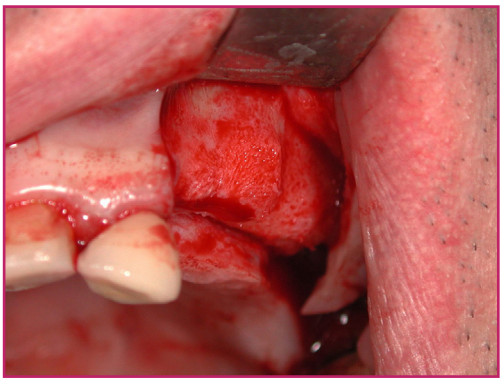
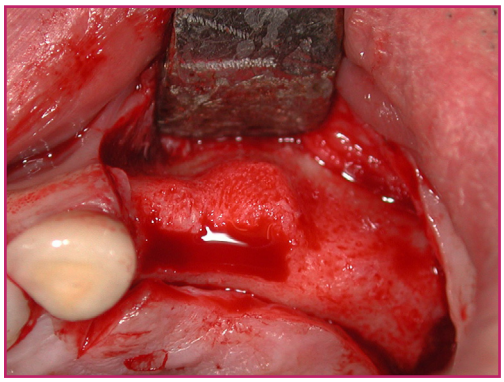
Benex

Pending Patent

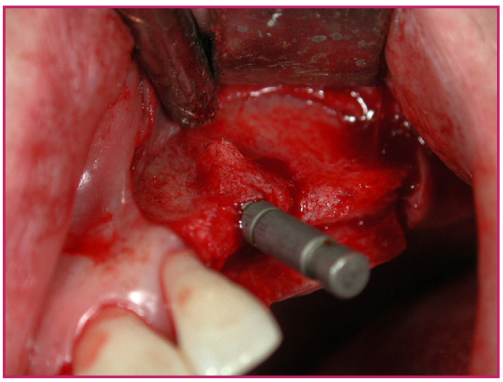
The key argument in favour of the Benex in the age of implantology is definitely the protection of tissue, the alveolus, but above all also of the periostes.

Status of what the bone crest looks like after a Benex extraction, the buccal alveolus wall is practically fully maintained.

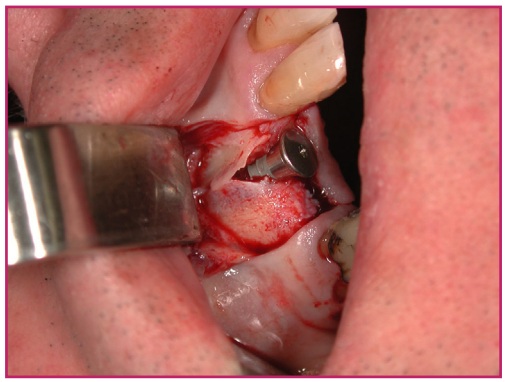


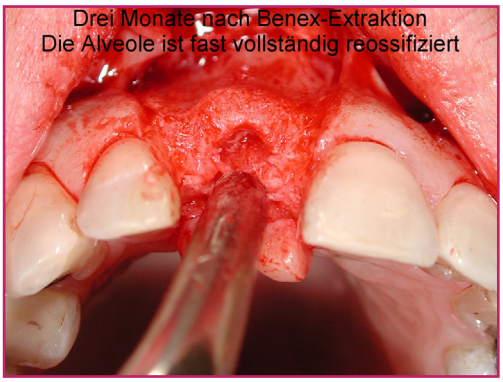


Vollständiger Erhalt der vorgewölbten buccalen Alveolenwand nach Benex-Extraktion

