Immediate dentures: Are you missing out?

By Craig Callen, DDS

All of the courses advertised today tout the productivity of porcelain facings, orthodontics, automated root canal and implants. While any of these treatments can be a lucrative treatment, and profitable, the often-overlooked area of treatment that is highly rewarding and profitable is that of removable prosthodontics. Yes, I said it—dentures!

Many of us became burnt out on making dentures in dental school and never recovered, but times have changed. Not only is there a huge untapped market for high-quality dentures as the population ages, but also it can be one of the most rewarding and profitable procedures you provide for your patients per hour.

In addition, with the materials available to you today, this can be a relatively easy treatment. A lot of what we know about cosmetic dentistry came from prosthodontics. Full denture treatment used to be the ultimate in cosmetic dentistry before periodontal care changed the way dentists practice. Prosthodontists were really the first dentists to study things such as facial proportions as related to tooth size and shape.

How to get denture patients

Our office offers a “Free Esthetic Denture Consult.” This allows patients to meet us and see what we can do for them in a non-threaten- ing environment. If a patient calls in requesting fees, they are offered the option of the free consult. The patient is scheduled for a 10-minute time block with a doctor in the consultation room. He or she fills out a short form that pertains strictly to the patient the setup. Randy, and the patient want.

The shade was chosen using the Dentsply Portrait Shade Guide. As most people want to bleach their teeth, we see more and more patients choosing lighter colored teeth. We take several clinical and portrait photos for our records and the lab’s use in setting the case. If the patient wants to change his or her smile, we use “The Smile Style Guide,” written by Lorin Berland, DDS, and David L. Taub, DMD, to pick a new smile (www.Digident.com; (800) 741-7966). It is a great tool that contains a multitude of different smiles progressing from square, pointed, round and flat as well as various length combinations that we include with detailed notes for the lab about exactly what we and the patient want.

Technique appointment No. 2

Because Randy did not need to have posterior teeth removed and prolonged healing time, we progressed right to a wax try-in appointment in two weeks. The case is then sent to the lab for proper festooning and life- like base material processing.

Technique appointment No. 3

Fourteen periodontally involved teeth were removed with local anesthetic and nitrous oxide and the dentures seated. I relined them with a temporary soft liner to aid in the fit. We use a cartridge-based system, such as Voco’s UFI Gel SC. When Randy and his wife saw his new teeth, they were amazed at the difference and wanted to keep them. And so we began the treatment for the remaining teeth.

Technique appointment No. 4

Now that the wax try-in appointment was complete, the patient was scheduled to return for the acrylic denture appointment. This is the final appointment and is the time for the patient to have his or her prosthesis delivered. The patient sits in a comfortable chair and the prosthesis is delivered. The patient is then asked if he or she is happy with the outcome. If so, the prosthesis is cemented and the patient may leave. If not, the prosthesis is returned to the lab for adjustments.

Fig. 1a: After.
Fig. 1b: Before.
Fig. 2: A screen shot of www.denturewearers.com.
Fig. 3: Accudent immediate denture impression.
Fig. 4: Putty bite.
Fig. 5: Anatomically correct denture impression trays.
Fig. 1c: Smile before and after.
smile, they both cried (in a good way). She immediately scheduled herself for an appointment for dentures too. In six months we will provide relines.

**Technique appointment No. 4**

Randy was back the next day with minimal concerns. I will generally see the patient on the first adjustment, and then delegate the simple adjustments to my well-trained, experienced staff.

My total chair time with the free consultation, examination, impressions, try-ins, extractions and seating and the first healing check was about 2.5 hours. My per hour production was higher than what I make on a typical crown and bridge case, and I provided a life-changing treatment for a patient who was a dental cripple. If the patient has trouble wearing dentures, we can proceed to implants to help in retention. One of the keys to providing quality denture care for your patients is to find a laboratory that also is interested in quality. You will pay top dollar, but it will be well worth it.

If you are not providing denture treatment in your practice and you have holes in your schedule, you should think again about this under served area of cosmetic dentistry. As baby boomers age and loose teeth, there will be a real need for quality denture care.

