LUCIAN M. MACREA, 15.02.2023

BEHANDLUNG VON NEUROPATHISCHEN SCHMERZEN: DIE ROLLE VON CANNABIS – KLINISCHE UND PRAKTISCHE ASPEKTE DER MAGISTRALEN REZEPTUR

pharma DAVOS

https://pharmadavos.ch/

https://www.sgcm-sscm.ch

KEY MESSAGES

PAIN IS A COMPLEX PHENOMENA

NEUROPATHIC PAIN

CANNABIS PREPARATIONS IN CONTROLLED AND PHARMACEUTICAL QUALITY CAN BE A VALUABLE THERAPEUTIC OPTION

DOSAGE: “START LOW AND GO SLOW”

RISKS OF CANNABIS

DISCLAIMER

Mitgliedskategorien

- ☐ CH- Einzelmitglieder ausgebildet CHF 100
- ☐ CH-Einzelmitglieder in Ausbildung CHF 50
- ☐ CH-Fachgesellschaften/CH-Berufsverbände/CH- Akademien CHF 600
- ☐ CH-Industrieorganisationen CHF 3000
- ☐ CH- Patientenorganisationen CHF 300
- ☐ Ehrenmitglieder (Aufnahme nach Antrag an Vorstand) CHF 0.00
- ☐ Korrespondierende Mitglieder (Aufnahme nach Antrag an Vorstand) individuell
- ☐ Gönnerschaft/Patronat individuell

☑ RETIRED BOARD MEMBER OF THE SWISS SOCIETY OF CANNABIS IN MEDICINE

☑ TRAVEL SUPPORT FOR CONSULTING OR LECTURING FROM THE FOLLOWING COMPANIES: ALMIRALL AG, 8304 WALLISELLEN; BOSTON SCIENTIFIC AG, SOLOTHURN, SWITZERLAND; GRÜNENTHAL PHARMA SCHWEIZ, MITLÖDI; SWIT- ZERLAND; MEDTRONIC, BERN, SWITZERLAND; ; MUNDIPHARMA MEDICAL. COMPANY, BASEL, SWITZERLAND; NEVRO MEDICAL LLC REINACH; ST. JUDE MEDICAL AG, ZURICH.

https://www.sgcm-sscm.ch/

Burden of disease /& Pain

Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017

*GBD 2017 Disease and Injury Incidence and Prevalence Collaborators**

Summary

Background The Global Burden of Diseases, Injuries, and Risk Factors Study 2017 (GBD 2017) includes a

