01 copy.pdf 1 7/17/16 11:49 AM

hyaDENT BG

World's
First injectable
HA Dental Treatment

hyaDENT BG

- Dental specific treatment
- Improves healing of gum post dental procedure
- Promotes and accelerates bone formation
- Cost effective
- safe

Composition

Each 1.2 ml hyaDENT BG cartridge contains:

Cross-linked Hyaluronic Acid		**16 mg/ml**
Hyaluronic Acid		**2 mg/ml**
Sodium Chloride		**6.9 mg**
Water For Injection	ad	**1.2 ml**



References

1- 1. Hyaluronan Fragments Improve Wound Healing on In Vitro Cutaneous Model through P2X7 Purinoreceptor Basal Activation: Role of Molecular Weight Kamelia Ghazi et al, Universite´ Paris Descartes, Sorbonne Paris Cite´ , Faculte´ de Pharmacie, Paris, France France, plos one, issue 7, November 2012,

2- Scarless skin wound repair in the fetus h. peter lorenz, md, and n. scott adzick, md, san francisco, california, the western journal of medicine, sep 1993

3- Influence of Hyaluronic Acid in Periodontal Tissue Regeneration Radojkova Nikolovska Vera1, Popovska Mirjana1, Minovska Ana2 , Belazelkoska Zlatanka1 LITERATURE REVIEW (LR) Balk J Stom, 2013; 17:61-64

4- Black triangle dilemma and its management in esthetic dentistry. Singh, V. P., Uppoor, A. S., Nayak, D. G., & Shah, D. (2013). Dental Research Journal,10(3), 296–301.

5- Interdental papilla loss: treatment by hyaluronic acid gel injection: a case series Fatin A. Awartani 1 & Dimitris N. Tatakis2, Springer-Verlag Berlin Heidelberg 2015

6- Wang F, Garza LA, Kang S, et al. In Vivo Stimulation of De Novo Collagen Production Caused by Cross-linked Hyaluronic Acid Dermal Filler Injections in Photodamaged Human Skin. Arch Dermatol. 2007

7- Management of the extraction socket: Site preservation prior to implant placement Michael Danesh-Meyer, BDS, MDS (Perio), Australasian Dental Practice, March/April 2008

Bio SCIENCE

BioScience GmbH
Walsmühler Straße 18
19073 Dümmer - Germany
Fon: +49 (0) 2602 / 83 868-0
www.bio-science.org

Elaf Medical Supplies
ايـلاف للتجهيزات الطبية

EMEA Headquarters:
P.O.Box 1348 Amman 11941 Jordan
Tel: +962 (06) 5549896
Fax: +962 (06) 5549897
www.elaf-me.com



World's
First injectable
HA Dental Treatment

hyaDENT BG can be injected into the gingiva periodontal pockets, or applied topically

02 copy.pdf 1 7/17/16 11:50 AM

hyaDENT BG

World's **First injectable** HA Dental Treatment

hyaDENT BG is a combination of cross linked and non-cross linked Hyaluronic Acid (HA) from non animal source, chemically altered for dental use. Cross linking means transforming the straight chain molecule to a 3D mesh that gives **hyaDENT BG** its unique properties. Several chemical modifications are made to HA molecules to enhance their physicochemical properties.

The combination of cross-linked and non-modified HA provides immediate and long lasting effects, promoting regeneration and wound healing.

Advantages

hyaDENT BG is used in both surgical and non-surgical procedures to:

✓ **Promote tissue healing**

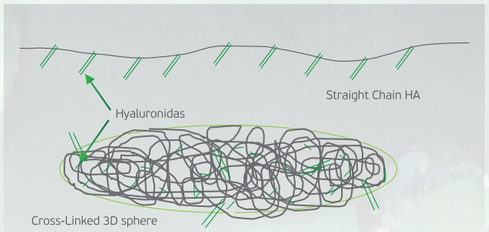
✓ **Accelerate tissue regeneration**

Promoting tissue healing

Soft tissue healing

Hyaluronic acid is present in high concentrations during periods of rapid tissue proliferation and regeneration. HA creates an environment that promotes cell proliferation, providing a medium allowing nutrients, cells and small molecules to move but inhibit macromolecules to enter.

