

# A Basic Guide to Cosmetic Dentures

## *From Impressions to the Set-Up Stage*

**By Dennis Urban, CDT**

**I**n today's world of denture technology, or now frequently called removable technology, dental technicians and dentists must manufacture a removable prosthesis that is ultra esthetic (cosmetic) and ultra functional. With today's technology and with the right expertise and materials, this task is very achievable.

Many experts in dentistry are surprised that removables still play a viable role in overall full mouth reconstruction. The same people who had written off denture technology years ago are the same people re-thinking their approach to patient satisfaction when it comes to dentures. The truth is that with 20 million edentulous Americans, opportunity is knocking when it comes to removable technology.

Even with our current recession, laboratories continue to see steady business when it comes to removable. Check out these studies:

- The population for adults 75 years or older will increase at a rate of 6 percent between now and 2020 and 8.6 percent for adults 80 years or older.
- Total edentulism has been noted in 5 percent of adults who are 40 to 45 years old. This increases to 42 percent in seniors
- The baby boomer generation outnumbers the current number of those older than 65.
- We will see a significant rise in the number of edentulous patients by the time the baby boomers reach 65 and older.
- More than 50 percent of U.S. laboratories have had an increase of removable work in the past five years.

Image 1



Image 2

Today's denture wearer is more demanding and wants a denture that does not look like a denture

but looks like a natural part of the oral cavity while enhancing esthetics and function. What are we trying to achieve when it comes to making a high end esthetic denture? We want to achieve the following:

- Create natural esthetics.
- Enhance facial appearance.
- Enhance function with the right occlusal scheme.
- Compensate for lost soft tissue.

The basics are a must if we are to achieve success for a cosmetic denture case. A good preliminary impression is essential to making a good custom tray (Images 1 and 2). If there is any doubt about the quality of any impression, call the doctor and ask for a new impression. Make sure all of the anatomical landmarks are captured.



Image 3

### Custom tray fabrication:

- Use a good light cured tray material.
- Place a wax spacer on the model and cut out four tissue stops (Image 3).
- Adapt baseplate material over wax (Image 4).
- Attach a handle made out of light cured material (Image 5).
- Light cure and trim.
- If border molding is required, trim tray 2mm short of the periphery (denoted as a red line on Image 6).



Image 4



Image 5

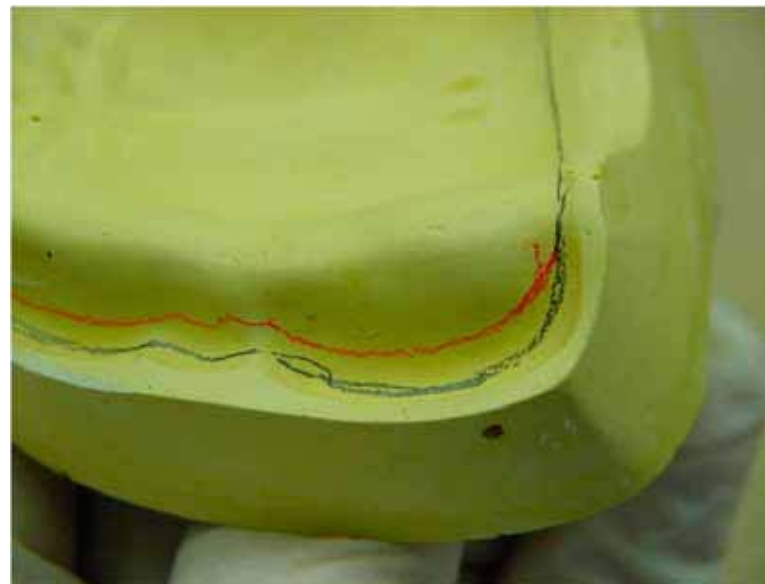


Image 6

Image 7



## The final impression:

- Make sure final impression is accurate.
- On the lower impression check that all landmarks are present and clear including the retromolar pads, lingual and labial frenum, and periphery.
- On the upper impression check that all landmarks are present and clear including the hamula notch, labial frenum, incisive papilla and periphery. (Image 7).

There are many impression materials out on the market today to choose from. A good quality PVS material, such as IS 2000 Super Hydrophilic, is a sure way to get great results (Images 8 and 9).

Bead, box and pour all final impressions so that all landmarks are captured in the final model (Image 10). Pour the final impressions utilizing the manufacturer's recommended mixing ratio. Do not guess when mixing gypsums as this will affect the expansion rate and it will not be accurate. A type III stone (Images 11 and 12) is recommended for full dentures and a type IV is recommended for partial dentures. There are many good gypsums out on the market, but I always recommend products that have worked well for me over the years. The two gypsums below are made by Hi-Tec and work great.

