

Astra Tech Implant System[®]

– Clinical documentation*

Well documented, consistently reliable and safe

- More than 9,000 patients followed prospectively up to 20 years
- >98% implant survival rate at 5 years of follow-up
- ~0.3 mm bone level reduction 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**:

- OsseoSpeed surface since 2004 with 10 years of documented clinical follow-up
- Conical implant-abutment connection, Conical Seal Design
- MicroThread on the implant neck
- Unique Connective Contour, i.e. horizontal offset

Portfolio of implant designs range from short (6 mm)¹⁻²⁰, narrow (Ø3.0 mm)²¹⁻²⁶ and sloped implant neck contour (Profile)²⁷⁻³⁰ to OsseoSpeed EV³¹⁻³⁶, all being well documented in the scientific community.

	<5 years	5-9 years	≥10 years
Single tooth	5, 7, 9, 13, 14, 16, 18, 21-23, 27, 28, 31, 32, 37-62	17, 63-65	66, 67
Fixed prosthesis	1, 3, 8, 10, 11, 15, 33, 35, 68-82	83-88	89-98
Overdenture	4, 99-105	106-108	109, 110
Esthetic focus	24, 29, 30, 111-125	114, 126, 127	
Surgical focus	6, 34, 128-152	143, 153-158	
Peri-implantitis focus	159-161		162
Patients evaluation	2, 12, 36, 163-176	177	

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

Conclusion

Extensive literature shows safe, consistent 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.dentsplysirona.com

