



Robert E. Kreyer Jr., CDT, is a third-generation prosthetic technician and owner of Kreyer Dental Prosthetics. He is a member of the National Association of Dental Laboratories, the American College of Prosthodontists (ACP) Dental Technician Alliance, the L.D. Pankey Alumni Association, and the American Prosthodontic Society (APS). He has presented scientific table clinics on his prosthetic techniques to the APS and ACP. He also is a consultant to dental manufacturers and lectures extensively throughout the United States.

Staining Porcelain Denture Teeth

By Robert Kreyer, CDT

T rue artistry in high-end removable prosthetics demands that we create product that is in harmony with a patient's face and one that functions within the denture space of the oral environment. If we as technical dental professionals are to provide clinicians with optimal prosthetic technical treatment, we must revolutionize our business approach to marketing our esthetic complete denture services.

During the last year of writing "Tech Talk Dentures" my technique articles have discussed ways to provide an added value service to the clinicians you work with while extending your existing denture product line. Within these articles are prosthetic ideas and techniques that will enable the technician and clinician to increase the value of their complete dentures.

Back to nature

To create true harmony in a denture wearer's smile, the prefabricated denture teeth must be set, shaped, and contoured to the individual patient's sex, personality, and age. Tooth surfaces vary widely depending on the age of the patient. Eating habits and increasing age tend to affect the translucency and color of natural teeth. In addition the characterizations

that form on the teeth will depend on the individual's level of dental care and habits.

By modifying the shape and shade of prefabricated denture teeth after they have been set, it is possible to obtain a facial

surface with individual characterizations and gloss that perfectly matches the patient's natural teeth. This technique also can be used to regain the vitality and translucency in denture teeth to create a more youthful smile.

Changing roles

According to McGarry and Jacobson in their paper "The professions of dentistry and dental laboratory technology: Improving the interface," published in the February 2004 issue of JADA, the educational and economic imbalances of the past are now being reversed with dental technologists being the most knowledgeable members of the dentist/dental laboratory technician partnership in the area of laboratory techniques, instrumentation, and materials.

Before 1995 dentists were required to master different levels of laboratory procedures as part of their clinical dental education.

Since 1995 technicians' prosthetic technological expectations have expanded to one of a "prosthetic consultant" to

recent dental school graduates. This educational gap has provided removable prosthetic dental laboratories the opportunity to market their services as prosthetic consultants for developing technical treatment plans to the dental clinicians we work with.

The aging "baby boomer" esthetic expectations and restorative prosthetic demands upon dental professionals are increasing while our educational requirements and technician population are decreasing.

If we are to satisfy these patient demands and expectations, we must provide a service to the clinicians we work with to meet these ever growing standards of excellence in esthetic dentistry.

—RK

STEP-BY-STEP STAIN TECHNIQUE

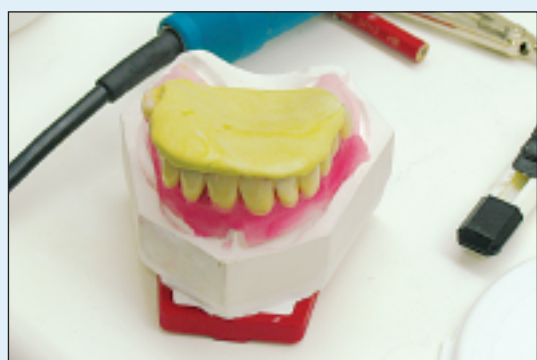


Fig. 1 Make a PVS matrix using Sil-Tech Super to create a reference for tooth placement.



Fig. 2 Map the personalized characterizations on the denture teeth.

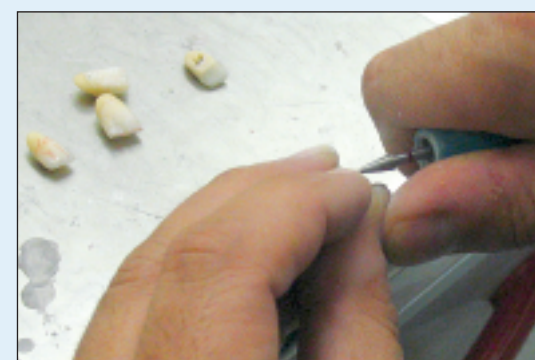


Fig. 3 Using an abrasive instrument, shape each denture tooth.



Fig. 4 Layout desired stains on the mixing palette.

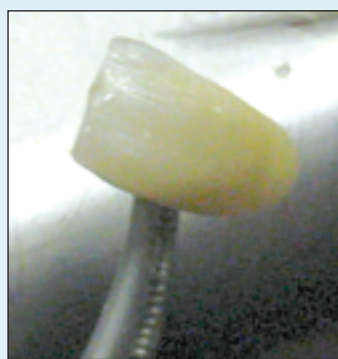


Fig. 5 Apply porcelain stains with a fine brush.



Fig. 6 Apply glaze paste to each porcelain denture tooth.

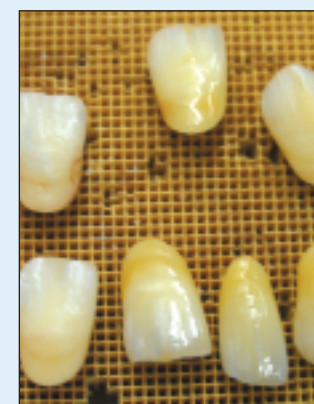


Fig. 7 The stained and glazed denture teeth, ready for tooth setup.

Continuing education in Switzerland

Ever since I was a course participant at the Swissedent Foundation in 1975, my dream was to someday study complete denture prosthetics at Candulor Dental GmbH in Zurich, Switzerland.

