

# Immediate installation and loading of single Astra Tech ST fixtures in the anterior maxilla

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## Introduction:

Today, many patients demand faster solutions and better aesthetics for their new single teeth than a decade ago. The benefit of removable or more or less well-fitted temporary solutions during 6 months healing time is often lower than the cost. The purpose of this study was to evaluate some potential consequences of immediate placed and loaded implants compared to the 6 months standard protocol with regards to...

- ...stability of the crestal bone
- ...loss of osseous and gingival tissue
- ...extent of invasive surgery
- ...time savings
- ...discomfort for the patient

## Method:

This prospective open study was conducted over 24 months and 40 consecutive patients were included, 20 in the test group and 20 in the control group. The average age of the control group was 53 years for men and 63 years for women. The average age of the test group was 66 years for women and 53 years for men. During the operation, it was decided whether immediate installation and loading could take place or not, depending on clinical considerations. The immediate installations formed the test group and were divided in two parts. In 10 of the cases the implants were installed in mature bone (>3 months after extraction) and in the other 10 cases extraction and installation were performed at the same time. The control group was treated according to the standard protocol.

A periostom was applied for atraumatic extraction. In mature bone, a 5mm diameter punch was used to remove the crestal mucosa, sparing the papillae. An impression on the fixture level was made immediately after the installation, using a stent. A chair side made temporary crown was placed within 3 hours and replaced within a few days by a lab-made crown in Sinfony® composite. The Astra Tech ST Temporary abutment was used for both temporary crowns. After six months, a traditional ceramic or metal-ceramic crown was cemented on the base of a Cast-to or Profile BiAbutment.



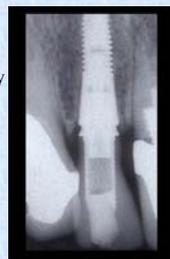
1. Acute horizontal fracture of 12.



6. Chairside temporary crown.



2. Radiograph showing minor chronic apical periodontitis. Sufficient surrounding bone.



7. Radiograph immediately after installation of temporary crown.



3. Careful extraction and flapless installation.



8. Laboratory-made Sinfony® crown.



4. Impression.



9. Six months after installation.



5. A stent was used to avoid contamination by impression material.



10. Radiograph six months after installation. No significant change of the crestal margin.

## Results:

The observation period was 6 to 32 months. During this period one implant failed in the extraction group, 0 in the mature bone group, and 0 in the control group. Two bruxism patients were identified and successfully treated in the flapless extraction group. Given good primary stability, no significant difference in osseointegration could be seen compared to the standard protocol in this limited pilot study. The flapless technique reduced the loss of gingival tissue, kept the papillae and gave better aesthetics compared to the standard flap. It was difficult to reproduce identical radiographs because of potential failures in patient positioning. However, a preliminary analysis showed no significant difference in marginal bone adoption between the test group and the control group. There were indications that the marginal bone level in the test group was similar, if not even better than in the control group.

## Discussion:

The range of the indication turned out to be much narrower than planned. Following certain criteria, only 20 of 40 patients fitted the criteria for immediate loading. In extraction cases of root fragments, it was often necessary to raise a flap. Root fractures are often joined by resorption of the buccal lamella, thus compromising the fixture site.

The narrow width of the alveolar ridge and undercuts in the lateral region made navigation difficult. The best sites for the flapless technique in the maxilla seemed to be the lateral incisors or minor premolars due to smaller root diameter.

## Conclusions:

**According to the author's opinion, immediate loading of single teeth is adaptable for a limited number of cases. Immediate flapless installation and loading keeps the papillae and gives better aesthetics compared to the standard flap. It has a very good cost/ benefit ratio, is time saving and thus lowering the treatment costs. It seems to have numerous advantages but is limited to a narrow range of indications and patients. Given the small number of cases in this study, more research has to be done.**