

Cementation Solutions

RelyX™ Unicem

Self-Adhesive Resin Cement

RelyX™ Unicem 2 Automix

Self-Adhesive Resin Cement

Espertise™

Clinical Studies 2003 – 2010



3M ESPE



Development team RelyX™ Unicem Cement



Introduction

RelyX™ Unicem self-adhesive resin cements – clinical performance you can trust

With RelyX Unicem cement the 3M ESPE R&D team in Seefeld succeeded in formulating a very strong but easy-to-use permanent cement. The outstanding strength and adhesion, the versatile indications as well as easy handling make RelyX Unicem an exceptional cement.

In the eight years since its introduction in 2002 RelyX Unicem has become the world's most clinically proven self-adhesive cement, used by dentists worldwide in over 50 million applications.

As inventors of the new class self-adhesive resin cements, 3M™ ESPE™ has worked with renowned universities and research institutes worldwide to provide the clinical data *you* can trust and rely on.

RelyX Unicem cements are still unique in the field of self-adhesive resins being the only material to look back on up to seven years of documented clinical performance.

This brochure combines 20 clinical studies and *in vivo* research on RelyX Unicem cement. You will find independent studies between 60 days and 7 years and two clinical cases using RelyX Unicem cement with RelyX™ Fiber Posts and Lava™ Zirconia Crowns.

RelyX Unicem 2 Automix, the next generation in the 3M ESPE self-adhesive cement family, is represented with two further clinical trials.

Here in Seefeld we are proud to include RelyX Unicem cements in our range of products that achieve outstanding clinical results and simplify your daily practice.

With best regards

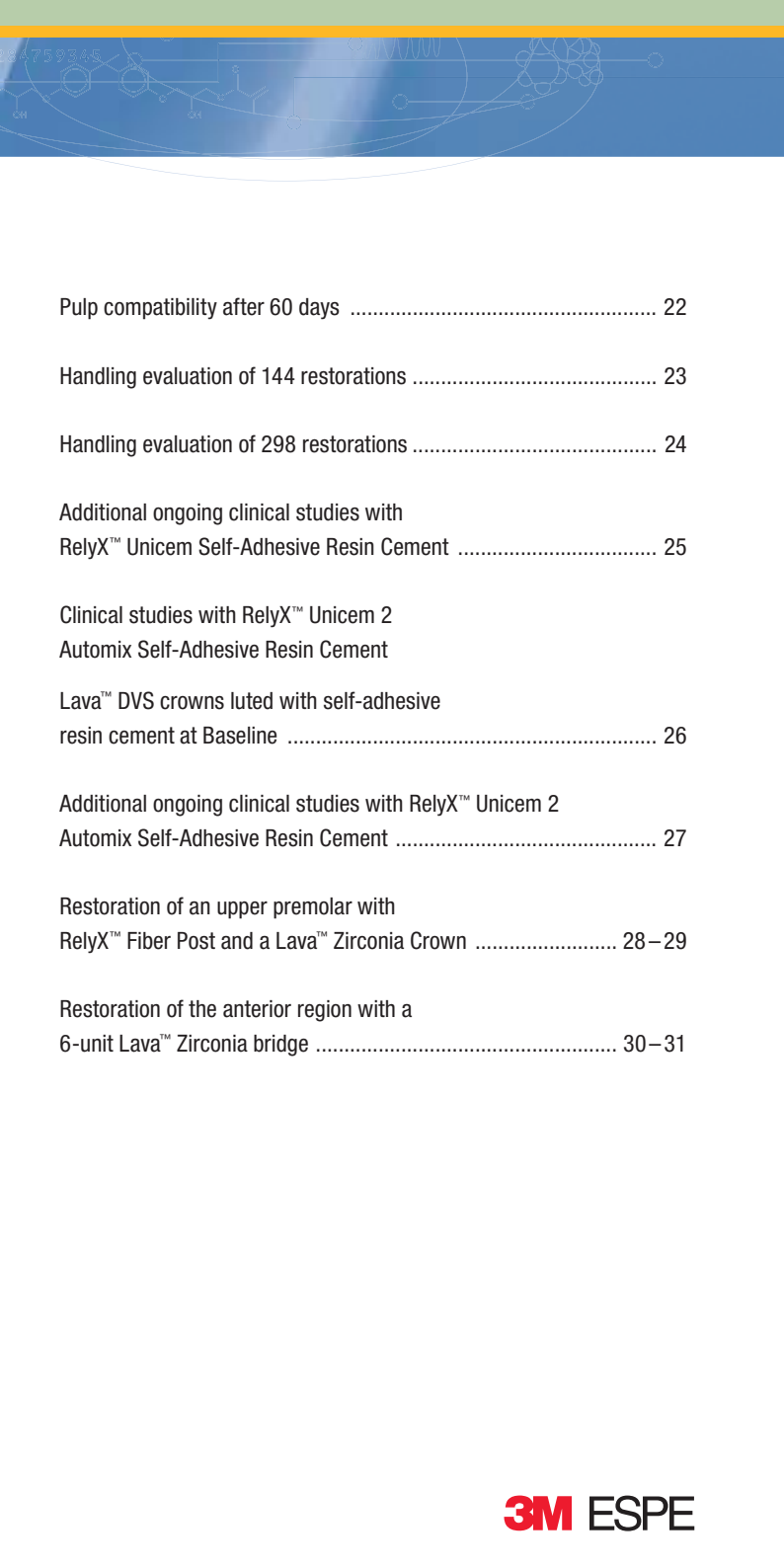
Dr. Rainer Guggenberger
Corporate Scientist

