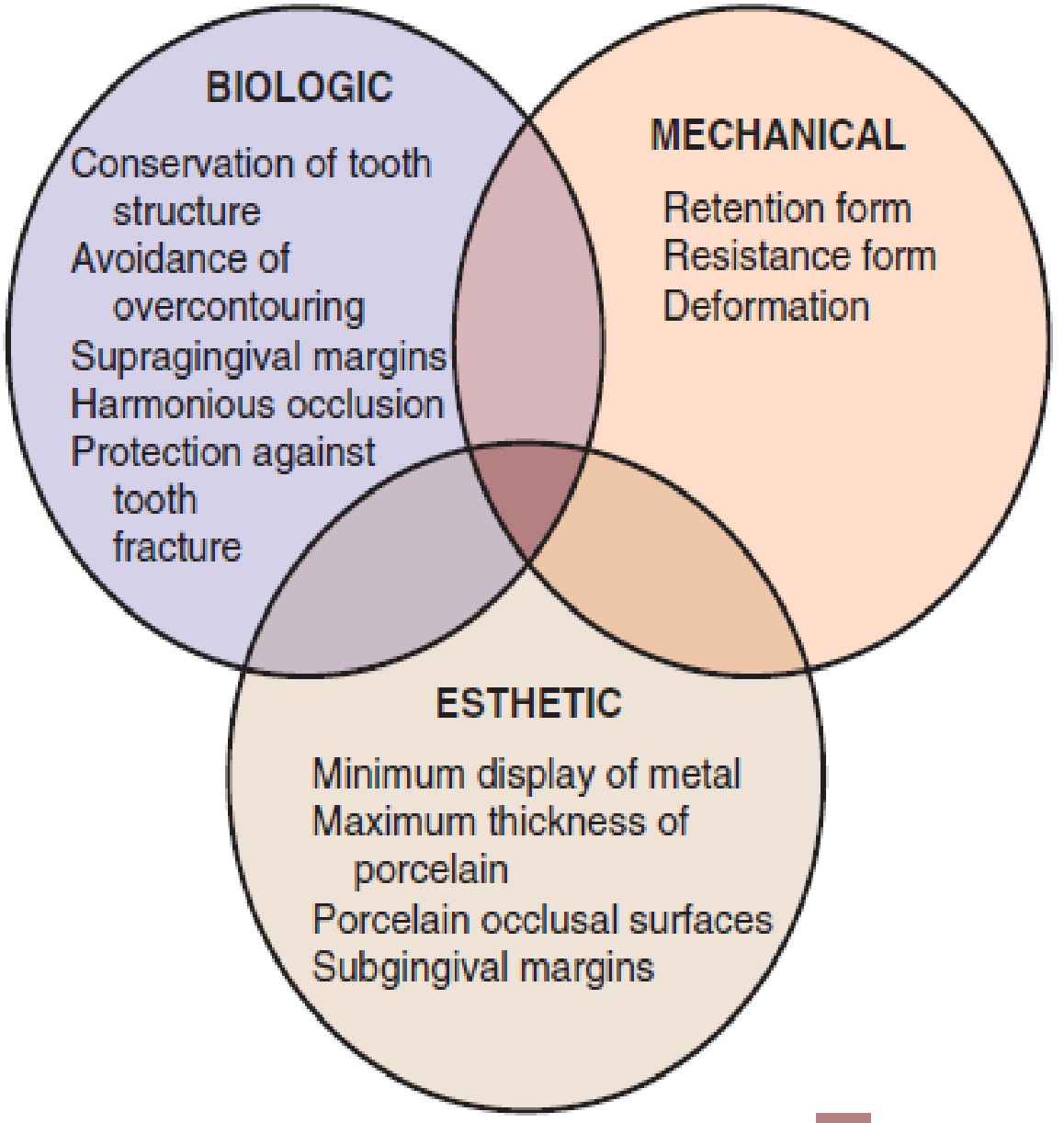
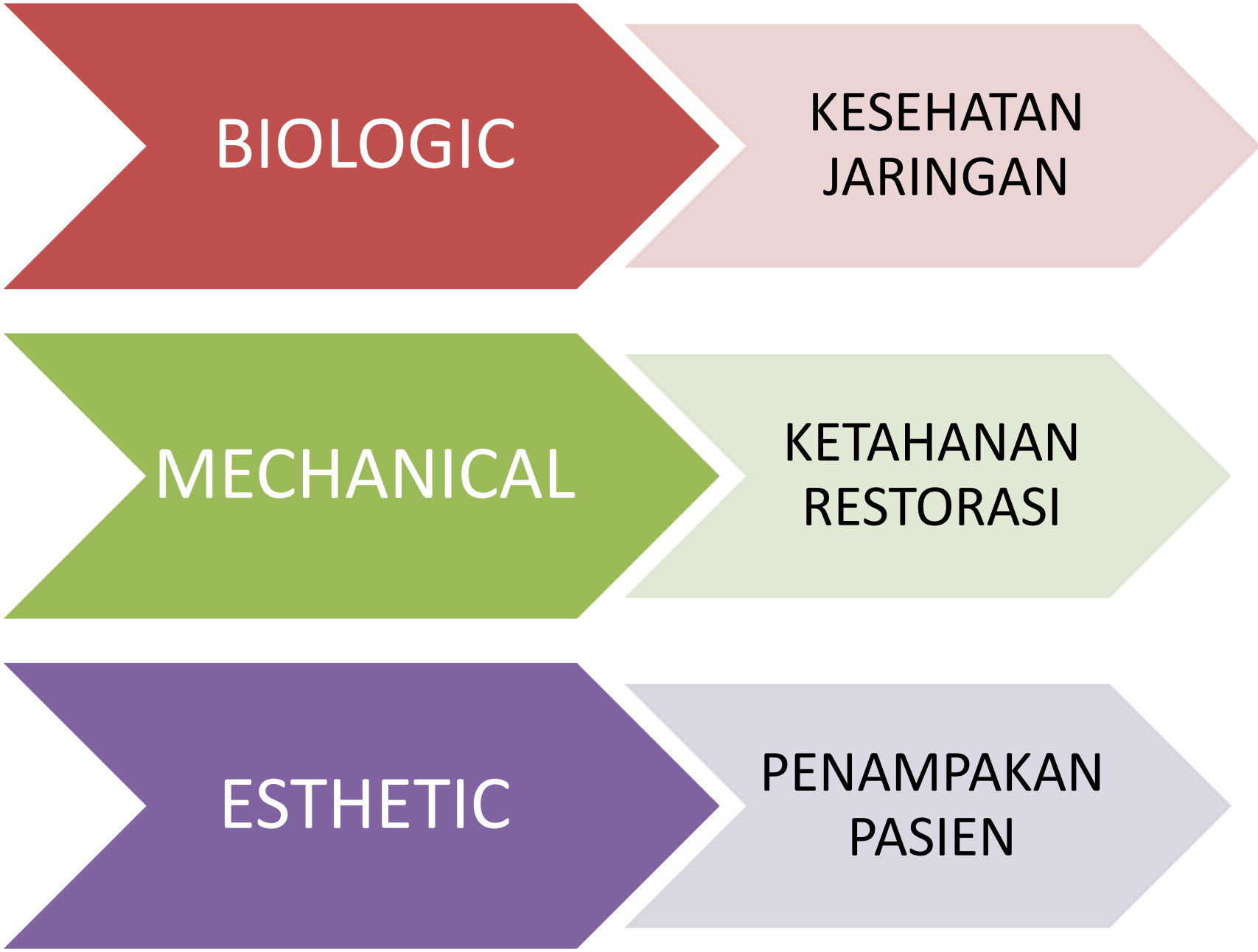
PRINSIP PREPARASI GIGI ABUTMEN

DRG. FAHMI YUNISA, SP PROS


BIOLOGIC
Conservation of tooth structure
Avoidance of overcontouring
Supragingival margins
Harmonious occlusion
Protection against tooth fracture
MECHANICAL
Retention form
Resistance form
Deformation
ESTHETIC
Minimum display of metal
Maximum thickness of porcelain
Porcelain occlusal surfaces
Subgingival margins
Optimal restoration


