

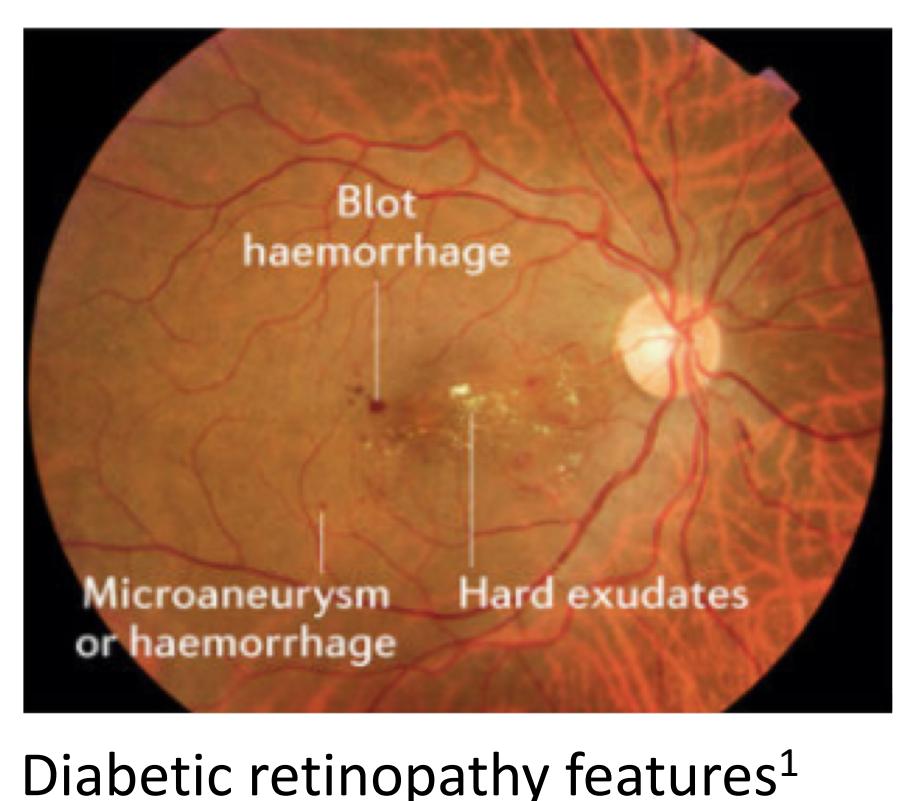
Frontal midline theta predicts diagnosis style in a medical similarity judgement task

C.D. Hassall¹, M.S. Chia¹, B. Wright², and O.E. Krigolson¹

Centre for Biomedical Research¹, Division of Medical Sciences², University of Victoria



