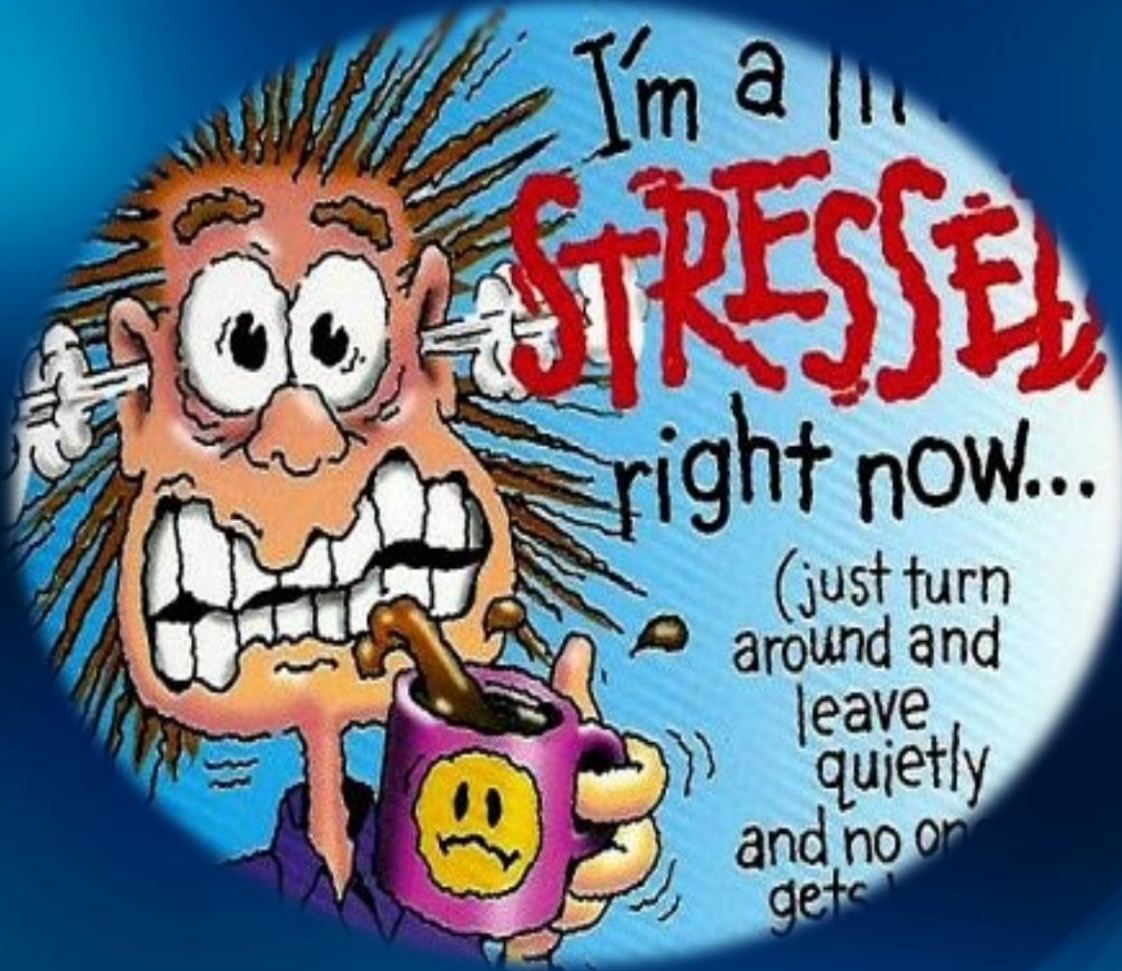


PROBIOTICS AND STRESS



Objectives



- **What is stress?**
- **Stress responses**
- **Effects of stress**
- **Stress management**
- **Microflor and Stress**
- **Probiotic and stress**



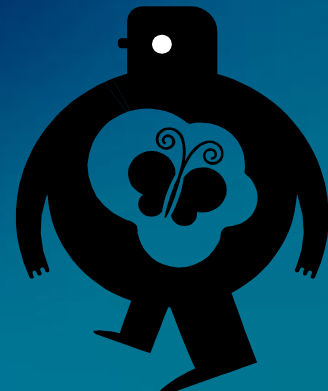
What is Stress?



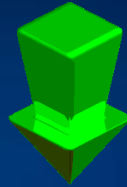
-Hans Selye (Father of stress research):

“The only person without stress is a dead person.”

