

CURRICULUM VITAE

NAME: Heidi Haavik

PREVIOUS NAME: Heidi Haavik Taylor



CAREER STATEMENT:

I am a chiropractor (New Zealand College of Chiropractic 1999) who has also has gained a PhD in human neurophysiology (University of Auckland 2008). I have been the Director of Research at the New Zealand College of Chiropractic since 2006. At the College I am part of the leadership team where I take part in the strategic plan development and implementation. I also run the Centre for Chiropractic Research at the College, which is internationally renowned for the research programme I have developed and conducted. I have been an integral part of designing, developing, coordinating and teaching multiple courses within the curriculum at the College. Knowledge translation is also passion of mine, and I have author a book called 'The Reality Check: A quest to Understand Chiropractic from the inside out' (www.heidihaavik.com). This book describes in easy to understand language what happens in the brain when a chiropractor adjusts dysfunctional segments in the spine. I am also the director of a company called Haavik Research Ltd which is aimed at practicing clinicians to become better consumers of the relevant scientific literature. I held an Adjunct Professor position at the University of Ontario, Institute of Technology in Oshawa, Canada from 2017-2019 and was on the Research Council for the World Federation of Chiropractic for ten years (2009-2018). I maintain many strong collaborative relationships with multiple scientists in the fields of neurophysiology, bioengineering, and spinal pain. I have received numerous research awards and has published a number of papers in chiropractic and neurophysiology journals and I have presented my work to both chiropractic and neuroscience communities around Australasia, Africa, North America and Europe. I have become one of the most sought after speakers within the chiropractic profession. I am on the Editorial Board of the Journal of Manipulative and Physiological Therapeutics and Journal of Chiropractic Education and am a Review Editor in Movement Science and Sport Psychology for Frontiers in Psychology and Sports Science. I was named Chiropractor of the year in 2007 by both the New Zealand Chiropractic Association and the New Zealand College of Chiropractic Alumni Association. I am highly motivated and have a strong inner drive and passion for my work. I have a natural ability to lead and work well independently and in group settings.

CURRENT POSITIONS:

Director of Research, New Zealand College of Chiropractic, 6 Harrison Road, Mt Wellington, Auckland, New Zealand since 2006.

Director of Haavik Research Limited since 2014.

Part-time Chiropractic practice at Haavik Research, Browns Bay, Auckland, New Zealand since 1999.

PREVIOUS POSITIONS HELD:

- 2017-2019** Adjunct Professor, Master of Health Sciences Program, University of Ontario Institute of Technology, Ontario, Canada.
- 2009 – 2018** World Federation of Chiropractic Research Council Member
- 2007 – 2012** Head of Neuroscience Department, New Zealand College of Chiropractic
- 2011- 2013** Associate Graduate Faculty Member, Master of Health Sciences Program, University of Ontario Institute of Technology, Ontario, Canada.
-

EDUCATIONAL QUALIFICATIONS:

- 2017** Auckland University of Technology, Certificate in Adult Education
- 2008** University of Auckland PhD
- 2003** University of Auckland, PG Dip (Science) (A+ grade average)
- 2000** New Zealand School of Chiropractic, BSc (Chiropractic)
- 1999** University of Auckland, BSc, Physiology and Psychology
-

SIGNIFICANT DISTINCTIONS / AWARDS

- 2020** Stuart Rynsberger award for Outstanding Service to the Profession from the United Chiropractic Association, United Kingdom.
- 2019** Chiropractic Innovation Award from MaxLiving in USA
- 2018** Chiropractic Advocate Award from the Michigan Association of Chiropractors, Traverse City, Michigan, USA
- 2016** First place award winning paper at The Parker Experience Seminar in Las Vegas, USA.
- 2015** Scott Haldeman Research Award (prize money of USD \$12,000): Award winning paper at the at the World Federation of Chiropractic's 13th Biennial Congress in Athens, Greece.
- 2013** Research Poster Award at the World Federation of Chiropractic's 12th Biennial Congress in Durban, South Africa.
- 2011** Research Poster Award at the World Federation of Chiropractic's 11th Biennial Congress in Rio de Janeiro, Brazil.
- 2010** Award winning paper at the Association of Chiropractic Colleges Research Agenda Conference, Las Vegas, USA.
- 2009** First, second and third prize award winning papers at the Chiropractors' Association of Australia Scientific Symposium, Melbourne, Australia, 22nd November.
- Two award winning papers at the Association of Chiropractic Colleges Research Agenda Conference, Las Vegas, USA.
- Research Poster Award at the World Federation of Chiropractic's 10th Biennial Congress in Montreal, Canada.
- 2009 - present Editorial board member of Journal of Manipulative and Physiological Therapeutics

2008	First Prize Award winning paper Basic Science Category at the Association of Chiropractic Colleges Research Agenda Conference, Washington DC, USA.
	Award in recognition of outstanding contribution to the chiropractic literature during 2007, awarded by the Editorial Board of the Chiropractic Journal of Australia.
2008	New Zealand College of Chiropractic Alumni Association Chiropractor of the Year
	New Zealand Chiropractor's Association Chiropractor of the Year
2007	Original Research Award (3 rd Prize). World Federation of Chiropractic's 9th Biennial Congress in Vilamoura, Portugal.
	2007 – present Editorial board member for Journal of Chiropractic Education
2003 – 2006	Top Achievers Doctoral Scholarship from the New Zealand Tertiary Education Commission.
2003	University of Auckland Doctoral Scholarship.
2002 – 2003	Foundation for Chiropractic Education and Research Fellowship.
2000 – 2001	Department of Sport & Exercise Science-University of Auckland Summer Research scholarship.

GRANTS:

Year/Amount	Project title	From	Principal or Co-Investigator
2020			
USD 160,000	The impact of chiropractic care on spinal motor control during standing, locomotion, and in response to an external perturbation.	NCMIC	PI
A\$ 19,535.00	Does specificity matter when chiropractors adjust vertebral subluxations?	Australian Spinal Research Foundation	PI
2019			
USD 100,000 GB £ 70,000	Chiropractic care for kids and babies Characterising brain and muscle activation and metabolic activity changes, along with markers of mental and physical health and quality of life, following chiropractic care provided by a master chiropractor.	EPIC chiropractic Andrew Russell (the Duke of Bedford) and Dr Jerome Poupel, UK	PI PI
USD 95,000	Impact of chiropractic care on visuomotor coordination and sensorimotor integration in a subclinical neck pain population	NCMIC	CI
USD 50,000	Understanding spinal motor control during standing, locomotion and in response to an external perturbation	NCMIC	PI
€ 45,000	Understanding spinal motor control	French	PI

	during standing, locomotion and in response to an external perturbation	Government	
AUD 50,000	Chiropractic Care for Kids	The Kids Summit	PI
2018			
NZ \$20,000	The effects of a chiropractic care on functional outcomes, somatosensory processing and motor control in patients who have suffered from a stroke. A pilot study.	The Rubicon Group	PI
2017			
AU \$19,911	Grant application to fund master's project as co-principal investigator: The accuracy, reliability, and validity of the sacral leg check.	Australian Spinal Research Foundation	CI
2016			
NZ \$56,532.94	The effects of a chiropractic care on functional outcomes somatosensory processing and motor control in patients who have suffered from a stroke. A pilot study.	United Chiropractic Association	PI
NZ \$22,460.50	Grant application to fund master's project for: Dr Alice Cade. Project title: Chiropractic care and the control of eye movement in children with attention deficit hyperactivity disorder: A pilot study. Dr Aisha Strand: Project title: Can chiropractic adjustments change multisensory integration and sensorimotor integration in children with autism? A feasibility study. Jenna Salmons: Project Title: Chiropractic care and motor control in children with cerebral palsy.	Kids Summit	CI
NZ \$20,000	The effects of a chiropractic care on functional outcomes somatosensory processing and motor control in patients who have suffered from a stroke. A pilot study.	The Rubicon Group	PI
NZ\$ 4276	The effects of a chiropractic care on functional outcomes somatosensory processing and motor control in patients who have suffered from a stroke. A pilot study.	Scottish Chiropractic Association	PI
NZ \$4121	The effects of a chiropractic care on functional outcomes somatosensory processing and motor control in patients who have suffered from a stroke. A pilot study.	Hasla Care	PI

2015

AUD \$19,600	Grant application to fund master's project for Dr Alice Cade. Project title: Chiropractic care and the control of eye movement in children with attention deficit hyperactivity disorder: A pilot study.	Australian Spinal Research Foundation	CI
NZ \$30,000	Grant application to fund research Brain source localisation Project Collaboration AAL & NZCC	Hamblin Chiropractic Research Trust	PI
NZ \$58,000	1) Chiropractic care and the control of eye movement in children with attention deficit hyperactivity disorder: A pilot study. (Dr Alice Cade MSc) 2) Can chiropractic adjustments change multisensory integration and sensorimotor integration in children with autism? A feasibility study (Dr Aisha Strand MSc) 3) Chiropractic care and motor control in children with cerebral palsy; A feasibility study (Jenna Salmons MSc)	The Kids Summit	CI
NZ \$33,725	The effects of a single session of chiropractic care on power, strength and cortical drive in athletes	University of Southern Denmark	CI

2014

NZ \$,6251	Chiropractic care and the control of eye movement in children with attention deficit hyperactivity disorder: A pilot study.	College of Chiropractic Neuro-developmental Paediatrics	CI
NZ \$6,251	Can chiropractic adjustments change multisensory integration and sensorimotor integration in children with autism? A feasibility study.	College of Chiropractic Neuro-developmental Paediatrics	CI
NZ \$67,800	The effects of chiropractic care on pelvic floor muscle function.	Australian Spinal Research Foundation	PI
NZ \$30,000	The effects of a single session of chiropractic care on brain source connectivity	Hamblin Chiropractic Research Fund Trust	PI

2012

NZ \$44,500	Chiropractic care and the cortical silent period	Australian Spinal Research Foundation	PI
NZ \$15,000	Chiropractic care and the cortical silent period	Hamblin Chiropractic Research Fund Trust	PI
2010			
AU \$36,300	The effect of chiropractic care on synchronised pelvic floor muscle contraction	Australian Spinal Research Foundation	PI
AU \$79,926	The effect of chiropractic care on cerebellar function	Australian Spinal Research Foundation	PI
AU \$36,200	Randomised Controlled Trial of the Effects of Sixteen Weeks of Chiropractic Care on Objective Markers of Sensorimotor Function in Older People	Australian Spinal Research Foundation	CI
NZ \$7,500	The effects of cervical adjustments on motor cortical drive to the elbow flexors	Hamblin Chiropractic Research Fund Trust	PI
2009			
AU \$23,886.50	Do Chiropractic Spinal Adjustments Modulate Brain Derived Neurotrophic Factor Levels in the Brain – A Study in the Rodent* Returned May 12	Australian Spinal Research Foundation	CI
NZ \$11,721.35	The effects of a single session of cervical adjustments on stimulus-response curves in two upper limb muscles.	Hamblin Chiropractic Research Fund Trust	PI
NZ \$20,000	The effects of lumbopelvic adjustments on the function of the pelvic floor muscles	Australian Spinal Research Foundation	PI
2008			
AU \$39,315	The effect of chiropractic care on objective markers of sensorimotor integration and falls in the elderly	Australian Spinal Research Foundation	CI
AU \$45,550	The effect of Chiropractic care on central somatosensory processing and sensorimotor integration utilizing the dual peripheral nerve stimulation somatosensory evoked potential technique.	Australian Spinal Research Foundation	PI
2007			
NZ \$25,600	The effect of spinal adjustments on the accuracy of joint position sense	Australian Spinal Research Foundation	PI
NZ \$7,000	The effects of a lumbopelvic adjustment on heart rate variability:	Hamblin Chiropractic	PI

PROFESSIONAL SOCIETIES / SERVICES / OTHER

Editorial Review Board Membership

- **2020 - present** Editorial Board member for the section for 'Applied Biosciences and Bioengineering' in the Journal "Applied Sciences" (IF 2.217)
- **2019 - present** Editorial Board member of Chiropractic Journal of Australia (IF 0.21)
- **2017 - present** Review Editor in Movement Science and Sport Psychology for Frontiers in Psychology (IF 2.129 in 2018)
- **2010 - present** Editorial Board member of the Journal of Chiropractic Education (IF 0.32 in 2018)
- **2008 - present** Editorial Board member of the Journal of Manipulative and Physiological Therapeutics (IF 1.592 in 2016)

Service

2021

- Article referee for "PAIN" (IF: 6.029) Jan 2021

2020

- Article referee for "Frontiers Human Neuroscience" (IF: 3.209) Dec 2020
- Article referee for "Journal of Manipulative and Physiological Therapeutics" Nov 2020
- Article referee for "PLOS ONE" (IF: 2.87) August 2020
- Article referee for "Journal of Manipulative and Physiological Therapeutics" May 2020
- Article referee for "Journal of Manipulative and Physiological Therapeutics" Jan 2020

2019

- Article referee for "PLOS ONE" (IF: 2.87) March 2019
- Article referee for "Journal of Pain Research" (IF: 2.236) October 2019
- Article referee for "Journal of Manipulative and Physiological Therapeutics" Sept 2019
- Article referee for "Journal of Manipulative and Physiological Therapeutics" Feb 2019

2018

- Article referee for "Frontiers in Psychology, section Movement Science and Sport Psychology" September 2018
- Article referee for "Journal of Pain Research (IF: 2.645)" September 2018
- Article referee for "Frontiers in Psychology, section Movement Science and Sport Psychology" August 2018
- Article referee for 'BMC Neurology' June 2018
- Article referee for "Brain Sciences" April 2018
- Article referee for "Journal of Pain Research" March 2018
- Article referee for "Brain Sciences" March 2018

2017

- Article referee for "Journal of Bodywork and Movement Therapies" December 2017
- Article referee for "Frontiers in Psychology, section Movement Science and Sport Psychology" October 2017
- Article referee for "Journal of Manipulative and Physiological Therapeutics" Sept 2017
- Article referee for "Journal of Manipulative and Physiological Therapeutics" July 2017
- Article referee for "Frontiers in Psychology, section Movement Science and Sport Psychology" June 2017

- Article referee for “Journal of Manipulative and Physiological Therapeutics” June 2017
- Article referee for the “Journal of Chiropractic Medicine” May 2017
- Article referee for the “Journal of Bodywork and Movement Therapies” January 2017

2016

- Article referee for the “Journal of Advanced Research” November 2016
- Article referee for “Frontiers in Human Neuroscience” October 2016
- Article referee for the “Journal of Manipulative and Physiological Therapeutics” Oct 2016
- Article referee for the “Journal of Advanced Research Journal” September 2016
- Article referee for “Journal of Manipulative and Physiological Therapeutics” July 2016
- Moderator at the Association of Chiropractic Colleges Research Agenda Conference in Orlando, USA March 2016
- Article referee for the journal “Pain”, February 2016
- Peer reviewer and judge for the Parker Experience scientific session in Las Vegas, USA January 2016

