AIM

• To investigate whether the hippocampus plays a role in navigational experience
• To investigate whether the healthy human brain can undergo structural changes in response to extensive navigational experience

METHOD - design

• Natural experiment
• Independent measures design

METHOD - IV

• Whether the person was a taxi driver or not

METHOD - DV

• Volume of the hippocampus (anterior, posterior, body sections)
• A correlation was also conducted on taxi drivers between the amount of time as a taxi driver and the hippocampal volume

METHOD - Participants

• Taxi drivers - 16, right handed, male, healthy, around 44 years old, average of 14.3 years as a taxi driver
• Controls - matched for health, handedness, sex average age age range

PROCEDURE

Structural MRI to see the hippocampus structure.

RESULTS

• VBM results - Taxi drivers had increased grey matter in the right and left **posterior** hippocampus compared to controls
• Pixel counting - taxi drivers had a larger **posterior** hippocampus while the controls had a larder **anterior** hippocampus
• Correlations - A significant correlation was found between the time ad a taxi driver and right posterior hippocampus volume (but negative one for the right anterior section)

DISCUSSION

• Correlations indicate -
- Human spatial representations are stored in the posterior hippocampus
- Structural rearrangement in taxi drivers reflects the amount of navigational activity
- The healthy human brain can change structure in response to navigational ability
- Study doesn't show how these brain changes occur