



CARL

Chiropractic Academy of Research Leadership

NEWSLETTER

Issue 4 - February 2019

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

Looking forward to another fruitful year ahead!

by Arnold Wong

2018 was a very fruitful year to all CARL Fellows. Since the completion of the second residential at the University of Alberta, Edmonton, various CARL mentors and mentees continued to meet at various occasions, work on multiple CARL projects, and excel in the research arena.

Taking stock of 2018, the CARL Fellows have published 12 peer-reviewed journal articles all together. Additionally, CARL Fellows had a very impressive publication record in the second half of 2018. Notably, CARL Fellows have got 15 accepted CARL-related conference abstracts (including 11 of them will be presented at the 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention). They also published 29 individual peer-reviewed journal articles since July 2018. Since there are 16 CARL research projects underway, 2019 will definitely be another record breaking productive year for the CARL Program.

Additionally, many CARL Fellows have got very exciting career developments. Michelle has taken up the position as a lecturer at AECC University College, while Martha embarks on the position as a Clinical Research Scientist at Canadian Memorial Chiropractic College. Importantly, Mike, Katie Pohlman and Isabelle have successfully completed their PhD degrees in the last 2 months. In 2019, Isabelle will continue her postdoctoral training with

Prof. Kawchuk at the University of Alberta, whereas Mike will start his new position as a Senior Lecturer at Macquarie University.

All CARL Fellows understand the importance of nurturing new researchers. Many of them have been supervising/mentoring graduate students or new researchers since 2017. Lately, Alex has supervised his first PhD student to study the biomechanical effects of spinal manipulation. Arnold has taken a new PhD student to investigate the function of lumbar multifidus muscles. Martha is supervising a clinical sciences resident, while Katie Pohlman has mentored her colleagues through the peer-revision process for the submission of journal articles. To Diana, nothing was more excited than seeing her first MSc student graduated in 2018.

The achievements of CARL Fellows do not stop there. Katie de Luca got a big grant from the Australia Chiropractic Association to conduct a prospective study on back pain in seniors. She will join an established international consortium with experienced researchers from Netherlands, Sweden and the UK. Matthew got a startup grant from Macquarie University to pioneer a GLA:D Back Australia program. Michelle, Craig, Mike, Katie, and Arnold won awards for their poster and/or podium presentations at various conferences around the world. Diana got new equipment funded by the Canadian

Highlights

- * **Six** more CARL publications accepted!
- * **Four** more CARL publications have been submitted for publication and are currently under review.
- * **Eleven** CARL abstracts are going to be presented at World Federation of Chiropractic Conference 2019 in Berlin.
- * Congratulations to the CARL fellows **Isabelle Pagé**, **Katie Pohlman** and **Mike Swain** who have successfully completed their PhD!
- * Congratulations to CARL fellows **Katie de Luca** and **Andreas Eklund** for the grants received to continue your excellent and important work.
- * Congratulations to CARL fellow **Matt Fernandez** and welcome little Maeve to the CARL-Fernandez family!



Foundation for Innovation. Last but not the least, Andreas published a landmark paper in PLOS ONE regarding Chiropractic Maintenance Care in September that drawn huge publicity worldwide (with approximately 15,000 page views by mid-December, 2018).

The CARL Mentors and Fellows took every opportunity to work and to have fun. Katie Pohlman, Katie de Luca, and Mike met in Dallas during the Parker Seminars (Dallas, the USA) in October. In the same month, Alex, Katie Pohlman, Michelle, Diana met at the WFC/ACC Education Conference 2018 in London, the UK. In Hong Kong, Prof. Jon Adams was invited by Arnold as one of the keynote speakers at the Hong Kong Physiotherapy Association Conference 2018 in October. Importantly, the CARL Fellows will lead a workshop at World Federation of Chiropractic 2019 Congress to share the secret

active ingredients of the CARL Programs in boosting their career development.

Taken together, the CARL Program has been an imperative game changer for each of the CARL Fellows. I am so honored and thankful to be selected as one of the CARL Fellows. While the journey of early career researchers can be a bumpy ride, the CARL Mentors have selflessly created a supportive and constructive environment to empower the CARL Fellows to laugh and cry together along the journey. As such, I would like to take my hat off to the three incredible CARL Mentors (Greg, Jan, and Jon).