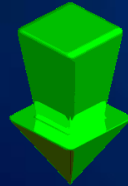
- The absence of all stress is death!
- Goal: deal with stress, actively and effectively.



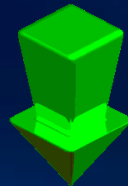
Continually Changing Environment



Challenges Steady State
necessary for maintenance of optimal body function
(Homeostasis)

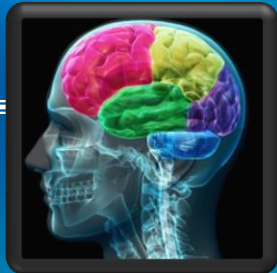


Stress responses



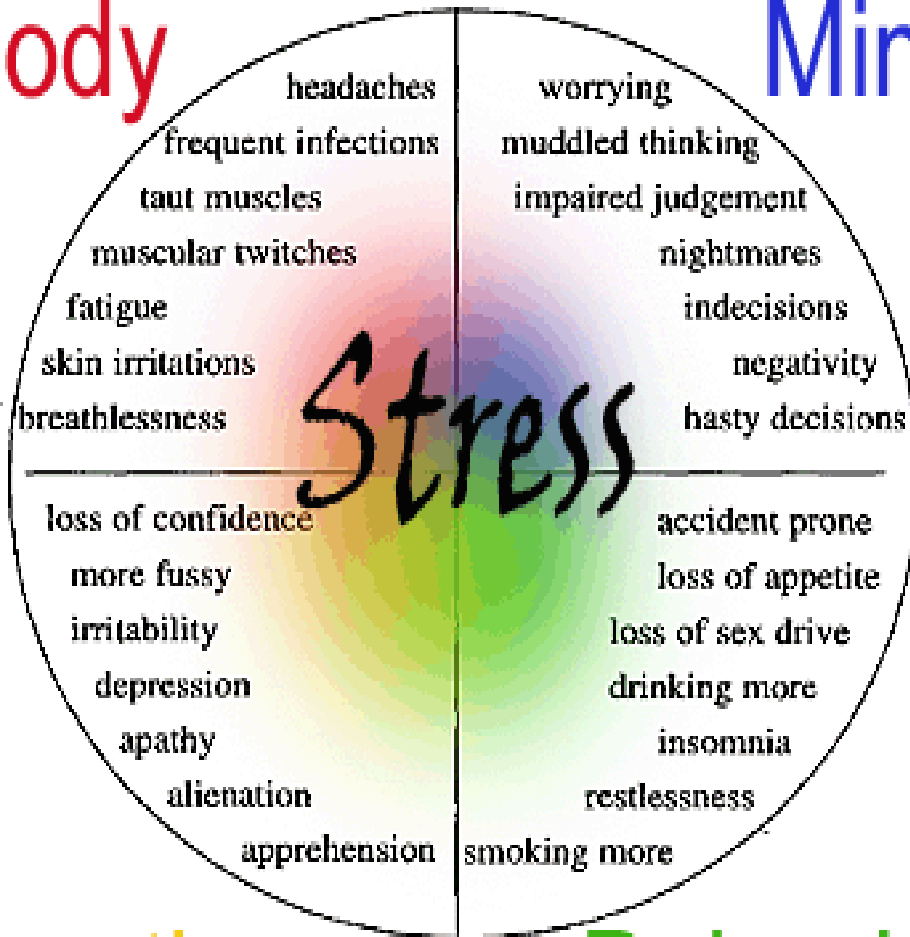
Maintenance of Homeostasis:
An "ideal state" in which a constant internal
environment Promotes optimal function

Stress Process



Body

Mind

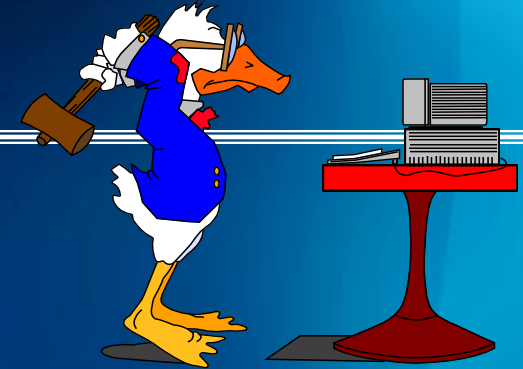


Emotions

Behavior



Type of Stress



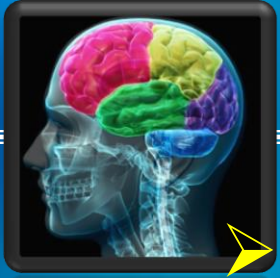
➤ Eustress

- Short-term and positive
- Provides some extra energy or inspiration
- Gives motivation to winning
- Provides the focus and energy

