



HOW TO PREVENT NON-OSSEOINTEGRATION

RITTER IMPLANTS | NOVEMBER 2021



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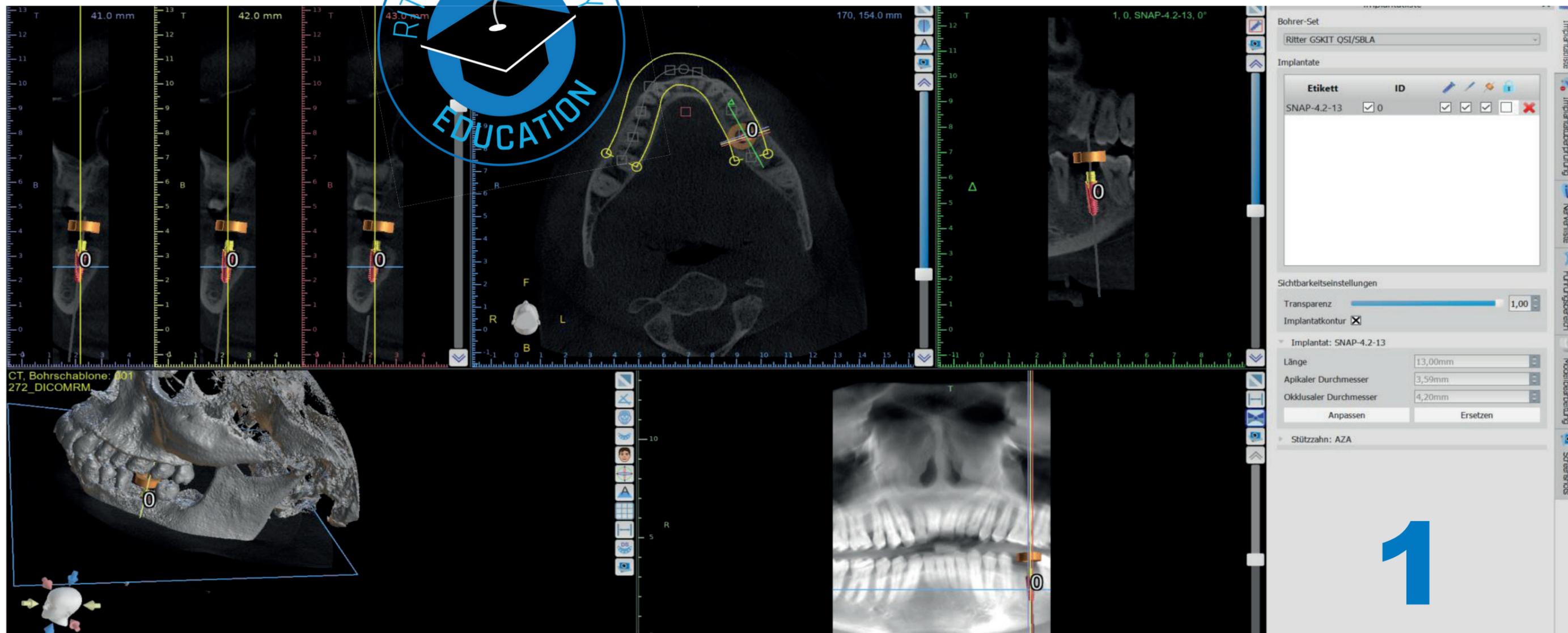
NON-OSSEOINTEGRATION

OPPORTUNITIES FOR SIMPLE RISK MINIMIZATIONS

Dental implants have become a very successful therapy for restoring esthetics and chewing function. This is true for partially edentulous as well as edentulous patients. To continue and optimize the predictable safety of this treatment, there are some basic considerations that should be integrated into the approach. The beginning should be the indication and the surgical and prosthetic planning. Based on clinical and prosthetic experience in the therapeutic spectrum of dental implantology, some advice can be given on how to optimize your chances of success from the beginning.



- 1** Perform thorough planning of implant treatment
- 2** Assessment of bone quality before preparation of the implant site
- 3** Avoid inflammatory processes before and after implantation
- 4** Implant torque and primary stability
- 5** Passive fit
- 6** Overused Drills
- 7** Literature



PERFORM THOROUGH PLANNING OF IMPLANT TREATMENT:

Careful patient selection and thorough planning are prerequisites for successful implant therapy. Before any procedure, the patient's medical history, periodontal condition and oral hygiene readiness must be

used to determine if the patient is prepared for implant treatment. In addition, diagnosis and planning of the procedure with 3D imaging and planning software is strongly recommended. Bone volume can be analyzed to allow preoperative implant definition in terms of length and diameter, taking into account anatomical risk structures. In addition, tissue management and final prosthetic restoration are considered during planning. Thus, the planned implant positioning can be optimized based on the desired final treatment outcome.