BIOLOGIC
KESEHATAN JARINGAN
MECHANICAL
KETAHANAN RESTORASI
ESTHETIC
PENAMPAKAN PASIEN

BIOLOGIC CONSIDERATION

- PERLINDUNGAN :

  a. Gigi tetangga

  b. Jaringan lunak

  c. Pulpa

Preparasi yang tidak baik → adaptasi tepi restorasi buruk → kontrol plak sulit → perawatan lama

- PERLINDUNGAN GIGI TETANGGA

a. Penggunaan matrix band
b. Proteksi enamel proksimal → kontak area lebih lebar daripada CEJ

B

- PERLINDUNGAN JARINGAN LUNAK

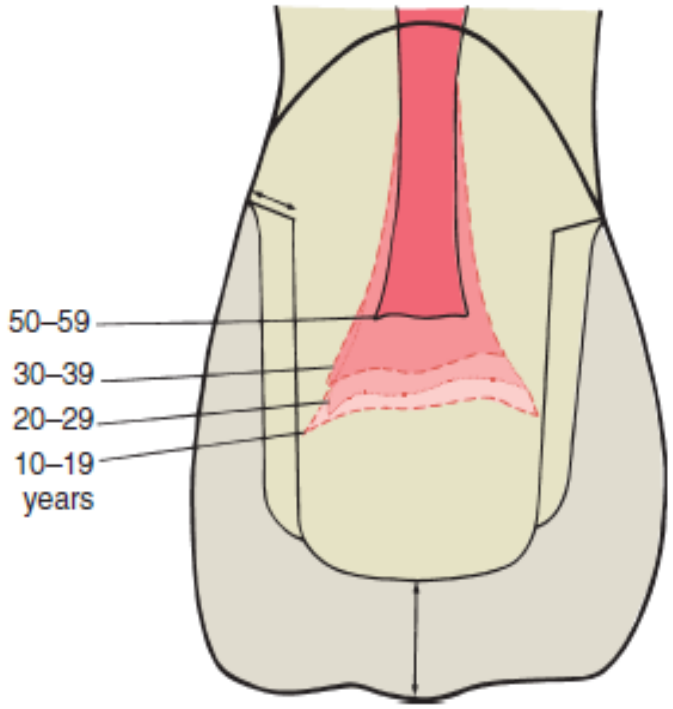
  a. Lidah, pipi

  b. Retraksi menggunakan saliva ejector, atau kaca mulut

- PERLINDUNGAN PULPA

  a. Preparasi gigi → dentin terbuka → temperatur ekstrim, mikroorganisme, iritasi kimiawi → pulpitis irrevesibel

  b. Preparasi harus memperhatikan ukuran kamar pulpa



- Temperatur :

  a. Gesekan instrumen putar – permukaan gigi → panas

  b. Penggunaan air saat preparasi

  c. Tekanan ringan

  d. intermitten

- Iritasi kimiawi :

  a. Dentin terbuka → aplikasi material KG (luting agent, base, resin) → kerusakan pulpa

  b. Pembentukan barrier : cavity varnish, dentin bonding

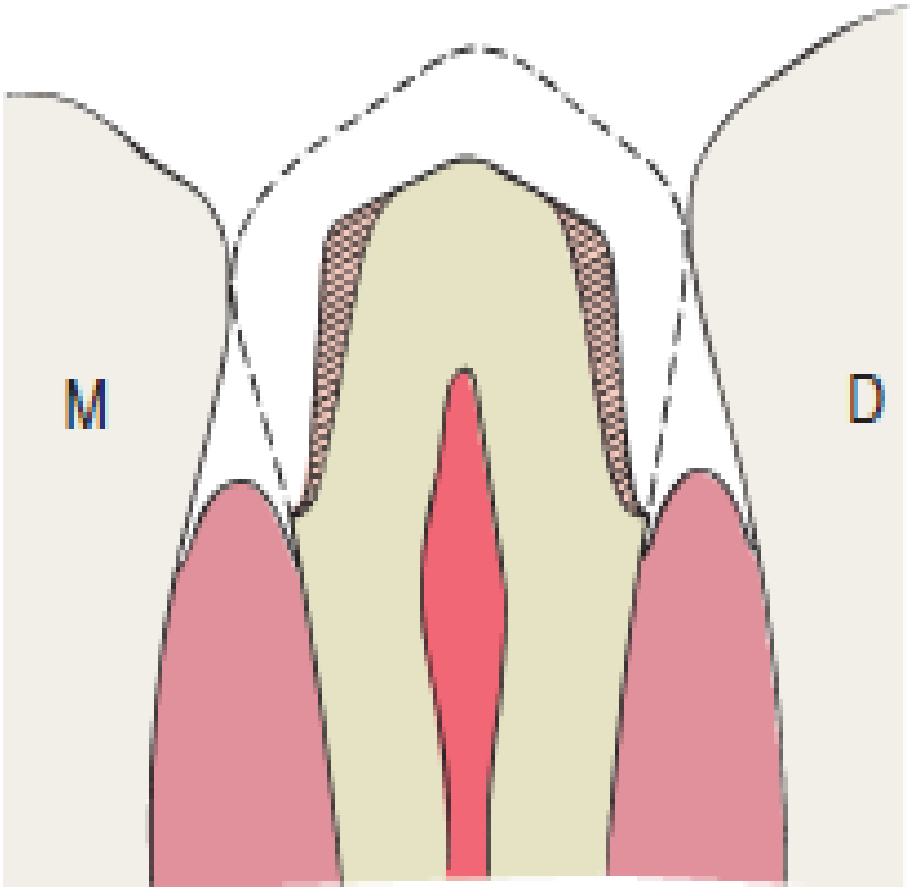
- Aksi bakteri :