➤ Distress

- Negative, prolong and overwhelming
- Severe trauma or mental suffering

Type of Distress



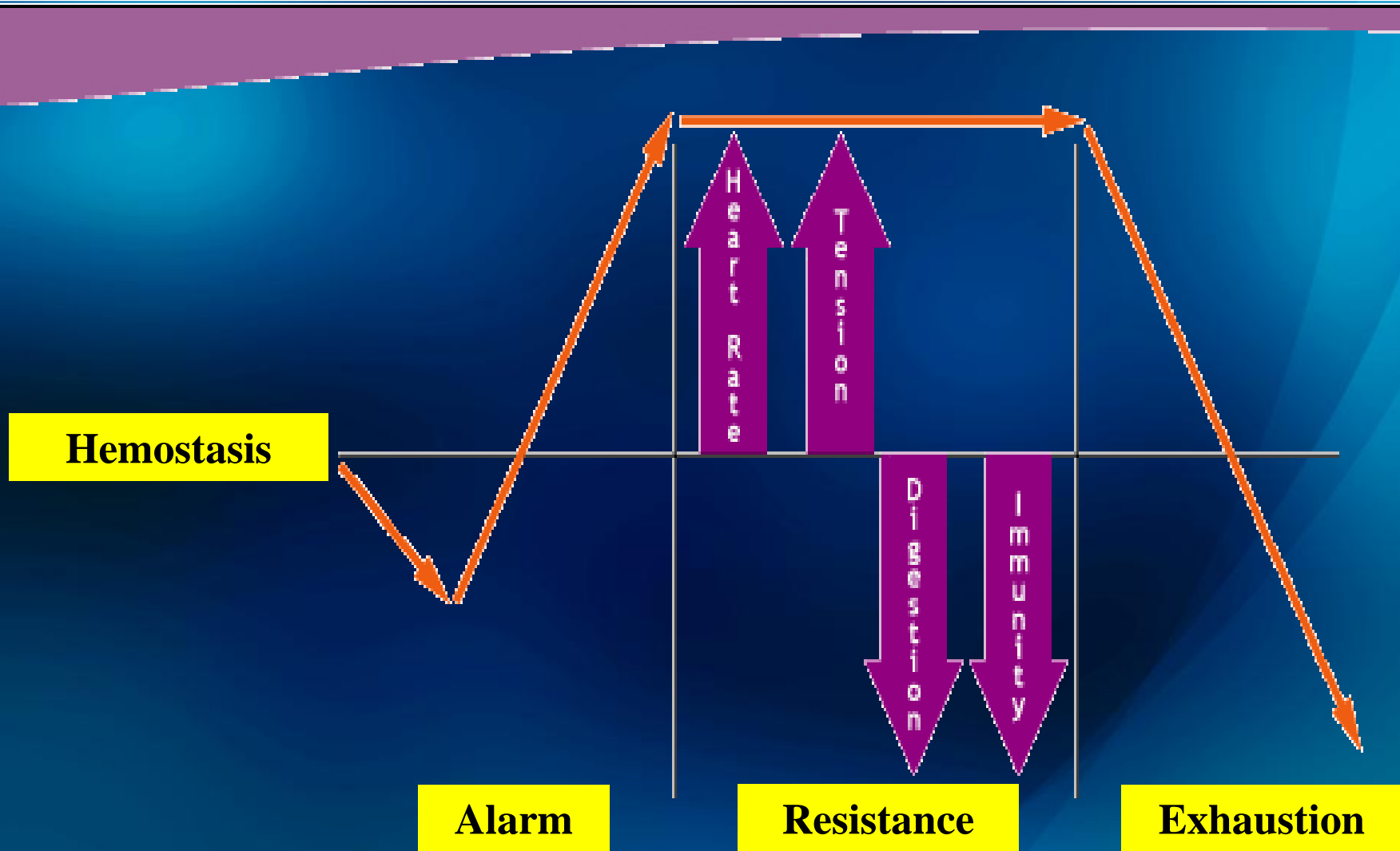
➤ Acute stress

- Directly perceived threat
- Physiological or Psychological
- Real or imaginary

➤ Chronic stress

- Long-term stress that occurs frequently
- Cause serious health problems such as:
 - Depression
 - Diabetes
 - Heart disease
 - Even death

