

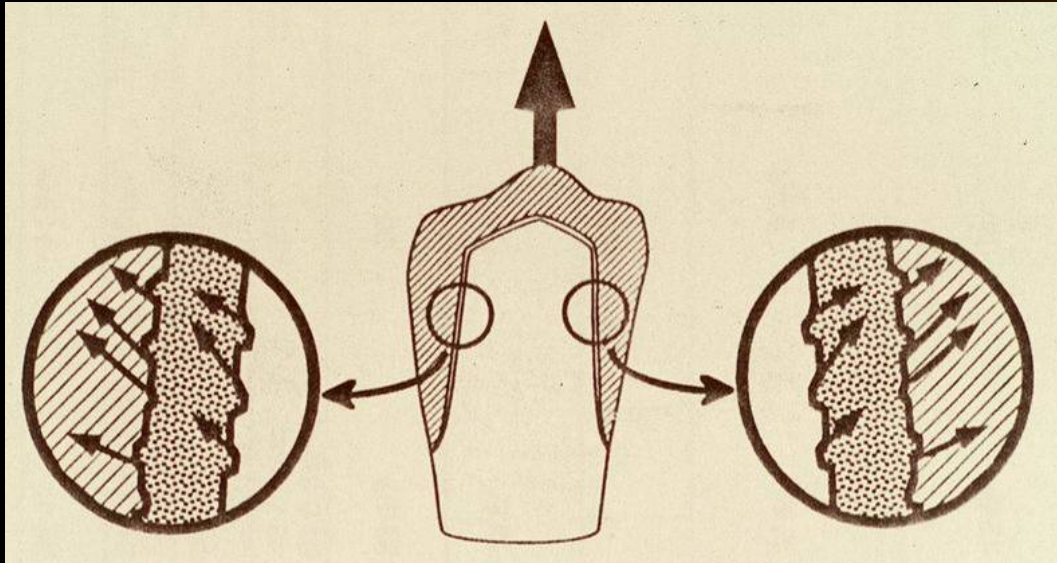
# *Permanent sementering av fast protese til tann – hvordan adhesjon?*

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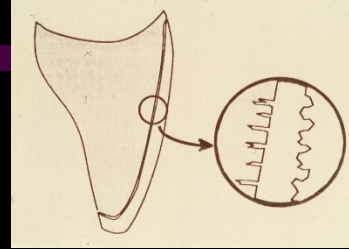
**Asbjørn Jokstad**  
**Institutt for klinisk odontologi**  
**UiT Norges arktiske universitet**



# *“Non-adhesiv” kontra “adhesiv” sement*



*Indre flater må være klargjort mikromekanisk av tanntekniker & kjemisk av tannlege før sementering*



**Fra tanntekniker:**

Metall-keram

Blastret (MPa/ $\mu\text{m}/\text{Al}_2\text{O}_3$ )

**Umiddelbart før sementering med vannbasert sement:**

(Fjerne organisk material etter salivakontaminasjon)

Fosforsyre

(Dehydrere:)

Sprit



# Vannbaserte sementer

Sinkfosfat

(Sink-)Polykarboksylat Glass-ionomer

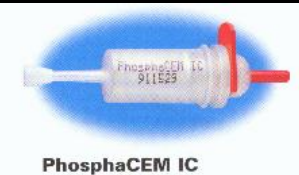
1878

1978

ZnOx + Fosforsyre →

ZnOx + Polyakryl-syre (PA)

Ca-Al-F-glass+PA

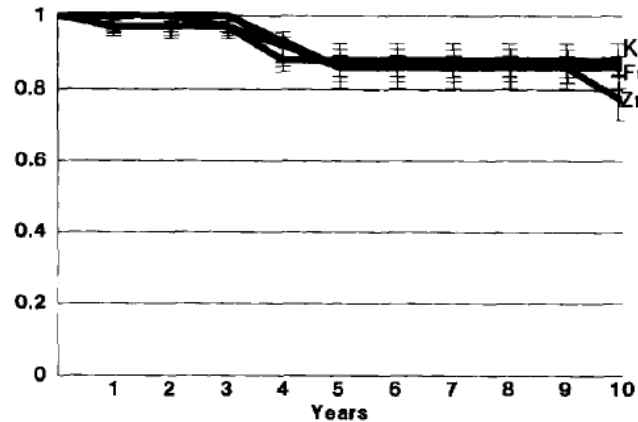




## Ten years' clinical evaluation of three luting cements

A. Jokstad and I. A. Mjør\*  
Department of Prosthetic Dentistry and Stomatognathic Physiology, University of Oslo, Oslo, Norway, and NIOM, Scandinavian Institute of Dental Materials, Haslum, Norway

