

## Press release

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### Basic information

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Department of: Clinical Medicine

Main supervisor: Lone Nikolajsen

Title of dissertation: Peripheral mechanisms in postamputation pain

Date for defence: 13/09/19 at (time of day): 14:00 Place: Auditorium G206-142, Indgang G, 206

Press release (Danish)

### Perifere mekanismer ved smerter efter amputation

Et nyt ph.d.-projekt fra Aarhus Universitet, Health undersøger mekanismer bag stump- og fantomsmerter efter amputation. Projektet er gennemført af Nina Stockfleth Buch, der forsvare sin afhandling d. 13. september 2019.

Projektets formål er at opnå en større viden om, hvorvidt forandringer i det perifere nervesystem er medvirkende til at vedligeholde stump- og fantomsmerter hos amputerede. Kroniske smerter efter amputation er ofte er yderst svære at behandle, og smertestillende lægemidler er hyppigt forbundet med bivirkninger. De tilgrundliggende mekanismerne er endnu ikke fuldt belyst, og det store spørgsmål er, om smerter efter amputation vedligeholdes af input fra det perifere nervesystem eller - alternativt - fra autonome generatorer i centralnervesystemet. Ph.d.-projektet bestod af 3 studier. Studie I fandt, at en perifer nerveblokade med lidokain kunne reducere fantomsmerter sammenlignet med indgivelse af placebo (saltvand). Studie II fandt, at neuromer forekommer hyppigt hos amputerede, men at prævalensen af neuromer ikke var større hos amputerede med smerter sammenlignet med amputerede uden smerter. Studie III undersøgte om inflammation spiller rolle ved kroniske smerter efter amputation, men fandt ingen forskel i inflammatoriske smertebiomarkører i hudbiopsier fra hhv. den amputerede og den raske side. Fremtidige studier (blindede, randomiserede overkrydsningsforsøg) kan med fordel undersøge vha. nerveblokader på forskellige niveauer, hvilken indflydelse selve nerveskaden/neuromet og forandringer i dorsalrods gangliet og spinalkanalen har hos den enkelte patient. En bedre forståelse af de underliggende mekanismer vil potentielt kunne føre til en forbedret behandling af smerter efter amputation.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 13. september 2019 kl. 14:00 på Aarhus Universitetshospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

Titlen på projektet er Stump- og Fantomsmerter Efter Amputation.

Yderligere oplysninger: Ph.d.-studerende Nina Stockfleth Buch, e-mail: [nina.buch@clin.au.dk](mailto:nina.buch@clin.au.dk), tlf. - +45 30224517.

Bedømmelsesudvalg:

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Press release (English)

### Peripheral mechanisms in postamputation pain

A new PhD projekt from Aarhus University, Health, investigates peripheral mechanisms in postamputation pain.  
The project was carried out by Nina Stockfleth Buch, who is defending her dissertation on 13<sup>th</sup> September 2019.

Postamputation stump and phantom pain is common after limb amputation and remains an extremely challenging pain condition to treat. The mechanisms underlying postamputation pain are still not fully understood, and a key question is whether postamputation pain is maintained by peripheral input or autonomous central (spinal or supraspinal) generators.

The overall objective of this project was to obtain new knowledge and increase our understanding of peripheral mechanisms in postamputation pain. We achieved this through three original studies. The first study found that a peripheral nerve block with lidocaine can reduce phantom limb pain. The second study found that neuromas are highly prevalent in both amputees with and without pain. The third study investigated if inflammation plays a role in postamputation pain, but found that the expression of inflammatory biomarkers of pain was not increased at the site of amputation compared with the control site.

The defence is public and takes place on 13<sup>th</sup> September 2019 at 14:00 in Aarhus University Hospital, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

For more information, please contact PhD student Nina Stockfleth Buch, email: [nina.buch@clin.au.dk](mailto:nina.buch@clin.au.dk), Phone +45 30224517.

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