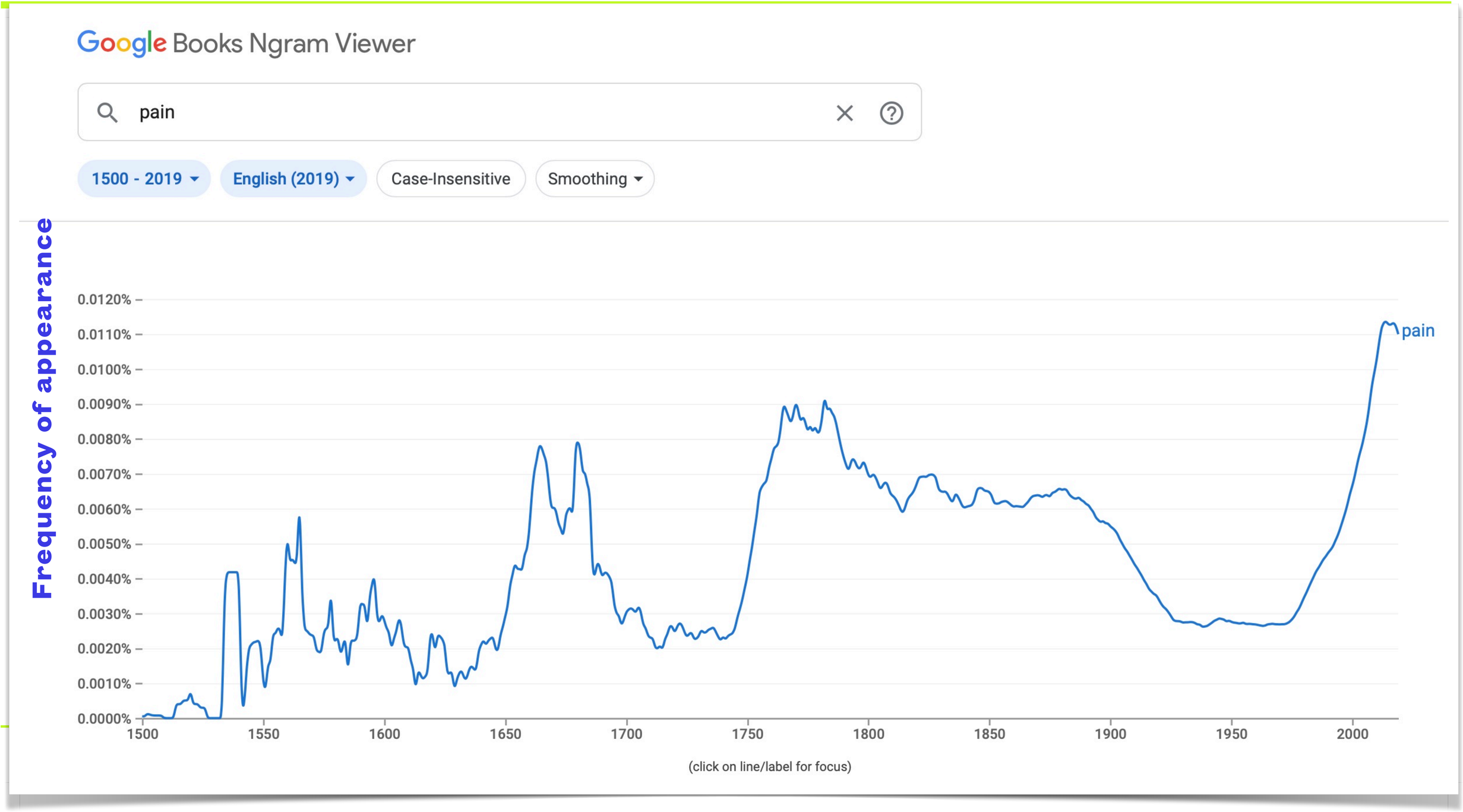
Lancet 2018; 392: 1789–858

Males

Leading causes 1990	Leading causes 2007	Mean percentage change in number of YLDs, 1990–2007	Mean percentage change in all-age YLD rate, 1990–2007	Mean percentage change in age-standardised YLD rate, 1990–2007	Leading causes 2017			
1 Low back pain	1 Low back pain	30·2	3·9	−6·8	1 Low back pain	17·8	4·6	−1·3
2 Headache disorders	2 Headache disorders	34·1	7·0	1·1	2 Headache disorders	15·5	2·6	1·5
3 Dietary iron deficiency	3 Diabetes	79·0	42·9	21·9	3 Diabetes	30·1	15·5	4·2
4 Depressive disorders	4 Depressive disorders	35·5	8·1	−0·1	4 Age-related hearing loss	24·2	10·2	−0·7
5 Age-related hearing loss	5 Age-related hearing loss	44·0	14·9	−0·1	5 Depressive disorders	14·8	1·9	−1·9
6 Diabetes	6 Neonatal disorders	51·5	20·9	27·3	6 Neonatal disorders	22·1	8·4	11·4
7 COPD	7 Dietary iron deficiency	−1·1	−21·1	−15·1	7 Drug use disorders	21·5	7·9	7·9
8 Drug use disorders	8 COPD	32·6	5·8	−9·5	8 Blindness and vision impairment	23·6	9·7	−1·5
9 Blindness and vision impairment	9 Drug use disorders	34·8	7·6	4·5	9 COPD	17·9	4·7	−8·2
10 Other musculoskeletal	10 Blindness and vision impairment	36·2	8·7	−5·3	10 Other musculoskeletal	16·4	3·3	−2·9
11 Neonatal disorders	11 Other musculoskeletal	41·5	12·9	1·0	11 Neck pain	22·3	8·5	0·4
12 Neck pain	12 Neck pain	42·6	13·8	−0·9	12 Dietary iron deficiency	−5·6	−16·2	−13·7
13 Anxiety disorders	13 Anxiety disorders	31·2	4·7	0·1	13 Anxiety disorders	13·6	0·8	0·0
14 Falls	14 Falls	23·1	−1·7	−11·4	14 Falls	25·0	11·0	3·1
15 Vitamin A deficiency	15 Alcohol use disorders	39·2	11·1	3·8	15 Stroke	46·0	29·6	13·1
16 Alcohol use disorders	16 Oral disorders	38·7	10·8	−2·4	16 Oral disorders	20·5	7·0	−1·8
17 Congenital anomalies	17 Congenital anomalies	22·5	−2·2	−0·5	17 Alcohol use disorders	7·9	−4·2	−6·3
18 Oral disorders	18 Stroke	44·4	15·3	−2·4	18 Other mental disorders	17·2	4·1	−0·1
19 Other mental disorders	19 Other mental disorders	36·8	9·2	−0·2	19 Schizophrenia	16·7	3·6	−0·4
20 Schizophrenia	20 Schizophrenia	37·7	9·9	−0·1	20 Congenital anomalies	12·0	−0·6	0·3
21 Stroke	24 Vitamin A deficiency				30 Vitamin A deficiency			

Communicable, maternal, neonatal, and nutritional diseases
Non-communicable diseases
Injuries

YLDs=years lived with disability.


