A World of Proof
Discover the power of fibres

everStick® Family

from GC

Study compilation

March 2020

Discover **everStick®** and the world of fibre reinforcement

everStick glass fibre reinforcements have been developed to provide strong solutions for minimally invasive dentistry. Researchers all around the world are investigating and documenting the clinical and laboratory evidence of their effectiveness.

The volume and extent of supportive independent research on everStick fibre reinforcements, as summarised here, clearly emphasises the global significance of these remarkable products.

Contents

IPN - The heart of everStick® fibres

Proper bonding between the fibres and composite is the key factor for a successful treatment.

Only everStick products have a unique, patented interpenetrating polymer network structure (IPN). The IPN technology is based on the ability of the polymer matrix to partially dissolve in the resin used for bonding.

Clinically this leads to superior bonding, enabling reliable surface retained applications and perfect handling properties. Because of this IPN structure, surfaces can be reactivated even after the final polymerisation. Reactivation is crucial for superior bonding when:

- Laboratory-manufactured restorations are cemented to teeth
- Fibre reinforced composite (FRC) restorations are remodelled or repaired

The IPN structure makes the everStick products fundamentally different from any other fibre or composite materials available on the market.

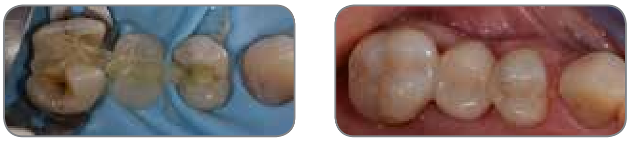
Minimally invasive and patient-friendly fibre reinforcement solutions for daily dentistry

The advantages of everStick

- **Minimally invasive** and **reversible** solutions, leaving **all options open** for future treatments
- **Extensive clinical proof** & in vitro research available
- Superior **mechanical properties**
- **Unique patended bonding** with IPN (interpenetrating polymer network) technology
- **Economical alternative** to indirect treatments

Indications

- Fibre-reinforced composite **bridges**
- Advanced root canal **post & core** structures
- **Splints** of mobile and traumatised teeth
- **Orthodontic** retainers

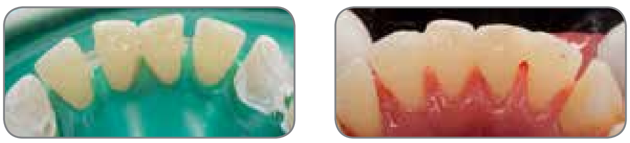


Creating a direct fibre-reinforced bridge with everStickC&B

Courtesy of Prof. Marleen Peumans, Belgium

Custom-made post with everStickPOST

Courtesy of Dr. Anja Baraba, Croatia

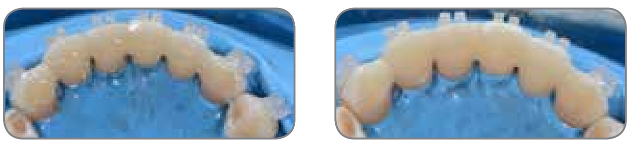


Splinting teeth with everStickPERIO

Courtesy of Dr. Javier Tapia Guadix, Spain

Splinting traumatic teeth with everStickNET

Courtesy of Dr. Rudolf Novotny, Slovakia



Orthodontic retainer with everStickORTHO

Courtesy of Dr. Lucile Dahan, France

Publications on key features

Mechanical properties and load bearing capacity

Based on the literature, glass fibre reinforcements (everStick) have been used to reinforce resin matrices and their strength and reinforcing effect are among the highest to be found. Several authors have reported that everStick fibre reinforcements have excellent mechanical properties with a relatively high modulus of elasticity and load bearing capacity, even after long-term water immersion.

1. Semi-interpenetrating network composites reinforced with Kevlar fibers for dental post fabrication.
   Almaroof A *et al.*
   Dent Mater J. 2019;38(4):511–521.

2. Comparative evaluation between glass and polyethylene fiber reinforced composites: A review of the current literature.
   Mangoush E *et al.*
   J Clin Exp Dent. 2017 Dec 1;9(12):e1408-e1417.

3. Effects of nanofillers on mechanical properties of fiber-reinforced composites polymerized with light-curing and additional postcuring.
   Scribante A *et al.*
   J Appl Biomater Funct Mater. 2015 Oct 16;13(3):e296-9.

4. Flexural strengths of conventional and nanofilled fiber-reinforced composites: a three-point bending test.
   Sfondrini MF *et al.*
   Dent Traumatol. 2014 Feb;30(1):32-5.

5. Effect of water temperature on cyclic fatigue properties of glass-fiber-reinforced hybrid composite resin and its fracture pattern after flexural testing.
   Kuroda S *et al.*
   J Adhes Dent. 2013 Feb;15(1):19-26.

6. Effect of short-term water storage on the elastic properties of some dental restorative materials-A resonant ultrasound spectroscopy study.
   Pastila P *et al.*
   Dent Mater. 2007 Jul;23(7):878-84. Epub 2006 Sep 1.

7. Effect of 10 years of in vitro aging on the flexural properties of fiber-reinforced resin composites.
   Vallittu PK.
   Int J Prosthodont. 2007 Jan-Feb;20(1):43-5.

8. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure.
   Garoushi S *et al.*
   Dent Mater. 2007 Jan;23(1):17-23.

9. Fracture resistance of fragmented incisal edges restored with fiber-reinforced composite.
   Garoushi SK *et al.*
   J Adhes Dent. 2006 Apr;8(2):91-5.

10. Fiber-reinforced composite substructure: load-bearing capacity of an onlay restoration and flexural properties of the material.
    Garoushi SK *et al.*
    J Contemp Dent Pract. 2006 Sep 1;7(4):1-8.

11. Hydrothermal and mechanical stresses degrade fiber-matrix interfacial bond strength in dental fiber-reinforced composites.
    Bouillaguet S *et al.*
    J Biomed Mater Res B Appl Biomater. 2006 Jan;76(1):98-105.

12. Load bearing capacity of fibre-reinforced and particulate filler composite resin combination.
    Garoushi S *et al.*
    J Dent. 2006 Mar;34(3):179-84.

13. Effect of cross-sectional design on the modulus of elasticity and toughness of fiber-reinforced composite materials.
    Dyer SR *et al.*
    J Prosthet Dent. 2005 Sep;94(3):219-26.

14. Damage mechanics and load failure of fiber-reinforced composite fixed partial dentures.
    Dyer SR *et al.*
    Dent Mater. 2005 Dec;21(12):1104-10.

15. Evaluation of some properties of two fiber-reinforced composite materials.
    Lassila LV *et al.*
    Acta Odontol Scand. 2005 Aug;63(4):196-204.

16. Static strength of molar region direct technique glass fibre-reinforced composite fixed partial dentures.
    Dyer SR *et al.*
    J Oral Rehabil. 2005 May;32(5):351-7.

17. The span length and cross-sectional design affect values of strength.
    Alander P *et al.*
    Dent Mater. 2005 Apr;21(4):347-53.

18. Flexural fatigue of denture base polymer with fiber-reinforced composite reinforcement.
Narva KK *et al.*
Composites, Part A: Applied Science and Manufacturing 2005; 36:1275-281.

19. The degree of conversion of fiber-reinforced composites polymerized using different light-curing sources.
Uctasli S *et al.*
Dent Mater. 2005 May;21(5):469-75.

20. The static strength and modulus of fiber reinforced denture base polymer.
Narva KK *et al.*
Dent Mater. 2005 May;21(5):421-8.

21. Effect of fiber position and orientation on fracture load of fiber-reinforced composite.
Dyer SR *et al.*
Dent Mater. 2004 Dec;20(10):947-55.

22. The effect of fiber reinforcement on the fracture toughness and flexural strength of provisional restorative resins.
Hamza TA *et al.*
J Prosthet Dent. 2004 Mar;91(3):258-64.

23. Flexural properties of fiber reinforced root canal posts.
Lassila LV *et al.*
Dent Mater. 2004 Jan;20(1):29-36.

24. The effect of fiber position and polymerization condition on the flexural properties of fiber-reinforced composite.
Lassila LV and Vallittu PK.
J Contemp Dent Pract. 2004 May 15;5(2):14-26.

25. Mechanical properties of preimpregnated glass fiber reinforced composite resins.
Xie QF *et al.*
Hua Xi Kou Qiang Yi Xue Za Zhi. 2004 Aug;22(4):317-9.

26. Acoustic emission analysis of fiber-reinforced composite in flexural testing.
Alander P *et al.*
Dent Mater. 2004 May;20(4):305-12.

27. The influence of short-term water storage on the flexural properties of unidirectional glass fiber-reinforced composites.
Lassila LV *et al.*
Biomaterials. 2002 May;23(10):2221-9.

