Pain


Why did it happen to you?
What is it?
What is its purpose?
PAIN
How?
Your experiences?

Introduction

Pain: a natural way of protecting your body

↓

It alerts the body of potential danger

↓

The body responds

⇓

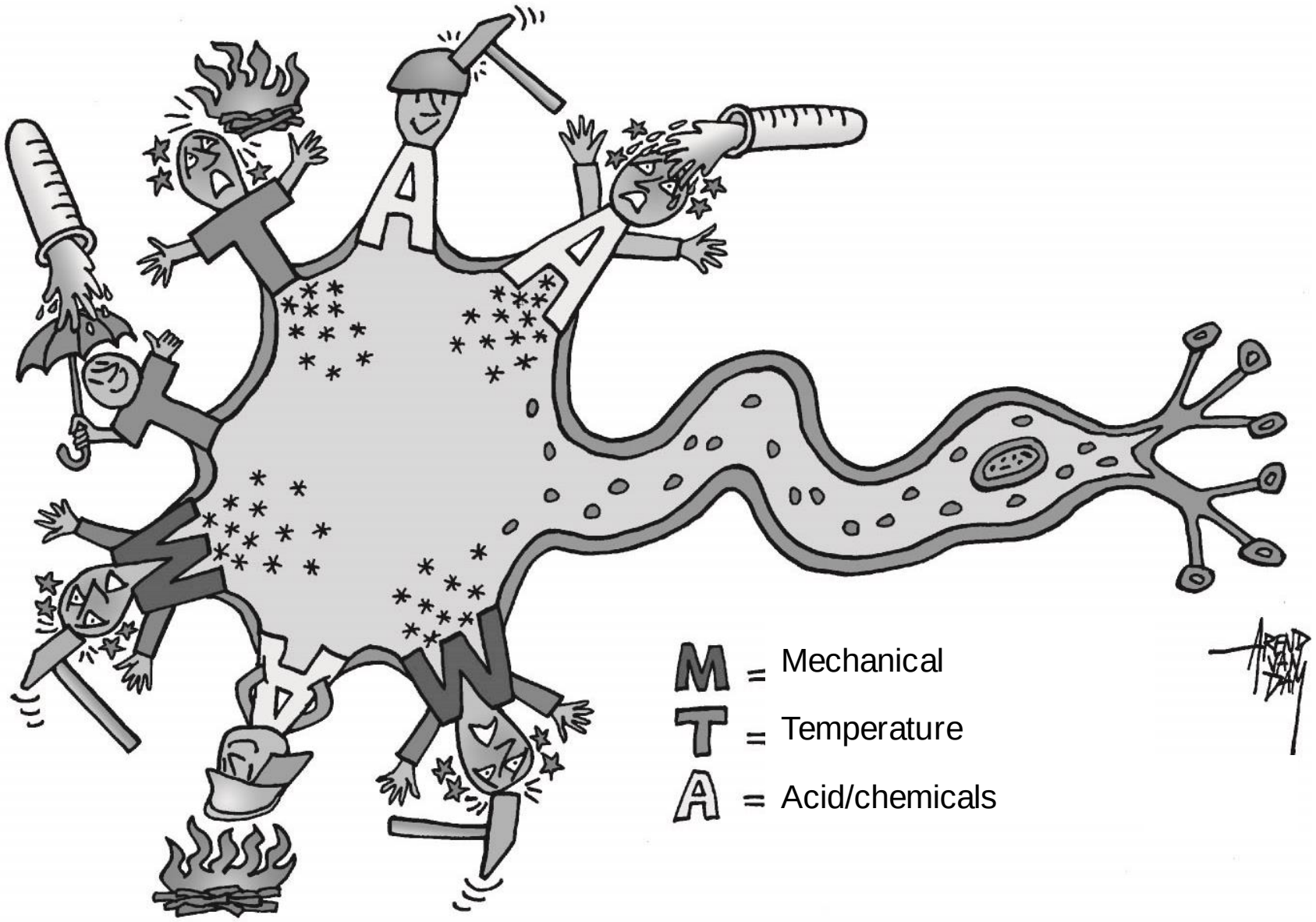
SURVIVAL

Introduction

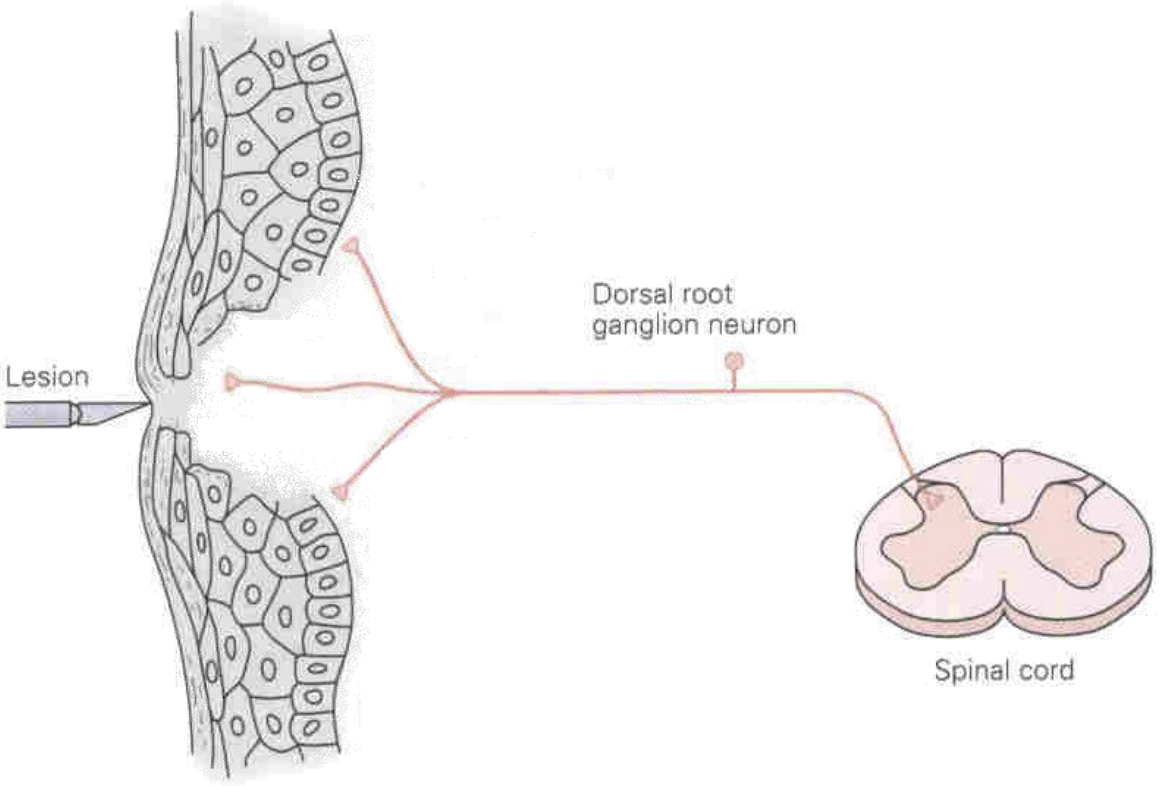
- Acute pain:
  - Clear cause
  - E.g. pain following injury

