**REFERENCES (On-line Total 236)**

1. Chen SS-H, Greenlee GM, Kim JE, Smith CL, Huang GJ. Systematic review of self-ligating brackets. Am J Orthod Dentofacial Orthop 2010;137:726.e1-726.e18.
2. Fleming P, Johal A. Self-ligating brackets in orthodontics a systematic review. Angle Orthod 2010;80:575-584.
3. Ehsani S, Mandich MA, El-Bialy TH, Flore-Mir C. Frictional resistance in self-ligating orthodontic brackets and conventionally ligated brackets a systematic review. Angle Orthod 2009;79:592–601.
4. Kaklamanos EG, Athanasiou AE. Systematic review of self-ligating brackets. Am J Orthod Dentofacial Orthop 2011;139:145-146.
5. Celar A, Schedlberger M, Dorfler P, Bertl M. Systematic review on self-ligating vs conventional brackts: initial pain, number of visits, treatment time. Journal of Orofacial Orthopedics 2013;74(1):40-51.
6. O’Brien K, Sandler J. In the land of no evidence, is the salesman king? Am J Orthod Dentofacial Orthop 2010;138:247-249.
7. Schismenos CK. Don’t throw the scientific self-ligation baby out with the commercial bathwater. Letter to the editor. Am J Orthod Dentofacial Orthop 2012;141(1):2-3.
8. Voudouris JC. An evidence iceberg. Am J Orthod Dentofacial Orthop 2013;145:127-8.
9. Stolzenberg J. The Russell attachment and its improved advantages. Int J Orthod Dent Child 1935;21:837-40.
10. Viechtbauer W. Conducting meta-analyses in R with the metafor package. Journal of Statistical Software 2010;36:1-48.
11. Mezomo M, de Lima ES, de Menezes LM, Weissheimer A, Allgayer S. Maxillary canine retraction with self-ligating and conventional brackets. Angle Orthod 2011;81:926-929.
12. Burrow SJ. Canine retraction rate with self-ligating brackets vs conventional edgewise brackets. Angle Orthod 2010;80:626-633.
13. Harradine NW. Self-ligating brackets and treatment efficiency. Clin Orthod Res 2001;4:220-7.
14. Alper Oz A, Arici N, Arici S. The clinical and laboratory effects of bracket type during canine distalization with sliding mechanics. Angle Orthodontist March 2012;82;2:326-332
15. Wong H, Collins J, Tinsley D, Sandler J, Benson P. Does the bracket-ligature combination affect the amount of orthodontic space closure over three months? A randomized controlled trial. J Orthod 2013;40(2):155-162.
16. Hain M, Dhopatkar A, Rock P. The effect of ligation method on friction in sliding mechanics. Am J Orthod Dentofacial Orthop 2003;123:416-22.
17. Harradine, N. Self-ligating brackets increase treatment efficiency. Am J Orthod Dentofacial Orthop 2013; 143:10.
18. Turnbull NR, Birnie DJ. Treatment efficiency of conventional vs self-ligating brackets: effects of archwire size and material. Am J Orthod Dentofacial Orthop 2007;131:395-9.
19. Meeran NA. Self-ligating brackets: an update. J Clin Orthod 2012;36:235-241.
20. Har-Zion G. Self-ligation: a clinician’s point of view. Am J Orthod Dentofacial Orthop 2009;136:756-757.
21. Pliska BT, Beyer JP, Larson BE. A comparison of resistance to sliding of self-ligating brackets under and increasing applied moment. Angle Orthod 2011;81:794-799.
22. Voudouris JC. Interactive edgewise mechanisms: form and function comparison with conventional edgewise brackets. Am J Orthod Dentofacial Orthop 1997;11:119–140.
23. Brauchli LM, Steineck M, Wichelhaus A. Active and passive self-ligation: a myth? part 1: torque control. Angle Orthod 2012;82:663-669.
24. Baccetti T, Franchi L, Camporesi M, Defraia E. Orthodontic forces released by low-friciton versus conventional systems during alignment of apically or buccally malposed teeth. Eur J Orthod 2011;33:50-54.
25. Brauchli LM, Senn C, Wichelhaus A. Active and passive self-ligation - a myth? Angle Orthod 2011;81:312-318.
26. Oliver CL, Daskalogiannakis J, Tompson BD. Archwire depth is a significant parameter in the frictional resistance of active and interactive, but not passive, self-ligating brackets. Angle Orthod 2011;81:1036-1044.
27. Elayyan F, Silikas N, Bearn D. Mechanical properties of coated superelastic archwires in conventional and self-ligating orthodontic brackets. Am J Orthod Dentofacial Orthop 2010; 137:213-217.
28. Kahlon S, Rinchuse D, Robinson JM, Close JM. In-vitro evaluation of frictional resistance with 5 ligation methods and Gianelly-type working wires. Am J Orthod Dentofacial Orthop 2010;138:67-71.
29. Stefanos S, Secchi AG, Coby G, Tanna N, et al. Friction between various self-ligating brackets and archwire couples during sliding mechanics. Am J Orthod Dentofacial Orthop 2010;138:463-467.
30. Voudouris JC, Schismenos C, Lackovic K, Kuftinec L. Self-ligation esthetic brackets with low frictional resistance. Angle Orthod 2010;80:188-194.
31. Budd S, Daskalogiannakis J, Tompson BD. A study of the frictional characteristics of four commercially available self-ligating bracket systems. Eur J Orthod 2008;30:645-53.
32. Franchi L, Baccetti T, Camporesi M, Barbato E. Forces released during sliding mechanics with passive self-ligating brackets or nonconventional elastomeric ligatures. Am J Orthod Dentofacial Orthop 2008;133:87-90.
