When does vision impairment limit performance in swimming?

Towards evidence-based minimum impairment criteria

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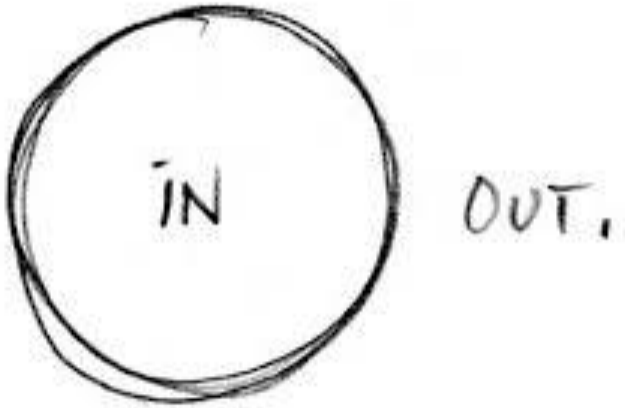
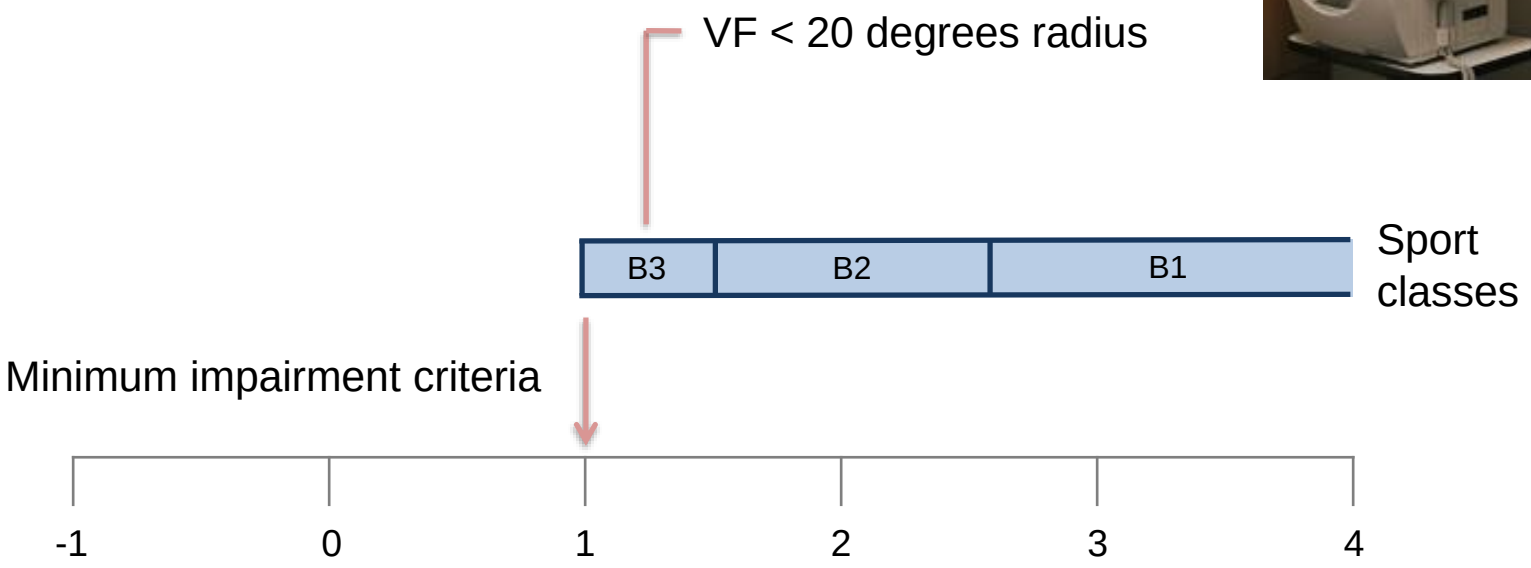
WHEN ARE YOU ELIGIBLE TO PARTICIPATE IN PARA-SPORTS?

