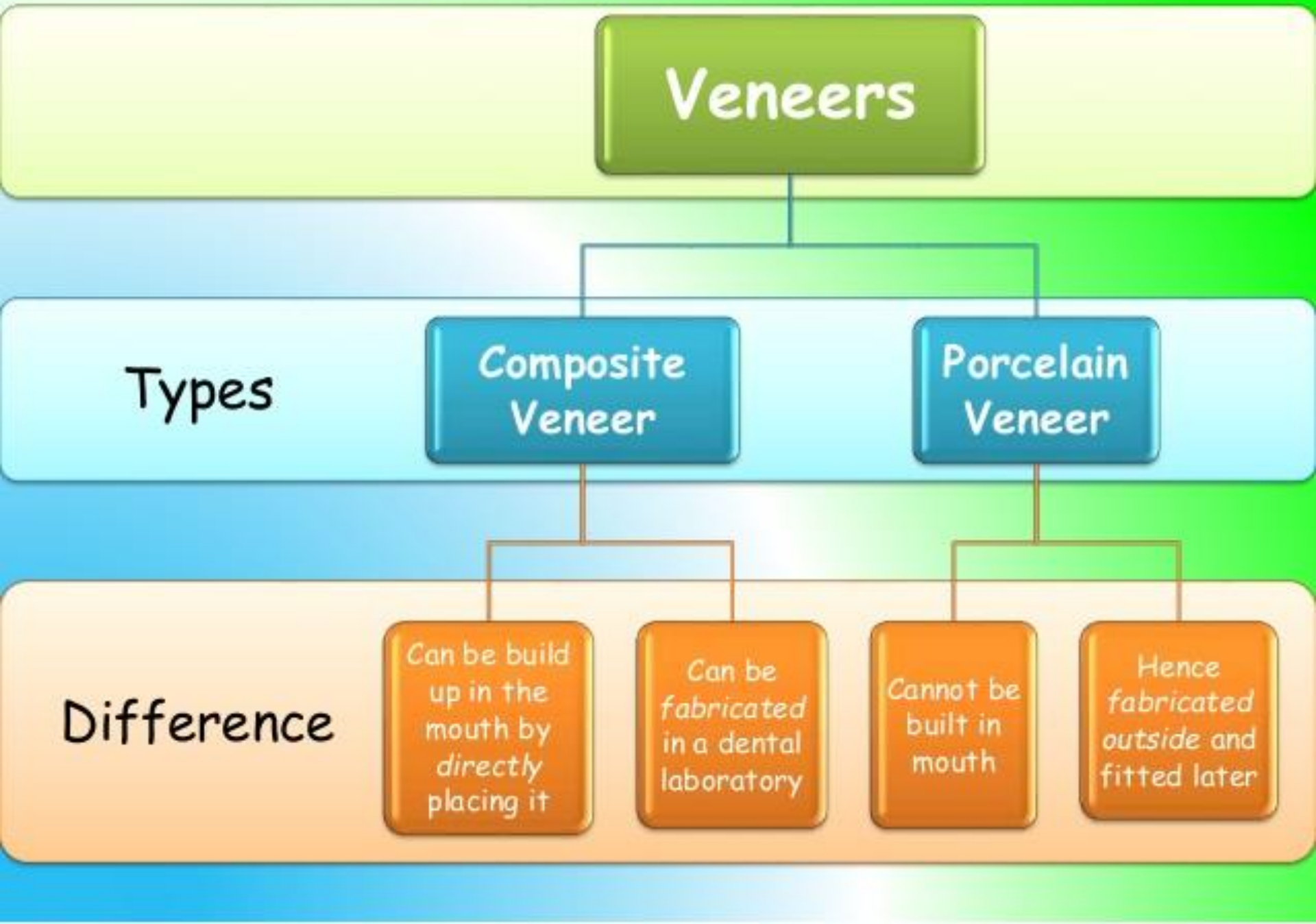

In the name of GOD

Anterior composite veneer


Veneers
Types
Composite Veneer
Porcelain Veneer
Difference
Can be build up in the mouth by directly placing it
Can be fabricated in a dental laboratory
Cannot be built in mouth
Hence fabricated outside and fitted later

Composite Veneers

- One visit procedure
- Less expensive
- Repair potential
- Chair-side control of the anatomy
- Minimal irreversible loss of tooth structur

Porcelain Veneers

- Esthetic stability
- Stain resistant
- Stronger and durable
- Gum tissue tolerates porcelain well
- The color of a porcelain veneer can be selected such that it makes dark teeth appear whiter.
- Veneers offer a conservative approach to changing a tooth's color and shape.

Dental esthetic imperfections

- Color :stain, craze lines, dentin exposure, aging, wear ,…
- Position: Diastema, rotations, tipping of teeth, crowding, supra eruption, intrusion of teeth
- Shape: Fracture, crack, wear, hypoplasia, macrodontia, microdontia, peg shape, dilacerations,…

Indications

- Extending incisors
- Malposition
- Cosmetic correction
- Discoloration

Indication

- Anatomical malformation
- Diastema

Components of a Smile

- Lips: Frame of your smile
- Midline:
- Smile line**:** the edges of your upper teeth should be parallel to your lower lip when you smile.
- Teeth: white, unstained, straight, evenly spaced with no gaps between them and not crowded or overlapping.

Teeth

- Incisal (Biting) Embrasures
- Color
- Tooth proportion:
- Tooth Texture and Characterization:
- Teeth Angulations: Symmetry

Individual Tooth Length and Proportion

- The ratio of height (10-11mm) to width in the maxillary central incisor should be approximately 1.2
- In other words, the width of the central incisor should be approximately 75-80% of its height.

