The first step to dental esthetics

is to

understand basic scientific principles

1- Width to length ratios
2- Gingival levels
3- The Golden Proportions
4- Buccal corridors

Artistic Smile Design takes the scientific principles of proportion

...and...

The dentist as the artist adds creativity and variation.

Natural perfection
is full of detailed imperfections

- Vertical irregularities
- Grooves
- Lobes
- Horizontal irregularities
- Depressions

Varies from person to person
+
Reflects age and personality

FACTORS OF CREATING THE PERFECT SMILE

1- Face shape
2- Skin tone
3- Clothing colors
4- Hair color
5- Personality

DENTAL CHANGES AS WE AGE

	YOUNG	OLD
INCISAL EDGE	Unworn	Worn
EMBRASURES	Prominent	Absent
SMILE LINE	Accentuated	Flat
SHADE	Light	Dark
TEXTURE	Heavy	Smooth

STEP 1

THE EXAMINATION

TO CREATE AND PRESENT A COMPLETE TREATMENT PLAN, YOU NEED:

- FULL SET OF PHOTOGRAPHS(EXTRAORAL AND INTRAORAL)
- FULL MOUTH SERIES OF RADIOGRAPHS/PANOREX
- TOOTH CHARTING WITH CARIES, RESTORATIONS, PERIO
- TMJ AND MUSCLE EXAM
- MOUNTED STUDY MODELS IN CR

TREATMENT PLANNING

THE KEY TO ESTABLISHING A TREATMENT PLAN IS TO VISUALIZE THE IDEAL ENDPOINT OF TREATMENT

THEN, COMPARE IT WITH THE CURRENT CONDITION

IF THE DESIRED RESULT DOES NOT MATCH THE CURRENT CONDITION, WHAT STEPS ARE NEEDED TO ACHIEVE IT AND IN WHAT ORDER SHOULD THEY BE DONE

SEQUENCE OF ESTABLISHING A TREATMENT PLAN *:

- ESTHETICS - WHAT IS THE FINAL VISION
- FUNCTION - OCCLUSION, MUSCLE BALANCE
- STRUCTURE - RESTORATIVE DENTISTRY
- BIOLOGY - PERIO-ENDO

* ORDER OF DENTAL TREATMENT DOES NOT NECESSARILY COINCIDE

CAUSES OF MIDLINE DISCREPANCIES:

- MISSING OR MISSHAPED TEETH
- SKELETAL ASSYMETRY

VINCE KOKICH JR. et al. Comparing the Perception of Dentists and Lay People to Altered Dental Esthetics Journal of Esthetic Dentistry 1999; 11 (6) :311-324

We can only move a midline very slightly by altering

the four maxillary anterior teeth

All incisal embrasures should parallel the midline.
The more off center the midline, the more necessary it is to close the incisal embrasures.

If the midline discrepancy bothers the patient we should have, or proceed to do orthodontics

LOWER DENTAL ARCH DISCREPANCIES RESULT IN DEVIATIONS IN THE INCISAL AND OCCLUSAL PLANES.

HOW CAN WE CORRECT AN INCISAL PLANE ASSYMETRY ?

1) Oral surgery
2) Orthodontics
   a)intrusion
   b)extrusion

3) Restorative dentistry
   a) equilibration
   b) restoration

The harmony of the dental and neuromuscular envelope of function are characterized by :

- No wear to the teeth
- No fremitis or mobility
- Proper speech
- No muscular pain

We must have enough space available to make the desired changes to tooth position

Methods of gaining space:

- Open the vertical dimension restoratively
- Orthodontically reposition teeth and gingiva
- Periodontally and restoratively reposition teeth and gingiva

FACIALLY GENERATED TREATMENT PLANNING: STEP 4

CHOOSE THE TYPE OF RESTORATION

ANTERIOR TEETH

onding
eneers / Bonded all ceramic crowns
uted all ceramic crowns
Metal/ceramic crowns
mplants
enture

POSTERIOR TEETH

- Direct restorations
- Inlays
- Onlays
- Crowns
- Bridges
- Implants
- Denture

MATERIAL CHOICE

We must consider structural,biological,spatial and logistical issues when choosing what type and which material to use for the restoration.

1) Resistance and retention- prep length, ferrule
2) Biology- endo, perio
3) Mechanical- bruxism, clenching, attrition (tooth vs. tooth)
   abrasion (foreign object eg. toothbrush)
4) Chemical- erosion (acid), perimolysis (acid plus abrasion)
5) Space available for the restoration
6) Material preference of the lab technician

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THE WORN DENTITION

AS TEETH WEAR:

1) Tooth position changes
2) Gingival levels change
3) Papilla position / contact length moves
4) Tooth display decreases
5) Anterior smile line goes into a reverse curve
6) Centrals and laterals tooth proportion becomes square

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CAUSES OF TOOTH WEAR

PHYSICAL CAUSE:

1) attrition - teeth rubbing against each other
2) abrasion - foreign object - eg. toothbrush, ceramic crown, toothpaste

CHEMICAL CAUSE:

1) Erosion - chemical wear - eg. acid
2) Perimolysis - demineraliztion from acid (chemical) followed by abrasion (physical)

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ATTRITION

- Attrition only occurs when the mandible is moving so the pathways of guidance and edge to edge occlusal relationships are critical.

WE MUST CONCENTRATE ON MANDIBULAR MOVEMENT AND LOOK AT THE WEAR FACET PATTERNS.

