A. Memory III

a. Neural Structures

i. Sensory cortices: Long term memory


Association Cortex.

ii. Prefrontal cortex: working memory

1. Delayed Match to sample task
2. Delayed Non match to sample tasks
3. Different kinds of working memories

iii. Basal Ganglia, cerebellum: motor memory

1. Instrumental conditioning

iv. Hippocampus: short term memory

1. Classical conditioning
2. Hippocampus: spatial learning and spatial memory
   a. Right hippocampus is primarily activated
   b. Hippocampus involved in relational learning, but not much in S-R tasks
      i. Milk & Water rat trails
3. Hippocampus involved in acquisition and consolidation of new memories cortex involved in storage of long term memories

v. Memory reconsolidation
1. A reminder of a consolidated memory ‘moves’ the memory back to the hippocampus
2. New memories are stored relative to old memories
3. Hippocampal memories are susceptible to interference
4. Everytime you remember something you bring it back from the cortex (long term memory storage) back to the hippocampus (short term)

vi. Learning in Hippocampus

1. Behavioral evidences:
   a. Water Maze: lesion studies, temporary inactivation studies.
   b. Reconsolidation: long term memories can be changed

2. Neurophysiological evidences:
   a. Rats: place cells and spatial receptive fields
   b. Monkeys: spatial view cells: cells that respond to places currently viewed

vii. Memory: damages and deficits

1. Amnesia: anterograde and retrograde amnesia
   a. Retrograde amnesia
      i. Cannot remember events prior to brain damage
   b. Anterograde amnesia
      i. Cannot remember later events that occur after brain damage
ii. Anterograde amnesia due to neurochemical damage: Korsakoff’s syndrome.
   1. Alcoholism and Thiamine (vitamin B1) deficiency.

iii. Anterograde amnesia due to temporal lobe damage:
    Patient H.M.
    1. Intact perceptual, sensory motor, motor learning, No consolidation