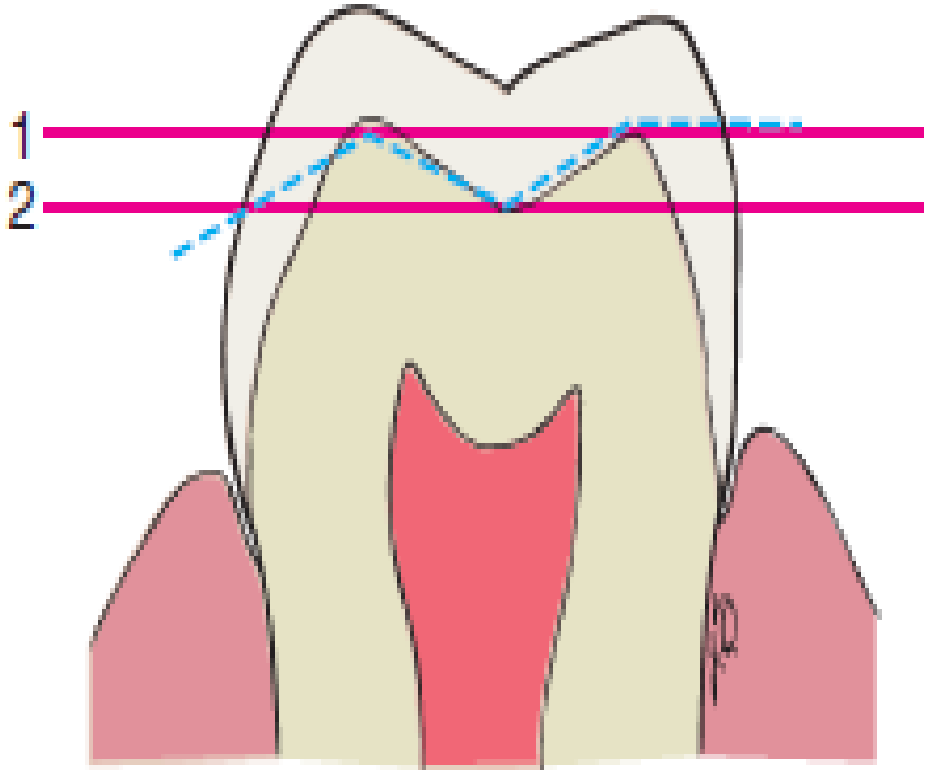
  a. Pembersihan karies dari gigi

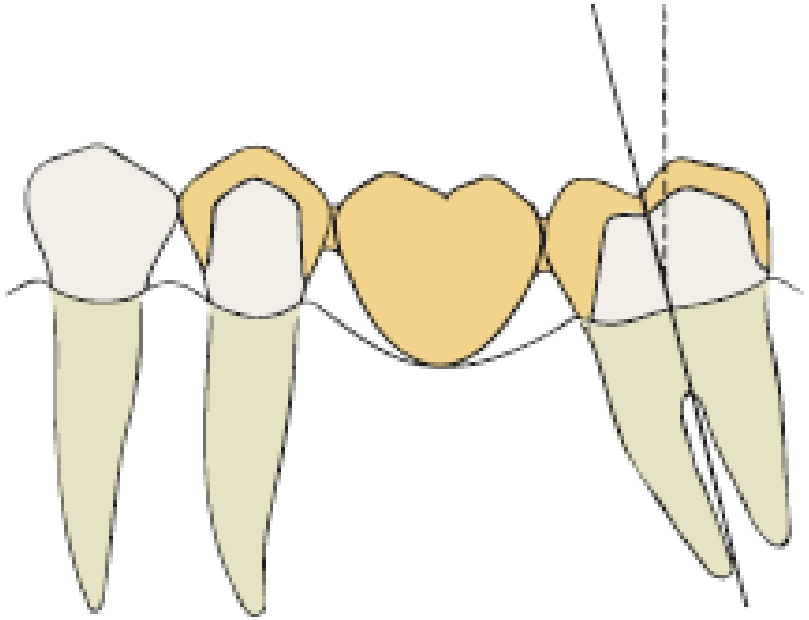
  b. Tidak melakukan kaping pulpa indirek sebelum dipasang restorasi

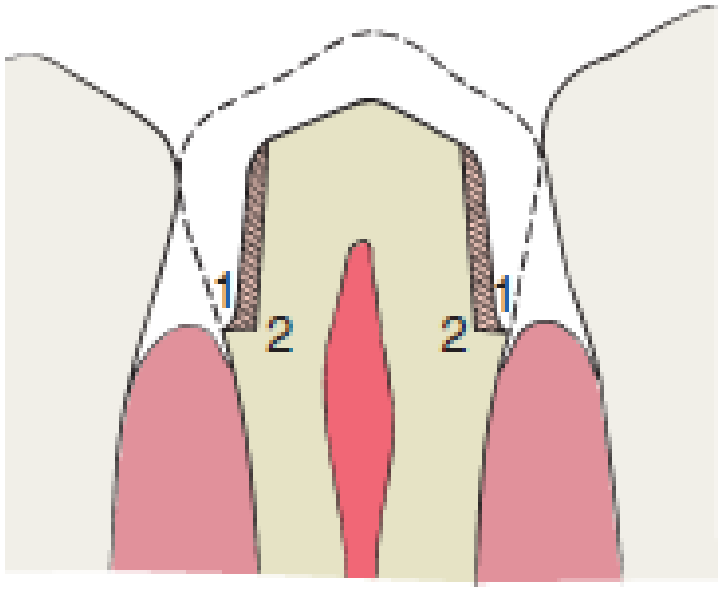
  c. Penggunaan bahan antimikrobial → chlorhexidine gluconate

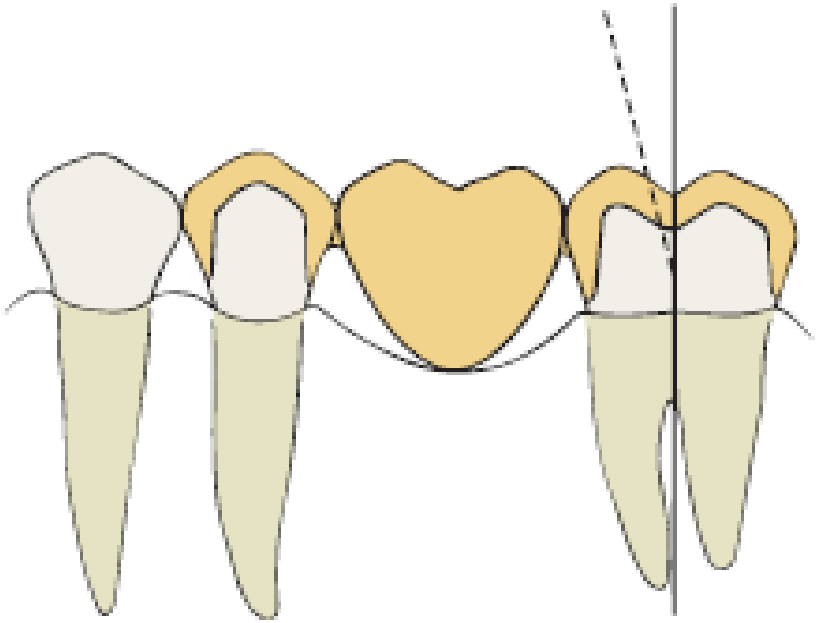
- PERLINDUNGAN STRUKTUR GIGI

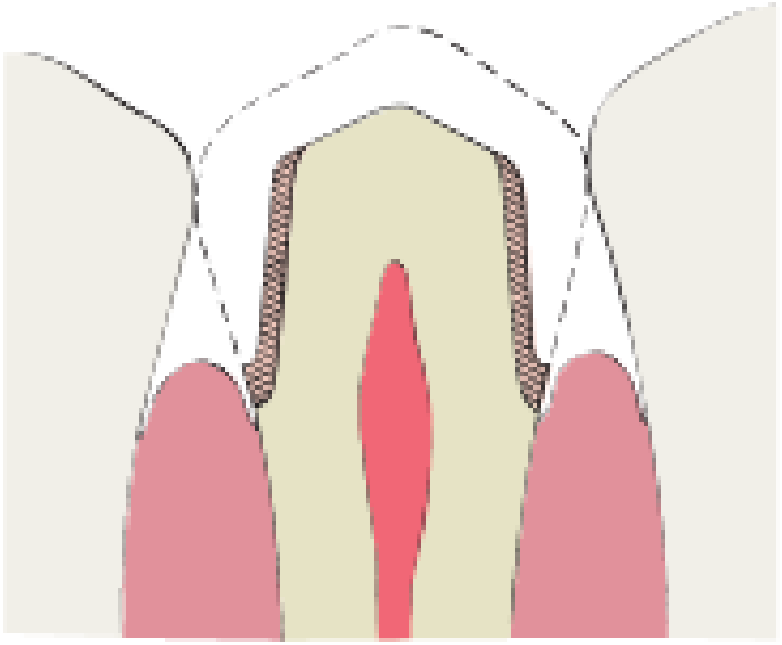







1
2
2
1





- PENEMPATAN MARGIN

A

B

- MARGIN / FINISH LINE : supragingival, sub gingival
- Supragingival margin :