Bonding performance of everStick fibres

everStick fibres are pre-impregnated with a unique light-polymerisable dimethacrylate resin system. It contains linear polymer phases that form a semi-IPN polymer network after being polymerised. That way, it offers a better bonding site for composite resin and tooth structure.

1. Influence of Monomer Systems on the Bond Strength Between Resin Composites and Polymerized Fiber-Reinforced Composite upon Aging.
   Khan AA *et al.*
   J Adhes Dent. 2019;21(6):509–516.

2. The effect of ethanol on surface of semi-interpenetrating polymer network (IPN) polymer matrix of glass-fibre reinforced composite.
   Basavarajappa S *et al.*
   J Mech Behav Biomed Mater. 2019;98:1–10.

3. Influence of primers on the properties of the adhesive interface between resin composite luting cement and fiber-reinforced composite.
   Khan AA, Al-Kheraif AA, Mohamed BA, Perea-Lowery L, Säilynoja E, Vallittu PK.
   J Mech Behav Biomed Mater 2018 Dec;88:281-287.

4. Immediate Repair Bond Strength of Fiber-reinforced Composite after Saliva or Water Contamination.
   Bijelic-Donova J, Flett A, Lassila LVJ, Vallittu PK.
   J Adhes Dent. 2018;20(3):205-212.

5. Polymer matrix of fiber-reinforced composites: Changes in the semi-interpenetrating polymer network during the shelf life.
   Khan AA *et al.*
   J Mech Behav Biomed Mater. 2018 Feb;78:414-419.

6. Original and repair bond strength of fiber-reinforced composites in vitro.
   Frese C *et al.*
   Dent Mater. 2014 Apr;30(4):456-62.

7. Shear bond strength to enamel and flexural strength of different fiber-reinforced composites.
   Juloski J *et al.*
   J Adhes Dent. 2013 Apr;15(2):123-30.

8. The effect of surface roughness on repair bond strength of light-curing composite resin to polymer composite substrate.
   Kallio TT *et al.*
   Open Dent J. 2013 Sep 30;7:126-31.

9. Microtensile bond strength of fiber-reinforced composite with semi-interpenetrating polymer matrix to dentin using various bonding systems.
   Tezvergil-Mutluay A *et al.*
   Dent Mater J. 2008 Nov;27(6):821-6.

10. The bond strength of particulate-filler composite to differently oriented fiber-reinforced composite substrate.
    Lassila LV *et al.*
    J Prosthodont. 2007 Jan-Feb;16(1):10-7.

11. The shear bond strength of bidirectional and random-oriented fibre-reinforced composite to tooth structure.
    Tezvergil A *et al.*
    J Dent. 2005 Jul;33(6):509-16.

12. Bond strength of glass fiber reinforced composite and base metal frameworks used in resin-bonded fixed partial dentures.
    Sadeghi M.
    Beheshti Univ Dent J 2005; 22: 95-99.

13. Bond strength of Gradia veneering composite to fibre-reinforced composite.
    Keski-Nikkola MS *et al.*
    J Oral Rehabil. 2004 Dec;31(12):1178-83.

14. Repair bond strength of restorative resin composite applied to fiber-reinforced composite substrate.
    Tezvergil A *et al.*
    Acta Odontol Scand. 2004 Feb;62(1):51-60.

15. Strength of adhesive-bonded fiber-reinforced composites to enamel and dentin substrates.
    Tezvergil A *et al.*
    J Adhes Dent. 2003 Winter;5(4):301-11.

16. The semi-interpenetrating polymer network matrix of fiber-reinforced composite and its effect on the surface adhesive properties.
    Lastumäki TM *et al.*
    J Mater Sci Mater Med. 2003 Sep;14(9):803-9.

17. Bond strength of fibre-reinforced composite to the metal surface.
    Vallittu PK and Kurunmäki H.
    J Oral Rehabil. 2003 Sep;30(9):887-92.

18. The bond strength of light-curing composite resin to finally polymerized and aged glass fiber-reinforced composite substrate.
    Lastumäki TM *et al.*
    Biomaterials. 2002 Dec;23(23):4533-9.

Plaque accumulation and bacterial adhesion of everStick fibres

In vivo and in vitro studies showed that glass fibre-reinforced composites (everStick) and conventional particulate filler composite have a similar plaque accumulation and bacterial adhesion properties.

1. Adherence of Streptococcus mutans to Fiber-Reinforced Filling Composite and Conventional Restorative Materials.
   Lassila LV *et al.*
   Open Dent J. 2009 Dec 4;3:227-32.

2. Early plaque formation on fibre-reinforced composites in vivo.
   Tanner J *et al.*
   Clin Oral Investig. 2005 Sep;9(3):154-60.

3. Adsorption of parotid saliva proteins and adhesion of Streptococcus mutans ATCC 21752 to dental fiber-reinforced composites.
   Tanner J *et al.*
   J Biomed Mater Res B Appl Biomater 2003; 66:391-98.

4. Effect of water storage of E-glass fiber-reinforced composite on adhesion of Streptococcus mutans.
   Tanner J *et al.*
   Biomaterials. 2001 Jun;22(12):1613-8.

Publications per indication

everStick®C&B

Clinical performance of everStickC&B

Extensive clinical studies and reports are available that demonstrate the benefits of using everStickC&B fibres. The findings of these studies indicate that restorations reinforced with everStickC&B are a valid alternative for replacing missing single anterior and posterior teeth. Such restorations appear to offer a reliable, minimally invasive, aesthetic and cost-efficient way to restore missing single teeth with predictable clinical performance and patient-oriented outcomes. Moreover, the versatility in fabrication techniques, whether direct or indirect, varying retention options through surface, inlay or hybrid retainers, and their capacity to be easily repaired in situ, are all considered major advantages and support the use of restorations reinforced with everStickC&B.

1. Direct Fiber-Reinforced Interim Fixed Partial Dentures: Six-Year Survival Study.
   Goguta LM *et al.*
   2019 Feb;28(2):e604-e608.

2. Fiber-reinforced composite fixed dental prostheses: A 4-year prospective clinical trial evaluating survival, quality, and effects on surrounding periodontal tissues.
   Wolff D *et al.*
   J Prosthet Dent. 2018 Jan;119(1):47-52.

3. Fiber-reinforced composites in fixed prosthodontics-Quo vadis?
   Vallittu PK *et al.*
   Dent Mater. 2017 Aug;33(8):877-879.

4. Tooth Replacement Using Natural Tooth Pontic with Fibre Reinforced Composite: A Conservative Approach
   Singh S, Shetty R.
   Journal of Dental and Medical Sciences 2017;16:17-21.

5. Four-Year Clinical Evaluation of GFRC-RBFPDs as Periodontal Splints to Replace Lost Anterior Teeth.
   Li J *et al.*
   Int J Prosthodont. 2016 Sep-Oct;29(5):522-7.

6. Success, clinical performance and patient satisfaction of direct fiber-reinforced composite fixed partial dentures two-year clinical study.
   Malmstrom H, *et al.*
   J Oral Rehabil 2015; 42:906-13.

7. Clinical survival of indirect, anterior 3-unit surface-retained fibre-reinforced composite fixed dental prosthesis: Up to 7.5-years follow-up.
   Kumbuloglu O, Özcan M.
   J Dent. 2015 Jun;43(6):656-63.

8. Fiber-reinforced composite fixed dental prostheses in the anterior area: a 4.5-year follow-up.
   Frese C *et al.*
   J Prosthet Dent. 2014 Aug;112(2):143-9.

9. A two-step technique to fabricate a glass fiber-reinforced composite interim removable partial denture: Case report.
   Ali M. El-Sheikh, Ayman Ellakwa
   International Journal of Medical and Dental Case Reports 2014.

10. Single visit replacement of maxillary canine using fiber-reinforced composite resin.
    Garoushi S *et al.*
    J Contemp Dent Pract. 2012 Jan 1;13(1):125-9.

11. Resin-bonded fiber-reinforced composite for direct replacement of missing anterior teeth: a clinical report.
    Garoushi S *et al.*
    Int J Dent. 2011;2011:845420.

12. Alternative fabrication method for chairside fiber-reinforced composite resin provisional fixed partial dentures.
    Ballo A, Vallittu P.
    Int J Prosthodont. 2011 Sep-Oct;24(5):453-6.

13. Fiber-reinforced composite fixed dental prostheses: a retrospective clinical examination.
    Wolff D *et al.*
    Adhes Dent. 2011 Apr;13(2):187-94.

14. Directly fabricated inlay-retained glass- and polyethylene fiber-reinforced composite fixed dental prostheses in posterior single missing teeth: a short-term clinical observation.
    Izgi AD *et al.*
    Adhes Dent. 2011 Aug;13(4):383-91.

15. Pilot study of unidirectional E-glass fibre-reinforced composite resin splints: up to 4.5-year clinical follow-up.
Kumbuloglu O *et al.*
J Dent. 2011 Dec;39(12):871-7.

