Is the perirhinal cortex involved in high-level perceptual processing?

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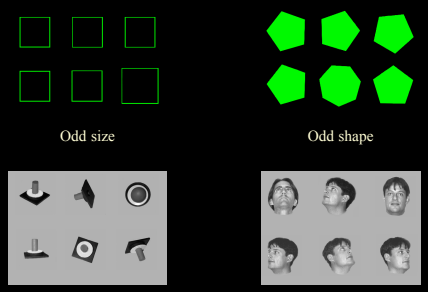
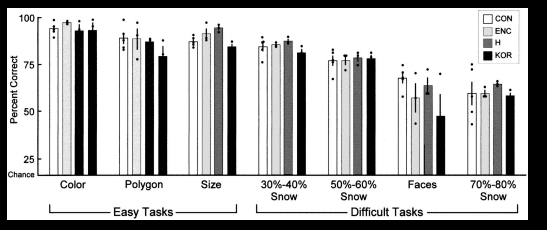
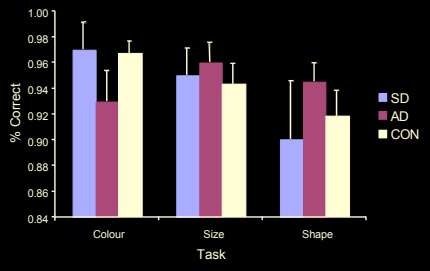
Oddity tasks (Buckley et al, 2001)



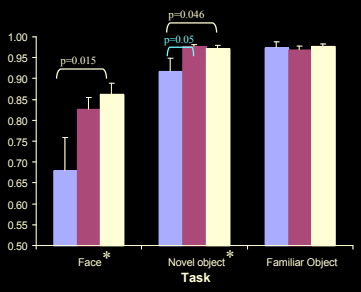
Stark and Squire (2000)



Results: Oddity tasks



Results: Oddity tasks

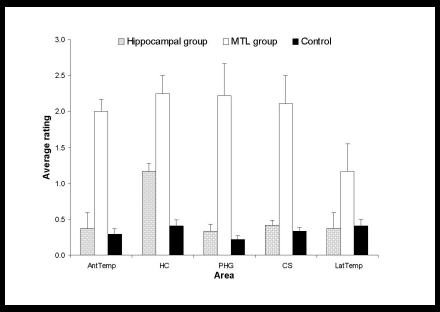


Lee et al (submitted)

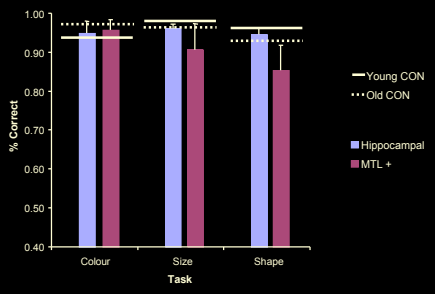
Focal MTL patients

- Stark & Squire (2000): small set size (n=10) and stimuli contained familiar and novel objects
- Assess patients with focal lesions on oddity tasks
  - 5 cases with bilateral hippocampal damage
  - 3 patients with bilateral hippocampal damage plus damage to surrounding MTL regions and lateral temporal lobe areas

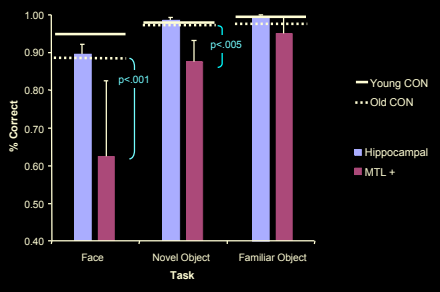
Focal MTL patients



Focal MTL patients: Oddity



Focal MTL patients: Oddity



Conclusions

- Perceptual deficits for faces and novel 3D stimuli in cases with damage to the MTL that included the perirhinal cortex (contrary to Stark and Squire, 2000)
- No impairment on stimuli requiring simple feature discrimination (colour, size or shape)
- Patients with involvement of the hippocampus only do not show these deficits
- Human perirhinal cortex, like that in non-human primates, may play a role in high-level perceptual processing (Gaffan, 2001)