Clinical evaluation of single-tooth mini-implant restorations: a five-year retrospective study.

Vigolo P, Givani A.


STATEMENT OF PROBLEM:
Placement of small diameter implants often provides a solution to space problems in implant restoration. Analysis of the success of this type of implant restoration has not been clearly determined.

PURPOSE:
This 5-year retrospective study presents results from 52 mini-implants for single-tooth restorations placed in 44 patients from 1992 to 1994.

MATERIAL AND METHODS:
Dental records of 44 patients with 52 mini-implants placed during 1992-94 were reviewed. The implants were all placed by the same surgeon and the single-tooth custom screwed posts with cemented crowns were positioned on the implants by the same prosthodontist.

RESULTS:
The results achieved by the mini-implant rehabilitation were similar to those reported for standard single-tooth implant restoration. Total implant survival rate was 94.2%. Two implants were lost at second stage surgery, and another was lost after temporary loading.

CONCLUSION:
The results suggest that single-tooth mini-implant restoration can be a successful treatment alternative to solve both functional and esthetic problems. They may represent the preferred choice in cases where space problems limit the use of standard or wide diameter implants.
Clinical evaluation of small-diameter implants in single-tooth and multiple-implant restorations: a 7-year retrospective study.

Vigolo P, Givani A, Majzoub Z, Cordioli G.


PURPOSE:

Placement of small-diameter implants often provides a solution to space-related problems in implant restoration. This 7-year retrospective study presents results from 192 small-diameter implants placed in 165 patients from 1992 to 1996.

MATERIALS AND METHODS:

The dental records of each patient were reviewed. The implants, which were either 2.9 mm or 3.25 mm in diameter, were placed by 2 different surgeons. All prosthetic appliances were fabricated by the same prosthodontist. Ninety-four implants supported single-tooth cemented restorations; the remaining 98 implants supported cemented or screw-retained partial prostheses.

RESULTS:

The total implant survival rate was 95.3%. Four implants were lost at second-stage surgery, and 5 more were lost after loading.

DISCUSSION:

Small-diameter implants demonstrated a survival rate similar to those reported in previous studies of standard-size implants.

CONCLUSIONS:

The results suggest that small-diameter implants can be successfully included in implant treatment. They may be preferable in cases where space is limited.
Success rates of microimplants in edentulous patients with residual ridge resorption.

Morneburg TR, Pröschel PA.


PURPOSE:

Restorative therapy of edentulous mandibles with residual ridge resorption is still a great challenge. Even though implant-supported stabilization of dentures has proved to be of value in these cases, treatment is sometimes problematic, not only due to narrow width of the denture-bearing areas but also because elderly patients are often averse to surgery. Implants with a normal length but a reduced diameter might facilitate therapy in patients with implant-supported dentures. The aim of the present study was to evaluate the clinical success of implants with a small diameter.

MATERIALS AND METHODS:

In a prospective study, patients were provided with 2 implants 2.5 mm in diameter (MicroPlant; Brasseler, Lemgo, Germany) in a 2-stage procedure in the intraforaminal area of the edentulous mandible. Subsequently, the patients were monitored in periodic recalls. Periotest value, Gingival Index, and attachment level were monitored at these recall evaluations. Peri-implant bone loss was measured using panoramic radiographs. Patients rated the functionality of their denture using questionnaires administered before and after treatment.

RESULTS:

Sixty-seven patients were monitored during an average observation time of 6 years (SD 2.7). The cumulative survival rate of the implants was 95.5%. Clinical and radiographic parameters yielded results comparable to those of implants with a larger diameter. The questionnaire revealed sharp and significant improvement in denture retention and chewing ability after denture stabilization with the implants.

CONCLUSION:

The clinical data and the results of the questionnaire clearly indicated that the patients were satisfied with the concept of stabilization of complete mandibular dentures with small-diameter implants.
Mini dental implants for long-term fixed and removable prosthetics: a retrospective analysis of 2514 implants placed over a five-year period.

Shatkin TE, Shatkin S, Oppenheimer BD, Oppenheimer AJ.

Compend Contin Educ Dent. 2007 Feb;28(2):92-9; quiz 100-1.

