# Cheatography

## homeostasis- physiology Cheat Sheet by ava\_berlynn via cheatography.com/213259/cs/46403/

Key Concepts	
Homeos- tasis	- the maintenance of a stable internal environment despite external changes
_	
Components of a homeostatic system	- Sensor (Receptor): Detects changes in the environment (e.g., thermo- receptors).
	-Integrator (Control Center): Compares the detected change to a set point (e.g., hypothalamus).
	-Effector: Produces a response to correct deviations (e.g., sweat glands, muscles).
Negative Feedback loops	- Counteracts changes from the set point.
	- Example: Thermoreg- ulation – if body temp rises, mechanisms lower it.
Positive Feedback Loops	- Amplify changes rather than reverse them.
	- Example: Childbirth, oxytocin increases contra- ctions.
Set Points	<ul> <li>Optimal values for physio- logical parameters (e.g., 98.6°F for body temper- ature).</li> </ul>
	- Can be influenced by circadian rhythms, age, or disease.

### Intrinsic Control Systems

Intrinsic	e.g., Increased CO 2
(local)	production by exercising
control	skeletal muscle leads to
systems	relaxation of smooth muscle
are "built	and dilation of blood vessels,
in" to an	increased blood flow brings
organ or	more O 2
tissue.	

## Negative Feedback Loop



#### Positive feedback Loop



Extrinsic Control Systems			
Extrinsic control	Example: Low blood		
systems are	pressure is detected		
contained outside	by the nervous		
of an organ or	system, which causes		
system, permitting	an increase in heart		
coordinated	rate and constriction		
regulation of	of blood vessels		
several organs			

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#### Extrinsic Control Systems (cont)

**Example:** high blood glucose is detected by the endocrine system which exerts hormonal control [insulin]

### Fluid Exchange

In order to maintain homeostasis, cells exchange materials from the intracellular fluid, with the insterstitial fluid and blood (specifically plasma)

	-clotting factors
	-waste products
	-hormones
	-nutrients
	-electrolytes
	- proteins
	Plasma is about 90–92% water, the rest includes:
	cells in suspension.
Plasma-	Makes up about 55% of total blood volume, holds the blood

Physiological Parameters		
Parameter	Normal Range	Regulated by
Body Temper- ature	~37°C (98.6°F)	Nervous + Integu- mentary
Blood pH	7.35– 7.45	Respiratory + Renal
Blood glucose	70–110 mg/dL	Endocrine
Blood Pressure	~120/80 mmHg	Cardiovascular + Nervous
Plasma Osmalarity	~300 mOsm/L	Renal + Endocrine
Calcium	8.5–10.5 mg/dL	Parathyroid hormone, Calcitonin

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Ex. Cardiocascular System		
Thermoregulation		
Receptors	Thermoreceptor alamus	rs and Hypoth-
Control Center	Preoptic area of alamus	f hypoth-
Effectors	Blood vessels, s muscles.	sweat glands,
	Vasoconst- riction	→ heat retention.
	Vasodilation	$\rightarrow$ heat loss.

Definitions	
Afferent	Sends the information from the
Signal	sensor to the control center /
	integrator (sometimes it is not
	needed if the sensor and control
	center are the same cell)
Efferent	Used to send information from
Signal	the control center to the
	effectors (cells/organs) that
	need to perform an action to
	help restore homeostasis
Dynamic	The state of constant
Equili-	adjustment to maintain homeos-
brium	tasis, acknowledging that
	internal conditions fluctuate
	within a normal range.



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