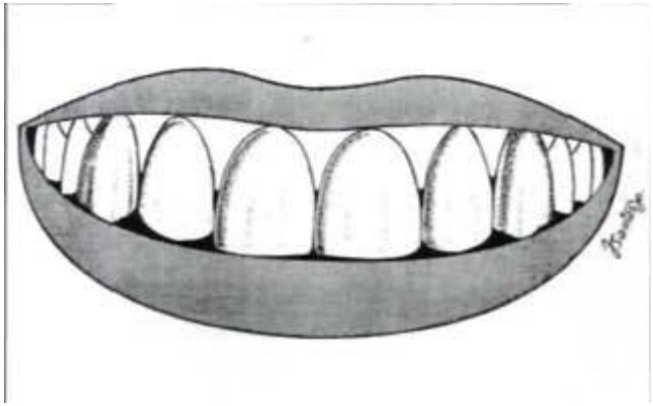
Tooth-to-Tooth Proportions

- Golden proportion seldom occurs in natural teeth
- Width of the maxillary central incisor to the lateral incisor with caliper: 1.2-1.0

Esthetic zone

- All the hard & soft tissues that are visible when the patient makes a broad smile

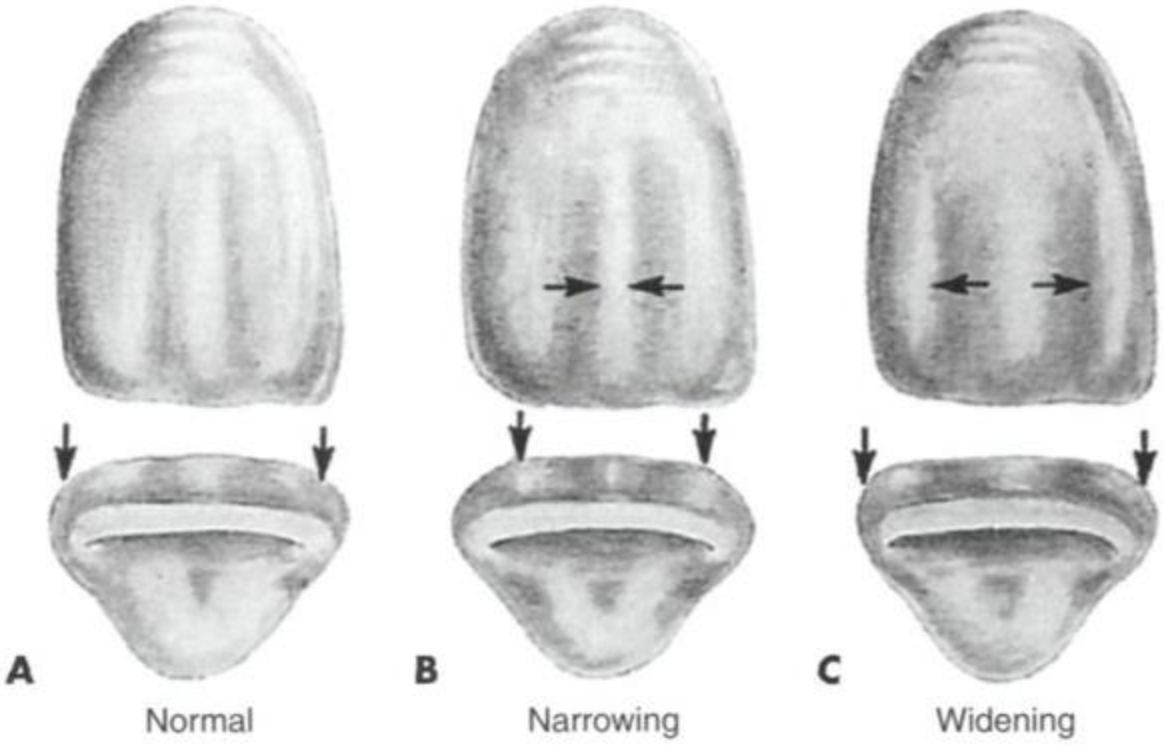
- Smile line (Low, Medium, High)
- Width of smile (10 teeth)
- Smile arc (curvature of the lower lip and incisal plan): convex, flat, reverse (worn teeth)
- Midline



