

# Short OsseoSpeed implants (6 mm) —Astra Tech Implant System®

## Why short implants?

Implant placement in the posterior regions sometimes faces anatomical challenges with limited vertical bone height due to the expansion of the maxillary sinus, or proximity to the inferior alveolar nerve. To overcome these challenging clinical situations short, 6 mm, OsseoSpeed implants have become a treatment option to rely on<sup>1-38</sup>.

- Avoids vital anatomical structures
- Minimizes bone grafting procedures
- Reduces patient morbidity from surgical interventions<sup>29, 37</sup>
- Less surgical complications<sup>18, 30</sup>
- Reduces treatment cost<sup>30</sup> and time<sup>28, 30</sup>

## Clinically proven solution

With up to 7 years of follow-up<sup>18</sup> short OsseoSpeed implants have been shown clinically successful in the following clinical situations and indications:

- placed in posterior maxilla  
2, 4, 14, 16-18, 24, 25, 29, 31, 32, 34, 36, 37
- placed in the mandible<sup>6, 7, 9, 13, 15, 28, 33, 34</sup>
- for single crown<sup>3, 11-15, 18-22, 24, 25, 31, 32, 34, 35, 37</sup>
- for fixed partial denture<sup>2, 4, 7, 8, 10, 28, 29, 33, 38</sup>
- for overdenture<sup>9</sup>
- for removable partial denture<sup>6</sup>.

Over time, the OsseoSpeed implants have shown:

- high implant survival rates  
4, 6-12, 14, 15, 19-22, 24, 28-33, 36-38
- well maintained marginal bone levels  
4, 7, 8, 10-15, 19, 20, 28-34, 38

Increased patient acceptance was shown through reports of high patient satisfaction<sup>9, 12-15, 25, 28</sup>.



## Similar clinical outcome as longer implants

Clinical studies comparing OsseoSpeed implants with a length of 6 mm to that of standard-length implants ( $\geq 9$  mm) indicated that treatment with short implants have equally good results on survival rate and maintenance of marginal bone levels when treating atrophic jaws<sup>7, 8, 10, 12, 14, 16-18, 29, 30, 32, 36-38</sup>.

## Conclusion

Clinical documentation shows that short OsseoSpeed implants are a viable treatment option for the atrophic, posterior jaw, giving similar clinical outcome as standard-length implants.

\* Immediate loading is not indicated in single tooth situations on implants shorter than 8 mm or in soft bone (type IV) where implant stability may be difficult to obtain and immediate loading may not be appropriate.

