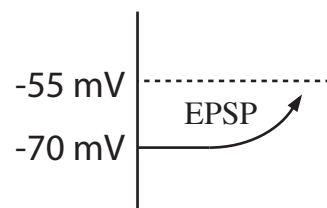


Reflexes

Handout on

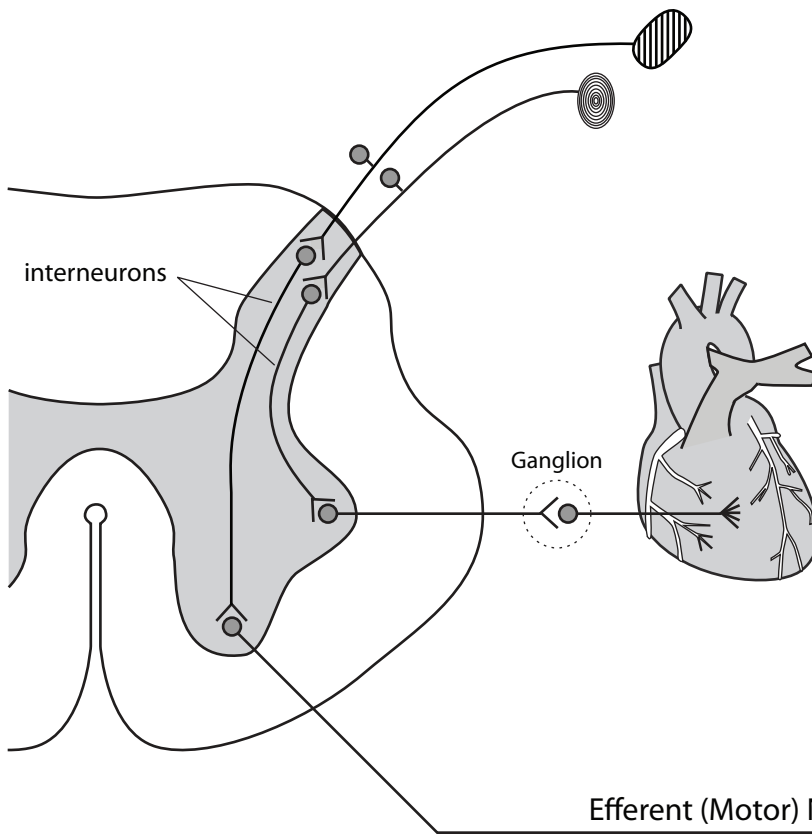
and



Basic Reflex Arch

2. Afferent (Sensory) Neuron:

Afferent (Sensory) Neurons are always unipolar and will conduct and impulse to a control center. In this case the control center is located in the spinal cord. The neuron always enters via the dorsal root, and the cell bodies of these unipolar neurons will be located in the dorsal root ganglion. These unipolar neurons will enter the **posterior grey horn** and synapse with an interneuron.



4. Efferent (Motor) Neuron:

Motor neurons are always multipolar and will participate in the circuitry of the gray matter. If the motor neuron is under voluntary control, it will synapse in the anterior gray horn. If it is involuntary, it will synapse in the lateral gray horn. Either way, efferent (motor) neurons will leave the ventral root and make their way to appropriate effectors.

1. There are a variety of **Receptors**:

- Pressure
- Temperature
- Osmo
- Light
- Stretch
- Tendon
- Chemo
- Pain

Each receptor type will respond to an appropriate stimuli and relay this information to an **afferent sensory neuron**. Such neurons are always **unipolar**.

3. Control Center and **Interneurons**:

The control center will be in the gray matter and made up on multipolar neurons called interneurons here. The interneurons will form circuits to determine if there is a state of stress or the potential for stress. If there is, effectors will be stimulated (or excited) to respond; if there is not such a threat, such effectors will be inhibited. To this end, some interneurons will be excitatory and others inhibitory. Their often complex interactions will be important in maintaining health and homeostasis.

If the effector is under voluntary control (Somatic Nervous System), the interneuron will synapse with a motor neuron in the **anterior gray horn**. If the effector is under involuntary control (autonomic nervous system), the interneuron will synapse in the **lateral gray horn**.