16. Five-year survival of 3-unit fiber-reinforced composite fixed partial dentures in the posterior area.
van Heumen CC *et al.*
Dent Mater. 2010 Oct;26(10):954-60.

17. Rehabilitation of an extracted anterior tooth space using fiber-reinforced composite and the natural tooth.
Bagis B *et al.*
Dent Traumatol. 2010 Apr;26(2):191-4.

18. Fiber-reinforced onlay composite resin restoration: a case report.
Garoushi SK *et al.*
J Contemp Dent Pract. 2009 Jul 1;10(4):104-10.

19. Five-year survival of 3-unit fiber-reinforced composite fixed partial dentures in the anterior area.
van Heumen CC *et al.*
Dent Mater. 2009 Jun;25(6):820-7.

20. Provisional repair of a zirconia fixed partial denture with fibre-reinforced restorative composite: a clinical report.
Bagis B *et al.*
J Can Dent Assoc. 2009 Mar;75(2):133-7.

21. A fiber-reinforced composite prosthesis restoring a lateral midfacial defect: a clinical report.
Kurunmäki H *et al.*
J Prosthet Dent. 2008 Nov;100(5):348-52.

22. Hybrid type anterior fibre-reinforced composite resin prosthesis: a case report.
Garoushi S *et al.*
Eur J Prosthodont Restor Dent. 2008 Mar;16(1):45-7.

23. Fiber-reinforced Composite for Chairside Replacement of Anterior Teeth: A Case Report.
Garoushi S *et al.*
Libyan J Med. 2008 Dec 1;3(4):195-6.

24. Rehabilitation of advanced periodontal problems by using a combination of a glass fiber-reinforced composite resin bridge and splint.
Kumbuloglu O *et al.*
J Adhes Dent. 2008 Feb;10(1):67-70.

25. Intraoral repair of all ceramic fixed partial denture utilizing preimpregnated fiber reinforced composite.
Turkaslan S, Tezvergil-Mutluay A.
Eur J Dent. 2008 Jan;2(1):63-8.

26. Fiber-reinforced Composite Resin Prosthesis to Restore Missing Posterior Teeth: A Case Report.
Garoushi S *et al.*
Libyan J Med. 2007 Sep 1;2(3):139-41.

27. Chairside fabricated fiber-reinforced composite fixed partial denture.
Garoushi S, Vallittu PK.
Libyan J Med. 2007 Mar 1;2(1):40-2.

28. Use of a prefabricated fiber-reinforced composite resin framework to provide a provisional fixed partial denture over an integrating implant: a clinical report.
Meiers JC, Freilich MA.
J Prosthet Dent. 2006 Jan;95(1):14-8.

29. Design and use of a prefabricated fiber-reinforced composite substructure for the chairside replacement of missing premolars.
Meiers JC, Freilich MA.
Quintessence Int. 2006 Jun;37(6):449-54.

30. Fiber-reinforced composites in fixed partial dentures.
Garoushi S, Vallittu P.
Libyan J Med. 2006 Aug 28;1(1):73-82.

31. Chairside replacement of posterior teeth using a prefabricated fiber-reinforced resin composite framework technique: a case report.
Meiers JC, Kazemi RB.
J Esthet Restor Dent. 2005;17(6):335-42; discussion 342.

32. Glass-fiber reinforced composite in management of avulsed central incisor: a case report.
Aydin MY, Kargül B.
J Dent Child (Chic). 2004 Jan-Apr;71(1):66-8.

33. Survival rates of resin-bonded, glass fiber-reinforced composite fixed partial dentures with a mean follow-up of 42 months: a pilot study.
Vallittu PK.
J Prosthet Dent. 2004 Mar;91(3):241-6.

34. Single-tooth replacement with a chairside prefabricated fiber-reinforced resin composite bridge: a case study.
Arteaga S, Meiers JC.
Gen Dent. 2004 Nov-Dec;52(6):517-9.

35. Clinical evaluation of fiber-reinforced fixed bridges.
Freilich MA *et al.*
J Am Dent Assoc. 2002 Nov;133(11):1524-34.

36. Case report: a glass fibre reinforced composite resin bonded fixed partial denture.
Vallittu PK.
Eur J Prosthodont Restor Dent. 2001 Mar;9(1):35-8.

Fracture resistance of everStickC&B reinforced restorations

Several authors have reported scientific evidences supporting the use of everStickC&B reinforced restorations. They attributed the superior mechanical performance to the fibre structure and good connection with the resin matrix. The optimal adhesion between everStickC&B and resin is a key factor in load transfer and clinical success of all fibre-reinforced applications.

1. Fatigue resistance of metal-free cantilever bridges supported by labial laminate veneers.
   Türkaslan S *et al.*
   J Mech Behav Biomed Mater 2020;103:103596.

2. Influence of additional reinforcement of fixed long-term temporary restorations on fracture load.
   Debye K *et al.*
   J Prosthodont Res 2018;62(4):416–421.

3. Comparison of Load-Bearing Capacities of 3-Unit Fiber-Reinforced Composite Adhesive Bridges with Different Framework Designs.
   Tacir IH *et al.*
   Med Sci Monit 2018;24:4440–4448.

4. Ex vivo fracture resistance of teeth restored with glass and fiber reinforced composite resin.
   Khan SIR *et al.*
   J Mech Behav Biomed Mater. 2018 Jun;82:235-238.

5. Load-bearing capacity of novel resin-based fixed dental prosthesis materials.
   Cekic-Nagas I *et al.*
   Dent Mater J. 2018 Jan 30;37(1):49-58.

6. Fracture behavior of pontics of fiber-reinforced composite fixed dental prostheses.
   Perea L *et al.*
   Dent Mater J. 2015;34(6):746-53.

7. Fiber-reinforced composite fixed dental prostheses with various pontics.
   Perea L *et al.*
   J Adhes Dent. 2014 Apr;16(2):161-8.

8. Fracture strength of cusp-replacing fibre-strengthened composite restorations.
   HJ Visser *et al.*
   SADJ June 2014, Vol 69 no 5 p202 - p207

9. Load-bearing capacity of fiber reinforced fixed composite bridges.
   Göncü Başaran E *et al.*
   Acta Odontol Scand. 2013 Jan;71(1):65-71.

10. Effects of different cavity designs on fracture load of fiber-reinforced adhesive fixed dental prostheses in the anterior region.
    Aktas G *et al.*
    J Adhes Dent. 2013 Apr;15(2):131-5. doi: 10.3290/j.jad.a28505.

11. Shear bond strength to enamel and flexural strength of different fiber-reinforced composites.
    Juloski J *et al.*
    J Adhes Dent. 2013 Apr;15(2):123-30.

12. Analysis of the interdiffusion of resin monomers into pre-polymerized fiber-reinforced composites.
    Wolff D *et al.*
    Dent Mater. 2012 May;28(5):541-7.

13. Fiber reinforcement of two temporary composite bridge materials Effect upon flexural properties.
    AL Twal E.Q.H, Chadwick R.G.
    J Dent 2012; 40:1044-51.

14. Fracture resistance of direct inlay-retained adhesive bridges: effect of pontic material and occlusal morphology.
    Ozcan M *et al.*
    Dent Mater J. 2012;31(4):514-22.

15. Static and dynamic failure load of fiber-reinforced composite and particulate filler composite cantilever resin-bonded fixed dental prostheses.
    Keulemans F *et al.*
    J Adhes Dent. 2010 Jun;12(3):207-14.

16. Fracture strength and fatigue resistance of dental resin-based composites.
    Keulemans F *et al.*
    Dent Mater. 2009 Nov;25(11):1433-41.

17. The influence of framework design on the load-bearing capacity of laboratory-made inlay-retained fibre-reinforced composite fixed dental prostheses.
Keulemans F *et al.*
J Biomech. 2009 May 11;42(7):844-9.

18. Fracture strength of direct surface-retained fixed partial dentures: effect of fiber reinforcement versus the use of particulate filler composites only.
Kumbuloglu O *et al.*
Dent Mater J. 2008 Mar;27(2):195-202.

19. Fracture strength of fiber-reinforced surface-retained anterior cantilever restorations.
Ozcan M, Kumbuloglu O, User A.
Int J Prosthodont. 2008 May-Jun;21(3):228-32.

20. Comparison of load-bearing capacity of direct resin-bonded fiber-reinforced composite FPDs with four framework designs.
Xie Q *et al.*
J Dent. 2007 Jul;35(7):578-82.

21. The effect of box preparation on the strength of glass fiber-reinforced composite inlay-retained fixed partial dentures.
Ozcan M *et al.*
J Prosthet Dent. 2005 Apr;93(4):337-45.

everStick®POST

Clinical performance of everStickPOST

According to the available research, everStickPOST has proved to be successful clinically due to the mono-block effect formed by the luting agent, the post system and the core material and due to the bonding to dentin. everStickPOST provides a novel way of fabricating cost-effective, aesthetic and less time-consuming individually formed posts to restore endodontically treated teeth.

