Types of finishing lines

Lect 4, Crown and bridge

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Finishing line of the preparation

Finishing line: is the final margin that separates between the prepared and the unprepared tooth structure.

<u>OR</u> / The border of the preparation where the prepared tooth structure meets the unprepared surface of the tooth.



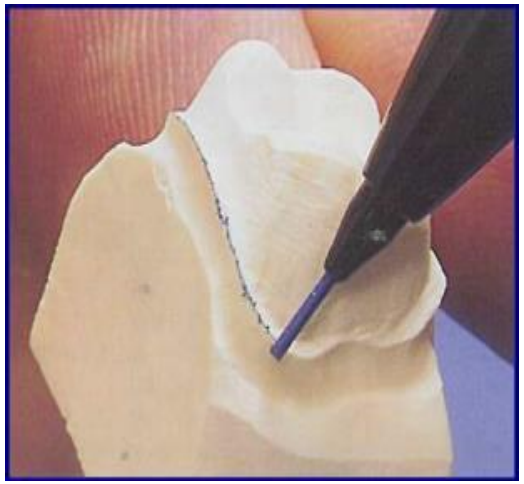
<u>OR</u>/ The terminal portion of the prepared tooth.

Requirement of the finishing line:

The finishing line should be:

1. Clear, smooth and well defined. So it can be reproduced on the study model
2. continuous from one surface to the other.
3. Lie on sound tooth structure.

Otherwise it will interfere with the seating of crown if it is poorly done.



Position of finishing line (margin placement)

Finishing line can be placed either:

1 .Supra gingival:

Placing the margin above the gingival tissue for the following reasons:-

a- Can be easily prepared and finished.

c- The impression can be easily made.

d- The patient can clean the area easily.

e-Less destructive.

f- Most of the time such position is situated on hard enamel, and mostly in non esthetic areas.



2.Subgingival:

Placing the crown margin below the gingival tissue but not more than 2mm from the free gingival margin.

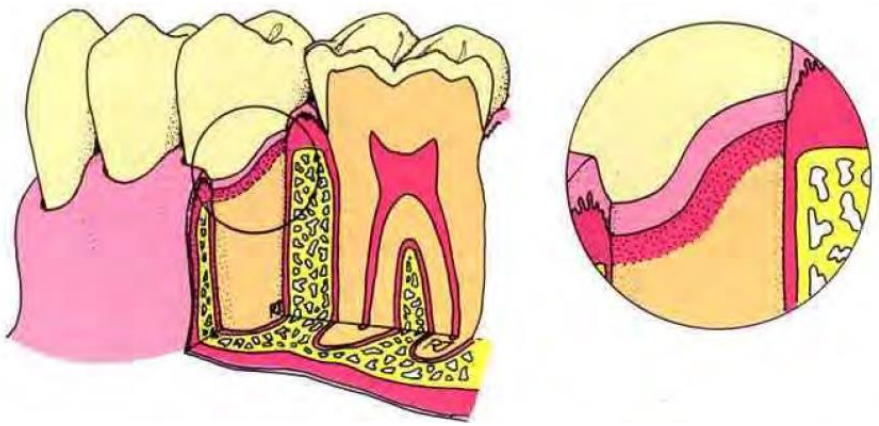
Subgingival finishing line is indicated for the following reasons:-

a- When the esthetic is a factor.

b- When we need extra retention.

c- When we have caries or filling at the area of finishing line.

Disadvantage : May cause damage to the gingiva.





3. Placing the margin within gingival level (equigingival margin).

At the crest of the marginal gingiva it causes more impact on the periodontium and more plaque retention.