33. Kim TK, Kim KD, Baek SH. Comparison of frictional forces during the initial leveling stage in various combinations of self-ligating brackets and archwires with a custom-designed typodont system. Am J Orthod Dentofacial Orthop 2008;133:187.e1524.
34. Reicheneder CA, Baumert U, Gedrange T, Proff P, Faltermeier A, Muessig D. Frictional properties of aesthetic brackets. Eur J Orthod 2007;29:359-65.
35. Tecco S, Di Iorio D, Cordasco G, Verrocchi I, Festa F. An in vitro investigation of the influence of self-ligating brackets, low friction ligatures, and archwire on frictional resistance. Eur J Orthod 2007;29:390-397.
36. Griffiths HS, Sherriff M, Ireland AJ. Resistance to sliding with 3 types of elastomeric modules. Am J Orthod Dentofacial Orthop 2005;127:670-5.
37. Henao SP, Kusy RP. Frictional evaluations of dental typodont models using four self-ligating designs and a conventional design. Angle Orthod 2005;75:75-85.
38. Tecco S, Festa F, Caputi S, Traini T, Di Iorio D, D’Attilio M. Friction of conventional and self-ligating brackets using a 10 bracket model. Angle Orthod 2005;75:1041-5.
39. Henao SP, Kusy RP. Evaluation of the frictional resistance of conventional and self-ligating bracket designs using standardized archwires and dental typodonts. Angle Orthod 2004;74:202-11.
40. Khambay B, Millett D, McHugh S. Evaluation of methods of archwire ligation on frictional resistance. Eur J Orthod 2004;26:327-32.
41. Cacciafesta V, Sfondrini MF, Ricciardi A, Scribante A, Klersy C, Auricchio F. Evaluation of friction of stainless steel and esthetic self-ligating brackets in various bracket-archwire combinations. Am J Orthod Dentofacial Orthop 2003;124:395-402.
42. Smith DV, Rossouw PE, Watson P. Quantified simulation of canine retraction: evaluation of frictional resistance. Semin Orthod 2003;9:262–280.
43. Thorstenson GA, Kusy RP. Comparison of resistance to sliding between different self-ligating brackets with second-order angulation in the dry and saliva states. Am J Orthod Dentofacial Orthop 2002;121:472-82.
44. Thorstenson GA, Kusy RP. Resistance to sliding of self-ligating brackets versus conventional stainless steel twin brackets with second-order angulation in the dry and wet (saliva) states. Am J Orthod Dentofacial Orthop 2001;120:361-70.
45. Pizzoni L, Ravnholt G, Melsen B. Frictional forces related to self-ligating brackets. Eur J Orthod 1998;20:283-91.
46. Thomas S, Sherriff M, Birnie D. A comparative in vitro study of the frictional characteristics of two types of self-ligating brackets and two types of pre-adjusted edgewise brackets tied with elastomeric ligatures. Eur J Orthod 1998;20:589-96.
47. Read-Ward GE, Jones SP, Davies EH. A comparison of self-ligating and conventional orthodontic bracket systems. Br J Orthod 1997;24:309-17.
48. Miles PG. Self-ligating brackets in orthodontics: do they deliver what they claim? Aust Dent J 2009;54:9-11.
49. Voudouris JC. Seven principles of SL. Journ of Clin Orthod 1997;31:55.
50. Pliska BT, Fuchs RW, Beyer JP, Larson BE. Effect of applied moment on resistance to sliding among esthetic self-ligating brackets. Angle Orthod 2014;84:134-139.
51. Montasser MA. Self-ligating bracket claims. Am J Orthod Dentofacial Orthop 2010;138:532-533.
52. Brezniak N, Protter N, Herman A, Turgman R, et al. Biomechanics of self ligating brackets. Am J Orthod Dentofacial Orthop 2010;137:444.
53. Pandis N, Polychronopoulou A, Eliades T. Self-ligating vs conventional brackets in the treatment of mandibular crowding: a prospective clinical trial of treatment duration and dental effects. Am J Orthod Dentofacial Orthop 2007;132:208-15.
54. Fleming PS, DiBiase AT, Sarri G, Lee RT. Comparison of mandibular arch changes during alignment and leveling with 2 preadjusted edgewise appliances. Am J Orthod Dentofacial Orthop 2009;136:340-7.
55. Scott P, DiBiase AT, Sherriff M, Cobourne MT. Alignment efficiency of Damon 3 self-ligating and conventional orthodontic bracket systems: a randomized clinical trial. Am J Orthod Dentofacial Orthop 2008;134:470.e1-8.
56. Songra G, Clover M, Atack NE, Ewings P, Sherriff, Sandy JR, Ireland AJ. Comparative assessment of alignment efficiency and space closure of active and passive self-ligating vs conventional appliances in adolescents: a single-center randomized controlled trial. Am J Orthod Dentofacial Orthop May 2014; 145(5):569-78.
57. Wahab RMA, Idris H, Yacob H, Zainal Ariffin SH. Comparison of self and conventional-ligating brackets in the alignment stage. Eur J Orthod 2012;34:176-181.
58. Celikoglu M, Bayram M, Nur M, Kilkis D. Mandibular changes during initial alignment with SmartClip self-ligating and conventional brackets: A single-center prospective randomized controlled clinical trial. Korean J Orthod 2015;45(2):89-94.
59. Scott P, Sherriff M, Dibiase AT, Cobourne MT. Perception of discomfort during initial orthodontic tooth alignment using a self- ligating or conventional bracket system: a randomized clinical trial. Eur J Orthod 2008;30:227-32.
60. Pringle AM, Petrie A, Cunningham SJ, McKnight M. Prospective randomized clinical trail to compare pain levels associated with 2 orthodontic fixed bracket systems. Am J Orthod Dentofacial Orthop 2009;136:160-7.
