

University of Groningen

Picking up the pace

Menting, Stein

DOI:
[10.33612/diss.773797642](https://doi.org/10.33612/diss.773797642)

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:
2023

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

Citation for published version (APA):

Menting, S. (2023). *Picking up the pace: the development of pacing behaviour during adolescence*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen.
<https://doi.org/10.33612/diss.773797642>

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.



Picking up the pace

The development
of pacing behaviour
during adolescence

Stein Menting

Picking up the pace

The development of pacing behaviour during adolescence

Stein Menting

Research presented in this thesis has been conducted at:
The Center for Human Movement Sciences, part of the University Medical Center
Groningen, University of Groningen, Groningen, The Netherlands, in cooperation with
the Department of Sport, Exercise & Rehabilitation, Faculty of Health and Life Sciences,
Northumbria University, Newcastle, United Kingdom.

PhD training was facilitated by the research institute School of Health Research (SHARE),
part of the Graduate School of Medical Sciences Groningen.



Paranymphs:
dr. Pepijn Wissing
drs. Joris Bekker

Cover design: Frédérique Wissing

Printing: Gildeprint Enschede, gildeprint.nl
Layout and design: Jeroen Reith, persoonlijkproefschrift.nl

© Copyright 2023, Stein Gerrit Paul Menting
All rights reserved. No part of this publication may be reproduced or transmitted in any
form or by any means, electronic and mechanical, including photocopying, recording or
any information storage or retrieval system, without written permission from the author.



university of
 groningen

Picking up the pace

The development of pacing behaviour during adolescence

PhD thesis

to obtain the degree of PhD at the
 University of Groningen
 on the authority of the
 Rector Magnificus Prof. C. Wijmenga
 and in accordance with
 the decision by the College of Deans.

This thesis will be defended in public on

Wednesday 13 September 2023 at 12.45 hours

by

Stein Gerrit Paul Menting

born on 22 June 1994
 in Veldhoven

Promotores

Dr. M.T. Elferink-Gemser
Prof. F.J. Hettinga

Assessment Committee

Prof. K.A.P.M. Lemmink
Prof. G.J.P. Savelsbergh
Prof. R.P. Lamberts

Outline

| | | |
|------------|--|-----|
| Chapter 1 | General introduction | 7 |
| Chapter 2 | Pacing behaviour in junior track athletics: middle-long distance running and race-walking. Menting S.G.P., Hanley B., Elferink-Gemser M.T., Hettinga F.J. <i>European Journal of Sport Science. 2022;22(6):780-789.</i> | 21 |
| Chapter 3 | Pacing behaviour of adolescent athletes: analysing 1500-m short-track speed skating. Menting S.G.P., Konings M.J., Elferink-Gemser M.T., Hettinga, F.J. <i>International Journal of Sports Physiology and Performance. 2019;14(2):222-231.</i> | 39 |
| Chapter 4 | Effects of experience and opponents on the pacing behaviour and 2-km cycling performance of novice adolescents. Menting S.G.P., Elferink-Gemser M.T., Edwards A.M., Hettinga, F.J. <i>Research Quarterly for Exercise and Sport. 2019;90(4):609-618.</i> | 55 |
| Chapter 5 | Pacing behaviour development and acquisition: a systematic review. Menting S.G.P., Edwards A.M., Hettinga F.J., Elferink-Gemser M.T. <i>Sports Medicine – Open. 2022;8(1):143.</i> | 73 |
| Chapter 6 | Pacing behaviour development of short-track speed skaters: a longitudinal study. Menting S.G.P., Huijgen B.C., Konings M.J., Hettinga F.J., Elferink-Gemser M.T. <i>Medicine & Science in Sports & Exercise. 2020;52(5):1099-1108.</i> | 107 |
| Chapter 7 | Pacing in lane-based head-to-head competitions: a systematic review on swimming. Menting S.G.P., Elferink-Gemser M.T., Huijgen B.C., Hettinga F.J. <i>Journal of Sports Sciences. 2019;37(20):2287-2299.</i> | 129 |
| Chapter 8 | Pacing behaviour development in adolescent swimmers: a large-scale longitudinal data analysis. Menting S.G.P., Post A.K., Nijenhuis S.B., Koning R.H., Visscher C., Hettinga F.J., Elferink-Gemser M.T. <i>Medicine & Science in Sports & Exercise. 2023;55(4):700-709.</i> | 161 |
| Chapter 9 | Unravelling the role of (meta-) cognitive functions in pacing behaviour development during adolescence: planning, monitoring and adaptation. Menting S.G.P., Khudair M., Elferink-Gemser M.T., Hettinga F.J. <i>Medicine & Science in Sports & Exercise (in press).</i> | 187 |
| Chapter 10 | Pacing behaviour development: the role of task experience and the presence of competitors. Menting S.G.P., Khudair M., Elferink-Gemser M.T., Hettinga F.J. <i>Medicine & Science in Sports & Exercise (under review).</i> | 211 |
| Chapter 11 | General discussion | 235 |
| | Key points for practitioners | 248 |
| | Appendices | 257 |
| | Summery | 258 |
| | Dutch Summery | 262 |
| | Words of thanks | 268 |
| | About the author | 272 |
| | Scientific Output | 274 |
| | Research Institute SHARE | 278 |

