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The Foundation of Knowledge

9TH CONSENSUS DOCUMENT ON INDICATION FOR TOOTH EXTRACTIONS & IMPLANT PLACEMENT

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Content

1. Introduction

Traditionally, dentistry has dealt with teeth and oral diseases. Dentistry evolved out of early "toothfixers" and the profession climbed into the ranks of a subject for universities at the end of the 19th century. It became more and more focused on fixing teeth, simply because there were no other options. From this point of view, preserving teeth in order to create at least fixpoints made sense.

As an ageing process, people tend to lose their teeth as a result of caries, periodontal disease, trauma, infection, malignancies, or due to endodontic or orthodontic treatments. According to the literature, by the age of 70 years old, almost 45% of the population is toothless.
Tooth loss adversely affects the health of oral and para-oral structures, resulting in many consequences, including: teeth tilting, drifting, and elongation that have a significant impact on the patient's occlusion and mastication. Patients tend to change their masticatory function under the influence of tooth loss from bilateral masticatory chewing into unilateral or anterior unilateral masticatory habits, a consequence that necessitates correction through prosthetic rehabilitation with several prosthetic treatments, including full dentures.

Disregarding a bilateral and equal function of the masticatory system has a high price, but only a few professionals understand this. The prices that the patient pays for unilateral or anterior chewing are: The bone in both jaws will develop an unsymmetric pattern of mineralization and an unsymmetrical elasticity. In cases of anterior chewing patterns, both the upper and lower frontal groups tend to elongate. On non-chewing sides, teeth tend to elongate, while on chewing sides, they intrude; midlines tend to shift towards the chewing side. Crowding tends to happen on the non-chewing side because the underloaded bone will atrophy away and it can't hold (activate) the bone volume.

The treatment goal is to create good (normal, bilateral)chewing function.
Prof. Motsch from Münster University (Germany) emphasized this concept 50 years ago, summarizing the issue and its resolution in a single sentence.

He stated: "With every removed tooth, we move closer to a full denture, and for full dentures, we know how to do things."

We would like to add here the following statement: "After the removal of all teeth, we can finally (or for the first time) create proper and regular chewing function." Both statements have been true and valid until today.

Until and after the Second World War, forceful tooth removal on young women was practiced in many countries, including Switzerland. Young brides had all of their teeth removed and received full dentures to keep future costs for their husbands and the family low. Memories from this time may influence how people think about radical tooth removals today. Nowadays, the therapy of that time is considered cruel and awkward. Also it was not fair to do this only to women.

However, keeping natural teeth must be considered a high-priced option for older patients, owing to the fact that, with age, teeth decay and become mobile, necessitating an expensive dental treatment. Therefore, in today's world, an increasing number of patients may find themselves compelled, or even willing, to undergo full extractions in order to opt for modern implants. Dental practitioners see every day more patients searching desperately for a final and affordable solution regarding their teeth. This financial dilemma may also influence the selection out of various treatment modalities offered to each patient. Financial pressure acts as the main driving force that makes patients opt for a switch from fixed teeth to modern and easy-to-maintain implant-borne dentitions. A recent study shows that up to 100% of these patients would take the same decision again after years of using Corticobasal® implant-based bridges.

On the other hand, from a marketing and financial point of view, dentists (supported by their dental chambers) may not encourage tooth removal as their chances of making money from treating these patients in the future are next to zero. Such considerations by dentists and dental chambers are however unethical.

Dentists may adhere to the conservative concept emphasized in universities, put-

ting all their effort into treating and maintaining natural teeth, a concept that is at the first glance fundamentally sound. But it ends up often in an unwanted edentulism. Dentists today must consider the option of tooth extraction and subsequent implant rehabilitation using fixed implant-supported prostheses, a concept known as implantology.

Dentists must know and consider all possible treatment modalities, engage in a fruitful practical (and not scientific!) discussion about the benefits/risks ratio with their patients before selecting the appropriate treatment, and take into account the high motivation of patients, particularly in recent years. Unfortunately in most countries the majority of dentists (those who would call themselves family-dentists) lack the knowledge and the experience for giving such advice to their patients.

Many family-dentists have so far refused to include implants (on a larger scale) in their treatment arsenal. Especially if they resort to the means of traditional 2-stage implantology, given the low effectiveness and low applicability of the method of osseointegration, they are unable to treat their local clients to the end of their life with fixed teeth. Therefore, they advise often against replacing teeth that have an expected survival time of 10 or more years with conventional implants, which typically last only 7-10 years. This short lifespan results from various limitations, and sensitivity to infections and proneness to complications. This challenge underscores the significance of developing a new implant technology that boasts high success and survival rates, minimal or no constraints, and manageable complications. For almost two decades, the Technology of the Corticobasal® Implant makes it possible to use simple and inexpensive single piece implants, which show even much higher survival rates and allow a good clinical access. These implants have fully overcome the disadvantages of conventional dental implants which were used since the 1990ies. They are connected to a few manageable, documented complications, lead to high patient satisfaction, and definitely improve patients' quality of life. Thus, the previously discussed restraint is no longer necessary today, as the modern method of oral implantology, "osseofixation," is available and had become more and

