

Retrospective Study of short and Extra-Short Implants Placed in Posterior Regions: Influence of Crown-to-Implant Ratio on Marginal Bone Loss.

Eduardo Anitua, MD, DDS, PhD; Laura Piñas, Degree of Dentistry; Gorka Orive, PhD.

Aim: The aim of study is to evaluate the influence of crown-to-implant (CI) ratio as well as other surgical, prosthetic and biomechanical variables on marginal bone loss (MBL) and on the survival rates of implant-supported prostheses in short implants (≤ 8.5 mm in length) placed in posterior areas of maxilla and mandible.

Material and Methods:

- This was a retrospective study based on clinical charts and follow-up recordings from a single private practice over a period of 10 years.
- Patients rehabilitated in the posterior region of the jaws by means of prostheses supported by implants of ≤ 8.5 mm length were included.
- Patients-related surgery-related and implant-related variables, as well as other prosthetic and biomechanical variables were registered.
- The data were split into two groups according to the value of CI ratio (CI < 2 and CI \geq 2). MBL was measured from radiographs using an image analysis software. Implant and prosthesis survival rates were recorded.

Results:

- One hundred twenty-eight short implants placed in 63 patients were evaluated. The mean follow-up period was 21.88 months (standard deviation (SD): 22.9, range 7-113 months). Eighty-six implants (67.2%) had a CI ratio of <2, whereas it was ≥ 2 in 42 implants (32.8). The mean value of CI ratio was 1.82 (SD: 0.42; range 1.04-3.31). The average MBL after 1 year of follow-up was 0.35 (SD: 0.50), and it was 0.45 (SD: 0.46) mm for subsequent evaluations.
- Survival rates of implants and prosthesis were 100%.

Conclusions: The CI ratio had not a significant influence on MBL in Biotechnology Institute (BTI; Vitoria, Spain) short implants humidified with PRGF-Endoret and placed in posterior areas.

Implant Survival and Crestal Bone Loss Around Extra-Short Implants Supporting a Fixed Denture: The Effect of Crown Height Space, Crown-to-Implant Ratio, and Offset Placement of the Prosthesis.

Eduardo Anitua, MD, DDS, Phd / Mohammad Hamdan Alkhraist, DDS, PhD / Laura Piñas, DDS/Leire Begoña, MSc / Gorka Orive, PhD.

Purpose: To determine the effect of crown height space, crown-to-implant ratio, and offset placement of a prosthesis on implant survival, crestal bone loss, and prosthetic complications; and to determine whether detrimental values for crown height space and crown-to-implant ratio exist for implant supported restorations.

Materials and Methods: Extra-short implants (length \leq 6.5 mm) supporting a fixed denture in the posterior mandible and followed for a least 12 months were analyzed. Radiographic and clinical examinations were conducted to retrieve data about patients dental and medical history, prosthetic complications, antagonist type, crown height space, crown-to-implant ratio, offset placement of the prosthesis, crestal bone loss and implant failure.

Novel Technique for the Treatment of the Severely Atrophied Posterior Mandible

Eduardo Anitua, DDS,MD, Phd / Mohammad Hamdan Alkhraist, DDS, PhD / Gorka Orive, PhD.

Purpose: To present a new technique for the rehabilitation of the severely atrophied mandible that avoids the need for advanced surgical reconstruction.

Materials and Methods: Severe resorption in the posterior mandible was treated following a conservative approach. A novel drilling technique and vertical implant-guided bone regeneration were performed to insert extra-short implants for maximum use of the bone above the mandibular canal. A progressive loading protocol was followed for the prosthetic rehabilitation with screw-retained prostheses. During the follow-up period, surgical complications, prosthetic failures, marginal bone loss, and implant survival were monitored.

Results:

- The described conservative approach was effective in patients with residual bone eight above the mandibular canal that was often less than 6 mm.
- No signs of sensory disturbances or nerve injury were detected during the observation period.
- One hundred fourteen extra-short implants were inserted in 72 patients, with a mean follow-up period of 26 months after implant insertion.
- The implant survival rate was 98.2% (two implants failed).
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Conclusions: This minimally invasive approach contributed to successful oral rehabilitation of patients with severely atrophied posterior mandible.

