

# Chronic pain



What is the role of  
cannabis?



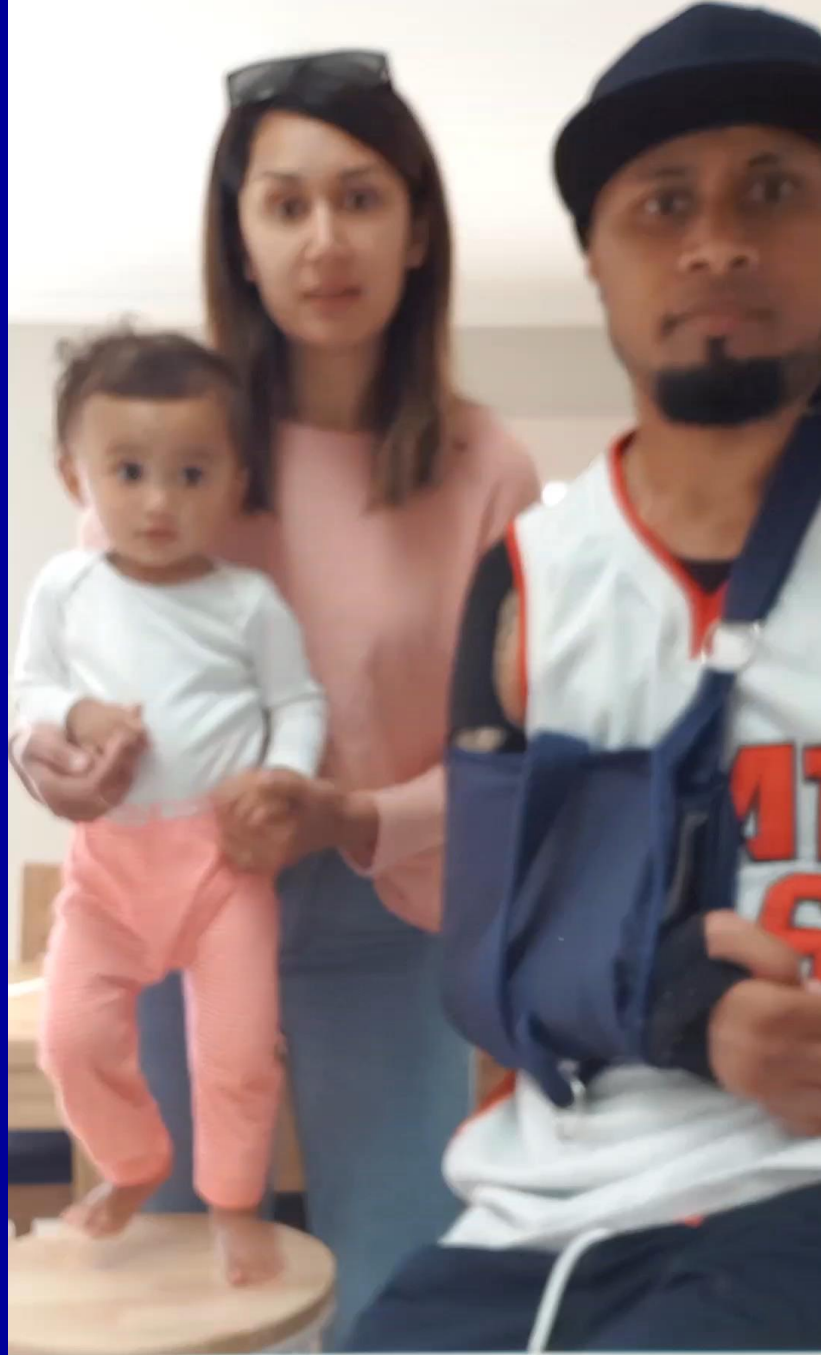
CLINIC CHANGES

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# Cons Mullipuu



- T4 spinal cord lesion and brachial plexus lesion
- Palexia, gabapentin, tramadol, panadol
- Poor sleep pain 6 to 10/10

