

Restorative dentistry – part 1.

Colour and shade

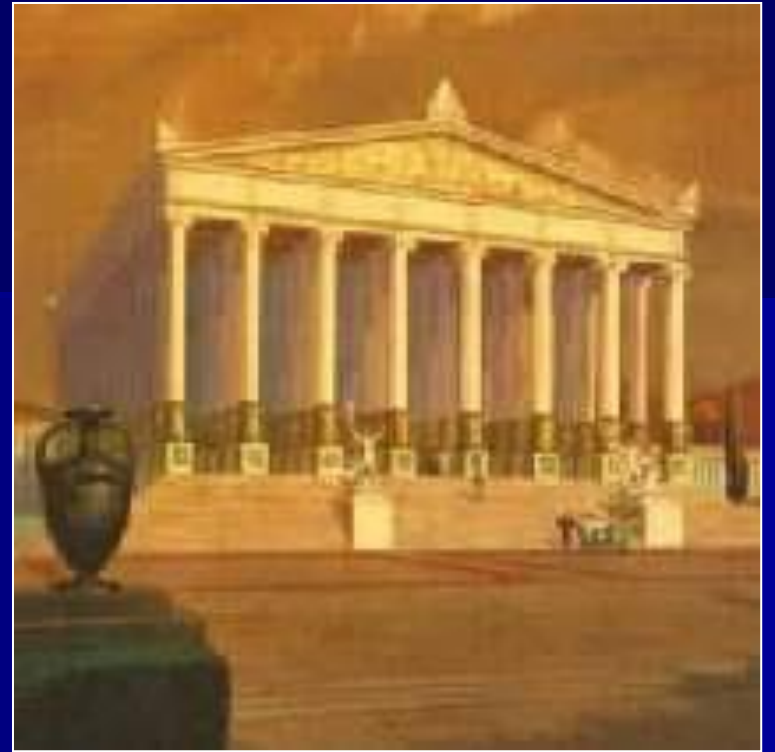
Aesthetics is a science about beauty.
It is connected with sensual perception.
Rules are changing during the time and there are differences in various regions. .



???

???







„Penta en arithmo“

(Pythagoras)

$$1/1,618 = 0,618$$

Golden cut

Perception of the object

- Composition
- Single items
- Harmony
- Symetry
- Dominance
- Lines



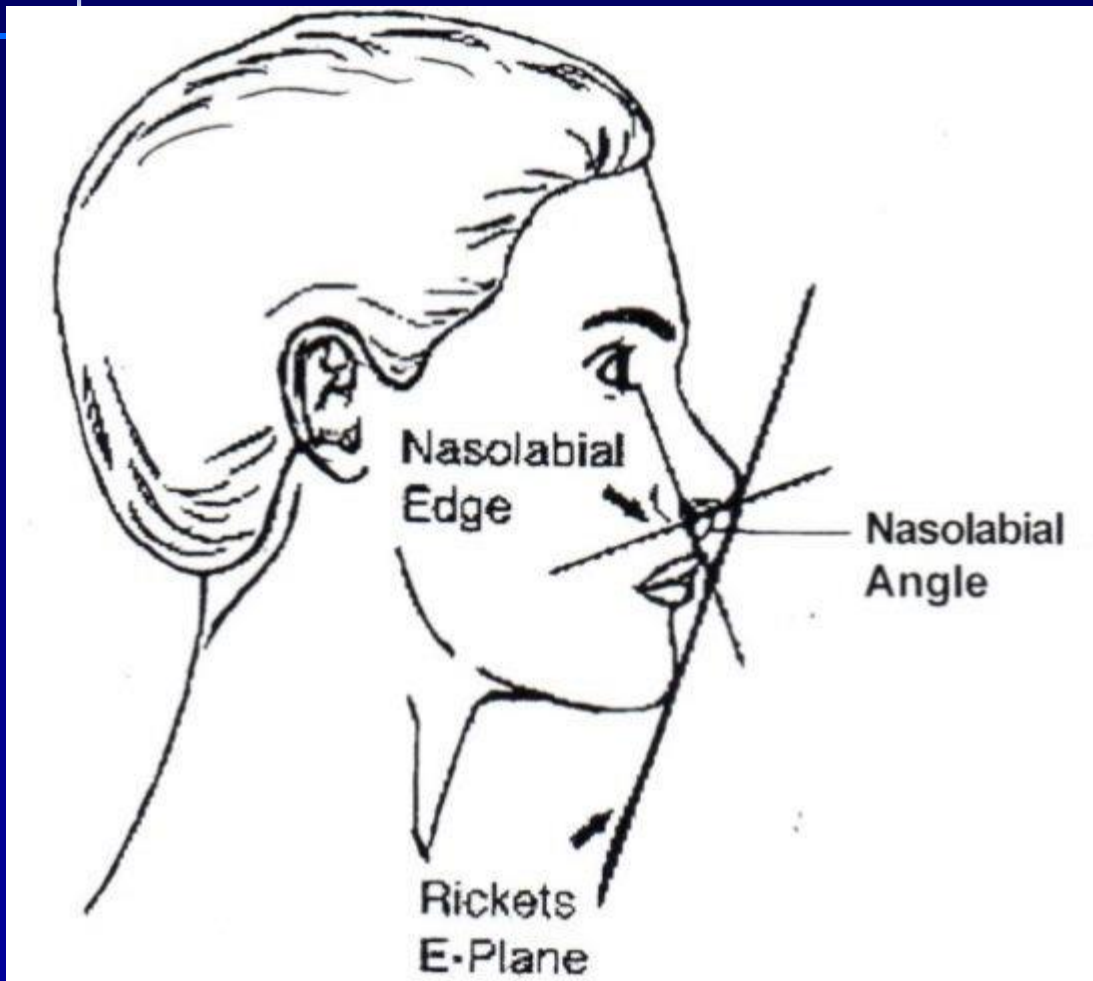
Dentofacial harmony

- Imaginary lines – structures must have harmonious relation to them
- Teeth are in harmony with the face, they can attract our attention and distract it from other structures

Horizontal
a vertical lines
axis



Profile:



Balance of lip, nose
and chin.

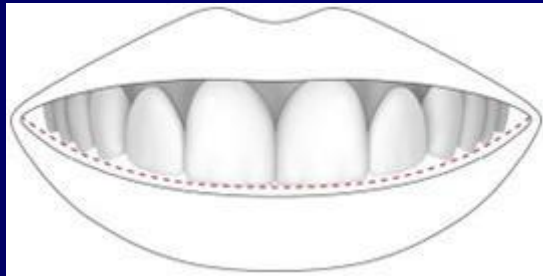
Nasolabial angle:
90° – 95 ° men
100° - 106° women

Rickets line:
4 mm before upper
2 mm before lower lip

Line of smile

- Connects incisal edges of upper frontal teeth and touches cusos of upper molars. Lower border is lower lip. Line of lower lip is parallel to line of smile.
- Upper central incisors should be in touch with wett part of upper lip.

