



# CARL

## Chiropractic Academy of Research Leadership

### NEWSLETTER

Issue 6 - September 2019

<https://www.carlresearchfellows.org/>

## CARL Fellows spread their wings & fly

by Katie de Luca

Welcome to the third CARL newsletter for 2019 (Issue 6). This year is definitely speeding by quickly, with a second half of the year that has been full of collaborative research activities, international travel and both successes and disappointments for CARL Fellows from competitive grant rounds. Excitingly, recently the announcement has been made for CARL II. In April 2020, a second group of early career researchers will be given an opportunity, similar to that bestowed upon us, to be mentored, given a safe network to grow as academics and show support for each other as they find their true potential as future leaders of the chiropractic profession. As the original, inaugural CARL cohort, we now can reflect on the opportunity that brought us together a group, an opportunity that has provided us with three wonderful years that have fostered friendships, weathered career frustrations and have developed respectable, influential, and independent thinkers in our respective fields. In this edition, again we have had great successes across the group to celebrate and we also can announce some lovely personal achievements.

In huge news, Martha Funabashi was awarded a prestigious Canadian Tri-Agency, New Frontiers research grant for early career researchers to conduct high-risk, high-reward studies. This will place Martha within an internationally collaborative basic sciences research team! Other CARL Fellows have been very busy spreading their professional wings, with scholarly invitations as keynote speakers and collaborators around the world. In July Andreas Eklund visited Oxford University in the UK to present at Evidence Based Chiropractic, 2019. Arnold Wong has spent much of the quarter at Rush University Medical Center in Chicago, developing research programs to inform future practice. After presentations in Berlin, Alex Breen has been invited by Editors of the Journal of Biomechanics to contribute his work on lumbar intervertebral motion to a special issue. In evidence of international research collaborations, Matthew Fernandez will host Danish GLA:D Back suppre-

mo Prof. Alice Kongsted in Sydney later in the year to train GLA:D Back clinicians

In July, the International Forum of Neck and Back Pain in Primary Care was held in beautiful Québec City, Canada. Many attendees travelled across the globe to attend the best conference in spine care research, with an outstanding program that included sections on novel technologies, patient centered outcomes and an emphasis on special populations. CARL Fellows in attendance were able to rub shoulders with outstanding, researchers such as Nadine Foster and listen to inspirational speakers Rick Deyo and chiropractor Geoff Outerbridge. Bravely, in the speaker's corner Katie Pohlman and Martha gave a stand-out 5-minute presentation on spinal manipulation and patient safety. Isabelle Pagé, Diana De Carvalho, Martha, Andreas and Arnold all had their research presented in poster format. With colleagues, including mentor Jan Hartvigsen, I held a workshop on spinal osteoarthritis, presenting work on theories of phenotypes in osteoarthritis. Most notably, a huge congratulation must be given to Michael Swain, who won the best early-career research podium presentation across the whole conference. This achievement is remarkable, given the depth, breadth and quality of research presentations, from a field of global, multi-disciplinary experts. As a save the date - the next IFNBP will be held in Sydney, early 2021. So, we are looking at welcoming you to Oz for some Vegemite with the koalas in the coming year!

In professional appointments, Michelle Holmes has been appointed Lecturer in Research Methods at AECC University College and Isabelle has been appointed one-year Substitute Professor at the Université du Québec à Trois-Rivières. It seems that long-term careers in academia are taking shape and these appointments reflect years of hard work and dedication towards improving their scholarly skills to teach and nurture the next generations of chiropractic students. Congrats to AECC and

## Highlights

- \* Applications for CARL II is now open! For more information, visit our CARL website: <https://www.carlresearchfellows.org/>
- \* Congratulations to CARL fellows for their **awards** at several conferences:
  - \* **Arnold Wong**: Best paper at the SOSORT conference
  - \* **Katie de Luca**: Best podium presentation at the Gold Coast Conference
  - \* **Mike Swain**: Best early career presentation at the LBP Forum Quebec
- \* Congratulations to CARL Fellow **Katie de Luca and Matt Fernandez** for deploying their study: BACE and GLA:D Back, respectively.
- \* Congratulations to CARL Fellow **Martha Funabashi** for being awarded the New Frontiers Research Fund and being accepted into the US Bone and Joint Young Investigator Initiative!
- \* **Four** more CARL papers accepted for peer-reviewed publication!
- \* Congratulations CARL Fellow **Isabelle Pagé** for your engagement—the next CARL wedding!

# Donors and Funders



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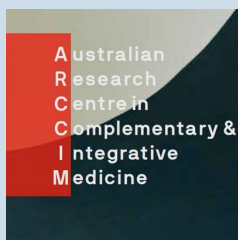
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UQTR on having these outstanding women as part of your faculty. Additionally, good luck to Craig Moore and Melker Johansson as they charge towards the finish line; the submission of their doctoral theses so close they can taste the champagne. We all understand the commitment, precision and overwhelming exhaustion that is upon them in these final stages, but are thrilled they will soon be able to reflect on their wonderful achievements.

