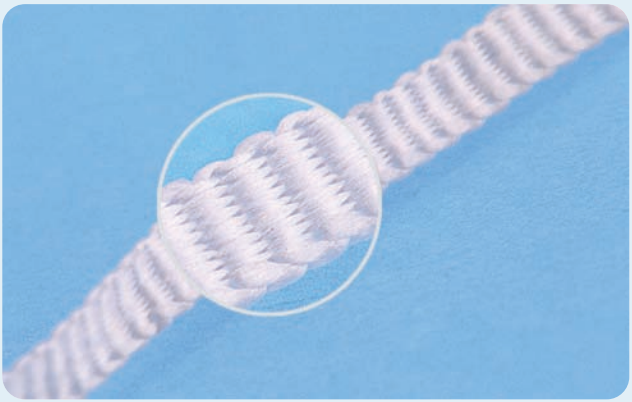
bioloren®
metal free dental solutions

20°
1998 - 2018

InFibra®

Reinforcement ribbon

ILLUSTRATED GUIDE



High molecular weight Polyethylene fibre

InFibra is the long-term solution, reliable, fast, economical for both the dentist and the dental technician for a metal free dentistry.

CE 0546

OUR COMPANY

BIOLOREN is an innovative Italian company specializing in "Metal free" dental systems. The company was founded in 1998 and has since focused on the manufacture of cutting-edge dental products. Over the years the company has earned a considerable reputation as a producer of fiber posts sold in more than 40 countries.
The quality system of BIOLOREN is certifiied UNI CEI EN ISO 13485. All the products by BIOLOREN are certified CE and many of them also received the prestigious American FDA. BIOLOREN uses high quality materials and cooperates with important universities both in Italy and abroad.
BIOLOREN offers different product lines:

- **Fiber posts**
- **Fiber ribbons**
- **Trilor discs and blocks for CAD/CAM machines and Trilor Arch for manual use.**
- **URC Universal resinous Cement + Adhesive system AD+**

The products are designed and manufactured by BIOLOREN which owns patents for many of them. In particular, the research team specializes in the development of fiberglass, carbon and polyethylene products. BIOLOREN provides metal free solutions to meet the needs of all dentists and dental technicians.
The company distributes worldwide through a network of distributors.


CERTIQUALITY

CISQ is a member of IQNet

CERTIFICATO n. 4854
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BIOLOREN SRL

IT - 21047 SARONNO (VA) - VIA ALESSANDRO VOLTA, 59

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UNI CEI EN ISO 13485:2012

Progettazione, produzione e vendita di dispositivi medici per odontoiatria.
Design, production and sale of medical devices for dentistry.

16/07/2002
10/01/2017
28/02/2019

ACCREDIA

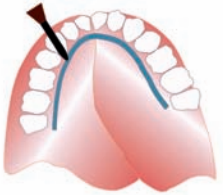
CISQ

InFibra is used with resinous composites or acrylic resins

1 - Reel of Ribbon

2 - Space Maintainer

3 - InFibra and composite



4 - Repair of acrylic prostheses

5 - Periodontal Splinting

6 - Maryland Bridge

For the contributions to the drafting of this document we thank:

Dr. Umberto Ratti - Italy; Dr. Angelo Della Bona - Italy; Dr. Ivan Minchev - Bulgaria; Dr. Sergey Sobolev - Russia; Dr. Oleg Savchenko - Russia; Odt. Massimo Previti - Italy; Odt. Giovanni Malvisi - Italy; Odt. Giancalosi Giovanni; Odt. Riccomini Emanuele.

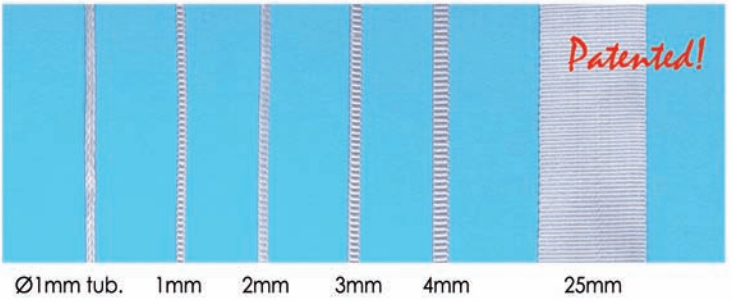
Product Description

High molecular weight polyethylene is the most widely used material in the world by orthopedics to coat the acetabular of the hip prosthesis for its high wear resistance and self-lubricating. In addition high level sutures are also produced.