Line of smile



Bilateral negative space



Normal



Enlarged





Dental harmony

Inclination of long axis

Slight mesial inclination of long axis

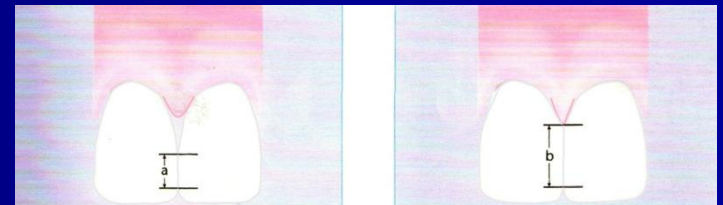
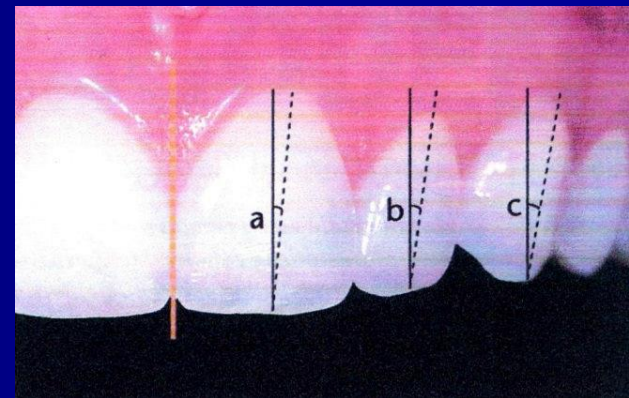
Slight inclination vestibulary

Position of contact points:

They become smaller and move apically

(50:40:30)

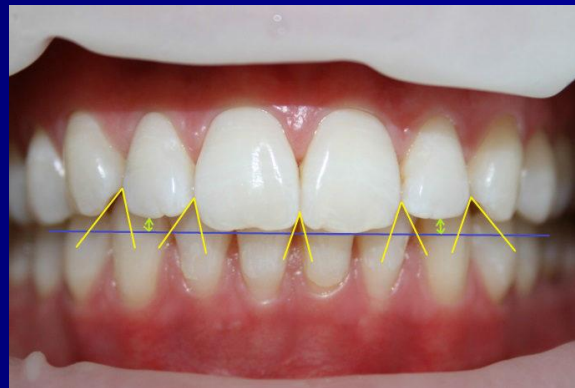
Their elongation can optically widen teeth



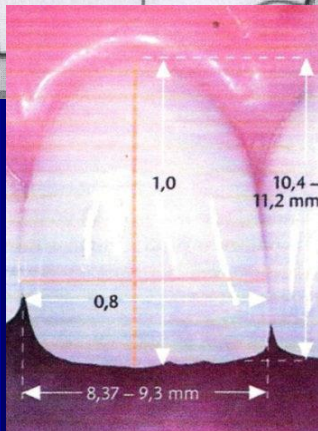
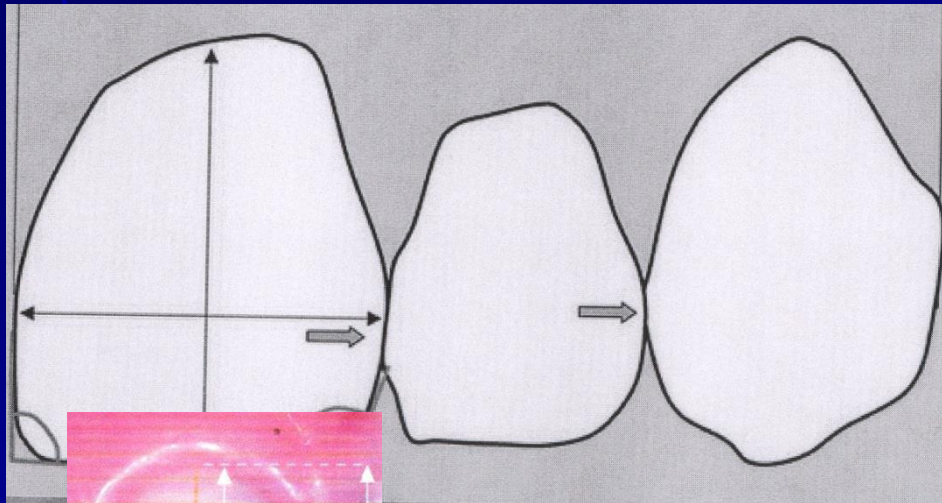
Dental harmony

Interincisal spaces become smaller in distal direction

They become smaller in younger individuals

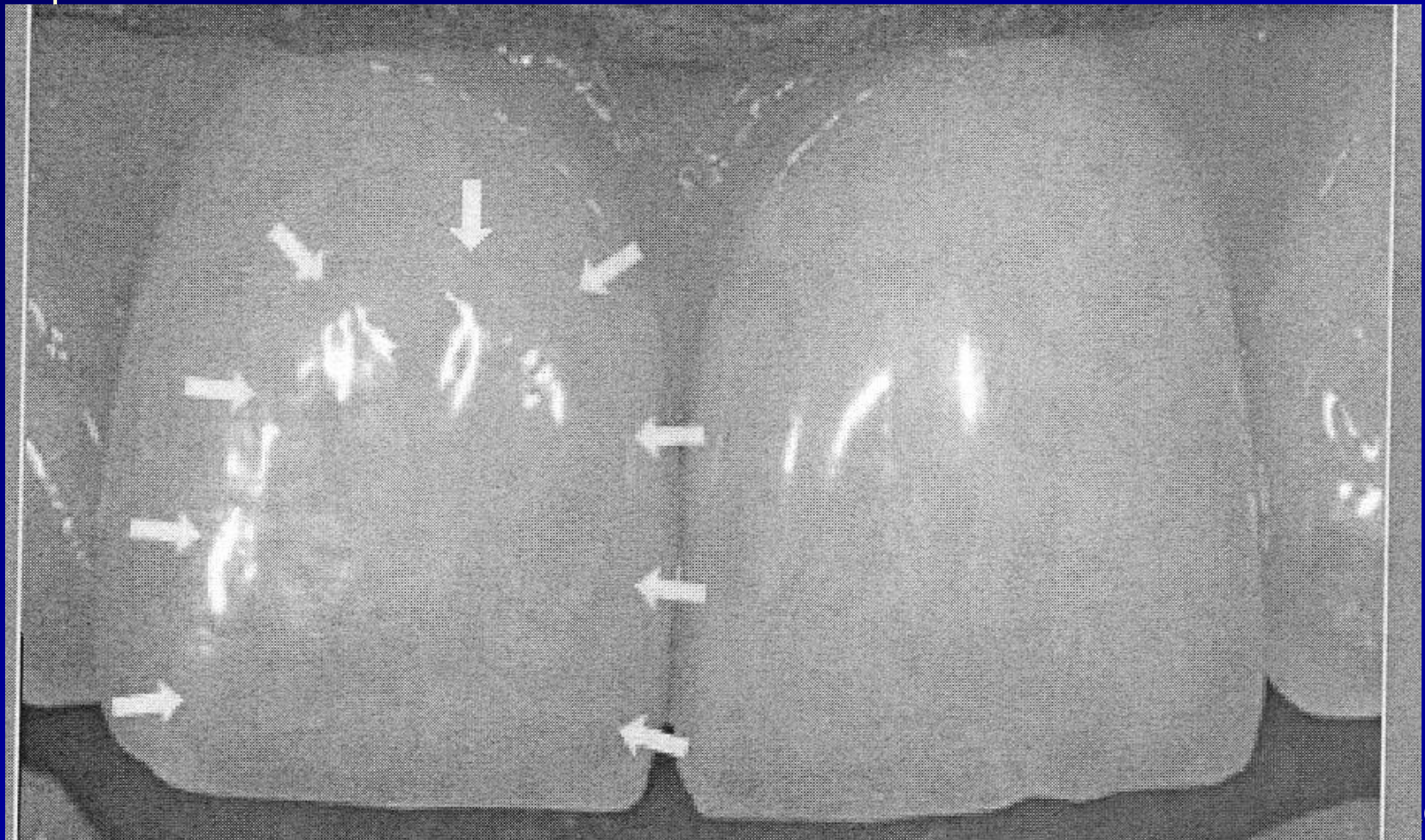


Relation between width and height



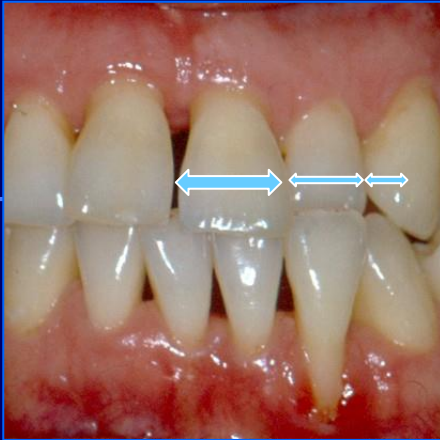
Width of upper central incisor is 70 – 80% its height

