



Merve Kaptan. PhD

Basic Life Research Scientist, Anesthesia - Adult Pain Medicine

Bio

BIO

Dr. Kaptan is a researcher with a background in psychology and neuroscience whose work focuses on methodological innovation in quantitative MRI to characterize the structure and function of the brain, spinal cord, and musculoskeletal system. Her research aims to develop imaging markers for neurological, musculoskeletal, and chronic pain disorders.

LINKS

- Neuromuscular Insight Lab: <https://nilab.stanford.edu/>
- GitHub: <https://github.com/NeuromuscularInsightLab>
- Google Scholar: https://scholar.google.com/citations?hl=en&user=tFNMDD4AAAAJ&view_op=list_works&sortby=pubdate
- Spinal Cord Imaging Workshop: <https://nilab.stanford.edu/stanford-spinal-cord-imaging-workshop>
- Musculoskeletal Imaging Workshop: <https://nilab.stanford.edu/stanford-musculoskeletal-imaging-workshop>
- ORCID: <https://orcid.org/0000-0001-8187-4911>
- MuscleMap Toolbox: <https://musclemap.github.io/MuscleMap/>

Publications

PUBLICATIONS

- **Spatial distribution of spinal cord fMRI activity with electrocutaneous stimulation.** *Imaging neuroscience (Cambridge, Mass.)*
Bédard, S., Kaptan, M., Indriolo, T., Law, C. S., Pfyffer, D., Lee, L., Ratliff, J., Hu, S., Tharin, S., Smith, Z. A., Glover, G. H., Mackey, S., Cohen-Adad, et al
2026; 4
- **Patterns of Muscle Health in Single- and Multi-Site Chronic Pain: A UK Biobank Normative Modeling Study.** *medRxiv : the preprint server for health sciences*
Kaptan, M., Wang, Y., de Boer, A., Goyal, A., Holmes, S., Ozkan, K., Bédard, S., Indriolo, T., Law, C. S., Pfyffer, D., Fundaun, J., Berhe, E., Gold, et al
2026
- **REVEALING SYSTEMIC MUSCLE ADAPTATIONS IN KNEE OSTEOARTHRITIS USING NORMATIVE MODELING OF THE UK BIOBANK**
Holmes, S. C., Wesselink, E. O., Mackey, S., Kogan, F., Gold, G., Weber, K. A., Kaptan, M.
ELSEVIER SCI LTD.2026: S261-S262
- **Automated Segmentation of Forearm Muscles: Clinical Associations With Hand Function, Muscle Volume and Intramuscular Fat.** *JCSM communications*
Fundaun, J., Oliva, V., Bédard, S., Wesselink, E. O., Lynn, B. P., Pai S. A., Pfyffer, D., Kaptan, M., Berhe, N., Ratliff, J., Hu, S. S., Smith, Z. A., Hastie, et al

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- **Mapping hand function with simultaneous brain-spinal cord functional MRI.** *Imaging neuroscience (Cambridge, Mass.)*
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- **EPISeg: Automated segmentation of the spinal cord on echo planar images using open-access multi-center data.** *Imaging neuroscience (Cambridge, Mass.)*
Banerjee, R., Kaptan, M., Tinnermann, A., Khatibi, A., Dabbagh, A., Büchel, C., Kündig, C. W., Law, C. S., Pfyffer, D., Lythgoe, D. J., Tsivaka, D., Van De Ville, D., Eippert, et al
2025; 3
- **Innovations in acute and chronic pain biomarkers: enhancing diagnosis and personalized therapy.** *Regional anesthesia and pain medicine*
Mackey, S., Aghaeepour, N., Gaudilliere, B., Kao, M. C., Kaptan, M., Lannon, E., Pfyffer, D., Weber, K.
2025; 50 (2): 110-120
- **Spatial distribution of spinal cord fMRI activity with electrocutaneous stimulation.** *medRxiv : the preprint server for health sciences*
Bédard, S., Kaptan, M., Indriolo, T., Law, C. S., Pfyffer, D., Lee, L., Ratliff, J., Hu, S., Tharin, S., Smith, Z. A., Glover, G. H., Mackey, S., Cohen-Adad, et al
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- **Cold Pressor Test During Functional Magnetic Resonance Imaging Identifies Neural Correlates of Aberrant Conditioned Pain Modulation in Fibromyalgia**
Pfyffer, D., Kaptan, M., Indriolo, T., Li, K., Glover, G., Law, C., Mackey, S.
CHURCHILL LIVINGSTONE.2026
- **Mechanical Pressure Pain Elicits Strong Onset Responses in Brain and Spinal Cord**
Law, C. S. W., Pfyffer, D., Kaptan, M., Wang, Y., Weber, K., Glover, G., Mackey, S.
CHURCHILL LIVINGSTONE.2026
- **Differential Encoding of Noxious Heat and Self-Reported Pain Along Corticospinal Networks: A Simultaneous Brain-Spinal Cord Functional Magnetic Resonance Imaging Study**
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- **Differential encoding of noxious heat and self-reported pain along corticospinal networks: a simultaneous spinal cord-brain fMRI study.** *bioRxiv : the preprint server for biology*
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- **Assessing Functional Connectivity Between Brain and Spinal Cord During Thermal Pain**
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- **Brain and Spinal Cord Correlates of Deficient Endogenous Pain Modulation in Fibromyalgia Identified by Corticospinal Functional Magnetic Resonance Imaging**
Pfyffer, D., Kaptan, M., Law, C. S. W., Weber, K. A., Oliva, V., Bédard, S., Indriolo, T., Maronesy, T., Glover, G. H., Mackey, S.
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- **EPISeg: Automated segmentation of the spinal cord on echo planar images using open-access multi-center data.** *bioRxiv : the preprint server for biology*
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- **Reliability of task-based fMRI in the dorsal horn of the human spinal cord** *IMAGING NEUROSCIENCE*
Dabbagh, A., Horn, U., Kaptan, M., Mildner, T., Mueller, R., Lepsien, J., Weiskopf, N., Brooks, J. C. W., Finsterbusch, J., Eippert, F.
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- **Reliability of task-based fMRI in the dorsal horn of the human spinal cord.** *Imaging neuroscience (Cambridge, Mass.)*
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- **Exploring Neuronal Underpinnings of Emotional Regulation of Pain in Fibromyalgia Patients**
Kaptan, M., Pfyffer, D., Law, C. S. W., Oliva, V., Weber, K., Glover, G., Mackey, S.
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- **Which Types of Ruminative Thinking Style Predict Worse Depression, Anxiety, and Anger Symptoms in Chronic Pain Patients?**
Konstantopoulos, C. G., Kaptan, M., Mackey, S. C., You, D. S.
CHURCHILL LIVINGSTONE.2024: 65-66
- **Which Types of Rumination Will Predict Longitudinal Physical and Psychological Status in Patients with Chronic Pain?**
Kaptan, M., Konstantopoulos, C. G., Mackey, S. C., You, D. S.
CHURCHILL LIVINGSTONE.2024: 65
- **Imaging Corticospinal Correlates of Aberrant Pain Processing and Modulation in Fibromyalgia Using Combined Brain-Spinal Cord Functional Magnetic Resonance Imaging**
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- **Recent developments and future avenues for human corticospinal neuroimaging.** *Frontiers in human neuroscience*
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- **Exploring Corticospinal Functional Connectome Using Resting-State Functional Magnetic Resonance Imaging**
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- **Imaging Noxious Thermal Intensity Encoding Along The Neuraxis Using Simultaneous Spinal Cord-Brain Functional Magnetic Resonance Imaging**
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