



2023



LO STRESS: nemico o amico DELLA NOSTRA SALUTE?"



claudio.molinari@uniupo.it

Equilibrio

Trasporto

Acqua, Sali e Sost. di scarto

Termoregolazione

Prod. Energia

Acido/Base

Gas

Reazione allo stress

Sensibilità

Ciclo mestruale

Motilità

Interazione

Riproduzione

Forza

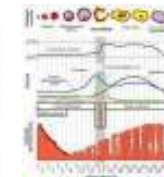
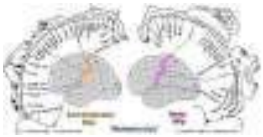
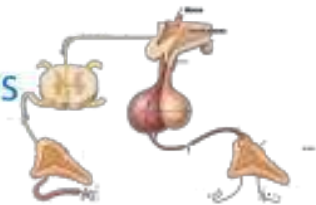
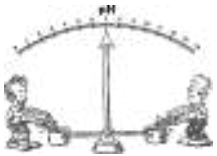
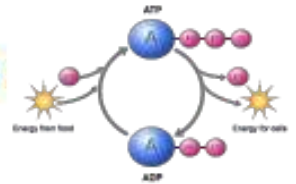
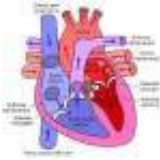
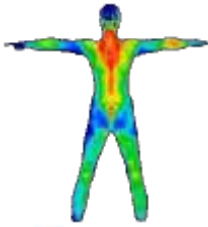
Gravidanza

Sostegno

Fecondazione

Linguaggio

Spermatogenesi





CLAUDE BERNARD

(12 JULY 1813 – 10 FEBRUARY 1878)

L'OMEOSTASI, sia a livello cellulare sia a livello dell'intero organismo, viene assicurata da un complesso gioco di regolazioni atto a stabilire i vari parametri fisiologici (temperatura, concentrazioni, ecc.) rispetto alle condizioni esterne, riportandoli ai valori abituali quando vengono modificati.

