

The Reticular Activating System

The reticular activating system (RAS) is a diffuse network of neurons in the brain that interact with structures such as the hypothalamus, thalamus, cerebral cortex and the cerebellum. It includes the **reticular formation** that originates in the brain stem near the pons and radiates into the cerebrum. Functionally this network of neurons is called the name reticular activating system. The primary function of this system is to maintain the brain in a state of alertness or arousal. It is also involved in regulating our sleep wake cycles. Damage to this system results in the inability to remain awake and alert. Narcolepsy, for example, is thought to be due to malfunctioning of the RAS. If the system is suddenly shut down, like from a blow to the head, the victim will lose consciousness. Caffeine has the effect of exciting the reticular formation fibers so that one "feels" more awake or as if they have more energy. Likewise bright light, cold water on the face and noxious chemicals (smelling salts) stimulate the RAS while dim lights, soothing music, warmth and general anesthetics suppress this system.



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