

PATIENT-ORIENTED ASSESSMENT OF SUSTAINED ATTENTION

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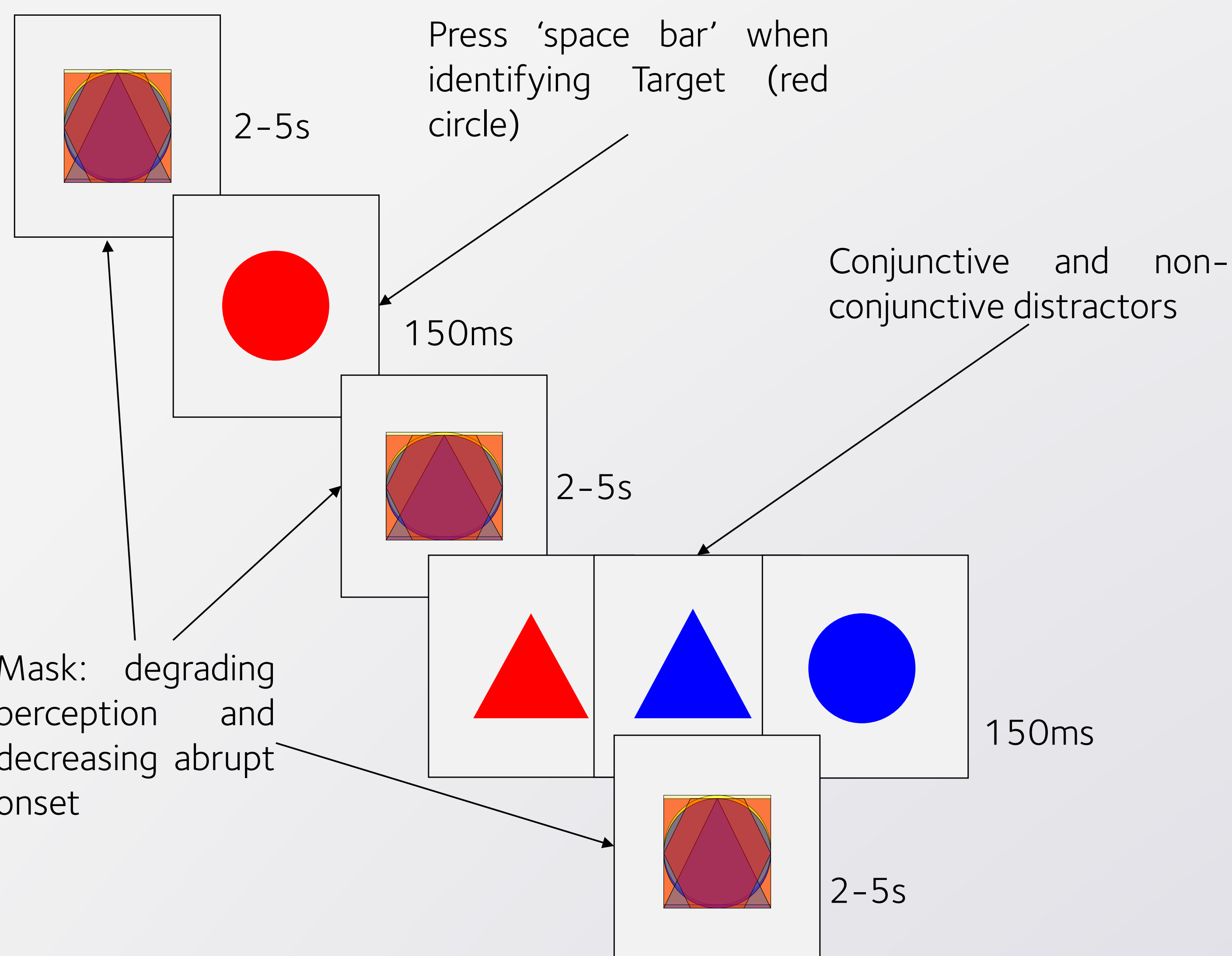
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INTRODUCTION

Sustained attention is often assessed based on reaction times (RT), with ceiling performance in accuracy measures. This approach could lead to many confounds when working with clinical and older population. We attempt to measure sustained-attention without relying solely on RT, and well as to relate task-performance with symptoms of cognitive failures.

