Smile Design and Treatment Planning With the Help of a Comprehensive Esthetic Evaluation Form

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KEYWORDS

- Smile • Design • Treatment planning • Evaluation form

In the modern practice of dentistry, it is no longer acceptable to just repair individual teeth. Increasingly more patients are demanding a final appearance that is not only physiologically and mechanically sound but also esthetically pleasing.[1] In addition to restoring and reconstructing the broken down dentition, bleaching, bonding, and veneering have opened the doors to a wide variety of elective dental treatments to enhance appearance, often reversing the visual signs of aging.[2,3] Understanding patient expectations is critical for clinicians to develop a treatment plan that is not only sound for the dental tissue but also esthetically pleasing. Often patients may not be able to identify their needs in anything more than short sentences stating their chief complaints. Clinicians must then decide whether the expectations can be met. If these expectations cannot be met, the case will likely fail.[4–6] Three simple questions, asked at the beginning of the Smile Evaluation Form, usually allow patients to express their needs clearly (**Fig. 1**).

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1. Are you happy with the way your teeth appear when you smille? YES   NO   (circle one)
2. If NO, what is it about your smile you would like to change?
   _____
   _____
   Patients requests and expectations:
   _____
   _____
3. **Please Check Your Preferences:**

   O White Aligned Teeth
   O Natural Teeth with Slight Irregularities

Fig. 1. Questionnaire for patients to determine chief complaints.

If clinicians believe they have the experience and ability to meet the expectations, they must then carefully consider the patient in entirety.[7] This thorough evaluation must include a facial analysis, dental–facial analysis, and dental analysis, because each of these components and how they build on one another will provide the lattice structure for the finished case.
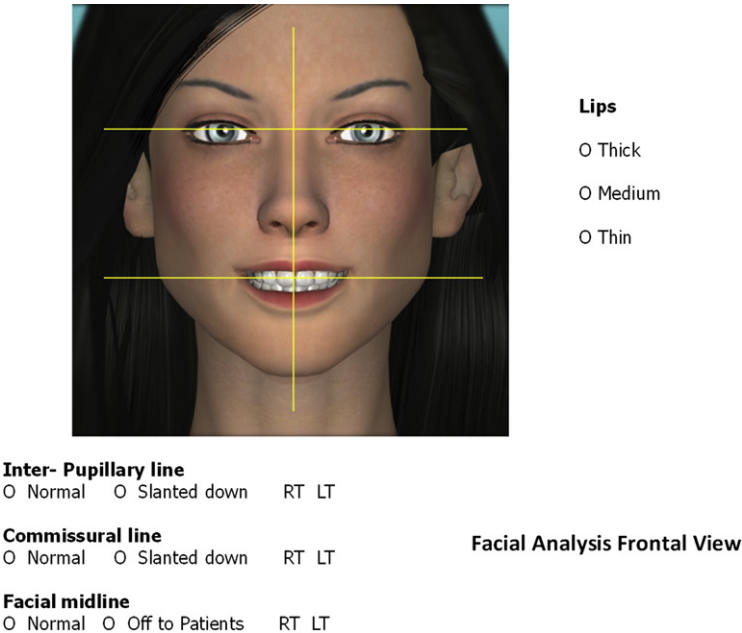

Lips

O Thick

O Medium

O Thin

Inter- Pupillary line
O Normal   O Slanted down   RT LT

Commissural line
O Normal   O Slanted down   RT LT

Facial Analysis Frontal View

Facial midline
O Normal O Off to Patients   RT LT

Fig. 2. The first yellow horizontal line from the top is the interpupillary line. It passes through the center of the pupil of each eye. The horizontal line below this is called the commissural line, which passes through the corners where the upper and lower lips meet. These lines should normally be parallel to the incisal and occlusal planes of the patient's teeth. The thicknesses of the upper and lower lips are also noted and a description checked off. The need for possible lip enhancement or reduction also might be noted at this time. A vertical yellow line is drawn through the glabella (centered between the eyebrows), the tip of the nose, through the center of the philtrum, the center of Cupid's bow, and finally to the center of the chin. The resultant vertical line is the facial midline and is identified and analyzed as normal or curved. LT, left; RT, right.

FACIAL ANALYSIS
Frontal View

Facial analysis is checked at a conversational distance. The clinician uses a series of horizontal and vertical lines to determine the size and proportion of the face from chin to hairline and also the relationship of the patient's face and dentition in space (**Figs. 2–4**).

A profile view (**Fig. 5**) allows clinicians to visualize an important imaginary line called the *Rickett's E-plane*. This line drawn from the tip of the nose to the tip of the chin allows the profile of the patient to be evaluated by comparing the distance from this plane to the top and bottom lip. In the normal profile, the maxillary lip is approximately two times the distance (4 mm) as the lower lip to the E-plane.[8] A concave profile may call for a more prominent position of the maxillary anterior teeth with final restoration of the anterior teeth, whereas a more convex profile may require a more retruded position of the final restorations. Other imaginary lines form the nasal/labial line angle. In men the nasal-labial angle is generally 90° to 95°, whereas in women it is generally 100° to 105°.[9]
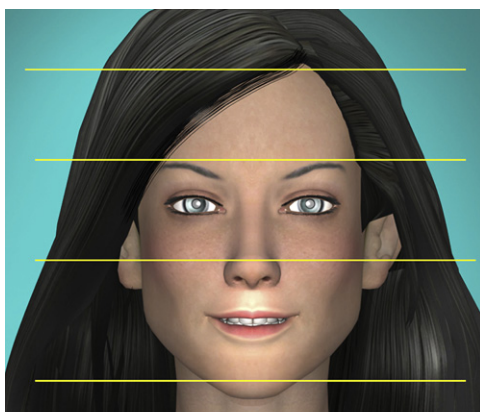
UFH -Upper Facial Height
LFH -Lower Facial Height
measured from [Sn - Me]
Sub-nasal (bottom of nose
meets upper lip) - menton
(bottom of the chin) landmarks