Google Books Ngram Viewer
pain
1500 - 2019
English (2019)
Case-Insensitive
Smoothing
Frequency of appearance
0.0120%
0.0110%
0.0100%
0.0090%
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2000
pain
(click on line/label for focus)

COVID-19 Information

Public health information (CDC) | Research information (NIH) | SARS-CoV-2 data (NCBI) | Prevention and treatment information (HHS) | Español

National Library of Medicine
National Center for Biotechnology Information

Log in

PubMed.gov

covid-19

Search

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MY NCBI FILTERS

176,968 results

RESULTS BY YEAR

TEXT AVAILABILITY

- Abstract
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Use COVID-19 filters from PubMed Clinical Queries to refine your search

Treatment Mechanism Transmission More filters

See more SARS-CoV-2 literature, sequence, and clinical content from NCBI

1

Cite

Share

Correlation Between Clinical and Pathological Findings of Liver Injury in 27 Patients With Lethal **COVID-19** Infections in Brazil.

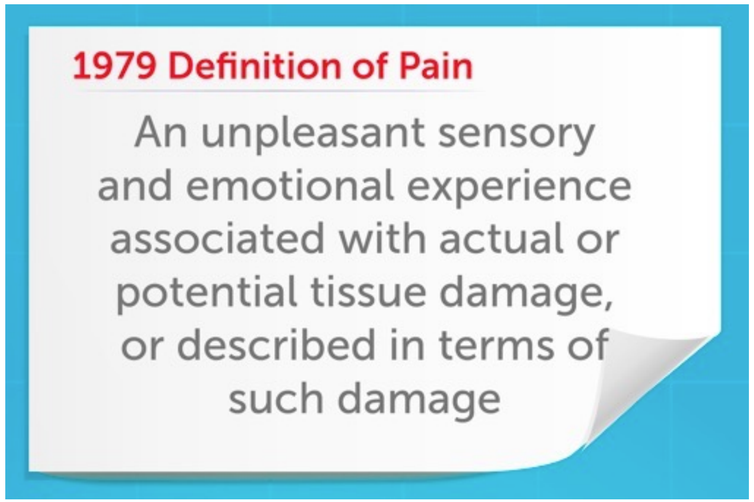
Santana MF, Guerra MT, Hundt MA, Ciarleglio MM, Pinto RAA, Dutra BG, Xavier MS, Lacerda MVG, Ferreira AJ, Wanderley DC, Borges do Nascimento IJ, Araújo RFA, Pinheiro SVB, Araújo SA, Leite MF, Ferreira LCL, Nathanson MH, Vieira Teixeira Vidigal P.

Hepatol Commun. 2021 Aug 31. doi: 10.1002/hep4.1820. Online ahead of print.

Content

- **Medical Pain definition**
- Neurobiology of pain
- Cannabis Evidence Risks and Hazard
- Pain Treatments
- Treatment in CH/Personal experience

Pain Definition



- Schmerz ist ein unangenehmes Sinnes- und Gefühlserlebnis, das mit einer tatsächlichen oder drohenden Gewebeschädigung verknüpft ist oder mit Begriffen einer solchen Schädigung beschrieben wird. 🇩🇪
- Une expérience sensorielle et émotionnelle désagréable associée ou ressemblant à celle associée à une lésion tissulaire réelle ou potentielle 🇫🇷

HTTPS://WWW.IASP-PAIN.ORG/RESOURCES/TERMINOLOGY/#PAIN

Pain Types

Table 1

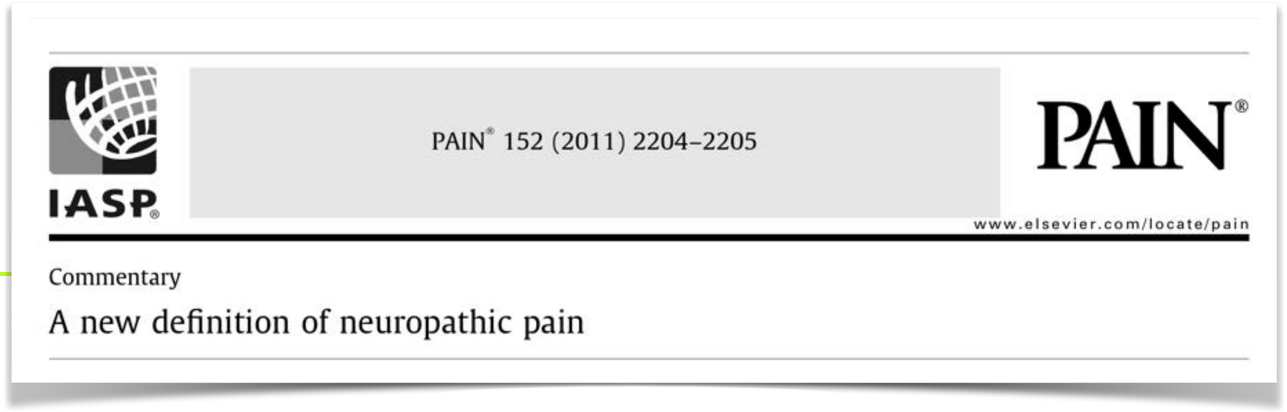
Historical overview of mechanistic pain terminology.

