

**The Research Unit
of
The Department of Physical and Occupational Therapy
Bispebjerg-Frederiksberg Hospital**

2019 Annual Research Report

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2019 Staff

Professor Peter Magnusson, PT, DMSc
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Senior Researcher Christian Couppé PT, PhD
Associate professor Tine Alkjær, MSc, PhD
Associate professor Ann Cools, PT, PhD
Post doc Christian Have Dall, PT, PhD
Post doc Emma Ghaziani, OT, PhD
Post doc Theresa Bieler, PT, PhD
PhD student Birgitte Hougs Kjær, PT, MSc
PhD student Anne Sofie Agergaard, PT, MSc
Research therapist Durita Gunnarsson, PT, MSc
Research therapist Helle Andersen, PT, MSc

Highlights from 2019

The Research Unit of The Department of Physical and Occupational Therapy had an excellent 2019 regarding research activities. Researchers were very productive publishing their work and submitting new grants applications to expand our current activities in upcoming years. Highlights from the 2018 calendar year include

- 31 peer reviewed journal publications

Scientific Output

2019 was a successful year in terms of scientific production. The aim for 2019 was 25 peer reviewed publications. In 2019 we reached a total of 29 articles published in international journals with peer review. We consider the production highly satisfactory.

A list of published articles is appended this report.

Other disseminations

Our staff has been invited to lecture in a range of settings, including international congresses, local symposia, and meetings for clinicians, ensuring that our research and expertise is disseminated to clinicians within physical and occupational therapy and in relevant medical professions.

We have been active in pre- and postgraduate teaching at the University of Copenhagen and University of Southern Denmark. We have taught courses at the school of medicine, health science, and under the auspices of various PhD programmes.

PhD defence

Cecilie Bartholdy defended her PhD in March 2019. The topic was Physical inactivity in knee osteoarthritis.

Plans and Goals for 2020

We hope to engage new PhD-students, both fully and more loosely affiliated with unit.

We seek to engage in more fruitful collaborations in the coming years, of which 2020 will be used to consolidate the current and engage in new partnerships. Our closest current partners include The Parker Institute and The Institute of Sports Medicine - we look forward to more joint projects in the future. We thank these important partnerships for the past year and look forward to continuing the close collaborations in 2020.

We aim to keep up the pace related to peer reviewed publications. We hope to reach 25 peer reviewed publications in 2020.

Further, we are aiming at a continued success rate in terms of attracting external funding to our activities. We will work hard on this, and we hope to get enough funding to consolidate our activities and expand with new studies and staff.

Concluding remarks

2019 was another successful year for the Research Unit with a maintained satisfactory scientific output. We have strengthened our partnerships with other research groups.

The staff of the Research Unit has worked hard and with a positive attitude, and we hope to see even more enthusiasm and happy spirits in 2020.

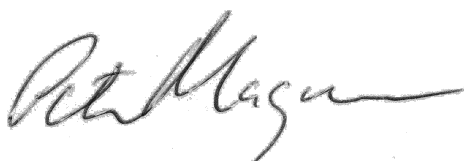
We are thankful to the department head, Morten Østergaard, and the hospital administration for providing us with necessary support to do our research. A special thank go to our clinical colleagues in the department for their support and contributions to the research.

Also, we wish to thank our partners for fruitful and inspiring collaborations in the past year. We look forward to continuing our joint efforts in the years to come.

We wish our partners and friends a happy 2020!



Marius Henriksen
Professor



Peter Magnusson
Professor

Appendix: List of Peer Reviewed Journal articles (in alphabetical order; authors from the research unit in bold)