  a. Preparasi lebih mudah

  b. Non trauma

  c. Dibuat pada enamel

  d. Kontrol plak mudah

  e. Mudah dicetak

  f. Evaluasi restorasi mudah

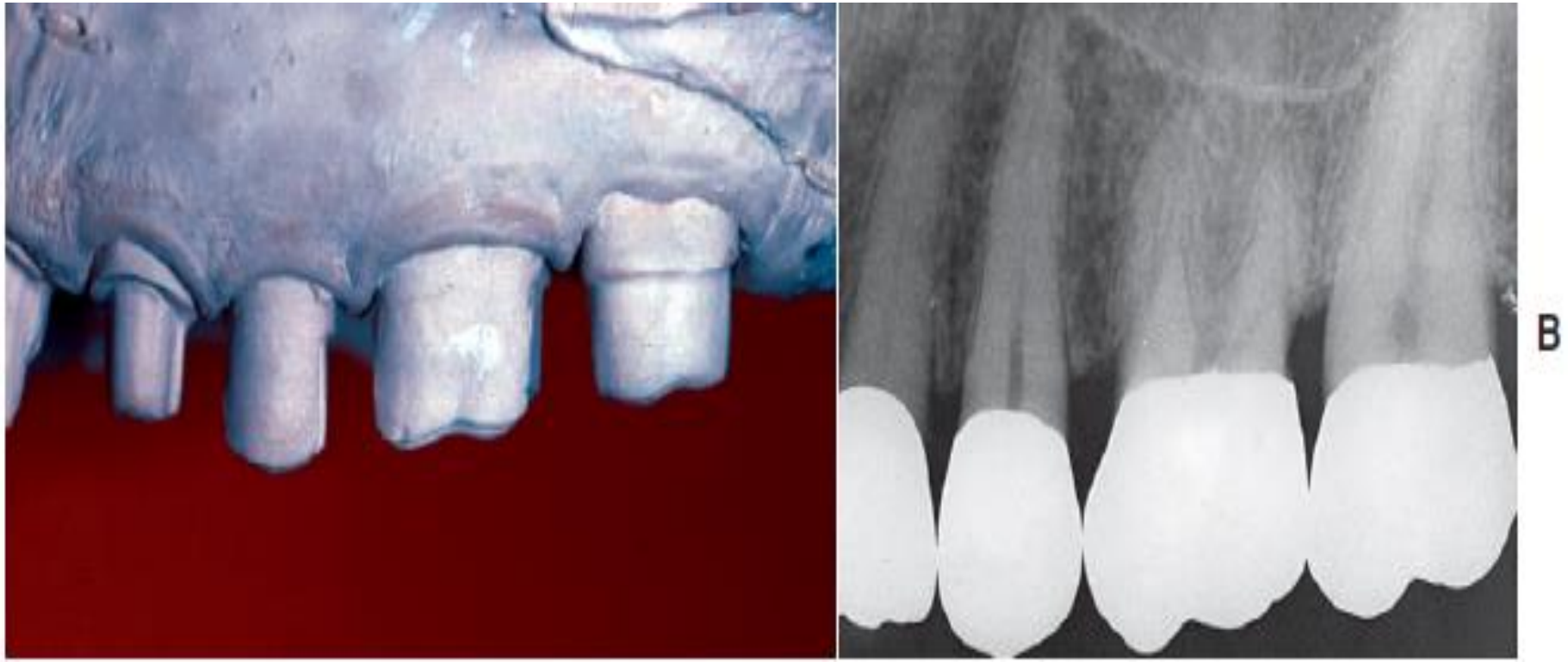
- Subgingival margin :

  a. Lebih estetis

  b. Dibuat pada dentin atau sementum

  c. Digunakan pada kebutuhan retensi – resistensi

  d. Kontraindikasi pada gigi karies, erosi servikal, crown lengthening


A
B

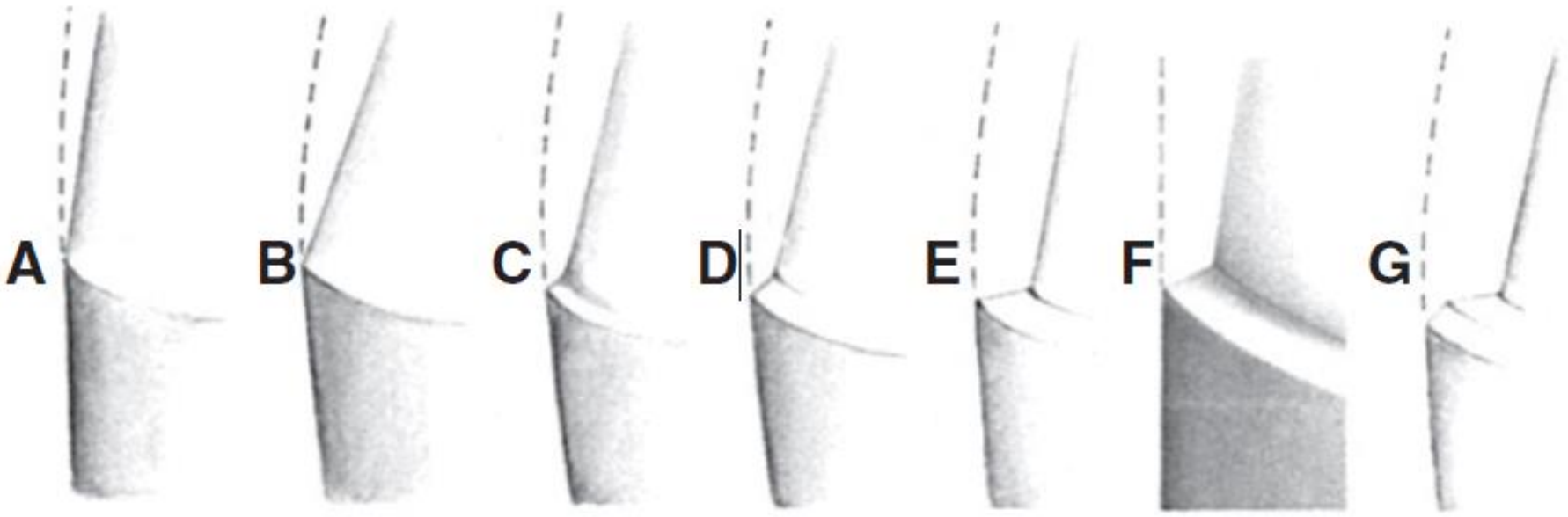
- DESAIN MARGIN :

  a. Mudah dibuat / dipreparasi, tidak menimbulkan trauma

  b. Mudah dicetak

  c. Menyediakan ruang yang cukup untuk ketebalan bahan restorasi

  d. Melindungi struktur gigi



A, Feather edge. B, Chisel. C, Chamfer. D, Bevel. E, Shoulder. F, Sloped shoulder. G, Beveled shoulder.

Margin design	Advantages	Disadvantages	Indications
Feather edge	Conservative of tooth structure	Does not provide sufficient bulk	Not recommended
Chisel edge	Conservative of tooth structure	Location of margin difficult to control	Occasionally on tilted teeth
Bevel	Removes unsupported enamel, allows finishing of metal	Extends preparation into sulcus if used on apical margin	Facial margin of maxillary partial-coverage restorations and inlay/onlay margins
Chamfer	Distinct margin, adequate bulk, easier to control	Care needed to avoid unsupported lip of enamel	Cast metal restorations, lingual margin of metal-ceramic crowns
Shoulder	Bulk of restorative material	Less conservative of tooth structure	Facial margin of metal-ceramic crowns, complete ceramic crowns
Sloped shoulder	Bulk of material, advantages of bevel	Less conservative of tooth structure	Facial margins of metal-ceramic crowns
Shoulder with bevel	Bulk of material, advantages of bevel	Less conservative, extends preparation apically	Facial margin of posterior metal-ceramic crowns with supragingival margins

MECHANICAL CONSIDERATION

A. RETENTION FORM
B. RESISTANCE FORM
C. PREVENTING DEFORMATION OF RESTORATION

RETENTION FORM

- Retensi : kualitas preparasi yang **mencegah restorasi berpindah** oleh suatu **gaya yang paralel dengan arah masuk restorasi**
- Faktor berpengaruh :

  a. Besar gaya pemindah

  b. Geometri preparasi gigi

  c. Kekasaran fitting surface

  d. Bahan sementasi

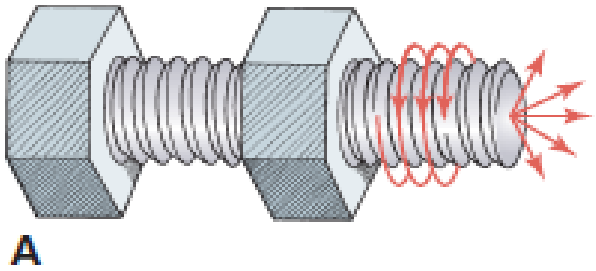
  e. Ketebalan sementasi

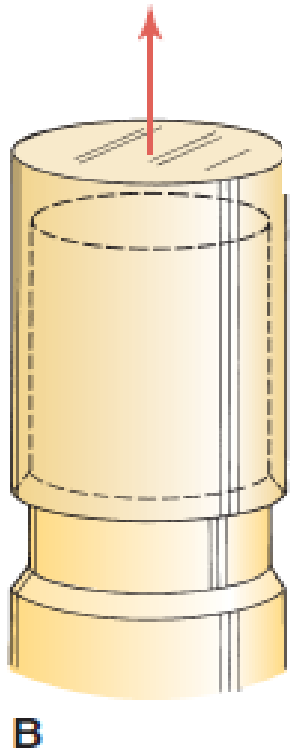
- BESAR GAYA PEMINDAH :

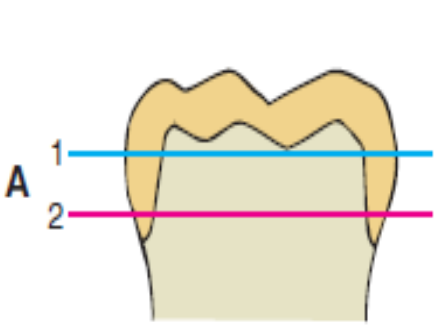
  - makanan lengket, besar permukaan restorasi

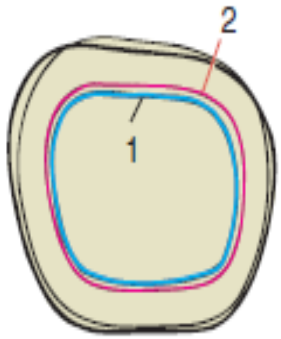
- GEOMETRI PREPARASI :

Minimizing taper effectively limits the number of directions in which a cast crown can be dislodged.

