

## IF® Guideline for Corticobasal® Practitioners

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by the

International Implant Foundation

Evidence and Research Department

Leopoldstr. 116

80802 Munich

Germany

### VORSTAND

Michael Zach FA MedR  
Kanzlei für Medizinrecht  
Volksgartenstrasse 222a  
DE-41065 Mönchengladbach  
info@rechtsanwalt-zach.de  
Tel 02161 688 74 10

Prof. Dr. Vitomir S. Konstantinovic,  
Belgrad/SRB

Prof. Dr. Vivek Gaur, Agra/IN

### WISSENSCHAFTLICHER BEIRAT ZUM VORSTAND

Dr. Aleksandar Lazarov, Sofia/BG

Dr. Valeriy Lysenko, Charkiv/UKR

### PATIENTENBEIRAT

Elena Chudnova, Moskau/RF

## Timeline for Grinding Adjustments and Clarifications on “Pain” Which the Patient May Report

There are different reasons for grinding of the new teeth after the cementation of the bridges:

- Right after placement of the bridges, we adjust the occlusal situation and masticatory function.
- After one meal (at least), better in next day, this is repeated and many more not-ideal contacts and slopes will be adjusted.

We have to consider, on the other hand, that the surgery results in trauma to the temporo-mandibular joints. We must expect an inflammation (non-bacterial) and swelling in the joints. It takes up to 15 days after surgery until this heals. The swelling leads to a lowering of the distal mandible. It makes no sense to adjust the occlusion fully before the 15<sup>th</sup> day after surgery and treatment.

The same happens also to patients with teeth after trauma or if the mandible is unintentionally or intentionally held in an eccentric position and if at the same time muscle forces (M. masseter) are applied. Cases that come for treatment with only a frontal group left (in one or both jaws) are typical examples for such eccentric position.

Reports of similar traumatic events have been published after wisdom tooth removal and even after long lasting prosthetic interventions (on teeth or implants).

Keep in mind that not only the surgery lasts long and is traumatic (especially if many teeth have to be extracted). Also all subsequent prosthetic treatments (during three to four days) are adding up to the traumatic situation of the TMJ.

Due to the swelling in the joints, which is often observed to be asymmetrical, the occlusal situation cannot be adjusted fully unless the patient does not stay close to the treating clinic for 15 days. Although bilateral equal contacts have been installed during the final grinding, we often see one-sided contacts during the 3-months control.

### Spendenkonto

Deutsche Bank München  
IBAN DE73 70070024 0607877800  
BIC DEUTDE33MUC

### Sitz der Stiftung

International Implant Foundation  
Leopoldstrasse 116  
DE-80802 Munich/Germany

contact@implantfoundation.org  
www.implant-directions.info  
www.implantfoundation.org

After 15 days, when the (non-bacterial) inflammation has faded away, the occlusal situation has changed quite often: unilateral first contacts appear and they are removed during the 3-month-control.

**Due to the described events and the swelling in the joint, we observe that the distal mandible (i.e. the ramus) sinks towards caudal. Would we install contacts on the first molar, we would soon see that these contacts result in “early contacts”. This may lead to overloading of the distal implants, mainly in the distal mandible.**

In more sensible segment cases, the first control should be done earlier, e.g. after four to six weeks.

For all aforementioned reasons, no real contacts should be placed on the lower 6. There, we install “almost-contacts”, which we create by using 600-µm occlusal paper and making sure that no occlusal contacts nor masticatory slopes are visible on the 6. Contacts will be arranged only on the eight premolars.

## **Can a Corticobasal® Implant Be the Origin of Pain Right After the Initial Intervention?**

It was never reported that polished, cortically anchored implant bodies that are splinted by the bridge have led to pain. As the bone is not equipped with sensitive nerves, no pain can be expected from this origin. Although some patients (wrongly) localize the pain to the implants, this cause of pain is not possible so early after the treatment.

