**Working memory, ADD, noradrenaline.**

As ADD and ADHD are a subset of catecholamine dysfunction, it is instructive to look at some of the individual functioning of the catecholamines.

One function of noradrenaline is to enable and then disable short-term memory or working memory.

Working memory enables the mind to concentrate, be orientated both in time and in space. You can plan ahead, making decisions. You stay on task with short-term memory/working memory enabled.

Clinically, one manifestation of poor short-term memory is a person that constantly, randomly and seamlessly changes topics. Great when socialising but disruptive and terrible if trying to do anything productive.

As noradrenaline increases in the pre-frontal cortex you become more alert. With increasing amounts it then activates the alpha-2 receptors which inhibit. By stopping specialised neurons repolarising immediately a transient memory is created. (The computer equivalent is RAM) As noradrenaline increases further, for instance due to stress, alpha one receptors are then stimulated. Short-term memory neurones immediately repolarise and the ability to remember what you are doing and concentrate is lost. This change enhances immediate quick reactions. Great for sport or when in a stressful situation, bad for learning in the classroom.

People with a ADD have low nor adrenaline levels and short-term memory is not activated. ADHD sufferers tend to have high noradrenaline and their short term memory is frequently deactivated.

(Odd number receptors stimulate, even numbers inhibit)

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