Inmediate replacement of failed dental implants owing to periimplantitis

Eduado Anitua, Mohammad Hamdan Alkhraisat & Ricardo Tejero

Journal of Oral Science & Rehabilitation, Issue1/2015, Volume 1.

Objective: This work aimed at determining wheather inmediate implant placement to replace infected implants can be a tratment method for periimplantitis.

Materials and methods: Inmediate replacement of failed dental implants requires a conservative implant extraction technique capable of preserving as much viable soft and hard tissue as posible. An implant extraction kit was employed to extract safely dental implants failed owing to periimplantitis. The explantation sicket was curetted and descontaminated before the inmediate placement of new implants. The implants were then followed clinically and radiographically to assess their survival rate.

Results: Seven patients were treated to remove nine implants. The failed dental implants were extracted at a torque of 162 ± 41 N cm. The presence of dental plaque and metallic contamination due to Surface cleaning was detected under a scanning electron microscope. The implants were followed for 50 ± 2 months after placement and $43\pm$ months after loading. No implant failure was registered during this period. The mesial bone loss was 1.0 ± 0.8 mm and the distal bone loss was 1.0 ± 0.8 mm.

Conclusion: The survival of all implants and the minimal marginal bone loss would support this procedure for the inmediate replacement of dental implants in coskets affected by periimplantitis.

Implant loading protocols for the partiality edentulous posterior mandible.

Cordaro L, Torsello F, Rocuzzo M

Int J Oral Maxillofac Implants, 2009;24 Suppl:158-68

Purpose: To evaluate the predictability of early and immediate loading protocols of implants in the posterior mandible and to investigate whether there is a difference in success rates, survival rates, and peri-implant parameters, including marginal bone level changes, between loading protocols.

Results: A total of 19 papers were selected: 8 on early loading, 9 addressing immediate loading, and 2 comparing immediate and early loading. Of the 19 studies, 5 were randomized clinical trials and 14 were prospective studies.

Twelve papers were identified on early loading (two randomized controlled clinical trials [RCTs] and 10 prospective case series studies). Six papers were found on immediate loading (one RCT, four prospective case series, and one retrospective study).

Conclusions: Immediate loading of microroughened dental implants in the partially edentulous posterior mandible proved to be a viable treatment alternative. Caution is necessary when interpreting published outcomes for immediate loading, as the inclusion/exclusion criteria are inconsistent and many subjective confounding factors are evident.

Under certain circumstances it is possible to successfully load dental implants in the posterior maxilla early or immediately after their placement in selected patients. The success rate appears to be technique sensitive, although no study has directly assessed this. A high degree of primary implant stability (high value of insertion torque) and implant surface characteristics play an important role. It is not possible to draw evidence-based conclusions concerning contraindications, threshold values for implant stability, bone quality and quantify needed, or impact of occlusal loading forces.

Implant loading protocols for partiality edentulous maxillary posterior sites.

Roccuzzo M, Aglietta M, Cordaro L.

Int J Oral Maxillofac Implants, 2009;24 Suppl:147-57.

Purpose: To evaluate early and immediate loading of implants in the posterior maxilla and to investigate whether there is a difference in success rates, survival rates, and peri-implant parameters, including marginal bone level changes.

Three-year follow-up of immediately loaded implants in the edentulous atrophic maxilla: a study in patients with poor bone quantity and quality.

Thor A, Ekstrand K, Baer RA, Tolianic JA.

Int J Oral Maxillofac Implants. 2014 May-Jun;29(3):642-9.

Purpose: Immediate loading of implants in the edentulous maxilla has previously been successfully performed and reported. Severe resorption of the maxillary alveolar crest presents a more demanding situation for the restorative team. Thus, it would be valuable to assess outcomes for this immediate loading treatment protocol in subjects with marked maxillary alveolar crest atrophy. This study evaluated the 3-year results of dental implants that were immediately restored with provisional fixed prostheses in atrophic maxillae without previous augmentation.