4 *J. Dent.* 1996; 24: No. 5



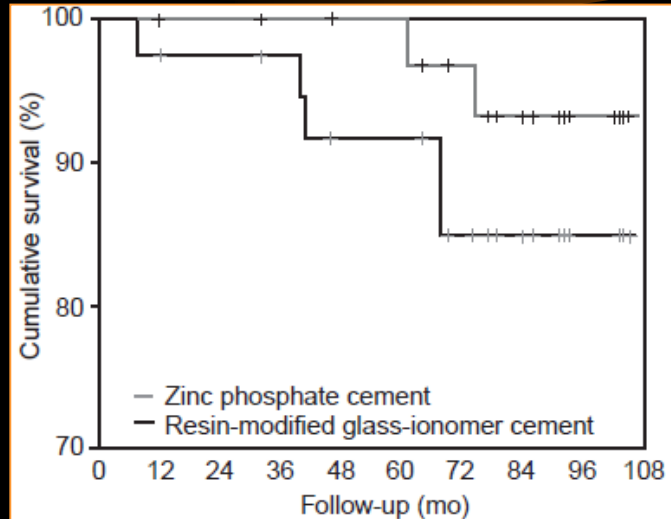
### Acknowledgements

The authors would like to thank Dr K. Malmestrand, Sweden, Dr T. Rantanen, Finland and Dr A. Wodschow, Denmark for the time and effort devoted to this clinical study.

## A Split-Mouth Randomized Clinical Trial of Single Crowns Retained with Resin-Modified Glass-Ionomer and Zinc Phosphate Luting Cements

Asbjørn Jokstad, DDS, Dr Odont/PhD<sup>3</sup>

7. 3M Dental Products. Vitremer Luting Cement Technical Product Profile. St Paul, MN: 3M Dental Products Laboratory, 1994.



### Acknowledgments

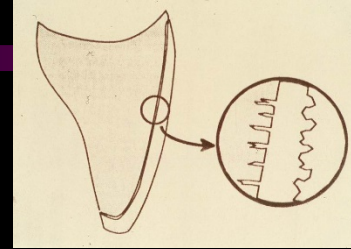
The contributions from the author's colleagues Drs Bjørn Amundrud and Knut E. Eide made this clinical trial possible and are greatly appreciated.

## *Metal-keram, overflatebehandling, vannbasert sement*

- ✓ Rengjør innvendig med børste og pimpesten (Eventuelt rens i ultralydbad)
- ✓ Vurder behov for sandblåsing (spesielt ved resementering)
- ✓ Vask med  $\geq 70\%$  etanol (dehydrere)



*Indre flater må være klargjort mikromekanisk av tanntekniker & kjemisk av tannlege før sementering*



**Fra tanntekniker:**

Metall

Blastret (MPa/ $\mu\text{m}/\text{Al}_2\text{O}_3$ )

Glasskeram

Fluss-syre

**Umiddelbart før sementering med polymersement:**

(Fjerne organisk material etter salivakontaminasjon)

Fosforsyre

Fosforsyre

(Dehydrere:)

Sprit

Sprit

Silanisere

# Polymer-sementer

4-META\*

Bonding + BisGMA/UDMA



(Panavia)



(Excite DCS + Variolink II (dual-cure)  
eller Multilink (kjemisk herdende)

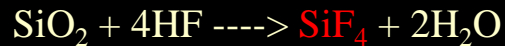
\*4-methacryoxy-ethyltrimellitic acid anhydride



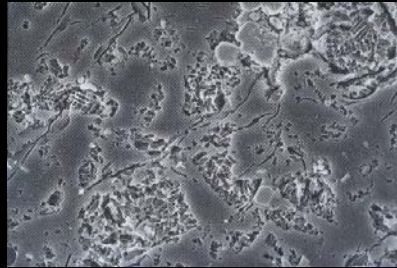
# Konvensjonell keram & glasskeram: påkrevd overflatebehandling før sementering med en polymer-sement

