

## University of Groningen

### Peri-implant infections

de Waal, Yvonne Catharina Maria

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2015

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

de Waal, Y. C. M. (2015). *Peri-implant infections*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.

**Copyright**

Other than for strictly personal use, 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), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

**Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

The printing and distribution of this thesis was generously supported by:

Dentsply BV ([www.dentsplyimplants.nl](http://www.dentsplyimplants.nl))

Koninklijke Nederlandse Maatschappij tot bevordering der Tandheelkunde ([www.knmt.nl](http://www.knmt.nl))

Mondzorgcentrum Winschoten ([www.mzcw.nl](http://www.mzcw.nl))

Nederlandse Vereniging van Tandartsen ([www.nvt.nu](http://www.nvt.nu))

Nederlandse Vereniging voor Mondziekten, Kaak- en Aangezichtschirurgie ([www.nvmka.nl](http://www.nvmka.nl))

Nederlandse Vereniging voor Orale Implantologie ([www.nvoi.nl](http://www.nvoi.nl))

Nederlandse Vereniging voor Parodontologie ([www.nvvp.org](http://www.nvvp.org))

Nobel Biocare Nederland BV ([www.nobelbiocare.nl](http://www.nobelbiocare.nl))

Noord Negentig accountants en belastingadviseurs ([www.noordnegentig.nl](http://www.noordnegentig.nl))

Straumann BV ([www.straumann.nl](http://www.straumann.nl))

Tandartspraktijk Bocht Oosterdiep ([www.bochtoosterdiep.nl](http://www.bochtoosterdiep.nl))

Tandtechnisch en Maxillofaciaal Laboratorium Gerrit van Dijk  
University of Groningen ([www.rug.nl](http://www.rug.nl))

**Bookdesign:** Sgaar Groningen

**Printed by:** Drukkerij van der Eems Heerenveen

**ISBN:** 978-90-367-8136-7

© Yvonne Catharina Maria de Waal, 2015

All rights reserved. No part of this publication may be reported or transmitted, in any form or by any means, without prior permission of the author.



rijksuniversiteit  
groningen

# Peri-implant infections

## Proefschrift

ter verkrijging van de graad van doctor aan de  
Rijksuniversiteit Groningen  
op gezag van de  
rector magnificus prof. dr. E. Sterken  
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op

woensdag 21 oktober 2015 om 14.30 uur

door

**Yvonne Catharina Maria de Waal**

geboren op 19 maart 1982  
te Veendam

**Promotores**

Prof. dr. A.J. van Winkelhoff

Prof. dr. G.M. Raghoobar

Prof. dr. E.G. Winkel

Prof. dr. H.J.A. Meijer

**Beoordelingscommissie**

Prof. dr. A. Mombelli

Prof. dr. D. Wismeijer

Prof. dr. A. Vissink

**Paranimfen**

Drs. K.W. Slagter

Drs. M. Cornelius



# CONTENTS

<b>Chapter 1</b>	<b>9</b>
General Introduction	
<b>Chapter 2</b>	<b>21</b>
Differences in peri-implant conditions between fully and partially edentulous subjects: a systematic review	
<b>Chapter 3</b>	<b>57</b>
Differences in peri-implant microflora between fully and partially edentulous subjects: a systematic review	
<b>Chapter 4</b>	<b>83</b>
Changes in oral microflora after full-mouth tooth extraction: a prospective cohort study	
<b>Chapter 5</b>	<b>101</b>
Microbial characteristics of peri-implantitis: a case-control study	
<b>Chapter 6</b>	<b>115</b>
Implant decontamination during surgical peri-implantitis treatment: a randomized, double-blind, placebo-controlled trial	
<b>Chapter 7</b>	<b>135</b>
Implant decontamination with 2% chlorhexidine during surgical peri-implantitis treatment: a randomized, double-blind, controlled trial	
<b>Chapter 8</b>	<b>153</b>
Prognostic indicators for surgical peri-implantitis treatment	
<b>Chapter 9</b>	<b>171</b>
General discussion	
<b>Summary</b>	<b>187</b>
<b>Samenvatting</b>	<b>193</b>
<b>Dankwoord</b>	<b>199</b>
<b>CV</b>	<b>205</b>