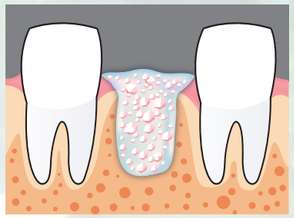
In adults during the first few days of wound healing hyaluronic acid is deposited briefly with fibrin and the platelet plug, it is removed by hyaluronidase, and then this provisional matrix is replaced by collagen and sulfated glycosaminoglycans.[2]



Cross-linking of **hyaDENT** BG reduce the effect of hyaluronidase as the 3D matrix protects the HA from degradation. [1]

Socket Preservation

Socket preservation and alveolar ridge preservation (ARP) are procedures to reduce bone loss after tooth extraction. This will facilitate the future implant placement and help preserve both alveolar bone and soft tissues.



hyaDENT BG

- Promotes the formation and stabilization of the blood clot
- Promotes osseointegration of the bone grafting material
- Preserves the adjacent soft tissues

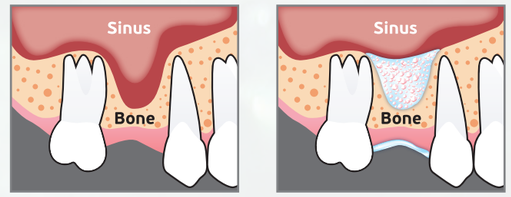
Site preservation ultimately provides stability of the hard and soft tissues at the level of the marginal gingiva post extraction by preventing soft tissue collapse. Support of the labial plate through the initial healing of the extraction socket also maintains the osseous ridge contour thereby simplifying subsequent implant placement.[7]

Sinus Lift (Sinus Augmentation)

Sinus augmentation is a common procedure to increase bone volume and allow for proper implant placement in the atrophic posterior maxilla.

hyaDENT BG

- Promotes osseointegration of bone grafting material
- Provides better handling of bone graft, and prevent migration



Treatment using **hyaDENT BG** *(Socket Preservation, Sinus lift)*

- Mix **hyaDENT BG** with bone graft in 1:1 ratio
- Add **hyaDENT BG**/bone graft mixture to application site.
- Top the mixture with a layer of **hyaDENT BG**.
- Membranes -if needed - can be used on top of **hyaDENT BG**.

Gingival sutures covered with **hyaDENT BG** provide a better healing environment, and enhance gingival margin preservation

03 copy.pdf 1 7/17/16 11:51 AM

hyaDENT BG

World's
First injectable
HA Dental Treatment

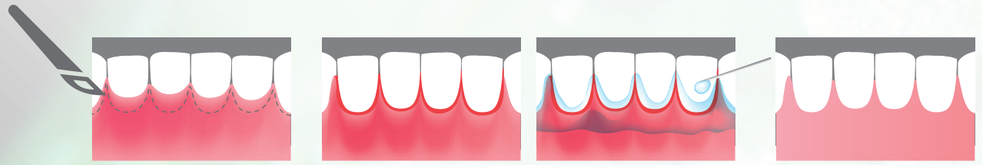
Gingivectomy and Gingivoplasty

Gingivectomy is the removal of gum tissue (gingiva) by surgery (knife / electro surgery / laser). Gingivoplasty is a type of gum surgery used to reshape healthy gum tissue around teeth for better aesthetic look.

In both cases the gingiva undergoes mechanical injury that takes several days to heal.

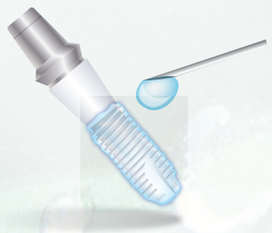
Gingiva treatment using **hyaDENT BG**

After excess gingiva is removed, apply **hyaDENT BG** in a single layer on top of the incised gingiva, this will promote healing and significantly reduce time to heal with no scare tissue. **hyaDENT BG** has iso-salivary pH, which does not harm the teeth.