1. Overflate etset med fluss-syre (Hydrofluoric Acid, HA)

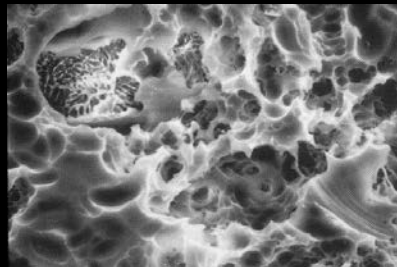
OBS!  
HMS risiko:



Ingen etsing



Etset 15 sek  
(10% HA)



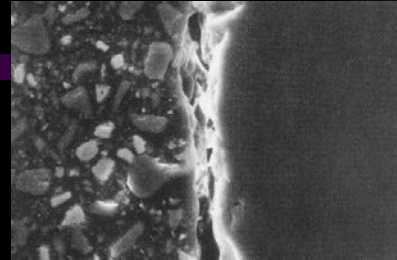
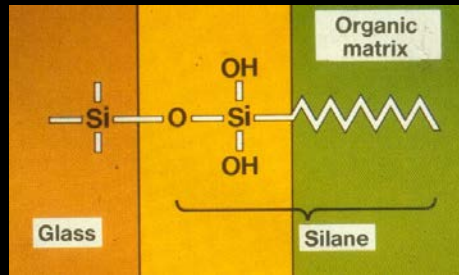
Etset 60 sek  
(10% HA)

Tid &  
konsentrasjon etter  
produsentens  
anvisninger

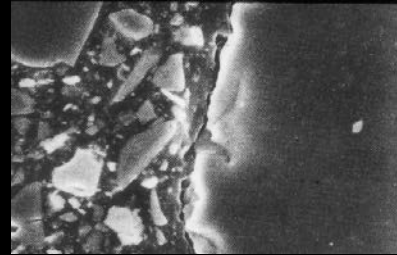
# Konvensjonell keram & glasskeram: påkrevd overflatebehandling før sementering med en polymer-sement

1. Etset m/ HA

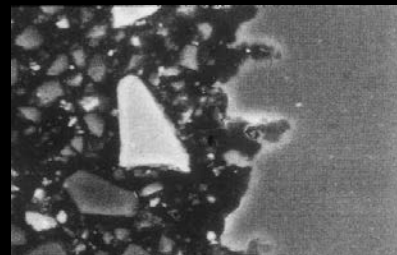
2. Silanisering



Ikke ets & ingen silanisering

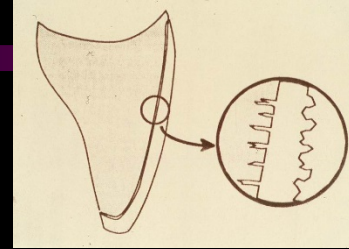


Ets & ingen silanisering



Ets & Silanisering

*Indre flater må være klargjort mikromekanisk av tanntekniker & kjemisk av tannlege før sementering*



**Fra tanntekniker:**

Metall	Glasskeram	Høystyrke(Zirconia)
Blastret (MPa/ $\mu\text{m}/\text{Al}_2\text{O}_3$ )	Fluss-syre	Blastret (MPa/ $\mu\text{m}/\text{Al}_2\text{O}_3$ )

**Umiddelbart før sementering med vannbasert eller \*polymersement:**

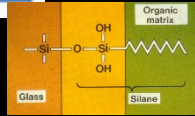
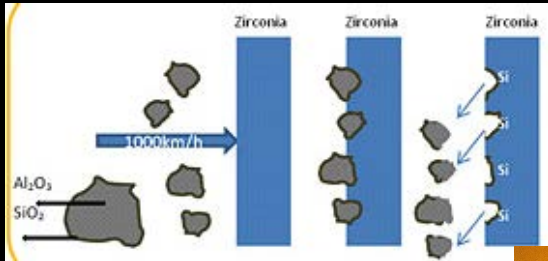
(Fjerne organisk material etter salivakontaminasjon)

