

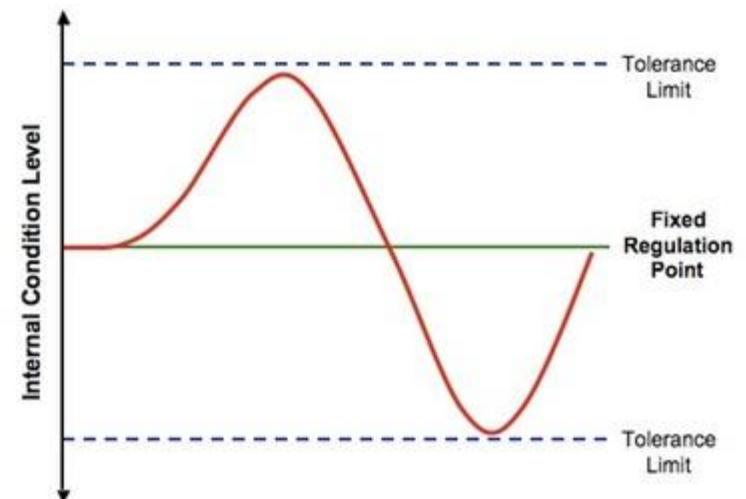
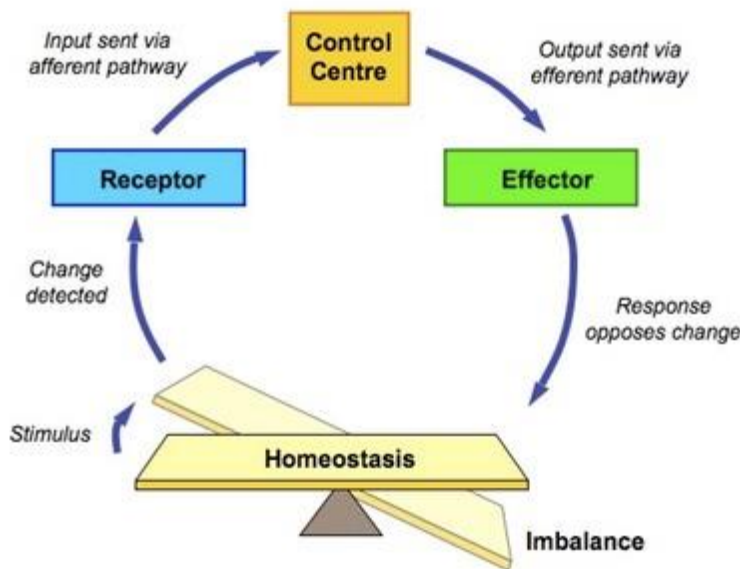
# Feedback

Topic 4.5



# Purpose of Feedback Mechanisms

- Organisms use feedback mechanisms to maintain their internal environments and respond to internal and external environmental changes



# Types of Feedback Mechanisms

(Feedback Mechanisms Video 2:26)