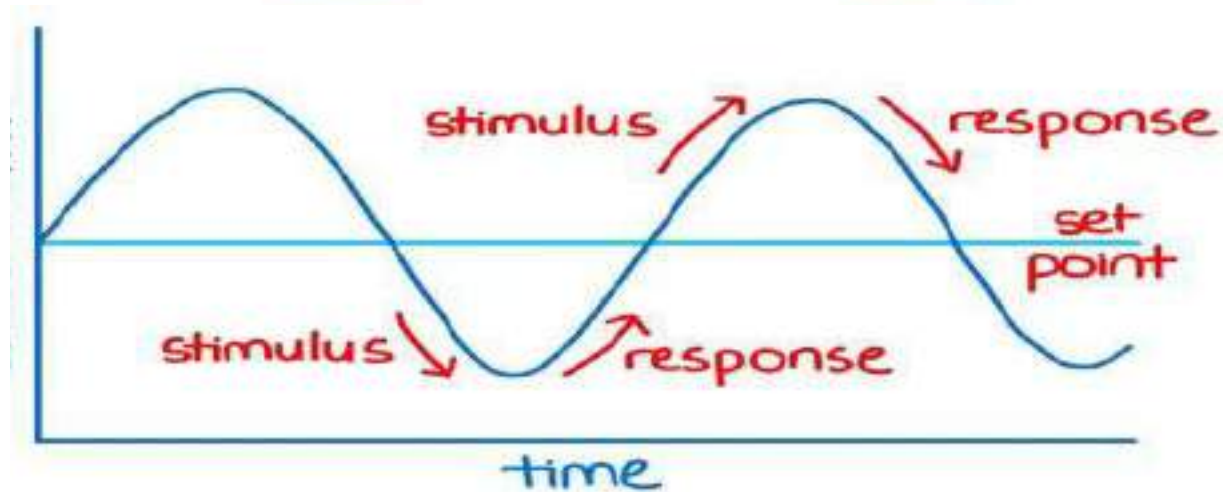
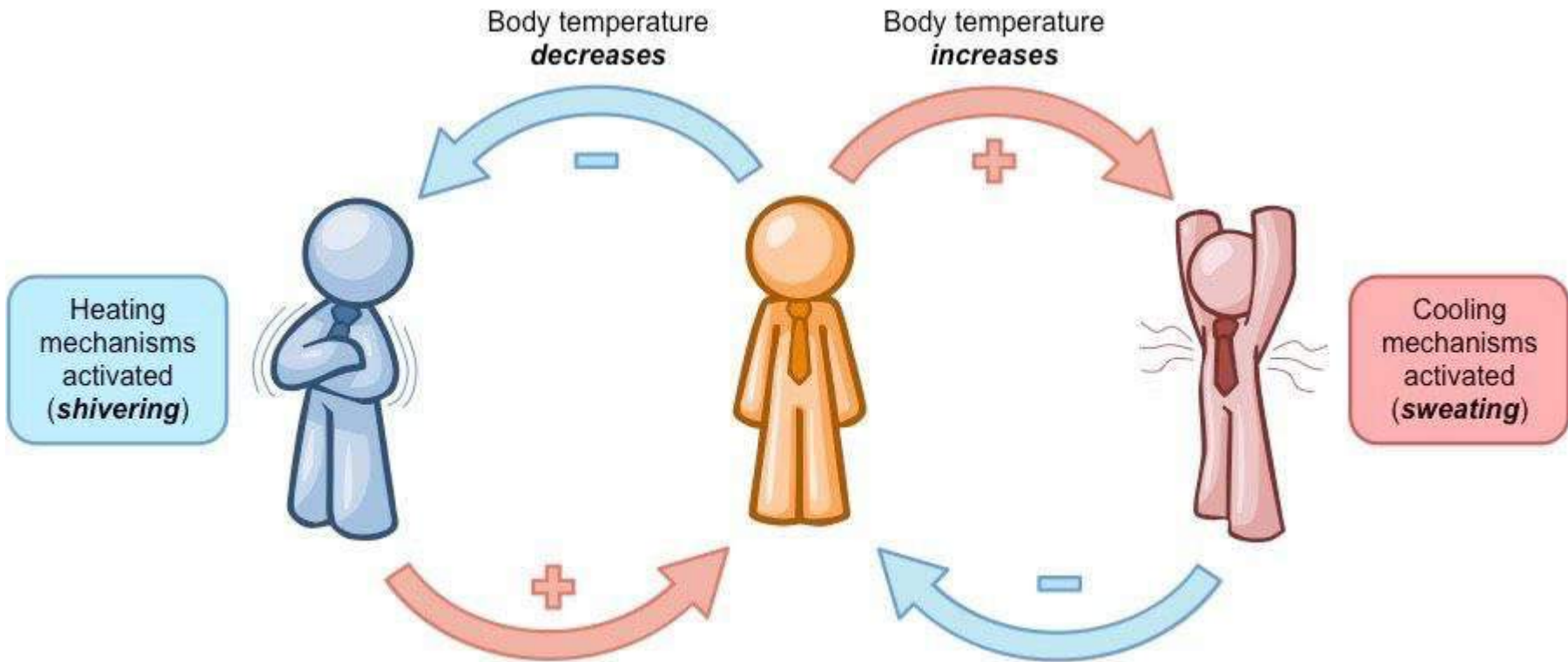
WALTER BRADFORD CANNON

(OCTOBER 19, 1871 – OCTOBER 1, 1945)

