

Forschungsbericht für das Jahr 2014

Department für Zahn- Mund- und Kieferheilkunde Klinik für Zahnärztliche Prothetik

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Wissenschaftliche Mitarbeiterinnen und Mitarbeiter

- Prof. Dr. Dr. h. c. Jörg R Strub
- Prof. Dr. Ralf J. Kohal
- Prof. Dr. Petra Gierthmühlen
- Prof. Dr. Wael Att
- Dr. Sebastian Patzelt
- Dr. Samir Abou-Ayash
- Dr. Brigitte Altmann
- Dr. Maria Bächle
- Areeg Badarnih
- Dr. Maria Bateli
- Dr. Lukas Berr
- Dr. Johannes Boldt
- ZA Marin Christmann
- Dr. Ahmed Fawzy
- ZÄ Cordula Fisch
- ZA Jan-Jonas Frahm
- ZA Moritz Hoederath
- Adrian Hurrel
- Dr. Yuki Iwaki

- ZÄ Birte Mengersen
- ZA Matthias Petsch
- Dr. Julia Seelig
- Dr. Benedikt Spies
- Malin Strasding
- ZA Alexander Vuck

Forschungsschwerpunkte

- Grundlagenforschung: - Grundlagen oraler Knochen- und Gewebebiologie; - Bioaktivität an Implantatoberflächen; - Zytotoxizitätstests
- Klinische Studien: - Randomisierte klinische Studien; - Multizentrische klinische Studien; - Orale Implantologie mit/ohne Knochenregeneration; - Festsitzender, kombinierter und abnehmbarer Zahnersatz (traditionell / neue Technologien/Materialien); - Ästhetische Zahnheilkunde; - Nachsorge
- Werkstoffkunde / Zahnärztliche Materialien: - Prüfung und Entwicklung oraler Werkstoffe; - Dentale CAD/CAM-Systeme: Präzision und Trueness diverser intraoraler Scannersysteme

Wissenschaftliche Projekte und Forschungsvorhaben

- Att W: Effect of ultraviolet photofunctionalization on stability and bone tissue formation around titanium implants (01.06.2014 - 31.12.2016)
- Att W, Brezavcsek M, Rübel A: Eine klinische und radiologische Prüfung, im posterioren Unterkiefer gesetzter kurzer Implantate: eine 2jährige prospektive Kohortenstudie im Split-Mouth-Design (01.02.2012 - 31.01.2014)
- Att W, Brezavcsek M: Einzelimplantat befestigte Unterkiefer Totalprothese – Einfluss des Belastungszeitpunktes (DFG Multicenter Studie) (03.12.2012 - 31.03.2016)
- Gierthmühlen P: Ceramic versus composite minimal invasive therapeutical intervention of severe non carius lesions: Clinical performance and quality of life improvement (01.07.2014 - 30.06.2015)
- Guess P: Effect of glaze firing on fatigue reliability of monolithic CAD/CAM glass-ceramic crowns (01.09.2013 - 31.12.2014)
- Guess P, Strub JR: Langzeit Bewährung und Überlebensrate von verblendeten anatomisch reduzierten Zirkonoxid Brückengerüsten für den Front- und Seitenzahnbereich: Prospektive klinische Studie über 5 Jahre (01.01.2010 - 01.01.2016)
- Guess P, Strub JR: Long-term Performance and Survival Rate of Hybrid Ceramic Implant Crowns: A Prospective Clinical Study over 5 Years (01.01.2011 - 31.12.2016)
- Guess P, Strub JR: Long-term performance and survival rate of monolithic CAD/CAM Hybrid Ceramic crowns for posterior dentition: A prospective clinical study over 5 years (01.10.2010 - 30.09.2016)
- Guess PC, Voulgarakis A, Strub JR: Langzeit Bewährung und Überlebensrate von press verblendeten Zirkonoxid und monolithischen CAD/CAM Lithium Disilikat Kronen: Prospektive randomisierte klinische Splitmouth Studie über 5 Jahre (01.01.2010 - 01.01.2016)
- Kohal RJ: Advanced multifunctional zirconia ceramics for long-lasting implants. EU-Projekt LONGLIFE, FP7-NMP-2011-SME-5: Research and innovation for advanced multifunctional ceramic materials. Grant agreement no: 280741 (01.01.2012 - 31.12.2015)
- Kohal RJ: Klinischer Einsatz von Vollkeramiksystemen in der Zahnersatzkunde (seit 01.07.2003 (unbegrenzt))
- Kohal RJ: Klinische Untersuchung von vollkeramischen Kronen und dreigliedrigen Brücken auf Keramikimplantaten (01.01.2008 - 30.06.2014)

