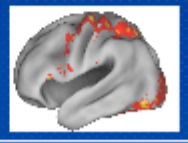
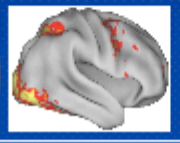


CNTRICS



Cognitive Neuroscience Treatment Research to Improve Cognition in Schizophrenia


MATRICS
Measurement And Treatment Research
to Improve Cognition in Schizophrenia

Tools and Constructs of Cognitive Neuroscience: The Opportunities

- Measure specific deficits in discrete cognitive systems and component processes
- Linked to identifiable neural systems
- Functionally regulated by identifiable neuromodulatory systems
- Distinguish between specific deficits versus generalized deficits such as sedation, dysphoria, poor test taking skills, etc.
- Bridge human and animal models of cognition, facilitate translational research

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Tools and Constructs of Cognitive Neuroscience: The Challenges

- No general consensus regarding constructs from cognitive psychology that should be measured
- Uncertain psychometric properties and practicalities of administration
- No generally agreed upon tasks for measuring specific mechanisms

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GOALS of CNTRICS

- Develop a set of cognitive neuroscience based measures that can be used in studies of treatment development for impaired cognition in schizophrenia
- Behavioral measures that can also be incorporated into non invasive imaging studies in humans and applied in some form in animal models of disease
- Enhance the development of targeted treatment in all phases of drug development

The CNTRICS Process: Surveys and Meetings

- Meeting 1, Bethesda 2/26-7: Constructs
- Meeting 2, St. Louis 9/28: Measurement issues (psychometrics, task optimization)
- Meeting 3, Sacramento 3 2008: Task selection and development

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Meeting 1 Process

- Talks
- Breakout Groups
- Full group review and fine tuning of breakout group recommendations

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Initial Construct List

- Perceptual processing
- Attention
- Working Memory
- Long Term Memory
- Executive Functions/Cognitive Control
- Social and Emotional Processing

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Categories

- 1. Recommended for development as a treatment target, strongly meets all criteria
- 2. Important for future development but needs more basic cognitive neuroscience research (e.g. construct needs further validation, links to neural systems not clear)
- 3. Important for future development but needs additional validation of relevance for schizophrenia
- 4. Not for future development

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Mechanisms Selected For Translation

- Attention
  - Control of attention
- Executive Control
  - Rule generation and selection
  - Dynamic adjustments of control
- Long Term Memory
  - Relational encoding and retrieval
  - Item encoding and retrieval
  - Reinforcement learning

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Mechanisms Selected For Translation

- Working Memory
  - Goal Maintenance
  - Interference Control
- Perception
  - Gain Control
  - Integration
- Social and Emotional Processing
  - Affect Recognition and Evaluation

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Products of Meeting 1

- A set of priority constructs for task development in meeting 3
  http://cntrics.ucdavis.edu
- Papers summarizing talks and breakout groups for publication

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Meeting 2

- September 18th, St. Louis Missouri
- Measurement issues,
  -specific vs generalized deficits
  -optimizing discriminating power for group differences and treatment effects
  -practicalities of translating experimental cognitive measures.

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Meeting 2 Process

- Optimal measurement of treatment effects on specific cognitive deficits in schizophrenia
- Pre-meeting Survey
- Talks
- Group discussion with moderator

Meeting 2 Products

- Based upon group discussion
- Papers to be published in *Psychological Assessment*
- Guidelines, principles, benchmarks and an informed discussion of trade-offs for the development and optimization of sensitive and specific measures of treatment effects on cognition in schizophrenia.

Beyond CNTRICS

- CNTRICS is the beginning of a longer process
- Psychometric and neurometric studies and optimization of measures will be needed
- Animal CNTRICS is in development to be coordinated with the third meeting
- 21st Century approaches to treatment development for the major mental health challenges of our time

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