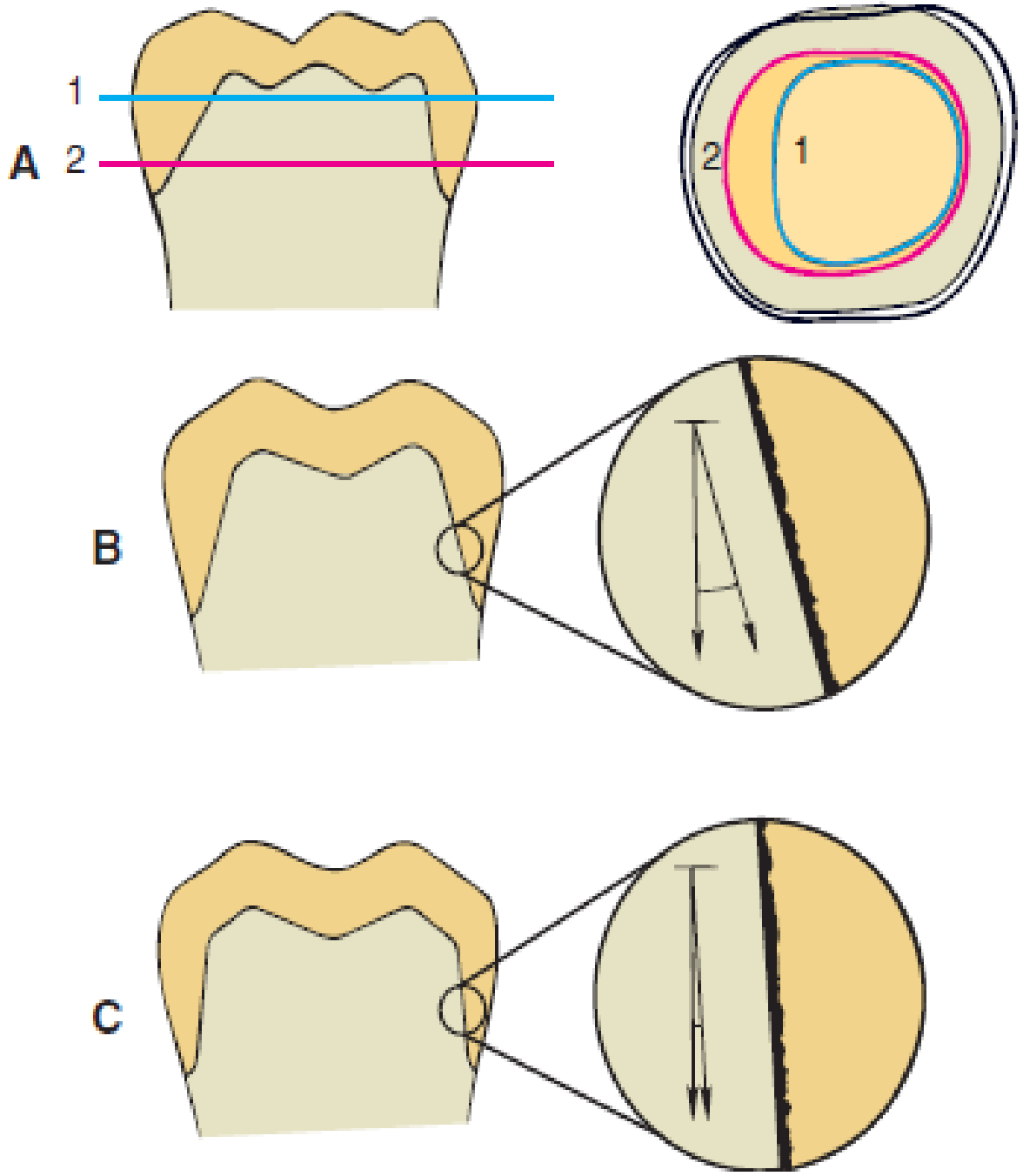




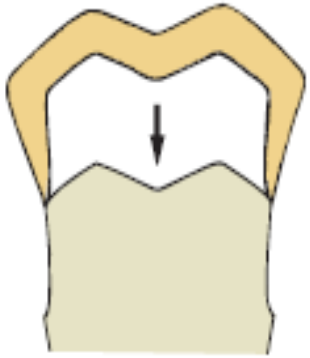




Single path of placement


A
1
2
2
1
B
C

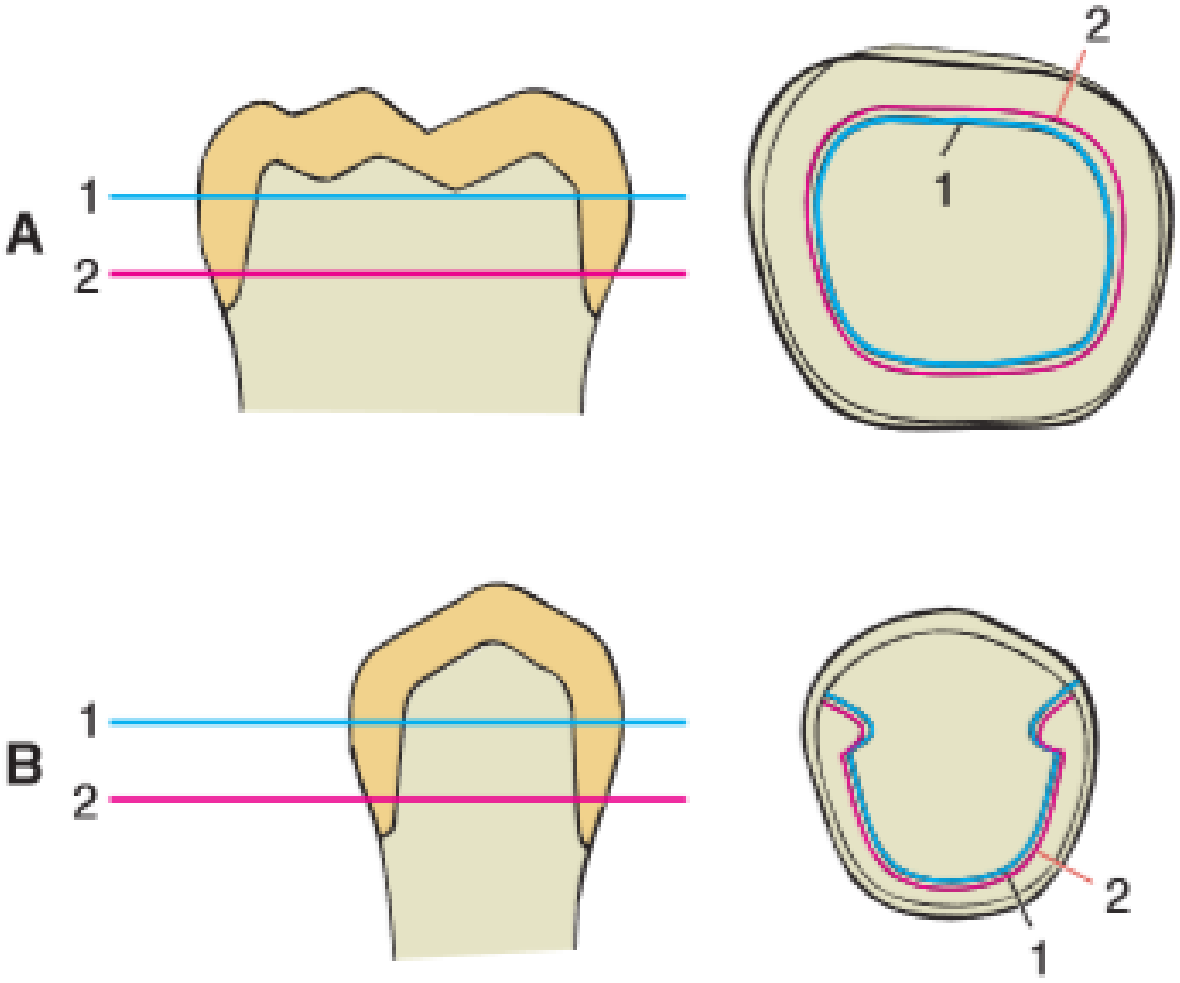
For a crown to seat and have the optimal retention, all axial walls should have a 6-degree taper from cervical to occlusal.



