



# AS Module -PSYA2 Biological Psychology



# Stress



# The Biological Approach

- Views psychology from the physical perspective of the body



- Argues understanding physiological processes can help us see how our thinking, emotions and behaviour are controlled.

**Physiological processes** = an explanation based on the biological (parts) or neurobiological (chemical factors) functioning of *the body*.

# Biological Approach and Stress

- *Unit will focus on:*
- Biological events or processes that cause feelings and behaviours associated with stress.
- The negative consequences of stress.
- Biological factors that affect severity and response to stress.
- How biological factors interact with psychological ones.
- Clip – <http://live.kerboodle.com>



# Lesson Objectives – Period1

By the end of the lesson you will be able to:



- Define the terms stress and stressors (E)AO1
- Describe and evaluate some of the methods used in measuring stress (Biological perspective) (C) A02
- Compare the causes and effects of stress now and 200,000 years ago (Evolutionary perspective). (B)

# How would you define stress?



Is it the same for everyone?

# Define the term stress A01

- **Stress** is the biological and psychological responses experienced on encountering a ***threat*** that we feel we **do not** have the resources to **deal** with.
- (stimulus definition)

What is an example of a threat?

Feeling too hot?

Having a lot of work to do?

Being stuck in traffic?

Are these always stressful?

- Its important to note that *Stress* is the response to a threat we feel we **cannot cope with**.



- In some situations, feeling hot, having a lot of work to do or being stuck in traffic may not be stressful if we feel we are able to cope.

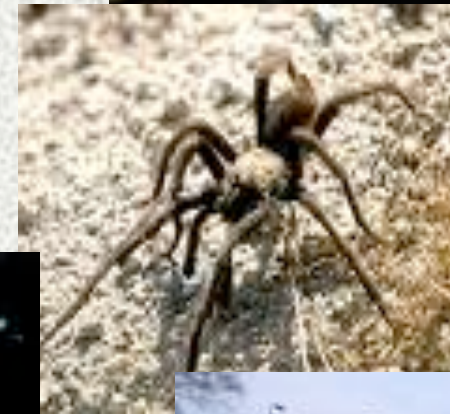


- However when they have the potential to elicit a stress response, they are known as **Stressors**
- **Stressors** = Internal or external factors that are threatening and have the potential to cause a stress response



Give an example of an internal and external factor

# What causes you stress?



# The Body's Response to Stressors



Imagine you are at the top of a bridge about to do a Bungee jump.

Describe how you might be feeling physically before and after the jump.



# Stress Questionnaire

- Now we have considered what stress is.....
- I would like you to think about your behaviour in the last few months and fill out the questionnaire.
- We will then work out your scores.



Female		Male	
<b>Mean Score</b>		<b>Mean Score</b>	

**Are there individual differences? Were more males more or less stressed than females?**

# Evaluation of questionnaire

- Is this a valid way of measuring stress?
- What are the flaws?
- Subjective – open to interpretation
- Time dependent
- Requires honesty
- Not actually measuring stress / stress response
- What could be an alternative methods?

# Biological/physiological ways of measuring stress

- Blood pressure (BP) → Stress increases BP, get blood pumping to muscles for energy and oxygen for F/F.
  - ✓ Inflated arm band
- Breathing Tubes → Stress increases breath rate, take in more oxygen for F/F.
  - around chest
- Heart rate (HR) → Therefore heart rate increases to pump the oxygenated blood around the body.
  - Stress increase heart rate
- ✓ ECG- → Measure increased electrical activity in the heart.
  - electrocardiogram.
- Sweating - GSR → Stressed Changes in GSR – sweat and electrical resistance of skin
- ✓ Hormone levels →
- ✓ Blood/urine → Increases in adrenaline

# Stress response and Evolutionary origins

- **Evolution** = process by which traits are shaped by natural selection.
- The stress response has been shaped by this process.
- Walter Cannon identified it as the '**fight or flight response**', an animal that didn't respond in this way is less likely to survive and reproduce.
- Biological processes of stress response would have prepared our ancestors by:
- Immediate changes – breathing faster, heart beating faster, pupils dilate (wider), increased muscle tension and greater strength.
- These changes are caused by the sympathetic pathway of the autonomic nervous system (sANS).



<http://www.youtube.com/watch?v=sPS7GnromGo>  
Stanford uni – psychological states, damage.



# Modern Challenges

- AS examinations
- Uncertainty of new relationships
- The never-ending lack of money
- Most modern day stressors are **social and mental**
- **Costs** – uses calories, interferes with activities of finding food, forming alliances and mating.
- **Chronic stress** – weakens the bodies ability to defend itself to infection.
- But ancestrally the benefits outweighed the costs.
- Now = mainly costs.
- **Chronic** = persisting for a long time



Is the fight or flight response suited to modern day living?

# Task

- Complete the table –

Causes of stress today	Causes of stress 200,000 years ago	Effects of stress on the body



# Plenary

- Stress is.....
- A stressor is..... They can be ..... Or ..... E.g. are ..... and.....
- In response to stress the physiological changes are .....
- We can measure stress by.....

• Homework: Use the information sheets to fill out the boxes relating to Selyes General Adaptation Syndrome (1936).

# The Stress Response

see  
stress  
response  
powerpoint

- BAT - Describe the stress response in terms of the GAS model, HPA and SAM systems.  
C/D

# Lesson Objective – P3

By the end of the lesson you will be able to:

- Discuss Cox's transactional definition of stress

# Task – Research and present definitions of stress

- In 3's research and present definitions of stress
- 20 minutes to research and put the presentation together
- Presentation be upto 5 minutes – only has to be short.

- Must Include:
  - **Definition of stress**
  - **Physiological changes that occur**
- Must also include:
  - **Biological reasons why this occurs (sj)**
  - Or
  - **Theory or explanation e.g.**
  - **Evolutionary theory,**
  - **Hans Selyes response definition,**

# Response definition or Stimulus definition?

- What is an example for each?
- Do you think the stress response is either or?
- Cox developed the transactional model of stress.....

# Cox' s Transactional Definition of stress

- **Cox (1975)** = stress involves
  - 
  - **external stimuli,**
  - the **physiological response** to these stimuli,
  - and **psychological processes** that **mediate** between stimulus and response.
- The ***psychological processes*** involve differences between individuals in their *perception of the environmental demands and their own capacity to cope*

Therefore according to Cox, **stress is the result of the perceived demands outweighing the perceived capability to cope**

- This perception is influenced by a number of factors:
  - personality,
  - situational demands,
  - previous experiences
  - any current stress state already existing.

# Homework

- Summarise the biological response to stress (HPA and SMP) in 100 words each
- Use diagrams/flow charts to illustrate this.
- The best way to learn this tricky topic is to teach someone else!!!