Infibra is made up of high molecular weight polyethylene fibres, long, continuous, white, crystallized over 90% with excellent mechanical properties that make it the ideal product for non-metal dentistry. The particular weave (Bioloren patent) allows an effective armour to prevent the propagation of microfractures of resinous composites and acrylic resins.

Mechanical Properties

Elasticity modulus	95Gpa
Tensile strength	3,0 Gpa
Specific weight	0,97 g/cm^3
Percentage of elongation	2,4%
Water absorption	meno del 0,9%
Melting temperature	145 °C



Different heights of InFibra

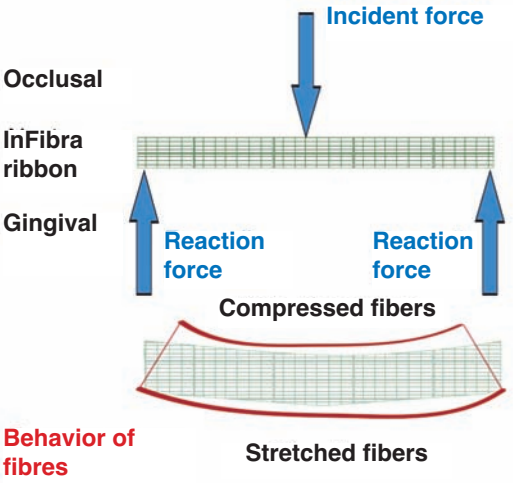
ø 1 mm Tubular is used for repairing mobile dentures.
1 mm has the same uses as that of 2 mm and is used in case of limited space.
2 mm widely used as orthodontic retention and for intercoronal splinting.
3 mm used in periodontal splintering and bridge armour where the natural element is used as a Pontic.
4 mm Widely used in case of temporary bridges.
25 mm Used for fixed and mobile prostheses and for large repairs and reconstructions.

The specialist will decide which height is the ideal one.

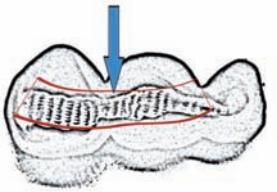
Mechanical principles on the use of Infibra

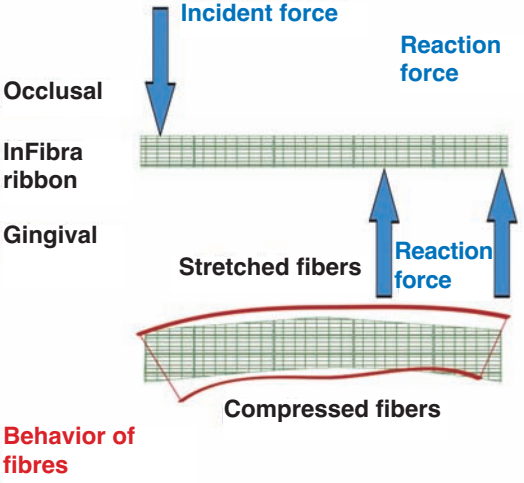
The concept illustrated hereunderis common to all the InFibra applications: Splintings – Maintainers of space - Inlay and onlay – Hybrid bridges - provisional - Structures of solidarization and retention - Repair of acrylic prostheses.

Mechanical behavior of a bridge (InFibra + composite).



1. In a bridge constrained/resting at the end, where the force insists centrally, the vincular reactions ensure that the "occlusal" fibres are compressed and the "gingival" fibers, subjected to traction, stretch.





1. In a bridge constrained/resting at the end, where the force insists centrally, the vincular reactions ensure that the "occlusal" fibres are compressed and the "gingival" fibers, subjected to traction, stretch.

+ height + duration
+ height + resistance

The fibers are mainly charged with the resistance to tension strains, while the polymerized composite contributes to compressive strength.

Advantages

Handy:
Infibra appears as a silky fabric, pleasant to the touch because soft, flexible, easy to apply unlike metal bands.

Comfortable:
Infibra adapts easily to dental surfaces and has "no memory" so it is ideal for adapting to interproximal spaces. The tapes are thin (about 0.3 mm) and the patient almost does not feel their presence in the mouth.

Aesthetic:
Infibra is white and translucent. It is highly camouflaged and the plot lines disappear when coated with composite and acrylic resin. The particular weaving allows a perfect integration with the coating materials.

