

Astra Tech Implant System[®]

– Clinical documentation*

Well documented, reliable and safe

- More than 7,000 patients followed up to 16 years
- >98% implant survival rate at 5 years of follow-up
- ~0.3 mm bone loss at 5 years of follow-up

Four implant design features behind the clinical success

Since 1991, Astra Tech Implant System is based on 4 key features**:

- Moderately rough surface, e.g. OsseoSpeed since 2004
- Conical implant-abutment connection, Conical Seal Design
- Micro Thread on the implant neck
- Unique Connective Contour, i.e. horizontal offset

Portfolio of implant designs range from short (6 mm)¹⁻¹², narrow (3.0 mm)¹³⁻¹⁶ and sloped implant neck contour (Profile)¹⁷⁻²⁰ to OsseoSpeed EV cylindrical or conical neck designs²¹, all being well documented in the scientific community.

	< 5 years	5-9 years	>10 years
Single tooth	5, 7, 9, 13-15, 17, 18, 21-37	38-40	
Fixed prosthesis	1, 3, 8, 10, 11, 41-53	54-57	58-63
Overdenture	4, 64-71	72, 73	74, 75
Esthetic focus	16, 19, 20, 76-88	79	
Surgical focus	6, 89-107	104, 108, 109	
Peri-implantitis focus	110-112		113
Patients evaluation	2, 12, 114-123		

Astra Tech Implant System literature sorted per primary indication and scientific focus, and length of prospective follow-up period.

Conclusion

Extensive literature shows safe and predictable results for Astra Tech Implant System in terms of high implant survival rate and well maintained marginal bone.

* This Scientific Review on Astra Tech Implant System only cites articles based on prospective studies where ≥5 patients have been followed for ≥1 year with OsseoSpeed implants or ≥5 patients have been followed for >5 year with TiOblast implants

