Application of Neuroscience for Prevention Scientists: Core Concepts and Emerging Directions

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Pre-Conference Workshop for the 2018 Society for Prevention Research Annual Meeting

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Workshop Outline

Morning Session
- Introductions and orientation
- What is neuroscience and how can it benefit prevention science?
  - Break
- Paradigms of risky decision making
- Understanding the role of delay discounting in drug abuse

Afternoon Session
- The brain at rest
- Early life stress and the brain
  - Break
- Neuroscience research with adolescents and understudied populations
- Auburn Neural Network App
  - Break
- Concluding Discussion and Questions
The Presenters

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An introduction to CTAPS

- P30 NIDA Core Center of Excellence
  - Basic and preventive investigations of drug use risk and resilience
  - African American youth and young adults living in the rural southeastern US
Our History

- Create prevention programming for rural African Americans
- Feasibility of G × E research with rural African Americans
- Test $G \times E$ and $G \times I$ models for drug use research with rural African Americans

Brody et al., 2014
Our History

- Transdisciplinary research on the relationship between stress, stress biology, and substance use
- Pioneering research on multi-level effects of family-centered preventive interventions

Barton et al., 2018

Miller et al., 2014
Recent CTAPS accomplishments

- In first 4 years of current grant cycle
  - 164 publications
  - 50+ grants awarded to Center scientists
  - Training of 10 mentees (5 with K awards)
- 9 Pilot Studies / Data Enrichment Initiatives

![CTAPS Cumulative Publications](chart.png)
CTAPS as a national resource

- Website with nearly 10,000 hits
- Webinars, resource guides, lay summaries
- National symposia, workshops
- Consultation services
- Prevention program dissemination
Neuroscience research by our Center

- Develop protocols and sponsor pilot imaging research
  - 4 Neuroimaging-focused pilot studies

- Featured Pilot: Adversity, Inflammation, and the Brain
  - 119 rural African Americans
  - Subsample of participants from larger study that have been followed from age 11
  - MRI assessment, intravenous blood draw, behaivoral tasks

- Results to date:
  - 4 published articles
  - 4 under review
  - …and more analyses to come!
Neuroscience research by our Center


*Age sensitive associations of adolescent substance use with amygdalar, ventral striatum, and frontal volumes in young adulthood*
Neuroscience research by our Center


Protective prevention effects on the association of poverty with brain development

![Graph showing the association between years in poverty and left amygdalar volume](image)