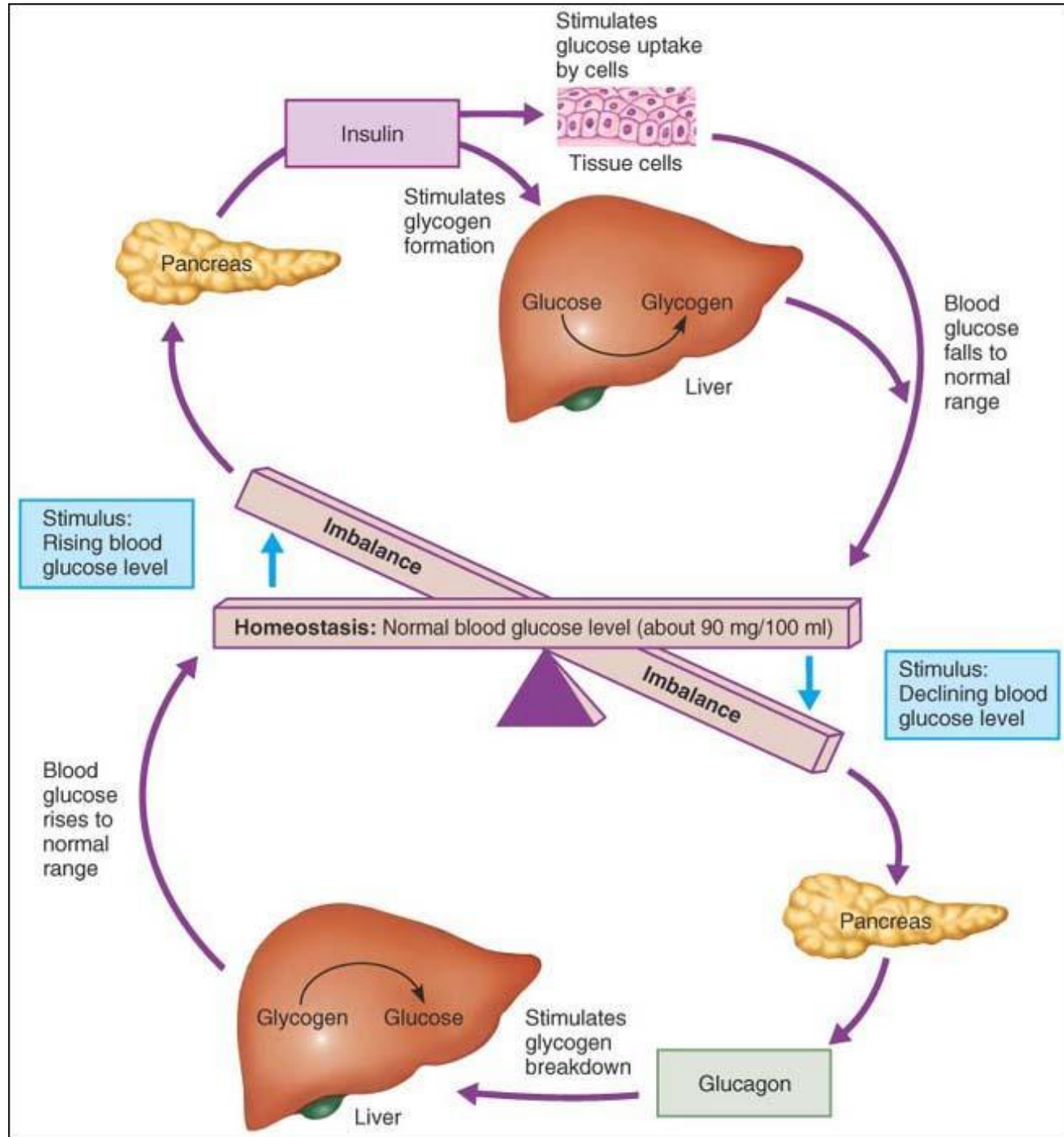
- **Negative feedback mechanisms** maintain homeostasis for a particular condition by regulating physiological processes
- **Positive feedback mechanisms** amplify responses and processes in biological organisms