References

- Clelland N, Chaudhry J, Rashid RG, et al. *Int J Oral Maxillofac Implants* 2016;31(5):1135-41. [Abstract](#)
- Gates WD, 3rd, Cooper LF, Sanders AE, et al. *Clin Oral Implants Res* 2014;25(2):207-13. [Abstract](#)
- Gulje F, Abrahamsson I, Chen S, et al. *Clin Oral Implants Res* 2013;24(12):1325-31. [Abstract](#)
- Gulje F, Raghoobar GM, Ter Meulen JW, et al. *Clin Implant Dent Relat Res* 2012;14 Suppl 1(Supplement 1):e59-66. [Abstract](#)
- Gulje FL, Raghoobar GM, Erkens WA, et al. *Int J Oral Maxillofac Implants* 2016;31(3):672-5. [Abstract](#)
- Gulje FL, Raghoobar GM, Vissink A, et al. *Eur J Oral Implantol* 2014;7(3):247-55. [Abstract](#)
- Gulje FL, Raghoobar GM, Vissink A, et al. *Clin Implant Dent Relat Res* 2015;17 Suppl 2:e465-71. [Abstract](#)
- Han J, Zhang X, Tang Z, et al. *Clin Oral Implants Res* 2016;27(4):452-7. [Abstract](#)
- Malmstrom H, Gupta B, Ghanem A, et al. *Clin Oral Implants Res* 2016;27(9):1093-8. [Abstract](#)
- Pieri F, Aldini NN, Fini M, et al. *Int J Prosthodont* 2012;25(3):279-89. [Abstract](#)
- Tabrizi R, Arabion H, Aliabadi E, et al. *Br J Oral Maxillofac Surg* 2016;54(7):731-5. [Abstract](#)
- Thoma DS, Haas R, Tutak M, et al. *J Clin Periodontol* 2015;42(1):72-80. [Abstract](#)
- Han J, Tang Z, Zhang X, et al. *Clin Implant Dent Relat Res* 2018;20(1):34-42. [Abstract](#)
- Schincaglia GP, Thoma DS, Haas R, et al. *J Clin Periodontol* 2015;42(11):1042-51. [Abstract](#)
- Zadeh HH, Gulje F, Palmer PJ, et al. *Clin Oral Implants Res* 2018;29(8):894-906. [Abstract](#)
- Hadzik J, Krawiec M, Slawacki K, et al. *Biomed Res Int* 2018;2018:4246874. [Abstract](#)
- Thoma DS, Haas R, Sporniak-Tutak K, et al. *J Clin Periodontol* 2018;45(12):1465-74. [Abstract](#)
- Hadzik J, Krawiec M, Kubasiewicz-Ross P, et al. *Med Sci Monit* 2018;24:5645-52. [Abstract](#)
- Guida L, Annunziata M, Esposito U, et al. *Clin Oral Implants Res* 2020;31(1):64-73. [Abstract](#)
- Gulje FL, Raghoobar GM, Vissink A, et al. *Clin Implant Dent Relat Res* 2019;21(5):1017-22. [Abstract](#)
- Galindo-Moreno P, Nilsson P, King P, et al. *Clin Oral Implants Res* 2012;23(5):609-16. [Abstract](#)
- King P, Maiorana C, Luthardt RG, et al. *Int J Prosthodont* 2016;29(2):147-53. [Abstract](#)
- Maiorana C, King P, Quaas S, et al. *Clin Oral Implants Res* 2015;26(1):77-82. [Abstract](#)
- Pieri F, Siroli L, Forlivesi C, et al. *Int J Periodontics Restorative Dent* 2014;34(6):825-32. [Abstract](#)
- Galindo-Moreno P, Nilsson P, King P, et al. *Clin Oral Implants Res* 2017;28(12):1584-91. [Abstract](#)
- Galindo-Moreno P, Padial-Molina M, Nilsson P, et al. *Clin Oral Implants Res* 2017;28(6):704-12. [Abstract](#)
- Lee PK, Siu AS. *Int J Oral Maxillofac Implants* 2016;31(6):1423-28. [Abstract](#)
- Noelken R, Donati M, Fiorellini J, et al. *Clin Oral Implants Res* 2014;25(1):3-9. [Abstract](#)
- Noelken R, Oberhansl F, Kunkel M, et al. *Clin Oral Implants Res* 2016;27(6):744-9. [Abstract](#)
- Schiegnitz E, Noelken R, Moergel M, et al. *Clin Oral Implants Res* 2017;28(6):721-26. [Abstract](#)
