

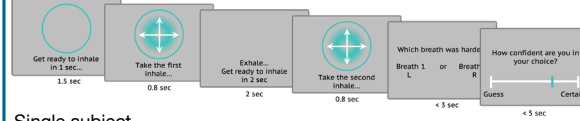
The Respiratory Resistance Sensitivity Task (RRST): a novel method for measuring respiratory interoception and metacognition

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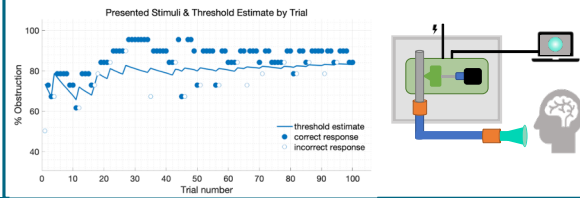
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Introduction

Trial schematic



Single subject



What is respiration?

- Respiratory interoception, ability to sense and monitor physical sensations arising from the lungs and airway
- While interest in measuring respiration has been growing in recent years, the existing methods for quantifying it are imprecise and difficult to administrate

What does the task measure?

- The respiratory resistance sensitivity task (RRST) measures the ability to detect small changes in resistance caused by mechanical obstruction on a circuit used for inhaling

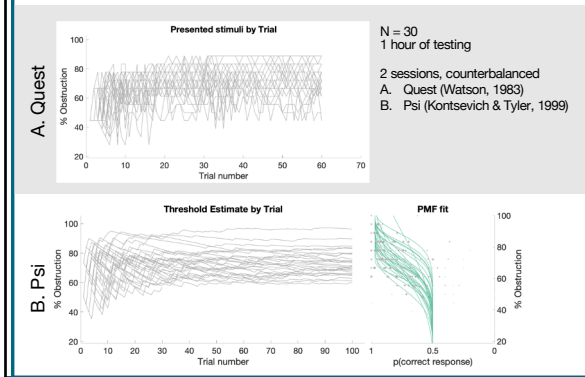
How does it work?

- A 'load' is moved to adjust the compression of a silicone tube on each trial & participants breathe through a sanitary circuit connecting to this tube

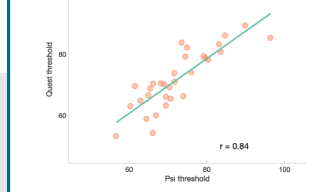
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Methods

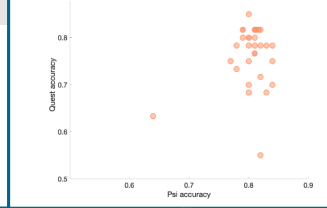
Validation using two psychophysical staircase procedures



Reliability between Psi and Quest threshold estimates



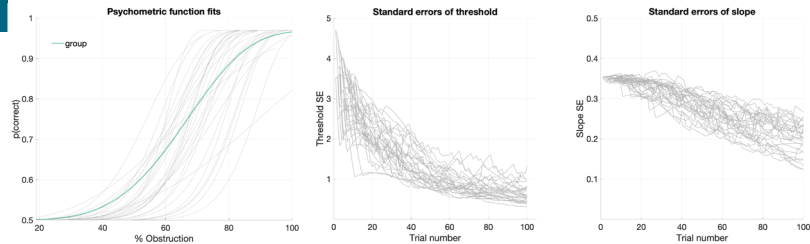
Psi constrains accuracy within 75-85% correct



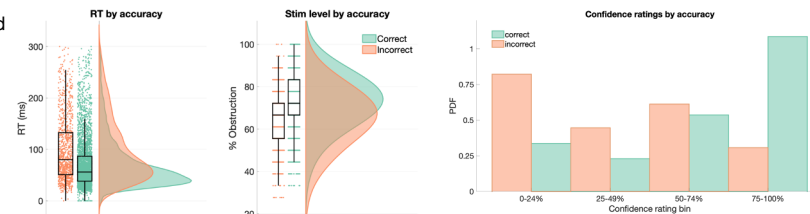
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Results

Psychometric function



Perceptual and metacognitive performance

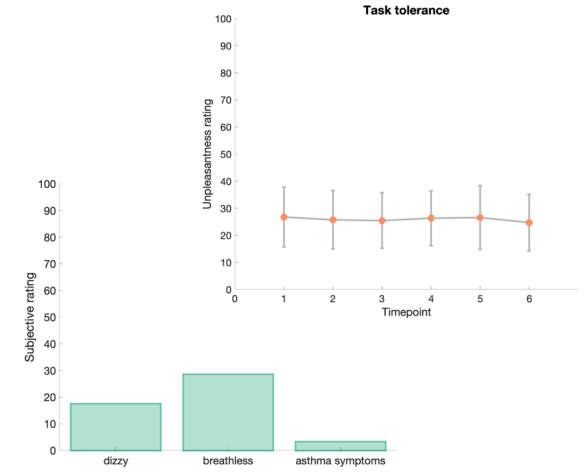


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Discussion

The Respiratory Resistance Sensitivity Task is:

- A Bayesian psychophysical task for measuring respiratory interoception
- Allows estimates of threshold within 50 trials (20 minutes of testing)
- Automatic, and uses affordable materials and 3D printed parts
- Tolerable by participants



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