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

Acute pain mechanisms

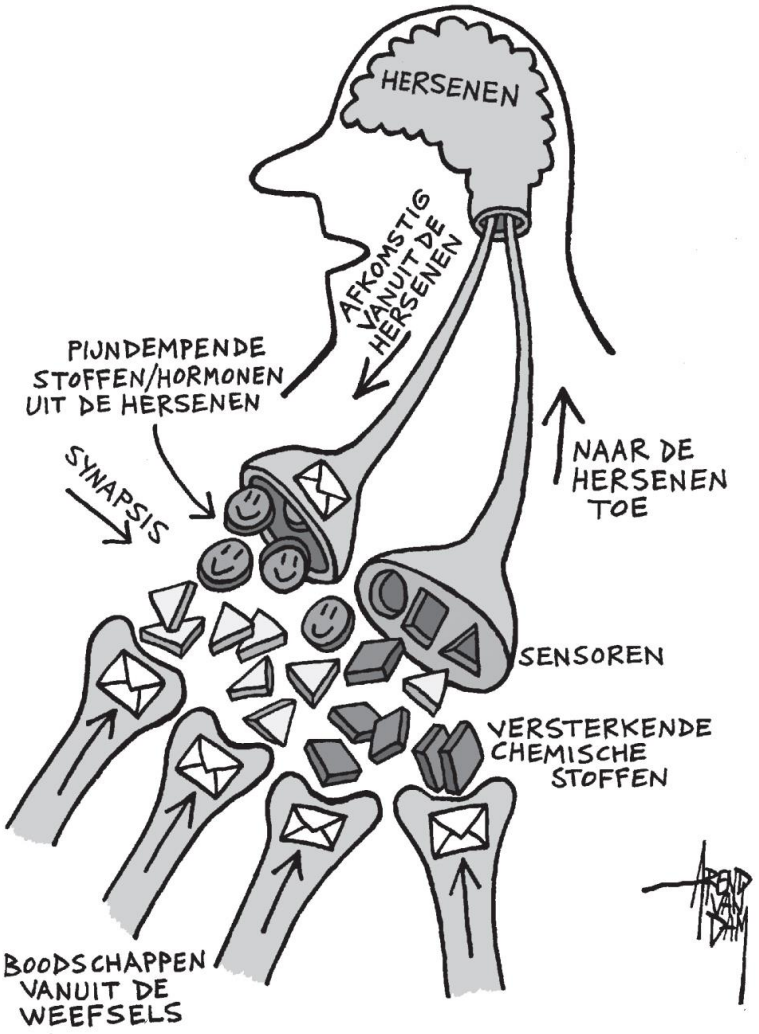

M = Mechanical
T = Temperature
A = Acid/chemicals

Acute pain mechanisms



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

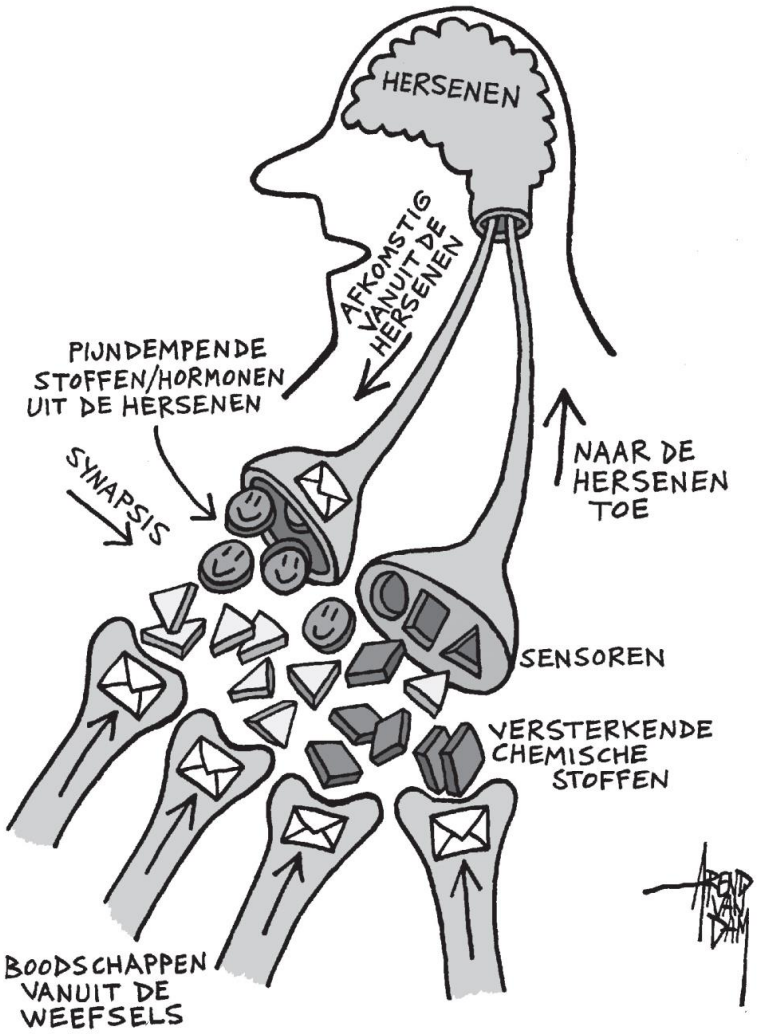
The mechanism of pain



The mechanism of pain

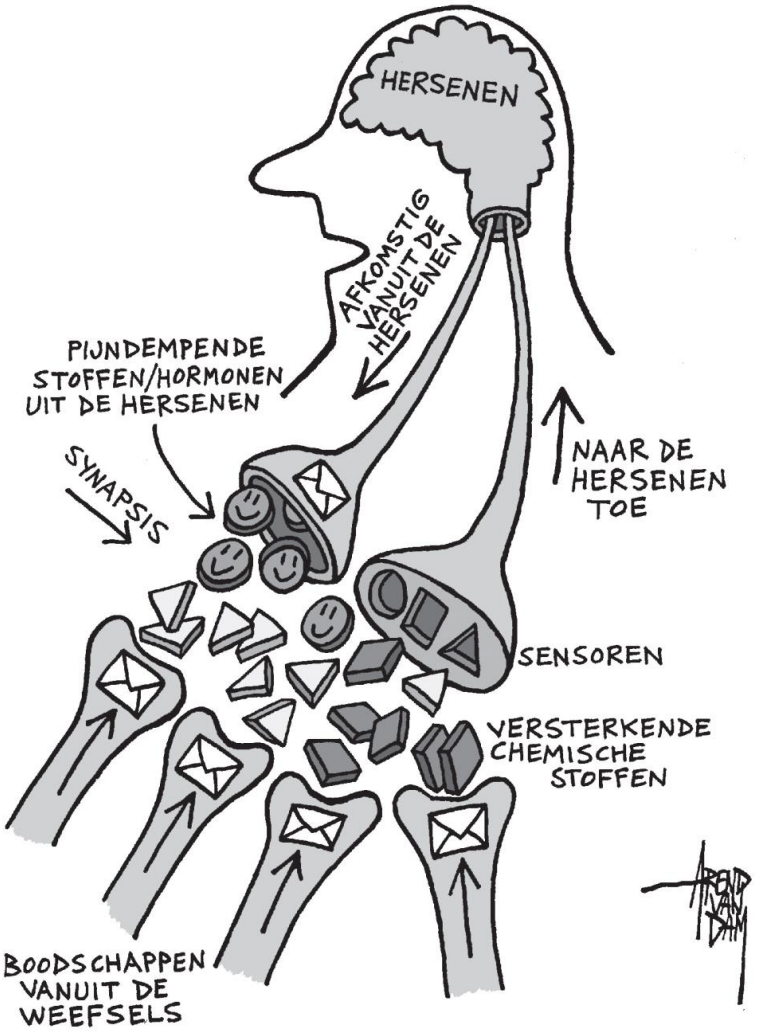
- The danger message can be inhibited by messages arising from the brain (top-down)

- These top-down messages work like a volume button of a radio: they can either strengthen or diminish the strength.