I wish all our readers to have a Happy and Prosperous New Year!

- Arnold

Donors and Funders



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European Centre for Chiropractic Research Excellence



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Canadian Chiropractic Association



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van^{co}ver foundation

Mentor's Note

by Jon Adams, Greg Kawchuk and Jan Hartvigsen

As we move into the third year of the Chiropractic Academy for Research Leadership (CARL) program, the CARL Fellows have much to already be proud of – each continues: to make significant advances in career development; to contribute to the evidence-base of the profession and field; and to collaborate on a growing portfolio of quality outputs and contributions (e.g. the Program has generated over 20 manuscripts and book chapters to date). Perhaps equally if not more significantly, the CARL Fellows have also grown into a cohesive, dynamic network of scholars providing a powerful international reach and a critical mass in the chiropractic research space.

Many early career researchers struggle with issues like performance, job insecurity, and self-doubt in highly competitive environments. Therefore collegial networks of trusted peers is often what keeps a young researcher in the game and helps them succeed. Certainly, in chi-

ropractic we cannot afford to lose young talent and that is exactly why we have CARL.

Following our second CARL residential at the University of Alberta, Edmonton in the first half of 2018, we are now preparing for an extra CARL program event at the WFC in Berlin in March 2019. In 2020 the current CARL Fellowship cohort will wrap up and we anticipate founding a second new cohort of early-career researchers in chiropractic who will also experience the 3 year program from 2020 through to 2022. We thank all who have supported the CARL program to date and very much look forward to continuing to report on the impressive outputs from the CARL Fellows both in the current cohort and the anticipated cohort to follow.

Best wishes,

Jon, Greg and Jan



Highlights from CARL fellows



Alex Breen

At the start of the academic year I have started supervising my first PhD student the current working title of this PhD is "Biomechanical Effects of Spinal Manipulation - a Feasibility Study"



Katie de Luca

In October I received notification that I have been awarded a large (\$406,685 AUD), competitive, industry-led grant from the Australia Chiropractors Association to perform a 12-month longitudinal study on Back Complaints in the Elderly. This grant will enable me to join an established international consortium with researchers experienced in cohort studies from the Netherlands, Sweden and the UK. I have had a very busy time presenting at conferences, including the opportunity to give a keynote presentation on Chiropractic and Women's Health at Parker Seminars (Dallas in October), and two keynote presentations on back pain in the elderly in Sydney (in September) and Hobart (in October).

Diana De Carvalho

This past 6 months has been very busy with teaching but held some exciting developments as well. I graduated my first MSC student, my first PhD student, and submitted 3 publications from my research program. Major renovations in my lab to install my Canadian Foundation for Innovation funded equipment are almost complete and I have several research studies lined up for 2019.



Andreas Eklund

The highlight of the autumn has been the PLOS One publication of the paper reporting the effect evaluation of the RCT designed to investigate Chiropractic Maintenance Care (12th of September). The paper has received publicity internationally with 14 917 page views (14th of December) and a large coverage on social media. It has been a joy to interact with clinicians and researchers with an interest in the field by answering questions.



Matt Fernandez

In September 2018, I was invited to present at the Chiropractic Australia/COCA National Conference as a plenary speaker in Sydney. In November 2018, I was successful with a small internal Macquarie University New Staff Grant (\$10,000 ADU) for the project titled: GLA:D Back Australia: improving self-management of people with persistent or recurrent low back pain through the implementation of evidence-based patient education and exercises - a feasibility study.



Martha Funabashi

My greatest highlight since the last newsletter is moving to Toronto and starting my position as a Clinical Research Scientist at the Canadian Memorial Chiropractic College (CMCC). I've been starting some exciting projects and collaborations focusing on SMT safety and force-time characteristics as well as supervising a clinical sciences resident. We have also been focusing on analysis the SafetyNET data and we'll have some exciting results soon!

Michelle Holmes

My roles have been expanding at AECC University College, taking on more responsibility and leadership as research convener for the Centre for Clinical and Applied Service Provision Research and Unit of Assessment Lead for the Research Excellence Framework. I am also excited with my ongoing research projects, with several to be published in 2019.



