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Scientific Highlights

SHORT OVERVIEWS ON RECENTLY PUBLISHED SCIENTIFIC EVIDENCE.

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Edited by Dr. Marcin Maj

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IN THIS ISSUE	3
EDITOR'S CHOICE	4
1. Clinical performance of a newly developed two-piece zirconia implant system in the maxilla: A prospective multicentre study	4
2. Quality of life, patient preferences, and implant survival and success of tapered implant-retained mandibular overdentures as a function of the attachment system	5
3. Biomarker Expression of Peri-Implantitis Lesions before and after Treatment: A Systematic Review	5
4. Influence of loading and grafting on hard- and soft-tissue healing at immediately placed implants: An experimental study in minipigs	6
5. Immediate Vs Early Loading of Bone Level Tapered Dental Implants With Hydrophilic Surface in Rehabilitation of Fully Edentulous Maxilla: Clinical and Patient Centered Outcomes	7
6. One year of COVID-19 pandemic: Health care workers' infection rates and economical burden in medical facilities for oral and maxillofacial surgery	8
7. Effect of advanced age and/or systemic medical conditions on dental implant survival: A systematic review and meta-analysis	9
8. Patient-reported outcome measures focusing on the esthetics of implant-compared to tooth-supported single crowns-A systematic review and meta-analysis	10
9. Non-surgical treatment of mild to moderate peri-implantitis using an oscillating chitosan brush or a titanium curette — A randomized multicentre controlled clinical trial	11
REFERENCES	11

in this issue



EDITOR'S CHOICE

Clinical performance of a newly developed two-piece zirconia implant system in the maxilla: A prospective multicentre study

(J. Lorenz et al. 2022)

and

Quality of life, patient preferences, and implant survival and success of tapered implant-retained mandibular overdentures as a function of the attachment system

(I. Indriksone et al. 2022)

Influence of loading and grafting on hard- and soft-tissue healing at immediately placed implants: An experimental study in minipigs

(P. Parvini et al. 2022)

One year of COVID-19 pandemic: Health care workers' infection rates and economical burden in medical facilities for oral and maxillofacial surgery

(E. Bachmann et al. 2022)

Editor's choice

Int J Oral Implantol (Berl). 2022 Nov 15;15(4):327-338.

Clinical performance of a newly developed two-piece zirconia implant system in the maxilla: A prospective multicentre study

Jonas Lorenz, Puria Parvini, Karina Obreja, Georgia Trimppou, Susy Linder, Werner Hölscher, Michel Dard, Frank Schwarz, Robert Sader

Study objectives and methods

The purpose of this study was to assess the clinical performance of a two-piece zirconia implant system (PURE Ceramic Implants, Straumann, Basel, Switzerland) in the maxilla after a follow-up period of more than 1 year. A total of 19 patients in three centres received 24 single-tooth implants in the maxilla. Implant survival, implant success, Plaque Index, probing pocket depth, bleeding on probing, mucosal recession/creeping attachment, width of keratinised mucosa, papilla index and pink aesthetic score were evaluated after prosthetic loading (T0), after 6 months (T1) and at the final follow-up (T2, mean 15.0 ± 2.1 months, range 12 to 19 months).

Results

- All implants survived and were suitable for retaining prostheses.
- Low values were recorded for Plaque Index (0.38 ± 0.68) and probing pocket depth (2.49 ± 0.49 mm).
- Bleeding on probing increased significantly from T0 (21.7%) to T1 (50.0%) ($P = 0.0342$) and then remained stable (50.0% at T2).
- No recession was detected around any of the implants. A statistically significant increase in attachment level was observed from T0 to T2 (0.79 ± 0.88 mm; $P = 0.0196$).
- A papilla index of 2.27 ± 0.81 and pink aesthetic score of 11.67 ± 1.60 at T2 indicated a completely satisfying aesthetic result.

Conclusions

Within the limitations of the present study, the two-piece zirconia implant system investigated achieved fully satisfying functional and aesthetic results.

