

Consensus on Corticobasal® implants

(Ver 5.2: December 2023)

Due to the fact that medical devices and methods of their application are developing, also taking into account new developments in the nomenclature and possible applications, the International Implant Foundation IF® (Munich/Germany) first published the “Consensus on BOI” in 2006 in its own name and continued later developed. (The first edition of this document was first published by Besch KJ: Besch KJ (1999): Konsensus zu BOI; Schweiz Monatsschr Zahnmed, 109: 971–972).

The present document contains binding instructions for the assessment and use of basal and Corticobasal® jaw implants, which are implemented taking into account the respective national legal provisions.

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1. Definition

- Lateral basal jaw implants transfer the chewing forces over and under horizontal base plates or rings into the cortical bone. The implants show a “dual integration” and in immediate loading protocols they enable the chewing loads to be reliably transferred to cortical bone areas even before the “osseointegration”. Lateral basal implants enable intrusive and extrusive forces to be transferred into the bone
- Corticobasal® screw implants (e.g. BCS®, BECES®, Strategic Implant®) also belong to the group of basal implants if they are anchored laterally and medially bicortically (using Method 6) or in the second or third cortex. Resorption-stable cortical areas should preferably be used for anchoring. Screwable Corticobasal® implants enable the transfer of intrusive and extrusive forces into the second or third cortex, as well as into other cortical bone areas
- Implants which, due to their design, offer the possibility of bone compression along their vertical axis and which are also anchored in the second or third cortex (combination implants), also belong to the group of Corticobasal® implants

Active biological osseointegration along the vertical axis of these implants is not required for Corticobasal® implants to function. In the case of the lateral and screwable basal implant, the vertical implant part only has the task of connecting load transfer areas to the abutments. That is why these parts are kept as thin as possible and they remain polished. The primary stability achieved by osseous fixation of the apical thread is decisive for successful insertion and, in particular, for immediate loading. Later on, other parts of the implants can also „osseointegrate“; even those parts that were not previously fixed in place.

2. Classification of Corticobasal® implants

Description	Design	Mode of integration	Type of osteotomy
Lateral basal implants	Force transfer surfaces are intended for transmission of force to the cortex.; thin, polished vertical implant sections. Elastic implant design	1. Dual integration in the area of force transmitting discs 2. Gradual integration along the other vertical implant sections	T-shaped, lateral, bicortical
Screwable basal implants	Polished, cutting apically wide threads; thin, polished vertical implant parts. Elastic implant design.	1. Osseofixation of the force transferring thread. 2. Gradual integration along the other vertical implant sections	Crestal, trans-cortical
Combination implants	Polished, sharp cutting apical threads; compression threads along the vertical axis of the implant. Stiff implant design.	1. Osseofixation of the force transferring thread. 2. Compression of the cancellous bone along the vertical axis of the implant.	Crestal, trans-cortical

3. Indications

Lateral basal implants

Availability of a sufficiently stable and usable first and second cortex as a horizontally aligned support. Jawbone quality and quantity according to Lekholm & Zarb (D1 - D4) and Paraskievich (D5 and D6).

Screwable lateral implants

Availability of at least one stable and accessible second or third cortex for basal anchoring. Or: availability of a lateral and lingual / palatal cortical anchorage according to IF® method no. 6. Or according to IF® method 14. Jawbone quality and quantity according to Lekholm & Zarb (D1 - D4) and Paraskievich (D5 and D6).

Combination implants

Compressible bone of quality D2 or D3, availability and engagement in at least a second or third cortex.

4. Aim of the treatment

The aim of every treatment with a Corticobasal® implant is to restore or maintain the ability to chew bilaterally evenly with the maximum possible aesthetics and support of the

perioral soft tissues. The preservation of “natural teeth” (in whatever condition) is not the aim of the treatment, as teeth are not absolutely (or not at all) necessary in order to be able to achieve the treatment aim. The inclusion of teeth is generally more disadvantageous.

5. Authorisation / Training / Re-training

Even extensive experience with crestal implant systems (2-stage / standard implants) is insufficient to understand the principles of Corticobasal® implantology or to be able to work with such implants. Therefore, extensive technology training (leading to implant manufacturer approval for use) and regular refresher training are required for safe and optimal use of these medical devices. The International Implant Foundation IF® supports this sensible demand, which in many countries is also based on national laws and regulations.

