Stable bone and a firm gingiva – the basis of oral health

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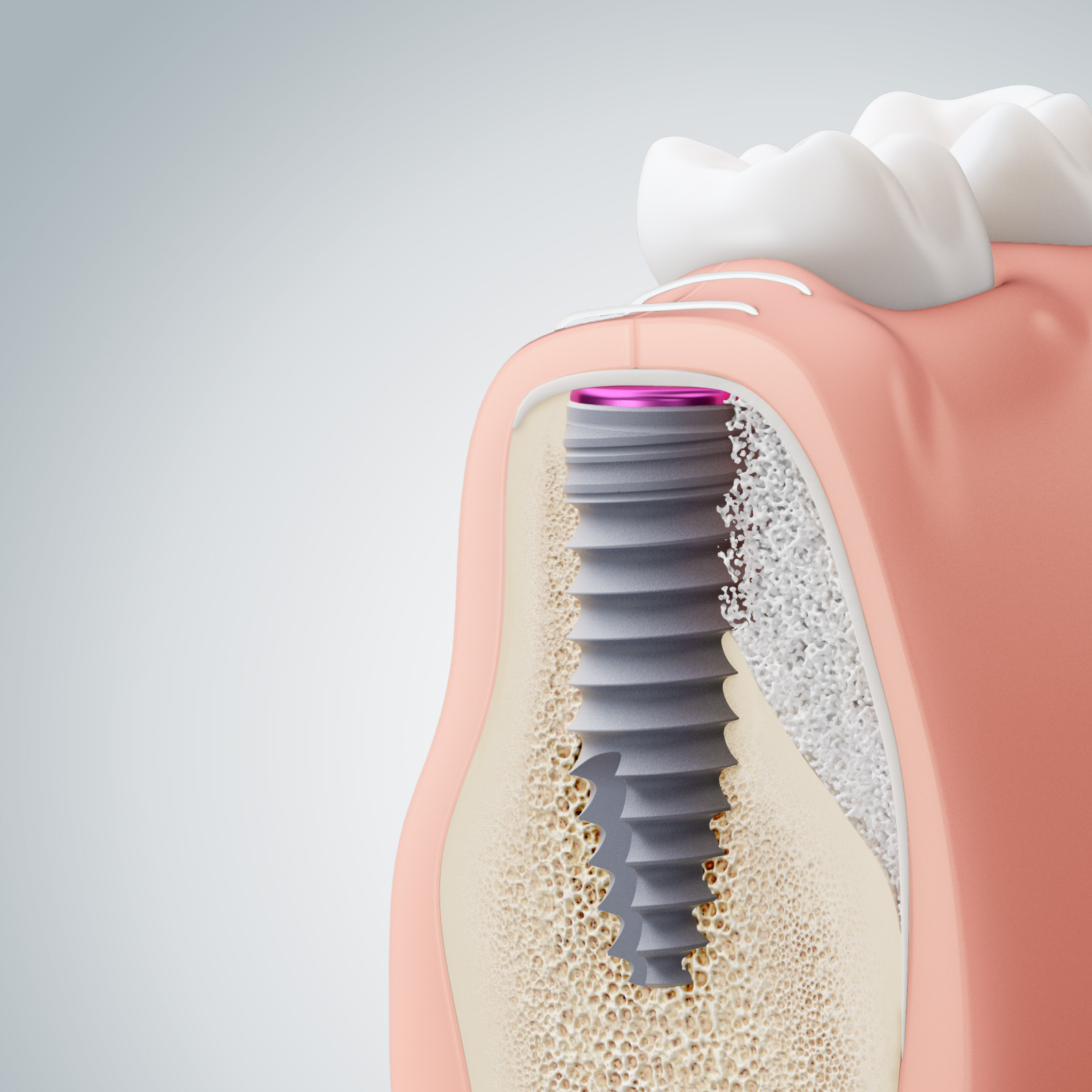
biohorizons camlog



Dear reader,

Anyone who loses teeth wishes for a good substitute. They should look as natural as possible and, of course, restore the function of your dentition. When teeth are lost, both the soft tissue and the jawbone recede through natural biological processes.

However, sufficient bone volume is crucial for a stable long-term implant restoration. An implant should be placed in the physiologically optimal position so that the chewing forces can be properly absorbed and transmitted into the bone. If bone is lacking here, your dentist has different options for augmenting (increasing) the bone to create a stable bony foundation.

