

NEURAL CORRELATES OF WOMAN FACE PROCESSING BY 2-MONTH- OLD INFANTS

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NeuroImage (2002)

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Introduction

- ◎ By the age of 2 months, infants are able to recognize their mother's face among others (Morton and Johnson, 1991)
 - ◎ Humans are experts at face discrimination, hence faces are the primary visual stimulus category
- ◎ Young infants: recognition by outer contour of head & hair line and internal face configuration; 2-Month-Old Infants: recognition solely on **internal face configuration**
(Bushnell *et al.*, 1989)

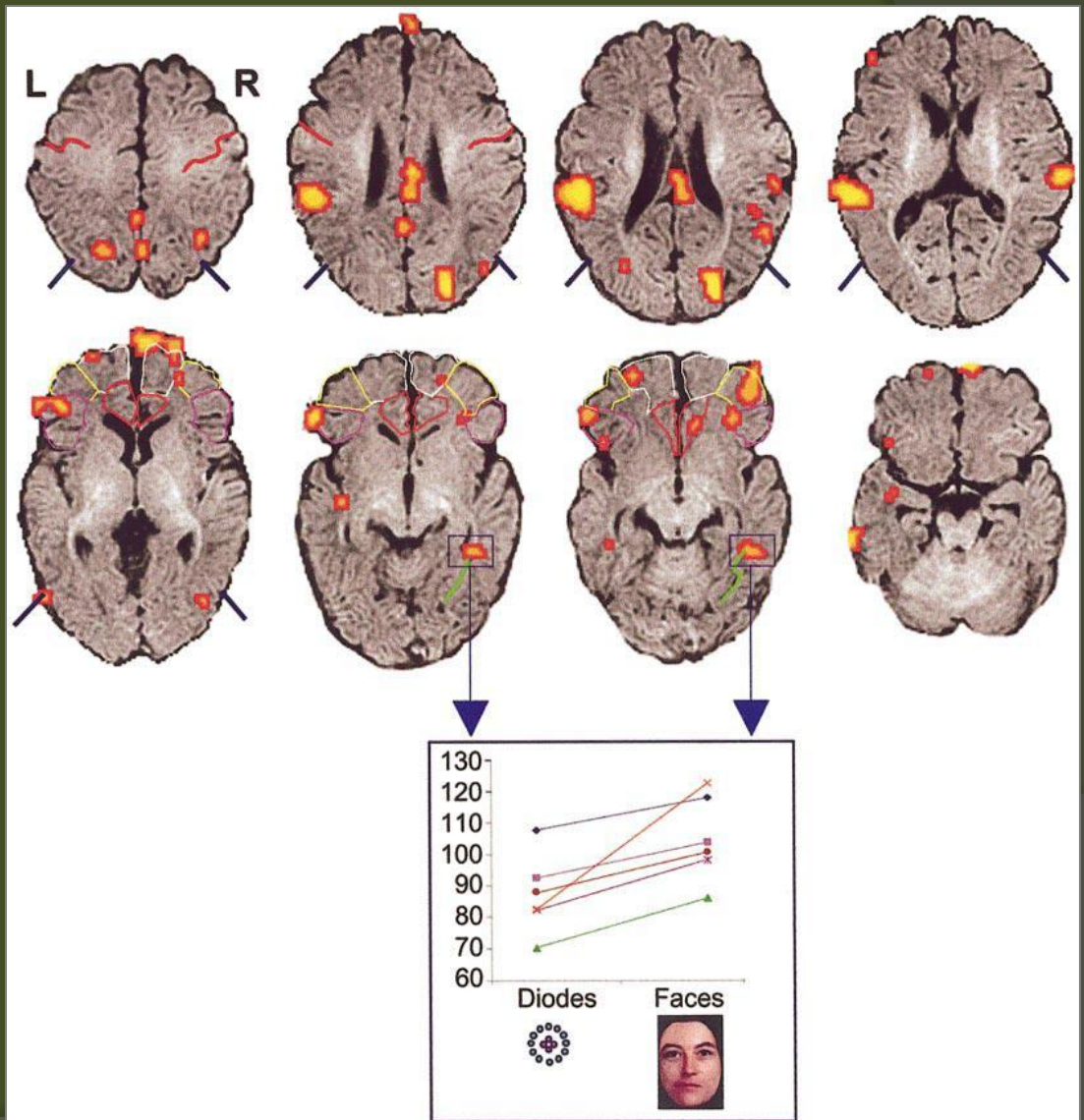


Experimental Task

- ◎ PET scans in six 2-month-infants; clinical follow-ups
 - ◎ Infants (full term) suffered from **hypoxic-ischemic encephalopathy** (HIE)
- ◎ Stimuli: presented (1) front view of woman faces, (2) diodes
 - Each slide showed a different woman, but one presented repeatedly at irregular intervals
 - Image Analysis: Faces minus diodes difference volumes averaged over six infants

Results

- Activated a network of areas
 - **Right inferior temporal gyrus**
 - Other activated areas: bilateral inferior occipital and parietal areas, left inferior frontal and superior temporal gyri (during face processing)



Discussion

- ◎ 2-month-old infants activated a network of areas belonging to core system for *face perception identified in adults* (Haxby et al., 2000)
- ◎ Inferior temporal gyrus likely to be **homologue of adult fusiform face area (FFA)** (Kanwisher et al., 1997)
 - **Debate:** Is FFA specialized for faces (Kanwisher, 2000) or is it domain general – related to acquisition of expertise in object discrimination (Gauthier et al., 1999)?

My Opinion

- ◎ Strengths: incorporating the debate on adult fusiform face area
- ◎ Limitations: clinical follow up – normal developmental age in four children (3 years); one child tested up to 6 months only; not possible to follow up one child

◎ Next step:

- Inferior temporal gyrus (infant) / FFA (adult) activation – specialized vs. general domain
- Left inferior temporal gyrus (did not reach threshold for significance in this experiment) – matching face parts (Rossion *et al.*, 2000)

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