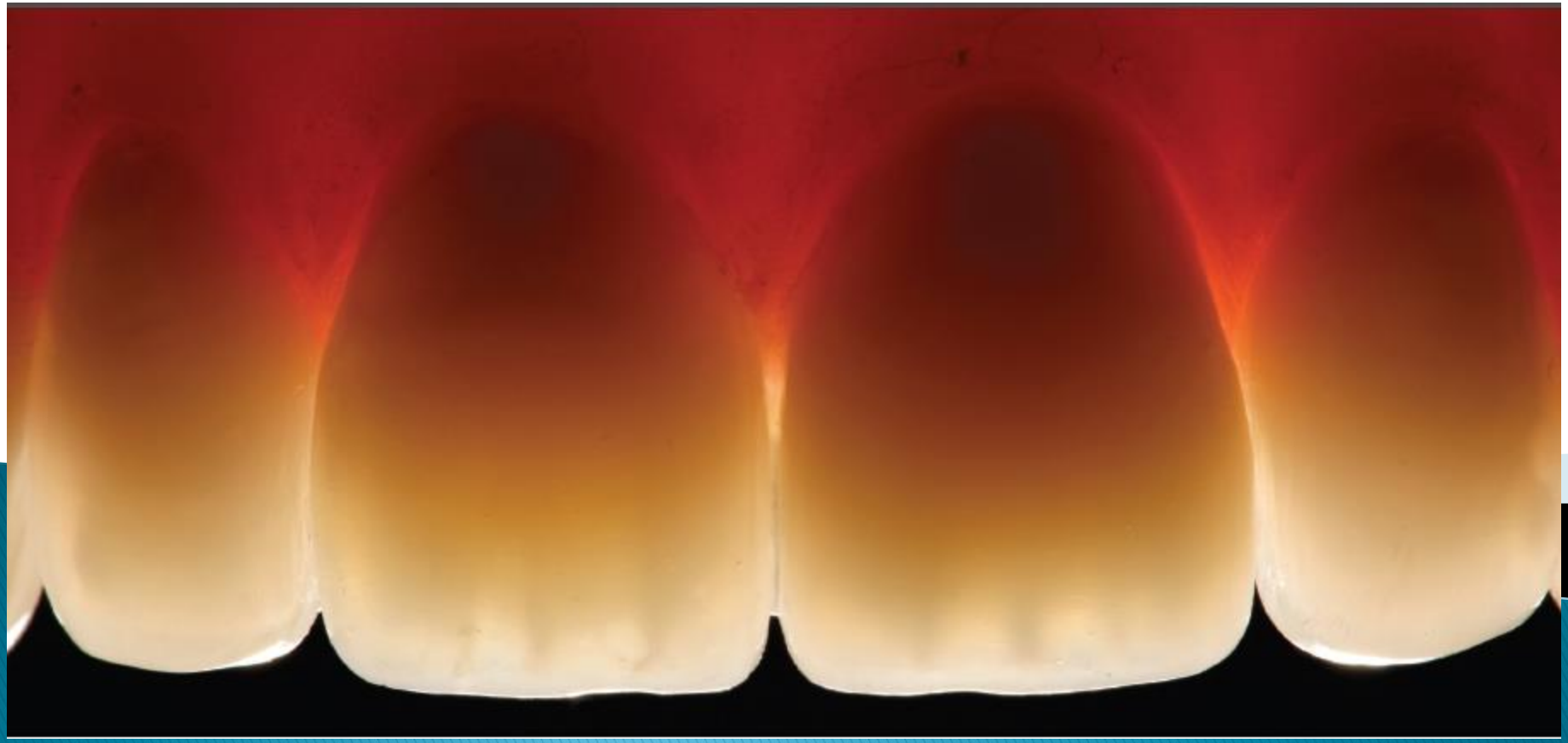
Law of the Face

- To make teeth of dissimilar widths appear similar, the apparent faces should be made equal.

- To make an anterior tooth appear wider, the transitional facial line angles are moved into the interproximal facial embrasures.


