer, BS

Chief Scientific Officer, CR Foundation

GOALS & OBJECTIVES

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

1. Compare conventional fixed prosthesis construction with digital fixed prosthesis construction.
2. Describe two ways to use digital impressions.
3. Describe the 3M True Definition Scanner.
4. List the steps in the standard two-cord tissue management technique.
5. List the steps in using styptic impregnated clay as a soft-tissue management technique.
6. Describe the reason for the use of reflective powder on the tooth preparations preparatory to making a digital impression.
7. Discuss having a staff member do the scanning, designing, and milling of the restoration.
8. Describe the sequence and location of scanning for one single posterior crown.
9. Discuss where to send the scan – to a lab or to an in-office milling machine?
10. Describe the in-office milling technique.
11. List characteristics of those practitioners who mill restorations in their clinical offices.
12. List the advantages of scanning when compared to making conventional impressions.
13. Discuss the steps in designing the restoration.
14. List four restorative materials that can be milled in the IOS Technologies milling machine.
15. Discuss finishing and polishing zirconia restorations.
16. Discuss cements for zirconia restorations.
17. Compare resin-modified glass ionomer cements and resin cements for zirconia restorations.
18. Discuss the suggested technique to clean tooth preparations before cementation.
19. Discuss how to prepare a zirconia restoration for cementation.
20. Discuss the potential clinical longevity for zirconia restorations.

OVERVIEW

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This presentation is an overview of the 3M True Definition Scanner and the IOS Technologies in-office milling device, and the techniques related to them.

The following topics are included:

1. A comparison of the conventional fixed prosthodontic technique related to the digital method
2. Two ways to use digital impressions
3. The 3M True Definition Scanner – A historical perspective
4. The 3M True Definition Scanner – The concept of multiple images
5. Soft-tissue management
6. Use of reflective powder on tooth preparations
7. Scanning by whom?
8. The scanning procedure
9. Deciding where to send the scan – in-office or for laboratory milling
10. Sending the scanned impression to a laboratory
11. Laboratory availability
12. In-office milling - the concept
13. The IOS milling machine
14. Designing the restoration with the fast design software
15. Restoration materials available for the IOS machine
16. Sending the scan to the milling machine and milling
17. Finishing and polishing the restoration
18. Trying the restoration into the mouth
19. Preparing the restoration for cementation
20. Cements for available restoration types
21. Cementing the restoration
22. Restoration longevity expectations
23. A comparison of in-office and laboratory milling
24. Conclusion

REFERENCES

V1978 Fast, Accurate, Cost-Effective Digital Impressions

1. An K, Jang I, Choi DS, Jost-Brinkmann PG, Cha BK. Identification of a stable reference area for superimposing mandibular digital models. *J Orofac Orthop*. 2015 Nov;76(6):508-519.
2. Abdel-Azim T, Rogers K, Elathamna E, Zandinejad A, Metz M, Morton D. Comparison of the marginal fit of lithium disilicate crowns fabricated with CAD/CAM technology by using conventional impressions and two intraoral digital scanners. *J Prosthet Dent*. 2015 Oct;114(4):554-9. doi: 10.1016/j.prosdent.2015.04.001. Epub 2015 Jun 20.
3. Joda T, Katsoulis J, Brägger U. Clinical Fitting and Adjustment Time for Implant-Supported Crowns Comparing Digital and Conventional Workflows. *Clin Implant Dent Relat Res*. 2015 Sept 22. doi: 10.1111/cid.12377. [Epub ahead of print].
4. Li H, Lyu P, Sun Y, Wang Y, Liang X. A quantitative study of 3D-scanning frequency and Δd of tracking points on the tooth surface. *Sci Rep*. 2015 Sep 24;5:14350. doi: 10.1038/srep14350.
5. Guichet D. Digitally enhanced dentistry: the power of digital design. *J Calif Dent Assoc*. 2015 Mar;43(3):135-41.
6. Ferencz JL. Today's CAD/CAM: flexible digital technologies expanding workflow options. *Compend Contin Educ Dent*. 2015 Mar;36(3):222-3.
7. Lawson NC, Burgess JO. Clinicians reaping benefits of new concepts in impressioning. *Compend Contin Educ Dent*. 2015 Feb;36(2):152-3.
8. Yang X, Sun YF, Tian L, Si WJ, Feng HL, Liu YH. Precision of digital impressions with TRIOS under simulated intraoral impression taking conditions. *Beijing Da Xue Xue Bao*. 2015 Feb 18;47(1):85-9.
9. Reyes A, Turkyilmaz I, Prihoda TJ. Accuracy of surgical guides made from conventional and a combination of digital scanning and rapid prototyping techniques. *J Prosthet Dent*. 2015 Apr;113(4):295-303. doi: 10.1016/j.prosdent.2014.09.018. Epub 2015 Feb 11.
10. Zandinejad A, Lin WS, Atarodi M, Abdel-Azim T, Metz MJ, Morton D. Digital workflow for virtually designing and milling ceramic lithium disilicate veneers: a clinical report. *Oper Dent*. 2015 May-Jun;40(3):241-6. doi: 10.2341/13-291-S. Epub 2015 Feb 23.
11. Zimmermann M, Mehl A, Mörmann WH, Reich S. Intraoral scanning systems - a current overview. *Int J Comput Dent*. 2015;18(2):101-29.
12. Bosch G, Ender A, Mehl A. A 3-dimensional accuracy analysis of chairside CAD/CAM milling processes. *J Prosthet Dent*. 2014 Dec;112(6):1425-31. doi: 10.1016/j.prosdent.2014.05.012. Epub 2014 Jul 1.