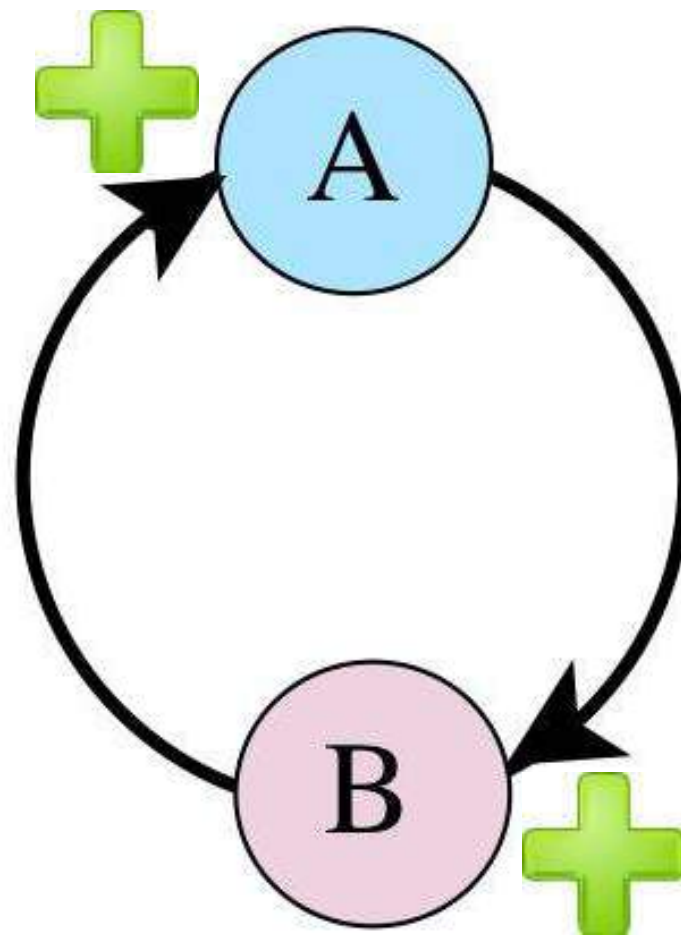




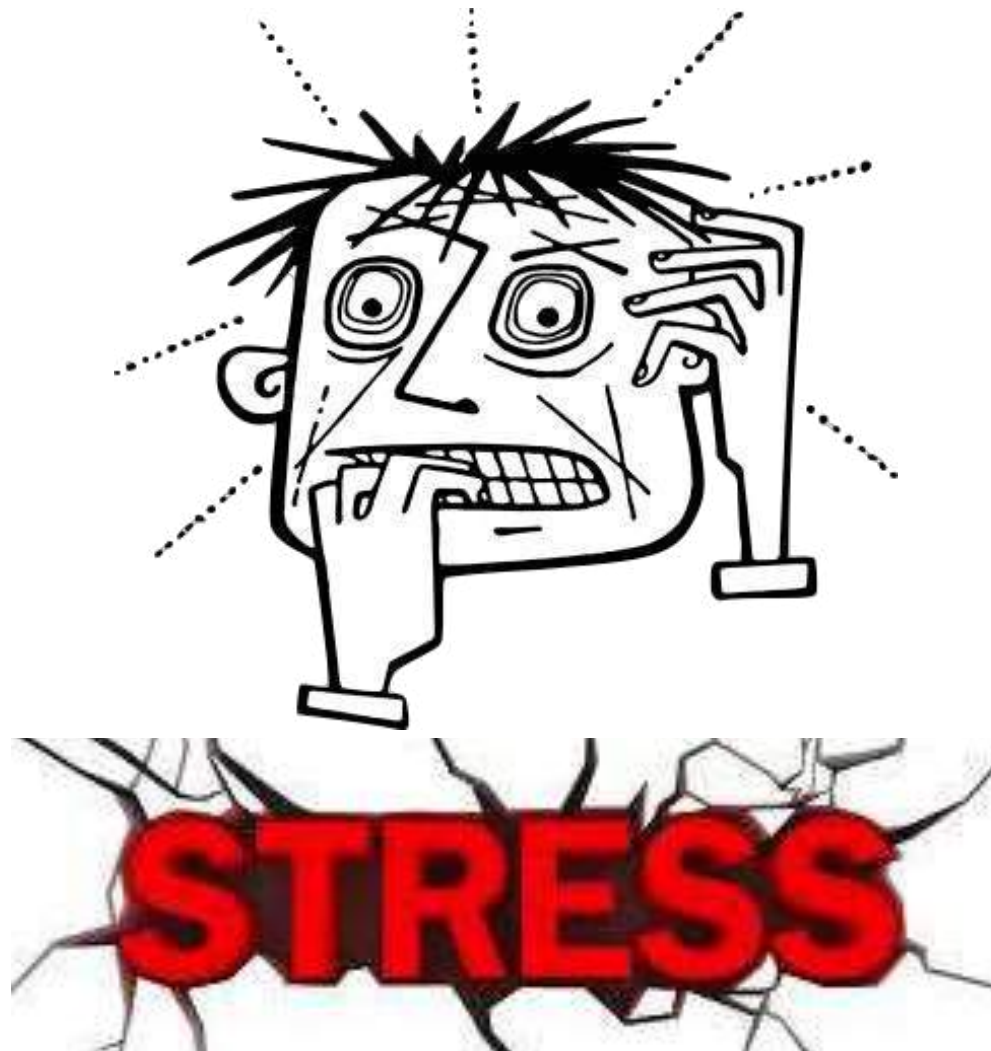
FEEDBACK NEGATIVO smorza



FEEDBACK POSITIVO amplifica o sopprime



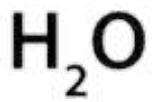
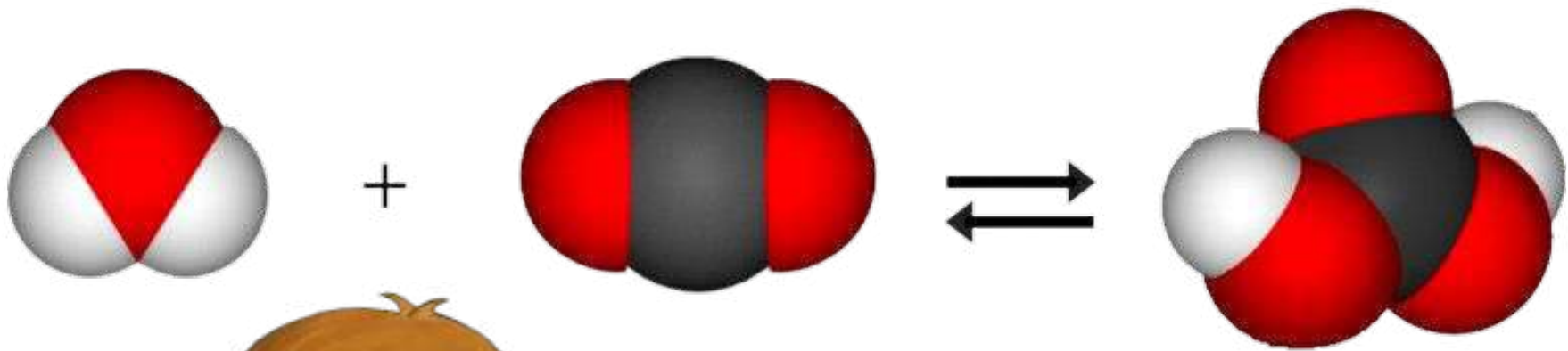
**LA FISIOLOGIA È L'INSIEME DI TUTTI I meccanismi
CHE AIUTANO L'ORGANISMO
A SUPERARE UN evento STRESSANTE**





QUALCHE ESEMPIO DI EVENTO STRESSANTE





water



carbon dioxide



carbonic acid



$pCO_2 \uparrow \uparrow \uparrow (>45\text{mmHg})$
 $pH \downarrow \downarrow \downarrow (<7.35)$

