

# Reproducing the Natural Smile Through Proper Material Selection

# 17

Pinhas Adar

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## Pinhas Adar

Pinhas Adar is a Master Ceramist who trained initially in Tel Aviv, Israel and then studied with Mr. Willi Geller in Zurich, Switzerland. With over twenty-five years of experience in all phases of dental laboratory technology, Mr. Adar practices, teaches and does research from his state of the art laboratory in Atlanta, Georgia. He works together with leading clinicians worldwide and specializes in the many facets of porcelain esthetic restorations on both natural teeth and osseointegrated implants. He is President of Adar International, Inc., and an active member of the American Academy of Esthetic Dentistry and the International Oral Design group. He is also a center for Oral Design International and is on the editorial board of the Quintessence Yearly Journal, the Journal of Esthetic Dentistry and Collaborative Techniques. Mr. Adar has presented live television programs and a multitude of lecture programs around the world on the multidisciplinary approaches in optimizing esthetics. He has the distinction of being the first ceramist to address an international meeting of the American College of Prosthodontists. He has developed instructional videotapes on all aspects of porcelain laminate veneers, and has written texts on posterior ceramic restoration and porcelain laminate veneers. Mr. Adar is an accomplished artist, and produces various works of sculpture as a creative outlet. His passion is to teach and set a new standard in dentistry.

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Finding the right esthetician to help with the process of reproducing a natural smile can be an arduous and sometimes costly procedure. The journey to the final destination should be one of positive thoughts and enjoyment. Health care has long been a participatory process. Long gone are the days of uninformed consumers; patients are learning more and more about the role that they play in their own health, both medically and dentally. The desires and interests of patients are the driving forces in decisions made by doctors and dentists today.

Within this environment comes the need for information about options, products, and the possible implications of dental care decisions. Many differences in quality exist in the dental field today. Today's informed consumer wants to know how to obtain what he or she wants – the first time.

The educated patient is a less fearful patient. Yet, despite the millions of dollars that the dental industry spends on educating the public, almost anyone can relate a “bad dental experience.” Dental therapy should be a pleasant and positive journey to a *known* destination.

When a patient says that “white teeth” are what he or she desires, what exactly does that mean? Do these words have the same meaning from patient to patient, dentist to dentist, and dental ceramist to dental ceramist? Communication is a complex issue, yet, as in all spheres of life, essential for a satisfactory outcome. There are specific tools that can be used to assist in communicating a consistent message and to achieve the desired outcome without surprises for anyone. No matter what type of enhancement is required, diagnosis and treatment planning are the first steps.

The purpose of this chapter is to illustrate to restorative dentists, dental technicians, and consumers the treatment planning options and the types of materials available today.

## Product selection

Esthetics is a matter of opinion. A product is an extension of the fingertips of the operator, and any product is only as good as the operator. The products may or may not be good, but the trick is to know how and when to utilize them.

The beginning to understanding any restorative dental product is to know its optical properties and its characteristics, both in the laboratory and in the mouth. Many ceramic systems are available in





Fig 17-1 Cross section of a natural tooth that has been illuminated from behind.

today's market. They include, but are not limited to, all-ceramic pressable systems, Procera [AU: Please add manufacturer's name and city], [AU: Do you mean In-Ceram Spinell?] Spinell [AU: Please add manufacturer's name and city], and ceramics that are fused to metal. All of these products have the ability to create the illusion of reality in all light conditions.

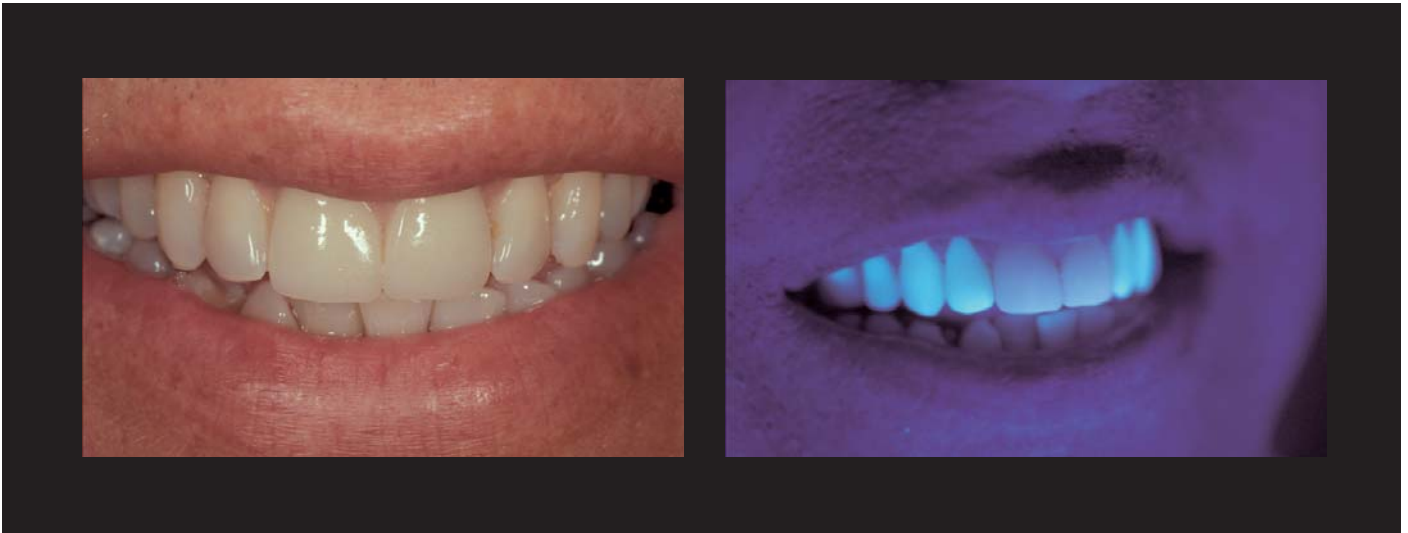
The goal of the dental ceramist is to reproduce natural-looking, lifelike dentition. A cross section of a natural tooth that has been illuminated from behind quite evidently shows the detailed internal characterization of the natural dentition (Fig 17-1). The dentist and dental technician must recognize, observe, and reproduce the characteristics of the natural teeth: the illusion of depth, the opalescence, and the fluorescence of the dentin and the enamel.

