



Partner Symposium
The Royal Society
of Medicine



Biographies - International Association for the Study of Pain

Suzan Meijs



Does a brain make a difference? Role of the central nervous system in perception and how to assess cerebral activity

The talk will cover a variety of methods (eg. evoked potential analyses, time-frequency analyses and use of artificial intelligence) to record and analyze cortical activity in large animals. Results from recent studies in different experimental pain models are discussed and held up to results from human experimental pain models to obtain a comprehensive overview of the role of the central nervous system in pain.

Suzan Meijs is an associate professor at the Center for Neuroplasticity and Pain (CNAP – center of excellence) at Aalborg University, Denmark. She has extensive experience with chronic large animal studies and has worked for more than 5 years with experimental pain models, invasive cortical recordings and behavioral assessments in porcine chronic pain models. Suzan is an a biomedical engineer by training and holds a PhD from Aalborg University within the same field, characterizing chronic neuroprosthetic implants.

Gareth Hathway



Neuroplasticity in the developing and aging nervous system

My talk will describe studies we have been undertaking in neuronal network responses in the aging dorsal horn across the whole life course of the rat. Using a multi-electrode array technique allied with anatomical approaches we have investigated how responses in all laminae of the dorsal horn respond to noxious and innocuous somatosensory stimulation. This new approach differs from traditional single-neuron electrophysiological approaches. These more established approaches rely on extrapolating behaviour of one sub-type of dorsal horn neuron as a representative cells

for the whole tissue. Yet the afferent inputs to each lamina is different and the populations of interneurons and projection neurons they synapse with are highly heterogeneous. By recording from all five laminae we can map how the population response of the dorsal horn changes with age. We can combine this approach with pharmacological manipulations to see how different neuromodulators such as the GABAergic and opioidergic systems alter across the life course. We can also apply long-standing experimental models of synaptic plasticity, Wind-up, to the dorsal horn at each age and determine how and where long-term changes in synaptic strength occur.

I hold a BSc(Hons) from the University of Cardiff and a PhD from the University of Cambridge both in Pharmacology. My post-doctoral work was undertaken in the laboratory of Prof Maria Fitzgerald at UCL. During this exciting period I worked on a range of projects including determination of the role and maturation of endogenous pain control systems from the brainstem to the spinal cord in early life, the impact of injury on the function of these systems and how activity in C-fibre nociceptors is sufficient to drive phenotypic changes in microglia to promote hyperalgesia in the absence of pathology. Since 2009 I have established my own laboratory at The University of Nottingham where my work continues to investigate the physiological basis for pain and nociception. My work on endogenous pain control systems continues with grants from the MRC, changes in dorsal horn neural networks across the life course (BBSRC) and the role of tumour derived factors secreted during chemotherapy on pain in childhood cancer survivors (Medical Research Foundation). I led the highly successful BSc and MSci Neuroscience degree programmes from 2018-2023 and am now the Head of the Physiology, Pharmacology and Neuroscience Research Division in the School of Life Sciences.

Claudia Spadavecchia

Consequences of disbudding on indicators of pain and changes in nociceptive sensitivity in dairy calves

The presentation includes description of methods to assess local sensitivity in cattle, such as behavioural responses, quantitative sensory testing and different neurophysiological approaches. Based on the available knowledge, we will discuss effects of calf age on short and long term allodynia and



hyperalgesia following disbudding as well as briefly discuss short and long term efficacy of anaesthesia and analgesia.

Professor Claudia Spadavecchia is Chair of the Section of Veterinary Anaesthesiology and Pain Therapy at the Clinical Medicine Department of the Vetsuisse Faculty in Bern. In her research work, she aims at developing tools to quantify species-specific nociceptive processes and at refining procedures and techniques to improve pain treatment in animals. Major areas of interest are 1) neurophysiological characterization of acute and persistent pain to provide evidence in the context of animal welfare, 2) development of perioperative pain treatment strategies in clinical and experimental settings and 3) optimization of methods to recognize and treat acute perioperative and chronic pain.

Catherine Williams



Local anaesthesia at piglet castration: administration technique, volume, timing, and behavioural effects.

The talk will address the acute effects of the use of local anaesthesia in Danish piglets, at the time of castration, discussing the effects of the local anaesthesia (here procaine) and its injection in itself, its impact on the acute effects of castration, the interrelation of different measures of pain and stress and postoperative behavioural effects.

Catherine Williams is an Assistant Professor at Aarhus University, Animal and Veterinary Sciences, a vet who worked in small animal practice for 5 years before reintegrating into research, concentrating initially on the interrelation of physiology and anaesthesia and analgesia in non-mammalian species, and now in animals within husbandry.

Eric Troncy, GREPAQ – Université de Montréal, Québec, Canada

Human / veterinary routine intervention and consequences on nociceptive sensitivity

At the turn of 2000s, the demonstration of neonatal circumcision on pain response during subsequent routine vaccination highlighted the phenomenon of pain memory. It provided too the opportunity to demonstrate the efficacy of preemptive analgesia. Both preclinical animal models, and human preterm neonates demonstrated the negative impact of repeated procedural pain-



related stress. In companion animals veterinary care, early exposure to procedural pain is frequent, particularly in Western societies: sterilization, declaw, or other esthetic procedures. What is their impact? A recent secondary metanalysis demonstrated that, compared to osteoarthritis-affected cats, osteoarthritic and declawed cats presented a higher degree of centralized sensitization, which was associated with deleterious biomechanical considerations. How did the authors demonstrate it? Where are we going with electrodiagnosis? With functional imaging? When it is well established that a significant portion of osteoarthritic people suffers about persistent pain after prothesis, could the chronic pain bioplasticity concept to be extended to several conditions to optimize (future) pain management?

Dr. Troncy is Professor and Director of the Research Group in Animal Pharmacology of Quebec (GREPAQ) at the Faculty of Veterinary Medicine of Université de Montréal (QC, Canada). Laureate of the National-Veterinary-School-of-Lyon, he completed an Anaesthesiology Residency, a PhD at the Université-de-Montréal, and a Doctorate in Pharmacology at Louis-Pasteur University-of-Strasbourg (France). He is a renowned member of the scientific veterinary community for his work on animal welfare, pain metrology and its management. His track record includes 104 graduate student supervision, 203 peer-reviewed journal articles, 45 continuing education publications, 228 guest presentations and 296 scientific abstracts.