Fosforsyre	Fosforsyre	*NaOH / NaHypokloritt (pga fosfolipider)
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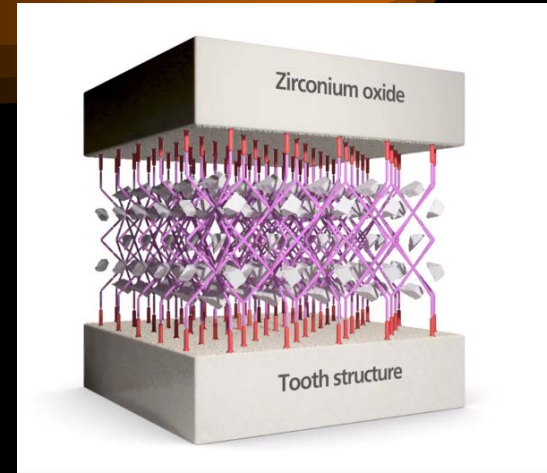
(Dehydrere:)

Sprit	Sprit	
	Silanisere	*(Silanisering eller MDP avh. sement)

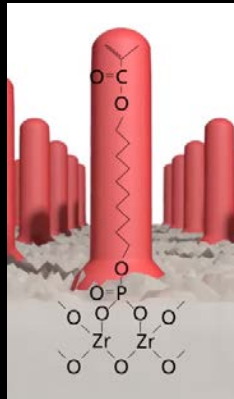
# Zirconia-keram: overflatebehandling før sementering med en polymer-sement



Blastret med silanisert  $\text{AlOx}$  – silan - organisk gruppe i polymersement



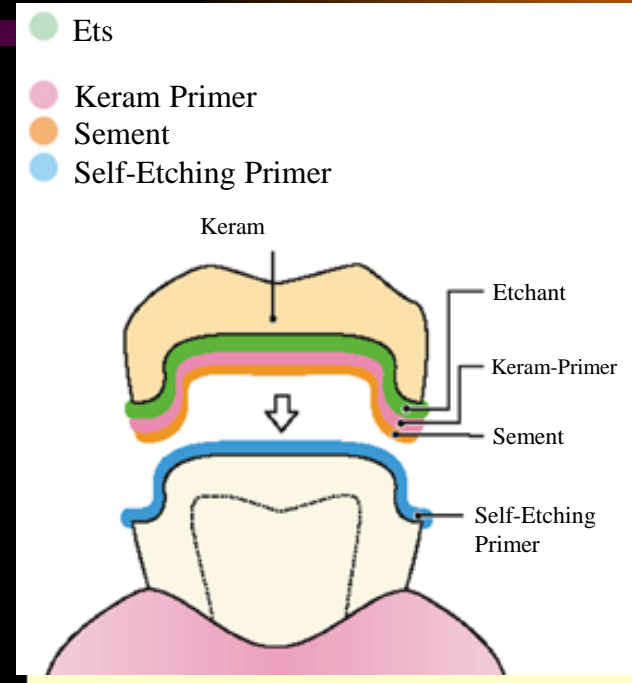
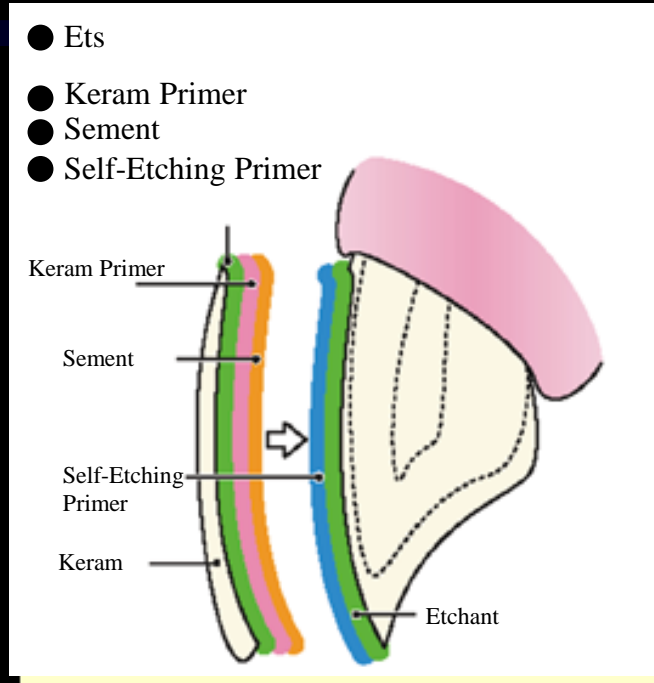
$\text{ZrOx}$  - MDP\* - organisk gruppe i polymersement