Dental Implant Osseointegration

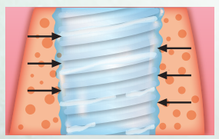
hyaDENT BG
- Promotes osseointegration of dental implants to alveolar bone
- Promotes osseointegration of the bone grafting material



Osseointegration using **hyaDENT BG**

Before the implant is placed into bone, the implant is covered with a layer of **hyaDENT BG** and screwed into bone.





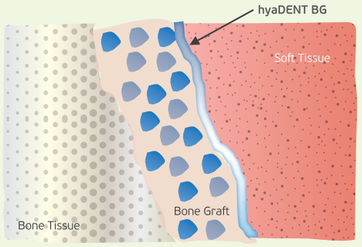
Bone healing
(osteoconductive and osteoinductive and osseointegrative properties)

When **hyaDENT BG** is mixed with bone graft it provides a medium to carry the bone graft granules to application site, and separating the bone graft from the soft tissue.

When **hyaDENT BG** is used alone or mixed with bone graft, it promotes the integration of implants and regenerating bone.

hyaDENT BG has unique Osteoconductive, and Osteoinductive properties that makes it the treatment of choice as a stand alone treatment or mixed with bone graft. Some of **hyaDENT BG** applications in surgery include socket preservation, sinus lift, placement of dental implants, regenerative periodontal surgery, and mucogingival surgery.

In severe cases **hyaDENT BG** treatment can be repeated after three months for two times.



Barrier Gel

When hyaluronic acid binds to cell receptors that are presented only on active defense cells, it acts as a regulator of migration and cellular defense mechanisms that are particularly important in wound healing and tissue repair. [3]



04 copy.pdf 1 7/17/16 11:53 AM

hyaDENT BG

World's
First injectable
HA Dental Treatment

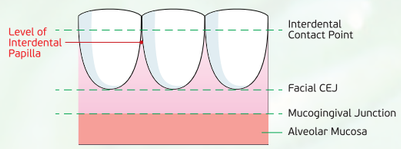
Applications

Interdental Papilla Loss

Interdental papilla: also known as the interdental gingiva, is the part of the gingiva that exists coronal to the free gingival margin and fills the interdental spaces.

Common reasons for the papilla loss

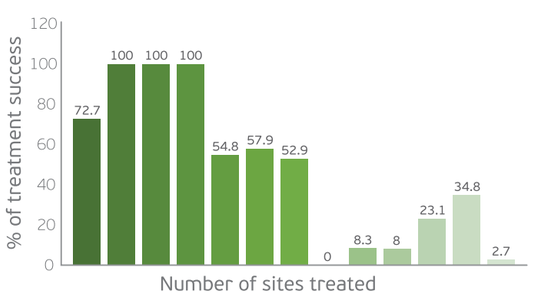
- Plaque-associated lesions
- Abnormal tooth shape and orthodontics anomalies
- Traumatic oral hygiene procedures

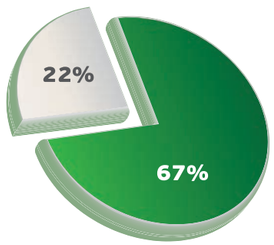


The loss of papilla can lead to:

- Cosmetic deformities (so-called "black triangle disease")
- Phonetic problems (space allows passage for the air or saliva)
- Lateral food impaction.

Papilla loss treatment using hyaDENT BG





%67 of patients were very satisfied with their smile after the treatment of the interdental papilla loss, compared to %22 satisfied with their smile prior to treatment.[5]

The interdental papilla as a structure with minor blood supply was left more or less untouched by clinicians. Reconstruction of the lost interdental papilla is one of the most challenging and least predictable problem and hence, it is very important to respect papillary integrity during all dental procedures and to minimize its disappearance as far as possible.[4]

Periodontal treatment using **hyaDENT BG** (surgical treatment)

In advanced cases of Periodontitis loss of connective tissue and bone support may result in tooth loss in adults. Surgical intervention might be needed.

- Full mouth debridement
- Opening a flap in the gingiva to expose affected teeth
- Adding bone graft to replace lost bone. **hyaDENT BG** is mixed with bone graft to enhance bone graft integration
- **hyaDENT BG** is poured over the bone graft before closing to enhance soft tissue healing
- **hyaDENT BG** is added topically to the sutures to enhance healing gingiva



Mouth Ulcers

Recurrent aphtae/aphtous ulcerations are small, shallow lesions that develop on the soft tissues in your mouth or at the base of your gums.

