Profile

Martin Descarreaux DC, MSc, PhD candidate

Dr. Martin Descarreaux DC, MSc, PhD(c) of Quebec City, Quebec is a new member of the Chiropractic department at the Université du Québec à Trois-Rivières (UQTR). The new Professor was hired in December 2002 and began teaching in January 2003. His primary tasks at the UQTR are to teach basic and clinical sciences and to develop fundamental and clinical research in the chiropractic department.

Dr. Martin Descarreaux graduated from the UQTR chiropractic program in 1998. He was a member of the first group of chiropractic students in Trois-Rivières. After he earned his chiropractor's diploma, Dr. Descarreaux started a private practice in Quebec City and completed a Masters degree (MSc) in kinesiology at the UQTR in 2000. During those two years in kinesiology, he worked in collaboration with Dr. Martin Normand DC, PhD, his research director. Their main research project consisted of the development of new quantitative measures that would allow a more specific approach in exercise prescription for non-specific low back pain patients. The different evaluations included, trunk and lower extremities muscle force, trunk and lower extremities muscle extensibility and postural analysis. The use of this protocol was also evaluated with patients suffering from osteoarthritis and ankylosing spondylitis. Their work has recently been published in the Journal of Manipulative and Physiological Therapeutics (JMPT, 2002) and the Journal of the Canadian Chiropractic Association (JCCA, 2001).

Dr. Descarreaux is currently completing a PhD in kinesiology at the Université Laval, department of social and preventive medicine in Quebec City. During the first two years of his PhD training, he received grants from the FCAR ($26,500 yearly), a public research funding organization in Quebec and from "la Fondation Chiropratique du Québec" ($10 000 yearly). He received these awards for his research thesis project entitled "low back pain and associated proprioceptive deficits". He also worked as an assistant professor at UQTR in applied biomechanics and in sports traumatology during the last two years.

Dr. Descarreaux began his PhD training in September 2000 under the supervision of Dr. Normand Teasdale. Since then, they have decided to look at musculoskeletal injuries and especially low back pain with a different perspective: **the motor control aspects of musculoskeletal injuries**.

"The motor control expertise of Dr. Teasdale and my experience with low back pain gave me the opportunity to develop numerous research projects and new collaborations with researchers from other countries. Since September 2000, we have initiated different projects to evaluate musculoskeletal injuries from a motor control perspective. The main objective of these different research projects is to develop new clinical tools to improve

the quality of chiropractic diagnosis and treatment. I hope our research will lead to a better understanding of phenomena like low back pain chronicity, vertebral osteoarthritis and low back pain adaptation mechanisms. Such results are the first step to an integrative approach where low back pathologies and other musculoskeletal lesions can be addressed in a global perspective including evaluation, diagnosis, treatment, and prevention. However, we need to have a better understanding of musculoskeletal lesions before we can move on to any clinical applications. This is even more important for low back pain where the possible diagnoses are numerous. A better understanding of the different pathologies treated in chiropractic is essential to spread our expertise in the healthcare community."

Dr. Descarreaux's actual research projects include the following:

1 The main research project and the subject of his doctoral thesis is the evaluation of proprioceptive deficits associated with low back pain and pathologies. Dr. Descarreaux and his colleagues studied motor impulse in LBP subjects, normal subjects and normal subjects with artificially induced pain. In this project, isometric trunk force signal of the different subjects were analyzed to discriminate any difference in force time production, peak force and variability as well as the ability to learn and reproduce adequately different force level with and without visual feedback. The same procedure and analyses were done with active trunk motions. A clinical study is also going on to evaluate the short and long term adaptations to chronic low back pain and disabilities.

2 Head on trunk and trunk stabilisation in a seated posture. In this series of experiments conducted in collaboration with Dr. Jean-Sébastien Blouin DC, MSc , temporal and amplitude characteristics of EMG (neck and trunk muscles) and kinematic (head and trunk) data are evaluated during perturbation applied to subjects in a seated position. The adaptation level across trials and between the different experimental conditions are also evaluated. These different results should help to better understand the different neuromuscular mechanisms involved in head stabilisation. The results of a first experiment was recently published in the Journal of the Neuromusculoskeletal System (JNMS).

3 Dr. Descarreaux and his colleagues also developed a non-invasive technique for measurement of cervical vertebral angle. The objective of this study was to determine if a statistical model using a non-invasive technique (videographic analysis) can be used to predict cervical spinal positioning of the normal cervical spine. Eventual clinical application of this technique should help the clinician to evaluate patients when x-rays are not indicated. This study will be published in the next year in the European Spine Journal.

His objectives for the coming years are to develop a research centre at the UQTR specialising in motor control applied to musculoskeletal injuries. The UQTR will continue to produce outstanding chiropractors over the next years. Furthermore the UQTR and its members will also be involved in the growing chiropractic research community in Canada and around the world. "We would like to have more chiropractors, students and clinicians, involved in the development of chiropractic research projects at the UQTR. Soon we will be able to offer post-graduate studies (MSc) at the UQTR. Chiropractors will be involved in different chiropractic research protocols as they learn the basics of fundamental and clinical research. Hopefully, a number of them will pursue their post-graduate study in other institutions. The chiropractic profession in the province of Quebec is continuously facing new challenges. A solid scientific research program is essential to the development and recognition of the chiropractic profession in the province of Quebec.

I would like to thank the "Fondation Chiropratique du Québec" who supported me as well as many other chiropractors throughout my five years of post-graduate study. La Fondation Chiropratique is an important moral and financial support to every chiropractic research initiative in the province of Quebec. Although public funding is a great step for the profession, grants and funds awarded by our peers are a unique way to motivate young researchers. I would also like to thank my past and actual thesis directors: Dr. Martin Normand DC, PhD and Dr. Normand Teasdale PhD who provided inspiration and continuous support over the past years. Finally, I would like to thank the UQTR who gave me the unique opportunity to become a chiropractor and who is now giving me the chance to participate in the development of chiropractic as a teacher and researcher."