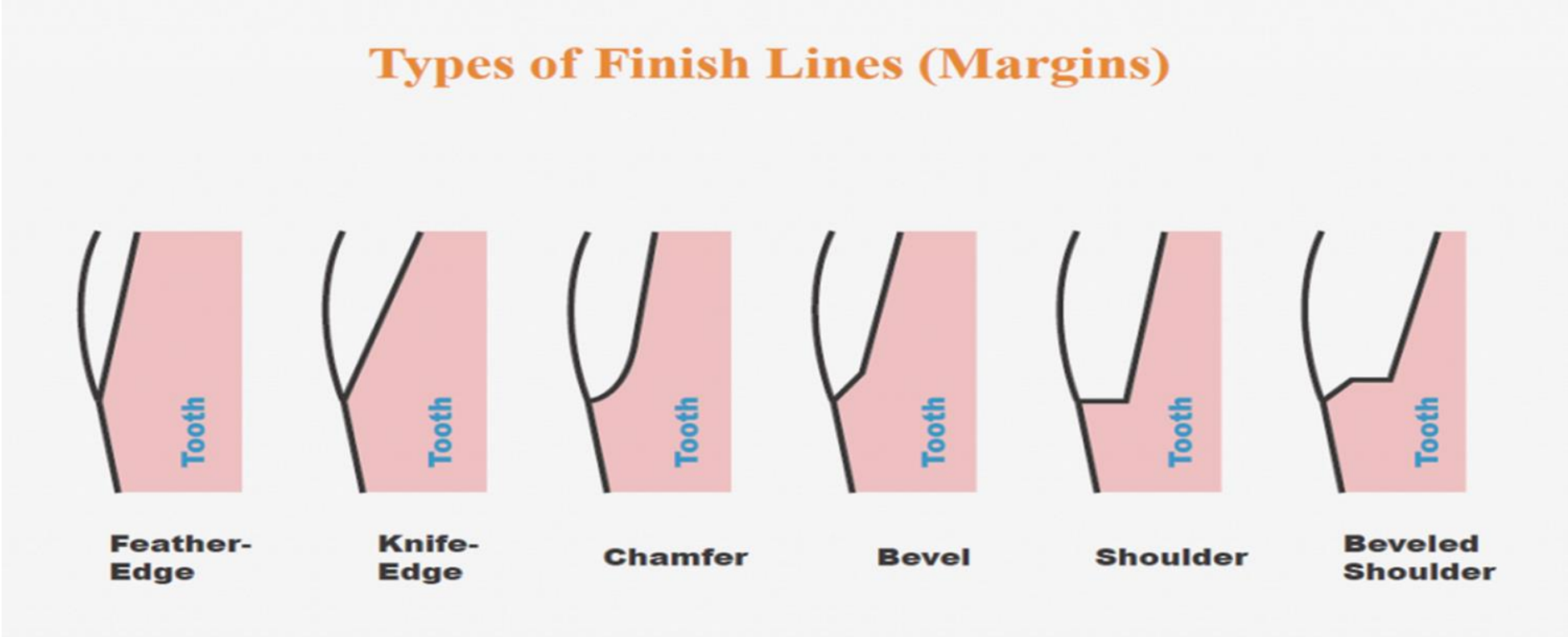


<u>The selection of certain type of finishing line depends on:</u>

1. **The materials used to construct the restoration. (metal , porcelain)**
2. **The position of the tooth. Anterior , posterior)**
3. **The tooth aspect to be prepared.(¾ crown)**

Types of finishing line:

1. Feather edge (knife edge). Marginal width is less than 0.3mm
2. Chamfer. Marginal width up to 0.3mm
3. Shoulder. Marginal width greater than 0.3mm
4- shoulder with bevel
5. Bevel shoulder.



1-**Featheredge or knife edge F.L** :
It's the most conservative type of F.L. (the least amount of tooth structure is removed), but the margin is weak. It forms >160̊ cavo surface line angle (C.S.L).

Mainly indicated for cast metal crown

Advantages

1. It's the most conservative type of f.l.
2. It’s easy to prepared.
3. Burnishable margin of the restoration.

Burnishing: it is further adaptation of the metal crown margin to the tooth structure.

Disadvantages

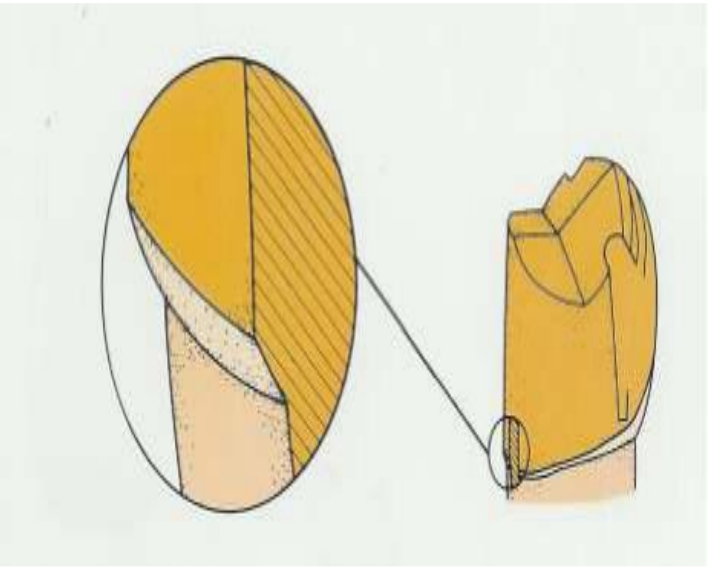
1. Thin margin that is difficult to identified or accurately wax and cast.
2. More susceptible to distortion so it is rarely used nowadays.