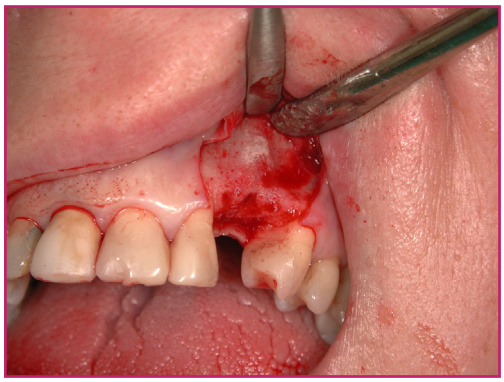


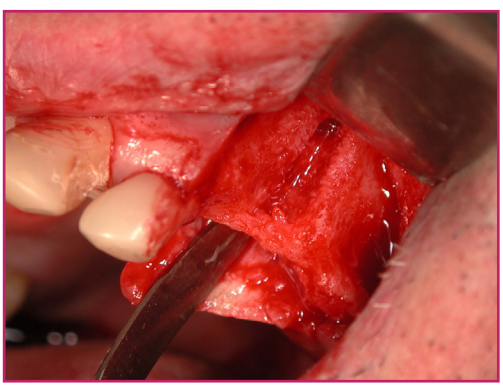
Zwei Monate nach Benex-Extraktion
Kleiner Defekt der buccalen, sehr dünnen Alveolenwand





Drei Monate nach Benex-Extraktion
Die Alveole ist fast vollständig reossifiziert





The status as normally shown following the conventional extraction of a root, and every dentist is familiar with such photos.

FAQ - FROM PRACTICE

INFORMATION & APPLICATION REPORTS

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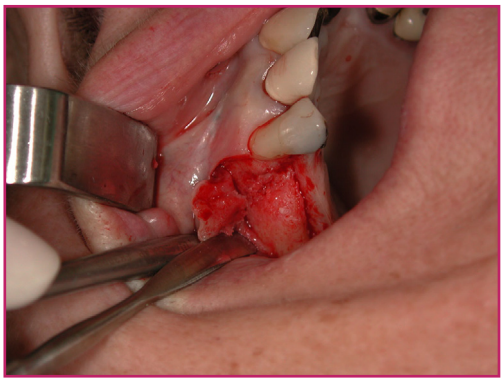
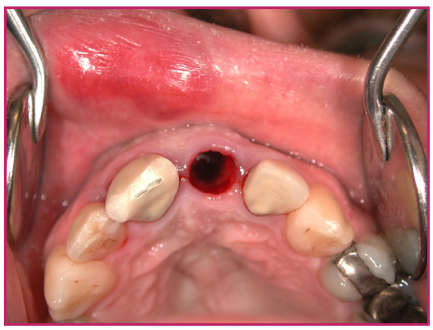


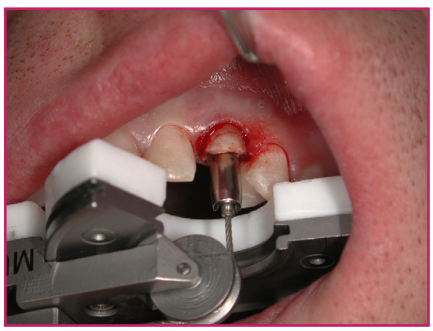
Comment from Dr. Benno Syfrig - The alveolus wall in status after Benex extraction

I regularly observed a preservation of the buccal wall after a Benex extraction. In the most recent past I made a new observation in connection with an implantation (seven weeks following a Benex extraction). After opening the mucoperiost lobe bone fragments are left on the periost (fig. 18). I believe that the undamaged periost has a larger osteo-inductivity, resp. bone regeneration capacity in the first few weeks following a gentle extraction. This regenerated bone adheres so firmly to the periost that it remained there even when the mucoperiost was opened. Due to the gentle Benex extraction the bone crest is not only preserved, but it can also be assumed that osteolytic crest defects are reossified. With the help of the paro probe I examined the alveolus wall after the Benex extraction to assess the condition of the buccal wall. I occasionally had the feeling that in the later implantation more bone wall was in place than at the point of time of the extraction. These are, however, observations lacking scientific documentation. In cooperation with the University of Bern we will scientifically evaluate the behaviour of the osseous alveolus, in particular of the buccular wall after a root extraction with and without Benex in a computer tomographic and scientific analysis.