Interventions for bone augmentation as well as interventions to achieve a firm gingiva (gumline), are necessary in some situations to enable stable long-term implant restoration on a healthy foundation. In case of marginal bone loss, augmentation can be performed at the same time as implant placement.
How and to what extent bone augmentation is performed, which material is used and over which treatment period this is converted into autologous (your own) bone, depends on your personal situation.

The decision-making process for a restoration with implants poses a number of questions. As a leading manufacturer of dental implants and distributor of BioHorizons biomaterials, Camlog serves as a competent partner for your dentist. In this brochure we have compiled information for you on the treatment options with biomaterials which may be relevant with regard to a restoration with implants. This provides you with information in advance and enables you to ask specific questions during the consultation with your dentist or implantology specialist, allowing you to then decide together on the best treatment solution in your case. Your treating dentist will explain the processes involved in healing the bone and the gingiva to you in detail.

For reasons of easier readability, gender-specific differentiation has been omitted in part in this brochure. Corresponding terms always apply to all genders in the interests of equal treatment.

Content

A healthy gingiva is just as important as sufficient bone volume

A healthy gingiva is firmly attached to the teeth and protect the roots of the teeth and the jawbone against bacterial infections and the penetration of foreign matter. Taking good care of the gingiva is essential, as it maintains the healthy status of the entire oral cavity. The gingiva fills the interdental spaces and acts as a seal. It forms part of the oral mucosa and, unlike the cheeks or lips, is firmly attached to the underlying jawbone.

There are several factors, such as malfunctions, excessive chewing pressure or an unbalanced diet, which, in addition to poor oral hygiene, can lead to gingivitis and thus to receding gums and, as a consequence, to bone loss. Exposed tooth necks are sensitive to pain when exposed to heat and cold. Tooth neck defects can develop or periodontitis may become established, which could lead to tooth loss. Consult your dentist in case of color changes, swelling or increased bleeding of the gums.

Damage to the jawbone can be detected with the help of X-rays. To eliminate the problems, the dentist will initiate the necessary treatment therapy.

To cover exposed tooth necks as well as to augment the jawbone, your treating dentist these days has so-called biomaterials at his disposal, which your body converts into own tissue or bone over time.

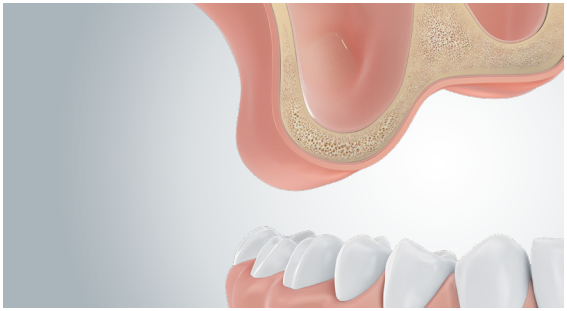
Response of the jawbone after tooth loss

Teeth can be lost for a number of reasons. This loss not only affects your appearance, speech and eating, but can also lead to problems of the entire organism. The natural process of bone degradation also causes the gingiva to recede. This could result in exposed tooth necks of the adjacent teeth, which in turn could increase sensitivity to pain.

Most dental treatments with substitute materials are performed to restore the original shape and dimension of your jawbone following tooth loss, gum disease or trauma.