** For literature about the specific key features of Astra Tech Implant System, please see www.dentsplyimplants.com

References

- Clelland N, Chaudhry J, Rashid RG, McGlumphy E. Split-mouth comparison of splinted and nonsplinted prostheses on short implants: 3-year results. *Int J Oral Maxillofac Implants* 2016;31(5):1135-41. [Abstract in PubMed](#)
- Gates WD, 3rd, Cooper LF, Sanders AE, Reside GJ, De Kok IJ. The effect of implant-supported removable partial dentures on oral health quality of life. *Clin Oral Implants Res* 2014;25(2):207-13. [Abstract in PubMed](#)
- Guljé F, Abrahamsson I, Chen S, et al. 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(12):1325-31. [Abstract in PubMed](#)
- Guljé F, Raghoobar GM, Ter Meulen JW, Vissink A, Meijer HJ. Mandibular overdentures supported by 6-mm dental implants: A 1-year prospective cohort study. *Clin Implant Dent Relat Res* 2011;14(Supplement 1):e59-e66. [Abstract in PubMed](#)
- Guljé FL, Raghoobar GM, Erkens WA, Meijer HJ. Impact of crown-implant ratio of single restorations supported by 6-mm implants: A short-term case series study. *Int J Oral Maxillofac Implants* 2016;31(3):672-5. [Abstract in PubMed](#)
- Guljé FL, Raghoobar GM, Vissink A, Meijer HJ. Single crowns in the resorbed posterior maxilla supported by either 6-mm implants or by 11-mm implants combined with sinus floor elevation surgery: A 1-year randomized controlled trial. *Eur J Oral Implantol* 2014;7(3):247-55. [Abstract in PubMed](#)
- Guljé FL, Raghoobar GM, Vissink A, Meijer HJ. Single restorations in the resorbed posterior mandible supported by 6-mm implants: A 1-year prospective case series study. *Clin Implant Dent Relat Res* 2015;17 Suppl 2:e465-71. [Abstract in PubMed](#)
- Han J, Zhang X, Tang Z, et al. A prospective, multicenter study assessing the dentsply implants, osseospeed tx, length 6 mm in the posterior maxilla and mandible: A 1-year follow-up study. *Clin Oral Implants Res* 2016;27(4):452-7. [Abstract in PubMed](#)
- Malmstrom H, Gupta B, Ghanem A, et al. Success rate of short dental implants supporting single crowns and fixed bridges. *Clin Oral Implants Res* 2016;27(9):1093-8. [Abstract in PubMed](#)
- Pieri F, Aldini NN, Fini M, Marchetti C, Corinaldesi G. Preliminary 2-year report on treatment outcomes for 6-mm-long implants in posterior atrophic mandibles. *Int J Prosthodont* 2012;25(3):279-89. [Abstract in PubMed](#)
- Tabrizi R, Arabion H, Aliabadi E, Hasanzadeh F. Does increasing the number of short implants reduce marginal bone loss in the posterior mandible? A prospective study. *Br J Oral Maxillofac Surg* 2016;54(7):731-5. [Abstract in PubMed](#)
- Thoma DS, Haas R, Tutak M, et al. 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(1):72-80. [Abstract in PubMed](#)
- Galindo-Moreno P, Nilsson P, King P, et al. Clinical and radiographic evaluation of early loaded narrow diameter implants - 1-year follow-up. *Clin Oral Implants Res* 2012;23(5):609-16. [Abstract in PubMed](#)
- King P, Maiorana C, Luthardt RG, et al. Clinical and radiographic evaluation of a small-diameter dental implant used for the restoration of patients with permanent tooth agenesis (hypodontia) in the maxillary lateral incisor and mandibular incisor regions: A 36-month follow-up. *Int J Prosthodont* 2016;29(2):147-53. [Abstract in PubMed](#)
- Maiorana C, King P, Quaas S, et al. Clinical and radiographic evaluation of early loaded narrow-diameter implants: 3 years follow-up. *Clin Oral Implants Res* 2015;26(1):77-82. [Abstract in PubMed](#)