Answers to Frequently Asked Questions from Benno Syfrig, Dr. med., med. dent.

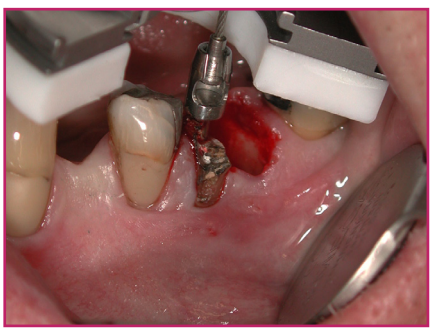
Bur in the highly carious root.

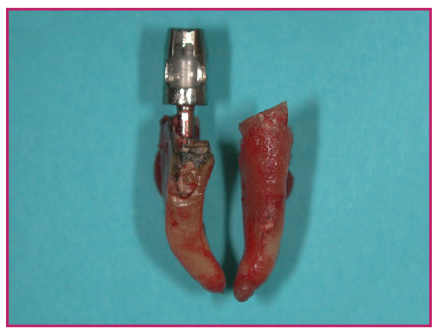




One concrete case, bike accident (26.06.05), front teeth traumatised with root fracture: trouble-free extraction of the longitudinally fractioned root. The screw protrudes into the apically preserved part of the root. The necessary bur depth can be estimated on the X-ray photograph. When drilling the dentist notices when he is drilling into carious soft tissue/a fractured root and when he drills into hard dentin. In the drilling operation the bur should be moved inwards and outwards to determine the resistance. That enables the dentist to notice when he drills through carious tissue and then reaches healthy dentin or even penetrates the root. The bur is used to drill up to a depth ranging between five and seven millimetres penetrating the healthy hard dentin with the bur with diamond tip to ensure that the screw fixation will hold 50 kg (500 Newton). In the case of delicate/short roots or in the event of deep caries of the root I normally use the rose-head bur to remove the soft (carious) coronal part of the root, to then permit a more reliable and unproblematic bore with the diamond tip in the hard dentin, namely five to seven millimetres (case of internal granuloma). In widely opened channels I feed the bur as far possible into the centre of the channel, into the soft gutta or channel caries and thus secure the central position of the bur tip. As soon as the channel narrows, a raised resistance is noticed. From that point on the five to seven millimetres are drilled (that is easily estimated by observing a penetration of the bur shaft). As soon as the resistance decreases, this signalises a penetration of the root. The drilling operation has to be terminated here, even if the tip has only penetrated up to four millimetres into the hard dentin. If the dentist continues to drill, the channel will be widened with the hard metal of the bur, making it too wide to retain the screw. For a successful, simple and reliable bore the dentist is thus recommended to evaluate the anatomy of the root explicitly on the X-ray.

The twisted root





It is as a matter of fact necessary to determine the deflection (evaluation of the X-ray) for the bore, so that the five to seven millimetres of drilling through hard substance can be observed. But that is never, or hardly ever, a problem. That is most difficult in connection with the mesial root of the lower jaw molar, it is buccolingually wide, but in most cases mesiodistally extremely narrow and deflected in its longitudinal axis. To achieve a good screw fixation in the mesial root some experience is needed. No application for beginners. Once the screw has been tightly fixed I am often astonished to see how intensively the root can be deflected and the system nevertheless functions. According to the experience that I have made after loosening the Sharpey's Fibres (rotation at the Benex is relaxed after 30-90 seconds of pre-tensioning) the instrument rest can be favourably shifted according to the deflection of the root (for the mesial UK molar roots as a rule some millimetres in distal direction). For this purpose the linkage at the helical gear is loosened slightly and then tightened. The direction of the linkage deviates slightly from the screw direction. That is permitted, as after initially loosening the parodontal fibres no maximum force is required to extract the root, thus meaning that at maximum half the force (approx. 250 Newton) is exerted on the screw head and thus a certain shear stress is tolerated. (with a maximum tractive force of the screw no shear stress may occur!). As soon as approx. 2 millimetres of the deflected root have been pulled out of the alveolus the root normally has no hold so that it should be possible to "guide" (pull) the screw out of the alveolus together with the root according to its deflection.

