


Module 4:Hormone-Behaviour Relationship

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Dominance and subordination

Reviewing effect of hormones on offensive aggression, Simon (2002) concluded that estrogen and androgen triggers the neural controls over such behaviour. In certain cases synergy between estrogen and androgen plays this role. Recent studies show difference between proactive and reactive animals in terms of physiological and behavioural characteristics. In stressful events, the physiological proactive traits are reflected with lower glucocorticoid and higher epinephrine and norepinephrine. The baseline level of serotonin (5-HT) is also low. The reverse is true for the reactive animals. They have higher blood glucocorticoid and lower epinephrine and norepinephrine. The baseline serotonin (5-HT) is also higher. This physiological composition results into some behavioural consequences. Proactive animals take lead in initiating social interaction and remain socially dominant. If you stretch it to human leadership qualities, the personality traits associated with leadership includes ability to take initiative, extraversion and confidence. Advocating testosterone-leadership correlation Rowe et al. (2004) have proposed that “high testosterone might be associated with socially valued characteristics in prosocial environments” (p. 550). Besides affecting aggression, androgens and glucocorticoids also affect serotonin (5-HT). As androgens and glucocorticoids affect aggression and social dominance, they are likely to influence leadership potential. Animal research shows that the timing and magnitude of dopamine, serotonin, testosterone, and cortisol defines the difference between dominant and subordinate social status.

Serotonin (5-HT) influences a variety of normal as well as maladaptive functions in human beings. The normal functions include mood, temperature, biological rhythms and feeding behaviour whereas the maladaptive functions include anxiety, stress, aggression, panic reaction, depression, anorexia, obsessive compulsive disorder, schizophrenia and suicide.

Overall, hormones can be classified into two major class— protein hormones and steroid hormones. It needs to be understood that release of any given hormone is not the deciding factor for a behavioural outcome. The receptivity of the cells to a given hormone is equally important. High concentration of a hormone turns effective only when receptivity of the cells is also high. The same high concentration becomes very less effective if the cells are not receptive. Androgen insensitivity syndrome is the best example of this. It is an X-linked recessive disorder in males wherein the cells lack androgen receptors. In the absence of androgens, maternal estrogens exert their influence by not allowing the testes to descend and making female sexual characteristics appear. This also implies that individual differences in physiology and behaviour will also have a say on the overall effect of a given hormone. Appropriateness of the environmental context is also important. A hormone actually influences the likelihood of behaviour in such context.