We have exciting news, that a second CARL wedding is on its way. Isabelle's partner proposed over the summer, so we wish Isabelle, Alain and their son Sam every happiness in the world as they celebrate this special occasion.

With only six months until the final residential for our group, I am looking forward to spending valuable time together as a #CARLfamily to finalise papers for publication, strengthen our collaborative relationships and further develop our leadership capabilities. I am so grateful for the profound experience of being mentored by Jon, Jan and Greg and my CARL peers that I sincerely encourage new early-career researchers to apply for the CARL II cohort. I am sure the next residential in Sydney, and the coming together of two CARL cohorts, will be a momentous occasion! As this quickly approaches, it is now time for us to reflect on our CARL experience, and the impact it has had for us, as we strive for excellence in our research endeavours.

- Katie

## Mentor's Note by Jon Adams, Greg Kawchuk and Jan Hartvigsen

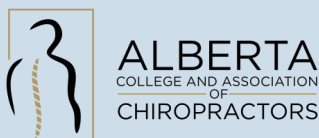
2019 have been another eventful year for CARL with landmark events and developments for the program and individual fellows.

Fellows and mentors met prior to the World Federation of Chiropractic Congress held in March in Berlin. The aim of the Berlin residential was two-fold. First, to discuss individual challenges for the fellows in their careers – the "Problem Solved Session" – which is a recurrent event at CARL residencials enabling all to learn from shared experiences while supporting each other with challenges. Second, to work on common research and leadership projects (i.e. discussing new projects, data analyses and paper writing). At the WFC congress CARL was featured prominently with several fellows giving invited lectures, facilitating workshops, moderating sessions and debates, and more generally networking with many delegates.

As we enter the final year for the first CARL cohort of fellows, we have recently issued a call to fund a new cohort - CARL the Second (CARL II). At the same time, it was agreed that CARL needs strong-

er administrative support in order to manage practical and financial issues. We are happy to report that the response to the funding calls have been very positive and we are now confident that we can establish the second CARL cohort and have proceeded with calls for applications. The plan is to complete the application process during the fall of 2019 in order to enroll 12 new fellows before the end of the year. The final residential for the current fellows and the first gathering for the new fellows will take place in Sydney in April of 2020. We are also fortunate that the Nordic Institute of Chiropractic has offered to help with administration making NIKKB the official administrative home of CARL.

We note that there are now several active CARL projects that are independent of the CARL mentors. As senior academics we believe this is yet another sign of the CARL program's success to date in creating a coherent, collaborative, supportive and productive global network of early career – soon to be mid-career – researchers in chiropractic.



CARL fellows and CARL mentors in Berlin

# Highlights from CARL fellows



## Katie Pohlman

My PhD graduation occurred in June. Albeit not enough, this event allowed time for reflection of the numerous people who supported me to achieve this goal. Each CARL fellow and mentor is high on the list, of which I am so grateful they entered my life when they did... thank you! Additional highlights include the continuation of developing specific initiatives for Parker Research Center, including advancement in motor control / neuroscience research to be conducted at Parker's Synapse – a center focused on human performance advancements. Pleased to be directing a program with a focus on patient-centered high quality research!



## Craig Moore

My 4<sup>th</sup> PhD manuscript was recently published. I have successfully completed the defense (Stage 3) of my thesis and I am now in the final write-up stage before submission. I'm very proud to be providing some lectures on headache diagnosis and management to the senior year students at Macquarie university again this year.

## Melker Johansson

One of my highlights for the recent months include a research stay abroad, where I visited research groups at the Primary Care and Health Sciences at Keele University (UK). I have also attended and presented results from my PhD at the International Conference on Ambulatory Monitoring of Physical Activity and Movement (ICAMPAM) in Maastricht, Netherlands, where I proudly received the Runner up award for best oral presentation. Currently, I am focussing on my PhD-thesis that I should submit in December 2019.



## Andreas Eklund

Presenting at the ECB 19 (Evidence Based Chiropractic 2019) in Oxford was a wonderful experience, not only is it a magical city but also to spend time and talk to evidence-driven clinicians and present the research from the Nordic Maintenance Care program is very rewarding. Also, presenting a poster at the Neck and Low Back Pain forum in Quebec was an exciting and inspiring experience, it is incredible how research allows individuals, organizations and professions come together around complex problems and societal challenges.



CARL fellows around the world

## Mike Swain

I recently won an award for best early-career research podium presentation at the XVth International Forum for Back and Neck Pain Research in Primary Care (Québec City). After that I visited Martha Funabashi and Sam Howarth at the Canadian Memorial Chiropractic College and started a new project collaboration.