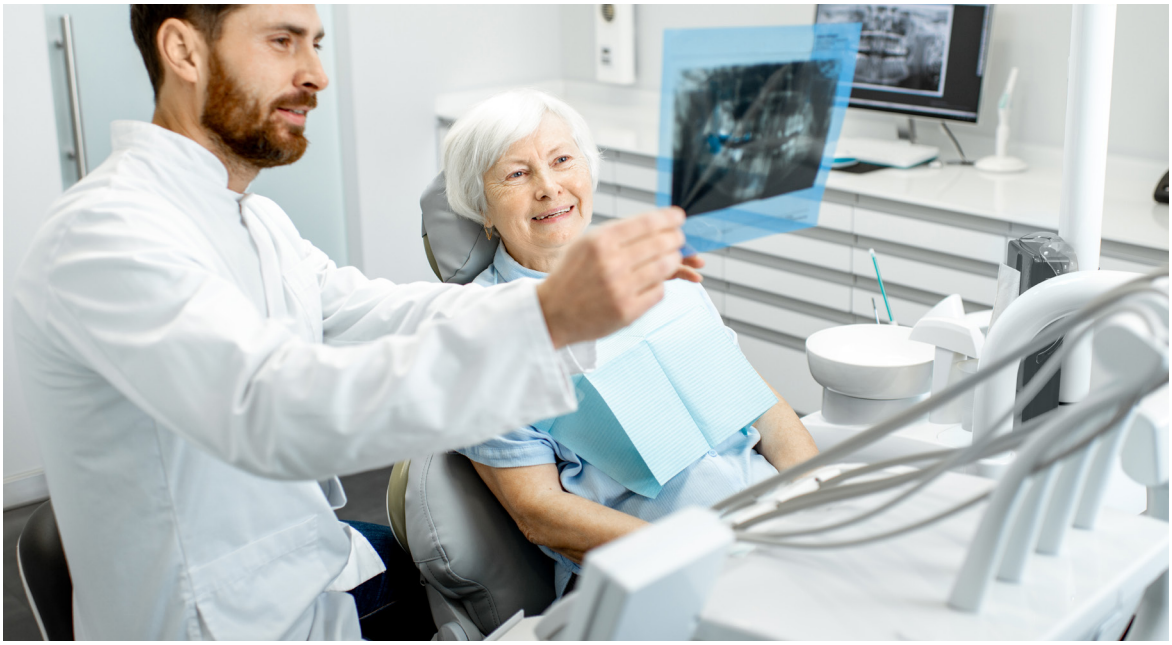
Immediately after tooth extraction, your dentist can take proactive measures to preserve your bone. In this case, the resulting tooth cavity, i.e. the area in the jawbone in which the root of the tooth was located, can be filled with substitute materials. This counteracts the natural remodeling or degradation process of the bone. This can also arrest recession of the gingiva.

Tooth gaps can be closed both functionally and esthetically in several ways and with different materials. A scientifically recognized treatment option for gaps is the restoration with dental implants. To place an implant, the jawbone should be as close as possible to its original size and shape.



In the region of the maxillary sinus, the bone loses significant height in the upper jaw. To create a sufficiently stable foundation for insertion of the implant, the bone can be augmented using special techniques.

Tooth and bone structures and their deficits are clearly identified in the X-ray image. Digitally recorded data offer advantages in the diagnosis and planning of your dentition.



Once the diagnosis has been made, your dentist will explain the different treatment options to you.

Diagnosis

To decide on suitable treatment, your dentist will make an assessment of your personal initial situation. To this purpose, X-rays will be taken and situation models made, and maybe special functional tests will be carried out, too.

Digitization has found its way into many dental practices and offers advantages both in diagnostics, planning as well as workflows. For example, X-rays taken using digital volume tomography (DVT) or computer tomography (CT) can be used to assist in dental diagnostics. Digital technologies also facilitate individual patient-oriented case planning. The reason being that imaging techniques can be used to depict bony structures precisely. Based on the images, the correct position of the implants is defined on the computer, and in some cases the restoration is already designed virtually and discussed with you. This can give you an idea of your future dentition and appearance in some situations.

During these examinations, your dentist will also inform you about alternative treatment options and discuss which pretreatments are necessary. Oral health is the top priority here. Caries and any gingival pockets should therefore be treated or eliminated.

By actively helping to maintain your oral health, you can contribute considerably to the success of your treatment with biomaterials as well as the subsequent implant restoration. The practice team will provide you with helpful guidance on care.

Biomaterials - substitute materials for augmenting the gingiva and bones

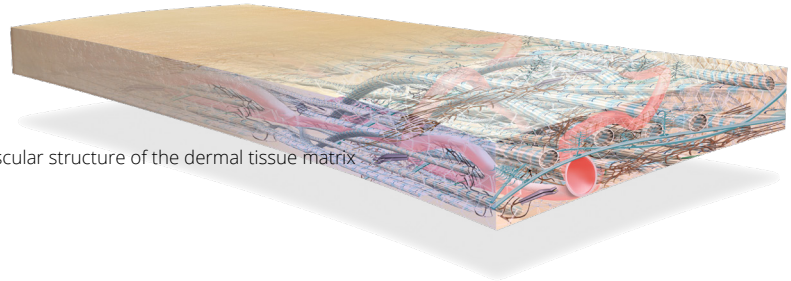
The term biomaterials covers a wide field of very different materials for various medical applications. In direct contact with the body, they are intended to replace missing "biological tissue" or support its function. Well-known biomaterials include heart valves and arterial replacement. Biomaterials are mainly of animal origin - donors are cattle, pigs or horses. Some practices also use artificially manufactured products or human material.