O WNL

O Excess L F H

O Deficient L F H

Fig. 3. The face is divided horizontally into three portions. The upper portion runs from the hairline to the top of the patient's eyebrows. The second portion runs from the eyebrows to the tip of the nose. The lower portion runs from the tip of the nose to the tip of the chin. This third portion is slightly wider than the upper two portions in a youthful patient with no occlusal wear and a normal vertical dimension. However, this portion may eventually shrink with age and severe wear (posterior bite collapse).
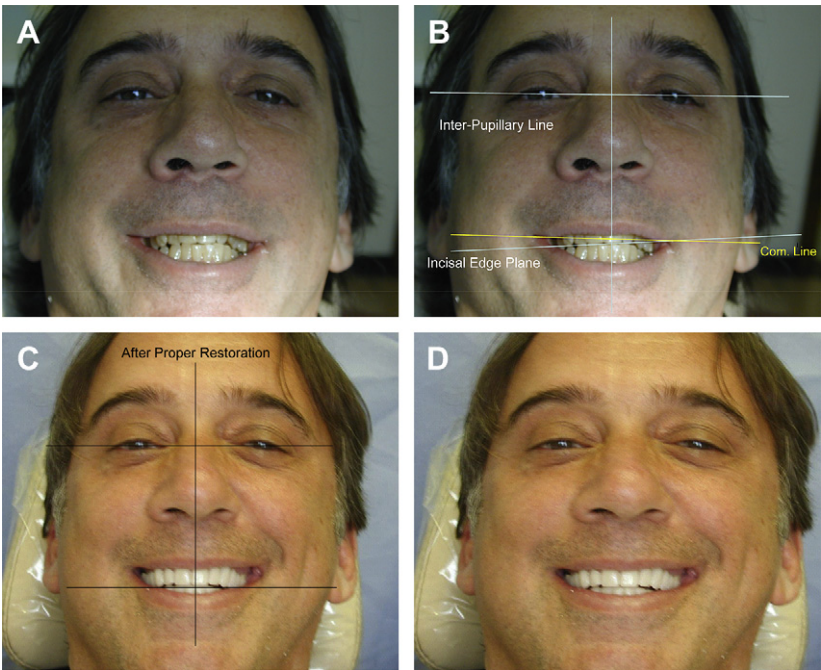
Fig. 4. (*A*) Pre-operative photo of a patient. (*B*) A patient with lines drawn on his before photo to simulate what should be observed using the smile evaluation form. The maxillary incisal edge should run parallel to the inter-pupillary and commissural (com) lines. Unfortunately as seen in this case this is not always true. In this patient the incisal edges of the maxillary anterior teeth run upwards from the patient's right to left. Figures *C* and *D* show the finished case with the restored anterior dentition incisal plane now parallel to the inter-pupillary line.
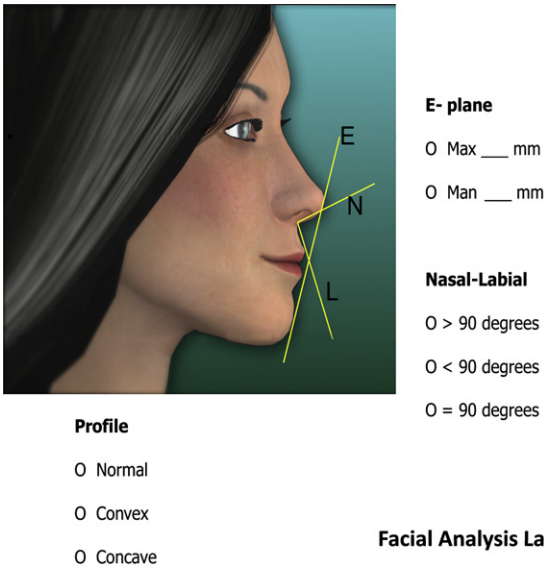
Fig. 5. Profile view. Max__mm = distance measured from the maxillary lip to the E-Plane, (Avg. Caucasian −4, Avg. African American +4, [minus if concave facial form but plus if convex facial form]); Man__mm = distance measured from the mandibular lip to the E-Plane (Avg. Caucasian −2, Avg. African American +2, [minus if concave facial form but plus if convex facial form]).

Incisal and Occlusal Analysis

Next on the Smile Evaluation Form, the incisal and occlusal analysis is evaluated. This evaluation involves a good history that allows the clinician to diagnose whether habits have affected the occlusion, angulations, and buccal-lingual positioning of the teeth. If the clinician does not know the cause of an existing malocclusion/malposition, rebuilding the dentition may have short-lived outcomes. Overbite, overjet, space analysis, and classifications of occlusion and malocclusion should be evaluated carefully.

The functional assessment (**Fig. 6**A) occurs when a dental history is taken, and includes observations of the patient's swallowing and breathing during the initial visit. A thorough intraoral examination may show signs of bruxism and wear that could indicate incisal and occlusal disharmony. This evaluation also provides the best opportunity for clinicians to determine whether the facial and dental midlines are coincidental. If the maxillary or mandibular midlines deviate from the facial midline, this should be noted. Canting (a dental midline that is not parallel to the facial midline) has been shown to be even more discernable to patients and is considered more of a handicap

A

Functional Assessment

O Digit sucking e.g. thumb   O Lip sucking/biting

O Object biting/sucking   O Mouth breathing

O Tongue Thrust Swallow   O Clenching

O Grinding / Bruxism   O   Other _____

Dental Midline

O Upper and lower teeth midlines coincide with the facial midline

O Upper dental midline is deviated to the   **R   L**   (circle)

O Lower dental midline is deviated to the   **R   L**   (circle)

B

Overbite

O Normal [0–30% of lower central incisor is covered by maxillary central incisor]