Adapted from J. Lorenz et al, *Int J Oral Implantol (Berl)*. 2022 Nov 15;15(4):327-338., for more info about this publication click [HERE](#)

J Periodontal Implant Sci . 2022 Nov 8

Quality of life, patient preferences, and implant survival and success of tapered implant-retained mandibular overdentures as a function of the attachment system

Ilze Indrikšone, Pauls Vitols, Viktors Avkstols, Linards Grieznis, Kaspars Stammers, Susy Linder, Michel Dard



Study objectives and methods

This study investigated whether differences between the Novaloc and Locator attachment systems translate into differences in implant survival, implant success, and patient-centered outcomes when applied in a real-world in-practice comparative setting in patients restored with mandibular IRODs supported by 2 interforaminal implants (2-IRODs).

Results

- Patient-centered outcomes and patient preferences between attachment systems were comparable, with relatively high overall patient satisfaction levels for both attachment systems.
- No difference in the prosthetic survival rate between study groups was detected.
- The implant survival rate over the follow-up period after 24 months in both groups was 100%.

Conclusions

The results of this in-practice comparison indicate that both attachment systems represent comparable candidates for the prosthodontic retention of 2-IRODs

Adapted from I. Indrikson et al., J Periodontal Implant Sci . 2022 Nov 8., for more info about this publication click [HERE](#)

Int J Environ Res Public Health. 2022 Oct 28;19(21):14085

Biomarker Expression of Peri-Implantitis Lesions before and after Treatment: A Systematic Review

Haniyeh Moaven, Annesi Giacaman, Víctor Beltrán, Ye Han Sam, Daniel Betancur, Giuseppe Mainas, Seyed Ali Tarjomani, Nikolaos Donos, Vanessa Sousa



The overview

The authors present a systematic review of the literature on the changes in the expression of biomarkers in peri-implant crevicular fluid (PICF) before and after treatment of peri-implantitis. Bacterial composition, clinical and radiographic parameters, and systemic biomarkers before and after treatment are reported as secondary outcomes. A total of 17 studies were included. Treatment groups were non-surgical treatment or surgical treatment, either alone or with adjunctive therapy. Our findings show that non-surgical treatment alone does not influence biomarker levels or clinical outcomes.

Adapted from H. Moaven et al., Int J Environ Res Public Health. 2022 Oct 28;19(21):14085, for more info about this publication click [HERE](#)

J Clin Periodontol. 2022 Oct 10

Influence of loading and grafting on hard- and soft-tissue healing at immediately placed implants: An experimental study in minipigs

Puria Parvini, Daniel Buser, Benjamin Evans Pippenger, Jean-Claude Imber, Andreas Stavropoulos, Benjamin Bellón, Christian Jarry, Frank Schwarz

Study objectives and methods

The purpose of this study was to histologically evaluate the influence of (1) loading and (2) grafting on osseointegration and peri-implant soft-tissue healing at immediately placed, self-cutting progressive tissue-level implants (TLX) in a minipig model. TLX implants (n = 56) were immediately placed following the extraction of the mandibular first and second premolars, bilaterally, in a total of n = 14 minipigs. In each animal, the implant sites were allocated to the following four groups: (1) unloaded with simultaneous grafting using a bovine bone mineral; (2) unloaded without grafting; (3) loaded with simultaneous grafting; and (4) loaded without grafting

Results

- At 4 weeks, mean BIC values ranged from $74.5 \pm 11.6\%$ in Group 2 to $83.8 \pm 13.3\%$ in Group 1, and, at 12 weeks, from $75.5\% \pm 7.9\%$ in Group 2 to $79.9 \pm 8.6\%$ in Group 1.
- Multivariate linear mixed regression did not reveal any associations between BIC and implant loading or grafting at 4 and 12 weeks.
- At 12 weeks, significantly higher fBIC values were noted in Group 2 when compared with Group 1.
- All groups showed comparable JE, CTC, and BW values.

Conclusions

Implant loading and grafting had no major effects on osseointegration and peri-implant soft tissue healing at TLX implants.