## Matt Fernandez

I am happy to announce that we have cemented a date to launch our GLA:D Back feasibility study. Ethics has approved our project and we have hired a research assistant to help coordinate the project. We look forward to hosting approximately 20 chiropractors and physiotherapists at Macquarie University on November 16th and 17th. We are honoured to have Prof. Alice Kongsted in Sydney to help lead the first GLA:D Back course in Australia. I will also be presenting a systematic review and meta-analysis at the upcoming CA and ACA National Conferences (research symposium) in August and October 2019 respectively.



# Highlights from CARL fellows



## Alex Breen

This quarter I was lucky enough to be invited to present my work at the Julius Wolff Institute in the Charité – Universitätsmedizin in Berlin as part of the 3rd International Workshop on Spinal Loading and Deformation. I have been honoured by the editor of the Journal of Biomechanics' request to submit the work presented for a special issue of the Journal. Also late last year my team at the Centre for Biomechanics Research at the AECC University College and I had the pleasure to host research resident Daphne To from CMCC, in support of Daphne's research project. Since then along with Daphne's supervisory team composed of Sam Howarth and Silvano Mior this project has been written up for dissemination and is currently under review in the journal of Medical Engineering and Physics.

## Diana De Carvalho

This past summer has been filled with teaching an undergraduate introductory ergonomics course, working on publications and attending conferences. Our NCMIC/JMPT award winning paper was submitted, I was invited to give the keynote lecture at the Human Kinetics and Recreation Graduate Research Symposium, and my students presented three podium presentations and two posters at the 50th Annual Conference of the Association of Canadian Ergonomists, taking home first place in the poster competition. I also breathed a huge sigh of relief as my deliverables as a member of the organizing committee went off without a hitch. As a special bonus, I was able to visit Martha at CMCC in early August to work on our scoping review and enjoyed an evening out with the Human Performance Lab!



CARL fellows Katie Pohlman and Isabelle Page and Dr. Andr e Bussi eres in Trois Riviere



## Martha Funabashi

My greatest highlight was definitely being awarded the New Frontiers Research Fund, Exploration Competition 2019—a Canadian Tri-Agency research grant for early career researchers to conduct high-risk, high-reward studies. I was also very fortunate to have been accepted into the US Bone and Joint Young Investigator Initiative—a grant mentoring program to develop my grant writing skills. It was wonderful to host CARL fellows Katie de Luca, Mike Swain and Diana De Carvalho on their respective visits to CMCC—Thank you very much for coming all the way to Toronto, for presenting to CMCC students and faculty and for taking some time to work together! I am also very looking forward to meet the new CARL II cohort!

## Arnold Wong

I was excited to be awarded the SOSORT Best paper in April 2019 at the SOSORT annual meeting in San Francisco. I served as Chairperson of the Scientific Committee for Hong Kong Physiotherapy Association Annual Conference in May. In June, I was so honored to be invited as one of the experts to attend the "Consensus Conference Development of an ICF-based assessment schedule for a manual medicine" in Oslo, where Jan was one of the organizing committee members. In June and July, I worked as a visiting scholar in Rush University Medical Center in Chicago to conduct a research project, which may inform future clinical practice. During this reporting period, I gave five conference presentations at three different conferences.



CARL fellow Melker Johansson receiving the Runner up award for best oral presentation

# Highlights from CARL fellows



CARL fellow Katie de Luca in action collecting data at CMCC on her work with Martha Funabashi



## Katie de Luca

Since May, I have been working hard to establish the BACK Complaints in the Elderly: Chiropractic - Australia cohort study. I traveled to the OARSI World Congress and spent the following week with Martha at CMCC collaborating on projects to quantify force transmission of spinal manipulation in older adults. In July I attended the IFNBP in Quebec City to present a workshop with colleagues on defining spinal osteoarthritis. In August, I traveled to the National Health and Medical Research Council in Canberra to sit on a panel to review Ideas Grants application, a very prestigious invitation. I also was awarded first prize for podium presentations at the Chiropractic Australia National conference.



## Isabelle Pagé

June sounded the end of my postdoctoral training with Dr. Greg Kawchuk at the University of Alberta. However, collaborations with this research laboratory are still ongoing! I moved back in Québec (Canada) and started a postdoc training at the Center for Interdisciplinary Research in Rehabilitation and Social Integration (CIRRSIS) in Québec city. This training has been of short duration since, on Sept 1st, I had the pleasure of being appointed as a substitute professor within the chiropractic department at UQTR (Québec). I am so excited to teach to the next generation of chiropractors and initiate research collaborations with my new colleagues! Besides work, it feels great to be back home and taking some time off with my partner and our son to enjoy the summer with our relatives and friends.