1. Rehabilitation of compromised permanent incisors with anatomically adjustable fiber post.
   Talat M. Beltagy
   Tanta Dental Journal 2018; 15:52–59.

2. Fracture resistance of rehabilitated flared root canals with anatomically adjustable fiber post.
   Talat M. Beltagy
   Tanta Dental Journal 2017; 14:96–103.

3. Evaluation of Novel Glass Fiber-reinforced Composite Technique for Primary Anterior Teeth with Deep Carious Lesions: A 12-month Clinical Study.
   Sawant A, *et al.*
   Int J Clin Pediatr Dent. 2017 Apr-Jun;10(2):126-130.

4. Fracture Fragment Reattachment Using Projectors and Anatomic everstick Post™: An Ultraconservative Approach.
   Deepa VL, *et al.*
   J Int Soc Prev Community Dent. 2017 Jun;7(Suppl 1):S52-S54.

5. Comparison of clinical effects of Co-Cr alloy cast post-core and everStick fiber post in restoration of labially or lingually inclined maxillary central incisor.
   Qian YM *et al.*
   Shanghai Kou Qiang Yi Xue. 2017 Feb;26(1):89-93. Chinese.

6. Evaluation of Novel Glass Fiber-reinforced Composite Technique for Primary Anterior Teeth with Deep Carious Lesions: A 12-month Clinical Study.
   Sawant A *et al.*
   Int J Clin Pediatr Dent. 2017 Apr-Jun;10(2):126-130.

7. Direct composite resin crown fabrication on a custom formed root canal post - EverStick®POST.
   Vilkinis V, Žilinskas J.
   Stomatologija. 2016;18(1):32-6.

8. Are we misusing fiber posts? Guest editorial. Vallittu PK.
   Dent Mater. 2016 Feb;32(2):125-6. doi: 10.1016/j.dental.2015.11.001.

9. A randomized controlled trial of endodontically treated and restored premolars.
   Ferrari M *et al.*
   J Dent Res. 2012 Jul;91(7 Suppl):72S-78S.

10. An up to 3-Year Controlled Clinical Trial Comparing the Outcome of Glass Fiber Posts and Composite Cores with Gold Alloy-Based Posts and Cores for the Restoration of Endodontically Treated Teeth.
    Zicari F *et al.*
    Int J Prosthodont. 2011 Jul-Aug;24(4):363-72.

11. Complicated subgingivally fractured central and lateral incisors: case report.
    Bagis B *et al.*
    J Can Dent Assoc. 2011;77:b145.

12. The restoration of a maxillary central incisor fracture with the original crown fragment using a glass fiber-reinforced post: a clinical report.
    Durkan RK *et al.*
    Dent Traumatol. 2008 Dec;24(6):e71-5.

13. Glass fiber reinforced composite resin as an intracanal post--a clinical study.
    Subramaniam P *et al.*
    J Clin Pediatr Dent. 2008 Spring;32(3):207-10.

14. Restoration of a Fractured Tooth With Dental Glass Fiber And Composite Crown. A Case Report.
    Bagis B; Durkan R.
    The Internet Journal of Dental Science. 2007;5:1-4.

Marginal adaptation and bonding strength of everStickPOST to root canal dentin

Laboratory studies showed that individually formed fibre posts (everStickPOST) have higher dentin bond strength values and less microleakage in comparison to prefabricated fibre posts. Thanks to the IPN technology, everStickPOST bonds efficiently to adhesive cements and direct composite cores/restorations, enabling reliable surface-retained applications. Moreover, with everStickPOST the amount of luting cement can be minimised, thereby reducing the residual shrinkage of the cement and resulting in a better adaptation of the fibre post.

1. Transmission of light through fiber-reinforced composite posts.
   Bell-Rönnlöf AL *et al.*
   Dent Mater J. 2019;38(6):928–933.

2. Bond Strength of Individually Formed and Prefabricated Fiber-reinforced Composite Posts.
   Parčina Amižič I *et al.*
   J Adhes Dent. 2019;21(6):557–565.

3. Effect of Fiber Post-Resin Matrix Composition on Bond Strength of Post-Cement Interface.
   Alnaqbi IOM *et al.*
   Int J Dent. 2018;2018:4751627.

4. In vitro retention of prefabricated and individually formed posts: A pilot study.
   Amižič IP *et al.*
   J Prosthet Dent. 2018;120(4):553–557.

5. Evaluation of Microleakage Between Different Post and Core Systems Under Gradual Loading: an In-Vitro Study.
   Salim NA *et al.*
   Acta Stomatol Croat. 2018;52(3):218–226.

6. Effect of Laser Etching on Glass Fiber Posts Cemented with Different Adhesive Systems.
   Parlar Oz O et al.
   Photomed Laser Surg. 2018;36(1):51–57.

7. The Effect of Self-adhesive and Self-etching Resin Cements on the Bond Strength of Nonmetallic Posts in Different Root Thirds.
   da Silva MB *et al.*
   J Contemp Dent Pract. 2015 Feb 1;16(2):147-53.

8. Microleakage of teeth restored with different adhesive dowel systems: an in vitro study.
   Sarı T, Özyesil AG.
   J Prosthodont. 2014 Jan;23(1):45-9.

9. Effect of cementation technique of individually formed fiber-reinforced composite post on bond strength and microleakage.
   Makarewicz D *et al.*
   Open Dent J. 2013 Jul 26;7:68-75.

10. Influence of cement thickness on the bond strength of tooth-colored posts to root dentin after thermal cycling.
    Egilmez F *et al.*
    Acta Odontol Scand. 2013 Jan;71(1):175-82.

11. One year effect of chlorhexidine on bonding of fibre-reinforced composite root canal post to dentine.
    Lindblad RM et *al.*
    J Dent. 2012 Sep;40(9):718-22.

12. Effect of plunger diameter on the push-out bond values of different root filling materials.
    Nagas E *et al.*
    Int Endod J. 2011 Oct;44(10):950-5.

13. Does the surface treatment affect the bond strength of various fibre-post systems to resin-core materials?
    Cekic-Nagas I *et al.*
    J Dent. 2011 Feb;39(2):171-9.

14. Effect of chlorhexidine on initial adhesion of fiber-reinforced post to root canal.
    Lindblad RM *et al.*
    J Dent. 2010 Oct;38(10):796-801.

15. Microtensile bond strength of glass fiber posts cemented with self-adhesive and self-etching resin cements.
    Zaitter S *et al.*
    J Adhes Dent. 2011 Feb;13(1):55-9.

16. Effects of pretreatment and thermocycling on bond strength of resin core materials to various fiber-reinforced composite posts.
    Bitter K *et al.*
    J Adhes Dent. 2008 Dec;10(6):481-9.

17. Microtensile bond strength of resin-post interfaces created with interpenetrating polymer network posts or cross-linked posts.
    Mannocci F *et al.*
    Med Oral Patol Oral Cir Bucal. 2008 Nov 1;13(11):E745-52.

18. Microtensile bond strength of nonmetallic dowels bonded to radicular dentin with self-etch adhesives.
    Abo El-Ela OA *et al.*
    J Prosthodont. 2009 Feb;18(2):167-71.

19. Is a “flexible” glass fiber-bundle dowel system as retentive as a “rigid” quartz fiber dowel system?
Al-Tayyan MH *et al.*
J Prosthodont. 2008 Oct;17(7):532-7.

20. Bond strength of composite resin luting cements to fiber-reinforced composite root canal posts.
Le Bell-Rönnlöf AM *et al.*
J Contemp Dent Pract. 2007 Sep 1;8(6):17-24.

21. Effect of silanization on bond strengths of fiber posts to various resin cements.
Bitter K *et al.*
Quintessence Int. 2007 Feb;38(2):121-8.

22. Penetration of bonding resins into fibre-reinforced composite posts: a confocal microscopic study.
Mannocci F *et al.*
Int Endod J. 2005 Jan;38(1):46-51.

23. Bonding of fibre-reinforced composite post to root canal dentin.
Le Bell AM *et al.*
J Dent. 2005 Aug;33(7):533-9.

24. Bonding of composite resin luting cement to fiber-reinforced composite root canal posts.
Le Bell AM *et al.*
J Adhes Dent. 2004;6(4) :319-25.

Loading performance of endodontically treated teeth reinforced by everStickPOST

Many studies showed a significant increase in the fracture resistance of restored teeth when the individually formed fibre posts were adapted closely to the canal walls. When using everStickPOST, it is possible to fill large and irregular root canals more efficiently than with a single, prefabricated centrally positioned post.