BLOOD pH LEVELS



BODY

**FATIGUE
FIATO CORTO
IRRITAZIONI CUTANEE
SCOSSE MUSCOLARI
MAL DI TESTA**

MIND

**PREOCCUPAZIONI
PENSIERO CONFUSO
INCUBI
DECISIONI FRETTOLOSE
NEGATIVITA'
INDECISIONE**

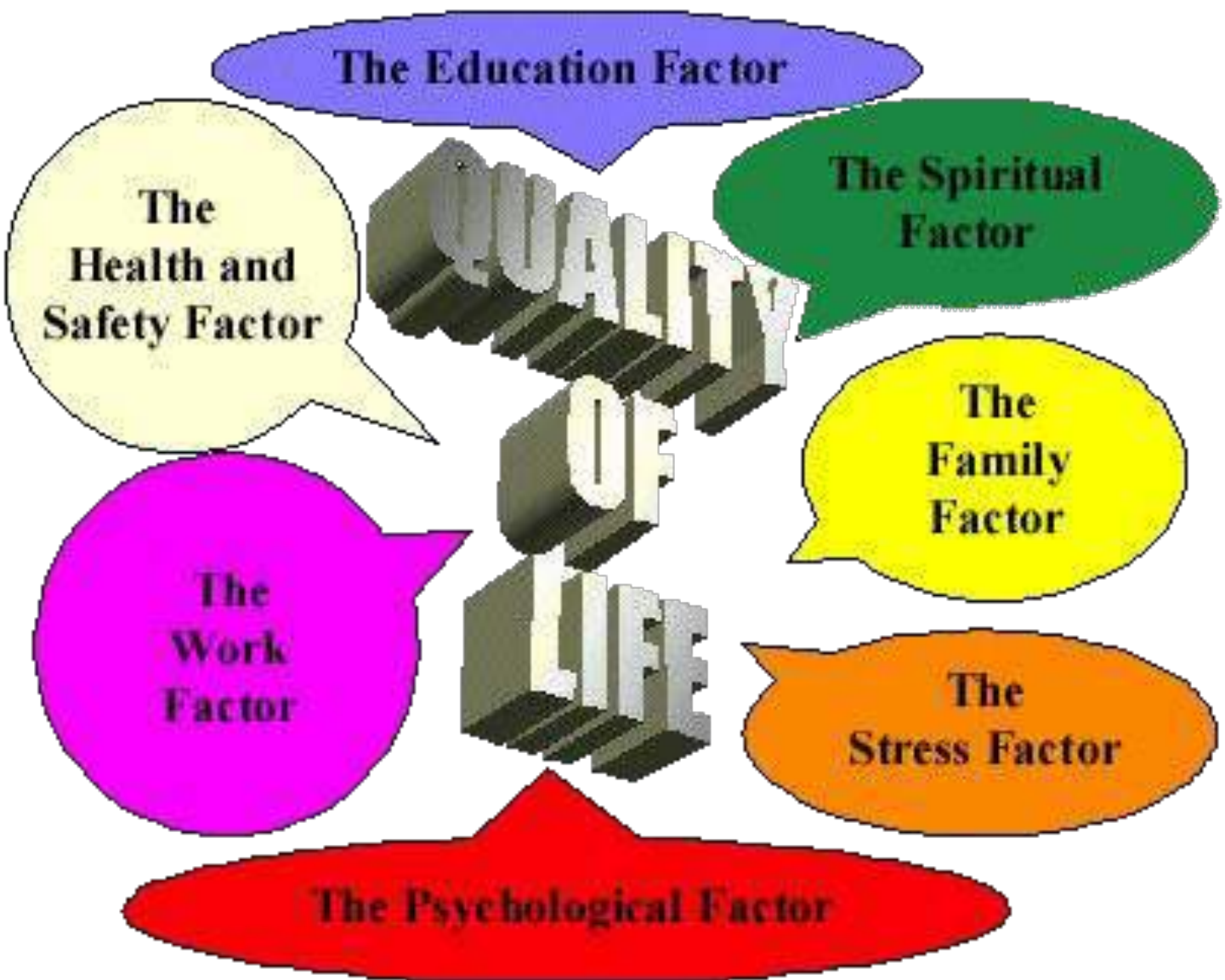
STRESS

**DIPENDENZE
STANCHEZZA CRONICA
INSONNIA
PERDITA LIBIDO
PERDITA APPETITO/
AUMENTO APPETITO**

**FANTASIE
PERDITA DI CONFIDENZA
IRRITABILITA'
ANSIA
DEPRESSIONE
APATIA**

BHEAVIOR

EMOTIONS