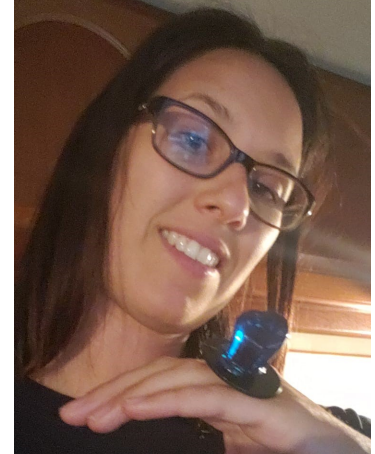


## Michelle Holmes

My highlight of this year has been accepting a permanent job as Lecturer in Research Methods at AECC University College. I am excited to expand my teaching and responsibilities. I have also been supervising students on the Programme for Early Researchers in Chiropractic, and really enjoyed mentoring the next generation of chiropractic researchers



CARL fellows Diana De Carvalho and Martha Funabashi in Toronto



CARL fellows Isabelle Page with her engagement ring-pop!



CARL fellows Melker Johansson and Arnold Wong in Berlin



CARL fellow Andreas Eklund presenting in Oxford

# CARL Projects - Publications since January 2019



CARL fellows Arnold Wong and Craig Moore in Berlin

1. Odhwani A, Sarkar P, Giggelman G, **Holmes M, Pohlman KA**. Evaluation of evidence-based practice competencies for faculty and students at a chiropractic institution: a cross-sectional survey. *J Chiropr Educ* 2019 [Accepted]
2. **Fernandez M, Moore C, Eklund A, Swain M, de Luca K, Sibbritt D, Adams J**, Peng W. The prevalence and determinants of physical activity promotion by Australian chiropractors: a cross sectional study. *Complementary Therapies in Medicine*. 2019 Jun 18.
3. **Funabashi M, Breen A, De Carvalho D**, Henry A, Murnaghan K, **Page I, Wong AYL, Kawchuk G**. Center of rotation locations during lumbar spine movements: a scoping review protocol. *JBIDatabase System Rev Implementation Rep* [Accepted].
4. **Eklund A, De Carvalho D, Page A, Wong AYL, Johansson MS, Pohlman K, Hartvigsen J, Swain M**. Expectations influence treatment outcomes in



CARL fellows Mike Swain and Matt Fernandez at Macquarie University graduation celebration

patients with low back pain. A secondary analysis of data from a randomized clinical trial. *European Journal of pain* 2019.

5. **Moore, C., Leaver, A., Sibbritt, D. & Adams, J.** Prevalence and factors associated with the use of primary headache diagnostic criteria by chiropractors. *Chiropractic & Manual Therapies* 2019, vol. 27, no. 1, p. 33.
6. **Fernandez M, Moore C, Peng W, de Luca K, Pohlman KA; Swain M, Adams J.** The profile of chiropractors managing patients with low back-related leg pain: Analyses of 1,907 chiropractors from the ACORN practice-based research network. *Chiropractic & Manual Therapies* 2019 [Accepted].
7. **Moore C, de Luca K, Wong AYL, Fernandez M, Swain M, Hartvigsen J, Adams J, Peng W.** (2019) Characteristics of chiropractors who manage people aged 65 and older: A nationally representative sample of 1903 chiropractors. *Australian Journal on Ageing* 2019 vol. 0, no. 0, pp. 1-9



CARL mentors Greg Kawchuk and Jan Hartvigsen



CARL mentor Jon Adams

8. **Kawchuk GN, Pagé I, de Carvalho D, Swain M, Miazga S, Funbashi M, Wong AYL.** Do physiological limits of human palpation prevent clinicians from appreciating differences in spinal stiffness? *Journal of Manipulative and Physiological Therapeutics* 2019 [Accepted]
9. **Wong AYL, Eric C. Parent, Sukhvinder S. Dhillon, Narasimha Prasad, Dino Samartzis, Gregory Kawchuk.** Differential patient responses to spinal manipulative therapy and their relation to spinal degeneration and post-treatment changes in disc diffusion. *European Spine Journal* 2019 [Accepted].

