

# Denture fabrication: A lost art (part two)

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## ABSTRACT

There are more than 40 million edentulous people in the United States alone, many of whom are denture wearers.<sup>1</sup> However, these patients may have worn or damaged dentures and continue to function. This is partly due to acceptance and adaptation of an edentulous mouth and/or past difficulties with new dentures. Some patients use dentures only in situations where esthetics are necessary. Unfortunately, these patients may also go to a dentist who believes that the complete denture is difficult to create and the fully edentulous patient difficult to treat. This course will attempt to educate dentists and teams as to some of the many steps required to treat an edentulous patient with a removable denture.

## EDUCATIONAL OBJECTIVES

At the conclusion of this educational activity, participants will be able to

1. identify current trends in the denture market,
2. identify the various reasons for an ill-fitting denture,
3. discuss the options available for interim denture comfort, and
4. discuss the steps involved in denture fabrication.



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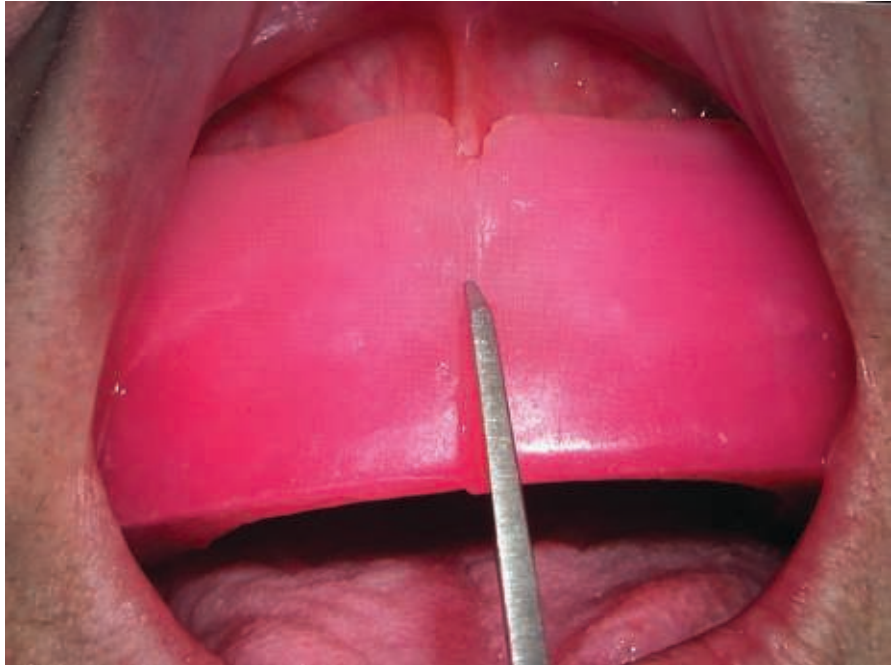
In Part 1 of “Denture fabrication: A lost art,” we reviewed the challenges that dentures present, stating that “many dentists refuse to take full denture cases because of the poor end results obtained.”<sup>2</sup> Fabricating a denture is nothing less than full reconstruction and should be treated as such. According to the American College of Prosthodontists, “In general, any dental treatment that affects all teeth in the mouth is called full-mouth reconstruction or full-mouth rehabilitation.”<sup>3</sup>

During the consultation appointment, simply taking the time to listen to the chief complaints can result in excellent treatment. Highly accurate primary impressions are a critical step in denture fabrication, followed by pouring models and the fabrication of custom trays. In some cases, patients will be transitioning from their old, ill-fitting dentures to new, well-fitting dentures, and this can result in disaster. A common complaint with new dentures is “I feel like I have a mouth full of teeth” or “These dentures are too big for me.” One method for avoiding these problems is to make a reversible correction in the existing denture or with a duplicate of the existing denture.

In Part 1 of this course, we also reviewed the steps needed to repair a broken denture base in-office. There are a few services for which patients are absolutely appreciative of same-day care, and this truly applies to denture repairs. Once the interim denture (existing or duplicated denture) has been relined, a proper occlusal vertical dimension (OVD)<sup>4</sup> must be established and occlusal harmony must be created. Many denture patients have lost proper OVD due to bone loss, worn denture teeth, or damaged denture bases. This loss of OVD translates into difficulty keeping dentures in the mouth, poor chewing and speaking abilities, discomfort, loss of esthetics,<sup>5</sup> and functional interferences. Having previously mentioned denture duplication,<sup>6</sup> there are several methods for in-office denture duplication that, with practice, can be accomplished by any member of the dental team.