**About the author**

Craig C. Callen, DDS, is a full time practicing dentist in the small city of Mansfield, Ohio, in the center of the rust belt. He graduated from Case Western Reserve School of Dentistry at the age of 25. Callen has written three books for dentists: “The Cutting Edge I, II, and III.” He is the associate editor for The Profitable Dentist Newsletter and has written numerous articles for national dental publications. Callen is a member of the ADA, AGD and the AADC. He has lectured internationally on clinical and management topics in dentistry. His latest seminar is entitled, “The Million Dollar Blue Collar Dental Practice.” Callen and his wife Dee have five children. They live on a farm where they raise horses, alpacas and llamas. In his spare time, he likes to spend time boating and traveling. You can reach Callen via e-mail at craigcallendds@gmail.com.
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Eliminating dental stains with a whitening chewing gum

By George Freedman DDS, FAACD, FAOD; Sulm Nathan DDS, MSIC; Fay Goldberg DDS, FAACD, Kiran Acero BDS, DDS, Lisa Burchall BA, RDH; Jennifer Murphy DA

Introduction

Dental staining is of great concern to the vast majority of the population, and is one of the major drivers of patient behavior with respect to personal oral home care and product purchasing. The appearance of discolored teeth has been made socially and culturally unacceptable by the ubiquitous presence of white, bright smiles on television, in films and the print media.

From a dental professional team perspective, dental stains are known to contribute to plaque accumulation, an increased retention of bacteria that generate an acidic oral environment and, eventually, to tooth demineralization and dental caries. The routine elimination of dental stains and plaque by the dentist and/or the auxiliary staff on a regular basis (twice per year) has contributed greatly to the improvement of dental health over the past 50 years. As patients have become dentally educated and more aware of their own dental health, they have increasingly demanded not only healthier teeth, but healthier-appearing teeth as well. In North American populations, more than 80 percent of individuals surveyed indicate an active interest in the whiteness (and thus, an active discomfort with the discoloration) of their teeth. Dental appearance is an important visual personality trait reflecting personal hygiene. The healthy and youthful appearance of non-stained teeth is the most visible component of dental health, and as such, is the parameter most often used by patients to gauge their personal oral health and hygiene.

The benefits of routine scaling and prophylaxis, on a bi-annual basis, are well documented and well accepted by both professionals and the public. This approach is effective in removing dental stains at least for a few days or weeks after the recare visit. However, the daily accumulation of dental stains, particularly during and after meals, is a recurrent problem that is far more difficult to solve. All too often, these stains accumulate in public settings where a negative dental coloration can adversely affect the outcome of an event, whether business or social.

It is well established that brushing and flossing after eating and drinking can eliminate the most obvious discolorations, but these activities are not always practical, particularly in the restaurant or home setting of most business and social meals. It is far preferable to have a relatively innocuous, but similarly effective, destaining procedure that can be readily initiated, unobtrusively and quickly, even under conditions of intense public scrutiny. It is a fairly common practice to use breath mints or chewing gum to freshen the breath after meals. These practices, however, do not alleviate tooth discoloration and may even make it worse (as with food-dyes in mints or gum).

The objective of this clinical study was to examine the effects of a commercially-available chewing gum (SuperSmile Professional Whitening Gum, Roehl Research, New York, N.Y.) in the removal of food-induced dental stains. This study was designed to objectively evaluate the immediate effect of SuperSmile Professional Whitening Gum, a xylitol-sweetened whitening chewing gum, on recently stained teeth, as well as its value as a rapid and effective decolorizing agent. Two pieces of SuperSmile Professional Whitening Gum were chewed simultaneously for 10 minutes, during which time the chewing gum effectively contacted the surfaces of the maxillary and mandibular anterior teeth.

Materials and methods

Fifty adult male and female subjects were selected to participate in this clinical trial and each subject acted as their own control. After qualification and a baseline dental examination, the subjects who met the criteria listed below were 20 male and 50 females with a mean age of 35.58 years. The inclusion criteria, among others, were as follows: male and female subjects, aged 18-70 years, in good general and oral health, with all maxillary and mandibular anterior teeth present. No more than two of the anterior teeth could be covered by crowns and/or veneers. Subjects were asked to refrain from brushing or rinsing for six hours prior to the initiation of the study.

Exclusion characteristics included orthodontic appliances, more than two anterior prosthesis crowns or veneers, tumors or significant pathology of the soft or hard tissues, moderate to advanced periodontal disease, extensive untreated carious lesions or restorations, bleaching within the previous 12 months, pregnancy or lactation, or prophylaxis within the previous 50 days.

The measurement of tooth shade can be highly variable between observers, and particularly so under differing metameric conditions. To avoid inter-investigator and sequential variability, two Vita Easyshade intraoral dental spectrophotometer shade-matching devices (Vident, Brea, Calif.) were used to measure tooth coloration. A spectrophotometer consists of three principal elements: a light source; a wand to direct the source light to an object and in turn to receive the reflected light from the object; and a spectrophotometer to resolve the received light intensity as a function of wavelength. The Easyshade’s CPU analyzes the spectrometer data, determines a shade match to Vita Classical or 3-D systems, and displays the results on a touch screen.