REFERENCES (CONT'D)

V1978 Fast, Accurate, Cost-Effective Digital Impressions

13. Tamac E, Toksavul S, Toman M. Clinical marginal and internal adaptation of CAD/CAM milling, laser sintering, and cast metal ceramic crowns. *J Prosthet Dent.* 2014 Oct;112(4):909-13. doi: 10.1016/j.prosdent.2013.12.020. Epub 2014 May 10.
14. Vollborn T, Habor D, Pekam FC, Heger S, Marotti J, Reich S, Wolfart S, Tinschert J, Radermacher K. Soft tissue-preserving computer-aided impression: a novel concept using ultrasonic 3D-scanning. *Int J Comput Dent.* 2014;17(4):277-96.
15. Schaefer O, Kuepper H, Thompson GA, Cachovan G, Hefti AF, Guentsch A. Effect of CNC-milling on the marginal and internal fit of dental ceramics: a pilot study. *Dent Mater.* 2013 Aug;29(8):851-8. doi: 10.1016/j.dental.2013.04.018. Epub 2013 Jun 4.

POST TEST

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1. Scanning tooth preparations can be done by:
 - a. a dental assistant.
 - b. a dental hygienist.
 - c. a dental laboratory technician.
 - d. all of the above.

2. The 3M True Definition scanner:
 - a. was developed in Germany.
 - b. includes a milling machine.
 - c. captures a television-like series of images.
 - d. all of the above.

3. Scanning for indirect restorations:
 - a. is faster, but less accurate, than elastomer impressions.
 - b. has been shown to be more accurate than elastomer impressions.
 - c. provides restorations that fit about the same as those made from elastomer impressions.
 - d. takes more clinical time than elastomer impressions.

4. Soft-tissue management for scanning:
 - a. is much easier than for elastomer impressions.
 - b. does not require observation of the tooth preparation margins.
 - c. may be done with conventional methods.
 - d. should always be done with a diode laser.

5. A light coat of reflective powder sprayed on the tooth surface prior to scanning:
 - a. is required by all scanners.
 - b. is relatively simple and easily done.
 - c. is a difficult procedure.
 - d. is not removed by water.

6. Scanning was predicted in the video to:
 - a. be an adjunct to elastomer impressions.
 - b. eventually replace elastomer impressions.
 - c. continue to be used in the in-office milling technique.
 - d. all of the above.

7. The IOS milling machine:
 - a. is somewhat difficult to set up.
 - b. can mill several types of restorative materials.
 - c. requires ~30 minutes to mill the materials.
 - d. mills the blocks in a dry field.

POST TEST (CONT'D)

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8. The scanned impression can be sent to:
 - a. an in-office milling machine.
 - b. your lab, if they have a milling machine.
 - c. a lab in another part of the country.
 - d. all of the above.

9. Zirconia restorations should have the following pre-cementation procedure:
 - a. sandblasting of the internal of the restoration.
 - b. cleaning with phosphoric acid.
 - c. placement of silane on the internal of the restoration.
 - d. none of the above.

10. The in-office scanning and milling technique:
 - a. requires more time than the conventional restoration concept.
 - b. requires less time than the conventional restoration concept.
 - c. requires about the same time as the conventional restoration concept.
 - d. is the most popular indirect restoration fabrication method.

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