

General Notes

Biological things adapt to environments

“What doesn’t kill us makes us stronger”

>Toleration

	Definition	Example
Habitation	(Decrease senses) Repeated exposure diminishes response	Old cat lady has 15 cats and doesn’t recognize that her house smells like a barn
Sensitization	(Increase senses) Increases sensation to adhere to environment	Sommelier spends 10 years analyzing the texture of wine and describes taste with flamboyant descriptors
Accommodation	Gradual tolerance, but not permanent (brief)	Slowing adjusting the hot water in the shower or slowing stepping into a hot tub
Adaptation	Adjustments are semi-permanent	Sunbathing in Greece and developing a cancerous tan or developing calluses on your hands from deadlifting 5 days a week

Adaptation generally follows accommodation due to metabolic demand. Occurs when accommodation becomes redundant

Progressive Overload Principle:

>Wolff: Increased load on bones increases bone density

>Davis: Increased lengthening on ligaments increases ligament length

*Overall: Increase stress=Adaptation to stress

ie: Increased aerobic demand= increased mitochondria

ie: Increased bacterial exposure= increased immune response

ie: Increased insulin= increased GLUT4 receptors

But Why?

Self-preservation

*Body is constantly changing state to maintain homeostasis

Selye: GAS (General Adaptation Syndrome) : The body adapts in the same way [BS]

>Step 1: General Alarm Reaction

A). HPA Axis

Hypothalamus—Pituitary Gland—Adrenal Gland—Corticosteroid—Liver

Based off cholesterol and is a slower, longer lasting response

B). SAM Axis

Hypothalamus—Adrenal Medulla—Adrenaline/Epinephrine

Faster, shorter lasting response

C). Osteocalcin inhibits parasympathetic NS

>Step 2: Adaptation

Adolph thinks GAS is BS and states that stress has a unique fingerprint. Adaptation is to a specific need, although there is occasional overlap.