

Our task instructions are available in a wide variety of languages including:

- English
- French
- German
- Italian
- Spanish
- Dutch
- Portuguese
- Japanese

Other languages are also available on request.

## ADHD Cognitive Test Battery



### Scientific Literature

1. Pietrzak RH, Mollica CM, Maruff P, Snyder PJ. (2006) Cognitive effects of immediate-release methylphenidate in children with attention-deficit/hyperactivity disorder. *Neurosci Biobehav Rev.* 30: 1225-45.
2. Linda Mayes a; Peter Snyder; Eric Langlois a; Nicole Hunter. (in press) Visuospatial Working Memory in School-Aged Children Exposed In Utero to Cocaine. *Child neuropsychology.*
3. Mollica CM, Maruff P, Collie A, Vance A (2005) Repeated assessment of cognition in children and the measurement of performance change. *Neuropsychol Dev Cogn C Child Neuropsychol.* 11, 303-10.
4. Betts J, McKay J, Maruff P, Anderson V. (2006) The development of sustained attention in children: the effect of age and task load. *Child Neuropsychology.* 2006 Jun;12(3):205-21.
5. Mollica C, Maruff P, Vance A (2004) Development of a statistical method for defining response to stimulant medication in children with ADHD combined type. *Human Psychopharmacology.* 19, 445-447.

### About CogState

CogState is a provider of cognitive testing products and services that predominantly caters to the global pharmaceutical industry. CogState tests use simple but effective technology to detect cognitive change in subjects. Widely acknowledged as being the fastest tests in the world with outstanding levels of sensitivity, their validity has been confirmed in over 100 peer-reviewed publications. CogState tests have been used in over 60 clinical trials ranging from Phase I to Phase IV, with both healthy volunteers and patient groups.

CogState is a publicly listed company, trading on the Australian Stock Exchange (ASX:CGS), with offices in Melbourne, Australia, New Haven, CT, USA and the UK. CogState ClinicalTrials is used extensively by leading FDA-regulated pharmaceutical companies throughout the world to assess the effect of their drugs on human cognition. Our customers include 5 of the leading top 10 pharmaceutical companies, over 25 leading universities worldwide and numerous smaller pharmaceutical and biotech companies. FDA 21 CFR Part 11 compliant, the company's quality and data systems have been audited successfully by independent consultants and multinational pharmaceutical companies.

- **Rapid: A brief battery can be completed in only 8 minutes.**
- **Sensitive to the effects of novel compounds and licensed medication.**
- **Sensitive to the effects of medication in groups or individual patients.**
- **Appropriate for use with both children and adults.**



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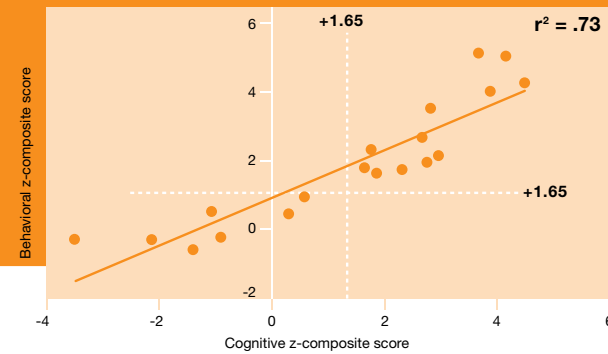
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THE MAZE LEARNING TESTS DESCRIBED HERE WERE DEVELOPED BY PFIZER AND ARE SOLD UNDER EXCLUSIVE LICENCE FROM PFIZER



Screenshot of Maze Learning Task

The effect of an acute dose of dex amphetamine on cognitive performance on the CogState ADHD battery in individual children with ADHD. In this figure, treatment response was defined as an improvement in cognitive function if greater than 1.65 standard deviation units.

