

# Cole Korponay

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## **EDUCATION and TRAINING**

<b>McLean Hospital – Harvard Medical School</b> Basic Neuroscience - Psychiatry <i>Instructor</i>	<i>2022-present</i>
<b>McLean Hospital – Harvard Medical School</b> Basic Neuroscience - Psychiatry <i>Postdoctoral Fellow</i> Advisors: Elliot Stein & Suzanne Haber	<i>2017-2022</i>
<b>University of Wisconsin-Madison</b> Neuroscience & Public Policy Program <i>Ph.D., Neuroscience</i> <i>Master of Public Affairs</i> Advisors: Richard Davidson & Michael Koenigs	<i>2014-2017</i>
<b>University of Pennsylvania</b> <i>B.A., Cognitive Science</i>	<i>2010-2014</i>

## **AWARDS, HONORS and FUNDING**

Travel Award, Resting-State Brain Connectivity Conference	<i>2023</i>
Co-Chair, Nicotine Imaging Session, College on Problems of Drug Dependence (CPDD) Annual Meeting	<i>2022</i>
NIDA Directors Travel Award, College on Problems of Drug Dependence	<i>2022</i>
Trainee Professional Development Award (TPDA), Society for Neuroscience	<i>2019</i>
Travel Award, Minnesota Symposium on Addiction Neuroscience	<i>2019</i>
Ruth L. Kirschstein National Research Service Award (NRSA) Individual Postdoctoral Fellowship (F32)	<i>2019</i>
Young Scientist Development Award, Harvard Brain Science Initiative	<i>2019</i>
Travel Award, Wisconsin Symposium on Emotion	<i>2019</i>

Piore Prize for Best Paper in Science and Public Policy	2017
Merit Grant (T32), UW-Madison Neuroscience Training Program	2016

## **PUBLICATIONS**

*(in prep)*

22) **Korponay, C.**, Connectivity profiles and their (mis)configuration: a rethink of circuit analysis in clinical neuroimaging

21) **Korponay, C.**, Janes, A.C. The temporally dynamic configurations of frontostriatal connectivity profiles

20) Das, M., Zuo, C., **Korponay, C.**, Lukas, S. Neurochemical and structural brain changes in cocaine users during early withdrawal

19) Hill, J.A., **Korponay, C.**, Salmeron, B.J., Ross, T.J., Janes, A.C. Dopamine alters brain state temporal dynamics and connectivity profile configurations in a manner tied to psychomotor speed

18) Nickerson, L., **Korponay, C.**, Cohen-Gilbert, J., McManus, K., Frederick, B., Kumar, P., Harper, D.G. Multi-modal structural-molecular covariance patterns predictive of dementia ratings and depression severity in older adults

*(Preprints)*

17) **Korponay, C.**, Janes, A.C., Frederick, B.B. (2023) Brain-wide functional connectivity artifactually inflates throughout fMRI scans: a problem and solution

16) **Korponay, C.**, Stein E.A., Ross, T.J. (2022) The temporal organization of corticostriatal communications. *bioRxiv*  
**[Invited for Oral Presentation at CNS]**

*(Peer-Reviewed)*

15) **Korponay, C.** (2023) Snapping out of autopilot: Overriding habits in real time and the role of ventrolateral prefrontal cortex. *Perspectives on Psychological Science*, 18 (2), 482–490.

14) **Korponay, C.**, Stein E.A., Ross, T.J. (2022) Misconfigured striatal connectivity profiles in smokers. *Neuropsychopharmacology*, 47(12), 2081-2089.  
**[Invited for Oral Presentation at CPDD; NIDA IRP Paper of the Month]**

13) **Korponay, C.** (2022) The next frontier in combatting drug addiction in America. *MIT Science Policy Review*, 3.  
**[Front Cover Feature]**

12) Kral, T.R.A., Davis, K., **Korponay, C.** Hoel, R., Tello, L.Y., Goldman, R., Rosenkranz, M.A., Lutz, A., Davidson, R.J. (2022) Absence of structural brain changes from Mindfulness-Based Stress Reduction: Two combined randomized controlled trials. *Science Advances*, 8(20): eabk3316.

11) **Korponay, C.**, Stein E.A., Ross, T.J. (2022) Laterality hotspots in the striatum. *Cerebral Cortex*, 32(14), 2943-2956  
**[NIDA IRP Paper of the Month]**

10) **Korponay, C.**, and Koenigs, M. (2021) Gray matter correlates of impulsivity in psychopathy and in the general population differ by kind, not by degree: A comparison of systematic reviews. *Social Cognitive and Affective Neuroscience*, 16 (7), 683-695

9) **Korponay, C.**, Choi, E.Y., Haber, S.N. (2020) Corticostriatal Projections of Macaque Area 44. *Cerebral Cortex Communications*, 1(1), tga079.

8) Adluru, N., **Korponay, C.**, Norton, D.L., Goldman, R.I., Davidson, R.J. (2020). BrainAGE and regional volumetric analysis of a Buddhist Monk: a longitudinal MRI case study. *NeuroCase*, 26(2), 79-90.

7) **Korponay, C.**, Dentico, D., Kral, T., Ly, M., Kruis, A., Davis, K., Goldman, R., Lutz, A., and Davidson, R. (2019). The effect of mindfulness meditation on impulsivity and its neurobiological correlates in healthy adults. *Scientific Reports*, 9(1), 11963.

6) **Korponay, C.**, Kosson, D.S., Decety, J., Kiehl, K.A. and Koenigs, M. (2017). Brain volume correlates with duration of abstinence from substance abuse in a region-specific and substance-specific manner. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*. 2(7), pp. 626-635.