Stages of the Stress Response





ALARM: Activation of HPA axis

- **Increases cardiac output**
- **Dilates airways**
- **Dilates pupils**
- **Mobilizes glucose**
- **Decreases digestion**
- **Enhances coagulation**
- **Elevates glucose**
- **Increases amino acids**
- **Suppresses the immune response**

Resistance



➤ Adaptation occurs

- **Activation of the HPA axis continues**
- **The stressor may be resolved**
 - **The body returns to homeostasis**
- **May progress to exhaustion**
 - **Stress continues as resources are depleted**



Exhaustion

- Demands of the stress exceeds the adaptation
- Functioning declines
- May result in health problems
 - **Cognitive:** Decreased concentration, comprehension, & memory
 - **Behavioral:** Irritability and violence
 - **Emotional:** Fear, anxiety, depression and fatigue
 - **Physiological:** Increased BP, HR, Respirations, and etc.
 - **Somatic symptoms:** Decreased immune response

Stimulus (Cortical activation)



Hypothalamus

CRH

Anterior pituitary gland

ACTH

Adrenal cortex

Cortisol
Aldosterone

- Blood glucose
- Immune System
- water reabsorption

**Sympathetic centers
and adrenal medulla**

Catecholamines

- Blood Glucose
- Blood pressure
- Hear rate

Posterior pituitary gland

ADH secretion

Antidiuresis

Blood volume

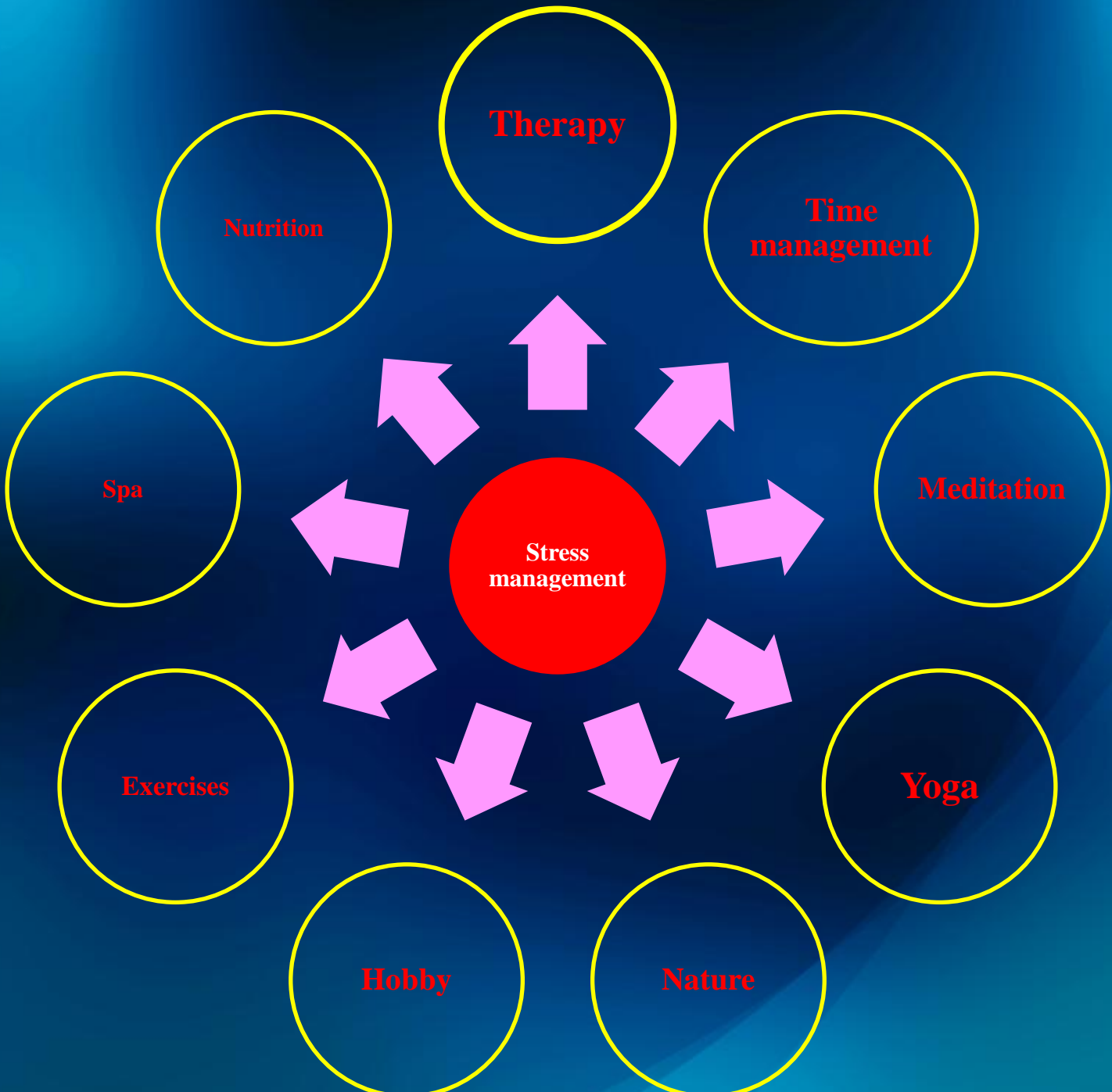
Hormonal Responses to Stress

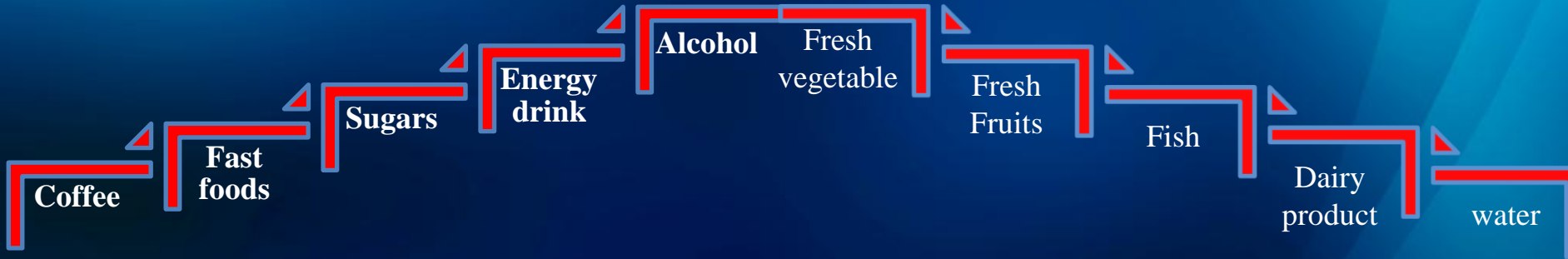




Stress and Disease







Coffee

Fast
foods

Sugars

Energy
drink

Alcohol

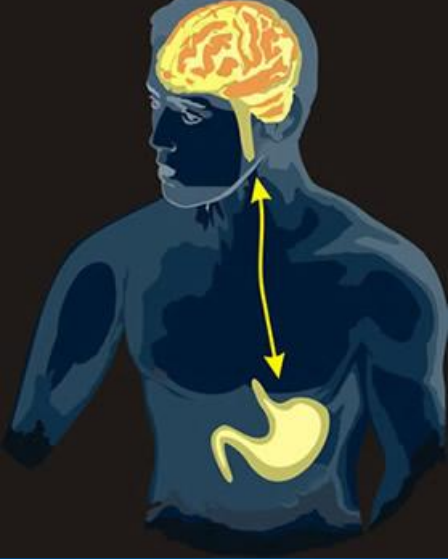
Fresh
vegetable

Fresh
Fruits

Fish

Dairy
product

water

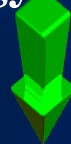


Brain Gut Axis

Brain Responses (stress or anxiety)