Optical width



Golden cut

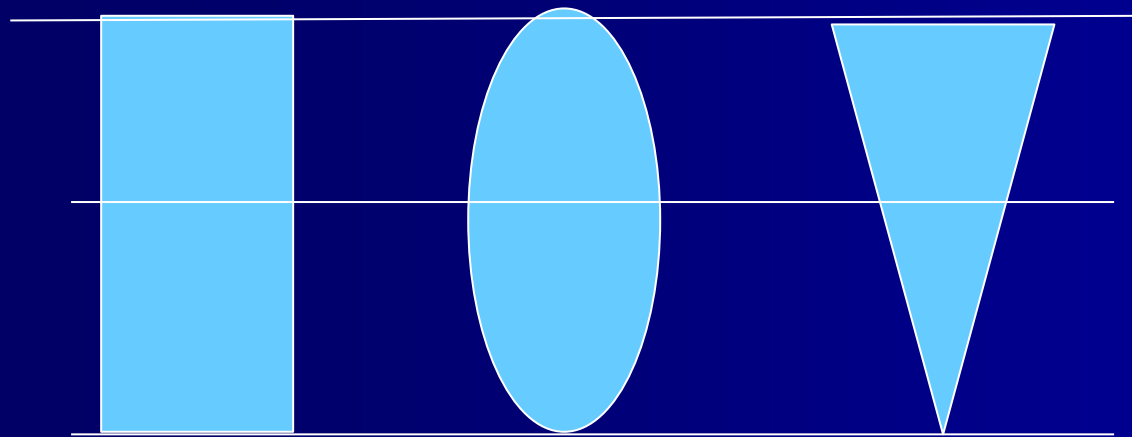
$$\frac{\text{length}}{\text{width}+\text{length}} = 0,618$$



*Roubalíková L. Méně obvyklý případ řešení obráceného skusu.
Prakt zub Lék;48: 117-120.*

Shape of crown principally corresponds to shape of the face

- Shape of the face:
angular, oval a triangular
- Corresponding shapes of teeth



Front

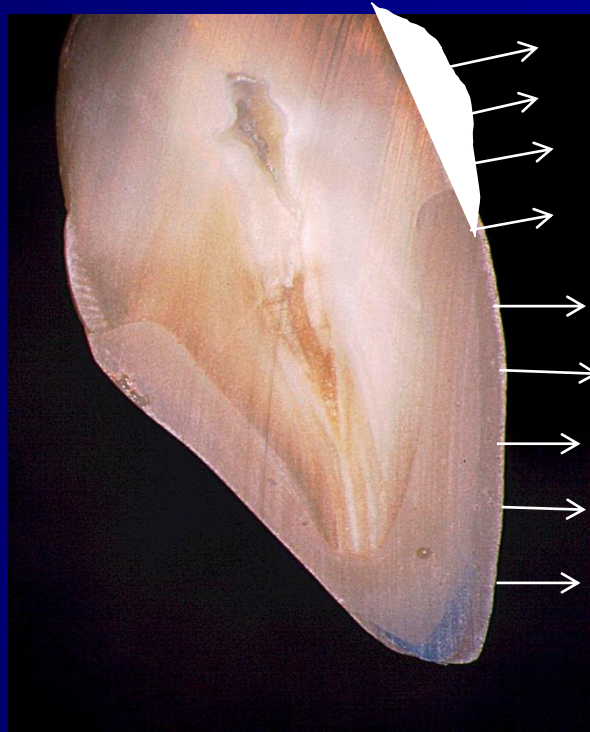
Zygomatic line

Mandibular line

Harmony



Curvature of the labial surface – for reflection of the light



Reflection of the light

Surface texture



Harmony of Tooth structures





Basic terms -optic

We can recognise depth of the colour because of dispersion of light inside the air and water