Dr. Carolin Wiedig
Scientific Affairs Manager

3M ESPE, Seefeld/St. Paul, June 2010

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Restorations after 7 years *in vivo*

Title: 3M ESPE RelyX™ Unicem Self-Adhesive Universal Resin Cement
7-Year Clinical Performance

Published in: THE DENTAL ADVISOR Vol 27, No. 4; May 2010

Aim of the study: The evaluators of THE DENTAL ADVISOR used RelyX™ Unicem Cement to seat all-ceramic and PFM restorations (crowns, bridges, inlays/onlays and posts). The evaluated criteria included post-operative sensitivities, microleakage and debonding.

Results: At seven years, more than 1450 restorations were available for recall, post-operative sensitivities only occurred in very few patients (1.1 % occasional temperature sensitivity). Microleakage was comparable to that of 5th and 6th generation bondings and corresponding resin cements.

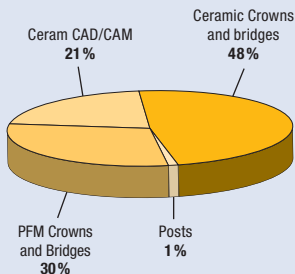
The debonding rate of restorations cemented with RelyX Unicem was reported to be 2.4 %. In total, RelyX Unicem cement received a clinical rating of 99 %, so that THE DENTAL ADVISOR awards its top grade of 5 plus's now the seventh year in a row.

Observation period: 7 years

Allocation of the restorations

Results (in %):

Post-operative sensitivities (n = 1458)	1.1 %
Marginal discolorations (n = 1458)	6.0 %
Debonding rate	2.4 %
Posts	1 %
Ceramic Crowns and Bridges	48 %
PFM Crowns and Bridges	30 %
Ceramic CAD/Cam:	21 %



Metal-based restorations after up to 4.5 years *in vivo*

7

Title: Self-adhesive resin cement versus zinc phosphate luting material:
A prospective clinical trial begun

Published by: M. Behr, M. Rosentritt, J. Wimmer, R. Lang, C. Kolbeck, R. Bürgers,
G. Handel, Department of Prosthodontics, University Medical Center Regensburg,
Regensburg, Germany

Published in: Dent Mater. 2009 May; 25(5):601-4

Aim of the study: In this clinical study the performance of RelyX Unicem and zinc phosphate cement (Richter & Hoffmann, Berlin, Germany) used for luting metal-based fixed partial dentures was compared. The clinical performance was checked for plaque, bleeding and attachment scores. The examination included pulp vitality and percussion tests.

Results: During the study with 49 patients no restoration was lost and no recementation became necessary. The recall rate was excellent. No sensitivities were reported and no statistically significant difference was found regarding bleeding or plaque. RelyX Unicem performed clinically well and can be used easily to retain metal-based restorations over a 38-month observation.

