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

What is respiroception?
• Respiratory interoception, ability to sense and monitor physical sensations arising from the lungs and airway
• While interest in measuring respiroception 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

Methods
Validation using two psychophysical staircase procedures

A. Quest
B. Psi

Reliability between Psi and Quest thresholds estimates
Psi constrains accuracy within 75-85% correct

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