The mechanism of pain

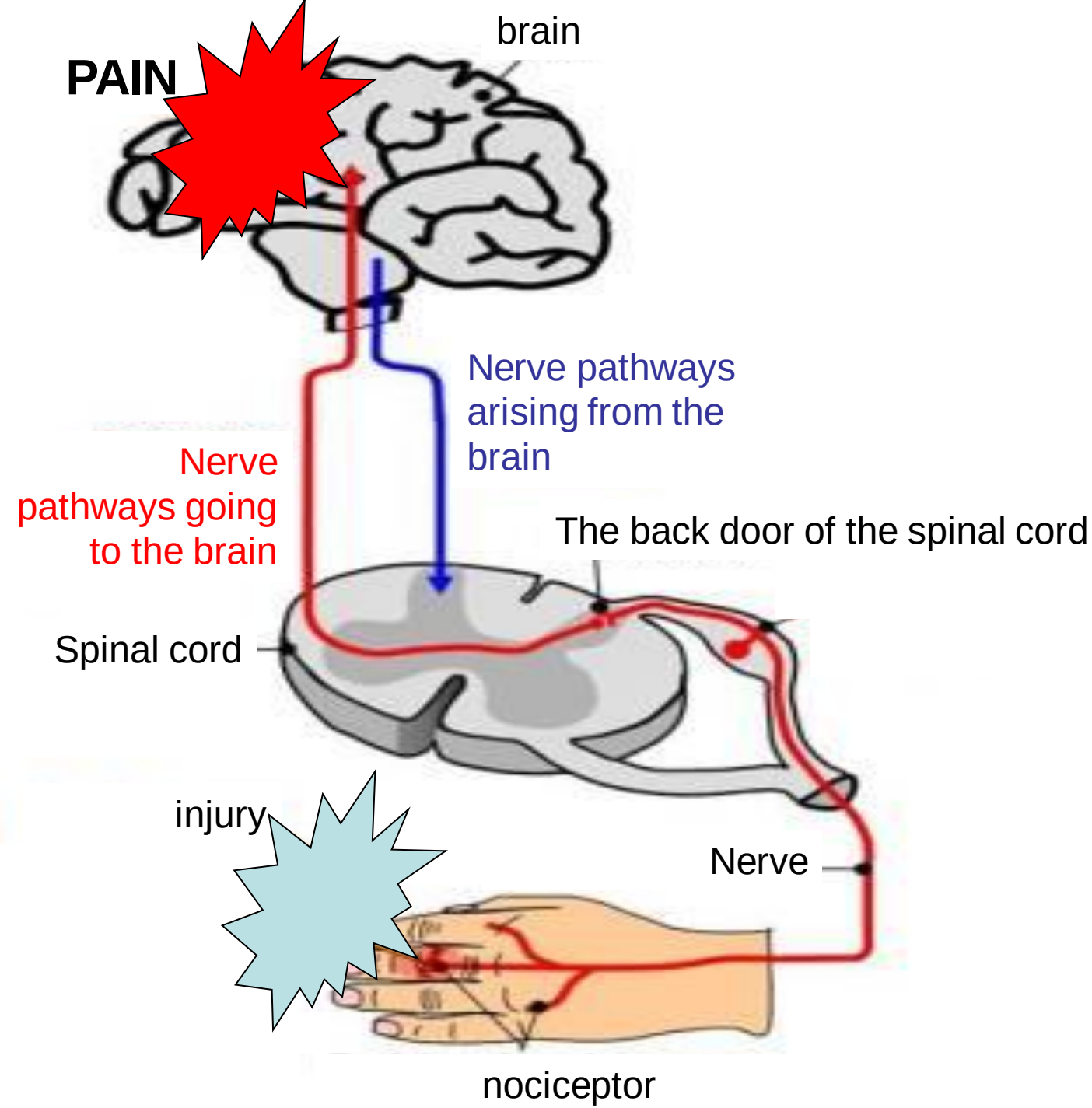
- The body has a very powerful pain inhibitory system / pain control system, which is 60 times tronger than any type of drug available for pain relief