Highly deflected apical root tips break relatively frequently in the course of extraction by forceps, this however, occurs very seldom in the course of a Benex extraction. This is then luxated slightly with a root elevator. Damage to the alveolus wall with the root elevator in the depth is insignificant, a reossification in the dept of the alveolus never poses a problem (as against the buccal alveolus wall!). Then the Benex screw is inserted in most cases manually into in the tooth fragment without linkage to pull out the rest of the root. In pulling out the root the screw is rotated in the direction of the root deflection.

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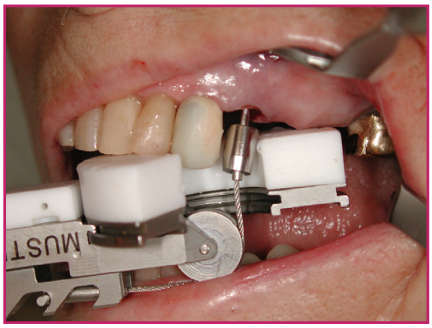
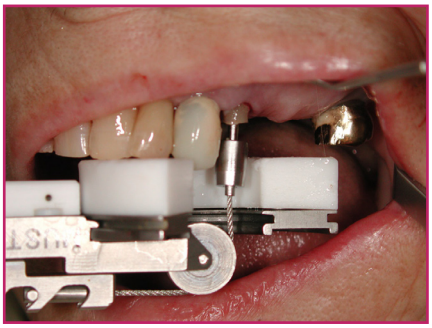
The free-end situation

The first three to four times the user is recommended to attach the Benex to the front with support on both sides. He must/should experience how easily and optimally the system functions. In the free-end situation Benex is a good help, but its full capacity cannot be exploited. When supported on both sides 500 N can be applied to pull out the root. In the free-end situation an estimated 50 percent of this force is applied. This force corresponds to the tractive force reached in the scope of an extraction by means of forceps. To ensure that this tractive force is sufficient to extract the root, it has to be luxated and rotated, as well as loosened accordingly more within the parodontal gap prior to application of the axial tractive force with the Benex.



The start-off position of the device with the front tooth hypomochlion



The root „is on its way out", the force has to be reduced, the device moves up.

In the application the front teeth function as hypomochlion. It is recommended to press with one hand at the Benex shaft in downwards direction and with the other distally at the device in upwards direction. The force has to be applied very carefully as soon as minimum vertical movements of the root are identified so that the teeth of the counterjaw are not hit when the root is loosened. That is no problem in the "normal" Benex application with support on both sides. The question as to whether the tooth is not catapulted with the cord if such an intensive tractive force is applied and once the resistance (tearing of Sharpey's fibres) is suddenly relaxed. At this point I would like to add: in all Benex extractions I have never noticed any damage to the stressed neighbouring teeth). In the study with Bern we will also document this aspect from a scientific viewpoint, in particular the vitality control at the neighbouring teeth will also be documented before and after treatment with Benex.

Germectomy

I understand the doubts raised by dentists in connection with the Benex extraction in germectomy. To date no system exists which allows to drill into the dental enamel and enables a self-cutting screw fixation. That aspect is in fact new and that is the reason why the bur and screw design have also been patented (in November in Zurich Mr. Voss was convinced that that could not be patented. The patent application was, however, accepted three weeks ago).

The bur is so sharp that the bore hole can be easily made without any problem in the loose tooth germ (floating in the follicle) and the self-cutting screw can be turned in. Of course, the opening through the bone has to be large enough to allow a passage of the crown. It is proceeded as follows: either by osteotomating or by splitting the crown whereby the bore hole has to be made beforehand according o the size of the screw used. The long screw without linkage instrument is used to extract the tooth germ at the screw from the follicle. The same procedure is applied for Mesiodens.