# CARL Projects - Conference Abstracts since May 2019

1. Frey M, McGettigan Q, Colbert M, Dyer K, **Kawchuk G** and **De Carvalho D**. Is spinal stiffness affected by prolonged sitting? The 50th Annual Conference of the Association of Canadian Ergonomists, August 12-15th, 2019, St. John's, NL, Canada. Podium Presentation
2. **Diana De Carvalho, Katie de Luca, Martha Funabashi, Alexander Breen, Arnold Wong, Melker S. Johansson**, Manuela Ferreira, Michelle Swab, **Jon Adams, Greg Kawchuk and Jan Hartvigsen**. Does exposure to prolonged durations of sitting result in increases in low back pain?: A systematic review of studies with objectively measured sitting time. Chiropractic Australia National Conference, Gold Coast, Australia August 23, 2019. Accepted for Poster Presentation
3. **Diana De Carvalho, Katie de Luca, Martha Funabashi, Alexander Breen, Arnold Wong, Melker S. Johansson**, Manuela Ferreira, Michelle Swab, **Jon Adams, Greg Kawchuk and Jan Hartvigsen**. Does exposure to prolonged durations of sitting result in increases in low back pain?: A systematic review of studies with objectively measured sitting time. Australian Chiropractors Association National Conference, Melbourne, Australia October 19-20, 2019. Accepted for Poster Presentation
4. **Funabashi M, Pohlman KA**, Mior S, Thiel H, Hill M, Cassidy D, Hogg-Johnson S, Westaway M, Yager J, Hurwitz E, **Kawchuk G**, OBeirne M, Vohra S. Preliminary findings from an active surveillance reporting system for spinal manipulative therapy regulated providers and low back pain patients. Main Session Platform at the 10<sup>th</sup> Interdisciplinary World Congress on Low Back & Pelvic Girdle Pain, Antwerp, Belgium, October 2019
5. **Pohlman KA**, Cooper J, Gliedt J, **Holmes M**, Lawrence D. Association of attitudes toward chronic low back pain and evidence-based practice: a cross-sectional survey of a chiropractic institution. Oral Presentation at the 10<sup>th</sup> Interdisciplinary World Congress on Low Back & Pelvic Girdle Pain, Antwerp, Belgium, October 2019

## Ongoing CARL Research Projects

**SafetyNET Investigations** – Advancing patient safety research for SMT providers

This work involves a series of projects, with current focus on the implementation of the data collection instruments. This has been done within a chiropractic teaching institute. Plans are to reach out to expand on the population, including other teaching institutions and community-

based practices on an international platform.

**Title:** Determine the incidence of mild, moderate, and serious adverse events following SMT administered by chiropractic interns using the SafetyNET active surveillance reporting paper-based system. Status: Manuscript submitted.

**Title:** Determine the incidence of mild, moderate, and serious adverse events following SMT administered by chiropractic interns using the SafetyNET active surveillance reporting electronic system. Status: Data is being analyzed.

**Title:** Qualitative evaluation of open-ended questions on SafetyNET's Survey to Support Quality Improvement, which was conducted at teaching institu-

tions and among practicing SMT providers. Status: Manuscript being finalized.

**Title:** SafetyNET's survey to Support Patient Safety and Quality Improvement—Re-evaluation. Status: Data being collected

**Title:** Survey regarding mitigation strategies for benign adverse events following SMT. Status: Manuscript in preparation.

**Title:** Patient Safety Learning System implementation at teaching clinic. Status: data collection will start early 2020.

**Title:** Active Surveillance Reporting System implementation at a teaching institution—electronic system with expansion to patients' perceptions. Status: Data collection to start in

September–November 2019.

Lead: Martha Funabashi and Katie Pohlman

Working group: Mike Swain, Andreas Eklund, Greg Kawchuk, Michelle Holmes, Sheila Hogg-Johnson, Silvano Mior, Sunita Vohra, Maeve O'Beirne, Stacie Salisbury



CARL fellow Katie de Luca receiving her award at the Chiropractic Australia Conference



CARL fellow Arnold Wong and friend in Chicago

# Ongoing CARL Research Projects (cont'd)

**Title:** The diagnosis and Management of Headache: A survey of senior chiropractic students. Status: Data being analyzed and manuscript under preparation.

Lead: Craig Moore

Working group: Stephney Whillier, Diana De Carvalho, Martha Funabashi, Katie Pohlman, Matt Fernandez, Rosemary Giuriato, Michael Swain, Jon Adams

**Title:** Chiropractic Research Priorities in Australia-ChiRPA. Status: Data collection completed and manuscript in preparation

Lead: Craig Moore

Working group: Greg Kawchuk, Jon Adams

**Title:** Lifestyle factors that influence headaches in school children. Study design in development . Status: Data collection underway

Lead: Craig Moore

Working group: Michael Swain, Katie Pohlman, Jan Hartvigsen, Jon Adams

**Title:** Job Analysis of Chiropractors with a Pediatric Specialty. Status: Data analysis

Lead: Katie Pohlman

Working group: Michael Swain

**Title:** Adverse events following chiropractic treatment in the pediatric population: an active surveillance study. Status: Data is being analyzed.

Lead: Katie Pohlman

Working group: Michael Swain, Lise Hestbaek, Sunita Vohra,

Linda Carroll

**Title:** Profiling Australian chiropractors who frequently discuss pain medication in practice: Analyses of chiropractors from the ACORN practice-based research network. Status: Protocol under development

Lead: Matt Fernandez

Working Group: Michelle Holmes, Martha Funabashi , Arnold Wong, Katie de Luca, Isabelle Page, Katie Pohlman, Jon Adams

**Title:** Challenges in recruitment of chiropractors to collect data from their patients. Status: Manuscript preparation.