61. Fleming PS, DiBiase AT, Sarri G, Lee RT. Pain experience during initial alignment with a self-ligating and a conventional fixed orthodontic appliance system: a randomized controlled clinical trial. Angle Orthod 2009;79(1):46-50.
62. Miles P, Weyant R. Porcelain brackets during initial alignment: are self-ligating cosmetic brackets more efficient? Aust Orthod J 2010;26(1):21-6.
63. Rahman S, Spencer RJ, Littlewood SJ, O’Dywer L, Barber SK, Russell JS. A multicenter randomized controlled trial to compare a self-ligating bracket with a conventional bracket in a UK population: Part 2: Pain perception. Angle Orthod 2015. [Epub ahead of print]
64. Atik E, Ciger S. An assessment of conventional and self-ligating brackets in Class I maxillary constriction patients. Angle Orthod 2014;84(4):615-22.
65. Bertl MH, Onodera K, Celar AG. A prospective randomized split-mouth study on pain experience during chairside archwire manipulation in self-ligating and conventional brackets. Angle Orthod 2013;83(2):292-7.
66. DiBiase AT, Nasr IH, Scott P, Cobourne MT. Duration of treatment and occlusal outcome using Damon 3 self-ligated and conventional orthodontic bracket systems in extraction patients: a prospective randomized clinical trial. Am J Orthod Dentofacial Orthop 2011;139:e111-e116.
67. O’Dwyer L, Littlewood SJ, Rahman S, Spencer RJ, Barber SK, Russell JS. A multi-center randomized controlled trial to compare a self-ligating bracket with a conventional bracket in a UK population: Part 1: treatment efficiency. Angle Orthod 2015. [Epub ahead of print]
68. Johansson K, Lundstrom F. Orthodontic treatment efficiency with self-ligating and conventional edgewise twin brackets: a prospective randomized clinical trial. Angle Orthod 2012;82(5):929-34.
69. Hamilton R, Goonewardene MS, Murray K. Comparison of active self-ligating brackets and conventional pre-adjusted brackets. Aust Orthod J 2008;24:102-9.
70. Eberting JJ, Straja SR, Tuncay OC. Treatment time, outcome, and patient satisfaction comparisons of Damon and conventional brackets. Clin Orthod Res 2001;4:228-34.
71. Paquette DE. Biased look at self-ligation. Am J Orthod Dentofacial Orthop 2011;139:575.
72. Fleming PS, O’Brien K. Self-ligating brackets do not increase treatment efficiency. Am J Orthod Dentofacial Orthop 2013;143;19.
73. Marshall SD, Currier GF, Hatch NE, Huang GJ, Nah HD, Owens SE, Shroff B, Southard TE, Suri L, Turpin DL. Ask Us. Self-ligating bracket claims. Am J Orthod Dentofacial Orthop 2010;138:128-31.
74. Turpin DL. In-vivo studies offer best measure of self-ligation. Am J Orthod Dentofacial Orthop 2009;136:141-142.
75. Pandis N, Polychronopoulos A, Eliades T. Active or passive self-ligating brackets? A randomized controlled trial of comparative efficiency in resolving maxillary anterior crowding in adolescents. Am J Orthod Dentofacial Orthop 2010;137:12.e1-12.e6.
76. Ehsani S, Carlyle T, El-Bialy T, Kusnoto. Cephalometric analysis of dental and skeletal changes following treatment with a passive self-ligating system. J Clin Orthod 2012;46:301-306.
77. Miles PG. Self-ligating vs conventional twin brackets during en-masse space closure with sliding mechanics. Am J Orthod Dentofacial Orthop 2007;132:223-5.
78. Miles PG, Weyant RJ, Rustveld L. A clinical trial of Damon 2 vs conventional twin brackets during initial alignment. Angle Orthod 2006;76:480-5.
79. Miles PG. SmartClip versus conventional twin brackets for initial alignment: is there a difference? Aust Orthod J 2005;21:123-7.
80. Ong E, McCallum H, Griffin MP, Ho C. Efficiency of self-ligating vs conventionally ligated brackets during initial alignment. Am J Orthod Dentofacial Orthop 2010;138:138.e1-138.e7.
81. Machibya FM, Bao X, Zhao L, Hu M. Treatment time, outcome, and anchorage loss comparisons of self-ligating and conventional brackets. Angle Orthod 2013;83:280-285.
82. Nalçacı R, Özat Y, Çokakoğlu S, Türkkahraman H, Önal S, Kaya S. Effect of bracket type on halitosis, periodontal status, and microbial colonization. Angle Orthod May 2014;84;3: 479-485.
83. Kaygisiz E, Uzuner FD, Yuksel S, Taner L, Çulhaoğlu R, Sezgin Y, Ateş C. Effects of self-ligating and conventional brackets on halitosis and periodontal conditions. Angle Orthod May 2015;85;3:468-473.
84. Uzuner FD, Kaygısız E, Çankaya ZT. Effect of the bracket types on microbial colonization and periodontal status. Angle Orthod November 2014;84;6: 1062-1067.
85. Jiang RP, Fu MK. Non-extraction treatment with self-ligating and conventional brackets. Zhonghua Kou Qiang Yi Xue Za Zhi 2008;43:459-63.
86. Voudouris JC, Kuftinec MM, Bantleon HP, Muhs S, Perscheck A. Selbsligierende Twin-Brackets [Teil I] – Ist weniger mehr? Inf Orthod Kieferorthop 2003;35:13-18.
87. Fleming PS, DiBiase AT, Sarri G, Lee RT. Efficiency of mandibular arch alignment with 2 preadjusted edgewise appliances. Am J Orthod Dentofacial Orthop 2009;135:597-602.
88. Pandis NP, Polychronopoulou A, Makou M, Eliades T. Mandibular dental arch changes associated with treatment of crowding using self-ligating and conventional brackets. Eur J Orthod 2010;32(3);248-53.