## MEASUREMENTS AND DATA

Because a denture is a full reconstruction with many missing cues from the lost dentition, it requires numerous measurements.<sup>7</sup> These include the resting upper lip line, the



The midline can be determined easily by following the natural midline location of the maxillary labial frenum.

midline, the high smile line, cuspid-to-cuspid distance, occlusal vertical dimension, centric relation, anterior tooth selection based on facial dimensions, and posterior tooth selection based on the angle of the articular eminence. Like all reconstructions involving maxillary anterior teeth, dentures require anterior esthetics as a beginning point.<sup>8</sup> Once this has been recorded, the remainder of the denture tooth wax-up follows this record and easily falls into place.

In general, the older the patient, the less incisal tooth that will appear at the resting upper lip position. A good rule of thumb is to allow the incisal edges of the upper central incisors to rest 0.5 mm above the resting upper lip line. Beyond this, a buck-toothed or “bunny rabbit” look will occur. To streamline this process, waxing in the two central incisor teeth when trying in the wax rim can save a tremendous amount of time. It will allow establishment of a number of measurements and proportions, including esthetics, midline, resting lip line, smile line, and some phonetics.<sup>9</sup>

Lip support is a record that is critical to the profile of the patient’s lower face,<sup>10</sup> and it also provides the patient with a renewed level of self-confidence when his or her appearance has improved. To create the ideal lip support posture, warm the wax rim until

it becomes soft enough to mold, much like clay. With the wax rim in the patient’s mouth, manipulate and massage the upper lip until the appropriate lip support is achieved.

The midline is not simply a determinant of esthetics. It will also set the stage for the overall occlusal function in a bilaterally stable harmony. Therefore, it is a critical step to the success of any denture case. There have been many different methods for determining the midline.<sup>11,12</sup>

Perhaps the simplest method is to use an existing intraoral anatomic structure that is often in the proper midline, namely the maxillary anterior (labial) frenum.<sup>13</sup>

Once the midline has been scribed into the wax rim, it should be evaluated from several different views, including front facial and from behind the patient while looking in a mirror. Have a separate team member, the patient’s spouse or friend, and the patient carefully evaluate this preliminary wax try-in.

The high smile line is determined by having the patient smile as wide as possible. Then, a line is scribed in the wax rim that follows the lower aspect of the upper lip at this “smile height.”

It is critical to the successful esthetic outcome of the case that the gingival contours of the anterior teeth are not visible when the



The high smile line is scribed in the wax rim while the patient gives their broadest, highest smile.

patient smiles broadly. Otherwise, excessive gingival acrylic will appear, and the patient will show a “gummy” smile.<sup>14</sup>

The final esthetic wax record is distance from cuspid to cuspid. This width equals the distance between the ala of the nose.<sup>15</sup> This measurement can be easily determined using a compass. This total distance is then transmitted to the wax rim, and the lab technician

can set the remaining anterior upper denture teeth within those parameters.

### THE POTENTIAL HEALTH HAZARDS OF INFECTED APPLIANCES

Dental appliances such as dentures, night guards, and sleep apnea appliances require home care maintenance.<sup>16</sup> This is due to the ability of pathogens to colonize and infect