- Pieri F, Siroli L, Forlivesi C, Corinaldesi G. Clinical, esthetic, and radiographic evaluation of small-diameter (3.0-mm) implants supporting single crowns in the anterior region: A 3-year prospective study. *Int J Periodontics Restorative Dent* 2014;34(6):825-32. [Abstract in PubMed](#)
- Lee PK, Siu AS. A two-year evaluation of a sloped marginal contour implant system placed in healed sites. *Int J Oral Maxillofac Implants* 2016;31(6):1423-28. [Abstract in PubMed](#)
- Noelken R, Donati M, Fiorellini J, et al. Soft and hard tissue alterations around implants placed in an alveolar ridge with a sloped configuration. *Clin Oral Implants Res* 2014;25(1):3-9. [Abstract in PubMed](#)
- Noelken R, Oberhansl F, Kunkel M, Wagner W. Immediately provisionalized osseospeed() profile implants inserted into extraction sockets: 3-year results. *Clin Oral Implants Res* 2016;27(6):744-9. [Abstract in PubMed](#)
- Schiegnitz E, Noelken R, Moergel M, Berres M, Wagner W. Survival and tissue maintenance of an implant with a sloped configured shoulder in the posterior mandible-a prospective multicenter study. *Clin Oral Implants Res* 2016;E-pub May 13, doi:10.1111/clr.12869. [Abstract in PubMed](#)
- Stanford CM, Barwacz C, Raes S, et al. Multicenter clinical randomized controlled trial evaluation of an implant system designed for enhanced primary stability. *Int J Oral Maxillofac Implants* 2016;31(4):906-15. [Abstract in PubMed](#)
- Barewal RM, Stanford C, Weesner TC. A randomized controlled clinical trial comparing the effects of three loading protocols on dental implant stability. *Int J Oral Maxillofac Implants* 2012;27(4):945-56. [Abstract in PubMed](#)
- Berberi AN, Noujeim ZN, Kanj WH, Mearawi RJ, Salameh ZA. Immediate placement and loading of maxillary single-tooth implants: A 3-year prospective study of marginal bone level. *J Contemp Dent Pract* 2014;15(2):202-8. [Abstract in PubMed](#)
- Ferrari M, Tricarico MG, Cagidiaco MC, et al. 3-year randomized controlled prospective clinical trial on different cad-cam implant abutments. *Clin Implant Dent Relat Res* 2016;E-pub Mar 14, doi:10.1111/cid.12418. [Abstract in PubMed](#)
- Ghoveizi R, Alikhasi M, Siadat M-R, Siadat H, Sorouri M. A radiographic comparison of progressive and conventional loading on crestal bone loss and dentistry in single dental implants: A randomized controlled trial study. *J Dent (Tehran)* 2013;10(2):155-63. [Abstract in PubMed](#)
- Hosseini M, Worsaae N, Schiodt M, Gotfredsen K. A 1-year randomised controlled trial comparing zirconia versus metal-ceramic implant supported single-tooth restorations. *Eur J Oral Implantol* 2011;4(4):347-61. [Abstract in PubMed](#)
- Hosseini M, Worsaae N, Schiodt M, Gotfredsen K. A 3-year prospective study of implant-supported, single-tooth restorations of all-ceramic and metal-ceramic materials in patients with tooth agenesis. *Clin Oral Implants Res* 2013;24(10):1078-87. [Abstract in PubMed](#)
- Koutouzis T, Neiva R, Lipton D, Lundgren T. The effect of interimplant distance on peri-implant bone and soft tissue dimensional changes: A nonrandomized, prospective, 2-year follow-up study. *Int J Oral Maxillofac Implants* 2015;30(4):900-8. [Abstract in PubMed](#)
- Kutan E, Bolukbasi N, Yildirim-Ondur E, Ozdemir T. Clinical and radiographic evaluation of marginal bone changes around platform-switching implants placed in crestal or subcrestal positions: A randomized controlled clinical trial. *Clin Implant Dent Relat Res* 2015;17 Suppl 2:e364-75. [Abstract in PubMed](#)
