"The dentist who wants to create a smile design must closely observe the intact smile, the dominant position of the maxillary central incisors, and the art of the esthetic integration of the maxillary incisors in proper proportion to the face. The patient will exhibit a pleasing smile only when the quality and health of the gingival and dental elements, together with the relation between teeth and lips, are harmoniously adapted to the face."


---

**Definition**

Components of the Smile

- Teeth
- Gingival Scaffold
- Lip Framework


---

**Classification of Upper Lip Lines**

- High
- Medium
- Low
Smile Design Principles

- Central incisors
- Mid-line
- Axial inclinations
- Arch form
- Smile arc
- Gingival height symmetry and zenith placement
- Contact points and embrasure form
- Gradation
- Buccal corridors
- Golden proportion
- Balance and symmetry

Evaluate principles individually and with respect to what would be:
- Ideal
- Acceptable
- Unacceptable (unaesthetic)

Central Incisors

- Incisal Edge Position
- Individual tooth proportion

“The incisal edge of the maxillary central incisor is the most important determinant in the creation of a smile. The position of the incisal edge acts as the parameter upon which the rest of the treatment is built.”

Tooth Display at Rest


Evaluation of Intra-oral Mock-ups and Provisional Restorations

The Three F’s

• Facial esthetics
• Function
• Fonetics (phonetics)
**Individual Tooth Proportion**


<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5</td>
<td>8.5</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>9</td>
<td>1.22</td>
</tr>
<tr>
<td>9</td>
<td>6</td>
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<tr>
<td>65%</td>
<td>77%</td>
<td>0.85</td>
</tr>
<tr>
<td>94%</td>
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</table>

**Length to Width Ratio of Central Incisors**

<table>
<thead>
<tr>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>13</td>
<td>8</td>
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<tr>
<td>12</td>
<td>8.5</td>
<td>1.4</td>
</tr>
<tr>
<td>9</td>
<td>6.5</td>
<td>1.36</td>
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</table>

<table>
<thead>
<tr>
<th>Length (mm)</th>
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<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.8</td>
<td>6.5</td>
<td>1.36</td>
</tr>
<tr>
<td>8.5</td>
<td>7</td>
<td>1.13</td>
</tr>
<tr>
<td>9.2</td>
<td>6.5</td>
<td>1.42</td>
</tr>
</tbody>
</table>

<table>
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<th>Length (mm)</th>
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</tr>
<tr>
<td>9.2</td>
<td>6.5</td>
<td>1.42</td>
</tr>
</tbody>
</table>
Reasons for Increasing Incisal Length

- Worn incisal edges
- Inadequate tooth display
- Unesthetic tooth proportions

Smile Design Principles

- Central incisors
- Mid-line

Facial Midline

Dental Midline

Smile Design Principles

- Central incisors
- Mid-line
- Axial inclinations

Correcting Axial Inclinations

Smile Design Principles

• Central incisors
• Mid-line
• Axial inclinations
• Arch Form

Arch Form

Ovoid (U-Shape)
Tapered (V-Shape)
Square
Direct vs. Indirect Intra-oral Composite Mock-up Technique

Smile Design Principles

• Central incisors
• Mid-line
• Axial inclinations
• Arch Form
• Smile arc

The Smile Arc

“The ideal smile arc has the maxillary incisal edge curvature parallel to the curvature of the lower lip upon smile.”

Sarver DM. The importance of incisor positioning in the esthetic smile: the smile arc. AJODO 2001; 120: 98-111
Flattening of the Smile Arc in Orthodontically Treated Cases

- Intrusion of maxillary incisors
- Bracket positioning
- Proclination of anterior teeth to accommodate crowding without extraction
- Arch expansion to broaden the smile


Flattening of the Smile Arc in Non-Treated Cases

- More vertical growth in posterior maxilla
- Skeletal patterns
- Habits
- Anterior tooth wear

Smile Design Principles

- Central incisors
- Mid-line
- Axial inclinations
- Arch Form
- Smile arc
- Gingival height, symmetry and zenith placement
Options for Treating Gingival Asymmetry

- Gingival recontouring (gingivectomy)
- Crown lengthening with osseous surgery
- Orthodontic intrusion or extrusion
- Gingival graft

Biologic Width


Biologic Zone

### Excessive Gingival Display

<table>
<thead>
<tr>
<th>Gummy Smile</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Short philtrum height</td>
</tr>
<tr>
<td>• Hypermobile lip</td>
</tr>
<tr>
<td>• Vertical maxillary excess</td>
</tr>
<tr>
<td>• Compensatory eruption</td>
</tr>
<tr>
<td>• Anterior dentoalveolar extrusion</td>
</tr>
<tr>
<td>• Altered passive eruption</td>
</tr>
</tbody>
</table>

### Benefits of a Mock-Up

<p>| |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>• Can help determine incisal edge position</td>
</tr>
<tr>
<td>• Can help to establish proper arch form</td>
</tr>
<tr>
<td>• Can serve as a guide for gingival height</td>
</tr>
<tr>
<td>• Symmetry, tooth proportion, and facial</td>
</tr>
<tr>
<td>• Will aid in evaluating aesthetics,</td>
</tr>
<tr>
<td>• Function, and phonetics</td>
</tr>
<tr>
<td>• Can be used as a template for</td>
</tr>
<tr>
<td>• Provisionals in the absence of a wax-up</td>
</tr>
<tr>
<td>• Can be beneficial for laboratory</td>
</tr>
<tr>
<td>• Communication and patient feedback</td>
</tr>
</tbody>
</table>

### Smile Design Principles

<p>| |</p>
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<td>• Smile arc</td>
</tr>
<tr>
<td>• Gingival height</td>
</tr>
<tr>
<td>• Symmetry and</td>
</tr>
<tr>
<td>• Zenith placement</td>
</tr>
<tr>
<td>• Contact points</td>
</tr>
<tr>
<td>• And Embrasure</td>
</tr>
<tr>
<td>• Form</td>
</tr>
</tbody>
</table>
Contact Points and Embrasure Form

Intercres
tal bone

Contact area

Relationship of papilla height and the distance from the interdental contact area to the crestal bone

Lengthening the interdental contact area to close dark triangles


Smile Design Principles

- Central incisors
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- Gradation

Gradation

Smile Design Principles

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- Buccal corridors
- Golden proportion

Buccal Corridors


Golden Proportion

Recurring Esthetic Dental (RED) Proportion

The proportion of the successive widths of the teeth as viewed from the frontal aspect remains constant as you move distally in the arch. The dentist may use a proportion of their choice as long as it remains consistent while moving distally.

Smile Design Principles

- Central incisors
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- Arch Form
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- Balance and symmetry


Levin EL. Dental esthetics and golden proportion. J Prosthet Dent 1978; 40:244-252