Lead: Michelle Holmes

Working group: Martha Funabashi, Isabelle Pagé, Craig Moore

**Title:** Global student identity. Status: Data being analyzed.

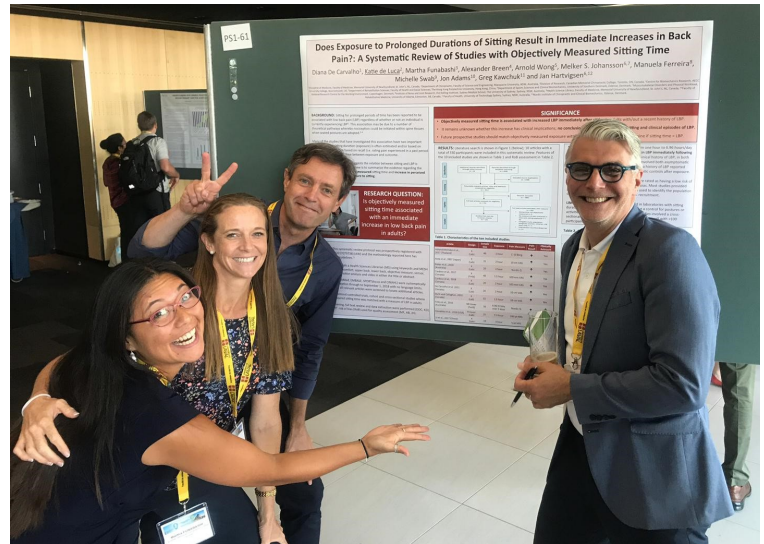
Lead: Michelle Holmes

Working group: Katie de Luca, Mike Swain, Dave Newell, Jordan Gliedt

**Title:** Errors associated with soft tissue displacement when measuring spine kinematics - A comparison of continuous kinematic measures to assess spine motion; comparing motion tracking, accelerometers and fluoroscopy.

Lead: Alex Breen

Working group: Diana De Carvalho, Martha Funabashi, Isabelle Page, Greg Kawchuk, Arnold Wong



CARL fellows Katie de Luca and Martha Funabashi and CARL mentors Jan Hartvigsen and Greg Kawchuk presenting their work at the International Back and Neck Pain Forum

**Title:** Forces applied and transmitted through the body during thoracic spinal manipulation and mobilization: the influence of force-time characteristics and neuromuscular responses. Status: data collection completed, data being analyzed.

Lead: Martha Funabashi

Working group: Isabelle Pagé, Steven Tran, Tom Murphy, Martin Descarreaux, Jeremie Mikhail.

**Title:** Risk stratification and long-term clinical course after an initial manual treatment package for patients with low back pain, a secondary analysis of a randomized clinical trial. Status: will commence in 2019

Lead: Andreas Eklund

Working group: Greg Kawchuk, Jan Hartvigsen, Jon Adams, Katie De Luca, Isabelle Pagé, Martha Funabashi, Diana De Carvalho, Arnold Wong, Michael Swain,



CARL fellow Alex Breen presenting at the International Workshop on Spine Loading and Deformation



# Ongoing CARL Research Projects (cont'd)



CARL fellow Matt Fernandez receiving the ANZMUSC seeding grant

Katie Pohlman, Melker Johansson

**Title:** Clinical differences between psychological subgroups. A 12-month longitudinal analysis of the clinical course in a care seeking low back pain population, a secondary analysis of a randomized clinical trial.

Lead: Andreas Eklund

Working group: Greg Kawchuk, Jon Adams, Mike Swain, Melker Johansson, Michelle Holmes, Diana De Carvalho, Katie De Luca, Matt Fernandez, Martha Funabashi.

**Title:** What's behind the development of Transient Sitting-

Induced Back Pain in Healthy Participants? Status: Statistical analysis and results figures have been completed.

Lead: Diana De Carvalho

Working group: Alex Breen, Arnold Wong, Martha Funabashi, Isabelle Pagé, Greg Kawchuk

**Title:** Center of rotation location during lumbar spine movements: a scoping review. Status: Screening papers

Lead: Martha Funabashi

Working group: Diana De Carvalho, Isabelle Pagé, Arnold Wong, Alex Breen, Greg Kawchuk

**Title:** Reported adverse events following manual therapy of the spine: a scoping review of the hypothesized mechanisms. Status: Data collection

Lead: Isabelle Pagé

Working group: Marc-André Blanchette, Martha Funabashi

**Title:** Investigating force-time characteristics of thoracic spinal manipulation for spinal tissue injury: a preliminary study using

a predictive model. Status: Protocol being developed.

Lead: Isabelle Pagé

Working group: Nathaniel Maeda, Michael Pagé, Martha Funabashi, Stéphane Sobczak.