Abstract

Over the past decade, endosseous implants of increasingly smaller diameters have been introduced into the field of dentistry. Small diameter implants (SDIs) are generally 2.75 mm to 3.3 mm in diameter. They are frequently used in cases of limited alveolar anatomy. Mini dental implants (MDIs) are smaller than their SDI counterparts, with diameters ranging from 1.8 mm to 2.4 mm. They are suitable for long-term use—a task for which the device was approved by the Food and Drug Administration. The following study describes the authors’ experience with MDIs under this indication. Over a 5-year period, 2514 MDIs were placed in 531 patients. The mean duration of follow-up was 2.9 years. The implants supported fixed (1278) and removable prostheses (1236), with nearly equal placement in the mandible and maxilla (1256 and 1258, respectively). The overall implant survival was 94.2%. Based on a Cox proportional hazards model, statistically significant predictors of failure include use in removable prostheses (hazard ratio = 4.28), the posterior maxilla (3.37), atrophic bone (3.32), and cigarette smokers (2.28). Implant failures (145) were attributed to mobility with or without suppuration (19% vs 81%, respectively). The mean failure time for these implants was approximately 6.4 months (193+/42 days). This temporally correlates with the osseointegration period. A learning curve was established for this procedure, and implant survival improved with placement experience. Based on these results, the authors have devised treatment guidelines for the use of MDIs in long-term fixed and removable prostheses. MDIs are not a panacea; however, proper training enables the general dentist to successfully implement MDIs into clinical practice.

The effect of maximum bite force on marginal bone loss of mini-implants supporting a mandibular overdenture: a randomized controlled trial.

Jofré J, Hamada T, Nishimura M, Klattenhoff C.


OBJECTIVES:

To evaluate the effect of maximum bite force (mBF) on marginal bone loss (MBL) around mini-implants in edentulous patients wearing mandibular overdentures with two retention systems: ball and bar.

MATERIAL AND METHODS:

Forty-five totally edentulous patients were selected from a public health center. All of them received two mini-implants (1.8 x 15 mm; Sendax) in the anterior mandible using a minimally invasive technique. A single randomization was performed to allocate the patients in two
groups. Group I (n=22) received two single ball-type mini-implants and Group II (n=23) received two mini-implants splinted with a prefabricated bar. The mBF was recorded using a press-sensitive sheet Dental Prescale (Fuji) and MBL using standardized radiographs of each mini-implant at the baseline and 5, 7, 10, and 15 months after surgery; the values were compared between groups.

RESULTS:

Two members of Group I failed to complete the study, decreasing the number of participants to 20. There was no relationship between the mBF and the MBL of the mini-implants (Spearman's rho(s)=0.147; P=0.378). At the 15-month follow-up, the average mBF for Group I (ball) was 247.53 +/- 132.91 N and that of Group II (bar) only 203.23 +/- 76.85 N (Mann-Whitney test; P=0.586). The MBL values were also higher for Group I (1.40 +/- 1.02 mm) than Group II (0.84 +/- 0.66 mm) during the entire 15-month follow-up period (Mann-Whitney test; P=0.077).

CONCLUSIONS:

No relationship was found between mBF and MBL for patients wearing overdentures retained on mini-implants using bar or ball attachment systems.

Implant survival to 36 months as related to length and diameter.

Winkler S, Morris HF, Ochi S.

BACKGROUND:

It is generally accepted that diameter and length of an endosseous dental implant and its stability at placement are critical factors in achieving and maintaining osseointegration. In the event of slight implant mobility at placement, the conventional or accepted treatment is to place a longer implant and/or one of wider diameter. This manuscript presents stability and survival/failure data for implants of different diameters and lengths following 36 months post-placement, as well as crestal bone loss data between placement and uncovering.

METHODS:

A subset of the Dental Implant Clinical Research Group's database was used to study the 3-year survival and stability of various implant lengths (7 mm, 8 mm, 10 mm, 13 mm, and 16 mm) and diameters (3 mm+ and 4 mm+). Placement to uncovering crestal bone loss was also determined. The implants were generally representative of those available for clinical use (screws, basket, grooved, hydroxy-apatite-coated, CP-Ti, Ti-alloy). The study protocol specified that the implants be randomized to various jaw regions to accomplish the primary goals of the study--the comparison of each implant design's overall survival. A total of 2,917 implants were placed, restored, and followed. Data for all 3 mm to 3.9 mm diameter implants were pooled into a "3+" group, and the 4 mm to 4.9 mm diameter implants into a "4+" mm group. No attempt was made to look at the influence of any other variables on survival outcomes. The possible influence of clustering on survival was taken into consideration.
RESULTS:

The 3+ mm group had a mean stability (PTV) of -3.8 (SD = 2.9), and the 4+ group had a mean PTV of -4.4 (SD = 2.7) (P < 0.05). The PTVs for implant lengths ranged from -2.9 (SD = 2.8) for 7 mm lengths to -3.9 (SD = 2.9) for 16 mm lengths (P < 0.05). Survival to 36 months was 90.7% for the 3+ diameter and 94.6% for the 4+ group (P = 0.01). Survival ranged from 66.7% for the 7 mm implants to 96.4% for 16 mm implants (P = 0.001). Outcomes did not change when clustering was considered, although the P value decreased slightly.