A
Normal
B
Narrowing
C
Widening

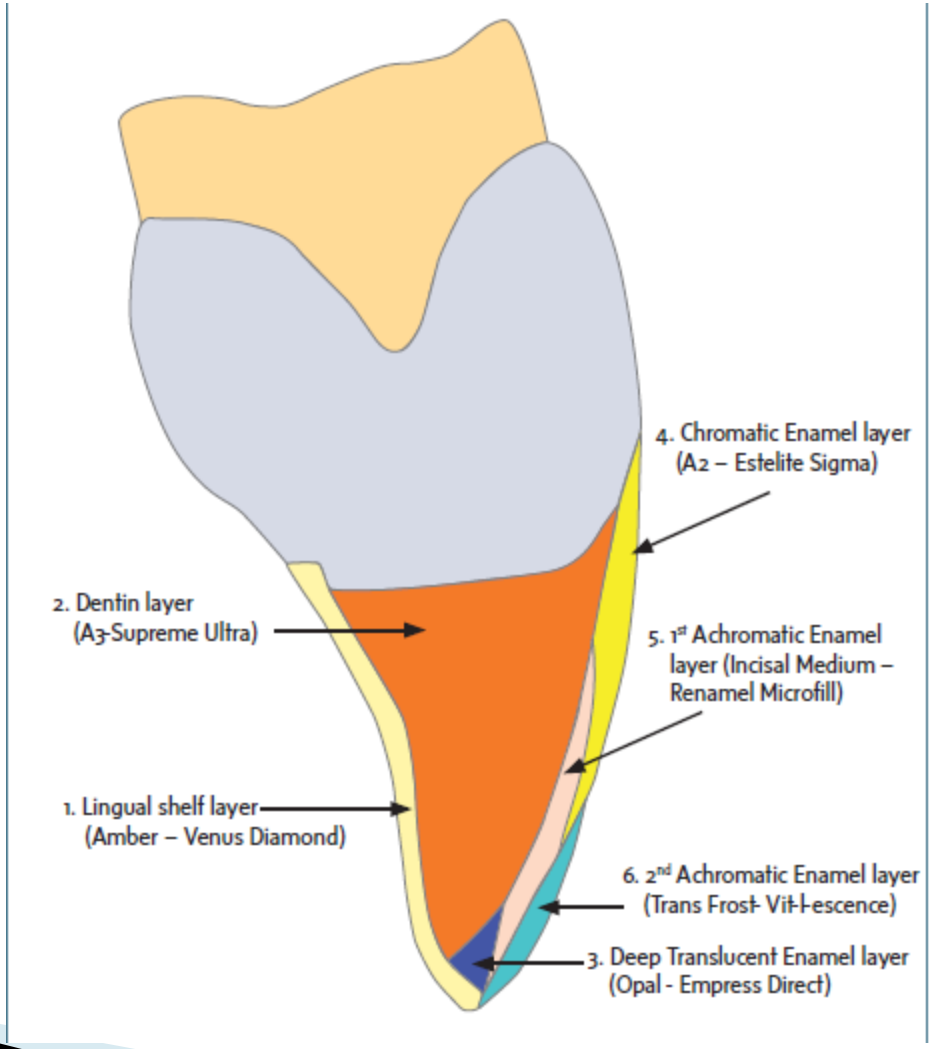
Direct veneer composite

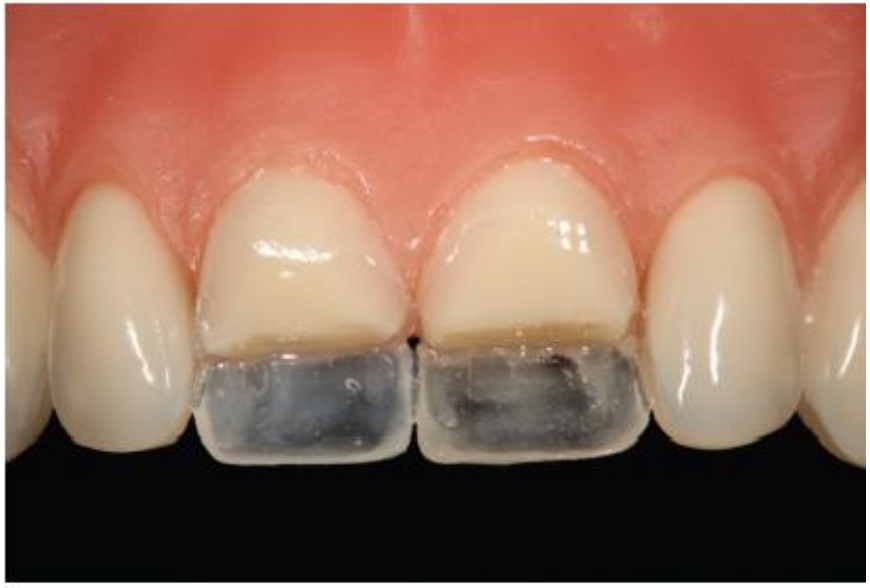


veneer

- Muck up
- Silicone matrix
- Tooth preparation

Figure 2: A properly trimmed silicone matrix made on a waxed-up model is key for establishing a three-dimensional blueprint for layering composite increments.


4. Chromatic Enamel layer
(A2 – Estelite Sigma)
2. Dentin layer
(A3-Supreme Ultra)
5. 1st Achromatic Enamel
layer (Incisal Medium –
Renamel Microfill)
1. Lingual shelf layer
(Amber – Venus Diamond)
6. 2nd Achromatic Enamel layer
(Trans Frost- Vit-l-escence)
3. Deep Translucent Enamel layer
(Opal - Empress Direct)



Dentin application

Translucent enamel application

- To create natural opalescence and deep translucency around and in between the mamelons

Figure 7: Translucent effect enamels were used on both teeth to create natural opalescence and deep translucency around and in between the mamelons.

Figure 10: An achromatic enamel was placed over the lobes to promote higher opacity and color value.

- Because A3 dentin was used under the enamel , Pearl frost & Trans frost enamel were applied to the proximal & center lobes, to bring the A3 shade to the required A2

Figure 12: To render the proximal lobes, a microfill shade of the same optical characteristics as those of the hybrid composite used on #8 was placed on #9.

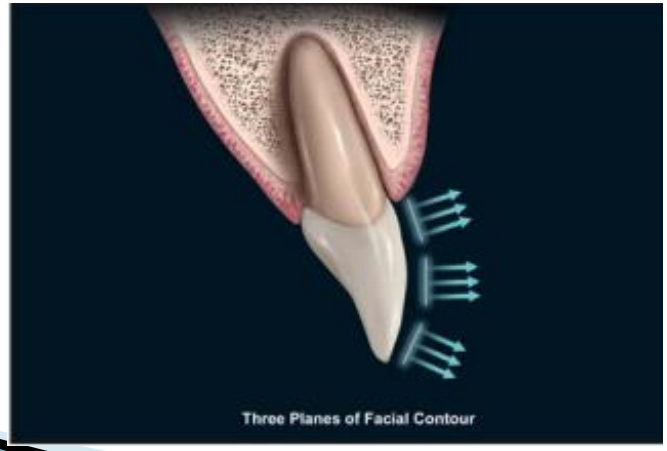
Finish & polish

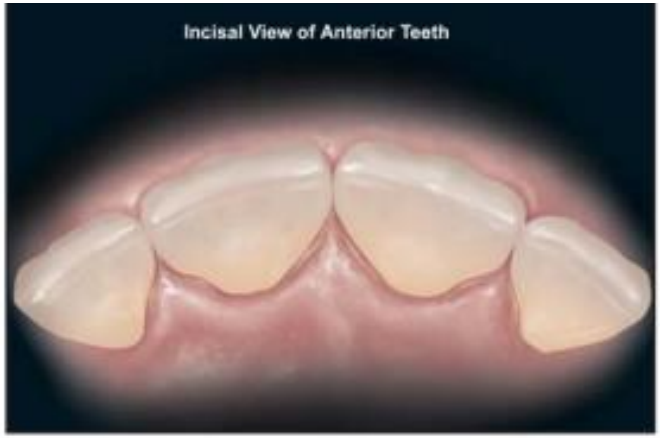
- The first step in finishing and polishing is establishing primary tooth anatomy (ie, the basic contour or shape of the tooth) using a coarse disk

Figure 17: The transitional line angles were worked and the embrasures opened until symmetry was achieved.

