example diets are different in different countries so it could be environmental factors that have an influence. The diets of Nigerians contain significantly less sugar and fats, which are increasingly prevalent in unhealthy western diets.

Anterograde amnesia is the inability to form new long term memories, and Isaac and Mayes (2003) suggested that it may be due to problems with consolidation or retrieval of memories. A study took place which found that amnesiacs performed as well as controls on cued recall and recognition, suggesting the issue is with consolidation rather than retrieval. Retrograde amnesia is the loss of memory for past events, and recall is usually worst for events occurring closest to the onset of amnesia. Recall of memories before this improves as more time passes since they were formed. The change over time indicates that LTMs need to be consolidated otherwise they are ‘lost’. Amnesic symptoms may be caused by disruption of the process of consolidation and is associated with damage to the hippocampus, suggesting that this part of the brain plays a key part in forming LTMs.

Surgery, especially for epilepsy can lead to amnesia, and the case of HM (Milner 1970) is a famous example. Following an operation, HM suffered retrograde amnesia and could not recognise hospital staff who he had known for years. He suffered severe epileptic seizures so parts of his lobes were removed including most of his hippocampus (important for episodic and semantic memory). His epilepsy was controlled and procedural memory was unaffected however.

Many amnesiacs have both retrograde and anterograde amnesia, implying that both are caused by problems with the same brain area. However, Izzard et al (1988) found that damage to just part of the hippocampus caused anterograde amnesia alone.

One problem with studies of human amnesiacs is that such studies are imprecise as both symptoms and the extent of brain damage vary. An alternative approach, lesioning of animal brains, offers more control. Remondes and Schman (2002) showed that rats with damage to the hippocampus could learn a maze but forgot it quickly, suggesting they could make new memories but couldn’t consolidate them suggesting the hippocampus is associated with consolidation. Results cannot be applied to human sufferers however as they are very different physiologically and experiences of amnesia vary from person to person.

In conclusion, amnesia and Alzheimer’s disease are two extremely debilitating disorders of memory, although they may differ in rarity. Since they are both incurable, prevention is the real option as treatment is largely ineffective. In the case of Alzheimer’s disease, it may be that the disease is simply a by-product of natural selection for healthier short lives. As in antiquity; life expectancy was around 30 due to predators, disease and the primary cause – of death by starvation by absence of teeth, and so natural selection would select traits important to survival and reproduction during that short period of time. So genes for any degenerative disorders that manifest in old age would be passed down freely so long as they accompanied the ‘healthy in youth’ genes. It is only very recently in human history where humans are living past our natural life span into a point where nature does not expect the human body to survive and starts to degenerate. It is also important to note that