1. A Comparative Analysis of Fracture Resistance and Mode of Failure of Endodontically Treated Teeth Restored Using Different Fiber Posts: An In Vitro Study.
   Doshi P, Kanaparthy A, Kanaparthy R, Parikh DS.
   J Contemp Dent Pract 2019;20(10):1195–1199.

2. Fracture resistance and marginal gap formation of post-core restorations: influence of different fiber reinforced composites.
   Fráter M *et al.*
   Clin Oral Investig. 2020;24(1):265–276..

3. Impact of Root Dentin Thickness on the in vitro Compressive Strength of Teeth treated with Recent Post and Core Systems.
   Bhagat A *et al.*
   J Contemp Dent Pract 2017;18(11):1065–1070.

4. Fracture resistance and marginal gap formation of post-core restorations: influence of different fiber reinforced composites.
   Fráter M *et al.*
   Clinical Oral Investigations 2019 in press.

5. In vitro fracture resistance of premolar teeth restored with fibre-reinforced composite posts using a single or a multi-post technique.
   Fráter M *et al.*
   Aust Endod J. 2017 Apr;43(1):16-22.

6. Fracture strength of elastic and conventional fibre-reinforced composite intraradicular posts- an in vitro pilot study.
   Fráter M *et al.*
   Fogorv Sz. 2015 Dec;108(4):115-9. Hungarian.

7. Fracture resistance of endodontically restored, weakened incisors.
   Cauwels RG *et al.*
   Dent Traumatol. 2014 Oct;30(5):348-55.

8. Fracture resistance of bone samples filled with fibre-reinforced composite posts: an ex vivo model.
   Cauwels RG *et al.*
   Int Endod J. 2013 May;46(5):434-41.

9. Load-bearing capacity of human incisor restored with various fiber-reinforced composite posts.
   Le Bell-Rönnlöf AM *et al.*
   Dent Mater. 2011 Jun;27(6):e107-15.

10. High volume individual fibre post versus low volume fibre post: the fracture load of the restored tooth.
    Hatta M *et al.*
    J Dent. 2011 Jan;39(1):65-71.

11. Fracture strength of endodontically-treated teeth restored with post and cores and composite cores only.
    Özcan M, Valandro LF.
    Oper Dent. 2009 Jul-Aug;34(4):429-36.

12. Fracture resistance and failure modes of endodontically treated human teeth restored with four different post-core systems.
    Yang Z *et al.*
    Hua Xi Kou Qiang Yi Xue Za Zhi. 2008 Dec;26(6):633-5, 639. Chinese.

13. Fatigue Resistance of Resin-Bonded Post–Core–Crown Treated Teeth with Flared Root Canal
    Qiufie Xie *et al.*
    Journal of Adhesion Science and Technology 2009; 23:7-8.

14. Fracture resistance of anterior teeth restored with a novel nonmetallic post.
    Abo El-Ela OA *et al.*
    J Can Dent Assoc. 2008 Jun;74(5):441.

15. Direct restoration of severely damaged incisors using short fiber-reinforced composite resin.
    Garoushi S *et al.*
    J Dent. 2007 Sep;35(9):731-6.

16. Rotational fatigue-resistance of seven post types anchored on natural teeth.
    Wiskott HW *et al.*
    Dent Mater. 2007 Nov;23(11):1412-9.

17. Fracture behavior of structurally compromised non-vital maxillary premolars restored using experimental fiber reinforced composite crowns.
    Fokkinga WA *et al.*
    Am J Dent. 2006 Dec;19(6):326-32.

18. Flexural properties of fiber reinforced root canal posts.
    Lassila LV *et al.*
    Dent Mater. 2004 Jan;20(1):29-36.

everStick®PERIO

Clinical performance of everStickPERIO

Many clinical studies and reports demonstrate the merits of using everStickPERIO splints in stabilising periodontally affected teeth. Patient's acceptance of the treatment is high and splints are considered durable, comfortable, aesthetic and easy to maintain. In addition, everStickPERIO splints do not hinder the individual and professional oral hygiene.

1. Management of traumatically intruded immature permanent incisor
   Blagova B *et al.*
   S J Oral Sci 2020; 7:56-59.

2. Evaluation of fiber reinforcement composites in restoring lower dentition defect and fixing loose teeth for chronic periodontitis.
   Wu XY, Zhong Q.
   Shanghai Kou Qiang Yi Xue. 2014 Apr;23(2):204-8. Chinese.

3. Evaluation of the fiber-reinforced composite periodontal splint on fixing loose teeth with severe periodontitis.
   Xu J *et al.*
   Shanghai Kou Qiang Yi Xue. 2013 Feb;22(1):81-4. Chinese

4. The Use of Fibre Reinforced Composites (Frcs) in Periodontal Splinting & the Natural Tooth Pontic (NTP) in the Management of Advanced Periodontal Disease.
   Keer I.
   Smile Dental Journal 2013;8:32-36.

5. Pilot study of unidirectional E-glass fibre-reinforced composite resin splints: up to 4.5-year clinical follow-up.
   Kumbuloglu O *et al.*
   J Dent. 2011 Dec;39(12):871-7.

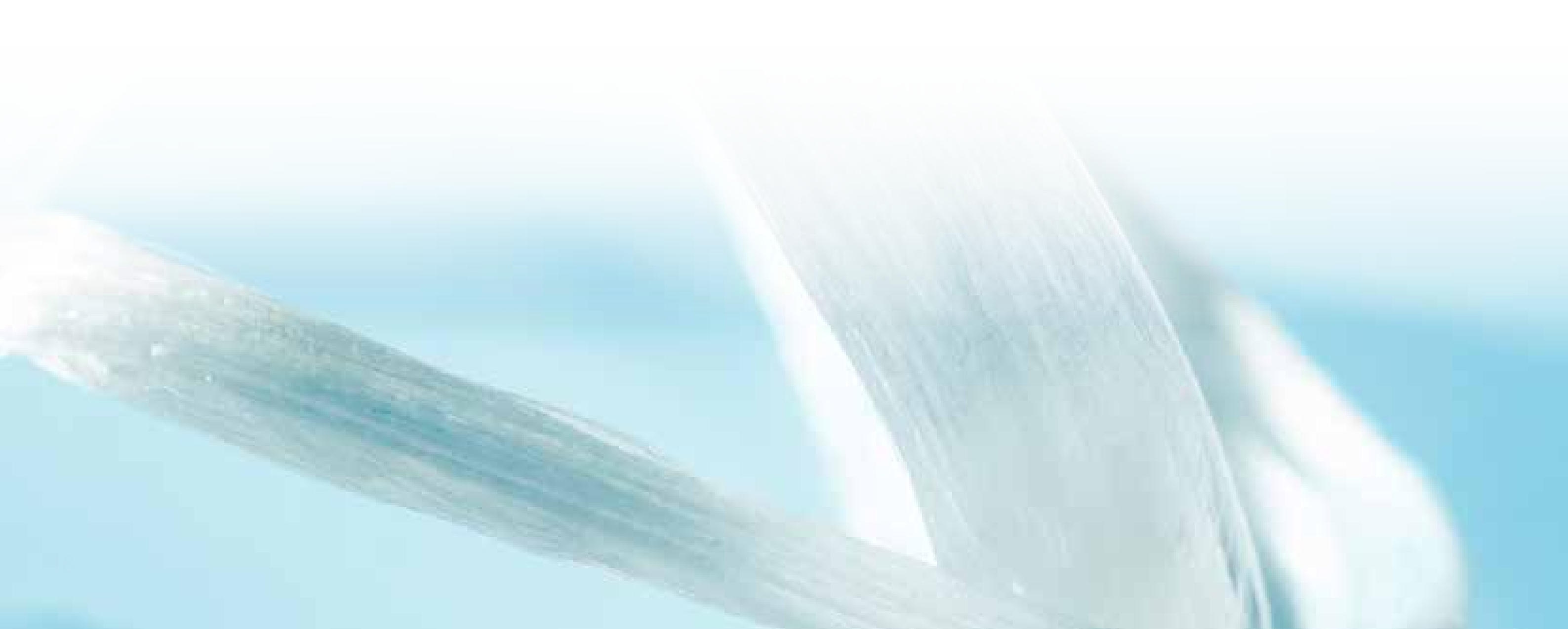
6. Rehabilitation of advanced periodontal problems by using a combination of a glass fiber-reinforced composite resin bridge and splint.
   Kumbuloglu O *et al.*
   J Adhes Dent. 2008 Feb;10(1):67-70.

7. Clinical investigation of the fiber-reinforced composite periodontal splint (FRC) on fixing the aged loosen teeth.
   Zhang Yi, FU Zhi-ying
   Chinese Journal of Conservative Dentistry;2005-07

8. Effect of occlusal therapy with FRC splint on periodontal parameters in maintenance phase.
   Vályi P *et al.*
   Fogorv Sz. 2005 Aug;98(4):159-63. Hungarian.

