Structure and function of the human periodontium

Science meets the clinician

Azaripour, A.

Publication date
2016

Document Version
Other version

License
Other

Citation for published version (APA):
Azaripour, A. (2016). Structure and function of the human periodontium: Science meets the clinician. [Thesis, fully internal, Universiteit van Amsterdam].

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: https://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
verwijderd kan worden voor eten of drinken of voor mondverzorging. Het doel van onze studie was een vergelijking te maken van de gezondheid van het parodontium en de tevredenheid van patiënten die gefixeerd hulpmiddelen dan wel Invisalign® (Hoofdstuk 8). Onderzoek bij 100 patiënten toonde aan dat orthodontische behandeling met Invisalign® een gezonder parodontium opleverde en een grotere tevredenheid van de patiënten.

Concluderend kan gesteld worden dat het onderzoeksproject dat in dit proefschrift beschreven wordt een gezamenlijke activiteit is geweest van clinici en celbiologen (wetenschap ontmoet de clinicus) om de grenzen op te schuiven van onze kennis van de structuur en functies van het parodontium van de mens bij gezondheid en ziekte. Op basis van mijn ervaringen in de afgelopen jaren in dit onderzoeksproject heb ik geleerd hoe vruchtbaar een dergelijke samenwerking kan zijn tussen kliniek en onderzoeksinstituten. Ik heb mij vast voorgenomen om mijn carrière als clinicus met een been in de levenswetenschappen voort te zetten. Het was een opwindende ervaring.

PhD Portfolio

**PhD period:** January 2014 – December 2016

**Promoter:** Prof. dr. Cornelis J.F. Van Noorden

**Copromoter:** Prof. dr. Brita Willershausen

**Postgraduate education:**

- Postgraduate training in endodontology 2008-2010
- Master courses in microsurgical periodontology 2009
- Postgraduate training in periodontology (MSc) 2009-2012
- Advanced training in regenerative periodontology and mucogingival surgery (Dr. Cortellini- Prof. Tonetti) 2012-2014
- Mucogingival surgery (Prof. Zucchelli) 2015-2016
- Surgical endodontic therapy (Dr. Castellucci) 2016

**PhD training:** Scientific writing course (AMC) 2015

**Presentations and conferences:**

- Jahrestagung der DGP poster presentation 2008
- Deutscher Zahnarztetag poster presentation 2008
- International Congress of Pediatrics oral presentation 2008
- Europerio 6 oral presentation 2009
- Deutsche Gesellschaft für Kieferorthopädie poster presentation 2009
- AADR poster presentation 2010
- IADR poster presentation 2010
- Deutscher Zahnarztetag oral presentation 2010
- IADR oral presentation 2011
- Europerio 7 poster presentation 2012
- FDI 2013 invited speaker 2013
### American Academy of Periodontology
- **American Academy of Periodontology**: poster presentation 2014

### American Academy of Endodontics
- **American Academy of Endodontics**: poster presentation 2014

### Focus on Microscopy
- **Focus on Microscopy**: invited speaker 2015

### Europerio 8
- **Europerio 8**: poster presentation 2015

### European Society of Endodontics
- **European Society of Endodontics**: poster presentation 2015

### Società Italiana di Implantologia Osteointegrata
- **Società Italiana di Implantologia Osteointegrata**: poster presentation 2016

### Società Italiana di Parodontologia
- **Società Italiana di Parodontologia**: oral presentation 2016

### FDI
- **FDI**: oral presentation 2016

#### Teaching and supervising:
Lecturing and supervising in clinical courses of master students in dentistry, since 2008, Medical University Center of Johannes Gutenberg University Mainz, Germany

#### Awards:
**Awards**: Top 5 posters of Società Italiana di Implantologia Osteointegrata 2016

#### List of Publications:

1. Azaripour A, Willershausen I, Kämmerer P, Willershausen B. Post-endodontic treatment periodontal surgery: a case report. *Quintessence Int.* 2013;44:123–6.