Leading government organizations (e.g. Swissmedic / Bern) that deal with the monitoring of medical devices support this view of the International Implant Foundation IF® and the relevant manufacturers. Requests for authorization (instruction) and other precautionary measures were taken with a view to maintaining the patient's health (patient protection) and because the technology used differs very significantly and not obviously from other “dental implant” products on the market. The validity of the briefing is monitored by the local health authorities. If there is no authorization to use the products, the doctor works virtually “without a license”. “Use of the product” includes: patient information, surgical therapy, prosthetic therapy, maintenance therapy, troubleshooting, removal and replacement of implants.

6. Training

The training for the Corticobasal® technology is carried out exclusively by teachers / trainers with a valid teaching certificate or by the manufacturer himself. Teachers / trainers can also be associated with government institutions such as universities¹.

7. Expert evaluators

Expert evaluators who assess patient cases in which Corticobasal® implants are involved (reimbursement cases, liability cases) must have a multi-year approval for the use of the relevant lateral / Corticobasal® implants and have 50 fully completed treatment cases, 25 of which are at least three years or must be older. The German Federal Court of Justice has generally confirmed the requirement of personal experience for experts in III ZB 98/18 (06.06.2019).

¹ A job for a university alone, even a completed “doctorate”, a “professorship” or the appointment as a “privy councilor” are not enough to be able to use the product without in-depth product training or without regular refresher training.

(The Federal Court of Justice writes: When selecting dental experts, the courts are required to use experts who have the necessary medical expertise and thus special training and experience in the relevant field).

8. The preparation of the implant bed

Lateral basal implants:

Both turbine and high-speed contra-angle handpieces are used for lateral basal implants. Contra-angle handpieces with a 1: 1 ratio can also be used with at least 4,000 rpm and good cooling. Contra-angle instruments with a transmission of 1:10 or even 1: 248 are unsuitable for bone preparation for lateral basal implants, unless the surgical motor delivers at least 20,000 rpm.

Screwable basal implants and combination forms:

Straight handpieces or contra-angles are used with at least 5000 rpm. For better tactility, low-speed processing is also indicated in border areas. Surgical turbines can be used in any case, especially to prepare a first drilling and to model the first cortex. Each implantation takes place with local intra-oral disinfection, e.g. with Betadine 5%. Oral antibiotics are only an option, unless common medical conditions call for such a drug.

9. Combinations of elastic Corticobasal® implants with natural teeth and crestal implants

Lateral basal implants (as well as long screw implants / BCS®) have considerable structural elasticity and can be used with stable teeth in the same prosthetic construction. A disadvantage of this combination is the typically shorter lifespan of the affected teeth compared to the implants. Patients should be informed about the disadvantages of this combination and about the risks. In addition, it must be taken into account that failing teeth create an undesirable and often for a long time hidden lever on the bridge structure. This may lead to the failure of implants due to overlading of the adjacent bone.

The International Implant Foundation IF® supports treatments with constructions that are connected to implants only. Whenever possible, cases should be handled according to the standards; i. e. with circular bridges (with a dentition 6-6 in both jaws) or with standard segments (with implants in areas 4 -7 and prosthetic supra-structures installed from 4-6), without the inclusion of teeth.

Combinations of Corticobasal® implants with 2-stage crestal implants (placed according to the Method of Osseointegration) are possible, but if they are included into the same prosthetic construction, this can lead to critical problems. The different elasticity between cortical / basal implants and (especially long term integrated) crestal implants creates frequent problems to the freshly placed implants.

If such a combination is planned, the result must be a rigid construction to avoid overloading, fractures and decementation on the rigid, 2-stage pillars. When planning the combination of Corticobasal® implants with 2-stage, crestal implants, a thorough assessment (X-ray and clinical inspection) of the crestal implants should be performed to define their prognosis for the presence or future occurrence of periimplantitis. Whenever possible, 2-stage implants should be removed. These implants carry in any case the immanent risk of developing a periimplantitis sooner or later.

10. Indications for tooth removal to enable the use of the Strategic Implant® / Corticobasal® implants and alike implants, compared to conventional 2-stage implants

The development of reliable methods of replacing teeth with basal implants / Technology of the Strategic Implant® / Corticobasal® implants has changed the entire field of dentistry tremendously. The indications for tooth extraction are broader today than ever before in the history of dentistry. Indications for saving teeth are significantly reduced. Since the knowledgebase for modern dentistry is not evenly spread in the population of dentists, in many places medieval dentistry is practiced, while in nearby clinics a modern, time- and moneysaving, straightforward approach to help patients with tooth problems is applied. Even within one country and specifically in “well developed” countries, the differences between the treatment approaches are dramatically big.