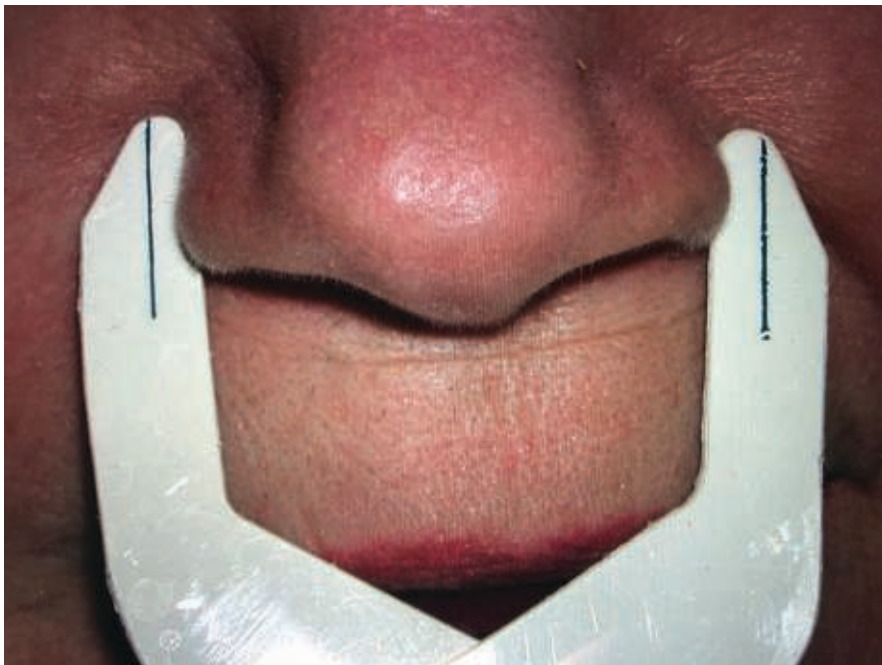
oral appliances<sup>17</sup> and can eventually lead to an infection for the patient. The following are some of the more commonly known pathogens responsible for colonizing appliances: *Candida*, specifically *C. albicans*<sup>18</sup> (other yeasts such as *C. tropicalis*, *C. parapsilosis*, *C. glabrata*, *C. krusei*, and *C. dubliniensis* have been found in diseased oral tissues), *Streptococcus mutans*, *Veillonella atypica*, *Granulicatella adiacens*,<sup>19</sup> *Escherichia coli*, *Klebsiella pneumoniae*, and *Enterobacter aerogenes*.<sup>20</sup> Also, gram-negative bacilli of *Acinetobacter* and *Pseudomonas* have been associated with denture colonization.

Various types of thrush, also known as yeast, can be found in the oral cavity, including pseudomembranous, erythematous, hyperplastic, angular cheilitis, and median rhomboid glossitis. Chronic obstructive pulmonary disease has now been related to the adherence and growth of various oral microorganisms, including the yeastlike fungi *Candida albicans* and *Candida tropicalis* and the gram-negative bacilli *Klebsiella pneumoniae* and *Klebsiella oxytoca*.<sup>21</sup> Another deadly disease, infective endocarditis (known as bacterial endocarditis), has been known to occur with the presence of three pathogens (*S. mutans*, *V. atypica*, and *G. adiacens*).<sup>22</sup>

### METHODS FOR CLEANING DENTURES AND ORAL APPLIANCES

Mechanical means of plaque biofilm removal include manual brushing and ultrasonic baths. Chemicals, many of which are found in denture cleansing tablets, include sodium hypochlorite, citric acid, chlorhexidine, glutaraldehyde, and sodium perborate. The primary mechanism of action of denture cleansing tablets depends on the release of oxygen. However, these may not always be effective.

Citric acid is a weak organic acid with a pH of 3.2. The antimicrobial activity of citric acid has been extensively studied and found to be effective as an antimicrobial against microorganisms, such as *S. dysenteriae* and other anaerobic bacteria (especially cocci) and fungi.<sup>23</sup> It is now known that growth and morphology of fungi are influenced by the pH of the media. However, the precise mechanism of action against fungal growth by citric acid is not completely understood.



The ala width, a determinant of the intercuspid distance, is measured.

## ADHESIVES

“Hot beverages such as tea, hot chocolate, and coffee are frequently served at temperatures between 160 degrees F (71.1 degrees C) and 185 degrees F (85 degrees C). Brief exposures to liquids in this temperature range can cause significant scald burns.”<sup>24</sup> At 140 degrees F, certain adhesives will melt, which is much less than the 160–185 degree F temperature window for hot coffee or tea. Therefore, an adhesive that maintains its integrity under hotter temperatures is required.

## DETERMINING OCCLUSAL VERTICAL DIMENSION

It has been successfully proven that this distance, minus 3 mm for freeway space, is almost the exact measurement for OVD when the teeth are in maximum intercuspation (closed OVD). Using a caliper, closed OVD can be rapidly determined and recorded using fixed anatomic landmarks. To ascertain OVD, a caliper specifically designed for this, such as the V-DOC (Vertical-Dimension of Occlusion Caliper, Groman Inc.), can be used.

Perhaps one of the most controversial areas in dentistry is the methods used for determining and recording centric relation. Centric relation has been defined as the most superior position of the condylar head in the glenoid fossa. However, this definition is subject to change, as it has in the past.<sup>25</sup> Ideally,



The measured distance is scribed into the wax rim.

what is needed is a consistently repeatable position for mandibular positioning.