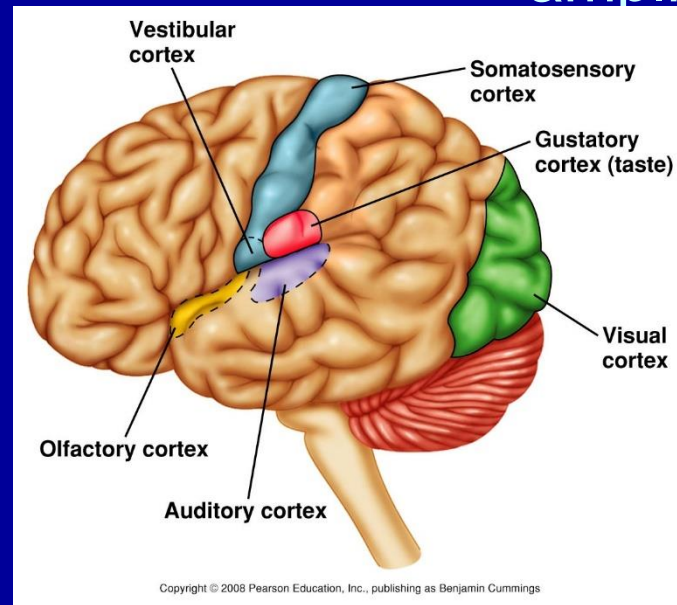




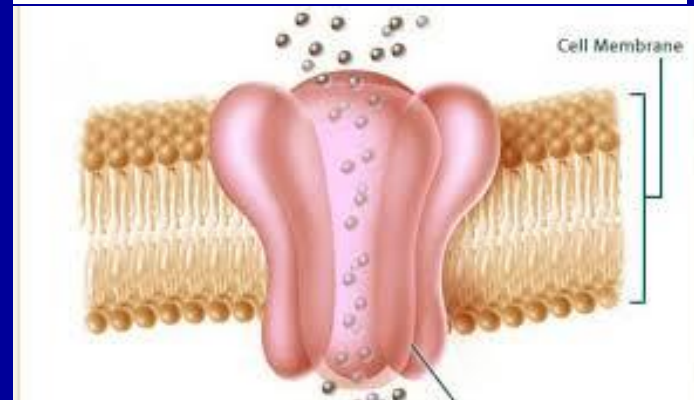


# Migraine

Genetic predisposition to sensory amplification



- Light
- Sound
- Smell
- Pain
- Touch



Relative risk

	up to
CPRS	4
Fibromyalgia	6.6
LBP	2

