

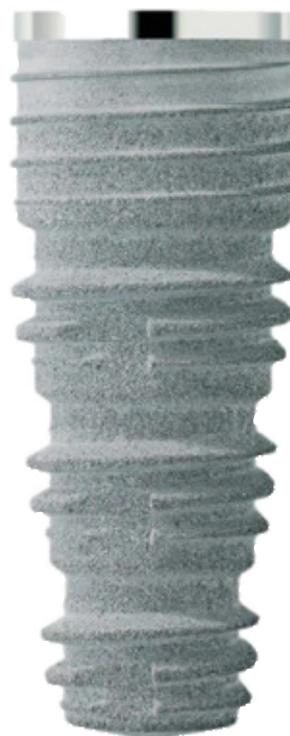


CERAMIC IMPLANTS

Immediate implants
SCC Short Concept n. Dr. Volz®
Bone Growing Implants®

SWISS  BIOHEALTH®

Get to the root of the problem.
Dead teeth don't belong in your mouth –
Neither does titanium!



Ceramic implants meet the highest demands

Implants have long been the most attractive form of dental prosthesis. They offer security and look good, providing increased self-confidence and quality of life. Implants are such a good replacement for lost teeth that they usually last longer than your own teeth. Whether it is just one tooth being replaced or several implants recreating a firm set of teeth, the material needs to function stably, neutrally and compatibly. The high-performance ceramic zircon oxide, long used in orthopaedics for artificial hip joints, fulfils these requirements like no other material.



Ceramic is a congenial, body-friendly material with many advantages over metal. And ceramic implants from Swiss Dental Solutions (SDS) meet the highest demands in terms of compatibility, health and aesthetics. Whether it's titanium intolerance or general uneasiness about having metal in your body that prompts a metal-free solution, the aesthetically-pleasing white ceramic implants made of biocompatible high-performance zircon oxide from SDS are an excellent choice.

Ceramic implants are more attractive

Beautiful white teeth and pink gums are an expression of health, energy, vitality and self-confidence. We want to help maintain or restore your radiant smile. SDS ceramic implants are white through and through and come very close to the natural colour of teeth. In contrast to titanium implants, they rule out grey tinges or annoying grey edges at the gingival cuff. Even if the overlaying gum is extremely thin or receding, the implant remains completely white. One reason why ceramic implants are ideal for use in the front teeth especially.

Metal-free is healthier

While the use of metals in the oral cavity can have a negative effect on the whole organism, ceramic implants have excellent compatibility as they are completely metal-free and 100 percent biocompatible. Thanks to their optimum tissue compatibility, the regeneration of the gums around the implant is very good. Since ceramic permits completely new and effective surface structures, the formation of bacteria and plaque and therefore the risk of gingivitis are significantly reduced – the risk of inflammation is even lower than with your own teeth. The patented SDS surface structures together with the bone-adapted thread forms permit the implants to integrate excellently and mean they can be put under strain after only a few weeks.

Comprehensively metal-free

There are SDS implants for all requirements. That means your dentist will always be able to choose the perfect implant for you. What's more, he or she can dispense with metal completely during the implanting procedure, as SDS provides instruments made from the same high-tech ceramic as the implants and crowns. So no traces of metal are left in the bone either.



Implants from the pioneer of metal-free implantology

Founded by the ceramic pioneer and implantologist Dr. Ulrich Volz, SDS is today regarded as a leading innovator in the field of ceramic implants. The Swiss company boasts unique proficiency in ceramics, many years of expertise and outstanding treatment results. In short: for the best dental solutions.

With more than 18,000 implants placed by Dr. Volz personally (as of the beginning of 2017), SDS is able to demonstrate extensive practical experience. A key success factor is the "from practice - for practice" concept.

SDS places the highest of demands on its products - these are certified according to current standards and carry the CE mark. This means that all SDS solutions are safe, healthy and pleasing on the eye.