- Kohal RJ: Klinische Untersuchung von zwei verschiedenen Implantatdesigns beim Einzelzahnersatz und bei Brücken (01.07.2009 - 30.06.2015)
- Kohal RJ: Langzeitbewährung und Überlebensrate von okklusal verschraubten monolithischen IPS e.max Press keramischen Implantat Kronen im Seitenzahnbereich (20.01.2013 - 31.12.2018)
- Kohal RJ: Untersuchung eines einteiligen Keramikimplantates bei Einzelzahnersatz und beim teilbezanten Patienten. Eine Kohortenuntersuchung. (01.01.2009 - 30.09.2016)

Wissenschaftliche Publikationen

Originalarbeiten in wissenschaftlichen Fachzeitschriften

- Agliardi EL, Pozzi A, Stappert CF, Benzi R, Romeo D, Gherlone E: Immediate Fixed Rehabilitation of the Edentulous Maxilla: A Prospective Clinical and Radiological Study after 3 Years of Loading. *Clin Implant Dent R*, 2014; 16 (2): 292-302.
- Agnini A, Agnini AM, Romeo D, Chiesi M, Pariente L, Stappert CF: Clinical Investigation on Axial versus Tilted Implants for Immediate Fixed Rehabilitation of Edentulous Arches: Preliminary Results of a Single Cohort Study. *Clin Implant Dent R*, 2014; 16 (4): 527-539.
- Altmann B, Lochner A, Swain M, Kohal RJ, Giselbrecht S, Gottwald E, Steinberg T, Tomakidi P: Differences in morphogenesis of 3D cultured primary human osteoblasts under static and microfluidic growth conditions. *Biomaterials*, 2014; 35 (10): 3208-3219.
- Bateli M, Kern M, Wolkewitz M, Strub JR, Att W: A retrospective evaluation of teeth restored with zirconia ceramic posts: 10-year results. *Clin Oral Invest*, 2014; 18 (4): 1181-1187.
- Bishti S, Strub JR, Att W: Effect of the implant-abutment interface on peri-implant tissues: A systematic review. *Acta Odontol Scand*, 2014; 72 (1): 13-25.
- Brezavsek M, Lamott U, Att W: Treatment planning and dental rehabilitation of a periodontally compromised partially edentulous patient: a case report - Part I. *Int J Esthet Dent*, 2014; 9 (3): 402-411.
- Brezavsek M, Lamott U, Att W: Treatment planning and dental rehabilitation of periodontally compromised partially edentulous patient: A case report - Part II. *Int J Esthet Dent*, 2014; 9 (4): 506-515.
- Guess PC, Selz CF, Voulgarakis A, Stampf S, Stappert CF: Prospective clinical study of press-ceramic overlap and full veneer restorations: 7-year results. *Int J Prosthodont*, 2014; 27 (4): 355-358.
- Guess PC, Vagkopoulou T, Zhang Y, Wolkewitz M, Strub JR: Marginal and internal fit of heat pressed versus CAD/CAM fabricated all-ceramic onlays after exposure to thermo-mechanical fatigue. *J Dent*, 2014; 42 (2): 199-209.
- Kosyfaki P, Swain MV: Adhesion determination of dental porcelain to zirconia using the Schwickerath test: strength vs. fracture energy approach. *Acta Biomater*, 2014; 10 (11): 4861-4869.
- Minamikawa H, Ikeda T, Att W, Hagiwara Y, Hirota M, Tabuchi M, Aita H, Park W, Ogawa T: Photofunctionalization increases the bioactivity and osteoconductivity of the titanium alloy Ti6Al4V. *J Biomed Mater Res A*, 2014; 102 (10): 3618-3630.
- Nold SL, Horvath SD, Stampf S, Blatz MB: Analysis of select facial and dental esthetic parameters. *Int J Periodont Rest*, 2014; 34 (5): 623-629.
- Patzelt SB, Bahat O, Reynolds MA, Strub JR: The All-on-Four Treatment Concept: A Systematic Review. *Clin Implant Dent R*, 2014; 16 (6): 836-855.
- Patzelt SB, Bishti S, Stampf S, Att W: Accuracy of computer-aided design/computer-aided manufacturing-generated dental casts based on intraoral scanner data. *J Am Dent Assoc*, 2014; 145 (11): 1133-1140.
- Patzelt SB, Emmanouilidi A, Stampf S, Strub JR, Att W: Accuracy of full-arch scans using intraoral scanners. *Clin Oral Invest*, 2014; 18 (6): 1687-1694.
- Patzelt SB, Lamprinos C, Stampf S, Att W: The time efficiency of intraoral scanners: An in vitro comparative study. *J Am Dent Assoc*, 2014; 145 (6): 542-551.