Adapted from P. Parvini et al., J Clin Periodontol. 2022 Oct 10., for more info about this publication click [HERE](#)

J Oral Implantol. 2022 Oct 1;48(5):358-369

Immediate Vs Early Loading of Bone Level Tapered Dental Implants With Hydrophilic Surface in Rehabilitation of Fully Edentulous Maxilla: Clinical and Patient Centered Outcomes

Aleksa Marković, Tijana Mišić, Bojan Janjić, Miodrag Šćepanović, Branka Trifković, Branislav Ilić, Ana M Todorović, Jovana Marković, Michel M Dard

Study objectives and methods

The aim was to: (1) compare changes among primary and secondary implant stability between immediate and early loaded implants in edentulous maxilla, (2) evaluate oral health-related quality of life (OHRQoL), and (3) determine patient satisfaction with 6 implant supported fixed full-arch dentures. A prospective, randomized controlled clinical trial was conducted on 24 edentulous maxilla patients. The BLT SLActive implants in 12 patients were immediately loaded with temporary restorations while 12 patients did not receive temporary restorations.

Results

- The IT value of implants assigned for immediate and early loading group was 27.17 ± 9.55 Ncm and 25.01 ± 11.06 Ncm, respectively.
- Changes in implant stability from baseline to week 6 were similar in both groups when measured by Penguin ($P = .881$) and Ostell ($P = .828$).
- Patients in the immediate loading group reported significantly lower OHIP physical pain scores ($P = .016$) and OHIP psychological disability score ($P = .046$), and the patients reported significantly higher VAS function score ($P = .009$) and VAS esthetics score ($P = .009$).

Conclusions

Implant loading protocols do not have a significant effect on the change in implant stability 6 weeks after implantation; however, immediate loading significantly improves OHRQoL as well as satisfaction of patients with maxillary edentulism treated by fixed full-arch dentures.

Adapted from A. Marković et al., J Oral Implantol. 2022 Oct 1;48(5):358-369., for more info about this publication click [HERE](#)

J Craniomaxillofac Surg. 2022 Nov;50(11):831-836

One year of COVID-19 pandemic: Health care workers' infection rates and economical burden in medical facilities for oral and maxillofacial surgery

Ella Bachmann, Stephan Zellmer, Maria Kahn, Anna Muzalyova, Alanna Ebigbo, Bilal Al-Nawas, Thomas Ziebart, Axel Meisgeier, Claudia Traidl-Hoffmann, Fabian Eckstein, Helmut Messmann, Tilo Schlittenbauer, Christoph Römmele



Study objectives and methods

The aim of this study was to create an overview on the COVID-associated burdens faced by the oral and maxillofacial surgery (OMS) workforce during 1 year of the pandemic. OMS hospitals and private practices nationwide were surveyed regarding health care worker (HCW) screening, infection status, pre-interventional testing, personal protective equipment (PPE), and economic impact. Participants were recruited via the German Society for Oral and Maxillofacial Surgery. A total of 11 hospitals (416 employees) and 55 private practices (744 employees) participated.

Results

- The HCW infection rate was significantly higher in private practices than in clinics (4.7% vs. 1.4%, $p < 0.01$), although most infections in HCW occurred in private environment (hospitals 88.2%, private practice 66.7%).
- Pre-interventional testing was performed significantly less for outpatients in private practices than in hospitals (90.7% vs. 36.4%, $p < 0.01$).
- Polymerase chain reaction (PCR) was used significantly more for inpatients in hospitals than in private practices (100.0% vs. 27.3%, $p < 0.01$).
- FFP2/3 use rose significantly in hospitals (0% in second quarter vs. 46% in fourth quarter, $p < 0.05$) and private practices (15% in second quarter vs. 38% in fourth quarter, $p < 0.01$).
- The decrease in procedures ($\leq 50\%$) was significantly higher in hospitals than in private practices (90.9% vs. 40.0%, $p < 0.01$).

Conclusions

Despite higher infection rates in private practices, declining procedures and revenue affected hospitals more.

Adapted from E Bachmann et al., J Craniomaxillofac Surg. 2022 Nov;50(11):831-836., for more info about this publication click [HERE](#)

Clin Oral Implants Res. 2018 Oct;29 Suppl 16:311-330

Effect of advanced age and/or systemic medical conditions on dental implant survival: A systematic review and meta-analysis

Martin Schimmel, Murali Srinivasan, Gerald McKenna, Frauke Müller



Study objectives and methods

This review evaluated implant survival in geriatric patients (≥ 75 years) and/or the impact of systemic medical conditions. Systematic literature searches were performed to identify studies reporting on geriatric subjects with dental implants and on implant patients who had any of the seven most common systematic conditions among geriatric patients. Meta-analyses were performed on the postloading implant survival rates. The impact of systemic medical conditions and their respective treatment was qualitatively analyzed.