2015

- Article referee for “Chiropractic Journal of Australia”, November 2015
- Review editor for “Movement Science and Sport Psychology” of the journal “Frontiers in Psychology and Sport Science”, October 2015
- Article referee for “Journal of Manipulative and Physiological Therapeutics” April 2015
- Editorial board member of the “Chiropractic Journal of Australia”, April 2015
- Article referee of 13 papers for WFC conference Research Congress Awards Competition 2015
- Moderator for basic science research session at the Association of Chiropractic Colleges Research Agenda Conference in Las Vegas, USA March 2015
- Article referee for “Scientific Reports” March 2015
- Article referee for “Experimental Brain Research” February 2015
- Article referee for “Neuroscience Letters” February 2015
- Article referee for “Neuroscience Letters” January 2015

2014

- Article referee and Grader of over 200 papers as WFC Research Council Member for WFC conference 2014
- Grant review for ‘Canada Foundation for Innovation’ December 2014
- Article referee for “Clinical Biomechanics” November 2014
- Article referee for “Neuroscience Letters” November 2014
- PhD thesis external examiner for University of Ontario Institute of Technology, Canada, July 2014
- Article referee for “Journal of Chiropractic Education” May 2014
- MSc thesis external examiner for Unitec, Auckland, New Zealand, May 2014

2013

- Article referee for “Journal of Chiropractic Education” October 2013
- Article referee for “Clinical Interventions in Aging” September 2013
- Article referee for “Journal of Manipulative and Physiological Therapeutics” May 2013
- External Examiner for the University of Wales validated MSc in Chiropractic (Paediatrics) at McTimoney College of Chiropractic 2013 - present
- Article referee for “Journal of Pain Research” April 2013
- World Federation of Chiropractic (WFC) Scientific Reviewer for research awards for the 12th Biennial WFC Congress in Durban, South Africa 2013

- Moderator for original research session at the 12th Biennial World Federation of Chiropractic Congress in Durban, South Africa 2013

2012

- Article referee for “Medical Engineering & Physics” June 2012
- University of Ontario Institute of Technology, Canada, MSc Thesis External Reviewer 2012
- Article referee for “Journal of Manipulative and Physiological Therapeutics” June 2012
- Article referee for “Journal of Chiropractic Education” May 2012
- Article referee for “Experimental Brain Research” April 2012
- Article referee for “Journal of Manipulative and Physiological Therapeutics” April 2012
- Moderator for original research session at the Association of Chiropractic Colleges Research Agenda Conference, March 2012

2011

- Article referee for “Medical Engineering & Physics” November 2011
- Article referee for “Journal of Chiropractic Education” April 2011
- Article referee for “Journal of Manipulative and Physiological Therapeutics” April 2011

2010

- Norwegian Chiropractors' Association's 75th Anniversary International Conference & Research Symposium Research Committee Member 2010
- University of Auckland MSc Thesis External Reviewer 2010
- Article referee for “Journal of Chiropractic Education” May 2010
- Article referee for “Chiropractic & Osteopathy” May 2010
- Association of Chiropractic Colleges Research Agenda Conference Manuscript Reviewer 2010

2009

- Article referee for “BMC Musculoskeletal Disorders” December 2009
- Article referee for “Chiropractic & Osteopathy” November 2009
- Article referee for “Journal of Manipulative and Physiological Therapeutics” May and April 2009

1999-2008

- Article referee for “Journal of Chiropractic Education” July 2008
- Article referee for “Journal of Manipulative and Physiological Therapeutics” March, April and August 2008
- New Zealand College of Chiropractic Research Committee Chair 2007 - present

Professional Memberships

- Society for Neuroscience 2006 - present
- Australian Neuroscience Society 2007 – present
- International Society for Applied Kinesiology 2000 - 2010
- New Zealand Chiropractors' Association member 1999 – present
- New Zealand College of Chiropractic Alumni member 1999 – present
- New Zealand Registered Chiropractor 1999-present

PROFESSIONAL SPECIALTIES / CAREER

- Mother of two children, aged 22 and 19.
 - Language experience: fluent in English and Norwegian and comprehensive understanding of Danish and Swedish.
 - Part-time clinical practice; Calder Chiropractic Clinic, Browns Bay, Auckland (1999 - 2009), and Haavik Chiropractic, Browns Bay, Auckland (2009 - present).
 - Chiropractic technique specialization includes: Applied Kinesiology, Sacro-Occipital-Technique, Neuro-Emotional-Technique, Neuro-Organisational Technique and Acupuncture.
 - Honorary Research Fellow Department of Sport and Exercise Science-University of Auckland (2007 – 2008).
-

TEACHING (at the New Zealand College of Chiropractic):

Undergraduate Level

2012- present **Lecturer for Evidence Based Chiropractic Course, and Guest Lecture in Neuroscience courses and Professional Practice Courses**

The aim of these lectures is to teach the research results obtained at the Centre for Chiropractic Research to the Chiropractic students at the College across a variety of courses, to translate this evidence, discuss its strengths and weaknesses and to compare these findings with current neuroscience research and understanding.

2006 - 2011 **Co-ordinated, developed and taught two Research Methodology courses**

The aim of these two courses is to develop chiropractors that are competent consumers of the research literature and to develop their critical evaluation skills. The courses use a combination of didactic classroom lecturing, and case-based lab tutorials. These courses have received good student evaluations the past few years.

2007 - 2011 **Co-ordinated, developed and taught three Neuroscience courses**

These courses cover neuroanatomy, neuroembryology and neurophysiology at NZQA Level 6 and 7. The courses have both a lab and lecture component. These courses have received top student evaluations. Current research regarding the neurophysiological effects of chiropractic care are incorporated, evaluated and discussed within these courses.

2008 - 2011 **Co-ordinated Visceral Physiology course**

This course covers the gross anatomy of the cardiovascular, respiratory and renal systems; Respiratory physiology including lung mechanics, gas transfer and transport, and respiratory regulation; Cardiovascular physiology including heart mechanics and excitation, and vascular system, regulation; and Renal physiology including kidney function, water and electrolyte balance, and pH regulation. The course has both a lab and lecture component. 2008 and 2009 student feedback on lecturing was not good. A new lecturer took over the lecturing in 2010 which resulted in improved student feedback.

Previous teaching experience

2001: Part time teaching physical examination (orthopaedic and neurological) and clinic preparation classes at the New Zealand College of Chiropractic.

1995-1999: While completing my Chiropractic studies, I worked as a teacher at Norwegian primary and secondary schools during NZCC summer breaks.

Post-graduate Research supervision, Theses and Dissertations

2020

PhD Co-supervisor for Muhammad Samran Navid. (2020) Effects of chiropractic spinal manipulation on brain activity. Department of Clinical Medicine, Aalborg University, Denmark. Successfully defended September 2020

2019

MSc Examiner for Aimee Paige McNally's Master's dissertation "The effect of a unilateral sacroiliac joint adjustment on muscle activity and force output in the posterior oblique sling muscles" from Faculty of Health Sciences, Durban University of Technology, Durban, South Africa.

2018

MSc Co-supervisor for 2 Bioengineering MSc students (Cecilie Sophie Rosenkrantz Topp & Nikoline Suhr Kristensen) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled "Examining the Impact of Specific versus Non-Specific High-Velocity, Low-Amplitude Spinal Manipulation on Somatosensory Evoked Potentials in Chiropractic Care". Successfully defended 2019

MSc Co-supervisor for 3 Bioengineering MSc students (Sofie Helene Bjørnsrud Jensen, Cecilia K. Jørgensen, Camilla Winther Nielsen) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled "Machine Learning can yield Additional Information when using Nonparametric Statistics to Investigate the Effect of Chiropractic Spinal Manipulation on Resting state EEG in Stroke Patients". Successfully defended 2019

MSc Co-supervisor for Bioengineering MSc student Toby Steven Waterstone from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled "The Effect of Spinal Manipulation on Normalized Mutual Information in the Tibialis Anterior Muscle". Successfully defended 2019

PhD Co-supervisor for Amjad, Imran. (2018) Effects of exercise on electroencephalogram parameters and cognitive functions in mild cognitive impairment patients. National University of Sciences and Technology, Islamabad Pakistan

MSc Co-supervisor for Salmons, J. (2018) The effects of Chiropractic spinal manipulation on the H reflex and muscle strength in children with spastic diplegic cerebral palsy: A feasibility study Auckland University of Technology, Auckland

2017

MSc Co-supervisor for Cade, A. (2017) Chiropractic Intervention and the control of eye movement in children with Attention Deficit Disorder: A pilot study. Auckland University of Technology, Auckland

2016-2018

2016 Co-Supervisor for one Health Science MSc student (Aisha Strand) from Auckland University of Technology, Auckland, currently in process for the project titled "Can chiropractic adjustments change multisensory integration and sensorimotor integration in children with autism? A feasibility study"

- 2016 C-Supervisor for one Health Science MSc student (Jenna Salmons) from Auckland University of Technology, Auckland, currently in process for the project titled “Chiropractic care and motor control in children with cerebral palsy”. Successfully defended 2018. A grade.
- 2016 Co-Supervisor for one Health Science MSc student (Alice Cade) from Auckland University of Technology, Auckland, currently in process for the project titled “Chiropractic care and the control of eye movement in children with attention deficit hyperactivity disorder: A pilot study”. Successfully defended 2018. A grade.
- 2016 Co-Supervisor for one Bioengineering PhD student (Thomas Momme Christensen) from Biomedical Engineering & Science, Auckland University of Technology, Auckland, currently in process for the project titled “Analysis of movement related cortical potentials during human locomotion and evaluation of their potential for driving a brain-computer interface rehabilitation protocol”. Successfully defended 2017
- 2016 Co-Supervisor for one bioengineering PhD student (Muhammad Samran Navid) from The Doctoral School of Medicine Biomedical Science and Technology, Aalborg University, Denmark for one semester for project titled “The Effects of Chiropractic Care on Brain Activity”
- 2016 Co-Supervisor for three Bioengineering MSc students (Anne Krogh Nøhr, Bolette Dybkjær Hansen, Louise Pedersen Pilgaard) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “Automatic method to measure cervical intervertebral kinematics”. Successfully defended 2017
- 2016 Co-Supervisor for four Bioengineering MSc students (Mark Hummeluhr Christensen, Mathias Brønd Sørensen, Rune Kongsgaard Sørensen, Albert Cid Royo) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “The effects of chiropractic skill level on neurophysiological markers”. Successfully defended 2017
- 2015**
- 2015-2016 Co-Supervisor for one Bioengineering MSc student (Vivian Schlup) from Hamburg University for Applied Sciences, Germany for 9 months for project titled “The effects of six weeks of chiropractic care on the H-reflex”. Successfully defended 2016
- 2014**
- 2014 Co-Supervisor of two Bioengineering MSc students (Astrid Clausen Nørgaard and Karina Faber Østergaard Pedersen) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “The Effect of Chiropractic Care on Upper Limb Force Production, Fatigue, and Proprioception”.
- 2014 Co-Supervisor of three Bioengineering MSc students (Andreas Egmose, Mads Nibe Stausholm and Thomas Momme Christensen) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “Investigating the effects of electrical stimulation modalities paired with cortical potentials generated by motor imagination and motor execution”.
- 2014 Co-Supervisor of two Bioengineering MSc students (Mette Vandborg Lauridsen and Marianne Enggaard) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “The Motor Control of The

Pelvic floor in Women with Non-synchronised Pelvic Floor Muscle Contractions after a Spinal Adjustment using High Density Surface EMG”.

2013-2011

- 2013 Co-Supervisor for Bioengineering MSc student (Rasmus Wiberg Nedergaard) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “Inducing long-term potentiation with motor imagining and peripheral electrical stimulation”.
- 2011 Co-Supervisor of two Bioengineering MSc students (Mads Jochumsen and Asger Aagaard Jensen) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “Inducing plasticity in the human central nervous system by using a brain-computer interface and spinal manipulation”.
- 2011 Co-Supervisor of another two Bioengineering MSc students (Marko Niemeier and Thien Duy Van) from Department of Health Science and Technology, Aalborg University, Denmark for one semester for project titled “The effect of spinal manipulation on the morphology of movement-related cortical potentials”.
- 2009 - 2014** PhD co-supervisor for Kelly Holt “Effectiveness of Chiropractic Care in Improving Sensorimotor Function Associated with Falls Risk in Older People” University of Auckland, Auckland, New Zealand. Thesis submitted September 2013; defended successfully March 2014.

RESEARCH STATEMENT

My research interest lies in exploring how the human central nervous system adapts to its ever-changing environment, a process known as neural plasticity. I am fascinated by how the brain processes all external (exteroception) and internal (interoception) sensory signals, integrates these and in turn from this creates its own inner brain reality about what is going on, both inside the body and the world around it. I am particularly interested in understanding how the spine influences this inner brain reality and how this in turn translates into dysfunction, pain and other symptoms – and how chiropractic care can restore spinal movement function, and how this can not only improve spinal motor control, but also how this can improve central neural function in other ways. In order to measure altered neural function in humans, I have acquired skills in a number of non-invasive techniques which can be used to measure changes in neural processing and function in humans. This includes transcutaneous peripheral nerve stimulation, somatosensory evoked potential technique which is an electroencephalography method to measure processing and integration of sensory input by the brain, electromyography to measure electrical activity in muscles, and transcranial magnetic brain stimulation, which is a technique used to investigate alterations in the output of the human motor cortex. I have utilised these techniques to investigate alterations in somatosensory processing, sensorimotor integration and motor cortical output that may accompany mild spinal dysfunction (what chiropractors call vertebral subluxations). I have also used these skills to explore the mechanism of spinal manipulation of such dysfunctional spinal segments (what chiropractors call adjustments). My current line of research continues to explore these central neural effects of spinal dysfunction and chiropractic care and its impact on human function and quality of life, answering both basic science (mechanisms) questions as well as clinical outcomes. My research has led to a new understanding about the role that spinal dysfunction plays in the brain's ability to accurately perceive what is going on inside and outside of the body (ie. Affecting both interoception and exteroception). My research has also led to a new understanding about the mechanisms of spinal manipulation, demonstrating a clear neuroplastic effect. I am interested in understanding how the human

central nervous system adapts to stress and trauma the point of developing symptoms such as chronic musculoskeletal pain (amongst others). And I am interested in understanding how chiropractic techniques can improve these maladaptive central neural changes and result in improved health and function. My research has both basic science and clinical applications. On the basic science side I am interested in understanding how altering afferent input from both trunk and limb muscles affects sensorimotor integration and motor control. Sensorimotor integration is the ability of the central nervous system to integrate incoming information from different body parts and formulate appropriate motor outputs to muscles. Effective sensorimotor integration is essential when learning new skills and when performing tasks at home and in the workplace, as well as recovery from injuries such as stroke. Impaired sensorimotor integration may partially explain why pain becomes chronic and why workers frequently injure themselves in jobs with a high level of repetitive activity and/or postural stress. My work explores the basic science of the interaction between afferent input from the spine and limbs and will contribute to a solid science foundation that underpins motor learning and performance enhancement as well playing a role in injury prevention as well as recovery from injuries. On the clinical side my work aids in the understanding regarding the mechanisms why chiropractic actually works. By gaining a better understanding of the brain changes that take place with even mild spinal dysfunction right the way through to chronic musculoskeletal spinal pain effects and the impact of spinal manipulation (and other manual therapy techniques) on these populations I hope to help identify objective markers to better subgroup pain populations and better understand how mild dysfunction can for some become a chronic problem. I also hope to understand the role that chiropractic care plays in prevention and the rehabilitation of such conditions.

