



Universiteit  
Leiden  
The Netherlands

## Diagnostic modalities for the occult scaphoid fracture

Zwart, A.D. de

### Citation

Zwart, A. D. de. (2018, October 9). *Diagnostic modalities for the occult scaphoid fracture*. Retrieved from <https://hdl.handle.net/1887/66114>

Version: Not Applicable (or Unknown)

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

Downloaded from: <https://hdl.handle.net/1887/66114>

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

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/66114> holds various files of this Leiden University dissertation.

**Author:** Zwart, A.D. de

**Title:** Diagnostic modalities for the occult scaphoid fracture

**Issue Date:** 2018-10-09

# Diagnostic modalities for the occult scaphoid fracture

The research described in this thesis was financially supported by Nederlandse Orthopaedische Vereniging and Kenniscentrum Traumacentrum West.

**ISBN**

978-90-829132-0-0

**Cover & lay-out design**

[www.proefschriftopmaak.nl](http://www.proefschriftopmaak.nl), Groningen

**Printed by**

Netzodruk, Groningen

© 2018, A.D. de Zwart, Leiden, the Netherlands. All rights reserved.

No part of this thesis may be reproduced or transmitted in any form or by any means without the prior permission of the copyright owner.

# Diagnostic modalities for the occult scaphoid fracture

## **Proefschrift**

ter verkrijging van  
de graad van doctor aan de Universiteit van Leiden,  
op gezag van rector magnificus prof. mr. C.J.J.M. Stolker,  
volgens besluit van het College voor Promoties  
te verdedigen op dinsdag 9 oktober 2018  
klokke 10:00 uur

door

**Andele Dirk de Zwart**

geboren te Sneek  
in 1982

**Promotor**

Prof. dr. I.B. Schipper

**Copromotores**

Dr. F.J.P. Beeres

Dr. S.J. Rhemrev

**Leden promotiecommissie**

Prof. dr. R.S. Breederveld

Prof. dr. S.K. Bulstra, Universitair Medisch Centrum, Groningen

Prof. dr. L.F. de Geus-Oei

Dr. J.J.A.M van Raay, Martini ziekenhuis, Groningen





# Table of contents

Chapter 1		
<b>Introduction and outline of this thesis</b>		<b>9</b>
Chapter 2		
<b>MRI as a reference standard for suspected scaphoid fractures</b>		
Br J Radiol 2012 Aug;85(1016):1098-1101		17
Chapter 3		
<b>Early CT compared with bone scintigraphy in suspected scaphoid fractures</b>		
Based on Clin Nucl Med 2012 Oct;37(10):981 and Clin Nucl Med 2010 Dec;35(12):931-934		27
Chapter 4		
<b>Interobserver variability among radiologists for diagnosis of scaphoid fractures by computed tomography</b>		
J Hand Surg Am 2012 Nov;37(11):2252-2256		39
Chapter 5		
<b>Radiation exposure due to CT of the scaphoid in daily practice</b>		
J Nucl Med Radiat Ther 2015 June;6(4):233		49
Chapter 6		
<b>Comparison of MRI, CT and bone scintigraphy for suspected scaphoid fractures</b>		
Eur J Trauma Emerg Surg 2016 Dec;42(6):725-731		59
Chapter 7		
<b>Initial experience of SPECT/CT in the diagnosis of occult scaphoid fracture</b>		
Acta Radiol Open 2015 Oct 8;4(10)		73
Chapter 8		
<b>Discussion and future perspectives</b>		<b>85</b>
Chapter 9		
<b>Summary</b>		<b>99</b>
Chapter 10		
<b>Samenvatting</b>		<b>105</b>
<b>Curriculum vitae</b>		<b>113</b>