- Stanford CM, Barwacz C, Raes S, et al. *Int J Oral Maxillofac Implants* 2016;31(4):906-15. [Abstract](#)
- Norton MR. *Int J Oral Maxillofac Implants* 2017;32(4):849-57. [Abstract](#)
- Toia M, Stocchero M, Becktor JP, et al. *Clin Implant Dent Relat Res* 2019;E-pub Jan 29, doi:10.1111/cid.12717 [Abstract](#)
- Levin BP, Chu SJ. *Int J Periodontics Restorative Dent* 2018;38(5):719-27. [Abstract](#)
- Borges T, Leitao B, Pereira M, et al. *Clin Oral Implants Res* 2018;29(9):907-14. [Abstract](#)
- Toia M, Wennerberg A, Torrisi P, et al. *J Oral Rehabil* 2019;46(7):624-33. [Abstract](#)
- Barewal RM, Stanford C, Weesner TC. *Int J Oral Maxillofac Implants* 2012;27(4):945-56. [Abstract](#)
- Berberi AN, Noujeim ZN, Kanj WH, et al. *J Contemp Dent Pract* 2014;15(2):202-8. [Abstract](#)
- Ferrari M, Tricarico MG, Cagidiaco MC, et al. *Clin Implant Dent Relat Res* 2016;18(6):1134-41. [Abstract](#)
- Ghoveizi R, Alikhasi M, Siadat M-R, et al. *J Dent (Tehran)* 2013;10(2):155-63. [Abstract](#)
- Hosseini M, Worsaae N, Schiodt M, et al. *Eur J Oral Implantol* 2011;4(4):347-61. [Abstract](#)
- Hosseini M, Worsaae N, Schiodt M, et al. *Clin Oral Implants Res* 2013;24(10):1078-87. [Abstract](#)
- Koutouzis T, Neiva R, Lipton D, et al. *Int J Oral Maxillofac Implants* 2015;30(4):900-8. [Abstract](#)
- Kutan E, Bolukbasi N, Yildirim-Ondur E, et al. *Clin Implant Dent Relat Res* 2015;17 Suppl 2:e364-75. [Abstract](#)
- Lee DW, Park KH, et al. *J Prosthodont* 2014;112(3):501-7. [Abstract](#)
- Marcelis K, Vercruyssen M, Naert I, et al. *Clin Oral Implants Res* 2012;23(8):999-1003. [Abstract](#)
- Palmer RM, Howe LC, Palmer PJ, et al. *Clin Oral Implants Res* 2012;23(1):35-40. [Abstract](#)
- Sanz M, Cecchinato D, Ferrus J, et al. *Clin Oral Implants Res* 2014;25(3):321-27. [Abstract](#)
- Schepke U, Meijer HJ, Vermeulen KM, et al. *Clin Implant Dent Relat Res* 2016;18(5):984-92. [Abstract](#)
- Tabrizi R, Pourdanesh F, Zare S, et al. *J Oral Maxillofac Surg* 2013;71(2):272-7. [Abstract](#)
- Thoma DS, Brandenberg F, Fehmer V, et al. *Clin Implant Dent Relat Res* 2016;18(3):462-72. [Abstract](#)
- Vera C, De Kok IJ, Chen W, et al. *Int J Oral Maxillofac Implants* 2012;27(5):1249-57. [Abstract](#)
- Guncu MB, Cakan U, Aktas G, et al. *Clin Oral Investig* 2016;20(9):2467-73. [Abstract](#)
- Lops D, Mosca D, Muller A, et al. *Minerva Stomatol* 2011;60(9):403-15. [Abstract](#)
- Simmons DE, Maney P, Teitelbaum AG, et al. *Int J Implant Dent* 2017;3(1):16. [Abstract](#)
- Schepke U, Lohbauer U, Meijer HJ, et al. *Int J Prosthodont* 2018;31(3):208-10. [Abstract](#)
- Ferrari M, Cagidiaco MC, Garcia-Godoy F, et al. *Am J Dent* 2015;28(2):85-9. [Abstract](#)
- Basler T, Naenni N, Schneider D, et al. *Clin Oral Implants Res* 2018;29(5):499-507. [Abstract](#)
- Thoma DS, Sailer I, Muhlemann S, et al. *Clin Implant Dent Relat Res* 2018;20(6):988-96. [Abstract](#)
- Eisner B, Naenni N, Husler J, et al. *Int J Periodontics Restorative Dent* 2018;38(5):645-52. [Abstract](#)