Unlike autologous transplants, biomaterials are available in unlimited quantities. In many cases, their use avoids the need for a second surgical intervention which would have to be performed in parallel either in the mouth or the iliac crest to harvest the graft tissue. Smaller bone defects can be augmented with the patient's own bone, harvested from the surgical site.

In addition to bone substitute materials, membranes are used in the surgical procedure to protect the surgical site and support the process of tissue remodeling. Special tissue matrices are used for treating the gingiva.

The bone substitute materials from BioHorizons Camlog are either of human or animal origin, or also produced synthetically. The membranes offered are of porcine (pig) or bovine (cattle) origin or synthetic. The materials are manufactured under strict, specified and constantly controlled processes in sterile conditions.

To achieve a healthy, strong gingiva and adequate bone volume for an esthetic appearance around teeth or implants, surgery is a good or even necessary option in certain cases.



Vascular structure of the dermal tissue matrix

Soft tissue treatment - the solution for a receding gingiva

Routine dental check-ups along with proper brushing are essential for maintaining healthy gums. If the gingiva has receded or if tooth necks have become exposed, dental treatment may be necessary to protect the periodontium (supporting tissues) and maintain an esthetic appearance.

Treatment to cover the exposed necks of teeth or soft tissue augmentation can be performed with autologous tissue taken from the palate in the mouth. Harvesting the graft involves surgery and may cause pain or discomfort during healing. Sometimes a large amount of tissue is required, for example, to cover several tooth roots in a jaw or to generate sufficiently firm tissue for a long-term stable implant restoration. This may require multiple harvesting procedures on the palate. However, your dentist has the option of using a soft tissue substitute for treatment - without requiring any additional surgery to harvest connective tissue.
This biomaterial is a dermal tissue matrix. It is made from the skin of pigs in a complex and strictly controlled process, to ensure it is free of donor cells. The matrix closely resembles skin and promotes the growth of soft tissue. This is available in unlimited quantities and is a good alternative to autologous graft harvesting. Due to the preserved vascular structure, the matrix is completely remodeled into the body's own tissue after a few weeks. Your gums will look healthy and esthetic and, above all, they will once again fulfill their function of protecting the teeth as well as the jawbone.

Your dentist will discuss the treatment procedure with you in detail, as well as giving you some rules to follow after surgery.

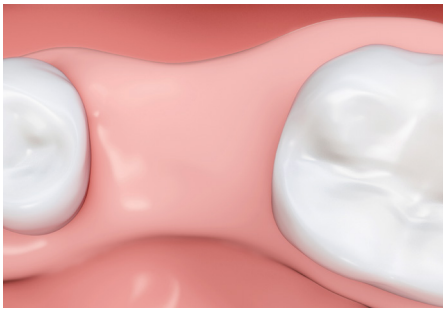
Soft tissue augmentation after gum recession

Gums can recede for a number of reasons. Besides resulting in unsatisfactory esthetics, the exposed necks of teeth can increase sensitivity to pain.

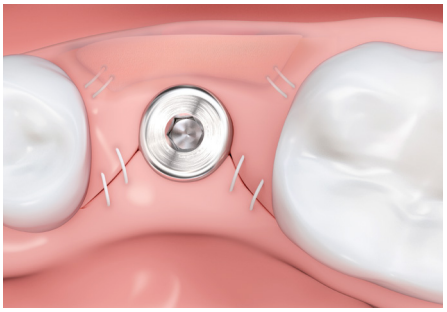
A tissue matrix can be inserted with the aid of surgical intervention. The gingiva is then sutured to the overlying position.

After a few months, the tissue matrix is completely transformed into healthy gingiva by the body's own cells. It can now assume its function of protecting the teeth and bone.