# Negative Feedback

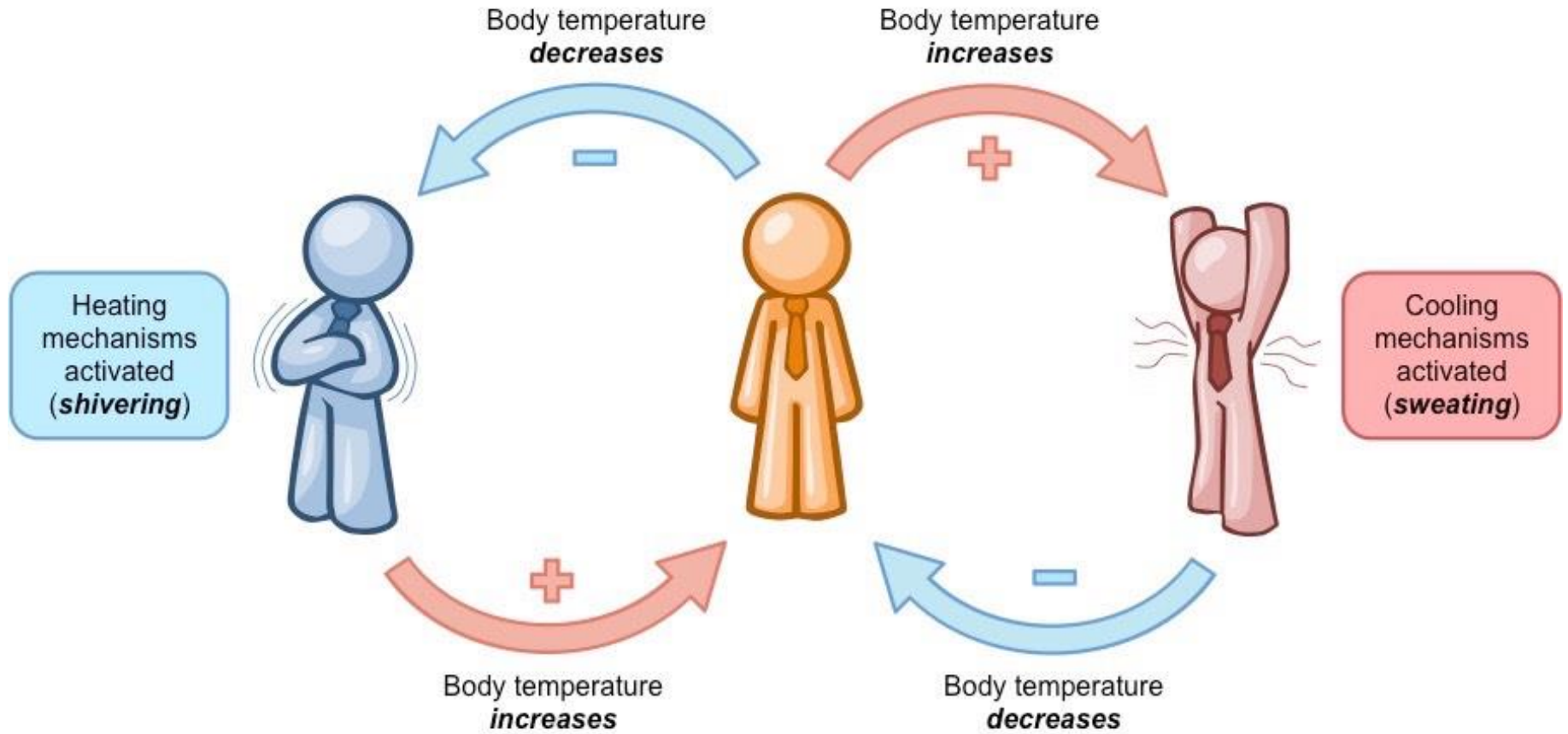
- If a system is disrupted, negative feedback mechanisms return the system back to its target set point (at the molecular and cellular level)
- **Example:** Blood sugar regulation, body temperature

# Blood Sugar

- The hormones insulin and glucagon, produced and secreted by the pancreas, work together to regulate blood sugar levels