Craig Moore

Along with the other Australian CARL fellows we provided a CARL update and Q+A at the Chiropractic Australia national conference in August where I received a 3rd prize award for a podium presentation of our CARL paper on the management of older patients. 2 papers have been published in recent months in (BMC Neurology and BMC CM+T). I recently completed the recruitment of 4th and 5th year chiropractic students at Murdoch and Macquarie universities who participated in an online survey regarding headache diagnosis and management.



Highlights from CARL fellows



Melker Johansson

Since our last Newsletter in July, I have presented results from my PhD project at the International Ergonomics Association's 20th Congress in Florence, Italy; visited research groups in the Netherlands; completed several PhD-courses; and teaching, while keeping progress in my PhD. Time flies when you are having fun!



Arnold Wong

Lately, I have recruited a new PhD student who will work on a lumbar multifidus project. Eight papers have been accepted for publications since the last newsletter. I was so humble to be awarded a silver oral presentation award and a bronze poster presentation award at the 11th Pan-Pacific Conference in Rehabilitation 2019 in Hong Kong. The poster presentation award was related to one of our CARL projects. Additionally, my student won the gold poster presentation award at the same conference.

Isabelle Page

Last August I moved with my family in Edmonton (Alberta, Canada) to achieve a postdoctoral training at the University of Alberta under the supervision of Dr. Greg Kawchuk one of the CARL mentors. Moving out of my province is a journey during which I will learn not only new research skills but also about myself! An important highlight is also the successful defense of my PhD thesis that occurred at the Université du Québec à Trois-Rivières on November 5th. What an incredible life experience! Finally, I have to state the publication in PLOS ONE of the third and before last paper related to my PhD.



Katie Pohlman

The last six months blessed me with the successful submission and defense of my PhD. The support of CARL provided the momentum to finish, thanks everyone! Additionally, I have had the privilege to see the excitement of several faculty-lead projects from Parker University be submitted for publication and mentor them through the peer-revision process. I look forward to my first CARL manuscript submission in 2019, as well as the clinical research studies that will be conducted together.

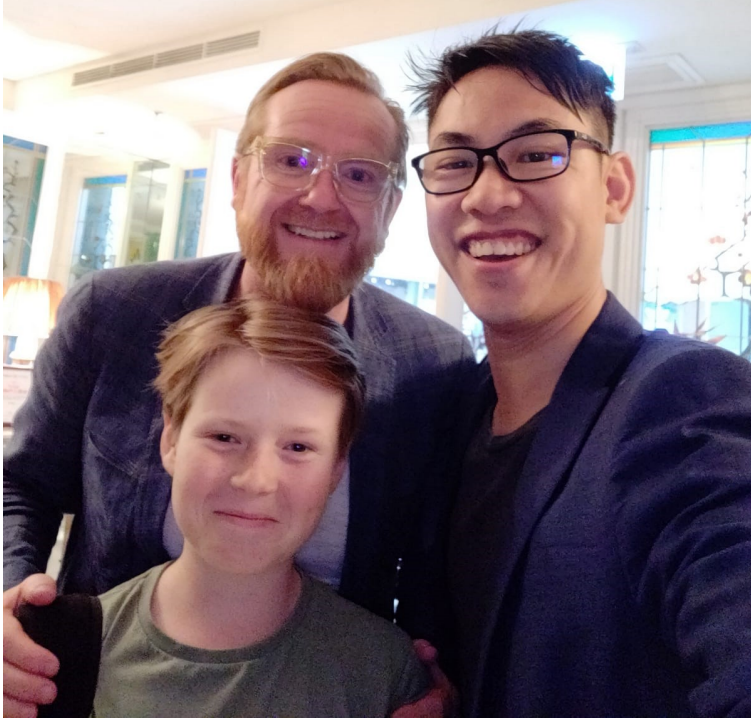
Mike Swain

My PhD has come back from examination and I was recommended for the award of Doctor of Philosophy (Medicine), pending minor emendations. I was recently successful in my application for promotion, commencing 1st January 2019 I will be a Senior Lecturer at Macquarie University. In October, I won 1st place prizes for podium and poster research presentations at the ACA (Australia) Conference, and I had a great time presenting at the Parker Dallas Seminar 2018 – thanks Katie P. and Parker for having me!!!