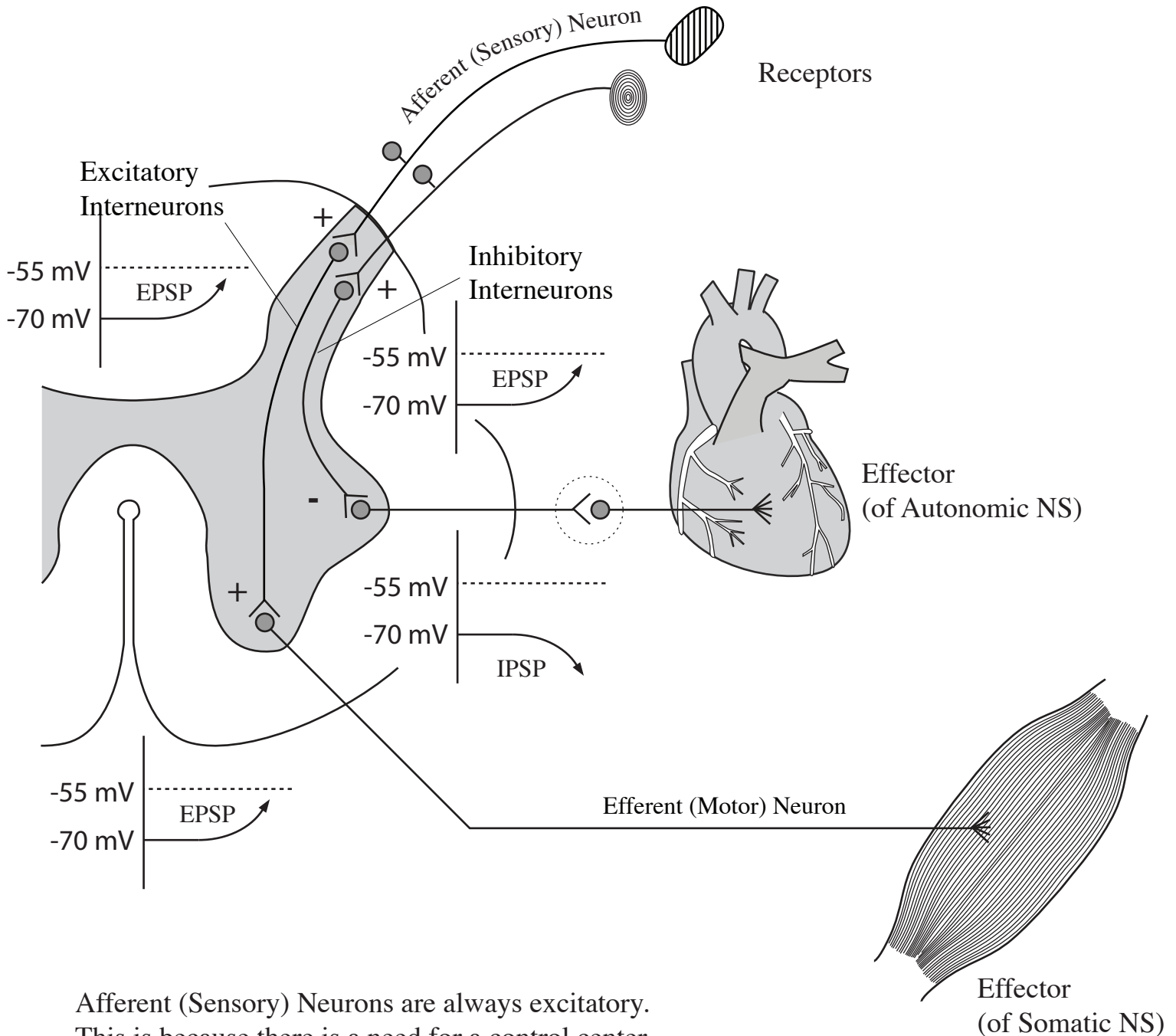
5. Effectors:

Impulses conducted across motor neurons will terminate at an effector. Effectors may only be one of two types:

- Muscle (smooth, cardiac, or skeletal)
- Glands (endocrin or exocrine)

As the effectors respond, their effect will be to restore homeostasis, or avoid a disruption to homeostasis.