1. Bandak E, Boesen M, Bliddal H, Riis RGC, Nielsen SM, Klokke L, **Bartholdy C**, Nybing JD, **Henriksen M**. Exercise-induced pain changes associate with changes in muscle perfusion in knee osteoarthritis: exploratory outcome analyses of a randomised controlled trial. *BMC Musculoskelet Disord* 2019;20 (1): 491
2. **Bartholdy C**, Bliddal H, **Henriksen M**. Effectiveness of text messages for decreasing inactive behaviour in patients with knee osteoarthritis: a pilot randomised controlled study. *Pilot Feasibility Stud* volume 5, Article number: 112 (2019)
3. **Bartholdy C**, Nielsen SM, Warming S, Hunter DJ, Christensen R, **Henriksen M**. Poor replicability of recommended exercise interventions for knee osteoarthritis: a descriptive analysis of evidence informing current guidelines and recommendations. *Osteoarthritis Cartilage*. 2019 Jan;27(1):3-22
4. Bayer ML, Bang L, Hoegberget-Kaslisz M, Svensson RB, Olesen JL, Karlsson M, Schjerling P, Hellsten Y, Hoier B, **Magnusson SP**, Kjaer M: Muscle strain injury exudate favors acute tissue healing and prolonged connective tissue formation in humans. *The FASEB Journal* 33(9):10369-10382, 2019.
5. Bayer ML, Macckey A, **Magnusson SP**, Krogsgaard MR, Kjaer M: Treatment of acute muscle injuries. *Ugeskr Laeger* 18;181, 2019
6. Bliddal H, **Henriksen M**, Christensen R. [Placebo, the less harmful treatment of osteoarthritis?]. *Ugeskr Laeger*. 2019 Jun 24;181(26).
7. Bojsen-Moller J, **Magnusson SP**: Mechanical properties, physiological behavior and function of aponeurosis and tendon. *Journal of Applied Physiology* 126: 1800-1807, 2019.
8. **Dall CH**, Andersen H, Povlsen TM, **Henriksen M**. Evaluation of a technology assisted physical activity intervention among hospitalised patients: a randomised study. *Eur J Intern Med* 2019;69:50-56
9. Ellegaard K, von Bülow C, Røpke A, **Bartholdy C**, Hansen IS, Riffbjerg-Madsen S, **Henriksen M**, Wæhrens EE, Hand exercise for women with rheumatoid arthritis and decreased hand function: an exploratory randomized controlled trial. *Arthritis Res Ther* 2019 Jun 26;21(1):158
10. Ellegaard M, **Bieler T**, Beyer N, Kjaer M, Jørgensen NR. The effect of 4 Months Exercise Training on Systemic Biomarkers of Cartilage and Bone Turnover in Hip Osteoarthritis Patients. *Transl Sports Med*. 2019;00:1–10.
11. Eriksen CS, Svensson RB, Gylling AT, **Coupe C**, **Magnusson SP**, M Kjaer. Load magnitude affects patellar tendon mechanical properties but not collagen or collagen cross-linking after long-term strength training in older adults. *BMC Geriatrics* 19:30, 2019.
12. Flaxman TE, Shourijeh MS, **Alkjaer T**, Krogsgaard MR, Simonsen EB, Bigham H, Benoit DL. Experimental muscle pain of the vastus medialis reduces knee joint extensor torque and alters quadriceps muscle contributions as revealed through musculoskeletal modeling. *Clin Biomech (Bristol, Avon)*. 2019;67:27-33.
13. Ginnerup-Nielsen EM, **Henriksen M**, Christensen R, Heitmann BL, Altman R, March L, Woolf A, Karlsen H, Bliddal H. Prevalence of self-reported knee symptoms and management strategies among elderly individuals from Frederiksberg municipality: protocol for a prospective and pragmatic Danish cohort study. *BMJ Open*. 2019 Sep 4;9(9):e028087

14. Gudbergesen H, **Henriksen M**, Wæhrens EE, Overgaard A, Bliddal H, Christensen R, Boesen MP, Knop FKK, Astrup A, Rasmussen MU, Bartholdy C, Daugaard C, Bartels EM, Ellegaard K, Heitmann BL, Kristensen LE. Effect of liraglutide on body weight and pain in patients with overweight and knee osteoarthritis: protocol for a randomised, double-blind, placebo-controlled, parallel-group, single-centre trial. *BMJ Open*. 2019 May 5;9(5):e024065
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16. Johannsen FE, **Magnusson SP**, Herzog RB, Malmgaard Clausen NM, Hoegberget Kalisz M, Kjaer M: Corticosteroid injection is the best treatment in plantar fasciitis if combined with controlled training. *Knee Surgery, Sports Traumatology, Arthroscopy* 27: 5-12, 2019.
17. Nytrøen K, Rolid K, Andreassen AK, Yardley M, Gude E, Dahle DO, Bjørkelund E, Authen AR, Grov I, Wigh JP, **Dall CH**, Gustafsson F, Karason K, Gullestad L. Effect of High-Intensity Interval Training in De Novo Heart Transplant Recipients The HITTS randomized, controlled study: 1-year follow-up *Circulation*;139(19):2198-211.2019.
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23. Smale KB, Flaxman TE, **Alkjaer T**, Simonsen EB, Krogsgaard MR, Benoit DL. Anterior cruciate ligament reconstruction improves subjective ability but not neuromuscular biomechanics during dynamic tasks. *Knee surgery, sports traumatology, arthroscopy* : official journal of the ESSKA. 2019;27(2):636-45.
24. Spanhove V, De Wandele I, **Kjær BH**, Malfait F, **Cools AM**. The effect of five isometric exercises on glenohumeral translations in healthy subjects and patients with the hypermobility type of the Ehlers-Danlos syndrome (hEDS) or Hypermobility Spectrum Disorder (HSD) with multidirectional shoulder instability. *Physiotherapy Journal*. <https://doi.org/10.1016/j.physio.2019.06.010>.
25. Svensson RB, **Couppé C**, **Agergaard A**, Josefsen CO, Jensen MH, Barfod KW, Nybing JD, Hansen P, Krogsgaard M, **Magnusson SP**: Persistent functional loss following ruptured Achilles tendon is associated with reduced gastrocnemius muscle fascicle length,