	Nociceptive	Neuropathic
1994*	Not defined	Pain initiated or caused by a primary lesion or dysfunction in the nervous system
2005*	Pain due to stimulation of primary nociceptive nerve endings	Pain due to lesion or dysfunction of the nervous system
2007-2010	Pain due to activation of primary nociceptors Pain arising from activation of nociceptors Pain resulting from noxious stimulation of normal tissue with a normal somatosensory nervous system	
2011*	Pain that arises from actual or threatened damage to non-neural tissue and is due to the activation of nociceptors	Pain caused by a lesion or disease of the somatosensory nervous system

* Adopted by IASP council in those years.

Neuropatic pain - Definition

- Pain caused by a lesion or disease of the somatosensory nervous system.
- lesion is commonly used when diagnostic investigations (e.g. imaging, neurophysiology, biopsies, lab tests) reveal an abnormality or when there was obvious trauma.
- disease is commonly used when the underlying cause of the lesion is known (e.g. stroke, vasculitis, diabetes mellitus, genetic abnormality)
- Somatosensory refers to information about the body per se including visceral organs, rather than information about the external world (e.g., vision, hearing, or olfaction).



Epidemiology

of neuropathic pain

- 8% der Bevölkerung (9.3% für Diabetes) mit neuropathische Schmerzen

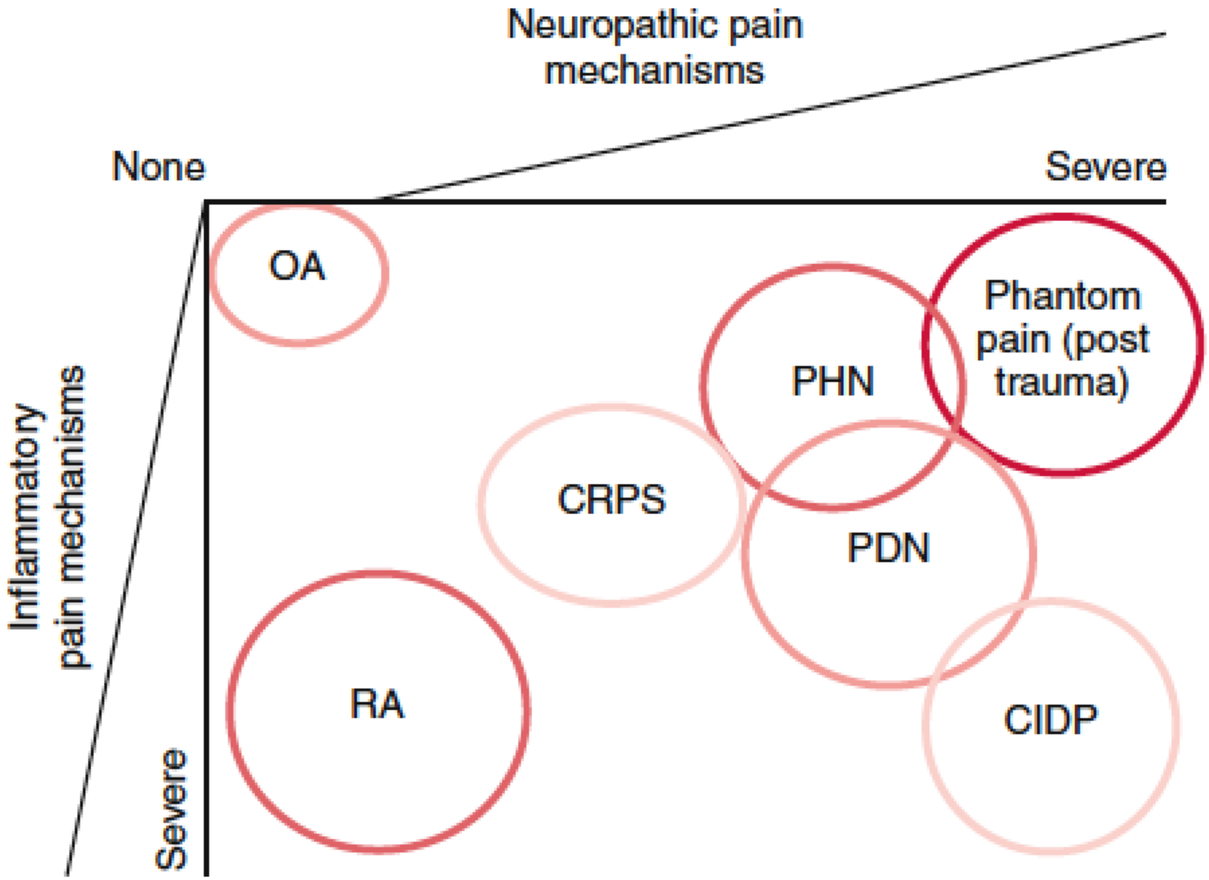


Figure 6–1. Spectrum of pathophysiologic mechanisms, neuropathic and inflammatory, and their influence on common painful disorders. CIDP, chronic inflammatory diabetic polyneuropathy; CRPS, complex regional pain syndrome; OA, osteoarthritis; PDN, painful diabetic neuropathy; PHN, postherpetic neuralgia; RA, rheumatoid arthritis.

Pathophysiology

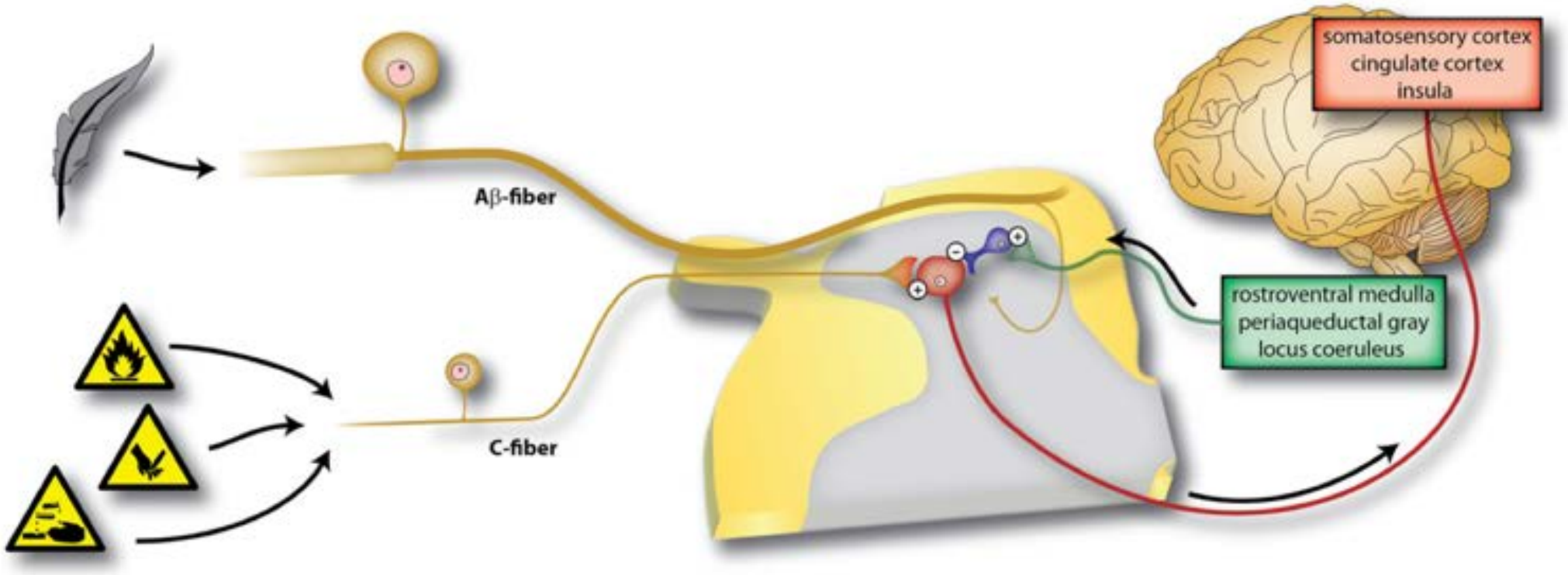


Figure 1. The Nociceptive Pain Circuit
High-threshold nociceptors are activated by intense mechanical, thermal, or chemical stimuli and feed this information to nociceptive neurons in the spinal cord, which project via the thalamus to cortical areas generating the sensory and emotional qualities of pain. These spinal cord pathways are subject to descending inhibitory and facilitatory influences from the brainstem. Normally, activity in low-threshold afferents is carried by independent peripheral and central pathways and only generates innocuous sensations.