LA RISPOSTA ALLO STRESS RICHIEDE L'ATTIVAZIONE DI DUE DIVERSI SISTEMI DI CONTROLLO: HPA e SAM

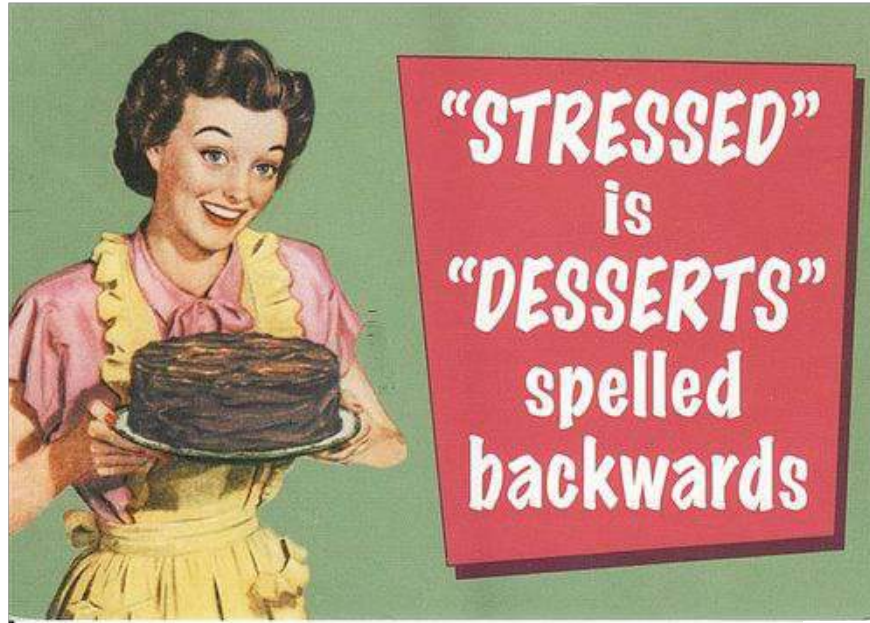
Hypothalamus

Pituitary gland

Adrenal cortex



HPA



Sympathetic NS

Adrenal medulla



SAM

Cortisol
Steroid Hormone

● C Carbon
● O Oxygen
● H Hydrogen

Structural
Formula:



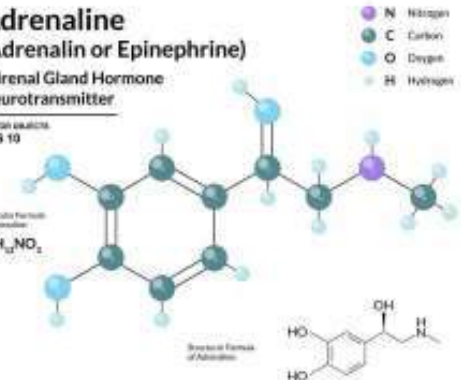
Molecular
Formula:
 $C_{21}H_{30}O_5$

Adrenaline
(Adrenalin or Epinephrine)