RESEARCH PUBLICATIONS (BOOKS OR BOOK CHAPTER).

Haavik H. (2021) The Contemporary Understanding of the Chiropractic Subluxation. Chapter 4 In: Anrig CA, Plaughter G, eds. Pediatric chiropractic: Wolters Kluwer/Lippincott Williams & Wilkins Health.

Haavik H. (2014) The Reality Check: A quest to understand chiropractic from the inside out. Haavik Research Ltd, Auckland, New Zealand

RESEARCH PUBLICATIONS (MANUSCRIPTS).

2021

66 Alice Cade; Kelly Holt; Kelly Jones; Moiz Penkar & **Heidi Haavik** (2021) The effects of spinal manipulation on oculomotor control in children with Attention Deficit Hyperactivity Disorder: A pilot and feasibility study. *Brain Sciences*. 11, 1047. <https://doi.org/10.3390/brainsci11081047>

65 **Heidi Haavik.** (2021) Comment About Extrapolating Beyond the Data. *Journal of Manipulative & Physiological Therapeutics* (2021).

64 **Heidi Haavik**, Nitika Kumari, Kelly Holt, Imran Khan Niazi, Imran Amjad, Amit N. Pujari, Kemal Sitki Türker, Bernadette Murphy. (2021) The contemporary model of vertebral column joint dysfunction and impact of high-velocity, low-amplitude controlled vertebral thrusts on neuromuscular function" Invited Review. *European Journal of Applied Physiology*. <https://doi.org/10.1007/s00421-021-04727-z>

63 **Heidi Haavik**, Imran Khan Niazi, Nitika Kumari, Imran Amjad, Jenna Duehr, Kelly Holt. (2021) Chiropractic care and the neuroimmune response: A narrative review. *Medicina* 2021, 57, 536. <https://doi.org/10.3390/medicina57060536>

62 Kelly Holt, Imran Khan Niazi, Imran Amjad, Nitika Kumari, Usman Rashid, Jens Duehr; Muhammad Samran Navid, Muhamamd Shafique, **Heidi Haavik**. (2021) The effects of 4 weeks of chiropractic care on motor function in chronic stroke: A randomized controlled trial. *Brain Sci.* 2021, 11, 676. <https://doi.org/10.3390/brainsci11060676>

2020

61 Lucien Robinault, Aleš Holobar, Sylvain Crémoux, Usman Rashid, Imran Khan Niazi, Kelly Holt, Jimmy Lauber & **Heidi Haavik**. The Effects of Spinal Manipulation on Motor Unit Behavior. *Brain Sciences: Special Issue: Mechanisms and Application of Clinical Neurophysiology: State of the Art.* 11(1), 105; <https://doi.org/10.3390/brainsci11010105>

60 Navid, M.S., Niazi, I.K., Lelic, D., Nedergaard, R.B., Holt, K., Amjad, I., Drewes, A.M., **Haavik, H.** (2020). Investigating the effects of chiropractic spinal manipulation on EEG in stroke patients. *Brain Sciences*, 10(5), 253. <https://www.mdpi.com/2076-3425/10/5/253>

59 Imran Khan Niazi, Ernest Nlandu Kamavuako, Kelly Holt, Taha Al Muhammadee Janjua, Nitika Kumari, Imran Amjad, **Heidi Haavik** (2020) The effect of spinal manipulation on the electrophysiological and metabolic properties of the tibialis anterior muscle. *Healthcare*. 2020, 8(4), 548; <https://doi.org/10.3390/healthcare8040548>

58 Amjad, I., I. K. Niazi, H. G. Toor, R. B. Nedergaard, M. Shafique, K. Holt, **H. Haavik** and T. Ahmed (2020). "Acute Effects of Aerobic Exercise on Somatosensory-Evoked Potentials in Patients with Mild Cognitive Impairment." *Brain Sciences* 10(10): 663; <https://doi.org/10.3390/brainsci10100663>

57 Toby Steven Waterstone, Imran Khan Niazi, Muhammad Samran Navid, Imran Amja, Muhammad Shafique, Kelly Holt, **Heidi Haavik** and Afshin Samani. Functional connectivity analysis on resting-state electroencephalography signals following chiropractic spinal manipulation in chronic stroke patients. *Brain Sciences*. 2020, 10, 644; <https://doi:10.3390/brainsci10090644>

56 Asim Waris, Muhammad Zia ur Rehman, Imran Khan Niazi, Mads Jochumsen, Kevin Englehart, Winnie Jensen, **Heidi Haavik**, Ernest Kamavuako. A Multiday Evaluation of Real-Time Intramuscular EMG Usability with ANN. *Sensors*. 2020; 20(12):3385.

2019

55 Kingett, M., Holt, K., Niazi, I. K., Nedergaard, R. W., Lee, M., & **Haavik, H.** (2019). Increased Voluntary Activation of the Elbow Flexors Following a Single Session of Spinal Manipulation in a Subclinical Neck Pain Population. *Brain sciences*, 9(6), 136.

54 Özyurt, Mustafa Görkem, **Heidi Haavik**, Rasmus Wiberg Nedergaard, Betilay Topkara, Beatrice Selen Şenocak, Mehmet Berke Göztepe, Imran Khan Niazi, and Kemal Sitki Türker. "Transcranial Magnetic Stimulation Induced Early Silent Period and Rebound Activity Re-Examined." *PloS one* 14, no. 12 (2019).

53 Mads Jochumsen, Muhammad S. Navid, Usman Rashid, **Heidi Haavik** and Imran K Niazi (2019) EMG- versus EEG-Triggered Electrical Stimulation for Inducing Corticospinal Plasticity. *Institute of Electrical and Electronics Engineers (IEEE)*

Transactions on Neural Systems and Rehabilitation Engineering (TNSRE). 27(9), 1901-1908.

- 52 Navid, Muhammad Samran; Niazi, Imran Khan; Lelic, Dina; Drewes, Asbjørn Mohr; **Haavik, Heidi**. (2019). The effects of filter's type, cutoff frequencies, and independent component analysis on the amplitude of somatosensory evoked potentials recorded from healthy volunteers. *Sensors*. 19(11), 2610.
- 51 Jochumsen, Mads; Navid, Muhammad Samran; Wiberg Nedergaard, Rasmus; Signal, Nada; Rashid, Usman; Hassan, Ali; **Haavik, Heidi**; Taylor, Denise; Niazi, Imran Khan. (2019). Self-paced online vs cue-based offline brain-computer interfaces for inducing neural plasticity. *Brain Sciences*. 2019;9(6):127.
- 50 Navid, M.S., Lelic, D., Holt, K., Mark, E.B., Drewes, A.N., **Haavik, H.** (2018) The Effects of Chiropractic Spinal Manipulation on Central Processing of Tonic Pain - a Pilot Study Using Standardized Low-Resolution Brain Electromagnetic Tomography (sLORETA). *Scientific Report*. 2019;9(1):6925.
- 49 Holt, K., Niazi, I.K., Nedergaard, R.W., Duehr, J., Amjad, I., Shafiq, M., Anwar, M.N., Ndetan, H., **Haavik, H.** (2019) The effects of a single session of chiropractic care on strength, cortical drive, and spinal excitability in stroke patients *Scientific Reports*. 9:2673 <https://doi.org/10.1038/s41598-019-39577-5>
- 2018**
- 48 Amjad, Imran, Toor, Niazi, Imran Khan, Hamza Ghazanfar Mehmood, Afzal, Hina, Jochumsen, Mads, Shafiq, Muhammad, Allen, Kathryn, **Haavik, Heidi**, Ahmed, Touqeer. (2018). Therapeutic effects of aerobic exercise on EEG parameters and higher cognitive functions in mild cognitive impairment patients. *International Journal of Neuroscience*. 2019;129(6):551–562
<https://doi:10.1080/00207454.2018.1551894>
- 47 Jochumsen, M., Cremoux, S., Robinault, L., Lauber, J., Arceo, J.C., Navid, M.S., Wiberg Nedergaard, R., Rashid, U., **Haavik, H.**, Niazi, I.K. (2018). Investigation of optimal afferent feedback modality for inducing neural plasticity with a self-paced brain-computer interface. *Sensors*. 18(11): 3761.
- 46 Holt, K., Russell, D., Cooperstein, R., Young, M., Sherson, M., **Haavik, H.** (2018) Interexaminer reliability of a multidimensional battery of tests used to assess for vertebral subluxations *Chiropractic Journal of Australia*. 46(1), 101–117.
- 45 Baarbé, J.K., Yields, P., **Haavik, H.**, Holmes M.W.R., Murphy, B. (2018) Subclinical recurrent neck pain and its treatment impacts motor training-induced plasticity of the cerebellum and motor cortex. *Plos One*. 2018;13(2):e0193413.
- 44 Amjad, Imran, Toor, Hamza, Niazi, Imran, Pervaiz, Sanna, Jochumsen, Mads, Shafique, Muhammad, **Haavik, Heidi**, Ahmed, Touqeer. (2018). Xbox 360 kinet cognitive games improve slowness, complexity of EEG and cognitive functions in subjects with mild cognitive impairment: A randomized control trail. *Games for Health Journal*. September 21.
- 43 Haavik, H.**, Niazi, I.K., Duehr, J., Jochumsen, M., Ugincius, P., Sebik, O., Yilmaz, G., Navid, M.S., Ozyurt, M.G., Türker, K.S., (2018) Chiropractic alters TMS induced I-wave excitability and shortens the cortical silent period *Journal of Electromyography & Kinesiology*. 42; 24–35.

- 42 Haavik, H.,** Özyurt, M.G., Niazi, I.K., Holt, K., Nedergaard, R.W., Yilmaz, G. & Türker, K.S. (2018) Chiropractic Manipulation Increases Maximal Bite Force in Healthy Individuals. *Brain Sciences*, 2018, 8, 76; <https://doi.org/10.3390/brainsci8050076>
- 41 Andrew, D. Yields, P., **Haavik, H.** Murphy, B. (2018) The effects of subclinical neck pain on sensorimotor integration following a complex motor pursuit task. *Experimental Brain Research*. 236 (1)1–11.
- 40 Bassem Farid, Paul Yields, Michael Holmes, **Heidi Haavik** & Bernadette A. Murphy (2018) Association of Subclinical Neck Pain With Altered Multisensory Integration at Baseline and 4-Week Follow-up Relative to Asymptomatic Controls. *Journal of Manipulative and Physiological Therapeutics*. 41(2); 81–91
- 39 Holt, K., Russell, D., Cooperstein, R., Young, M., Sherson, M., **Haavik, H.** (2018). Interexaminer reliability of seated motion palpation in defined spinal regions for the stiffest spinal site using continuous measures analysis *Journal of Manipulative and Physiological Therapeutics*: 41(7), 571-579.
- 38 Cade, A., Sherson, M., Holt, K., Dobson, G., Pritchard, K., **Haavik, H.** (2018) Differences in learning retention when teaching a manual motor skill with a visual vs written instructional aide. *Journal of Chiropractic Education*: 32(2), 107-114.
<https://doi.org/10.7899/JCE-17-19>
- 37 Cecen, S., Niazi, I., Nedergaard, R., Cade, A., Allen, K., Holt, K., **Haavik, H.**, Türker, K. (2018). Posture modulates the sensitivity of the H-reflex. *Experimental Brain Research*. 236(3); 829–835 <https://doi.org/10.1007/s00221-018-5182-x>
- 36 Christiansen, T. L., Niazi, I. K., Holt, K., Nedergaard, R. W., Duehr, J., Allen, K., Marshall, P., Türker, K.S., Hartvigsen, J. & **Haavik, H.** (2018). The effects of a single session of spinal manipulation on strength and cortical drive in athletes. *European Journal of Applied Physiology*, 1-13.
<https://doi.org/10.1007/s00421-018-3799-x>
- 2017**
- 35 Haavik, H.,** Niazi, I.K., Holt, K., Murphy, B. Effects of 12 Weeks of Chiropractic Care on Central Integration of Dual Somatosensory Input in Chronic Pain Patients: A Preliminary Study. *Journal of Manipulative and Physical Therapeutics*. 2017; 40(3):127-138
- 34 Haavik, H.,** Niazi, I.K., Jochumsen, M., Sherwin, D., Flavel, S., Turker, K.S., (2017) Impact of spinal manipulation on cortical drive to upper and lower limb muscles. *Brain Sciences*. 7 (1), 2. <https://doi.org/10.3390/brainsci7010002>
- 2016**
- 33 Haavik, H.,** Kruger, J., & Murphy, B. (2016) Pelvic floor functional changes with spinal manipulation in pregnant and non-pregnant women: A preliminary study. *Journal of Manipulative and Physiological Therapeutics*. Jun;39(5):339-47.
<https://doi.org/10.1016/j.jmpt.2016.04.004>
- 32 Haavik, H.,** Niazi, I.K., Holt, K., & Murphy, B. (2016). The effects of 12 weeks of chiropractic care on central integration of dual somatosensory input in chronic pain patients: A preliminary study. *Journal of Manipulative and Physiological therapeutics*, <https://doi.org/10.1016/j.jmpt.2016.10.002>