9. Evaluation of two kinds of periodontal stabilization splint on fixing the labial loosen teeth
   Zhang Yi, FU Zhi-ying
   Chinese Journal of Prosthodontics 2003.

10. Rehabilitation of a periodontal patient with rapidly progressing marginal alveolar bone loss: 1-year follow-up.
    Sewón LA *et al.*
    J Clin Periodontol. 2000 Aug;27(8):615-9.



everStick®NET

Fracture behaviour of everStickNET reinforced restorations

Literature findings support the use of bidirectional fibre reinforcement (everStickNET) to increase the load bearing capacity of restorations. everStickNET has a beneficial effect on the failure mode and thereby on the re-restorability in case of fracture. A number of authors stated that everStickNET is also a suitable material to repair veneers.

1. Fracture behaviour of MOD restorations reinforced by various fibre-reinforced techniques - An in vitro study.
   Sáry T *et al.*
   J Mech Behav Biomed Mater 2019;98:348–356.

2. Evaluation of the Influence of Various Restoration Techniques on Fracture Resistance of Endodontically Treated Teeth with Different Cavity Wall Thicknesses
   Basaran ET, Gokce Y
   Niger J Clin Pract 2019;22:328-34.

3. In vitro fracture resistance of endodontically treated premolar teeth restored with a direct layered fiber-reinforced composite post and core.
   A Forster *et al.*
   Journal of Adhesion Science and Technology 2017; 31:1454-1466.

4. Fracture strengths of chair-side-generated veneers cemented with glass fibers.
   Turkaslan S *et al.*
   Niger J Clin Pract. 2015 Mar-Apr;18(2):240-6.

5. In vitro repair of fractured fiber-reinforced cusp-replacing composite restorations.
   Fennis WM *et al.*
   Int J Dent. 2011;2011:165938.

6. Effect of fiber-reinforced composites on the failure load and failure mode of composite veneers.
   Turkaslan S *et al.*
   Dent Mater J. 2009 Sep;28(5):530-6.

7. Glass fibre reinforced acrylic resin complete dentures: a 5-year clinical study.
   Goguţă LM *et al.*
   Gerodontology. 2012 Mar;29(1):64-9.

8. Effect of intermediate fiber layer on the fracture load and failure mode of maxillary incisors restored with laminate veneers.
   Turkaslan S *et al.*
   Dent Mater J. 2008 Jan;27(1):61-8.

9. Fatigue strength of fragmented incisal edges restored with a fiber reinforced restorative material.
   Garoushi SK *et al.*
   J Contemp Dent Pract. 2007 Feb 1;8(2):9-16.

10. Effect of woven glass fibre reinforcement on the flexural strength of composites.
    Oberholzer TG *et al.*
    SADJ. 2007 Oct;62(9):386, 388-9.

11. Comparison of repair methods for ceramic-fused-to-metal crowns.
    Ozcan M *et al.*
    J Prosthodont. 2006 Sep-Oct;15(5):283-8.

12. In vitro fracture resistance of fiber reinforced cusp-replacing composite restorations.
    Fennis WM *et al.*
    Dent Mater. 2005 Jun;21(6):565-72.

13. Fatigue resistance of removable orthodontic appliance reinforced with glass fibre weave.
    Rantala LI *et al.*
    J Oral Rehabil. 2003 May;30(5):501-6.

14. Use of woven glass fibres to reinforce a composite veneer. A fracture resistance and acoustic emission study.
    Vallittu PK.
    J Oral Rehabil. 2002 May;29(5):423-9.

Marginal adaptation of everStickNET reinforced restorations

Combination of everStickNET with flowable composite helps to reduce microleakage in adhesive composite restorations and shows a better marginal adaptability for veneer restorations.

1. Comparing marginal microleakage of three different dental materials in veneer restoration using a stereomicroscope: an in vitro study.
   Jia S *et al.*
   BDJ Open. 2017 Jan 6;3:16010.

2. Evaluation of gingival microleakage of composite restorations with glass fiber inserts, polyethylene fiber inserts and prepolymerized composite inserts: An in vitro study.
   Kumar P *et al.*
   IJIR 2016; 2:627-30.

3. Effect of fiber nets, application techniques and flowable composites on microleakage and the effect of fiber nets on polymerization shrinkage in Class II MOD cavities.
   Ozel E, Soyman M.
   Oper Dent 2009; 34:174-80.

4. The effect of fiber placement or flowable resin lining on microleakage in class II adhesive restorations.
   Beilli S *et al.*
   J Adhes Dent 2007; 9:1-7.

Bonding performance of everStickNET

Using everStickNET at the adhesive interface significantly improves the shear bond strength of resin composite to dentin or metal substrates.

1. Shear Bond Strength between Fiber-Reinforced Composite and Veneering Resin Composites with Various Adhesive Resin Systems.
   AlJehani YA *et al.*
   J Prosthodont. 2016 Jul;25(5):392-401.

2. Shear bond strength of fibre-reinforced composite nets using two different adhesive systems.
   Sfondrini MF *et al.*
   Eur J Orthod. 2011 Feb;33(1):66-70.

3. Enhanced degree of monomer conversion of orthodontic adhesives using a glass-fiber layer under the bracket.
   Shinya M *et al.*
   Angle Orthod. 2009 May;79(3):546-50.

4. Shear bond strength between a polyester-based root canal filling material and a methacrylate-based sealer with an intermediate layer of fiber-reinforced resin-based material.
   Nagas E *et al.*
   J Adhes Dent. 2009 Aug;11(4):325-30.

5. Effect of fiber-reinforced composite at the interface on bonding of resin core system to dentin.
   Cekic-Nagas I *et al.*
   Dent Mater J. 2008 Sep;27(5):736-43.

6. In vitro evaluation of push-out bond strength of direct ceramic inlays to tooth surface with fiber-reinforced composite at the interface.
   Cekic I *et al.*
   J Prosthet Dent. 2007 May;97(5):271-8.

7. The effect of c-factor and flowable resin or fiber use at the interface on microtensile bond strength to dentin.
   Belli S *et al.*
   J Adhes Dent. 2006 Aug;8(4):247-53.

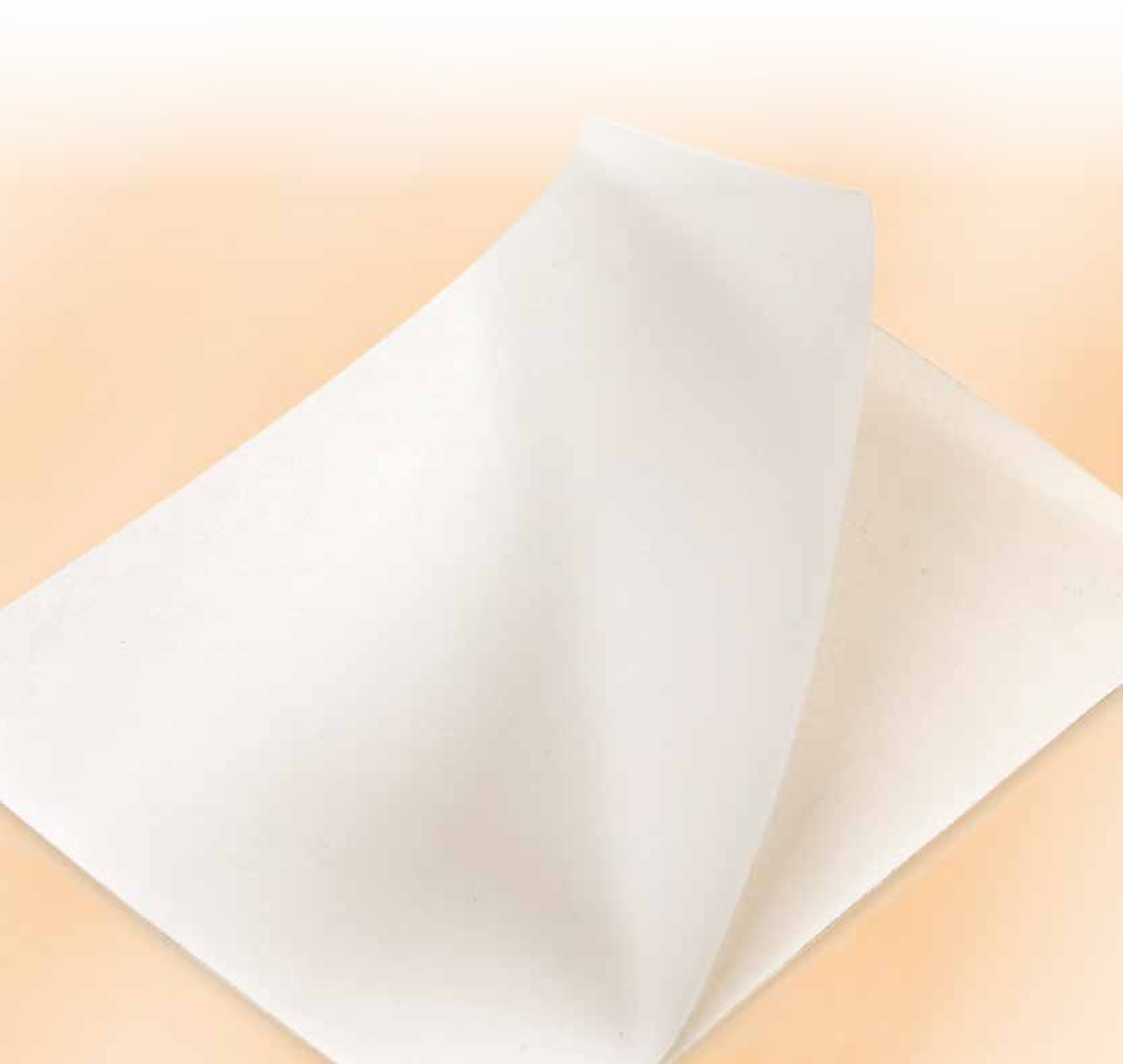
8. Bond strength of resin composite to differently conditioned amalgam.
   Ozcan M *et al.*
   J Mater Sci Mater Med. 2006 Jan;17(1):7-13.