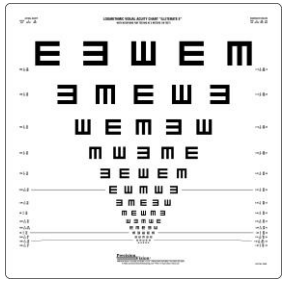


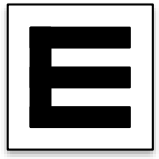
Minimum impairment criteria:

“the level of impairment that has an impact upon sport performance”

CURRENT MIC FOR VI SWIMMERS







AIM

To identify the least severe vision impairment that has a negative impact on swimming performance

GENERAL STUDY DESIGN

Participants:	Skilled (sighted) swimmers
Intervention:	Simulation of various levels of vision impairment
Outcome measure:	Swimming performance
Analysis:	To determine the level of vision impairment that leads the performance to drop below optimal levels

EXPERIMENT 1

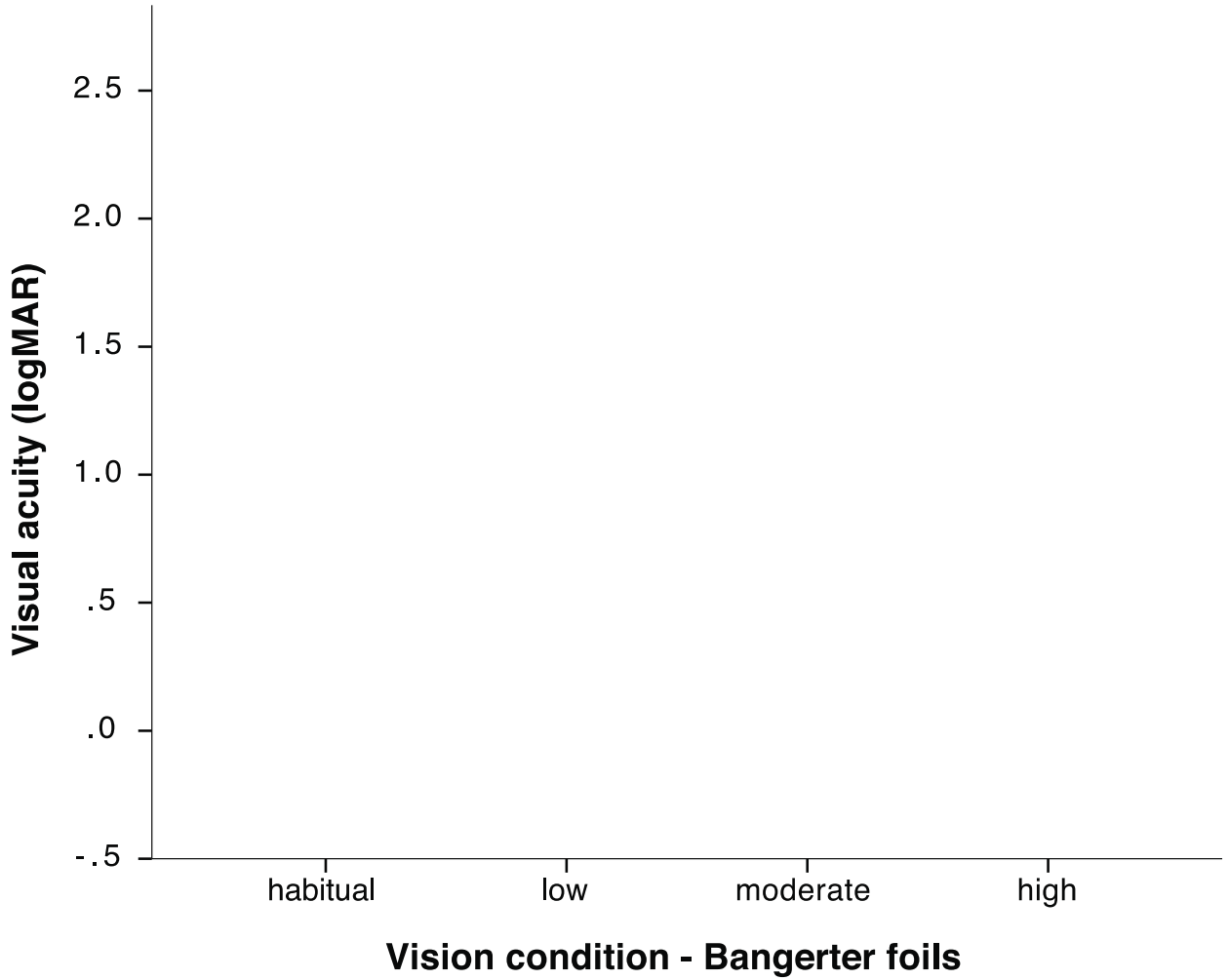
10 national-level swimmers

<u>4 vision conditions:</u>

- Habitual vision
- Bangerter foils:
  - Mild impairment (0.1 + 0.2)
  - Moderate impairment (<0.1)
  - Severe impairment (LP)

4 x 100m freestyle

SIMULATED VISION IMPAIRMENT LEVELS



IMPACT OF SIMULATED IMPAIRMENT ON PERFORMANCE

CONCLUSION:

MIC somewhere between 0.7 logMAR and 1.6 logMAR

EXPERIMENT 2

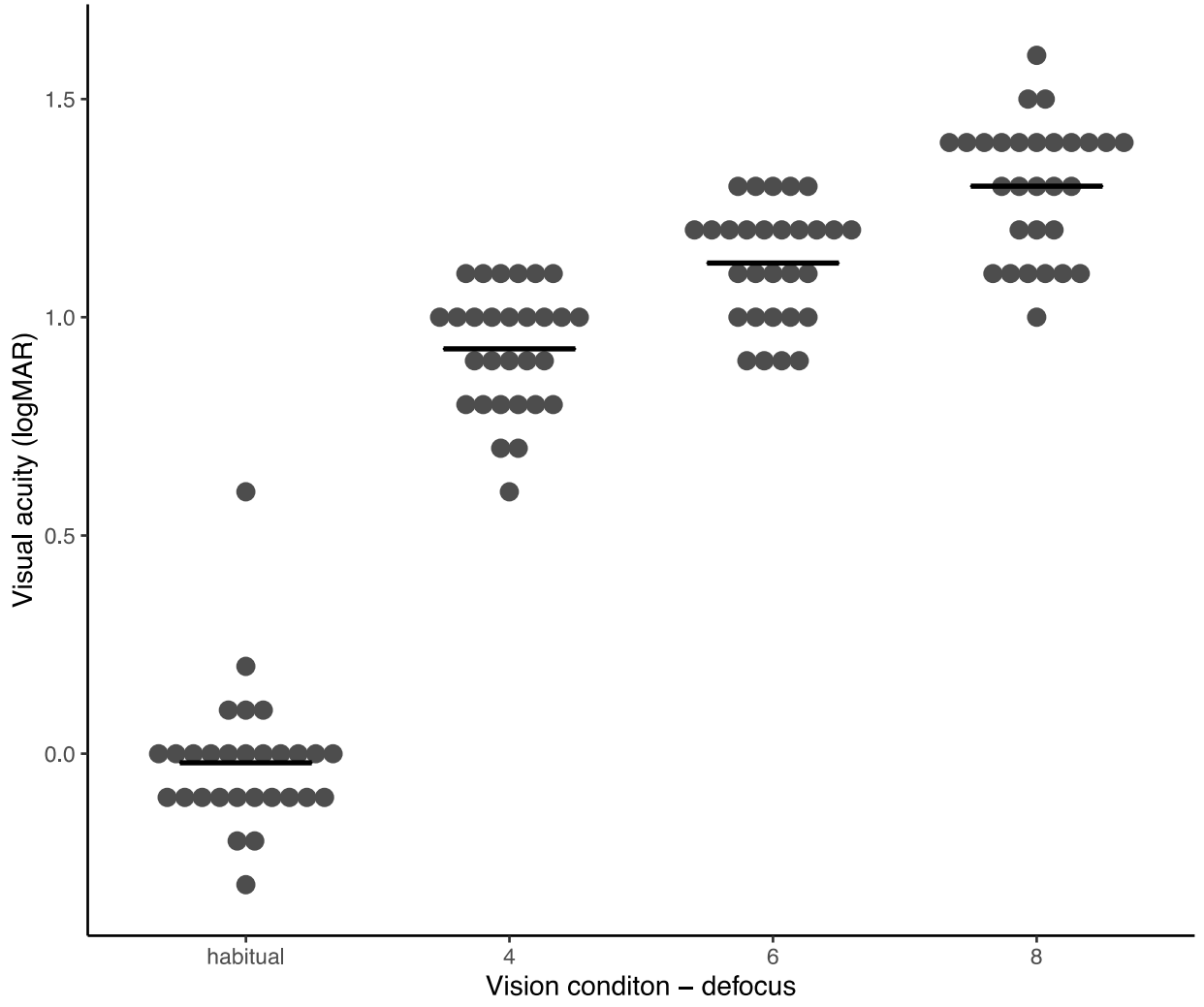
<u>4 vision conditions:</u>

- Habitual vision
- Defocus lenses:
  - +4
  - +6