- Patzelt SB, Schaible LK, Stampf S, Kohal RJ: Software-based evaluation of human attractiveness: A pilot study. *J Prosthet Dent*, 2014; 112 (5): 1176-1181.
- Reissmann DR, Heydecke G, Schierz O, Marre B, Wolfart S, Strub JR, Stark H, Pospiech P, Mundt T, Hannak W, Hartmann S, Wostmann B, Luthardt RG, Boning KW, Kern M, Walter MH: The randomized shortened dental arch study: temporomandibular disorder pain. *Clin Oral Invest*, 2014; 18 (9): 2159-2169.
- Selz CF, Strub JR, Vach K, Guess PC: Long-term performance of posterior InCeram Alumina crowns cemented with different luting agents: a prospective, randomized clinical split-mouth study over 5 years. *Clin Oral Invest*, 2014; 18 (6): 1695-1703.
- Spitznagel FA, Horvath SD, Guess PC, Blatz MB: Resin bond to indirect composite and new ceramic/polymer materials: a review of the literature. *J Esthet Restor Dent*, 2014; 26 (6): 382-393.
- Strub JR, Kim S: Editorial: Modern Clinical Dilemma: Extraction and Implants vs Retention of Endodontically Treated Teeth. *Int J Periodont Rest*, 2014; 34 (4): 451-451.
- Tchorz JP, Poxleitner PJ, Stampf S, Patzelt SB, Rottke D, Hellwig E, Altenburger MJ: The use of cone beam computed tomography to predetermine root canal lengths in molar teeth: a comparison between two-dimensional and three-dimensional measurements. *Clin Oral Invest*, 2014; 18 (4): 1129-1133.
- Vasak C, Kohal RJ, Lettner S, Rohner D, Zechner W: Clinical and radiological evaluation of a template-guided (NobelGuide()) treatment concept. *Clin Oral Implan Res*, 2014; 25 (1): 116-123.
- Voulgarakis A, Strub JR, Att W: Outcomes of implants placed with three different flapless surgical procedures: A systematic review. *Int J Oral Max Surg*, 2014; 43 (4): 476-486.
- Walter MH, Marre B, Vach K, Strub J, Mundt T, Stark H, Pospiech P, Wostmann B, Heydecke G, Kern M, Hartmann S, Luthardt R, Huppertz J, Wolfart S, Hannak W: Management of shortened dental arches and periodontal health: 5-year results of a randomised trial. *J Oral Rehabil*, 2014; 41 (7): 515-522.
- Wang XD, Jian YT, Guess PC, Swain MV, Zhang XP, Zhao K: Effect of core ceramic grinding on fracture behaviour of bilayered lithium disilicate glass-ceramic under two loading schemes. *J Dent*, 2014; 42 (11): 1436-1445.
- Yilmaz ED, Bechtle S, Ozcoban H, Kieser JA, Swain MV, Schneider GA: Micromechanical characterization of prismless enamel in the tuatara, *Sphenodon punctatus*. *J Mech Behav Biomed Mater*, 2014; 39: 210-217.
- Zhao K, Wei YR, Pan Y, Zhang XP, Swain MV, Guess PC: Influence of veneer and cyclic loading on failure behavior of lithium disilicate glass-ceramic molar crowns. *Dent Mater*, 2014; 30 (2): 164-171.