There are two accepted methods for recording this often-elusive position.<sup>26</sup> The first and perhaps simplest is to have the patient position the tip of his or her tongue to the roof of the mouth and proceed to move it toward the back of the throat. It is at this point that they are instructed to close into occlusion as you capture this rudimentary

but often used centric relation record.

Another method, more complex but far more accurate, is the use of a device known as the gothic arch tracer.<sup>27</sup> This ball bearing tracing device records the movements of the mandible by scribing a line into a plate luted to the maxillary record base. In order to create this record, additional record bases are fabricated for both the upper and lower arches.



Using a caliper, closed OVD can be rapidly determined and recorded using fixed anatomic landmarks.

There are instances in which an additional step is needed in the fabrication of dentures in patients who exhibit severely resorbed ridges, especially in the lower arch. Dentures resting on poor lower ridges are

easily displaced when the tongue and cheeks are in function. The “neutral zone” positions the lower posterior denture teeth in the non-functional area between the lateral border of the tongue and the cheeks while they are

in function.<sup>28</sup> In order to record this area, an additional lower record base is fabricated. A combination of one green and two gray sticks of compound are warmed in a water bath and



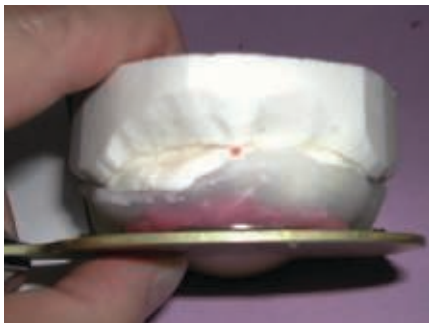
Another method for capturing a centric relation bite registration can be made by using a gothic arch tracing device. Here, the lower cast is measured to locate the central point.



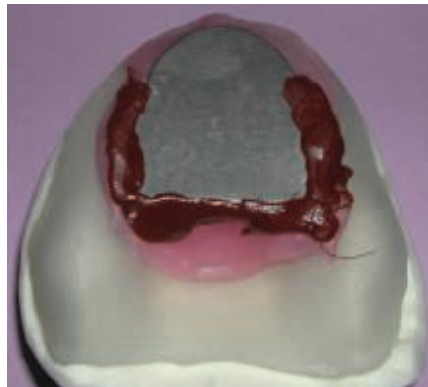
The lower plate is attached with compound to a record base.



A tracing plate is attached to the upper record base with wax.



The plate is aligned along the vertical plane using a spatula.



The plate is secured with red compound wax.



The tracing plate is coated with a black marker.



The ball bearing pin is adjusted to the correct closed OVD.



Following the appropriate jaw motions, the ball bearing has traced an arrow-shaped figure into the upper plate.



A plastic square with a circular cutout is placed over the arrow tip of the tracing and luted to the plate.



The assembly is placed back in the mouth, and the ball bearing is set within the plastic square.



Fast-set gypsum is syringed into the assembly to capture centric relation.



Once set, the assembly is removed, and the casts will then be mounted on a semiadjustable articulator.

kneaded into a homogeneous mass. The material is rolled into a sausage shape and placed on the record base. The material is rewarmed on the base and placed in the mouth. Often, this base is easily displaced (due to poor ridge retention) and may need to be reinforced with denture adhesive paste. Then, the patient is given a cup of room temperature water to sip a few times. The process is repeated with cold water.

The act of swallowing water allows the compound to be formed and shaped by the buccinator and lingual muscles. Once it has cooled intraorally, the neutral zone record base is removed and seated on the master model. An index can then be made using impression putty by forming the indices on the buccal and lingual separately. The neutral zone record base is then removed from the master model, leaving the index in place. The lower posterior denture teeth are then waxed within the neutral zone space housed within this index.

The use of a semiadjustable articulator is a must when providing the highest level of denture care. It is the only device capable of reproducing excursive movements that ensure the proper placement of the denture teeth. The beginning point is mounting the upper model. Therefore, a facebow is used to record the relationship of the upper arch to the temporomandibular joints. This record is then transferred to the articulator. Using the centric relation record, the models can then be articulated and the lower model mounted to the articulator as well. This assembly is then ready for the denture tooth wax-up. According to the *Textbook of Complete Dentures* by Arthur O. Rahn, DDS, an articulator should:

- hold casts in the correct horizontal relationships,
- hold casts in the correct vertical relationships,
- provide a positive anterior vertical stop (incisal pin),
- accept a facebow transfer record,
- open and close in a hinge movement,
- allow protrusive and lateral motion,
- have accurately machined moving parts that move freely, and
- have a rigid construction for the non-moving parts.