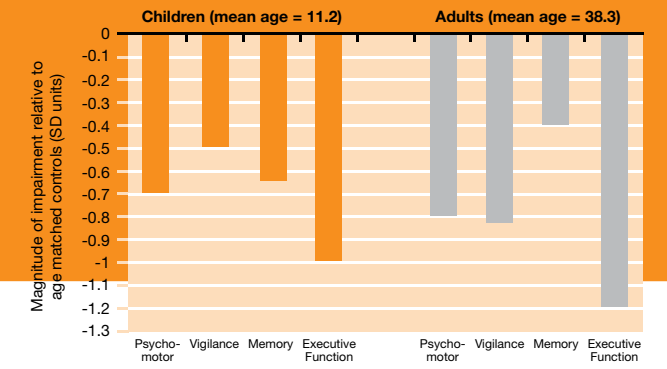


The effect of 7.5mg dex on composite cognitive and behavioral change scores in ADHD



Screenshot of Detection Task

Magnitude of impairment in psychomotor function, attention, memory and executive function in children and adults with ADHD who were naïve to stimulant medication at assessment. Data shows magnitude of impairment relative to age and education matched controls and magnitude of impairment is given in standard deviation units (Cohen's d).



Magnitude of impairment in cognitive function in children and adults with ADHD

# The CogState ADHD Battery

The CogState ADHD battery is a rapid and accurate test of cognitive function that has been developed specifically for the repeated assessment of children with psychiatric disorders such as ADHD. It has also been used to study the same cognitive functions in adults with ADHD.

The non-verbal stimuli, constant stimulus-response requirements and simple instructions mean that the CogState ADHD battery can be applied to the assessment of cognitive function in children over the age of four years as well as in adults from different language, cultural and socio-economic backgrounds.

The outcome measures from the CogState ADHD battery have been shown to be sensitive to cognitive impairment in ADHD and also sensitive to the effects of medication in both children and adults with ADHD.

The CogState ADHD battery allows for non-expert administration on standard computer equipment, which lowers cost and makes it easier to integrate into any clinical trial.

## Our test battery is customizable:

We can provide either a very brief test battery that takes only 8 minutes to administer, or a more extensive battery that covers a greater number of cognitive domains. The rapid battery provides measures of attention, vigilance and executive function. For a more detailed assessment, other tasks that measure verbal learning & memory, visual learning & memory and social cognition can be added to the battery.

Brief Battery (8 minutes to administer)

### Attention and Vigilance

#### 1 Detection Task

The pre-task on-screen instructions ask: **“Has the card turned over?”** A playing card is presented in the center of the screen. The card will flip over so it is face up. As soon as it does, the subject must press the **“Yes”** key. The card will go to the back of the pack and the subject must press the **“Yes”** key as soon as the next card flips over and so on.

#### 2 Identification Task

The pre-task on-screen instructions ask: **“Is the card red?”** A playing card is presented in the center of the screen. The card will flip over so it is face up. As soon as it does this the subject must decide whether the card is red or not. If it is red they should press **“Yes”**, if it is not red they should press **“No”**.

### Executive Function

#### 3 One Back Task

The pre-task on-screen instructions ask: **“Does the face up card exactly match the one before?”** A playing card is presented face up in the center of the screen. The subject must decide as each card is presented whether it is identical to the one just before. If the card is identical to the card presented immediately before it, they should press **“Yes”**. If it is not, they should press **“No”**.

#### 4 Groton Maze Learning Task

The subject is shown a 10 x 10 grid of tiles on a computer touch screen. A 28-step pathway is hidden among these 100 possible locations. The start is indicated by the blue tile at the top left and the finish location is the tile with the red circles at the bottom right of the grid. The subject is instructed to move one step from the start location and then to continue, one tile at a time, toward the end (bottom right).

Add any number of these tasks for a more comprehensive battery

### International Shopping List Task

The subject is told by the test supervisor: **“In this task, I am going to read you a shopping list. I would like you to remember as many items from this list as possible. Are you ready to start?”** The test supervisor reads the list of words as they appear on the computer screen. When the test supervisor has read all the words, the subject is required to recall as many items as possible from the list.

### Social-Emotional Cognition Task

The pre-task on-screen instructions ask, **“Tap the odd one out”**. In this task, the subject will see a number of pictures on the screen. One of these pictures will be different to the others in some way. The subject must decide which one of the pictures is different then tap that picture as quickly as they can.

### One Card Learning Task

The pre-task on-screen instructions ask: **“Have you seen this card before in this task?”** A playing card is presented in the center of the screen. As soon as it does the subject must decide whether or not the same card has been seen before in this task. Subjects must try to remember all the cards that have been shown previously in order to decide whether or not they have seen each card before.