  - +8

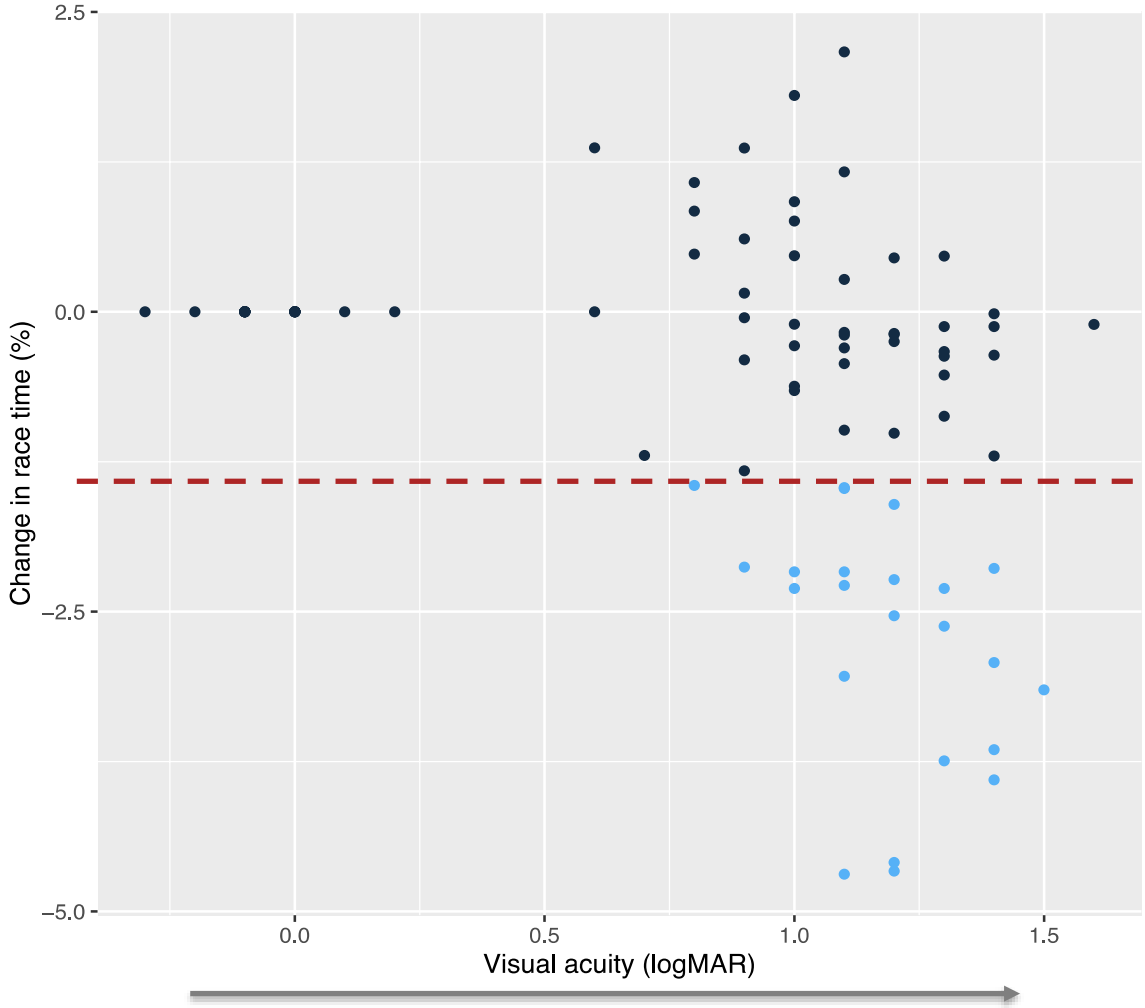
28 national level swimmers

4 x 100m freestyle

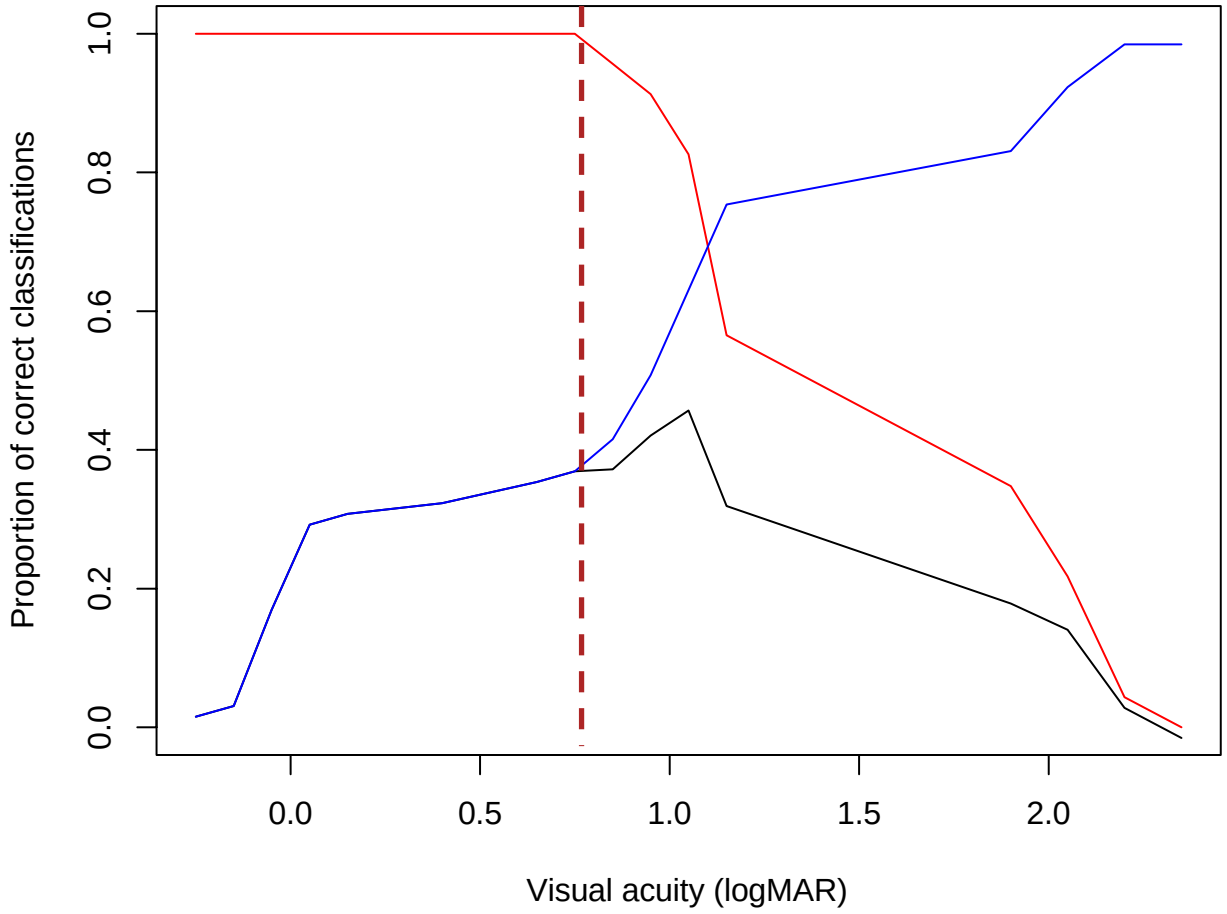
SIMULATED VISION IMPAIRMENT LEVELS