Material and methods: Two centers enrolled subjects with resorbed edentulous maxillae (Lekholm and Zarb quality 3 or 4 and quantity C, D, or E). Six implants were placed in each subject and restored with screw-retained fixed provisionals within 24 hours. Impressions were taken for definitive restorations, which were placed 20 to 24 weeks later. Radiographs were used to analyze marginal bone level changes throughout the study.

Results:

- Fifty-one patients received 306 implants. Forty-five patients remained in the study at the 3-year follow-up visit and successfully used their definitive prostheses.
- Sixty-two percent of the implants were placed in bone quantity C and quality 3 or 4, and 38% were placed in quantity D and quality 3 or 4 bone.
- Thirteen implants in six subjects were lost, resulting in a cumulative survival rate of 96% after 3 years.
- The mean marginal bone loss during the first year was -0.4 ± 0.8 mm (255 implants); at 3 years it was -0.6 ± 1.1 mm (253 implants).

Conclusion: Data from the first 3 years of this study revealed good clinical outcomes.

A retrospective cohort study of 113 patients rehabilitated with immediately loaded maxillary cross-arch fixed dental prostheses in combination with immediate implant placement.

Gillot L, Canna B, Buti J, Noharet R.

Eur J Oral Implantol 2012 Spring;5(1):71-9.

Purpose: To retrospectively evaluate the outcome of immediately loaded cross-arch fixed dental prostheses 6 months after loading. A second aim was to compare survival rates of implants placed in healed versus fresh extraction sites.

Materials and methods: In total, 113 consecutive patients about to have their maxillae rendered fully edentulous (mean extractions per patient: 6.7 teeth) received four to eight implants each (total number =675) which were immediately placed in healed sites (323 implants, 47.9%) or fresh sockets (352 implants, 52.1%).

Retrospective study on immediate functional loading of edentulous maxillas and mandibles with 690 implants, up to 71 months of follow-up

Li W, Chow J, Hui E, Lee PK, Chow R.

J Oral Maxillofac Surg 2009 Dec;67(12):2653-62

Conclusion: The immediate loading protocol by fixed provisional protheses proved to be an effective method in restoring completely edentulous maxillas and mandibles, and the maximal insertion torque value may be a prognostic factor in determining success.

Immediate loading of tapered implants placed in postextraction sockets: retrospective analysis of the 5-year clinical outcome.

Mura P.

Clin Implant Dent Relat Res 2012 Aug;15(3):322-40

Introduction: The use of immediate implant loading protocols delivers obvious benefits to the patient. When applied in healed sockets, this has not only been well documented in the totally edentulous mandible but has also been documented and reported to be predictable in the upper jaw, and in cases of partial edentulism, as well.

Purpose: The aim of this retrospective study was to report on the 5-year clinical and radiologic outcome of patients treated with Replace Select Tapered TiUnite implants when used according to an immediate loading protocol in postextraction sites.

Method and materials:

- In routine practice, 56 consecutive patients were treated with 79 implants. The patients, 23 males and 33 females, had a mean age of 50.9 years, range 21-76 years, at implant placement. Forty-seven implants were placed in the maxilla and 32 implants were placed in the mandible. All implants were placed in postextraction sites and were immediately loaded. Provisional restorations were delivered within 2 hours from surgery and all were in occlusion.
- An independent radiologist performed the radiographic evaluation using the top of the implant as the reference point with negative values indicating a level below the reference point.

Results:

- Forty-eight patients accounting for 66 implants, have passed the 5-year follow-up.
- No implants have failed resulting in a 5-year cumulative implant survival rate of 100%.
- The mean bone level at 5-year follow-up was -2.45mm (SD 1.29, N=63) demonstrating a level in line with the first thread. Mean marginal bone loss from implant inserting to 5 years was 0.56 mm (SD 1.98, n=63)

Conclusion: This retrospective 5-year follow-up study of 56 patients treated with implants immediately placed in postextraction sockets and immediately loaded demonstrates good treatment outcome with regard to implant survival, soft tissue condition, and marginal bone response.