Yellow Model Stone – Type III is a laboratory standard that is used extensively in denture work, base, and counter models. Its smoothness and accuracy is its trademark. It is easy to de-flask and cases come out clean and accurate after processing.

Image 8



Image 9



Image 10



Image 11



Image 12



Image 13

Ultra Die is a great all natural gypsum product. Utilized in both crown and bridge and partial applications. This type IV has a low expansion rate of .08 percent. This product will assure dimensional accuracy while maintaining high compressive strength (Images 13 and 14).

As a side note, remember to always make sure a vacuum mixer is used when mixing gypsums (Image 15). OK, now let's make some bite rims (Image 16).

Start out with a good quality light cured baseplate material such as Sterngold's Stern Tek material (Image 17). Adapt, cure and trim baseplate (Images 18 and 19). Adapt and contour bite rim wax (Images 20 and 21). Finally, make sure upper is an average of 22mm and lower is an average of 18mm (Image 22).

After the bite registration has been taken and sent back to the laboratory, the case should be mounted on a semi adjustable or fully adjustable articulator that will mimic jaw movement accurately. A fully transferable magnetic articulator is ideal. Try to stay away from simple hinge type articulators. These types of articulators do not replicate jaw movement accurately.

After the full upper and full lower models have articulated, we need to establish what kind of denture teeth will be appropriate for the patient. How do we go about this? Let's start with the anterior teeth. We need to keep in mind the following:

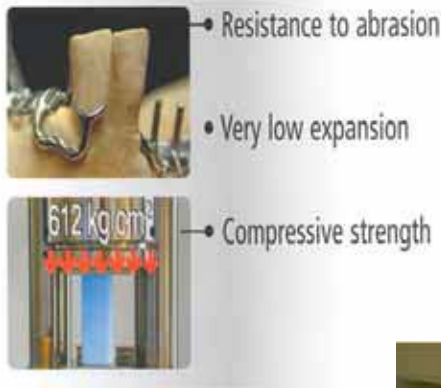


Image 14

Image 17



Image 15

Image 16



Image 18



Image 19

**Earn CDT/RC credits for this article and quiz!**

Receive ½ point CDT/RC documented scientific credit for reading this article and passing the quiz. To get your credit, complete the quiz located on the FDLA Web site at [www.fdma.net](http://www.fdma.net) using the Newsletter link. Once you have completed the quiz, fax it to FDLA at 850-222-3019. This quiz is provided to test the technician's comprehension of the article's content and does not necessarily serve as an endorsement of the content by FDLA.



- Width of the six upper anteriors.
- Shape of the upper anteriors.
- Shape of the centrals.
- The shade

While keeping these things in mind let's determine the mould of the anterior teeth by applying one or more of the following methods:

- Usually the shape of the centrals is the same shape as the upper arch (tapering, ovoid, square etc.) We can use this information in selecting anterior teeth. Remember- facial form equals upper anterior tooth form.
- Utilize the markings and information that the dentist sent in on the bite rim - midline, cuspid lines, high lip lines, smile line, etc. (Image 23).
- Utilize a millimeter ruler. This is usually provided by the tooth manufacturer to aid in the determination of measurements on the wax rim from cuspid to cuspid. These

measurements correlate to specific anterior teeth width on the mould charts. This will usually give you an idea of the anterior tooth size. Then you must make a judgment of a mould shape.

- In an ideal situation, the dentist can determine the anterior mould in the operatory, especially if a living mould guide is used.

What brand of denture teeth should you use?

There are many high quality tooth manufacturers out on the market today. In my experience, great wear resistance, shade match, and esthetic value is essential for a high end cosmetic denture. That is why I recommend Vita teeth. They wear almost like natural dentition and they are the only teeth that come in 3D shades and the exact match Classic Vita shades. In my opinion, the esthetics on the Physiodens and Vitapan anterior and posterior teeth by Vita is unsurpassed (Images 24 to 26).

