

Guidelines of the 11th European Consensus Conference 2016

Short, angulated and diameter-reduced implants

Literature

1. Aghaloo TL, Moy PK. Which hard tissue augmentation techniques are the most successful in furnishing bony support for implant placement? *Int J Oral Maxillofac Implants* 2007; 22 Suppl: 49-70.
2. Al-Ansari A. Short implants supporting single crowns in atrophic jaws. *Evid Based Dent* 2014; 15: 85-86.
3. Aloy-Prosper A, Penarrocha-Oltra D, Penarrocha-Diago M, Penarrocha-Diago M. The outcome of intraoral onlay block bone grafts on alveolar ridge augmentations: a systematic review. *Med Oral Patol Oral Cir Bucal* 2015; 20: e251-258.
4. Aparicio C, Perales P, Rangert B. Tilted implants as an alternative to maxillary sinus grafting: a clinical, radiologic, and periotest study. *Clin Implant Dent Relat Res* 2001; 3: 39-49.
5. Asawa N, Bulbule N, Kakade D, Shah R. Angulated implants: an alternative to bone augmentation and sinus lift procedure: systematic review. *J Clin Diagn Res* 2015; 9: ZE10-13.
6. Babbush CA, Kanawati A, Brokloff J. A new approach to the All-on-Four treatment concept using narrow platform NobelActive implants. *The Journal of oral implantology* 2013; 39: 314-325.
7. Balshi TJ, Wolfinger GJ, Slauch RW, Balshi SF. A Retrospective Analysis of 800 Branemark System Implants Following the All-on-Four Protocol. *Journal of prosthodontics : official journal of the American College of Prosthodontists* 2014; 23: 83-88.
8. Bidra AS, Almas K. Mini implants for definitive prosthodontic treatment: a systematic review. *The Journal of prosthetic dentistry* 2013; 109: 156-164.
9. Chiapasco M, Casentini P, Zaniboni M. Bone augmentation procedures in implant dentistry. *Int J Oral Maxillofac Implants* 2009; 24 Suppl: 237-259.
10. Chrcanovic BR, Albrektsson T, Wennerberg A. Tilted versus axially placed dental implants: a meta-analysis. *J Dent* 2015; 43: 149-170.
11. das Neves FD, Fones D, Bernardes SR, do Prado CJ, Neto AJ. Short implants--an analysis of longitudinal studies. *Int J Oral Maxillofac Implants* 2006; 21: 86-93.
12. Del Fabbro M, Ceresoli V. The fate of marginal bone around axial vs. tilted implants: a systematic review. *Eur J Oral Implantol* 2014; 7 Suppl 2: S171-189.
13. Deporter D, Ogiso B, Sohn DS, Ruljancich K, Pharoah M. Ultrashort sintered porous-surfaced dental implants used to replace posterior teeth. *J Periodontol* 2008; 79: 1280-1286.
14. Deporter D. Short dental implants: what works and what doesn't? A literature interpretation. *Int J Periodontics Restorative Dent* 2013; 33: 457-464.
15. Deporter D, Pharoah M, Yeh S, Todescan R, Atenafu EG. Performance of titanium alloy sintered porous-surfaced (SPS) implants supporting mandibular overdentures during a 20-year prospective study. *Clin Oral Implants Res* 2014; 25: e189-195.
16. Deporter DA, Kermalli J, Todescan R, Atenafu E. Performance of sintered, porous-surfaced, press-fit implants after 10 years of function in the partially edentulous posterior mandible. *Int J Periodontics Restorative Dent* 2012; 32: 563-570.
17. Esposito M, Grusovin MG, Worthington HV, Coulthard P. Interventions for replacing missing teeth: bone augmentation techniques for dental implant treatment. *Cochrane Database Syst Rev* 2006; CD003607.
18. Esposito M, Grusovin MG, Kwan S, Worthington HV, Coulthard P. Interventions for replacing missing teeth: bone augmentation techniques for dental implant treatment. *Cochrane Database Syst Rev* 2008; CD003607.
19. Esposito M, Felice P, Worthington HV. Interventions for replacing missing teeth: augmentation procedures of the maxillary sinus. *Cochrane Database Syst Rev* 2014; 5: CD008397.