- 31 Luscombe, S., McCormick, J., **Haavik, H.**, Holt, K. (2016) The amelioration of tension-type chronic daily headache, episodic migraine, and co-existing musculoskeletal neck and arm pain in an 89-year-old male receiving chiropractic care: A case report. *Chiropractic Journal of Australia*: 44(2)
- 30 Lelic, D., Niazi, I.K., Holt, K., Jochumsen, M., Dremstrup, K., Yelder, P., Murphy, B., Drewe, A. M., & **Haavik, H.** (2016). Manipulation of dysfunctional spinal joints affects sensorimotor integration in the prefrontal cortex: A brain source localization study. *Neural Plasticity*, 1. <https://doi:10.1155/2016/3704964>
- 29 Baarbe, J.K., Holmes, H.W., Murphy, H.E., **Haavik, H.**, & Murphy, B.A. (2016). WFC Award Winning Paper: Influence of subclinical neck pain on the ability to perform a mental rotation task: A 4-week longitudinal study with a health control group comparison. *Journal of Manipulative and Physiological Therapeutics*, 39 23-30. <https://doi:10.1016/j.jmpt.2015.12.002>
- 28 Jochumsen, M., Niazi, I.K., Signal, N., Nedergaard, R.W., Holt, K., **Haavik, H.**, & Taylor, D. (2016) Pairing voluntary movement and muscle-located electrical stimulation increases cortical excitability. *Frontiers in Human Neuroscience*, 1. <https://doi:10.103389/fnhum.2016.2016.00482>
- 2015**
- 27 Holt, K., **Haavik, H.**, Lee, A.C.L., Murphy, B., & Raina Elley, R. (2015) Effectiveness of chiropractic care to improve sensorimotor function associated with falls risk in older people: A randomized controlled trial. *Journal of Manipulative and Physiological Therapeutics*. May;39(4):267-78. <https://doi:10.1016/j.jmpt.2016.02.003>
- 26 Jochumsen, M., Signal, N., Nedergaard, R.W., Taylor, D., **Haavik, H.**, & Niazi, I.K., (2015). Induction in long-term depression-like plasticity by pairings of motor imagination and peripheral electrical stimulation. *Frontiers in Human Neuroscience*, 91. <https://doi:10.3389/fnhum.2015.00644>
- 25 Niazi, I., Turker, K., Flavel, S., Kingett, M., Duehr, J., & **Haavik, H.** (2015). Changes in H-reflex and V-waves following spinal manipulation. *Experimental Brain Research*, 233(4), 1165. <https://doi:10.1007/s00221-014-4193-5>
- 24 Andrew. D., **Haavik, H.**, Dancey. E., Yelder. P., Murphy. B., (2015) Somatosensory evoked potentials show plastic changes following a novel motor training task with the thumb. *Clin Neurophysiol* 2015;126(3):575-80
- 2014**
- 23 Baarbé, J., Yelder, P., Daligadu, J., Behbahani, H., **Haavik, H.**, & Murphy, B.A. (2014) A Novel Protocol to Investigate Motor Training-Induced Plasticity and Sensorimotor Integration in the Cerebellum and Motor Cortex. *Journal of Neurophysiology*. Volume 111, pp 715-721, 2014. First published 20 November 2013; <https://doi:10.1152/jn.00661.2013>
- 2013**
- 22 **Haavik, H.**, & Murphy, B.A. (2013). Selective changes in cerebellar-cortical processing following motor training. *Experimental Brain Research*, Volume 231, Issue 4, pp 397-403.
- 21 Daligadua, J., **Haavik, H.**, Yelder, P., Baarbe, J. & Murphy, B.A. (2013). Alterations in cortical and cerebellar motor processing in subclinical neck pain patients following

spinal manipulation. *Journal of Manipulative and Physiological Therapeutics*. 2013;36:527-537.

- 20 Holt, K.R., **Haavik, H.** (2012). Chiropractic Care in New Zealand: Theories, Practice and Research. *New Zealand Journal of Natural Medicine, Issue 6 Aug-Nov*.

2012

- 19 **Haavik, H.**, & Murphy, B. (2012). The role of spinal manipulation in addressing disordered sensorimotor integration and altered motor control. *Journal of Electromyography and Kinesiology*, Volume 22, Issue 5, Pages 768–776. <https://doi:10.1016/j.jelekin.2012.02.012>
- 18 Holt, K. R., **Haavik, H.**, & Elley, C. R. (2012). The Effects of Manual Therapy on Balance and Falls: A Systematic Review. *Journal of Manipulative and Physiological Therapeutics*. 35(3), 227-234. <https://doi:10.1016/j.jmpt.2012.01.007>

2011

- 17 **Haavik Taylor, H.**, & Murphy, B. (2011). Association of Chiropractic Colleges Research Agenda Conference 2010 Award Winning Paper: Subclinical neck pain and the effects of cervical manipulation on elbow joint position sense. *Journal of Manipulative and Physiological Therapeutics*. 34:88-97.
- 16 Holt, K.R., Noone, P.L., Short, K., Elley, C.R., & **Haavik, H.** (2011) Falls risk profile of older chiropractic patients. *Journal of Manipulative and Physiological Therapeutics*. 34:78-87

2010

- 15 Holt, K., Beck, R., Sexton, S., **Haavik Taylor, H.** (2010) Chiropractors' Association of Australia Scientific Symposium 2009 third prize award winning paper: Reflex effects of a spinal adjustment on blood pressure. *Chiropractic Journal of Australia*. 40:85-9.
- 14 **Haavik Taylor, H.**, Holt, K.R., Murphy, B. (2010). Chiropractors' Association of Australia Scientific Symposium 2009 first prize award winning paper: Exploring the neuromodulatory effects of the vertebral subluxation and chiropractic care. *Chiropractic Journal of Australia*, 40(1): 37-44. http://www.chiro.org/research/FULL/Exploring_the_Neuromodulatory_Effects.pdf
- 13 Postles, A., **Haavik Taylor, H.**, Holt, K. (2010). Changes in asthma symptoms and bedwetting in a four year old child receiving chiropractic care. *Chiropractic Journal of Australia*, 40(1): 34-6.
- 12 **Haavik Taylor, H.**, & Murphy, B. (2010). Association of Chiropractic Colleges Research Agenda Conference 2009 Award Winning Paper: The effects of spinal manipulation on central integration of dual somatosensory input observed after motor training: A crossover study. *Journal of Manipulative and Physiological Therapeutics*, 33(4): 261-272.
- 11 Murphy, B., Marshall, P., & **Haavik Taylor, H.** (2010). Association of Chiropractic Colleges Research Agenda Conference 2009 Award Winning Paper: The effect of spinal manipulation on exercise rehabilitation neuromuscular outcome measures for patients with chronic neck pain: a pilot study. *Journal of Manipulative and Physiological Therapeutics*, 33(3): 168-177.

- 10 Murphy, B., Marshall, P., & **Haavik Taylor, H.** (2010). The cervical flexion-relaxation ratio: Reproducibility and comparison between neck pain patients and controls. *SPINE*, 35(24): 2103-2108
 - 9 **Haavik Taylor, H.**, & Murphy, B. (2010). Association of Chiropractic Colleges Research Agenda Conference 2008 Award Winning Paper (1st Prize Basic Science Category): Altered Central Integration of Dual Somatosensory Input Following Cervical Spine Manipulation. *Journal of Manipulative and Physiological Therapeutics*, 33(3): 178-188.
- 2009**
- 8 Holt, K., Kelly, B., & **Haavik Taylor, H.** (2009). Practice characteristics of chiropractors in New Zealand. *Chiropractic Journal of Australia*, 39(3):103-9.
 - 7 Holt, K.R., Russell, D.G., Hoffmann, N.J., Bruce, B.I., Bushell, P.M., **Haavik Taylor, H.** (2009). Interexaminer reliability of a leg length analysis procedure among novice and experienced practitioners. *Journal of Manipulative and Physiological Therapeutics*, 32(3): 216-22.
- 2008**
- 6 **Haavik Taylor, H.**, & Murphy, B. (2008). World Federation of Chiropractic's 9th Biennial Congress Award Winning Paper (3rd Prize): Altered sensorimotor integration with cervical spine manipulation. *Journal of Manipulative and Physiological Therapeutics*, 31 (2): 115-126.
- 2007**
- 5 **Haavik Taylor, H.**, & Murphy, B. (2007). Transient modulation of intracortical inhibition following spinal manipulation. *Chiropractic Journal of Australia*, 37: 106-116.
 - 4 **Haavik-Taylor, H.** & Murphy, B.A. (2007) Cervical spine manipulation alters sensorimotor integration: A somatosensory evoked potential study *Clinical Neurophysiology*, 118 (2): 391- 402.
 - 3 **Haavik Taylor, H.**, & Murphy, B. (2007). Altered cortical integration of dual somatosensory input following the cessation of a 20 minute period of repetitive muscle activity. *Experimental Brain Research*, 178: 488-498.
- 2003**
- 2 Murphy, B.A., **Haavik Taylor, H.**, Wilson, S.A., Knight, J.A., Mathers, K.M., & Schug, S. (2003). Changes in median nerve somatosensory transmission and motor output following transient deafferentation of the radial nerve in humans. *Clinical Neurophysiology*, 114: 1477-1488.
 - 1 Murphy, B.A., **Haavik Taylor, H.**, Wilson, S.A., Oliphant, G., & Mathers, K.M. (2003). Rapid reversible changes to multiple levels of the human somatosensory system following the cessation of repetitive contractions: a somatosensory evoked potential study. *Clinical Neurophysiology* 114: 1531-1537.
-

CONFERENCE ABSTRACTS

2020

Kelly Holt, Imran Khan Niazi, Imran Amjad, Muhammad Shafique, Jens Duehr, **Heidi Haavik**. Pragmatic trial investigating effects of 4 weeks of spinal manipulation plus physical therapy Vs physical therapy alone, on motor function in stroke patients. At International Society of Electrophysiology and Kinesiology virtual conference, July, 2020.

2019

Muhammad Samran Navid, Imran Khan Niazi, Dina Lelic, Imran Amjad, Muhammad Shafique, Asbjørn Mohr Drewes & **Heidi Haavik** (2019). Effects of a single session of chiropractic spinal manipulation on the brain activity of stroke patients using somatosensory evoked potentials. The 15th World Federation of Chiropractic Biennial Congress - 2019 European Chiropractors' Union Convention, Berlin, Germany, 20th to 23rd March.

Muhammad Samran Navid, Imran Khan Niazi, Dina Lelic, Anderson De Souza Castelo Oliveira, Asbjørn Mohr Drewes, **Heidi Haavik**. (2019). Investigation of changes in the spatial and temporal brain activity with spinal manipulation– a somatosensory evoked potentials based study. The 15th World Federation of Chiropractic Biennial Congress - 2019 European Chiropractors' Union Convention, Berlin, Germany, 20th to 23rd March.

Jenna Salmons, Imran Khan Niazi, Rasmus Wiberg Nedergaard, Kelly Holt, **Heidi Haavik**, Denise Taylor (2019). The effects of Chiropractic spinal manipulation on the H reflex and muscle strength in children with spastic diplegic cerebral palsy: a feasibility study. The 15th World Federation of Chiropractic Biennial Congress - 2019 European Chiropractors' Union Convention, Berlin, Germany, 20th to 23rd March.

Ushani Ambalavanar, Brianna Grant, Rufeyda Cosgun, Victoria Berkers, Michael Hall, Patricia McCord, Francis Murphy, **Heidi Haavik**, Bernadette Murphy (2019). The OTZ technique impacts neck muscle motor control: a pilot study. The 15th World Federation of Chiropractic Biennial Congress - 2019 European Chiropractors' Union Convention, Berlin, Germany, 20th to 23rd March.

Brianna Grant, Rufeyda Cosgun, Ushani Ambalavanar, Victoria Berkers, Patricia McCord, Michael Hall, Francis Murphy, **Heidi Haavik**, Bernadette Murphy (2019). The OTZ chiropractic technique on head and neck proprioception: a pilot study. The 15th World Federation of Chiropractic Biennial Congress - 2019 European Chiropractors' Union Convention, Berlin, Germany, 20th to 23rd March.

Rufeyda Cosgun, Ushani Ambalavanar, Brianna Grant, **Heidi Haavik**, Francis Murphy, Michael Hall, Patricia McCord, Bernadette Murphy (2019). The effect of OTZ adjustments on heart rate variability. The 15th World Federation of Chiropractic Biennial Congress - 2019 European Chiropractors' Union Convention, Berlin, Germany, 20th to 23rd March.

Salmons, J., Niazi, I.K., Nedergaard, R.W., Holt, K., **Haavik, H.**, Taylor, D. (2019) The effects of chiropractic spinal manipulation on the H reflex and muscle strength in children with spastic diplegic cerebral palsy: a feasibility study. ACC-RAC Platform presentation. Journal of Chiropractic Education: March 2019, Vol. 33, No. 1, pp. 51-57.

2018

- Samran Navid, Imran Khan Niazi, Dina Lelic, Asbjørn Mohr Drewes & **Heidi Haavik** (2018). Effect of filter's cutoff frequencies and ICA on the amplitudes of somatosensory evoked potentials. Society for Neuroscience. Neuroscience 2018, San Diego, California, USA, November 3-7. 090.10; Board III52
- Dina Lelic, Imran Khan Niazi, Kelly Holt, Asbjørn Mohr Drewes & **Heidi Haavik** (2018). Chiropractic spinal manipulation alters nociceptive processing at spinal and supraspinal levels. Society for Neuroscience. Neuroscience 2018, San Diego, California, USA, November 3-7. 389.06; Board W9
- Niazi, Imran Khan; El-Omar, Barak; Dhillon, Navinder Singh; Navid, Muhammad Samran; Nedergaard, Rasmus Wiberg; Jochumsen, Mads; **Haavik, Heidi**. Effect of different pre-processing methods on somatosensory evoked potentials. At International Society of Electrophysiology and Kinesiology XXII conference, June 30 – July 2, 2018, University College Dublin (UCD) in Dublin, Ireland.
- Amjad, Imran; Toor, Hamza Ghazanfar Mehmood; Niazi, Imran Khan; Afzal, Hina; Jochumsen, Mads; Shafiq, Muhammad; Allen, Kathryn; **Haavik, Heidi**; Ahmed, Touqeer. Effect of aerobic exercise on electroencephalogram parameters and cognitive functions in patients with mild cognitive impairment. At International Society of Electrophysiology and Kinesiology XXII conference, June 30 – July 2, 2018, University College Dublin (UCD) in Dublin, Ireland.
- Serpil, Cecen; Niazi, Imran Khan; Nedergaard, Rasmus Wiberg; **Haavik, Heidi**; Turker, Kemal. Body position changes the amplitude of the H-reflex. At International Society of Electrophysiology and Kinesiology XXII conference, June 30 – July 2, 2018, University College Dublin (UCD) in Dublin, Ireland.
- Ozyurt, Mustafa Gorkem; **Haavik, Heidi**; Niazi, Imran Khan; Sebik, Oguz; Yilmaz, Gizem; Turker, Kemal. Chiropractic Manipulation Increases Maximal Bite Force in Healthy Individuals. At International Society of Electrophysiology and Kinesiology XXII conference, June 30 – July 2, 2018, University College Dublin (UCD) in Dublin, Ireland.
- Niazi, I.K, Holt, K., **Haavik H.** (2018) Chiropractic care alters TMS induced I-wave excitability and cortical silent period Association for Chiropractic Colleges – Research Agenda Conference. Dallas, Texas, May 2018.

