

# Cold Hands, Fast Heart: The Body's Physiological Reaction to Stress

The human body instinctively reacts to stress by releasing hormones that control the heart rate and breathing. It's the body's way of providing additional energy to either fight or flee—the innate human response to stress.

Hormones are chemicals, produced by glands and carried through the bloodstream, that affect the activities of organs in the body. The **hypothalamus** (high-po-THAL-uh-mus) and **pituitary** (pih-TOO-ih-tair-ee) glands, located in the brain, and the **adrenal** (uh-DREE-nal) glands, situated on top of the kidneys, control the hormones that help the body cope with change or a stressful situation. The hypothalamus signals the pituitary gland that signals the adrenal glands to release the stress hormones **epinephrine** (ep-i-NEF-rin), **norepinephrine** (nor-EP-i-NEF-rin), and **cortisol** (KORT-ti-zol). These chemicals increase heart rate and breathing, which provide a burst of energy (to fight or flee), as well as affect other bodily functions. The release of these hormones can result in a wide range of physical reactions to stress.