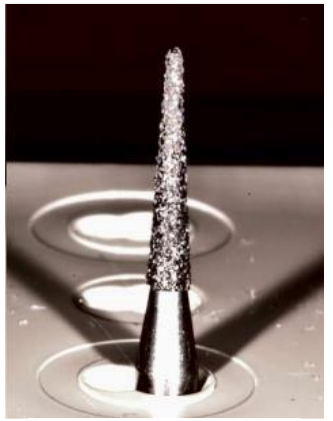
3. Over contoured restoration.

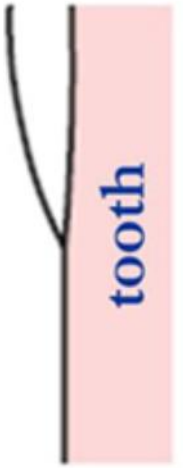
Knife edge finishing line

The required bur: pointed end tapered fissure bur to provide this type of margin.







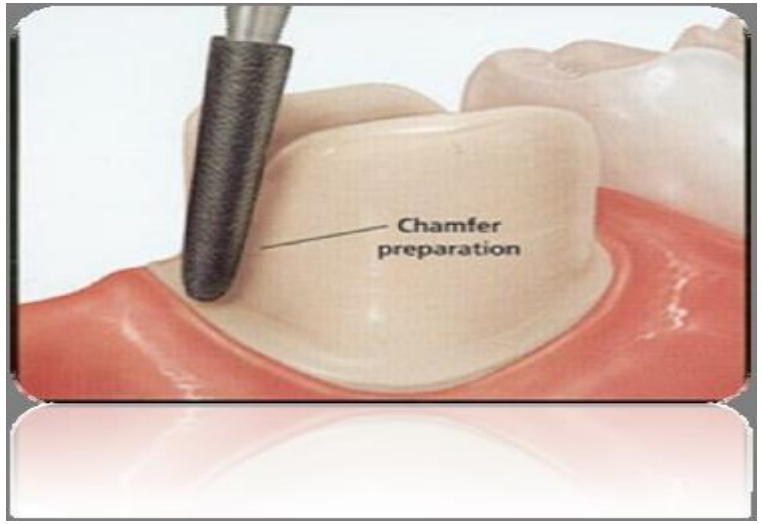


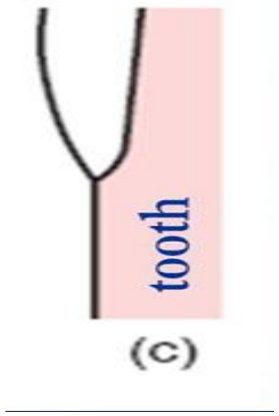
(a)

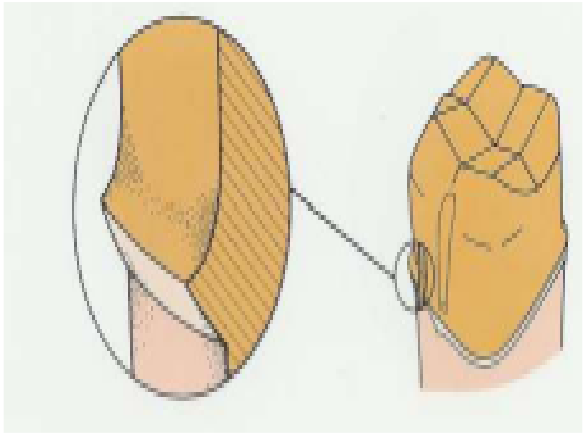
2. Chamfer finish line

It is mainly indicated for cast metal crowns , lingual margin for metal ceramic . The finish line is prepared with tapered stone with round tip , the chamfer should not be prepared wider than half the tip of the diamond , otherwise an unsupported lip of enamel could result which lead to its fracture.

The required bur : round end tapered fissure bur. It is well defined f.L. somewhat like Knife edge f.L. except the cut made deeper, it form 130̊-160̊ Cavosurface line angle.



