

Ib psychology bla

Science



Discuss the use of technology in investigating one cognitive process-

Alzheimer's disease and memory loss Alzheimer's disease is a degenerative brain disorder that results in memory loss, impaired thinking and personality change. No blood test, brain scan, physical exam can definitely diagnose Alzheimer's disease. PET scan detect radioactively tagged glucose that are injected into a patient's body before the imaging.

Glucose enters through blood stream and brain. The most active brain areas need sugar, while damaged and less active areas need much less. By detecting the weak radiation signal from the sugar molecules as they travel throughout the brain, PET scanners can map out the brain. Using PET scans, researchers can show that early stages of Alzheimer's disease has a reduction in brain metabolism in hippocampus.

Masconi(2005) have developed brain-scan-based computer and found out that in the early stages of Alzheimer's disease there is a reduction in brain metabolism in the hippocampus. He also found out that early signs of reduced metabolism in hippocampus was associated with later development of Alzheimer disease. Therefore, PET scan is useful in finding out the early development of Alzheimer's disease. MRI scan uses magnetic and radio waves to provide very clear and detailed static 3D images of brain structure.

MRI scan can show images of shrinkage in the hippocampus; this shrinkage reflects death of substantial numbers of brain cells. The phenomenon can be detected even before symptoms interfere with daily functions, helping patients to prepare for Alzheimer's disease. Goshe et al (2000) looked at MRI result for 119 patients with varying degrees of cognitive impairment. He was

100% accurate when determining which patients had been diagnosed with Alzheimer's disease and which had no symptoms.

The study reported a 93% accuracy rate when researchers were asked to distinguish between patients with no symptoms and those with mild cognitive impairment, but not yet diagnosed with Alzheimer's disease. This shows that MRI scan is very accurate in determining whether the patient has Alzheimer symptoms. According to above examples, PET scan finds out early development of Alzheimer's disease, while MRI scan determine whether the patient shows symptoms. It is clear that Alzheimer's disease can be investigated through PET scan and MRI scan.