89. Pandis N, Polychronopoulou A, Eliades T. Failure rate of self-ligating and edgewise brackets bonded with conventional acid etching and a self-etching primer: a prospective in vivo study. Angle Orthod 2006;76:119-22.
90. Paduano S, Cioffi I, Iodice G, Rapuano A, Silva R. Time efficiency of self-ligating vs conventional brackets in orthodontics: effect of appliances and ligating systems. Prog Orthod 2008;9:74-80.
91. Berger J, Byloff FK. The clinical efficiency of self-ligated brackets. J Clin Orthod 2001;35:304-8.
92. Maijer R, Smith DC. Time savings with self-ligating brackets. J Clin Orthod 1990;24:29-31.
93. Shivapuja PK, Berger J. A comparative study of conventional ligation and self-ligation bracket systems. Am J Orthod Dentofacial Orthop 1994;106:472-80.
94. Berger JL. The influence of the speed bracket’s self-ligating design on force levels in tooth movement: a comparative in vitro study. Am J Orthod Dentofacial Orthop 1990;97:219-28.
95. Gottsegen MI. Self-ligating brackets: looking back and going forward. Am J Orthod Dentofacial Orthop 2010;138:532.
96. Fry RW. Q&A self-ligating brackets. J Clin Orthod 2011;45:615.
97. Keim RG, Gottlieb EL, Nelson AH, Vogels DS III. 2008 JCO study of orthodontic diagnosis and treatment procedures part 1: results and trends. J Clin Orthod 2008;42:625–640.
98. Keim RG, Gottlieb EL, Nelson AH, Vogels DS III. 2002 JCO study of orthodontic diagnosis and treatment procedures part 1: results and trends. J Clin Orthod 2002;36:553–568.
99. Fleming PS, Lee RT, Marinho V, Johal A. Comparison of maxillary arch dimensional changes with passive and active self-ligation and conventional brackets in the permanent dentition: a multicenter, randomized controlled trial. Am J Orthod Dentofacial Orthop 2013;144;185-193.
100. Sirinivas S. Comparison of canine retraction with self-ligating and conventional ligated brackets - a clinical study. Department of Orthodontics. Chennai, India: Tamilnadu Medical University; 2003.
101. Bednar JR, Gruendeman GW. The influence of bracket design on moment production during axial rotation. Am J Orthod Dentofacial Orthop 1993;104:254-61.
102. Bednar JR, Gruendeman GW, Sandrik JL. A comparative study of frictional forces between orthodontic brackets and arch wires. Am J Orthod Dentofacial Orthop 1991;100:513-22.
103. Pandis N, Papaioannou W, Kontou E, Nakou M, Makou M, Eliades T. Salivary streptococcus mutans in patients with conventional and self-ligating brackets. Eur J Orthod 2010;32:94–99.
104. Pandis N, Vlachopoulos K, Polychronopoulou A, Madianos P, Eliades T. Periodontal condition of the mandibular anterior dentition in patients with conventional and self-ligating brackets. Orthod Craniofac Res 2008;11:211–215.
105. Forsberg CM, Brattstrom V, Malmberg E, Nord CE. Ligature wires and elastomeric rings: two methods of ligation, and their association with microbial colonization of streptococcus mutans and lactobacilli. Eur J Orthod 1991;13:416-20.
106. Pellegrini P, Sauerwein R, Finlayson T, McLeod J, Covell DA, Maier T, et al. Plaque retention by self-ligating vs elastomeric orthodontic brackets: quantitative comparison of oral bacteria and detection with adenosine triphosphate-driven bioluminescence. Am J Orthod Dentofacial Orthop 2009;135:426.e1-9.
107. Sahoo N, Kailasam V, Padmanabhan S, Chitharanjan AB. In-vivo evaluation of salivary nickel and chromium levels in conventional and self-ligating brackets. Am J Orthod Dentofacial Orthop 2011;140:340-345.
108. van Gastel J, Quirynen M, Teughels W, Pauwels M, Coucke W, Carels C. Microbial adhesion on different bracket types in vitro. Angle Orthod 2009;79:915–921.
109. van Gastel J, Quirynen M, Teughels W, Coucke W, Carels C. Influence of bracket design on microbial and periodontal parameters in vivo. J Clin Periodontol 2007;34:423–431.
110. do Nascimento LE, Pithon MM, dos Santos RL, et al. Colonization of streptococcus mutans on esthetic brackets: self-ligating vs conventional. Am J Orthod Dentofacial Orthop 2013;143:S72-S77.
111. Ziuchkovski JP, Fields HW, Johnston WM, Lindsey DT. Assessment of perceived orthodontic appliance attractiveness. Am J Orthod Dentofacial Orthop2008;133:S68-78, 726.e14.
112. Elayyan F, Silikas N, Bearn D. Ex vivo surface and mechanical properties of coated orthodontic archwires. Eur J Orthod 2008;30:661-7.
113. Kusy R, Whitley J. FRSSs of metal-lined ceramic brackets versus conventional stainless steel brackets and development of 3-D friction maps. Angle Orthod 2001;71:364–374.
114. Maijer R, Lamark P. Add color to self-ligating systems while reducing emergencies. J Clin Orthod 2004;38:341.
115. Epstein JZ. Wire flexibility in the interbracket dimension using three different bracket systems. [thesis]. New York: New York University College of Dentistry, Dept of Orthodontics; June 2001.
116. Damon DH. The rationale, evolution and clinical application of the self-ligating bracket. Clin Orthod Res 1998;1:52-61.
117. Damon DH. The Damon low-friction bracket: a biologically compatible straight-wire system. J Clin Orthod 1998;32:670-80.