2017

- Hassan, A., Nauman, M., Riaz, F., Rehman, S., Nedergard, R.W., Holt, K., **Haavik, H.**, Niazi, I.K. (2017). Automatic Tracking of Cervical Spine Using Fluoroscopic Sequences. IEEE Technically Sponsored Intelligent Systems Conference (IntelliSys). Proceedings. 7-8 September 2017 in London, United Kingdom.
- Nøhr, A.K., Pilgaard, L.P., Hansen, B.D., Nedergaard, R., **Haavik, H.**, Lindstrøm, R., Plochanski, M., Østergaard, L.R. (2017). Semi-automatic method for intervertebral kinematics measurement in the cervical spine. / Image Analysis: 20th Scandinavian Conference, SCIA, 12-14 June 2017, Tromsø, Norway, Proceedings, Part II. ed. / Puneet Sharma; Filippo Maria Bianchi. Springer, 2017. p. 302-313
- Waqar, K., Niazi, I.K., Duehr., J., Holt, K., **Haavik., H.**, Anwar, N. (2017) The effects of a single session of spinal manipulation on visuomotor adaptation and motor learning. ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.

- Christiansen, T.K., Niazi, I.K., Holt, K., Nedergaard, R.W., Duehr, J., Schlupp, V., Marshall, P., Turker, K., Hartvigsen, J., **Haavik, H.** (2017) *The effects of a single session of spinal manipulation on strength and cortical drive in athletes.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Holt, K., Niazi, I.K., Nedergaard, R.W., Duehr, J., Amjad, I., Shafiq, M., Ndetan, H., **Haavik, H.** (2017) *The effects of a single session of spinal manipulation on strength and cortical drive in stroke patients.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Farid, B., Yelder, P., Holmes, M., **Haavik, H.**, Murphy, B. (2017). *Subclinical neck pain leads to altered multi-sensory integration at baseline and four week follow-up relative to healthy controls.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Gilley, R., Yelder, P., Baarbe, J., Holmes, M., **Haavik, H.**, Murphy, B. (2017) *Subclinical neck pain affects motor skill acquisition and transfer as compared to a healthy control group.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Cade, A., Dobson, G., Sherson, M., Holt, K., **Haavik, H.** (2017) *Does a visual teaching guide to Upper Cervical Specific technique improve retention in chiropractic students when compared to a written teaching guide?* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Duehr, J., Niazi, I.K., Nedergaard, R.W., Baptista, L., Russell, D., **Haavik, H.**, Holt, K. (2017) *Palpatory acuity among chiropractic students and experienced chiropractors.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Kingett, M., Holt, K., Niazi, I.K., Nedergaard, R.W., Lee, M., **Haavik, H.** (2017) *Effects of a single session of chiropractic care on voluntary activation and maximum voluntary contraction of the biceps brachii.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Lelic, D., Niazi, I.K., Holt, K., Navid, M.S., Drewes, A. M., **Haavik, H.** (2017) *Chiropractic care alters nociceptive processing at spinal and supraspinal levels.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Navid, M.S., Dina Lelic, Niazi, I.K., Holt, K., Bolvig, E., Drewes, A.M., **Haavik, H.** (2017) *Dishabituation of central nervous system to tonic pain following chiropractic care - a standardized low resolution brain electromagnetic tomography (sLORETA) based study.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Ozyurt, M.G., **Haavik, H.**, Niazi, I.K., Holt, K., Sebik, O., Yilmaz, G., Turker, K. (2017) *Spinal manipulation increases maximum bite force in healthy individuals.* ACC-RAC Platform and poster presentation abstracts. Journal of Chiropractic Education: March 2017, Vol. 31, No. 1, pp. 29-83.
- Salmons, J., Niazi, I.K., Nedergaard, R.W., Holt, K., **Haavik, H.** (2017) *Chiropractic spinal manipulation improves the onset of contractions of female pelvic floor muscle.* ACC-

2016

- Navid, M.S., Lelic, D., Niazi, I.K., Holt, K., Mark, E.S., Drewes, A.M., **Haavik, H.**
Dishabituation of central nervous system to tonic pain following chiropractic care - a
standardized low-resolution brain electromagnetic tomography (sLORETA) based
study International Pharmacoe-EEG Society. IPEG 2016, **October** 2016, Nijmegen,
Netherlands
- Christiansen, T.L., Niazi, I.K., Holt, K., Nedergaard, R.W., Duehr, J., Schlupp, V., Marshall, P.,
Turker, K., Hartvigsen, J., & **Haavik, H.** (2016). The effects of a single session of
spinal manipulation on strength and cortical drive in athletes. CAA national
conference research symposium October 2016, Cairns, Australia
- Holt, K., Niazi, I.K., Nedergaard, R.W., Duehr, J., Amjad, I., Shafiq, M., **Haavik, H.** (2016).
The effects of a single session of spinal manipulation on strength and cortical drive in
stroke patients. CAA national conference research symposium October 2016, Cairns,
Australia
- Özyurt, M.G., **Haavik, H.**, Niazi, I.K., Holt, K., Sebik, O., Yilmaz, G., Türker, K.S., (2016).
Spinal manipulation increases maximum bite force in healthy individuals.
International MotoNeuron Society June 2016, Istanbul, Turkey.
- Niazi, I.K., Türker, K.S., Flavel, S., Kingett, M., Duehr, J., **Haavik, H.** (2016). Changes in H-
reflex and V-waves following spinal manipulation. International MotoNeuron Society
June 2016, Istanbul, Turkey.
- Christiansen, T.L., Niazi, I.K., Holt, K., Nedergaard, R.W., Duehr, J., Schlupp, V., Marshall, P.,
Turker, K., Hartvigsen, J., & **Haavik, H.** (2016). The effects of a single session of
spinal manipulation on strength and cortical drive in athletes. International
MotoNeuron Society June 2016, Istanbul, Turkey.
- Oliveria, A.S., Niazi, I.K., Nedergaard, R.W., Holt, K., **Haavik, H.** (2016). Changes in
cortico-muscular coherence while modulating force during isometric ramp
contractions. International MotoNeuron Society June 2016, Istanbul, Turkey.
- Haavik, H.**, Niazi, I.K., Duehr, J., Kinget, M., Uginicius, P., Sebik, O., Yilmaz, G., Navid,
M.S., Türker, K.S. (2016). Chiropractic alters TMS induced I-wave excitability and
cortical silent period duration. International MotoNeuron Society June 2016, Istanbul,
Turkey.
- Baarbé, J., Murphy, B., **Haavik, H.**, Holmes, M. Subclinical Neck Pain Alters Upper Limb
Kinematics during Dart Throwing. "Action & Perception: Cognition, Coding and
Clinical Populations"; Canadian Action and Perception Network (CAPnet)-Canadian
Physiological Society (CPS) Satellite Symposium of the Canadian Association of
Neuroscience 10th Annual Meeting, Toronto, Canada, May 2016.
- Holt, K., Russell, D., Cooperstein, R., Young, M., Sherson, M., **Haavik, H.** (2016).
Inter-examiner reliability of the detection of vertebral subluxations using continuous
measures and confidence intervals. ACCRAC March 2016, Orlando, Florida, USA
- Lelic, D., Niazi, I.K., Holt, K., Jochumsen, M., Dremstrup, K., Yelder, P., Murphy, B.,
Drewes A.M., **Haavik, H.** (2016). Chiropractic adjustments alter sensorimotor

integration in the pre-frontal cortex – A brain localisation study. ACCRAC March 2016, Orlando, Florida, USA

Holt, K., Russell, D., Cooperstein, R., Young, M., Sherson, M., **Haavik, H.** (2016). Inter-examiner reliability of the detection of vertebral subluxations using continuous measures and confidence intervals. The Parker Experience Seminar January 2016, Las Vegas, Nevada, USA

Lelic, D., Niazi, I.K., Holt, K., Jochumsen, M., Dremstrup, K., Yelder, P., Murphy, B., Drewes, A.M., **Haavik, H.** (2016). Chiropractic adjustments alter sensorimotor integration in the pre-frontal cortex – A brain localisation study. The Parker Experience Seminar January 2016, Las Vegas, Nevada, USA

2015

Holt, K., Russell, D., Cooperstein, R., Young, M., Sherson, M., **Haavik, H.** (2015). Inter-examiner reliability of the detection of vertebral subluxations using continuous measures and confidence intervals. CAA National Conference, October 2015, Melbourne, Australia

Lelic, D., Niazi, I.K., Holt, K., Jochumsen, M., Dremstrup, K., Yelder, P., Murphy, B., Drewes, A.M., **Haavik, H.** (2015). Manipulation of dysfunctional spinal joints affects sensorimotor integration in the pre-frontal cortex: A brain source localization study. CAA National Conference in Melbourne. (Won delegates award) Melbourne, Australia

Holt, K., Russell, D., Cooperstein, R., Young, M., Sherson, M., **Haavik, H.** (2015). Inter-examiner reliability of the detection of vertebral subluxations using continuous measures and confidence intervals. Sherman College of Chiropractic International Research and Philosophy Symposium, October 2015, South Carolina USA

Niazi, I.K., Jochumsen, M., Holt, K., Dremstrup, K., **Haavik, H.** (2015). Combined effects of spinal manipulation and a brain computer interface based plasticity protocol on corticospinal excitability. World Federation of Chiropractic 13th Biennial Conference, WFC Conference May 2015; Athens, Greece

Haavik, H., Niazi, I.K., Kingett, M., Duehr, J., Holt, K. (2015). The effects of a single session of chiropractic care on lower limb muscle strength. World Federation of Chiropractic 13th Biennial Conference WFC Conference May 2015; Athens, Greece

Lelic, D., Niazi, I.K., Holt, K., Jochumsen, M., Dremstrup, K., Yelder, P., Murphy, B., Drewes, A.M., **Haavik, H.** (2015). The changes in sensorimotor integration that happen with manipulation of dysfunctional spinal joints occur at the pre-frontal cortex: A brain source localization study. World Federation of Chiropractic 13th Biennial Conference WFC Conference May 2015; Athens, Greece

Baarbe, J., Holmes, M., **Haavik, H.**, Murphy, B. (2015). Neck pain participants show impaired ability to perform a mental rotation task in a four week longitudinal study as compared to healthy controls. World Federation of Chiropractic 13th Biennial Conference WFC Conference May 2015; Athens, Greece

Haavik, H., Niazi, I.K., Kingett, M., Duehr, J., & Holt, K. (2015). The effects of a single session of chiropractic care on lower limb muscle strength. ACC-RAC' March 2015, Las Vegas, USA

2014

- Haavik, H.**, Niazi, I.K., Duehr, J., Kingett, M., Ugincius, P., Sebik, O., &... Türker, K.S. (2014). Chiropractic alters TNS induced motor neuronal excitability: Preliminary Findings. *Replace, Repair, Restore, Relieve - Bridging Clinical & Engineering Solutions in Neurorehabilitation*, 35. doi:101007/978-3-319-08072-7_8
- Niazi, I.K., Jochumsen, M., Duehr, J., Kingett, M., Dremstrup, K., **Haavik, H.** (2014). Chiropractic, cortical excitability and BCI. *Replace, Repair, Restore, Relieve - Bridging Clinical & Engineering Solutions in Neurorehabilitation*, 121. doi:101007/978-3-319-08072-7_23
- Niazi, I., Jochumsen, M., Duehr, J., Kingett, M., Dremstrup, K., & **Haavik, H.** (2014). Chiropractic, cortical excitability and BCI. The International Conference on NeuroRehabilitation, June 2014, Aalborg, Denmark.
- Haavik, H.**, Niazi, I.K., Duehr, J., Kingett, M., Ugincius, P., Sebik, O., Yılmaz, G., & Türker, K.S. (2014). Chiropractic alters TMS induced motor neuronal excitability: Preliminary findings. The International Conference on NeuroRehabilitation, June 2014, Aalborg, Denmark.
- Murphy, B., & **Haavik, H.** (2014). The role of spinal manipulation in modulating neuroplasticity and sensorimotor integration. The International Conference on NeuroRehabilitation, June 2014, Aalborg, Denmark.
- Holt, K., **Haavik, H.**, Lee, A.C.L., Murphy, B., & Raina Elley, R. (2014). Effectiveness of Chiropractic Care to Improve Sensorimotor Function Associated with Falls Risk in Older People: A Randomized Controlled Trial. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Orlando, Florida, USA, March.
- 2013**
- Baarbé, J., Debison Larabie, C., **Haavik, H.**, Yelder, P., & Murphy, B. (2013). Differences in effects of cerebellar inhibition following motor learning in Subclinical neck pain patients. Society for Neuroscience, November 2013, San Diego, USA
- Baarbé, J., Daligadu, J., Behbahani, H., **Haavik, H.**, Yelder, P., & Murphy, B. (2013). The effects of motor learning on the cerebellum and motor cortex. Submitted to Progress in Motor Control IX, July 2013, Montreal, Canada
- Daligadua, J., **Haavik, H.**, Yelder, P., Baarbe, J., & Murphy, B.A. (2013). Alterations in cortical and cerebellar motor processing in subclinical neck pain patients following spinal manipulation. Platform presentation World Federation of Chiropractic's 12th Biennial Congress, April 6 – 9, Durban, South Africa. Proceedings p.142-143
- Niazi, I.K., Türker, K., Flavel, S., Kingett, M., Duehr, J., & **Haavik, H.** (2013). Increased cortical drive and altered net excitability of low-threshold motor unit levels to the lower limb following spinal manipulation. Platform presentation World Federation of Chiropractic's 12th Biennial Congress, April 6 – 9, Durban, South Africa. Proceedings p.155-156.
- Haavik, H.**, Niazi, I.K., Sherwin, D., & Flavel, S. (2013). Increased upper limb cortical excitability following spinal manipulation. Platform presentation World Federation of Chiropractic's 12th Biennial Congress, April 6 – 9, Durban, South Africa. Proceedings p.147.

Barker, I., Yelder, P., **Haavik, H.**, & Murphy, B.A. (2013). The effect of 12 weeks of chiropractic care on the Cervical Flexion Relaxation Response: A Pilot Study. Poster presentation World Federation of Chiropractic's 12th Biennial Congress, April 6 – 9, Durban, South Africa. Proceedings p.165.

