

Curriculum-Vitae

ARKADEB DUTTA

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Co-Chair Holder of UNESCO Chair,

Inclusive Adapted Physical Education and Yoga (ID 1004),



Present Research Areas:

- Neurophysiology of Chronic Pain and its Management in Musculoskeletal Disorders.
- Mind-Body Interventions in Neuroplasticity – in Development and Rehabilitation.
- Cognition and Emotional Control in Sports.

Academic Qualifications:

- PhD (Physiology), Defence Institute of Physiology & Allied Sciences, DRDO, Delhi 2009
- M.Sc. (Physiology) University of Calcutta, 2001
- B.Sc. (Physiology Hons.) in Physiology from University of Calcutta, 1999

Postdoctoral Research Tenures:

- June 2017-June 2019, Systemic & Cellular Neurophysiology, University of Freiburg, Freiburg, Germany
- Dec 2012-Sep 2016, Neuroethological Lab for Sensory-Cognitive Functions, Israel Institute of Technology, Haifa, Israel

- July 2009-Nov 2012, Systems Neuroscience Lab, National Brain Research Center, Manesar, India
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Post-Doctoral Research Areas:

Postdoctoral research was broadly on the aspects of perception and cognition; looking into the underlying neuronal correlates of these processes in cortical and subcortical brain regions using *in vivo* extracellular single/ multiunit recording, juxtacellular technique and functional MRI.

- Understanding activities of different subtypes of inhibitory interneurons in the dentate gyrus of hippocampus in relation to hippocampal local field activities with objectives to understand their roles in behavior.
- Neural correlates of visual and auditory saliency detection, attentional-gating, stimulus specific adaptation in contrast-based saliency detection, and edge detection of camouflaged objects.
- Maladaptive neuroplastic changes in somatosensory areas of brain of spinal cord injured macaque monkeys using non-invasive functional MRI.

Post-Doctoral Publications:

1. **Arkadeb Dutta**, Lev-Ari Tidhar, Barzilay O, Mairon R, Wolf A, Ban-Shahar O, Gutfreund Y Self-motion trajectories can facilitate orientation-based figure-ground segregation. *J Neurophysiol* 123(3):912-926, 2020.
2. **Arkadeb Dutta**, Herman Wagner, Yoram Gutfreund. Responses to Pop-Out Stimuli in the Barn Owl's Optic Tectum Can Emerge through Stimulus-Specific Adaptation. *J Neurosci*. 36(17):4876-87, 2016.
3. Shai Netser, **Arkadeb Dutta**, Yoram Gutfreund. Ongoing activity in the optic tectum is correlated on a trial-by-trial basis with the pupil dilation response. *J Neurophysiol*. 111(5):918-29.2014.
4. **Arkadeb Dutta**, Yoram Gutfreund. Saliency mapping in the optic tectum and its relationship to habituation. *Front Integr Neurosci*. 8(1)-1-13, 2014.
5. **Arkadeb Dutta**, Niranjana Kambi, Partha Raghunathan, Subash Khushu, Neeraj Jain. Large-scale reorganization of the somatosensory cortex of adult macaque

monkeys revealed by fMRI. **Brain Struct Funct.** 219(4):1305-20, 2014.

Title of PhD Thesis:

Fatty Acid Oxidation in Cold-Hypoxic Environment in Relation to Leptin and Role of L-Carnitine as Performance Enhancer

Publications during PhD tenure:

1. Singh VK, Amitabh, Dutta A, Shukla V, Vats P, Singh SN (2001). Energy expenditure and nutritional status of sailors and submarine crew of the Indian Navy. *Defence Journal* 61(6):540-544.
2. Sinha S, Dutta A, Singh SN, Ray US (2010). Protein nitration, lipid peroxidation and DNA damage at high altitude in acclimatized lowlanders and native highlanders: Relation with oxygen consumption. *Resp Physiol & Neurobiol* 171: 115- 121.
3. Koushik Ray K, Dutta A, Panjwani U, Thakur L, Anand JP, Kumar S (2011). Hypobaric Hypoxia Modulates Brain Biogenic Amines and Disturbs Sleep Architecture. *Neurochem Int* 58:112-118, 2011.
4. Dutta A, Vats P, Singh VK, Sharma YK, Singh SN, Singh SB. Impairment of Mitochondrial β -Oxidation in Rats under Cold-Hypoxic Environment. *Int J Biometeorol* 53: 397-407, 2009.
5. Dutta A, Ray K, Singh VK, Vats P, Sharma YK, Singh SN, Singh SB. L-Carnitine Supplementation Attenuates Intermittent Hypoxia- Induced Oxidative Stress and Delays Muscle Fatigue in Rats. *Exp Physiol* 93: 1139- 1146, 2008.

Abstracts Published in Conferences:

1. Arkadeb Dutta, Yoram Gutfreund. Active vision may enhance orientation-contrast based saliency through mechanisms of neural adaptation. Program No. 414.19. 2015 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2015. Online.
2. Arkadeb Dutta, Yoram Gutfreund. Neural Responses to Differently Oriented

“Pop-Out” Visual Targets in the Optic Tectum of the barn Owl. 9 th FENS Forum of Neuroscience. FENS-2677. July 5-9, Milan, Italy, 2014.

3. Arkadeb Dutta, Niranjana Kambi, Partha Raghunathan, Subash Khushu, Neeraj Jain. Functional Magnetic Resonance Imaging (fMRI) of the Normal Somatosensory Cortex in Adult Macaque Monkeys and its Reorganization following Spinal Cord Injuries. 74.01.2011. Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. Online.

4. Arkadeb Dutta, Koushik Ray, Vijay K Singh, Praveen Vats, Som N Singh, Shashi B Singh. L-Carnitine Supplementation Attenuates Intermittent Hypoxia Induced Oxidative Stress and Delays Muscle Fatigue in Rats. (Abstract No. PC94). Physiology 2008 (July 14-16, 2008, University of Cambridge, UK).

5. Arkadeb Dutta, VK Singh, P Vats, SN Singh, S Singh, PK Banerjee. Mitochondrial Long, Medium and Short Chain Carnitine Acyl Transferases Profiles in Rats Exposed to Hypobaric Hypoxia. (Abstract No. PP25). 4th Congress of Federation of Physiological Societies (January 11-13, 2007, Delhi).

6. Arkadeb Dutta, VK Singh, P Vats, SN Singh, SB Singh. Reduced Plasma Leptin may be Responsible for Decreased β -oxidation of fatty acids in rats exposed to cold and hypoxic environment. (P.-120). XIX Annual Conference of Physiological Society of India (December 6-8, 2007, Faridabad).

Invited Talks:

- “Possible Neural Correlates of Concentration Deficit”. Webinar Series on “Meeting the Challenges of Covid-19 Pandemic-The Yogic Way”, Sponsored by Inter-University Centre for Yogic Sciences, 2021.
 - “Neural Correlates of Saliency Detection in the Optic Tectum of the Barn Owls”. Webinar organized by Indian Academy of Neurosciences. Kolkata Chapter. 2020.
 - “Consciousness and Modern Brain Research”. “International One-day Webinar on Consciousness Studies and Research: Ancient and Modern” organized by School of Indian Heritage, RKMVERI and Centre for Consciousness Studies, NIMHANS, 2020.
 - “Yoga for Holistic Health” in Postgraduate Seminar, D N De Homeopathic Medical College & Hospital, Kolkata, 2020.
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Awards:

- International Travel Award 2011 by the Department of Science &

Technology, Government of India, for attending and presenting scientific research work at Society for Neuroscience Meeting 12th-16th November, 2011 in Washington DC, USA.

- International Travel Award 2008 by the Department of Biotechnology, Government of India, for attending and presenting scientific research work at Physiological Society Meeting at University of Cambridge, UK.
- Surg. Rear Admiral M. S. Malhotra Research Prize, Defence Research & Developmental Organization, 2008.
- Junior Scientist Award, 'The Physiological Society of India', 2007
- NET, GATE, SLET(WB) 2003.
