Properties of reflexes :-

dequate stimulus and stereotyped respons

eflex time and central delay

ecruitment of stimulus

fter discharge

nal common pathway

abituation and Sensitization

Recruitment of motor neurons :

ting with the smallest motor units,
ressively larger units are recruited with
easing strength of muscle contraction.

asing the number of active motor units (ie, **spatial itment**)

asing the firing rate (firing frequency) at which dual motor units fire to optimize the summated n generated (ie, temporal recruitment)

rington called the **lower motor neurons** of the
l cord the "**final common pathway**".

er motor neurons, therefore, are the final comm
vay for transmitting neural information from a v
urces to the skeletal muscles.

ical stretch reflex is associated with
traction of agonist and relaxation of
gonist neuron – known as RI

vantages of reciprocal innervation (R

1. Smooth movement

2. Energy requirement is reduced.

Functions of muscle spindles

Feedback device to maintain muscle l

Sensitive to rate of change of length a

stretching

Maintenance of posture

Regulation of muscle contraction

cle tone (related to stretch reflex):

cle tone is maintained by a **normal reflex ar**
eby a signal is sent from the muscle spindles
r motor neuron in the posterior root ganglion
n then sends a signal to the appropriate musc
just the extent of their contraction.

cle tone helps maintain posture and helps mu
the forces of gravity.

tch reflexes is called the **lengthening**
ction.

derate stretch ⟹ **contraction**
g., light weight)

ong stretch ⟹ **relaxation**
g., heavy weight)

nically, this can be observed
der hypertonic (spastic) conditions,
hen it is known as the **clasp-knife**
fect.

ertonia is **a condition in which there is too much cle tone so that arms or legs, for example, are stiff difficult to move**.

cle tone is regulated by signals that travel from the to the nerves and tell the muscle to contract.

t causes hypertonia?

injury like lack of oxygen when moving down the bi

tumor.

itions that affect how nerves communicate with musc

y to central nervous system.

ems with how your baby's brain formed during fetal

opment.

e.

e common causes – Hypotonia :

n syndrome.

cular dystrophy.

ebral palsy.

der-Willi syndrome.

tonic dystrophy.

fan syndrome.

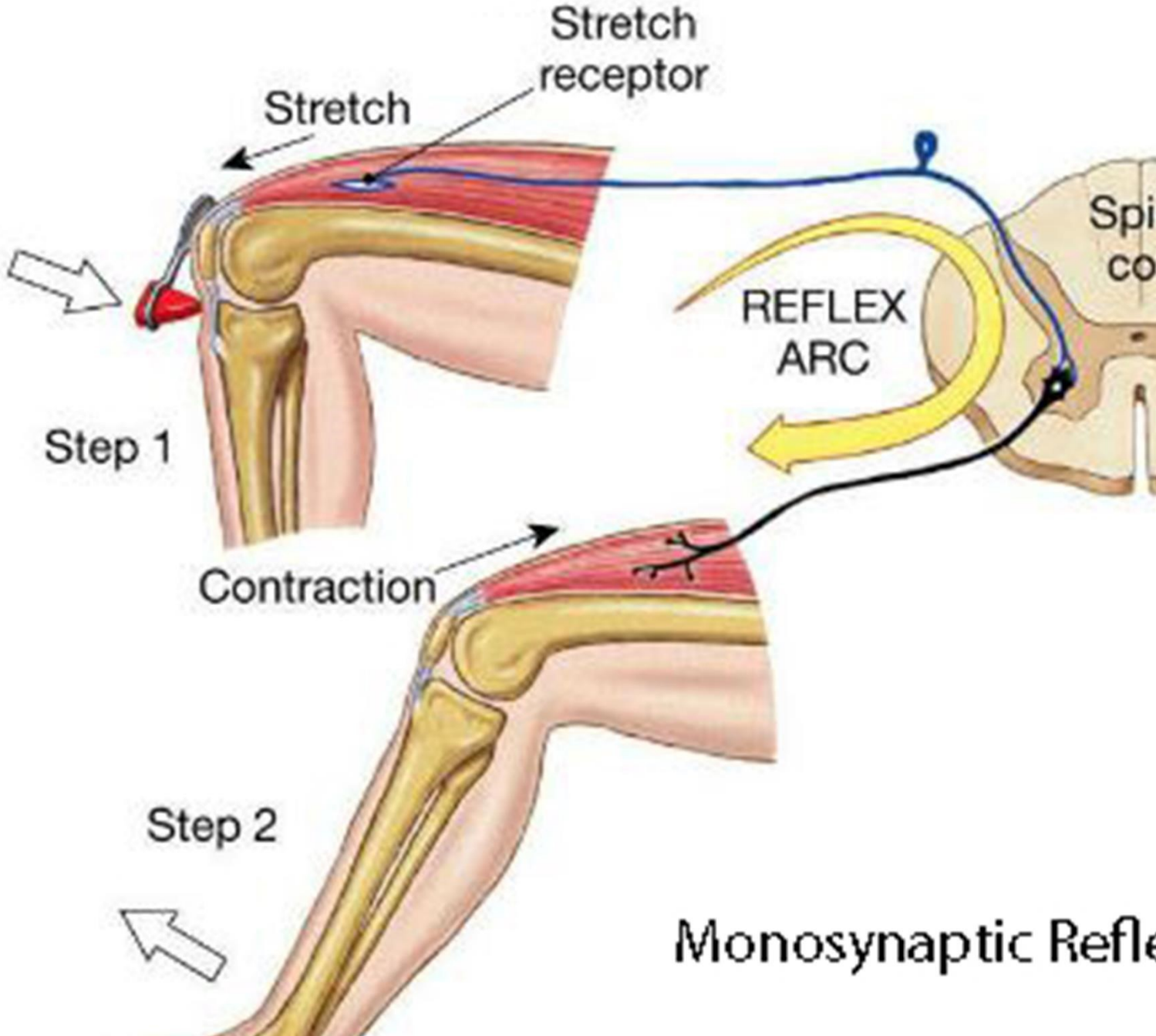
Sachs disease.

