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In the news

HIGHLIGHTS FROM THE SFN 2016

The 46th annual Society for Neuroscience (SfN) meeting, held in San Diego, CA, USA (12–16 November 2016) attracted over 30,000 participants from 80 countries. The meeting programme covered a wide range of topics from developmental neurobiology to cognition, and many of the findings presented at the SfN have featured in science and health news in the days and weeks following the meeting.

The use of the mobile game Sea Hero Quest to collect data on spatial navigation skills was one of the most widely publicized findings reported at the SfN. Impaired spatial navigation performance is often one of the first signs of Alzheimer disease. To date, over 2.4 million users have played the game, making it the largest ever dementia study.

Although The Telegraph dubbed the game as a "dementia diagnosis breakthrough", Sea Hero Quest is not a diagnostic tool, and cannot currently be used to make a diagnosis of dementia on an individual level. Rather, as reported by Reuters and BBC Health News, the anonymously recorded gamer data enabled large-scale assessment of navigational skills across age and geographical groups.

Analysis of the Sea Hero Quest data revealed that spatial navigation ability is already substantially reduced at the age of 75 years, a finding that is in contrast with previous, smaller studies which have suggested that spatial navigation skills would generally deteriorate only at very old age. Moreover, the Sea Hero Quest data suggested sex-dependent and geographical differences in navigational skills, although the reasons for the observed differences are currently not well understood. In future, the data could be used to benchmark spatial navigation performance to facilitate detection of early-stage dementia. However, the use of the mobile game data has also raised some privacy concerns, as voiced by Emily Reynolds in her Guardian Opinion piece.

Many of the findings presented at the SfN that made their way into news involved the effects of alcohol on the brain. In one study, female rats were administered a high amount of alcohol once per week to mimick human binge-drinking. Compared with rats that were administered with saline, the alcohol-exposed rats showed 19% fewer neurons in the hippocampal dentate gyrus. In The New York Times article covering the finding, the researchers hypothesize that the loss of neurons could be caused by mitochondrial damage. Interestingly, exercise was found to protect the rat brains against alcohol-induced neuronal loss, potentially via increasing neurogenesis. The researchers note, however, that alcohol is likely to have other effects on the brain that cannot be reversed by exercise.

Another rat study suggested that binge-drinking during puberty could affect the brains of future offspring. According to the findings, picked up by Science Daily and various UK media, offspring of rats exposed to alcohol showed numerous epigenetic changes altering the expression of DNA in the hypothalamus. Although the alcoholic-associated metabolic pathways are similar in rats and humans, it is not clear whether the findings from these rodent studies apply to humans.

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