Number of patients: 49

Mean age of patients: 54 ±13 years

Number of restorations:	49 (47 precious alloy, 2 non-precious alloy) 42 posterior crowns 5 anterior crowns 2 onlays
Mean observation time:	3.16 ± 0.6 years (min: 2, max 4.5 years)
Recall rate:	100 %
Survival rate:	100 %

Glass ceramic inlays and onlays after 4 years *in vivo*

8

Title: Single and Multi-Step Luting Agents after Four Years

Published by: S. Geraldini¹, C. Stanford¹, D. Dawson¹, J. S. Wefel¹, S. Timmons², D. S. Cobb¹, M. Hernandez¹, S. Guzman-Armstrong¹, T. Flynn¹, C. M. Asmussen¹, S. Hansen¹ and D. Stark¹, ¹University of Iowa, Iowa City, IA, ²University of Iowa, Coralville, IA, IADR 2009 Miami, #1639

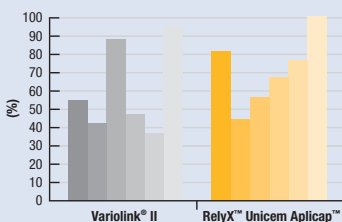
Aim of the study: In this clinical study 95 all-ceramic class I and II restorations (Authentic®, Microstar, Atlanta, USA) were cemented with RelyX™ Unicem Cement and a total-etch-system considered as “gold-standard” by many dentists (Syntac®, Variolink® II, Ivoclar Vivadent). The restorations were evaluated initially and then in yearly recalls for post-operative sensitivity and according to USPHS criteria.

Results: At the 4-year follow-up examination RelyX Unicem Self-Adhesive Universal Resin Cement performed as well as Variolink II which was used with additional etching and bonding steps.

Observation period: 4 years

	Syntac®/ Variolink® II	RelyX™ Unicem Aplicap™
Number of restorations in the follow-up examination after 4 years	19	21

Clinical results after 4 years



■ Anatomic form
■ Color match
■ Margin adaptation
■ Margin discoloration
■ Free of secondary caries
■ Surface texture

All-ceramic inlays and onlays after 4 years *in vivo*

Title: Clinical Evaluation of a Self-adhesive Luting Agent for Ceramic Inlays.

Published by: M. Peumans, J. De Munck, K. Van Landuyt, A. Poitevin, P. Lambrechts, and B. Van Meerbeek

Leuven Biomat Research Cluster, Catholic University of Leuven, Belgium

48-Months study report to 3M ESPE, January 2010, also see: J Adhes Dent.

2009 Sep 30

Aim of the study: This controlled prospective clinical trial evaluated the clinical effectiveness of RelyX™ Unicem Self-Adhesive Resin Cement for cementing all-ceramic inlays and onlays. Additionally, the influence of selective enamel etching prior to cement application was tested in a split mouth design. The restorations were evaluated according to modified USPHS criteria.

Results: The recall rate after 4 years was excellent and the overall success rate was 95 %. Selective enamel etching prior to luting had no significant influence on marginal integrity, restoration integrity, surface roughness, color match and post-operative sensitivity after 48 months. After four years of clinical service, the self-adhesive resin cement RelyX Unicem showed an acceptable clinical behavior.

Number of patients: 31 (21 female/9 male)

Mean age of patients: 33 years

Number of restorations:	62
	54 class-II inlays
	8 onlays

No etching:	31
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Selective enamel etching:	31
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Recall rate at 48 months:	97 %
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Survival rate:	95 %
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All-ceramic inlays and onlays after 2 years *in vivo*

Title: IPS Empress Inlays Luted with a Self-Adhesive Resin Cement After Two Years

Published by: M. Taschner, R. Frankenberger, A. Petschelt and N. Krämer, University of Erlangen, Germany
Published in: IADR CED 2007, # 013, also published in: Am J Dent. 2009 Feb; 22(1):55-9

Aim of the study: In this *in vivo* study RelyX™ Unicem Cement was compared with a total-etch-system (Syntac®, Variolink® II, Ivoclar Vivadent). In the split mouth design, IPS Empress® inlays and onlays were cemented with both systems and examined after 2 years *in situ*.

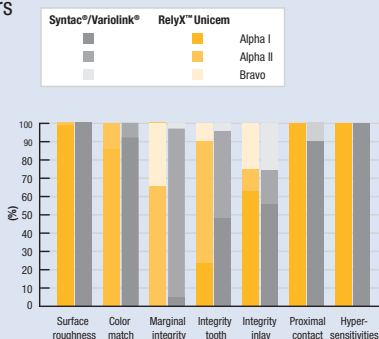
Results: After two years, both materials showed clinically acceptable results for all evaluation criteria. No significant differences were found between Syntac/Variolink II and RelyX Unicem cement regarding surface roughness, color match, integrity inlay and hypersensitivities.