Figs fra Ivoclar

\*10-methacryloyloxydecyl-dihydrogenphosphate

# Eksempel på bruksanvisning, polymer-sement, til keram



# Bruksanvisning, Panavia v5



OBS! – Ikke nødvendigvis samme fremgangsmåte for:

**Zirconia Crowns Preparation**

**1a**



Blast with alumina powder, then ultrasonic clean and dry.

**2**



Apply CLEARFIL™ CERAMIC PRIMER PLUS and dry.

**3**



Apply Tooth Primer, leave for 20 sec, and dry.

**4**



Dispense cement and place the crown.

**1b**




Apply K-ETCHANT Syringe or hydrofluoric acid, rinse and dry.

Lithium Disilicate (e.g. e.max<sup>1</sup>) Preparation


**5**

Remove the excess cement using Tack-curing method or a small brush.

**A Tack-curing**




1) Light-cure for 3 to 5 sec.




2) Remove with a dental explorer.

**B Using a small brush**



1) Remove with a small brush.



2) Light-cure margins.

(Opaque shade is used for method B)

**6**



Maintain isolation for 3 minutes, or light-cure\* for translucent crowns.

\*The opaque shade is self-cure only.

- Panavia v5
- PANAVIA SA Cement Plus
- PANAVIA SA Cement
- Panavia F 2.0
- Panavia 21



# OBS – varemerke & risiko for forveksling & feil sementeringsprosedyre

## Eksempelvis RelyX™

- RelyX ARC Adhesive Resin Cement
- RelyX ARC cement
- RelyX Luting cement
- RelyX Luting 2 cement
- RelyX Luting Plus cement
- RelyX Luting Plus Automix Cement (RMGIC)
- RelyX U100, Unicem Dental Cement
- RelyX U200 Self-adhesive Resin cement
- RelyX Ultimate Adhesive Resin Cement
- RelyX Unicem (Clicker / aplicap / maxicap)
- RelyX Unicem 2 Self-Adhesive Resin cement
- RelyX Unicem Self-Adhesive Universal Resin Cement
- RelyX Veneer Cement



3M ESPE Dental Cements. Easy to choose. Easy to use.

	RelyX™ Ultimate Adhesive Resin Cements	RelyX™ Unicem AND RelyX™ Unicem 2 Self-Adhesive Resin Cements	RelyX™ Veneer Cement	RelyX™ Luting Plus AND RelyX™ Luting Plus Automix Cements	RelyX™ Core Bonding AND RelyX™ Core Bonding "Mixing" Glass Ionomer Luting Cements	RelyX™ Snap It! Temporary Cement RelyX™ Snap It! Temporary Cement
<b>Recommended indications*</b>	←	←	←	←	←	←
GAEL/CAM Ceramic and Composite	•	•				
Resin Most Ceramics	•	•				
Metal/PFME				•	•	
Porcelain/Ceramic Inlays and Crowns	•	•				
Veneers	•	•	•			
Zirconia	•	•		•		
Implants	•	•		•		
Posts	•	•				
Pediatric Crowns Metal				•	•	
Maryland Bridges Metal and Composite	•	•				
Temporary cementation of • Provisional restoratives • Crowns, Inlays, Inlays and onlays						•
<b>Delivery Method</b>	←	←	←	←	←	←
	Adhesive Syringe	Clicker / Applicator	Capillary	Pharm/Liquid	Syringe	Push/Pull

\*For complete list of indications, please refer to product's instructions for use.

# *OBS – varemerke & risiko for forveksling & feil sementeringsprosedyre*

## Eksempelvis Variolink

Variolink Esthetic DC

Variolink Esthetic LC

Variolink Esthetic SpeedCEM

Variolink Esthetic SpeedCEM Plus



Variolink II

Variolink Veneer

Variolink II Esthetic



Variolink N

Variolink N LC



# *Permanent sementering av fast protese til tann – hvordan adhesjon - hvorfor?*

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**Institutt for klinisk odontologi**  
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