Světlo

■ Elektromagnetic undulation

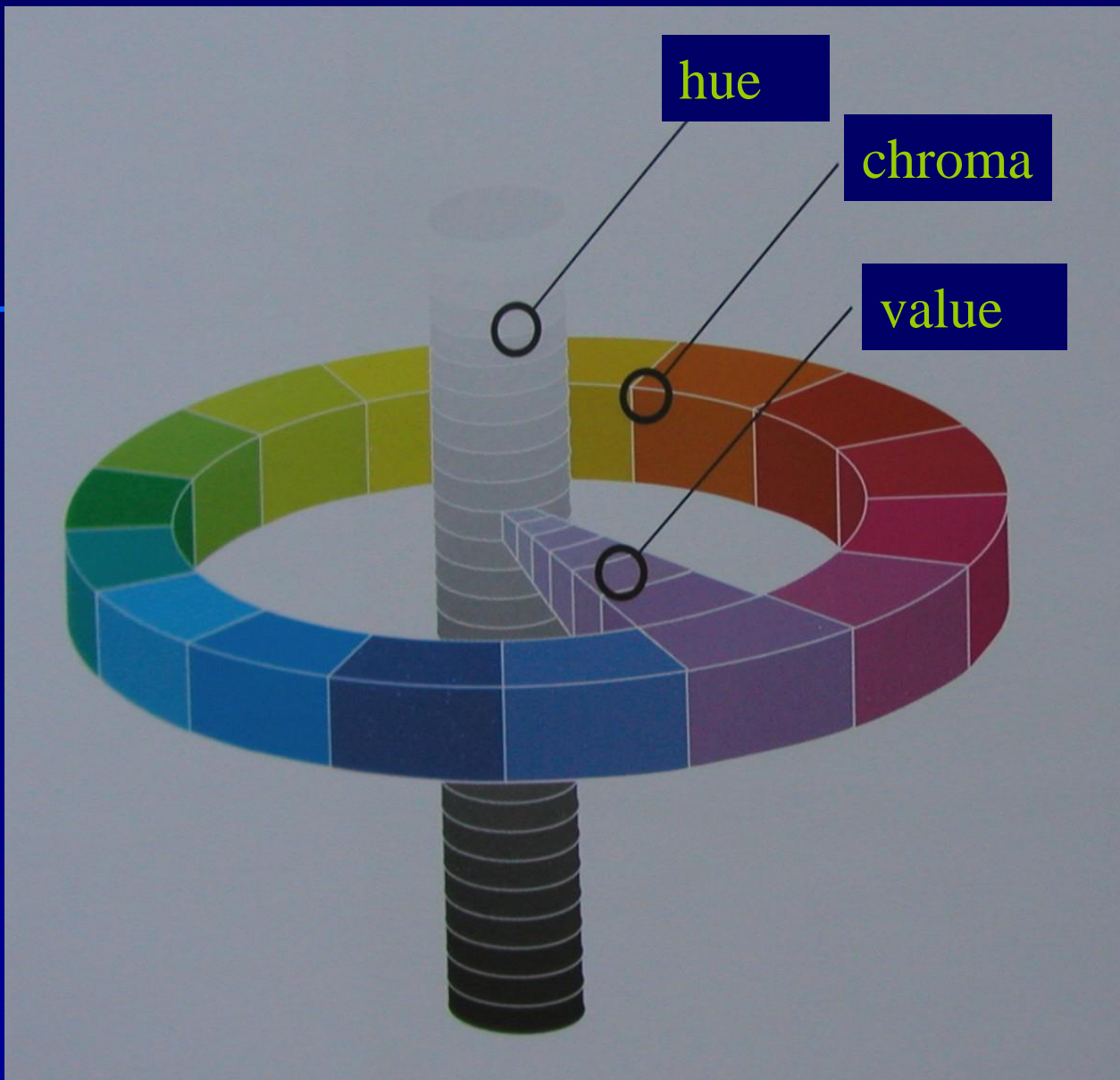
- Wave length
- Amplitude
- Quantum



Ray

- reflection
- deflection

Various velocity of the light in various environment
Relation of these velocities in two various environments
is index of refraction

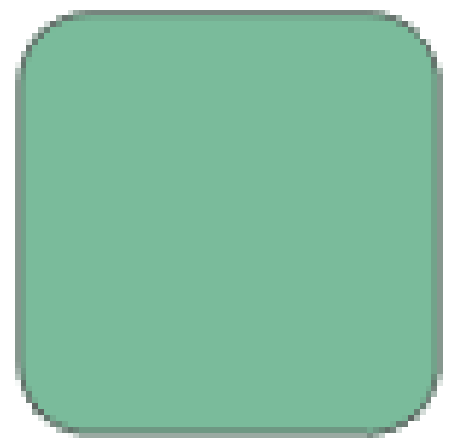
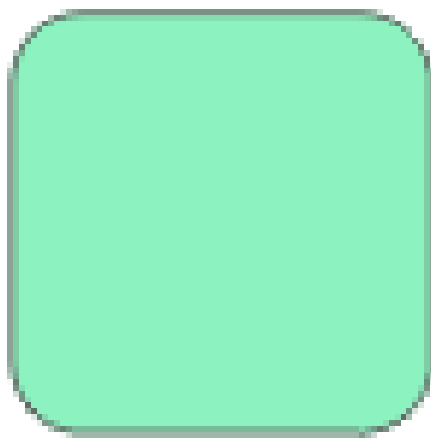
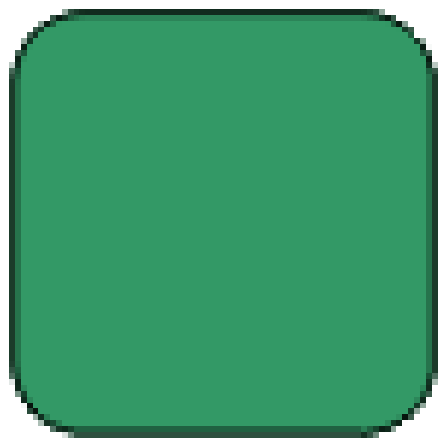