Three months ago my dream became reality. I left for Switzerland to learn advanced Swiss prosthetic techniques. My goal is to help other dental technicians, denturists, and dentists in the United States extend their existing product line of dentures and provide a high-end esthetic denture that exceeds patient cosmetic and functional expectations while adding value to the laboratory's denture services.

Education at Candulor

My four-day hands-on prosthetic course started with an introduction to the Gerber philosophy of occlusion. My instructor, Antonio Ferrilli MDT, demonstrated how to analyze an edentulous master model in preparation for setting and arranging the denture teeth.

The first day we characterized an anterior set of Candulor PhysioSet CT porcelain teeth. We cut back the facial surface of the porcelain to add translucency and vertical craze lines on the incisal third. On the cervical third, I added a darker color than the body to create a definite stained appearance to the porcelain teeth.

After re-firing and glazing, we started

our in-depth study of the Gerber tooth arrangement philosophy. Gerber sets teeth so that the forces of mastication applied to them are least able to dislodge the dentures. Gerber insists that the occlusal surfaces of the posterior teeth must follow the curve of the lower ridge.

This simple rule ensures that occlusal forces are always at right angles to the ridge or area of support, thus promoting a



Max Sturm, President of Candulor and Antonio Ferrilli, MDT instructor.

occlusal forces in a Class I and Class II cross-bite occlusal scheme. We then waxed complete dentures while studying photographs of natural gingival contours and colors.

The third day was devoted to the Candulor Aesthetic Color Set and acrylic processing techniques and the last day concentrated on an intensive recap and discussion of the Gerber philosophy.



Antonio equilibrating a Gerber setup.

Renfert headquarters and production facility. Renfert has been a generous supporter of my hands-on esthetic prosthetic courses.

Back in the States

Three weeks after my return, I gave the first Candulor "Art of Prosthetics" course in Beverly Hills, Calif. at the Geneva Dental Institute. This two-day, hands-on course



Demonstrating tooth staining technique in Beverly Hills.

high degree of stability during function, especially when strong pressure is applied.

Using a ridge compass, the lower alveolar ridge can be assessed for its denture-supporting qualities and the lowest and most stable point of the lower posterior ridge can be determined.

On day two we studied equilibration of

Visits to Ivoclar and Renfert

After my hands-on training at Candulor, I visited the Ivoclar Vivadent ICDE training facility in Lichtenstein. Ivoclar Vivadent's BPS training facility is absolutely incredible with beautiful state of the art equipment.

On my last day in Switzerland I took the train to Singen, Germany to visit the

focused on complete denture gingival wax contours and colors, gingival base acrylic characterization, and colorization using the Candulor Aesthetic Color Set. There also was an introduction to custom staining resin teeth and a discussion of staining porcelain teeth.

—RK

Stain technique

There are different techniques for using stains to modify the shade of resin or porcelain denture teeth. The stain technique presented here is for porcelain denture teeth.

1. After the teeth have been set and waxed, make a PVS matrix with Sil-Tech Super (manufacturer?) to create a reference for placement of the teeth (Fig. 1).

2. Remove the denture teeth from the waxed base and thoroughly clean..

3. Using a red pencil, draw lines on the facial surface of the teeth, mapping where the personalized characterizations will be added (Fig. 2).

4. Shape each tooth using abrasive instruments to allow the addition of the porcelain characterized stains (Fig. 3).

5. Sandblast the entire surface of each tooth with aluminum oxide at a pressure of 2 bar to clean and etch.

6. Using a steam jet, clean each tooth to remove any dirt or grease before applying stains.

7. Lay out your desired stains on the mixing palate to be mixed with staining liquid (Fig. 4).

8. To characterize the individual porcelain teeth, apply the mixed porcelain stains with a fine brush to create your desired characterized effect (Fig. 5).

9. Set the stained porcelain denture teeth a honeycomb tray or firing cushion supported by retentive pins with the facial surface up during the firing process.

10. Fire and cool the porcelain denture

teeth and check them for desired placement of characterized stains and lifelike effect.

11. Mix the glaze paste with glaze fluid to obtain a thick consistency and apply a thin layer to the complete surface of the characterized porcelain teeth (Fig. 6).

12. Place the glazed porcelain teeth back on the honeycomb tray and fire in porcelain furnace.

13. After cooling, check for desired characterization and gloss effect then lightly polish the surface with diamond polishing paste on a suitable polishing wheel (Fig. 7). The pins can either be re-plated or apply opaque to mask out the black oxidation.

14. Reset the characterized teeth into the matrix for final waxing for aesthetic denture try-in.

As prosthetic dental technicians we must be educated and thoroughly understand the baseline basics of complete denture prosthetics in order to comprehend the more complex biomechanical principles of design and esthetics. If we look at nature or as Dr. Earl Pound called the "master architect" who created and designed the oral environment, it becomes evident that most dentures do not assimilate the gingival contour and characterized colors of natural living tissue and dentition. As technical dental professionals our responsibility is to design and rebuild these natural oral structures of lost bone, tissue, and dentition with esthetic complete denture prosthetics.

If we aspire to reach the next level of prosthetic treatment, we must strive to

achieve optimal prosthetic care for the compromised edentulous patient. To help restore the smile, speech, and self-confidence of edentulous patients so

that they can sing, eat, and laugh in complete confidence is truly a blessing in the work we do as prosthetic technical dental professionals. **DLP**

Arlink

Jr 1/3 sq

See us at the XXX Meeting, Booth XXX.
Use XXX on card or at www.dentalproducts.net