Soft tissue thickening around implants

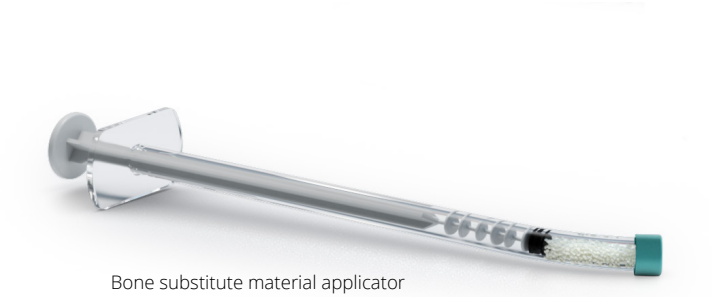


Adequate bone is available for the placement of an implant to replace the tooth. However, the surrounding area lacks gingiva to protect the implant and bone.



Before beginning with prosthetic restoration, the soft tissue around the implant can be thickened with the aid of a tissue matrix.

The soft tissue then presents stable and firm after insertion of the implant crown. In this condition, it protects the implant, jawbone and adjacent teeth and prevents bacterial infections.



Bone substitute material applicator

Augmenting the jawbone - a stable foundation for teeth and implants

A stable jawbone is essential for the protection and preservation of the periodontium. Advanced gingivitis as well as malfunctioning of your teeth can lead to bone degradation. Dental bone augmentation procedures are most often performed to restore the shape and dimension of the bone following tooth loss, gum disease or trauma. To counteract the natural remodeling process and resulting bone loss after tooth extraction, the tooth socket can be filled with various materials to preserve bone volume.

Like any other bone in the body, the jawbone consists of bone cells. A calcified cell substance lends tensile strength to the bone. Provided that the jawbone is not damaged by disease, it can regenerate itself autonomously through the renewed inclusion of phosphate and calcium. During the body's maintenance cycle, specialized cells continually remove and replace damaged cells.

This natural cell exchange is exploited in the use of bone substitute materials. In this context, the material serves as a framework and promotes the deposition of bone cells. Over time, these form a stable bone mesh around the graft material or remodel it into healthy functional bone.

If bone is lacking to a lesser extent during an implant procedure, this defect can be augmented with the patient's own bone which is harvested from the area of the implant site. Harvesting through surgery at another site in the mouth or the iliac crest also represents an option. Potential concerns are that this requires a second surgical site and there may possibly not be enough available bone for the necessary gain in volume.

The bone substitute materials from BioHorizons Camlog are either of human or animal origin, or also produced synthetically. The animal tissues (bovine or porcine) consist of mineral matrices similar to human bone.

Example of maxillary sinus reconstruction (sinus lift)

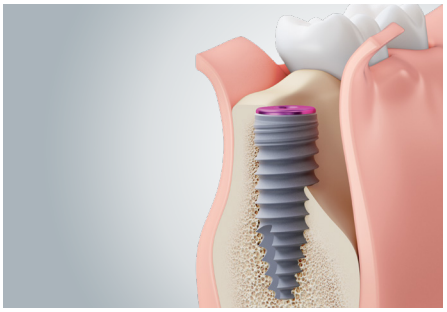
The bone substitute material is inserted between the maxillary sinus membrane and the jawbone through an access at jaw level using a special applicator.

Sufficient bone substitute material is inserted and membranes are used if necessary. The opening is sealed. The material remodels into own bone over time.

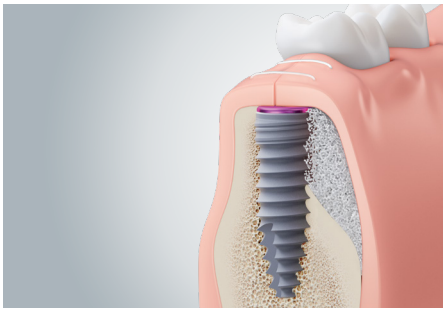
Stable bone is evident after a few months of healing. An implant can be inserted and prosthetically restored. Various concepts are available for implant restorations.

Bone augmentation and simultaneous implant insertion

In some cases, lacking bone can also be built up at the same time as the implant is placed.



The implant is inserted in the correct position in the jawbone as defined by prosthetic criteria.



The bone deficit is built up with bone and bone substitute material. After the gingiva is sealed, the implant heals and the substitute material is remodeled into stable autologous bone.