Instant attractiveness. Sustainable health. The SCC Short Cut Concept by Dr. Volz'

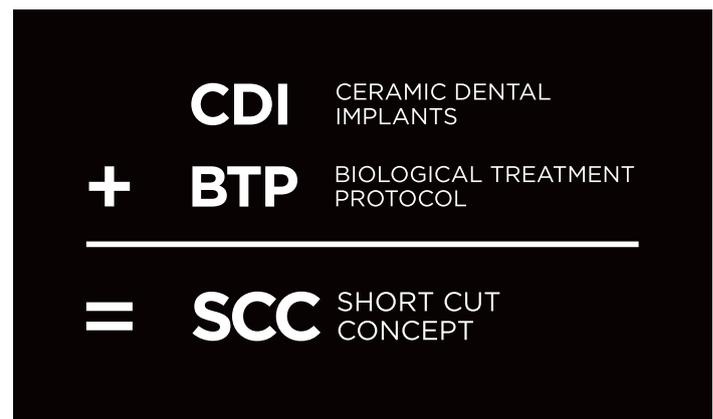
Information for patients

The replacement of a diseased tooth by an implant with an interim crown in a single sitting is a once-in-a-lifetime opportunity. If the SCC principle is meticulously followed, very high success rates can be expected: > 99 % in the front area, > 97 % in the pre-molar area.

Diseased teeth may cause serious chronic diseases – but up till now, the removal of these teeth has taken a high toll: loss of bone and gum tissue, of aesthetics, comfort, time, money, and social presentability.

Thanks to their unique Dynamic Thread® and Root design, SDS Swiss Dental Solutions' one-piece ceramic implants can replace extracted teeth immediately in almost all cases – even molars. Furthermore, for visible areas, temporary restoration with the use of fixed and aesthetic synthetic crowns are almost always possible. You will therefore usually leave with fixed and aesthetically pleasing teeth again on the same day, and will be able to fully engage socially once again. We therefore recommend that you rest for 3 – 4 days following the procedure in order to make all of your energy available to your immune system for the healing process ("My BIOHEALTH Week").

By intelligently integrating basic immunological principles according to SDS's Biological Treatment Protocol (BTP), the immune system can be activated and wound and bone healing accelerated to such an extent that it becomes unnecessary to use antibiotics and harmful medicines. In combination with SDS's one-piece Ceramic Dental Implants (CDI) featuring a Dynamic Thread® and / or Root-Design thread design, Dr. Volz's Short Cut Concept (SCC) generally leads to an immediate and pleasing result. The SCC has brought about a new era in implantology, as it enables the treatment period to be reduced significantly: tooth extraction, implantation, and the restoration of a provisional crown can be carried out in a single session.



In conventional procedures, the „detour“ involved tooth extraction, 3 – 4 months of healing, 3D X-rays and then performing any necessary bone grafts (= additional 5 months of lost time), covering the implant with a removable temporary and then inserting the permanent crown after another 2 – 6 months. And of course, higher costs.

1. Diagnosis and preparations

In addition to taking an impression and conducting an examination, a 3D X-ray should always be taken. This allows us to see whether there is any inflammation in the area of the wisdom tooth. This is the case in almost all wisdom tooth regions, as the wisdom teeth are generally removed at an age (14 - 17 years) during which there is almost always a mineral deficit. The 3D image also shows dead teeth, inflamed jaw areas, but also ordinary tooth decay. In addition, foreign objects, root remnants and metal particles can also be identified and must be removed.

Generally, the functioning of your immune system is significantly reduced by the presence of additional inflammation as well as metal in the oral cavity. For the SCC immediate implantation appointment, a situation needs to be prepared and achieved that makes sure that there are no more metals in the oral cavity immediately after the procedure, and also no other inflammation in regions that are not implanted and which are to be cleaned during the course of the treatment.

2. Preliminary treatment: metal removal and infectious source control

In the process, it is absolutely necessary to do things in the right order, as the immune system should be activated with as little stress as possible. First, the removal of all metal is carried out, followed by the removal of inflammatory sources. This is because proper metal removal does not place stress on, but rather unburdens the immune system, thereby creating a better environment for removing sources of inflammation. Metal restoration is carried out immediately before the procedure, or a day to several weeks beforehand if it is not possible to carry out the complete restoration on one day.

3. Immunological preparations

The Biological Treatment Protocol (BTP) is used consistently for this purpose. BTP refers to a linearly correct sequence of various biological treatment principles and concepts. These enable better healing and integration - by stimulating the immune system and eliminating detrimental factors.