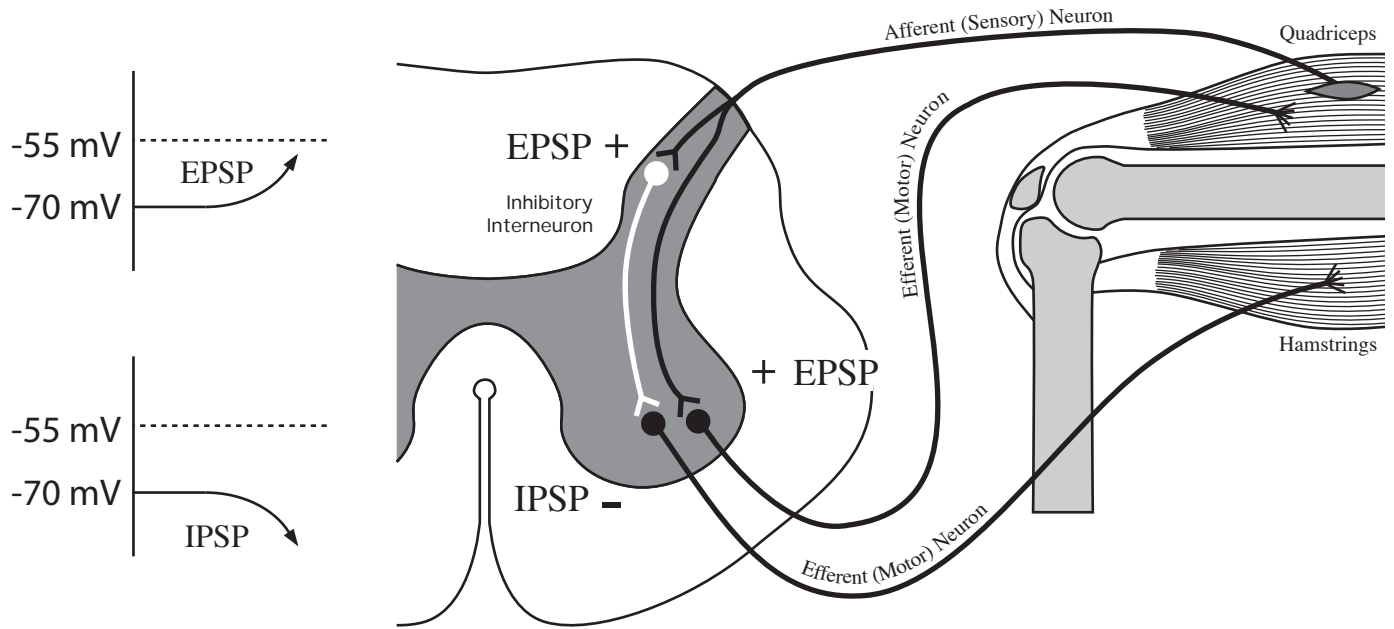
Basic Reflex Arch



Afferent (Sensory) Neurons are always excitatory. This is because there is a need for a control center evaluate some sensory information and respond if there is a need restore homeostasis, or avoid potential stress.

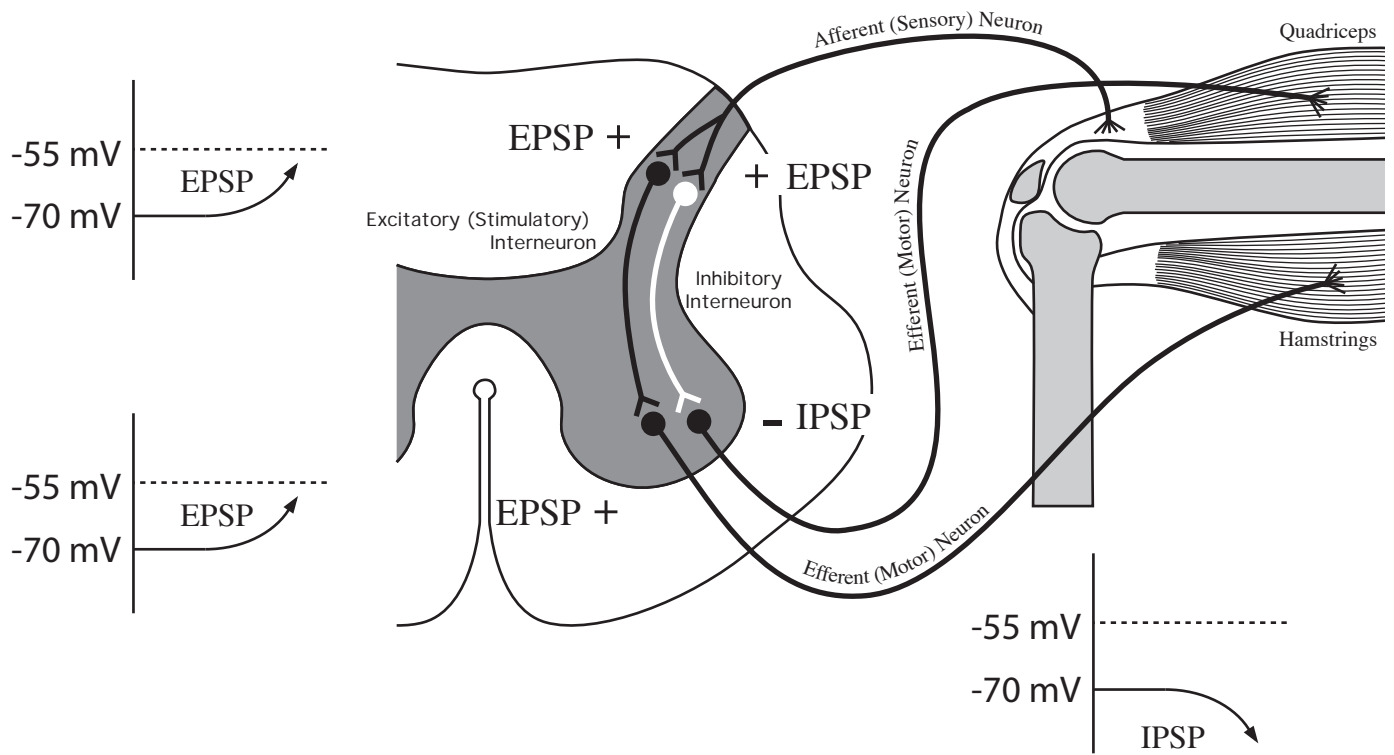
The control center, however, must determine if an effector should respond or not respond. Therefore, the circuitry of the reflex arc will consist of interactions between excitatory and/or inhibitory interneurons. An excitatory presynaptic neuron will bring the postsynaptic neuron closer to and often even reach the threshold. An inhibitory presynaptic neuron will bring the postsynaptic neuron further away from threshold make the and action potential (impulse