We are now in one of the most important stages of high end cosmetic denture fabrication. That is the set up stage. Once we have chosen our anterior teeth, then we must make a decision



Image 20



Image 21

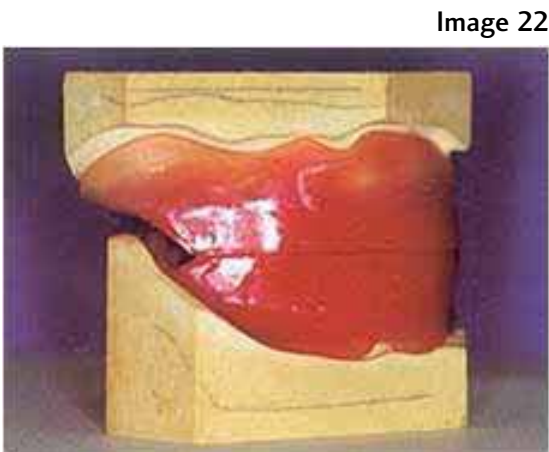


Image 22



Image 23

on the posterior teeth. Typically the smaller the ridge, the less degree of posterior tooth you will chose. This is not true with every case though. We want to choose an occlusal scheme that will be functional for the patient. My suggestion is a semi-anatomical to a fully-anatomical tooth. A 23° to a 28° tooth is a good start. Remember, we were meant to tear and chew our food and this is what we are accomplishing with an anatomical tooth.

Another occlusal alternative is lingualized occlusion. Lingualized occlusion has been around for a long time and the main purpose is to relieve lateral excursion loading and any off axis stress on the alveolar ridge and on implants. Years ago, a higher degree of teeth were used on the upper posteriors while a lesser degree was used on the lower posteriors. Today, tooth companies sell special lingualized teeth. Some are effective and some are not. Lingoform teeth by Vita satisfy both esthetics and function while achieving lingualized occlusion (Images 27 and 28).

There are many other procedures that are necessary in completing a functionally esthetic cosmetic denture. Now that you've taken in from impressions to the beginning of the set-up stage, you must now consider various occlusal schemes, denture processing, denture base staining techniques and the finishing of the ultimate, high-end, cosmetic denture. Keep in mind to always use the best materials, utilize your talents and make your ultimate goal patient satisfaction. 📌



Image 24

Image 25



Image 26

## About the Author:

Dennis Urban, CDT, has worked in the dental technology field for 33 years. He owned and operated a full service laboratory on Long Island, N.Y. for many years. He has been a technical and sales director for various dental manufacturers and is now the technical consultant and removable manager for Drake Precision Dental Laboratory, CDL, in Charlotte, N.C. Urban was the recipient of the 2007 NADL Excellence in Education award.



Image 27

Image 28





## focus Magazine Article Quiz 3rd Quarter 2009

### “A Basic Guide to Cosmetic Dentures: From Impressions to the Set-Up Stage”

By: Dennis Urban, CDT

1. Total edentulism has been noted in what percentage of adults who are between the ages of 40 to 45 years old?
  - a. 5 percent
  - b. 10 percent
  - c. 15 percent
2. What does the percentage of the aforementioned question up to for seniors?
  - a. 25 percent
  - b. 42 percent
  - c. 60 percent
  - d. 73 percent
3. The baby boomer generation outnumbers the current number of those older than 65.
  - a. True
  - b. False
4. Which of the following is essential for making a good custom tray?
  - a. A good patient
  - b. Superior products
  - c. A good preliminary impression
5. What type of stone is recommended for full dentures?
  - a. Type I
  - b. Type II
  - c. Type III
  - d. Type IV
6. Simple hinge articulators accurately replicate jaw movement.
  - a. True
  - b. False
7. What factor(s) go into establishing what kind of denture teeth are appropriate for a patient?
  - a. Width of the six upper anteriors.
  - b. Shape of the upper anteriors.
  - c. Shape of the centrals.
  - d. All of the above.
8. Which of the following are essential for a high end cosmetic denture?
  - a. Resistance
  - b. Shade match
  - c. Esthetic value
  - d. None of the above
  - e. All of the above
9. What is the next step in the cosmetic denture process after selecting the anterior teeth?
  - a. Making the final impression
  - b. Selecting the posterior teeth
  - c. Making a custom tray
10. What are the dimensions that the author recommends for creating an anatomical tooth?
  - a. 18” to 22”
  - b. 23” to 28”
  - c. 29” to 34”

Passing quiz grades are worth ½ point documented scientific credit towards your CDT or RG renewal.  
Look for more quizzes in future issues of *focus* magazine!

Your must submit your completed quiz to FDLA by fax at (850) 222-3019 or by mail to the address below.

Name: \_\_\_\_\_ CDT #: \_\_\_\_\_ Date: \_\_\_\_\_

FDLA, 325 John Knox Rd, Ste L103, Tallahassee, Florida 32303 · (850) 224-0711 phone · (850) 222-3019 FAX

This quiz is provided to test the technician’s comprehension of the articles content, and does not necessarily serve as an endorsement of the content by FDLA or NBC.