O Moderate [31–69% of lower central incisor is covered by maxillary central incisor]

O Severe [70–100% apical to the lower central incisoris covered by maxillary central incisor]

Anterior Open Bite ____mm   O Dental   O Skeletal

Overjet

O Normal [the maxillary incisors are 1–2 mm in front of the mandibular incisors]

O Moderate [the maxillary incisors are 3–5 mm in front of the mandibular incisors]

O Severe [the maxillary incisors are more than 5 mm in front of the mandibular incisors]

Space Analysis

Maxillary
O Crowding   O Spacing   (Mild, Moderate, Severe)
Mandibular
O Crowding   O Spacing (Mild, Moderate, Severe)

Fig. 6. Occlusal analysis. (*A*) Functional analysis. (*B*) Generalized orthodontic evaluation. L, left; R, right.

than dental midlines that are not coincidental but are at least parallel. A space analysis should also be categorized and noted.

In **Fig. 6**B, a generalized orthodontic evaluation (classification of occlusion or malocclusion) is noted. Orthodontic intervention may be considered a possible treatment adjunct or choice at this time.

Phonetic Analysis

In the 1950s, clinicians realized the importance of phonetics in determining denture teeth setup and appropriate anterior tooth position and length in relation to vertical dimension of occlusion.[10] A patient in physiologic rest position will normally have a 2- to 4-mm space between the upper and lower arch.[11] The minimum facial reveal of anterior teeth in this position for a youthful appearance has been identified as between 2 and 4 mm, depending on the sex of the individual (women generally show more tooth).[12]

The "m" sound allows a view of the rest position and the tooth reveal at this position. One may use this a phonetic guide to help plan the look to be achieved in the initial wax up of a well-planned case (**Fig. 7**).

The extended pronunciation of the "e" sound is another important phonetic guide. This sound will usually show the widest smile. Thus, the practice of saying the word "cheese" when taking photos. The space between the upper and lower lips should be filled almost completely by the maxillary incisors in pronouncing this sound. The Maxillary incisal edge will be very close to the superior border of the lower lip. However, as aging occurs, the muscles of the mouth lose tone, and increasingly less of the maxillary teeth will be visible during the pronunciation of the long "e" sound.[13]

The "s" sound is created by air passing between the soft surface of the tongue and the hard lingual surface of the maxillary anterior teeth.[14]

M

2-4mm youthful
Mand. Show older

E

S

V F

"M" Sound Repetitively
Space between upper and lower lips visible
"Minimum tooth reveal"
length of Maxillary Central Incisor if visible __ mm
length of Mandibular Central Incisor if visible __ mm

"E" Sound - Maximum extension
of the lips - biggest smile
Inter-labial space occupied
by maxillary teeth

O <80%
O >80%

"S" Sound – overjet, overbite "rest"
O Normal
O Lips
O S - Sound Deficiency

"F" & "V" Sounds
Maxillary Incisor Edge Position in relation to the
wet and dry border of the lower lip. Minus __ mm
if behind and plus __ mm if in front of the border.
Edge + 0 - mm to lip

Fig. 7. Phonetic analysis.

Correct pronunciation of the "f" and "v" sounds is accomplished when the incisal edges of the maxillary anterior teeth come in light contact with the lower lip (vermilion border).[15] The incisal edges should be stationed directly over the line of demarcation between the wet and dry boarder of the lower lip. This mild contact allows a buildup of sufficient pressure for correct pronunciation.

A

Anterior Teeth Analysis
Mark any irregularities on the diagram for maxillary dentition

MAXILLARY TEETH
Drawing Checklist:

Facial Contour
O Normal
O Abnormal

Golden Proportion
O Normal
O Abnormal

Incisal, Gingival, Facial Lingual Embrasures
O Normal
O Abnormal

Axial Inclination
O Normal
O Abnormal

Tooth Spacing
O Normal - teeth in
    proximal contact
O Crowded - overlapped
O Diastema(ta) - space(s)
    between teeth

Gingival Zenith
O Normal
O Irregular

Gingival Papilla
O Normal   O Blunted

Gingival Biotype
O Thick   O Thin

B

Mark any irregularities on the diagram for mandibular dentition
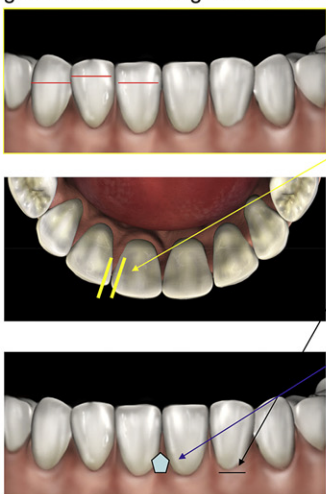
Mandibular Teeth
Drawing Checklist:

Facial Contour
O Normal
O Abnormal

Proportion
O Normal
O Abnormal

Incisal, Gingival, Facial Lingual Embrasures
O Normal
O Abnormal

Axial Inclination
O Normal
O Abnormal

Tooth Spacing
O WNL
O Crowded
O Diastemata

Gingival Zenith
O Normal
O Irregular

Gingival Papilla
O Normal   O Blunted

Gingival Biotype
O Thick   O Thin "see through"

Non-vital tooth root – dark
Tetracycline stained teeth

Classification of Occlusion/Malocclusion

O normal
O Cl I Malocclusion
O Cl II Div 1
O Cl II Div 2
O Cl III

Fig. 8. (*A, B*) Dental analysis.

Dental Analysis

The maxillary and mandibular anterior dental analysis is made directly on the form using direct diagramming on the simple drawings or using the drawing checklist (**Fig. 8**). Facial contours that are irregular may be best seen in the incisal views, whereas golden proportion, incisal embrasures, axial inclination, tooth spacing, and gingival zeniths can be drawn directly on the facial views. Gingival biotype is also important to note, especially when deciding on the type of restoration to be used, because a thin biotype might require further gingival preparation to cover dark roots.