CONCLUSIONS:

The results indicate that: 1) shorter implants had statistically lower survival rates as compared with longer implants; 2) 3+ mm diameter implants had a lower survival rate as compared with 4+ mm implants; 3) 3+ mm diameter implants are less stable (more positive PTVs) than 4+ mm implants; and 4) there was no significant difference in crestal bone loss for the two different implant diameters between placement and uncovering.

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**A 5-year prospective study on small diameter screw-shaped oral implants.**

Comfort MB, Chu FC, Chai J, Wat PY, Chow TW.


Alveolar ridges of limited dimensions could preclude the placement of dental implants of the regular dimension. Smaller diameter implants - narrow platform (NP) implants were commercially available to address this issue. The aim of the study was to determine the 5-year clinical performance of 3.3 mm diameter NP implants. Twenty-three machined screw-shaped NP implants were placed in nine patients (six males; three females) between 18 and 70 years of age. Clinical and radiographic examinations were performed annually for 5 years. Recognized implant success criteria was used. The criteria were based on the mean marginal alveolar bone loss, the placement of prosthesis of satisfactory appearance, and the absence of implant mobility, peri-implant radiolucency, pain, discomfort or infection. One implant failed at abutment connection. The remaining 22 implants were restored and functioned successfully according to the criteria. The mean marginal alveolar bone loss during the first year was 0.41 +/- 0.17 mm. The mean marginal alveolar bone loss between the second and fifth year was 0.03 +/- 0.06 mm. The success rate of NP implants according to a well-established set of criteria was 96%.
Clinical evaluation of small-diameter ITI implants: a prospective study.

Zinsli B, Sägesser T, Mericske E, Mericske-Stern R.


PURPOSE:

Dental implants with a reduced diameter are designed for specific clinical situations, such as placement of implants where bone width is narrow or between adjacent teeth that have only a narrow space between them. They are particularly useful when replacing small teeth such as lateral maxillary and mandibular incisors. The aim of the present study was the clinical evaluation of 2-part ITI implants (full-body screws with a 3.3-mm diameter).

MATERIALS AND METHODS:

One hundred forty-nine partially or completely edentulous patients received a total of 298 2-part ITI implants over a 10-year period. After a standard healing period (3 to 6 months), the implants were restored with fixed restorations such as single crowns or fixed partial or complete prostheses or overdentures. Complete prosthesis or overdenture in the edentulous jaw was the predominant type of restoration. All patients followed a strict maintenance program, with regular recalls at least once a year. The survival rate of the implants was analyzed, and prosthetic complications were assessed.

RESULTS:

Three implants were lost during the healing phase on account of peri-implant infection. Two implant body fractures with an osseous length of 8 mm were observed (one after 2 years of observation, the other after 6 years). Four implants exhibited transient peri-implant inflammation that was treated successfully by interceptive therapy. The cumulative 5-year survival rate of the implants was 98.7% (96.6% after 6 years). Prosthetic complications were mostly limited to loose occlusal screws and sore spots caused by the denture base.

DISCUSSION:

Within the limited observation period, failures of small-diameter implants were infrequent. Prosthetic complications were not dependent on the use of small-diameter implants.

CONCLUSION:

The use of 3.3-mm ITI implants appears to be predictable if clinical guidelines are followed and appropriate prosthetic restorations are provided. However, fatigue fracture may occur after a long period of function.
Early loading of single crowns supported by 6-mm-long implants with a moderately rough surface: a prospective 2-year follow-up cohort study.

Rossi F, Ricci E, Marchetti C, Lang NP, Botticelli D.


AIM:

To evaluate prospectively the clinical and radiographic outcomes after 2 years of loading of 6 mm long moderately rough implants supporting single crowns in the posterior regions.

MATERIAL AND METHODS:

Forty SLActive Straumann short (6 mm) implants were placed in 35 consecutively treated patients. Nineteen implants, 4.1 mm in diameter, and 21 implants, 4.8 mm in diameter, were installed. Implants were loaded after 6 weeks of healing. Implant survival rate, marginal bone loss and resonance frequency analysis (RFA) were evaluated at different intervals. The clinical crown/implant ratio was also calculated.

