Outline and evaluate hormonal mechanisms in aggression.

The male sex hormone testosterone is thought to increase levels of aggression from young adulthood onwards. It is thought that testosterone may influence areas of the brain that control behavioural reactions, such as the amygdala and the hypothalamus.

The link between testosterone and aggression may explain why males are generally more aggressive than females: males produce much higher concentrations of testosterone than females, and this may therefore lead to higher levels of aggression. This link also explains why aggression appears to be highest in male adolescents. This is due to testosterone levels peaking at adolescences which allows for the secondary sexual characteristics to develop.

Higher levels of testosterone are linked to higher levels of aggression. Testosterone helps to develop aggressive behaviour.

There is much evidence using castration into testosterone impacting aggression. Castration is a surgical technique that removes the testes and so no testosterone is produced. Wagner et al (1979) showed that when a male mouse is castrated overall levels of aggression tend to reduce. This shows that when the testes are removed and there is no testosterone being produced the mouse behaves less aggression- showing a distinct link between testosterone and aggression. To further this they showed that if the castrated mouse received testosterone, aggression levels increase. Showing that increased dosages of testosterone lead to increased aggression.

Further studies contribute to Wagner et al study and say that incastration only reduces aggression if it happens before puberty. This implies that castration would only decrease a mouse’s aggression if it was castrated before reaching puberty. This is due to puberty being the age at which an animal begins to become aggressive and thought that testosterone contributes to the development of aggression. Therefore once an animal developed, testosterone has no effect. So if a mouse is castrated after it has reached puberty it would have less effect on the aggression levels due to already reaching puberty and developing aggressive behaviour.

Castration has since been used as a method for making domestic and farm animals more manageable. Given castration routinely used in order to manage their aggression and so evidence that testosterone is linked to aggression and aggressive behaviour. This shows the application of testosterone being used in daily life. If once an animal has been castrated it becomes less aggressive and more manageable then if would suggest a link between the two implying that in fact testosterone is a factor for aggression.

Further evidence was conducted on the Nazca Booby bird by Muller et al (2008). The Nazca Booby bird can only produce either 1 or 2 eggs. Whenever it produces 2 eggs, one of the chicks will always kill the other- resulting in only one chick being left alive. Muller et al took blood samples from chicks 24 hours old from either ½ chick nest. These results were compared with the Nazca Booby bird’s near relative the Blue Footed Booby. The results found that the Nazca Booby bird chicks have up to three times the amount of testosterone. It was also found that the murderous chick had higher testosterone levels that that who was killed. This study shows that higher levels of testosterone present result in higher levels of aggression.