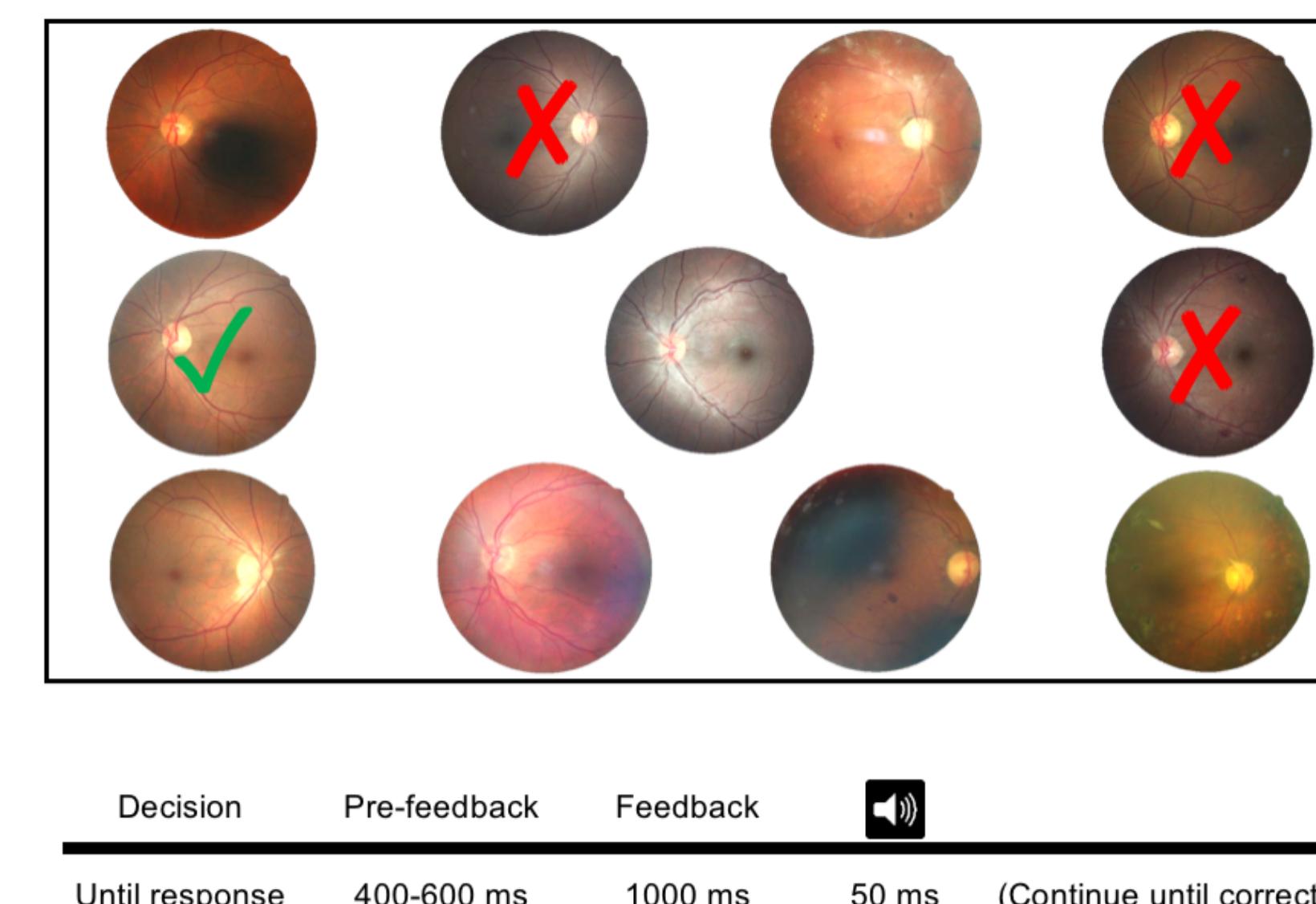
INTRODUCTION



- Diabetic retinopathy is diagnosed via the examination of images
- Severity scale: none, mild, moderate, severe, proliferative
- Early-career MDs report low confidence in diagnosing diabetic retinopathy². Why?

Rule-based learning (severity scale) \longleftrightarrow Implicit categorization (perceptual space)