Unlike cold sores, canker sores don't occur on the surface of your lips and they aren't contagious. They can be painful, however, and can make eating and talking difficult.

Causes *(The exact cause of most aphtae/aphtous ulcerations is unknown)*

Simple canker sores causes

- Stress.
- Tissue injury is thought to be the cause of simple canker sores
- Certain foods (such as lemons, oranges, pineapples) can trigger a canker sore or make the problem worse.
- Sharp tooth surface or dental appliance, such as braces or ill-fitting dentures, might also trigger canker sores.

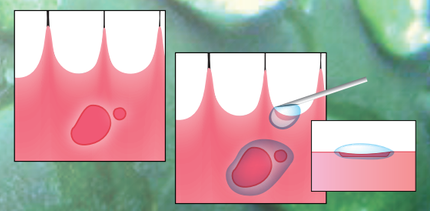
Complex canker sores causes:

- Impaired immune system
- Nutritional problems, such as vitamin B_{12}, zinc, folic acid, or iron deficiency
- Gastrointestinal tract disease, such as celiac disease or Crohn's disease.

Treatment of canker sores using **hyaDENT BG**

hyaDENT BG film-forming properties makes the product resistant to saliva and helps creating a protected environment that supports tissue regeneration.

Apply **hyaDENT BG** topically to the Canker sore, covering it completely. Advise patient not to have food for 2 hrs.



05 copy.pdf 1 7/17/16 11:54 AM

hyaDENT BG

World's
First injectable
HA Dental Treatment

Gingivitis and Periodontitis

Gingivitis is an inflammation of the gums, usually caused by a bacterial infection. If left untreated, it can become a more serious infection known as periodontitis. Periodontitis (together with caries) is one of the major causes of tooth loss in adults.

Causes of Gingivitis

The most common cause of gingivitis is poor oral hygiene, that encourages plaque formation. Plaque is an invisible, sticky film composed mainly of bacteria. Plaque that remains on the teeth for more than few days hardens into calculus.

Gingivitis may lead to

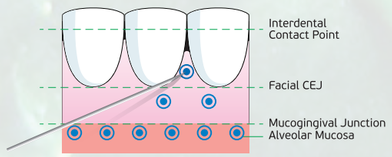
- Tender and swollen gums that occasionally bleed.
- Severe periodontal (gum) disease can develop together with tooth loss due to a destruction of the underlying bone.

Hyaluronic acid has been identified in all periodontal tissues in varying quantities, being more prominent in the non-mineralized tissues, such as gingiva and periodontal ligament, compared to mineralized tissues, such as the cement and alveolar bone.

Gingivitis treatment Using **hyaDENT BG:**

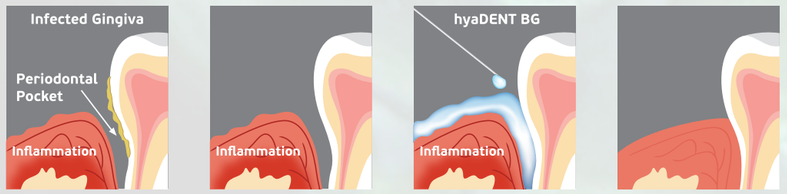
hyaDENT BG muco-adhesive properties provides maximum adhesion to the gingival mucose, allowing the HA to remain in situ for long time.

- After mechanical treatment (scaling, root planning).
- hyaDENT BG is injected along the MGJ in droplets, then massaged gently for 1 minute.
- **hyaDENT BG** is spread in a thin layer topically over the gingiva.



Periodontitis treatment Using **hyaDENT BG** (non surgical treatment)

- After mechanical treatment (i.e. scaling, root planning)
- **hyaDENT BG** is applied (poured using blunt needle) to the periodontal pockets and/or around the teeth with periodontitis
- **hyaDENT BG** is injected along the MGJ in droplets, then massaged gently for 1 minute.
- **hyaDENT BG** is spread in a thin layer topically over the gingiva.



