

Kräfte und Drehmomente bei der Invisalign®-Behandlung

Mareike Simon, Jörg Schwarze, Ludger Keilig, Christoph Bourauel

- Kesling HD. The philosophy of tooth positioning appliance. Am J Orthod 1945; 31:297-304
- 2 Ponitz RJ. Invisible retainers. Am J Orthod 1971; 59:266- 272
- 3 McNamara JA, Kramer KL, Juenker JP. Invisible retainers. J Clin Orthod 1985; 19:570-578
- 4 Sheridan JJ, LeDoux W, McMinn R. Essix retainers: fabrication and supervision for permanent retention. J.Clin Orthod 1993; 27:37-45
- 5 Stellungnahme der DGKFO zur Behandlung mit Alignern. Stand 2001
- 6 Joffe L. Invisalign: early experiences. J Orthod 2003; 30:348-352
- 7 Stellungnahme der DGKFO zur Behandlung mit Alignern. Stand 2010
- 8 Baldwin DK, King G, Ramsay DS, Huang G, Bollen A-M. Activation time and material stiffness of sequential removable orthodontic appliances Part 3: premolar extraction patients. Am J Orthod Dentofac Orthop 2008; 133:837-845
- 9 Krieger E, Seiferth J, Saric I, Jung A, Wehrbein H. Accuracy of Invisalign® treatments in the anterior tooth region. J Orofac Orthop 2011; 72:141-149
- 10 Kravitz ND, Kusnoto B, Agran B, Viana G. Influence of Attachments and Interproximal reduction on the accuracy of canine rotation with Invisalign. Angle Orthod 2008; 78:682-687
- 11 Kravitz ND, Kusnoto B, BeGole E, Obrez A, Agran B. How well does Invisalign® work? A prospective clinical study evaluating the efficacy of tooth movement with Invisalign®. Am J Orthod Dentofacial Orthop 2009; 135:27-35
- 12 Hahn W , Zapf A, Dathe H, Fialka-Fricke J, Fricke-Zech S, Gruber R, Kubein-Meesenburg D, Sadat-Khonsari R. Torquing an upper central incisor with aligners – acting forces and biomechanical principles. Eur J Orthod 2010; 32:607-613
- 13 Hahn W , Dathe H, Fialka-Fricke J, Fricke-Zech S, Zapf A, Kubein-Meesenburg D, Sadat-Khonsari R. Influence of thermoplastic appliance thickness on the magnitude of force delivered to a maxillary central incisor during tipping. Am J Orthod Dentofacial Orthop 2009; 136:12.e1-12.e7
- 14 Hahn W et al. Initial forces and moments delivered by removable thermoplastic appliances during rotation of an upper central incisor. Angle Orthod. 2010; 80:239-246
- 15 Barbagallo L-J, Shen G, Jones AS, Swain MV, Petocz P, Darendeliler MA. A novel pressure film approach for determining the force imparted by clear removable thermoplastic appliances, J biomechanical engineering 2008; 36:335-341
- 16 Vardimon A-D, Robbins D, Brosh T. In-vivo von mises strains during Invisalign treatment. Am J Orthod Dentofac Orthop 2010; 138:399-409
- 17 Brezniak N: The clear plastic appliance. Angle Orthod 2008; 78:381-382
- 18 Clinical Informations 2007 by Align Technology
- 19 Colville C. D. The Invisalign System: Challenging Movements, Clinical Assessment, ClinCheck Strategies, & Treatment Tips. 2007
- 20 Drescher D, Bourauel C, Thier M. Application of the orthodontic measurement and simulation system (OMSS) in orthodontics. Eur J Orthod 1991; 13:169-178
- 21 Bourauel C, Drescher D, Thier M. An experimental apparatus for the simulation of three dimensional movements in orthodontics. J Biomed Eng 1992; 14:371-378