Once the goal has been determined, the type of product to use in each particular patient must be selected. Figure 17-2a shows the smile of a patient with two ceramometal crowns. These crowns blended in fairly well with the natural dentition. The patient complained, however, that the teeth were too gray. Although in natural light the teeth blended adequately, when the patient went into different types of lighting, the crowns appeared grayer. A black light revealed that the two crowns lacked the fluorescence that natural teeth have (Fig 17-2b).

In recent years, different products with amazing optical abilities, such as Creation porcelain [AU: Please add manufacturer's name and city], have been developed. This porcelain consists of a palette of stains that contains both surface and internal stains (Fig 17-3). Some of the colors appear to look the same in normal daylight. However,

Fig 16-3 Traditional shade selection. Attempts to match the natural tooth shade by comparing the tooth to a single artificial tooth from the shade guide are usually doomed to failure.





the surface stains, when placed under black light, are not fluorescent (Fig 17-3b), while the internal stains do exhibit fluorescence.

Dental technicians must be acquainted with these features and use the correct products to characterize ceramics. Otherwise the ceramic will appear dead and lack fluorescence, which will ultimately affect the naturalness of the ceramic crown.

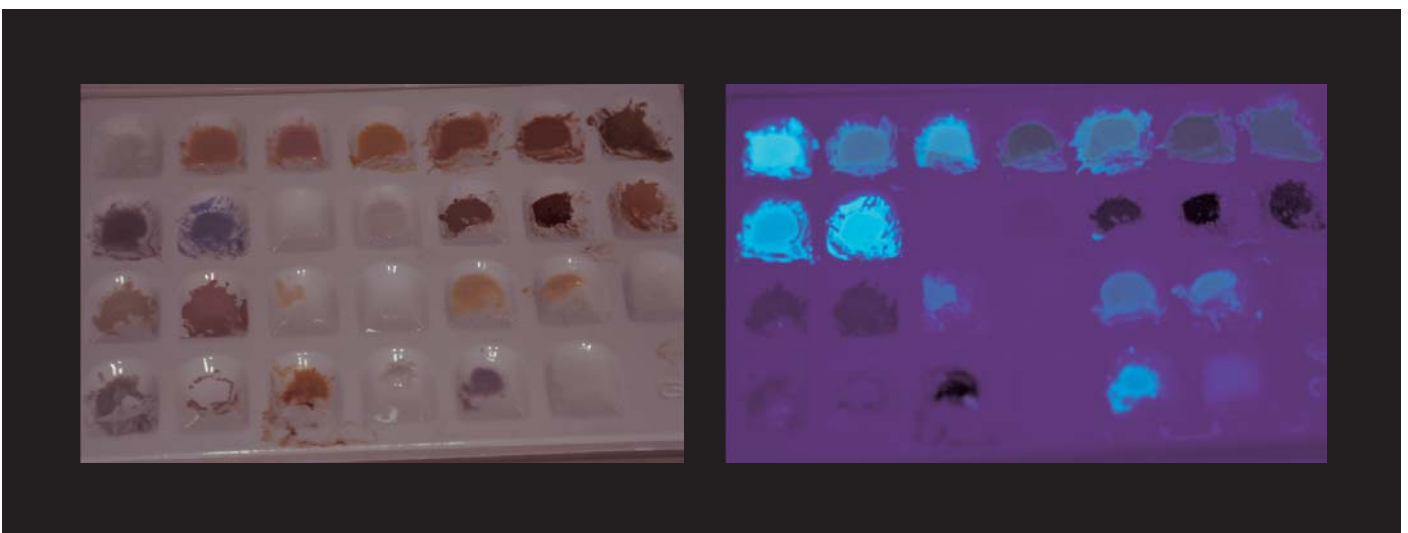
Other very important issues in ceramics are morphology, shape, texture, and the method by which the crown is finished. For example, the three-unit ceramic-fused-to-metal prosthesis in Fig 17-4a had internal characterizations and porcelain margins. It had been glazed; texture had been placed and the restoration was smoothed with a rubber wheel. After being manually polished with fine pumice and a felt wheel at a low speed, the fixed partial denture had the texture and

Fig 17-2a Smile of a patient with two ceramometal crowns.

Fig 17-2b Crowns under black light. The crowns appear grayer because they lack the fluorescence of natural teeth.

Fig 17-3a Palette of stains that contains both surface and internal stains.

Fig 17-3b Same palette under black light.



**Fig 17-4a** Three-unit ceramic-fused-to-metal prosthesis with internal characterizations and porcelain margins.

**Fig 17-4b** Fixed partial denture after manual polishing with fine pumice and a felt wheel at a low speed. The prosthesis has the texture and luster of a natural tooth.



luster of a natural tooth (Fig 17-4b). The color, internal structure, crack lines, and halo effect contributed to the lifelike appearance. The tooth shape and morphology of the crowns depend on the needs of the patient.

