

The biological basis of the human personality and behavior

[Science](#), [Biology](#)



In the world of psychology, it is common knowledge that biological aspects are influential in determining personality. Throughout the years, several psychologists have presented biologically based personality theories that distinctly substantiate the belief that personality is biologically determined. However, there have also been psychologists, particularly behaviourists, who have propounded dissimilar theories which suggest that personality is shaped by a different element. Behaviourists only study observable behaviour and they place great emphasis on learning in their explanations of personality (SparkNotes Editors, 2005). Thus, there are sundry other facets that shape personality. Personality is not unreservedly determined by biological aspects.

There are a number of personality theories that have a biological basis. One such theory is laid out by Hans Eysenck. Eysenck (1990) proposed that the human brain has an excitatory mechanism and an inhibitory mechanism. The excitatory mechanism is linked with keeping the person aware, active and aroused, whereas the inhibitory mechanism is linked with inactivity and indolence (Maltby et al., 2013). Eysenck (1990) stated that the person aims to keep a balance between the two mechanisms, and that this balance is controlled by the ascending reticular activating system. The ascending reticular activating system, also known as the ARAS, is situated in the brain stem and it connects to various parts of the brain such as the hypothalamus, cortex, and thalamus (Maltby et al., 2013). The ARAS controls the stimulation or amount of information that the brain obtains and keeps people aware and active (Maltby et al., 2013). This stimulation and information process is called arousal.

There are two circuits that control arousal within the person: the reticulo- limbic and reticulo-cortical (Maltby et al., 2013). The reticulo- limbic circuit controls arousal to emotional stimuli, while the reticulo-cortical circuit manages the cortical arousal produced by approaching stimuli (Maltby et al., 2013). Eysenck (1990) proposes that arousal is a key variable enabling personality to be associated with a number of responses (Maltby et al., 2013). Eysenck (1990) associated arousal with two of his personality dimensions: neuroticism and extraversion. Extraversion consists of personality traits such as sensation-seeking, conviviality, and being cheery. Neuroticism consists of personality traits such as consternation, worry, and being sullen. Eysenck (1990) suggests that introverts' and extraverts' ARASs function differently, especially when aroused. Eysenck (1990) explicated that an extravert has an ARAS that does not deliver a great deal of arousal, whereas an introvert has an ARAS that supplies plenty of arousal. Even though one would expect this to be the other way around, Eysenck (1990) explicates that when a person's ARAS constantly makes them inordinately aroused, they will then try to circumvent stimulation as they already have plenty of it (Maltby et al., 2013). As a result, this individual will be introverted since they will steer clear of stimulation and situations that may rouse them. In contrast, when a person's ARAS constantly makes them inadequately aroused, they will try to obtain stimulation. This individual will be extraverted as they will be looking for stimulation and excitement all the time. Geen's (1984) experiment supports Eysenck's arousal theory (Maltby et al., 2013). Geen (1984) asked a group of introverts and a group of extraverts to choose

the suitable noise levels of some music that they would listen to while carrying out a boring and challenging task (Maltby et al., 2013).

In comparison with the introverts, the extraverts unsurprisingly chose higher levels of music to listen to when doing the task (Maltby et al., 2013). Geen (1984) discovered that both groups finished the task well in these chosen circumstances (Maltby et al., 2013). Geen (1984) then repeated the experiment but this time he made the extraverts listen to the lower levels of music and the introverts listen to the higher levels of music (Maltby et al., 2013). In these circumstances, the extraverts got bored quickly with the task whereas the introverts became upset, and both groups did not carry out the task as well as they did in the initial experiment (Maltby et al., 2013).