Observation period: 12 months
Average age of patients: 39 years

	Syntac®/ Variolink® II	RelyX™ Unicem Aplicap™
Number of cemented inlays/onlays	40	43
Number of restorations in the follow-up examination after 24 months	39*	43

* 24 loss

Clinical results after 24 months



CAD/CAM generated ceramic onlays after 2 years *in vivo*

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Title: Clinical evaluation of CAD/CAM-Generated Ceramic Onlays

Published by: D. Fasbinder, J. Dennison, and D. Heys, University of Michigan,
School of Dentistry, Ann Arbor, MI, USA
2-Year Study Report to 3M ESPE

Aim of the study: This study compares the clinical performance of leucite-reinforced porcelain (Paradigm™ C) to feldspathic porcelain (VITABLOCS® Mark II) used for chairside CAD/CAM generated onlays. Self-adhesive resin cement RelyX™ Unicem was used to the cement onlays. The clinical performance of RelyX™ Unicem is evaluated in this study as well as the short-term post-operative sensitivity associated with the adhesive luting technique.

Results: No sensitivity has been reported for any restoration after 3 weeks. The leucite-reinforced and feldspathic onlays have performed similarly after two years. RelyX™ Unicem functioned clinically well with marginal adaptation and marginal discoloration predominantly receiving Alpha scores and no caries occurring in the evaluation period.

Number of patients: 43

Number of onlays:	62 (31 Paradigm C onlays, 31 VITABLOCS Mark II onlays) 23 bicuspid 39 molars
Survival rate:	97 %
Recall rate:	100 %



**First lower right molar with
Paradigm™ C onlay**

Clinical Picture by Dr. Ronald D. Perry

All-ceramic zirconia bridges after 3 years *in vivo*

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Title: Clinical Longevity of CAD/CAM Generated Y-TZP Posterior Fixed Partial Dentures

Published by: J. A. Sorensen, R. Lusch, and Yokoyama, Pacific Dental Institute, Portland, OR, USA

3-year clinical report to 3M ESPE, also published in: AADR 2006, Orlando, #0270

Aim of the study: This prospective longitudinal trial evaluates the clinical performance of 3- and 4-unit all-ceramic (Lava™ Zirconia) posterior fixed partial dentures (FPD) and the clinical behavior of RelyX™ Unicem Cement.

Results: After more than 3 years in clinical service (37–60 months) all Lava bridges available for follow-up examinations functioned well. RelyX Unicem cement showed reliable performance: marginal discolorations and debondings did not occur. Thus, RelyX Unicem cement achieves good clinical results and a good *in vivo* long-term stability. RelyX Unicem cement performed well with no signs of microleakage, no debonding of retainers, and minimal sensitivity. No discoloration of the cement was recorded.

Observation period:	3 years	Allocation of the bridge restorations in %*	
Lava™ Restorations available for follow-up examination:	45	3-unit bridges	73 %
Debonds:	0 %	4-unit bridges	27 %
		Upper jaw	56 %
		Lower jaw	44 %
		Premolar	31 %
		Molar	69 %

* The majority of FPDs replaced the first molar

All-ceramic zirconia based bridges after 3 years *in vivo*

13

Title: Five-Year Evaluation of Zirconia-Based Bridges in General Practice:
Year-Three Results

R. J. Crisp and F. J. T. Burke, University of Birmingham, Birmingham, England,
United Kingdom
IADR 2009, # 3234

Aim of the study: In this clinical observation, Lava™ Zirconia Bridges were adhesively inserted with RelyX™ Unicem Self-Adhesive Universal Resin Cement in four UK general dental practices. The clinical performance including gingival health was monitored over 3 years.

Results: All restorations performed well after 3 years of clinical service. 94 % of the bridges were optimal for marginal adaptation and no change in color match from baseline was detected. No failures, secondary caries or staining were observed. No sensitivities are reported and healthy gingiva conditions were found.

Mean age of restorations: 34.1 month

Number of patients viewed at 3 years: 17

Number of restorations reviewed at 3 years: 19

1 = healthy gingivae 2 = mild inflammation 3 = moderate inflammation 4 = severe inflammation	Baseline	1-year	2-year	3-year
Facial	85 % 1, 15 % 2	95 % 1, 5 % 2	92 % 1, 4 % 2, 4 % 3	94 % 1, 6 % 2
Mesial	82 % 1, 18 % 2	100 % 1	100 % 1	100 % 1
Distal	85 % 1, 15 % 2	95 % 1, 5 % 2	94 % 1, 6 % 2	100 % 1

Zirconia bridges after 2 years *in vivo*

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Title: Two Year Clinical Evaluation of Zirconia Bridges

Published by: R. Perry, S. Sharma, S. Ferreira, G. Kugel, and J. Orfanidis, Tufts University School of Dental Medicine, Boston, MA, USA
Published in: AADR, 2008, Dallas, #1085

Aim of the study: To evaluate the 24 month clinical performance of a Y-TZP CAD/CAM generated ceramic system (Lava™) in fixed prosthodontics cemented with RelyX™ Unicem.