## References

1. Abduljabbar T, Al-Hamoudi N, Al-Sowygh ZH, et al. Comparison of peri-implant clinical and radiographic status around short (6 mm in length) dental implants placed in cigarette-smokers and never-smokers: Six-year follow-up results. *Clin Implant Dent Relat Res* 2018;20(1):21-25. [Abstract](#)
2. Borges T, Leitao B, Pereira M, Carvalho A, Galindo-Moreno P. Influence of the abutment height and connection timing in early peri-implant marginal bone changes: A prospective randomized clinical trial. *Clin Oral Implants Res* 2018;29(9):907-14. [Abstract](#)
3. Brandenberg FD, Sailer I, Fehmer 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* 2017;28(4):406-13. [Abstract](#)
4. 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](#)
5. 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](#)
6. 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](#)
7. Guida L, Annunziata M, Esposito U, et al. 6-mm-short and 11-mm-long implants compared in the full-arch rehabilitation of the edentulous mandible: A 3-year multicenter randomized controlled trial. *Clin Oral Implants Res* 2020;31(1):64-73. [Abstract](#)
8. 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](#)
9. Gulje 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* 2012;14 Suppl 1(Supplement 1):e59-66. [Abstract](#)
10. Gulje FL, Meijer HJA, Abrahamsson I, et al. Comparison of 6-mm and 11-mm dental implants in the posterior region supporting fixed dental prostheses: 5-year results of an open multicenter randomized controlled trial. *Clin Oral Implants Res* 2021;32(1):15-22. [Abstract](#)
11. 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](#)
12. 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 randomised controlled trial. *Eur J Oral Implantol* 2014;7(3):247-55. [Abstract](#)
13. 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](#)
14. Gulje FL, Raghoobar GM, Vissink A, Meijer HJA. Single crowns in the resorbed posterior maxilla supported by either 11-mm implants combined with sinus floor elevation or 6-mm implants: A 5-year randomised controlled trial. *Int J Oral Implantol* 2019;12(3):315-26. [Abstract](#)
15. Gulje FL, Raghoobar GM, Vissink A, Meijer HJA. Single crown restorations supported by 6-mm implants in the resorbed posterior mandible: A five-year prospective case series. *Clin Implant Dent Relat Res* 2019;21(5):1017-22. [Abstract](#)
16. Hadzik J, Krawiec M, Kubasiewicz-Ross P, et al. Short implants and conventional implants in the residual maxillary alveolar ridge: A 36-month follow-up observation. *Med Sci Monit* 2018;24:5645-52. [Abstract](#)
17. Hadzik J, Krawiec M, Slawacki K, et al. The influence of the crown-implant ratio on the crestal bone level and implant secondary stability: 36-month clinical study. *Biomed Res Int* 2018;2018:4246874. [Abstract](#)
18. Hadzik J, Kubasiewicz-Ross P, Nawrot-Hadzik I, et al. Short (6 mm) and regular dental implants in the posterior maxilla-7-years follow-up study. *J Clin Med* 2021;10(5):940. [Abstract](#)
19. Han J, Tang Z, Zhang X, Meng H. A prospective, multi-center study assessing early loading with short implants in posterior regions. A 3-year post-loading follow-up study. *Clin Implant Dent Relat Res* 2018;20(1):34-42. [Abstract](#)
20. 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](#)
21. Le BT, Follmar T, Borzabadi-Farahani A. Assessment of short dental implants restored with single-unit nonsplinted restorations. *Implant Dent* 2013;22(5):499-502. [Abstract](#)
22. 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](#)
23. Mertens C, Freier K, Engel M, et al. Reconstruction of the severely atrophic edentulous maxillae with calvarial bone grafts. *Clin Oral Implants Res* 2017;28(6):749-56. [Abstract](#)
24. Nielsen HB, Schou S, Bruun NH, Starch-Jensen T. Single-crown restorations supported by short implants (6 mm) compared with standard-length implants (13 mm) in conjunction with maxillary sinus floor augmentation: a randomized, controlled clinical trial. *Int J Implant Dent* 2021;7(1):66. [Abstract](#)
25. Nielsen HB, Schou S, Bruun NH, Starch-Jensen T. Professional and patient-reported outcomes of two surgical approaches for implant-supported single-crown restoration: 1-year results of a randomized controlled clinical trial. *Clin Oral Implants Res* 2021;E-pub Dec 06 doi: 10.1111/clr.13883. [Abstract](#)
26. Orentlicher G, Horowitz A, Goldsmith D, Delgado-Ruiz R, Abboud M. Cumulative survival rate of implants placed "fully guided" using CT-guided surgery: A 7-year retrospective study. *Compend Contin Educ Dent* 2014;35(8):590-7. [Abstract](#)
27. Parpaola A, Norton MR, Cecchinato D, Bressan E, Toia M. Virtual abutment design: a concept for delivery of CAD/CAM customized abutments – report of a retrospective cohort. *Int J Periodontics Restorative Dent* 2013;33(1):51-8. [Abstract](#)
28. 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](#)
29. Pieri F, Caselli E, Forlivesi C, Corinaldesi G. Rehabilitation of the atrophic posterior maxilla using splinted short implants or sinus augmentation with standard-length implants: A retrospective cohort study. *Int J Oral Maxillofac Implants* 2016;31(5):1179-88. [Abstract](#)
30. Pieri F, Forlivesi C, Caselli E, Corinaldesi G. Short implants (6mm) vs. vertical bone augmentation and standard-length implants (>=9mm) in atrophic posterior mandibles: a 5-year retrospective study. *Int J Oral Maxillofac Surg* 2017;46(12):1607-14. [Abstract](#)
31. 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 multicentre, randomized, controlled clinical trial. *J Clin Periodontol* 2017;44(4):438-45. [Abstract](#)
32. Schincaglia GP, Thoma DS, Haas R, 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(11):1042-51. [Abstract](#)
33. 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](#)
34. Takeichi K, Kasugai S. Single crown restoration with an implant in posterior molar regions: Comparison with short and standard-length implants after 3 years. *Journal of Interdisciplinary Clinical Dentistry* 2021;Aug 28(2).
35. 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](#)
36. Thoma DS, Haas R, Sporniak-Tutak K, 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: 5-Year data. *J Clin Periodontol* 2018;45(12):1465-74. [Abstract](#)
37. 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](#)
38. Zadeh HH, Gulje F, Palmer PJ, et al. Marginal bone level and survival of short and standard-length implants after 3 years: An Open Multi-Center Randomized Controlled Clinical Trial. *Clin Oral Implants Res* 2018;29(8):894-906. [Abstract](#)

To read more Scientific Reviews please see: [www.dentsplysirona.com/implants/science](http://www.dentsplysirona.com/implants/science)