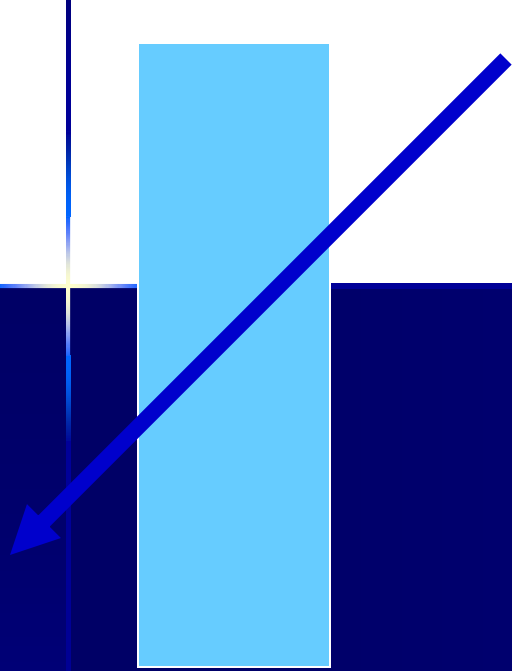
3 Variables of colour

Hue – colour.
Result of wavelength

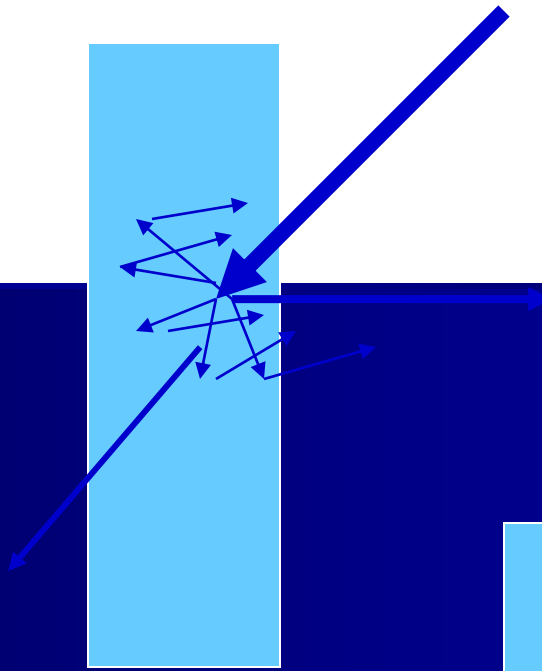
Chroma – result of amplitude

Value - cleanliness

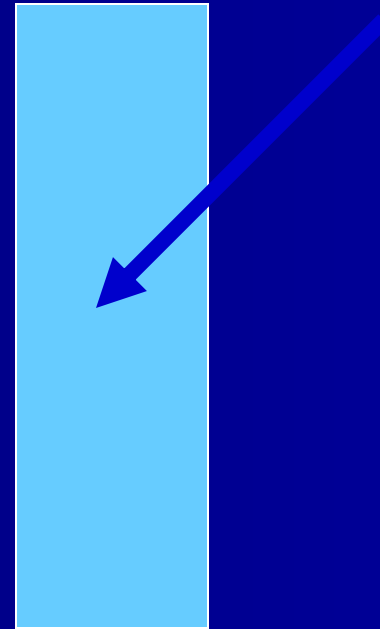




Transparency



Translucency



Opacity



1



2



3

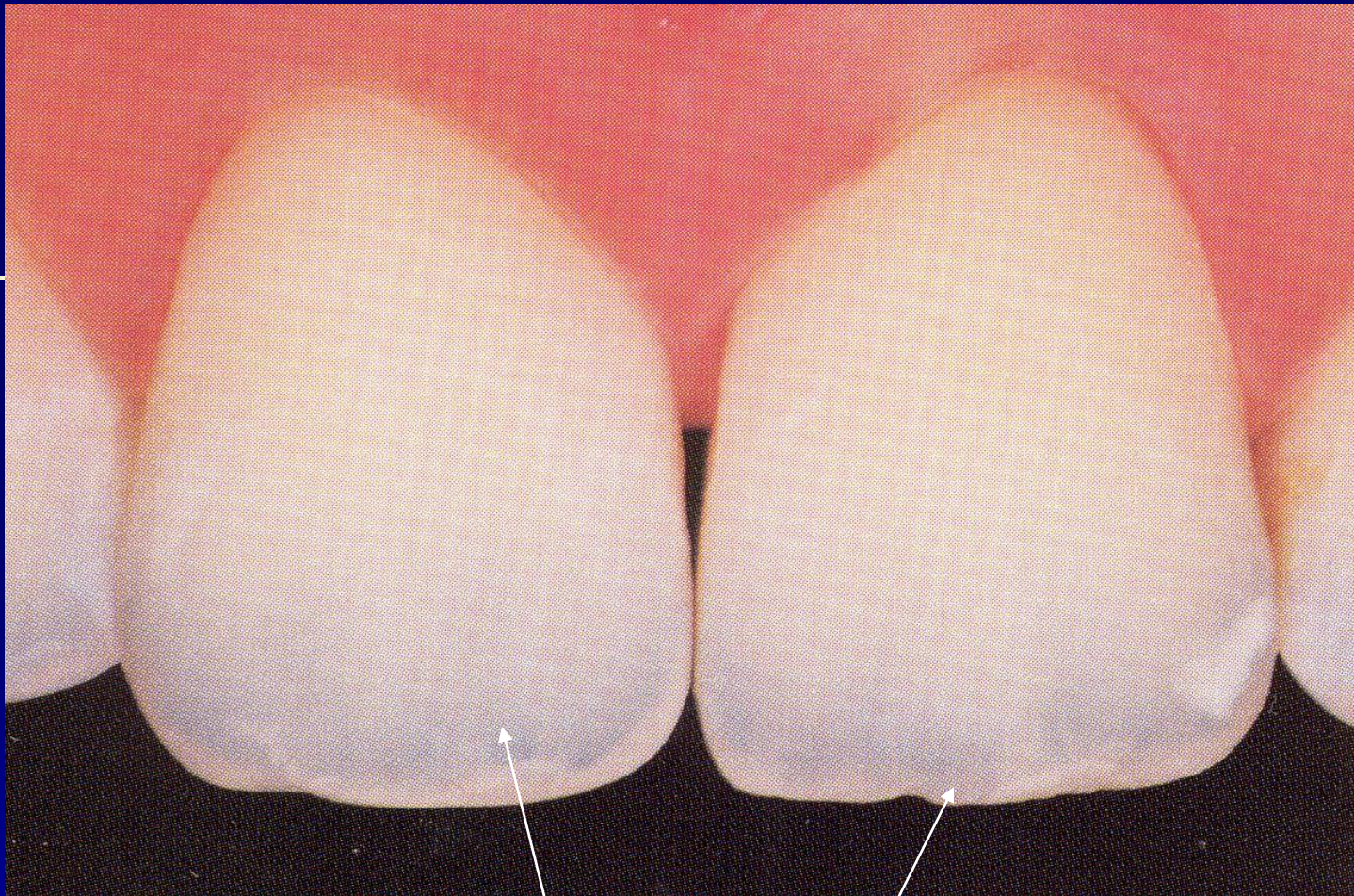
Enamel is translucent



Fluorescence

The light is absorbed and irradiated back in very short time
 10^{-12} s.