Resistant:
The toughness of about 15 times that of steel, the high elastic modulus, as well as the tensile strength and the high resiliency make it the material of choice for definitive and temporary prosthetic reconstructions.

- **biocompatibile**
- **Low liquid absorption**
- **Stable dimensionally**
- **Radiopaque**
- **High stress resistance**
- **Long lasting**
- **Compatible with all resinous composites and acrylic resins**
- **Economical**

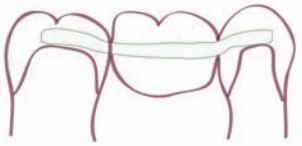
Applications

Main applications of InFibra:
- **Bridge construction**
- **Space maintainer**
- **Orthodontic Reconstruction**
- **Splintages**
- **Reinforcement of artifacts in composite and resin**
- **Bars on implants**
- **Repair of dentures**

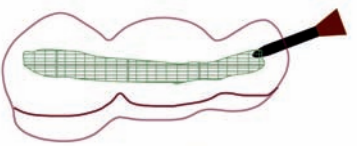
It is advisable to build a test case as soon as you receive the first InFibra kit. Not only to familiarize yourself with the material, but also to have a model to show patients

Construction of a provisional bridge - direct method

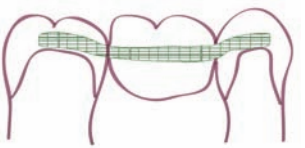
In the case of a bridge supported at both ends, trace the pattern of a superficial channel in which to place InFibra and the composite. Proceed by determining the required length of the Infibra segment. Soak Infibra with an unfilled (AD +) adhesive and then with a dual composite (URC). Place Infibra, add URC and trim.
If you perform a cantilever follow the principles seen on Pag. 5.



1 - Trace a channel



2 - Apply InFibra + composite

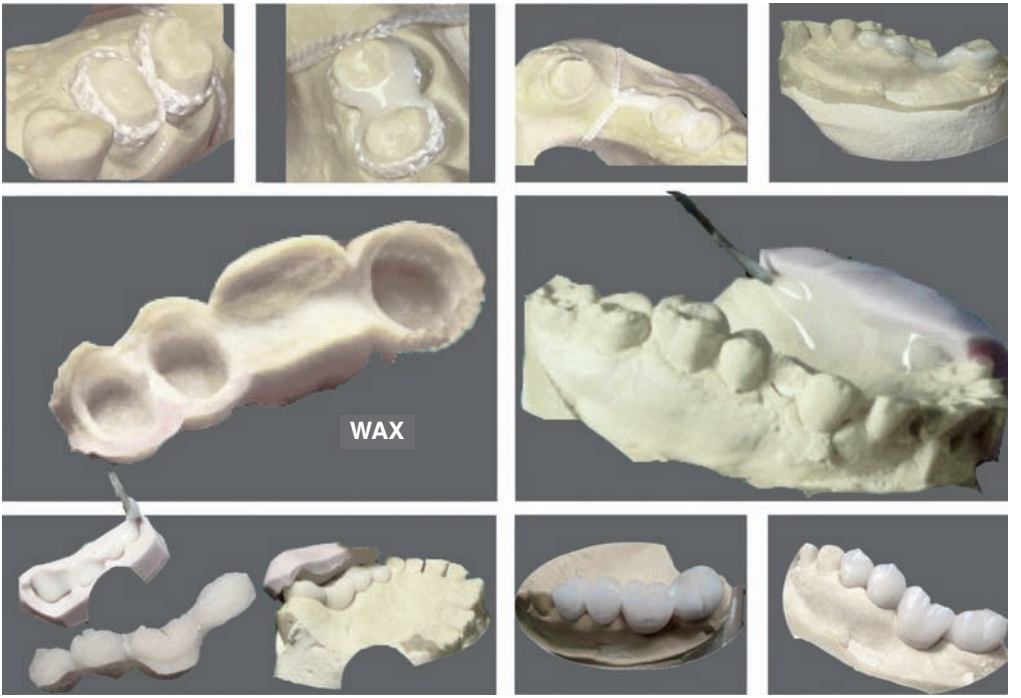


3 - Cure

Construction of an armed provisional bridge indirect method

The aim is to incorporate an armature of InFibra and URC into the bridge in order to give it a higher resistance and durability. The following illustration highlights the most significant steps of the application.