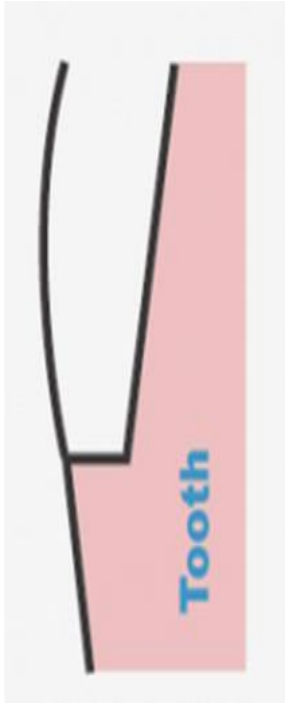






3. Shoulder finishing line:

This is the best choice for facial part of metal ceramic , all ceramic crown (jacket crown) especially anterior teeth to gain retention and esthetic appearance; the wide ledge provides resistance to occlusal forces and minimizes stresses that might lead to fracture of the restoration, and its less conservative. This finishing line is prepared with flattened end straight diamond fissure bur. Its very well defined finishing line so it's easily detected on the cast.



Properties

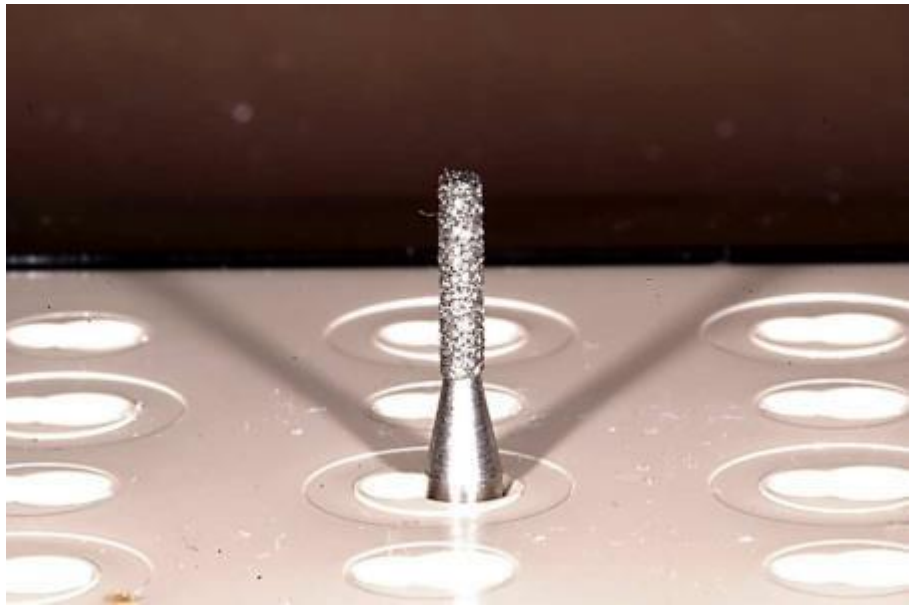
I-It provide sufficient thickness for plastic material (jacket crown) to:

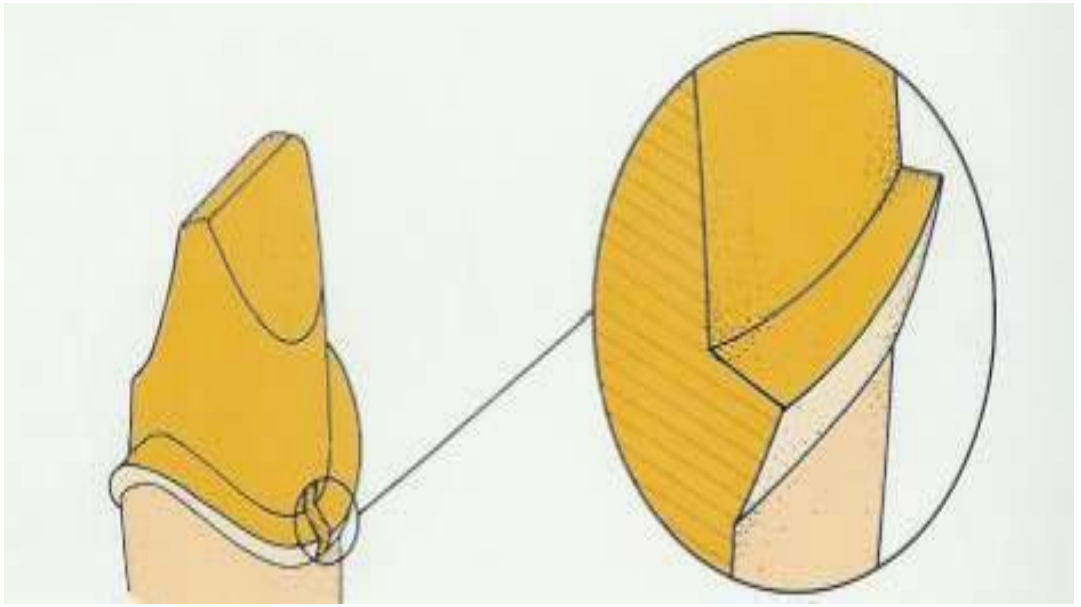
a. withstand occlusal force.