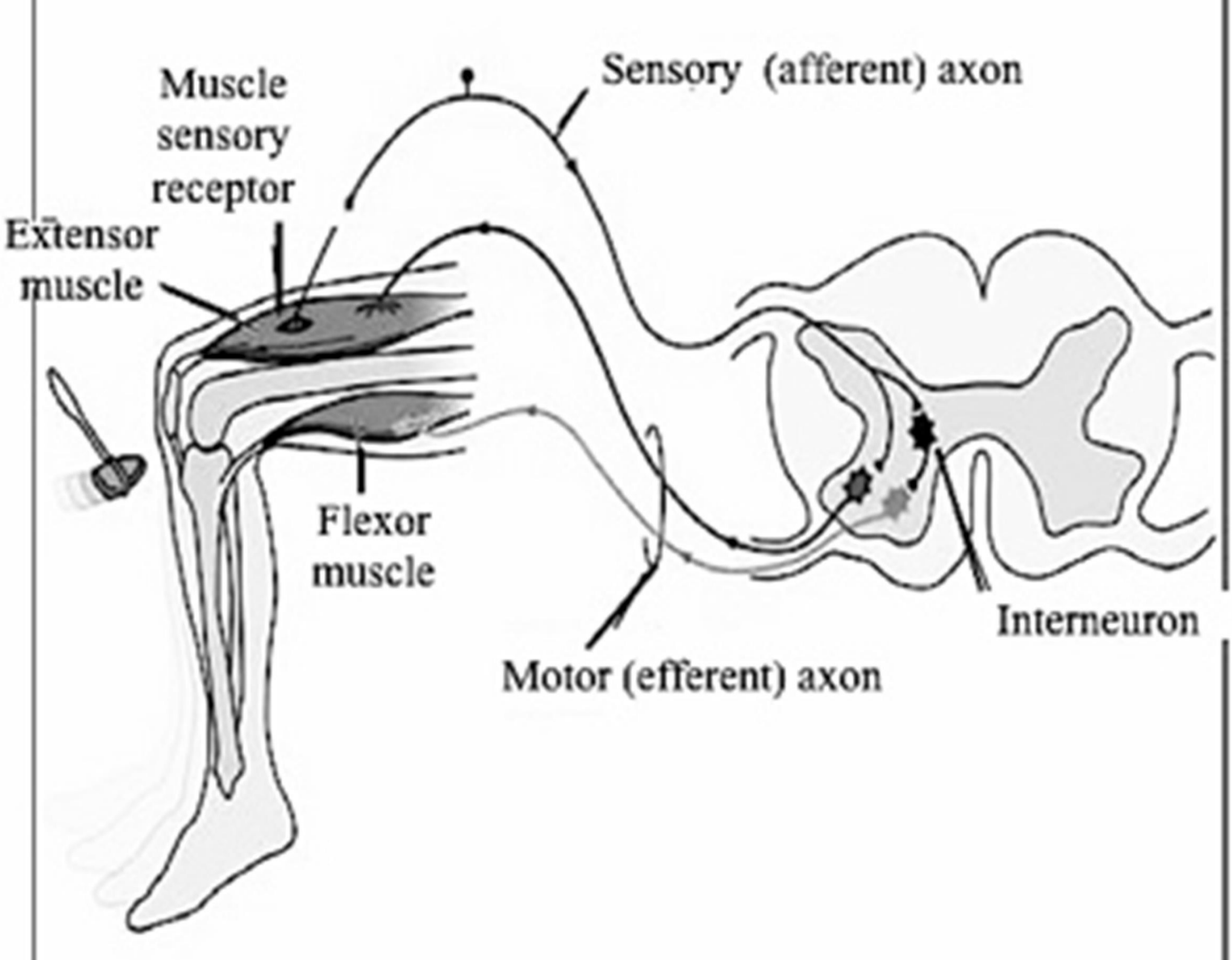
Types of Reflexes

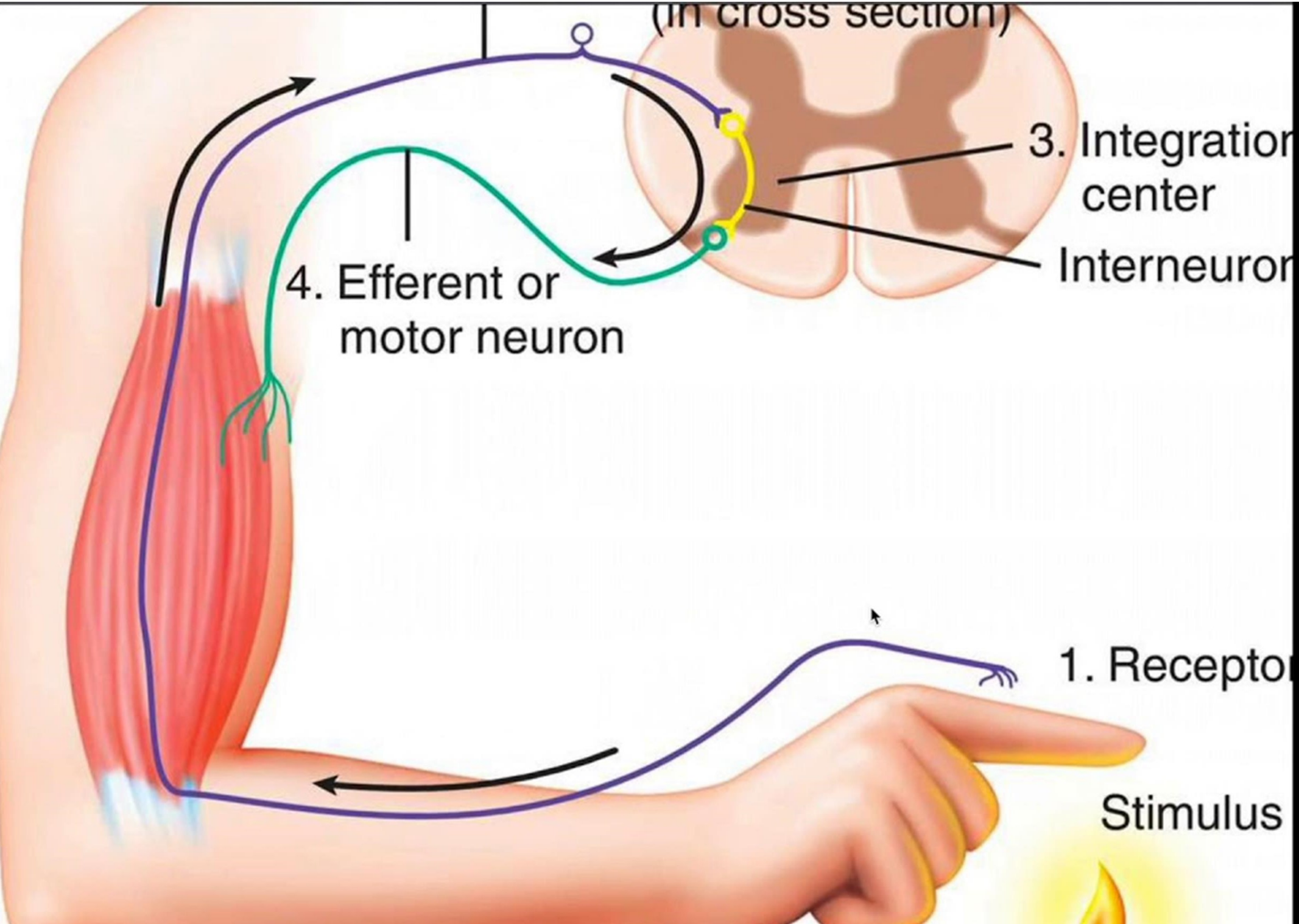
Monosynaptic Reflex
Bi - Synaptic Reflexes
Polysynaptic Reflexes