more widespread.
In addition to the aforementioned considerations and facts, patient perceptions regarding keeping or extracting their teeth should be considered a priority. (Only) the patients have the right to self-determination regarding their teeth.
Patients have to make decisions about their treatment, including whether they are willing to live with their natural teeth (and the associated risks and costs), or opt for their extraction and eventual replacement. As discussed previously, there are many acceptable reasons why patients should not decide in favour of their teeth; instead, they request to switch from their questionable and often very incomplete set of teeth to implant treatment and, thereby to fixed implant-supported prostheses. Today the Technology of the Strategic Implant® makes this switch possible It only takes a few days. The shortcomings of conventional dental implants that rely on the "osseointegration method", a lengthy process that raises questions about their acceptance in the long run, or even at all.

The IF highlighted the fact that extensive tooth repair should not be done simply because the tooth is badly decayed and the patient is sitting on the dental chair. Patients must actively choose tooth repair over any other proposed treatment method, including tooth extraction and modern implants. Even middle-aged male and female patients may request the removal of potentially salvageable teeth or even healthy teeth, which could restrict their access to fixed restoration treatments.

Patients which take such decisions are fully sane, and their request demonstrates that they are able to calculate and estimate future costs and developments, as well as the risks associated with such teeth.

The patient should be informed about the following:

- At least the majority or even all the oral cavity diseases are associated to the presence of teeth. Dental decay is associated with teeth.
- Periodontal diseases are associated with the periodontium surrounding the teeth. After the removal of all teeth, periodontal disease ends forever.
- The presence of teeth in the oral cav-

ity is the root cause of around 99% of all intra-oral problems.
- The dentition is going to get worse every year, and there are no means to stop this decline and decay for good.
- Compromised teeth will have a shortened lifespan after (and due to) reconstruction.
- If reconstructions are incorporated at the wrong or unfavourable angle to the plane of Camper or in other unfavourable conditions, this will result in an abnormal pattern of chewing or at least reduced chewing possibilities.

2. The indication for tooth removal with the plan to install oral implants subsequently depends on the type of implant as well as the treatment method chosen by the implantologist.

2.1. The Method of Osseointegration (placement of implant bodies with the aim of creating an unnatural ankylosis between implants and the bone).

This paragraph discusses implant treatments and the use of osseointegrated implants (also known as conventional implants, two-piece implants, and 2-stage implants).

- They are installed and require abundant amounts of bone to have satisfactory primary stability; hence, in compromised ridge support areas, bone augmentations are mandatory.
- Treatment aim is to rigidly ankylose the implant bodies into the bone. The result of this process is called "osseointegration". Although ankylosis is a pathological state for teeth (and it in fact it alters the properties of the surrounding bone), this ankylosed state is suddenly the "accepted treatment aim" for the so called "osseointegrated" implants.
- reported peri-implantitis that develops frequently around conventional rough surface implants and results in implant loss[i]. Literature reports that the incidence rate of peri-implantitis varies between 5% and 95% of the cases. Experience tells us that the results of the previously mentioned study 1 are very realistic. They show in a retrospective study that, as a result of the use of a mix of 2-stage implants (conventional implants designed for the method of osseointegration), after an observation time of 6.25 years (+/- 3.6 years), only around 22% of the implant

sites are healthy and can be counted as successful.
- These findings are in line with a recommendation of many American lawers (dealing with malpractice cases) to their dentist clients: for conventional implants, an average time of usage of 7-8 years should be promised (granted) for the patients, but not more, although single implants will last much longer.

Several complications have been reported in the literature with this system, including medical and technical complications, as well as a high incidence of peri-implantitis, with a growing incidence with time. As soon as the state state of ankylosis is reached, the bone around the implants lacks sufficient loading and the necessary elastic deformation. Hence disuse atrophy starts after "integration" and such atrophy is called then "peri-implantitis".

The treatment modality that includes tooth removal with the intention of replacing teeth with osseo-integrated implants must be considered unethical if the teeth that are to be removed would last longer than 7-8 or even 10 years. In fact, conventional dental implants must be considered rather temporary implants (in comparison to the life expectation of the treated patients).

Even if tooth removal is requested by the patient, as an individual's sole preference, the patient must be informed about all the risks and complications associated with it, including the shorter time of function of osseo-integrated implants compared to natural teeth.

The differences in survival time between osseointegrated (ankylosed) and osseofixated implants are dramatic. Taking into account the previously discussed limitations, risks, and complications, 2-stage implantology should primarily focus on replacing single or a few already lost teeth.

2.2. Why may the patient not accept conventional 2-stage implants today?

Patients typically reject the use of 2-stage implants for the following reasons:
- The long, undesired healing times associated with conventional 2-stage implants and the use of transitional prostheses meanwhile make the patients upset and rather opt for immediate loading protocols.