Adrenal Gland Hormone
Neurotransmitter

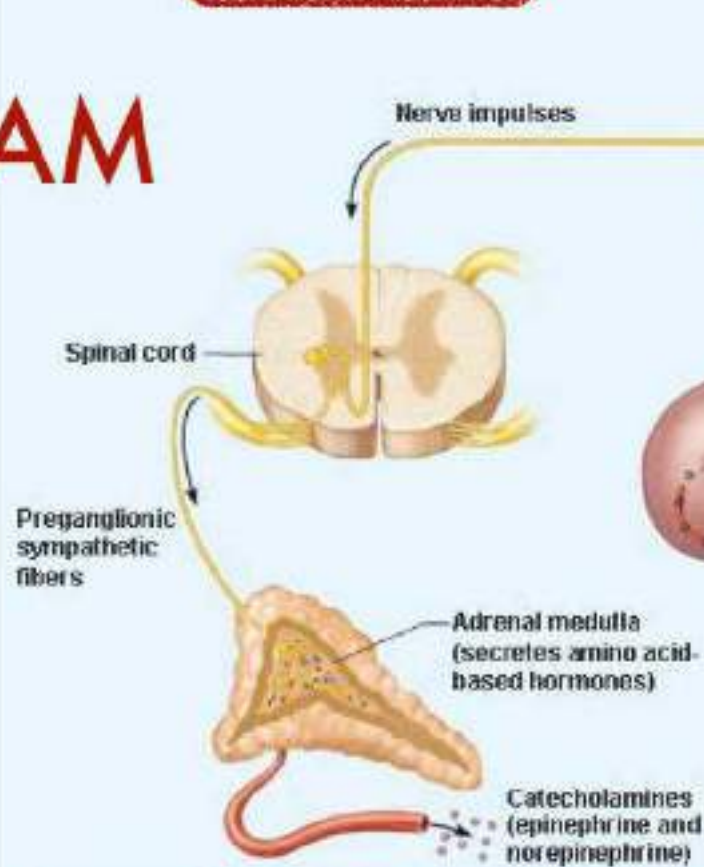
SECTION ANALYSIS
EPS 10

Molecular Formula
of Adrenaline:
 $C_9H_{17}NO_2$



SAM

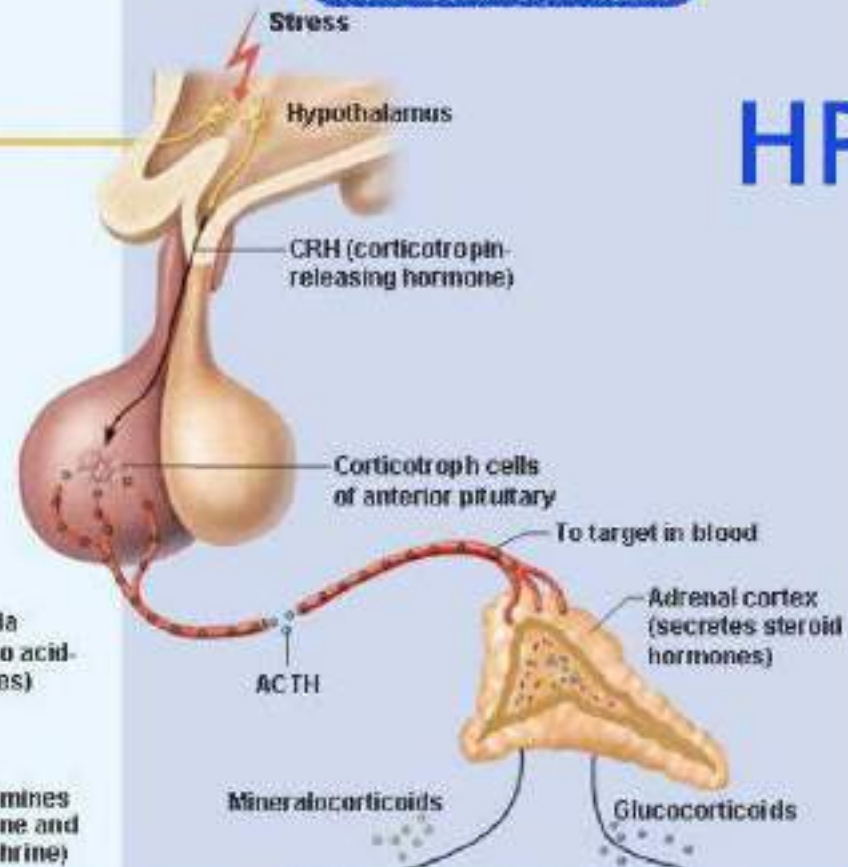
Short-term stress



Short-term stress response

1. Increased heart rate
2. Increased blood pressure
3. Liver converts glycogen to glucose and releases glucose to blood
4. Dilatation of bronchioles
5. Changes in blood flow patterns leading to decreased digestive system activity and reduced urine output
6. Increased metabolic rate

More prolonged stress



Long-term stress response

- | | |
|--|--|
| <ol style="list-style-type: none">1. Retention of sodium and water by kidneys2. Increased blood volume and blood pressure | <ol style="list-style-type: none">1. Proteins and fats converted to glucose or broken down for energy2. Increased blood glucose3. Suppression of immune system |
|--|--|

HPA

Adrenaline (Adrenalin or Epinephrine)

Adrenal Gland Hormone
Neurotransmitter

SECTION 04/05/2016
EPS 10

Molecular Formula
of Adrenaline
 $C_9H_{17}NO_2$

Structural Formula
of Adrenaline

- N Nitrogen
- C Carbon
- O Oxygen
- H Hydrogen

Acute stress response