Dentofacial Analysis

A thorough dentofacial analysis is a critical component in determining the fine details of designing the restorations that will deliver the final esthetics of the case. Identifying the patient's horizontal and vertical components as either normal or needing improvement will help determine how the case should proceed (**Fig. 9**). After the Smile Evaluation Form has been used numerous times, the dentofacial analysis allows quick and accurate identification of problems. Any component that may require consultation with another discipline is easily identified and recorded.

Understanding the language of esthetics, a topic covered by Davis[16] in 2007, will help readers understand the diagrams on the Smile Evaluation Form.[15] This article explains the significance of important definitions such as lip line, midline, teeth exposed in physiologic rest position, and bilateral negative space. **Fig. 10** shows
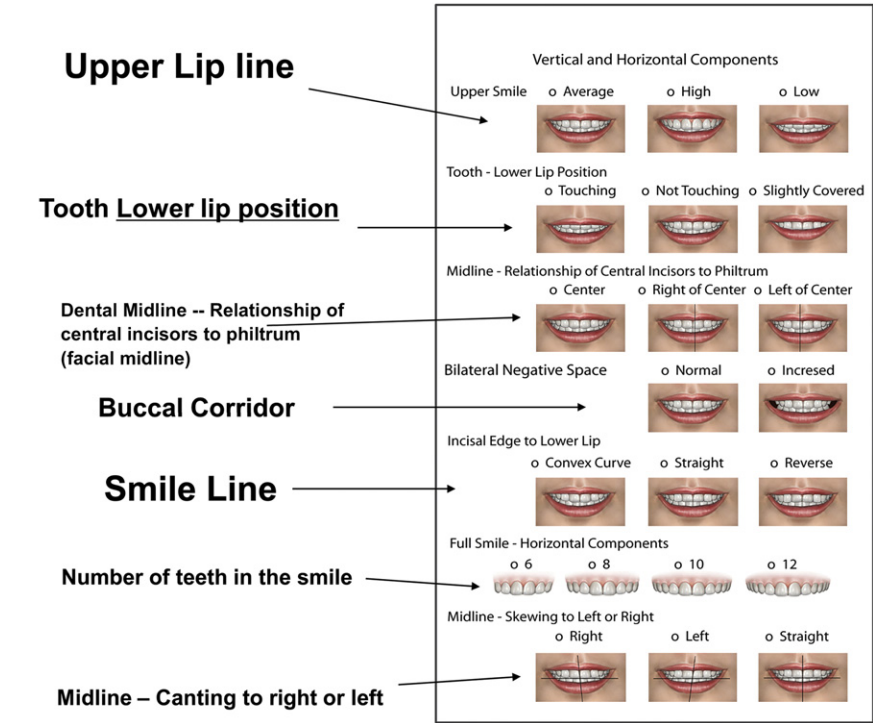
Fig. 9. Dentofacial analysis.
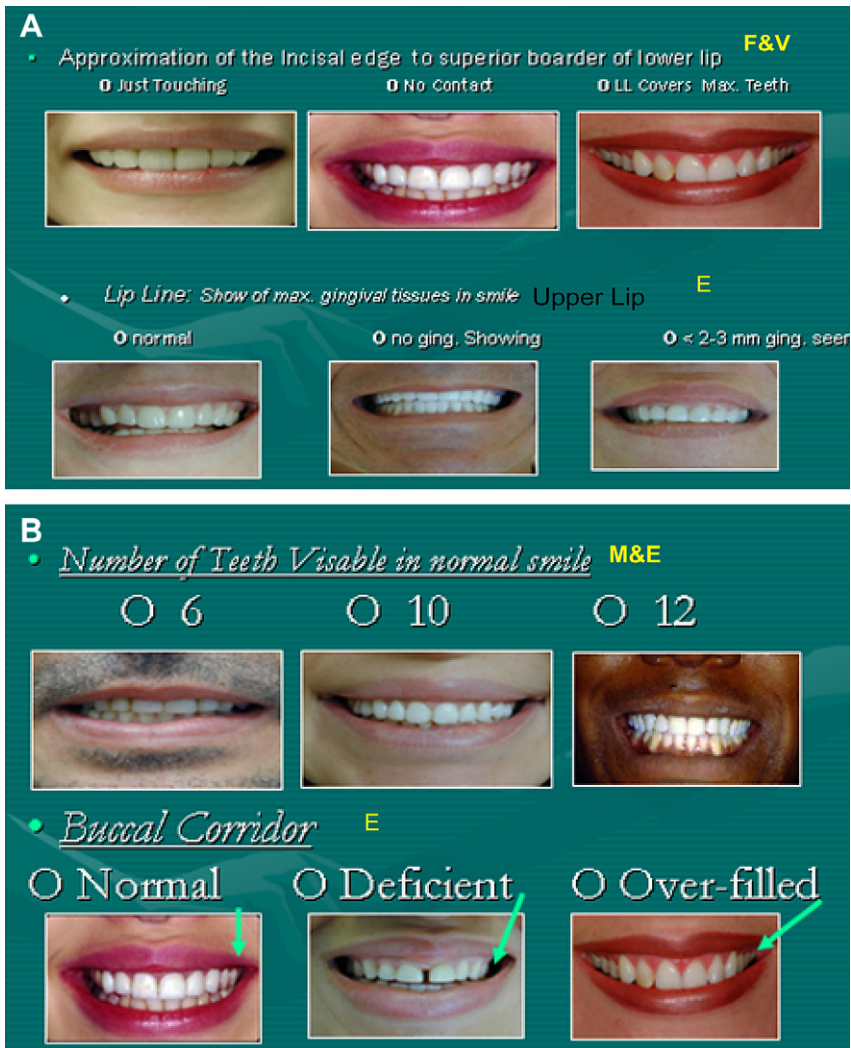
Fig. 10. Dentolabial analysis.

examples of normal and abnormal smiles. Most variations are present on the form to easily compare with the patient. In summary, the Smile Evaluation Form provides practitioners with a simple method of quickly notating the esthetic needs of the patient, and thereby will identify the disciplines that may need to be involved in a thorough treatment plan. This organized checklist provides clinicians with a goal, thereby allowing treatment sequencing to be planned better. The case presented in the next section was planned using this form and shows its usefulness (**Figs. 11–26**).