3 TYPES OF WEAR FACETS:

1) Pathway wear
2) Edge to edge wear
3) Crossover wear

Some patients exhibit multiple wear patterns

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RESIN BASED SYSTEMS → BISACRYLIC COMPOSITES

- AUTOMIX CARTRIDGES
- QUICK SET TIME
- CAN BE ADDED TO AND MODIFIED EASILY WITH FLOWABLE, MICROFILL OR HYBRID COMPOSITE RESIN
- EASY TO FINISH - GLAZE
- NATURAL LOOKING ESTHETICS - FLUORESCENCE

FUNCTIONS OF THE TEMPORARY

1. PROTECTION OF THE PREPARATION AGAINST THERMAL, CHEMICAL, AND MECHANICAL INFLUENCES

2. THE PRESERVATION OF THE VERTICAL AND HORIZONTAL DIMENSION OF THE PREPARED TEETH

3. APPLICATION OF THERAPEUTIC AGENTS

4. ALLOWS EVALUATION OF ESTHETICS, FUNCTION, PHONETICS

THE PROTOTYPE RESTORATION ALLOWS US TO EVALUATE:

1. Facial esthetics
2. Tooth position - Midline, incisal edge, position, incisal plane, smile line
3. Gingival levels
4. Tooth arrangement
5. The width of the arch - Buccal corridors
6. Tooth contours
7. Color

Common errors in preparation :

TO PREVENT MAKING MISTAKES, USE A PREP-GUIDE FABRICATED FROM A DIAGNOSTIC WAX-UP. IT ENABLES YOU TO VISUALIZE IF YOUR PREPARATION IS ADEQUATE TO ACCOMMODATE THE FINAL RESTORATION.

- Failure to visualize
- Failure to develop desired arch form
- Failure to correct axial inclinations
- Under/over preparing
- Not enough incisal edge + incisal 1/3 reduction
- The line angles are left too sharp

SECRET TO PREPARATION = PREP GUIDE

TAKING GREAT IMPRESSIONS CAN BE EASY

1.CHOOSING THE RIGHT IMPRESSION TRAY
2.RETRACTION AND CONTROLLED BLEEDING
3.AN IMPRESSION MATERIAL SATISFYING OUR NEEDS

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ADVANTAGES OF DUAL ARCH IMPRESSIONS FOR SINGLE TOOTH RESTORATIONS

1. ONLY ONE IMPRESSION TRAY
2. SIMULTANEOUS BITE REGISTRATION
3. PATIENT COMFORT
4. DECREASE COST OF MATERIALS
5. DECREASE TIME = DECREASE COSTS

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STEP 5: Laboratory Communication

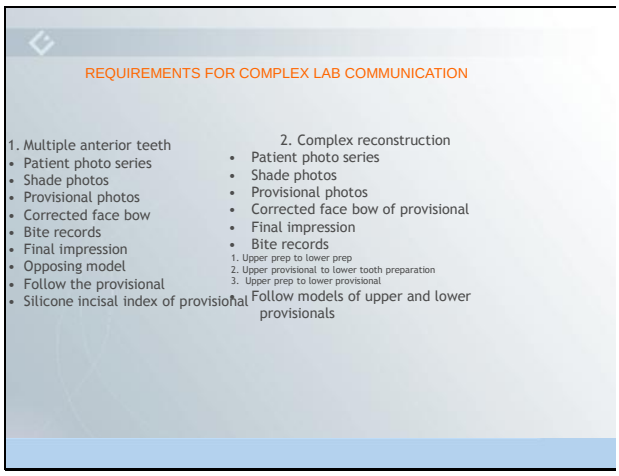
Exceptional esthetics cannot happen without exceptional communication

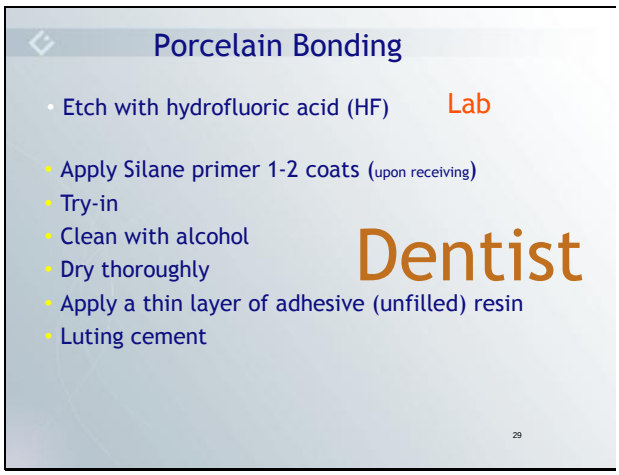
Dentist → Patient

Dentist → Lab

We must communicate:

1. Esthetic information
   - Tooth position
   - Tooth arrangement
   - Contour
   - Color
   - Character
2. Functional information
   - Maxilla to face and TMJ relationship
   - Maxilla to mandibule relationship
   - Anterior guidance
   - Specific functional needs of the patient


REQUIREMENTS FOR COMPLEX LAB COMMUNICATION
1. Multiple anterior teeth
• Patient photo series
• Shade photos
• Provisional photos
• Corrected face bow
• Bite records
• Final impression
• Opposing model
• Follow the provisional
• Silicone incisal index of provisional
2. Complex reconstruction
• Patient photo series
• Shade photos
• Provisional photos
• Corrected face bow of provisional
• Final impression
• Bite records
1. Upper prep to lower prep
2. Upper provisional to lower tooth preparation
3. Upper prep to lower provisional
Follow models of upper and lower provisionals


Porcelain Bonding
• Etch with hydrofluoric acid (HF)
Lab
• Apply Silane primer 1-2 coats (upon receiving)
• Try-in
• Clean with alcohol
• Dry thoroughly
Dentist
• Apply a thin layer of adhesive (unfilled) resin
• Luting cement
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