RESULTS:

Two out of 40 implants were lost before loading. Hence, the survival rate before loading was 95%. No further technical or biological complications were encountered during the 2-year follow-up. The mean marginal bone loss before loading was 0.34+/-0.38 mm. After loading, the mean marginal bone loss was 0.23+/-0.33 and 0.21+/-0.39 mm at the 1- and 2-year follow-ups. The RFA values increased between insertion (70.2+/-9) and the 6-week evaluation (74.8+/-6.1). The clinical crown/implant ratio increased with time from 1.5 at the delivery of the prosthesis to 1.8 after 2 years of loading.

CONCLUSION:

Short implants (6 mm) with a moderately rough surface loaded early (after 6 weeks) during healing yielded high implant survival rates and moderate loss of bone after 2 years of loading. Longer observation periods are needed to draw more definite conclusions on the reliability of short implants supporting single crowns.
Rehabilitation of posterior atrophic edentulous jaws: prostheses supported by 5 mm short implants or by longer implants in augmented bone? One-year results from a pilot randomised clinical trial.

Esposito M, Pellegrino G, Pistilli R, Felice P.


PURPOSE:

To evaluate whether 5 mm short dental implants could be an alternative to augmentation with anorganic bovine bone and placement of at least 10 mm long implants in posterior atrophic jaws.

MATERIALS AND METHODS:

Fifteen patients with bilateral atrophic mandibles (5-7 mm bone height above the mandibular canal), and 15 patients with bilateral atrophic maxillae (4-6 mm bone height below the maxillary sinus) and bone thickness of at least 8 mm, were randomised according to a splitmouth design to receive one to three 5 mm short implants or at least 10 mm long implants in augmented bone. Mandibles were vertically augmented with interpositional bone blocks and maxillary sinuses with particulated bone via a lateral window. Implants were placed after 4 months, submerged and loaded, after 4 months, with provisional prostheses. Four months later, definitive provisionally cemented prostheses were delivered. Outcome measures were: prosthesis and implant failures, any complication and peri-implant marginal bone level changes.

RESULTS:

In 5 augmented mandibles, the planned 10 mm long implants could not be placed and shorter implants (7 and 8.5 mm) had to be used instead. One year after loading no patient dropped out. Two long (8.5 mm in the mandible and 13 mm in the maxilla) implants and one 5 mm short maxillary implant failed. There were no statistically significant differences in failures or complications. Patients with short implants lost on average 1 mm of peri-implant bone and patients with longer implants lost 1.2 mm. This difference was statistically significant.

CONCLUSIONS:

This pilot study suggests that 1 year after loading, 5 mm short implants achieve similar if not better results than longer implants placed in augmented bone. Short implants might be a preferable choice to bone augmentation since the treatment is faster, cheaper and associated with less morbidity, however their long-term prognosis is unknown.
Vertical augmentation with interpositional blocks of anorganic bovine bone vs. 7-mm-long implants in posterior mandibles: 1-year results of a randomized clinical trial.

Felice P, Pellegrino G, Checchi L, Pistilli R, Esposito M.


OBJECTIVES:

To evaluate whether 7-mm-long implants could be an alternative to longer implants placed in vertically augmented posterior mandibles.

MATERIALS AND METHODS:

Sixty patients with posterior mandibular edentulism with 7-8 mm bone height above the mandibular canal were randomized to either vertical augmentation with anorganic bovine bone blocks and delayed 5-month placement of ≥10 mm implants or to receive 7-mm-long implants. Four months after implant placement, provisional prostheses were delivered, replaced after 4 months, by definitive prostheses. The outcome measures were prosthesis and implant failures, any complications and peri-implant marginal bone levels. All patients were followed to 1 year after loading.

RESULTS:

One patient dropped out from the short implant group. In two augmented mandibles, there was not sufficient bone to place 10-mm-long implants possibly because the blocks had broken apart during insertion. One prosthesis could not be placed when planned in the 7 mm group vs. three prostheses in the augmented group, because of early failure of one implant in each patient. Four complications (wound dehiscence) occurred during graft healing in the augmented group vs. none in the 7 mm group. No complications occurred after implant placement. These differences were not statistically significant. One year after loading, patients of both groups lost an average of 1 mm of peri-implant bone. There no statistically significant differences in bone loss between groups.