# Body Temperature

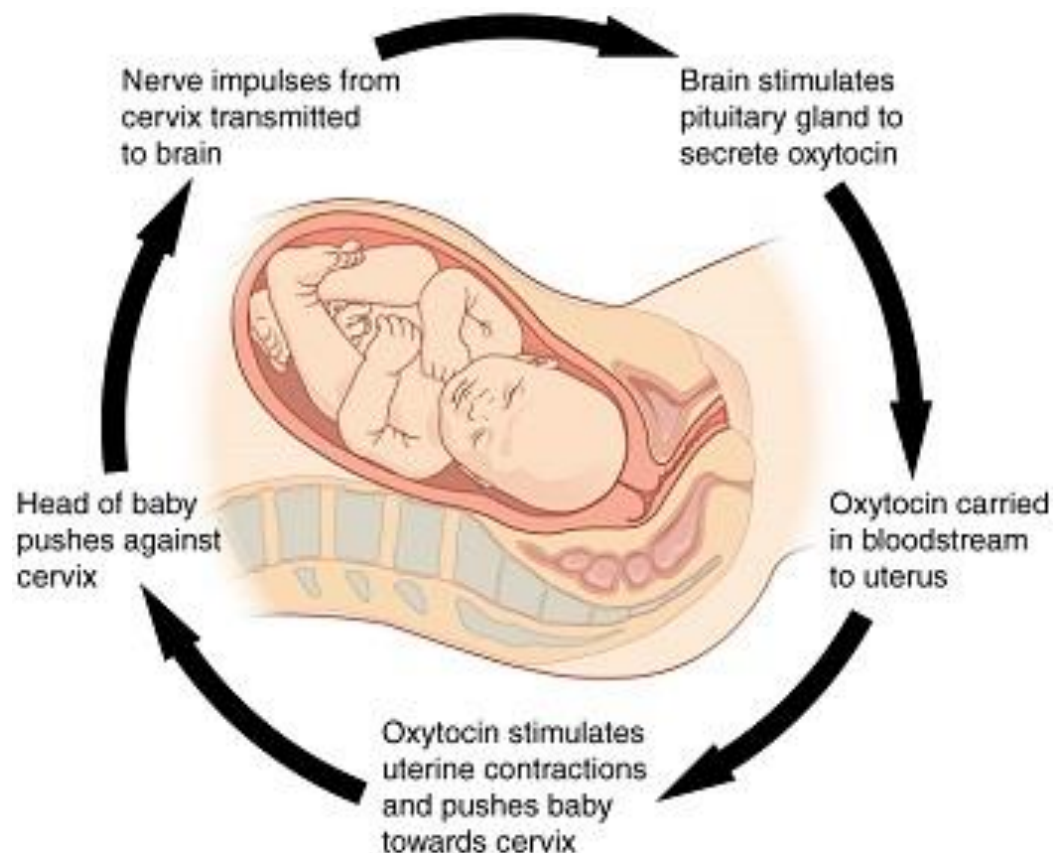


# Positive Feedback

- In positive feedback, the variable initiating the response is moved farther away from the initial set point
- Amplification occurs when the stimulus is further activated, which, in turn, initiates additional response that produces system change
- **Examples:** Childbirth, fruit ripening

# Positive Feedback: Childbirth

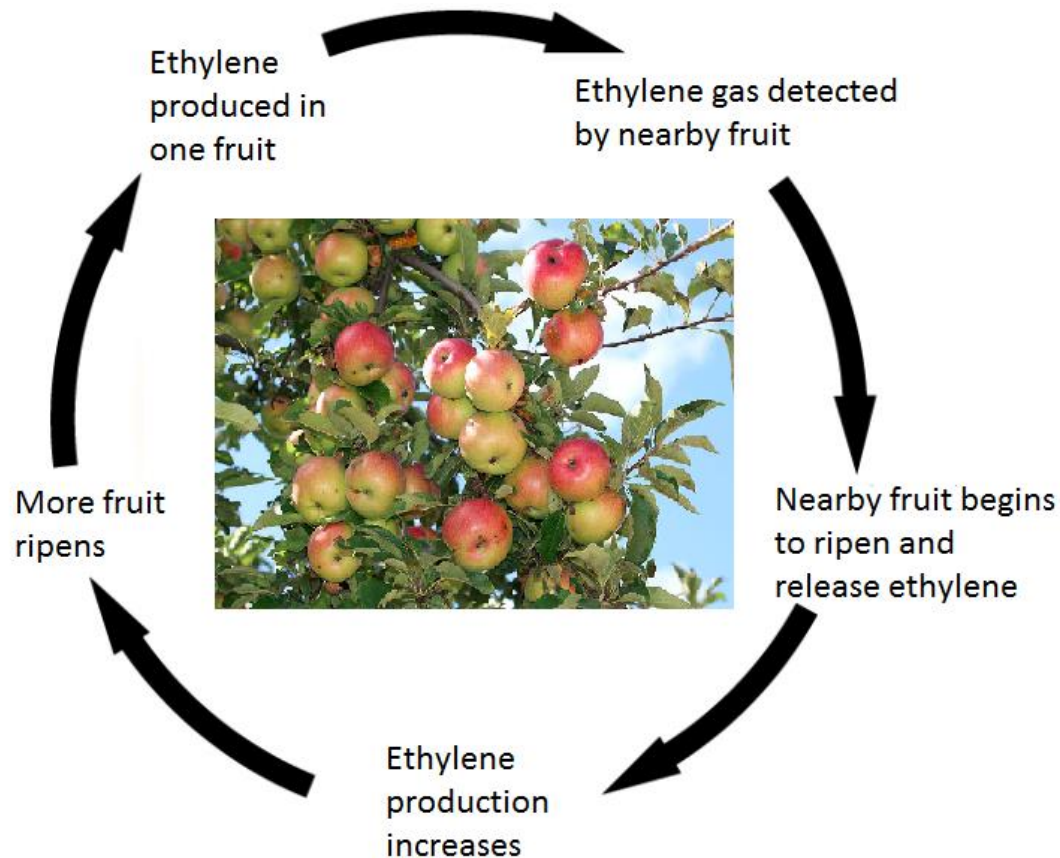
- Oxytocin is a hormone that stimulates uterine contractions during childbirth





# Positive Feedback: Fruit Ripening

- **Ethylene** is a hormone found in plants that causes fruit ripening



# Feedback Loops in Nature

- Watch this 5 minute video about feedback loops in ecological systems