118. Paventy A. Facial alveolar bone evaluation with cone beam computed tomography in non extraction treatment using the Damon system: a prospective clinical trial [thesis]. Norman, Okla: University of Oklahoma; 2008.
119. Mikulencak M. A comparision of maxillary arch width and molar tipping changes between rapid maxillary expansion and fixed appliance vs the Damon system [thesis]. St Louis: St Louis University; 2007.
120. Paventy AM. Nonextraction treatment using the Damon system: a CBCT evaluation. University of Oklahoma; 2008.
121. Cattaneo P, Melsen B. Transversal expansion and self-ligating brackets: a CBCT study. Orthodontics & Craniofacial Research 2011;14:222.
122. Buljan ZI, Ribaric SP, Abram M, Ivankovic A, Spalj S. In vitro oxidative stress induced by conventional and self-ligating brackets. Angle Orthod 2012;82:340-345.
123. Blake M, Woodside DG, Pharoah MJ. A radiographic comparison of apical root resorption after orthodontic treatment with the edgewise and speed appliances. Am J Orthod Dentofacial Orthop 1995;108:76-84.
124. Janson GR, De Luca Canto G, Martins DR, Henriques JF, De Freitas MR. A radiographic comparison of apical root resorption after orthodontic treatment with 3 different fixed appliance techniques. Am J Orthod Dentofacial Orthop 2000;118:262-73.
125. Pandis N, Nasika M, Polychronopoulou A, Eliades T. External apical root resorption in patients treated with conventional and self-ligating brackets. Am J Orthod Dentofacial Orthop 2008;134:646-51.
126. Pandis N, Strigou S, Eliades T. Maxillary incisor torque with conventional and self-ligating brackets: a prospective clinical trial. Orthod Craniofac Res 2006;9:193-8.
127. Morina E, Eliades T, Pandis N, Jager A, Bourauel C. Torque expression of self-ligating brackets compared with conventional metallic, ceramic, and plastic brackets. Eur J Orthod 2008;30:233-8.
128. Kusy RP. Influence on binding of third-order torque to second order angulation. Am J Orthod Dentofacial Orthop 2004;125:726-32.
129. Major TW, Carey JP, Nobes DS, Heo G, et al. Measurement of plastic and elastic deformation due to third-order torque in self-ligated orthodontic brackets. Am J Orthod Dentofacial Orthop 2011;140:326-339.
130. Major TW, Carey JP, Nobes DS, Heo G, et al. Mechanical effects of third-order movement in self-ligated brackets by the measurement of torque expression. Am J Orthod Dentofacial Orthop 2011;139:e31-e44.
131. Major TW, Carey JP, Nobes DS , Major PW. Orthodontic bracket manufacturing tolerances and dimensional differences between select self-ligating brackets. J Dent Biomech 2010;781321.
132. Badawi HM, Toogood RW, Carey JP, Heo G, Major PW. Torque expression of self-ligating brackets. Am J Orthod Dentofacial Orthop 2008;133:721-8.
133. Cattaneo PM, Salih RA, Melsen B. Labio-lingual root control of lower anterior teeth and canines obtained by active and passive self-ligating brackets. Angle Orthod July 2013;83;4:691-697.
134. Melenka GW, Nobes DS, Carey JP, Major PW. Three-dimensional deformation comparison of self-ligating brackets. Am J Orthod Dentofacial Orthop 2013;143:645-657.
135. Eliades T. Author’s response. Am J Orthod Dentofacial Orthop 2008;133:6-7.
136. Eliades T. Re: Response from Dr Eliades - failure rate of self-ligating and edgewise brackets bonded with conventional acid etching and a self etching primer: a prospective in vivo study. Angle Orthod 2006;76:119-22.
137. Eliades T, Bourauel C. Intraoral aging of orthodontic materials: the picture we miss and its clinical relevance. Am J Orthod Dentofacial Orthop 2005;127:403-12.
138. Chalgren R, Combe EC, Wahl AJ. Effects of etchants and primers on shear bond strength of a self-ligating esthetic orthodontic bracket. Am J Orthod Dentofacial Orthop 2007;132:577.e1-5.
139. Elekdag-Turk S, Cakmak F, Isci D, Turk T. 12-month self-ligating bracket failure rate with a self-etching primer. Angle Orthod 2008;78:1095-100.
140. Northrup RG, Berzins DW, Bradley TG, Schuckit W. Shear bond strength comparison between two orthodontic adhesives and self-ligating and conventional brackets. Angle Orthod 2007;77:701-6.
141. Pandis N, Bourauel C, Eliades T. Changes in the stiffness of the ligating mechanism in retrieved active self-ligating brackets. Am J Orthod Dentofacial Orthop 2007;132:834-7.
142. Pandis N, Polychronopoulou A, Katsaros C, Eliades T. Comparative assessment of conventional and self-ligating appliances on the effect of mandibular intermolar distance in adolescent nonextraction patients: a single-center randomized controlled trial. Am J Orthod Dentofacial Orthop 2011;140:e99-e105.
143. Menendez M, Alarcon JA, Travesi A. Evaluation of dental arch width and form changes after orthodontic treatment with the Damon system. Proceedings of the International Orthodontic Conference 2005 Sep 11-15; Paris, France. Chicago: Quintessence; 2005. p. 445.
144. Peck S. So what’s new? Arch expansion, again. Angle Orthod 2008;78:574-5.
145. Anand M, Turpin DL, Jumani KS, Spiekerman CF, Huang GF. Retrospective investigation of the effects and efficiency of self-ligating and conventional brackets. Am J Orthod Dentofacial Orthop. July 2015;148;1:67-75.
146. Thorstenson GA, Kusy RP. Effect of archwire size and material on the resistance to sliding of self-ligating brackets with second order angulation in the dry state. Am J Orthod Dentofacial Orthop 2002;122:295-305.