Dental implant placement is an elective intervention. Patients today are considering implants (instead of their own teeth) for a variety of good reasons. The aim of the insertion of dental implants (in general) is to create a bilateral even chewing and to support a harmonious facial profile in the patient, good esthetics and a chewing table from 6-6 in both jaws. Frontal contacts between implant borne bridges are (just as in removable dentures) never part of a good treatment plan.

1. General consideration:

Indications for tooth removal should be considered in view of the oral implant technology that is planned to be used

1.1. Implantologists which work with the Method of Osseointegration should consider that the “life expectation” for their implants is uncertain and they can expect that these implants on average will not last longer than seven to ten years. This leads to a number of implications for tooth extractions:

- For single tooth replacements and small bridges on 2-stage implants, the main indication is the already missing tooth
- For full arch reconstructions on 2-stage implants, the main indication is the edentulous jaw

- Since 2-stage implants are in general limited regarding their “life expectation”, the removal of teeth with the intention to replace them with implants, which last longer than teeth, is rather a doubtful treatment plan

1.2. The usage of 2-stage implants in general tends to be rejected by patients due to the following circumstances:

- The treatment plan for conventional 2-stage implants includes undesired healing times for the implants which makes patients rather opt for immediate loading protocols
- Often a waiting time after tooth extraction is required, this often leads to the necessity to incorporate temporary dentures
- Most patients over the age of 50 years do not provide enough bone for conventional dental implants, they are told that they require “bone augmentation”. Many patients refuse implants for this reason, they rather keep on living with severely compromised teeth
- Smoking is a severe risk factor for bone augmentation because it affects the wound closure; most commonly smokers are excluded from such augmentations, and therefore they do not receive oral implants at all. Smoking is not a risk factor for implants in general, and implants which do not require bone augmentation (like Corticobasal® implants) may be used on smokers
- Placement of 2-stage implants with the intention to improve esthetics is (on long term) a doubtful approach
- Placement of 2-stage implants with the intention to stop periodontal disease and to create thereby stability in the masticatory system is a doubtful approach from the beginning
- If conventional oral implants are placed, patients will / should be informed that the life expectation of these implants is around seven to eight years. Under these circumstances the indication for preserving teeth is given in many cases, and especially if the natural dentition will probably survive longer than the 2-stage implants (using the Method of and devices for Osseointegration)
- 2-stage implants require a large amount of (expensive) professional aftercare and many of them require replacement after only a few years

For the mentioned reasons, implant devices that work according to the Method of Osseointegration seem not desirable for the patients. The method has a high rejection rate due to the long treatment process. An unknown number of patients is deselected from the group of patients seeking implant for medical reasons. This process is called “patient selection”. Those who are deselected remain typically untreated. If the Method of Osseointegration is chosen by the treatment provider, the estimated amount of deselected patients is between 30% - 50%, it increases with the age of the patients.

Hence this method has a low effectiveness and low applicability.

The International Implant Foundation IF® questions that such a medical method should be a subject for teaching at state-universities,

- if more applicable and effective methods are available,
- and considering that the funding for these universities is provided solely or mainly by the general public (i.e. by the taxpayers)

	Method of Osseointegration	Method of Osseofixation
Permanent medical contra-indications for oral implant treatment which will lead to de-selection of the patient by the treatment provider	Unfavorable medical conditions (diabetics, hypertension, various medications, IV-Bisphosphonate treatment, etc. etc.) Smoking Insufficient bone supply and unfavorable conditions for bone augmentation	n.A.
Temporary medical contra-indications for oral implant treatment which will lead to temporary postponing of the patient by the treatment provider	IV-Bisphosphonate treatment Periodontal infections, cysts in the bone, infections in the bone, recent radiation therapy	IV Bisphosphonate treatment, recent radiation therapy
Reasons for patient's refusal to undergo oral implant treatment	Long duration of treatment Very high costs of implant treatment High risks associated to bone augmentation Additional costs of bone augmentation Fear of repeated pain during multi-step surgical protocols. Unwillingness to wear an intermediate removeable denture or to be without teeth for some time. Fear of experiencing Peri-Implantitis which will lead for pain, infections and eventually to the loss of large amounts of bone and loss of the implants	Despite the comparatively lower treatment costs, some patients will still postpone treatment for financial reasons

Table 1: The table shows major differences between the Method of Osseointegration and the Method of Osseofixation regarding permanent and temporary contra-indication as well as regarding patient's reason(s) for not accepting the treatment.