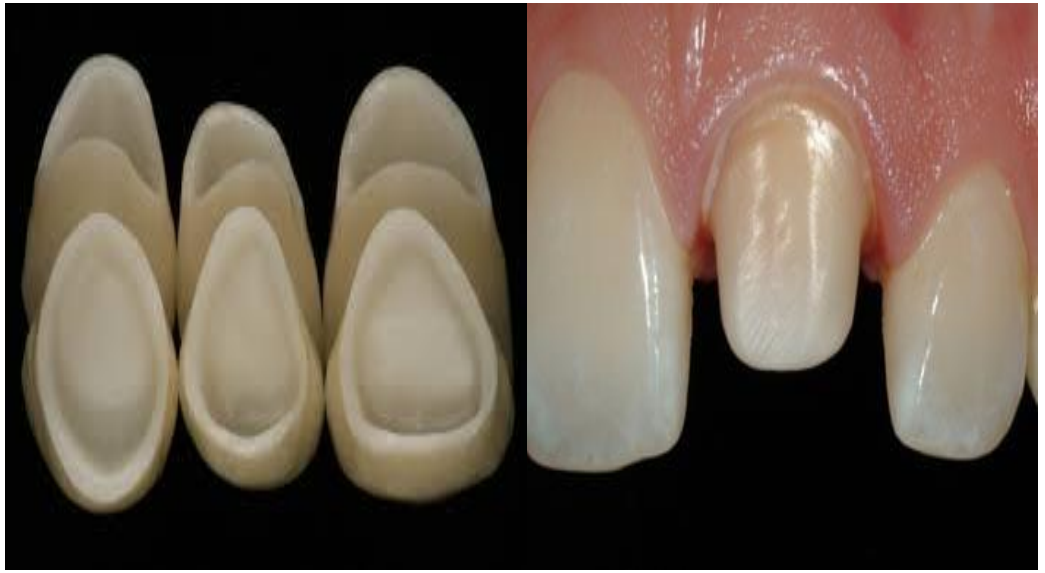
b. provide more translucent porcelain to simulate the appearance of natural tooth.

c. Axial walls meet the F.L. at right angle 90 .

Shoulder finishing line



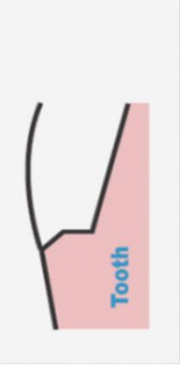




4. Shoulder with bevel F.L.:
It is modification of shoulder F.L., by adding bevel to the shoulder to produce a f.L. like knife edge, the bevel is 45°.

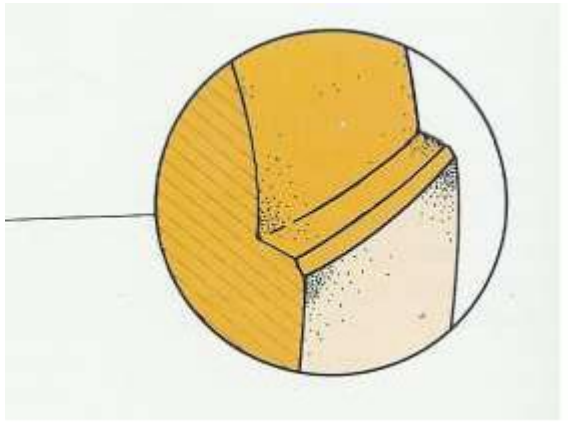
Properties
1. The bevel provides a burnishable margin for the metal that may extend subgingivally. (The thin metal is the more adaptable to the tooth surface).
2. Provide enough space for shape and contour.
3. To reduce marginal discrepancies.
4. Removing unsupported tooth structure (enamel).