Immediate rehabilitation of completely edentulous jaws with fixed prostheses supported by implants placed into fresh extraction sockets and in healed site: a 4-year clinical evaluation.

Covani U, Orlando B, D'Ambrosio A, Sabbatini VB, Barone A.

Implant Dent 2012 Aug;21(4):272-9.

Purpose: To evaluate the outcome of treatment in the rehabilitation of edentulous jaws with early loaded full-arch screw-retained prostheses after up to 4 years of function.

Methods: Patients with completely edentulous maxillae and/or mandibles, or presenting natural teeth with a poor or hopeless prognosis, received 6 implants each in the mandible and/or 8 in the upper jaw. All patients received a full-arch prosthetic reconstruction.

Results: A total of 19 patients were treated with a total of 164 implants. One hundred nineteen implants were placed immediately after tooth extraction, and 45 implants were placed in healed sites. Overall, 8 implants failed, leading to a 4-year cumulative survival rate of 95.1%.

Conclusions: The rehabilitation of the edentulous maxilla and mandible with an early loaded prosthesis represents a viable alternative treatment to classic loading protocols.

Immediate loading with single implant crowns: a systematic review and meta-analysis.

Atieth MA, Atieth AH, Payne AG, Duncan WJ.

Int J Prosthodont 2009 Jul-Aug;22(4):378-87.

Materials and methods: MEDLINE, the Cochrane Controlled Trials Register, and bibliographies of relevant primary and review articles were searched. Randomized and nonrandomized controlled studies that compared immediate with conventional loading of single implant crowns were selected according to strict criteria. From the 105 articles screened, five studies with 248 implants were analyzed. The meta-analysis was prepared in accordance with the Quality of Reporting of Meta-analyses (QUOOM) statement. Descriptive and outcome data were extracted using specially designed data extraction forms. The data were entered into MIX software for meta-analysis using a fixed effects model, relative risk, and 95% confidence interval (CI).

Results: Immediate loading of single implant crowns was associated with a significantly higher risk of implant failure (relative risk: 5.07, 95% CI: 2.00 to 12.84, $P < .001$). Pooling of randomized controlled trials showed similar results, although the difference was not statistically significant. Immediate nonocclusal loading was also associated with worse outcomes when compared to conventional loading (relative risk: 4.76, 95% CI: 1.74 to 13.02, $P = .002$).

Conclusions: This systematic review and meta-analysis shows that better outcomes are currently achieved using conventional loading of single implants with crowns. As opposed to immediately loaded ones, which are at a higher risk of failure. Further adequately powered clinical trials are needed. Caution with immediate loading of implants with crowns as a standard of care for single tooth replacement is recommended.

Immediate non-occlusal loading of single implants in the aesthetic zone: a randomized clinical trial.

Den Hartog L, Raghoobar GM, Stellingsma K, Vissink A, Meijer HJ.

J Clin Periodontol, 2011 Feb;38(2):186-94.

AIM: This study compared the outcome of immediate non-occlusal loading with conventional loading for single implants in the maxillary aesthetic zone. It was hypothesized that immediate non-occlusal loading is not inferior to conventional loading.

Materials and methods: Sixty-two patients with a missing maxillary anterior tooth were randomly assigned to be treated with an implant that was either restored with a non-occluding temporary Crown within 24 h after implant placement (the “immediate group”) or was restored according to a two-stage procedure after 3 months (the “conventional group”). All implants were installed in healed sites. Follow-up visits were conducted after 6 and 18 months post-implant placement. Outcome measures were radiographic marginal bone-level changes, survival, soft tissue aspects (probing depth, plaque, bleeding, soft tissue level), aesthetics and patient satisfaction.