9. Bonding of lithium-disilicate ceramic to enamel and dentin using orthotropic fiber-reinforced composite at the interface.
   Ergun G *et al.*
   Acta Odontol Scand. 2006 Oct;64(5):293-9.

Colour stability of of everStickNET restorations

Incorporation of everStickNET fibres did not alter the translucency of the composite resins and everStickNET restorations demonstrated clinically acceptable colour change after ageing.

1. Effect of water storage on the translucency of silorane-based and dimethacrylate-based composite resins with fibres.
   Ozakar Ilday N *et al.*
   J Dent. 2014 Jun;42(6):746-52.
2. Effect of fibers on the color changes and stability of resin composites after accelerated aging.
   Tuncdemir A, Aykent F.
   Dent Mater J 2012; 31:872-78.



everStick®ORTHO

Clinical performance of everStickORTHO retainers

Clinical studies and reports revealed that the application of everStickORTHO glass fibre reinforcements for orthodontic lingual retention is a practical alternative to conventional retainers used in orthodontic treatment. Authors stated that everStickORTHO is clinically easy to handle and can be precisely adjusted to the dental arch.

1. Clinical Success of Fiber-reinforced Composite Resin as a Space Maintainer.
   Kirzioğlu Z *et al.*
   J Contemp Dent Pract. 2017 Mar 1;18(3):188-193.

2. Two-year survival analysis of twisted wire fixed retainer versus spiral wire and fiber-reinforced composite retainers: a preliminary explorative single-blind randomized clinical trial.
   Sobouti F *et al.*
   Korean J Orthod. 2016 Mar;46(2):104-10.

3. Clinical evaluation of glass fiber-reinforced composites for fixed orthodontic lingual retainers.
   Wu HM *et al.*
   Shanghai Kou Qiang Yi Xue. 2014 Feb;23(1):80-2. Chinese.

4. Clinical evaluation of bond failures and survival between mandibular canine-to-canine retainers made of flexible spiral wire and fiber-reinforced composite.
   Sfondrini MF *et al.*
   J Clin Exp Dent. 2014 Apr 1;6(2):e145-9. doi: 10.4317/jced.51379. eCollection 2014 Apr

5. Bonded orthodontic retainer and fixed partial denture made with fiber reinforced composite resin.
   Kumbuloglu O *et al.et*
   Eur J Dent. 2011 Apr;5(2):237-40.

6. Application of fiber-reinforced composite as fixed lingual retainer.
   Liu Y.
   Hua Xi Kou Qiang Yi Xue Za Zhi. 2010 Jun;28(3):290-3. Chinese.

7. Glass fiber–reinforced composite resin as a space maintainer: A clinical study.
   Subramaniam P, *et al.*
   J Indian Soc Pedod Prev Dent 2008;26, Suppl S3:98-103

8. Glass fiber-reinforced composite resin as fixed space maintainers in children: 12-month clinical follow-up.
   Kargul B, *et al.*
   J Dent Child (Chic). 2005 Sep-Dec;72(3):109-12.

9. Glass-fiber reinforced composite in management of avulsed central incisor: a case report.
   Aydin MY, Kargül B.
   J Dent Child (Chic). 2004 Jan-Apr;71(1):66-8.

In vitro comparison between everStickORTHO and stainless steel orthodontic retainers

Laboratory findings suggest that fibre-reinforced composite retainers with everStickORTHO may be an effective option for orthodontic retention. Hence, everStickORTHO can be considered a viable aesthetic alternative for full-size stainless steel wires. Furthermore, several authors declared that fibre-reinforced composite space maintainers may be a clinically acceptable and expedient alternative to the conventional band-loop appliances.

1. Glass Fiber Reinforced Composite Orthodontic Retainer: In Vitro Effect of Tooth Brushing on the Surface Wear and Mechanical Properties.
   Sfondrini MF *et al.*
   Materials 2020 13(5):1028

2. Effect of Long-Term Brushing on Deflection, Maximum Load, and Wear of Stainless Steel Wires and Conventional and Spot Bonded Fiber-Reinforced Composites.
   Scribante A *et al.*
   Int J Mol Sci 2019;20(23):6043.

3. Nanomechanical properties, surface topography, and color stability of fiber-reinforced composite orthodontic retainers.
   Alshahrani *et al.*
   Polymers and polymer composites 2019;27(2).

4. Comparison of the different retention appliances produced using CAD/CAM and conventional methods and different surface roughening methods.
   Aycan M and Goymen M.
   Lasers Med Sci. 2019 Mar;34(2):287-296.

5. Comparison between fiber-reinforced polymers and stainless steel orthodontic retainers.
   Lucchese A, Manuelli M, Ciuffreda C, Albertini P, Gherlone E, Perillo L.
   Korean J Orthod. 2018 Mar;48(2):107-112.

6. Bending Properties of Fiber-Reinforced Composites Retainers Bonded with Spot-Composite Coverage.
   Sfondrini MF, Gandini P, Tessera P, Vallittu PK, Lassila L, Scribante A.
   Biomed Res Int. 2017;2017:8469090.

7. Spot-Bonding and Full-Bonding Techniques for Fiber Reinforced Composite (FRC) and Metallic Retainers.
   Scribante A, Gandini P, Tessera P, Vallittu PK, Lassila L, Sfondrini MF.
   Int J Mol Sci. 2017 Oct 4;18(10).

8. Fiber reinforced composites orthodontic retainers.
   Lucchese A, Manuelli M, Bassani L, Albertini P, Matarese G, Perillo L, Gastaldi G, Gherlone EF.
   Minerva Stomatol. 2015 Dec;64(6):323-33.

9. Covering of fiber-reinforced composite bars by adhesive materials, is it necessary to improve the bond strength of lingual retainers?
   Heravi F, Kerayechian N, Moazzami SM, Shafaee H, Heravi P.
   J Orthod Sci. 2015 Oct-Dec;4(4):102-7.

10. Shear bond strength of different retainer wires and bonding adhesives in consideration of the pretreatment process.
    Reicheneder C, Hofrichter B, Faltermeier A, Proff P, Lippold C, Kirschneck C.
    Head Face Med. 2014 Nov 28;10:51.

11. Evaluation of load-deflection properties of fiber-reinforced composites and its comparison with stainless steel wires.
    Alavi S, Mamavi T.
    Dent Res J (Isfahan). 2014 Mar;11(2):234-9.

12. Fatigue resistance, debonding force, and failure type of fiber-reinforced composite, polyethylene ribbon-reinforced, and braided stainless steel wire lingual retainers in vitro.
    Foek DL, Yetkiner E, Ozcan M.
    Korean J Orthod. 2013 Aug;43(4):186-92.

13. Effect of monomer composition of polymer matrix on flexural properties of glass fibre-reinforced orthodontic archwire.
    Ohtonen J, Vallittu PK, Lassila LV.
    Eur J Orthod. 2013 Feb;35(1):110-4.

14. Shear modulus of 5 flowable composites to the EverStick Ortho fiber-reinforced composite retainer: an in-vitro study.
    Brauchli L, Pintus S, Steineck M, Lüthy H, Wichelhaus A.
    Am J Orthod Dentofacial Orthop. 2009 Jan;135(1):54-8.

15. Development and testing of fiber-reinforced composite space maintainers.
    Kulkarni G, Lau D, Hafezi S.
    J Dent Child (Chic). 2009 Sep-Dec;76(3):204-8.

