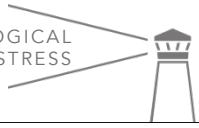
# Stress Management & Personal Development

4. BIOLOGICAL & PHYSIOLOGICAL PERSPECTIVES ON STRESS



## Today's outline

- Main purpose: to understand what happens in the body when we get stressed
- Check-in round
- Present course outline/content
- Different components in stress response
- The Nervous System
- The Endocrine System
- Break in the middle ;-)

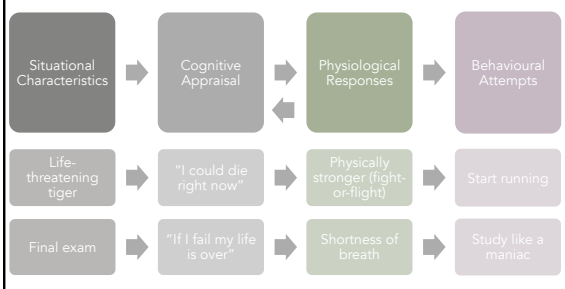
## Check-in round

- How are you today?
- Something special we need to know?
- When was the last time you did something for the first time?

## Course outline

1. Introduction to course module and The Map of Values
2. Your input and simple stress management
3. Stress 1 – Introduction to stress
4. Stress 2 – Biological and physiological perspectives
5. Stress 3 – Psychological perspectives
6. Sleep 1 – Introduction and sleep mechanisms
7. Sleep 2 – Sleep disturbances and sleep aid
8. Sleep 3 – Evaluate sleep intervention
9. Stress 4 – The social and cultural perspectives
10. Diet and daily routines 1
11. Diet and daily routines 2
12. Summing up what we learned

## Different components in stress response




## Different components in stress response

- Situational characteristics
  - Intensity/severity, duration, controllability, etc. of the stressor
- Cognitive appraisal
  - We respond to situations depending on how we perceive them
- Physiological response
  - As soon as we make appraisals the body responds to them
- Behavioural attempts
  - How we cope with the situation

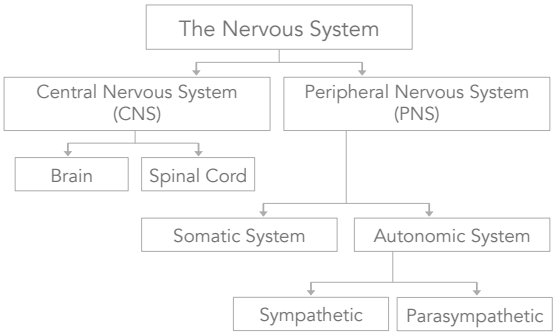
## Biological & Physiological perspectives on stress

- Physiological response to mobilize energy
- We need our stress systems to survive
- Stress is not bad or dangerous
- Positive vs. negative stress
- Two main systems involved in stress:
  - Sympathetic nervous system
  - HPA axis (endocrine system → stress hormones)

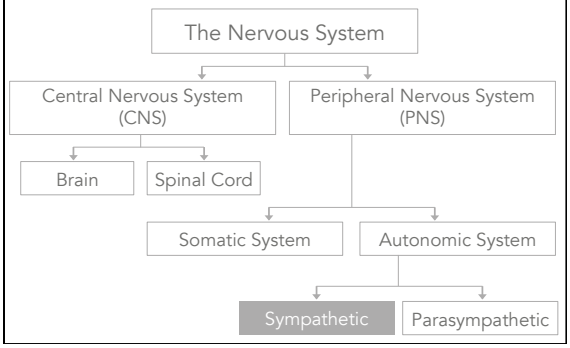
## Physiological stress systems

- The Autonomic Nervous System (ANS)
  - Sympathetic Nervous System (SNS)
  - Activates our body
- HPA axis
  - Hypothalamus, Pituitary gland, Adrenal glands
  - Stress hormones
- The Immune System
  - Acute stress enhances
  - Chronic stress supresses
- Amygdala
  - Organizes motivational and emotional response patterns (fear and aggression)
  - Signals danger!
  - Unconscious emotional response

## Stress in the Nervous System




## Stress in the Nervous System




## Autonomic Nervous System

| Parasympathetic | | Sympathetic |
|---|---|---|
| Contracts pupils | Eyes | Dilates pupils (enhance vision) |
| Constricts bronchi | Lungs | Relaxes bronchi (increased air to lungs) |
| Slows heart beat | Heart | Strengthens heart beat (increased oxygen) |
| Stimulates activity | Stomach /intestines | Inhibits activity (blood sent to muscles) |
| Dilates vessels | Blood vessels of internal organs | Contracts vessels (increased blood pressure) |

## The Endocrine System

- The system of the hormones
- Hormones = chemical messengers
- Numerous hormone-secreting glands:
  - Hypothalamus
  - Pituitary
  - Thyroid
  - Adrenal
  - Pancreas
  - Ovaries (females)
  - Testes (males)
- HPA axis for stress response
- Adrenal → the stress hormones

## The Endocrine System

- Stress hormones:
  - Adrenalin (epinephrine)
  - Noradrenaline (norepinephrine)
  - Cortisol
- Short-term positive stress
- Long-term negative stress
- Stress hormones suppress immune system functioning

## The HPA axis

- Hypothalamus (CRF/CRH)
- Pituitary gland (ACTH)
- Adrenal gland (cortisol)

## Summary

- Stress response have several components:
  - Situational (stressors' characteristics)
  - Cognitive (how we perceive situation)
  - Physiological (body responds, prepares us)
  - Behavioural (we act)
- Two major stress systems:
  - SNS (activates; blood, oxygen, vision…)
  - HPA (secretes stress hormones)
- Stress response, an awesome system for survival!
- Positive, short-term stress is okay
- Negative, long-term stress → disease

## Until next time…

- Doing one thing differently per day:
  - Balance activity with rest
  - Focus on your main activity
  - Do something slowly
- Follow-up group contract
- Don't forget area 5-8 in the map of values (until next Thursday)
- See you Thursday!