- As an ageing sequel, most of the patients over the age of 50 do not provide enough bone to hold conventional dental implants without bone grafting, or "bone augmentation." A procedure that may be governed by many considerable complications. Hence, patients may refuse implants for this reason and prefer to live on with severely compromised teeth instead.
- The patient's medical status may lead to patient deselection. Diabetes mellitus and other medical conditions are considered relative contraindications for conventional implant treatment, and their association with a bone grafting procedure increases this risk.
- The patient's habits, i.e., smoking, are undoubtedly a severe risk factor for the duccess of bone augmentations, because smoking affects wound closure negatively. Typically, implantologists exclude smokers from such augmentations, leading to their complete absence from oral implant procedures. However, smoking is not a contra-indication for implants in general because implants that do not require bone augmentation (including Corticobasal® implants) are used on smokers with the same rate of success as on non-smokers.
- Placement of 2-stage implants with the intention of improving aesthetics is, in the long term, in any case a doubtful approach.
- Placement of conventional 2-stage implants with the intention of stopping periodontal disease and thereby creating stability in the masticatory system is a doubtful approach from the beginning.
- The 2-stage implants require expensive professional aftercare, and nevertheless many of them require replacement after only a few years.
- Prior to implant placement, patients should be informed about the suspected complications and that the life expectancy of these implants is around seven to eight years. Under these circumstances, as discussed previously, the indication for preserving teeth is given in many cases, especially if the natural dentition will probably survive longer than the 2-stage implants.

A discussion regarding the real-life success rate of conventional 2-stage implants is presently not done, real life figures are kept in the dark or they do not exist. Typically even "scientific" publications show only the number of implants placed and they consider only the patient selected for the treatment; deselected cases are not disclosed, despite the fact that these patients wanted implant treatment. This process of deselection is called "patient selection."

This process, which is typically done on a larger scale (more than 10% of the cases), but the resulting statistics cannot be used to assess the effectiveness and applicability of the Method of Osseointegration or the implant system under investigation.

All presently known and published studies which are done on conventional oral implants violate the "Intent to Treat" principle, which is one of the central pillars of epidemiology and medical reporting.

Deselected patients typically remain untreated. If the method of osseointegration is chosen by the treatment provider, the estimated percentage of deselected patients may reach a percentage between 20% and 60%. Moreover, the amount of deselection increases with the age of the patient, the deteriorating medical status of the patient, and the increase in jaw bone atrophy. This fact alone shows that osseointegrated implants may not be useful for most elderly patients.

2.3. The Methods of Osseofixation

Osseofixation was developed in the field of traumatology and orthopedic surgery since 1975. The anchorage into the 2nd cortical and the penetration of that 2nd cortical was since then state of the art world-wide. This has not changed, although devices which use other method of fixation are also used (e.g. compressive trauma-implant devices).

Historically the first screw-implants which could be used as bicortical devices where introduced into our profession in the 1950ies. In 1988 Grafelmann (Germany) filed his patent for the "Bicortical" screw, but in the clinical reality he and his followers didn't use this screw in a bicortical manner. The assortment of these screws on the market (at that time marketed by Oraltronics company, Germany) did not provide implants in lengths

which would allow to reach the 2nd cortical. Hence the use of these implants in the technology as defined in oral traumatology was not possible.

Today Corticobasal® implants are manufactured in all necessary lengths (i.e. up to 38 mml) and for longer distances zygomatic implants in up to 70cm length are available. Since the middle of the first decade of this century, the method of oral osseofixation (for the fixation of bridges) had spread wide widely in most countries all around the world.
This method works by anchoring cortical and basal implants into the 2nd or 3rd cortical, targeting the highly mineralized areas of bone, and most importantly, eliminating the need for bone augmentation. These treatment plans are set up to work according to an immediate functional loading protocol. Therefore, we should remove teeth to establish a more stable BIPS®, enabling a uniform implant distribution, also enabling the usage of resorption stable and highly mineralized bone areas, to arrange improved biomechanical masticatory load distribution, and a standardised masticatory function.

Because of their smooth surface, no peri-implantitis is associated with these implants, an advantage that is critical for long-term implant success and survival. Moreover, the excellent biomechanical force distribution reduced the complication rate and increased the lifespan of the implants. Hence, we can assume that such implants can last "forever" when placed with a regular follow-up schedule and highlight them as an ideal rehabilitated option for tooth replacement (Table 1).

