**Explanation**

Chronic stress is stress that persists over a long period of time.

**The Body’s Response To Chronic Stressors**

When a stressor is first encountered a **SAM** is the response is triggered. At the same time, a second **slower** response begins – the **Hypothalamic-Pituitary-Adrenal Axis (HPA)**.

**Stressor activates the Hypothalamic Pituitary-Adrenal Axis**

- The hypothalamus releases an hormone CRF which stimulates the pituitary gland
- The pituitary gland secretes an hormone (ACTH)
- ACTH stimulates the adrenal cortex to produce corticosteroids and cortisol into the blood stream
- These cause the liver to release energy and suppress the immune system (so the energy isn’t used up)

**Cortisol**

Cortisol is part of a family of hormones known as glucocorticoids – plays a role in the **central nervous system**.

When released in response to stress it **lowers sensitivity to pain** and **releases glucose** to keep us going. It can, however, **lower our immune system** by killing t-cells that help fight disease and illnesses.

**Research Support**

Kiecolt-Glaser (1984) investigated whether stress is associated with a **decreased immune response by carrying out a natural experiment**. Blood samples were taken form 75 volunteer medical students one month before their final examinations (control) and on the first day of their examinations. The student completed a questionnaire to assess factors such as emotional states and life

**Evaluation**

**Low Levels Of Cortisol Also Cause Health Problems**

- Not just high levels of cortisol that causes health problems
- For many people it is not until the **stressor is removed** that they get ill, for example, falling ill in the school holidays or just after exams have finished
- The sudden drop in cortisol levels after the stressor is removed may lead to the inflammatory effect
- Christine (2000) report on a number of studies linking low levels of cortisol with a number of **health problems**
- For example, chronic fatigue syndrome and post-traumatic stress disorder (PTSD)
- Exact mechanisms are unclear, but it may be more important to balance cortisol levels over a long period of time

**Issues In Research Studies**

- It is difficult to establish a cause and effect relationship between stress-related cortisol released and subsequent illness
- When people are stressed, they often change eating habits, they may not sleep well or start consuming alcohol – increases cortisol levels and confound any findings
- They may be age and gender difference in the HPA system response to stress
- Nestor (2009) found variation in cortisol releases in children when placed in a stressful situation
- Peak cortisol levels peaked from 10 minutes to 60 minutes after the stressor
- Boys showed greater cortisol activation in response to the stressor
- Therefore, research studies should take this into account when analysing the results

**Stress Is Not Always Bad For The Immune System**

- Research shows that **some situations stress may enhance** the activity of the immune system
- For example, Phil Evans (1994) looked at the activity of an **antibody** (sig A) which helps protect against infection
- Researchers arranged for students to give talks to other students