CARL Fellows Alex, Katie Pohlman, Michelle and Diana meeting at WFC Education in London, October 2018.

CARL Projects - Publications since January 2018



CARL Fellow Arnold and CARL mentor Jon meeting in Hong Kong in October 2018

1. **Moore C**, Leaver A, Sibbritt D, **Adams J**. The management of common recurrent headaches by chiropractors: a descriptive analysis of a nationally representative survey. *BMC Neurol*. 2018;18:171.
2. **Funabashi M**, **Pohlman K**, Mior S, O'Beirne M, Westaway M, **De Carvalho D**, El-Bayoumi M, Haig R, Wade D, Thiel H, Cassidy JD, Huwirth E, **Kawchuk G**, Vohra S. (2018) SafetyNET community-based patient safety initiatives: Development and application of a Patient Safety and Quality Improvement Survey. *J Can Chiropr Assoc*. (accepted)
3. **Wong AYL**, Eric C. Parent, Sukhvinder S. Dhillon, Narasimha Prasad, Dino Samartzis, **Gregory N. Kawchuk**. Differential patient responses to spinal manipulative therapy and their relation to spinal degeneration in disc diffusion. *European Spine Journal* 2019 [accepted].
4. **de Luca, K, Eklund, A., Fernandez, M., Wong, A.Y.L., Hartvigsen J**. Multi-site joint pain in older Australian women. *Chiropr Man Therap* (accepted)
5. **Wong AYL**, Chan TPM, Chau AWM, Cheung HT, Kwan KCK, Lam AKH, Wong PYC, **De Carvalho D**. Do different sitting postures affect spinal biomechanics of asymptomatic individuals? *Gait & Posture* 2018.
6. **Pagé I, Swain M, Wong A, Breen A, De Carvalho D, Descarreaux M, Funabashi M, Kawchuk G**. (2018) Correlations between individuals' characteristics and spinal stiffness: a combined analysis of multiple datasets. *J Manipulative Physiol Ther* (accepted).
7. **Adams J, de Luca K, Swain M, Funabashi M, Wong A, Pagé I**, Peng W. (2018) Prevalence and practice characteristics of urban and rural/remote Australian chiropractors: Analysis of a nationally-representative sample of 1,830 chiropractors. *Australian Journal of Rural Health* (In press).
8. **Adams, J., Lauche, R., de Luca, K., Swain, M., Peng, W., Sibbritt, D.** (2018) Prevalence and profile of Australian chiropractors treating athletes or sports people: A cross-sectional study. *Complement Ther Med* 39, 56-61. doi: 10.1016/j.ctim.2018.05.003
9. Amarin-Woods, L., **Moore, C., Adams, J.** (2018). How does a practice-based research network facilitate evidence-informed practice within the chiropractic profession in Australia? A commentary. *Chiropractic Journal of Australia*. Vol 46(2) 172-185

CARL Projects - Conference Abstracts since July 2018

1. **Holmes M, Pohlman K, Breen Ax, de Carvalho D, Maiers M**. A session with CARL: Mentoring within Chiropractic institutions. World Federation of Chiropractic-Association of Chiropractic Colleges, 10TH Chiropractic Education Conference, London, UK.
2. **Breen, Ax., De Carvalho, D., Wong, A.Y.L. Kawchuk, G., Pagé, I., Funabashi, M., Swain, M., Breen AC**: Apportionment of lumbar intervertebral motion in a standardised flexion and return protocol using fluoroscopy: basic data to improve current spine models. 8th World Congress of Biomechanics Dublin, Republic of Ireland.
3. **De Luca K, Wong AYL, Eklund A, Fernandez M**, Byles J, Parkinson L, Ferreira ML, **Hartvigsen J**. The associations among multi-site joint pain and psychosocial health and greater medication use in older Australian women. 11th Pan-Pacific Conference on Rehabilitation, Hong Kong, SAR, China, 2018.
4. **De Luca K, Wong AYL, Eklund A, Fernandez M**, Byles J, Parkinson L, Ferreira ML, **Hartvigsen J**. Prevalence and management of back pain in adolescent idiopathic scoliosis patients: A retrospective study. Chiropractic Australia National Conference, Sydney, Australia, 2018.