Results: Sixteen bridges (15 three- and 1 four-unit) were cemented using RelyX™ Unicem in 15 patients. Evaluation was done at 6, 12, and 24-month recall visits. Only one case of post-operative sensitivity was reported at 6 and 12 months but no sensitivity was detected at 24 months. No secondary caries or marginal discoloration occurred and marginal integrity, as well as the restoration-tooth interface was rated ideally throughout the observation period.

Number of patients: 15

Number of restorations: 16
15 three-unit bridges
1 four-unit bridge

100% Alpha ratings for Post Operative Sensitivity, Marginal Discoloration, Incidence of Caries, Restoration-tooth-interface after 2 years

94% Alpha ratings for Marginal Integrity and soft tissue health after 2 years



Lava™ bridge at 2 year recall
Clinical Picture by Dr. Ronald D. Perry

Metal-ceramic crowns up to 3 years *in vivo*

Title: Prospective study of cementing metal-ceramic crowns with two cementing agents

Published by: A. Piwowarczyk, K. Schick, And H.-C. Lauer F., Johann Wolfgang Goethe-University Frankfurt, Frankfurt/Main, Germany
Published in: PEF IADR 2008, London, #625

Aim of the study: In this prospective clinical study the success of RelyX™ Unicem self-adhesive resin cement was compared to that of zinc-phosphate cement (Hoffmann's) used for luting of metal-ceramic crowns. Fifteen parameters related to abutment and periodontal status were evaluated at six examination points (before insertion, at insertion and 0.5, 1, 2, and 3 years after insertion). Abutment sensitivity was additionally evaluated.

Results: The recall rate was excellent with no dropouts. None of the abutments exhibited any secondary caries in the marginal region. No significant differences were found for hypersensitivity and the overall performance of both cements was very similar with regard to the other fifteen parameters related to abutment and periodontal status. The sulcus-fluid flow rate was even lower for RelyX Unicem. RelyX Unicem thus functioned clinically well in cementing metal-ceramic crowns.

Number of patients: 20

Mean age of patients: 53.6 years

Number of restorations: 40 (20 with RelyX Unicem,
20 with zinc-phosphate-cement)

Mean observation time: 1.79 ± 0.85 years

Recall rate: 100 %

Anterior maxillary crowns up to 2.5 years *in vivo*

16

Title: Efficacy of zirconia-based anterior maxillary single crowns with 0.3 mm customized copings

Published by: A.J. Raigrodski, H. Zhang, and S. Dogan, University of Washington, Seattle, WA, USA

Study report to 3M ESPE, January 2010, see also IADR, 2009, Miami, #374

Aim of the study: This study evaluated the clinical efficacy of Lava™ anterior maxillary single crowns in terms of esthetics and survival. All restorations were cemented with RelyX™ Unicem.

Results: All restorations were rated Alpha for marginal discoloration. Marginal integrity was predominantly rated Alpha thereby proving the good clinical performance of RelyX™ Unicem. No fractures occurred and no proximal decay or periapical pathoses were detected. All restorations were rated successfully esthetically.

Number of patients:	18
Average patient age:	45 years (min: 27, max: 69 years)
Number of restorations:	20
Mean observation time:	12.7 months (min: 5, max: 31 months)

Number of patients:	18
Average patient age:	45 years (min: 27, max: 69 years)
Number of restorations:	20
Mean observation time:	24.6 months

Survival rate:	100 %
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Lava™ crown on upper right central incisor at 2 year recall

Clinical Picture by Dr. Ariel J. Raigrodski

All-ceramic, PFM and metal restorations after 2 years *in vivo*

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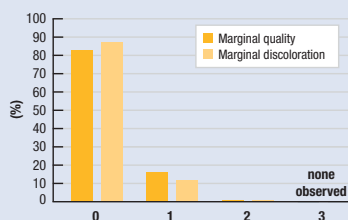
Title: Two-Year Performance of Restorations Placed with a Self-Adhesive Luting Material

Published by: R. J. Crisp, F. J. T. Burke, University of Birmingham, United Kingdom.
Published in: IADR 2006, Brisbane #2098

Aim of the study: This study evaluates the clinical performance of RelyX™ Unicem Cement for luting all-ceramic, PFM and all-metal restorations in general dental practitioners' offices.