The Vita Easyshade is self-contained, easy to use and portable, consisting of a base unit and handpiece containing a fiberoptic probe assembly for illuminating and receiving light from a tooth. The two Easyshade units were calibrated with each other and were additionally self-calibrated prior to every shade measurement.

For each subject, the shades of the six maxillary and six mandibular anterior teeth were measured separately, in the middle third, at the mesio-distal center of the tooth, at three specific times. These measurements were at the baseline (prior to stain accumulation), Post Eating or Stain Accumulation (after 15 minutes of stain accumulation), and Post Product Usage (immediately after the use of the test chewing gum). The shade of each tooth was scored by reading the Easyshade screen and recording the Classic Vita shade reference code. The overall change in shade was then obtained by averaging the scores as previously described (Nathoo et al.). Analysis of variance (t-test) was employed to compare the mean Vita Easyshade scores at Baseline, Post Stain Accumulation and Post Product Usage.

The chromogenic “meal” consisted of:

- 4 ounces of red grape juice (simulating red wine)
- 5 ounces of blueberry pie
- 4-6 ounces of coffee or tea

The whitening chewing gum that was tested is a commercially available, non-prescription product. Its active ingredients include xylitol, chewing gum base, natural flavors, glycerine, gum arabic, soy lecithin, beeswax and calcium pantothenate. The instructions for use indicated two pieces of the product be placed in the mouth and chewed actively for 10 minutes.

Results and discussion

Tooth shade was calculated by ranking the Vita Classic Shade guide according to the degree of brightness
as recommended by the manufacturer, assigning a numerical value to each tab and calculating the number of tabs as described by Manupome and Petty (2004) and Nathoo et al. (1994). Of the 600 teeth examined, 17 had crowns, veneers or were otherwise unsuitable for shade change evaluation.

The Baseline Vita Easyshade data for 585 (50 x 12) teeth in the study was 5.55 (SD±2.49); corresponding to a shade between Vita Classic tabs A2–C1.

The Post Stain Accumulation Vita Easyshade data for 585 (50 x 12) teeth in the study was 8.06 (SD±3.19); corresponding to a shade between Vita Classic tabs D4–A3. Statistical analysis by the t-test showed significant differences at the p<0.05 level, indicating that eating a chromogenic diet as described above does, in fact, induce staining of teeth.

The Post Product Usage Vita Easyshade data for 585 (50 x 12) teeth in the study was 5.07 (SD±2.51); corresponding to a shade between Vita Classic tabs A2–C1. There was no significant difference between the baseline and Post Product Usage phases.

Statistical analysis by the t-test comparing:
1) The Baseline data with the Post Stain Accumulation data indicated significant differences (p<0.05), showing that chromogenic foods can indeed induce dental stains, darkening the appearance of the teeth.

2) The Post Stain Accumulation data with the Post Product Usage data indicated significant differences (p<0.05), showing that SuperSmile Professional Whitening Gum, the product under investigation, does remove dental stains acquired as a result of eating chromogenic foods.

3) The Baseline data with the Post Product Usage data indicated no significant differences, showing that the product under investigation restores the teeth to their original pre-staining color condition, but does not remove previously acquired dental stains.

A summary of the changes in tooth shade during the study is provided in Table 1.

The measured results indicated that consuming a chromogenic “meal” caused the accumulated food-induced stains to darken the subjects’ tooth shades by approximately two to three Vita tabs. This color change is readily visible even to the untrained eye, and on anterior teeth can detract from the aesthetics of the smile. The t-test analysis (green shading) confirms the significance of the staining.

After the use of SuperSmile Professional Whitening Gum, the test chewing gum, the mean shade of the anterior teeth was calculated to be almost three Vita tabs whiter than the coloration immediately after eating. This level of destaining, representing a major decoloration of tooth shade, is statistically significant (blue shading). It is also readily evident to the casual observer.

The destaining and/or bleaching effects of SuperSmile Professional Whitening Gum are mediated by the active ingredient, calcium peroxide. There were no adverse reactions attributed to product usage.

### Table 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Mean Shade (±SD)</th>
<th>Difference from Baseline</th>
<th>Significant difference in tooth shade by the t-test between the shaded groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>5.56 (2.49)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Post Eating</td>
<td>8.06 (5.19)</td>
<td>-2.70</td>
<td></td>
</tr>
<tr>
<td>Post Whitening Gum</td>
<td>5.07 (2.51)</td>
<td>0.20</td>
<td></td>
</tr>
</tbody>
</table>

### Conclusions

From this study, it can be concluded that SuperSmile Professional Whitening Gum removes food induced stains from dental surfaces. SuperSmile Professional Whitening Gum’s very convenient application modality, its rapid decoloration activity, and its significant results in dental destaining make it a very practical and portable tool for oral hygiene and aesthetic maintenance.

### References