Bosse, J., Passmore, S., Yelder, P., **Haavik, H.** & Murphy, B.A. (2013). The effect of spinal manipulation on sensorimotor integration and cortical effects of motor training in a cohort of participants with subclinical neck pain. Award winning poster presentation (Best student poster award, First Prize) World Federation of Chiropractic's 12th Biennial Congress, April 6 – 9, Durban, South Africa. Proceedings p.170-171.

Niazi, I.K., & **Haavik, H.** (2013). Increased lower limb cortical excitability and alterations to early Bereitschafts potential following spinal manipulation. Poster presentation World Federation of Chiropractic's 12th Biennial Congress, April 6 – 9, Durban, South Africa. Proceedings p.204-205.

2012

Thompson, J., Holt, K., Yelder, P., Bossenger, B., **Haavik, H.** (2012). The effects of lumbopelvic manipulation on heart rate variability: A controlled cross- over study. Chiropractic and Osteopathic College of Australasia (COCA) National Conference, October 13-14t, Sydney, Australia.

Lee, M., Kingett, M., Duehr, J., Calder, S., **Haavik, H.** (2012). Immediate increase in motor cortical drive after spinal adjustment. Chiropractic and Osteopathic College of Australasia (COCA) National Conference, October 13-14t, Sydney, Australia.

Niazi, I.K., Dremstrup, K., Jochumsen, M., Niemeier, M.J., Jensen, A., Å., Van, T.D., **Haavik, H.** (2012). Lower limb cortical excitability changes and alterations to early Bereitschafts potentials following spinal manipulation. The XIXth Congress of the International Society of Electrophysiology & Kinesiology, July 19-21, Brisbane, Australia, Proceedings SENS_O2.2, p. 245.

Haavik, H., Sherwin, D., Flavel, S., Dremstrup, K., Niazi, I.K. (2012). Neuroplastic changes in upper limb cortical excitability following spinal manipulation. The XIXth Congress of the International Society of Electrophysiology & Kinesiology, July 19-21, Brisbane, Australia, Proceedings SENS_O3.1 , p. 248.

2011

Haavik, H., Murphy, B. (2011). An approach using fast rate stimulation to investigate changes in cerebellar processing. World Federation of Chiropractic's 11th Biennial Congress, April 6 – 9, Rio de Janeiro, Brazil. Proceedings p.152 – 153.

Holt, K., **Haavik, H.**, Elley, C.R. (2011). The effects of manual therapy on balance and falls: A systematic review. World Federation of Chiropractic's 11th Biennial Congress, April 6 – 9, Rio de Janeiro, Brazil. Proceedings p.153 - 154.

Holt, K., **Haavik, H.**, Elley, C.R. (2011). Effect of manual therapy on balance and falls: A systematic review. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2011; 25 (1): p.83.

2010

Murphy, B.A., Passmore, S., Bosse, J., **Haavik Taylor, H.**, Lee, T. (2010). The effects of ulnar nerve paresthesia on sensorimotor integration. Neuroscience 2010, San Diego, November 13-17.

Haavik Taylor, H., Mrachacz-Kersting, N., Murphy, B. (2010). Selective changes of intracortical facilitation and inhibition following repetitive voluntary movement. The XVIII Congress of the International Society of Electrophysiology and Kinesiology. Aalborg, Denmark: the Department of Health Science and Technology, Aalborg University, June 16-19.

Haavik Taylor, H., Murphy, B. (2010). Joint dysfunction as a form of altered afferent input: part I: Sensory processing changes following spinal manipulation. The XVIII Congress of the International Society of Electrophysiology and Kinesiology. Aalborg, Denmark: the Department of Health Science and Technology, Aalborg University, June 16-19.

Murphy, B., **Haavik Taylor, H.** (2010). Joint dysfunction as a form of altered afferent input: part II: changes in motor control following spinal manipulation and exercise. The XVIII Congress of the International Society of Electrophysiology and Kinesiology. Aalborg, Denmark: the Department of Health Science and Technology, Aalborg University, June 16-19.

Murphy, B., Yielder, P., Bosse, J., Daligadu, J., **Haavik Taylor, H.** (2010). Motor training changes processing of early cerebellar and cortical somatosensory evoked potentials. The XVIII Congress of the International Society of Electrophysiology and Kinesiology. Aalborg, Denmark: the Department of Health Science and Technology, Aalborg University, June 16-19.

Haavik Taylor, H., Murphy, B. (2010). Cervical adjustments improve elbow joint position sense. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2010; 24 (1): p.114.

Holt, K., Noone, P., Short, K., **Haavik Taylor, H.** (2010). Falls risk profile of elderly chiropractic patients. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2010; 24 (1): p.97.

Holt, K., Beck, R., Sexton, S., **Haavik Taylor, H.** (2010). Reflex effects of a spinal adjustment on blood pressure. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2010; 24 (1): p.129.

Russell, D., Ellis, G., Kashmiri, R., Holt, K., **Haavik Taylor, H.** (2010). A survey of the public perception of chiropractic and chiropractic spinal screenings. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2010; 24 (1): p.111.

2009

Haavik Taylor, H., Holt, K.R., Murphy, B. (2009). Exploring the neuromodulatory effects of the vertebral subluxation and chiropractic care. Chiropractors' Association of Australia Scientific Symposium, Melbourne, Australia, 22nd November.

Holt, K.R., Beck, R.W., Sexton, S., **Haavik Taylor, H.** (2009). Reflex effects of a spinal adjustment on blood pressure. Chiropractors' Association of Australia Scientific Symposium, Melbourne, Australia, 22nd November.

Holt, K.R., Noone, P., Short, K., **Haavik Taylor, H.** (2009). Falls risk profile of elderly chiropractic patients. Chiropractors' Association of Australia Scientific Symposium, Melbourne, Australia, 22nd November.

Postles, A., **Haavik Taylor, H.**, Holt, K.R. (2009). Changes in asthma symptoms and bedwetting in a four year old child receiving chiropractic care. Chiropractors' Association of Australia Scientific Symposium, Melbourne, Australia, 22nd November.

Haavik Taylor, H. (2009). Effects of Cervical Adjustments on Elbow Joint Position Sense. World Federation of Chiropractic's 10th Biennial Congress Proceedings, Montreal, Canada, 30th April – 3rd May, p. 267.

Murphy, B., Marshal, P. & **Haavik Taylor, H.** (2009) Effects of spinal manipulation on exercise rehabilitation neuromuscular outcome measures for patients with chronic neck pain: a pilot study. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2009; 23 (1): p.83.

Haavik Taylor, H. & Murphy, B. (2009) Spinal manipulation alters central integration of dual somatosensory input observed following motor training. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2009; 23 (1): p.97.

Holt, K.R., Russell, D.G., Hoffmann, N.J., Bruce, B.I., Bushell, P.M., **Haavik Taylor, H.** (2009). Interexaminer reliability of a leg length analysis procedure among novice and experienced practitioners. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Las Vegas, USA, March. Abstract published in The Journal of Chiropractic Education, 2009; 23 (1): p.73.

Haavik Taylor, H., & Murphy, B. (2009). Selective changes in cerebellar-cortical processing following motor training. Australian Neuroscience Society 29th Annual Meeting in Canberra, Australia, 27 – 30 January, p.81.

2008

Murphy, B., & **Haavik-Taylor, H.** (2008). Increased intra-cortical facilitation following fatiguing closed kinetic chain exercise. Neuroscience 2008, Washington, DC, USA, November 15 –19.

Murphy, B., & **Haavik-Taylor, H.** (2008). Selective changes of intracortical facilitation and inhibition following repetitive voluntary movement. Transcranial Magnetic Stimulation and Neuroimaging in Cognition and Behavior, Montréal, Canada, September 25-26, Poster 14, page 35.

Haavik Taylor, H., & Murphy, B. (2008). Altered Central Integration of Dual Somatosensory Input Following Cervical Spine Manipulation. Association of Chiropractic Colleges Research Agenda Conference, Meeting in Washington DC, USA, March. Abstract published in The Journal of Chiropractic Education, 22 (1): p.79.

2007

Murphy, B., Marshall, P., Govorko, D., & **Haavik Taylor, H.** (2007). The cervical flexion relaxation ratio, differences between neck patients and controls and changes with

exercise. IBRO World Congress of Neuroscience Motor Control Satellite Meeting in Darwin, Northern Territory, Australia, 18-21 July 2007, p. 101.

Haavik Taylor, H., & Murphy, B. (2007). Selective changes in intracortical facilitation and inhibition following repetitive voluntary movement. IBRO World Congress of Neuroscience Motor Control Satellite Meeting in Darwin, Northern Territory, Australia, 18-21 July 2007, p. 87.

Haavik Taylor, H., & Murphy, B. (2007). Altered sensorimotor integration with cervical spine manipulation. IBRO World Congress of Neuroscience in Melbourne, Australia, 18-21 July 2007, p. 87.

Haavik Taylor, H., & Murphy, B. (2007). Altered sensorimotor integration with cervical spine manipulation. World Federation of Chiropractic's 9th Biennial Congress in Vilamoura, Portugal May 17-19, p. 227.

Haavik Taylor, H., Dobson, G., & Holt, K. (2007). Inter-examiner reliability of Chiropractic-specific upper cervical motion palpation. World Federation of Chiropractic's 9th Biennial Congress in Vilamoura, Portugal May 17-19, p. 344.

Murphy, B., Marshall, P., **Haavik Taylor, H.**, Govorko, D., Palmer, S. (2007). The cervical flexion-relaxation ratio: Reproducibility and Comparison between Chronic neck pain patients and controls. World Federation of Chiropractic's 9th Biennial Congress in Vilamoura, Portugal May 17-19, p. 187.

Haavik Taylor, H., & Murphy, B. (2007). Transient modulation of intracortical inhibition following spinal manipulation. World Federation of Chiropractic's 9th Biennial Congress in Vilamoura, Portugal May 17-19, p. 228.

2006

Haavik Taylor, H., & Murphy, B. (2006). Transient modulation of intracortical inhibition following spinal manipulation. ACA Scientific Symposium and Policy Forum, Sydney, Australia.

Taylor, H.H., & Murphy, B.A. (2006). The effect of cervical spine manipulation on the ability to integrate somatosensory input following repetitive movements. Proceedings of the Australian Neuroscience Society Annual Meeting, Sydney, 31 Jan-3 Feb 2006, p.28.

2005

Taylor, H.H., & Murphy, B.A. (2005). The effects of repetitive muscle activity on central integration of dual somatosensory input. Program Number: 41.12. Washington, DC: Society for Neuroscience, 2005. Online.

Murphy, B., & **Haavik-Taylor, H. (2005).** The effects of repetitive muscle activity on central integration of somatosensory input. 2nd International Conference on Movement Dysfunction: Pain and Performance: Evidence and Effect, Edinburgh, September 2005. p. P40.

Haavik, Taylor, H., Murphy, B. (2005). Cervical Spine Manipulation Alters Sensorimotor Integration: A combined somatosensory and motor evoked potential study. 8th Biennial Congress of the World Federation of Chiropractic, Sydney, 2005. p. 248.

Haavik-Taylor, H., Murphy, B.A. (2005). The effect of cervical spine manipulation on the ability to integrate somatosensory input following repetitive thumb movements. New Zealand Chiropractic Associations Annual General Meeting. Auckland, New Zealand.

2004

Murphy, B.A., **Haavik-Taylor, H** (2004). Cervical spine manipulation alters central integration of dual somatosensory input following repetitive thumb abduction Abstracts from the 2nd Annual Adelaide Centre for Spinal Research Symposium, August 2004.

2003

Murphy, B.A., **Haavik-Taylor, H.,** Philip, F. (2003). Transient and reversible cortical and subcortical changes in the sensorimotor system following cervical spine manipulation: a pilot study. Abstracts from Progress in Motor Control IV: Motor Control and Learning over the Life Span. Caen, France. p.133

INVITED AND KEYNOTE PRESENTATIONS

2021

Haavik, H. The latest developments in neuroscience and what this means for our kids under chiropractic care. *Invited speaker for The Kids Summit, Online event, August 2021*

Haavik, H. The latest exciting science. *Invited speaker for Krysti Wick's Online event, June 2021*

Haavik, H. & N. Unruh. Communicating Chiropractic Using Evidence Based Research. *Invited speaker for Iowa Chiropractic Society, Online event, April 17th 2021*

Haavik, H. Progress in Neuroscience; A Chiropractors Dream. *Invited speaker for virtual Vertebral Subluxation Summit hosted by the Australian Spinal Research Foundation, Online event, February 2021*

Haavik, H. The Central Nervous System, the Immune System and Chiropractic Care. *Invited speaker for virtual event hosted by the North Carolina Chiropractic Association, March 2021*

Haavik, H. The impact of Stress and Chiropractic on the Prefrontal Cortex. *Invited speaker for virtual event hosted by the North Carolina Chiropractic Association, March 2021*

Haavik, H. The Vertebral Subluxation and the Mechanisms of Altered Neurological Function. *Invited speaker for virtual event hosted by the North Carolina Chiropractic Association, March 2021*

Haavik, H. Progress in Neuroscience; A Chiropractors Dream. *Invited speaker for students at Palmer College of Chiropractic, Online event, February 2021*

2020

Haavik, H. The Central Nervous System, Chiropractic Care and the Immune System. *Invited speaker for United Chiropractic Association, Chiropractic Essentials, Online event, November 7th 2020*

Haavik, H. The Central Nervous System, Chiropractic Care and the Immune System. *Invited speaker for Barcelona College of Chiropractic Online Lyceum, November 21st 2020*

Haavik, H. Chiropractic Care for Kids. *Invited speaker for the Family Wellness Super Conference Online Event, October 30th - November 5th 2020*

Haavik, H. Stress, the prefrontal cortex and chiropractic care. *Invited Keynote speaker for Maine Chiropractic Association Online Event, October 24th- 25th 2020*

Haavik, H. The brain, pain and the neuroplastic effect of chiropractic care. *Invited Keynote speaker for Maine Chiropractic Association Online Event, October 24th- 25th 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited Keynote speaker for Maine Chiropractic Association Online Event, October 24th- 25th 2020*

Haavik, H. Make your impact with confident communication. *Invited Keynote speaker for EPIC Chiropractic Online Event, October 17th 2020*

Haavik, H. How to communicate the science of chiropractic. *Invited Keynote speaker for the Virginia Chiropractic Association. Online event (virtual event), October 17th – 18th 2020*

Haavik, H. Chiropractic care for kids; What does the evidence tell us? *Invited Keynote speaker for the Virginia Chiropractic Association. Online event (virtual event), October 17th – 18th 2020*

Haavik, H. The Prefrontal Cortex. *Invited Keynote speaker for the Virginia Chiropractic Association. Online event (virtual event), October 17th – 18th 2020*