CONCLUSIONS:

When residual bone height over the mandibular canal is between 7 and 8 mm, 7 mm short implants might be a preferable choice than vertical augmentation, reducing the chair time, expenses and morbidity. These 1-year preliminary results need to be confirmed by follow-up of at least 5 years.

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Short dental implants as a treatment option: results from an observational study in a single private practice.

Arlin ML.


PURPOSE:
The purpose was to evaluate clinical outcome of short (6- and 8-mm) dental implants placed in sites with low bone availability (7 to 11 mm) in a single private practice and to compare their survival with that of longer implants.

MATERIALS AND METHODS:
Implants were placed by a single private practitioner in a variety of clinical indications. Exclusion criteria included uncontrolled diabetes mellitus, alcoholism, and systemic immune disorders. Clinical data relating to implant placement and follow-up appointments, including adverse events, were entered into an electronic database. Two-year survival rates were calculated and life table analyses undertaken for implants measuring 6, 8, and 10 to 16 mm.

RESULTS:
A total of 630 Straumann implants were placed in 264 patients between April 1994 and December 2003. Of these, 35 implants were 6 mm long, 141 were 8 mm long, and 454 were 10 to 16 mm long. Maximum follow-up was 64.6 months, 83.7 months, and 102 months for implants measuring 6 mm, 8 mm, and 10 to 16 mm, respectively. Two-year survival rates were 94.3%, 99.3%, and 97.4% for 6-mm, 8-mm, and 10- to 16-mm implants, respectively.

DISCUSSION:
The results indicated that the 2-year outcome for 6-mm and 8-mm implants was comparable to that for longer (10- to 16-mm) implants in this patient population.

CONCLUSION:
In this study, short (6- or 8-mm) implants were used with good reliability in patients with limited bone availability, without the need for ridge augmentation. Shorter implant length was not associated with reduced survival at 2 years, compared with longer implants.
State of the Art of Short Dental Implants: A Systematic Review of the Literature.

Neldam CA, Pinholt EM.


Background: Short implants (≤8 mm) are manufactured for use in atrophic regions of the jaws. As implant length in many studies has been proven to play a major role in implant survival it is indicated to evaluate survival of short implants in the present literature. Purpose: The purpose of this study was systematically to evaluate publications concerning short dental implants defined as an implant with a length of ≤8 mm installed in the maxilla or in the mandible with special reference to implant type, survival rate, location of implant site, and observation time. Materials and Methods: A Medline and a hand search were conducted to identify studies concerning short dental implants of length ≤8 mm published between 1992 and October 2009. The articles included in this study report data on implant length ≤8 mm, implant surface, registered region of installment, observation time, single tooth restorations, supporting overdentures, splinted implants, and implants used for prostheses. Results: The 27 included studies represent zero randomized clinical trial studies, 15 prospective nonrandomized, noncontrolled clinical trials, 11 retrospective nonrandomized, noncontrolled clinical trials, and one review. Data on 6-mm implants were few and most frequent represented was manufactured Straumann implants representing 441 out of 549 implants. Brånemark implants, 7 mm in length, comprised 1607 implants out of 1808. Straumann implants, 8 mm in length, comprised 2040 out of 2352 implants. Failures varied between 0 and 14.5%, 0 and 37.5% and 0 and 22.9% of the 6-, 7-, and 8-mm-long implants, respectively. Conclusion: Short implant length was not related to observation time, installment region, failures, and dropouts were not specified, subsequently a meta-analysis was not possible to perform.

Guided bone regeneration around non-submerged implants in narrow alveolar ridges: a prospective long-term clinical study.

De Boever AL, De Boever JA.

OBJECTIVES:

This prospective clinical study investigates long-term survival and clinical parameters of non-submerged implants with large buccal dehiscences treated with a deproteinized bovine bone mineral xenograft and a non-resorbable membrane in a one-stage approach.

MATERIAL AND METHODS:

Sixteen consecutive non-submerged implants (ITI Straumann) were installed in narrow alveolar ridges in 13 patients (age range: 25–61 years). All patients were non-smokers. On
the buccal site the bone dehiscence ranged between 3 and 9 mm. Primary stability was achieved in all but one implant. The exposed threads were covered with a xenograft (Bio-Oss) and a non-resorbable expanded polytetrafluoroethylene membrane. The flap was sutured leaving the implant head non-submerged. The membrane was removed when (1) the membrane became exposed or (2) after a maximum of 24 weeks. All implants received singular cemented crowns. The implants were followed for a period ranging from 12 to 114 months. Whole-mouth plaque index (Pl), the % of bleeding on probing (BOP), probing depth and signs of peri-implantitis were recorded. Every year periapical radiographs were taken using a long cone technique.