For a more durable and solid execution it is advisable to use an incremental layer coating.

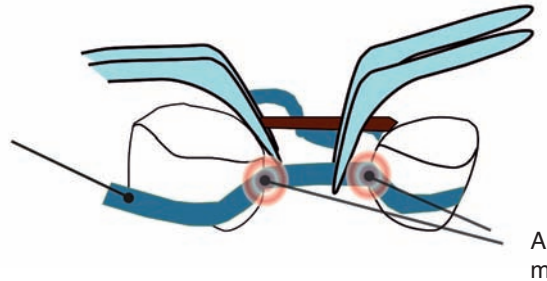


Ref. Technical Lab Massimo Previti

Construction of a reinforced bridge

1. Make a model with the help of a foil segment or other suitable material to identify the length and position of the InFibra. Take care of the interproximal areas, which are the structure areas subjected to the maximum effort during the occlusal movements.

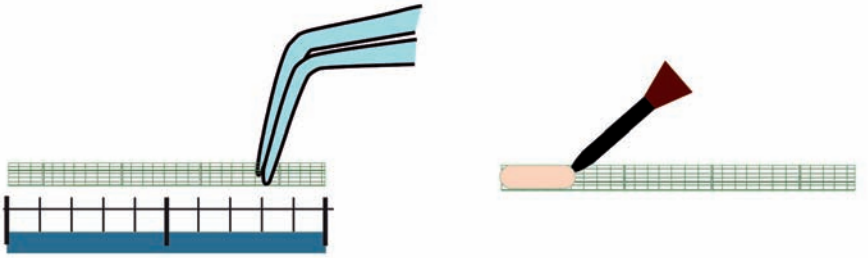
Use some aluminum foil to make a model



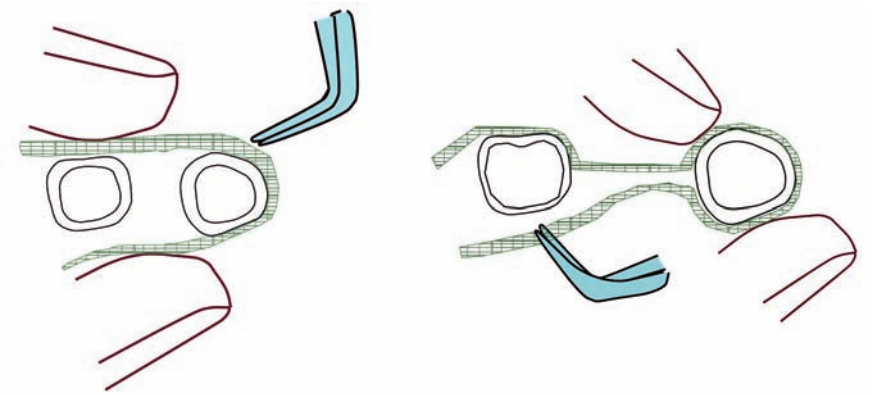
The (patented) texture of Infibra is designed to optimize the permeation of a composite through the mesh of Infibra itself.

Areas subjected to the maximum effort

2. Cut a segment of InFibra as determined by the model and soak it with ad+ or URC. At this point the element must be handled as a real composite.

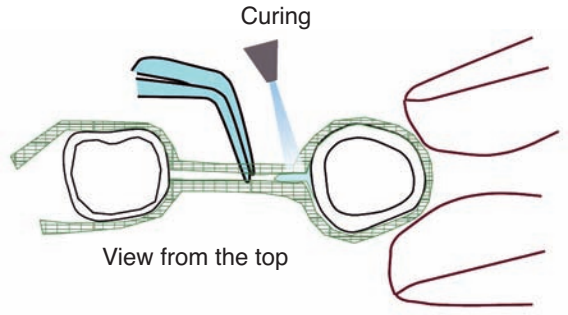


3. Adapt the "wet" side of Infibra to the first stump using tweezers.



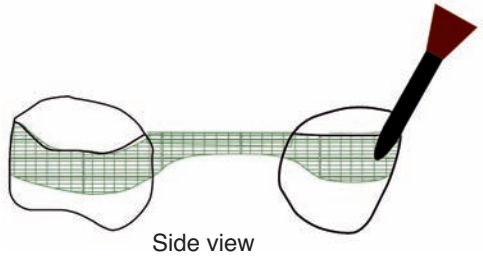
4. Apply a thin layer of URC to begin to adhere InFibra to the stump. Wrap the two "circles" around the stumps, as shown in the figure.