## Treatment Options

Some of the materials and procedures available for reproducing an esthetic and natural-looking smile will be presented through a series of case reports. [AU: Added text ok?]

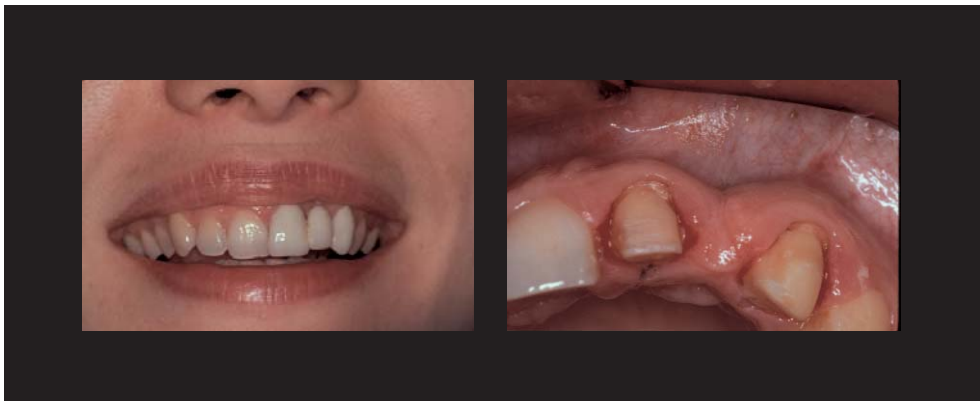
### Case 1

The subjectivity of esthetics is like the view through a camera: What you focus on is what you see. A patient complained that her three-unit fixed partial denture was too false looking (Fig 17-5a). She was a professional model and her agent recommended that the patient have her fixed partial denture replaced. A lateral incisor was missing, and there was a soft tissue defect in that area. The posterior teeth were more lingually positioned and ideally needed orthodontic treatment.

What did this patient really want? Did she want to replace the fixed partial denture as she stated, or did she want to enhance her smile further? Beauty is in the eye of the beholder, but so is ugliness. Patients should always be given options and alternatives so that they can make educated decisions. They should be asked the proper questions to help them with this decision:

1. Do you like your natural teeth?
2. Do you like the shape of your natural teeth?
3. Do you like the position of your teeth?
4. Do you like the color of your teeth?





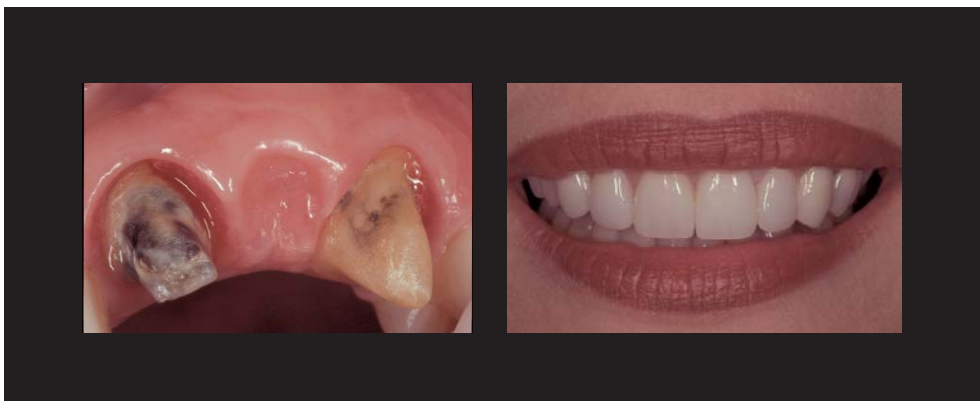
**Fig 17-5a** Smile of a patient who complained that her three-unit fixed partial denture was too false looking.

**Fig 17-5b** Appearance after removal of the fixed partial denture. The soft tissue is inadequate to fill the space.

Choices should then be given. Once this particular patient was given the ability to see what could be done, through computer imaging, a waxup, and verbal consultation, she realized that she wanted the color to be brighter, the shapes to be different, and the position of the posterior teeth to be more prominent. She had not known that all of these changes were possible.<sup>1</sup>

Once the fixed partial denture was removed (Fig 17-5b), the soft tissue was inadequate to fill the space. Soft tissue procedures were performed to create the illusion that the lateral incisor emerged from the soft tissue as a natural tooth would. After tissue augmentation and sculpting (Fig 17-5c), the ridge was ready for a ceramic fixed partial denture to fit into the pontic area.<sup>2</sup>

The finished smile represented a harmonious blend of the three-unit ceramic-fused-to-metal fixed partial denture with Creation porcelain margins and seven porcelain veneers to reshape the teeth (Fig 17-5d).



**Fig 17-5c** Appearance after tissue augmentation and sculpting. The ridge is ready for a ceramic fixed partial denture to fit in the pontic area.

**Fig 17-5d** Smile after completion of the prosthetic work. (Dental treatment by Dr David Garber, Atlanta, GA.)





Fig 17-6 Three single provisional crowns in acrylic resin, stained and with good marginal integrity.

## Case 2

When it comes to smile design, communicating esthetics is possibly one of the most difficult tasks. Computer imaging is a standard step now during consultation with the patient, but it is not three dimensional. The patient cannot actually feel the teeth, try the size, or see the color in their mouth. Some sort of blueprint is needed to allow the patient to “feel” all of these aspects of the restoration. The ceramist who will be producing the final ceramics must make a diagnostic waxup and/or provisional restorations to utilize as a blueprint.

Much detail should be included in these provisional restorations so that the patient can actually experience the teeth before reaching the final destination. The patient should be sure that he or she likes the color, shape, position, alignment, and so on. Once the provisional restorations have been tested, the final restoration can be completed (Fig 17-6).