- Lee DW, Lee DW, Park KH, Moon IS. The effects of off-axial loading on periimplant marginal bone loss in a single implant. *J Prosth Dent* 2014;112(3):501-7. [Abstract in PubMed](#)
- Marcelis K, Verduyssen M, Naert I, Teughels W, Quirynen M. Model-based guided implant insertion for solitary tooth replacement: A pilot study. *Clin Oral Implants Res* 2012;23(8):999-1003. [Abstract in PubMed](#)
- Palmer RM, Howe LC, Palmer PJ, Wilson R. A prospective clinical trial of single astra tech 4.0 or 5.0 diameter implants used to support two-unit cantilever bridges: Results after 3 years. *Clin Oral Implants Res* 2012;23(1):35-40. [Abstract in PubMed](#)
- Sanz M, Cecchinato D, Ferrus J, et al. Implants placed in fresh extraction sockets in the maxilla: Clinical and radiographic outcomes from a 3-year follow-up examination. *Clin Oral Implants Res* 2014;25(3):321-7. [Abstract in PubMed](#)
- Schepke U, Meijer HJ, Vermeulen KM, Raghoobar GM, Cune MS. Clinical bonding of resin nano ceramic restorations to zirconia abutments: A case series within a randomized clinical trial. *Clin Implant Dent Relat Res* 2016;18(5):984-92. [Abstract in PubMed](#)
- Tabrizi R, Pourdanesh F, Zare S, Daneste H, Zeini N. Do angulated implants increase the amount of bone loss around implants in the anterior maxilla? *J Oral Maxillofac Surg* 2013;71(2):272-7. [Abstract in PubMed](#)
- Thoma DS, Brandenberg F, Fehmer V, et al. Randomized controlled clinical trial of all-ceramic single tooth implant reconstructions using modified zirconia abutments: Radiographic and prosthetic results at 1 year of loading. *Clin Implant Dent Relat Res* 2016;18(3):462-72. [Abstract in PubMed](#)
- Vera C, De Kok IJ, Chen W, et al. Evaluation of post-implant buccal bone resorption using cone beam computed tomography: A clinical pilot study. *Int J Oral Maxillofac Implants* 2012;27(5):1249-57. [Abstract in PubMed](#)
- Berberi AN, Sabbagh JM, Aboushelib MN, Noujeim ZF, Salameh ZA. A 5-year comparison of marginal bone level following immediate loading of single-tooth implants placed in healed alveolar ridges and extraction sockets in the maxilla. *Front Physiol* 2014;5:29. [Abstract in PubMed](#)
- Lops D, Bressan E, Chiapasco M, Rossi A, Romeo E. Zirconia and titanium implant abutments for single-tooth implant prostheses after 5 years of function in posterior regions. *Int J Oral Maxillofac Implants* 2013;28(1):281-7. [Abstract in PubMed](#)
- Veltri M, Ekstubbé A, Abrahamsson I, Wennstrom JL. Three-dimensional buccal bone anatomy and aesthetic outcome of single dental implants replacing maxillary incisors. *Clin Oral Implants Res* 2016;27(8):956-63. [Abstract in PubMed](#)
- Balleri P, Ferrari M, Veltri M. One-year outcome of implants strategically placed in the retrocanine bone triangle. *Clin Implant Dent Relat Res* 2010;12(4):324-30. [Abstract in PubMed](#)
- Barbier L, Abeloos J, De Clercq C, Jacobs R. Peri-implant bone changes following tooth extraction, immediate placement and loading of implants in the edentulous maxilla. *Clin Oral Investig* 2012;16(4):1061-70. [Abstract in PubMed](#)
- Collaert B, Wijnen L, De Bruyn H. A 2-year prospective study on immediate loading with fluoride-modified implants in the edentulous mandible. *Clin Oral Implants Res* 2011;22(10):1111-6. [Abstract in PubMed](#)
- D'haese J, Vervaeke S, Verbanck N, De Bruyn H. Clinical and radiographic outcome of implants placed using stereolithographic guided surgery: A prospective monocenter study. *Int J Oral Maxillofac Implants* 2013;28(1):205-15. [Abstract in PubMed](#)