5. Wrap InFibra on the two stumps and close the gap. Add a few drops of URC to fix InFibra in the desired position and cure.



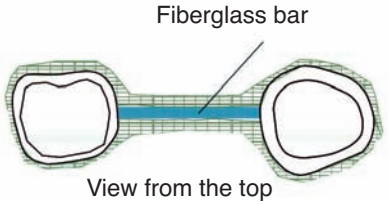
Fibres should never be exposed in the oral cavity. A layer of URC preserves its integrity and removes the feeling of roughness from the patient.

6. Place Infibre with your fingers and tweezers. Add URC with the technique of the incremental layers.

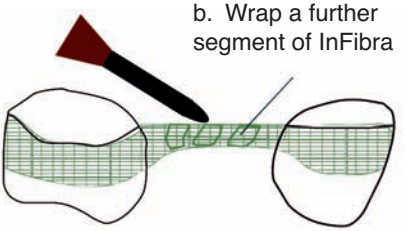


7. If you believe that you need to further reinforce the bridge, there are two solutions:
a) Interpose a fibreglass bar between the two sides of InFibra that intervene inside the stumps;
b) Wrap an additional segment of InFibra mounted of the first stretch of InFibra that has already been used for the structure.

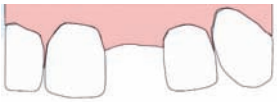
a. Reinforce with a fiberglass bar



b. Wrap a further segment of InFibra

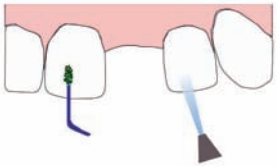


Space Maintainer and Reconsruction of an element



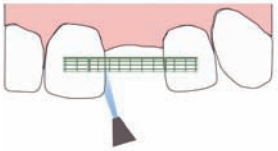
Palatal perspective

1 - Determine the required length of ribbon. In doing this make sure that there will be a correct occlusion at work performed. Prepare the area on which the ribbon will adhere according to traditional methods (such as sanding) and clean up.

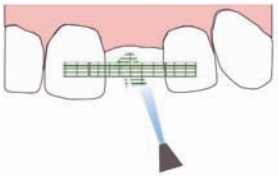


2 - Etch the areas on which to allocate the tape adhesion, then remove with water jet and dry. Apply a thin layer of AD + and cure with the lamp.

3 - Apply a thin layer of fluid composite URC and place infibra on it. Follow as much as much as possible the tooth surface progression up to half the interproximal space (palatal/lingual) and cure.



4 - To get a very durable and solid bridge, wrap a small stretch of InFibra around the bridge itself so as to reinforce the structure in the central part. Soak with a little URC and cure.

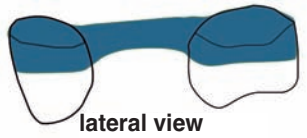


5 - On the structure obtained, lay a layer of URC to cover entirely the fibres. Cure and continue the construction with the technique of the incremental layers.

6 - Complete the artificial element, taking into account to optimize the occlusal function.

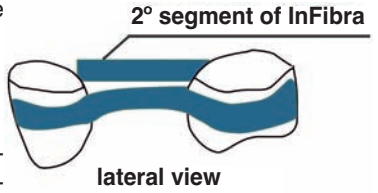
Contruction of a bridge reinforced with 25 mm high InFibra

1. Build the model using aluminum foil. Cover the stumps for at least 3 or 4 mm. Cut the InFibra segment if necessary.
2. Isolate the model appropriately.
3. Initially soak InFibra with a dual resinous cement (URC).
4. Apply a first layer of URC on the ribbon.
5. Adapt InFibra so that to perfectly cover the stumps in the desired position and start curing.
6. Apply successive layers to cover and finish taking care not to leave exposed fibers.