5) **Korponay, C.**, Dentico, D., Kral, T., Ly, M., Kruis, A., Goldman, R., Lutz, A., and Davidson, R. (2017). Neurobiological correlates of impulsivity in healthy adults: lower prefrontal gray matter volume and spontaneous eye-blink rate but greater resting-state functional connectivity in basal ganglia-thalamo-cortical circuitry. *NeuroImage*, 157, 288-296.

4) **Korponay, C.**, Pujara, M., Deming, P., Philippi, C., Decety, J., Kosson, D.S., Kiehl, K.A. and Koenigs, M. (2017). Impulsive-antisocial psychopathic traits linked to increased volume and functional connectivity within prefrontal cortex. *Social Cognitive and Affective Neuroscience*, 12, 1169-1178.

3) **Korponay, C.**, Pujara, M., Deming, P., Philippi, C., Decety, J., Kosson, D.S., Kiehl,

K.A. and Koenigs, M. (2017). Impulsive-antisocial dimension of psychopathy linked to enlargement and abnormal functional connectivity of the striatum. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*, 2(2), pp.149-157.

2) **Korponay, C.**, Nitzburg, G.C., Malhotra, A.K. and DeRosse, P. (2014). Positive and negative subclinical symptoms and MCCB performance in non-psychiatric controls. *Schizophrenia Research: Cognition*, 1(4), pp.175-179.

(Book Chapters)

1) **Korponay, C.** and Koenigs, M. (2016). The neurobiology of antisocial and amoral behavior: Insights from brain science and implications for law. *Legal Insanity and the Brain: Science, Law and European Courts*, Moratti, S. & Patterson, D, (Editors), Bloomsbury Publishing.

## **TEACHING and MENTORING**

Senior Teaching Fellow, Harvard Psychology Department,  
Cambridge, MA

2021-present

*Fall 2023 PSY 15 – Social Psychology  
(Section Leader for 2 sections; Course Head: Dr. Fiery Cushman)*

*Spring 2023 PSY 15 – Social Psychology  
(Section Leader for 3 sections; Course Head: Dr. Fiery Cushman)*

*Spring 2022 PSY 18 – Psychopathology  
(Section Leader for 3 sections; Course Head: Dr. Rebecca Shingleton)*

*Fall 2021 PSY 1201 – Your Brain on Drugs: Psychopharmacology  
(Section Leader for 3 sections; Course Head: Dr. Scott Lukas)*

Science Mentoring Workshop Intensive, Science Education Office,  
Harvard University

2021-2022

SAT Classroom Instructor, Princeton Review, Boston, MA

2019-2021

ACT and Math Tutor, Galin Education, Madison, WI

2016-2017

Neuroscience Instructor, PEOPLE Program (Summer enrichment  
for incoming college students from backgrounds underrepresented  
in higher education), Madison, WI

Summer 2016

Neuroscience Instructor, PEOPLE Program (Summer enrichment

Summer 2015

for incoming college students from backgrounds underrepresented in higher education), Madison, WI

Student Mentor, Adult Role Models in Science (ARMS) Program, Madison, WI 2015

Student Mentor, Community School Student Partnerships (CSSP) Program, Philadelphia, PA 2011-2014

## **INVITED TALKS**

“Toward more neurobiologically-grounded metrics of brain circuit integrity in resting-state fMRI data”, February 2023, Whistler Scientific Workshop on Brain Functional Organization, Connectivity and Behavior

“Connectivity profile (mis)configuration: insights from anatomy and implications for clinical neuroimaging”, July 2022, Heilbronner Lab, University of Minnesota

“Misconfiguration of striatal connectivity profiles in smokers”, June 2022, Oral Communication Presentation, College on Problems of Drug Dependence (CPDD) Annual Meeting

“Communication synchrony across corticostriatal connections: a temporal tier of circuit architecture”, April 2022, Data Blitz Talk, Cognitive Neuroscience Society (CNS) Annual Meeting

“Connectivity Profile Configuration: Insights from Anatomy and Implications for Clinical Neuroimaging”, March 2022, Intramural Research Program (IRP), National Institute on Drug Abuse (NIDA)

“Connectivity Profile Configuration: Insights from Anatomy and Implications for Clinical Neuroimaging”, March 2022, Yale Imaging and Psychopharmacology Lab, Yale Psychiatry Department

“Toward Clinically-Actionable Neuroscience: How Brain Research Can Help Individuals with Mental Illness”, February 2022, Guest Lecture for *PSY 18 Psychopathology*, Harvard Psychology Department

“Misconfigured connectivity profiles: insights from anatomy and applications for clinical neuroimaging and neuromodulation”, September 2021, Laboratory for Brain Network Imaging and Modulation, Brigham and Women’s Hospital

“Ventrolateral prefrontal innervation of motor, cognitive and limbic striatal zones provides a substrate for reinforcement-learning of diverse inhibition and control functions”, September 2019, NeuroWIP Seminar, McLean Hospital

"Neuroanatomical Interfacing between the Goal-Directed and Habitual Behavior Systems", November 2018, *Society for Mind, Brain and Behavior*, Harvard University

"The Neuroscience of Criminal Behavior: Insights from Brain Science and Implications for Law", April 2017, *Neuro-Night*, University of Wisconsin-Madison

"Examining relationships between striatal neurobiology and impulsivity in psychopaths and meditators", February 2016, *Brain Food*, University of Wisconsin-Madison

### **JOURNAL REVIEWING**

- *NeuroImage*
- *Social Cognitive and Affective Neuroscience*
- *European Journal of Neuroscience*
- *Neuroscience*
- *Psychological Medicine*
- *Human Brain Mapping*
- *Behavioural Brain Research*
- *Addiction Neuroscience*
- *Research on Child and Adolescent Psychopathology*