The following case will illustrate how the smile evaluation form can be used as an adjunct to collecting pertinent information needed to properly diagnose the patient's needs and help organize the patients final treatment plan.

Fig. 11. Facial view.

Patient information
35-year-old Caucasian woman
Presented in March 2005
Very energetic and cheerful
Just bleached hair red in the past month (she is a natural brunette)
Reason for consultation
Chief Complaint: "One of my front left teeth has fractured on the edge and all
    my teeth look dull and are chipping."
History of the Chief Complaint: Fractured incisal edge tooth #10. No pain or sensi-
    tivity, but patient states that it feels "sharp and uncomfortable."
Initial consultation
Diagnosis and prevention
    Comprehensive history and examination
    Pulpal sensitivity testing
    Intraoral and extraoral photographs
    Diagnostic casts and mount
    Diagnostic wax-up

Intraoral Examination
Soft Tissue

- Lips:
  - WNL
- Labial and Buccal Mucosa:
  - WNL
- Palate and Pharynx:
  - WNL
- Tongue:
  - WNL
- Floor of Mouth:
  - WNL
- Saliva:
  - WNL
- Breath Odor:
  - Slight halitosis food lodged in gingival embrasures

Fig. 12. Embrasures, incisal, gingival, facial, and lingual have been altered from existing bonding.

- - Composite Bonding Facial of Max. and Mand. Anterior Teeth #'s 5-13 and #'s 22-27 (3 yrs. old)
- - MO, OL Amalgam #3
- - O Composite #2, 12, 15,
- - MO, OL Composite #14

NB Dark stains of Tetracycline

Fig. 13. Incisal/occlusal view provides excellent view of the modified facial and lingual embrasures. Also noted are the dark tetracycline stains that are masked by excessive composite on the facial surfaces.

Mandibular Region

- -#18   O Composite
- - #19   MOD Comp. and B Amalgam Fillings
- - #30 RCT, Post ,Core, Crown (PFM)
- - #31 Occlusal Amalgam Filling (Margins slightly discolored)

Fig. 14. Mandibular involvement of less concern.

Right Buccal View
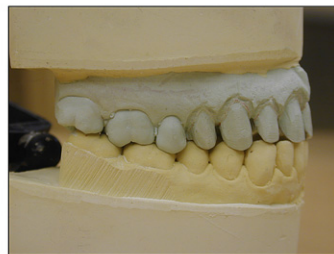
- #1, 32 missing
- Class I molar relationship
- Class I canine occlusion

Fig. 15. Occlusion is fairly stable on right side.

Right Periapicals and Bite Wings

- #2 Occlusal Comp. filling

- #3 MO, OL Amal. Fillings

- #30 RCT, P+C , PFM Cr.

- #31 O AMAL. filling

- Generalized bone loss slight WNL for 35 yr. old
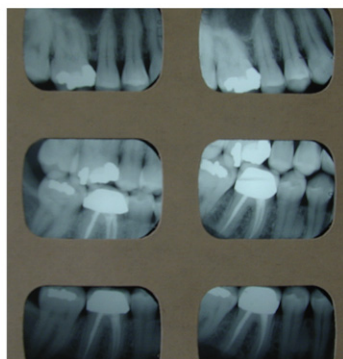
Fig. 16. Radiographic examination of right side normal with minor restorations present.

Left Buccal Region

- Class I canine occlusion

- Class I molar occlusion

Fig. 17. Occlusion on left side.

Left Periapicals and Bite Wings

- #12 O Composite

- #18 with Class II MO Composite restoration

- #19 MOD Composite Restoration and B pit restoration Amalgam

- #20 Mesial pit filled with Amalgam DO Composite restoration
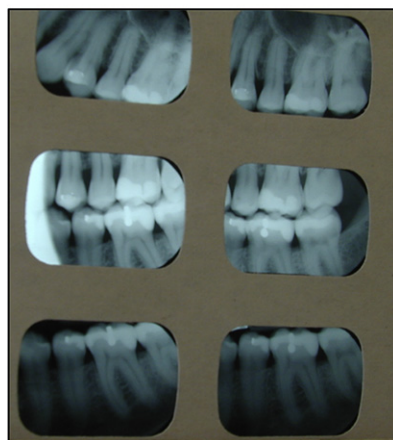
Fig. 18. Radiographic examination of left side with minor restorations present.

Orthodontic Evaluation

Fig. 19. Incisal edge shows distal shift #23.

      Oral hygiene Instruction
      Specialty consults: orthodontic and restorative
      Nutritional counseling
Medical history
Surgeries: None
Allergies: Penicillin
History of tetracycline use as a child
Social history
Single

Rotated Teeth
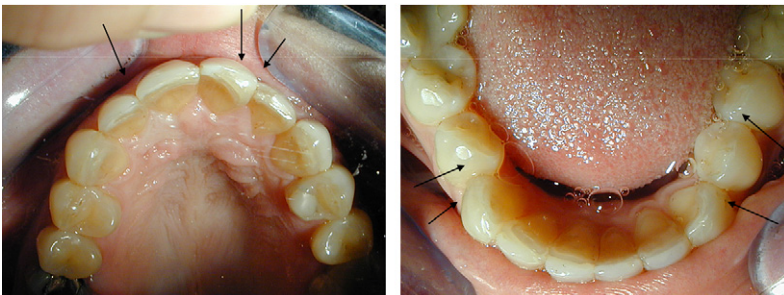
Fig. 20. Rotated teeth are identified. They have been treated with composite of differing thicknesses in order to improve the incisal appearance of the arch form.