Primary anatomy

- The facial contour can be developed using rotary instrumentation to ensure that the tooth has three planes. The tooth surface should not be completely flat or totally rounded

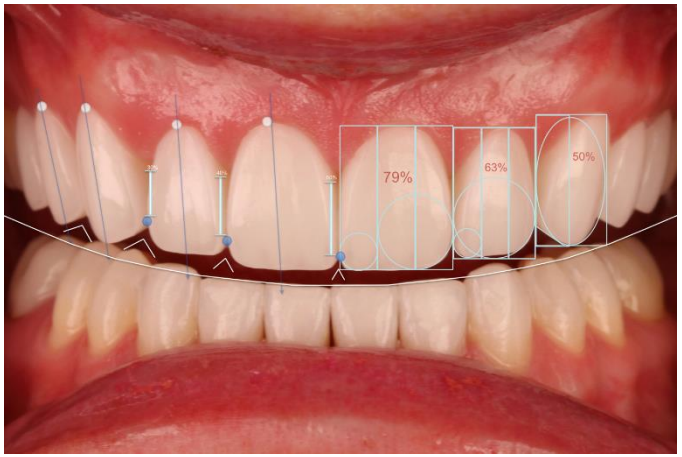




Primary anatomy

- The incisal plane of the facial aspect is the final region that should be finished.

- The definitive contour of the embrasure spaces can then be refined. The incisal embrasure should increase distally from the central incisor.



Secondary anatomy

- Once the primary anatomy is established, the secondary anatomy can be created by tracing the heights of contour on the adjacent tooth structures.
- When the adjacent tooth is not ideal, then the estimated position of the line angles can be traced out in pencil

Tertiary anatomy

Textured surface: youthful appearance that is characterized by surface irregularities)/fine diamond bur can be used at a low speed / medium rubber cup, a fine rubber cup, and a felt buff wheel with a polishing paste

Figure 18: Anatomy mapping was penciled in on the centrals to aid in attaining proper tooth morphology during finishing.

Figure 19: Secondary anatomy was achieved with a flame-shaped, diamond bur to reduce volume and emphasize the proximal lobes.

Tertiary anatomy

- Smooth surface: If adjacent teeth are very smooth and possess minimal characterization, the complete disk sequence (ie, coarse, medium, fine, and super-fine) can be applied to ensure optimal surface luster.

Figure 21: Worn blunt rubber rotaries were used to eliminate undesirec texture and to impart a smoother appearance.

Surface texture

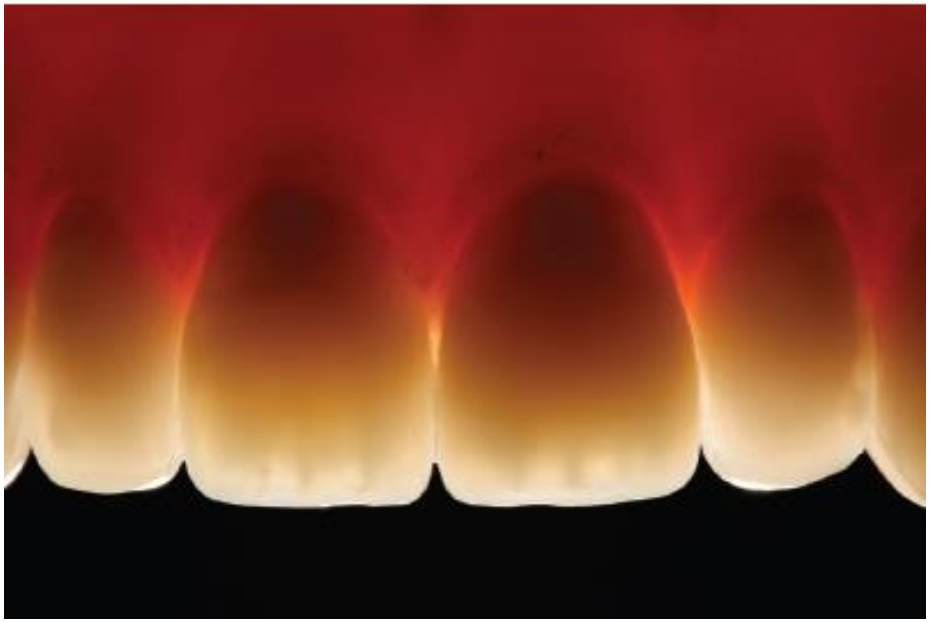
- A tapered, round-end carbide bur is used to create the perikimata

- Polishing paste can then be applied with the buff wheel to recreate the high polish.
- The small uniform scratches will remain to provide a more natural appearance

Figure 22: Specialized chamois and cotton wheels were used in the polishing steps to produce an enamel-like gloss.

Figure 23: Felt disc and aluminum oxide paste finalized the polishing, bringing the restorations to a smooth and glossy surface.

Figure 24: The finished restorations presented identical color and optical characteristics and were indistinguishable from the surrounding dentition.



finish & polish

- Improper surface finishing ⟶ plaque accumulation, gingival inflammation, periodontal problems, demineralization of enamel, staining, caries, and poor esthetic.

