

2021 CMCC Donor Update

2020 has certainly been a year of challenges, adaptations and new initiatives. Your contributions to innovative research and learning vehicles have made these projects possible. Thank you!

Our latest projects are summarized by research area:

Research Area: Physiological Effect of Chiropractic Adjustments

The Life Sciences Laboratories at CMCC focus in resolving the underlying neurobiological mechanisms of chiropractic care. Among the interesting research projects currently underway:

- Researchers at CMCC have completed two studies of the physiological effects of spinal manipulation in asymptomatic populations. Perhaps not surprisingly, these studies show that not all adjustments are created equal! Different adjustments have different physiological effects in terms of autonomic nervous system responses and responses in blood biomarkers. CMCC is now in discussions with a large pain management institute to extend this work and conduct collaborative studies on patients with severe, chronic neck pain.
- In collaboration with our Department of Anatomy, the Life Sciences Laboratories have completed the preparation of thousands of microscopic sections of human vertebral arteries and we are now quantifying the density of innervation of different regions of these arteries. This work will provide important insights into how cervical manipulation brings about its important neurologically-mediated effects, and also informs decisions concerning the risks of cervical manipulation.
- Extending previously published work concerning neck pain, Life Sciences researchers are delving into the molecular mechanisms of low back pain. A recent paper from this lab highlights the different profiles of blood-borne inflammatory markers in patients with acute versus chronic pain. Using advanced techniques such as real-time PCR, our researchers are now looking at how genes related to inflammation are turned on and off following chiropractic treatment.
- It's not just about spinal manipulation! A newly initiated study is looking at how TENS switches the biochemical pathways of inflammation in sensory neurons on and off. Using cultured dorsal root ganglion cells, our researchers are measuring effects on inflammatory cytokines and the genes which up-regulate or down-regulate their production.

Research Area: Health Policy and Outcome Based Research

Staying connected to patients beyond the office walls

Chiropractors and health care providers have been impacted by the pandemic and challenged in providing patient care. An innovative project conducted at St. Michael's Hospital focused on how to keep patients at high risk of COVID-19 consequences feeling connected to and supported by their health team during times of isolation and social distancing. A team of health professional Wellness Check-In callers and Subject Matter Experts connected with over 2000 patients in the first wave of COVID-19. Patients and callers were very satisfied with the interaction and processes and now embedded in usual care. Such studies inform clinical practice and expand opportunities, which can be used by chiropractors to care for their patients under varying circumstances.

Optimizing return to work strategies

Returning workers to gainful employment is an important aim and involves collaboration of providers and employers. This study compared the return to work (RTW) process for claimants with musculoskeletal (MSK) conditions to those with psychological conditions in Victoria, Australia. Early RTW outcomes were better for those with MSK conditions, and this was largely explained by how their work supervisor responded, RTW planning efforts, offers of work accommodation and differences in mental health problems. When psychological conditions are involved, it was found that consultative RTW planning and work accommodation should be a priority.

Keeping older adults active and healthy

Keeping older adults active improves physical, emotional, and quality-of-life outcomes. A recent study assessed the benefits of a community-based exercise program designed to promote, improve, and maintain physical strength, balance, well-being, and social engagement. The program involved 15 minutes of cardiovascular exercise warm-up, 30 minutes of upper and lower body strengthening using resistance bands, and 15-minute cool down (stretching and balance exercises). Regardless of the nature of the exercise, it was found that for older adults participating in such activity improves quality of life, underscoring the importance of encouraging and motivating older adults to participate in exercise and stay active.

Research Area: McMorland Family Research Chair in Mechanobiology

Chiropractors may use leg length differences in their practice to assess spinal or sacroiliac dysfunctions. To explore this relationship, a study assessed the effects of artificially inducing leg length inequality, using a series of heel lifts and on the pelvic torsion and compensatory kinematics of the lower extremities during a functional task. Pelvic torsion and lower extremity movement patterns were measured during a sit-to-stand movement. This project was a collaborative effort between researchers at CMCC and Macquarie University.

Using a heel lift to artificially induce an inequality in leg lengths had a statistically significant effect on pelvic range of motion in the transverse plane, but these effects were small and likely not functionally relevant.

To learn more about these projects, please contact: Peter S.Y. Kim, BSc, DC, FCCS(C)
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