Angle of convergence

Fig. 7-33
The recommended convergence angle is 6 degrees. This is a very slight taper. (The angle between the hands of a clock showing 12:01 is 5½ degrees.)

Surface area



Type of preparation

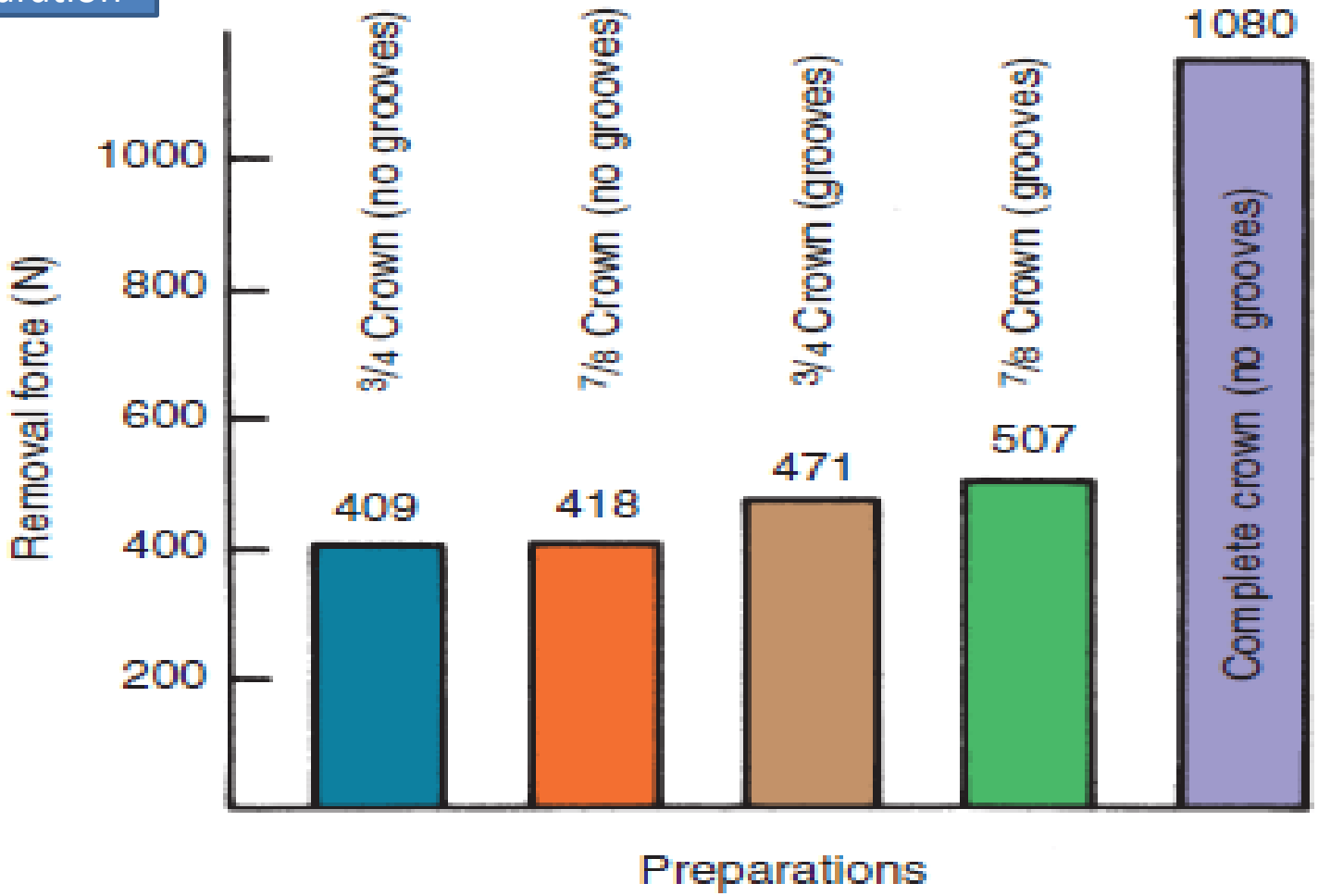
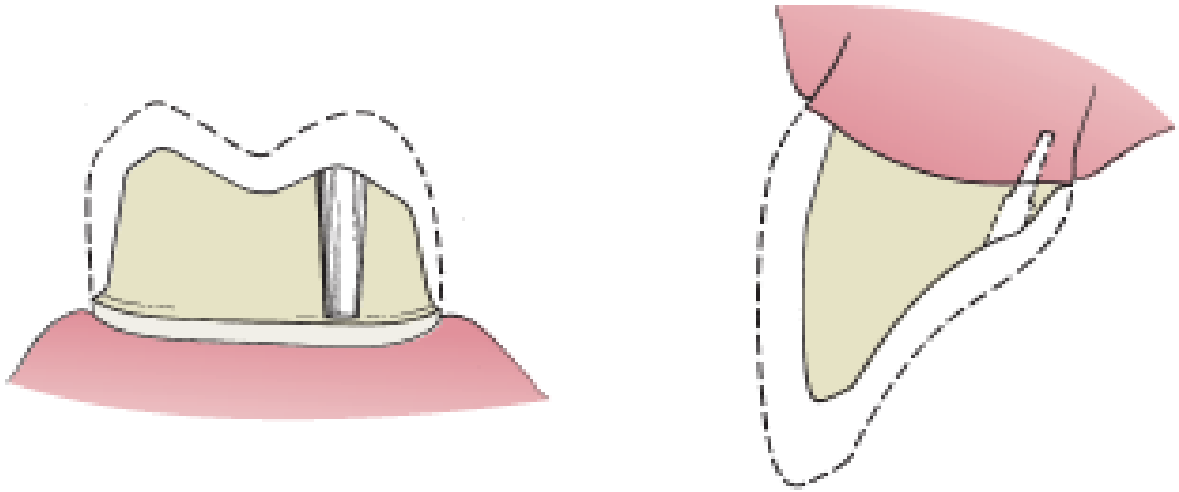


Fig. 7-34

Retention of different preparation designs. *(From Potts RG, et al: Retention and resistance of preparations for cast restorations. J Prosthet Dent 43:303, 1980.)*



Internal features effectively increase resistance.

Fig. 7-35

Retention form of an excessively tapered preparation can be increased by adding grooves or pinholes, because these limit the paths of withdrawal.