- 1.3. Conventional dentists are trained to “save teeth”, whatever it takes. They are supported by dental chambers, who work in the interest of traditional dentists, but (of course) these chambers are not protecting the interests of patients. **One of the few organizations which support the interests of patients is the International Implant Foundation IF®, Munich/Germany.**

- 1.4. The International Implant Foundation IF®, advised by a highly qualified advisory board, decided to clarify the circumstances around the question when teeth are removed in connection to oral implant treatments. The following comments refer to the newer Method of Osseofixation which has numerous specific advantages compared to the Method of Osseointegration. For the newer method, by far more reasons for extraction can be named, because the implants do not provide a limited life expectation by themselves. On average, such implants last (often much) longer than teeth after being in function for 40 years and more. Corticobasal® implants (and alike designs) can become a necessary or a desired part of the treatment plan:
 - a. If patients declare that for them, the burden of maintaining teeth is not acceptable any more (for financial reasons, for esthetic reasons, for medical reasons, if patients have no trust into their dentition, if they prefer to avoid removable dentures, etc.). We have to realize that more than 99% of all problems in the oral cavity stem from teeth. This alone calls for their early removal if an alternative is given

 - b. If the patients require the removal of their teeth for esthetic reasons. **Dental implantology is both a medical discipline and applied cosmetics.** Just as (for example) a female patient might opt for reducing the size of her breasts, patients can also opt for a future life without their teeth (and with implants)

 - c. The fact that a tooth **can possibly be saved** by using methods of treatment from traditional dentistry (crowns, fillings, root canal treatments, perio treatments etc.) does not mean that also the **indication for the saving of the tooth** is given. **Saving a tooth is (also) an elective intervention.** The simple possibility of carrying out a conventional dental treatment on a tooth is not creating the indication to treat this tooth

 - d. Likewise, the possibility of performing a conventional dental treatment does not imply that a national or private dental health insurance must pay for this treatment. Nowadays, tooth removal and an immediate treatment with Corticobasal® implants has a better perspective and provides a more effective, long lasting and thereby cheaper solution. From this point of view, keeping teeth can be considered to be a luxury for the rich

- e. To keep and maintain pre-treated and damaged teeth in such a situation may be in the financial reach of single individuals with sufficient funds. However, national or private insurances should not be forced to support such “whatever-it-costs-treatments” on teeth, as today a reliable (implant-) alternative is available. The International Implant Foundation IF® recommends that insurers for health strongly revise their present principles of paying for oral treatments and instead support their clients in the efforts to seek a non-tooth-borne durable solution to maintain a fixed dentition

1.5. Restorations on 2-stage implants cannot count presently as an effective and applicable solution because studies are missing which follow the rules of medical reporting. In the field of 2-stage implantology (Method of Osseointegration), a vast number of studies had been published but they lack information about the real-life-applicability and effectiveness of this treatment.

The following observations will point into the direction of **tooth removal** in oral implant cases:

- Wisdom teeth should be removed in patients receiving dental implants. The ancient idea to keep wisdom teeth as an anchor of last resort does not reflect today's possibilities of oral implantology. Erupted wisdom teeth tend to elongate (with the bone) and hence they create an increase of the vertical dimension of the whole tooth arch (especially in the mandible). The newly formed bone is however not stable and as soon as it collapses, patients develop the signs of periodontitis
- Elongated teeth (with or without elongation of the alveolar bone) should be removed if they block the possibility to install tooth arches with an acceptable AFMP and APPI on both sides. Furthermore, their bony bed has to be considered potentially unstable
- Periodontally involved teeth with an attachment-loss of 20% (of the root surface) or more should be removed
- Dental implants should not be placed in jaws where generalized bone loss is visible and takes place, because the whole affected piece of bone can be expected to be under strong and constant remodeling which will not stop soon after the implants are placed
- Teeth with mobility L1 and more should be removed because mobility cannot be treated in general and it prevents a pain-free mastication and a stable occlusion
- Teeth that would require a second or third crown should be removed as they last much shorter compared to even conventional oral implants. If they get lost, a partial re-treatment will become necessary
- Teeth whose position in the jawbone prevents resorption-stable bone areas from being reached and / or used for cortical anchoring of im-

plants should be removed (this applies also to single 2nd molars, all wisdom teeth for conventional dental treatment as well as to impacted upper canines, etc.)