147. Thorstenson GA, Kusy RP. Self-ligating brackets: friction in the passive and active configurations. J Dent Res 2000;79:36-46.
148. Pandis N, Eliades T, Partowi S, Bourauel C. Forces exerted by conventional and self-ligating brackets during simulated first and second-order corrections. Am J Orthod Dentofacial Orthop 2008;133:738-42.
149. Redlich M, Mayer Y, Harari D, Lewinstein I. In vitro study of frictional forces during sliding mechanics of ‘‘reduced-friction’’ brackets. Am J Orthod Dentofacial Orthop 2003;124:69-73.
150. Lang R. Self-ligating brackets-is all the hype true? Oral Health 2011;101:3, 6.
151. Ellis CP. Lack of evidence forces practitioners to make clinically based decisions. Am J Orthod Dentofacial Orthop 2011;139:3.
152. Ellis CP. Self-ligating brackets. Am J Orthod Dentofacial Orthop 2008;133:4-5; author’s response, 5.

**References of Excluded Studies (to be placed On-Line)**

1. Agarwal S, Valiathan A, Shah NV. Self-ligating brackets. Am J Orthod Dentofacial Orthop 2008;134:5.
2. Baccetti T, Franchi L. Friction produced by types of elastomeric ligatures in treatment mechanics with the preadjusted appliance. Angle Orthod 2006;76:211-6.
3. Baek SH, Kim NY, Paeng JY, Kim MJ. Trifocal distraction compression osteosynthesis in conjunction with passive self-ligating brackets for the reconstruction of a large bony defect and multiple missing teeth. Am J Orthod Dentofacial Orthop 2008;133:601-11.
4. Baek SH. Author’s response. Am J Orthod Dentofacial Orthop 2008;134:5-6.
5. Berger JL. The speed system: an overview of the appliance and clinical performance. Semin Orthod 2008;14:54-63.
6. Berger J. The engaging concept of self-ligation. Ont Dent 1999;76:26-33.
7. Berger JL. The speed appliance: a 14-year update on this unique self-ligating orthodontic mechanism. Am J Orthod Dentofacial Orthop 1994;105:217-23.
8. Bortoly TG, Guerrero AP, Rached RN, Tanaka O, Guariza-Filho O, Rosa EA. Sliding resistance with esthetic ligatures: an in-vitro study. Am J Orthod Dentofacial Orthop 2008;133:340.e1-7.
9. Breuning KH. Correction of a Class III malocclusion with over 20 mm of space to close in the maxilla by using miniscrews for extra anchorage. Am J Orthod Dentofacial Orthop 2008;133:459-69.
10. Champagne M, Lavalle´e JN, Huynh P, Martel D, Pellan P. The low friction contradiction (low friction or fiction). Int J Orthod Milwaukee 2007;18:11-6.
11. Deguchi T, Imai M, Sugawara Y, Ando R, Kushima K, Takano-Yamamoto T. Clinical evaluation of a low-friction attachment device during canine retraction. Angle Orthod 2007;77:968-72.
12. Fleming PS, Dibiase AT, Sarri G, Lee RT. Pain experience during initial alignment with a self-ligating and a conventional fixed orthodontic appliance system. A randomized controlled clinical trial. Angle Orthod 2009;79:46-50.
13. Fleming PS, DiBiase AT, Lee RT. Self-ligating appliances: evolution or revolution? Aust Orthod J 2008;24:41-9.
14. Gandini P, Orsi L, Bertoncini C, Massironi S, Franchi L. In vitro frictional forces generated by three different ligation methods. Angle Orthod 2008;78:917-21.
15. Garino F, Garino GB. Distalization of maxillary molars using the SPEED system: a clinical and radiological evaluation. World J Orthod 2004;5:317-23.
16. Garino F, Favero L. Control of tooth movements with the SPEED system. Prog Orthod 2003;4:23-30.
17. Giancotti A, Greco M. Technique clinic: a bondable power arm for self-ligating brackets. J Clin Orthod 2008;42:476.
18. Giancotti A, Greco M. The G-spring: a bondable uprighting spring for self-ligating brackets. J Clin Orthod 2008;42:98-9.
19. Goldbecher H, Grande T, Bock J, Fuhrmann RAW. Clinical experiences with self-ligature bracket systems. Deutsche Zahnarztliche Zeitschrift 2005;60:A175.
20. Gottlieb EL, Wildman AJ, Hice TL, Lang HM, Lee IF, Strauch EC Jr. The Edgelok bracket. J Clin Orthod 1972;6:613-23 passim.
21. Hain M, Dhopatkar A, Rock P. A comparison of different ligation methods on friction. Am J Orthod Dentofacial Orthop 2006;130:666-70.
22. Harradine NW. Self-ligating brackets: where are we now? J Orthod 2003;30:262-73.
23. Hayashi K, Uechi J, Lee SP, Mizoguchi I. Three-dimensional analysis of orthodontic tooth movement based on XYZ and finite helical axis systems. Eur J Orthod 2007;29:589-95.
24. He Y, Ye Q, Luo J, Zou S, Zhao Z, Ren Y. Interventions for space closure in orthodontic treatment. Cochrane Database of Systematic Reviews. Chichester, United Kingdom: John Wiley & Sons; 2009.
25. Hemingway R, Williams RL, Hunt JA, Rudge SJ. The influence of bracket type on the force delivery of Ni-Ti archwires. Eur J Orthod 2001;23:233-41.