CARL Projects - Conference Abstracts since July 2018

5. **Moore C**, Leaver A, Sibbritt D, **Adams J**. The use of primary headache diagnostic criteria by chiropractors: A study of 381 Australian chiropractors. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
6. **Moore C**, **de Luca K**, **Wong A**, **Fernandez M**, **Swain M**, **Hartvigsen J**, **Adams J**, Peng W. Characteristics of chiropractors who manage people aged 65 and older: A nationally representative sample of 1903 chiropractors. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
7. **Wong AYL**, Choi B, Cheung V, Lam C, Wong M, **Funabashi M**, **Kawchuk G**. Risk factors for low back pain among physiotherapy students in Hong Kong. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
8. **Breen Ax**, **de Carvalho D**, **Funabashi, M.**, **Kawchuk, G.**, **Pagé, I.**, **Swain, M.**, **Wong, A.Y.L.**, **Breen AC**: Lumbar intervertebral motion sharing during spine flexion and return to neutral: improving reference data for more accurate spine models. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
9. **De Luca K**, **Fernandez M**, **Eklund A**, **Wong AYL**, **Hartvigsen J**. Multisite joint pain in older Australian women is associated with poorer psychosocial health and greater medication use. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
10. **Fernandez M**, **Moore C**, **Eklund A**, **Swain M**, **de Luca K**, Sibbritt D, **Adams J**, Peng W. Discussing physical activity in the chiropractic consultation: Analyses of 1,924 practitioners from the ACORN practice-based research network. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
11. Montgomery L, French S, Kamper S, Troelsen J, Hestbaek L, **Hartvigsen J**, **Swain M**. No association between sedentary behaviours and spinal pain in adolescents: A cross-sectional epidemiological study. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
12. Young A, **Swain M**, **Kawchuk G**, **Wong A**, Downie A. The benchmark performance of the VerteTrack system for the assessment of spinal stiffness. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
13. **Pohlman KA**, **Funabashi M**, **Kawchuk G**, Hogg-Johnson S, Mior S. How Patients are Asked about Severity Rating for Worsened Symptom Matters: Data from an Electronic Active Surveillance Study Implemented at a Chiropractic Teaching Clinic. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
14. **Pohlman KA**, Salsbury S, **Funabashi M**, **Holmes M**, Mior S. Patient Safety Attitudes in Chiropractic Teaching Clinics: A Mixed Methods Analysis of Students, Faculty, and Staff. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
15. **De Carvalho D**, **De Luca K**, **Funabashi M**, **Breen A**, **Wong AYL**, **Johansson M**, Ferreira M, Swab M, **Adams J**, **Kawchuk G**, **Hartvigsen J**. Does exposure to prolonged durations of objectively measured sitting time result in increased levels of perceived back pain: a systematic review. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.
16. **Funabashi M**, **Breen A**, **De Carvalho D**, **Page I**, Nougrou F, Descarreaux M, **Kawchuk G**. Force distribution within spinal tissues during a posterior to anterior spinal manipulative therapy. 15th World Federation of Chiropractic Biennial Congress - 78th European Chiropractors' Union Convention. Berlin, March 2019.



CARL Fellows Katie de Luca, Katie Pohlman and Mike Swain meeting in Dallas, TX, USA in October 2018

Ongoing CARL Research Projects

Title: Characteristics of chiropractors who manage people aged 65 and older: A nationally representative sample of 1903 chiropractors. Status: minor revisions submitted

Lead: Craig Moore

Working group: Katie de Luca, Arnold Wong, Matthew Fernandez, Michael Swain, Jan Hartvigsen, Jon Adams, Wenbo Peng

Title: The diagnosis and Management of Headache: A survey of senior chiropractic students. Status: Data collected and analysis underway.

Lead: Craig Moore

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

Title: Evidence-Based Practice Competencies: Evaluation of Progress. Status: Manuscript in preparation.

Lead: Katie Pohlman

Working group: Michelle Holmes, Anjum Odhwani, Dana

Lawrence, Christopher Malaya

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 practicing doctors on an international platform. The first 3 development projects are listed below:

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 being finalized.