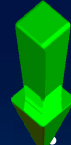
Physiology of the gut



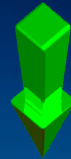
Altering the habitat for the microbiota



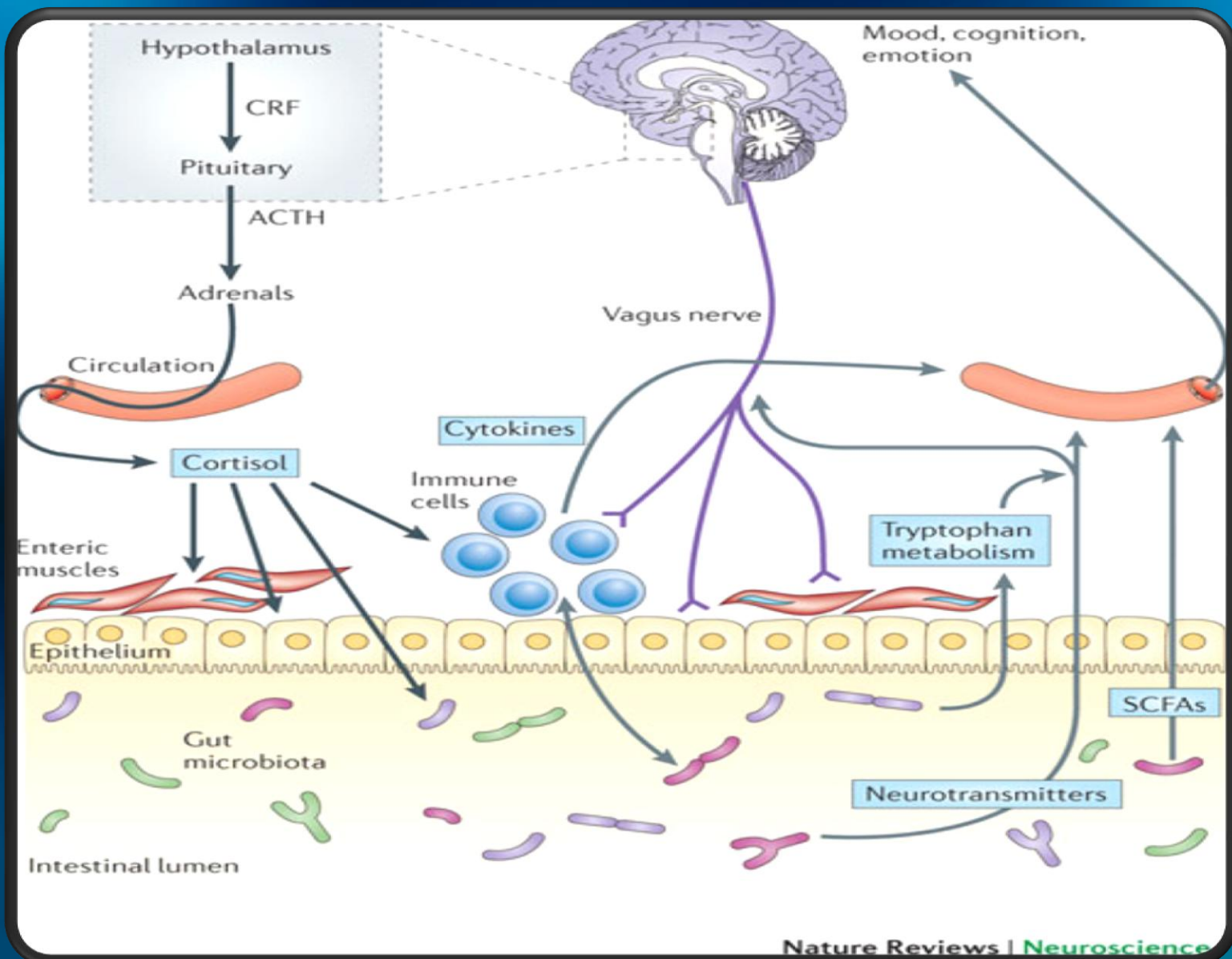
Influences on gut physiology and immunity



Influences on brain and behavior



Brain-gut axis



Microflora



- **Immunostimulation**
- **Protection from External Invaders**
- **Nutrition**
- **Vitamins production**
- **Stimulate development of certain tissues**

Regulate the balance of microflora in your gut

1



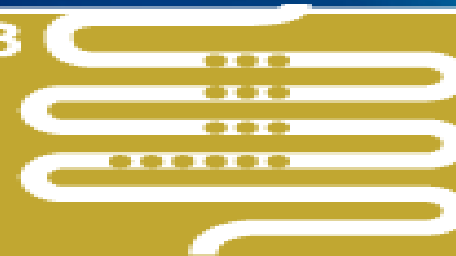
2



Reduce harmful bacteria

Relieve diarrhea & constipation

3



4



Strengthen your immune system

Increase the availability of vitamins and nutrient

5



6




Improve lactose intolerance



Bacterial infection,
Food poisoning

Food Intake -
Unbalanced diet,
overeating,
excessive drinking



Medicine
(Antibiotics)



Stress,
Overwork



Aging

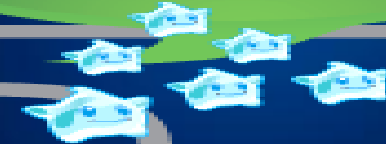
Balance is upset



Prebiotic acts to stimulate the growth of probiotic.



