

Open PhD Position

Spinal Cord Injury Center, Balgrist University Hospital, Zurich, Switzerland

Project

Pain-autonomic interaction in neuropathic pain after human spinal cord injury

Keywords

Spinal cord injury; sensory system; autonomic nervous system; neuropathic pain; neurophysiology

Short Description

Neuropathic pain is one of the most debilitating secondary complications after spinal cord injury (SCI) and develops in roughly 50% of all subjects with SCI. So far, sensitization processes within the central nervous system are believed to contribute to the development and maintenance of neuropathic pain after SCI, but an objective measure of these is still lacking in humans. For decades, the structural and functional connection between the nociceptive and autonomic nervous system is known. Hence, this project targets pain-autonomic interaction as a surrogate marker for sensitization at spinal and brain levels. Beyond state-of-the-art pain phenotyping, we will test autonomic responses to noxious heat and pinprick stimuli measured by electrodermal activity, blood pressure and heart rate. The overarching aim of the proposed project is to use readouts of pain-autonomic interaction in order to dissect mechanisms and map topography of central sensitization along the nociceptive neuraxis in neuropathic pain after SCI. The consolidated understanding of the prevalence and magnitude of central sensitization, but importantly also the spatial extent (focal vs. widespread) of it provides an important framework for mechanism-based and personalized therapeutic interventions neuropathic pain after SCI.

Necessary skills

Applicants should have a university degree in biology, biomedicine, medicine, or health sciences. They should have good knowledge in statistics. Experience in working with neurological patients is a plus. Good use of German and English is mandatory.

Beginning of the thesis

October 1, 2021

For further questions please contact

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