

VU Research Portal

Hemodynamic Evaluation of Cardiac Resynchronization Therapy Getting into the Pressure-Volume Loop

de Roest, G.J.

2014

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

de Roest, G. J. (2014). *Hemodynamic Evaluation of Cardiac Resynchronization Therapy Getting into the Pressure-Volume Loop*. [PhD-Thesis - Research and graduation internal, Vrije Universiteit Amsterdam].

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

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.

E-mail address:

vuresearchportal.ub@vu.nl

Hemodynamic Evaluation of
Cardiac Resynchronization Therapy
“Getting into the Pressure-Volume Loop”

Gerben Jan de Roest

Title: Hemodynamic Evaluation of Cardiac Resynchronization Therapy “Getting into the Pressure-Volume Loop”

Titel: Hemodynamische Evaluatie van Cardiale Resynchronisatie Therapie middels de Druk-Volume Lus

ISBN:

Author: G.J. de Roest

Cover: W. Schoneveld, www.wenziD.nl

Lay-out: G.J. de Roest

Printed by: Ipskamp Drukkers, Enschede

Financial support: CD Leycom, BIOTRONIK Nederland B.V., Guerbet Nederland B.V., Medis medical imaging systems bv, Servier Nederland Farma B.V., Bayer B.V., Abbott Vascular, ABN AMRO Bank N.V., stichting dr. F.E. Posthumus Meyjes Fonds, Vrije Universiteit Amsterdam.

© 2014 G.J. de Roest, Amsterdam, The Netherlands. All rights reserved. No parts of this thesis may be reproduced, stored or transmitted in any form or by any means, without written permission of the author. The rights of the published chapters have been transferred to the publishers of the respective journals

VRIJE UNIVERSITEIT

**Hemodynamic Evaluation of Cardiac
Resynchronization Therapy
“Getting into the Pressure-Volume Loop”**

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad Doctor aan
de Vrije Universiteit Amsterdam,
op gezag van de rector magnificus
prof.dr. F.A. van der Duyn Schouten,
in het openbaar te verdedigen
ten overstaan van de promotiecommissie
van de Faculteit der Geneeskunde
op vrijdag 21 november 2014 om 13.45 uur
in de aula van de universiteit,
De Boelelaan 1105

door

Gerben Jan de Roest

geboren te Leeuwarden

promotor: prof.dr. A.C. van Rossum

copromotoren: dr. C.C. de Cock
dr. C.P. Allaart

leescommissie: prof.dr. F.W. Prinzen
prof.dr. N. Westerhof
prof.dr. H.W.M. Niessen
prof.dr. J.J. Bax
dr. A.M. Beek
dr. M. Meine

Financial support by the Dutch Heart Foundation for the publication of this thesis is gratefully acknowledged.