Type of luting cement

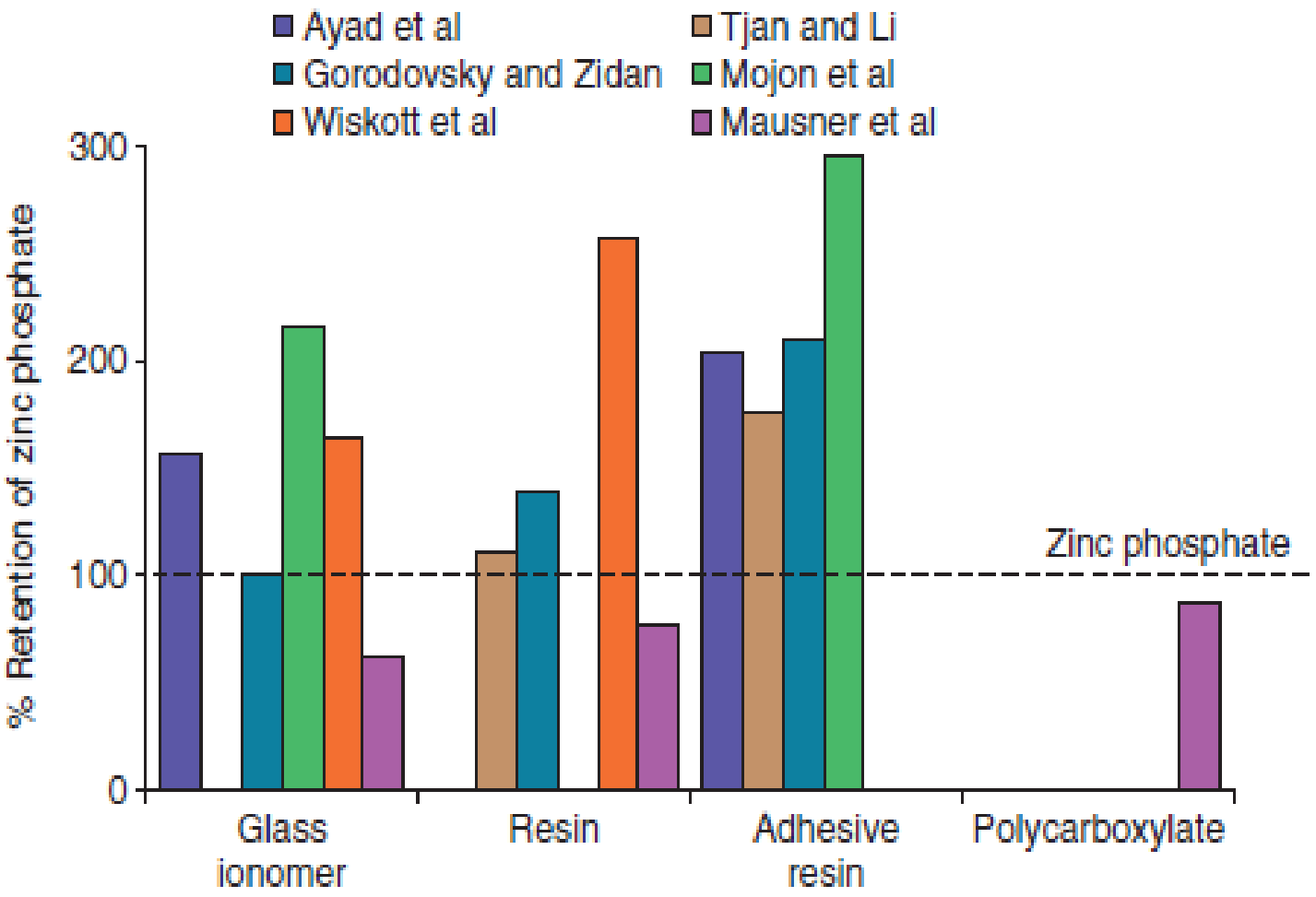


Table 7-4 FACTORS INFLUENCING THE RETENTION OF A CEMENTED RESTORATION

	Greater Retention → Lesser Retention
Taper	Parallel → 6 degrees → Excessive
Surface area	Large → Small
Type of preparation	Molar complete crown → Premolar complete crown → Partial crown → Intracoronal restoration
Surface texture	Rough → Smooth
Film thickness	Effect uncertain
Luting agent	Adhesive resin → Glass ionomer → Polycarboxylate / Zinc phosphate → Zinc oxide-eugenol

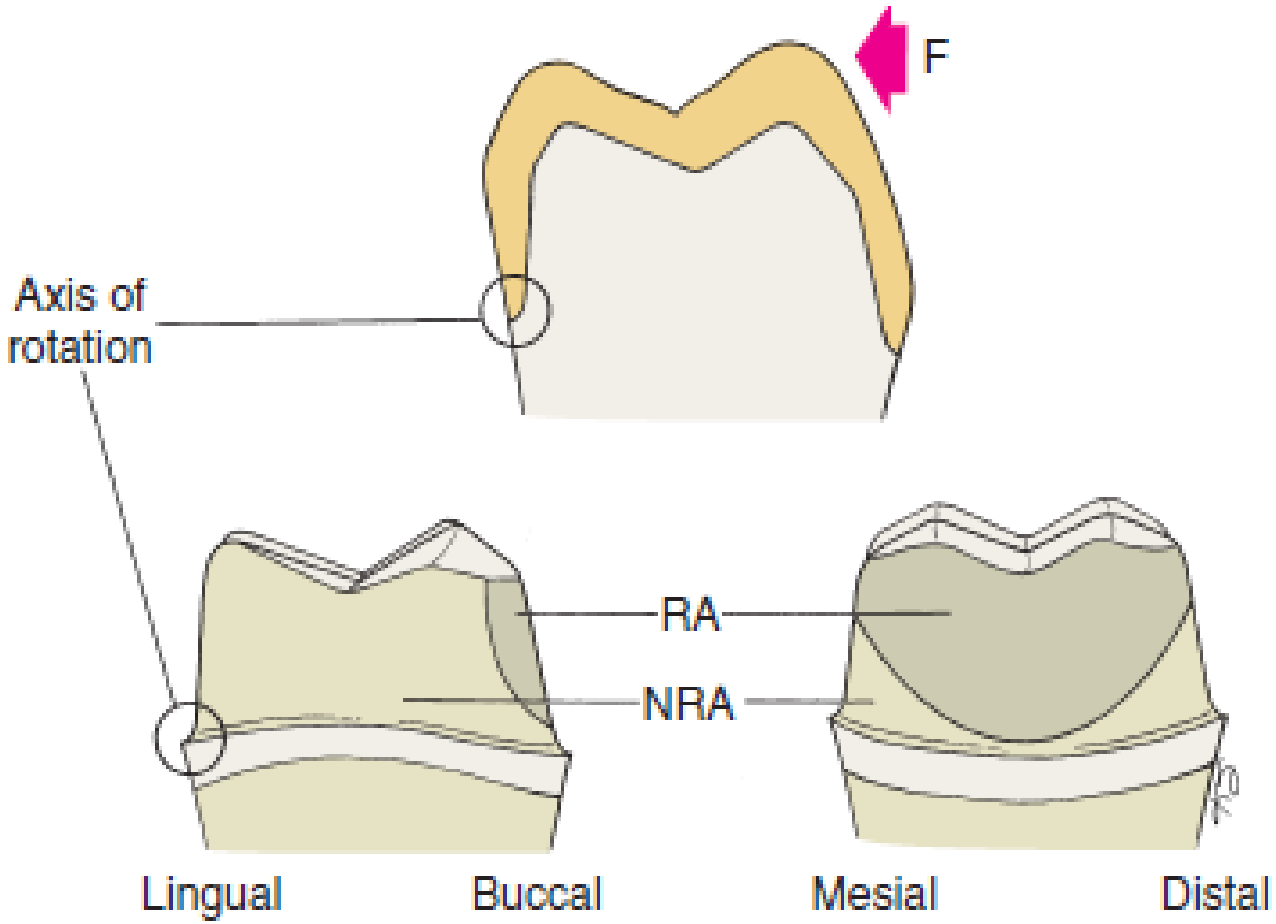
RESISTANCE FORM

- Resistensi : kualitas preparasi yang dapat **mencegah restorasi berotasi** oleh suatu **gaya lateral**
- Faktor berpengaruh :

