

Innate Releasing Mechanism

- Inborn, adaptive responses that improve an animal's survival.
- Aid feeding, reproduction and escape from predators.
- Present from birth (innate) and can adapt (be modified).
- Prove adapted and therefore maintained in the genome of species.
- IRMs act as triggers for innate behaviours.
- Example – kittens shown the 'halloween' posture of a cat respond as though threatened (arched back, bared teeth), even though they have never had exposure to another adult cat.
- IRM in humans (Field et al.).
 - Adult performed exaggerated facial expressions.
 - Babies responded by imitating?
 - Newborns are too young to intentionally imitate.
 - Adult expressions trigger some internal program to reproduce the expressions.
 - Facial expressions are important to human communication – adaptive.
- Evidence for a prewired motor program related to facial expressions also comes from studies of congenitally blind children, who spontaneously produce the very same facial expressions that sighted people do, even though they have never seen them in others.
- Different cultures may emphasise different stimuli as arousing. Even within a single culture, what different people find sexually stimulating varies. Nonetheless, some human attributes are universally sexual arousing. For most human males, an example is the hip-to-waist ratio of human females. This ratio is probably part of an IRM.
- The IRM concept can be related to the Darwinian view of nervous system evolution. Natural selection favours behaviours that prove adaptive for an organism, and these behaviours are passed on to future generations. Because behaviour patterns are produced by the activity of neurons in the brain, the natural selection of specific behaviours is really the selection of particular brain circuits.

Brain Structures Involved in Emotion

Amygdala (Singular)

- Two almond-shaped groups of nuclei located deep and medially in temporal lobes.
- Performs a primary role in the processing of memory, decision making, and emotion.
- Amygdalae (plural) are part of the limbic system.

Three Components of Emotion

1. Autonomic Response (e.g., increased heart rate).
 - **Hypothalamus** and associated structures.
2. Subjective Feelings (e.g., fear).
 - **Amygdala** and parts of **frontal lobes**.
3. Cognitions (e.g., thoughts about the experience).
 - **Cerebral cortex**.

Explanations for Emotion

- James-Lange.
 - Physiological changes produced by the autonomic nervous system come first.
 - Brain interprets these changes as an emotion.
- **Somatic Marker Hypothesis** (Damasio, 1999). "Marker" signals arising from emotions and feelings act to guide behaviour and decision making.

Physiological Changes – Evidence

- Spinal cord injury – decrease in perceived emotion.
- Severity of 'emotion loss' relies on point of severance in spinal cord.
- Loss is greatest when lesion is higher.
- Christopher Reeve's lesion was at cervical level – emotion blunted, but his motivation remained high.