A comparison between conventional implants utilising the method of osseointegration and osseofixated implants has been outlined below:

Table 1: *shows the major differences between the Method of Osseointegration and the Method of Osseofixation regarding permanent and temporary contra-indications, as well as the patient's reason(s) for not accepting the treatment and opting for alternative treatments like endodontic and periodontal*

	Method of osseointegration	Method of osseofixation
Implant's contraindications, which may lead to the de-selection of the patient by the treatment provider	• Patient's medical condition: unfavourable medical conditions (diabetics, hypertension, various medications, oral IV bisphosphonate treatment, etc.) • Patients' habit: smoking • Patient's local factors associated with edentulous spaces: Insufficient bone supply and unfavourable conditions for bone augmentation • Patient financial status, especially when bone augmentation is mandatory	Not applicable
Relative/temporary medical contraindications for oral implant treatment that will lead to the patient's temporary postponement by the treatment provider	IV bisphosphonate treatment. Periodontal infections, cysts in the bone, infections in the bone, and recent radiation therapy	IV bisphosphonate treatment, recent radiation therapy

	Method of osseointegration	Method of osseofixation
Reasons for the patient's refusal to undergo oral implant treatment	• Long duration of treatment • The cost of implant treatment is significantly high. • The risks associated with bone augmentation are high. • Additional costs of bone augmentation • Fear of repeated pain during multi-step surgical protocols • The unwillingness to wear an intermediate removable denture or to be without teeth for some time is a common issue. • There is a fear of experiencing periimplantitis, which can lead to pain, infections, and eventually the loss of large amounts of bone and implants.	Despite the relatively lower treatment costs, some patients still have to postpone treatment for financial reasons. This shows that further developments in the effective handling and application of the method in the local clinics are necessary in order to eliminate the necessity of the introduction of removable dentures, the application of root canal treatments, and periodontal treatments fully.

This consensus document governs all tooth extractions and subsequent treatments using the Method of Osseofixation. As previously discussed, patients have a wide range of reasons for either keeping their teeth in or preferring to have them removed and replaced with implant-based dentition.

The following pragmatic way of thinking guides this decision:

- Is the change to an implant based solution possible it in a short time and is the result reliable?
- Is the treatment within the given financial affordability?

Studies indicate that zirconium is the most durable bridge material today due to its resistance to abrasion. Simultaneously, dentists need to understand the significance of regular follow-ups and maintenance, and the need for repeated adjustments to the occlusion and masticatory surfaces throughout the bridge's lifespan.

In oral implant cases, the following situations may indicate or emphasize the direction of tooth removal:

- Wisdom teeth should be removed from patients receiving dental implants. The ancient idea of keeping wisdom teeth as an anchor of last resort does not reflect today's knowledge and todays possibilities in oral implantology. Erupted wisdom teeth tend to elongate (with the bone), and hence they create an increase in 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 wisdom teeth carry the risk of unwanted and uncontrolled early contacts which might develop over time.
- Elongated teeth (with or without elongation of the alveolar bone) should be removed if they block the possibility of rehabilitating the tooth arches with an acceptable AFMP and APPI on both sides. Furthermore, their bony bed has to be considered potentially unstable. In all cases, vertical bone

reduction should be performed for a successful outcome.

- Periodontally involved teeth with an attachment loss of 20% (of the root surface) or more should be removed.
- Mobile teeth (Grade I and above) should be removed; hence, tooth mobility cannot be treated in general, and it prevents a pain-free mastication and a stable occlusion.
- Teeth that may require a second or third crown should be removed to avoid short-term treatment results, that may be even shorter compared to even conventional oral implants. If they get lost, a partial re-treatment will become necessary and the bilateral mastication is endangered.
- Teeth whose position in the jawbone prevents resorption-stable bone areas from being reached and/or used for cortical anchoring of implants should be removed (this applies also to single 2nd molars, all wisdom teeth, as well as to impacted upper canines, etc.).
- • Bone augmentations and sinus lifts should not be considered any more, since a safer treatment (without the risks which are associated to bone augmentation) is available today (i.e. Corticobasal® implants).
- Conventional implants should not be placed in jaws where generalised bone loss is taking place (i.e. while a progressing periodontal disease is ongoing) because the whole jaw bone can be expected to be under strong and constant remodelling, which will not stop soon after the implants are placed and compromise the implant's primary stability.
- Teeth (including "healthy teeth") which the patient (for any reason) wishes to extract can be removed. Experience shows, that if patients request tooth removal the usually have good reasons for this. They themselves have made bad experiences with their teeth, experiences which they typically cannot explain to their dentists.
- 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), compromising the patient's look and the aesthetic outcome of the prosthetic treatment. In such cases, the bone level has to be corrected

in order to achieve an acceptable aesthetic result. This vertical bone reduction demands the removal of these teeth in any case.