Fig. 21. Completed Smile Evaluation Form with answers in blue.
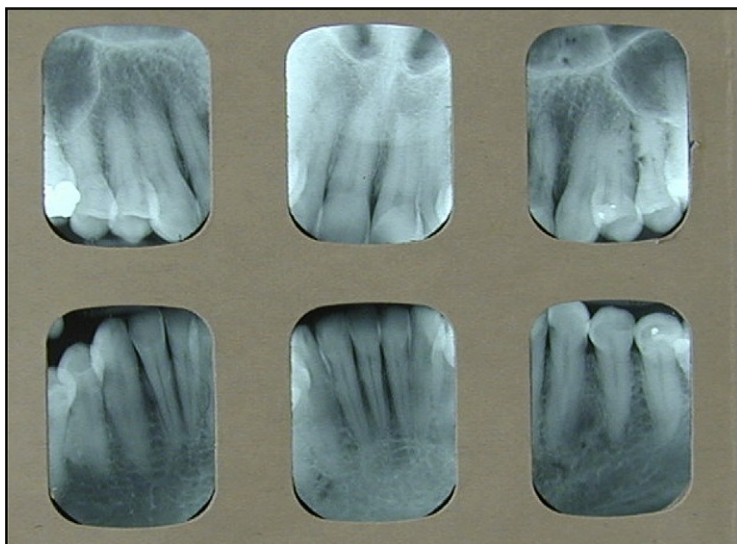
Fig. 22. Anterior radiographic examination normal.

Occlusal Evaluation

Midline
□ upper and lower midlines coincide with the facial midline
□ upper dental midline is deviated to the: R L (circle)
□ lower dental midline is deviated to the: R   L (circle)

Overbite
□ WNL [0-30%]   □ moderate [31-69%]   □ severe [70-100%]
□ Anterior Open Bite ____ mm   □ dental   □ skeletal

Over jet
□ WNL [1-2 mm]   □ moderate [3-5mm]   □ severe [> 5mm]

Maxillary		**Mandibular**	
□ Crowding □ Spacing ___ mm		□ Crowding □ Spacing ___ mm	

□ Anterior Cross bite: □ dental □ skeletal   □ functional shift
□ Posterior Cross bite: R   L (circle)
                                    □ dental   □ skeletal □ functional shift

Abnormal Function

O Digit sucking e.g. thumb   O Lip sucking/biting
O Object biting/sucking   O Mouth breathing
O Tongue Thrusting   O Clenching
O Grinding / Bruxism   O NONE
O Other _____

Lower Facial Height [Sn-Me]   **Naso-labial angle**
     O WNL O Excess O Deficient   O WNL O Acute O Obtuse

Classification of Occlusion / Malocclusion
O normal   O Cl I malocclusion   O Cl II Div 1   O Cl II Div 2   O Cl III

     Skeletal Pattern
     O Cl I   O Cl II   O Cl III

Fig. 23. Close up of occlusal component of the patient evaluation.

Fig. 24. Preoperative evaluation of the dental midline compared with the patient's facial midline. The dental midline is slightly offset to the patient's left in comparison to the facial midline.

Fig. 25. (*A*) Smile line, (*B*) axial inclination, and (*C*) gingival zeniths are examined. The normal lip line hides minor gingival zenith discrepancies.

Restorative Considerations?

Location of Tetra. Bands !
Color of Bands !
Stump Shade !

Should Bleaching be done first?

Should the preparation be Deeper ?

Type of Porcelain USED?
Opaquer Added?

Type of Cements USED ?

Fig. 26. Location of tetracycline (tetra) bands and their degree of darkness may have implications on depth of preparation and preferred material for final restoration.

Employed
Social drinker
Does not smoke
Dental-oral history
Last visit was 6 months before consultation
Mostly regular visits
Minor restorative work anterior (3 years ago)
　(composite bonding facial of maxillary and mandibular anterior teeth)
Extensive restorative work posterior
　MO, OL amalgam #3
　MO, OL composite #14
　MOD composite #19 with buccal amalgam pit
　O composite #2, #12, #15, and #17
　O amalgam #31
Root canal therapy, post, core, and crown (PFM) #31
Medications
Vitamin E
Extraoral examination
Appearance is well-groomed and neat
Skin, head, and neck: WNL
Muscles: WNL
Temporomandibular joint: WNL
Vitals
Blood pressure: 120/80
Heart rate: 67 beats per minute
Respiratory rate: 14 respirations per minute
Weight: 118 lb.

Porcelain Design

Fig. 27. Incisal view showing depth and finishing lines of the preparation design which in turn will affect arch form.