RESULTS:

All but one implant integrated successfully. At the time of membrane removal, all previously exposed threads were completely covered with richly vascularized tissue except for two implants where the coverage reached 63% and 87%, respectively. The whole-mouth plaque score and BOP remained low in all patients during the observation period. None of the implants had plaque and, except for one implant BOP never occurred. All implants were stable and in function. Swelling, redness or purulence was never observed. On the periapical radiographs no bone resorption was observed on the mesial and distal site except for one implant in one patient with a mesial and distal bone resorption of 2 and 3 mm. Probing depth was never higher than 3 mm except for one patient where the implant was placed deeply subgingival for esthetical reasons.

CONCLUSION:

This prospective long-term study shows that with the use of non-submerged transmucosal implants, large bony dehiscences can be treated in a one-stage approach using a stiff non-resorbable membrane combined with a xenograft.

The impact of loads on standard diameter, small diameter and mini implants: a comparative laboratory study.

Allum SR, Tomlinson RA, Joshi R.


OBJECTIVES:

While caution in the use of small-diameter (< or = 3.5 mm) implants has been advocated in view of an increased risk of fatigue fracture under clinical loading conditions, a variety of implant designs with diameters < 3 mm are currently offered in the market for reconstructions including fixed restorations. There is an absence of reported laboratory studies and randomized-controlled clinical trials to demonstrate clinical efficacy for implant designs with small diameters. This laboratory study aimed to provide comparative data on the mechanical performance of a number of narrow commercially marketed implants.

MATERIALS AND METHODS:
Implants of varying designs were investigated under a standardized test set-up similar to that recommended for standardized ISO laboratory testing. Implant assemblies were mounted in acrylic blocks supporting laboratory cast crowns and subjected to 30 degrees off-axis loading on an LRX Tensometer. Continuous output data were collected using Nexygen software.

RESULTS:

Load/displacement curves demonstrated good grouping of samples for each design with elastic deformation up to a point of failure approximating the maximum load value for each sample. The maximum loads for Straumann (control) implants were 989 N (+/-107 N) for the 4.1 mm RN design, and 619 N (+/-50 N) for the 3.3 mm RN implant (an implant known to have a risk of fracture in clinical use). Values for mini implants were recorded as 261 N (+/-31 N) for the HiTec 2.4 mm implant, 237 N (+/-37 N) for the Osteocare 2.8 mm mini and 147 N (+/-25 N) for the Osteocare mini design. Other implant designs were also tested.

CONCLUSIONS:

The diameters of the commercially available implants tested demonstrated a major impact on their ability to withstand load, with those below 3 mm diameter yielding results significantly below a value representing a risk of fracture in clinical practice. The results therefore advocate caution when considering the applicability of implants \( \leq \) 3 mm diameter. Standardized fatigue testing is recommended for all commercially available implants.

Radiographic Evaluation of Narrow Diameter Implants after 5 years of clinical function: a Retrospective Study.

Geckili O, Mumcu E, Bilhan H.

J Oral Implantol. 2011 Feb 5. [Epub ahead of print]

The use of regular sized dental implants is generally recommended to ensure adequate bone to implant contact. However when the width of the edentulous crest is insufficient for the placement of a regular sized implant, the use of a narrow diameter implant (NDI) should be considered to prevent the use of invasive reconstruction techniques such as grafting procedures. The aim of the present study was to evaluate the survival and marginal bone levels of NDIs five years after prosthetic loading. One hundred and fifty-nine NDIs belonging to four brands (Straumann, Astra Tech, Biolok, Xive) in 71 patients were evaluated. Clinical and radiographic evaluations using digital panoramic radiography were carried out. Two implants failed and no progressive bone loss or periapical lesions were detected in the remaining 157 implants which brings an overall success rate of 98.74%. The mean marginal bone loss (MBL) was found as 1 mm on mesial and 0.98 mm on distal side of the implants. No statistically significant relationship was detected between patient age, gender, implant location, implant length, type of the prosthesis and MBL \( (P > 0.05) \). Among the 4 brands used, the MBL around Biolok implants were detected as the highest; but significantly higher than the MBL around only the Astra Tech implants \( (P < 0.05) \). The results of the present study indicated that NDIs can be a good solution for specific clinical situations where regular sized implants are not suitable.