Pain
Why did it happen to you?

What is it?

How?

What is its purpose?

Your experiences?
Introduction

Pain: a natural way of protecting your body

↓

It alerts the body of potential danger

↓

The body responds

↓

SURVIVAL
Introduction

- Acute pain:
  - Clear cause
  - E.g. pain following injury

- Chronic pain:
  - No clear cause
  - duration > 3 months
  - 20% of the general population
  - E.g. chronic headache
Acute pain mechanisms
Acute pain mechanisms

The stimulus is transformed into an electrical current that rushes through the nerve (cfr. electrical cable) towards the spinal cord.
The mechanism of pain
The mechanism of pain

- The danger message can be inhibited by messages arising from the brain (top-down)

- These top-down messages work like a volume button of a radio: they can either strengthen or diminish the strength.
The body has a very powerful pain inhibitory system / pain control system, which is 60 times stronger than any type of drug available for pain relief.
The mechanism of pain

- Tissue damage $\neq$ pain
  pain $\neq$ tissue damage
- Pain without tissue damage exists! : [Image]
PAIN

Nerve pathways going to the brain

Nerve pathways arising from the brain

The back door of the spinal cord

Spinal cord

injury

nociceptor

Nerve
Chronic pain
Adaptation in chronic pain: ion gates stay open longer & the number of sensors ↑
Afkomstig vanuit de hersenen naar de hersenen toe

Versterkende chemische stoffen

Boodschappen vanuit de weefsels

Synapsis

Rimpelende stoffen/hormonen uit de hersenen
danger messages to spinal cord neurons:

- normal:
- sensitization:

no danger messages to spinal cord neurons:
The pain matrix in the brain
And yet everything is stationary…
normal situation

hypersensitive central nervous system
PAIN

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brain
Why did it happen to you?

Depending on:

1) Amount of tissue damage
e.g.: broken leg vs. injured toenail

2) Genes

3) Coping behaviour → This is the only thing we can change!
How do I have to apply this in daily life?

• Less worrying about pain
• Try not to pay too much attention to the pain
• Physical activity!
• Avoid negative thoughts and stress!
• ....
The pain matrix in the brain
The pain matrix in the brain
Information leaflet

- Read it at home, but not today
- Write down any questions you have
- Ask for clarification the next session