HEHN 2012

Nociplastic Pain

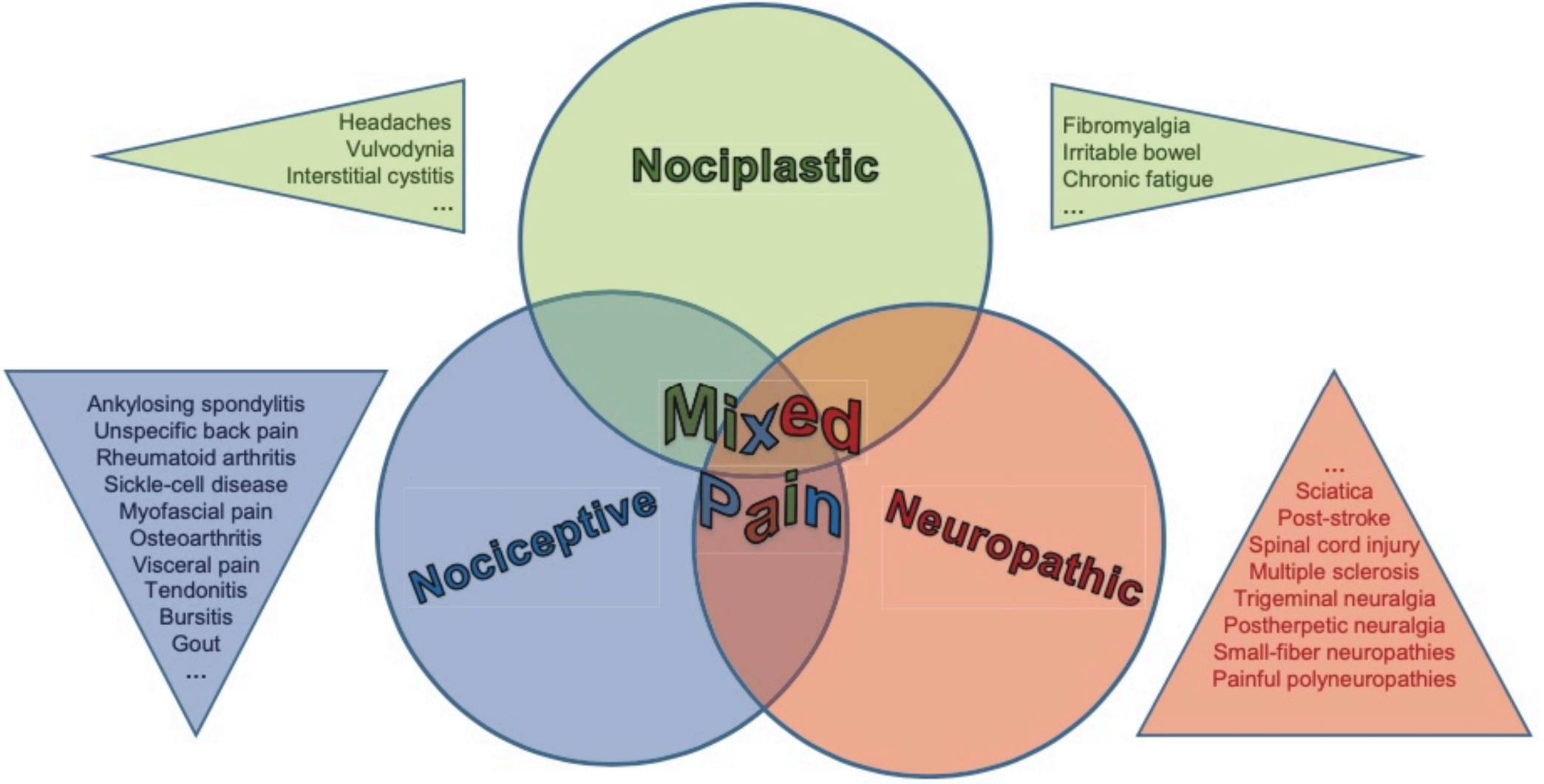
- **Definition:**
  - Pain that arises from altered nociception despite no clear evidence of actual or threatened tissue damage causing the activation of peripheral nociceptors or evidence for disease or lesion of the somatosensory system causing the pain.

    https://www.iasp-pain.org/resources/terminology/#pain

  - Pain that arises from altered nociceptive function.
    - **IF** ➡️ there is **no clear evidence of actual or threatened tissue damage** causing the activation of peripheral nociceptors
    - **AND** ➡️ there is **no evidence for disease or lesion of the somatosensory system** causing the pain
    - THEN ⏩ the pain is nociplastic **IF, AND ONLY IF**, it arises from ***altered nociception.***

Potential mixed pain states

Sciatica, Low back pain, Neck pain, Cancer pain, Osteoathritis pain, Chronic postsurgical pain, Musculoskeletal disorders, Chronic Temporomandibular disorders, Lumbar spinal stenosis, Pain in Fabry Disease, Chronic joint pain, Painful ankylosing spondylitis, Leprosy, Burning mouth syndrome, ...