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 has been collected and analysis currently being done.

Title: Qualitative evaluation of open-ended questions on SafetyNET's Survey to Support Quality Improvement, which was conducted at teaching institutions and among practicing SMT providers. Status: Data analysis completed. Manuscript in preparation

Title: Mitigation strategies for

benign adverse events following SMT. Status: data collection will start in early 2019

Title: Patient Safety Learning System implementation at teaching clinic. Status: protocol developed, training will start in early 2019

Title: Active Surveillance Reporting System implementation at a teaching institution—electronic system with expansion to patients' perceptions. Status: protocol developed, training will start early 2019.

Lead: Martha Funabashi and Katie Pohlman

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

Title: Job Analysis of Chiropractors with a Pediatric Specialty. Status: Data collection in progress.

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: Discussing physical activity in the chiropractic consultation: Analyses of 1,924 practitioners from the ACORN practice-based research network. Status: manuscript under review

Lead: Matt Fernandez

Working group: Craig Moore, Andreas Eklund, Michael Swain, Katie de Luca, David Sibbritt, Jon Adams, Wenbo Peng.

Title: The profile of chiropractors managing patients with low back-related leg pain: Analyses of 1,907 chiropractors from the ACORN practice-based research network. Status: manuscript under review

Lead: Matt Fernandez

Working Group: Craig Moore, Wenbo Peng, Katie de Luca, Katie Pohlman, Michael Swain, Jon Adams

Title: Challenges and lessons for recruitment within chiropractic studies. Status: Currently collecting and pooling data.

Lead: Michelle Holmes

Working group: Martha Funabashi, Isabelle Pagé, Jon Adams



CARL mentor Jon presenting in Hong Kong in October 2018.

Ongoing CARL Research Projects (cont'd)

Title: Practices of female and male chiropractors in Australia: secondary data analysis. Status: pooling data

Lead: Michelle Holmes

Working group: Diana De Carvalho, Isabelle Pagé, Martha Funabashi, Katie Pohlman, Katie De Luca, Craig Moore, Jon Adams

Title: Chiropractic student identity: a global secondary data analysis. Status: pooling data.

Lead: Michelle Holmes

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

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 and the errors associated with soft tissue displacement when measuring spine kinematics.

Lead: Alex Breen

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

Title: Does psychological profile, pain intensity and self-rated health modify the association between expectations and the short-term subjective improvement in patients with low back pain? An explorative study using data from a longitudinal multi-center trial. Status: manuscript under review at the European Journal of Spine

Lead: Andreas Eklund

Working group: Diana De Carvalho, Isabelle Pagé, Arnold Wong, Melker Johansson, Katie Pohlman, Jan Hartvigsen, Michael Swain.

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, Katie Pohlman, Melker Johansson

Title: Systematic Review and Meta-Analysis investigating the relationship between objectively measured sitting time and low back pain in adults. Status: All phases of this project are complete and the final draft manuscript is in preparation. This paper has been accepted for a podium presentation at WFC Berlin.

Lead: Diana De Carvalho

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

Title: What's behind the development of Transient Sitting-Induced Back Pain in Healthy Participants? Status: Manuscript in preparation.

Lead: Diana De Carvalho

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

Title: Center of rotation location during lumbar spine movements: a scoping review. Status: protocol finalized, protocol manuscript in preparation. Search strategy being finalized.

Lead: Martha Funabashi

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

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

Lead: Martha Funabashi

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

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

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.

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.



CARL Fellows Isabelle and Katie Pohlman and CARL mentor Greg meeting in Edmonton, AB, Canada in December 2018.

Ongoing CARL Leadership Projects

Convener of the Australian Chiropractors Association national conference research symposium, Tasmania, Australia, October 2018.

Led by: Craig Moore

The vice president of the Hong Kong Association for Dance Medicine and Sciences

Led by: Arnold Wong

Appointed as Macquarie University's Early Career Researcher Network Advisory Board as one of two representatives from the Faculty of Science and Engineering.

Led by: Michael Swain

Voted new member of the Society for Low Back Pain's

Led by: Alex Breen

Leader of the course "Work related Rehabilitation" part of the Master program "Work and health" at Karolinska Institutet, Stockholm, Sweden.