Kurzbeiträge / short communications

- Patzelt SB: Summary of: Attitudes of general dental practitioners to the maintenance of Locator retained implant overdentures. *Brit Dent J*, 2014; 216 (3): 134-135.

Konferenzbeiträge

- Altmann B, Steinberg T, Rabel K, Adolfsson E, Bernsmann F, Montanaro L, Fürderer T, Chevalier J, Kohal RJ: Cell functions of human alveolar bone osteoblasts and gingiva fibroblasts on yttria- and ceria-stabilized zirconia with different surface topographies. *EAO 23th Annual Scientific Meeting*, Rome, Italy 2014.
- Patzelt SB: Accuracy of dental casts obtained from three intraoral scanners. *American Academy of Fixed Prosthodontics*, Chicago, IL, USA 2014.
- Patzelt SB: Digitizing edentulous jaws: An in vivo feasibility study. *ADT foundation, advancing digital technology in head and neck reconstruction*, Beijing, China 2014.

Vorträge

- Att W: Implant treatment IV. 2-day training course, diploma CERP program in advanced oral implantology. *School of Dentistry, University of Freiburg, Germany*, 2014.

- Att W: Current aspects of contemporary implant dentistry. Dentium Event/ AEEDC, Dubai, UAE, 2014.
- Att W: Current aspects of contemporary implant dentistry. CFLIP, Paris, France, 2014.
- Att W: Current aspects of contemporary reconstructive dentistry. Dubai School of Dental Medicine, Dubai, UAE, 2014.
- Att W: Superosseointegration: A novel understanding of osseointegration. Ushio Launching Event Germany, Munich, Germany, 2014.
- Att W: Current aspects in removable implant prosthodontics. Annual Meeting of the Czech Academy of Dental Esthetics, Prague, Czech Republic, 2014.
- Att W: Ceramic Implants: Are we there?. Vita Ceramic Implant Forum, Zurich, Switzerland, 2014.
- Att W: Current aspects in contemporary implant dentistry. Cerec Desert Fest, Dubai, UAE, 2014.
- Att W: Superosseointegration. EAO Sattelite Symposium, Rome, Italy, 2014.
- Att W: State of the art of digital impressions. 7th Memorial Marcello Calandriello, Italian Dental Association, Bologna, Italy, 2014.
- Att W: Current aspects in contemporary implant dentistry. 18th Congress of Esthetic Dentistry, Turkish Academy of Esthetic Dentistry (EDAD), Istanbul, Turkey, 2014.
- Att W: Guided implant dentistry: Principles and clinical guidelines. One-day course with live demo, University Hospital Freiburg, Freiburg, Germany, 2014.
- Att W: Principles and guidelines of ceramic implants. One-day course with live demo, University Hospital Freiburg, Freiburg, Germany, 2014.
- Att W: Ceramic Implants: Clinical applications. One-day course with live demo, Deutsche Zahnärztetag (Annual Meeting of the German Dentists), Frankfurt, Germany, 2014.
- Att W: How digital technologies are changing implant dentistry. One-day course, iLect Program, Dentsply Implants and Straumann, Munich, Germany, 2014.
- Att W: Provisionals as a blueprint for implant restorations - A clinical guide. 2nd Sino-German Dental Meeting, Beijing, China, 2014.
- Att W: Preimplant site enhancement in the maxilla - Clinical procedures. 2nd Sino-German Dental Meeting, Beijing, China, 2014.
- Att W: Provisionals as a blueprint for implant restorations - A clinical guide. Pearl Medical Group, Beijing, China, 2014.
- Att W: Preimplant site enhancement in the maxilla - Clinical procedures. Pearl Medical Group, Beijing, China, 2014.
- Att W: 3D Engineering in Dento-Facial Rehabilitation. XXXIII International Congress of the Italian Academy of Prosthetic Dentistry, Bologna, Italy, 2014.
- Att W: Digital into the future: Planning, Navigation, Prosthodontics. Innovations Forum, German Society of Implantology (DGI), Düsseldorf, Germany, 2014.
- Att W: 3D Engineering in Implant Prosthodontics. Lecture with consecutive translation, China-Japan Friendship Hospital, Beijing, China, 2014.
- Att W: 3D Engineering in Dento-Facial Esthetics. Lecture with consecutive translation, First Outpatient Department of Peking University School of Stomatology, Beijing, China, 2014.
- Att W: 3D Engineering in Implant Dentistry, Lecture with consecutive translation, Shenzhen Renmin Hospital, Shenzhen, China, 2014.
- Att W: 3D Engineering in Implant Prosthodontics, Lecture with consecutive translation, Shanghai Tenth People's Hospital, Shanghai, China, 2014.
- Att W: Implant Dentistry: Where are we now and where are we going? Lecture with consecutive translation, DIC, Wuhan, China, 2014.
- Att W: Esthetic Dentistry, Current Status and Future Possibilities, Lecture with consecutive translation, 1st Annual Meeting of the Chinese Academy of Esthetic Dentistry, Sanya, China, 2014.
- Att W: State of the art of intraoral scanners. Annual meeting of the Lebanese Society of Prosthodontics, Beirut, Lebanon, 2014.