26. Kao C. Leveling effects of conventional and self-ligating brackets-cases report. J Dent Sci 2007;2:110-26.
27. Katsaros C, Dijkman JF. Self-ligating edgewise brackets. An overview. Ned Tijdschr Tndheelkd 2003;110:31-4.
28. Lin JX, Xu TM. History and development of Chinese orthodontics. Beijing Da Xue Xue Bao 2008;40:11-14.
29. Loftus BP,Artun J. A model for evaluating friction during orthodontic tooth movement. Eur J Orthod 2001;23:253-61.
30. Loftus BP, Artun J, Nicholls JI, Alonzo TA, Stoner JA. Evaluation of friction during sliding tooth movement in various bracket-arch wire combinations. Am J Orthod Dentofacial Orthop 1999;116:336-45.
31. Loh KW. Rapid tooth movement with a low-force, low-friction bracket system. J Clin Orthod 2007;41:451-7.
32. Macchi A, Tagliabue A, Levrini L, Trezzi G. Philippe self-ligating lingual brackets. J Clin Orthod 2002;36:42-5.
33. Mallory DC, English JD, Powers JM, Brantley WA, Bussa HI. Force-deflection comparison of superelastic nickel-titanium archwires. Am J Orthod Dentofacial Orthop 2004;126:110-2.
34. Matarese G, Nucera R, Militi A, Mazza M, Portelli M, Festa F, et al. Evaluation of frictional forces during dental alignment: an experimental model with 3 nonleveled brackets. Am J Orthod Dentofacial Orthop 2008;133:708-15.
35. Miles PG. Author’s response. Am J Orthod Dentofacial Orthop 2008;133:5.
36. Montgomery WM. Seating an archwire into a self-ligating bracket for initial alignment. J Clin Orthod 2007;41:20.
37. Pandis N, Eliades T, Partowi S, Bourauel C. Moments generated during simulated rotational correction with self-ligating and conventional brackets. Angle Orthod 2008;78:1030-4.
38. Park JH, Lee YK, Lim BS, Kim CW. Frictional forces between lingual brackets and archwires measured by a friction tester. Angle Orthod 2004;74:816-24.
39. Parkin N. Clinical pearl: clinical tips with System-R. J Orthod 2005;32:244-6.
40. Pellan P. Fact or friction: the importance of working with a self-ligating bracket system. Int J Orthod Milwaukee 2006;17:51-2.
41. Prososki RR, Bagby MD, Erickson LC. Static frictional force and surface roughness of nickel-titanium arch wires. Am J Orthod Dentofacial Orthop 1991;100:341-8.
42. Razavi MR. Self-ligating brackets. Am J Orthod Dentofacial Orthop 2008;133:5-6; author’s response, 6-7.
43. Redlich M, Gorodnev A, Feldman Y, Kaplan-Ashiri I, Tenne R, Fleischer N, et al. Friction reduction and wear resistance of electro-co-deposited inorganic fullerene-like WS2 coating for improved stainless steel orthodontic wires. J Mater Res 2008;23:2909-15.
44. Reicheneder CA, Gedrange T, Berrisch S, Proff P, Baumert U, Faltermeier A, et al. Conventionally ligated versus self-ligating metal brackets - a comparative study. Eur J Orthod 2008;30:654-60.
45. Rinchuse DJ, Miles PG. Authors’ response. Am J Orthod Dentofacial Orthop 2008;133:7.
46. Rinchuse DJ, Miles PG. Self-ligating brackets: present and future. Am J Orthod Dentofacial Orthop 2007;132:216-22.
47. Rinchuse DJ, Rinchuse DJ, Kapur-Wadhwa R. Orthodontic appliance design. Am J Orthod Dentofacial Orthop 2007;131:76-82.
48. Sakima MT, Dalstra M, Melsen B. How does temperature influence the properties of rectangular nickel-titanium wires? Eur J Orthod 2006;28:282-91.
49. Sims AP, Waters NE, Birnie DJ. A comparison of the forces required to produce tooth movement ex vivo through three types of pre-adjusted brackets when subjected to determined tip or torque values. Br J Orthod 1994;21:367-73.
50. Sims AP, Waters NE, Birnie DJ, Pethybridge RJ. A comparison of the forces required to produce tooth movement in vitro using two self-ligating brackets and a pre-adjusted bracket employing two types of ligation. Eur J Orthod 1993;15:377-85.
51. Sivakumar A, Gandhi S, Valiathan A. Re: failure rate of self-ligating and edgewise brackets bonded with conventional acid etching and a self etching primer: a prospective in vivo study. Angle Orthod 2006;76:119-22. Angle Orthod 2006;76:iii; author reply, iii.
52. Smith J, Bearn DR, House K. Self-ligating orthodontic braces for straightening teeth. Cochrane Database of Systematic Reviews. Chichester, United Kingdom: John Wiley & Sons; 2008.
53. Southard TE, Marshall SD, Grosland NM. Friction does not increase anchorage loading. Am J Orthod Dentofacial Orthop 2007;131:412-4.
54. Thermac G, Morgon L, Godeneche J. Friction: self-ligating brackets. Orthod Fr 2008;79:239-49.
55. Torres CB, Cabrilla MCP, Quintanilla DS. Comparative assessment of the effectiveness of dental alignment between low friction conventional ligated and self-closing brackets on the maxillary arch in 18 patients. London: European Orthodontic Society; 2005. p. 294.Proceedings of the European Orthodontic Society 2005; Amsterdam.
56. van Aken CA, Pallav P, Kleverlaan CJ, Kuitert RB, Prahl-Andersen B, Feilzer AJ. Effect of long-term repeated deflections on fatigue of preloaded superelastic nickel-titanium archwires. Am J Orthod Dentofacial Orthop 2008;133:269-76.
57. Wilkinson PD, Dysart PS, Hood JA, Herbison GP. Load-deflection characteristics of superelastic nickel-titanium orthodontic wires. Am J Orthod Dentofacial Orthop 2002;121:483-95.