The mechanism of pain

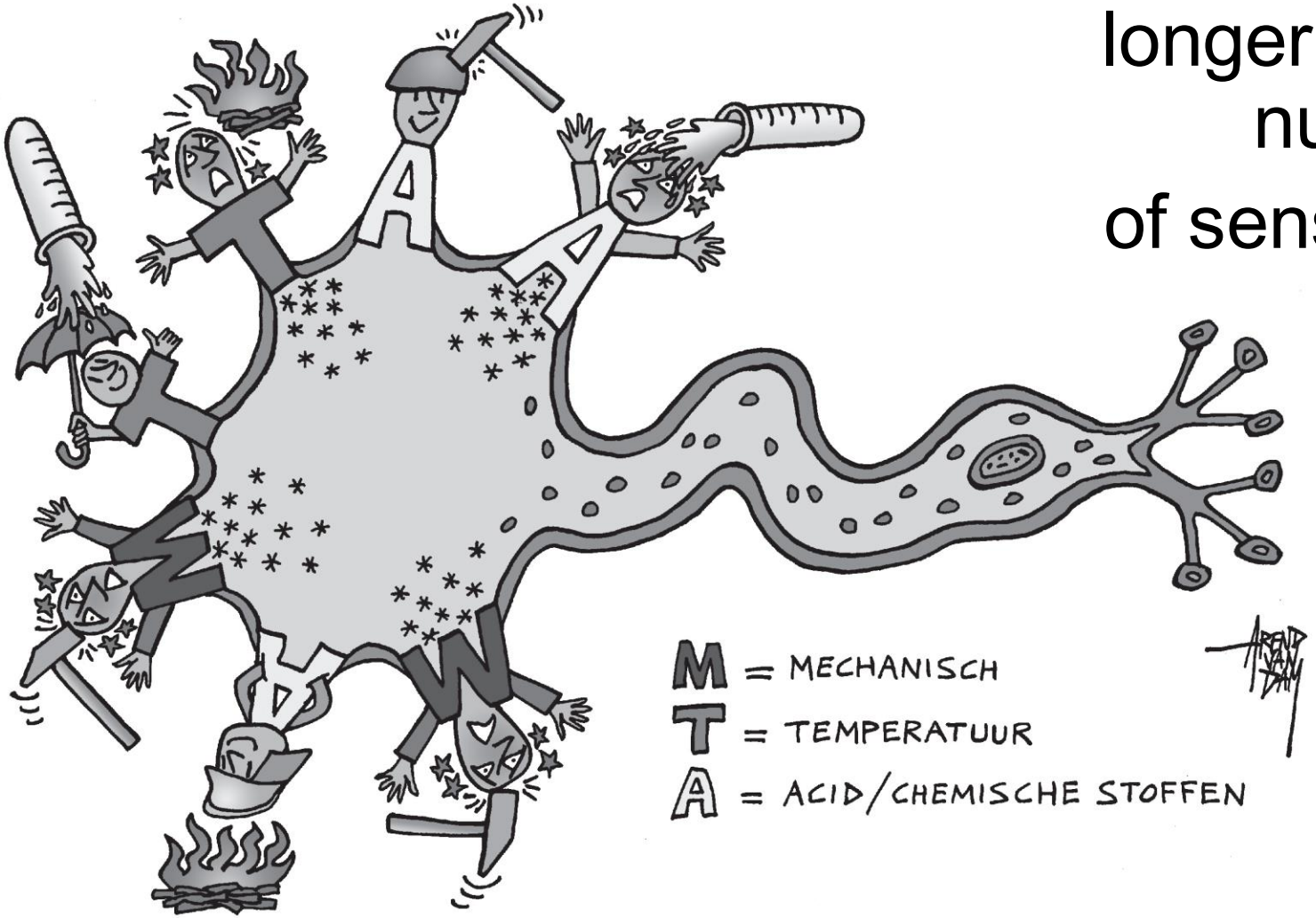
- Tissue damage ≠ pain

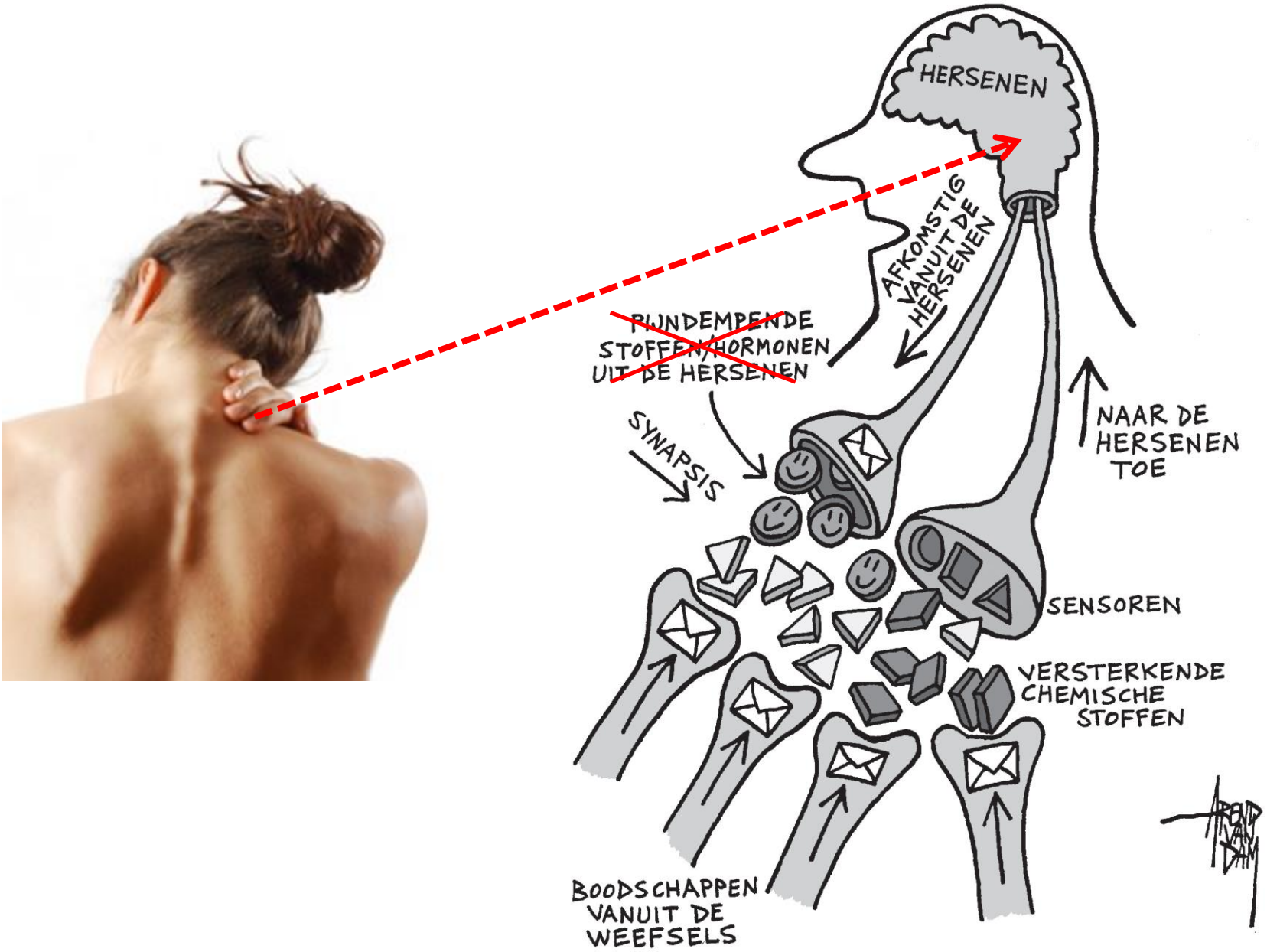
  pain ≠ tissue damage
- Pain without tissue damage exists! :

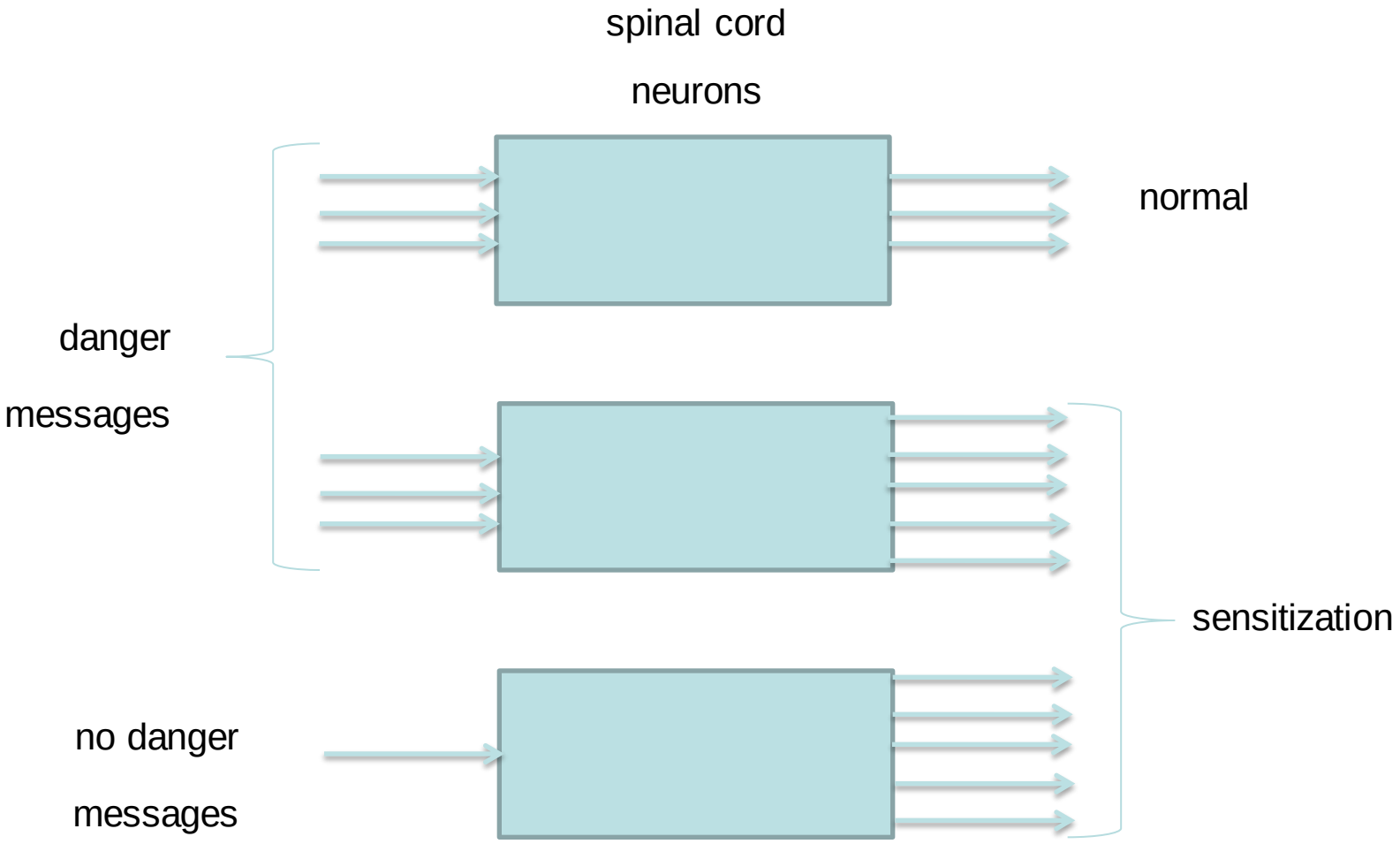

brain
PAIN
Nerve pathways arising from the brain
Nerve pathways going to the brain
The back door of the spinal cord
Spinal cord
injury
Nerve
nociceptor

