Chapter 2
Exercise: A Challenge of Homostatic Control

**Homeostasis**: The condition of bodily function where there is a constant or unchanging internal environment.

**The issues that are important in the application of homeostasis to exercise physiology are:**
- how well the body can reduce the physiological consequences of the exercise stress
- the speed at which a homeostatic condition is once again attained during recovery.

A good example of the dynamic nature of homeostasis is the beat-to-beat variability in blood pressure.

**Steady state**:
- An exercise condition where certain body functions have attained constancy at a new level
- Typically, steady state is used to describe the point where energy needs are being met
  - eg: walking, jogging, easy cycling

The changes in heart rate and oxygen consumption are good examples of physiological measures that become relatively constant during steady state exercise intensities.

What are examples of other physiological measures that would attain a constancy during steady state exercise?
CONTROL SYSTEMS OF THE BODY

A biological control system is a functioning unit that works to help maintain homeostasis.

In most biological control systems the response caused by the effector, opposition to the initial stimulus and is termed negative feedback.

What are some examples of biological control systems of the human body that enable a person to perform long term (> 60 min) exercise?

*Sweat Response, Energy Metabolism, Blood Glucose, PVR, Water Reabsorption...

The blood pressure changes in response to the transition from rest - to steady state exercise - to a passive recovery.

Feedback

Negative feedback: when the control system response works in opposition to the initial stimulus response

the majority of systems regulation in the body involves negative feedback

Positive feedback: when the control system response works to increase the initial stimulus response