Results: No significant differences were found between both study groups regarding marginal bone loss (immediate group 0.91 ± 0.61 mm, conventional group 0.90 ± 0.57 mm) survival (immediate group 96.8%: one implant lost, conventional group 100%), soft tissue aspects, aesthetic outcome and patient satisfaction.

Conclusions: Within the limitations of this study (small size, follow-up duration), it was demonstrated that, for single implants in the anterior maxilla, the outcome of immediate non-occlusal loading was not less favourable than conventional loading.

Immediate functional loading of implants in single replacement: a prospective clinical multicenter study.

Donati M, La Scala V, Di Dino B, Torrisi P, Berglundh T

Clin Oral Implants Res. 2008 Aug;19(8):740-8

Objectives: The aim of the present study was to evaluate the outcome of immediate functional loading of implants in single-tooth replacement using two different installation procedures.

Material and methods: One hundred and fifty-one subjects, who required single-tooth rehabilitation in the area of 15-25 and 35-45, were enrolled in eight private clinics in Italy. The implant sites were randomly allocated to one of the following treatment groups. In the control group, in which a standard preparation procedure for implant placement and submerged healing of the implant was used, abutment connection and loading of the implants were performed 3 months after installation. In the test group 1, a standard preparation procedure for the implant placement and immediate functional loading of implant was carried out. In the test 2 group, however, a modified implant installation procedure (osteotome technique) was used followed by immediate functional loading of the implant. Clinical and radiographic examinations were performed at 3 and 12 months of follow-up at all sites.

Results: Three implants (5.5%) from the test 2 group (osteotome preparation) and one (2%) from the test 1 group (conventional drill preparation) failed to integrate and were removed one and three months after implant installation. The mean marginal bone loss assessed at 12 months was 0.31 mm (test 1), 0.25 mm (test 2) and 0.38 mm (control) (no statistically significant differences were found between the three treatment groups).

Conclusion: It is suggested that immediate functional loading of implants that are placed with a conventional installation technique and with sufficient primary stability may be considered as a valid treatment alternative in a single-tooth replacement.

A comparison between immediate loading and immediate restoration in cases of partial posterior mandibular edentulism: a 3-year randomized clinical trial.

Degidi M, Nardi D, Piatelli A.

Clin Oral Implants Res, 2010 Jul;21(7):682-7.

Objective: The aim of this study was to compare the survival rate, the bone loss and soft-tissue healing patterns of immediately loaded and immediately restored implants in cases of partial posterior mandibular edentulism.

Material and methods: Fifty patients with partial posterior mandibular edentulism were randomly selected for two treatments: 25 were included in the immediate loading group (test) and 25 in the immediate restoration group (control). All implants were placed in healed sites with a torque of >25 N cm. The temporary prosthesis of the immediate restoration group was placed so as to avoid occlusal contact in centric and lateral excursions. Both groups received fully occluding final restorations 6 months after surgery. Mean marginal bone loss was assessed at 6-, 12-, 24- and 36-month follow-up examinations by a blinded examiner.

Results: A total of 100 implants were placed in the period between February 2004 and October 2006, of which 42 (42%) were for men and 58 (58%) for women. Five and 7 weeks after surgery, mobility of one implant was assessed in one (4%) patient in the test group and one (4%) patient in the control group, respectively. At the 36-month follow-up. The accumulated mean marginal bone loss was 0.987 mm (SD=0.375) for the immediate restoration group (n=48). There was no statistically significant difference ($P>0.005$) for the tested outcome measures between the two procedures.

Conclusions: The immediate temporary rehabilitation of the partially edentulous posterior mandible is a predictable procedure using both procedures.

Three-year follow-up of immediately loaded implants in the edentulous atrophic maxilla: a study in patients with poor bone quantity and quality.

Thor A, Ekstrand K, Baer RA, Tolianic JA.

Int J Oral Maxillofac Implants. 2014 May-Jun;29(3):642-9.

