

## **Individual differences in upright and inverted face recognition, simultaneous face matching and object recognition ability throughout the adult lifespan**

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**Objectives:** Superior face recognition ability is important for policing and other security roles, and selection of suitable staff for certain operations is essential. Age may be a factor. Our research aims were to enhance theoretical understanding of the relationship between different visual processing tasks, as well as to examine whether the normal mid-thirties peak in face recognition ability would transfer to alternative forensically-relevant face processing tests.

**Design:** Correlational designs examined the relationships between upright and inverted face recognition, simultaneous face matching, object recognition and age in Experiment 1; and face matching CCTV images, passport images and age in Experiment 2.

**Methods:** Worldwide media articles led to participants ( $n = 250,000$ ) completing a ‘could you be a super-recogniser?’ teaser-test, and in Experiment 1, teaser-test high performers ( $n = 20,000+$ ; 18-76 years-old) were recruited. In Experiment 2, participants ( $n = 5,000+$ ) included Metropolitan Police ‘super-recognisers’.

**Results:** Performances across all tests correlated. Face recognition ability peaked at approximately 34-years; face matching high-quality images at 36. Performance subsequently declined. In contrast, the face inversion effect positively correlated with age, while object recognition ability remained consistent throughout the lifespan. No reliable peak age was found for CCTV and passport image matching.

**Conclusions:** The optimum age for high performance (including police officers) on forensic facial examination and recognition tasks appears to be the mid-thirties. Regardless of age, some exceptional participants made few errors on any task, and discussion will focus on these individuals, as well as how high performers in the police positively impact investigations.