45. Ebler S, Ioannidis A, Jung RE, Hammerle CH, Thoma DS. Prospective randomized controlled clinical study comparing two types of two-piece dental implants supporting fixed reconstructions – results at 1 year of loading. *Clin Oral Implants Res* 2016;27(9):1169-77. [Abstract in PubMed](#)
46. Esquivel-Upshaw JF, Clark AE, Shuster JJ, Anusavice KJ. Randomized clinical trial of implant-supported ceramic-ceramic and metal-ceramic fixed dental prostheses: Preliminary results. *J Prosthodont* 2014;23(2):73-82. [Abstract in PubMed](#)
47. Esquivel-Upshaw JF, Mehler A, Clark AE, Neal D, Anusavice KJ. Fracture analysis of randomized implant-supported fixed dental prostheses. *J Dent* 2014;42(10):1335-42. [Abstract in PubMed](#)
48. Kim JJ, Lee DW, Kim CK, Park KH, Moon IS. Effect of conical configuration of fixture on the maintenance of marginal bone level: Preliminary results at 1 year of function. *Clin Oral Implants Res* 2010;21(4):439-44. [Abstract in PubMed](#)
49. Liaje A, Ozkan YK, Ozkan Y, Vanlioglu B. Stability and marginal bone loss with three types of early loaded implants during the first year after loading. *Int J Oral Maxillofac Implants* 2012;27(1):162-72. [Abstract in PubMed](#)
50. Stanford CM, Wagner W, Rodriguez YBR, et al. Evaluation of the effectiveness of dental implant therapy in a practice-based network (focus). *Int J Oral Maxillofac Implants* 2010;25(2):367-73. [Abstract in PubMed](#)
51. Temmerman A, Rasmusson L, Kubler A, Thor A, Quirynen M. An open, prospective, non-randomized, controlled, multicentre study to evaluate the clinical outcome of implant treatment in women over 60 years of age with osteoporosis/osteopenia: 1-year results. *Clin Oral Implants Res* 2017;28(1):95-102. [Abstract in PubMed](#)
52. Vervaeke S, Collaert B, De Bruyn H. The effect of implant surface modifications on survival and bone loss of immediately loaded implants in the edentulous mandible. *Int J Oral Maxillofac Implants* 2013;28(5):1352-7. [Abstract in PubMed](#)
53. Zhou J, Huang Q, Wang X, et al. Early loading of splinted implants in the posterior mandible: A prospective multicentre case series. *J Clin Periodontol* 2016;43(3):298-304. [Abstract in PubMed](#)
54. Mertens C, Steveling HG. Implant-supported fixed prostheses in the edentulous maxilla: 8-year prospective results. *Clin Oral Implants Res* 2010;22(5):464-72. [Abstract in PubMed](#)
55. Vervaeke S, Collaert B, Cosyn J, De Bruyn H. A 9-year prospective case series using multivariate analyses to identify predictors of early and late peri-implant bone loss. *Clin Implant Dent Relat Res* 2016;18(1):30-9. [Abstract in PubMed](#)
56. Mertens C, Steveling HG. Early and immediate loading of titanium implants with fluoride-modified surfaces: Results of 5-year prospective study. *Clin Oral Implants Res* 2011;22(12):1354-60. [Abstract in PubMed](#)
57. Schliephake H, Rodiger M, Phillips K, et al. Early loading of surface modified implants in the posterior mandible - 5 year results of an open prospective non-controlled study. *J Clin Periodontol* 2012;39(2):188-95. [Abstract in PubMed](#)
58. Mertens C, Meyer-Baumer A, Kappel H, Hoffmann J, Steveling HG. Use of 8-mm and 9-mm implants in atrophic alveolar ridges: 10-year results. *Int J Oral Maxillofac Implants* 2012;27(6):1501-8. [Abstract in PubMed](#)
59. Mertens C, Steveling HG, Stucke K, Pretzl B, Meyer-Baumer A. Fixed implant-retained rehabilitation of the edentulous maxilla: 11-year results of a prospective study. *Clin Implant Dent Relat Res* 2012;14(6):816-27. [Abstract in PubMed](#)
60. Rasmusson L, Roos J, Bystedt H. A 10-year follow-up study of titanium dioxide-blasted implants. *Clin Implant Dent Relat Res* 2005;7(1):36-42. [Abstract in PubMed](#)
61. Ravalid N, Dahlgren S, Teiwik A, Grondahl K. Long-term evaluation of astra tech and branemark implants in patients treated with full-arch bridges. Results after 12-15 years. *Clin Oral Implants Res* 2013;24(10):1144-51. [Abstract in PubMed](#)
62. Van Assche N, Pittayapat P, Jacobs R, et al. Microbiological outcome of two screw-shaped titanium implant systems placed following a split-mouth randomised protocol, at the 12th year of follow-up after loading. *Eur J Oral Implantol* 2011;4(2):103-16. [Abstract in PubMed](#)
63. Jacobs R, Pittayapat P, van Steenberghe D, et al. A split-mouth comparative study up to 16 years of two screw-shaped titanium implant systems. *J Clin Periodontol* 2010;37(12):119-127. [Abstract in PubMed](#)
64. Bressan E, Tomasi C, Stellini E, et al. Implant-supported mandibular overdentures: A cross-sectional study. *Clin Oral Implants Res* 2012;23(7):814-9. [Abstract in PubMed](#)
65. Geckili O, Bilhan H, Mumcu E, Bilgin T. Three-year radiologic follow-up of marginal bone loss around titanium dioxide grit-blasted dental implants with and without fluoride treatment. *Int J Oral Maxillofac Implants* 2011;26(2):319-24. [Abstract in PubMed](#)
66. Gökçen-Röhlig B, Meric U, Keskin H. Clinical and radiographic outcomes of implants immediately placed in fresh extraction sockets. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010;109(4):1-7. [Abstract in PubMed](#)
67. Mumcu E, Bilhan H, Geckili O. The influence of healing type on marginal bone levels of implants supporting mandibular overdentures: A randomized clinical study. *Indian J Dent Res* 2012;23(4):514-8. [Abstract in PubMed](#)