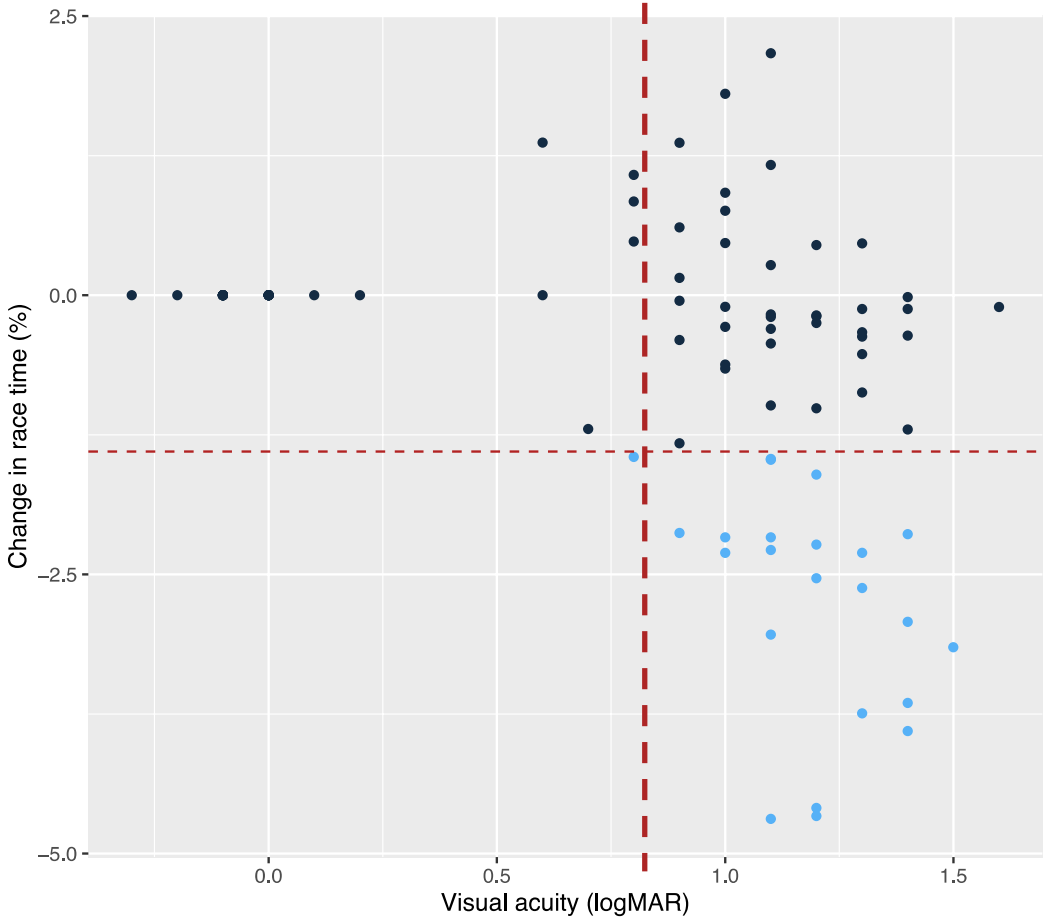


IMPACT OF IMPAIRMENT ON PERFORMANCE



WHAT LEVEL OF VA BEST PREDICTS SUB-OPTIMAL PERFORMANCE





CONCLUSION

Visual acuity cannot perfectly discriminate optimal from suboptimal performance

Setting the MIC at 1.1 logMAR balances sensitivity and specificity

THANK YOU

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