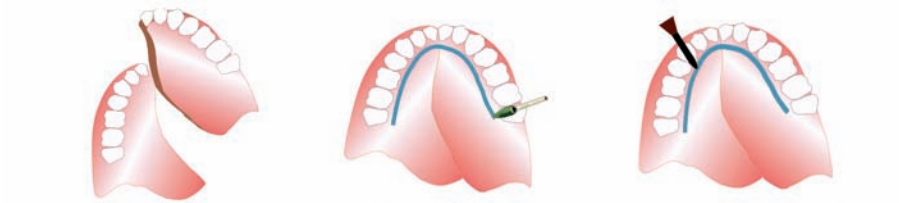
Reinforce with a second segment of Infibra a previous artifact

1. Measure the required length of InFibra equal to the space to be reinforced.
2. Properly isolate the model.
3. Cut and soak with URC the Infibra segment.
4. Apply the URC composite to the InFibra ribbon.
5. Apply the various layers of composite to cover InFibra already fixed to the stumps and to a possible present segment of InFibra.



In case of high stress it is advisable to reinforce the structure by adding an additional segment of the ribbon.

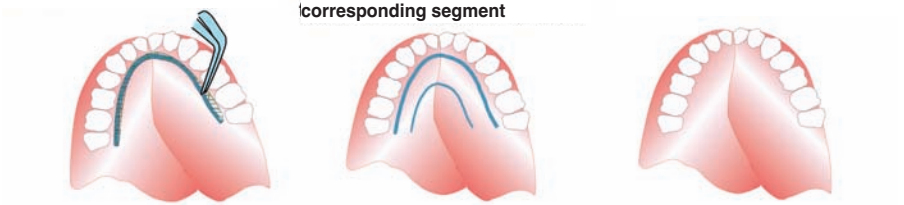
Repair of acrylic resin prosthesis



1 - Adhere the two parts of the denture using an adhesive

2 - Trace and etch a channel in the acrylic resin; measure and cut the corresponding segment

3 - Apply a layer of composite inside the channel



4 - Position InFibra in the channel and cover InFibra with the composite

5 - The repair can be reinforced by making an inner additional channel

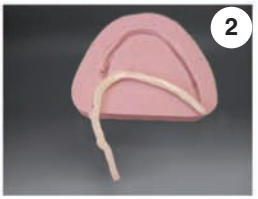
6 - Complete the repair covering entirely with acrylic resin

We recommend Tubular InFibra because it is more suitable for this use

“All on 4” docked with InFibra and URC

An important application of InFibra is in the implantoprosthesis both in the immediate and deferred loads.

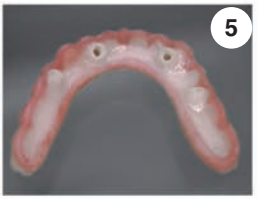
Many authors have shown that the use of rods on plants with semi-rigid materials reduces the bone retraction in time, unlike the metal bars that are too rigid, which do not allow a physiological dispersion of the occlusal forces, therefore less stress it is transmitted from implants to the bone that needs to be reformed.



Infibra is a semi-rigid fibrous material with modulus of elasticity similar to that of bone.

1) Remove the required length of tubular InFibra (1mm).

2) Fix InFibra with a layer of URC.



3) The structure with InFibra has solved the dispararallelelism.

4) Adapt the artifact to the mesostructure.

5) Make the prosthesis using some acrylic resin.

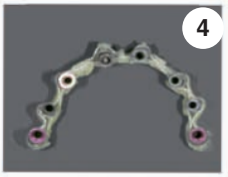
6) Complete the case by positioning the artifact on the model.

olidarization of 8 systems and passivation
Indirect method

1) Position InFibra with some drops of URC composite on some points of the structure.

2) With the help of tweezers place in a definitive way InFibra on the model.

3) Apply a first layer of URC along the entire length of InFibra. The artifact can now be cured in order to solidify the transverse bond.



4) Cover the entire length of InFibra with successive layers of URC with the technique of the incremental layers.

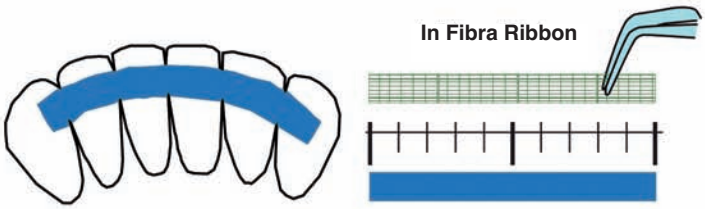
5) The structure is further covered and reinforced with URC.

6) The structure is ready to be positioned and anchored to the implants.

7) Case completed.

