

In humans...

- Pairings of neutral visual stimulus with an aversive white noise which produces a change in skin conductance response (SCR)
- Over multiple pairings, participants show fear conditioning by making SCRs to the visual stimulus alone
- Patients with amygdala resections (LaBar et al. 1995) show little or no fear conditioning

4. NON-ASSOCIATIVE LEARNING

"If a drop of water falls on the surface of the sea just over the flower-like disc of a sea anemone, the whole animal contracts vigorously. If a second drop falls within a few minutes of the first, there is less contraction, and finally, on the third or fourth drop, the response disappears altogether" (Thompson & Maddigan, 2007)

One of the most pervasive phenomena – from amoeba to man!

City dwellers become habituated to many noises from the city environment – we constantly habituate to most stimuli if they have no consequences for us. **Habituate to it**

PROPERTIES OF HABITUATION

- The more rapidly a stimulus is repeated the more rapid the habituation
- Weaker stimuli lead to more rapid habituation
- If the stimulus is withheld, habituation tends to fade and the response recovers over time (spontaneous recovery) – see Thompson (2009)
- Habituation operates via reflex pathways - allow rapid neural responses which bypass the brain. Repeated presentation reduces the neuron's response to the stimulus
- We need habituation – if we responded to every stimulus every time we'd have no time for anything else!

SUMMARY

Different types of 'procedural' memory: skills, implicit memory, classical conditioning and non-associative learning

Evidence of a distinction between procedural memory and declarative memory – experimental, neuroimaging and neuropsychological

But memory systems typically operate in parallel to support behaviour, e.g. being knocked down by a large dog as a child might lead to:

Long-term declarative memory of that event

Long-lasting non-declarative fear of dogs experienced as a phobia rather than a memory