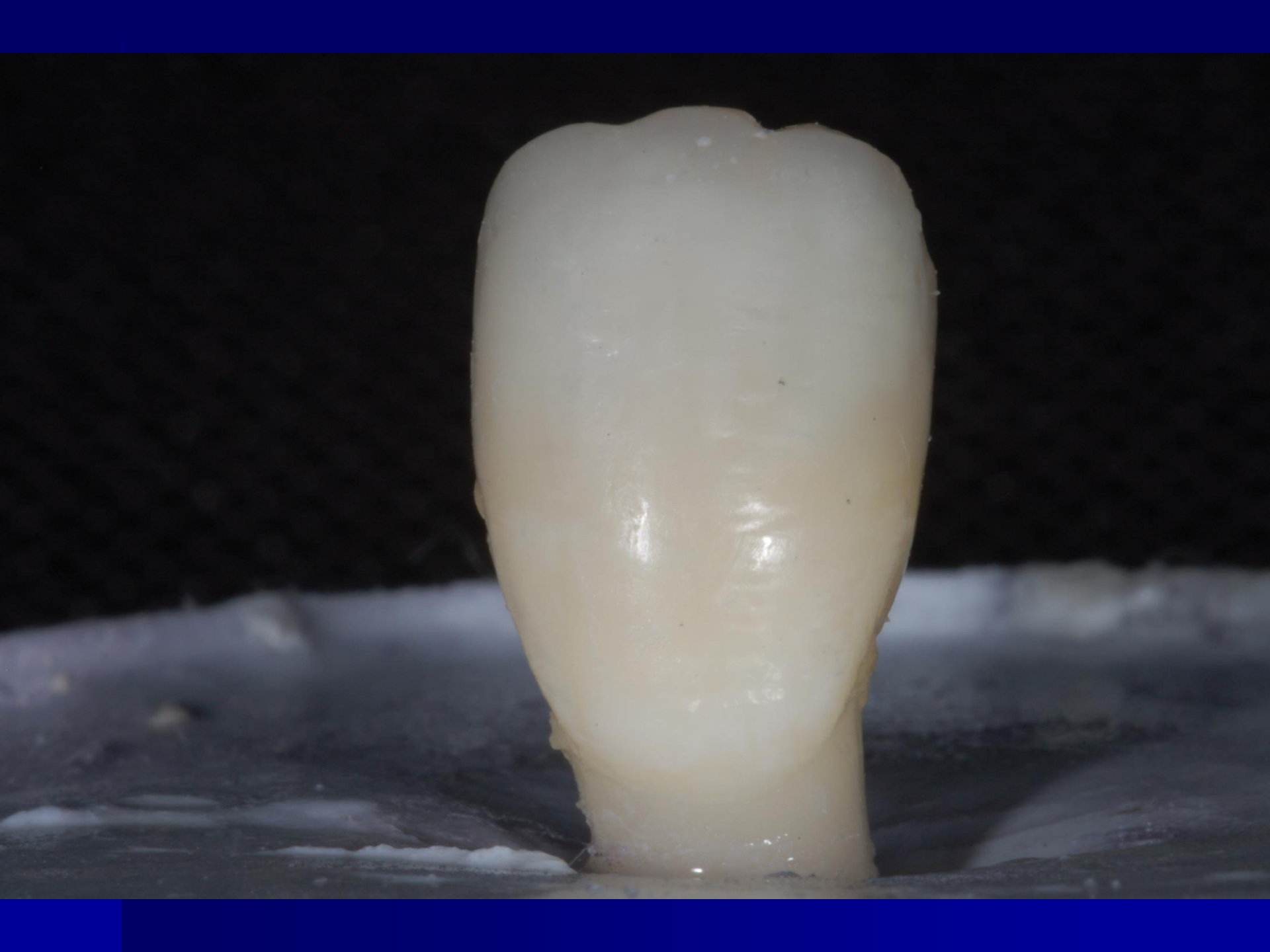
Special, „live“ appearance of dentin



Opalescence
Special effect on incisal edge
Result of translucency of enamel

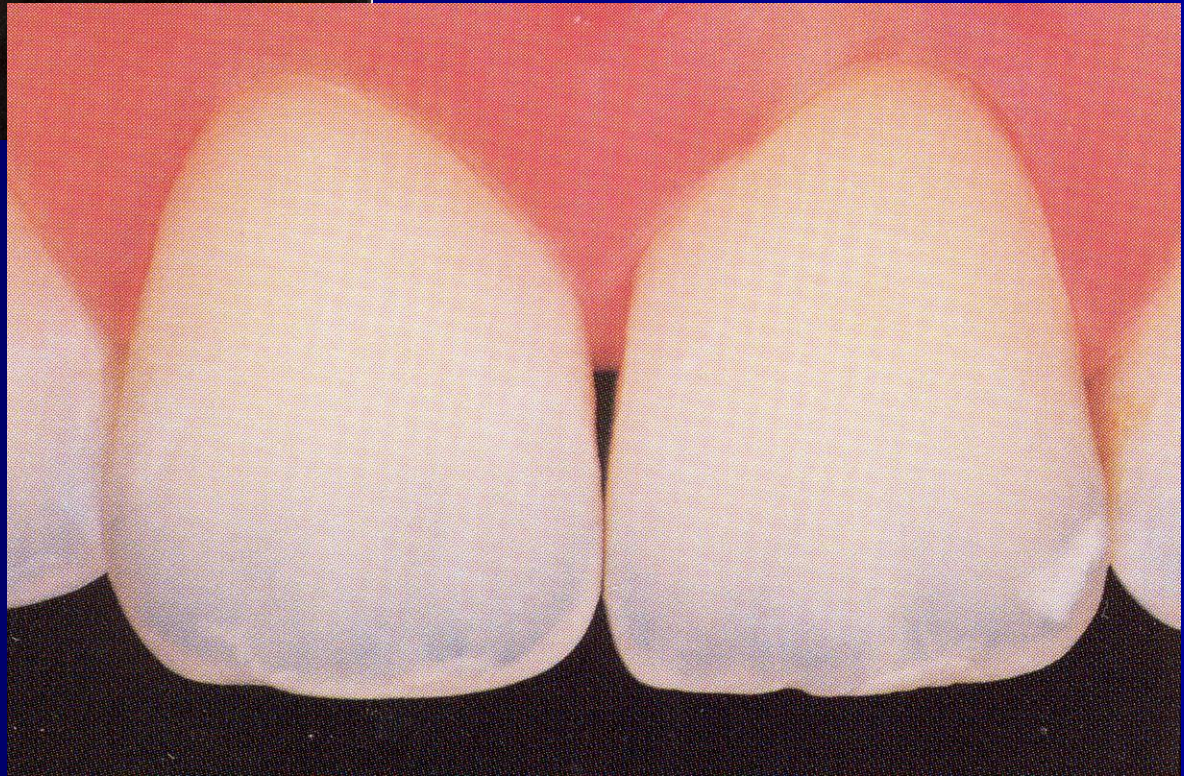


Mamelony
Opalescence
Halo efekt

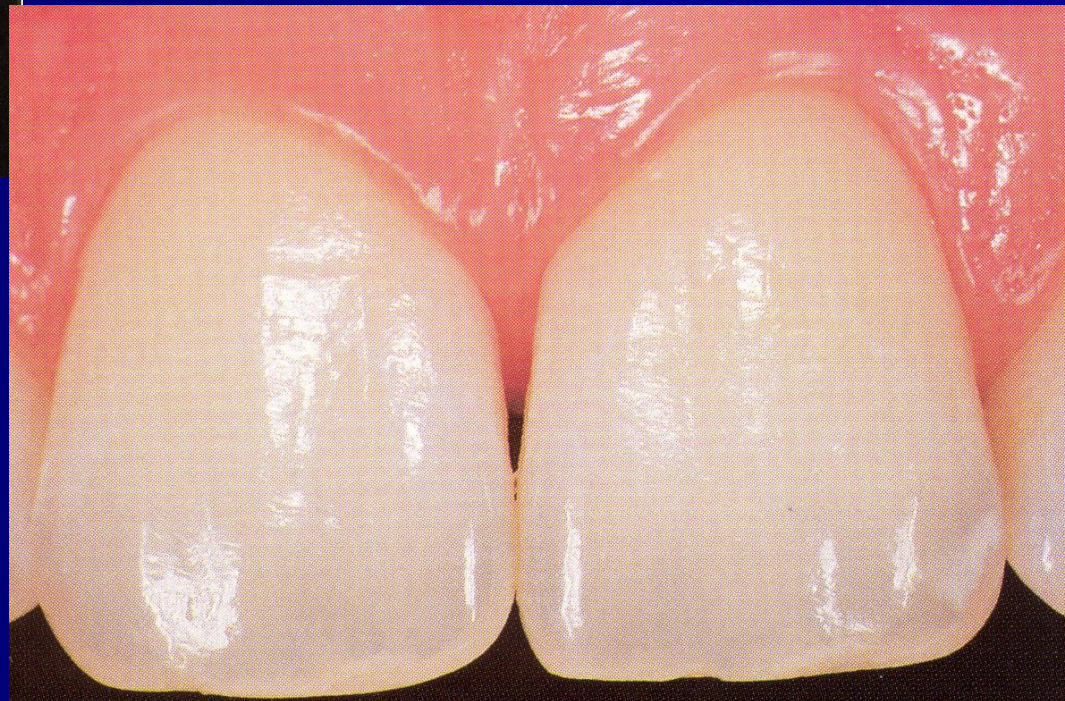


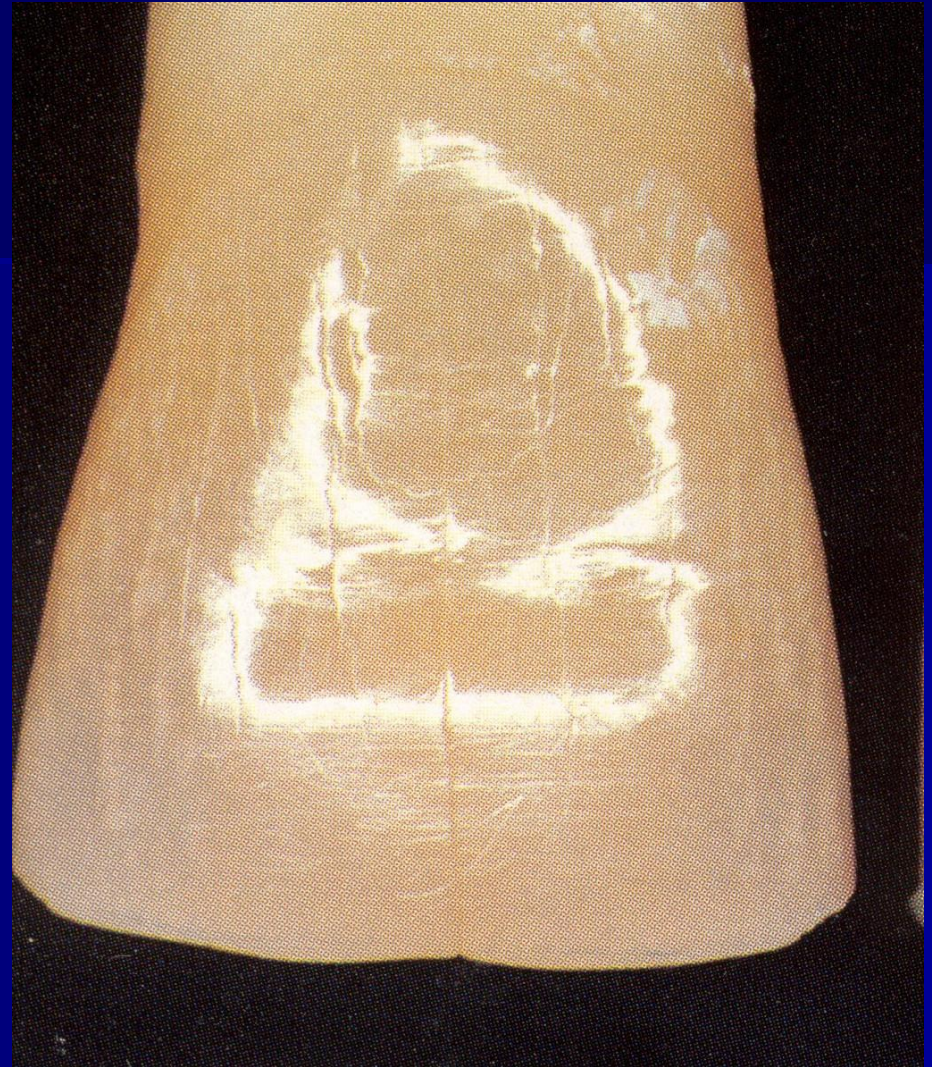