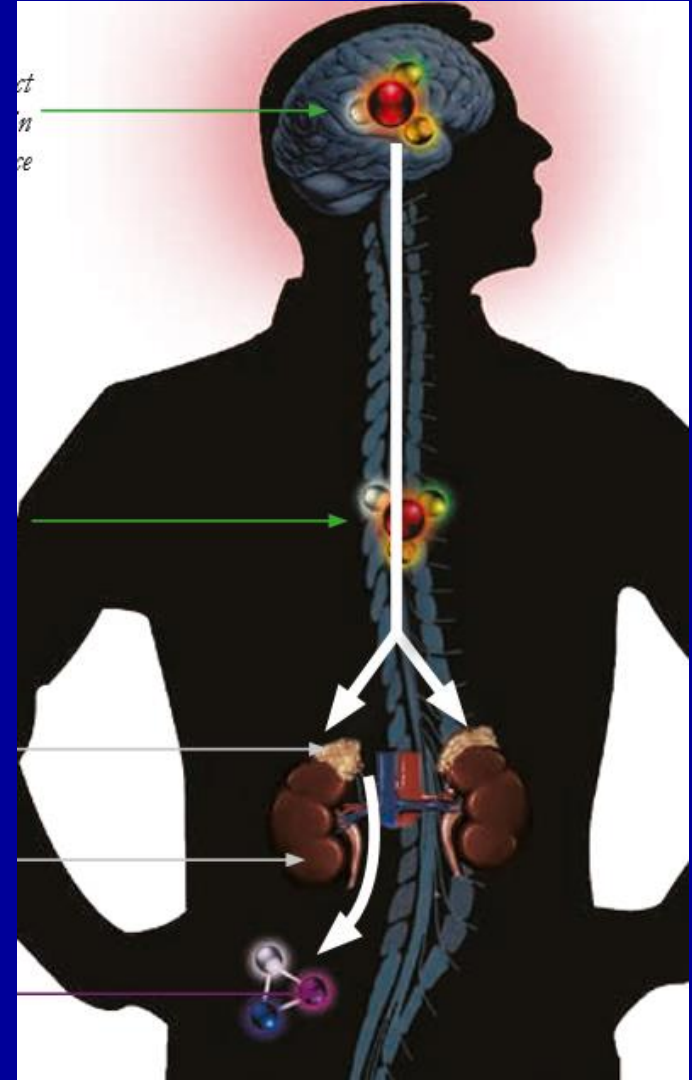
# Sympathetic Nervous System

## Hypothalamic pituitary adrenal

Serotonin, Adrenaline, Noradrenaline  
CRH, Histamine, Acetylcholine

Serotonin  
Noradrenaline

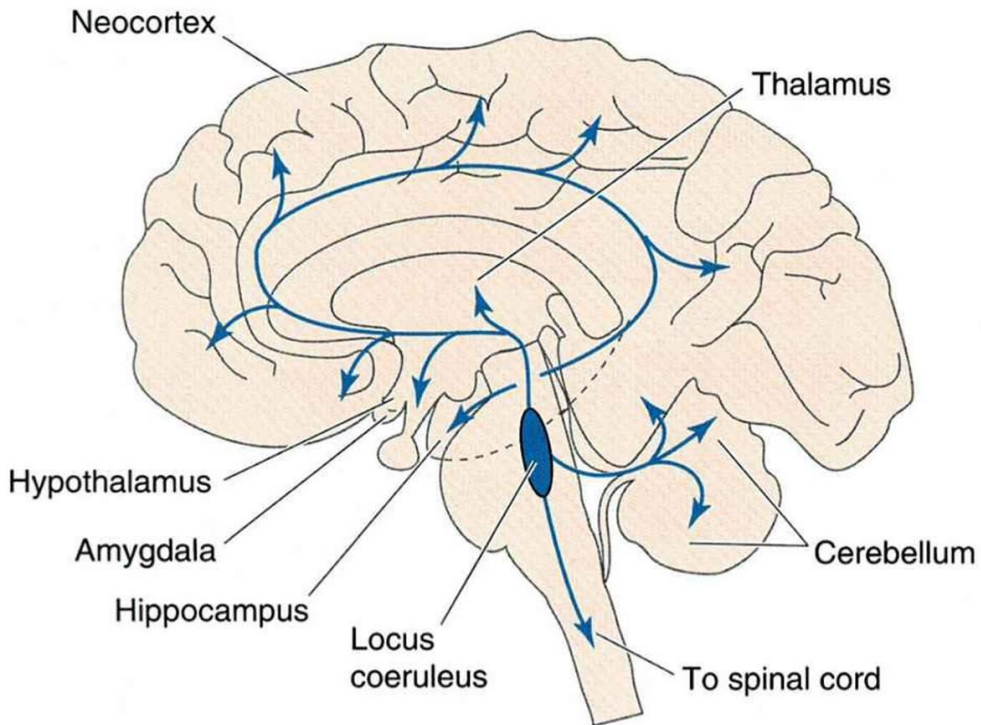
Adrenaline  