Mold selection of the anterior denture

tooth is based on the central incisor. The height and width of the central can be determined using devices such as the Trubyte Tooth Indicator. This clear plastic board has a cutout for eyes, nose, and mouth and a slide rule device that approximates the inferior border of the chin and left zygoma. Once the board has been lined up according to the manufacturer's instructions, the rules are set to position and the chin reading determines the central incisor height while the zygomatic reading determines the width.

As discussed, with the ala width equaling cuspid-to-cuspid width, that number can be subdivided using the rule of golden proportions. This rule dictates that the central incisor be equal to 1.6, the lateral incisor 1.0, and the cuspid from mesial aspect to incisal cusp tip 0.6. Even simpler is using the patient's existing denture as a guide, provided it is satisfactory and the teeth are not worn, chipped, or broken. An impression and model can be made of the existing denture and sent to the lab for mold selection.

The shade of denture teeth has become more of a critical issue in today's appearance-conscious market. Older patients still seek to look young, and often the selection of an appropriate shade can fulfill much of their desires. Digital imaging and color enhancement using computerization can assist in that determination. Another method is to use a denture tooth shade selection guide and place several desired shades next to the existing denture both outside and inside the patient's mouth.

However, nothing can substitute for the actual intraoral try-in. You may wish to keep a variety of denture teeth in different shades and molds specifically for this purpose. You can then rapidly wax the teeth into the baseplate for immediate patient evaluation prior to the lab wax-up.

There are several different types of posterior denture teeth available, and they range in their angle of cuspal inclination. This inclination is very steep when our natural posterior teeth first erupt, and it remains so during the transition from primary to permanent dentition. The steep inclination is nature's way of allowing these teeth to "find each other" and interdigitate into a healthy occlusal scheme. Following this transition period and into adulthood, these cusp heights will

decrease with age due to natural wear.

For the majority of our complete denture patients who are older adults, the cuspal height should follow that natural progression to a lower or less steeply inclined cuspal plane. A good rule of thumb is to use a tooth with a 10-degree cuspal inclination. This rule also follows the angle of the articular eminence, which is the anatomical plane that is directly related to the cuspal inclination of the posterior teeth. Placing a steep posterior tooth can create temporomandibular dysfunction by placing undue stress and damage on the joint complex as it attempts to translate down the eminence as dictated when following the cuspal heights. A posterior tooth that meets these requirements is often at a cuspal inclination of no more than 10 degrees.

In order to minimize unnecessary additional appointments due to poor communication with the laboratory, information is needed to create an exceptional denture. All of the steps discussed are designed to relay those critical pieces of information. It is not enough to rely on guesswork. You must clearly delineate all records to your lab technician. In addition, providing the technician with this highly accurate information will convey a clear message that you are only interested in excellence and will only accept the best for you and your patient.