Can Still be Improved with Porcelain
Contouring and Diamond Polishing
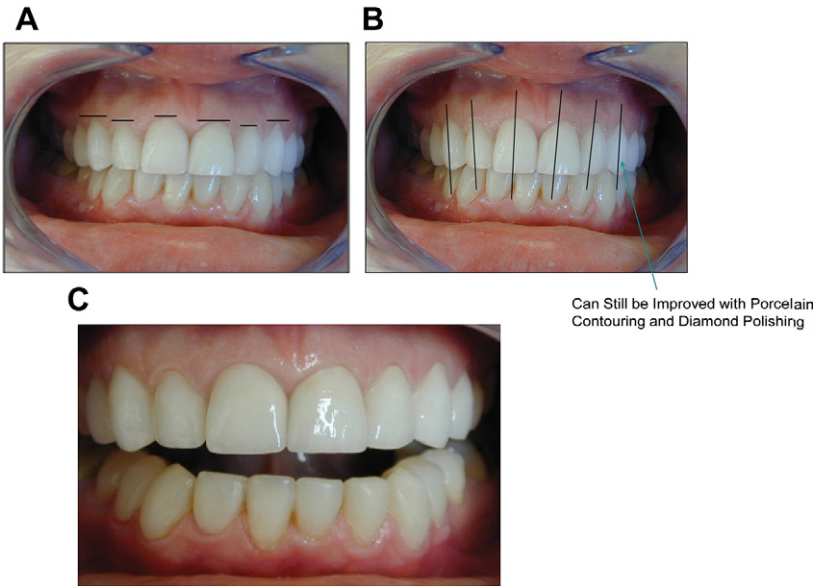
Fig. 28. Final restorations showing repair of the (*A*) gingival zeniths, (*B*) axial inclination, and (*C*) smile line.
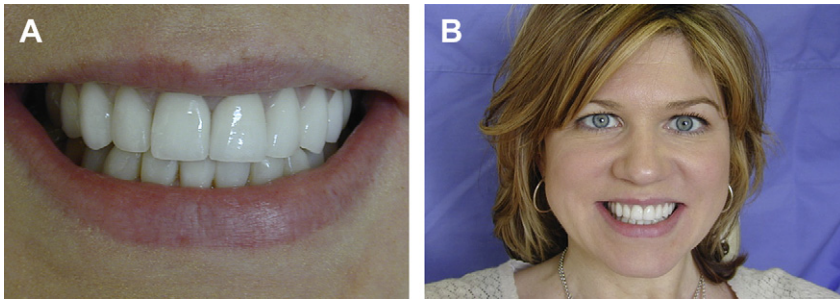
Fig. 29. (*A*) The dental and facial midlines are now coincidental. (*B*) Although the patient has red hair, a light shade of Vita B1 was selected. The literature has shown that individuals with red hair generally have yellow-orange tint in their natural dentition.

Problem list derived from Smile Evaluation Form
Occlusion
Possible labial shift
Oral hygiene
Fair to good
Esthetics
Generalized tooth discoloration (origin: tetracycline)
Anterior bonding: Overcontoured, discolored, and cracking
Plaque accumulation on rough surface of old bonding
Diagnosis
Broken down bonding
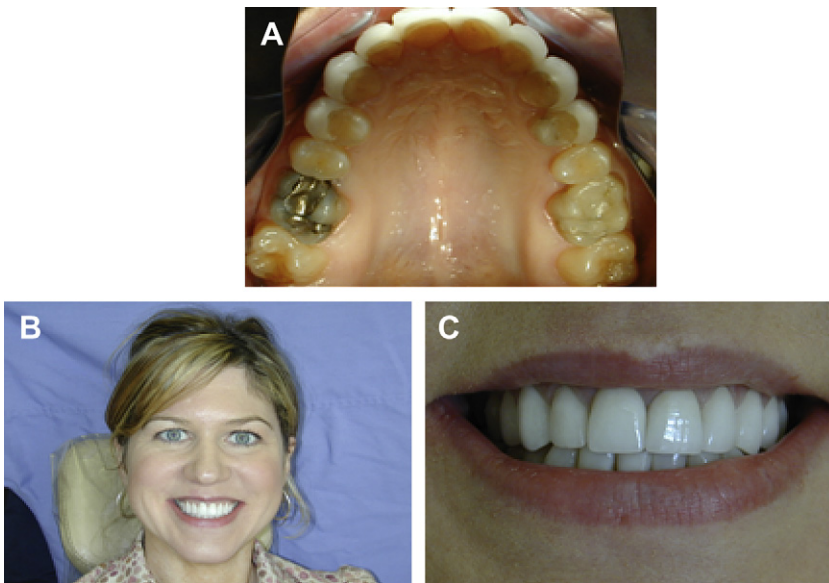
Fig. 30. (*A–C*) One-year recall of restorations. Patient changed to blond highlights in her hair.

NYU College of Dentistry Smile Evaluation Form

Patient Name: _____   **Chart #:** _____   **Date:** _____   **Faculty Start Sig:** _____   **#:** _____

Are you happy with the way your teeth appear when you smile?   **YES   NO**   (circle one)

If NO, what is it about your smile you would like to change?
_____

Patients requests and expectations: _____

Preferences: O White Aligned Teeth   O Natural Teeth with Slight Irregularities

Facial Analysis
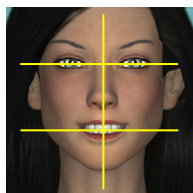
Lips
O Thick
O Medium
O Thin

Inter- Pupillary line
O Normal   O Slanted down   RT LT
Commissural line
O Normal   O Slanted down   RT LT
Facial midline
O Normal   O Off to Patients   RT LT
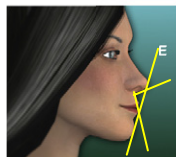
E- plane
O Max ___ mm
O Man ___ mm

Nasal-Labial
O > 90 degrees
O < 90 degrees
O = 90 degrees

Skeletal Pattern   **Profile**
O Skeletal Class I   O Normal
O Skeletal Class II   O Convex
O Skeletal Class III   O Concave

Occlusion/Orthodontic Evaluation

UFH/LFH
Lower Facial Height
[Sn-Me]

O WNL
O Excess
O Deficient

Abnormal Functions
O Digit sucking e.g. thumb   O Lip sucking/biting
O Object biting/sucking   O Mouth breathing
O Tongue Thrust Swallow   O Clenching
O Grinding / Bruxism   O Other _____
Midline
O Upper and lower midlines coincide with the facial midline
O Upper dental midline is deviated to the   **R   L**   (circle)
O Lower dental midline is deviated to the   **R   L**   (circle)
Overbite
O WNL [0-30%]   O Moderate [31-69%]   O Severe [70-100%]
Anterior Open Bite ____ mm   O Dental   O Skeletal
Overjet
O WNL [1-2 mm]   O Moderate [3-5mm]   O Severe [more than 5mm]

