

The importance of negative feedback mechanisms essay



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In order to maintain homeostasis or balance, there must be a control mechanism. According to Guyton (2000), there are several control mechanisms present in the body and most of them act by negative feedback. Negative feedback mechanisms reduce or suppress the original stimulus, given the effector's output.

Most homeostatic control mechanisms require a negative feedback loop to keep conditions from exceeding tolerable limits. The purpose is to prevent sudden severe changes within a complex organism. This is the most common extrinsic control system to maintain homeostasis. There are hundreds of negative feedback mechanisms in the human body. Among the most important regulatory functions are: thermoregulation, osmoregulation, and glucoregulation.

Therefore, in general if some factor becomes excessive or deficient, a control system initiates feedback, which consists of a series of changes that return the factor toward a certain mean value, thus maintaining homeostasis. According to Farabee (2006), the loss of the negative feedback mechanisms might cause deleterious effects on the organs of the body. A positive feedback mechanism when unchecked by a negative feedback mechanism will cause a vicious circle and death. For example during acute hemorrhage, if the person is suddenly bled 2 liters, the amount of blood in the body is decreased to such a low level that not enough is available for the heart to pump effectively (the heart of a human being pumps about 5 liters of blood per minute). As a result, the arterial pressure falls, and the flow of blood to the heart muscle through the coronary vessels diminishes.

This results in weakening of the heart, further diminished pumping, further decrease in coronary blood flow, and still more weakness of the heart.; the cycle repeats itself again and again till death occurs. Works Cited : Farabee, M. J., (2006).

Animal Organ Systems and Homeostasis. Estrell Mountain Community College. <http://www.emc.maricopa.edu/faculty/farabee/biobk/BioBookANIMORGSYS.html>

Guyton, A. C., & Hall, J. A. (2000). Textbook of Medical Physiology: 10th edition. Philadelphia, USA: W. B. Saunders Company