2. Willershausen B, Willershausen I, Ehlers V, Azaripour A, Briseño B. A prospective clinical trial on the influence of a triamcinolone/demeclocycline and a calcium hydroxide based temporary cement on pain perception. *Head Face Med.* 2012;8:9.

3. Mahmoodi B, Weusmann J, Azaripour A, Braun B, Walter C, Willershausen B. Odontogenic Infections: A 1-year Retrospective Study. *J Contemp Dent Pract.* 2015;16:253-8.

4. Azaripour A, Weusmann J, Mahmoodi B, Peppas D, Gerhold-Ay A, Van Noorden CJF, et al. Braces versus Invisalign(R): gingival parameters and patients' satisfaction during treatment: a cross-sectional study. *BMC Oral Health.* 2015;15:69.

5. Weusmann J, Mahmoodi B, Azaripour A, Kordsmeyer K, Walter C, Willershausen B. Epidemiological investigation of caries prevalence in first grade school children in Rhineland-Palatinate, Germany. *Head Face Med.* 2015;11:33.

6. Mahmoodi B, Rahimi-Nedjat R, Weusmann J, Azaripour A, Walter C, Willershausen B. Traumatic dental injuries in a university hospital: a four-year retrospective study. *BMC Oral Health.* 2015;15:139.

7. Azaripour A, Mahmoodi B, Habibi E, Willershausen I, Schmidtmann I, Willershausen B. Effectiveness of a miswak extract-containing toothpaste on gingival inflammation: a randomized clinical trial. *Int J Dent Hyg.* 2015. [Epub ahead of print].

8. Willershausen I, Schulte D, Azaripour A, Weyer V, Briseno B, Willershausen B. Penetration Potential of a Silver Diamine Fluoride Solution on Dentin Surfaces. An Ex Vivo Study. *Clin Lab.* 2015;61:1695–701.

9. Sagheb K, Kumar V V, Azaripour A, Walter C, Al-Nawas B, Kammerer PW. Comparison of conventional twist drill protocol and piezosurgery for implant insertion: an ex vivo study on different bone types. *Clin Oral Implants Res.* 2016 Jan; [Epub ahead of print].

10. Monzavi A, Chinipardaz Z, Mousavi M, Fekrazad R, Moslemi N, Azaripour A, et al. Antimicrobial photodynamic therapy using diode laser activated indocyanine green as an adjunct in the treatment of chronic periodontitis: A randomized clinical trial. *Photodiagn Photodyn Ther.* 2016;14:93–7.

11. Azaripour A, Lagerweij T, Scharfbillig C, Jadczak AE, Willershausen B, Van...
List of Publications:

1. **Azaripour A**, Willershausen I, Kämmerer P, Willershausen B. Post-endodontic treatment periodontal surgery: a case report. Quintessence Int. 2013;44:123–6.

2. Willershausen B, Willershausen I, Ehlers V, **Azaripour A**, Briseño B. A prospective clinical trial on the influence of a triamcinolone/demeclocycline and a calcium hydroxide based temporary cement on pain perception. Head Face Med. 2012;8:9.

3. Mahmoodi B, Weusmann J, **Azaripour A**, Braun B, Walter C, Willershausen B. Odontogenic Infections: A 1-year Retrospective Study. J Contemp Dent Pract. 2015;16:253-8.

4. **Azaripour A**, Weusmann J, Mahmoodi B, Peppas D, Gerhold-Ay A, Van Noorden CJF, et al. Braces versus Invisalign(R): gingival parameters and patients’ satisfaction during treatment: a cross-sectional study. BMC Oral Health. 2015;15:69.

5. Weusmann J, Mahmoodi B, **Azaripour A**, Kordsmeyer K, Walter C, Willershausen B. Epidemiological investigation of caries prevalence in first grade school children in Rhineland-Palatinate, Germany. Head Face Med. 2015;11:33.

6. Mahmoodi B, Rahimi-Nedjat R, Weusmann J, **Azaripour A**, Walter C, Willershausen B. Traumatic dental injuries in a university hospital: a four-year retrospective study. BMC Oral Health. 2015;15:139.