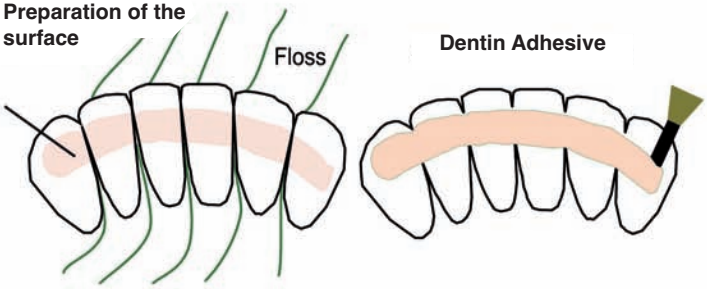
Periodontal Splintage - Direct method

To achieve a periodontal splintage, measure the required length of the InFibra segment. Use aluminum foil to build a faithful model.



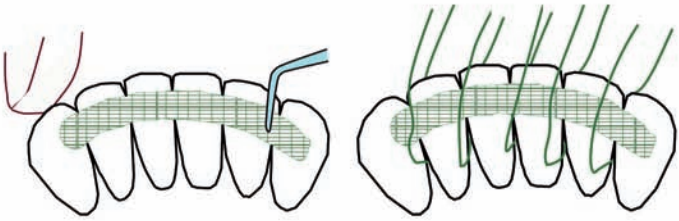
Splintage can be performed in the lingual or palatal area. Teeth should not present tooth decay.

Insert dental floss segments. Carry out the preparation of the surfaces to be treated for adhesion. Apply a thin layer of AD + on the treated surface.



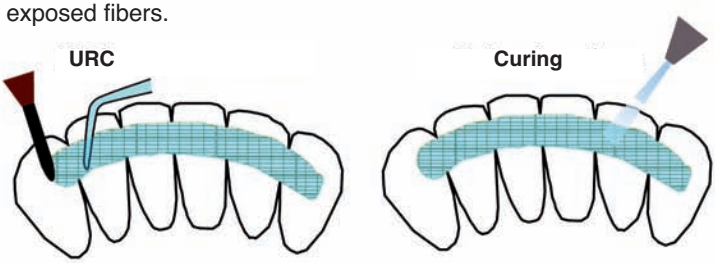
Bioloren's dual URC (Universal Resin Cement) Composite is recommended for all uses of InFibra.

Apply a layer of URC composite to the tooth surface, but do not cure yet. Adapt the ribbon with bonding to the contour of the teeth, once you find the right position pull out the floss so as to perfectly fit InFibra to the teeth profiles.



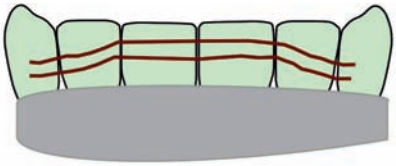
To better adhere infibra to the dental surfaces, segments of dental floss are inserted and then pulled outward. In this way InFibra will adapt better to the profile of the teeth.

Incremental curing. Cover the fibers by paying attention to the interproximal areas. Do not leave exposed fibers.

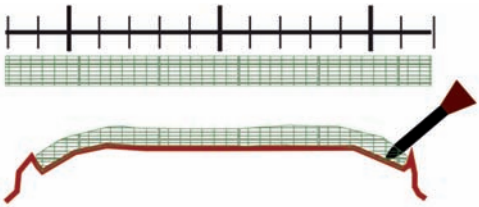


Splintage with indirect method

1) Make the impression and the corresponding model.
2) Draw the upper and lower sides that delimit the splintering. Take into account the occlusal characteristics of the patient.



3) Create the model of the splintage with the wax technique.
4) Make any corrections after verifying the accuracy of the splintering directly in the patient's mouth.
5) Prepare the dental surfaces (as already seen with the direct method).
6) After measuring the required length, cut the correct amount of InFibra with the special scissors or other suitable instrument.



With the direct method the Splintage is performed in a single session. The indirect method allows more manageability and the resin is cured optimally.

7) Apply a small amount of URC fluid composite to the model at the adhesion surfaces.

8) Place a segment of InFibra joined to a layer of URC and cure. Insert the model obtained in the patient's oral cavity. Make sure the splintage is correct.
9) Reinforce with subsequent URC layers and cure.
10) Remove the support of the splintage and add more URC to refine, making sure not to leave exposed fibers.