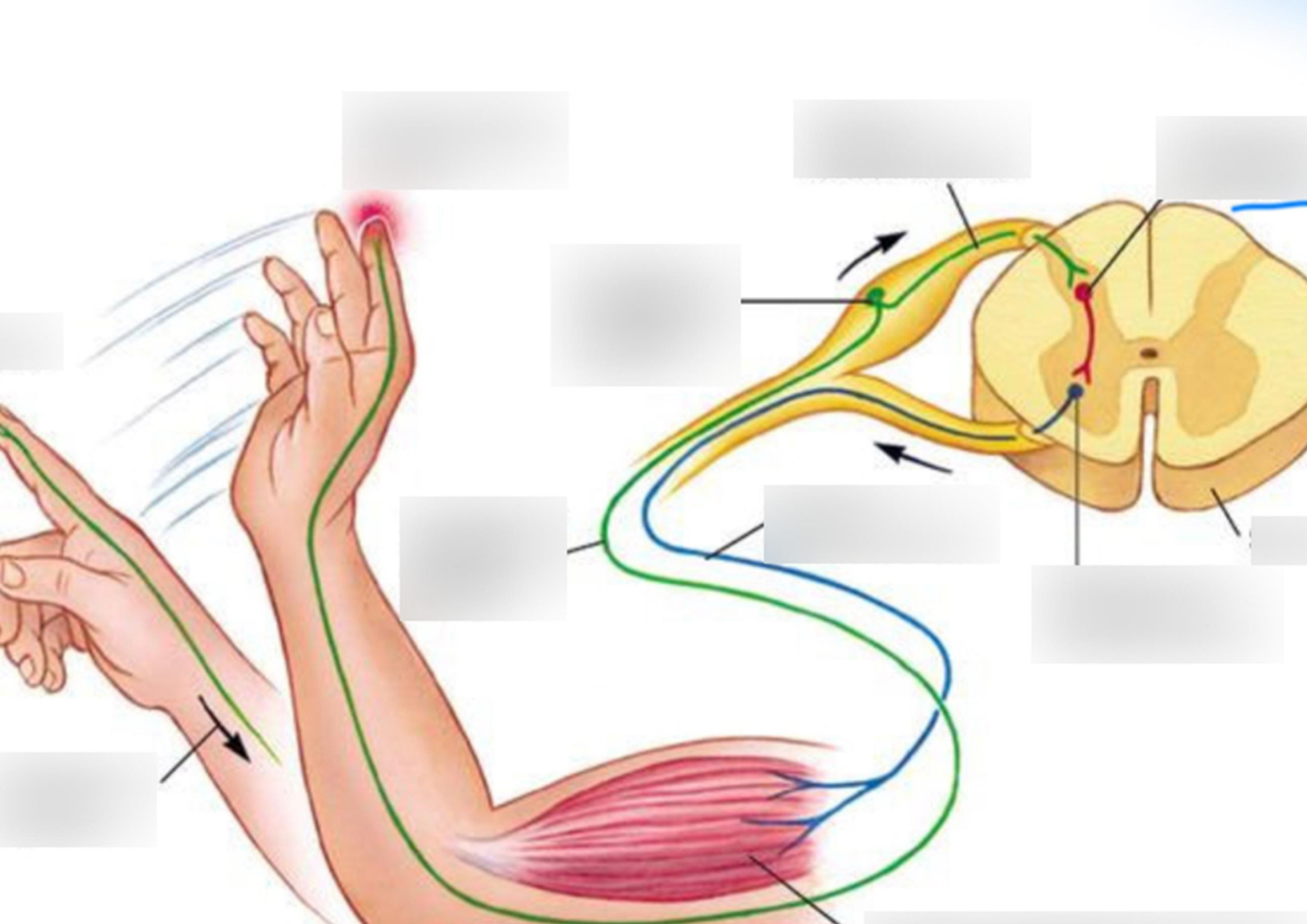
x arc that provides direct communication between
ry and motor neurons innervating the muscle.