20. Esposito M, Barausse C, Pistilli R, Checchi V, Diazzi M, Gatto MR et al. Posterior jaws rehabilitated with partial prostheses supported by 4.0 x 4.0 mm or by longer implants: Four-month post-loading data from a randomised controlled trial. *Eur J Oral Implantol* 2015; 8: 221-230.
21. Felice P, Cannizzaro G, Barausse C, Pistilli R, Esposito M. Short implants versus longer implants in vertically augmented posterior mandibles: a randomised controlled trial with 5-year after loading follow-up. *Eur J Oral Implantol* 2014; 7: 359-369.
22. Ferreira EJ, Kuabara MR, Gulinelli JL. "All-on-four" concept and immediate loading for simultaneous rehabilitation of the atrophic maxilla and mandible with conventional and zygomatic implants. *The British journal of oral & maxillofacial surgery* 2010; 48: 218-220.
23. Garaicoa-Pazmino C, Suarez-Lopez del Amo F, Monje A, Catena A, Ortega-Oller I, Galindo-Moreno P et al. Influence of crown/implant ratio on marginal bone loss: a systematic review. *J Periodontol* 2014; 85: 1214-1221.
24. Gentile MA, Chuang SK, Dodson TB. Survival estimates and risk factors for failure with 6 x 5.7-mm implants. *The International journal of oral & maxillofacial implants* 2005; 20: 930-937.
25. Gleiznys A, Skirbutis G, Harb A, Barzdziukaite I, Grinyte I. New approach towards mini dental implants and small-diameter implants: an option for long-term prostheses. *Stomatologija / issued by public institution "Odontologijos studija" ... [et al.]* 2012; 14: 39-45.
26. Graves S, Mahler BA, Javid B, Armellini D, Jensen OT. Maxillary all-on-four therapy using angled implants: a 16-month clinical study of 1110 implants in 276 jaws. *Dent Clin North Am* 2011; 55: 779-794.
27. Gulje F, Abrahamsson I, Chen S, Stanford C, Zadeh H, Palmer R. Implants of 6 mm vs. 11 mm lengths in the posterior maxilla and mandible: a 1-year multicenter randomized controlled trial. *Clin Oral Implants Res* 2013; 24: 1325-1331.
28. Hasan I, Bourauel C, Mundt T, Heinemann F. Biomechanics and load resistance of short dental implants: a review of the literature. *ISRN Dent* 2013; 2013: 424592.
29. Hasan I, Bourauel C, Mundt T, Stark H, Heinemann F. Biomechanics and load resistance of small-diameter and mini dental implants: a review of literature. *Biomedizinische Technik. Biomedical engineering* 2014; 59: 1-5.
30. Hentschel A, Herrmann J, Glauche I, Vollmer A, Schlegel KA, Lutz R. Survival and patient satisfaction of short implants during the first 2 years of function: a retrospective cohort study with 694 implants in 416 patients. *Clin Oral Implants Res* 2015.
31. Klein MO, Schiegnitz E, Al-Nawas B. Systematic review on success of narrow-diameter dental implants. *Int J Oral Maxillofac Implants* 2014; 29 Suppl: 43-54.
32. Landazuri-Del Barrio RA, Cosyn J, De Paula WN, De Bruyn H, Marcantonio E, Jr. A prospective study on implants installed with flapless-guided surgery using the all-on-four concept in the mandible. *Clin Oral Implants Res* 2013; 24: 428-433.
33. Lee SA, Lee CT, Fu MM, Elmisaleti W, Chuang SK. Systematic review and meta-analysis of randomized controlled trials for the management of limited vertical height in the posterior region: short implants (5 to 8 mm) vs longer implants (> 8 mm) in vertically augmented sites. *Int J Oral Maxillofac Implants* 2014; 29: 1085-1097.
34. Lombardo G, Corrocher G, Pighi J, Faccioni F, Rovera A, Marincola M et al. The impact of subcrestal placement on short locking-taper implants placed in posterior maxilla and mandible: a retrospective evaluation on hard and soft tissues stability after 2 years of loading. *Minerva Stomatol* 2014; 63: 391-402.
35. Malo P, Rangert B, Nobre M. "All-on-Four" immediate-function concept with Branemark System implants for completely edentulous mandibles: a retrospective clinical study. *Clin Implant Dent Relat Res* 2003; 5 Suppl 1: 2-9.
36. Malo P, de Araujo Nobre M, Lopes A, Francischone C, Rigolizzo M. "All-on-4" immediate-function concept for completely edentulous maxillae: a clinical report on the medium (3 years) and long-term (5 years) outcomes. *Clinical implant dentistry and related research* 2012; 14 Suppl 1: e139-150.
37. Menchero-Cantalejo E, Barona-Dorado C, Cantero-Alvarez M, Fernandez-Caliz F, Martinez-Gonzalez JM. Meta-analysis on the survival of short implants. *Med Oral Patol Oral Cir Bucal* 2011; 16: e546-551.
38. Mezzomo LA, Miller R, Triches D, Alonso F, Shinkai RS. Meta-analysis of single crowns supported by short (<10 mm) implants in the posterior region. *J Clin Periodontol* 2014; 41: 191-213.
39. Misch CE, Steignga J, Barboza E, Misch-Dietsh F, Cianciola LJ, Kazor C. Short dental implants in posterior partial edentulism: a multicenter retrospective 6-year case series study. *J Periodontol* 2006; 77: 1340-1347.
40. Monje A, Chan HL, Suarez F, Galindo-Moreno P, Wang HL. Marginal bone loss around tilted implants in comparison