Noradrenaline  
Cortisol



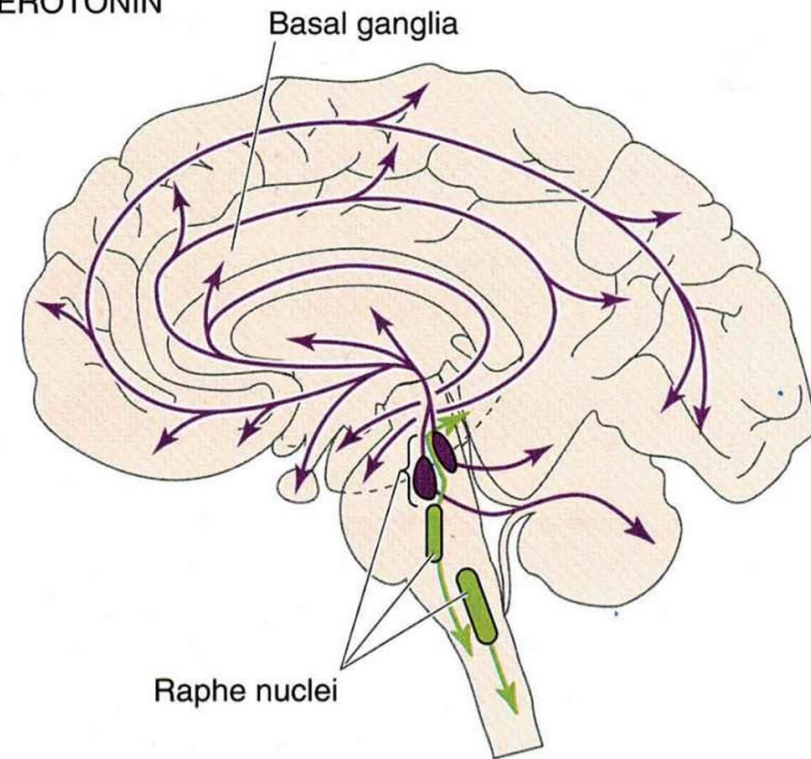


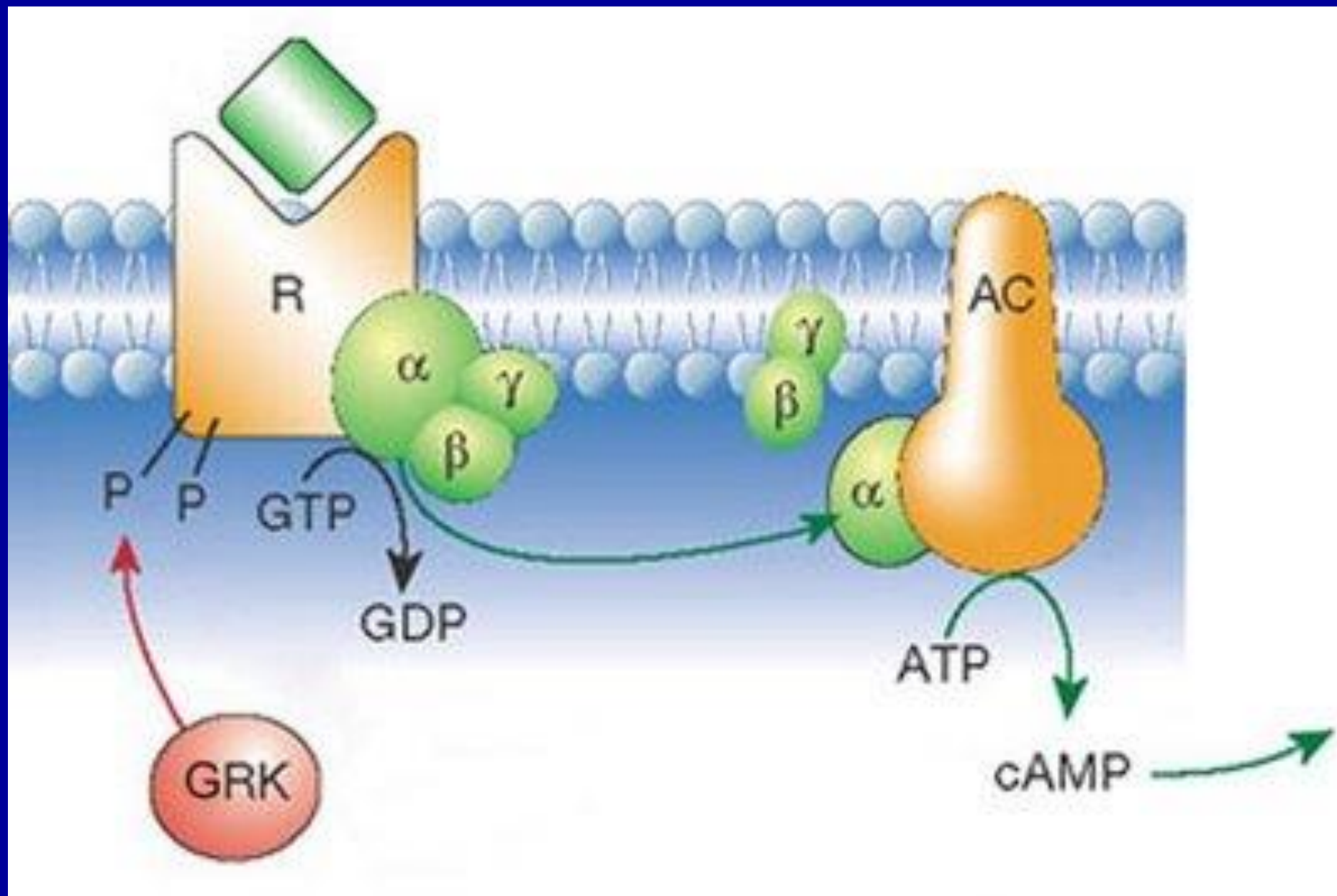
# Widespread connections

## A NOREPINEPHRINE



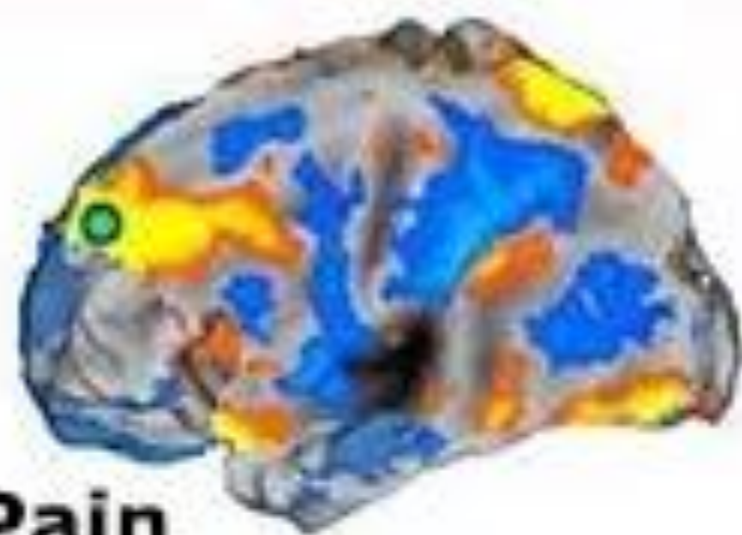
## B SEROTONIN



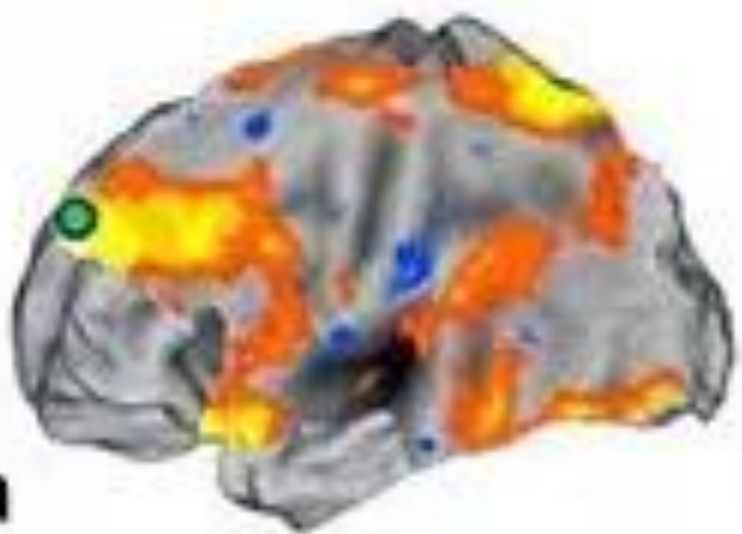


# Changes in Chronic pain

- Central Sensitisation
- Reduced tonic inhibition
- Reduced GABA levels
- Altered opioid binding
- Brain changes
  - Thalamic, hippocampus atrophy
  - Increased activity limbic system
- Increased sympathetic tone (HRV)