- Removal of ugly and severely restored teeth is indicated for an aesthetic successful outcome upon the patient's request. In such cases, soft and hard tissue should typically be also corrected.
- If the sum of the necessary dental treatments seems unbearable or unaffordable for the patient, teeth can be extracted, as this avoids psychological and financial suffering for the patient. If a severely pre-damaged dentition is given, a complete removal of all teeth and the placement of Corticobasal® implants is, in general, the cheaper solution with a better long-term perspective.
- The decision to remove all teeth comes easily if both patients and treatment providers are sure that the chosen method of implant restoration does not include the risk of peri-implantitis.
- Root canal-treated teeth should be removed because those teeth are potentially the source of a continuous intoxification of the patient's body from these teeth.
- With regard to the follow-up costs of a dental treatment ("re-dentistry"), especially if the expected lifespan of some teeth is less than six to eight years, it should be urgently proposed that the teeth be removed and that no investments (neither through private nor through insurers) are being made into those teeth.
- To avoid unstable 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 a wish for this treatment variant.
- Extractions are indicated to allow the creation of a cross-arch stabilisation on implants; it is of great significance not to interrupt the stabilising splinting (cross-arch stabilisation) by teeth that are not included in the prosthetic construction.
-

- 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.
- Prophylactic extractions are indicated for teeth without antagonists such as 2nd molars; the elongation of those teeth and subsequently the development of premature contacts between the implant-borne bridge and the tooth must be expected and prevented.
- Due to the delicate design and smooth surface configuration of Corticobasal® implants, a significant lower demand is placed on the oral hygiene of the patient and the surgical precision of the treatment provider. This is true in comparison to teeth and 2-stage implants. The cost of renewing such bridges after years is reasonable and can be calculated if production-data from the first bridge is available and if modern digital means of production are used.
- Patients often plan to switch to an implant-supported denture or bridge at a time when they have sufficient income. As the Strategic Implant® or Corticobasal® implant provides the principal perspective for life-long stability, these implants are the preferred devices in this situation. Today, many treatment providers themselves offer not only several years of warranty but also a "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 about their desired treatment strategy. While the scientific world still discusses treatment strategies under the aspect of science (although all known publications on 2-stage implants do not fulfil the minimal requirements of medical reporting as pointed out above) , the Method of Osseofixation has become (quite biased) the State of the Art in

many countries of the world. Removal of teeth, even though these teeth may be healthy or could have been "saved" by one or more disciplines of dentistry (e.g., endodontics, periodontics, surgery, prosthetics, and conservative dentistry) is an acceptable procedure today.

- In general the reasons for tooth, can be categorized patient-derived reasons, implant-technology derived reasons, and tooth-substance derived reasons.
- In conventional oral implantology highly invasive, expensive and risky "bone augmentation" became State of the Art. Removal of teeth which are pose a risk for the overall chewing ability is State of the Art in the Technology of Osseofixation.
- Both have to be accepted by the patients if the wish to undergo their chosen treatment method.
- Tooth extractions may be indicated for medical reasons and requested by other medical professionals purely to eliminate any risk of infection which any tooth poses. Examples: renal transplant or transplants in general, immune-suppressive therapy. As infection free modern implants do not carry such risks of infection, they might be a good alternative to teeth also in these cases.
- Patients reaching an age well above the pension age tend to decide that they want to make sure that no more issues with their natural teeth are desired for the rest of their life, that they don't want to be sick in bed or in hospital during their old age and have issues with teeth. In this situation the request removal of all their teeth and if finances allow, they will switch to a new fixed dentition on modern oral implants.
- Extraction of extraction of healthy yet undesirable teeth, which potentially hinder effective functioning/occlusion. Teeth which are not reaching the occlusal plane due to a wrong inclination in the arch, must be removed and somehow prosthetically replaced if the opposite jaw receives implant treatment in immediate loading protocols.

Example

3.1. Method-derived reasons for tooth removal (Osseofixation)

- Since the introduction of the Osseofixation Method into our profession, we have highlighted and added more indications for tooth removal. To ensure a successful osseofixation treatment, ***it is important to consider the following factors during treatment planning:***
- Natural teeth and Corticobasal® implants should not be connected in the same BIPS®.
- Likewise connecting elastic designs of Corticobasal® implants with long term osseointegrated conventional implants is a bad practice, because it leads (due to large differences in the elasticity) frequently to losses of osseofixated implants.
- A circular bridge is considered the safest prosthetic option in osseofixated technology.
- If patients receive unilateral segments on Corticobasal® implants and the other side of the jaw remains equipped with teeth,***the following disadvantages have to be taken into account:***
- Patients may have subconscious problems to compute in their brain

signals which stem on the operated side from muscle receptors, while the continue coming from desmodontal receptors on the non-treated side. It may be difficult to come to a coordinated, bilateral and lateral pattern of chewing. Hence the circular bridge is the less risky method of treatment

- While tooth segments tend to extrude, freshly placed segments on implants tend to intrude. This is owed to the results of the osteonal remodelling and the fact that at the end of the process of remodelling less bone (an optimized amount of bone) will be present. As the tooth side and the implant side will potentially move into different directions, unilateral pattern of chewing may result and this condition will require meticulous aftercare.