Chronic pain

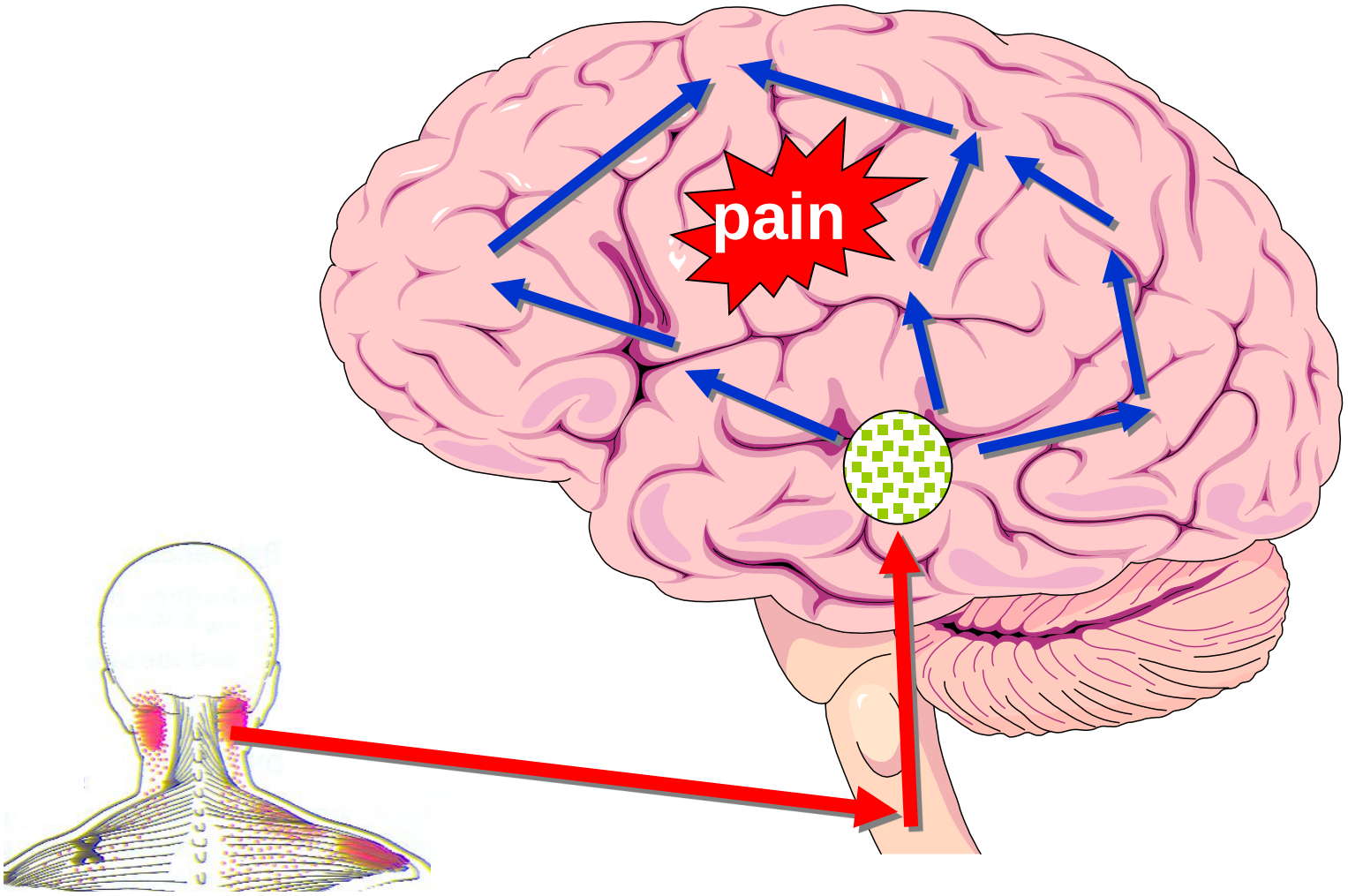
Adaptation in chronic pain: ion gates stay open longer & the number of sensors ↑



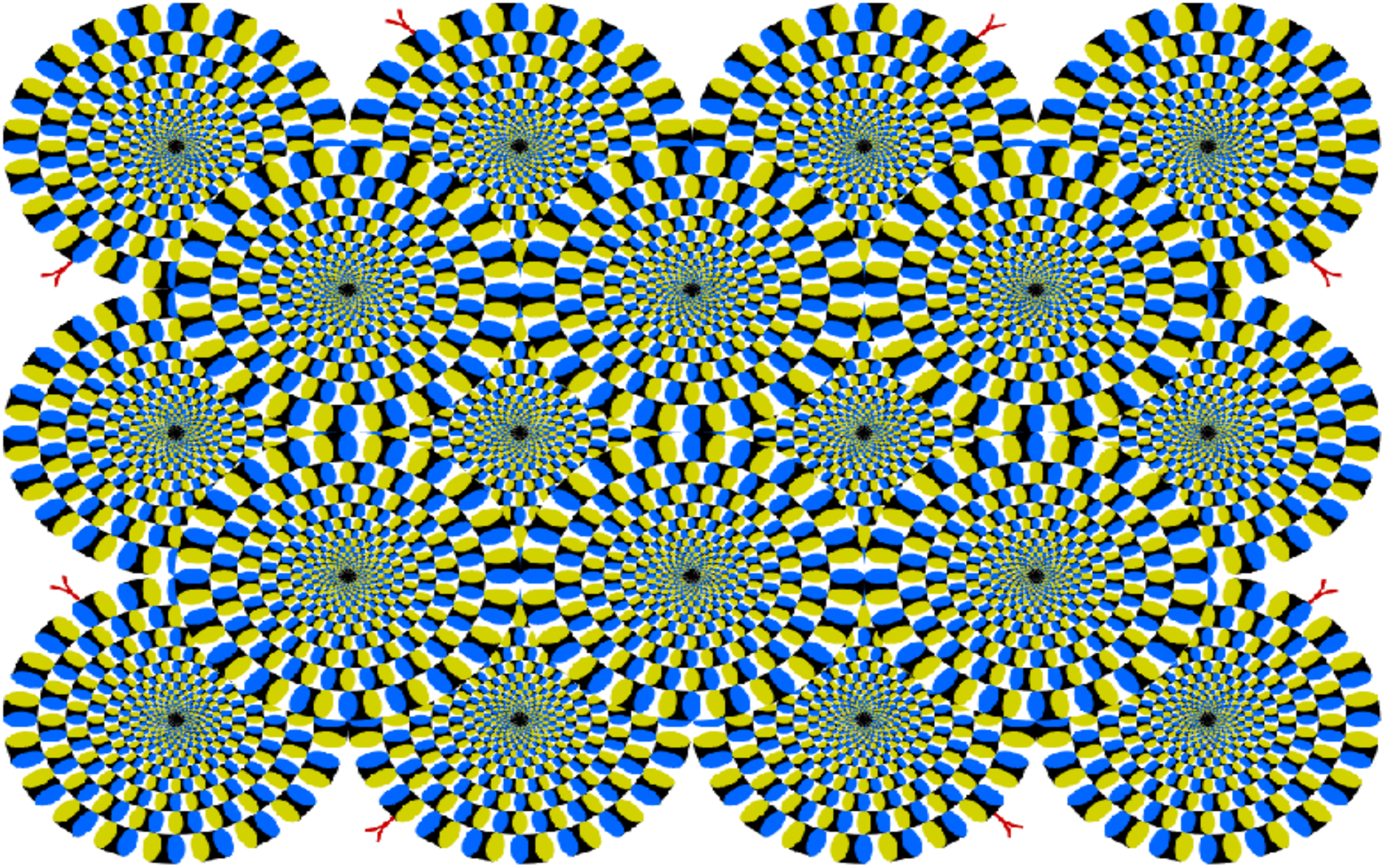

HERSENEN
AFKOMSTIG VANUIT DE HERSENEN
PIJNDEMPENDE STOFFEN/HORMONEN UIT DE HERSENEN
SYNAPSIS
NAAR DE HERSENEN TOE
SENSOREN
VERSTERKENDE CHEMISCHE STOFFEN
BOODSCHAPPEN VANUIT DE WEEFSELS