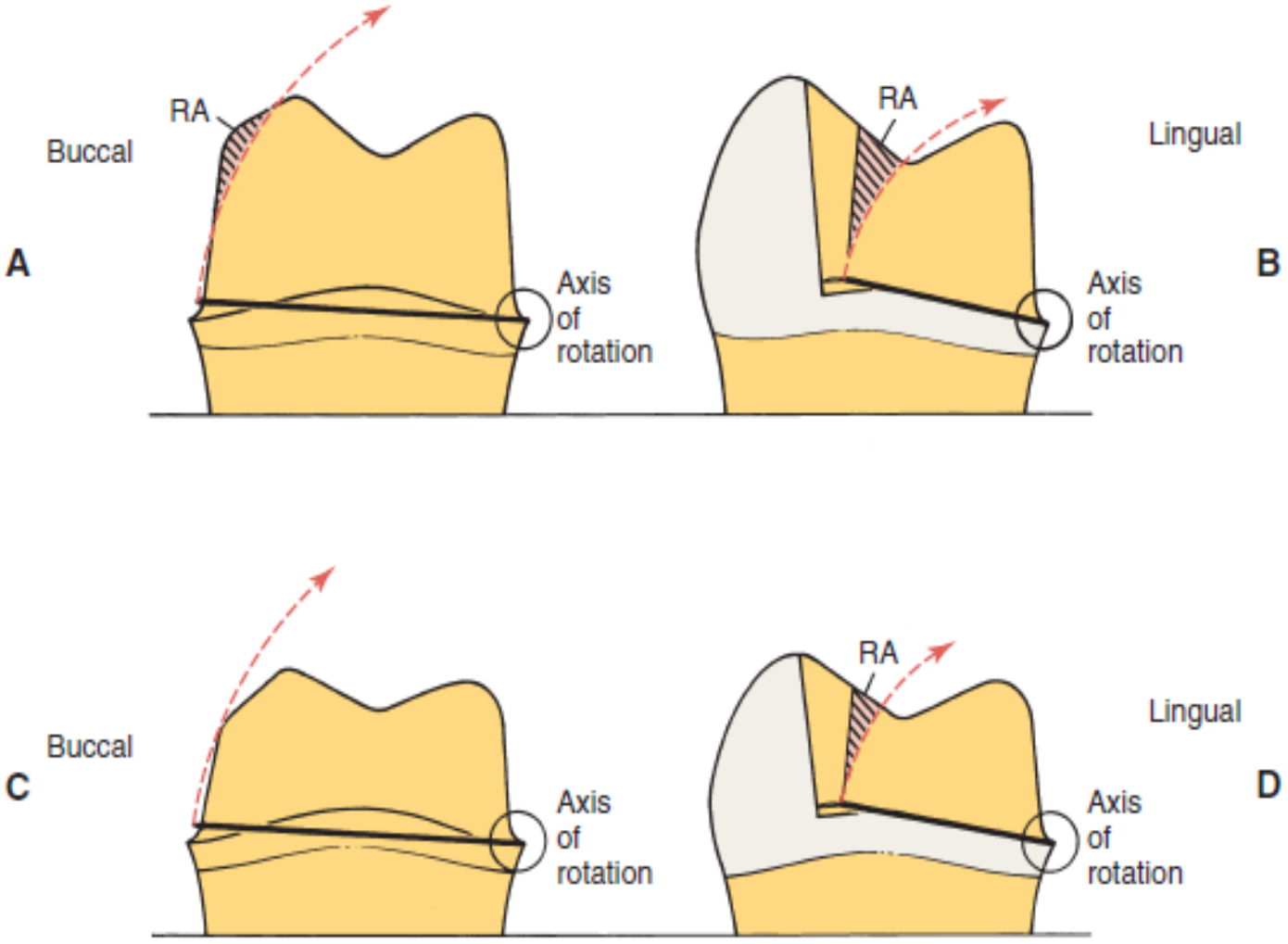
  a. Besar gaya lateral

  b. Geometri preparasi

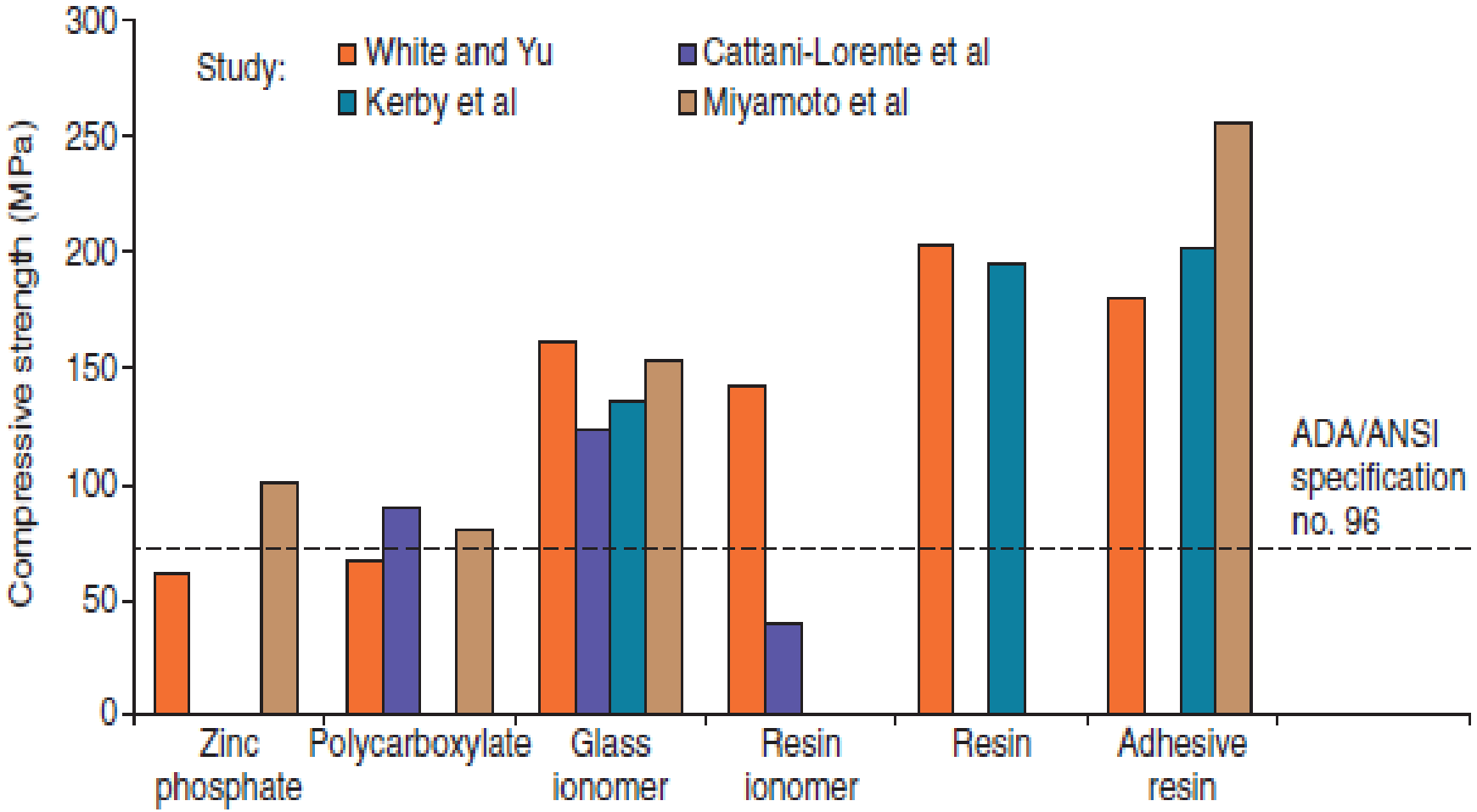
  c. Bahan sementasi


F
Axis of rotation
RA
NRA
Lingual
Buccal
Mesial
Distal

- GEOMETRI PREPARASI



- BAHAN SEMENTASI



PREVENTING DEFORMATION

- Kekuatan restorasi selama berfungsi
- Faktor berpengaruh :

  a. Pemilihan bahan → metal ceramic alloy

  b. Preparasi gigi yang adekuat → keteblan preparasi 1,5 mm

  c. Desain margin → tipe berpundak

ESTHETIC CONSIDERATION

- Pasien selalu menginginkan restorasi yang senatural mungkin → harapan pasien
- Selalu kaitkan dengan kondisi oral saat bicara, tersenyum atau tertawa
- ALL CERAMIC RESTORATION
- METAL CERAMIC RESTORATION
- PARTIAL COVERAGE RESTORATION

TERIMA KASIH