

Describe and evaluate Selye's General Adaptation Syndrome (GAS)

Hans Selye conducted some research into stress from the 1930's until he died in 1982. He thought that short term stress (acute stress) can be adapted by the body because of the 'flight or fight' response which enables us to cope with the demands of the environment. Furthermore he added that prolonged stress (chronic stress) can be very damaging. The way Selye gathered these results was by doing experiments on rats and seeing how they responded to different types of stress. He noticed that there was a pattern in how the rats and hospital patients similarly responded to stress. This pattern was a typical syndrome called '*The General Adaptation Syndrome (GAS)*'. GAS consisted of 3 stages; alarm reaction, resistance stage, and exhaustion. The body returns back to its normal functioning after the alarm reaction and exhaustion stage only happens when stress is prolonged.

The first stage of GAS is the '*Alarm Reaction Stage*'.

During this stage there is an increase in activity in the sympathetic-adrenal-medullary system (SAM) and the hypothalamic-pituitary-adrenocortical axis (HPA).

These are the 2 main pathways.

In the SAM the hypothalamus sends the message down the sympathetic branch to the autonomic nervous system (ANS) and to the Adrenal Medulla. Adrenaline and Noradrenalin is then produced.

The other pathway, HPA, is when the hypothalamus is stimulated and messages are sent to the pituitary gland and adrenocorticotrophic hormone (ACTH) is released into the bloodstream. This then stimulates the Adrenal Cortex which release which releases corticosteroids. This 'fight or flight' response returns the body in its normally function state again.

The second stage is the '*Resistance Stage*'.

It is when the body is adapting to the demands of the environment. It can be when the body is in short term stress or prolonged stress. When the body is in short term stress, it undergoes homeostasis which is "when the body's internal environment generally remains almost constant in spite of large changes in the external environment" (*psychology pg. 117*). Basically it's the body returning into its normal state at a steady rate.

Also, the body tries to reabsorb excess resources such as cortisol, glucose, adrenaline or noradrenalin.

However, in chronic stress, hormones are still above baseline levels and cortisol production increases in the body. This effects the immune system because number of white cell production is reduced and the stage may carry on to the final stage.

The final stage is '*Exhaustion stage*'.

This only happens when stress is prolonged, demands of the body exceed the supply and the other 2 stages are ineffective.

The level of stress hormones cannot restore to homeostasis causing the body's tissues to wear and tear, endocrine glands being damaged and adrenal glands to be enlarged.

The ANS symptoms reappear which are increased heart rate, sweating, muscle tension, breathing faster, salivation decreasing, pupils dilating and so on.

Long-term physical effects of this are the increase in chance of stress related diseases such as high blood pressure, heart disease and production of hormones such as testosterone and progesterone decreases.

Hans Selye's research may have been successful in the fact that he showed the significance of the role of the HPA axis in stress.

He notified the importance and effects of stress medically and in diseases whilst other researchers have not been able to properly prove the negative effects of chronic stress.

However, Selye's work was very limited as there were several limitations.

He did not pay much attention to the SAM system and its role in stress and did not really understand the link or relationship of the HPA and SAM.

In addition, Selye's idea that stress always produces the same physiological pattern was extravagant as a researcher called Mason compared the responses to varying stressors with differences of how much fear, uncertainty or anger they created. The varying stressors produced different patterns of adrenaline, noradrenaline and cortisol secreted in the body.

It must also be criticized that Selye used non-humans (rats) for his research on human response to stress. This could have lead to some of his errors as rats may not respond in the same psychological way as humans. He may have used rats for ethical purposes and even if humans were used for the research, it could be argued that it was for medical purposes so it could not have been unethical anyway.

Finally it has to be taken in account that the tests Selye carried out may not necessarily have the same outcomes in pattern for all people as all people have individual differences.

Therefore the way in which one person reacts to one stress may vary from the way another person may react to the same stressor. Different levels of hormones may be produced and the patterns may differ with different people due to how they perceive and cope with the stress.