



## Sympathetic vs. Parasympathetic Systems

### Responses of major organs to autonomic nerve impulses:

Organ	Sympathetic Stimulation (Alarm; Fight or Flight)	Parasympathetic Stimulation (Homeostasis; Rest & Digest)
Heart	<ul style="list-style-type: none"> <li>- Dilation of coronary arteries</li> <li>- Increased heart rate</li> <li>- Increased force of contraction</li> <li>- Increased rate of pacemaker conduction</li> </ul>	<ul style="list-style-type: none"> <li>- Constriction of coronary arteries</li> <li>- Slows heart rate</li> <li>- reduces contraction and conduction</li> </ul>
Arteries	Constrict	Dilate
Lungs	Dilate tracheal and bronchial passageways	<ul style="list-style-type: none"> <li>- Constrict tracheal and bronchial passageways</li> <li>- Increased bronchial gland secretions</li> </ul>
Liver	<ul style="list-style-type: none"> <li>- Increased glycogen breakdown</li> <li>- Glucose synthesis and release</li> </ul>	<ul style="list-style-type: none"> <li>- Increased glycogen storage</li> <li>- Glycogen synthesis</li> </ul>
Gall Bladder	Relaxation	Contraction
G.I. Tract	<ul style="list-style-type: none"> <li>- Vasoconstriction</li> <li>- Inhibition of peristalsis and secretion</li> <li>- Constrict sphincters</li> </ul>	<ul style="list-style-type: none"> <li>- Peristalsis</li> <li>- Secretion</li> <li>- Dilate sphincters</li> </ul>
Kidney	Constriction, leading to decreased urine production	Dilate
Bladder	Decreased need to urinate	Increased need to urinate
Eye	<ul style="list-style-type: none"> <li>- Dilation of the pupils</li> <li>- Allows far vision</li> </ul>	<ul style="list-style-type: none"> <li>- Constriction of the pupils</li> <li>- Stimulates tear secretion</li> <li>- Allows for near vision</li> </ul>
Salivary Glands	Viscous salivary secretions containing enzymes	Lots of watery salivary secretions
Sweat Glands	Increased sweat excretion	None
Pancreas	Decreased insulin secretion	Increased insulin secretion
Adipose Tissue	<ul style="list-style-type: none"> <li>- Lipolysis</li> <li>- Fatty acid release</li> </ul>	
Skeletal Muscles	<ul style="list-style-type: none"> <li>- Increased force of contraction</li> <li>- Glycogen breakdown</li> <li>- Facilitation of ACh release at the neuromuscular junction</li> </ul>	None