Collagen membrane

Collagen membranes - protective barriers during the healing phase of the bone substitute material

The BioHorizons Camlog collagen membranes are barrier membranes which are used in dental surgery in the areas of bone and soft tissue regeneration.

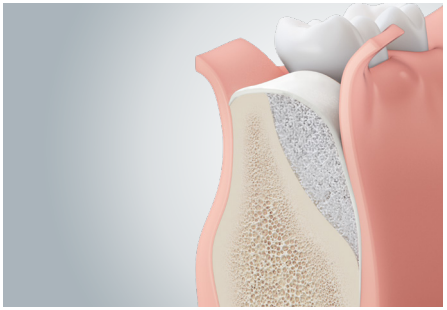
They are used to protect and stabilize the bone substitute material during the primary wound healing phase. The membranes prevent particle migration of the bone graft substitute material and stabilize the blood and its contained bone growth cells to enable the remodeling process of the bone during the healing phase.

On the one hand, the structure of the membranes causes the soft tissue cells to migrate along the surface, and on the other, it acts as a guide for the bone cells. This prevents the ingrowth of soft tissue into the defective area and at the same time imparts sufficient stability to the bone substitute materials, which they require during the remodeling process. In addition, the blood vessels orient themselves along the membrane. They promote the healing of hard tissue as well as of soft tissue. Their structure, which is formed during the manufacturing process, allows them to retain their function in the tissue for different lengths of time. Once the healing phase is completed, the collagen membrane is broken down by the body without causing any inflammation.

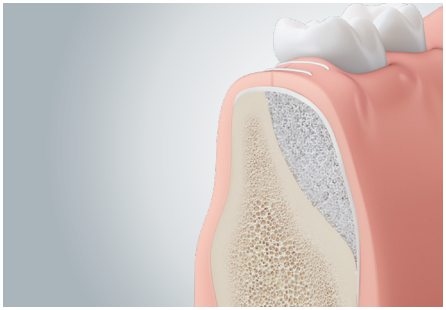
The barrier membranes offered by BioHorizons Camlog are of porcine (pig) or bovine (cattle) or synthetic origin and are produced in strictly controlled processes.

Collagen membrane for the protection and stabilization of the bone substitute material

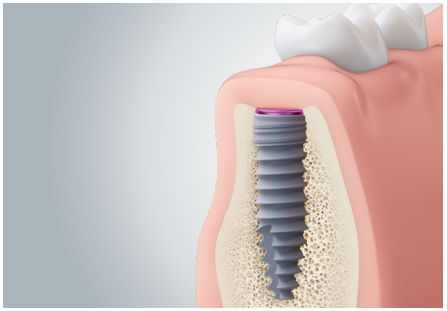
In some cases, the bone deficit is too large to be built up simultaneously with an implant.



The jawbone is reconstructed to its original shape. To do this, the bone substitute material is applied and covered with a membrane to stabilize the contours.



The membrane protects the bone substitute material against ingrowth of soft tissue during the remodeling process. This allows the substitute material to convert into stable jawbone.



After a few months, the membrane has been absorbed by the body cells and the augmented jawbone is stable and suitable for the insertion of an implant.

After a period of time, the implant is prosthetically restored by placing a crown on the implant abutment. Chewing strength and esthetics are restored.

Daily care

Natural teeth, gums and implants need to be thoroughly cared for. As a tooth or implant is firmly anchored in the jaw, the routine care measures are focused on the transition areas of the gingiva to the prosthesis and the prosthesis itself. Good cleaning and regular check-ups ensure the long-term success of your oral health. If both teeth and implants are not adequately cared for or cleansed of plaque, then gingivitis and gingival pockets can develop. This means that the roots of the teeth, the implants and the jawbone are less well protected and can be damaged in the long run. Avoid this risk by regular care.

Next to daily oral hygiene with a toothbrush and other aids for cleaning interstitial spaces, professional cleaning in the dental practice is the best investment for the durability of your implants.

Let your dentist and his practice team give you comprehensive advice on dental care, cleaning aids and their use. Regular check-ups, at least once a year or as instructed by your dentist, help to ensure the long-term success of your implants so that you are pleased with your implant restoration for a long time.

The best people to contact for all questions concerning your dental and oral health are your dentist and the specialist surgeon with their practice teams.

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