Likewise, the Schneiderian Membrane is not equipped with sensitive nerves, this means that pain cannot stem from the maxillary sinus. In this aspect, the Schneiderian membrane differs from the periosteum. In cases of putrid infections inside the maxillary sinus, pain can be transmitted from nerves that are affected by the pressure building up inside the maxillary sinus. The typical localization of that pain is the infraorbital nerve and it is exactly the pain there which points to this diagnosis.

Hence, it is clear that (unless the inferior alveolar nerve is injured by an implant) **there is never an indication for implant removal due to post-operative pain**. The “post-operative phase” is considered to last up to three months. Bruxers may however overload the peri-implant bone by overly strong forces that may lead to an overload osteolysis. Patients will in this case report about a clearly **localized** “pain during chewing”. This condition is treated by occlusal adjustments and by injection of Botulinum toxin into the masseter muscle. Additional injections into the temporal muscle are another option of treatment.

Pain in the oral cavity may stem from the soft tissues however (close to the implants or far away from them).

The aforementioned events during the initial treatment can lead to mild but unpleasant pain. The origin of the pain can be:

- In around 90% of the cases that show pain, the pain stems from the anterior (oblique) portion of the masseter muscle, the temporal muscle or other peri-oral muscles. This pain will be reduced and eliminated by (self-) massage done by the patient. The pain should disappear within two weeks. If it does not disappear, professional massage is recommended. Often patients underestimate the fact that the massage must be done several times per day. Some patients neglect this massage, because it causes pain by itself, as long as the muscle shows a hard span

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and myogeloses. Pain that originates from the masseter muscle will typically not be localized by the patient. This pain seems to wander around (actually it is projected by the brain to different locations) and can appear in the upper and lower jaw.

- Small leftover amounts of cement: A search for cement rests is obligatory if patients report post-treatment “pain”.
- Traumatic lesions of the joint (as described above) can lead to pain. They usually disappear by themselves in a time-period of two to four weeks.
- In case of a non-balanced occlusion, early contacts may create a repeated traumatic situation of the joints. In this case, the condition lasts until the origin of the problem is treated.

Based on clinical observations and in consideration of the available literature, we can clearly define a post-treatment TMD phase (with or without clinical manifestations of problems) which could last up to 21 to 24 days.

In addition, it is important to note that both jaws are usually not equally affected. During that phase, occlusal adjustments have to be done with caution and the final post-operative occlusal equilibration has to be performed no earlier than after four weeks. As this adjustment is again an intervention, the masticatory system will react to it: This may lead to a need for more adjustments. Hence, it may take two to four years until full stability in the masticatory system (including in the bone) is achieved. One or more controls during the first three months are recommended and after this, more adjustments are carried out during the annual control. Keep in mind that more controls are required in cases where teeth are left in because teeth will change their spatial position namely by elongating, intruding and tilting.

The time-period for the bone’s adaptation and consolidation has been defined to be two years (24 months). Hence, there is a difference between these events and the time until “osseointegration” happens (three to six months). Conventional implantologists tend to forget about this 24-month period, which applies to all bones independently of whether osseointegrating or osseofixated implants have been placed.

## Conclusion

1. Due to the inborne invasiveness of the procedures, especially full mouth and full jaw implant reconstructions and the subsequent prosthetic phase may lead to pain, which the patient cannot localize.
2. In about 90% of the cases, the origin of the pain is the masseter muscle, the temporal muscle or other peri-oral muscles. The rest of the causes are from traumatized soft tissues.
3. The implants themselves are never the origin of early post-operative pain (during the first three months).
4. Implants which project into the maxillary sinus do not cause pain either, as neither the bone nor the Schneiderian membrane are equipped with sensitive nerves.
5. Pain originating from cortically anchored implants may appear after three to six months and is typically a result of an overload osteolysis. This osteolysis leads to implant mobility. Implant parts that are in contact with the periosteum on the “other side of the second cortical” will irritate the periosteum and cause pain. This mechanism must be considered to have an important safety aspect because it warns patients early if overload happens and brings them back into the implantologist’s office where the event can be treated fast and successfully.

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