Purpose: Immediate loading of implants in the edentulous maxilla has previously been successfully performed and reported. Severe resorption of the maxillary alveolar crest presents a more demanding situation for the restorative team. Thus, it would be valuable to assess outcomes for this immediate loading treatment protocol in subjects with marked maxillary alveolar crest atrophy. This study evaluated the 3-year results of dental implants that were immediately restored with provisional fixed prostheses in atrophic maxillae without previous augmentation.

Material and methods: Two centers enrolled subjects with resorbed edentulous maxillae (Lekholm and Zarb quality 3 or 4 and quantity C, D, or E). Six implants were placed in each subject and restored with screw-retained fixed provisionals within 24 hours. Impressions were taken for definitive restorations, which were placed 20 to 24 weeks later. Radiographs were used to analyze marginal bone level changes throughout the study.

Results:

- Fifty-one patients received 306 implants. Forty-five patients remained in the study at the 3-year follow-up visit and successfully used their definitive prostheses.
- Sixty-two percent of the implants were placed in bone quantity C and quality 3 or 4, and 38% were placed in quantity D and quality 3 or 4 bone.
- Thirteen implants in six subjects were lost, resulting in a cumulative survival rate of 96% after 3 years.
- The mean marginal bone loss during the first year was -0.4 ± 0.8 mm (255 implants); at 3 years it was -0.6 ± 1.1 mm (253 implants).

Conclusion: Data from the first 3 years of this study revealed good clinical outcomes.

Immediate loading of fixed cross-arch prostheses supported by flapless-placed supershort or long implants: 1-year results from a randomised controlled trial.

Cannizzaro G, Felice P, Buti J, Leone M, Ferri V, Espositi M.

Eur J Oral Implantol 2015 Spring;8(1):27-38.

Purpose: To compare the outcome of cross-arch prostheses supported either by supershort (5 mm) or long (11.5 mm) implants, placed flapless and immediately restored with metal-resin screw-retained cross-arch prostheses.

Materials and methods:

- Thirty patients with edentulous (or to be edentulous) mandibles and 30 with edentulous maxillas, who had sufficient bone to allow the placement of four and six implants respectively, which were at least 11.5 mm-long, were randomised according to a parallel group design into 2 equal groups, where they received either 5 mm or 11.5 mm-long implants at one centre.
- Implants with a diameter of 5 mm, were to be placed flapless with an insertion torque of a least 50 Ncm.
- Mandibles received four implants between the mental foramina. Implants were to be immediately loaded with metal-resin-definitive prostheses on the same day of implant placement.
- Patients were followed up to 1 year after loading and the outcome measures were: prosthesis and implants failures, complications, and peri-implant marginal bone level changes.

Results:

- Patients with mandibular short implants lost on average 0.008 mm of peri-implant bone at 1 year and patients with long mandibular implants lost 0.51 mm.
- Patients with short maxillary implants lost on average 0.15 mm of peri-implant bone at 1 year and patients with long maxillary implants lost 0.62 mm.
- Short implants showed less bone loss when compared to long implants and the differences up to 1 year were statistically significant both in maxillae (mean difference = 0.48 mm, 95% CI 0.22 to 0.73, P = 0.0011) and in mandibles (mean difference = 0.44 mm, 95% CI 0.21 to 0.66, P = 0.0009).

Conclusions: Flapless-placed 5 mm-long implants achieved similar results as 11.5 mm-long implants when supporting immediately loaded cross-arch prostheses both in maxillae and mandibles up to 1 year after loading.

Immediate postextractive dental implant placement with immediate loading on four implants for mandibular-full-arch rehabilitation: a retrospective analysis.

Mozzati M, Arata V, Gallesio G, Mussano F, Carossa S.

Clin Implant Dent Relat Res 2013 Jun;15(3):322-40

Background: To date, only few studies have reported on the outcomes of immediate postextraction implant placement and immediate loading.

Purpose: The purpose of this retrospective study was to report the results of immediately loading four implants placed in fresh extraction sockets in the mandible after a follow-up of 24 months.