- Bone augmentations and sinus lifts should be removed if Corticobasal® implants are planned to be used, unless the possibility to safely bypass these areas of potential danger with the implants is given
- Teeth (including "healthy teeth") which the patient (for any reasons) wishes to extract should be removed
- Natural teeth are often positioned in the oral cavity in such a way that the transition zone to the mucous membrane becomes visible when the lip moves (when laughing, talking or smiling). In such cases, the bone level has to be corrected in order to come to an acceptable esthetic result. This bone reduction demands removal of the teeth in any case
- Removal of ugly and severely restored teeth is indicated for esthetic reasons at the patient's request. In such cases, soft and hard tissue are also typically corrected vertically
- If the sum of the necessary dental treatments seems unbearable or unaffordable for the patient, teeth can be extracted as this avoids suffering of the patient. If a severely pre-damaged dentition is given, a complete removal of all teeth and placement of Corticobasal® implants is in general the cheaper solution with a better long-term perspective
- The decision for removing (all) teeth comes easy, if both patients and treatment providers are sure that the chosen Method of implant restoration does not include the risk of periimplantitis
- Root canal treated teeth should be removed because those teeth are the source of a continuous intoxicification of the patient's body from the chewing organ
- With regard to the follow-up costs of a dental treatment ("re-dentistry"), especially if the expected remaining time for usage of (some teeth) is less than six to eight years, it should be urgently proposed that the teeth should be removed and that no investments (neither through private nor through state insurers) are being made into those teeth
- To avoid removable dentures, the treatment plan may include the removal of additional teeth (healthy teeth, not mentioned in this list) in order to install a standard solution with high predictability (a standard segment on implants, a circular bridge, full mouth restoration)
- In order to achieve a faster treatment result, extractions are generally indicated if the patient expresses the wish for this treatment variant
- Extractions are indicated to allow creation of a cross-arch stabilization on implants
- Extractions are indicated if the existing tooth arch does not allow restoration of the masticatory system with the plane of bite being non-parallel to the plane of Camper, if there are non-identical curves of Spee on both sides, if the APPI differs on both sides, and if the frontal groups

- cannot be kept out of contact in occlusion or during mastication without overly raising the bite
- Not to interrupt stabilizing splinting by teeth which are not included into the prosthetic construction
 - Extractions are indicated for teeth without antagonist, if the elongation of those teeth and subsequently the development of early contacts between the implant borne bridge and the tooth are expected
 - Due to the delicate design and the smooth surface configuration, significantly lower demands are placed on the oral hygiene of the patient when Corticobasal® implants are chosen. This is true in comparison to teeth and in comparison to 2-stage implants. The cost of renewing such bridges after years is reasonable (especially if production data from the 1st bridge is available) for many patients and can be calculated in advance
 - A significant improvement in esthetics is possible if the vertical bone reduction in the visible zone is combined with tooth removal. The ability to position dental arches independently of the jawbone in an esthetically and functionally desired position enables significant improvements in esthetics, even with fixed restorations
 - Patients often plan to switch to an implant-supported denture / bridge at a time when they have sufficient income. As the Strategic Implant® / Corticobasal® implant provides the principal perspective for life-long stability, these implants are the preferred devices in this situation. Nowadays, many treatment providers themselves offer a payable “warranty extension” after the initial period of full warranty (two to five years). This creates a situation where the costs for life-long maintenance of the implant work can be calculated

The International Implant Foundation IF® supports patients in their rights of self-determination when they have made a decision and apply for the extraction of natural teeth in order to receive a comprehensive therapy with implant-supported (fixed) teeth as a result. This also expressly refers to patients and cases in which the removal of teeth is requested even though these teeth are healthy or could have been “saved” by one or more disciplines of dentistry (e.g. endodontics, periodontics, surgery, prosthetic and conservative dentistry). Even if a private or national health insurance company would pay for the individual dental treatments in order to “save” these teeth, this alone does not give an indication to save the tooth.