- Att W: Digital workflow in reconstructive dentistry. Annual meeting of the Lebanese Society of Prosthodontics, 12.12.2014, Beirut, Lebanon, 2014.
- Att W: 3D engineering in dento-facial rehabilitation. Annual meeting of the Lebanese Society of Prosthodontics, Beirut, Lebanon, 2014.
- Att W: Superosseointegration. Annual meeting of the Lebanese Society of Prosthodontics, Beirut, Lebanon, 2014.
- Att W: Provisionals as a blueprint for definitive restorations. Annual meeting of the Lebanese Society of Prosthodontics, Lebanon, 2014.
- Att W: Interactive treatment planning session. Annual meeting of the Lebanese Society of Prosthodontics, Beirut, Lebanon, 2014.
- Gierthmühlen PC: Innovative Restaurationsmöglichkeiten unter Einsatz der CAD/CAM Technologie. 1. Interdisziplinäres Symposium der Zahnmedizin: "Digitale Zahnmedizin", Göttingen, Deutschland, 2014.
- Guess PC: Minimal invasive treatment concepts. Department of Prosthodontics, UKE Hamburg, Germany, 2014.
- Guess PC: Minimal invasive dentistry: Facts & Visions. Academy of Prosthodontics 95th Annual Meeting, Bern, Schweiz, 2014.
- Guess PC: Minimal invasive dentistry: Facts & Visions. Pacific Coast Society of Prosthodontics Annual Meeting, Laguna Beach, USA, 2014.
- Guess PC: CAD/CAM technologies: The scientific point of view. Italian Academy of Prosthetic Dentistry, Annual Meeting, Bologna, Italien, 2014.
- Guess PC: Minimalinvasive Behandlungskonzepte im Front- und Seitenzahnbereich. Österreichische Gesellschaft für "Esthetic Dentistry", Wien, Österreich, 2014.
- Strub JR: Oral implantology. 2-day course. Part 6, Dubai, Emirates, 2014.
- Strub JR: Digital highway in reconstructive dentistry. Lecture, Henry Schein, Berlin, Germany, 2014.
- Strub JR: Digital impression versus traditional impressions. Lecture, Italian Society of Osseointegration, Milano, Italy, 2014.
- Strub JR: Prosthetic options to restore implants. Lecture, American Equilibration Society, Chicago, USA, 2014.
- Strub JR: Intraoral scanners - where do we stand? Lecture, Academy of Prosthodontics, Berne, Switzerland, 2014.
- Strub JR: CAD-CAM technology; where are we? Lecture, EAO, Rome, Italy, 2014.
- Strub JR: Interactive treatment planning session. Lecture, 7th World Dental Meeting, Yokohama, Japan, 2014.
- Strub JR: Digital intraoral impressions - where do we stand? Lecture, 9th Quintessence Congress, Zagreb, Croatia, 2014.
- Strub JR: Digital workflow in reconstructive dentistry. 1/2 day course, Japanese Study Club, Freiburg, Germany, 2014.
- Strub JR: Workshop Vitaclinical, 1/2 day, Frankfurt, Germany, 2014.
- Strub JR: Case presentation. Lecture, Landeszahnärztekammer Baden-Württemberg, Stuttgart, Germany, 2014.
- Strub JR: Immediate, delayed and late implant placement. Workshop, 2nd Sino-German Implantology Conference, Beijing, China, 2014.
- Strub JR: Digitale intraorale Abdrücke - wo stehen wir? Vortrag, Expertenmeeting, Hamburg, Germany, 2014.