7. **Azaripour A**, Mahmoodi B, Habibi E, Willershausen I, Schmidtmann I, Willershausen B. Effectiveness of a miswak extract-containing toothpaste on gingival inflammation: a randomized clinical trial. Int J Dent Hyg. 2015. [Epub ahead of print].

8. Willershausen I, Schulte D, **Azaripour A**, Weyer V, Briseño B, Willershausen B. Penetration Potential of a Silver Diamine Fluoride Solution on Dentin Surfaces. An Ex Vivo Study. Clin Lab. 2015;61:1695–701.

9. Sagheb K, Kumar V V, **Azaripour A**, Walter C, Al-Nawas B, Kammerer PW. Comparison of conventional twist drill protocol and piezosurgery for implant insertion: an ex vivo study on different bone types. Clin Oral Implants Res. 2016 Jan; [Epub ahead of print].

10. Monzavi A, Chinipardaz Z, Mousavi M, Fekrazad R, Moslemi N, **Azaripour A**, et al. Antimicrobial photodynamic therapy using diode laser activated indocyanine green as an adjunct in the treatment of chronic periodontitis: A randomized clinical trial. Photodiagn Photodyn Ther. 2016;14:93–7.

11. **Azaripour A**, Lagerweij T, Scharfbillig C, Jadczak AE, Willershausen B, Van
Noorden CJF. A survey of clearing techniques for 3D imaging of tissues with special reference to connective tissue. Prog Histochem Cytochem. 2016; 51:9–23.

12. **Azaripour A**, Weusmann J, Eschig C, Schmidtmann I, Van Noorden CJF, Willershausen B. Efficacy of an aluminium triformate mouthrinse during the maintenance phase in periodontal patients: a pilot double blind randomized placebo-controlled clinical trial. BMC Oral Health. 2016;16:57.

13. Weusmann J, Mahmoodi B, Kordsmeyer K, **Azaripour A**, Walter C, Willershausen B. [The Intensified Dental Preventive Programme in Rhineland-Palatinate: Investigations on first-grade school-children in 2013/2014]. Gesundheitswesen. 2016 Juni.

14. **Azaripour A**, Willershausen I, Hassan M, Ebenezer S, Willershausen B. Oral Hygiene and Dietary Habits in Adolescents with Fixed Orthodontic Appliances: A Cross-sectional Study. J Contemp Dent Pract. 2016;17:179–83.

15. **Azaripour A**, Kissinger M, Farina V.S.L., Van Noorden C.J.F., Willershsshausen B., Cortellini P, Root coverage with connective tissue graft associated with coronally advanced flap or tunnel technique. A randomized, double blind, mono-center clinical trial. J Clin Periodontal. 2016; in press.
Curriculum vitae

Adriano Azaripour was born in Tehran, Iran. Since his parents were diplomats, he travelled around the world during his childhood until the family moved to Germany in 1993, where he finished high school. He moved to Mainz in 2001 to study dentistry at the Johannes Gutenberg University of Mainz. He worked in the Department of Urology and in the emergency service of the ambulance of the dental clinic during his student time. During his internship in the clinical part of his study, he started with his German promotion entitled “Oral Hygiene and Dietary Habits in Adolescents with Fixed Orthodontic Appliances” in the Department of Orthodontics (Prof. dr. H. Wehrbein). He graduated in 2007 and started to work in the Department of Operative Dentistry and Periodontology (Prof. dr. B. Willershausen) where he works until today. The first 2 years, he specialized in endodontology and performed his first clinical trials examining the application of photodynamic therapy for different indications. In 2010, he received a grant from the German Society of Periodontology and started with his specialization in periodontology where he received a Master in Science degree in 2012. In 2013-2014, he obtained a postgraduate internship with Dr. Cortellini and Prof. Tonetti in Italy to increase his knowledge in periodontal regeneration and microsurgical skills. At the end of 2013, he decided to deepen his knowledge in cell biology and histochemistry. For that purpose, he moved to Amsterdam where he started his PhD under the supervision of Prof. dr. C.J.F. Van Noorden in the Department of Cell Biology and Histology at the Academic Medical Center. The application of 3D histochemistry to periodontium and its clinical use are described in this thesis.
Acknowledgements

My research period in Amsterdam was certainly an unforgettable amazing experience in my life, even though driving each week from Mainz to Amsterdam was not an easy adventure. I would like to thank everybody who supported me to achieve my goal.