Results: After an average observation period of 21 months the result achieved with RelyX Unicem cement was rated very satisfactorily. No cement related failures were reported.

Number of evaluations



Evaluation criteria

Marginal quality

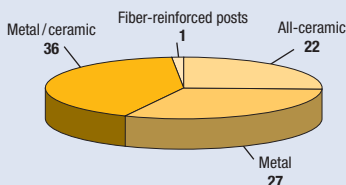
- 0 = Marginal gap cannot be detected
- 1 = Marginal gap detectable, not visible
- 2* = Marginal gap, enamel margin exposed
- 3* = Apparent marginal gap, dentin or cement exposed

Marginal discoloration

- 0 = None
- 1 = Slight discoloration, can be removed by polishing
- 2 = Significant discoloration, cannot be removed by polishing
- 3* = Strong discoloration

* Restorations with such a rating are unacceptable

Evaluated restorations by type (n=86)



Partial ceramic crowns after 1 year *in vivo*

18

Title: Partial ceramic crowns luted with RelyX Unicem: One year results

Published by: F. Schenke, K.-A. Hiller, G. Schmalz, and M. Federlin,
University of Regensburg, Regensburg, Germany
Published in: IADR 2008, Toronto, #2343

Aim of the study: The aim of this prospective longitudinal split-mouth study is to compare the performance of partial ceramic crowns inserted with RelyX™ Unicem either with or without selective enamel etching.

Results: Adhesive luting of partial ceramic crowns with RelyX Unicem with or without selective enamel etching was found to be recommendable after 12 months of clinical study. No statistically significant differences between the different luting techniques were observed during the observation period.

Number of patients: 34 (19 female / 15 male)

Mean age of patients: 41 years

Number of restorations: 68

With selective enamel etching: 34 (26 molars, 8 premolars)

Without selective enamel etching: 34 (25 molars, 9 premolars)

Survival rate: 97%

Post cementations after 5 years *in vivo*

Title: Rigid vs. Flexible Endodontic Posts: 5-Year Results of a RCT

Published by: M. Naumann¹, A. Franke¹, T. Dietrich², and G. Sterzenbach

¹Charité-Universitätsmedizin Berlin, Germany, ²The School of Dentistry, University of Birmingham, United Kingdom

Published in: IADR 2008, Toronto, #1607

Aim of the study: The present study examines the clinical behavior of RelyX™ Unicem Cement when cementing endodontic posts. Titanium posts as well as glass fiber posts were seated in this study.

Results: After up to 5 years of clinical service no debonding occurred. Only one restoration was lost due to abutment tooth fracture in the fiber post group. RelyX Unicem cement proved to be well suited for the cementation of root canal posts.

Average observation period: months (48–60)

Number of post restorations analyzed:	87
Thereof titanium posts:	46
Thereof glass fiber posts:	41
Losses total:	5
1 lost to follow-up, 2 due to change in treatment	
1 extraction for periodontal reasons	
1 tooth fracture (fiber post group)	



Upper lateral incisor restored with root canal post and core build up, prepared to become bridge abutment.

Clinical Picture by Dr. Michael Naumann and Dr. Guido Sterzenbach

Indirect composite resin restorations after 1 year *in vivo*

20

Title: One Year *in vivo* Marginal Quality of Self-Adhesive Resin Cement

Published by: C. Azevedo¹, M. De Goes²

¹State University of Campinas - Piracicaba, Piracicaba, Brazil, ²University of
Campinas State - Piracicaba, Piracicaba SP, Brazil

Published in: AADR 2010, Washington D.C., #1339

Aim of the study: The effect of enamel etching-on the marginal quality of indirect composite restorations using the self adhesive resin cement RelyX Unicem was evaluated in this clinical study. The marginal quality characters investigated were continuity, overfilling, underfilling, marginal opening, restoration margin fracture and enamel margin fracture.

Results: At the recalls after 1 week and 12 months it was found that enamel-etching had no clinical relevance on marginal quality for indirect composite resin restorations luted with RelyX™ Unicem Clicker™ cement during 12 months. No failures were reported for this period.

Number of patients: 25

Number of restorations:	42
No etching:	21
Selective enamel etching:	21
Survival rate:	100 %

Post-operative sensitivity after 12 weeks

Title: Post-operative sensitivity of bridges when cemented with self-adhesive resin cements

Published by: D.E.-D. Saad¹, O. Atta¹, O. El-Mowafy², ¹Suez Canal University, Ismailia, Egypt, ²University of Toronto, Toronto, Canada
Published in: IADR 2010, Barcelona, #3723

Aim of the study: This clinical observation evaluated the incidence of post-operative hypersensitivities when PFM fixed partial denture restorations were cemented with RelyX™ Unicem self-adhesive and one traditional etch-and-rinse resin cement.