Chronic Primary Pain - Definition

- Chronic primary pain is chronic pain in:
  - one or more anatomical regions
  - that persists or recurs for longer than 3 months,
  - and that is characterized by significant emotional distress (anxiety, anger/frustration or depressed mood) or
  - functional disability (interference in daily life activities and reduced participation in social roles)
- is multifactorial: biological psychological and social factors contribute to the pain syndrome.

HTTPS://WWW.IASP-PAIN.ORG/ADVOCACY/DEFINITIONS-OF-CHRONIC-PAIN-SYNDROMES/

Chronic Primary Pain - Diagnostic criteria

Conditions A to C are fulfilled

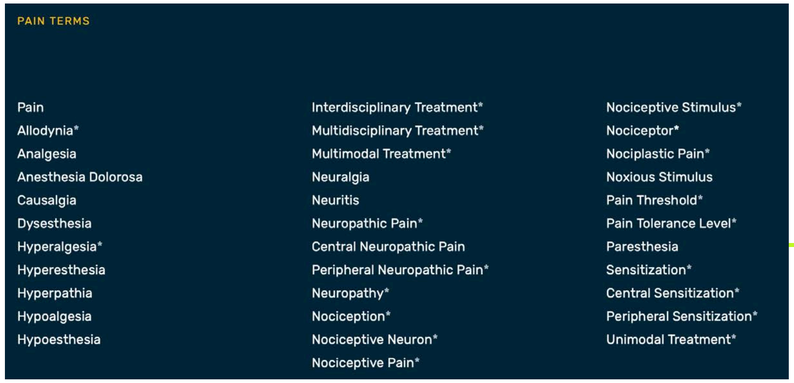
A. Chronic pain (persistent or recurrent for longer than 3 months) is present

B. The pain is associated with at least one of the following:

B.1. Emotional distress due to pain is present.

B.2. The pain interferes with daily life activities and social participation.