16. Adhesive properties of bonded orthodontic retainers to enamel: stainless steel wire vs fiber-reinforced composites.
    Foek DL, Ozcan M, Krebs E, Sandham A.
    J Adhes Dent. 2009 Oct;11(5):381-90.

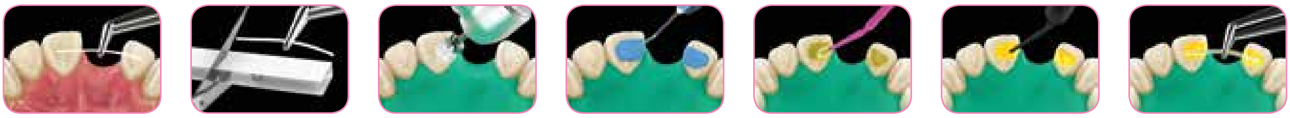
17. Force levels of fiber-reinforced composites and orthodontic stainless steel wires: a 3-point bending test.
Cacciafesta V, Sfondrini MF, Lena A, Scribante A, Vallittu PK, Lassila LV.
Am J Orthod Dentofacial Orthop. 2008 Mar;133(3):410-3.

18. Flexural strengths of fiber-reinforced composites polymerized with conventional light-curing and additional postcuring.
Cacciafesta V, Sfondrini MF, Lena A, Scribante A, Vallittu PK, Lassila LV.
Am J Orthod Dentofacial Orthop. 2007 Oct;132(4):524-7.

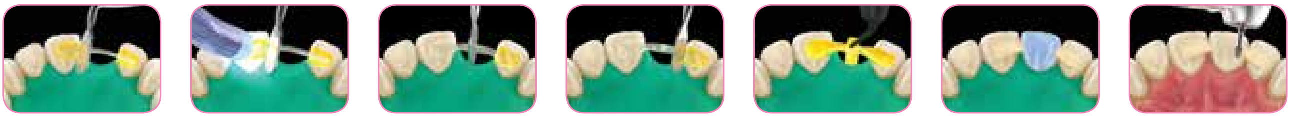
19. Bonding fiber-reinforced lingual retainers with color-reactivating flowable composite.
Geserick M, Ball J, Wichelhaus A.
J Clin Orthod. 2004 Oct;38(10):560-2.

Technique Guides

everStick®C&B
Anterior Bridge

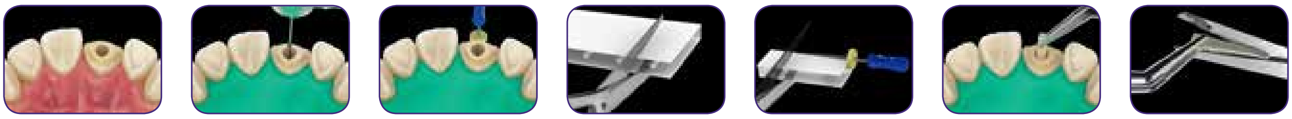


- Measure the length of fibre needed
- Cut the fibre inside the silicone
- Clean the teeth with pumice and water
- Etch the teeth for 45-60 seconds
- Bond the etched area and light-cure
- Apply a flowable composite; do not light-cure
- Position the fibre on top of the flowable



- Spread the fibre on the surface of the first tooth
- Light-cure while protecting the rest of the fibre
- Bend the centre of the fibre labially to support the pontic, and hold it in position. Do not light-cure.
- Spread the fibre on the surface of the second tooth, while keeping the labial curvature. Light-cure the complete structure.
- Add a transverse fibre occlusally; cover with flowable & light-cure
- Layer the pontic with composite
- Finish and check the occlusion

everStick®POST

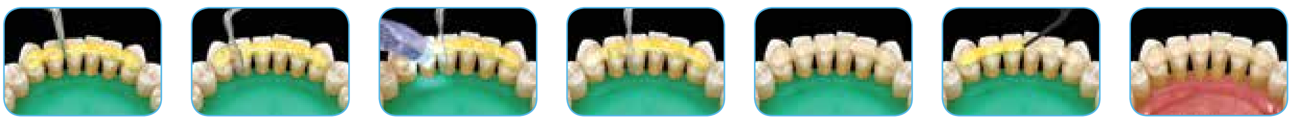


- Initial situation
- Prepare the space for the post
- Measure the length needed
- Choose the size, and cut out the post from the silicone
- Shorten the post to the desired length
- Fit the post inside the root canal
- Taper the post if necessary

- Place the post inside the root canal
- Fill the canal with shorter posts if needed, and condense them laterally
- Use a dual-cure composite luting for the cementation
- Insert the condensed post into the canal
- Light-cure for at least 40 seconds
- Continue the build-up with composite & light-cure
- Final situation

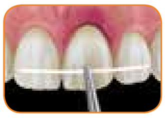
everStick®PERIO

- Initial situation
- Measure the length of fibre needed
- Cut the fibre bundle inside the silicone
- Clean the teeth with pumice and water
- Etch the teeth for 45-60 seconds
- Bond the etched area and light-cure
- Apply a flowable composite; do not light-cure!

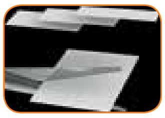


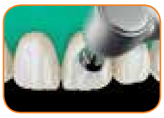
- Position the fibre on top of the flowable
- Spread the fibre on the surface of the first tooth
- Light-cure while protecting the rest of the fibre
- Proceed in the same way for each tooth
- Intermediate result after light-curing
- Cover the fibre completely with a flowable & light-cure
- Final situation

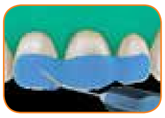
everStick®NET

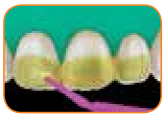

Measure the length needed

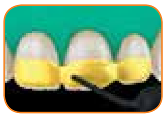

Cut the fibre net at the desired length


Cut out two or three fibre strips of different widths

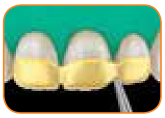

Clean the teeth with pumice and water

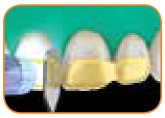

Etch the teeth for 45-60 seconds

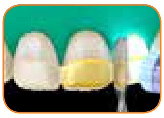

Bond the etched area and light-cure


Apply a flowable composite; do not light-cure!

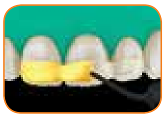

Remove the fibre net from its protective paper


Position one fibre strip at a time


Light-cure 5-10 seconds per tooth while protecting the rest of the fibre from the light


Apply a thin layer of light-curing resin on the cured strip. Position the second strip on top, and light-cure tooth per tooth.


Repeat the same procedure for the third fibre strip.

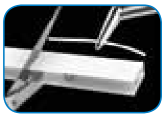

Cover the cured fibre net with flowable composite and light-cure for 40 seconds per tooth


Final situation after finishing the fibre splint

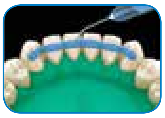
everStick®ORTHO

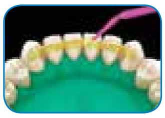

Initial situation

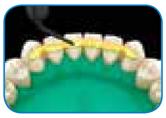

Measure the length of fibre needed

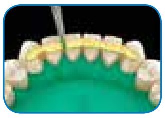

Cut the fibre bundle inside the silicone

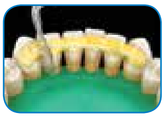

Clean the teeth with pumice and water

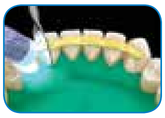

Etch the teeth for 45-60 seconds

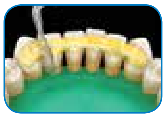

Bond the etched area and light-cure

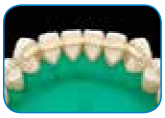

Apply a flowable composite; do not light-cure!

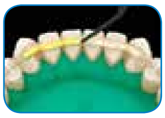

Position the fibre on top of the flowable


Spread the fibre on the surface of the first tooth


Light-cure while protecting the rest of the fibre


Proceed in the same way for each tooth


Intermediate result after light-curing


Cover the fibre completely with a flowable & light-cure


Final situation

Discover more on Youtube!

https://www.youtube.com/user/GCEuropeProducts/search?query=everStick

Check our App!

Restorative Dentistry Guides

In GC's Restorative Dentistry Guides, you can find more information regarding the use of everStick products as well as other restorative materials, together with step-by-step procedures and technique tips!

Download on the App Store

GC EUROPE N.V.
Head Office
Researchpark
Haasrode-Leuven 1240
Interleuvenlaan 33
B-3001 Leuven
Tel. +32.16.74.10.00
Fax. +32.16.40.48.32
info.gce@gc.dental
http://www.gceurope.com

GC UNITED KINGDOM Ltd.
Coopers Court
Newport Pagnell
UK-Bucks. MK16 8JS
Tel. +44.1908.218.999
Fax. +44.1908.218.900
info.uk@gc.dental
http://uk.gceurope.com

z O SC EN 18 09 – 03/20