Materials and methods:

- Between January 2001 and January 2009, 50 patients (28 women and 22 men, average age 54 years), had 347 teeth extracted and total of 200 dental implants placed in the mandible.
- The patients received a provisional fixed bridge the same day and a permanent one 3 months later.
- Clinical checkups were performed after 1, 2, 3, 6, 12, and 24 months.
- Marginal bone measurements were made in intraoral radiographs taken 1 day after surgery and after 1 year.
- A questionnaire was used to evaluate self-perceived factors related to comfort, aesthetics, and function.

Results:

- All bridges were stable and no implant failures were recorded during the follow-up, giving a survival rate 100%, at 2 years.
- The marginal bone loss amounted to 1.33 ± 0.39 mm after 2 years.
- The patients reported satisfaction with the treatment.

Conclusions: The present retrospective study showed that immediate loading of four implants immediately placed in extraction sockets is a valid treatment modality for the totally edentulous.

Immediate loading of single post-extractive implants in the anterior maxilla: 12-month results from a multicenter clinical study.

Grandi T, Garuti G, Samarini R, Guazzi P, Forabosco A.

J Oral Implantol 2012 Sep;38 Spec No:477-84.

- The purpose of the study was to evaluate survival and peri-implant bone levels of single, immediately loaded post-extractive implants in the anterior maxilla 12 months after implant placement. Thirty-six consecutive patients from 3 study centers were included in the study. The concerned sites were upper premolars, canines, and incisors.
- Implants were placed using a flapless technique and immediately loaded with a nonoccluding temporary restoration. Final restorations were provided 4 months later. Peri-implant bone resorption was evaluated radiographically after 6 and 12 months. The average final insertion torque was 70.55 Ncm.
- The average peri-implant bone loss was 0.437 and 0.507 mm at 12 months, respectively. All the sites maintained excellent papillae and peri-implant soft-tissue conditions.
- The resulting 1-year success rate was 97.2%. Immediate nonfunctional loading of single post-extractive implants in the anterior maxilla is a predictable treatment.
- And it seems that achieving high insertion torques by placing self-tapping/self-condensing implants in a underprepared osteotomy is favorable.

Immediate placement and provisionalization of implant-supported, single-tooth restorations: a retrospective study.

EI-Chaar ES.

Int J Periodontics Restorative Dent. 2011 Jul-Aug;31(4):409-19.

Immediate implant placement into extraction sockets has been widely reported in the dental literature, but few studies have evaluated immediate loading of such implants. This retrospective study evaluated 206 implants placed into fresh extraction sites using a flapless technique, followed by immediate provisionalization with nonoccluding single-tooth restorations and definitive restorations within 2 weeks. Cumulative survival and success rates were 98.77% (mean follow-up. 23.1 months).

Immediate loaded short implants: analysis of a case series of 133 implants.

Degidi M, Piatelli A, Iezzi G, Carinci F.

Quintessence Int. 2007 Mar;38(3):193-201.

Objective: To perform a retrospective study on the success of immediately loaded short implants (ie, length < 10 mm).

Method and materials: From January 1995 to October 2004, 133 short implants were inserted and immediately loaded. Multiple implant systems were used, with a mean follow-up of about 4 years. Only 3 of the 133 implants were lost (ie, a survival rate of 97.7%), and no statistically significant differences were found among the studied variables; no or reduced marginal bone loss was considered as an indicator of the success rate when evaluating the effects of several factors with the use of a general linear model.

Results: By using the survival rate, no differences were detected among the studied variables. On the contrary, the analysis of the success rate by means of a general linear model showed that wider (diameter > 3.75 mm) and longer (length = 10 mm) implants were related to a lower delta insertion abutment junction (or marginal bone loss) and thus a better outcome.

Conclusion: Immediately loaded short implants had a high survival rate and success rate similar to those reported in previous studies of 2-stage procedures. Immediate loading of short implants can be considered a reliable technique, although a higher marginal bone loss was to be expected when narrow (diameter < 3.75 mm) and shorter (length < 10mm) implants were used.