MCCPT: MASKED CONJUNCTIVE CONTINUOUS PERFORMANCE TASK



60 Participants: 37 adult controls and 23 stroke survivors

Outcome measures: RT-STD, d' -prime¹ and d' -prime cost. d' -prime cost was defined as the difference between d' in the first and the second half of the task.

The experiment lasts approximately 10 minutes, consisting of 60 targets and 120 distractors. Distractor types were equally distributed

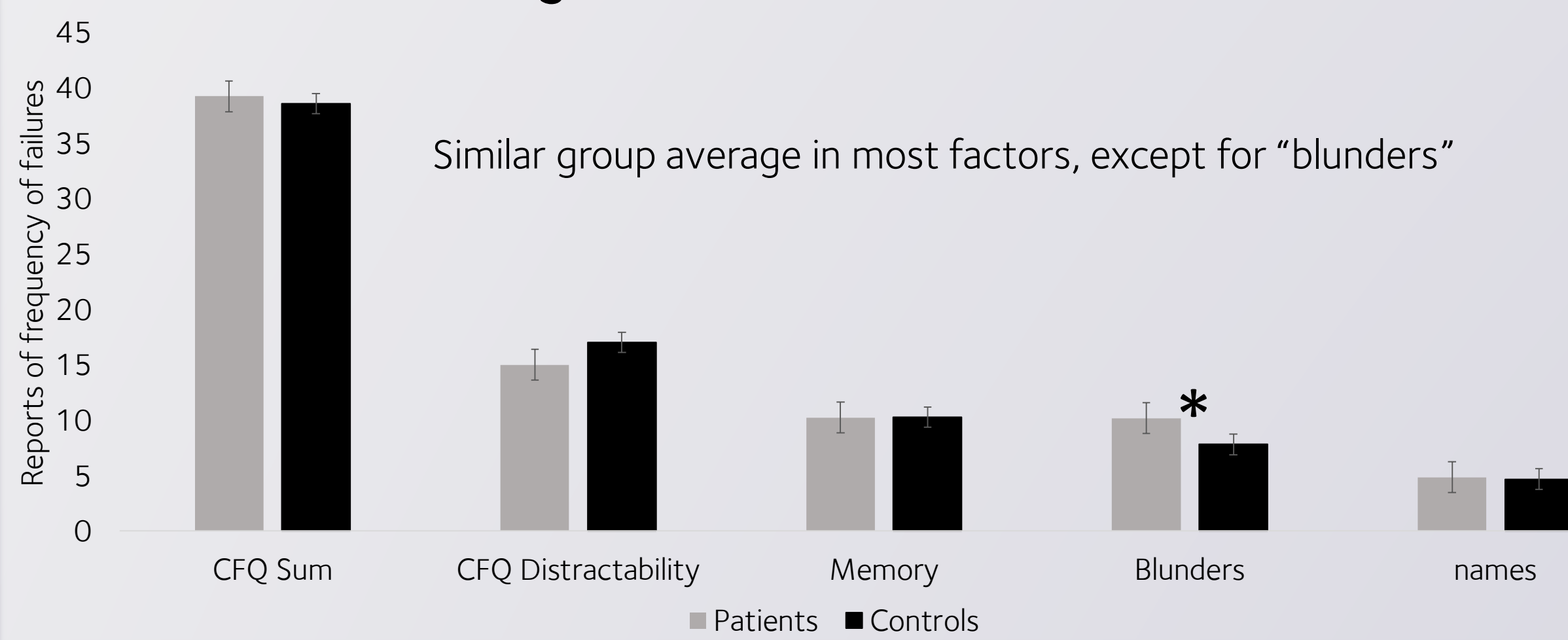
We estimate tonic-alertness - the ability to maintain attention over time; and phasic-alertness which is rapid change in attention due to a brief event