- Even 0.3 µm of surface changes can be easily detected from the tongue tip.

filler load and size

- various types of composites with different filler load and size have been developed to provide smooth surface finish and improve composite strength such as :

- microfill (particle size 0.002–0.04μm), hybrid (0.6–1.0 μm), and nanofilled (20–75 nm).

Final finish of the composite restoration

- depends on:
- particle size, filler load
- degree of hardness
- polishing material used
- Resinous and filler components of composites respond differently to abrasive agents because of difference in hardness.

finishing and polishing devices

- Wide variety of finishing and polishing devices are :

- aluminum oxide coated abrasive (sof-lex, super snap), silicone disc, tungsten carbide finishing burs, abrasive impregnated rubber cups, abrasive strips, diamond rotary instruments, and polishing pastes

- The hardness of aluminum oxide is significantly higher than that of silicon dioxide.

- Aluminum oxide and diamond pastes produce smooth surfaces, whereas diamond points can produce surface scratches

soflex disks

- Sof-lex products are flexible, color coded (dark-to-light shade from coarse-to-fine grits) discs made up of Aluminum oxide coated with polyurethane

Soflex disks

- They are available as
- coarse (40 µm), medium (24 µm) and fine (8 µm) grit sequence.
- Sof-lex is multistep finishing and polishing system used in dry field for finishing and polishing under light pressure

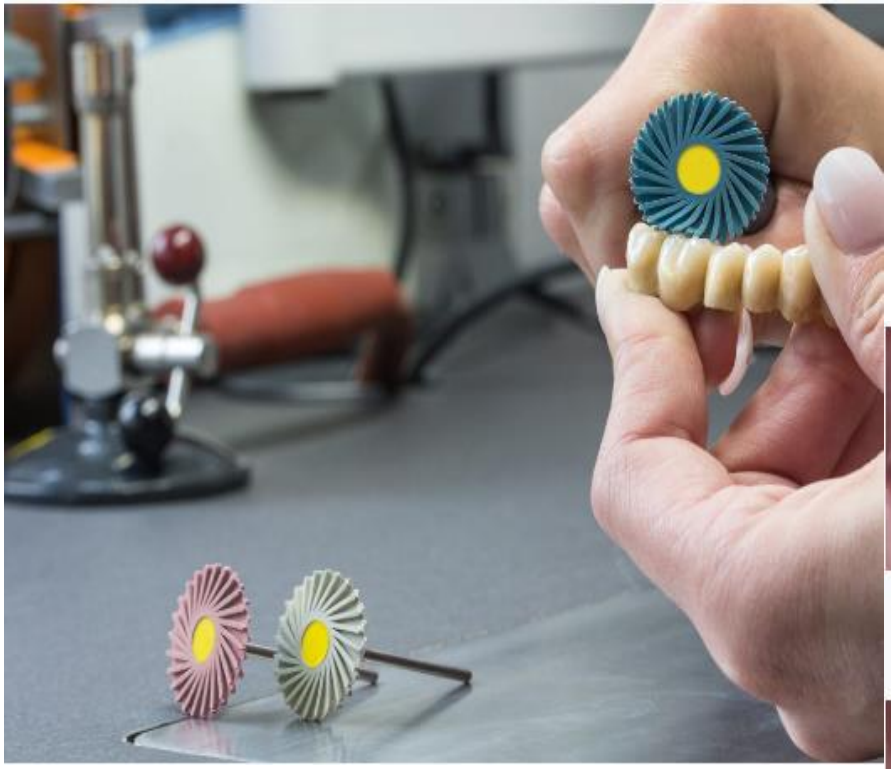
Soflex disks

- Disc composition in medium- and fine-grain allows the creation of a smooth surface and the removal of irregularity on the surface of the resin composite

- OptraPol (one-step system) are single step polishing system made up of special mixture of silicones

- Astrobrush is based on the integration of silicone carbide in special fibres (Ivoclar vivadent, AG, Liechtenstein)

Eve polishing disks



Okklusal

Inzisal

Labial

Bukkal

Lingual

Approximal

- Diamond polishers are useful for all types of composites including hybrid composites. It reduces polishing time. Diamond bur system uses ultrafine diamonds.

- Multi-tufted Carbide bur uses Tungsten carbides as abrasives. Carbide burs with 10-30 blades (safe end) produce smooth surface finish before polishing

color aspects

Figure 1: Displeasing composite veneer on tooth #8

Figure 2: Preoperative view showing lack of luminosity.