3.2 Patient derived reasons for toot removal

- Patients may not be able to bear the responsibility of cleaning and maintaining their teeth and the associated treatment costs, due to financial constraints. As a result, these patients often wish to remove all of their teeth, regardless of the quality of individual teeth. Typically, such patients in general lack confidence in the durability of their teeth. Patients are more willing to adapt to the safest treatment plan after learning about the possibility of osseointegration.
- Patients which have experienced root canal treatments are typically uninterested in having the same treatment again with a multiple-visit schedule, a long wait, and questionable results, and prefer to remove their teeth instead. Patients might not be interested in more root canal treatments because it becomes more and more known nowadays in the population, that leaving necrotic tooth substance inside body carries a number of risks which are difficult to manage.
- Some patients say they wish to make the switch to implants now because they fear that their funds later in life (when they are pensioners) will not be sufficient for this upgrade in chewing possibility and quality of life. For such patients osseo-integrated implants may not be the implants of the first choice.
- Dental implantology just as dentistry in general are both a medical discipline

and applied cosmetics. Just as, for example, a female patient might opt for reducing (or increasing) the size of her breasts, individuals can also opt for a future life without their teeth (and with implants). Many patients carry their wish for different (more beautiful) teeth with them all their lives. For them, the existing dentition is a heavy burden. The possibilities of modern dental implantology (Method of Osseofixation) to influence aesthetics are much better than if only work on teeth is done.

- Patients typically make the decision to have their teeth and parts of the jaw- bone removed under the following circumstances: Some patients considered treatments with dental implants cheaper than continually repairing teeth ("re-dentistry"). The technology of Osseofixation offers numerous advantages over conventional implant treatments, such as a faster no-second stage and healing phase, fewer appointments, and the elimination of bone grafting and its potential risks. We can successfully perform this treatment by extracting a few healthy teeth that target the strategic cortical bony areas.

3.3. Aesthetic indications for tooth removal

- Despite the increase in aesthetic demand of the patients, vertical bone excess associated with increased visibility of the natural teeth may not bother the patient too much as long as patients are young and their teeth are in good condition. However, if the patient's teeth and/or gums suffer damage (Fig. 1), Removing several teeth is necessary to improve aesthetics, and considering the chewing plane and other functional guidelines, it's often necessary to remove

Fig.1: ***Left:*** *Only removing all teeth and reducing the bone vertically will allow to change the appearance of the patient significantly and the desired manner.* ***Right:*** *three days' postoperative view.*

A significant improvement in aesthetics is possible with vertical bone reduction in the visible zone combined with tooth removal. The ability to position dental arches independently of the jawbone in an aesthetically and functionally desired position enables significant improvements in aesthetics, even with fixed restorations

3.4. Personal decisions of patients to remove their teeth

Considering the tendency of patients to reach a higher age, the willingness of patients to get their natural teeth treated is getting significantly reduced. Many patients understand that they will lose most of their teeth anyway in due course, and the chances of reaching with those teeth (in an acceptable functional status) the end of their lives are, for most patients, close to zero.
Patients frequently express to the treatment provider their desire to have teeth removed in order to „look better for some other person“ and to improve their current relationship. Whether the treatment provider will accept this explanation depends on the situation.

Even middle-aged male and female patients may request the removal of potentially salvageable teeth or even healthy teeth, which could restrict their access to fixed restoration treatments. Patients which take such decisions are typically fully sane, and their request demonstrates that they are able to calculate and estimate future costs and developments, as well as the risks associated with such teeth.

3.5. Consideration of the patient's psychological components

Patient's psychologically based requests to remove their teeth should be of great concern to the treatment provider to improve the patient's satisfaction with the treatment outcome provided.

A study done in 1987 on the average patients in the Federal Republic of Germany revealed that 25% of the populations were expressing views, which did not reflect "normality". 12.5% of the population was considered worthy for immediate psychologic or psychiatric treatment. The same study was repeated 2017: the 2nd study showed that the "non-normals"

had reached a 50% of the population, while the percentage of those requiring immediate treatment as beforementioned had reached 25%. All the persons with compromised views and attitudes were hidden is the population. And this was the result from before the "pandemic".

Hence it is difficult to estimate "how normal" patients are in the reality, and what this term means today, as the population seems less "streamlined" through religious and political influences than ever before. We can expect dramatic changes in the society due to this.

By means of modern mas media and maybe also by modern technical means the attitude and opinions are today easy to manipulate.
Note that also pandemic-derived sicknesses, e.g. "long-covid" lead to (lasting) diminished brain function.

4. The informed consent to treat and to keep a tooth inside the oral cavity

While lengthy "informed consent documents" must be signed by patients if they request implants, it became unfashionable to request the same if dentists would like to treat teeth. In today's situation, with all the possibilities of modern oral implants (e.g., considering the possibilities of the method of osseofixation), the assumption of a dentist to keep treating a tooth, which is in any case a "good thing to do," should not be insisted on. In many circumstances, it can even be a wrong decision. Such an assumption would mean that dentists can continue treating teeth without explaining the negative side effects, and financial consequences such as:

- Development or promotion of periodontal diseases due to the use of composites and bonding systems as a result of the uncontrolled, strong adhesion of these materials to root surfaces
- The necessity of root canal treatments as a result of the use of composite materials and subsequent pulp irritation in general.