- to straight implants: a meta-analysis. *Int J Oral Maxillofac Implants* 2012; 27: 1576-1583.
41. Monteiro DR, Silva EV, Pellizzer EP, Filho OM, Goiato MC. Posterior partially edentulous jaws, planning a rehabilitation with dental implants. *World J Clin Cases* 2015; 3: 65-76.
42. Nisand D, Picard N, Rocchietta I. Short implants compared to implants in vertically augmented bone: a systematic review. *Clin Oral Implants Res* 2015.
43. Olate S, Lyrio MC, de Moraes M, Mazzonetto R, Moreira RW. Influence of diameter and length of implant on early dental implant failure. *Journal of oral and maxillofacial surgery : official journal of the American Association of Oral and Maxillofacial Surgeons* 2010; 68: 414-419.
44. Ortega-Oller I, Suarez F, Galindo-Moreno P, Torrecillas-Martinez L, Monje A, Catena A et al. The Influence of Implant Diameter Upon its Survival: A Meta-Analysis Based on Prospective Clinical Trials. *Journal of periodontology* 2013.
45. Pommer B, Mailath-Pokorny G, Haas R, Busenlechner D, Furhauser R, Watzek G. Patients' preferences towards minimally invasive treatment alternatives for implant rehabilitation of edentulous jaws. *Eur J Oral Implantol* 2014; 7 Suppl 2: S91-109.
46. Reissmann DR, Heydecke G, Schierz O, Marre B, Wolfart S, Strub JR et al. The randomized shortened dental arch study: temporomandibular disorder pain. *Clin Oral Investig* 2014; 18: 2159-2169.
47. Renouard F, Nisand D. Impact of implant length and diameter on survival rates. *Clinical oral implants research* 2006; 17 Suppl 2: 35-51.
48. Romeo E, Bivio A, Mosca D, Scanferla M, Ghisolfi M, Storelli S. The use of short dental implants in clinical practice: literature review. *Minerva stomatologica* 2010; 59: 23-31.
49. Schincaglia GP, Thoma DS, Haas R, Tutak M, Garcia A, Taylor TD et al. Randomized controlled multicenter study comparing short dental implants (6 mm) versus longer dental implants (11-15 mm) in combination with sinus floor elevation procedures. Part 2: clinical and radiographic outcomes at 1 year of loading. *J Clin Periodontol* 2015; 42: 1042-1051.
50. Shatkin TE, Shatkin S, Oppenheimer BD, Oppenheimer AJ. Mini dental implants for long-term fixed and removable prosthetics: a retrospective analysis of 2514 implants placed over a five-year period. *Compend Contin Educ Dent* 2007; 28: 92-99; quiz 100-101.
51. Sohrabi K, Mushantat A, Esfandiari S, Feine J. How successful are small-diameter implants? A literature review. *Clinical oral implants research* 2012; 23: 515-525.
52. Thoma DS, Haas R, Tutak M, Garcia A, Schincaglia GP, Hammerle CH. Randomized controlled multicentre study comparing short dental implants (6 mm) versus longer dental implants (11-15 mm) in combination with sinus floor elevation procedures. Part 1: demographics and patient-reported outcomes at 1 year of loading. *J Clin Periodontol* 2015; 42: 72-80.
53. Thoma DS, Zeltner M, Husler J, Hammerle CH, Jung RE. EAO Supplement Working Group 4 - EAO CC 2015 Short implants versus sinus lifting with longer implants to restore the posterior maxilla: a systematic review. *Clin Oral Implants Res* 2015.
54. Wang HL, Okayasu K, Fu JH, Hamerink HA, Layher MG, Rudek IE. The success rate of narrow body implants used for supporting immediate provisional restorations: a pilot feasibility study. *Implant dentistry* 2012; 21: 467-473.