68. Roe P, Kan JY, Rungcharassaeng K, Lozada JL. Immediate loading of unsplinted implants in the anterior mandible for overdentures: 3-year results. *Int J Oral Maxillofac Implants* 2011;26(6):1296-302. [Abstract in PubMed](#)
69. Schincaglia GP, Rubin S, Thacker S, et al. Marginal bone response around immediate- and delayed-loading implants supporting a locator-retained mandibular overdenture: A randomized controlled study. *Int J Oral Maxillofac Implants* 2016;31(2):448-58. [Abstract in PubMed](#)
70. Slot W, Raghoobar GM, Vissink A, Meijer HJ. Maxillary overdentures supported by four or six implants in the anterior region; 1-year results from a randomized controlled trial. *J Clin Periodontol* 2013;40(3):303-10. [Abstract in PubMed](#)
71. Slot W, Raghoobar GM, Vissink A, Meijer HJ. Maxillary overdentures supported by anteriorly or posteriorly placed implants opposed by a natural dentition in the mandible: A 1-year prospective case series study. *Clin Implant Dent Relat Res* 2014;16(1):51-61. [Abstract in PubMed](#)
72. Boven GC, Meijer HJ, Slot W, Vissink A, Raghoobar GM. Does a large dehiscent implant surface at placement affect the 5-year treatment outcome? An assessment of implants placed to support a maxillary overdenture. *J Craniomaxillofac Surg* 2015;43(9):1758-62. [Abstract in PubMed](#)
73. Slot W, Raghoobar GM, Cune MS, Vissink A, Meijer HJ. Maxillary overdentures supported by four or six implants in the anterior region: 5-year results from a randomized controlled trial. *J Clin Periodontol* 2016;43(12):1180-87. [Abstract in PubMed](#)
74. Lehmann KM, Kammerer PW, Karbach J, et al. Long-term effect of overdenture bar design on peri-implant tissues. *Int J Oral Maxillofac Implants* 2013;28(4):1126-31. [Abstract in PubMed](#)
75. Vroom MG, Sips P, de Lange GL, et al. Effect of surface topography of screw-shaped titanium implants in humans on clinical and radiographic parameters: A 12-year prospective study. *Clin Oral Implants Res* 2009;20(11):1231-39. [Abstract in PubMed](#)
76. Barwacz CA, Stanford CM, Diehl UA, et al. Electronic assessment of peri-implant mucosal esthetics around three implant-abutment configurations: A randomized clinical trial. *Clin Oral Implants Res* 2016;27(6):707-15. [Abstract in PubMed](#)
77. Borges T, Lima T, Carvalho A, Dourado C, Carvalho V. The influence of customized abutments and custom metal abutments on the presence of the interproximal papilla at implants inserted in single-unit gaps: A 1-year prospective clinical study. *Clin Oral Implants Res* 2014;25(11):1222-7. [Abstract in PubMed](#)
78. Cecchinato D, Lops D, Salvi GE, Sanz M. A prospective, randomized, controlled study using osseospeed implants placed in maxillary fresh extraction socket: Soft tissues response. *Clin Oral Implants Res* 2015;26(1):20-7. [Abstract in PubMed](#)
79. Cooper LF, Reside G, Raes F, et al. Immediate provisionalization of dental implants in grafted alveolar ridges in the esthetic zone: A 5-year evaluation. *Int J Periodontics Restorative Dent* 2014;34(4):477-86. [Abstract in PubMed](#)
80. Levin BP, Wilk BL. Immediate provisionalization of immediate implants in the esthetic zone: A prospective case series evaluating implant survival, esthetics, and bone maintenance. *Compend Contin Educ Dent* 2013;34(5):352-61. [Abstract in PubMed](#)
81. Lops D, Bressan E, Parpaiola A, et al. Soft tissues stability of cad-cam and stock abutments in anterior regions: 2-year prospective multicentric cohort study. *Clin Oral Implants Res* 2015;26(12):1436-42. [Abstract in PubMed](#)
82. Lops D, Chiapasco M, Rossi A, Bressan E, Romeo E. Incidence of inter-proximal papilla between a tooth and an adjacent immediate implant placed into a fresh extraction socket: 1-year prospective study. *Clin Oral Implants Res* 2008;19(11):1135-40. [Abstract in PubMed](#)
83. Noelken R, Neffe BA, Kunkel M, Wagner W. Maintenance of marginal bone support and soft tissue esthetics at immediately provisionalized osseospeed implants placed into extraction sites: 2-year results. *Clin Oral Implants Res* 2014;25(2):214-20. [Abstract in PubMed](#)
84. Raes F, Cosyn J, Crommelinck E, Coessens P, De Bruyn H. Immediate and conventional single implant treatment in the anterior maxilla: 1-year results of a case series on hard and soft tissue response and aesthetics. *J Clin Periodontol* 2011;38(4):385-94. [Abstract in PubMed](#)
85. Raes S, Rocci A, Raes F, et al. A prospective cohort study on the impact of smoking on soft tissue alterations around single implants. *Clin Oral Implants Res* 2015;26(9):1086-90. [Abstract in PubMed](#)
86. Tsuda H, Rungcharassaeng K, Kan JY, et al. Peri-implant tissue response following connective tissue and bone grafting in conjunction with immediate single-tooth replacement in the esthetic zone: A case series. *Int J Oral Maxillofac Implants* 2011;26(2):427-36. [Abstract in PubMed](#)
87. Arora H, Ivanovski S. Correlation between pre-operative buccal bone thickness and soft tissue changes around immediately placed and restored implants in the maxillary anterior region: A 2-year prospective study. *Clin Oral Implants Res* 2016;E-pub Jul 29, doi:10.1111/clr.12939. [Abstract in PubMed](#)
88. Cooper LF, Reside G, Stanford C, et al. A multicenter randomized comparative trial of implants with different abutment interfaces to replace anterior maxillary single teeth. *Int J Oral Maxillofac Implants* 2015;30(3):622-32. [Abstract in PubMed](#)