Ceramic-fused-to-metal restorations are necessary for many reasons. Tooth mobility[AU: Not clear? Replacement of teeth lost to mobility, or splinting of mobile teeth?], replacement of missing teeth, concealment of dark tooth structure, and restoration of implants are some of these reasons.

An older man who had a bruxism habit had several implants placed in the maxillary posterior region (Fig 17-7a). Placement of a splinted standard ceramometal fixed partial denture was planned. A waxup was fabricated first, followed by a provisional restoration, for the patient to actually wear, see, and feel. The provisional restoration was made whiter and brighter than his original teeth (Fig 17-7b). The







**Fig 17-7a** Older man with a bruxism habit and several implants in the maxillary posterior region.

**Fig 17-7b** Provisional restorations: whiter and brighter than the original teeth.

patient lived with his provisional restoration for several weeks and received comments and recommendations from his friends and family.

At his follow-up visit, he stated that, although he liked the new restoration, his wife did not. Her thoughts were that the new, clean, white teeth did not look like him and did not match his character. Therefore, he was asked which color of his mandibular natural teeth he preferred, because the mandibular teeth were several different shades. He chose the right lateral incisor, which was the cleanest [AU: “lightest”? “brightest”?] of the mandibular teeth. The patient liked the shape and overlapping of the teeth, [AU: “in the provisional restoration”? Or are you still talking about the natural mandibular teeth?] as well as the cervical effects, but not the staining.

The final restoration that was fabricated for this patient achieved great similarity to the color that he chose and incorporated a variety of colors for cervical effects (Figs 7c and 7d).

**Fig 17-7c** Final restoration. Note the improvement in the esthetics.

**Fig 17-7d** Final restoration with a black background to show the accuracy of the color and the shape of the crowns. (Dental treatment by Dr David Garber, Atlanta, GA.)



**Fig 17-8a** Patient with worn teeth and a crown with a very dark root color.

**Fig 17-8b** Darkness of the root structure, visible after periodontal treatment. [AU: Figs 8a and 8b look identical. Please confirm that the correct figures were sent]



### Case 3

There is no single, common solution for all patients. The likes and dislikes of each patient must be recognized. Based on the information learned from the patient, the ceramist must customize each restoration for that particular patient.

Figure 17-8a shows a patient with worn teeth. One central incisor was a natural tooth and the other was a crown with very dark root color. The teeth were also mobile. It was decided that the two units had to be splinted for stability and longevity. Either conventional ceramometal splinted units or Captek capillary technology [AU: Please add manufacturer's name and city] could have been used.<sup>4</sup> In this patient, Captek was used. Captek has a warm, gold color. The copings were fabricated as single copings and then joined together in the furnace (Fig 17-8b). The two Captek copings were invested and then joined in the furnace with a special soldering material, and a bonding agent was applied (Fig 17-8c). Ceramic margins are not recommended in this type of case because the dark root structure will shine through the ceramic. Unless the technician actually sees the patient or has a slide showing this darkness, it is essential that the dentist convey all information to the technician so that he or she does not prepare a cutback [AU: Ok as edited?].

**Fig 17-8c** Two Captek copings after being invested and then joined in the furnace with a special soldering material. A bonding agent has been applied.

**Fig 17-8d** Close-up view of the Captek splinted central incisor units. No porcelain margins are visible. (Dental treatment by Dr Henry Salama, Atlanta, GA.)





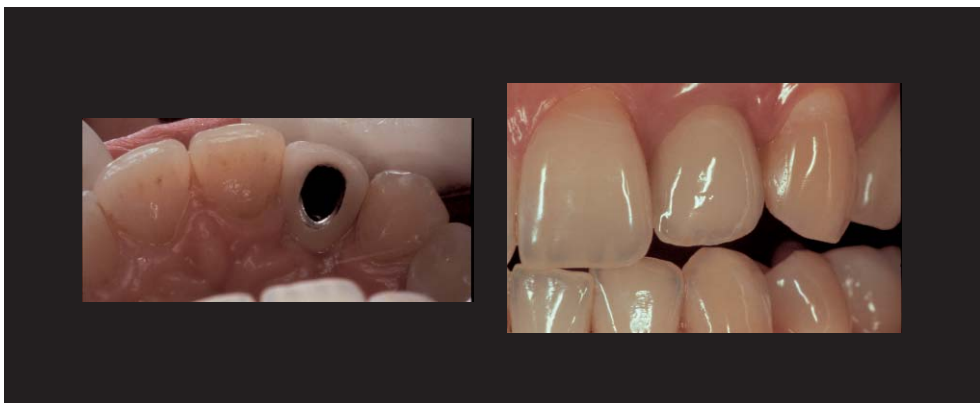
**Fig 17-9a** Occlusal view of the gingiva surrounding the implant area. Soft tissue support is adequate and proper depth is available to allow subgingival emergence of the crown.

**Fig 17-9b** Manipulation of the soft tissue through the use of the provisional restoration.

Captex splinted central incisor units without porcelain margins were used (Fig 17-8d). The warm color of the metal showed through, and some internal characterization was used to create depth. The cervical margin covered the darkness of the root. This was a reasonable outcome for a conservative approach. At this time, there are no other all-ceramic systems that can be splinted together and conceal darkness as Captex does.

#### Case 4

Implants are an indication for ceramic fused-to-metal restorations.<sup>5</sup> Adequate soft tissue with proper depth to allow subgingival emergence of the implant is also a necessity to create an illusion of reality. In the patient shown in Fig 17-9a, the implant positioning, as well as the root eminence around the soft tissue and the angulation of the screw access hole, were very good. This screw access allowed the choice of either a screw-retained metal restoration or a custom abutment with a cementable restoration. A screw-retained restoration is usually a better choice, if the patient allows it, because subgingival emergence from the base of the implant can be achieved.