- Barwacz CA, Stanford CM, Diehl UA, et al. *Int J Oral Maxillofac Implants* 2018;33(5):1126-35. [Abstract](#)
- Cooper LF, Reside G, Stanford C, et al. *Int J Oral Maxillofac Implants* 2019;34(1):150-58. [Abstract](#)
- Berberi AN, Sabbagh JM, Aboushelib MN, et al. *Front Physiol* 2014;5:29. [Abstract](#)
- Lops D, Bressan E, Chiapasco M, et al. *Int J Oral Maxillofac Implants* 2013;28(1):281-7. [Abstract](#)
- Veltri M, Ekestubbe A, Abrahamsson I, et al. *Clin Oral Implants Res* 2016;27(8):956-63. [Abstract](#)
- Raes S, Eghbali A, Chappuis V, et al. *Clin Implant Dent Relat Res* 2018;20(4):522-30. [Abstract](#)
- Raes S, Cosyn J, Noyelle A, et al. *Int J Periodontics Restorative Dent* 2018;38(3):337-45. [Abstract](#)
- Balleri P, Ferrari M, Veltri M. *Clin Implant Dent Relat Res* 2010;12(4):324-30. [Abstract](#)
- Barbier L, Abeloos J, De Clercq C, et al. *Clin Oral Implants Res* 2012;16(4):1061-70. [Abstract](#)
- Collaert B, Wijnen L, De Bruyn H. *Clin Oral Implants Res* 2011;22(10):1111-16. [Abstract](#)
- D'Haese J, Vervaeke S, Verbanck N, et al. *Int J Oral Maxillofac Implants* 2013;28(1):205-15. [Abstract](#)
- Ebler S, Ioannidis A, Jung RE, et al. *Clin Oral Implants Res* 2016;27(9):1169-77. [Abstract](#)
- Esquivel-Upshaw JF, Clark AE, Shuster JJ, et al. *J Prosthodont* 2014;23(2):73-82. [Abstract](#)
- Esquivel-Upshaw JF, Mehler A, Clark AE, et al. *J Dent* 2014;42(10):1335-42. [Abstract](#)
- Kim JJ, Lee DW, Kim CK, et al. *Clin Oral Implants Res* 2010;21(4):439-44. [Abstract](#)
- Liaje A, Ozkan YK, Ozkan Y, et al. *Int J Oral Maxillofac Implants* 2012;27(1):162-72. [Abstract](#)
- Stanford CM, Wagner W, Rodriguez YBR, et al. *Int J Oral Maxillofac Implants* 2010;25(2):367-73. [Abstract](#)
- Temmerman A, Rasmusson L, Kubler A, et al. *Clin Oral Implants Res* 2017;28(1):95-102. [Abstract](#)
- Vervaeke S, Collaert B, De Bruyn H. *Int J Oral Maxillofac Implants* 2013;28(5):1352-7. [Abstract](#)
- Zhou J, Huang Q, Wang X, et al. *J Clin Periodontol* 2016;43(3):298-304. [Abstract](#)
- Arora H, Khzam N, Roberts D, et al. *Clin Implant Dent Relat Res* 2017;19(4):694-702. [Abstract](#)
- Bernard L, Vercruyssen M, Duyck J, et al. *J Prosth Dent* 2019;E-pub Feb 4, doi:10.1016/j.prosdent.2018.09.004.
- Mertens C, Steveling HG. *Clin Oral Implants Res* 2011;22(5):464-72. [Abstract](#)
- Vervaeke S, Collaert B, Cosyn J, et al. *Clin Implant Dent Relat Res* 2016;18(1):30-9. [Abstract](#)
- Mertens C, Steveling HG. *Clin Oral Implants Res* 2011;22(12):1354-60. [Abstract](#)
- Schliephake H, Rodiger M, Phillips K, et al. *J Clin Periodontol* 2012;39(2):188-95. [Abstract](#)
- Toljanic JA, Ekstrand K, Baer RA, et al. *Int J Oral Maxillofac Implants* 2016;31(5):1164-70. [Abstract](#)
- Noelken R, Moergel M, Kunkel M, et al. *Clin Oral Implants Res* 2018;29(3):320-27. [Abstract](#)
- Mertens C, Meyer-Baumer A, Kappel H, et al. *Int J Oral Maxillofac Implants* 2012;27(6):1501-8. [Abstract](#)
- Mertens C, Steveling HG, Stucke K, et al. *Clin Implant Dent Relat Res* 2012;14(6):816-27. [Abstract](#)