- The toxic effects of root canal-treated teeth in general must be considered and explained by the dentist before and after (during the later years again and again) such interventions. Research highlights the toxic effects that accumulate in the human body over the years while the defence systems of the body might deteriorate. The dentist must keep in mind that the patient's general health may have deteriorated and that the patient might now have good reasons to overthink his earlier permission to get a root canal done. In view of the present health situation, the patient might change their mind and try to avoid the risk and the burden. This is especially true because, after removing the root canal-treated tooth, the origin of the toxic attack is fully and immediately removed. Such a success cannot be expected if, e.g. cancer sites are removed surgically.
- Effects of creating non-adequate crowns and bridges or leaving such workpieces in the oral cavity, which lead to an unequal AFMP and/or unequal APPI (e.g., due to natural adaptation of the dentition, like elongations, tilting, or rotations of "good teeth")
- Keeping teeth in the oral cavity in general is by far more indicated in growing individuals and young adults. Only with the help of teeth in function can a sufficient formation of jaw bone be reached. This indication for keeping teeth fades away around the age of 30.
- Failure to provide a successful teeth/dentition treatment may result in the development of unequal chewing patterns (unilateral or anterior pattern of chewing) with unequal and unnatural usage of masticatory muscles associated with many adverse effects, including changes in the distribution of the mineralisation of the jaw bones and subsequent outbreak of periodontal diseases.

This chapter of the 9th consensus document can be summarized as follows: Neither the fact that a tooth is decayed or otherwise in need for repair, nor the fact that the dentists who plans to treat this has a license to do this work on the tooth, nor the perspective that a health insurance might pay this repair fully or partly, gives

any justification or indication to repair or work on this tooth. It is only the patients explicit wish which gives the indication, and this wish can be communicated only after a full information about other methods of treatment, which will avoid future costs with the tooth, including frequent re-treatments.

The International Implant Foundation expresses severe doubts that the average dentist in most countries will be in a position to give correct explanations about modern implantology to the patient. Most dentist will be additionally unable to do such modern implant treatments himself. Maintaining a tooth is not the same as maintaining or restoring the masticatory function. The primary treatment aim should be to maintain the masticatory function.

It must be mentioned here that that an equal bilateral pattern of mastication is much easier to achieve by incorporating full dentures compared to incorporating partial dentures fixed to teeth. Hence partial dentures hardly ever reach the aim of a bil ateral equal masticatory function.

5.The influence of health insurances

As previously discussed, the decision to treat teeth should not be based solely on the fact that private or national health insurance covers this type of treatment. Moreover, the possibility of performing a conventional dental treatment does not imply that national or private dental health insurance must pay for it.

These days, immediate treatment using Corticobasal® implants can be viewed as a perspective that offers a more effective, long-lasting, and consequently cheaper solution compared to many treatments on natural teeth.

Keeping teeth could be even considered a luxury for "the rich". To keep and maintain pretreated and damaged teeth in such a situation may be within 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 their efforts to seek a non-tooth-borne durable solution to maintain a fixed dentition.

6.The Method of Osseofixation makes it easy to decide whether to keep teeth in or not

Previously, cases with progressive bone loss due to periodontal diseases were challenging. Early extractions could prevent the acceleration of this bone loss and make it easier to install conventional oral implants. However, after the Method of Osseofixation was introduced on the world market and became widely available, dentists and periodontologists were free in their attempts to keep teeth in the mouth (whatever it took), although this led to bone loss. Osseofixated implants require much less bone for their installation, and they nevertheless work within immediate functional protocols. Prolonged periodontal treatments will thereby not complicate the later implant treatment.

7. The problem of underqualified dentists on the market of dentistry & the influence of the dental unions

Dentists without knowledge and experience about modern implants are largely underqualified to work in today's market of dentistry for adults. They must base their work on what they have learned at universities (often long ago) and apply this knowledge on an ageing dentition with a limited life expectation. Doubts must be raised if this reflects the desires of today's (adult) patients at all. On the other hand, dentists which follow this kind of treatment pans are protected and supported in many countries by strong unions[1].

These unions make sure that also underqualified dentists remain in office, as long as they follow the rules of the dental unions (chambers)[2] .

[1] The designations of these unions are different in many countries: In most EU countries, these unions are named "chambers," whereas in Switzerland, the designation "Zahnärztegesellschaft" (SSO) was chosen. In quite a few states, such dental unions (chambers) have received different amounts of power from the states in which they work. This was presumably done in order to avoid costs and efforts for the states itself. As a rule all dentists in a country must be a registered member of such a chamber and pay a fee. An exception is Switzerland, where the union can refuse to register dentists to their union. Hence it became an unfair habit to outlaw single dentists, mainly foreigners, and also such dentists (for example) which prefer to run their clinic as a legal entity (e.g. as an Aktiengesellschaft or a GmbH) and not as a private clinic. This example shows that in Switzerland the unions were able to push through fully illegal demands simply by exerting strong power on their members or by refusing members.