Led by: Andreas Eklund

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:

Presented CARL program in Norway 21st -22nd of August (ELIB conference) and facilitated a "CARL style" workshop: Andreas Eklund

Presented the results from the Nordic Maintenance Care program at IFEC in Toulouse and Paris 18th -19th of October: Andreas Eklund

Podcast Interviews:

Craig Moore: BACKchat PODCAST interview.

Katie De Luca: Chiropractic Science podcast interview

Martha Funabashi: CCGI Podcast interview

New editorial board positions:

Martha Funabashi: Chiropractic and Manual Therapies

Diana De Carvalho: Chiropractic and Manual Therapies

Student supervision:

Katie De Luca: 2 Masters of Research students accepted for Year 1 Mres program

Martha Funabashi: 1 Clinical Sciences resident

Committee membership:

Katie de Luca: Macquarie University, Department of Chiropractic Research Committee

Matt Fernandez: Macquarie University, Department of Chiropractic Research Committee

Diana De Carvalho: Faculty of Medicine Destination Excellence Strategic Plan Implementation, Wellness project

Diana De Carvalho: Conference Planning Committee Member, 50th Annual Conference of the Association of Canadian Ergonomists

Women in Chiropractic Research Mentorship Group

Our group held an informal working lunch on April 27, 2018 at the CCANT 2018 meeting in Calgary, Canada. This session was attended by 18 people, with a fairly equal gender balance (by intention). The purpose of the session was to scope the needs and issues faced by women in chiropractic research and to generate ideas for an initiative to address change going forward. Key messages distilled include: that there is a need for more support of women at various stages of their research careers; the identification that these issues and needs are not mutually exclusive from those faced by men, and that men need to champion these ideals going forward. Following this, our group was connected to Dr. Jane Latimer, a thought leader in this area, through Michael Swain. We had a very helpful conference call in May 2018 to provide further direction. Currently our group is developing a new name and 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

CARL Fellows - Individual Publications since July 2018

- Jenkins HJ, Downie AS, Moore CS, French SD. Current evidence for spinal X-ray use in the chiropractic profession: a narrative review. *Chiropr Man Therap*. 2018;26:48.
- Pagé I, Nougrou F, Lardon A, Descarreaux M. (2018) Changes in spinal stiffness with chronic thoracic pain: Correlation with pain and muscle activity. *PLOS ONE*.13(12):e0208790.
- Pagé I, Biner É, Descarreaux M. (accepted) Vertebral displacement and muscle activity during manual therapy: distinct behaviors between spinal manipulation and mobilization. *Journal of Manipulative and Physiological Therapeutics*
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Upcoming Events

ACC-RAC, March 14-16, 2019, Baltimore, USA

EPIC2019: Global Opportunities in Spine Care, 15th WFC Biennial Congress/78th ECU Convention, Maritim Hotel, Berlin, Germany, March 20-23, 2019.

Integrative Therapies for Headache and Migraine conference, Sydney, Australia, March 2019

14th International Society On Scoliosis Orthopaedic and Rehabilitation Treatment Meeting, San Francisco, USA, April 25-27, 2019

Osteoarthritis Research Society International 2019 World Congress, Toronto, Canada, May 2-5 2019.

The International Society for the Study of the Lumbar Spine, Kyoto, Japan, June 3-7, 2019

3rd International Workshop on Spine Loading and Deformation- Julius Wolff Institute, Charité – Universitätsmedizin, Berlin, Germany, July 04-06, 2019.

XVIth International Forum on Back and Neck Pain Research in Primary Care, Quebec City, CA, July 3-6, 2019 - Abstract Submission Due: March 26, 2019

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

International Conference on Ambulatory Monitoring of Physical Activity and Movement (ICAMPAM), Maastricht, Netherlands, June 26-28, 2019. Abstract submission deadline: January 26 2019

50th Annual Conference of the Association of Canadian Ergonomists (ACE), Delta St. John's Hotel and Conference Centre, St. John's, NL, August 12-15, 2019. Abstract deadline is February 22, 2019



CARL Fellows Katie de Luca and Mike Swain presenting at Parker Seminars in Dallas, TX, USA in October 2018