91. Rasmusson L, Roos J, Bystedt H. Clin Implant Dent Relat Res 2005;7(1):36-42. [Abstract](#)
92. Ravald N, Dahlgren S, Teiwik A, et al. Clin Oral Implants Res 2013;24(10):1144-51. [Abstract](#)
93. Van Assche N, Pittayapat P, Jacobs R, et al. Eur J Oral Implantol 2011;4(2):103-16. [Abstract](#)
94. Jacobs R, Pittayapat P, van Steenberghe D, et al. J Clin Periodontol 2010;37(12):1119-27. [Abstract](#)
95. Cecchinato D, Parpaiola A, Lindhe J. Clin Oral Implants Res 2014;25(7):791-6. [Abstract](#)
96. Donati M, Ekestubbe A, Lindhe J, et al. Clin Oral Implants Res 2018;29(5):480-87. [Abstract](#)
97. Windael S, Vervaeke S, Wijnen L, et al. Clin Implant Dent Relat Res 2018;20(4):515-21. [Abstract](#)
98. Trbakovic A, Toljanic JA, Kumar VV, et al. Clin Implant Dent Relat Res 2019;E-pub Dec 21 doi:10.1111/cid.12874. [Abstract](#)
99. Bressan E, Tomasi C, Stellini E, et al. Clin Oral Implants Res 2012;23(7):814-9. [Abstract](#)
100. Gokcen-Rohlig B, Meric U, Keskin H. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2010;109(4):e1-7. [Abstract](#)
101. Mumcu E, Bilhan H, Gecikli O. Indian J Dent Res 2012;23(4):514-8. [Abstract](#)
102. Roe P, Kan JY, Rungcharassaeng K, et al. Int J Oral Maxillofac Implants 2011;26(6):1296-302. [Abstract](#)
103. Schincaglia GP, Rubin S, Thacker S, et al. Int J Oral Maxillofac Implants 2016;31(2):448-58. [Abstract](#)
104. Slot W, Raghoobar GM, Vissink A, et al. J Clin Periodontol 2013;40(3):303-10. [Abstract](#)
105. Slot W, Raghoobar GM, Vissink A, et al. Clin Implant Dent Relat Res 2014;16(1):51-61. [Abstract](#)
106. Boven GC, Meijer HJ, Slot W, et al. J Craniomaxillofac Surg 2015;43(9):1758-62. [Abstract](#)
107. Slot W, Raghoobar GM, Cune MS, et al. J Clin Periodontol 2016;43(12):1180-87. [Abstract](#)
108. Boven GC, Slot JWA, Raghoobar GM, et al. J Oral Rehabil 2017;44(12):988-95. [Abstract](#)
109. Lehmann KM, Kammerer PW, Karbach J, et al. Int J Oral Maxillofac Implants 2013;28(4):1126-31. [Abstract](#)
110. Vroom MG, Sips P, de Lange GL, et al. Clin Oral Implants Res 2009;20(11):1231-9. [Abstract](#)
111. Barwacz CA, Stanford CM, Diehl UA, et al. Clin Oral Implants Res 2016;27(6):707-15. [Abstract](#)
112. Borges T, Lima T, Carvalho A, et al. Clin Oral Implants Res 2014;25(11):1222-27. [Abstract](#)
113. Cecchinato D, Lops D, Salvi GE, et al. Clin Oral Implants Res 2015;26(1):20-7. [Abstract](#)
114. Cooper LF, Reside G, Raes F, et al. Int J Periodontics Restorative Dent 2014;34(4):477-86. [Abstract](#)
115. Levin BP, Wilk BL. Compend Contin Educ Dent 2013;34(5):352-61. [Abstract](#)
116. Lops D, Bressan E, Parpaiola A, et al. Clin Oral Implants Res 2015;26(12):1436-42. [Abstract](#)
117. Lops D, Chiapasco M, Rossi A, et al. Clin Oral Implants Res 2008;19(11):1135-40. [Abstract](#)
118. Noelken R, Neffe BA, Parpaiola A, et al. Clin Oral Implants Res 2014;25(2):214-20. [Abstract](#)
119. Raes F, Cosyn J, Crommelinck E, et al. J Clin Periodontol 2011;38(4):385-94. [Abstract](#)
120. Raes S, Rocci A, Raes F, et al. Clin Oral Implants Res 2015;26(9):1086-90. [Abstract](#)
121. Tsuda H, Rungcharassaeng K, Kan JY, et al. Int J Oral Maxillofac Implants 2011;26(2):427-36. [Abstract](#)
122. Arora H, Ivanovski S. Clin Oral Implants Res 2017;28(10):1188-94. [Abstract](#)
123. Cooper LF, Reside G, Stanford C, et al. Int J Oral Maxillofac Implants 2015;30(3):622-32. [Abstract](#)
124. Lops D, Parpaiola A, Paniz G, et al. Int J Periodontics Restorative Dent 2017;37(5):657-65. [Abstract](#)