METHODS

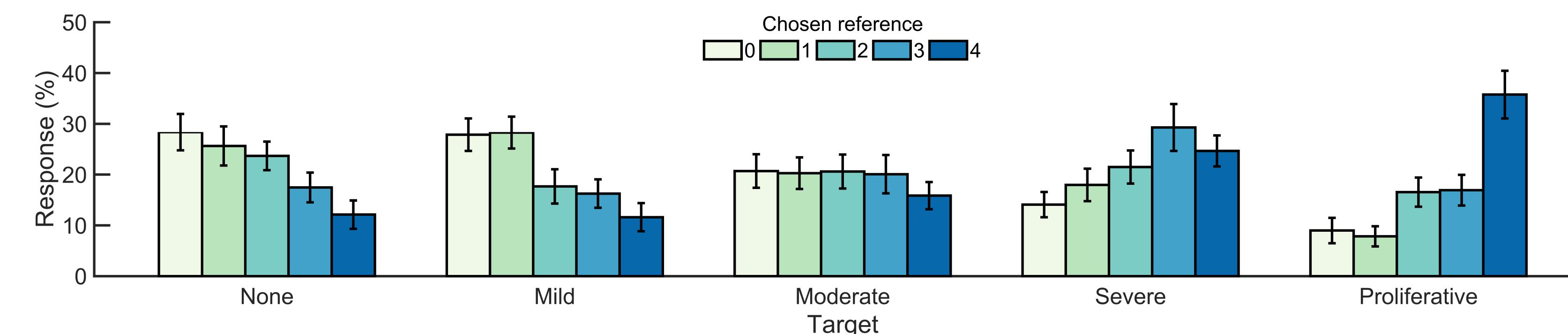
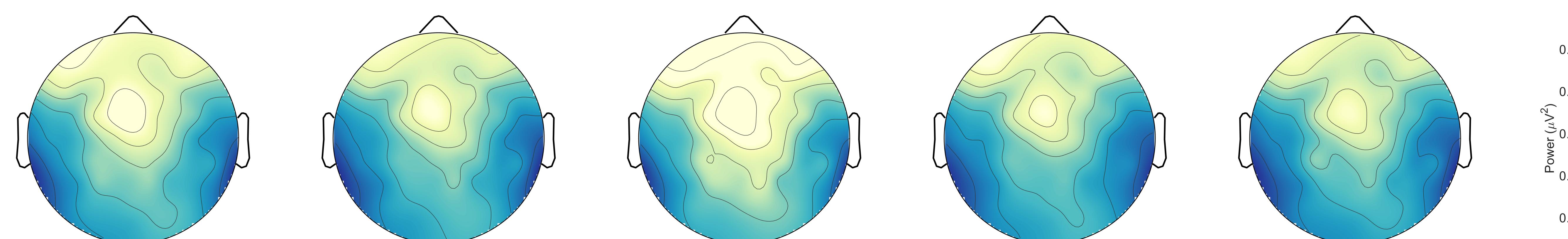
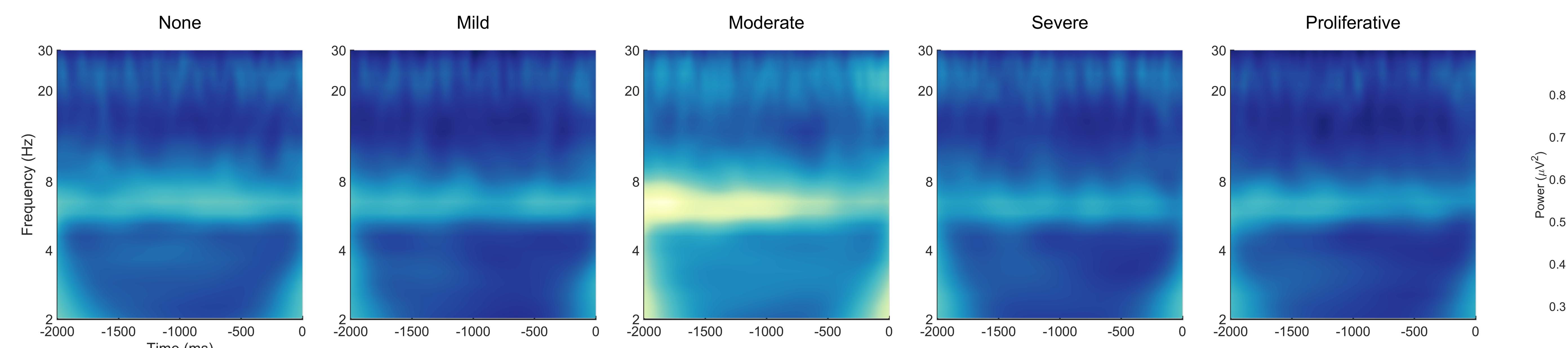
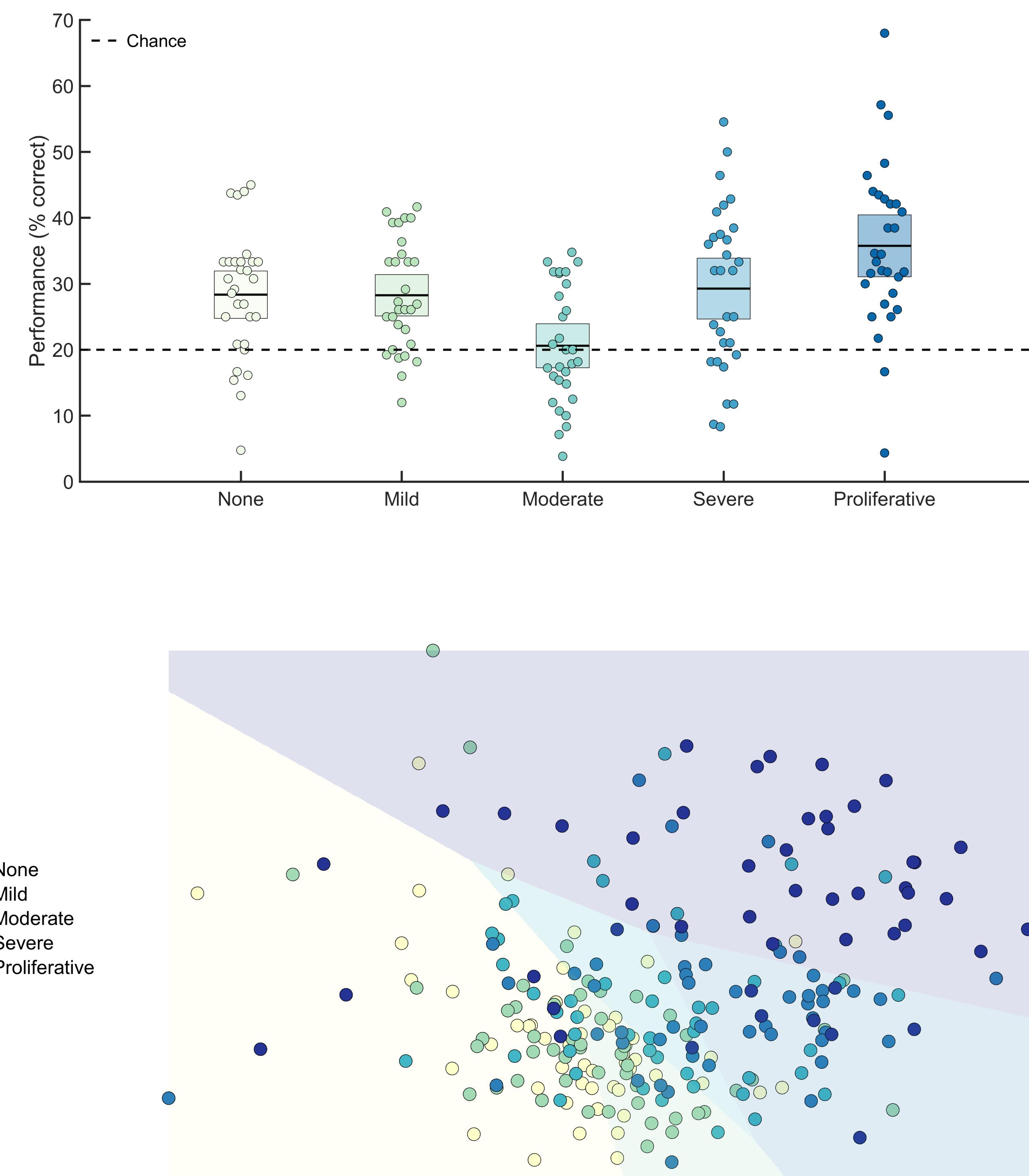


The similarity judgement task

- Accuracy (did the diagnosis match?)
- Triplets (data of the form A is more similar to B than C³)
- Frontal midline theta (EEG measure of cognitive control⁴)

Images and diagnoses from www.kaggle.com/c/diabetic-retinopathy-detection
N = 31, 8 M, 5 LH, Mean Age: 22.0, 95% CI [19.5, 24.5]

RESULTS



Conclusions

- Retinopathy diagnosis is challenging due to *perceptual overlap*
- Perceptual overlap is accompanied by enhanced cognitive control (as indexed by FMT)
- Next step: task optimization⁵

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