

## Homeostatic (Positive and Negative) Feedback

### Two Types of Homeostatic Feedback

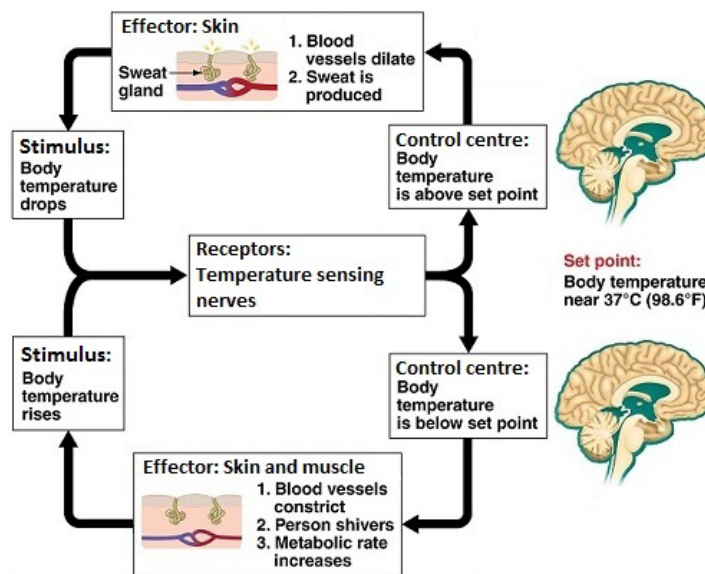
There are two types of feedback in homeostatic systems: **negative** and **positive** feedback. Each type of feedback promotes a change in the homeostatic system relative to the set point, but they each do this differently.

### Negative Feedback

A negative feedback homeostatic system causes a change in the **opposite** direction as the original change in the system.

For example, your body tries to maintain a homeostatic temperature by adjusting opposite to the changes going on with your body's temperature - as you heat up while on a run, your body tries to cool itself down by sweating; if you cool down because it is cold outside, your body tries to warm up by shivering.

Negative feedback is a generally more most obvious type of homeostatic feedback. Most examples you have come across in this resource (see Examples of Homeostasis) and in your classes, are negative feedback systems.



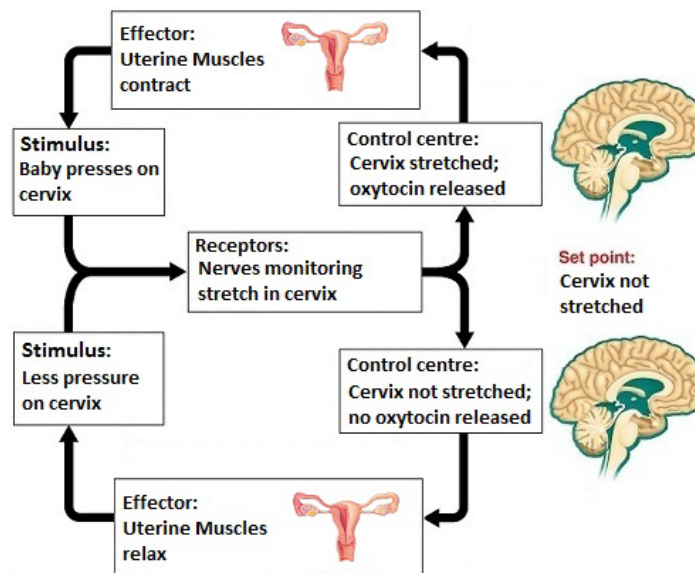
**Figure 1.** Negative feedback in the maintenance of body temperature. The body makes changes in the opposite direction to the initial change (adapted from Simon, Dickey, and Reece 2013).

## Positive Feedback

A positive feedback homeostatic system causes a change in the **same** direction as the original change in the system.

For example, the female body tries to maintain homeostasis during childbirth by adjusting in the same direction as the changes the pushing birthing baby is causing - as the baby pushes on the female's cervix, her body releases hormones that cause further contraction of the uterus; this continues until the child is born and there is a decrease in pressure on the uterus, causing a decrease in contractions.

Positive feedback is generally a less obvious type of homeostatic feedback. However, there are several examples of positive feedback, the above example being one. Blood clotting is another example of positive feedback.



**Figure 2.** Positive feedback during childbirth. The body makes changes in the same direction to the initial change (adapted from Simon, Dickey, and Reece 2013).

## References

Simon, E., Dickey, J. & Reece, J. (2013). *Essential biology with physiology* (4<sup>th</sup> ed.). Philadelphia: Pearson Education Inc. ISBN: 978-0-321-77260-2