Ingestive Behaviors Cont. – By Janet: 11/07

Ingestive behaviors: Bulimia Nervosa
- Definition:
- Recurrent episode of binge eating (2 binge eating episode/week, for at least 3 months)
- Feeling the lack of control over eating during binges
- Regular use of either: Self-induced vomiting, laxative, diuretics, strict dieting/fasting or vigorous exercise
- Persistent concern with body shape and weight
- No correlations with net nutrient intake: ‘over-eating’, ‘under-eating’ or ‘balanced’ equally likely. Not necessarily associated with obesity
- Possible mechanisms: neurochemical. Deficiency in satiety mechanisms (CCK) imbalanced of 5

Memory

Memory: some characteristics
- Short term memory
- Limited (7+2)
- ‘Object’ dependent
- ‘State’ dependent
- Short lived
  - Immediate forms of memory. Not all memory items are necessarily useful
- Sensory information → short-term memory → long term memory → short-term memory

Different kinds of memory
- Short term memory
- Working memory: memory for immediate use
- Long term memory
  - Declarative (explicit) ‘remembering → semantic (facts), episodic (‘when, order of events)
  - Non-declarative (implicit) ‘knowing’ → skill habits, priming, simple classical conditioning

Memory: Overview
- The memory processes
  - Stimuli → encoding (learning) ↔ storage (learning) ↔ retrieval → responses
• Learning
  o Perceptual (sensory) learning: recognition, modality specific (visual, auditory...)
  o Stimulus-response learning
    ▪ Classical conditioning: stimulus-stimulus learning
    ▪ Instrumental (operant) conditioning: stimulus-action learning: reinforcement.
    ▪ Motor learning: playing piano, modality specific
  o Relational learning: spatial learning
  o Meta-learning: learning to learn

Perceptual learning
- Identify and categorize objects using ‘perception’.
- Learning ‘about’ objects. No associations with actions
- Example, Vision: Inferior temporal cortex: faces and objects

Area MST
Memory of moving objects
Memory of static objects
  - Area involved in perception is also involved in (perceptual) memory
Classical conditioning of a Reflex

Figure 12.1

Unconditional stimulus: air puff

Response → unconditional response (born with): blink

After learning blinking will become conditional response (learned)

The Hebb learning rule
- If presynaptic and postsynaptic sites are active at the same time, the synapse is strengthened

Classical conditioning is not just about low-level stimulus and action
Classical conditioning
- Classical conditioning is not just about food...
- Different kinds of classical conditioning involves different kinds of brain areas
- Classical fear conditioning

![Diagram of classical conditioning](image)

**Figure 12.16**

- After condition, memory can be ‘unconditioned’: **extinction**
- Repeated presentations of the conditioned stimulus **alone** leads to extinction
- PTSD: deficit in extinction?

Response to tone alone

Instrumental conditioning
- Definition: learning an association between an action and its consequence
- How we learn from doing
- Need a **reinforcing** or **punishing stimulus**
- Example in rat: lever pressing

Instrumental conditioning
Association between **stimulus** and **an action**
Figure 12.2
- (Recall... classical conditioning: association between 2 **stimuli**)
- Instrumental conditioning: animal has to **perform** an action