**Fig 17-9c** Lingual view of the screw-retained, ceramometal, implant-supported restoration.

**Fig 17-9d** Buccal view of the final restoration. A very esthetic soft tissue profile has been created. (Dental treatment by Dr David Garber, Atlanta, GA.)



**Fig 17-10a** Screw-retained restoration with which the patient was unhappy.

**Fig 17-10b** Customized metal abutment, opaqued with Creation shoulder porcelain.



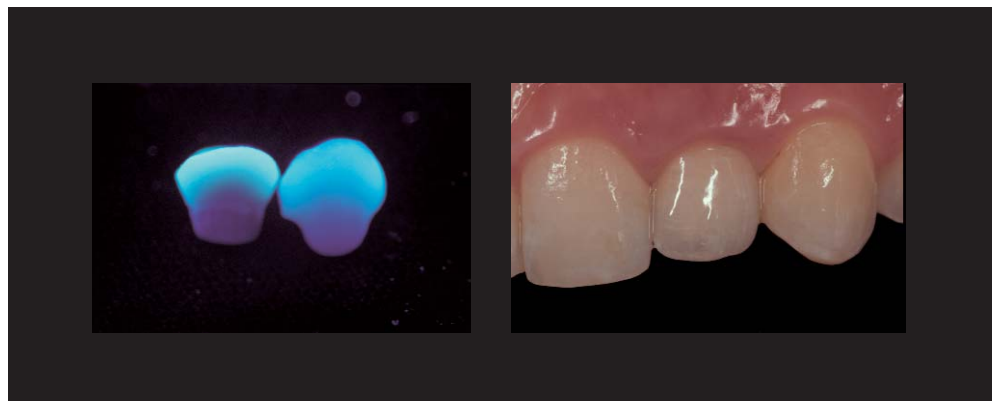
Soft tissue can be manipulated through the use of a provisional restoration (Fig 17-9b). Overcontouring or undercontouring of the provisional restoration can be used to manipulate the subgingival area of the soft tissue to compensate for areas of inadequate papilla. The location of the access hole in the final screw-retained, ceramometal, implant-supported restoration allowed creation of a nice incisal edge with incisal effects, without interfering with the esthetics of the final outcome (Fig 17-9c). A very esthetic soft tissue profile was created (Fig 17-9d).

### Case 5

The situation described in case 4 was ideal. Not all implant-supported restorations are as easy to design. A patient was very unhappy with a screw-retained restoration (Fig 17-10a). Gray shadowing was present around the soft tissue, and the implant was angled slightly to the buccal. The technician was not able to align the incisal edge with the central incisor and the canine. The patient's main concerns were color, the position of the incisal edge, and the artificial appearance of the crowns.

**Fig 17-10c** Two copings: an opaqued ceramometal coping and a porcelain margin and a Spinell coping with a porcelain margin.

**Fig 17-10d** Anterior view of the final restoration. (Dental treatment by Dr David Garber, Atlanta, GA.)



Soft tissue augmentation was performed to create a root eminence. A customized metal abutment, opaqued with Creation shoulder porcelain, was fabricated to build out the subgingival area and to create soft tissue support (Fig 17-10b). The incisal edge was brought into alignment with the adjacent teeth as much as possible within the space that was already available. Although any all-ceramic restoration system can be used to fabricate a cementable conventional crown, in this particular patient Spinell was utilized for the coping and crown. One coping was ceramometal with opaque and a porcelain margin. The second was a Spinell coping with a porcelain margin (Fig 17-10c). In ultraviolet light, the copings exhibited similar fluorescence.

When the final crown was placed, the incisal edges of the incisors and the canine were better aligned (Fig 17-10d). Natural white striations were added to create some depth and to blend with the natural teeth to create an illusion of reality. The soft tissue fullness simulated a root eminence, and the papillae had filled in.

## Case 6

A single tooth in the anterior region is one of the easiest restorations to accomplish. The road map is already there. It is not necessary to design a smile or deal with the preconceived ideas of the patient. A single anterior tooth restoration either looks the same as the adjacent natural tooth or it does not. However, it is necessary to look at the natural teeth and recognize the color, details, and internal characterization. The proper materials must then be selected and knowledge must be applied to simulate the natural teeth.

Single teeth also require a commitment of time from the patient, dentist, and technician—considerable time. The patient must understand that this is a very real commitment and that he or she could be in the dental chair all day waiting for the crown. Usually two copings are made, and the first crown fabricated will actually be used as a custom shade guide for the second crown. This is a very time-consuming procedure, and the patient should be told that it will cost more than a single posterior crown.

Many dentists assure the patient that the single crown will not match the natural teeth and that matching is not possible. Market conditions and types of patients are often deciding factors, but single teeth can be reproduced in a very natural manner as long as the commitment is made by both patient and technician.

A patient had previously fractured a tooth and was now ready to



**Fig 17-11a** Patient with a previously fractured tooth. She is now ready to replace the old bonding.

**Fig 17-11b** Tooth after preparation for a crown.



replace the old bonding (Fig 17-11a). Her natural central incisor did not have many characterizations and was a straight-forward color. Figure 17-11b shows the same tooth after it was prepared for a crown. Based on the color of the prepared tooth, an all-ceramic crown, fabricated with a Spinell coping and Vitadur Alpha ceramic (Vident, Brea, CA), was selected as the final restoration.