125. Kraus RD, Epprecht A, Hammerle CHF, et al. Clin Implant Dent Relat Res 2019;21(4):578-85. [Abstract](#)
126. Hosseini M, Worsaae N, Gotfredsen K. Clin Oral Implants Res 2020;31(1):18-28. [Abstract](#)
127. Laass A, Sailer I, Husler J, et al. Int J Periodontics Restorative Dent 2019;39(1):17-27. [Abstract](#)
128. Bashutski JD, Wang HL, Rudek I, et al. J Periodontol 2013;84(12):1747-54. [Abstract](#)
129. Cooper LF, Raes F, Reside GJ, et al. Int J Oral Maxillofac Implants 2010;25(6):1222-32. [Abstract](#)
130. De Bruyn H, Raes F, Cooper LF, et al. Clin Oral Implants Res 2013;24(2):217-23. [Abstract](#)
131. Donati M, La Scala V, Billi M, et al. Clin Oral Implants Res 2008;19(8):740-8. [Abstract](#)
132. Esquivel-Upshaw J, Mehler A, Clark A, et al. Clin Oral Implants Res 2015;26(12):1390-6. [Abstract](#)
133. Kahnberg KE, Wallstrom M, Rasmusson L. Clin Implant Dent Relat Res 2011;13(3):231-7. [Abstract](#)
134. Koutouzis T, Koutouzis G, Tomasi C, et al. J Periodontol 2011;82(11):1556-62. [Abstract](#)
135. Lyngstadaas SP, Verket A, Pinholt EM, et al. Clin Implant Dent Relat Res 2015;17 Suppl 2:e594-600. [Abstract](#)
136. Mertens C, Steveling HG, Seeberger R, et al. Clin Implant Dent Relat Res 2013;15(5):673-83. [Abstract](#)
137. Oxby G, Oxby F, Oxby J, et al. Clin Implant Dent Relat Res 2015;17(5):898-907. [Abstract](#)
138. Pierri F, Aldini NN, Fini M, et al. Clin Implant Dent Relat Res 2012;14 Suppl 1(Suppl 1):e67-82. [Abstract](#)
139. Piero B, Mario V, Niccolo N, et al. Clin Implant Dent Relat Res 2012;14(5):682-9. [Abstract](#)
140. Raes F, Cosyn J, De Bruyn H. Clin Implant Dent Relat Res 2013;15(6):819-35. [Abstract](#)
141. Raes F, Renckens L, Aps J, et al. Clin Implant Dent Relat Res 2013;15(5):661-72. [Abstract](#)
142. Thor A, Ekstrand K, Baer RA, et al. Int J Oral Maxillofac Implants 2014;29(3):642-9. [Abstract](#)
143. Toljanic JA, Baer RA, Ekstrand K, et al. Int J Oral Maxillofac Implants 2009;24(3):518-26. [Abstract](#)
144. Verduyssen M, van de Wiele G, Teughels W, et al. J Clin Periodontol 2014;41(12):1154-60. [Abstract](#)
145. Yoon WJ, Jeong KI, You JS, et al. J Korean Assoc Oral Maxillofac Surg 2014;40(1):17-20. [Abstract](#)
146. Pohl V, Thoma DS, Sporniak-Tutak K, et al. J Clin Periodontol 2017;44(4):438-45. [Abstract](#)
147. Merheb J, Verduyssen M, Coucke W, et al. Clin Oral Implants Res 2017;28(1):103-08. [Abstract](#)
148. Mordenfeld A, Aludden H, Starch-Jensen T. Clin Implant Dent Relat Res 2017;19(5):884-94. [Abstract](#)
149. Temmerman A, Keestra JA, Coucke W, et al. J Clin Periodontol 2015;42(3):311-8. [Abstract](#)
150. Uribarri A, Bilbao E, Marichalar-Mendia X, et al. Clin Implant Dent Relat Res 2017;19(2):268-79. [Abstract](#)
151. Liu J, Huang Q, Wang X, et al. Clin Oral Implants Res 2019;30(10):1049-58. [Abstract](#)
152. Younes F, Cosyn J, De Bruyckere T, et al. Clin Implant Dent Relat Res 2019;21(2):301-09. [Abstract](#)
153. Cooper LF, Reside GJ, Raes F, et al. Int J Oral Maxillofac Implants 2014;29(3):709-17. [Abstract](#)
154. Donati M, La Scala V, Di Raimondo R, et al. Clin Implant Dent Relat Res 2015;17(3):425-34. [Abstract](#)
155. Temmerman A, Rasmusson L, Kubler A, et al. J Dent Res 2016;95(1):84-90. [Abstract](#)
156. Ioannidis A, Heierle L, Hammerle CHF, et al. Clin Oral Implants Res 2019;30(11):1126-33. [Abstract](#)
157. Matthys C, Vervaeke S, Besseler J, et al. Clin Oral Implants Res 2019;30(9):940-51. [Abstract](#)