References

89. Bashutski JD, Wang HL, Rudek I, et al. Effect of flapless surgery on single-tooth implants in the esthetic zone: A randomized clinical trial. *J Periodontol* 2013;84(12):1747-54. [Abstract in PubMed](#)
90. Cooper LF, Raes F, Reside GJ, et al. Comparison of radiographic and clinical outcomes following immediate provisionalization of single-tooth dental implants placed in healed alveolar ridges and extraction sockets. *Int J Oral Maxillofac Implants* 2010;25(6):1222-32. [Abstract in PubMed](#)
91. De Bruyn H, Raes F, Cooper LF, et al. Three-years clinical outcome of immediate provisionalization of single osseospeed() implants in extraction sockets and healed ridges. *Clin Oral Implants Res* 2013;24(2):217-23. [Abstract in PubMed](#)
92. Donati M, La Scala V, Billi M, et al. Immediate functional loading of implants in single tooth replacement: A prospective clinical multicenter study. *Clin Oral Implants Res* 2008;19(8):740-48. [Abstract in PubMed](#)
93. Esquivel-Upshaw J, Mehler A, Clark A, et al. Peri-implant complications for posterior endosteal implants. *Clin Oral Implants Res* 2015;26(12):1390-6. [Abstract in PubMed](#)
94. Kahnberg KE, Wallstrom M, Rasmusson L. Local sinus lift for single-tooth implant. I. Clinical and radiographic follow-up. *Clin Implant Dent Relat Res* 2009;13(3):231-7. [Abstract in PubMed](#)
95. Koutouzis T, Koutouzis G, Tomasi C, Lundgren T. Immediate loading of implants placed with the osteotome technique: One-year prospective case series. *J Periodontol* 2011;82(11):1556-62. [Abstract in PubMed](#)
96. Lyngstadaas SP, Verket A, Pinholt EM, et al. Titanium granules for augmentation of the maxillary sinus - a multicenter study. *Clin Implant Dent Relat Res* 2015;17 Suppl 2:e594-600. [Abstract in PubMed](#)
97. Mertens C, Steveling HG, Seeburger R, Hoffmann J, Freier K. Reconstruction of severely atrophied alveolar ridges with calvarial onlay bone grafts and dental implants. *Clin Implant Dent Relat Res* 2013;15(5):673-83. [Abstract in PubMed](#)
98. Oxby G, Oxby F, Oxby J, Saltvik T, Nilsson P. Early loading of fluoridated implants placed in fresh extraction sockets and healed bone: A 3- to 5-year clinical and radiographic follow-up study of 39 consecutive patients. *Clin Implant Dent Relat Res* 2015;17(5):898-907. [Abstract in PubMed](#)
99. Pieri F, Aldini NN, Fini M, Marchetti C, Corinaldesi G. Immediate fixed implant rehabilitation of the atrophic edentulous maxilla after bilateral sinus floor augmentation: A 12-month pilot study. *Clin Implant Dent Relat Res* 2012;14 (Suppl 1):e67-82. [Abstract in PubMed](#)
100. Piero B, Mario V, Niccolo N, Marco F. Implant placement in combination with sinus membrane elevation without biomaterials: A 1-year study on 15 patients. *Clin Implant Dent Relat Res* 2012;14(5):682-9. [Abstract in PubMed](#)
101. Raes F, Cosyn J, De Bruyn H. Clinical, aesthetic, and patient-related outcome of immediately loaded single implants in the anterior maxilla: A prospective study in extraction sockets, healed ridges, and grafted sites. *Clin Implant Dent Relat Res* 2013;15(6):819-35. [Abstract in PubMed](#)
102. Raes F, Renckens L, Aps J, Cosyn J, De Bruyn H. Reliability of circumferential bone level assessment around single implants in healed ridges and extraction sockets using cone beam ct. *Clin Implant Dent Relat Res* 2013;15(5):661-72. [Abstract in PubMed](#)
103. Thor A, Ekstrand K, Baer RA, Toljanic JA. Three-year follow-up of immediately loaded implants in the edentulous atrophic maxilla: A study in patients with poor bone quantity and quality. *Int J Oral Maxillofac Implants* 2014;29(3):642-9. [Abstract in PubMed](#)
104. Toljanic JA, Baer RA, Ekstrand K, Thor A. Implant rehabilitation of the atrophic edentulous maxilla including immediate fixed provisional restoration without the use of bone grafting: A review of 1-year outcome data from a long-term prospective clinical trial. *Int J Oral Maxillofac Implants* 2009;24(3):518-26. [Abstract in PubMed](#)
105. Vercruyssen M, van de Wiele G, Teughels W, et al. Implant- and patient-centred outcomes of guided surgery, a 1-year follow-up: An rct comparing guided surgery with conventional implant placement. *J Clin Periodontol* 2014;41(12):1154-60. [Abstract in PubMed](#)
106. Yoon WJ, Jeong KI, You JS, Oh JS, Kim SG. Survival rate of astra tech implants with maxillary sinus lift. *J Korean Assoc Oral Maxillofac Surg* 2014;40(1):17-20. [Abstract in PubMed](#)