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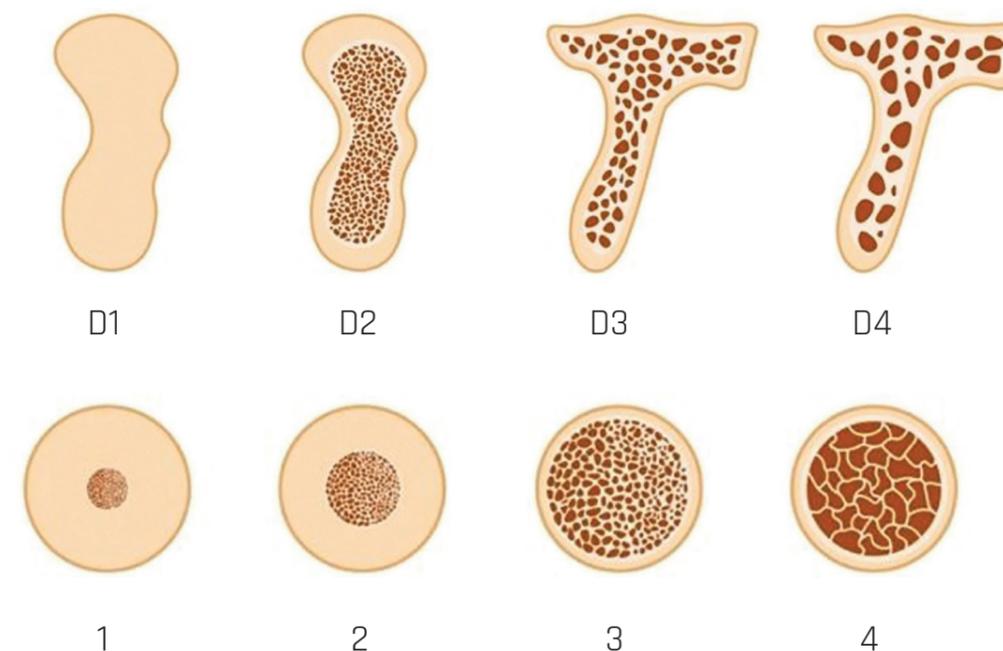
This knowledge is important because the drilling protocol is adjusted according to bone quality so as not to over- or undersize the implant bed. Conventional preparation of the implant site requires the use of multiple drills with different diameters, which, together with the irrigation, cause trauma to the surrounding alveolar bone^E : a so-called “death zone”. If the trauma is too great - which may occur especially in a mandible with predominantly cortical bone (bone quality I) - osseointegration may be impeded. If the trauma is mainly in the platform area, vertical resorption may occur. Excessive preparation of predominantly cancellous bone (bone quality IV) also leads to a lack of primary stability of the implant and possibly to early implant loss.^F



ASSESSMENT OF BONE QUALITY BEFORE PREPARATION OF THE IMPLANT SITE:

The preparation of the implant site should aim to minimize bone trauma and support primary stability. Therefore, preparation of the implant site requires knowledge of the bone quality.

A major challenge at this stage is the associated guesswork. An experienced implantologist can “feel” the bone quality with the first drilling. If you are not an implant specialist or have less experience in implant treatment, you should regularly attend hands-on training to improve this skill.



These figures graphically indicate the trabecular bone structures and bone classes.



AVOID INFLAMMATORY PROCESSES BEFORE AND AFTER IMPLANTATION:

Inflammatory processes must be removed before implant placement, otherwise the existing inflammation will be drawn into the implant placement. Scrape out thoroughly!

If possible, shield with antibiotics before the procedure, if indicated. Do not use drill chips from an alveolus, as they are interspersed with soft tissue. Bone chips from other bone areas can be used if the periosteum has been carefully removed previously.



The next step is the selection of the implant itself, which in turn is influenced by the bone quality

and the preparation of the implant site. The choice of implant (geometry, diameter, platform) and the preparation of the implant site (under-preparation of the osteotomy) influence primary stability and is therefore an important factor for osseointegration^G.

A much discussed figure is the torque value. High torque values are often considered positive for immediate loading. However, over-tightening can damage or fracture the implant and cause necrosis of the bone bed and early failure of the dental implant.^F A value of 35 Ncm is recommended as a standard. No more than 60 Ncm of torque should be applied to avoid necrosis.

IMPLANT TORQUE AND PRIMARY STABILITY:

4



PASSIVE FIT: 5



A gap-free and tension-free connection between implant and superstructure is important for the lasting performance of the implant-abutment connection. A recall system with regular check-ups shortly after treatment and stable oral hygiene ensure that no initial complications impair osseointegration. The aim is to achieve a gap- and tension-free prosthetic reconstruction, both for immediate loading and for future restorations. If this is not the case, vertical bone resorption or screw loosening will occur and subsequently peri-implant complications. If abutment loosening occurs, the restoration must be removed, the cause determined and a new original screw of the implant system reinserted.

6 DRILL INSPECTION:

Although Ritter Implant's Drills are made in high quality with a strong TI-Carbon Coating we recommend they should be replaced after 6 to 10 drilling procedures. Overused drills with too many drilling cycles become blunt, enlarge the implant bed and may cause necrosis in the depth of the cavity.

It is highly impossible to predict the number of uses for a drill depending on hardness of bone - they can be used many hundred times and will be in soft bone cases very successfully in every case. We recommend to keep track of uses of a drill according to the type of bone density case by case. If you have the feeling that drills became dull, please exchange your Drills immediately.



WATCH YOUR DRILLS!



7 LITERATURE:

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