158. Salman A, Thacker S, Rubin S, et al. J Clin Periodontol 2019;46(8):863-71. [Abstract](#)
159. Aguirre-Zorzano LA, Vallejo-Aisa FJ, Estefania-Fresco R. Med Oral Patol Oral Cir Bucal 2013;18(5):e786-92. [Abstract](#)
160. Brandenburg FD, Sailer I, Fehmer V, et al. Clin Oral Implants Res 2017;28(4):406-13. [Abstract](#)
161. Carcuac O, Derks J, Charalampakis G, et al. J Dent Res 2016;95(1):50-7. [Abstract](#)
162. Renvert S, Lindahl C, Rutger Persson G. J Clin Periodontol 2012;39(12):1191-7. [Abstract](#)
163. Cakir O, Kazancioglu HO, Celik G, et al. J Prosthodont 2014;23(5):390-6. [Abstract](#)
164. De Kok IJ, Chang KH, Lu TS, et al. Int J Oral Maxillofac Implants 2011;26(2):415-26. [Abstract](#)
165. Emami E, Cerutti-Kopplin D, Menassa M, et al. J Dent 2016;50:30-6. [Abstract](#)
166. Limmer B, Sanders AE, Reside G, et al. J Prosthodont 2014;23(4):267-75. [Abstract](#)
167. Mertens C, de San Jose Gonzalez J, Freudsperger C, et al. J Craniomaxillofac Surg 2016;44(11):1812-18. [Abstract](#)
168. Raes F, Cooper LF, Tarrida LG, et al. Clin Oral Implants Res 2012;23(5):602-8. [Abstract](#)
169. Rismanchian M, Fazel A, Rakhshan V, et al. Clin Oral Implants Res 2011;22(12):1440-5. [Abstract](#)
170. Schepke U, Meijer HJ, Kerdijk W, et al. Clin Implant Dent Relat Res 2017;19(1):74-84. [Abstract](#)
171. Van Lierde KM, Corthals P, Browaeys H, et al. J Oral Rehabil 2011;38(3):170-5. [Abstract](#)
172. Erkapers M, Ekstrand K, Baer RA, et al. Int J Oral Maxillofac Implants 2011;26(2):356-64. [Abstract](#)
173. Ettl T, Weindler J, Gosau M, et al. J Craniomaxillofac Surg 2016;44(9):1453-62. [Abstract](#)
174. Packer M, Nikitin V, Coward T, et al. Gerodontology 2009;26(1):11-8. [Abstract](#)
175. Barbier L, Pottel L, De Ceulaer J, et al. Int J Prosthodont 2019;32(2):162-73. [Abstract](#)
176. Doornwaard R, Glibert M, Matthys C, et al. J Clin Med 2019;8(6). [Abstract](#)
177. Raes S, Raes F, Cooper L, et al. Clin Oral Implants Res 2017;28(6):662-67. [Abstract](#)

About Dentsply Sirona Implants

Dentsply Sirona Implants offers comprehensive solutions for all phases of implant therapy, including Ankylos®, Astra Tech Implant System® and Xive® implant lines, digital technologies, such as Atlantis® patient-specific solutions and Simplant® guided surgery, Symbios® regenerative solutions, and professional and business development programs, such as STEPPS™. Dentsply Sirona Implants creates value for dental professionals and allows for predictable and lasting implant treatment outcomes, resulting in enhanced quality of life for patients.

About Dentsply Sirona

Dentsply Sirona is the world's largest manufacturer of professional dental products and technologies, with a 130-year history of innovation and service to the dental industry and patients worldwide. Dentsply Sirona develops, manufactures, and markets a comprehensive solutions offering including dental and oral health products as well as other consumable medical devices under a strong portfolio of world class brands. As The Dental Solutions Company™, Dentsply Sirona's products provide innovative, high-quality and effective solutions to advance patient care and deliver better, safer and faster dentistry. Dentsply Sirona's global headquarters is located in York, Pennsylvania, and the international headquarters is based in Salzburg, Austria. The company's shares are listed in the United States on NASDAQ under the symbol XRAY.

Visit www.dentsplysirona.com for more information about Dentsply Sirona and its products.