Stretch Reflex



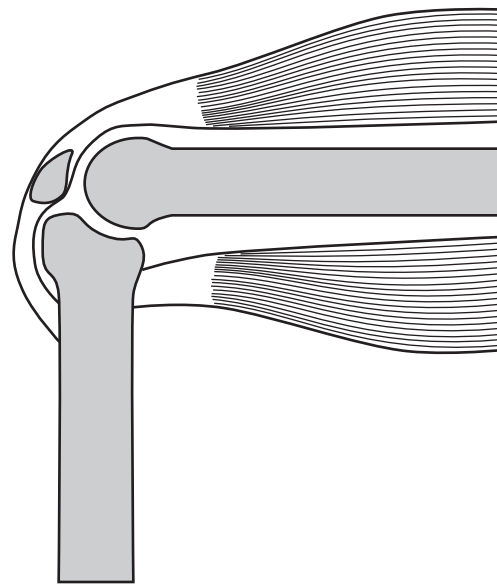
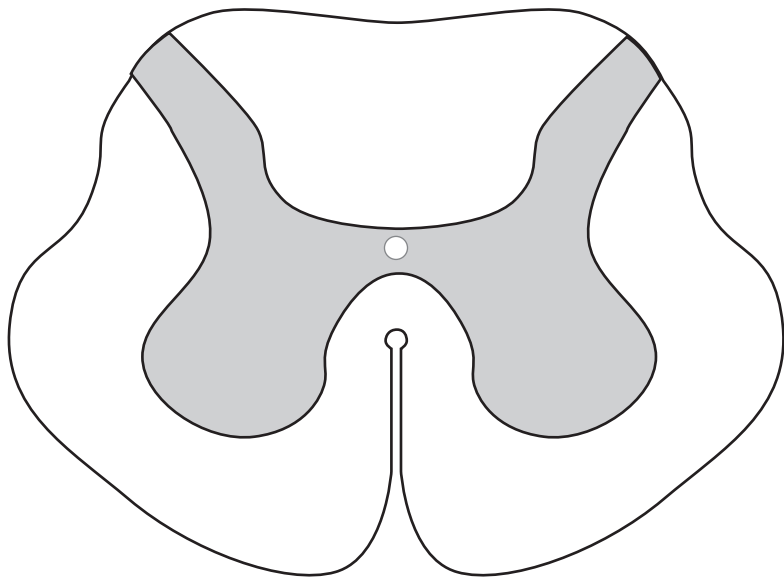
EPSP

Tendon Reflex



Reflex Name: _____

Function of Reflex: _____



Reflex Name: _____

Function of Reflex: _____