The crown was baked several times with the base color and then tried in the mouth with universal liquid to show the detail and color (Fig 17-11c). Stain was added and then baked quickly to stabilize the internal characterization. The stain was overlaid with more translucent opalescent ceramic to complete the buildup. The color and shape of the single crown accurately simulated those of the natural dentition (Fig 17-11d). A slight diastema was kept because of a spacing problem.

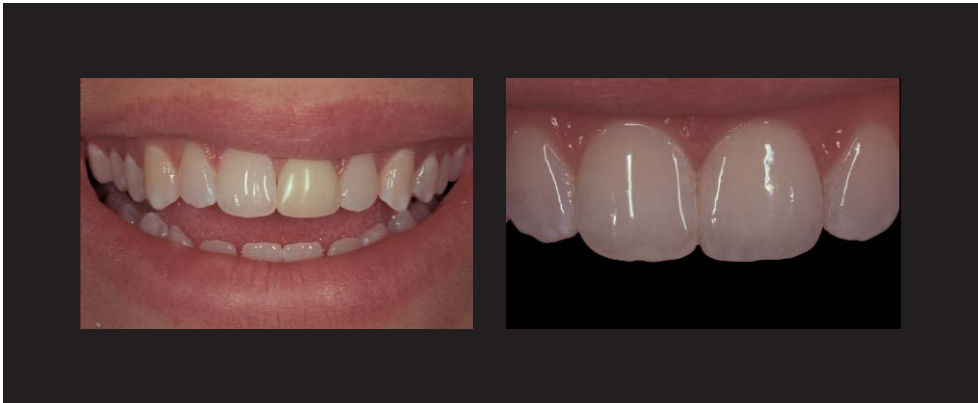
### Case 7

A patient presented with an old crown and a post and core that had to be replaced (Fig 17-12a). The all-ceramic Procera system was chosen for this patient because of its ability to mask the color of any

**Fig 17-11c** Crown after several bakes with the base color. It is tried in the mouth and universal liquid is used to show the detail and color.

**Fig 17-11d** Final restoration. The color and shape of the single crown simulate the natural dentition. (Dental treatment by Dr David Garber, Atlanta, GA.)





**Fig 17-12a** Patient with an old, unesthetic crown and a post and core that need replacement.

**Fig 17-12b** Creation AV porcelain used over a Procera coping. (Dental treatment by Dr David Garber, Atlanta, GA.)

underlying tooth structure or post and cores. Her natural central incisor had a smooth, bleached-out color with whitish calcified spotting and a slight halo effect with slight translucency. Creation AV porcelain was used over the Procera coping (Fig 17-12b).<sup>6</sup>

### Case 8

Another patient needed a single central incisor crown (Fig 17-13a). Her tooth color was a little dark and yellowish, but quite nice. This color could be utilized to bring warmth through to the crown.

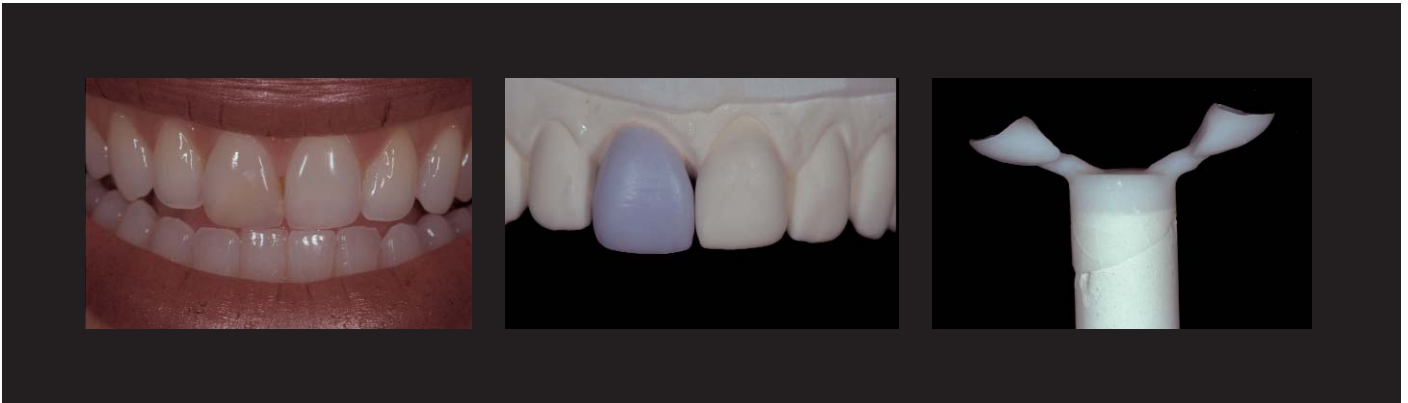
A Spinell coping was fabricated and Vitadur Alpha porcelain was layered over it. The shape of the central incisor changed slightly to compensate for the spacing, but the patient preferred this option to the placement of some type of restoration on the other central incisor. There was a soft tissue discrepancy in height, and the spacing problems made the crown slightly wider than the natural tooth, but the patient was very content with the final outcome (Fig 17-13b).



**Fig 17-13a** Anterior view of the left central incisor after preparation for a single crown.

**Fig 17-13b** Final crown after cementation. (Dental treatment by Dr Cathy Schwartz, Atlanta, GA.)





**Fig 17-14a** Patient with a bonded maxillary right central incisor. The tooth is discolored and chipped, and there is a spacing problem.