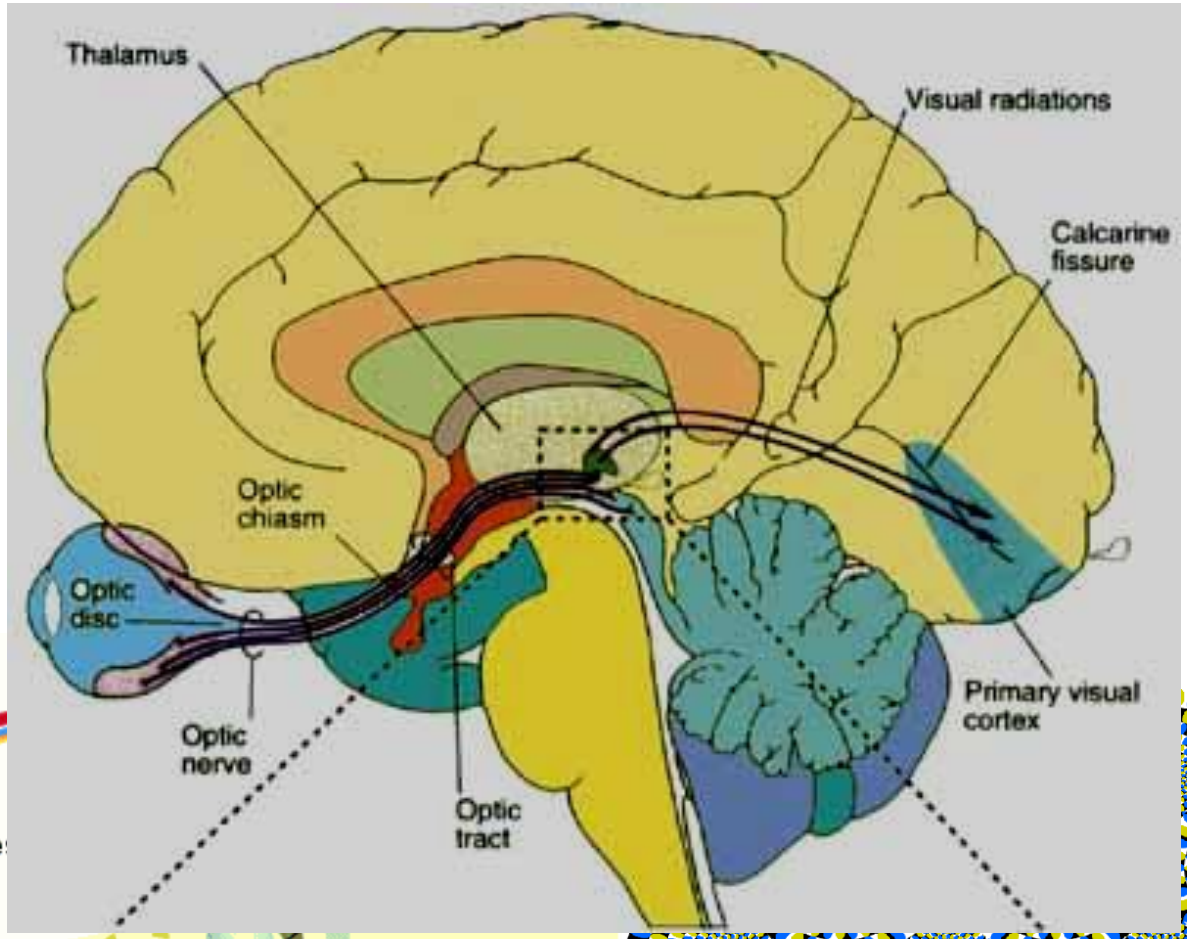

spinal cord
neurons
normal
danger
messages
sensitization
no danger
messages

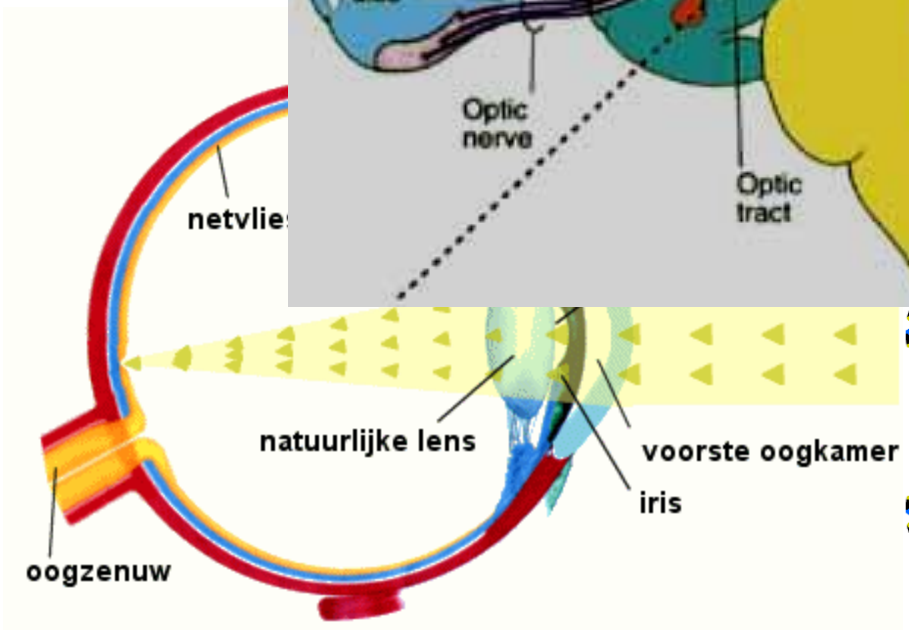
The pain matrix in the brain

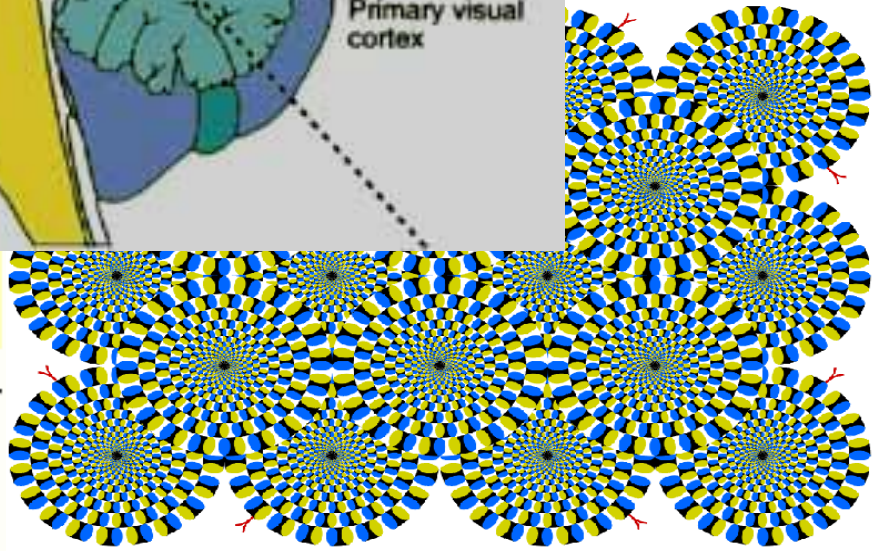


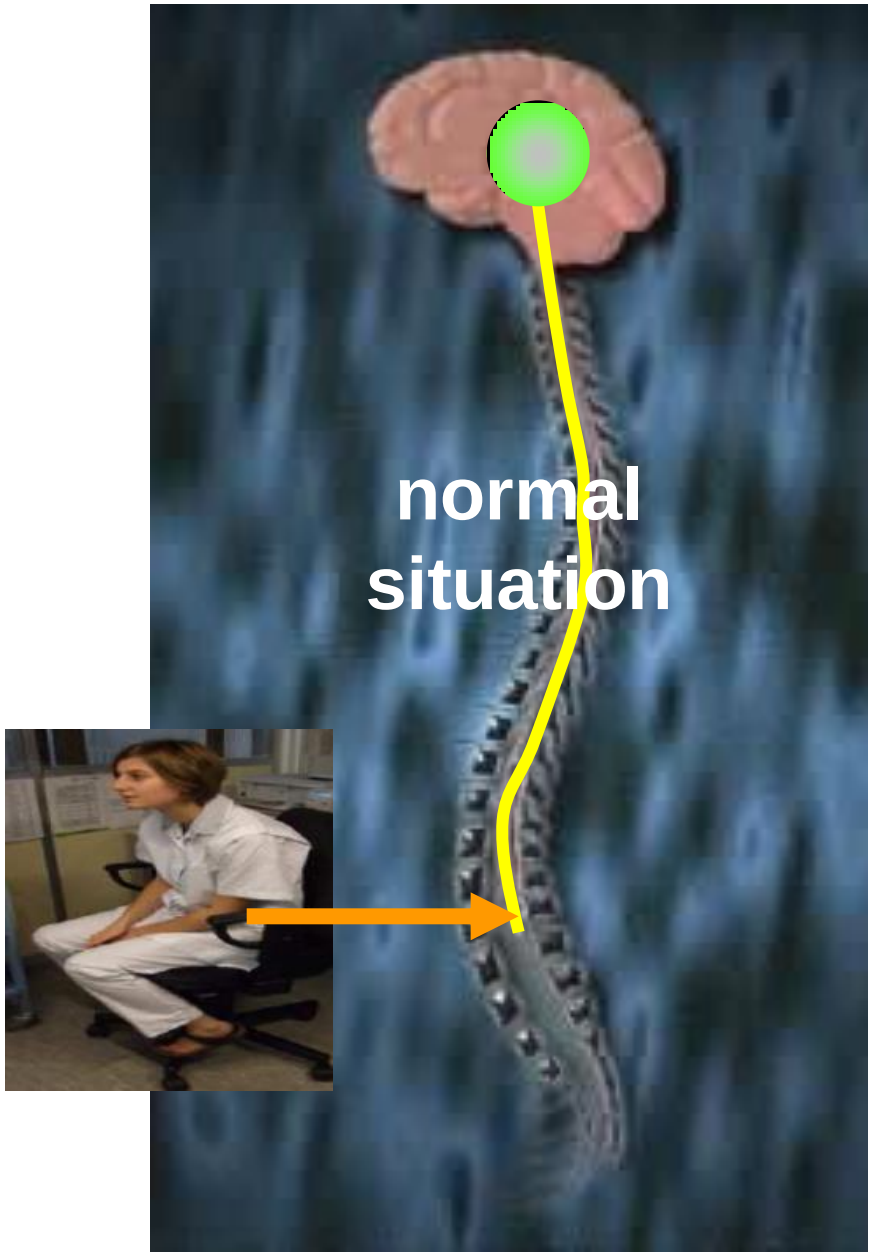
And yet everything is stationary…

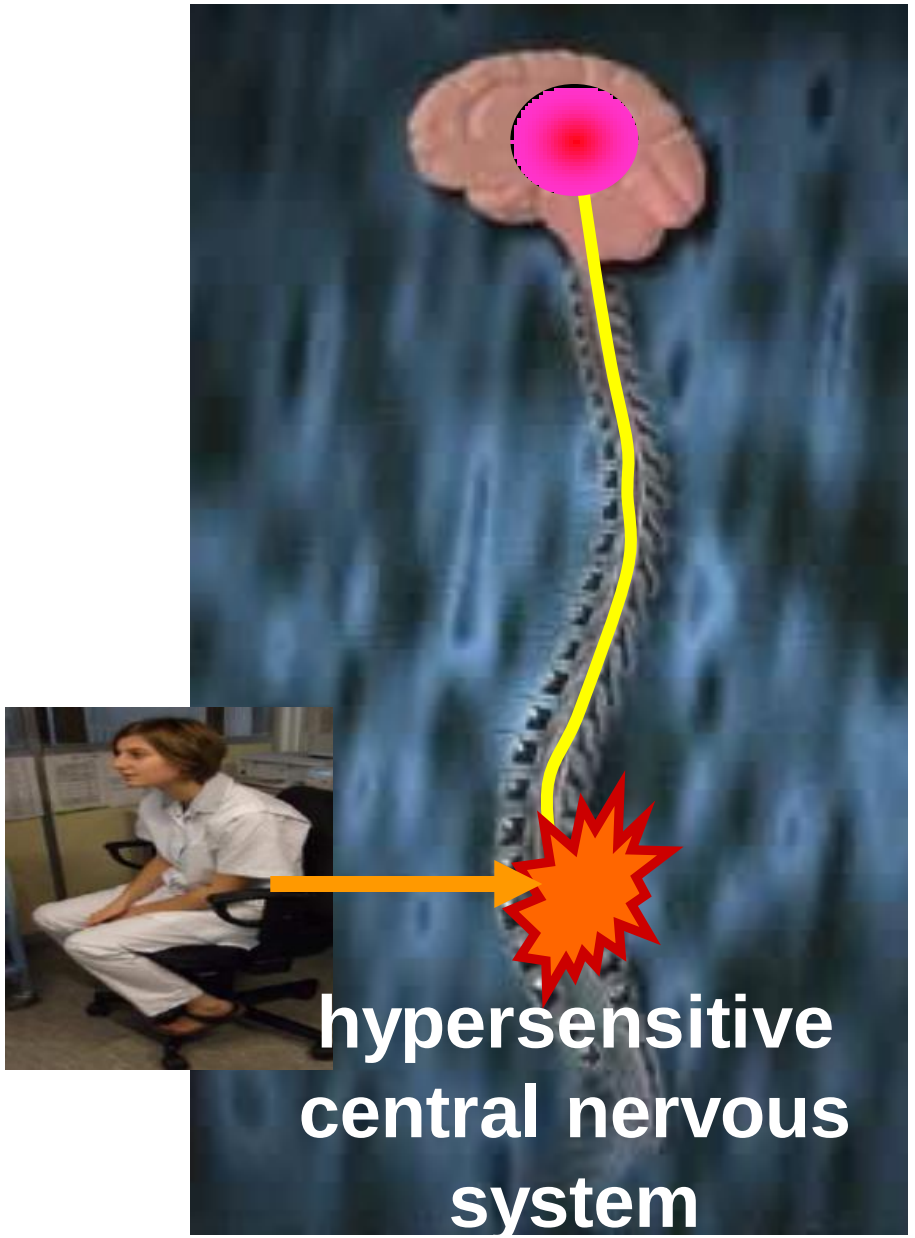


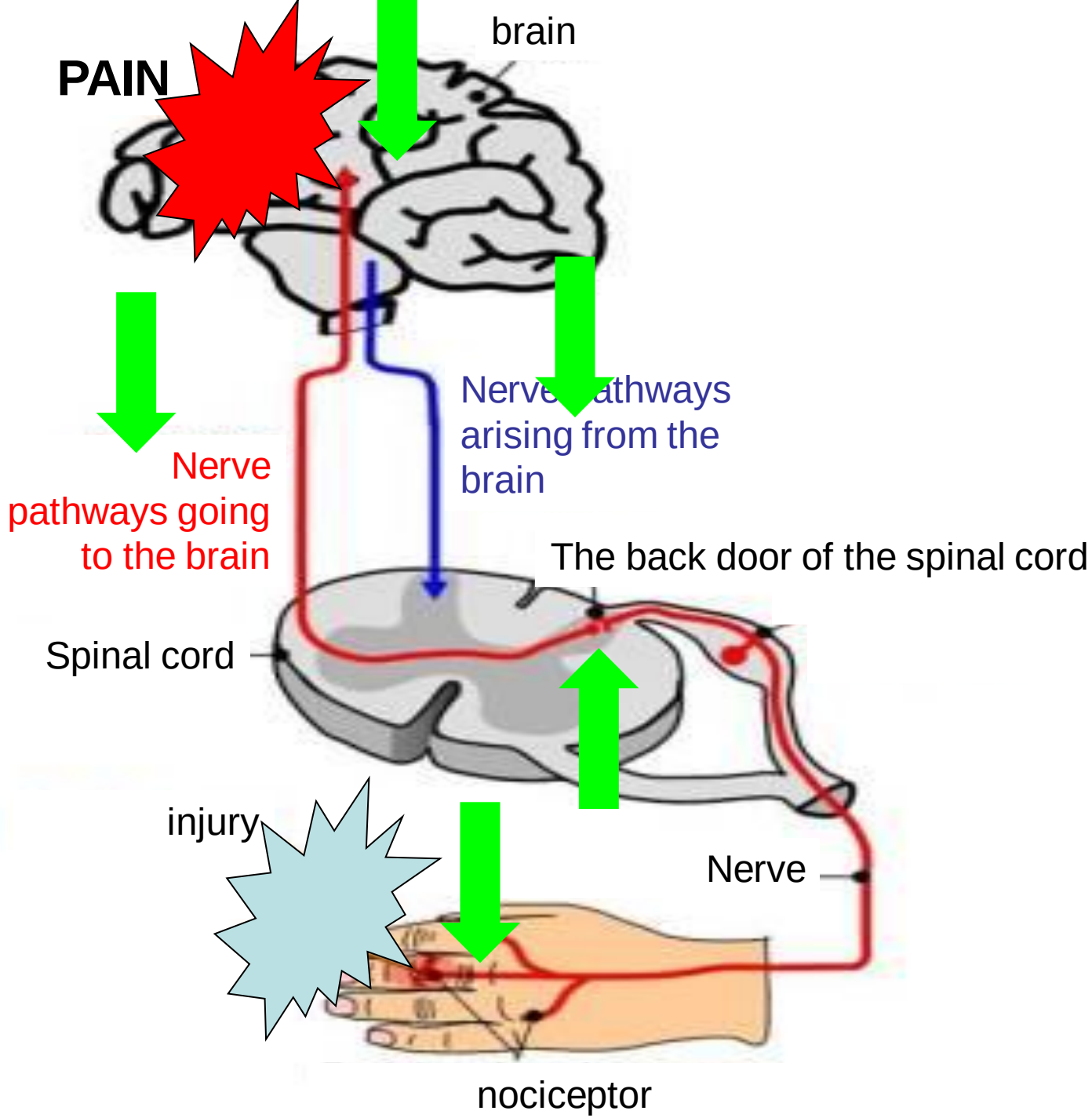

Thalamus
Visual radiations
Calcarine fissure
Optic chiasm
Optic disc
Optic nerve
Optic tract
Primary visual cortex


netvlie
natuurlijke lens
voorste oogkamer
iris
oogzenuw




normal
situation


hypersensitive
central nervous
system


brain
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Spinal cord
injury
Nerve
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Why did it happen to you?