young



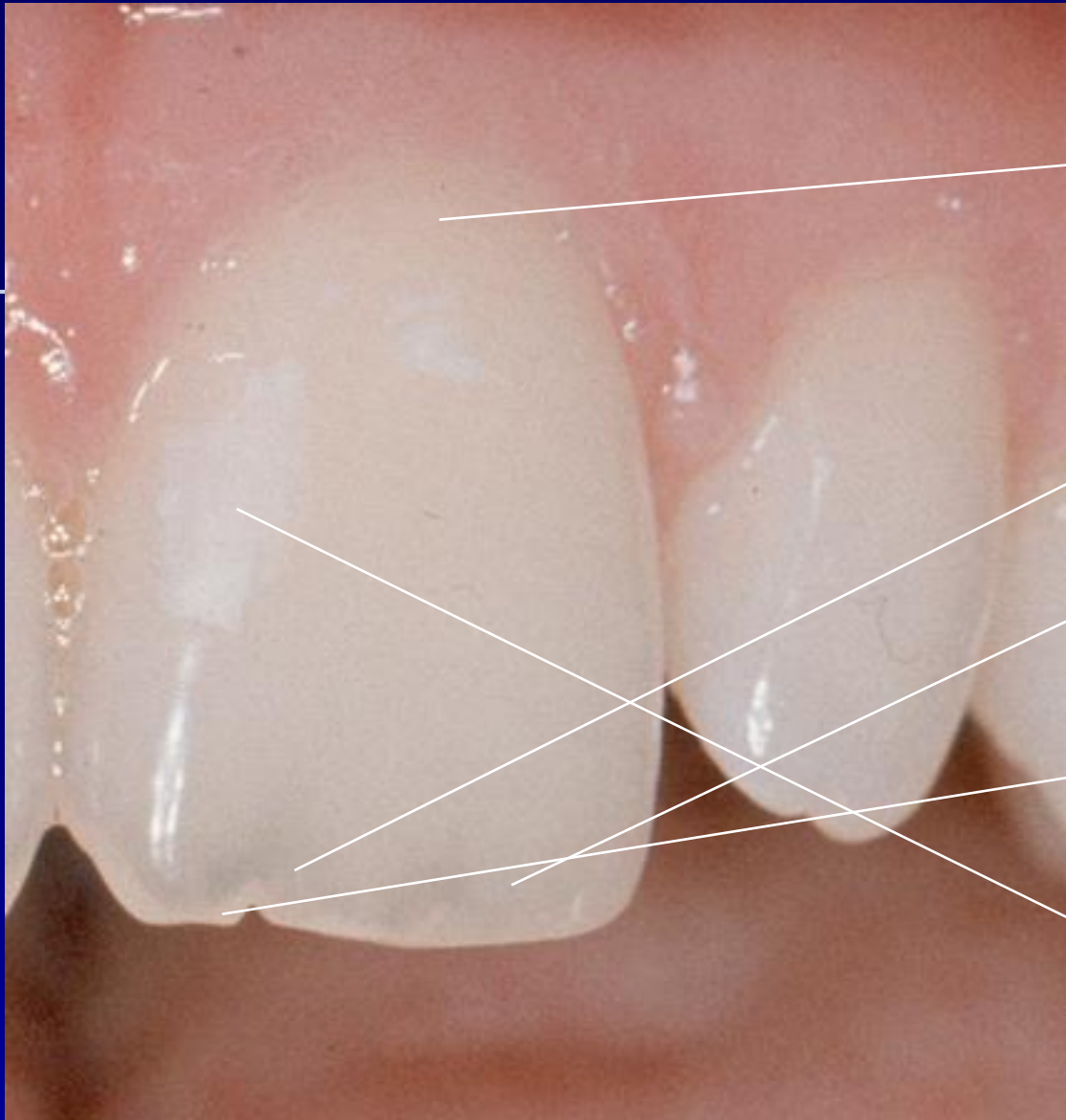
Middle age





Old age

Optical reading of the crown



colour

Desaturation

Opalescency

Tvar mamelons

Halo efekt

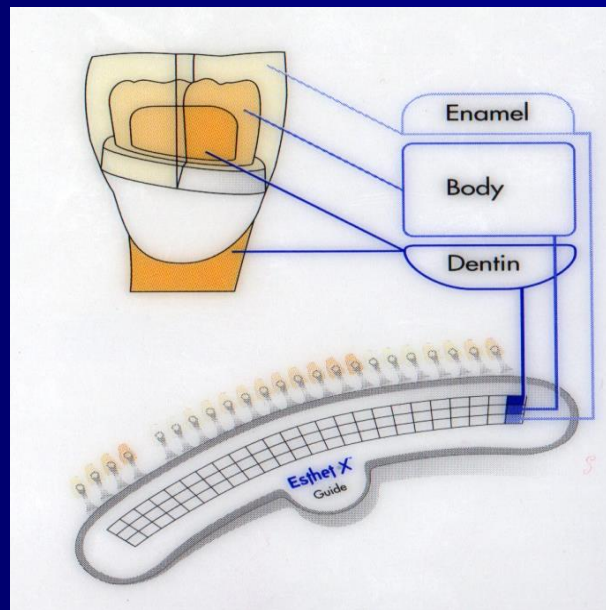
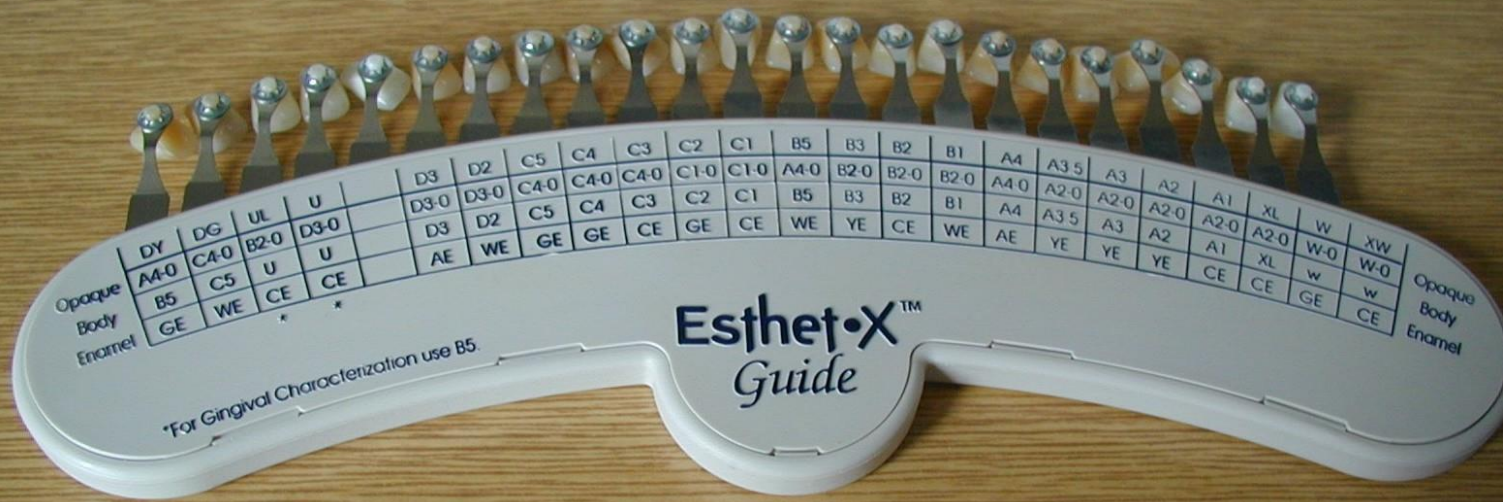
Spots, special chracterizations

