

# The role of neurohumoral modulation in fracture healing

## Citation for published version (APA):

Hofman, M. (2020). *The role of neurohumoral modulation in fracture healing: lifting a tip of the veil*. Maastricht University. <https://doi.org/10.26481/dis.20201202mh>

## Document status and date:

Published: 01/01/2020

## DOI:

[10.26481/dis.20201202mh](https://doi.org/10.26481/dis.20201202mh)

## Document Version:

Publisher's PDF, also known as Version of record

## Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

## 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.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

[www.umlib.nl/taverne-license](http://www.umlib.nl/taverne-license)

## Take down policy

If you believe that this document breaches copyright please contact us at:

[repository@maastrichtuniversity.nl](mailto:repository@maastrichtuniversity.nl)

providing details and we will investigate your claim.

# PROPOSITIONS

for the thesis

## **The role of neurohumoral modulation in fracture healing** - lifting a tip of the veil -

1. The expert opinion of TBI accelerating fracture healing is increasingly supported by experimental research results, but still lacks confirmation from a large prospective randomised clinical trial. (*Chapters 2, 3*)
2. The neurotransmitter substance P influences the gene expression of important proteins in the early phases of fracture healing and the biomechanical strength of bone in the late phases of fracture healing. (*Chapter 4*)
3. Micro-vesicles isolated after femoral fracture induction, play an important role in the proliferation and viability of osteoblasts during fracture healing. (*Chapter 7*)
4. Intramedullary stabilized femur fractures exert an ambivalent influence on the activity of circulating neutrophils and pulmonary neutrophils in the early phases of fracture healing. (*Chapter 8, 9*)
5. The heterogeneity of the circulatory neutrophil pool increases after femoral fracture, with the occurrence of a new subset of CD11b<sup>high</sup>/CD11a<sup>high</sup>-neutrophils. (*Chapter 8*)
6. The CatWalk gait analysis system has the potential to become the gold standard procedure for the evaluation of gait in small animal fracture models. (*Valorisation*)
7. The increasing privatization of the health care system threatens the sincere and proper indication of surgical procedures.
8. Human medicine means to cure occasionally, to alleviate often, and to comfort always.  
*Original: 'La médecine c'est guérir parfois, soulager souvent, consoler toujours' (French medieval aphorism)*
9. There are surgeons, who manage to perform three dangerous operations to restore the condition from before the first one.  
*Original: 'Es gibt Chirurgen, denen es gelingt mit drei gefährlichen Operationen den Zustand von vor der ersten wieder herzustellen' (Kurt Pfeifer, German pathologist, \*1921)*