**Fig 17-14b** Full-contour waxup made to visualize the final shape.

**Fig 17-14c** Two copings, pressed with the W+ ingot, which has bleaching characteristics.

### Case 9

Another advance in modern ceramics is the development of pressable ceramics. One example is Authentic [AU: Please add manufacturer's name and city]. The advantage of the Authentic system (or any other type of pressable system) is that the core color is evident and it does not change. With ceramic powder and liquid, the outcome is not known. With pressable ceramics, the incisal color, opacity levels, and internal characterizations are only overlaid as needed to match the adjacent natural tooth.

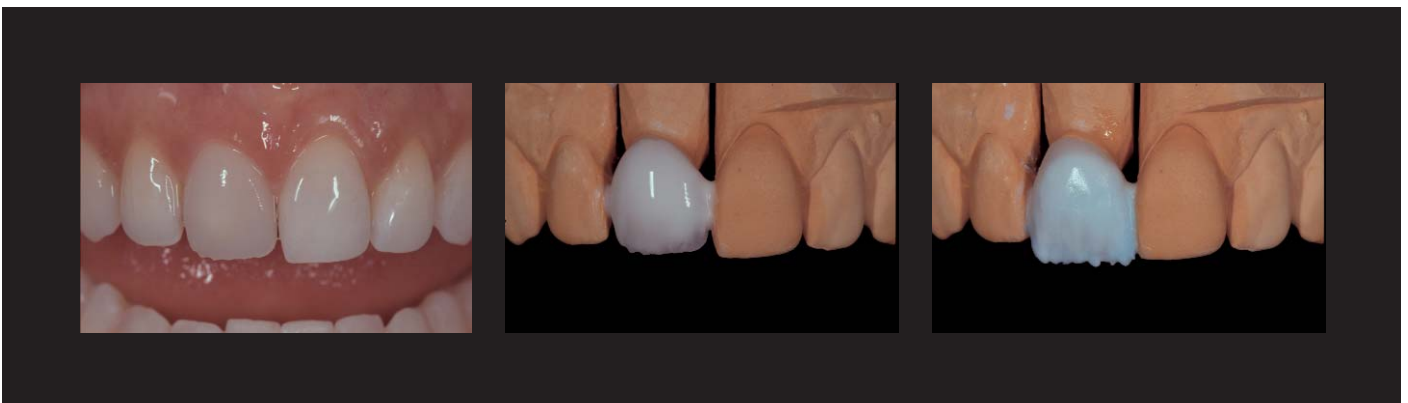
A patient presented with a bonded maxillary right central incisor that was discolored and chipped; a spacing problem was also present (Fig 17-14a). The patient had bleached the natural teeth, so the teeth had a bright, opalescent look with considerable translucency.

Minimal tooth preparation was done. A full-contour waxup was made to visualize the final shape (Fig 17-14b). It was sprued, invested, and then pressed with a pressable ceramic. The two copings were pressed with the W+ ingot, which has bleaching characteristics (Fig 17-14c). The ingot was pressed into full contour. The ingot was trimmed off and cut back for incisal [AU: Word(s) missing? "Incisal" what?].

**Fig 17-14d** Cutback version of the ingot tried intraorally.

**Fig 17-14e** Coping overlaid with opacous dentin B1 on the entire surface.

**Fig 17-14f** Segmental buildup done with opal translucent and incisal 57.





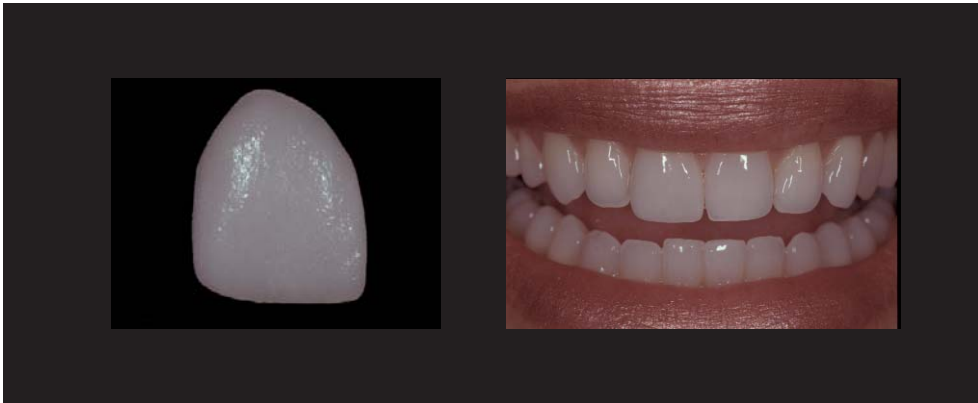


Fig 17-14g Crown after baking.  
 Fig 17-14h Final glazed crown,  
 cemented in place with a translu-  
 cent dual-cured cement. (Dental  
 treatment by Dr David Garber,  
 Atlanta, GA.)

The cutback version of the ingot was tried intraorally (Fig 17-14d) to observe the influence of the tooth substructure. Based on this analysis, the type of layering that was needed was determined. The coping was overlaid with opacious dentin B1 on the entire surface and then incisally (Fig 17-14e); a segmental buildup was done with opal translucent and incisal 57 (Fig 17-14f). Then the tooth was characterized and overlaid with opalescent material. After baking, the internal effects were not too visible because the tooth had very smooth transitional colors, but it exhibited translucency to enhance the opacity levels and block out some of the [AU: “underlying”?] tooth colors (Fig 17-14g). The core was very translucent, although it was a bleached color, and had low value effects so that the bleaching effect was enhanced and intensified, as this patient needed.

The final glazed crown was cemented in place with a translucent dual-cured cement (Fig 17-14h). Once the diastema was closed with just one crown, it was difficult to retain the exact shape and width on the final crown as the other central incisor. However, the single tooth still blended in reasonably well.

