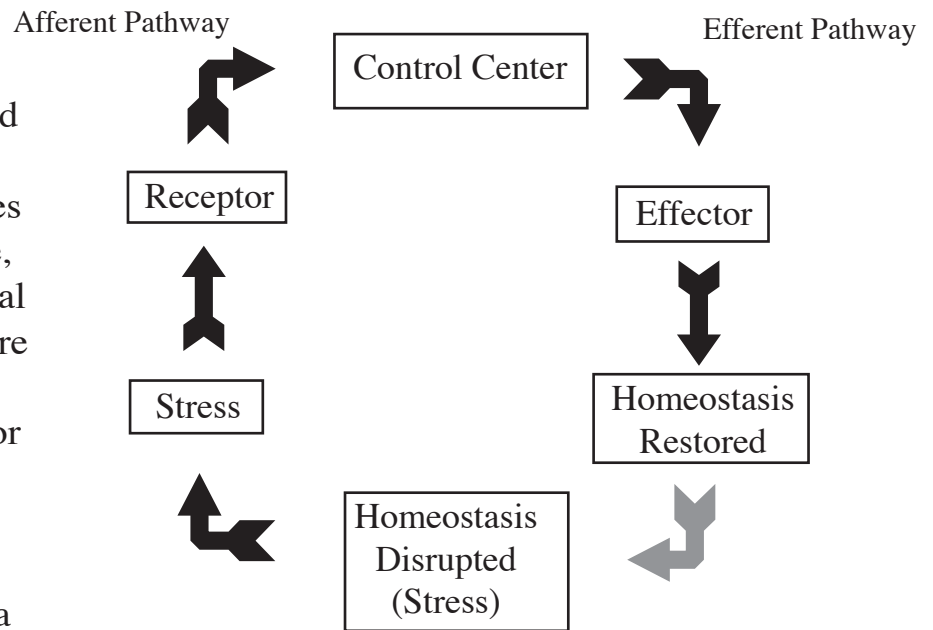


## Control Paradigm (Negative Feedback System)

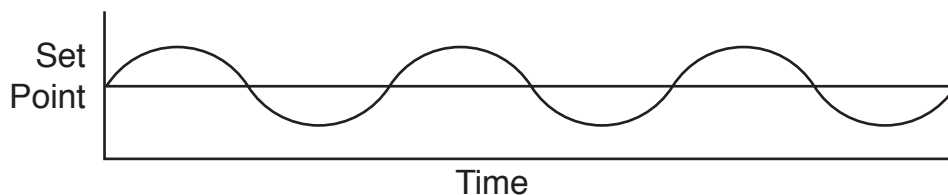
Homeostasis is the ability to control all physiological variables necessary for life and health within precise and optimal ranges. Such variables will include body temperature, blood pressure, ion and mineral concentrations, etc. Here, there will be for each variable a control center that will monitor the variable relative to a genetically predetermined set point. Should the variable be above or below the set point, a state of "stress" will have occurred, and the system put into effect some action to rectify the "stress", and negate the initial stimulus.



A Disruption of  
Homeostasis will Activate the  
System.

System Inactivated  
Once Homeostasis  
is Restored

Such a system is called a negative feedback mechanism. And it operates by collecting information via receptors and transmitting this information to a control center by an afferent pathway. Once the information is at the control center, the information will be compared and evaluated relative to a set point. If there is a disruption of homeostasis (stress), then the control center will rectify the problem by sending a message through an efferent pathway to a particular effector that has that specific task of restoring homeostasis. Once the effector does its job, the stress is eliminated and homeostasis is restored. Here the negative feedback mechanisms negated the initial stimulus that set the system in motion.



In the diagram above, one notes that should the variable exceed the set point, the negative feedback mechanism will restore the variable to the set point. Should the variable go below the set point, the negative feedback mechanism will raise the variable to the set

Should a particular negative feed back mechanism fail to maintain it's particular physiological variable around it's set point, then the body will remain in a state of ongoing stress. Such a state is called, "disease". Should the disease fail to be rectified, then the next state will be that of death.