Deciders in the states probably thought that these unions were represented by highly qualified dentists. Reality shows, however, that in fact, most top managers of such unions are more or less miserable dentists, and that's why they have chosen to resort to some kind of paperwork. These unions in all countries have one thing in common: they block any progress and will block anything that reduces the income of their members, and very often they are funded directly or indirectly by manufacturers of medical devices and serve as a proxy organisation for sales and blended education.

The situation of the swiss dentists and their union is a good example of a country in which an unbelievable illegal pressure is exerted on the members and the dentists as such. The SSO charges an unreasonable high membership fee is asked (around 3000 Euro per year and per dentist), and as they have the state given power to negotiate with insurances, they agreed with the insurances on the tariff for single dental works. After this they trade-marked this tariff and charge per clinic (or per user) a special license fee for using the SSO-negotiated tarif "Dentotar" of around 1000 sFr. per year. This brings the membership fee further up to about 4000 Euro per year. For licensing the use of the name of the tarif alone the SSO collects from 3.500 registered dentists about 3.5 Million sFr. per year.

As with any other union, the main goal of dental unions (chambers) is to maximise profit for their members and for the union itself. Hence, the unions in the dental field are advocating that natural teeth must be preserved, whatever it costs. It's easy for these organisations to set up such "rules," as they don't have to pay for them; they only earn them. In none of the states, this directive has ever become a law, but dental unions pretend that it's a law-like rule.

This shows, that dental unions (chambers) do not represent the interests of the patients, but their own interests. Who exactly represents the interests of the patients (except for the International Implant Foundation) must be questioned.

In general: it does not reflect the principle a democratic state, if non-elected (non-controlled) persons or institutions are given executive and legislative-like powers. The same is true for professors and other workers of universities, which often act under the influence of third-party funding. The dependencies are hidden to the general public. Dentistry and especially oral implantology (where most money is earned) are disciplines whose development suffers tremendously under such influences.

And at the same time patients are suffering.

[2] Albert Einstein explained the situation in one short sentence: "To be a good member of a flock of sheep, you first of all have to be a sheep".

It must be outlined here with emphasis, that only treatment providers which have sufficient experience and knowledge about the possibilities of modern implantology are able to decide with scientific precision which solutions are best for the patients. What if true for al humans, is also true for dental treatment providers: They see only what they know.

It is a fact that although in modern societies enough of good dentists provide treatments and nevertheless extraction of healthy yet undesirable teeth, which potentially hinder effective functioning/ occlusion 3/4 the dentitions of its members are on the road downhill throughout all life, and many (up to 75% of the population) end their life toothless. **This shows that conventional dentistry as such is not only a failure on the long run, but also an expensivefailure.**

It is clear that this profession works withthe wrong attitude, believes, standard treatment plans and devices.

During the education of dentists worldwide too much emphasis is placed on "doing the job right", instead of focusing on the case as a whole and "doing the right job".

8. Conclusions

1. The appearance of Corticobasal® implants in the markets around the world has put the trained implantologist (for the Technology of Osseofixation) in a much more competitive position compared to conventional dentists and conventional (2-stage) implantologists.

2. The gap of knowledge and understanding between dentists and implantologists who are trained to apply modern methods of implantology has become unimaginably large today.

3. The method of osseointegration, due to the limited life expectancy of the devices used, cannot provide a justification for the extraction of such healthy teeth, which can be expected to last around seven to ten years and more.

Hence, the method of osseofixation seems to be not (or at least much less) associated with problems (e.g., peri-implantitis) that may result in implant loss and limit the implant lifespan for a specific period of time. Practitioners trained for the Method of Osseofixation can consider the removal of teeth even in younger

patients and under by far more indications, as long as the extractions are requested by the patients. Many patients will opt for tooth removal and replacement by implants using the method of osseofixation, while they will rather keep their teeth if they are offered only a treatment using the outdated method of osseointegration.

4. Both placing an implant and repairing or saving a tooth are elective interventions that require the informed consent of the patient. Many technologies used today for repairing teeth contain dangerous components, which the patient has to accept knowingly. A large variety of aspects must be openly explained by the treatment provider in order that the patient can consider them.

5. The patient's request for the removal of all teeth must be respected, and patients who request tooth removal and replacement with implants should be treated first of all with modern implant technology. Often, this will mean that patients must be referred (even by dentists who consider themselves to be implantologists) to more qualified implantologists.

6. Patients in general have to be nformed that:

- The origin of their problems inside the oral cavity stems from around 99% only from the fact that teeth are present there.
- The situation of their dentition is going to get worse every year, and there are no means to stop this decay.
- Saving a tooth in compromised dentitions often does not contribute at all to maintaining a natural function and chewing ability.
- The "green light" to repair or even "save a tooth whatever it costs" or to remove teeth can be given only by the patient and it must be actively given and the permission will be signed. It is an individual, non-transferable right to give such permissions and dentist cannot assume "automatically" that a patient agrees to the tooth repair.