Results: The use of RelyX™ Unicem self-adhesive resin cement resulted in significantly less and only transient sensitivities when compared to a traditional etch-and-rinse resin cement.

Number of patients: 20

Number of restorations:	25
Number of prepared teeth:	50 (24 molars and 26 premolars)

Pulp compatibility after 60 days

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Title: Human Pulp Response to Resin Cements Used to Bond Inlay Restorations

Published by: C. A. de S. Costa₁, J. Hebling₂, R. C. Randall₂

¹University Sao Paulo State-UNESP, Sao Paulo, Brasil, ²3M ESPE, St. Paul, USA

Published in: Journal of dental materials, No. 22, 954 – 962

Aim of the study: In this clinical study the pulp compatibility after inlay cementation with either RelyX™ Unicem Cement or a total-etch-system (Excite DSC®, Variolink® II, Ivoclar Vivadent) was examined.

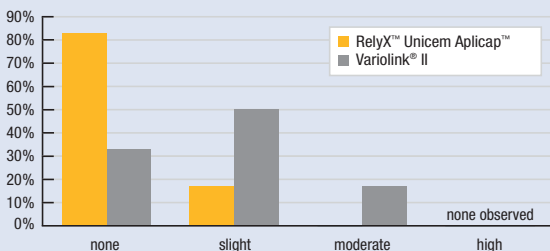
Results: The histological examination 60 days after cementation with RelyX Unicem revealed that the pulpal response was normal. However, the total etch system had a more aggressive effect on the pulp as a mild inflammatory reaction and tissue disorganization was still noticeable at this time which may cause post-operative sensitivity.

Observation period: 60 days

Number of restorations: 24

Average patient age: 14 years

Frequency of inflammation reactions in the pulp area
(60 days after cementation teeth/group)



Clinical results

Handling evaluation of 144 restorations

Title: A practice-based evaluation of the handling of a new self-adhesive universal resin luting material

Published by: F.J.T. Burke, R.J. Crisp and B. Richter

Published in: Int. Dent. Journal 2006 56; 3: 142 – 146

Aim of the study: The handling properties and ease of use of RelyX™ Unicem Aplicap™ cement were tested in clinical use. Thirteen practitioners were selected at random from the Product Research and Evaluation by Practitioners (PREP) Panel, a United Kingdom-based group of dental practitioners prepared to complete evaluations of new materials and techniques in the practice environment.

Results: 144 restorations were placed by 13 UK dental practitioners using RelyX™ Unicem cement, which was rated higher by the evaluators for ease of use than both the pre-trial resin-based and conventional luting. The presentation, instructions, convenience of dispensing and handling and viscosity also received high ratings.

Handling evaluation of 298 restorations

Title: A practice-based evaluation of 3M ESPE RelyX™ Unicem Clicker™

Published by: F.J.T. Burke, R.J. Crisp

Published in: Dental Practice, February 2009

Aim of the study: The handling properties and ease of use of RelyX™ Unicem Clicker were tested in clinical use. Sixteen practitioners were selected at random from the Product Research and Evaluation by Practitioners (PREP) Panel.

Results: A total of 298 restorations were placed by 16 UK dental practitioners. RelyX Unicem Clicker received high scores for dispensing, handling and overall ease of use as well as for presentation and instructions by the evaluators and their dental nurses.

Additional ongoing clinical studies with RelyX™ Unicem Self-Adhesive Universal Resin Cement:

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Clinical performance of fiber post restorations: 2-year results

M. Ferrari¹, M. Cagidiaco², E. Magni¹, M. Cadenaro³, L. Breschi³ and C. Goracci¹,
¹University of Siena, Siena, Italy, ²Association Odontology; E. Cagidiaco, Livorno, Italy, ³University of Trieste, Trieste, Italy
IADR 2009, #1015

In vivo study of 3- and 4-unit full-ceramic cantilever bridges: 1-year results

B. Ohlmann, P. Rammelsberg, Poliklinik für Zahnärztliche Prothetik,
Ruprecht-Karls-Universität, Heidelberg, Germany

RelyX™ Unicem 2 Automix

Self-Adhesive Resin Cement

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Clinical studies with RelyX™ Unicem 2 Automix Self-Adhesive Resin Cement