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## NOTES



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## QUESTIONS

1. According to the American College of Prosthodontists, "In general, any dental treatment that affects all teeth in the mouth is called . . . ":
  - A. Full-mouth reconstruction
  - B. Full-mouth rehabilitation
  - C. Occlusal vertical dimension
  - D. Both A and B
2. Highly accurate primary impressions are a critical step in denture fabrication, followed by pouring models and the fabrication of:
  - A. Custom trays
  - B. Gothic arch reversal
  - C. Denture teeth
  - D. Both B and C
3. One method for avoiding problems with new dentures is to make a reversible correction in the:
  - A. Hard palate
  - B. Existing denture
  - C. Duplicate denture
  - D. Both B and C
4. Once the interim denture has been relined, which of the following must be dealt with to establish a proper occlusal vertical dimension (OVD)?
  - A. Occlusion
  - B. Centric
  - C. Post dam
  - D. Both B and C
5. The vast majority of denture patients have lost proper OVD due to:
  - A. Bone loss
  - B. Worn denture teeth
  - C. Damaged denture bases
  - D. All of the above
6. Loss of OVD can cause all but which of the following?
  - A. Ease in keeping dentures in the mouth
  - B. Poor chewing and speaking ability
  - C. Discomfort
  - D. Loss of esthetics
7. Some of the measurements needed when fabricating new dentures include:
  - A. Midline
  - B. High smile line
  - C. Facial dimensions
  - D. All of the above
8. Like all reconstructions involving maxillary anterior teeth, dentures require which of the following as a starting point?
  - A. Posterior occlusion
  - B. Anterior esthetics
  - C. Anterior occlusion
  - D. Post dam
9. In general, the older the patient, the less incisal tooth that will appear at the:
  - A. Resting upper lip position
  - B. Resting commissures
  - C. Position of centric
  - D. Both A and C
10. A good rule of thumb is to allow the incisal edges of the upper central incisors to rest how far above the resting upper lip line?
  - A. .05 mm
  - B. 5.0 mm
  - C. 0.5 mm
  - D. None of the above
11. Waxing in the two central incisor teeth in the wax rim will allow one to establish which of the following measurements?
  - A. Esthetics
  - B. Midline
  - C. Resting lip line and smile line
  - D. All of the above
12. To create the ideal lip support posture, the wax rim should be softened enough to mold with the consistency of:
  - A. Plaster
  - B. Clay
  - C. Play dough
  - D. Either A or C
13. The maxillary anterior (labial) frenum is an existing intraoral anatomic structure that can be used to establish the:
  - A. Depth of all frenal reliefs
  - B. Neutral zone
  - C. Midline
  - D. Offset angle
14. It is critical to the successful esthetic outcome of the case that the gingival contours of the anterior teeth are not visible when the patient smiles:
  - A. Broadly
  - B. Weakly
  - C. With hesitation
  - D. Mealy mouthed
15. The esthetic wax record of the distance from cuspid to cuspid can be established using the width of the:
  - A. Ala of the nose
  - B. Pupils
  - C. External auditory meatuses
  - D. Temporalis

## ONLINE COMPLETION

Take this test online for immediate credit. Go to [dentalacademyofce.com](http://dentalacademyofce.com) and log in. If you do not have an account, sign up using enrollment key **DACE2019**. Then, find this course by searching for the title or the quick access code. Next, select the course by clicking the "ENROLL" option. Continue by pressing "Start." After you have read the course, you may take the exam. Search for the course again and place the exam in your cart. Check out, take the exam, and receive your credit!

## QUESTIONS

**16. Dental appliances requiring home care maintenance include:**

- A. Dentures
- B. Night guards
- C. Sleep apnea appliances
- D. All of the above

**17. Which of the following are some of the more commonly known pathogens responsible for colonizing appliances?**

- A. *Candida*, specifically *C. albicans*
- B. Schistosomiasis
- C. Leishmaniasis
- D. Filariasis

**18. Which of the following gram-negative bacilli have been associated with denture colonization?**

- A. *Acinetobacter*
- B. *Pseudomonas*
- C. *Mazarella micrococcus*
- D. Both A and B

**19. Thrush, also known as yeast, can be found throughout the oral cavity and appears as various types including:**

- A. Pseudomembranous
- B. Erythematous
- C. Hyperplastic
- D. All of the above

**20. The adherence and growth of various microorganisms including the yeast-like fungi *Candida albicans* and *Candida tropicalis* and the gram-negative bacilli *Klebsiella pneumoniae* and *Klebsiella oxytoca* have been implicated in causing:**

- A. Chronic obstructive pulmonary disease
- B. Chagas disease
- C. Onchocerciasis
- D. Nail bed inflammation

**21. The co-occurrence of three pathogens, *S. mutans*, *V. atypica*, and *G. adiacens* have been implicated in causing or contributing to:**

- A. Cavernous sinus thrombosis
- B. Drug-resistant *Neisseria gonorrhoeae*
- C. Infective endocarditis
- D. Extended-spectrum beta-lactamase

**22. Mechanical means of plaque biofilm removal include:**

- A. Manual brushing and ultrasonic baths
- B. Fizzy tablets
- C. Shelving
- D. Dark environment

**23. Chemicals often found in denture cleansing tablets include:**

- A. Sodium hypochlorite
- B. Citric acid
- C. Chlorhexidine
- D. All of the above

**24. Citric acid is a weak organic acid with a pH of:**

- A. 3.2
- B. 5.7
- C. 2.1
- D. 1.5

**25. It is now known that growth and morphology of fungi are influenced by the:**

- A. pH of denture acrylic
- B. pH of denture teeth
- C. pH of media
- D. pH of drinking water