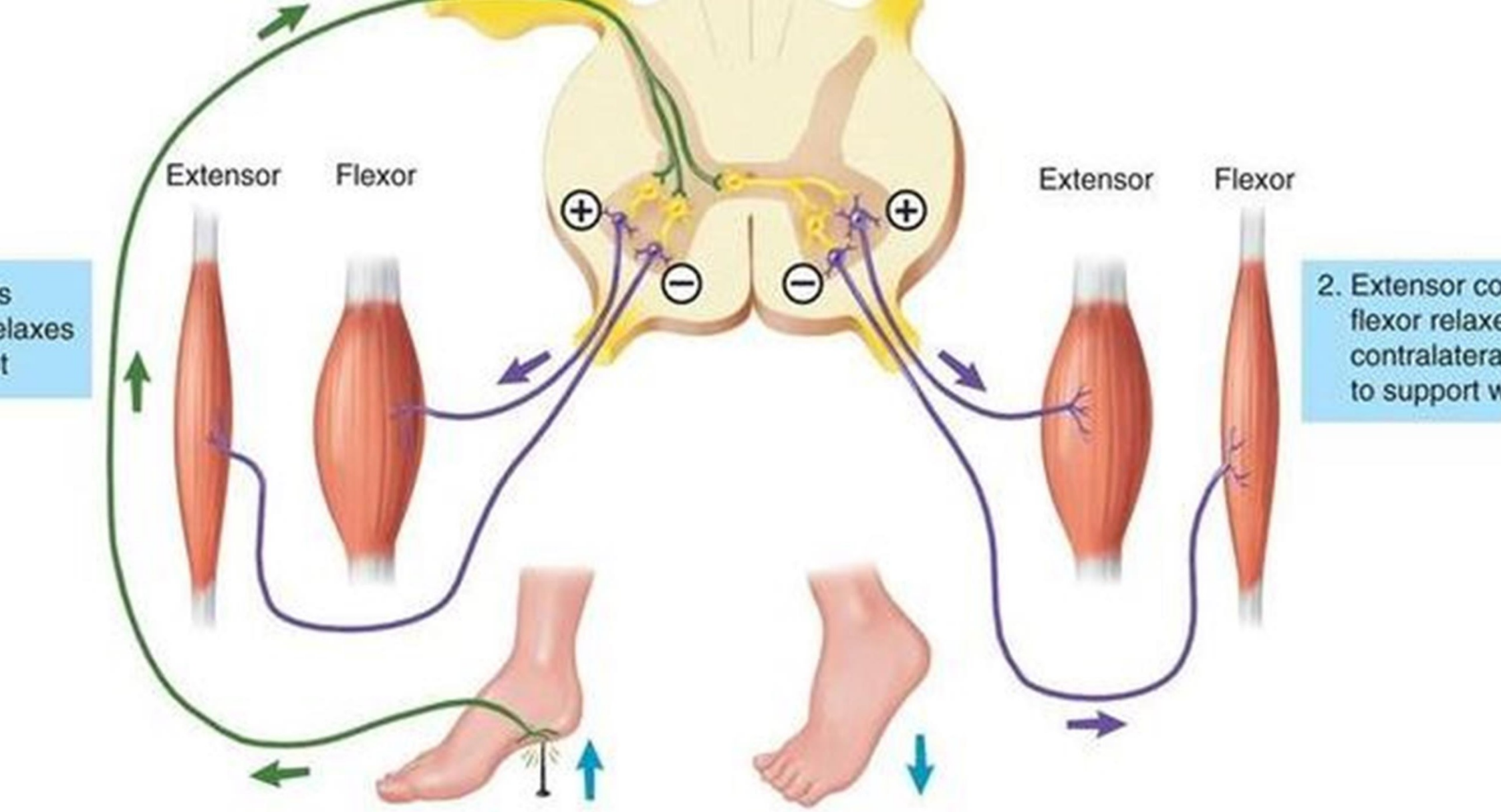
cle stretch reflex




Muscle
sensory
receptor
Sensory (afferent) axon
Extensor
muscle
Flexor
muscle
Interneuron
Motor (efferent) axon


(in cross section)
3. Integration center
Interneuron
4. Efferent or motor neuron
1. Receptor
Stimulus





s
elaxes
t

2. Extensor co
flexor relaxe
contralatera
to support w