We used the Cognitive Failure Questionnaire² (CFQ) to assess cognitive difficulties, including the Distractibility factor

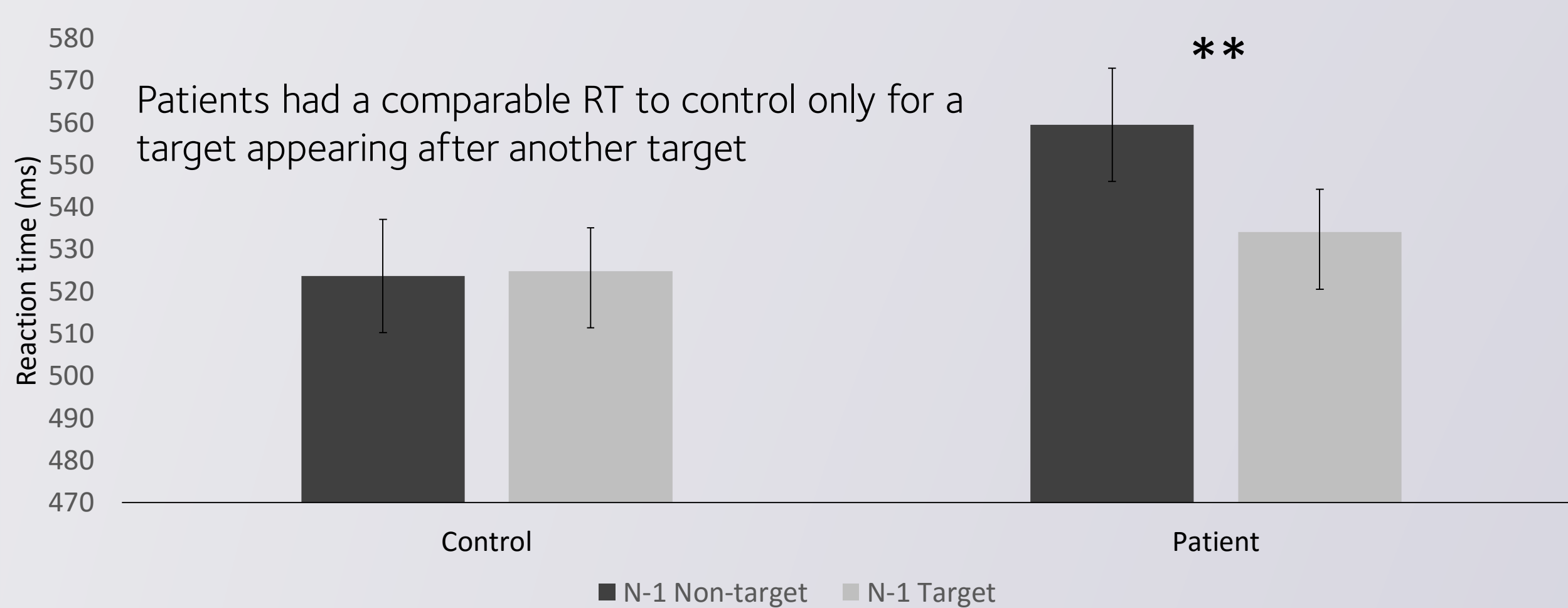
RESULTS

Group Differences

Cognitive Failure Questionnaire

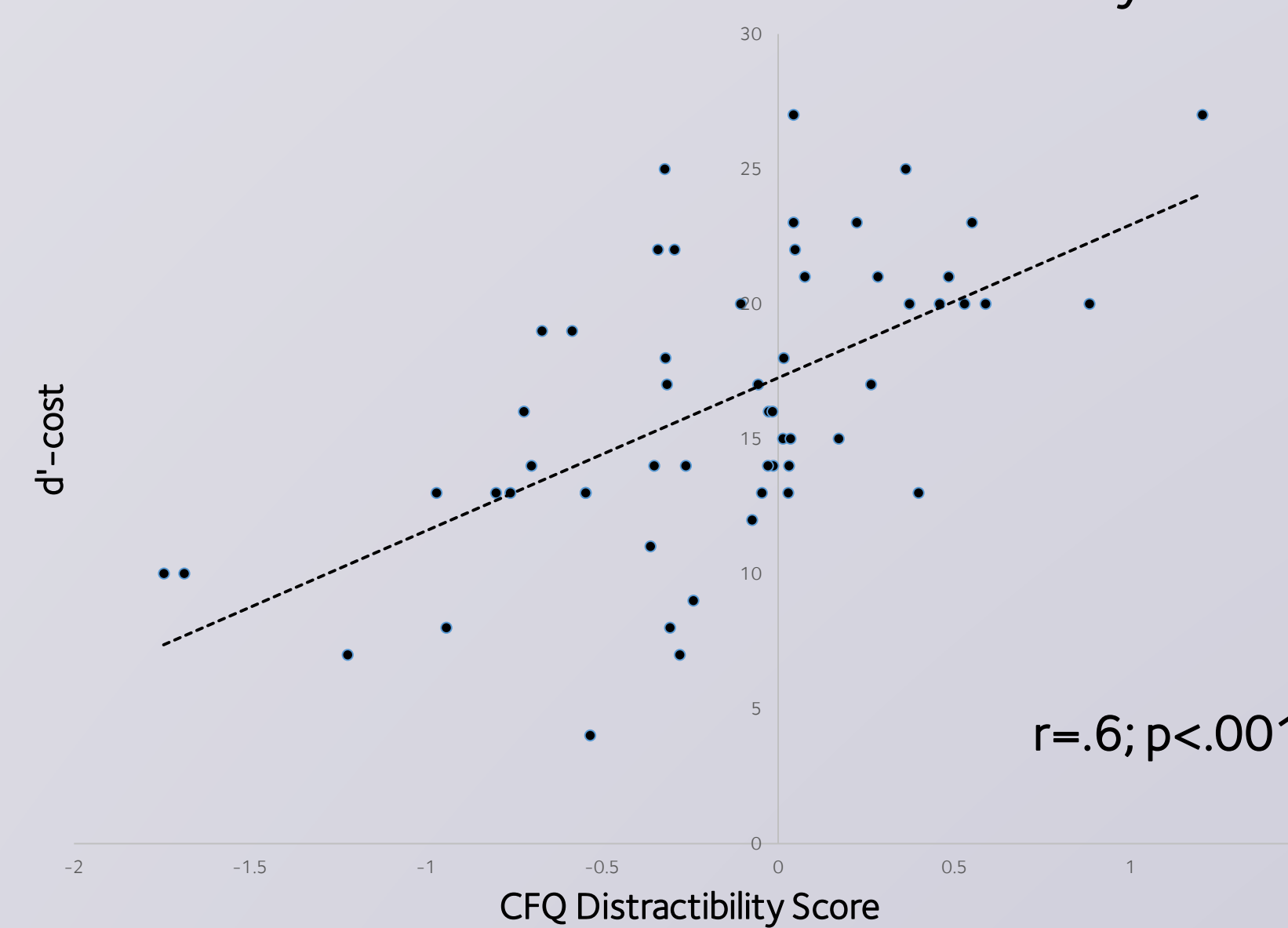


Phasic-alertness: N-1 Effect on RT



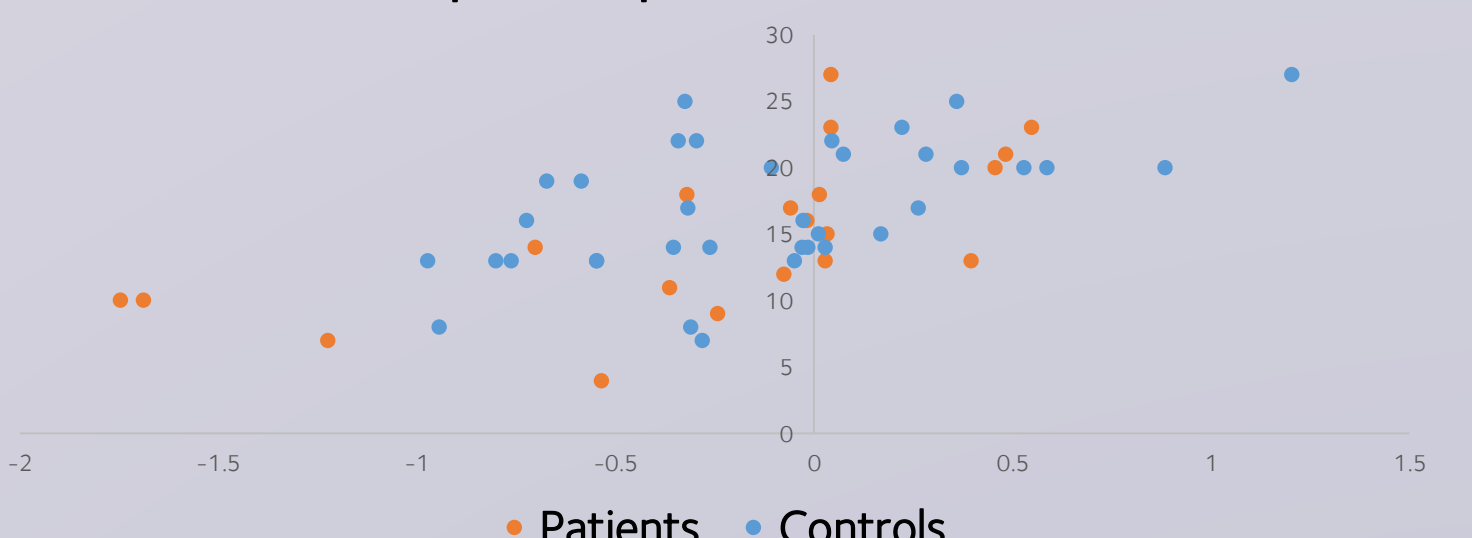
Sustained attention and CFQ

Correlation between d' cost and Distractibility



| | Distractibility | Memory | Blunders | Naming |
|--|-----------------|--------|----------|--------|
| RT-STD | -.152 | -.058 | .092 | .153 |
| d' | .305* | .253 | .165 | .043 |
| d' -cost | .600*** | .354** | .253 | .161 |
| d' -cost controlling for Distractibility | | -.120 | -.066 | -.021 |

Scatter plot of patients and controls



Inter-correlations

| | RT-STD | d' | d' -cost | Distractibility | Memory | Blunders | Naming |
|-----------------|----------|-------|------------|-----------------|--------|----------|--------|
| RT-STD | 1 | | | | | | |
| d' | -0.339** | 1 | | | | | |
| d' -cost | -0.082 | 0.132 | 1 | | | | |
| Distractibility | | | | 1 | | | |
| Memory | | | | .709** | 1 | | |
| Blunders | | | | .467** | .636** | 1 | |
| Naming | | | | .246 | .360* | .438** | 1 |

DISCUSSION

In this study, we managed to establish a new paradigm for measuring sustained-attention. Using degraded stimuli, while preventing abrupt onset of target, we managed to overcome ceiling performance. The task can reliably measure sustain attention without using RT-based outcome measures. By calculating change in performance over time, we found a specific correlation between subjective reports of Distractibility and our accuracy-based index of sustained attention.