58. Yeh CL, Kusnoto B, Viana G, Evans CA, Drummond JL. In-vitro evaluation of frictional resistance between brackets with passive ligation designs. Am J Orthod Dentofacial Orthop 2007;131:704.e11-22.
59. Yu YL, Qian YF. The clinical implication of self-ligating brackets. Shanghai Kou Qiang Yi Xue 2007;16:431-5.
60. Zachrisson BU. Use of self-ligating brackets, superelastic wires, expansion/proclination, and permanent retention - a word of caution. World J Orthod 2006;7:198-206.
61. Zhu K, Wang CL, Wang J, Zhao YH. Comparison study of friction of FAS self-ligating bracket and traditional self-ligating bracket. Hua Xi Kou Qiang Yi Xue Za Zhu 2007;25:371-4.
62. Lam TV, Freer TJ, Brockhurst PJ, Podlich HM. Strength decay of orthodontic elastomeric ligatures. J Orthod 2002;29:37-43.
63. de Souza RA, de Ararujo Magnani MBB, Nouer DF, da Silva CO, Klein MI, Sallum EA, et al. Periodontal and microbiologic evaluation of 2 methods of archwire ligation: ligature wires and elastomeric rings. Am J Orthod Dentofacial Orthop 2008;134:506–512.
64. Sukontapatipark W, el-Agroudi MA, Selliseth NJ, Thunold K, Selvig KA. Bacterial colonization associated with fixed orthodontic appliances. A scanning electron microscopy study. Eur J Orthod 2001;23:475-484.
65. Taloumis LJ, Smith TM, Hondrum SO, Lorton L. Force decay and deformation of orthodontic elastomeric ligatures. Am J Orthod Dentofacial Orthop 1997. 111:1–11.
66. Turkkahraman H, Sayin O, Bozkurt FY, Yetkin Z, Kaya S, Onal S. Archwire ligation techniques, microbial colonization, and periodontal status in orthodontically treated patients. Angle Orthod 2005;75:231–236.
67. Iwasaki LR, Beatty MW, Randall CJ, Nickel JC. Clinical ligation forces and intraoral friction during sliding on a stainless steel archwire. Am J Orthod Dentofacial Orthop 2003;123:408–415.
68. Khambay B, Millett D, McHugh S. Archwire seating forces produced by different ligation methods and their effect on frictional resistance. Eur J Orthod 2005;27:302–308.
69. Pliska BT, Fuchs RW, Beyer JP, Larson BE. Effect of applied moment n resistance to sliding among esthetic self-ligating brackets. Angle Orthod 2014;84:134-9.
70. Machibya FM, Bao X, Zhao L, Hu M. Treatment time, outcome, and anchrage loss comparisons of self-ligating conventional brackets. Angle Orthod 2013;83:280-5.
71. Sifakakis I, Pandis N, Makou M, Eliades T, Katsaros C, Bourauel C. A comparative assessment of torque generated by lingual and conventional brackets. Eur J Orthod 2013;35:375-80.
72. Prettyman C , Best AM , Lindauer SJ , Tufekci E . Self-ligating vs conventional brackets as perceived by orthodontists. Angle Orthod 2012;82:1060-6.
73. Harradine NW. Self-ligating brackets: theory, practice, and evidence. In: Graber LW, Vanarsdall RL,  Vig KWL, editors. Orthodontics: current principles and techniques, 5th ed. Philadelphia: Elsevier Mosby; 2012.
74. Major TW, Carey JP, Nobes DS, Heo G, Melenka GW, Major PW. An investigation into the mechanical characteristics of select self-ligated brackets at a series of clinically relevant maximum torquing angles: loading and unloading curves and bracket deformation. Eur J Orthod. 2013;35:719-29.
75. Melenka GW, Nobes DS, Carey JP, Major PW. Dimensional deformation comparison of self-ligating brackets. Am J Orthod Dentofacial Orthop 2013;143:645-657.
76. Muguruma T, Iijima M, Brantley WA, Ahluwalia KS, Kohda N, Mizoguchi I. Effects of third-order torque on frictional force of self-ligating brackets. Angle Orthod 2014;84(6):1054-61.
77. Monini AdC, Júnior LGG, Martins RP, and Vianna AP. Canine retraction and anchorage loss: Self-ligating versus conventional brackets in a randomized split-mouth study. Angle Orthod 2014;84(5):846-52.
78. Cattaneo PM, Salih RA, and Melsen B. Labio-lingual root control of lower anterior teeth and canines obtained by active and passive self-ligating brackets. Angle Orthod 2013; 83:691-697.
79. Melenka,GW, Nobes DS, Carey JP, Major PW. Three-dimensional deformation comparison of self-ligating brackets. Am J Orthod Dentofacial Orthop 2013;143:645-657.
80. Montasser MA, El-Bialy T, Keilig L, Reimann S, Jager A, Bourauel C. Force levels in complex tooth alignment with conventional and self-ligating brackets. Am J Orthod Dentofacial Orthop 2013;143:507-514.
81. Pesce RE, Uribe F, Janakiraman N, Neace WP, Peterson DR, and Nanda R. Evaluation of rotational control and forces generated during first-order archwire deflections: a comparison of self-ligating and conventional brackets. Eur J Orthod 2014;36:245-254.
82. Montasser MA, El-Bialy T, Keilig L, Reimann S, Jäger A, and Bourauel C. Force loss in archwire-guided tooth movement of conventional and self-ligating brackets. Eur J Orthod 2014;36:31-38.
83. Reznikov N, Har-Zion G, Barkana I, Abed Y, et al. Measurement of friction forces between stainless steel wires and “reduced-friction” self-ligating brackets. Am J Orthod 2010;138:330-338.
84. Scuzzo Giu, Takemoto K, Takemoto Y, Scuzzo Gia, Lombardo L. A new self-ligating lingual bracket with square slots. J Clin Orthod 2011;45:682.