- 1.6. Patients typically make the decision to have their teeth and parts of the jawbone removed under the following circumstances:
- Treatments with dental implants is cheaper than continually repairing teeth and making repairs (“re-dentistry“)

- Treatments with the Strategic Implant® / Corticobasal® technology can be carried out much faster than conventional implant treatments, as many appointments, potential risks, collateral damage and healing times are avoided
- By extracting a few healthy teeth, the cortical bone areas are made accessible for anchorage, and thereby expensive and risky bone augmentation procedures are avoided

Conclusion

The appearance of Corticobasal® implants in the markets of the world has put the trained implantologist in a much better position to treat patients compared to conventional dentists.

The gap of possibilities between those two groups of practitioners has become unimaginably large today.

Dentists are largely **underqualified to work on today's market of dentistry in adults** which have lost teeth, because they must base their work on an aged dentition with a limited life expectation.

Only specifically trained and experienced implantologists for Corticobasal® implants or for the Strategic Implant® (and likewise devices) have received the superior education and superior knowledge that allows them to provide higher services to these patients.

The **Method of Osseointegration**, due to the limited life expectation of the devices used, cannot give a justification for the extraction of healthy teeth which can be expected to last seven to ten years and more.

The **Method of Osseofixation** seems not to be associated to general problems (like e.g. periimplantitis) which would justify the assumption that there is a specific or maximum life expectation to the implant itself. Hence, practitioners which apply this method can consider removal of teeth even in younger patients and for more indications, as long as the extractions are requested by the patients.

Hence both interventions - placing an implant and repairing ("saving") the tooth - are elective interventions which require the informed consent of the patient. A large variety of aspects will be considered by the patient.

Many patients will opt for tooth removal and replacement by implants using the Method of Osseofixation, while they rather will keep their teeth if they are offered treatment in the older Method of Osseointegration.

11. Loading protocols and immediate loading

Lateral and screwable basal implants are usually used in immediate loading protocols. This means that the prosthetic splinting through the bridge or bar takes place before the third postoperative day. Stable temporary bridges, bridges with a metal frame or internal rigid reinforcement, direct laser welding and various veneers are used for splinting. Recently, successfully milled composite frameworks (or PMMA frameworks) have also been used without a metal framework. There are no long-term results on this yet. Bridges made of PEEK or PEEK compound without metal reinforcement are not recommended unless the design of the bridge provides sufficient stability. If there is very little bone available, immediate restoration (splinting) is necessary on the day of the operation, i. e. the 3-day rule will not apply. When combined with compression screws and there is enough bone around the lateral basal implant, the prosthetic construction with permanent cement can be inserted on the fifth postoperative day at the latest. Whenever possible, support in the distal upper jaw should be in the third cortex. This consensus does not include treatment modalities for maxillo-facial applications.

12. Methods / Disciplines

In 2018, the International Implant Foundation IF[®] published an S3 consensus document on the 16 methods of strategic implantology. Earlier versions of this document have been implemented in practice and teaching since 2014. This document describes the tried and tested and scientifically validated applications of Corticobasal[®] implants in the various areas of the mandible and maxillary facial skeleton.

13. X-ray assessments and implant loosening

Implant placement in periodontally or endodontically infected areas: The insertion of large (cartridge-shaped), roughened crestal implant bodies into infected areas of the mucous membrane or bone areas in which an infection is suspected is generally not recommended.

The long-term observation of treatments with the Strategic Implant[®] with a smooth surface and thin vertical implant components shows the following differences to the conventional crestal implant bodies: Polished Corticobasal[®] implants in periodontally affected oral cavities are promising (statistically often even more promising than implant insertions in healed jaw regions), as long as they are soft tissues that have changed due to inflammation are removed at the same time and all affected teeth are also removed. Combination forms, on the other hand, should not be used immediately after tooth extraction if the case shows advanced periodontal involvement.

Treatments with Corticobasal[®] implants can be carried out immediately after tooth extraction, provided that a stable second cortex is available for anchoring and when it is actually used. The principle of conventional implantology “no implant insertion in an infected area” does not apply to the Strategic Implant[®] technology.

Local disinfection of soft and hard tissue, e.g. with Betadine® is urgent, while the general oral or intravenous antibiotic therapy is only indicated in individual cases (this statement only applies to completely healthy patients). The advantages and disadvantages of antibiotic therapy can be discussed with the patient in order to make a decision.