**Title:** Force vectors during posterior-to-anterior Spinal Manipulative Therapy (SMT). Status: data being analyzed

Lead: Martha Funabashi

Working group: Diana De Carvalho, Alex Breen, Isabelle Pagé, Greg Kawchuk

**Title:** Applied and transmitted forces during spinal manipulation therapy (SMT) in older adults. Status: data analysis

Lead: Martha Funabashi

Working group: Katie de Luca, Greg Kawchuk, Samuel Howarth, James Son

**Title:** The risk factors for low back pain in older adults. A systematic review. Status: data extraction

Lead: Arnold Wong

Working group: Martha Funabashi, Luciana Macedo, Susan Armijo Olivo, Katie de Luca.

**Title:** Radiographic phenotypes and spinal stiffness in people with and without low back pain. Status: manuscript preparation

Lead: Arnold Wong

Working group: K. Li, M. Law, K. Chim, Greg Kawchuk

**Title:** A randomized controlled trial on the effects of manual massage, massage chair, and sham massage on physical responses of patients with chronic low back pain. Status: manuscript preparation

Lead: Arnold Wong

Working group: A. Lui, E. Chan, V. Chan, Greg Kawchuk.

**Title:** Does exposure to prolonged durations of sitting result in immediate increases in back pain? A systematic review of studies with objectively measured sitting time. Status: revised manuscript submitted

Lead: Diana De Carvalho

Working group: Katie de Luca, Martha Funabashi, Alex Breen, Arnold Wong, Melker Johansson, Manuela Ferreira, Greg Kawchuk, Jon Adams, Jan Hartvigsen

**Title:** Life experience of older adults with low back pain.

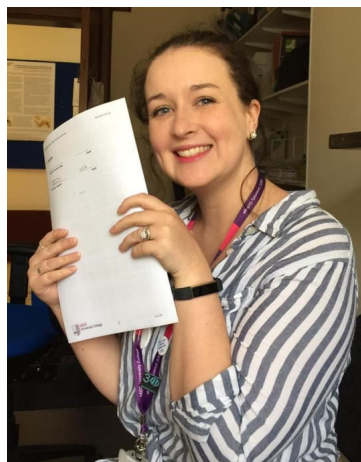
Lead: Arnold Wong

Working group: Michelle Holmes, Katie De Luca, Veronika Schoeb

**Title:** Physical and psychosocial risk factors for low back pain among physiotherapy students. Status: manuscript preparation

Lead: Arnold Wong

Working group: Martha Funabashi, Greg Kawchuk



CARL fellow Michelle Holmes with her promotion papers!

# Ongoing CARL Leadership Initiatives

## Conference Organizing Committee:

Organizing committee member: World Confederation for Physical Therapy Asia Western Pacific Regional Congress 2020.

Led by: Arnold Wong

Conference collaboration between the UQTR chiropractic department and the Research Group on Neuromusculoskeletal Disorders (GRAN).

Led by: Isabelle Pagé

Planning and coordinating the Research Symposium for the Australian Chiropractors Association, (ACA). Melbourne, Vic, Australia. October 2019

Led by: Matt Fernandez and Craig Moore

Australian chiropractors at SpineWeek 2020! I've been working as a member of the conference organizing committee.

Led by: Michael Swain

Conference Planning Committee Member, 50<sup>th</sup> Annual Conference of the Association of Canadian Ergonomists

Led by: Diana De Carvalho

ACA Women's Health Council – Vice President. This council was just developed to evaluate Women's Health throughout the lifespan.

Led by: Katie Pohlman

## Invited Presentations:

*Katie De Luca:* Chiropractic & the older patient: my research journey, at CMCC

*Katie Pohlman:* Pediatric Chiropractic care: the state of the literature, at UQTR

*Mike Swain:* Spinal pain in adolescents, at CMCC

*Andreas Eklund:* The Nordic Maintenance Care Program: effectiveness, subgroups and mechanisms, in Oxford

## New editorial board positions:

*Katie Pohlman:* Section Co-Editor, Journal of Manipulative and Physiological Therapeutics, Women's Health

*Katie De Luca:* Section Co-Editor, Journal of Manipulative and Physiological Therapeutics, Women's Health

*Arnold Wong:* Associate Editor, BMC Musculoskeletal Disorders.

## Committee Membership:

*Diana De Carvalho:* Faculty of Medicine, Memorial University of Newfoundland, Destination Excellence Strategic Plan Implementa-

tion, Wellness Project

## New student supervision:

*Michelle Holmes:* supervising two students from the Programme for Early Researchers in Chiropractic (PERC)

*Mike Swain:* primary supervisor of a MRes and adjunct supervisor of a PhD student

*Martha Funabashi:* one summer student and one clinical sciences resident's case series

## Leading independent research via a Macquarie University Grant:

GLA:D Back Australia - improving self-management for people with persistent or recurrent low back pain through the implementation of evidence-based patient education and exercises. This is a feasibility study, aiming to determine the feasibility, acceptability and fidelity of delivering GLA:D Back in Australia for the first time.

