
**INTRODUCTION**

- The impairment of visual functions is one of the most common complaints following mild traumatic brain injury (mTBI) (Greenwald, Kapoor, & Singh, 2012, Kapoor & Ciuffreda, 2002).
- Previous studies have found evidence that TBI can affect early cortical visual processing, e.g. first and second-order stimuli (Spiegel et al., 2016) and stereopsis (Schmidtmann et al., 2017).
- TBIs are diffuse and can affect medial and anterior temporal lobes, areas also associated to face recognition (Bigler et al., 2002).

**AIM**

We aimed to investigate the influence of mTBI on face recognition using an equivalent noise paradigm.

**METHODS**

- Face identity sensitivity was measured as a function of external noise, defined as face identity noise.
- Face identity thresholds were measured between a mean face and two different identities.
- Synthetic face stimuli were generated using a software (FaceGen Modeller 3.5; Singular Inversions Inc., 2016), which allowed us to precisely control the amount of identity noise for a given face identity.
- Various face identity noise levels, e.g. a twin, sibling, cousin or distant relative (four noise levels) were created for each morph level between a mean face and the two individual identities (Kyle & Lea).

**RESULTS**

- Thresholds – Univariate ANOVA (Group): F_{1,38} = 8.349, p = .004.
- One-Way ANOVA (Control vs. TBI): internal noise: F_{2,34} = 2.924, p = .097; efficiency: F_{2,34} = 5.937, p = .021

**DISCUSSION**

- mTBI affects the ability to recognize faces.
- Thresholds are increased for all noise levels.
- According to LAM, internal noise is not increased in TBI patients.
- The efficiency is decreased in the TBI group.
- The efficiency parameter β indicates how well the visual system makes use of the noisy input information.
- i.e. better processing strategies applied to the input give higher efficiencies, approaching the ideal observer which uses the best possible strategy.

**REFERENCES**


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