Depending on:

1) Amount of tissue damage

   e.g.: broken leg vs. injured toenail

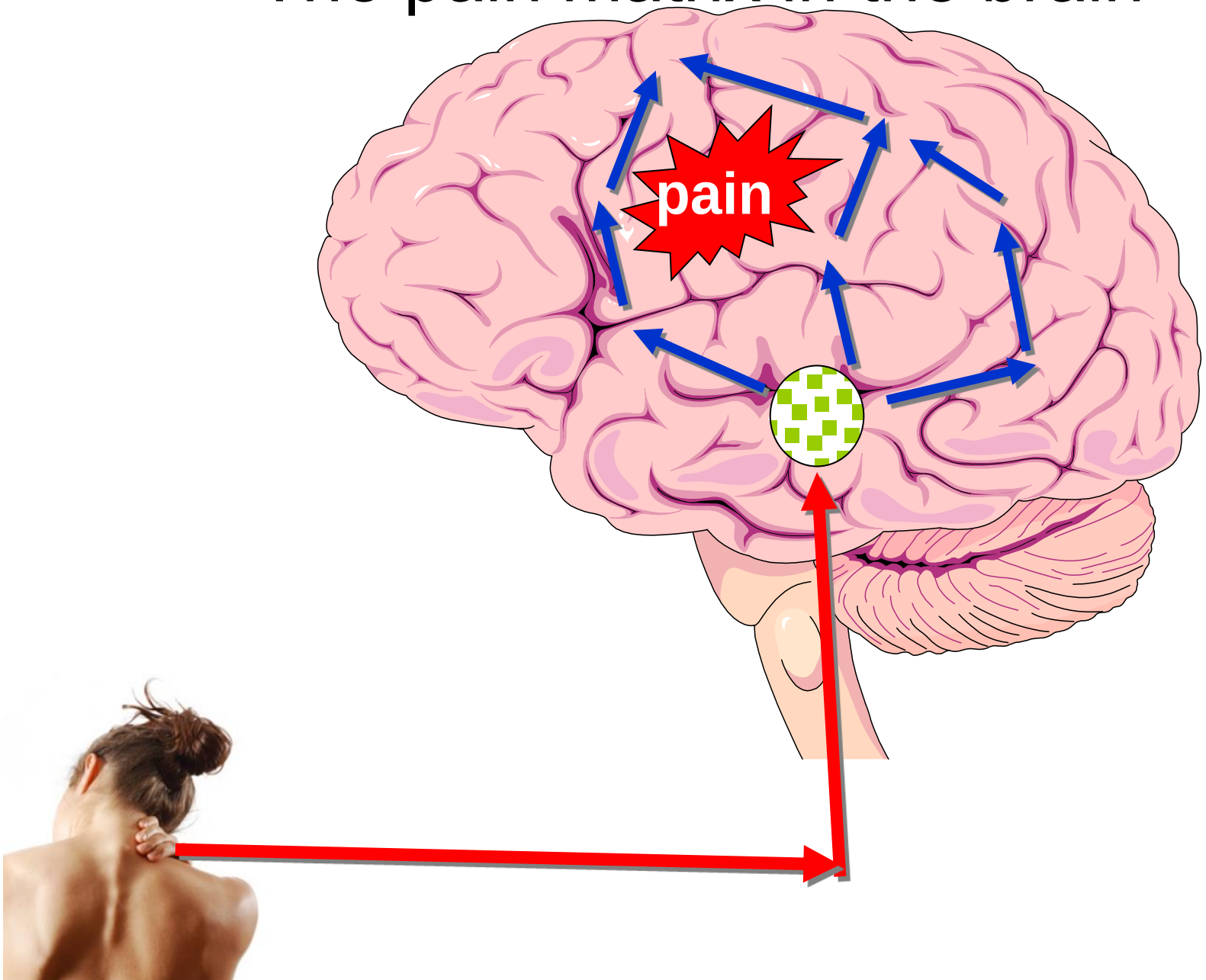
2) Genes

3) Coping behaviour → This is the only thing we can change!

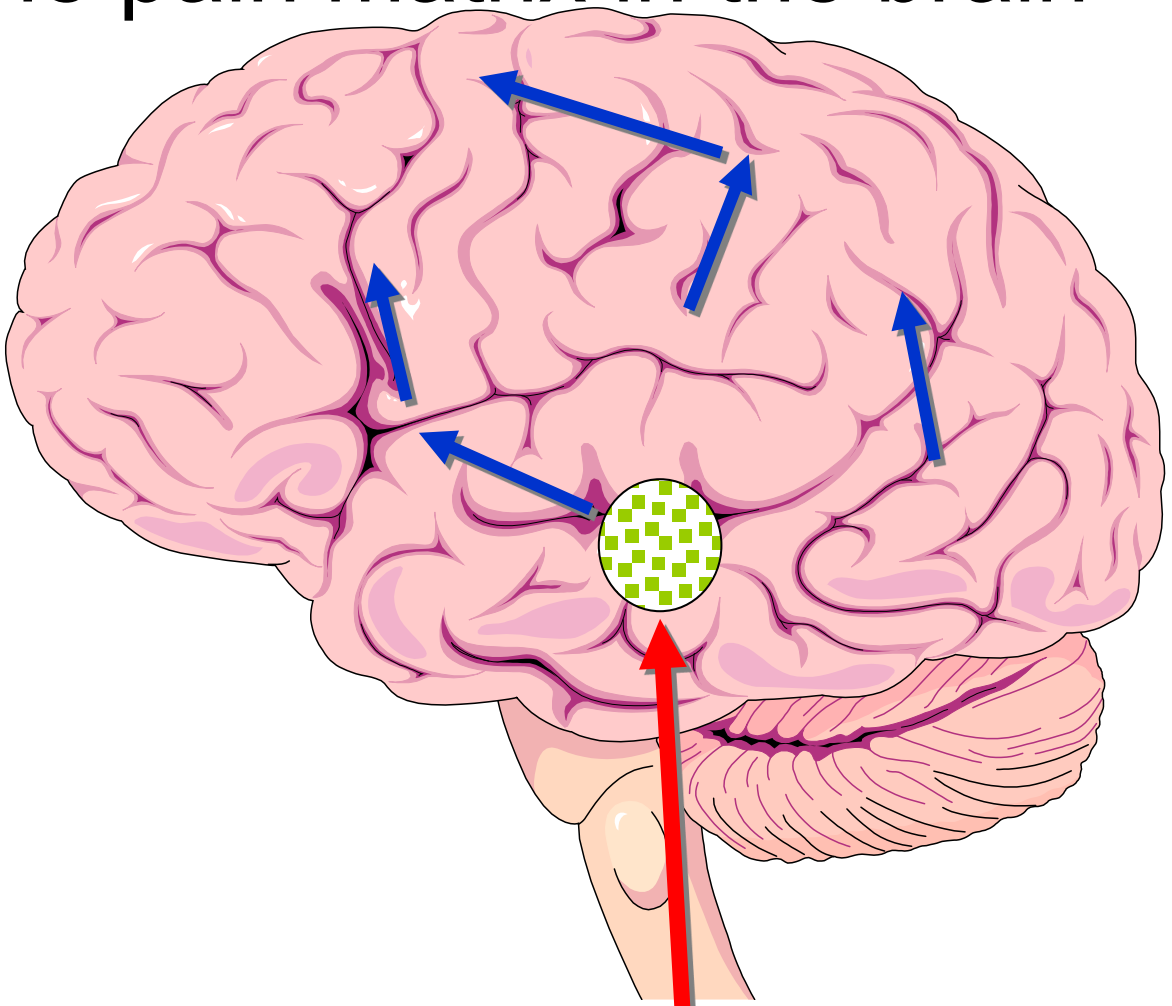
How do I have to apply this in daily life?

- 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