**26. Brief exposures to liquids in this temperature range can cause significant scald burns:**

- A. 66–91.1 degrees C
- B. 110–120 degrees F
- C. 160–185 degrees F
- D. None of the above

**27. Freeway space is determined to be approximately:**

- A. 1 mm
- B. 2 mm
- C. 3 mm
- D. 4 mm

**28. A definition of centric relation is the most superior position of the condylar head in the:**

- A. Glenoid fossa
- B. Condylar notch
- C. Mandibular notch
- D. Raphe

**29. Another method for determining centric relation is the use of a device known as a:**

- A. Gothic arch tracer
- B. Cobalt balancer
- C. Centric relator
- D. Both B and C

**30. The positioning of the lower posterior denture teeth in the nonfunctional area between the lateral border of the tongue and the buccinators while they are in function is known as the:**

- A. Free throw line
- B. Neutral zone
- C. Balanced bite
- D. Both A and B

# Denture fabrication: A lost art (part two)

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Specialty: \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_ AGD member ID (if applies): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: Primary ( ) \_\_\_\_\_ Office ( ) \_\_\_\_\_ License renewal date: \_\_\_\_\_

**Requirements for obtaining CE credits by mail/fax:** 1) Read entire course. 2) Complete info above. 3) Complete test by marking one answer per question. 4) Complete course evaluation. 5) Complete credit card info or write check payable to Endeavor Business Media. 6) Mail/fax this page to DACE. A score of 70% is required for CE credit. **For questions, call (800) 633-1681. Course may also be completed at dentalacademyofce.com.**

## EDUCATIONAL OBJECTIVES

1. identify current trends in the denture market,
2. identify the various reasons for an ill-fitting denture,
3. discuss the options available for interim denture comfort, and
4. discuss the steps involved in denture fabrication.

## COURSE EVALUATION

1. Were the individual course objectives met?

Objective #1: Yes No Objective #2: Yes No

Objective #3: Yes No Objective #4: Yes No

Please evaluate this course by responding to the following statements, using a scale of Excellent = 5 to Poor = 0.

2. To what extent were the course objectives accomplished overall?	5	4	3	2	1	0
3. Please rate your personal mastery of the course objectives.	5	4	3	2	1	0
4. How would you rate the objectives and educational methods?	5	4	3	2	1	0
5. How do you rate the author's grasp of the topic?	5	4	3	2	1	0
6. Please rate the instructor's effectiveness.	5	4	3	2	1	0
7. Was the overall administration of the course effective?	5	4	3	2	1	0
8. Please rate the usefulness and clinical applicability of this course.	5	4	3	2	1	0
9. Please rate the usefulness of the supplemental bibliography.	5	4	3	2	1	0
10. Do you feel that the references were adequate?					Yes	No
11. Would you participate in a similar program on a different topic?					Yes	No
12. If any of the continuing education questions were unclear or ambiguous, please list them.	_____					
13. Was there any subject matter you found confusing? Please describe.	_____					
14. How long did it take you to complete this course?	_____					
15. What additional continuing dental education topics would you like to see?	_____					

Mail/fax completed answer sheet to:

**Endeavor Business Media**

Attn: Dental division

7666 E. 61st St. Suite 230, Tulsa, OK 74133

Fax: (918) 831-9804

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will show up as PennWell / Endeavor.**

- |   |   |
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| 2. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D  | 17. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D |
| 3. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D  | 18. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D |
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| 13. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D | 28. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D |
| 14. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D | 29. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D |
| 15. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D | 30. <input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/> D |

AGD Code 670

## PLEASE PHOTOCOPY ANSWER SHEET FOR ADDITIONAL PARTICIPANTS.

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All questions have only one answer. Grading of this examination is done manually. Participants will receive confirmation of passing by receipt of a verification form. Verification of Participation forms will be mailed within two weeks after taking an examination.

### COURSE EVALUATION AND FEEDBACK

We encourage participant feedback. Complete the survey above and e-mail feedback to Aileen Gunter (agunter@endeavor2b.com) and Laura Winfield (lwinfield@endeavor2b.com).

### COURSE CREDITS AND COST

All participants scoring at least 70% on the examination will receive a verification form for three CE credits. The formal CE program of this sponsor is accepted by the AGD for fellowship and mastership credit. Please contact Endeavor for current term of acceptance. Participants are urged to contact their state dental boards for continuing education requirements. PennWell is a California CE provider. The California provider number is 4527. The cost for courses ranges from \$20 to \$110.

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