

# Hormones and Aggression

Some bio-psychologists believe that aggressive behaviour is influenced by hormones. Hormones are chemical messengers secreted by endocrine glands and carried around the body by the blood. They affect the structure and functioning of various bodily organs. Testosterone is the hormone chiefly implicated in aggressive behaviour. Variations in testosterone levels have been used to explain both individual difference in aggression and gender differences in aggression.

Testosterone may affect aggression via two routes. First, it has an organising effect. Exposure to testosterone affects the structures of the body and brain. This could give rise to difference in brain areas related to aggression. Second, it has an activating effect. In some parts of the brain, testosterone acts like a neurotransmitter, changing the activity of the synapses in some brain structures.

## Evidence for hormones in aggression

**Claim:** there is a correlation between testosterone levels and aggression.

- This claim can be accepted because (1) in general, men have higher testosterone levels than women and are also more physically aggressive than women; (2) individual measures of testosterone levels tend to correlate with measures of aggression. Midgely (et al (2001) found that men taking anabolic steroids had higher self-report aggression scores than non-takers; Dabbs et al (1995) found that prisoners with higher testosterone levels were more likely to have committed violent crimes and had worse records to rule-breaking.

**Claim:** altering testosterone levels causes changes in aggression.

- Accept this claim because: (1) castrating male rats results in decreases in aggressive behaviour and injecting female rats with testosterone results in increases in aggressive behaviour (Silber and Wagner, 2004).
- Reject this claim because: (2) manipulating testosterone levels in humans does not affect aggression in double blind RCT designs (Tricker et al (1996).

## Arguments against hormones as an explanation of aggression

- The correlations between testosterone and aggression do not imply a causal relationship. Testosterone levels may change as a consequence of changes in aggression. Mimms (2007) reports two relevant findings: (1) when men were deliberately bumped into by a confederate, their testosterone levels rose as a result; (2) when (US) men are allowed to handle guns, their testosterone levels rise.
- Testosterone may be related more to social dominance than to aggression as such, which may explain why the testosterone-aggression correlation is weak and inconsistent.
- The effects of manipulating testosterone are quite varied. Changing testosterone levels does lead to increased aggression but only where a person believes they have been treated unfairly. At other times, increases in testosterone lead to increased generosity, higher happiness and well-being (Burns 2011).
- Manipulating testosterone in rats leads to increased social aggression but not increased defensive aggression. Since most examples of human violence are defensive aggression this might explain why the effects of testosterone on humans are so inconsistent.