Results

- A total of 6,893 studies were identified; of those, 60 studies were included.
- The fixed-effects model revealed an overall implant survival of 97.3% (95% CI: 94.3, 98.7; studies = 7) and 96.1% (95% CI: 87.3, 98.9; studies = 3), for 1 and 5 years, respectively.
- In patients with cardiovascular disease, implant survival may be similar or higher compared to healthy patients.
- High implant survival rates were reported for patients with Parkinson's disease or diabetes mellitus type II.
- In patients with cancer, implant survival is negatively affected, namely by radiotherapy.
- Patients with bone metastases receiving high-dose antiresorptive therapy (ART) carry a high risk for complications after implant surgery.
- Implant survival was reported to be high in patients receiving low-dose ART for treatment of osteoporosis.
- No evidence was found on implant survival in patients with dementia, respiratory diseases, liver cirrhosis, or osteoarthritis.

Conclusions

Implant prostheses in geriatric subjects are a predictable treatment option with a very high rate of implant survival. The functional and psychosocial benefits of such intervention should outweigh the associated risks to common medical conditions.

Adapted from M. Schimmel et al., *Clin Oral Implants Res.* 2018 Oct;29 Suppl 16:311-330, for more info about this publication click [HERE](#)

J Esthet Restor Dent. 2022 Dec 7

Patient-reported outcome measures focusing on the esthetics of implant-compared to tooth-supported single crowns-A systematic review and meta-analysis

Julia-Gabriela Wittneben, Burak Yilmaz, Daniel Wismeijer, Shakeel Shahdad, Urs Brägger, Samir Abou-Ayash

Study objectives and methods

The aim of this study was to report a summary of published patient-reported esthetic outcome measures (PROMs) of implant-supported single crowns (SCs) compared with those of tooth-supported SCs. Cochrane, Medline (PubMed), and EMBASE database search was performed by three reviewers on reports with patient-reported esthetic outcomes of tooth- and implant-supported SCs. Clinical studies with at least 12 months of mean follow-up period and a minimum of 10 patients, and English, French, or German reports were included.

Results

- Two thousand fifteen titles were identified (initial search) and screened independently concluding 53 full-text articles to include in data extraction. Twenty-two studies with 29 study cohorts were included.
- Patients were satisfied with the esthetics of implant- and tooth- supported crowns
- Mean visual analogue scale (VAS) value from the PROMs data of 1270 implant-supported SCs evaluated by 1051 patients was 89.6% (80.0%-94.1%).
- The mean VAS value of patients (n = 201), who evaluated the esthetic outcome of 486 tooth-supported SCs was 94.4% (92.3%-96.0%).
- VAS scores of patients regarding their perception of esthetics did not show any difference among different crown materials or type of implant used.
- The patients' perception of esthetics focusing on SC had a tendency to be higher when the crowns were supported by teeth, however, no statistical difference was found when compared with implant-supported crowns ($p = 0.067$).

Conclusions

Patient perception of esthetics in SCs was not affected by the type of support, crown material, implant, and presence of provisional crown for both implant- and tooth-supported SCs.

Adapted from J.G. Wittneben et al., J Esthet Restor Dent. 2022 Dec 7, for more info about this publication click [HERE](#)

Clin Oral Impl Res. 2022;33:1254–1264

Non-surgical treatment of mild to moderate peri-implantitis using an oscillating chitosan brush or a titanium curette — A randomized multicentre controlled clinical trial

Sadia N. Khan, Odd Carsten Koldslund, Ann-Marie Roos-Jansåker, Johan Caspar Wohlfahrt, Anders Verket, Ibrahimu Mdala, Anna Magnusson, Eirik Salvesen, Carl Hjortsjö

Study objectives and methods

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Conclusions

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Adapted from S.N. Kahn et al., *Clin Oral Impl Res.* 2022;33:1254–1264, for more info about this publication click [HERE](#)

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