Chromatic scala of composite materials

Dentin shades

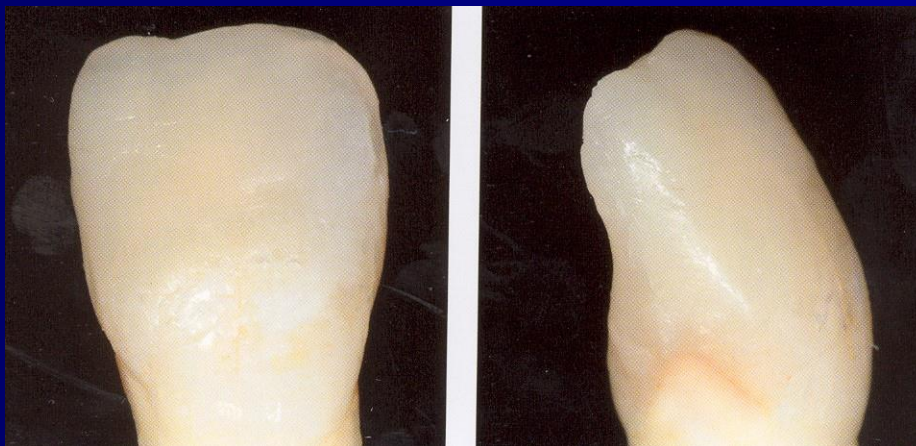
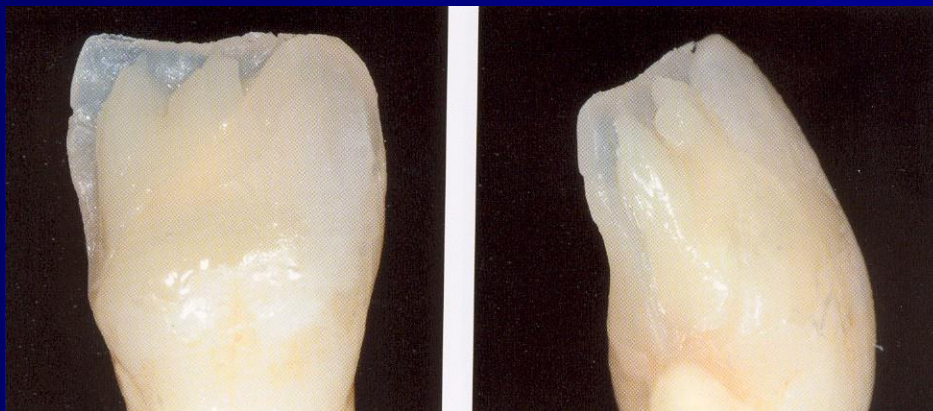
Enamel shades

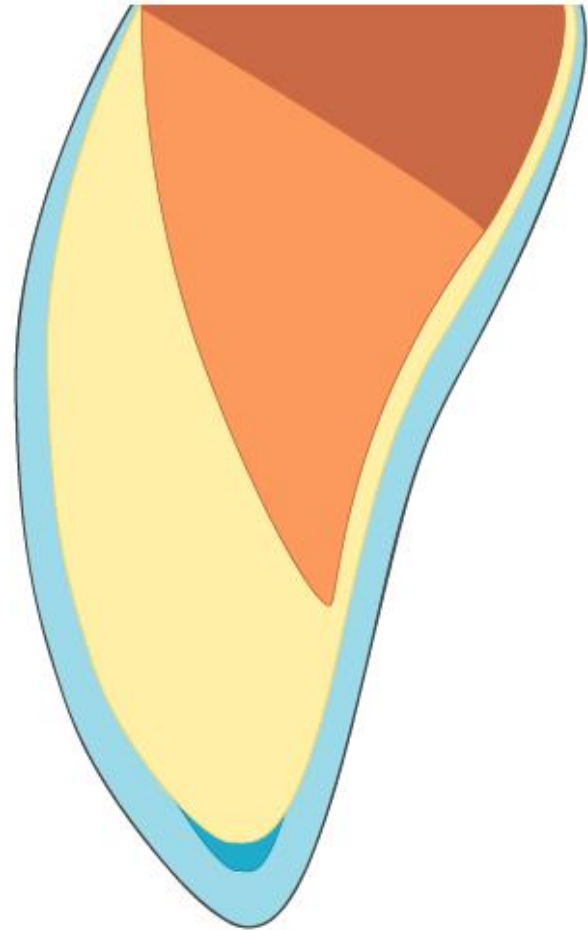
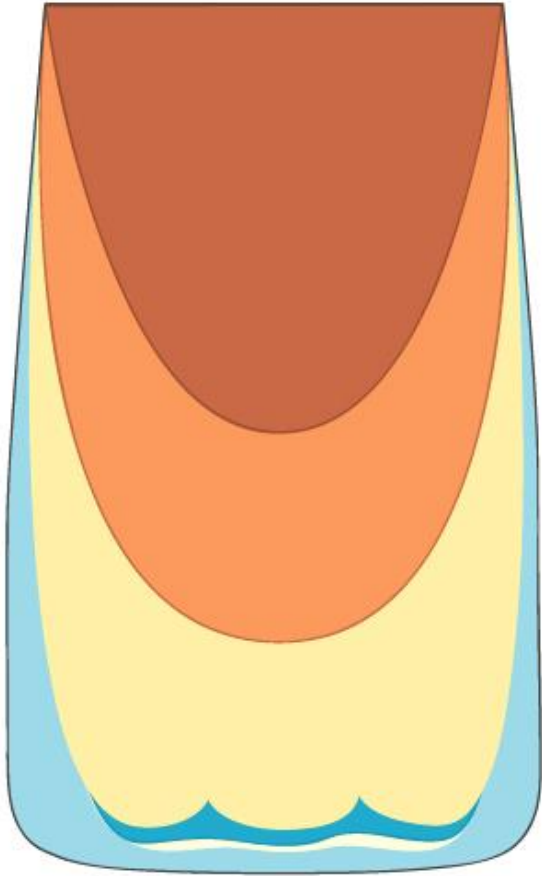
Special effects



**E
N
A
M
E
L**
**D
E
N
T
I
N**











- Shape
- Stratification
- Surface texture
- Polishing