Bleached teeth dry out very quickly. The tooth color changes constantly while the patient is being treated, and it is very hard to duplicate the correct color. Treatment must be fast and efficient, or light-cured liquid [AU: Please be more specific - what kind of liquid?] can be placed on the adjacent natural teeth to slow the dehydration.

## Case 10

A patient arrived with a chipped central incisor (Fig 17-15a). His teeth overlapped and a large part of the incisal edge was gone. Minimal tooth reduction was performed for a bonded all-ceramic crown (Fig 17-15b).

The patient’s tooth color was very good and was used to bleed



Fig 17-15a Patient with a chipped central incisor.  
 Fig 17-15b Minimal tooth reduction.

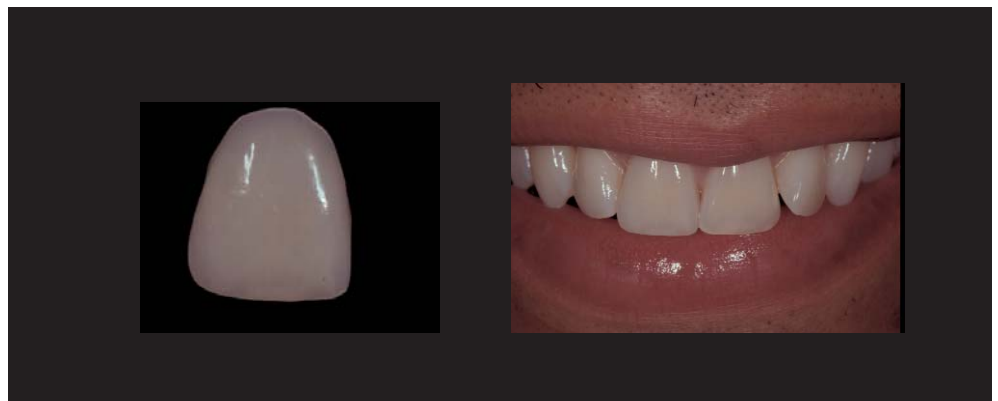


through the all-ceramic crown. The shade was A1, B1 with considerable translucency. The ceramic core was pressed with ingot number A++. Opacious spotting was visible on the incisal edge, giving a halo effect, and soft mamelons were present on the line angles [AU: Do you mean on the remaining tooth structure, on the adjacent teeth, or on the ceramic core?]. To [AU: "To simulate" or "To minimize"?] these effects, opacious dentin was overlaid on the ceramic core, and an incisal wall was created with opal translucency. Some opacious dentin was pulled through to the incisal edge to recreate the effects present in the natural teeth. The opacious dentin was then sandwiched with opal translucency.

The finished crown was glazed and polished manually (Fig 17-15c). When the patient smiled (Fig 17-15d), the teeth overlapped as they had before.

The ingots of the Authentic all-ceramic, pressable system provide stable color and the marginal integrity is incredible. No matter how many times the material is baked, the color of the ingot and the ceramic does not change as long as the correct temperature is maintained while baking. The oxides that normally occur with metal are not present with this system. Minimal tooth reduction is required.

Fig 17-15c Finished crown glazed and polished manually.  
 Fig 17-15d Anterior view of the smile with the final restoration.  
 (Dental treatment by Dr Marilyn Gaylor, Atlanta, GA.)





The color of the tooth's substructure can be utilized if it is satisfactory, and Authentic can be etched internally and the crown can then be bonded in place.

### Case 11

Porcelain laminate veneers can be made in many different ways. They can be made very translucent or very opaque, depending on the patient's preconceived ideas of the kind of teeth he or she would like and on the type of tooth structure that exists. For translucent veneers, three issues to consider are the color of the ceramic, the color of the tooth preparation, and the color of the resin composite. These determine the outcome, the final shape, and the depth.

A patient presented with nicely colored teeth (Fig 17-16a). The two central incisors had previously been prepared for porcelain laminate veneers. The patient was unhappy with her smile and wanted to improve it and wanted veneers placed on the rest of her maxillary teeth.

Once the patient described her desire to have a very natural look, 10 porcelain veneers were fabricated with the platinum foil technique. The veneers were tried individually for fit and then collectively for arrangement, alignment, and contact points. The veneers were tried with different types of resin composites (Fig 17-16b). The color of translucent veneers can be changed or enhanced based on the composite used.<sup>7</sup> Translucent cement can be used to allow the tooth color to bleed through, thus making the restorations appear more natural. Figure 17-16c shows the final porcelain veneers in place.

**Fig 17-16a** Patient with nicely colored teeth but an unesthetic appearance.

**Fig 17-16b** Veneer tried in with resin composite. Different types of resin composite were tried.

**Fig 17-16c** Anterior view of the final porcelain veneers cemented in place. (Dental treatment by Dr Angela Gribble-Hedlund, Atlanta, GA.)



## Conclusion

Dentists and dental technicians must know what patients see. Patients must know what they want. Esthetics is a very subjective issue, and there is no right or wrong but only a matter of opinion.<sup>8</sup>

Product selection is critical, but technician selection is essential. Patients must know what treatments are available to them. They must know that the dental team they have chosen is the right team for them, by seeing photographs of actual restorations that the professionals have accomplished.

Single teeth are easier to restore because there is a roadmap to follow. In the case of smile design, it is important to communicate with patients through waxups and three-dimensional provisional blueprints so that they can live with the restorations and decide color, shape, and what they like and dislike.

There is no panacea in dentistry. No single product or system can solve all problems and succeed in all cases. Dental professionals must be open-minded to all new products, and there is always space for another.

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