- elongated gastrocnemius and soleus tendon, and reduced muscle cross-sectional area. *Translational Sports Medicine* 2: 316-324, 2019.
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 27. Vahlgren J, Karlsen A, Scheel FU, Loeb MR, Perez A, Beyer N, Kjaer M, **Magnusson SP**: Using ultrasonography to detect loss of muscle mass in the hospitalized geriatric population. *Translational Sports Medicine* 2: 281-287, 2019.
 28. Zebis MK, **Warming S**, Pedersen MB, Kraft MH, **Magnusson SP**, Krogsgaard M, Døssing S, Alkjær T: Outcome measures after ACL injury in pediatric patients – a scoping review. *The Orthopaedic Journal of Sports Medicine* 30;7(7):2325967119861803, 2019.
 29. Zebis MK, **Warming S**, Pedersen MB, Kraft MH, **Magnusson SP**, Rathcke M, Krogsgaard M, Døssing S, Alkjær T. Outcome Measures After ACL Injury in Pediatric Patients: A Scoping Review. *Orthop J Sports Med.* 2019;7(7):2325967119861803.
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 31. Ziegler AK, Damgaard A, Mackey AL, Schjerling P, **Magnusson SP**, Olesen AT, Kjaer M, Scheele C: An anti-inflammatory phenotype in visceral adipose tissue of old lean mice, augmented by exercise. *Scientific Report*, 19;9(1):12069, 2019.

The following articles are Epub ahead of print or accepted for publication:

1. **Bartholdy C**, Christensen R, Kristensen LE, Gudbergensen H, Bliddal H, Overgaard A, Rasmussen MU, **Henriksen M**. Association between weight loss and spontaneous changes in physical inactivity in overweight/obese individuals with knee osteoarthritis: an 8-week prospective cohort study. *Arthritis Care & Research* [Epub ahead of print]
2. **Ghaziani E**, **Couppé C**, Siersma V, Christensen H, **Magnusson SP**, Sunnerhagen KS, Persson HC, Alt Murphy M: Easily conducted tests during the first week post-stroke can aid the prediction of arm functioning at 6 months. *Journal: Frontiers in Neurology, section Stroke*. Manuscript ID: 493304 [accepted].
3. Scott A, Squier K, Alfredson H, Bahr R, Cook JL, Coombes B, de Vos RJ, Fu SN, Grimaldi A, Lewis JS, Maffulli N, **Magnusson SP**, Malliaras P, Mc Auliffe S, Oei EHG, Purdam CR, Rees JD, Rio EK, Gravare Silbernagel K, Speed C, Weir A, Wolf JM, Akker-Scheek IVD, Vicenzino BT, Zwerver J. ICON 2019: International Scientific Tendinopathy Symposium Consensus: Clinical Terminology. *British Journal of Sports Medicine* [Accepted].
4. **Kjaer BH**, Juul-Kristensen B, **Warming S**, **Magnusson SP**, Krogsgaard MR, Boyle E, **Henriksen M**. Associations between shoulder symptoms and concomitant pathology in patients with traumatic supraspinatus tears. *JSES Open Access* [accepted].
5. **Magnusson SP**, **Agergaard A**, **Couppé C**, Svensson RB, **Warming S**, Krogsgaard MR, Kjaer M, Eliasson P: Heterotopic Ossification After an Achilles Tendon Rupture Cannot Be Prevented by Early Functional Rehabilitation: A Cohort Study. *Clinical Orthopaedics and Related Research* [Accepted].
6. Rio EK, Mc Auliffe S, Kupiers I, Girdwood M, Alfredson H, Bahr R, Cook JL, Coombes B, Fu SN, Grimaldi A, de Vos RJ, Lewis JS, Maffulli N, Malliaras P, **Magnusson SP**, Oei EHG, Purdam CR, Rees JD, Scott A, Gravare Silbernagel K, Speed C, Akker-Scheek IVD, Weir A,

Wolf JM, Vicenzino BT, Zwerver J: ICON PART-T 2019 - International Scientific Tendinopathy Symposium Consensus: Clinical Terminology. British Journal of Sports Medicine [Accepted].

7. Tran PTH, Malmgaard-Clausen NM, Puggaard RS, Svensson RB, Nybing J, Hansen P, Schjerling P, Zinglensen AH, **Couppé C**, Boesen M, **Magnusson SP**, Kjaer M. Early development of tendinopathy in humans: Sequence of pathological changes in structure and tissue turnover signaling, The FASEB Journal, [Accepted].
8. Vicenzino B, de Vos RJ, Alfredson H, Bahr R, Cook JL, Coombes BK, Fu SN, Gravare Silbernagel K, Grimaldi A, Lewis JS, Maffulli N, **Magnusson SP**, Malliaras P, Mc Auliffe S, Oei EHG, Purdam C, Rees JD, Rio EK, Scott A, Speed C, Akker-Scheek IVD, Weir A, Wolf JM, Zwerver J: ICON 2019-International Scientific Tendinopathy Symposium Consensus: There are nine core health-related domains for tendinopathy (CORE DOMAINS): Delphi study of healthcare professionals and patients. British Journal of Sports Medicine, [Accepted].