Led by: Matt Fernandez

Team: French S, Kongsted A, [Hartvigsen J](#), Barton CJ, Hancock M, [Kawchuk G](#), Kent PK

## Force-Sensing Table Technology (FSTT®) Consortium

A collaboration between all institutions that have the FSTT® and are interested in jointly developing educational programs and conducting collaborative high-quality research using this technology. The research initiative is being led by Martha Funabashi

## Women in Chiropractic Research Mentorship Group

Increasing diversity on teams leads to creative problem solving and improved outputs. Currently, our group is developing the brand for this initiative and we are gathering statistics worldwide to better understand the current capacity of women in leadership, education and research roles.

Led by: Diana De Carvalho

Working group: Michelle Holmes, Katie Pohlman, Katie de Luca, Martha Funabashi, Michael Swain, Isabelle Pagé

In August, I hosted the inaugural Women@CA, a breakfast networking event to support women in chiropractic research. The event, held in conjunction with the Chiropractic Australia National conference, and supported by FootLevelers, was a great success bringing together more than 40 conference attendees interested in creating change for gender balance in chiropractic research. Dr. Carolyn Ee, GP and traditional Chinese medicine practitioner and Amber Beynon, chiropractor and PhD candidate, warmly entertained the audience on their journeys as clinicians, researchers and encountering the lack of diversity for women in academia. I am honored to have hosted the first initiative of this kind, and am hoping to upscale the event to national and global conferences.

Led by: Katie de Luca

# CARL Fellows - Individual Publications since May 2019

Hammerich K, Stuber K, Hogg-Johnson S, Abbas A, Harris M, Lauridsen HH, Lemeunier N, Maiers M, McCarthy P, Morales V, Myburgh C, Petrini V, **Pohlman KA**, Mior S. Assessing Attitudes of Patient-Centred Care Among Students in International Chiropractic Educational Programs: A Cross-Sectional Survey. *Chiropr Man Therap* (accepted)

To D, **Breen Ax**, Breen A, Mior S, Howarth S. Establishing intra- and inter- observer repeatability for intervertebral motion sharing using quantitative fluoroscopy *Journal of medical Engineering and Physics* (Submitted August 2019)

**Breen Ax**, Breen A. Dynamic interactions between lumbar intervertebral motion segments during forward bending. *Journal of Biomechanics* (Submitted August 2019)



CARL fellows Martha Funabashi, Diana De Carvalho, Katie de Luca and Katie Pohlman

Hemmings R, **Breen Ax**, Breen A, Comparison of quantitative fluoroscopy and static radiography for the measurement of lumbar intervertebral flexion translation. *Scientific reports*. (Submitted July 2019)

Field, J., **Holmes, M.,M.,** & Newell, D. PROMs data: can it be used to make decisions for individual patients. *Patient Related Outcome Measures*. 10, 233-241.

**De Carvalho D**, Greene R, Swab M and Godwin M. Does objectively measured prolonged standing for desk work result in lower ratings of perceived low back pain than sitting? A systematic review and meta-analysis. Accepted September 2019, WORK.

Greene R, Frey M, Attarsharghi S, Snow JC, Barrett M and **De Carvalho D**. Transient Perceived Back Pain Induced by Prolonged Office Chair Sitting: Are Biomechanical Factors Involved? [In press] *Ergonomics*, 2019 [TERG-2018-0354].



Gallagher K, Cameron L, **De Carvalho D** and Boule, M. Does using multiple computer monitors for office tasks affect health- and productivity-related outcomes? A Systematic Review. In *Review Human Factors*, June 2019. [HF-19-6248].

**Funabashi M**, Carlesso L. Predictors of patients who are likely to experience adverse responses following manual therapy: secondary analysis of a survey of patients' perceptions of what constitutes an adverse response. *Musculoskelet Sci Pract* [submitted].

## Upcoming Events

ACA National Conference 2019 " Interdisciplinary Spinal Health" 19-20 October 2019, Melbourne, Australia

10th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain, Antwerp, Belgium, October 28-31, 2019

Nordic Seminar on Technical Measurement of Physical Activity and Sedentary Behavior 2019, 13-14 November, Gothenburg, Sweden

ACC-RAC 27<sup>th</sup> Educational Conference and Research Agenda Conference, March 19-21, 2020 – San Diego, CA, USA.

SpineWeek 2020, Melbourne, Australia, April 2020. Abstract submission: October 15, 2019.

Australian chiropractors at SpineWeek 2020, April 2020. Abstracts now open: <https://www.spineweek.org/abstracts/>

WFC-ACC Education Conference, San Francisco, CA, Oct. 28-31, 2020. Abstract submission deadline: May 01, 2020

21<sup>st</sup> Meeting of the Canadian Society of Biomechanics, Montreal, August 11-14, 2020