107. Pohl V, Thoma DS, Sporniak-Tutak K, et al. Short dental implants (6 mm) versus long dental implants (11-15 mm) in combination with sinus floor elevation procedures: 3-year results from a multicenter, randomized, controlled clinical trial. *J Clin Periodontol* 2017;E-pub Jan 12, doi:10.1111/jcpe.12694. [Abstract in PubMed](#)
108. Cooper LF, Reside GJ, Raes F, et al. Immediate provisionalization of dental implants placed in healed alveolar ridges and extraction sockets: A 5-year prospective evaluation. *Int J Oral Maxillofac Implants* 2014;29(3):709-17. [Abstract in PubMed](#)
109. Donati M, La Scala V, Di Raimondo R, et al. Marginal bone preservation in single-tooth replacement: A 5-year prospective clinical multicenter study. *Clin Implant Dent Relat Res* 2015;17(3):425-34. [Abstract in PubMed](#)
110. Aguirre-Zorzano LA, Vallejo-Aisa FJ, Estefania-Fresco R. Supportive periodontal therapy and periodontal biotype as prognostic factors in implants placed in patients with a history of periodontitis. *Med Oral Patol Oral Cir Bucal* 2013;18(5):e786-92. [Abstract in PubMed](#)
111. Brandenberg FD, Sailer I, Fehrer V, et al. Randomized controlled clinical pilot study of all-ceramic single-tooth implant reconstructions: Clinical and microbiological outcomes at one year of loading. *Clin Oral Implants Res* 2016;E-pub Mar 3, doi:10.1111/clr.12813. [Abstract in PubMed](#)
112. Carcuac O, Derks J, Charalampakis G, et al. Adjunctive systemic and local antimicrobial therapy in the surgical treatment of peri-implantitis: A randomized controlled clinical trial. *J Dent Res* 2016;95(1):50-7. [Abstract in PubMed](#)
113. Renvert S, Lindahl C, Persson RG. The incidence of peri-implantitis for two different implant systems over a period of thirteen years. *J Clin Periodontol* 2012;39(12):1191-7. [Abstract in PubMed](#)
114. Cakir O, Kazancioglu HO, Celik G, Deger S, Ak G. Evaluation of the efficacy of mandibular conventional and implant prostheses in a group of Turkish patients: A quality of life study. *J Prosthodont* 2014;23(5):390-6. [Abstract in PubMed](#)
115. De Kok I, Chang K-H, Li T-S, Cooper LF. Comparison of three-implant-supported fixed dentures and two-implant-retained overdentures in the edentulous mandible: A pilot study of treatment efficacy and patient satisfaction. *Int J Oral Maxillofac Implants* 2011;26(2):415-26. [Abstract in PubMed](#)
116. Emami E, Cerutti-Kopplin D, Menassa M, et al. Does immediate loading affect clinical and patient-centered outcomes of mandibular 2-unsplinted-implant overdenture? A 2-year within-case analysis. *J Dent* 2016;E-pub Apr 22, doi:10.1016/j.jdent.2016.04.009. [Abstract in PubMed](#)
117. Limmer B, Sanders AE, Reside G, Cooper LF. Complications and patient-centered outcomes with an implant-supported monolithic zirconia fixed dental prosthesis: 1 year results. *J Prosthodont* 2014;23(4):267-75. [Abstract in PubMed](#)
118. Mertens C, de San Jose Gonzalez J, Freudlsperger C, et al. Implant-prosthetic rehabilitation of hemimaxillectomy defects with cad/cam suprastructures. *J Craniomaxillofac Surg* 2016;44(11):1812-18. [Abstract in PubMed](#)
119. Raes F, Cooper LF, Tarrida LG, Vandromme H, De Bruyn H. A case-control study assessing oral health-related quality of life after immediately loaded single implants in healed alveolar ridges or extraction sockets. *Clin Oral Implants Res* 2012;23(5):602-8. [Abstract in PubMed](#)
120. Rismanchian M, Fazel A, Rakhshan V, Eblaghian G. One-year clinical and radiographic assessment of fluoride-enhanced implants on immediate non-functional loading in posterior maxilla and mandible: A pilot prospective clinical series study. *Clin Oral Implants Res* 2011;22(12):1440-5. [Abstract in PubMed](#)
121. Schepke U, Meijer HJ, Kerdjik W, Raghoobar GM, Cune M. Stock versus cad/cam customized zirconia implant abutments - clinical and patient-based outcomes in a randomized controlled clinical trial. *Clin Implant Dent Relat Res* 2016;E-pub Jul 31, doi:10.1111/cid.12440. [Abstract in PubMed](#)
122. Van Lierde KM, Corthals P, Browaeys H, et al. Impact of anterior single-tooth implants on quality of life, articulation and oromyofunctional behaviour: A pilot study. *J Oral Rehabil* 2011;38(3):170-5. [Abstract in PubMed](#)
123. Erkapers M, Ekstrand K, Baer RA, Toljanic JA, Thor A. Patient satisfaction following dental implant treatment with immediate loading in the edentulous atrophic maxilla. *Int J Oral Maxillofac Implants* 2011;26(2):356-64. [Abstract in PubMed](#)

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