



Dr. Jean-Sébastien Blouin DC, PhD

Dr. Jean-Sébastien Blouin, a researcher and chiropractor from Québec, has been awarded his Ph.D. from Université Laval on February 12th 2004. His doctoral work examined the neuromuscular mechanisms of head and neck stabilisation during small horizontal movements and was performed under the supervision of Dr. Normand Teasdale PhD at Université Laval. Throughout his doctoral work, Dr. Blouin was funded by a partnership between the Canadian Institutes of Health Research (CIHR) and the Fondation Chiropratique du Québec (FCQ). This funding allowed him to dedicate most of his time on his research activities and to present the results of his thesis

work at various international meetings held in France, England, USA and Sweden. Parts of the doctoral work undertaken by Dr. Blouin are already published in prestigious peer-reviewed journals such as *Pain*, *Spine*, *Experimental Brain Research* and *Neuroscience Letters*.

Recently, Dr. Jean-Sébastien Blouin was awarded two publicly funded Post-doctoral Fellowships: one funded by the CIHR for a period of two years and the second by the Michael Smith Foundation for Health Research (MSFHR) for a three year-period. Moreover, Dr. Blouin received continuous support from the FCQ to continue his research work. CIHR is one of the largest health financing institutes in Canada while the MSFHR is a public financing organisation from British Columbia. To be eligible for these awards, Dr. Blouin had to meet the criteria of excellence established by the CIHR and MSFHR. Actually, Dr. Blouin is a full-time Post-doctoral Fellow at the Human Neurophysiology Laboratory of the University of British Columbia under the supervision of Drs J. Timothy Inglis and Gunter P. Siegmund. Dr. Inglis is a neurophysiologist specializing in the recording of single motor unit and single nerve fibre in awake humans using a technique called microneurography. Dr. Siegmund is a research engineer who is amongst the world leaders in studying the mechanics and neural control of the head and neck during whiplash. Dr. Blouin's post-doctoral work will focus on the responses of the deep and superficial neck muscles in small perturbations simulating whiplash motion. Whiplash injuries affect about 3 to 6 people per 1000 and are estimated to cost about \$19 billion annually in the United States. Despite this high incidence and large costs, whiplash injuries remain poorly understood. The goal of Dr. Blouin's work is to improve our understanding of how muscles are involved in causing whiplash injuries. Combining Drs. Inglis and Siegmund's expertise offers Dr. Blouin a unique opportunity to record from the deep neck musculature during whiplash-like perturbations, providing an insightful perspective to the

aetiology of whiplash injuries. Dr. Blouin is also interested in examining how gender alters the neuromuscular control of the head and neck. The results of his studies are expected to increase our knowledge of whiplash injuries and eventually help to reduce the risk of these injuries.

Aside from his main research project, Dr. Blouin is learning how to probe the vestibular system with a technique named galvanic vestibular stimulation. This technique allows researchers to disrupt temporarily the normal vestibular information and to test the vestibulo-spinal pathways with the application of small current behind the ears of healthy volunteers. Dr. Blouin is also acquiring the knowledge to use microneurography for the recording of action potentials from single nerve axons in

awake humans. Of particular interest for Dr. Blouin is the understanding of the physiology of muscle spindles and sympathetic skin and muscle efferents following the application of various somatosensory stimulations.

Finally, Dr. Blouin has been awarded an operating grant from the BC Neurotrauma Fund (in collaboration with the Rick Hansen Man in Motion Foundation) as a co-applicant on the grant. This research will document how spinal cord injured subjects can maintain their head stability during small horizontal perturbations. The long term goals of this research are: i) to assess the integrity of the neck stabilisation mechanisms in a neurologically impaired population and ii) to identify the factors that could contribute to a better stability in the spinal cord-injured population.

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