Maxillary   **Mandibular**
O Crowding   O Spacing   O Crowding   O Spacing
O Anterior Crossbite O Dental   O Skeletal   O Functional shift
O Posterior Crossbite **R** or **L**   O Dental   O Skeletal   O Functional shift

Classification of Occlusion/ Malocclusion
O Normal Occlusion   O Cl I malocclusion
O Cl II Div 1   O Cl II Div 2   O Cl

Phonetic Analysis

(M)

"M" Sound
Space between lips visible
Max _____ mm
Mand _____ mm

(E)

"E" Sound
Interlabial space occupied
by maxillary teeth
O <80%
O >80%

(S)

"S" Sound
O Normal
O LIps
O S - Sound Deficiency

(F V)

"F" & "V" Sounds
Max. Incisor in relation
to lower lip
Edge _____mm to lip

Swallowing
O Normal
O Abnormal

Fig. 31. Smile Evaluation Form side A.

Dentofacial Analysis
Horizontal and Vertical Components
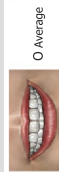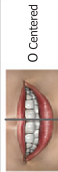
Tooth lower lip position
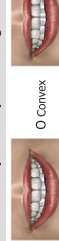
O Touching   O Not touching   O Slightly covered
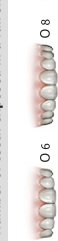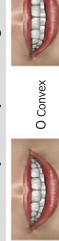
Lip line

O Normal   O LOW No ging. showing   O HIGH <2-3mm ging. seen
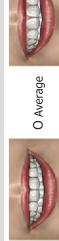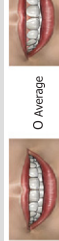
Midline – Relationship of central incisors to philtrum
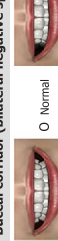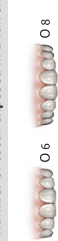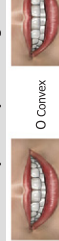
O Centered   O Off to pts. right   O Off to pts. left

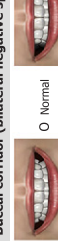**Midline – Canting to right or left**

O Normal   O To pts. right   O To pts. left
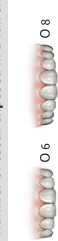
Teeth exposure during physiologic rest position

O Average   O Full   O Little or no exposure
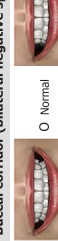
Smile line (maxillary incisal edge relation to superior border of lower lip)

O Convex   O Straight   O Reverse

Number of teeth exposed in a full smile

O 6   O 8   O 10   O 12

Buccal corridor (bilateral negative space)

O Normal   O Deficiet   O Full

Anterior Teeth Analysis

Mark any irregularities on the diagram for maxillary dentition

Mark any irregularities on the diagram for mandibular dentition

MAXILLARY TEETH	Axial Inclination
Drawing Checklist:	O Normal O Abnormal
Facial Contour O Normal O Abnormal	Tooth Spacing O WNL O Crowded O Diastemata
Golden Proportion O Normal O Abnormal	Gingival Zenith O Normal O Irregular
Incisal Embrasures O Normal O Abnormal	Gingival Papilla O Normal O Blunted Gingival Biotype O Thick O Thin

MANDIBULAR TEETH	Axial Inclination
Drawing Checklist:	O Normal O Abnormal
Facial Contour O Normal O Abnormal	Tooth Spacing O WNL O Crowded O Diastemata
Golden Proportion O Normal O Abnormal	Gingival Zenith O Normal O Irregular
Incisal Embrasures O Normal O Blunted	Gingival Papilla Gingival Biotype O Thick O Thin

Fig. 32. Smile Evaluation Form side B.

Generalized mild gingivitis from rough and overcontoured
   bonded surfaces
Slightly compromised function
Prognosis
Good to excellent
Patient is very motivated to see treatment through
Patient expressed interest in receiving oral health care and
   will pay for treatment recommended
Realistic treatment plan for this patient
Patient does not want orthodontic option and
   prefers maxillary veneers
Restorative considerations
Should bleaching occur first
At-home bleaching performed for 3 weeks
Should the preparation be deeper
Less preparation is required in a young patient
Type of porcelain used/should opaque be added to this porcelain
Opaque added to Feldspathic porcelain
Type of cements used
TPH Spectrum white opaque composite
Location and color of tetracycline bands, and stump shade
Stump shade (shade of the prepared tooth) and a digital
   photo of the prepared teeth sent to laboratory technician.

DISCUSSION OF RESTORATIVE CONSIDERATIONS

Bleaching of mild or moderate tetracycline cases before preparation and final impression is often considered practical because it may negate the need for masking by the ceramist. If this occurs with traditional at-home bleaching, the effect will last longer and should not affect long-term change in final color of the restoration. Because tetracycline discoloration is found in the dentin layer of a tooth, deeper preparation will expose a darker layer. Clinicians must gauge the value of this reduction compared with what will be achieved in the masking resulting from the added thickness of the final restoration. The author believes that it is better to do more in the ceramic and less in tooth reduction, especially in younger patients. Using a more opacious porcelain can be of great value in these cases, and an experienced laboratory will be able to mask even the darkest tetracycline stains if they are given a stump shade showing the prepared color of the tooth and a digital image of the location of the bands of discoloration. After a last check, the final color of the restoration may be adjusted with the cement being used. This final adjustment can affect as much as a shade or two change in value depending on the degree of opacity introduced, which will impart a less-esthetic result, because the closer the clinician is to the ceramic with an opaque cement, the more of a headlight effect may be imparted to the final shade (**Figs. 27–30**).

SUMMARY

The authors have introduced a Smile Evaluation Form to help clinicians handle difficult esthetic cases (**Figs. 31** and **32**). This form is currently in use in the New York University College of Dentistry's clinics and is taught in the first- and second-year preclinical courses. This form is considered modifiable and the authors are open to critical suggestions for improvement.

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