First of all, I would like to thank my promoter, Prof. dr. Cornelis J.F. Van Noorden for making this possible. Dear Ron, thank you so much for believing in me, this may never have happened without your support. You helped and motivated me not only in science, but also as a mentor in daily life. I hope that we are going to continue our research projects and that we can acquire further fruitful results.

All of my prior steps to my research period in Amsterdam would not have been possible without the support of my copromoter and Head of my Department Prof. dr. Brita Willershausen. Dear Brita, we cooperate since 10 years and I really enjoyed every minute of it. Thank you for all you have done for me, without your long-lasting support, I never could be there where I am now.

Dear Prof. dr. Bruno Loos, thank you for opening this avenue to me and your support during my early period in Amsterdam.

Dear Wikky Tigchelaar and Daisy I. Picavet, thank you for introducing me to the first steps in the laboratory and microscopy. I am very grateful for what you have done for me.

My ex-students and coworkers during my research period in AMC, Christina Scharfbillig and Anna Elisabeth Jadczak, you girls are the best, I was lucky to find you both and convinced you to join my research project in Amsterdam, we made it!

Dear Tonny Lagerweij, thank you for all what you have done for me. Because of our collaboration I could speed up my research. We had a beautiful presentation at FOM 2015 and did a great job. I really had a great time with you.

Dear Ton Brockers, thank you for teaching me the preparation and staining of histological samples.

Dear Esther M.L. Hendrikx, thank you for your help with 3D imaging at the VU, you opened new possibilities to bring my research further.

Dear Monique Arendse and Janine Prins, thank you for your help, you are amazing.

Dear committee members, Prof. dr. V. Everts, Prof. dr. J. de Lange, Prof. dr. W.J. Fokkens, Dr. H. Shemesh, Prof. dr. B.W. Sigusch, Prof. dr. T. Würdinger, thank you all for your willingness to read and approve the manuscript for my PhD thesis.

And last but not least my great family, especially my wife. Dear Muska, thank you for your non-lasting help and understanding, I’m really a lucky guy to have you on my side. A very special thanks goes to my parents and my sister for giving me a life full with love and happiness, I love you!

Dear Arash, you are incredible! Thank you for your hospitality and great kindness during my residency in Amsterdam.

Dear Erol, thank you for your support, we had a great time at ACTA. I wish you all the best for your future.

I hope I didn’t forget anybody and if so please forgive me, I LOVE YOU ALL!
Dear Esther M.L. Hendrikx, thank you for your help with 3D imaging at the VU, you opened new possibilities to bring my research further.

Dear Monique Arendse and Janine Prins, thank you for your help, you are amazing.

Dear committee members, Prof. dr. V. Everts, Prof. dr. J. de Lange, Prof. dr. W.J. Fokkens, Dr. H. Shemesh, Prof. dr. B.W. Sigusch, Prof. dr. T. Würdinger, thank you all for your willingness to read and approve the manuscript for my PhD thesis.

And last but not least my great family, especially my wife. Dear Muska, thank you for your non-lasting help and understanding, I’m really a lucky guy to have you on my side. A very special thanks goes to my parents and my sister for giving me a life full with love and happiness, I love you!

Dear Arash, you are incredible! Thank you for your hospitality and great kindness during my residency in Amsterdam, I really felt at home.

Dear Erol, thank you for your support, we had a great time at ACTA. I wish you all the best for your future.

I hope I didn’t forget anybody and if so please forgive me, I LOVE YOU ALL!