BTP builds on the principle of healing and restoration— never on suppression or destruction. Already through the preliminary removal of metal and infectious sources, the immune system is boosted significantly. This is because both metal ions and toxins from teeth that have undergone root canal therapy dock onto cell membranes, thereby paving the way for autoimmune reactions.

Many enzyme reactions are also negatively influenced by metal ions and toxins.

Before surgical procedures, it is necessary to prepare for bone healing via the combined administration of vitamin D3 and K2 (mk7) and the intake of minerals and other vitamins and vital substances.

To this end, we can provide you with the supplement mixes (Basic Immune Protocol) that have been specially formulated by Dr. Klinghardt and Dr. Volz for the operation. Alternatively, we can also provide a list of minerals and vital substances (see Patient Information Booklet) for your therapist to prescribe for you in your home town.

Orally administered antibiotics are contraindicated, as this puts a strain on the immune system and can lead to stomach upset and even diarrhoea. The single shots administered shortly before the procedure via i.V. (intravenously) stop the bad inflammation (giant cells) that lead to tissue destruction. This does not affect the "good inflammation" that leads to tissue regeneration thanks to the presence of macrophages, leukocytes lymphocytes and monocytes.

The activation of the macrophages takes place via the removal of metals and infectious sources and the administration of vitamin C and D3. Right before the operation, a high-dose buffered vitamin C infusion (BTP II-Infusion) is administered. At this high dose, vitamin C has an anti-inflammatory effect, and serves to protect from infection. Furthermore, via the activation of osteoblasts and collagen synthesis, wound healing also receives a boost. At the same time, vitamin C also protects against metabolic disorders and helps to detoxify the body, while also producing energy that the patient's cells require for healing. Thanks to a range of additional components, the infusion is perfectly optimized for safety and effectiveness.

4. The SCC Protocol -

Overview of immediate placement procedure

We work using simple infiltration anaesthetic and use techniques specifically described in the SCC protocol in order to fully preserve the bone without any damage. Once the root has been completely removed, the root cavity is very carefully and thoroughly cleaned. The fibers it contains must be removed completely, as these nerve fibers are connected to the brain and provide information as to whether or not the tooth is still there. It is only when all the fibers have been removed that the information „tooth is gone“ reaches the brain, which then reacts with the command „transform bone cells into bone-building cells“. Furthermore, this also results in the bone being refreshed through increased blood flow and the activation of growth factors. Any existing inflammatory or cystic sections will also be removed completely. Before screwing in the ceramic implant which was specially tailored for this technique, the bore hole and the tooth cavity will once again be sterilized with ozone. Ozone only kills bacteria, fungi, and viruses, but not your body's own cells. Remaining cavities are filled with PRF (Platelet Rich Fibrin = autologous fibrin that is rich in growth factors and stem cells, and that is produced from your blood). It may also be necessary to perform a few small stitches.

5. Temporary restoration

The temporary restorations are also to be inserted very meticulously and with great care, as they also play a big part in determining the success of the procedure. Over the following weeks, you should subject these to as little force and pressure as possible when chewing.

WHAT THE PATIENT NEEDS TO PAY ATTENTION TO:

In the days – or better weeks – before the operation, all detrimental nutritional influences should be eliminated. This means: No coffee, alcohol, tobacco, simple sugars, gluten, and products made with cow's milk. Water, vegetables and salads in all variations as well as a healthy lifestyle with lots of sleep, exercise, and sun have a positive and stimulating effect.

Even the smallest micro-movements that are transferred to the implant via the tongue stimulate tissue metabolism and activate the meridians running through the rows of teeth. This „principle of stable unrest“ is well-known in orthopedics. Hence, it is expedient to replace every tooth that needs to be removed with an implant. If this is not done, not only does the „meridian waste away“ – bone and gum tissue will also begin to degenerate at that location.

Ceramic implants made from high-tech ceramic zirconia



Since 2000 the author introduced ceramic implants made from the high-performance material zirconia, biological dentistry has been revolutionised: for the first time, patients can be offered a biological solution to the growing problem and the increasing number of root canal-treated teeth. Zirconia is 100 % metal-free, is ivory in colour, is harder than steel and can therefore only be processed using diamonds.

Zirconia has no free electrons on its surface, meaning that it is absolutely neutral, cannot form bonds and traps less plaque than natural teeth. The material can be etched with hydrofluoric acid and has a melting point of over 2,400 °C.