Facets of color design

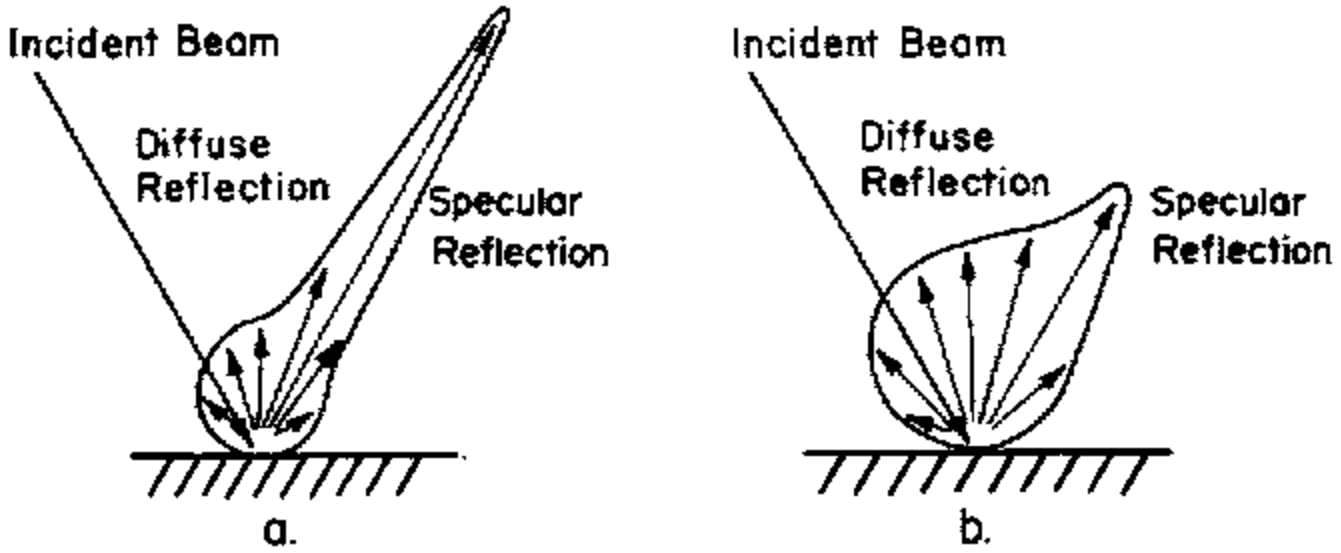
- Hue
- Chromacity
- Form
- Surface texture
- Translucency
- Luminosity

High gloss

- In order to maintain or improve the aesthetic appearance of a restorative material, it is essential that the surface roughness is equal to or less than the roughness of tooth enamel.
- appearance of an anterior restoration is also influenced by the degree of gloss on the surface after polishing. This is associated with the amount of light that is reflected by the biomaterial itself

Gloss

- The higher the surface roughness, the greater the light scattering effect, and the lower the gloss of the observed sample.



a. High gloss. b. Low gloss

High-Gloss Surface Polish

- Development of a high-luster polish depends on the composite's particle size.
- Microfilled and nanofilled composites are easy to polish.
- Hybrid composites (and, to a lesser extent, microhybrids) are more difficult to polish

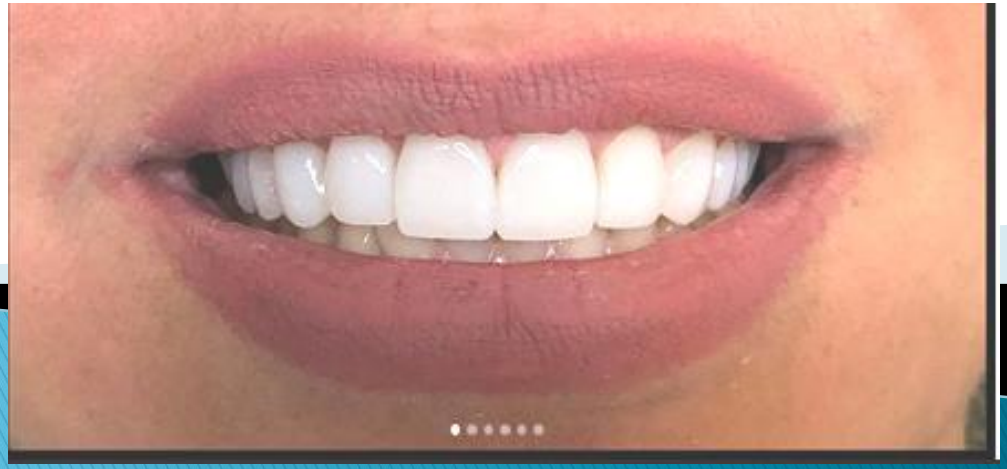
- The buff wheel and polishing paste can be applied to develop an "enamel like," high-gloss surface polish.