Haavik, H. The Neurobiology of Stress. *Invited Keynote speaker for the Virginia Chiropractic Association. Online event (virtual event), October 17th – 18th 2020*

Haavik, H. Interoception, Exteroception and the Brain Maps. *Invited Keynote speaker for the Virginia Chiropractic Association. Online event (virtual event), October 17th – 18th 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited Keynote speaker for the Virginia Chiropractic Association. Online event (virtual event), October 17th – 18th 2020*

Haavik, H. It is beyond a doubt that adjusting the spine changes brain function. *Invited speaker for the Sherman College of Chiropractic Online event (virtual event), September 12th 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited speaker for the California Chiropractic Association (Orange County) Online event (virtual event), September 9th 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited speaker for the In8 Summit, Online (virtual event), September 4th 2020*

Haavik, H. Benefits of Chiropractic care in the Opioid Crisis. *Invited speaker for the Foundation for Chiropractic Progress. Online (virtual event), Sept 3rd 2020*

Haavik, H. *Invited speaker for NCMIC's Podcast Chiropractical (virtual event), August 2020*

Haavik, H. The Central Nervous System, Chiropractic Care and the Immune System. *Invited speaker for The Edinburgh Lectures, Online (virtual event), August 22nd, 2020*

Haavik, H. The Central Nervous System, Chiropractic Care and the Immune System. *Invited speaker for The Kids Summit, Online (virtual event), May 30-31, 2020*

Haavik, H. Prefrontal Cortex, Stress and chiropractic care. *Invited speaker for Women in Chiropractic, Online (virtual event), June 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited speaker for Brad Glowaki's The Patient Maverick, Online (virtual event), May 2020*

Haavik, H. The Central Nervous System, Chiropractic Care and the Immune System. *Invited Keynote speaker for Australian College of Chiropractic Fundraising event, Online (virtual event) May, 2020*

Haavik, H. The Brain, Pain and the Neuroplastic effects of chiropractic care. *Invited Keynote speaker for Nebraska Chiropractic Association, March 13th Omaha, Nebraska, USA, 2020*

Haavik, H. Chiropractic and the Stroke Connection. *Invited Keynote speaker for Nebraska Chiropractic Association, March 13th Omaha, Nebraska, USA, 2020*

Haavik, H. The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker for Nebraska Chiropractic Association, March 13th Omaha, Nebraska, USA, 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited Keynote speaker for United Chiropractic Association, March 6th-8th London, UK, 2020*

Haavik, H. Progress in neuroscience: A chiropractors dream. *Invited Keynote speaker for Palmer Florida Homecoming for Palmer College of Chiropractic, 28th Feb – 1st March, 2020*

Haavik, H. 'The role of Spinal dysfunction and the Effects of spinal adjustments on the CNS' and 'The Brain, Pain and the Neuroplastic effects of Chiropractic Care' *Invited Keynote Presentations for Parker Vegas, for Parker College of Chiropractic, Las Vegas, 6-8 Feb, 2020*

2019

Haavik, H. Advances in Neuroscience and Chiropractic. *Invited Keynote Speaker for Chiropractors in Manitoba, Canada, 30th November – 1st December, 2019*

Haavik, H. The Philosophy and Science of Chiropractic. *Keynote Invited Speaker at the Brown Baggers event, Quebec, Canada, November, 2019*

Haavik, H. What the latest basic science research tells us about chiropractic care. *Invited Keynote Speaker and Coordinator and Co-presenter of The Research Colloquium at The Rubicon Group event in Paris, France, 15-16th November, 2019*

Haavik, H. The Much Needed Research Agenda for a Bright Future for Chiropractic! *Invited Keynote Speaker for EPIC chiropractic, October, 2019*

Haavik, H. Chiropractic Care Beyond a Doubt Affects the Brain! *Invited Keynote Speaker for MaxLiving, Orlando, Florida, USA, 3-5th October, 2019*

Haavik, H. Progress in Neuroscience A Chiropractors Dream. *Invited Keynote Speaker for SIDECAR's annual meeting, Minneapolis, Minnesota, 21st September, 2019*

- Haavik, H.** The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker at Klinik for Alle's Annual Meeting*, 13-16th September, 2019
- Haavik, H.** Pain, the Brain and the Neuroplastic Effects of Chiropractic Care. *Invited live online event for the Foundation for Chiropractic Progress*, 5th September, 2019
- Haavik, H.** 'Research reveal, Document your case with cutting edge science' and 'Neurophysiological Mechanisms that are changing our understanding of the Chiropractic Adjustment' *Invited mainstage panellist and breakout presenter at The National event by the Florida Chiropractic Association*, 22-25 August, 2019.
- Haavik, H.** Progress in Neuroscience; A Chiropractors Dream. *Invited Keynote presentation at The Southern Chiropractic Conference*, Murfreesboro, Tennessee, USA, 17-18 August, 2019
- Haavik, H.** Chiropractic Care has a Salutogenic Effect. *Invited Keynote speaker at The WAVE, Live West Chiropractic College event in San Francisco, USA*, 16 August, 2019
- Haavik, H.** The Brain, Pain and the Neuroplastic Effects of Chiropractic Care. *Invited speaker for the South Island Chiropractic Group*, Queenstown, New Zealand, 20th July, 2019
- Haavik, H.** The Brain, Pain and the Neuroplastic Effects of Chiropractic Care. *Invited speaker for the Waikato Chiropractic Group*, Hamilton, New Zealand, 25 June, 2019
- Haavik, H.** How the Philosophy informs the Science of Chiropractic. *Invited speaker at Fiji on Fire. Nandi, Fiji*, 14-17 June, 2019
- Haavik, H.** The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker for Alabama Chiropractic Association*. 31 May- 2nd June, 2019
- Haavik, H.** The Reality Check Berlin. *Full weekend research presentation about the neuroplasticity model of chiropractic care*. Berlin, Germany; 18-19 May, 2019
- Haavik, H.** What the latest science tells us about the mechanisms of the chiropractic adjustment. *Invited Keynote Speaker*, Stockholm, Sweden, 9th May 2019
- Haavik, H.** Progress in Neuroscience, A Chiropractors Dream. *Invited Keynote speaker at the Scottish Chiropractic Associations AGM*, 27th April, 2019.
- Haavik, H.** The Reality Check London. *Full weekend research presentation about the neuroplasticity model of chiropractic care*. London, UK; 20-21 April, 2019
- Haavik, H.** How to communicate science appropriately in chiropractic practice. *Invited online live presentation for ChiroHealthUSA*, 23rd April, 2019
- Haavik, H.** The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker for Iowa Chiropractic Society*, 5-7 April, 2019
- Haavik, H.** A novel approach to unite the profession by bringing the science and philosophy together. *Invited Keynote speaker for Palmer College of Chiropractic International Chiropractic Association Student Group* 30th March, 2019
- Haavik, H.** The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker for Palmer College of Chiropractic Pediatric Student Club*, 31st March, 2019

Haavik, H. Neurophysiological Mechanisms That Are Changing Our Understanding of the Chiropractic Adjustment. *Invited Keynote speaker for The Foundation for Chiropractic Progress, Webinar, March 13th, 2019*

Haavik, H. The Neuroplasticity Model of Chiropractic Adjustments. *Invited Keynote speaker for Parker, Las Vegas, USA, February 20-12, 2019*

Haavik, H. The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker for Horizons Chiropratiques, Trois-Rivières, Quebec, Canada, February 8-10, 2019*

2018

Haavik, H. ‘What the latest Basic Science tells us about Mechanisms of Chiropractic and How This Can be Communicated with Confidence.’ and ‘The Neuroplasticity Model of Chiropractic Care; A Brief Introduction’. *Invited speaker at the Congress of Chiropractic State Associations. Austin, Texas, USA, November 2018*

Haavik, H. The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker for the Epic Impact, San Diego, California, USA, October 19-20, 2018*

Haavik, H. The Neuroplasticity Model of Chiropractic Care. *Invited speaker for the Chiro Society of Wisconsin “Health and Wellness Summit”, Wisconsin Dells, Wisconsin, USA, October 5-7, 2018*

Haavik, H. Arm yourself with evidence: Chiropractic care and Kids. *Invited speaker for The Kids Summit, Chicago, USA, September 29-30, 2018*

Haavik, H. Beyond A Doubt: Adjusting the Spine changes Brain Function. *Invited keynote speaker for Deutsch-Amerikanische Gesellschaft für Chiropraktik, Cologne, Germany, September, 2018*

Haavik, H. The Neuroplasticity Model is only Getting Stronger; Uncovering the science behind clinical manifestations of vertebral subluxations. *Invited speaker for New Zealand College of Chiropractic Lyceum, Auckland, New Zealand, September,, 2018*

Haavik, H. Pain, Plasticity and the latest research about mechanisms of Chiropractic Care. *Invited speaker for Hawkes Bay Regional Chiropractors Group, Hastings, New Zealand, August, 2018*

Haavik, H. Effects of an Adjustment on Brain Function. *Invited speaker for Norsk Kiropraktor Forening, Oslo, Norway, June 2018*

Haavik, H. Effects of an Adjustment on Brain Function. *Invited speaker for Edinburgh Lectures Conference, Edinburgh, Scotland, June 2018*

Haavik, H. Effects of an Adjustment on Brain Function. *Invited Speaker for Association Française de Chiropraxie, Paris, France, June 3rd 2018*

Haavik, H. Pain, Plasticity & Chiropractic. *Invited Speaker for Institut Franco-Européen de Chiropractique, Paris, France, June 2nd 2018*

Haavik, H. The Neurophysiology of Spinal Manipulation – The Marvels of a Gentle Squeeze. *Invited Speaker at University of Valenciennes, France, May 30th 2018*

Haavik, H. The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker at the South Dakota Chiropractic Association's annual Super Conference V. April 19-21 2018*

Haavik, H. The Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker at Michigan Association of Chiropractors' 2018 Spring Convention & Exhibition, Traverse City, Michigan, USA, April 27-29, 2018*

Haavik, H. Communicating the new understanding of the mechanisms of chiropractic care. *Invited speaker for the Annual Spring Convention of the New York Chiropractic Council, New York, USA, 3-5th May, 2018*

Haavik, H. The Neurophysiological Mechanisms of Chiropractic Care. *Invited Keynote Speaker for The Rubicon Group Event, Atlanta, Georgia, USA, 18-20 May, 2018*

Haavik, H. Pain and Plasticity and the role of Chiropractic. *Invited speaker for the French Chiropractic Association, Paris, France, June 1-3, 2018*

Haavik, H. The Neuroplasticity model of Chiropractic care. *Invited speaker for the World Congress of Chiropractic Students, Western Pacific Regional Event, March 24th 2018*

Haavik, H. Neuroplasticity Model of Chiropractic Care. *Invited Keynote speaker at New Hampshire Chiropractic Association event, Nasua, New Hampshire, USA, 10th March 2018*

2017

Haavik, H. The latest exciting scientific discoveries about chiropractic care *Invited Speaker for the Eureka Chiropractic Group, Oslo, Norway, November 2017*

Haavik, H. Chiropractic Adjustments Change and Improve Brain Function Beyond a Doubt *Invited Speaker for the Annual Super-Conference for the Masters Circle, United States of America for the 2017, USA, November 2017*

Haavik, H. Beyond a Doubt; Adjusting the Spine Changes Brain Function *Invited Keynote Speaker for the for the 2017 Washington State Chiropractic Association's Annual Conference, Seattle, USA, October 2017*

Haavik, H. Chiropractic Care Impacts Brain Function *Invited Keynote speaker for the 28th Annual Convention New York Chiropractic Council, New York, USA, October 2017*

Haavik, H. Progress in Neuroscience: A Chiropractors Dream *Invited speaker for the New Zealand College of Chiropractic Annual Lyceum, Auckland, NZ, September 2017*

Haavik, H. International Chiropractic Association *Invited Speaker at the Subluxation Summit: Cleveland Chiropractic College, Kansas, July 2017*

Haavik, H. Life West Chiropractic College *Invited speaker at Life West Chiropractic College, San Francisco, USA, July 2017*

Haavik, H. Life West Chiropractic College *Invited speaker at the WAVE: Life West Chiropractic College, San Francisco, USA, August 2017*

Haavik, H. World Congress of Chiropractic Students *Invited speaker for the WCCS held in San Francisco, USA, August 2017*

Haavik, H. The evidence about chiropractic care for kids *Invited speaker at The Kids Summit Annual Conference, Sydney, Australia, September 2017*

Haavik, H. The latest exciting scientific discoveries about chiropractic care, *Invited speaker at the Colorado Chiropractic Association's 2017 Centennial Celebration Convention, Colorado, USA, October 2017*

Haavik, H. Neurophysiological Mechanisms That Are Changing Our Understanding of the Chiropractic Adjustment *Invited Speaker for the Idaho Association of Chiropractic Physicians Annual Conference. Boise, Idaho, USA, April 2017*

Haavik, H. Essentials in Neurophysiology for The Chiropractor. *Invited Speaker for the Idaho Association of Chiropractic Physicians Annual Conference. Boise, Idaho, USA, April 2017*

Haavik, H. Why Optimal Spinal Function is Essential for Health Throughout Life. *Invited speaker at Life University's Life Vision Conference. Atlanta, Georgia, USA, April 2017*

Haavik, H. The Impact of Spinal Function on Brain Function. *Invited Speaker for the Neurology Club, Life University, Atlanta, Georgia, USA. April 2017*

Haavik, H & Holt, K. Advances in Neuroscience: A Chiropractor's Dream. *Invited Speakers at The Rubicon Groups Annual Convention. Melbourne, Australia, April 2017*

Haavik, H. Neurophysiological Mechanisms That Are Changing Our Understanding of the Chiropractic Adjustment. *Invited Plenary Speaker at DC2017, the joint Congress of the World Federation of Chiropractic, the Association of Chiropractic Colleges and the American Chiropractic Association. Washington DC, USA, March 2017*

Haavik, H. Essentials in Neurophysiology for The Chiropractor. *Invited Workshop Presenter at DC2017, the joint Congress of the World Federation of Chiropractic, the Association of Chiropractic Colleges and the American Chiropractic Association. Washington DC, USA, March 2017*

Haavik, H. Beyond a Doubt; Adjusting the Spine Changes Brain Function. *Invited Speaker at the California Jam, Anaheim, California, USA. February 2017*

Haavik, H. What the Latest Science Tells Us About the Mechanisms of Chiropractic and How to Communicate it with Confidence. *Invited speaker at Washington State Chiropractic Association Conference, Seattle, Washington, USA. January 2017*

2016

Haavik, H. 'A novel approach to unite the profession by bringing the science and philosophy together' and 'What the latest science tells us about the mechanisms of chiropractic'. *Invited speaker at the Congress of Chiropractic State Associations. Phoenix, Arizona, USA, November 2016*