Lava™ DVS crowns luted with self-adhesive resin cement at Baseline

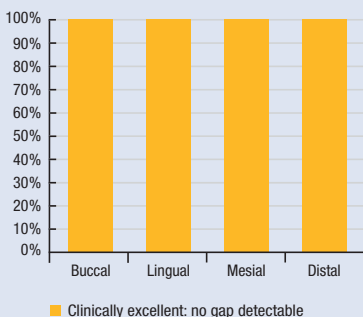
Title: Evaluation of the clinical performance of Lava™ DVS crowns luted with self-adhesive resin cement

Published by: A. Syrek, G. Reich, D. Ranftl, J. Brodesser, B. Cerny, T. Hiebel, D. Jaeckel, 3M ESPE AG
ESPE Platz, Seefeld, Germany
Baseline Report

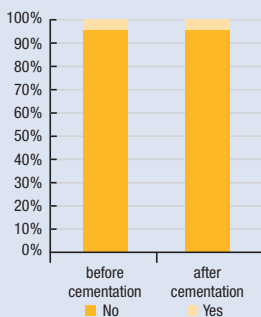
Aim of the study: This clinical investigation will evaluate the clinical performance of digitally veneered Lava DVS crowns in combination with self-adhesive resin cement (RelyX Unicem 2 Automix, 3M ESPE) over a period of 2 years.

Results: No cement induced hypersensitivities were detected at the one week recall. One tooth persisted to be hypersensitive with before and after cementation. 100 % of marginal gaps were rated clinically excellent with no detectable gaps.

Marginal Gap



Hypersensitivity



RelyX™ Unicem 2 Automix

Self-Adhesive Resin Cement

Additional ongoing clinical studies with RelyX™ Unicem 2 Automix Self-Adhesive Resin Cement

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Clinical evaluation of digitally veneered ceramic crowns and hypersensitivities after cementation with self-adhesive resin cement

S. Wolfart, S. Reich, K. Feucker, T. Kern, D. Moll, P. Brawek, M. Gehrt, University of Aachen, Aachen, Germany

Restoration of an upper premolar with RelyX™ Fiber Post and a Lava™ Zirconia Crown

Dr. med. dent. Gunnar Reich, Munich, Germany

Initial situation: insufficient temporary glass-ionomer filling on root canal treated tooth UL5.



Root canal excavated and prepared for placing RelyX™ Fiber Post.



Application of RelyX™ Unicem Self-Adhesive Universal Resin Cement directly into the clean root canal using the RelyX™ Unicem Aplicap™ Elongation Tip.



Light curing of RelyX™ Unicem Cement around and through the light transmitting RelyX™ Fiber Post.



RelyX™ Fiber Post cemented with RelyX™ Unicem Cement.



Core build-up with Filtek™ Supreme XT Flowable Restorative.



RelyX™ Unicem

Self-Adhesive Resin Cement

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Tooth prepared for Lava™ Zirconia Crown.



Precision impression with Impregum™ Penta™ Soft Quick Polyether Impression Material.



Lava™ Zirconia Crown on saw model.



Filling the crown with RelyX™ Unicem Cement (Aplicap™ Capsule) for permanent cementation.



Lava™ Crown seated in the patient's mouth.



Restoration of the anterior region with a 6-unit Lava™ Zirconia bridge

Dr. med. dent. Jakob Zafran, Zurich, Switzerland

Initial situation: clinically and esthetically insufficient situation in the upper anterior region. A fracture of the all ceramic bridge between the central incisors requires a replacement of the restoration.



Prepared abutment teeth and recovering gingiva after covering of the pontic area with a connective tissue graft.



Esthetic and functional try-in of 6-unit Lava™ bridge before final glaze firing.



Filling of the bridge abutments with RelyX™ Unicem 2 Automix cement out of the automix syringe.



RelyX™ Unicem 2 Automix

Self-Adhesive Resin Cement

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Restoration seated in the patient's mouth.
Excess cement will be removed in the gel
phase after initial curing.



Final light curing of RelyX™ Unicem cement.



6-unit Lava™ Zirconia bridge *in situ* after
light curing and removal of excess cement.
Also note improved pink esthetics.





You + 3M ESPE =

Learning that goes both ways

3M ESPE

3M ESPE AG
ESPE Platz
82229 Seefeld · Germany
E-Mail: info3mespe@mmm.com
Internet: www.3mespe.com

The graphs in this brochure were reproduced by 3M ESPE according to the data mentioned in the respective sources. Based on this data 3M ESPE has also prepared "Aim of the Study" and "Results" summaries.

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