Apart from its extremely complex manufacturing process, zirconia is the perfect implant material, and has now been recognised by the world market leader for titanium implants STRAUMANN®, which also introduced a zirconia implant to the market in 2014. The prognosis for a zirconia implant is significantly better than that of a natural tooth, as the implant's inert surface means that it has less of a tendency to gum infection than a natural tooth (Volz, Sidharta, Haase, University of Ulm, 2006), cannot be attacked by bacterial decay and also has no nerves that can die off and turn the tooth into an immunological problem.

In comparison with titanium implants, too, zirconia implants come off much better: It is true that titanium implants have a slightly higher short-term healing rate, since titanium also assimilates reliably in poor-quality bone in the manner of a chronic inflammation. Zirconia, on the other hand, only assimilates in healthy bone. There is also no risk of periimplantitis with zirconia. This problem affects about 50 % of titanium implants after about five years. During this period, around 15 % of titanium implants will fail and will therefore need to be removed. In the long run, zirconia implants thus show a significantly better prognosis than titanium implants, quite apart from the aesthetic advantages they offer over the grey-black of titanium and its immunological risks.

With more than 16 years of experience and having personally fitted around 18.000 zirconia implants (as of 2016/2017), Dr Volz has by far the most comprehensive experience in this field and has developed several implant systems that take into account the increasing experience with this material. This experience has led to an increased understanding of the disadvantages and advantages of zirconia ('Thinking in Ceramic') and subsequently to the development of derived forms and therapy plans that eliminate or at least reduce the disadvantages and maximise the advantages. This knowledge has been assimilated into the current designs and types of zirconia implants offered by SDS Swiss Dental Solutions AG (www.swissdentalsolutions.com) and into the 'SCC Short Cut Concept' offered by Dr Volz.

The essential and most important advantages of zirconia over titanium are:

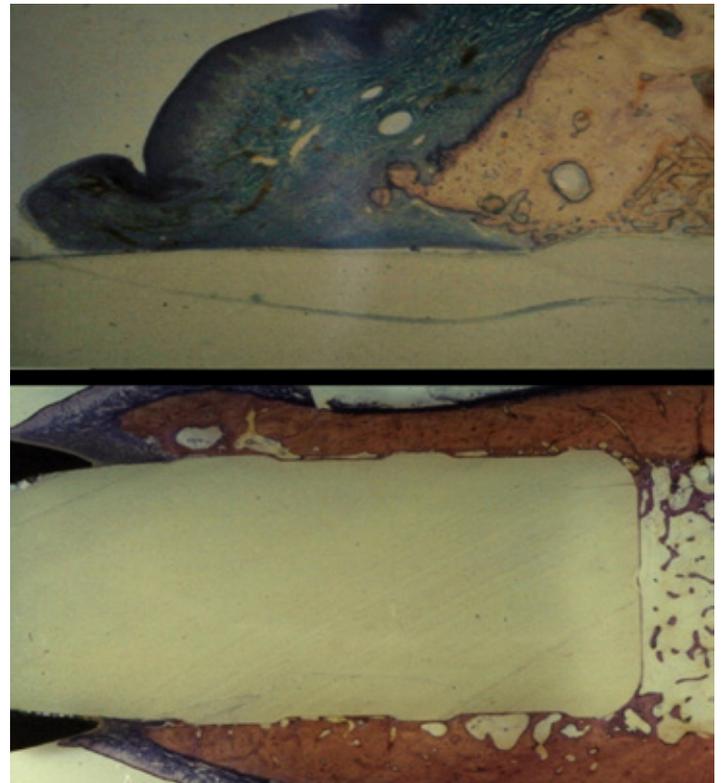
- Zirconia is immunologically neutral, metal-free, has no free electrons, and its ivory colour delivers excellent results in terms of aesthetics.
- Zirconia shows no risk of peri-implantitis, and therefore promises a significantly higher success rate than titanium in the long run.
- Soft tissue affinity: unlike titanium, soft tissue (gingiva) grows on the zirconia implant as well as bone. This was demonstrated 20 years ago by Dr Hans Rudelt (Hamburg- Eppendorf University in cooperation with the University of Tokyo) by studying the histology of human specimens after a 20-year period. The research group Kniha Gahlert from Munich and Prof. Josep Oliva Damés from Barcelona have also proven this beyond any doubt. This results in the attached gingiva being supported, an ingress of bacteria between implant and tissue prevented, and for the first time, bone loss can be compensated, being replaced not only by transplant bone, but also by ceramic. So far, defects have invariably had to be rebuilt using new bone, since the soft tissue and there-