Haavik, H. Chiropractic Research Update. *Invited speaker at the Leadership Summit. Phoenix, Arizona, USA, November 2016*

Haavik, H. The Neuroplasticity Model of Healing. *Invited Speaker at the Super Conference, for the Masters Circle, Lake Buena Vista, Florida, USA, September 2016*

- Haavik, H.** Swiss Chiropractic Association. *Invited speaker for Association of Swiss Chiropractors' Convention for Continuing Professional Development. Davos, Switzerland. September 2016*
- Haavik, H.** Rubicon Conference. *Invited speaker for Rubicon Conference Intensive European Conference, Geneva, Switzerland, September 2016*
- Haavik, H.** NZCC Lyceum. The FUNdamentals of sharing scientific facts. Invited speaker for the New Zealand College of Chiropractic's Annual Lyceum Conference, Auckland, New Zealand, September 2016
- Haavik, H.** Danish Chiropractic Association. *Invited speaker for Conference, Copenhagen Denmark, June 2016*
- Haavik, H.** Scottish Chiropractic Association. *Invited speaker for Edinburgh Lectures Conference, Edinburgh, Scotland, June 2016*
- Haavik, H.** The Science of Adjusting the Spine. *Invited speaker for the Ohio State Chiropractic Association, Columbus, Ohio, USA, June 2016*
- Haavik, H.** Tällberg Chiropractic Association. *Invited speaker at the Tällberg Chiropractic Symposium in, Tällberg, Sweden, for Conference, Copenhagen Denmark, May 2016*
- Haavik, H.** Optimal Health Performance Seminars. *Invited speaker at the "The designed to 2 move event" Hilversum, Netherlands, May, 2016*
- Haavik, H.** 'The Neurophysiological mechanisms of the adjustment' and 'The Science of Applied Kinesiology'. *Invited Keynote Speaker at the Annual Applied Kinesiology Conference for Australasia, Auckland, New Zealand, April 2016*
- Haavik, H.** CAA NSW. *Invited speaker at the Chiropractors Association of Australia NSW Annual meeting, Sydney, Australia, March 2016*
- Haavik, H.** Rubicon conference on neuroscience and chiropractic. *Invited speaker for the Rubicon Conference, London, England, March 2016*
- Haavik, H.** Highlights of Recent Chiropractic Research for Clinical Practice. Parker University. *Invited speaker at The Parker Experience, Las Vegas, USA, January 2016*
- 2015**
- Haavik, H.** Student Presentation. *Spinal Research Jumpstart Sydney initiative. Sydney, Australia, November 2015*
- Haavik, H.** The Reality Check: Understanding Chiropractic from the inside out –Part 1. *Full day workshop seminar, Australian Spinal Research Foundation, Sydney, Australia, December 2015*
- Haavik, H.** Sydney Spine Symposium presentation. *Spine Symposium, Sydney, Australia, December 2015*
- Haavik, H.** "How to communicate the latest science of Chiropractic". *Life Roma Seminar, Rome, Italy, November 2015*
- Haavik, H.** Chiro Fest presentation, *Chiro Fest, Seattle, WA, USA, September 2015*

Haavik, H. The Kids Summit presentation, *Kids Summit, Sydney, Australia, September 2015*

Haavik, H. Australasian Academy of Functional Neurology, *Australasian Academy of Functional Neurology Sydney, Australia, August 2015*

Haavik, H. Chiropractic Association of Ireland. *Chiropractic Association of Ireland Conference, Dublin, Ireland., June 2015*

Haavik, H. The Reality Check: Understanding Chiropractic from the inside out –Part 1. *Full day workshop seminar, Chiropractors of Aalborg, Aalborg, Denmark, June 2015*

Haavik, H. ‘The power of Ten’. *Invited speaker for Edinburgh Lectures Conference, Edinburgh, Scotland, June 2015*

Haavik, H. School of Medicine presentation *Invited speaker at the School of Medicine, Koc University, Istanbul, Turkey, June 2015*

Haavik, H. Chiropractic and the Neuromatrix. *World Federation of Chiropractic’s 13th Biennial Conference, Athens, Greece, May 2015*

Haavik, H. The Reality Check Series. A Quest to Understand Chiropractic from the Inside Out – Part 1. *Invited speaker at the Chiropractors Association of Australia Annual meeting, Perth, WA, Australia, April 2015*

Haavik, H. “The reality check”: The Science behind the Art and Philosophy. *Key note speaker. British Chiropractic Association- Edinburgh, Scotland, March 2015*

Haavik, H. ‘Connecting the Dots’. *Key note speaker United Chiropractic Association conference, London, England, March 2015*

Haavik, H. “The reality check”: The Science behind the Art and Philosophy. *Key note speaker Lead to Success conference, British Chiropractic Association- Edinburgh, Scotland, March 2015*

Haavik, H. “The Facts”- The Scientific facts that give Chiropractic Philosophy Relevance. *Key note speaker ‘Dynamic Growth Congress’, Australian Spinal Research Foundation, Melbourne, Australia, February 2015*

2014

Haavik, H. The Clinical Implications of the Neurophysiology of Chiropractic Care. *Invited speaker at the Sydney Spine Symposium, Sydney, Australia, December 2014*

Haavik, H. The neurophysiology of chiropractic care. *Spinal Research Jumpstart Sydney initiative. Sydney, Australia December 2014*

Haavik, H. The Reality Check: Understanding Chiropractic from the inside out –Part 1, *Full day workshop seminar, Sydney, Australia, November 2014*

Haavik, H. Research in New Zealand and beyond. *Invited speaker at the Chiropractic Association of Australia National Development Forum, Adelaide, Australia, October 2014*

Haavik, H. The past, present and future of chiropractic research. *Invited speaker at the New Zealand College of Chiropractic Lyceum, Auckland, September 2014*

Haavik, H. How to communicate the new science of chiropractic. *Invited CPD speaker at the New Zealand College of Chiropractic Lyceum, Auckland, September 2014*

Haavik, H. Spinal function impacts your brain! *Invited speaker at The Wave, San Francisco, August 2014*

Haavik, H. How to confidently communicate the science of chiropractic. *Invited full day workshop presenter, Aalborg, Denmark, June 2014*

Haavik, H. What are the neurophysiological effects of adjusting the spine? *Syddansk Universitet, Odense, Denmark, May 2014*

Haavik, H. What are the neurophysiological effects of adjusting the spine? *Invited speaker at Oslo Chiropractic Symposium, Oslo, Norway, April 2014*

Haavik, H. How to confidently communicate the science of chiropractic. *Invited full day workshop presenter, Dynamic Growth Congress, February 2014*

2013

Haavik, H. The changing world of chiropractic. *Invited speaker at the New Zealand College of Chiropractic Lyceum, Auckland, September 2013*

Haavik, H. Chiropractic alters the Matrix of your brain! *Invited speaker at Vikersund Kurbad (Vikersund Rehabilitation Centre), Vikersund, Norway, June 2013*

Haavik, H. The chiropractic challenge. *Invited speaker at the Edinburgh Lectures, Edinburgh, Scotland, June 2013*

Haavik, H. Chiropractic alters the Matrix of your brain! *Invited speaker at KUSOM Research Meeting, Koç University, Istanbul, Turkey, May 2013*

Haavik, H. The Evolving Science of Chiropractic. *Invited speaker at the New Zealand Chiropractic Associations Annual General Meeting, Rotorua, May 2013*

2012

Haavik, H. Falls and the effects of manual therapy on multimodal integration. *Invited speaker at Chiropractic and Osteopathic College of Australasia (COCA) National Conference, Sydney, Australia, October 2012*

Haavik, H. The Science of Adjusting Subluxations. *Keynote speaker at the Swedish Chiropractic Association's Annual General Meeting, Stockholm, Sweden, October 2012*

Haavik, H. The Subluxation: The evidence and how do we instruct students about this entity? *Invited speaker at the World Federation of Chiropractic (WFC) Education Conference, Perth, Australia, September 2012*

Haavik, H. Communicating the Science of Chiropractic. *Invited speaker for the New Zealand College of Chiropractic Lyceum, Auckland, September 2012*

Haavik, H. The science of adjusting subluxations. *Keynote speaker for the Chiropractic Association of Australia – South Australia AGM, August 2012*

- Haavik, H.** The importance of becoming a competent critical consumer of chiropractic relevant research! *Invited presentation at academic research seminar series, Macquarie University, Sydney, Australia. May 2012*
- Haavik, H.** The importance of becoming a competent critical consumer of chiropractic relevant research! *Invited presentation for the Chiropractic Student Association at RMIT University, Melbourne, Australia. May 2012*
- Haavik, H.** Chiropractic Care with Confidence Clarity and Charisma. *Invited speaker for New Zealand Chiropractic Association Annual General Meeting and Conference. May 2012*
- Haavik, H.** The neurophysiology of chiropractic. *Invited speaker for World Congress of Chiropractic Students (WCCS) inaugural United States regional congress; San Francisco, May 2012*
- Haavik, H.** Zap into life with real Chiropractic science. *Invited speaker for 'Spring for Life', Life West Chiropractic College, San Francisco, May 2012*
- Haavik H.** The Science of Adjusting Subluxations. *Keynote speaker for Scottish Chiropractic Association, April 2012*
- Haavik H.** Forsknings oppdatering fra New Zealand (Research update from New Zealand). *Invited speaker for Norwegian Chiropractors Association, Oslo, April 2012*
- Haavik, H.** How Science can provide Clarity, Confidence and Certainty! *Invited speaker for Australian Spinal Research Foundation's Dynamic Growth Congress, Brisbane, Australia February 2012*
- Haavik, H.** Research, Research, Research! *Invited speaker for Australian Spinal Research Foundation's Dynamic Growth Jumpstart Congress, Brisbane, Australia February 2012*
- Haavik, H.** *Invited speaker for the World Congress of Chiropractic Students (WCCS) inaugural Western Pacific regional congress; Brisbane, February 2012*

2011

- Haavik, H.** Research update from NZ! *Chiropractic Association of Australia's National Development Forum; Research Session, October 2011*
- Haavik, H.** How to effectively include science in your chiropractic toolbox (four 1 ½ hour sessions). *The keynote speaker at the Chiropractic Association of Australia's National Development Forum, October 2011*
- Haavik, H.** Understanding research efforts and Subluxation. *Invited speaker for the LifeSource Octagon 2011 Conference Event: Contemporary Scientific Paradigms; A new model for Subluxation. Atlanta, Georgia, USA, April 2011*
- Haavik, H.** The science of chiropractic. *Invited speaker for World Congress of Chiropractic Students Conference, Rio de Janeiro, Brazil, April 2011*
- Haavik, H.** Inspiring Change. *Keynote speaker for the Chiropractic Association of Australia Victoria, Inspiring Change Conference, Melbourne, Australia, April 2011*

Haavik, H. Success through science. *Invited speaker for Australian Spinal Research Foundation's Dynamic Growth Congress, Brisbane, Australia, February 2011*

2010

Haavik, H. Chiropractic care alters CNS function in various ways - how does it affect the autonomic nervous system? - A report on human research work in New Zealand. *Keynote speaker at the Norwegian Chiropractors' Association's 75th Anniversary International Conference & Research Symposium, Bergen, Norway, October 2010*

Haavik, H. Exploring the Neuromodulatory Effects of the Vertebral Subluxation and Chiropractic Care. *Keynote speaker at the Chiropractic Association of Australia's National Development Forum, Cairns, Australia, October 2010*

Haavik, H. Effects of manipulation on cortical function. *Invited Research Presentation at the Chiropractic Association of Australia's National Development Forum, Cairns, Australia, October 2010*

Haavik, H. Believe it or not.....Chiropractic changes brain function. *Keynote Speaker at the Chiropractic Association of Australia – South Australia Annual General Meeting, Adelaide, Australia, 2010*

Haavik Taylor, H. The Power of Science. *Invited speaker for Jumpstart Dynamic Growth, Macquarie University, Sydney, Australia, August 2010*

Haavik Taylor, H. Current & Future Directions for Chiropractic Research in Australasia. *Invited speaker for Macquarie University Chiropractic Alumni annual research seminar, Sydney, Australia, August 2010*

Haavik Taylor, H. Make the Connection! *Invited speaker for Dynamic Growth New Zealand, Tauranga, New Zealand, May 2010*

2009

Haavik Taylor, H. The misalignment of heads, hearts and guts. *Invited speaker for World Congress of Chiropractic Students, Auckland, New Zealand, 2009*

Haavik Taylor, H. Research for Practice on Monday “An introduction to the research we do” *Invited speaker for Dynamic Growth Congress. Brisbane, Australia, February 2009*

Haavik Taylor, H. Research; Why should be bother? What sort of research should we do? *Invited speaker for New Zealand Chiropractic Association Annual General Meeting, Auckland, New Zealand, May 2009*

Haavik Taylor, H. Current & Future Directions for Chiropractic Research in Australasia. *Invited speaker for Australian Spinal Research Foundations Annual General Meeting, Sydney, Australia, November 2009*

2008

Haavik Taylor, H. Chiropractic relevant research in New Zealand. *Invited speaker for New Zealand Chiropractic Association Annual General Meeting, Rotorua, New Zealand, May 2008*

Haavik Taylor, H. New Zealand College of Chiropractic Pediatrics Relevant Research. *Invited speaker for International Chiropractors Association Council on Chiropractic*

Pediatrics Conference & Research Symposium on Chiropractic Pediatrics, Gold Coast, Australia, April 2008

2007

Haavik Taylor, H. New Zealand College of Chiropractic Research. *Invited speaker for Lyceum, Auckland, New Zealand, September 2007*

REFEREES

Bernadette Murphy, DC, PhD
Professor Health Sciences
Associate Dean Research and Graduate Studies
Faculty of Health Sciences
University of Ontario Institute of Technology
200 Simcoe St North,
Oshawa, Ontario.
L1H 7K4
Phone: (905) 721-8668 ext 2778
email: Bernadette.Murphy@uoit.ca
Relationship: Former PhD supervisor; aware of ongoing research and supervision skills

Kemal S. Türker, BDS, PhD
Professor of Physiology
Koc University School of Medicine
Rumelifeneri Yolu, 34450, Sariyer
Istanbul, Turkey
Email: kturker@ku.edu.tr
<http://medicine.ku.edu.tr/faculty>
Tel: +902123381174
Fax: +902123381168
Relationship: Research collaborator for many years

Denise Taylor, PT, PhD
Professor School of Clinical Sciences
Faculty of Health and Environmental Science
Auckland University of Technology
Private Bag 92006
Auckland 1142
Phone: 09 921 9680
Email: denise.taylor@aut.ac.nz
Relationship: Research collaborator