Besondere wissenschaftliche Aktivitäten

Preise:

- Rabel Kerstin, Altmann Brigitte: Präklinische in vitro Evaluation prospektiver dentaler Implantatoberflächen auf Zirkonbasis, BZÄK/DGZMK/DENTSPLY Förderpreis, Frankfurt, Deutschland, 08.11.2014.
- Vuck A, strub JR, Guess PC: "MARIO MARTIGNONI" AWARD FOR THE BEST SCIENTIFIC POSTER Minimal invasive CAD/CAM hybrid-ceramic restorations: Preliminary clinical results Poster, Italian Academy of Prosthetic Dentistry, Annual Meeting, Bologna, Italien, 21.11.2014.

Abschlussarbeiten

Promotionen:

- Asma Bilkair: Fatigue behavior and failure mode of monolithic CAD/CAM hybrid-ceramic and all-ceramic posterior restorations (Erstgutachterin: Prof. Dr. PC Gierthmühlen), 2014.
- Bistra A. Scheying: Biofunktionalisierung von Implantatoberflächen - eine Literaturübersicht (Erstgutachter: PD Dr. F. Butz), 2014.
- Kerstin Merkel: XPCI - Literature review (Erstgutachter: PD Dr. D. Schulze), 2014.
- Leonie Schaible: PhotoGenic for IPhone - Evidence beased? (Erstgutachter: Prof. Dr. RJ Kohal), 2014.
- Martin Pfeifle: Prospektive klinische Splitmouth-Studie zur Langzeitbewährung und Überlebensrate von press-verblendeten Zirkonoxid und monolithischen CAD/CAM Lithiumdisilikat Kronen im Seitenzahnbereich (Erstgutachter: Prof. Dr. PC Gierthmühlen), 2014.
- Shaza Bishti: Accuracy of stereolithography borne casts (Erstgutachter: Prof. Dr. W. Att), 2014.

Masterarbeiten:

- Helena Hinkel: Untersuchungen zum Einfluss von Zirkon-Nanopartikeln auf primäre humane Knochenzellkulturen. Fakultät für Mechanical and Medical Engineering, Hochschule Furtwangen (Gutachter: Dr. Brigitte Altmann), 2014.

Gastwissenschaftler

- Meiera Haro Adanez, Spanien, 15.10.2014 bis 30.09.2016
- Amirah Al-Ammar, Saudi-Arabien, 07.11.2014 bis 30.09.2016
- Omar Al-Bassri, Saudi-Arabien, 15.10.2013 bis 14.09.2016
- Alhanoof Aldegheishem, Saudi Arabien, 01.10.2011 bis 30.09.2015
- Ali Alfaer, Saudi Arabien, 01.10.2011 bis 30.09.2015
- Ahmad Algarny, Saudi-Arabien, 01.10.2014 bis 30.09.2016
- Meshaal Al-Jehani, Saudi-Arabien, 01.09.2012 bis 31.08.2016
- Abdulazis Al-Sahaf, Saudi-Arabien, 01.03.2010 bis 31.03.2015
- Aimen Bagegni, Libyen, 15.10.2014 bis 30.09.2016
- Zinonas Evagorou, Griechenland, 20.03.2014 bis 19.03.2016
- Manrique Fonseca, Costa Rica, 15.05.2012 bis 14.05.2015
- Aiste Gintaute, Litauen, 01.10.2012 bis 30.09.2015
- Amer Jarrar, Jordanien, 22.10.2014 bis 30.09.2016
- Honida Kaabur, Libyen, 15.10.2014 bis 30.09.2016
- Emilia Lopez Hernandez, Spanien, 15.01.2014 bis 14.01.2016

- Hironobu Nishihara, Japan, 05.12.2014 bis 30.09.2016
- Nikolaos Papatriantafyllou, Griechenland, 15.04.2013 bis 14.04.2016
- Stefano Pieralli, Italien, 15.10.2014 bis 30.09.2016
- Ghada Rahal, Libyen, 15.11.2013 bis 14.11.2016
- Aida Seyidaliyeva, Aserbaidschan, 2014 bis 2016