The first 8 prototypes inserted by Dr Volz in the year 2000 already showed the outstanding aesthetic properties

fore the aesthetics follow the bone. However, because soft tissue also grows on zirconia and therefore follows this material, aesthetics can in many cases be restored-without bone grafting. Any titanium implant must be surrounded by at least 1 mm of bone. Zirconia implants provide a fluid and variable transition, because both materials (bone and gingiva) grow on the ceramic. Volz postulates: The ceramic implant is sited where the ceramic is in contact with the bone. The ceramic abutment is sited where the ceramic is in contact with the gingiva. Titanium implantology aims to implement this knowledge in part by working on titanium implants with zirconia abutments, and recommends that these should never be removed because the bond between the zirconia and the gingiva would be destroyed ('one abutment, one time').

- The lack of ductility of the zirconia ceramic provides another key benefit: the implant remains completely rigid in the jaw bone without moving, unlike titanium, which is a highly ductile material. Therefore, the thin tapering bone around the implant is not reabsorbed, and in many cases, bone augmentation can be avoided or implant procedures performed in narrower bones than is possible with titanium. There are over 50 scientific publications on PubMed that attest to the successful use of zirconia implants. The study by Apratim et al. (J Int Soc Prev Community Dent.. 2015 May-June; 5(3):147-56.) from 2015 is a good summary, and states that: "The literature research showed the benefits of zirconia and makes it an IDEAL implant in respect of biocompatibility, osseointegration, favourable soft tissue behaviour and aesthetics in terms of appearance and colour".



Zirconia implants after 25 years of being worn by patients: both bone and gumy have grown back and are firmly attached. (Dr Dr Rudelt, Hamburg)

a) Immediate implantation according to the 'SCC Short Cut Concept' by Dr Volz

Dentists consider it normal to extract their patients' teeth and then leave these areas to 'heal', which means nothing other than that the papilla, the gums and the surrounding bone collapse and therefore the aesthetic appearance is irrevocably and significantly damaged. It is astonishing that patients still allow this and that so far dentists have not been held to account on this point, as in such cases, patients have not been fully informed of the irreversible disadvantages. This overlooks the principle of 'physical integrity', and patients suffer massive losses in terms of aesthetics and bone volume and often need a subsequent bone augmentation procedure. After a conventional extraction, the papilla, the gingiva and the bone inevitably collapse and result in the patient facing a stalemate situation.

These irreversible disadvantages can only be prevented by way of an immediate implantation procedure, zirconia implant material coming off significantly better than titanium: it is not only neutral and bio-compatible and thus less prone to infection, but the upper region, the so-called 'tulip' which exits the gums, can be made more voluminous, as the surrounding gingiva grows there, seals the cavity and is again supported by growth on the ceramic implant and preserves its volume. The initial findings from a study launched in autumn 2015 on 112 immediate implant patients (Dr Ulrich Volz, cand. med. dent. Leon Neuhöffer, Prof. Ralf Smeets, Hamburg-Eppendorf University) have shown that gingiva is gained as a result of the immediate implant, and aesthetics are enhanced. The implants used are single pieces and in nearly all cases were fitted with long-term temporary restorations (material: Luxatemp®) immediately, and were firmly cemented (Durelon™). It is also important that the immediate implant protocol for ceramic implants that has been developed and trialled by Dr Volz under the name 'SCC Short Cut Concept by Dr Volz' is meticulously complied with. The benefits accruing to the patient are obvious: A reduction in the number of dental appointments, time savings (approx. 7 – 12 months) and reduced costs (approx. 30 % – 50 % lower treatment costs as well as significantly reduced secondary costs such as travel, accommodation, loss of work time, loss of social engagement capability, etc.). Furthermore, this concept typically involves no swelling and no pain and provides an immediate fixed and aesthetic restoration so that unrestricted social engagement can be resumed after just a few days. Subsequent bone augmentation will not be necessary, and the immediate implant brings about an increase in the bone's metabolism and activa-

