Board of Directors Spotlight: Dr. Sean Dukelow

ASNR's Board of Directors is integral to managing and shaping the future of the organization. Sean Dukelow, MD, PhD, FRCPC, has been a member of the Board since 2019. He is a Professor in the Department of Clinical Neuroscience at the University of Calgary and the Medical Director of Stroke Rehabilitation for the Calgary Stroke Program. In this interview, Dr. Dukelow shares more about his background, his research, and his role as a leader in ASNR.

Longer form answers:

1) How did you get interested in science, and what steps did you take to get to your current role?

I was always interested in how things work as a young child. I would tear toys apart and put them back together. I remember building a miniature solar car for a grade school science fair out of parts I had cobbled together from Radio Shack and an old toy. As my childhood progressed, I realized that if I could do something that I was interested in that helped people, that was how I wanted to live my life. So after high school, I did a undergraduate degree in Human Kinetics at the University of Guelph (Guelph, Ontario, Canada) where I studied in the Human Neurophysiology lab run by Dr. John Brooke. I then went onto to do a combined MD/PhD (Neuroscience) at the University of Western Ontario (now Western University – London, Ontario, Canada). In my PhD, I worked at one of two high-field (4 Tesla) MRI's in the world (at the time) using functional MRI to study the human visual system. I went on to do my residency training at Queen's University (Kingston, Ontario, Canada) where I used robotics to assess sensory and motor impairments following stroke. This was followed by a brief post-doctoral fellowship. Then I began working in my role as a clinician-scientist at the University of Calgary and started my research program here.

2) What is the focus of your current research, and what are some of your key findings?

Currently, I run multiple clinical trials and lead the CanStroke Recovery Trials platform. This is a platform that includes 12 sites across Canada and operates multiple different multi-site trials (www.canadianstroke.ca). I am currently leading a national trial called CAMAROS which is investigating whether a drug called Maraviroc can improve motor recovery in stroke survivors who are participating in inpatient rehab. We recently completed a single-center study evaluating the use of transcranial magnetic stimulation (TMS) and multi-modal aphasia therapy for recovery of language in individuals with post-stroke non-fluent aphasia. This type of aphasia makes it difficult for people to speak fluently, and it often results in short sentences and omitted words. The was successful, and our results support use of this combined therapy to facilitate

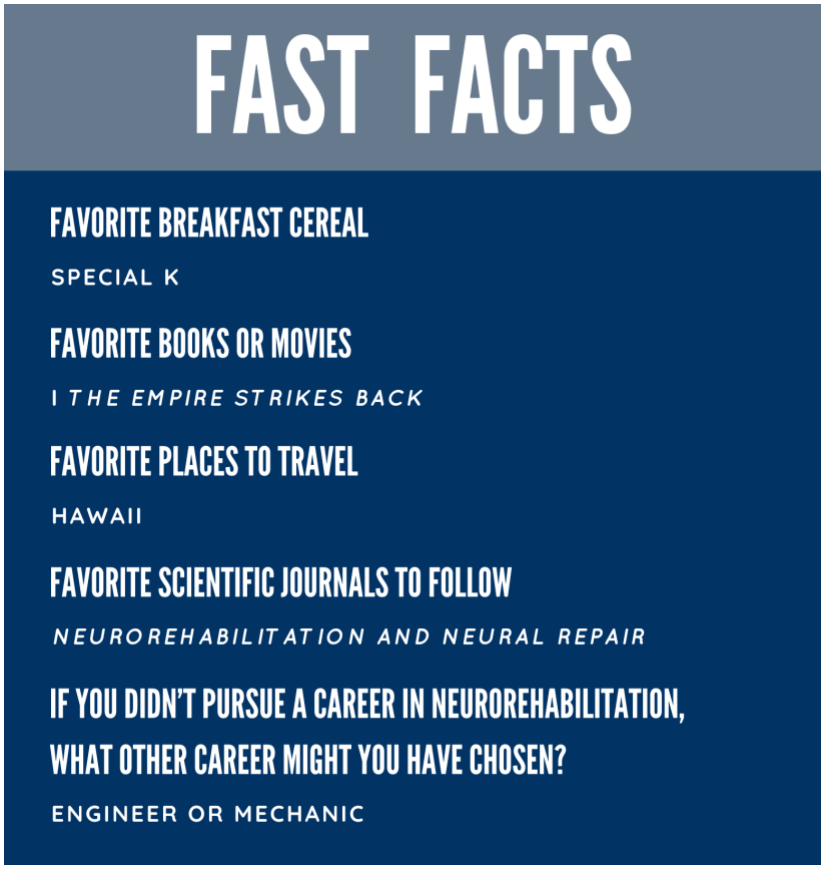
language recovery in this population. My lab continues to develop tools for robotic assessment of sensory, motor, and cognitive function, and we conduct more mechanistic studies of stroke recovery. We have shown high rates of proprioceptive loss/impairment in stroke survivors. We are currently examining the impact of visual impairment on the performance of different movement tasks using the Kinarm robot.

3) Why did you decide to get involved with the ASNR Board of Directors?

ASNR brings together many of the top neurorehabilitation scientists and clinician-scientists in North America and beyond. I volunteered for the Board because I get to work with a great group of people who help communicate great science that gets integrated into practice.

4) What do you enjoy most about being an ASNR Board Member?

I enjoy hearing about the latest and greatest findings in our field at the annual meeting, and I appreciate being able to help guide the direction the organization is taking.



5) What do you see as the biggest challenges or areas of opportunities in neurorehabilitation research right now?

I think one of the biggest challenges is in translating findings from good research into practice. Clinicians can be slow to adopt new practices, and I think that this is something that deserves a lot of consideration when we are planning clinical trials. We need to think about how we will implement this new therapy if a trial is successful.