**No Chronic Pain**



**Chronic Pain**

# Management chronic pain

- Reduce sympathetic tone
- Therapies
- Pharmaceuticals

# Management of chronic pain

## Reduce sympathetic tone

- Improving sleep
- Exercise (above 50% HRmax)
- Sauna
- Yoga
- Meditation
- Mindfulness



# Therapy

- Physiotherapy
- Chiropractor
- Osteopathy
- Occupational therapy
- Psychological therapist
- Exercise therapist

# Pharmaceuticals



Analgesics

Nsaids

Opioids

Cannabinoids

PGs

mu, K

CB

Pain modifying agents

antidepressants adrenergic, Ach, 5HT, Dop

anti-epileptics Na, Ca, GABA

Antipsychotics 5HT, dopamine

Gabapentin/Pregabalin

Amitriptyline

NA, Ach, 5HT, adrenergic, histamine

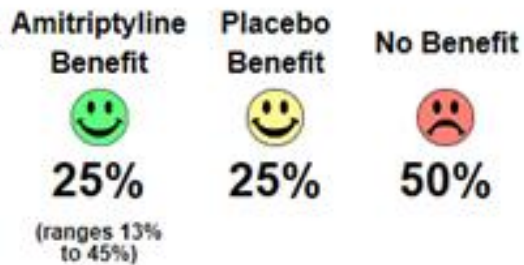
Inhibits Na, Ca, K channels



# Neuropathic pain

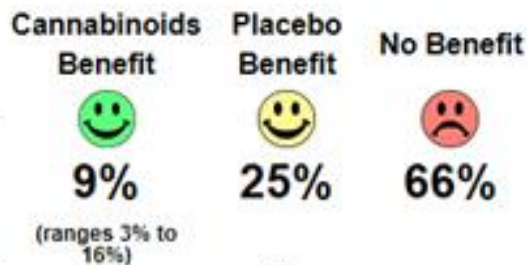
## Meaningful Pain Relief from Amitriptyline

(30% reduction in pain scores)



## Meaningful Pain Relief from Cannabinoids

(30% reduction in pain scores)



## Meaningful Pain Relief from Duloxetine

(30% reduction in pain scores)



# Neuropathic pain

## Meaningful Pain Relief from Gabapentin

(30% reduction in pain scores)



Gabapentin Benefit



18%

(ranges 12% to 26%)

Placebo Benefit



25%

No Benefit



57%

## Meaningful Pain Relief from High-Dose Opioids

60-110 mg of morphine equiv/day

(30% reduction in pain scores)



High-Dose Opioids Benefit



18%

(ranges 8% to 30%)

Placebo Benefit



25%

No Benefit



57%

## Meaningful Pain Relief from Pregabalin

(30% reduction in pain scores)



Pregabalin Benefit



16%

(ranges 9% to 26%)