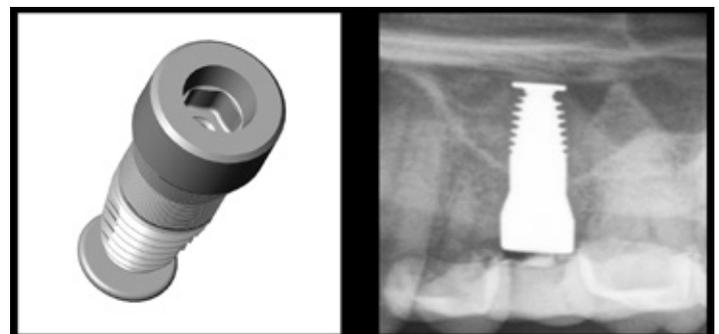
tion of the meridians. The socket heals faster and better with immediate implant placement than it would without an implant, and the implant assimilates faster in the extraction socket because all of the body's programmes have been switched to 'healing and bone formation' mode as a result of the extraction.

b) Late implantation

Late implantation differs from immediate implant placement in that the bone has already 'healed'. Here, the focus is now on generating a healthy and wide attached gingiva during implantation, i.e. it is only implanted 'flaplessly' without any folding back if the attached gingiva is very wide. Otherwise, a so-called wave cut is performed, which undulates based on the location within the mouth of the implant tulip. The attached gingiva thus obtained is transposed to the vestibular aspect and is supported by the high tulip of the SDS implant, so that there is a wide margin on the attached gingiva after healing. The drilling procedure for SDS implants in conjunction with the Dynamic Thread® developed by Dr Volz ensures, as a first, that the same primary stability (35 Ncm insertion torque) exists in all classes of bones. This is extremely important for ceramic implants because one of the disadvantages of ceramics is that they are unable to dissipate the heat generated by the insertion and turning process, and in type I hard bone, there is a risk of the bone overheating and denaturing. The drilling protocol involves this bone being primed in an overextended way, so that cavities form between the implant core and the bone. On the one hand, this reduces rubbing/friction and therefore heat generation, and, on the other, it creates space for blood and growth factors (bioactive containers, stem cell niches). This initiates callus formation, and bone is formed a great deal more quickly (10 µm to 50 µm per day) and is of a much better quality, (Page 10:), i.e. is lamellar bone with blood vessels throughout. If the implant touches the bone (regardless of the implant material), this will cause the bone to switch to poorly perfused and slow (1 µm to 10 µm per day) appositional growth mode. In type III and type IV soft bone, the drilling protocol similarly always achieves an insertion torque of over 35 Ncm, so that these implants, too, can usually be treated with long-term temporary restorations immediately, thus hugely benefiting the patient. However, when drilling into soft bone, any flotation of fatty droplets on the blood must be heeded. This would indicate the presence of an IO/NICO which would have to be fully evacuated during the course of the implant procedure and then sealed with the implant as if by a cork.

c) Bone augmentation should, as a rule, be as atraumatic, minimally invasive and gentle to tissue as possible to prevent a loss of circulation and a diminution of aesthetics. Even though immediate implantation according to the SCC protocol can almost always avoid bone augmentation procedures, such augmentation is often necessary in patients who have undergone an extraction *alio loco*:

- widening of the alveolar ridge: the 'Angle Modulation Technique developed by Dr Erni Fuchs' constitutes bone spread, in which the gingiva is not folded, but instead the vertical and sagittal bones are cut using the Piezo method. With this method, gentle stretching and spreading result in a greenstick fracture, causing dispersal of growth factors and initiating the formation of a callus. The cavity between the implants must bleed and should not be filled with bone replacement material, as this would disrupt the extremely rapid callus formation in the 'bioactive container'. The cavity can/should, however, be filled with A-PRF membranes.
- Internal sinus lift: here, drilling is only carried out until just below the cortical maxillary sinus floor and this can then be mobilised cranially with the appropriate instruments, together with the overlying Schneiderian membrane. Because membrane flexibility stands at approx. 135 %, some 2 mm to 3 mm of bone height can be gained.
- Intralift™: if substantially more bone is lacking in the maxillary sinus area, bone can be constructed to a virtually unlimited extent using this particularly gentle procedure. A special set (SCA® = Sinus Crestal Approach) opens the bone up to the maxillary sinus mucous membrane (Schneiderian membrane), without damaging the latter. Alternatively, access can also be created by means of an upstream internal lift with the Summers osteotomes; this is advantageous because the Schneiderian membrane is afforded additional protection by the bone flap. Using the Acteon™-Piezo method, sterile saline solution is pumped by way of Piezo waves between the maxillary sinus floor and the mucous membrane using a 'trumpet', resulting in their displacement. The bone replacement material can now be inserted through the small hole into the newly created space. Since this procedure does not involve the free gingiva needing to be folded down, the patients experience no pain or swelling whatsoever and also do not need to worry about the risk of an infection.
- External sinus lift: this involves mapping the surgical area with an incision involving solely the alveolar ridge and the gingival margin, without vertical relief, and creating the window using the Piezo saw. The cavity is filled with a mixture of A-PRF membranes with autologous bone, which is obtained using the Safe Scraper™ before the window is created. Wherever possible, an implant should always be inserted consistent with the tent pole principle in order to afford the Schneiderian membrane cranial protection and to prevent the cavity from collapsing. The best way of performing this procedure is with the sinus implant developed by Dr Volz, which has a large plate at its tip to support the mucous membrane gently and securely, thus dramatically reducing the risk of perforation. A larger cavity is also created, as the implant now works not only as a tent pole, but also has a type of screen at the tip. The external sinus lift is always used if the maxillary sinus area presents difficulties or uncertainties, as this method is the most reliable as a result of direct access.



- **BONE GROWING IMPLANTS:** these are a new class of implants developed in 2016 by Dr Volz, which best leverage biological laws in order to allow bone to grow in height and width in a single step, without the need for artificial or animal bone. These implants bring about huge cost reductions, as not only do they make additional interventions unnecessary, they also reduce the costs of bone replacement material, screws, plates, bone blocks and membranes. In addition to the sinus implant described above, which has a wide plate at the tip to create a large and stable cavity in the maxillary sinus that fills with a blood clot, the precursor to bone, there are also a number of other bone-forming implant variants:
 - A so-called disc implant features circular rings in the implant body that create space for the periosteum (bone skin); it also creates a stable cavity to be filled with bone.
 - The balcony implant has a balcony-like protrusion in its tulip area, which similarly keeps tissue at a distance in the gingival area, seals off the socket and allows new bone to grow.
 - Oval implants use the same principle as disc implants, the difference being that the balconies are configured in two opposite directions.



All bone reconstruction methods and, in particular, BONE GROWING IMPLANTS, are based on the BONE MANAGEMENT criteria formulated in 2016/2017 by Prof. Choukroun and Dr Volz:

a) Systemic conditions

- Strengthen the immune system (supplements, diet, desist from harmful habits)
- Increase the ability to form bone (vitamin D3, K2/ MK7, magnesium, zinc, omega-3 fish oil, aspirin)
- Activate the parasympathetic nervous system, inhibit the sympathetic nervous system
 - Vitamin D3 has a relaxing effect and lightens the mood
 - Alkaline diet, alkaline bath, alkaline infusion
 - Do not work the day before the operation and for four days thereafter
 - Reduce microwave radiation
 - Administer as much procaine as possible via injection and intravenously

b) Local conditions

- Reduce bad inflammation (giant cells) using cortisone + intravenous antibiotics, vitamin D3, vitamin C and aspirin
- Activate good inflammation (leukocytes from the A-PRF): they work atraumatically and are minimally invasive but exert a radical effect
- Reduce contamination (breath, saliva, etc.): add metronidazole to the augmentation material or membrane
- Bone stimulation:
 - Set up bleed points (possibly two weeks beforehand)
 - Replenish the bone
 - Carry out oversized priming
 - Stem cell lacunae
 - Bioactive container = callus bone
 - Reduce compacta and replace with lamellar bone
- Improve the extracellular matrix
 - Apical mattress sutures
 - Create cavities with the periosteum
 - Leave sutures for three weeks (monofilaments: nylon, PTFE, Glycolon)
 - Fit spacers SDS tulip, new SDS BONE GROWING IMPLANTS Screws, plates, Choukroun Fast System
- Preserve blood flow (Mammoto's Law): zero compression in the area of the compacta. Create cavity.

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