**Stress as a bodily response**

* Stress is a response to **stimuli** in the **environment.**
* There are **two** main ways in which our body responds to stress, and both involve the adrenal gland.
* Each adrenal gland is made up of two distinct sections- the adrenal cortex and the adrenal medulla.
* These two sections release different sets of hormones into the blood stream and are controlled by two different pathways.

**The pituitary-adrenal system**

* Pituitary adrenal system, which involves the adrenal cortex is under the control of the **hypothalamus** and the **pituitary gland.**
* The pituitary gland releases a number of hormones into the bloodstream, which in turn control many vital body functions.
* One of these hormones is the **adrenocorticotrophic hormone** **(ACTH),** which travels to the adrenal cortex and stimulates the release of hormones called corticosteroids into the bloodstream.
* **Corticosteroids** weaken the immune system as they cause the thymus gland

to shrink reducing the amount of T-lymphocytes (white blood cells) released in to the blood making the body prone to illness.

**The sympathomedullary pathway**

-The **autonomic nervous system (ANS**) is a network of nerve pathways running from centres in the lower parts of the brain **(the brainstem)** out to

the organs of the body such as the heart, digestive system, circulatory system and various glands including the adrenal medulla.

-The role of the ANS is to maintain the normal functioning of bodily systems in response to demands.

- The adrenal medulla is controlled by the ANS, and activation of the sympathetic branch stimulates it to release the hormones **adrenaline** and **noradrenalin** in to the bloodstream.

**ACUTE STRESS IS SHORT TERM STRESS, CHRONIC IS LONG TERM.**

**YOU NEED TO LEARN THESE BY HEART.**

HPA axis: brain perceives possible threat and signals are sent to the HYPOTHALMUS, this in turn, sends signals to the pituitary gland which releases the stress hormone ACTH (adrenocorticotrophic hormone) into the blood stream. This reaches the adrenal cortex of the adrenal glands and stimulates them to produce hormones like cortisol which have the above physical effects on the body.

SAM pathway: brain perceives possible threat and signals are sent to the HYPOTHALMUS, this in turn, sends signals to the sympathetic nervous system. These nerve impulses are transmitted to the adrenal medullae of the adrenal glands and they release adrenalin and noradrenalin into the bloodstream, having the above physical effects