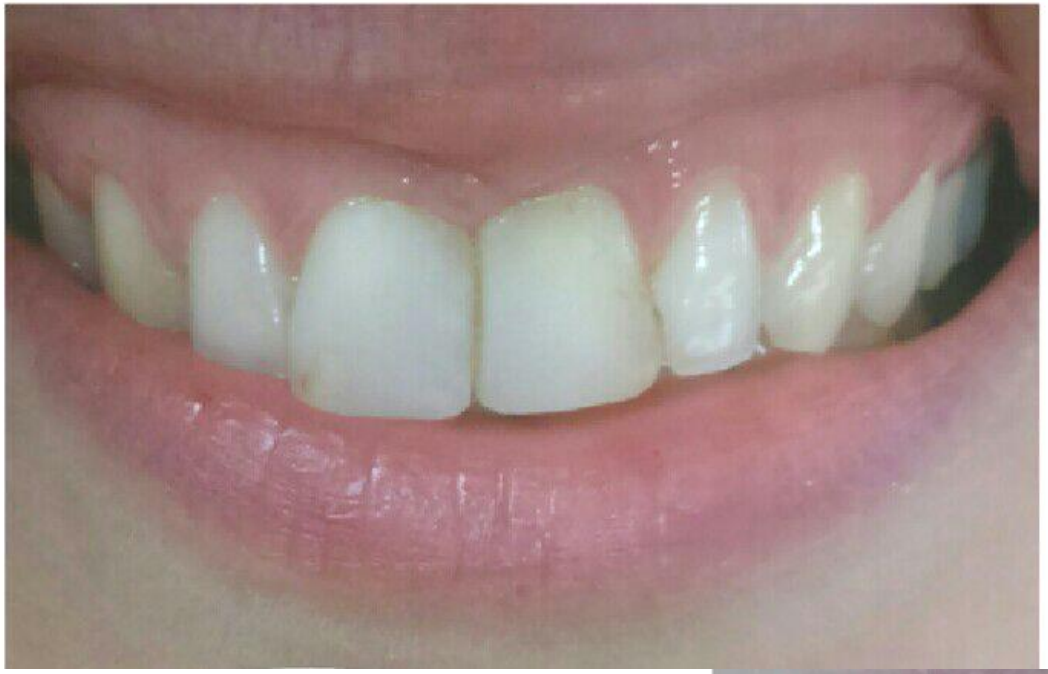
Literatures

- several studies showed aluminum abrasive polishing disc produced better results for most types of resin-based composites compared with other polishing instruments.[1,2]
- Polishing time was key factors to influence polishing outcomes. For resin-based composite, Jones et al. recommended 25 s per step for Super-snap, which was another widely-used aluminum polishing disc system.[3]
- Microhybrid composite presented lower gloss values than nanofilled and nanohybrid resin composite. gloss is affected by filler size distribution, refractive index of fillers, viscosity and refractive index of resin matrix.[4]

- 1. ST-PIERRE, et al. Influence of polishing systems on surface roughness of composite resins: polishability of composite resins. *Operative dentistry*, 2019, 44.3: E122-E132.
- 2. Carrabba M, Vichi A, et al. effect of finishing and polishing on the surface roughness and gloss of feldspathic ceramic for chairside CAD/CAM system. Oper Dent 2017;42:175-84.
- 3. Jones CS, Billington RW, et al. Laboratory study of loads, speeds and times to finish and polish direct restorative materials. J Oral Rehabil 2005;32:686-92
- 4. Lu Zhang, Peng Yu*, Xiao-Yan Wang. Surface roughness and gloss of polished nanofilled and nanohybrid resin composites. J Dent Scie
- 2021;16(4):1198-203

Case presentation





Tooth Preparation

Composite layering process

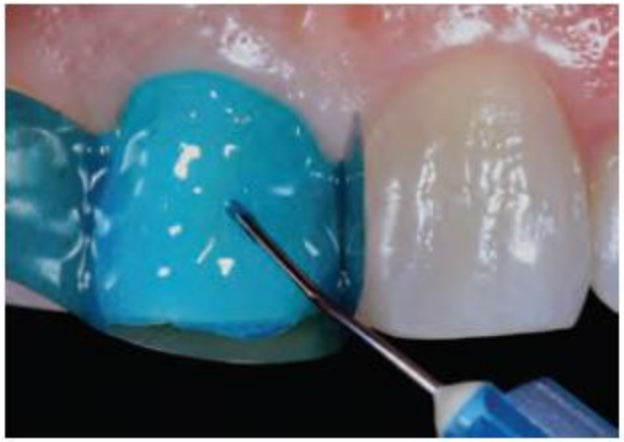


Figure 11: Etchant applied.

Figure 12: Frosty-looking dentin.

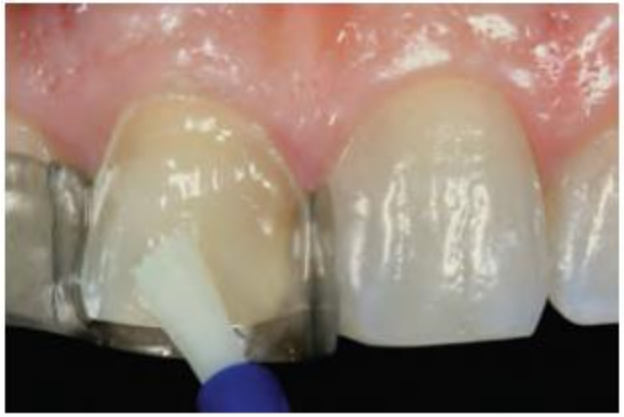


Figure 13: Dentin bonding agent applied.

Figure 14: Application of DA2 composite.

Composite layering process

Figure 15: Composite characterization.

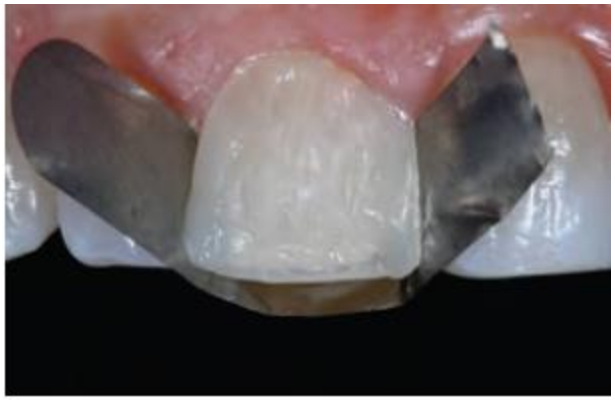


Figure 16: High-value translucent placed and light-cured.

Figure 17: Freehand application of substructure.

Figure 18: Enamel blend matching natural tooth.

Composite layering process

Figure 20: Lines drawn to verify symmetry.

Figure 21: Forming surface texture and micro-architecture.

Figure 22: Refining with carbide finishers.

- Like your teeth, your veneers should be cleaned by brushing and flossing them regularly
- Non abrasive and fluoride-rich toothpaste should be used in cleaning your veneers.
- Avoid biting and chewing on hard foods and things such as pencils and ice.
- It is also advised to avoid clenching and grinding your teeth.


Thank you