Interdental papilla loss Treatment using **hyaDENT BG** (Topical and Injection)

First step of interdental papilla loss treatment is, identifying and treating the underlying cause, if any, of the interdental papilla loss, which will enhance the outcome of the overall treatment.

The injection of **hyaDENT BG** into the gingiva creates a microenvironment that promotes the formation of new collagen at the site of injection.[6]

Three Step Technique (TST)*

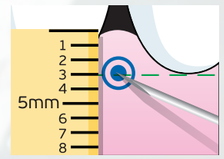
Is a unique and reliable reconstruction method for intraoral soft tissue and interdental papillae, depending on the respective tissue status and papilla defect.



*Developed by Dr. Gottfert and colleagues

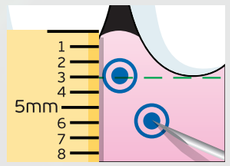
For Class I and Class II interdental papilla loss treatment

- Inject **hyaDENT BG** directly into the middle of the papilla, 3–4 mm apical to the tip of the papilla, using a -27 gauge needle.
- Apply gentle massage of the area for 1 min.
- Apply a droplet of **hyaDENT BG** topically to the papilla injected to enhance the healing environment topically.



For Class III interdental papilla loss treatment

- Inject multiple (3–4) droplets of **hyaDENT BG** with 27 G needle 3-4 mm bellow the papilla using the three-step technique.
- Gently massage the droplets for 1 min.
- Apply one or more droplets of **hyaDENT BG** topically to the injected area to enhance the healing environment topically.



06 copy.pdf 1 7/17/16 11:59 AM

hyaDENT BG

World's
First injectable
HA Dental Treatment

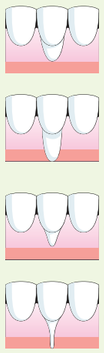
Gingival Recession

Gingival recession is apical migration of the gingiva along the tooth surface, with exposure of the tooth surface. Recession can be visible or hidden.

Causes of gingival recession

- Anatomical - prominent roots/ enamel pearls
- Tooth positioning/crowding
- Thin labial bone / bony dehiscence
- Toothbrush trauma
- Periodontal disease
- Traumatic occlusion
- Habitual – nail biting / pen chewing / piercing
- Orthodontic tooth movements

Gingival recession types



Sullivan & Atkins gingival recession classification, 1968

Recession of gingiva may lead to

- Increased susceptibility of teeth to caries.
- Increased susceptibility to loss of tooth structure in the form of cervical abrasions.
- Sensitivity.
- Oral hygiene problems, resulting in plaque accumulation

hyaDENT BG is not a dermal filler, nor it holds water in the way dermal fillers do, as in dental applications the need is more than just filling and tissue hydration. The effect of **hyaDENT BG** is on the cellular level; to facilitate tissue healing and regeneration.



hyaDENT BG is Prefilled, ready for use cartridge

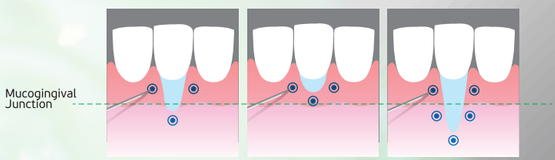
Treatment of Gingival Recession using **hyaDENT BG** (Topical and Injection)

First step of gingival recession treatment is treating the underlying cause of recession, if any, which will enhance the outcome of the overall treatment.

Class I and Class II gingival recession treatment

(recession without bone loss)

- Inject a droplets of **hyaDENT BG** 3 – 4 mm parallel to the receded gingiva line.
- Gently massage the droplets for 1 min.
- Apply one or more droplets of **hyaDENT BG** topically to the injected area to enhance the healing environment topically as well.



Class III and IV gingival recession treatment

- A flap is made to the gingiva and/or a connective tissue graft is place on the receded gingiva. hyaDENT BG is poured under the flap and/or graft.
- Gently massage the flap to ensure spread inside gingiva.
- Apply one or more droplets of **hyaDENT BG** topically over the sutures to enhance the healing environment topically as well.



Mixing hyaDENT BG with Bone Graft granuales

