

## University of Groningen

### Physical exercise and dementia

Bossers, Willem

**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:*

2014

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

*Citation for published version (APA):*

Bossers, W. (2014). *Physical exercise and dementia: Delaying cognitive and motor decline via exercise*. [Thesis fully internal (DIV), University of Groningen]. [S.n.].

#### **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.*

# PHYSICAL EXERCISE AND DEMENTIA

DELAYING COGNITIVE AND MOTOR DECLINE VIA EXERCISE

The studies described in this thesis were conducted at nursing homes of healthcare institutions ZINN, Zorggroep Groningen, and Dignis-Lentis. Data management and analysis were performed at the Center for Human Movement Sciences, part of the University of Groningen, University Medical Center Groningen, the Netherlands.

The implementation of the studies and the writing of this thesis was financially supported by:

*Fonds NutsOhra (project number 1003-76)  
University of Groningen / University Medical Center Groningen*

The printing of this thesis was financially supported by:

*University of Groningen / University Medical Center Groningen  
Alzheimer Nederland  
ZINN  
Zorggroep Groningen  
Vrijwilligers Academie Groningen, ZINN*



**Zorggroep Groningen**

A.G. Wildervanck Veendam  
Bloemhof Ten Boer  
Innersdijk Ten Boer  
Maartenshof Groningen  
Westerhave Wildervanck



Thesis design: by TOMM ([www.bytommm.com](http://www.bytommm.com))

Print: Ipskamp Drukkers

Paranimfen: Nienke M. Kosse & Niels J. van den Bovenkamp

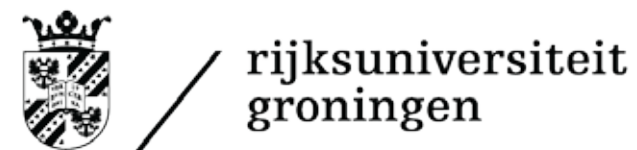
PhD training was facilitated by Research Institute School of Health Research (SHARE)

© W.J.R. Bossers, Groningen, the Netherlands 2014

All rights reserved. No part of this thesis may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording or any other information storage or retrieval system, without permission in writing from the author.

ISBN: 978-90-367-7432-1 (printed version)

ISBN: 978-90-367-7431-4 (electronic version)



# Physical exercise and dementia

Delaying cognitive and motor decline via exercise

## 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 10 december 2014 om 12.45 uur

door

**Willem Jan Rudolf Bossers**

geboren op 22 juni 1984  
te Alkmaar

**Promotores**

Prof. dr. L.H.V. van der Woude  
Prof. dr. E.J.A. Scherder

**Copromotores**

Dr. M.J.G. van Heuvelen  
Dr. F. Boersma

**Beoordelingscommissie**

Prof. dr. E. Buskens  
Prof. dr. R.M. Dröes  
T. Liu-Ambrose, PhD, PT

Currently, approximately nine out of ten patients with dementia who live in a nursing home are physically inactive. It is time for action. May this thesis serve as a basis for that action so that in the near future nine out of ten patients with dementia will be physically active.



# INDEX

CHAPTER 1	9
CHAPTER 2	21
CHAPTER 3	49
CHAPTER 4	69
CHAPTER 5	93
CHAPTER 6	117
CHAPTER 7	139
SUMMARY DUTCH	155
SUMMARY ENGLISH	159
CV	163
ACKNOWLEDGEMENTS	167



=

