

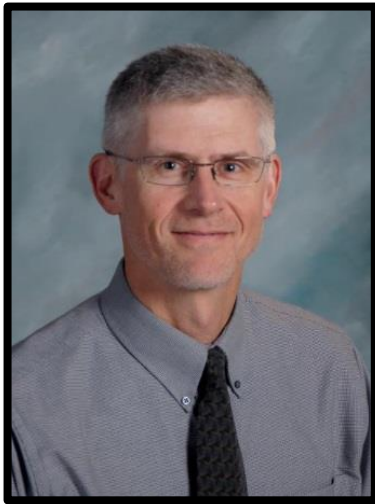
Weekly Colloquium

Tuesday, 7/18/2017, 12:30pm, Billings Building – Rosedale Conference Room

“For Better and Worse: Activity, Exercise and Physical Therapy After Experimental SCI”

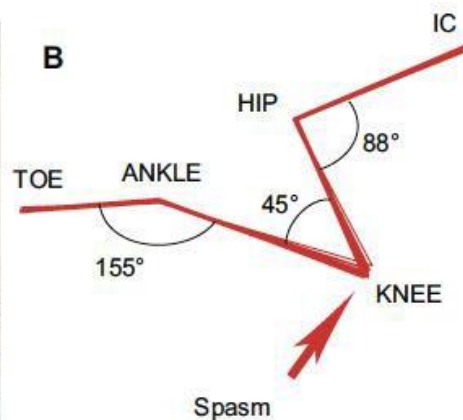
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Abstract

Body weight supported step-training remains a popular and promising activity-based therapy for spinal cord injury. The strategies employed clinically arose primarily out of decades of animal studies demonstrating amazing recovery of hindlimb stepping on a treadmill following complete transection injuries and amazing spontaneous recovery of overground stepping following incomplete contusion injuries. However, the levels of recovery observed in animal models have not been realized in the clinic. The studies I will present explore locomotor recovery after incomplete injuries using both gain and loss of function approaches including in-cage activity, applied exercise/rehabilitation, physical therapy-based stretching and hindlimb immobilization in a wheelchair. While our major focus is on locomotor function, we have also explored cardiovascular function after injury. It is our contention that functional recovery of locomotor and cardiovascular function results not just from the level and severity of injury but also the acute post-injury events/conditions that result in adaptive or maladaptive plasticity including acute and sub-acute activity/inactivity and physical therapy.



Publications:

DeVeau KM, Martin EK, King NT, Shum-Siu A, Keller BB, West CR, Magnuson DS. Challenging cardiac function post-spinal cord injury with dobutamine. *Auton Neurosci*. 2016 [Epub ahead of print] PMID: 28065654.

Keller AV, Magnuson DSK. Disruption of locomotion in response to hindlimb muscle stretch at acute and chronic time points after a spinal cord injury in rats. *J Neurotrauma* 2017 34(3):661-670. doi: 10.1089/neu.2015.4227. PubMed PMID: 27196003.

Caudle KL, Atkinson DA, Brown EH, Donaldson K, Seibt E, Chea T, Smith E, Chung K, Shum-Siu A, Cron C, Magnuson DSK. Hindlimb stretching alters locomotor function post-spinal cord injury in the adult rat. *Neurorehab and Neural Repair* 29(3): 268-77, 2015. PMID 25106555.

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