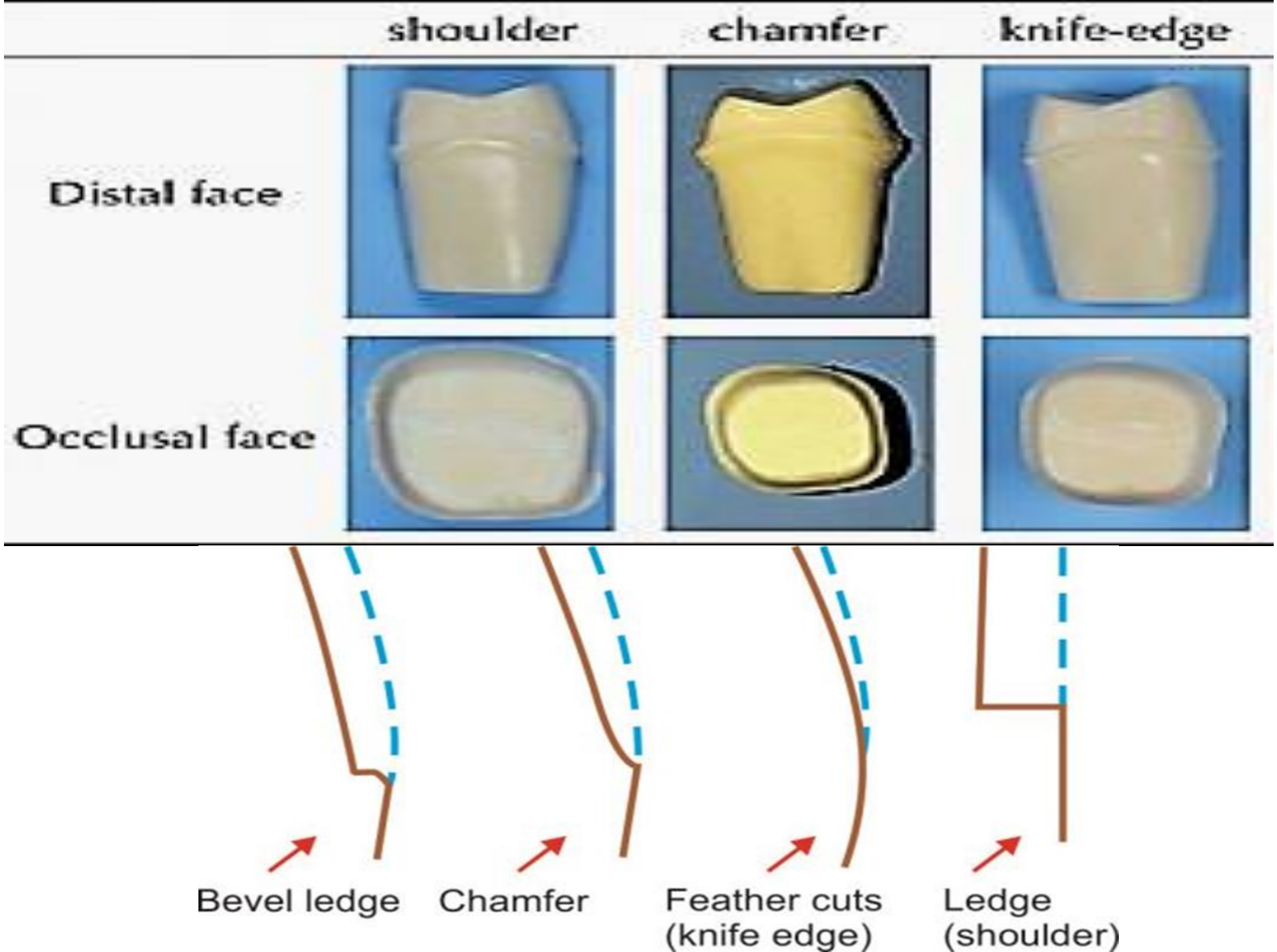
It is mainly used for labial surface of full veneer crown, (combination of metal with facing material (acrylic or porcelain) and it is **recommended for extremely short walls.**



Shoulder with bevel: shoulder with 45 degree bevel






shoulder
chamfer
knife-edge
Distal face
Occlusal face
Bevel ledge
Chamfer
Feather cuts
(knife edge)
Ledge
(shoulder)

Factors affecting the selection of finishing lines.

1. Type of the restoration.
2. Materials used in construction.
3. The amount of occlusal force (stress) the restoration will bear.