14. Incorrect loading due to laterotrusion and pre-contacts

Lateral forces and vertical overload caused by chewing can lead to a sterile loosening of the apical thread of the Corticobasal® implant or the base plate of the lateral basal implant. This condition is potentially reversible if the overload is corrected early and the bony interface to the power transmission areas is not infected.

15. Indications for the removal of screwable and lateral basal implants are given, if:

- Radiographically, a sharp, circumferential demineralization zone is visible all around the base disc or the apical thread of the implant.
- The implant can be moved vertically.
- Retrograde osteolysis is shown and recognizable on the X-ray, and osteolysis is visible around the entire apical thread.
- When osteolysis is visible on a first X-ray and its size increases on a second radiographic image after more than six to eight weeks. Removing implants after just one X-ray is sometimes premature.
- When vertical bone defects larger than 5 mm occur between the shafts of two adjacent implants in the area of the first cortex and below. In this case, the implant with the poorer prognosis or higher mobility is removed.
- With combination implants, the vertical portions of the implant surfaces show a loss of osseointegration. If the X-ray shows crater-shaped bone loss, early removal of the implant should be considered (as in all other cases of periimplantitis).

16. There is no indication for (immediate) removal of the implant if one or more of the following observations can be made:

- A black line between the implant and the surrounding bone only affects the vertical implant surface (and not the threads or baseplate) for basal implants. Swelling and/or abscesses are present in the vestibular, lingual, or palatal mucosa.
- The implant is painful to chew, but there is no sharply defined black area around the basal disc or apical thread.
- In the presence of crater-shaped bone loss around lateral basal implants, as long as the basal discs are not affected.
- Only parts of the bone around the basal plate show blackening in the X-ray image; i. e. the plate or ring is still in contact with bone, even if its mineralization has decreased and/or in some places is not visible at all on the X-ray.
- Only the bone around the crestal discs is affected radiologically by demineralization.

- There is only lateral mobility. (The reason for this movement can be: lack of integration of vertical implant sections; elasticity of the long and thin implant axis or in the area of the second or third cortex).
- Screwable basal implants rotate in the bone.

17. Resistance to periimplantitis

Long-term observation of treatments with the Strategic Implant® (which has a completely smooth surface and a thin vertical mucosal penetration site) has shown that this implant is resistant to the development of periimplantitis. No periimplantitis is observed around the smooth and thin implant neck. However, in some cases, peri-implant mucositis can occur. Usually this is due to the prosthetic components, including when cement is left in close proximity to the gums. This is NOT an indication for removal of the implant; instead, some adjustments could be made to the bridge and / or a gum resection performed.

18. The transition area between the head of the implant and the denture

Unless the treatment provider chooses open surgical cementation as a form of therapy for the cementation of metal-ceramic bridges in cases in which the abutments were deliberately inserted deeper into the socket, the length of the crown is chosen so that there is no risk of cement residue be dislocated under the mucous membrane or into the empty alveoli. The transition zone between the abutment of the implant and the crown margins should therefore not be subgingival. It is therefore not a goal of prosthetic treatment in Corticobasal® implantology that the lower edges of the crowns match the maximum diameter of the polished abutment, and therefore the "fit" of the crown cannot be assessed using this parameter. If the edges of the crowns are above the gingival level, there is no need for a special or precise fit as long as the cementation is stable.

Approved by the Board of Directors and the Scientific Advisory Board of the International Implant Foundation IF®: Ver 5.2 EN, December 22nd 2023 (with minor approved differences to Ver 5.1 EN).

Change Index

Change No.	Document Name / Number	New Version	Previous Version	Change	Date Approval	Approved by
1	1_EN_Consensus_on_basal_implants_2021_12-23	Version 5.2	Version 5.1	<p><i>"In addition to assessing the prognosis Replacing implants without removing the prosthetic structure is the method of choice when only single implants are involved."</i></p> <p>removed because this information has been integrated into the new IF consensus document No.8.</p> <p><i>"9. Combinations of implants with natural teeth and crestal implants.."</i></p> <p>additional information in text block</p> <p><i>"10. Indications for tooth removal to enable the use of the Strategic Implant® / Corticobasal® implants..."</i></p> <p>additional information in text block</p>	22.12.2023	IF® Board