



## PhD Project

**Project Details:** Age-related cognitive and motor decline in spinal cord injury

Project Title	Age-related decline in cognitive and motor control in spinal cord injury
Project Summary	Cognitive and motor control are integral to inhibitory control and implicate the prefrontal cortex, their development and decline is age-dependent. However, it is unclear how injury to the spinal cord impacts cognitive and motor control with advancing age. Our earlier work demonstrated experience-dependent alteration of cognitive and motor functions (Singh & Mutreja, 2020) and sleep-dependent cognitive alteration in healthy participants (Singh, 2013). Parallely, sleep-dependent cognitive deficit in animal model (Mir et al., 2019), restoration of motor control through magnetic stimulation in animal model of spinal injury (Bhattacharyya et al., 2020), and cognitive malleability through neurogenesis is identified (Tripathi, Verma & Jha, 2020). This translational project aims to identify age-related cognitive and motor deficits in the prefrontal cortex to understand the nature and extent of overlap between cognitive and motor control. These insights might further our understanding of age-related progressive decline of the central nervous system, and its impact on cognitive and motor control deficits.

### PhD Supervisors

Role	Faculty	Academic Unit in IITD	Email ID
Supervisor 1	Dr. Varsha Singh	Psychology, HUSS, IITD	vsingh@hss.iitd.ac.in
Supervisor 2	Dr. Suman Jain	Physiology, AIIMS Delhi	sumanjain10@gmail.com
Supervisor 3	Dr. Sushil Jha	School of Life Sciences, JNU	sushil_1000@yahoo.com

### Project requirements (Student qualifications, experience required, etc)

- Masters in Neurosciences/Life sciences
- Experience in lab based animal procedures and statistical analysis
- Research experience and prior publication is a plus.
- High motivation to work in an interdisciplinary research area

### Source of funding (IRD/FITT Project details, if any)

- UGC JRF/CSIR/ICMR/GATE
- PMRF/INSPIRE or other fellowships.

### Role of Faculty Members involved:

Dr. Varsha Singh: Overseeing assessment of cognitive and motor deficits in human & animal model.  
Dr. Suman Jain: Overseeing clinical assessment of deficits due to spinal cord injury in human and animal model.  
Dr. Sushil Jha: Overseeing assessment of cognitive deficits in animal model.