Placebo Benefit

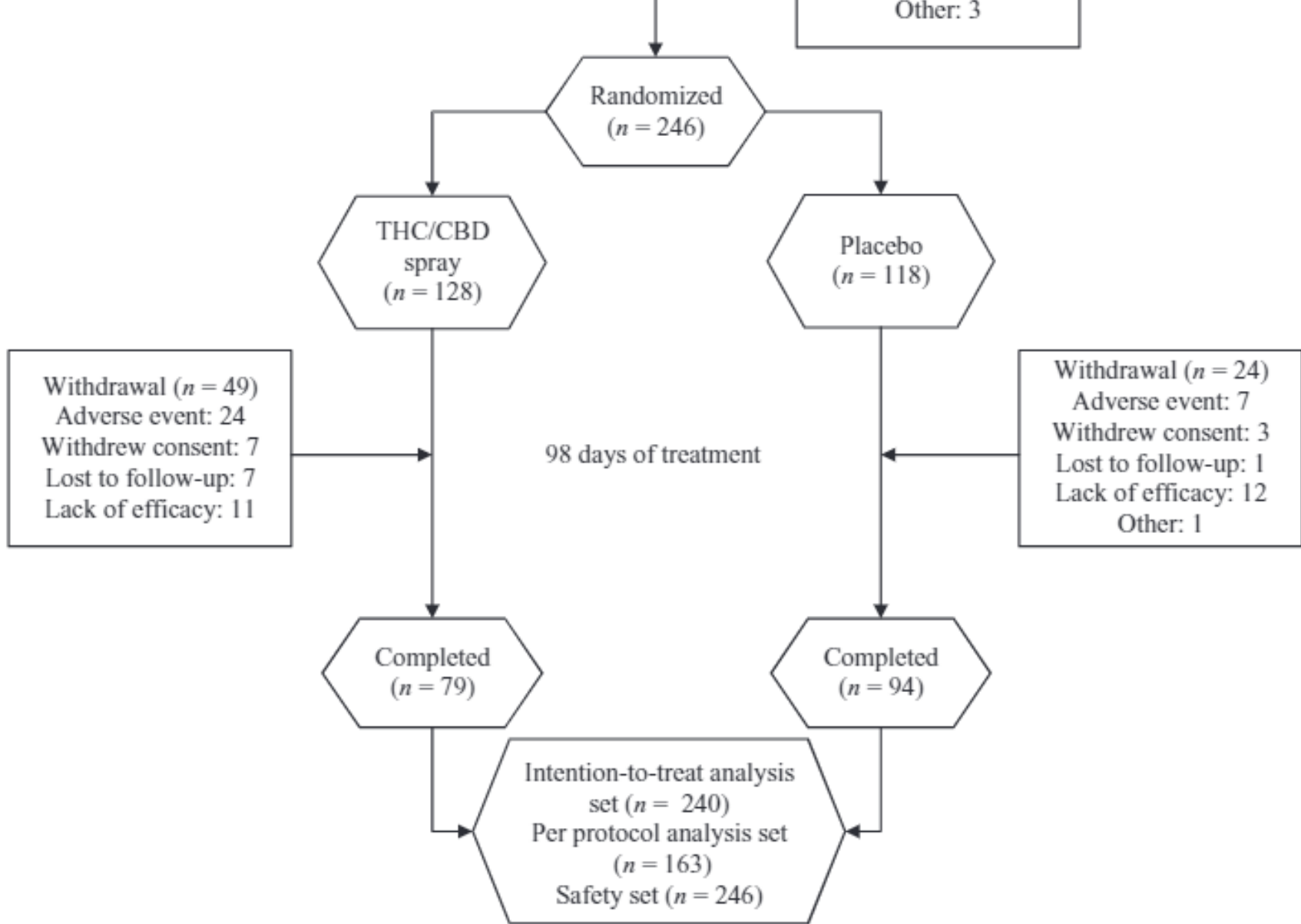


25%

No Benefit



59%



34/128

19/118

# Everyone is different

Genetics-receptors/Pain threshold  
migraine/ sympathetic nervous  
system





# When is cannabis inappropriate?

- 1MSK pain with biomechanical patterns

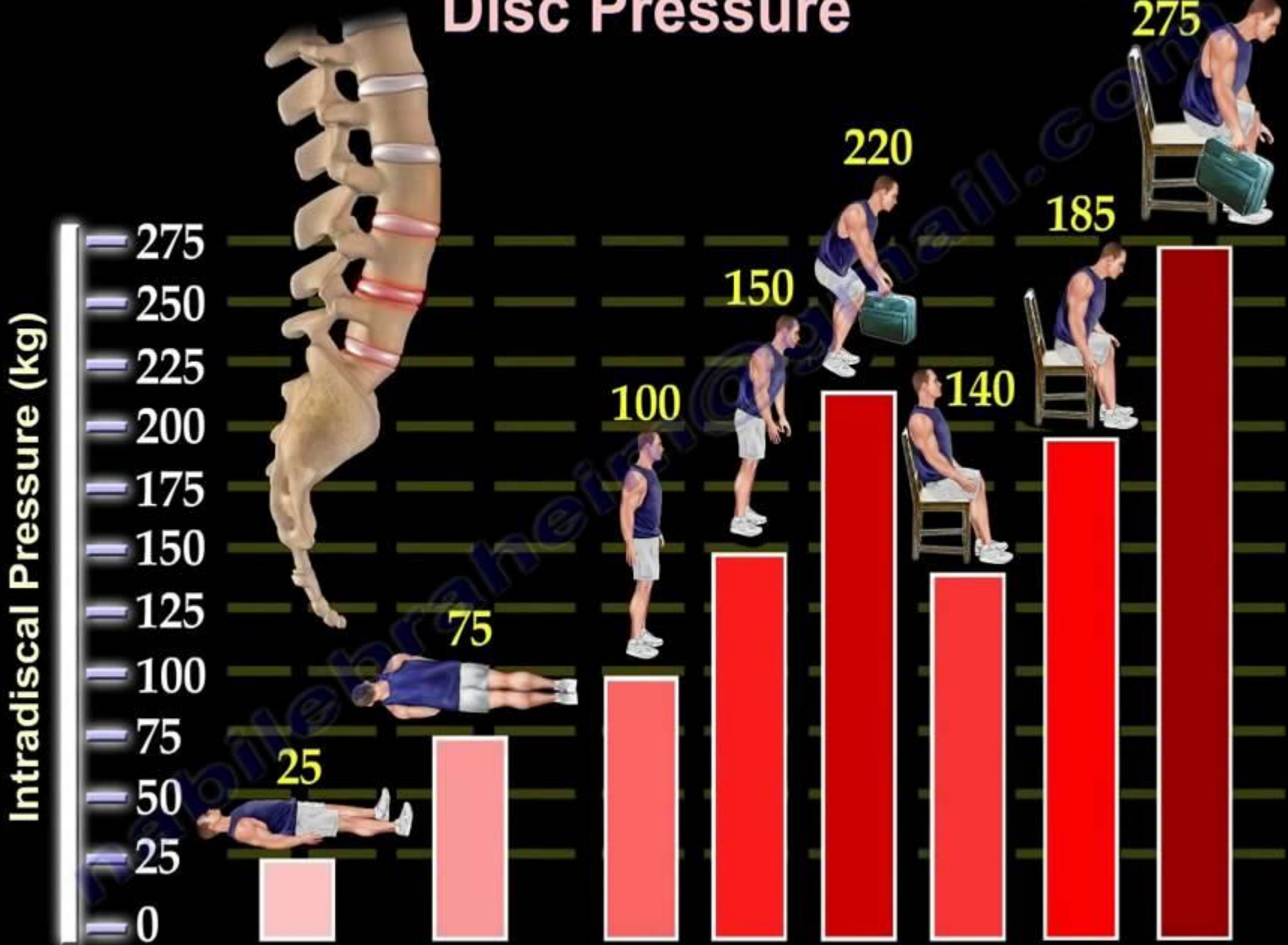
March 2012





# Body Positions Affecting the Spine

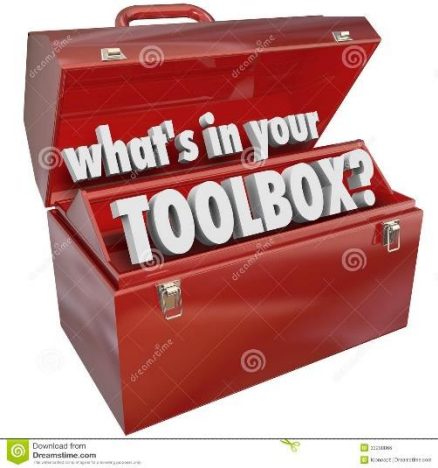
## Disc Pressure











# Summary

- Cannabis one of the tools in the toolbox
- Cannabis not the panacea for chronic pain
- Neuropathic pain
- Not MSK pain with mechanical pattern
- Because of expense limited potential