Splinting on the model

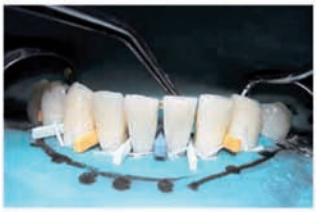
Periodontal Splintage-Direct method

Diagnosis:
- Abnormal mobility;
- Periodontitis.

Place the rubber dam. The preparation must provide an excellent interproximal adaptation. Use the tinfoil method for the model.

Prepare the teeth taking care to make the surface rough to improve adhesion.

Unlike fibreglass, Infibra does not require any clips to fix its position.



The adhesion is improved using for example etching gel, taking care to treat also the interproximal zones.

A + bonding agent is applied to the treated surface. We then proceed with the application of a fluid composite (URC).

Fix InFibra in the desired position and start curing.

The splinting is completed and finished without leaving exposed fibers.

Clinical case; Concession of Dr. Ivan Minchev-Sofia.

URC: Universal resinous Cement

- Dual
- Hydrofilic
- Fluid
- Eliminates microfractures
- Self etching
- Stable colour when cured
- Available in automix syringes
- Radiopaque
- Releases fluorine

Proprietà fisiche:

Resistance to compression	310 MPa
Tensile strength	32 Kg
Film thickness	12 micron
Low viscosity	

URC ideal for cementation of materials such as InFibra for the absence of microfractures; Anaerobic.

URC:

- Syringe 7 g
- Syringe 3,5 g

Syringes are supplied with straight or angled tips

Ideal for cementing all surfaces such as: polyethylene, InFibra, precious and non metals, ceramics, zirconia, acrylic resins, glass and carbon fibers, bridges, crowns, inlays.

The chemical nature of URC is hydrophilic, therefore in the moist environment of the oral cavity it binds perfectly with the natural structures. URC allows a marginal closure without step or without micro-fractures, leading cause of failures. Tests performed by an autonomous body show that the impregnation of Infibre with AD + and URC is absent from microbubbles, the main cause of detachments.

ad+: the adhesive system

ad+ Mono is a latest generation adhesive: Monocomponent (1 vial) photohardening. The PMGDM patented monomer creates a hybrid layer (Hibrid layer) with the collagen of the dentinal tubules with the result of an exceptional micromechanical retention (> 34mpa). Ideal with all resinous composite cements such as URC.

ad+ACTIVATOR is the right complement to make AD + Mono even dual

- ad+Mono bottle of 6 ml;
- ad+ACTIVATOR bottle of 3 ml.

Adhesion Test with resinous composite and PMMA. The results obtained have values of 500 N and 600 n, respectively.

Packaging

InFibra Kit – 5 spools + special scissors

InFibra – Height 25 mm Length 50 cm

InFibra – Single spool 50 cm

Main recommendations on the use of IFfibra

1. Remove an InFibra segment from the spool with sterile tweezers.
2. Cut the InFibra ribbon with the special scissors or other suitable instrument.
3. If InFibra is used with non-adhesive-action composites, it must be wetted with a bonding agent (AD + MONO).
4. If InFibra is used with an acrylic resin, a specific monomer should be added.
5. The InFibra artifact must always be covered with resin or composite.
6. InFibra has no expiry date. On the other side it should be protected from intense light or polluting agents during storage

Products available

Spool of ø 1 mm - L. 50 cm	Cod. IF 1T
Spool of 1 mm - L. 50 cm	Cod. IF 1
Spool of 2 mm - L. 50 cm	Cod. IF 2
Spool of 3 mm - L. 50 cm	Cod. IF 3
Spool of 4 mm - L. 50 cm	Cod. IF 4
Pack of 25 mm - L. 50 cm	Cod. IF 25
URC - Resinous Cement 7 g.	Cod. URC7
URC - Resinous Cement 3,5 g.	Cod. URC3,5
ad+ MONO 6 ml.	Cod. ADHE6
Activator 3 ml.	Cod. ACTIV3
InFibra Ribbon Kit - 5 spools + special scissors	Cod. IFKIT5
Special scissors	Cod. SCS

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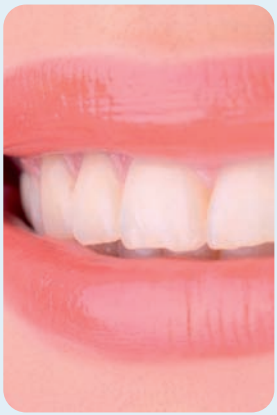

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