Soluble fiber assists with the elimination of toxins and heavy metals from your gut. At the same time, it helps to soften the stools.



Probiotic in your gut will increase in numbers by consuming green_b daily.



Probiotic fights with bad bacteria, thus, helps to restore a healthy balance of microflora in your gut.

Insoluble fiber helps to bulk up the stools and eliminate them from your gut.



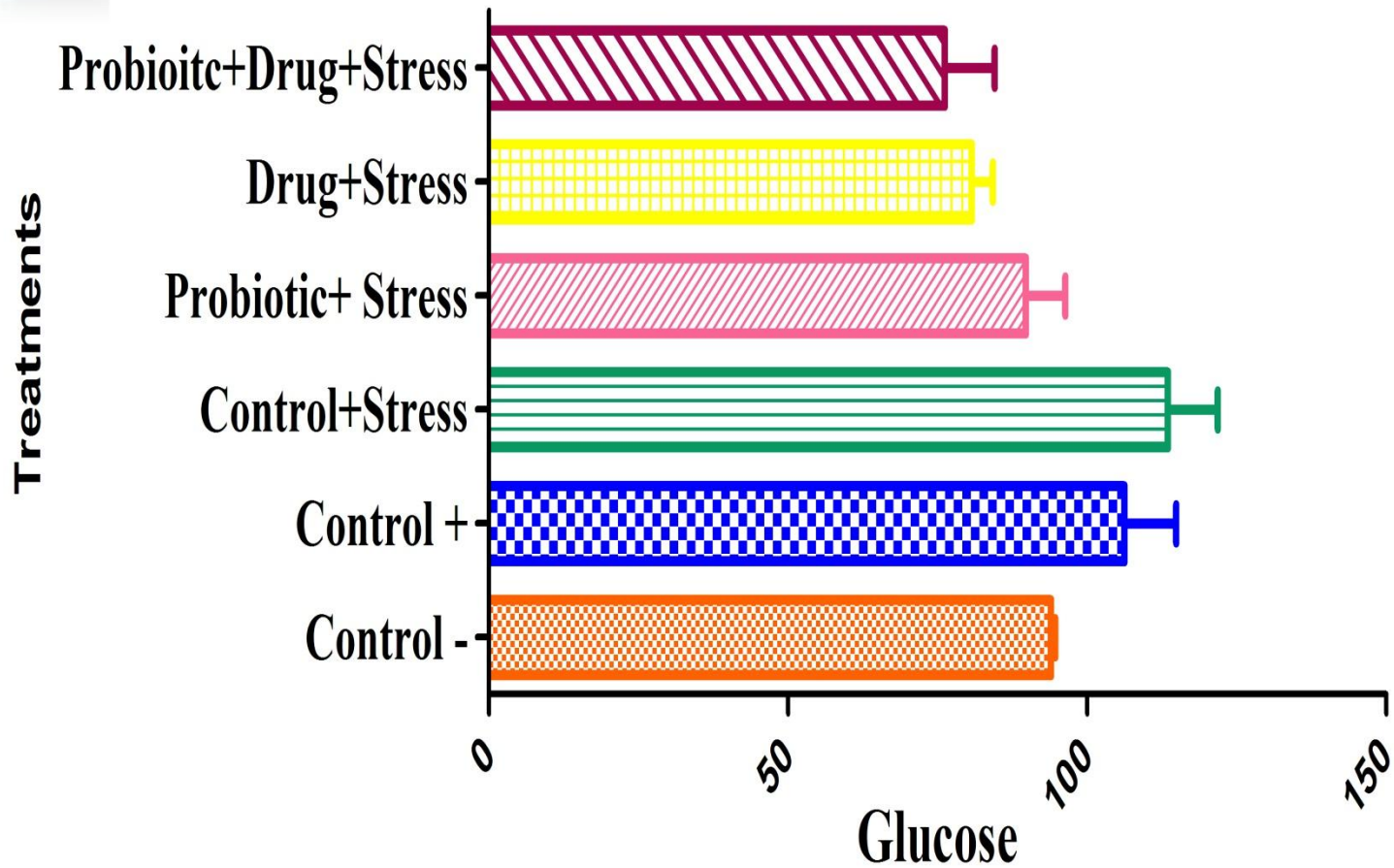


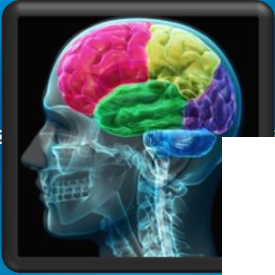
Rat

Feeding with probiotics &
Stress

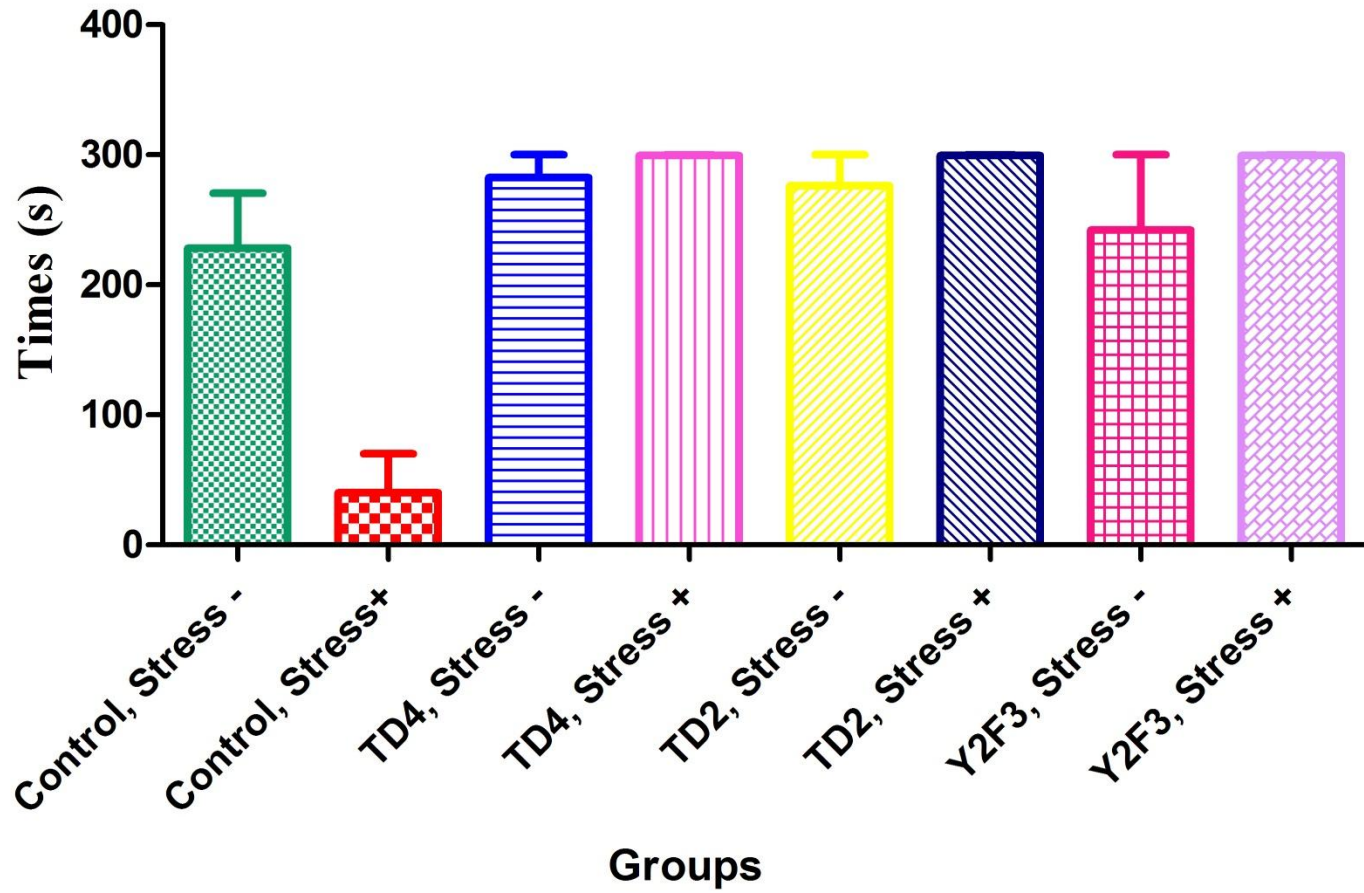
Glucose assay

Learning &
memory assay





STL



**Stressed?
Who? Me?**



Thanks For Your Attention