



Universiteit  
Leiden

The Netherlands

## **Influence of central neuraxial blockade on anesthetic pharmacology and brain function**

Sitsen, M.E.

### **Citation**

Sitsen, M. E. (2023, January 10). *Influence of central neuraxial blockade on anesthetic pharmacology and brain function*. Retrieved from <https://hdl.handle.net/1887/3505777>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/3505777>

**Note:** To cite this publication please use the final published version (if applicable).

# Influence of Central Neuraxial blockade on anesthetic pharmacology and brain function

Marianne Elisabeth Sitsen

©M.E. Sitsen, Voorschoten, the Netherlands

*Printing of this thesis was financially supported by:*

*Pajunk Medical Produkte GmbH*

*B. Braun Medical BV*

*Cover design: Sieben Medical Art; [www.annasieben.com](http://www.annasieben.com)*

*Printed by Puntgaaf drukwerk, Leiden, the Netherlands*

*ISBN: 9789090368269*

# PROEFSCHRIFT

*ter verkrijging van  
de graad van Doctor aan de Universiteit Leiden,  
op gezag van Rector Magnificus prof.dr.ir. H. Bijl  
volgens besluit van het College voor Promoties  
te verdedigen op 10 januari 2023  
klokke 15:00*

*door*

*Elske Sitsen*

*geboren te Harderwijk*

*Promotor:* *prof. dr. A. Dahan*  
*Copromotor:* *dr J. Vuijk*  
*dr. M. Niesters*  
*Leden promotiecommissie:* *prof. dr. E.Y. Sarton*  
*prof. dr. L. Aarts*  
*prof. dr. R.J. Stolker*  
*prof. dr. M.J.P. van Osch*  
*prof. dr. L. Reneman*  
*prof. dr. G.G. Groeneveld*  
*dr. M. van Velzen*

# Table of contents

Chapter 1	Introduction	7
<b>PART 1</b>	<b><i>Pharmacology of epidural analgesia</i></b>	
Chapter 2	Chapter 2 Postoperative epidural analgesia after total knee arthroplasty with sufentanil 1 mcg/mL combined with ropivacaine 0.2%, ropivacaine 0.125%, or levobupivacaine 0.125%: a randomized, double-blind comparison	15
Chapter 3	Epidural blockade affects the pharmacokinetics of propofol in surgical patients	25
Chapter 4	No interactive effect of lumbar epidural blockade and target-controlled infusion of propofol on mean arterial pressure, cardiac output and bispectral index; <i>A randomised controlled and pharmacodynamic modelling study</i>	49
<b>PART 2</b>	<b><i>Spinal anesthesia, pain perception and functional magnetic resonance imaging (fMRI) of the brain</i></b>	
Chapter 5	Spinal anesthesia-induced deafferentation; resting-state functional brain connectivity and pain perception	67
Chapter 6	Hyperalgesia and reduced offset analgesia during spinal anesthesia	85
Chapter 7	Effect of spinal anesthesia-induced deafferentation on pain processing in healthy male volunteers: a task-related fMRI study	97
<b>PART 3</b>	<b><i>Synthesis</i></b>	
Chapter 8	Summary, conclusions and future perspectives	131
Chapter 9	Nederlandse samenvatting en conclusies	139
Addenda		147
	Curriculum vitae	148
	List of publications	149
	Abbreviations	151