C. The pain is not better accounted for by another chronic pain condition.



Nicholas et al., 2019

HTTPS://WWW.IASP-PAIN.ORG/ADVOCACY/DEFINITIONS-OF-CHRONIC-PAIN-SYNDROMES/

Advantages for GP/Pharmacist - red flags

Narrative Review

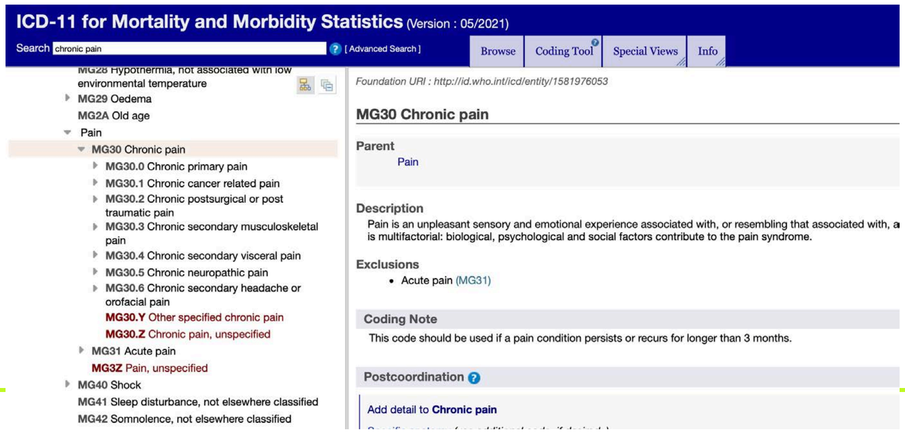
PAIN

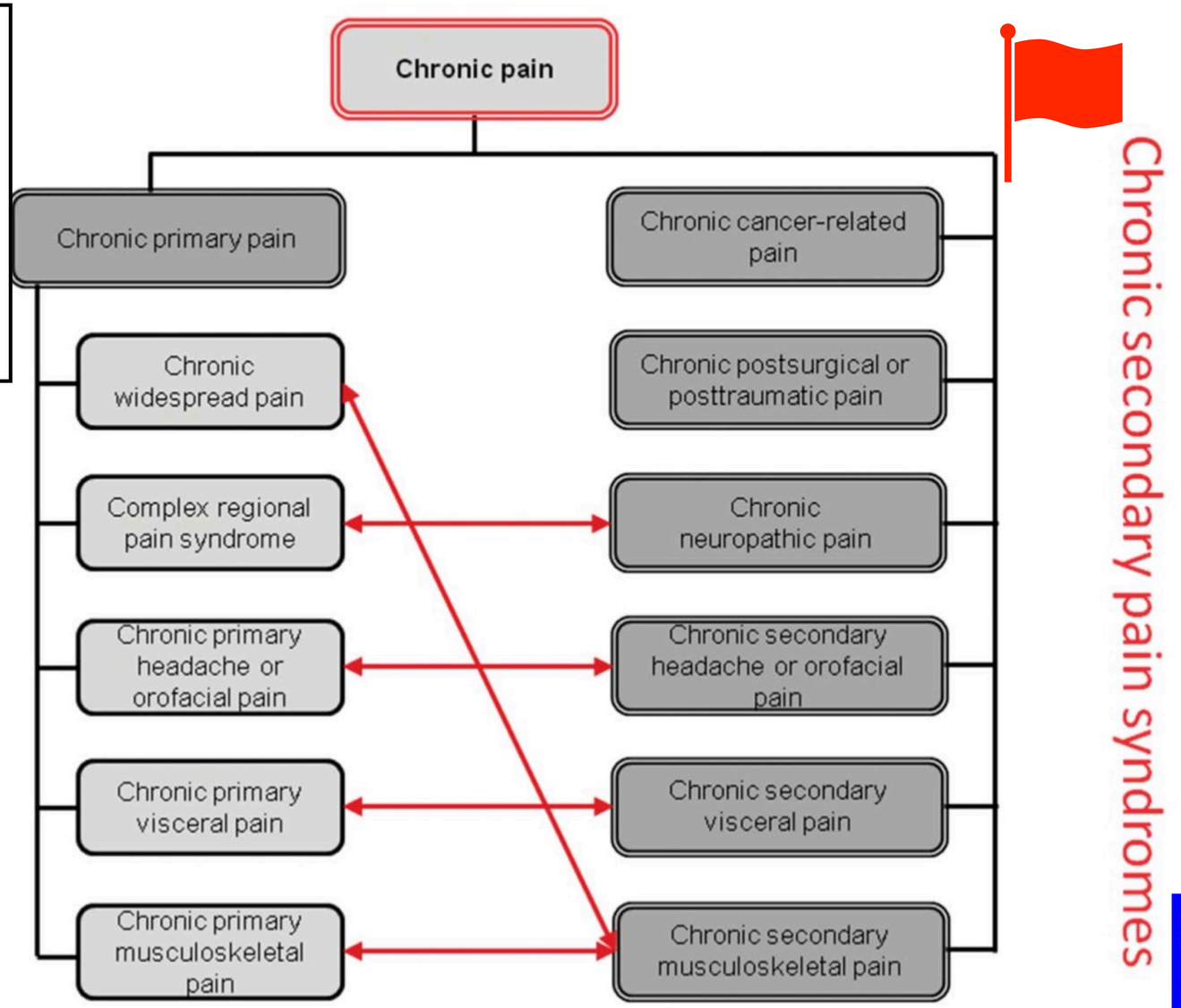
ICD-11

Chronic pain as a symptom or a disease: the IASP Classification of Chronic Pain for the *International Classification of Diseases* (*ICD-11*)

Rolf-Detlef Treede[a,*], Winfried Rief[b], Antonia Barke[b], Qasim Aziz[c], Michael I. Bennett[d], Rafael Benoliel[e], Milton Cohen[f], Stefan Evers[g], Nanna B. Finnerup[h,i], Michael B. First[j], Maria Adele Giamberardino[k], Stein Kaasa[l,m,n], Beatrice Korwisi[b], Eva Kosek[o], Patricia Lavand'homme[p], Michael Nicholas[q], Serge Perrot[r], Joachim Scholz[s], Stephan Schug[t,u], Blair H. Smith[v], Peter Svensson[w,x], Johan W.S. Vlaeyen[y,z,aa], Shuu-Jiun Wang[bb,cc]

- 7 diagnostic groups





HTTPS://ICD.WHO.INT/BROWSE11/L-M/EN#/HTTP://ID.WHO.INT/ICD/ENTITY/1581976053

ICD-11 MMS International Classification of Diseases for Mortality and Morbidity Statistics

Content

- Medical Pain definition
- **Neurobiology of pain**
- Cannabis Evidence Risks and Hazard
- Pain Treatments
- Treatment in CH/Personal experience

I. Definition

HISTOIRE

Platon et Aristote
La douleur est une «Passion de l'âme »
(une émotion)

17° siècle

René Descartes

(une sensation)

les particules de ce feu qui comme on le sait peuvent se mobiliser à grande vitesse, ont le pouvoir de mobiliser le point de la peau qu'elles touchent…….

II. Anatomie of nociception (acute)

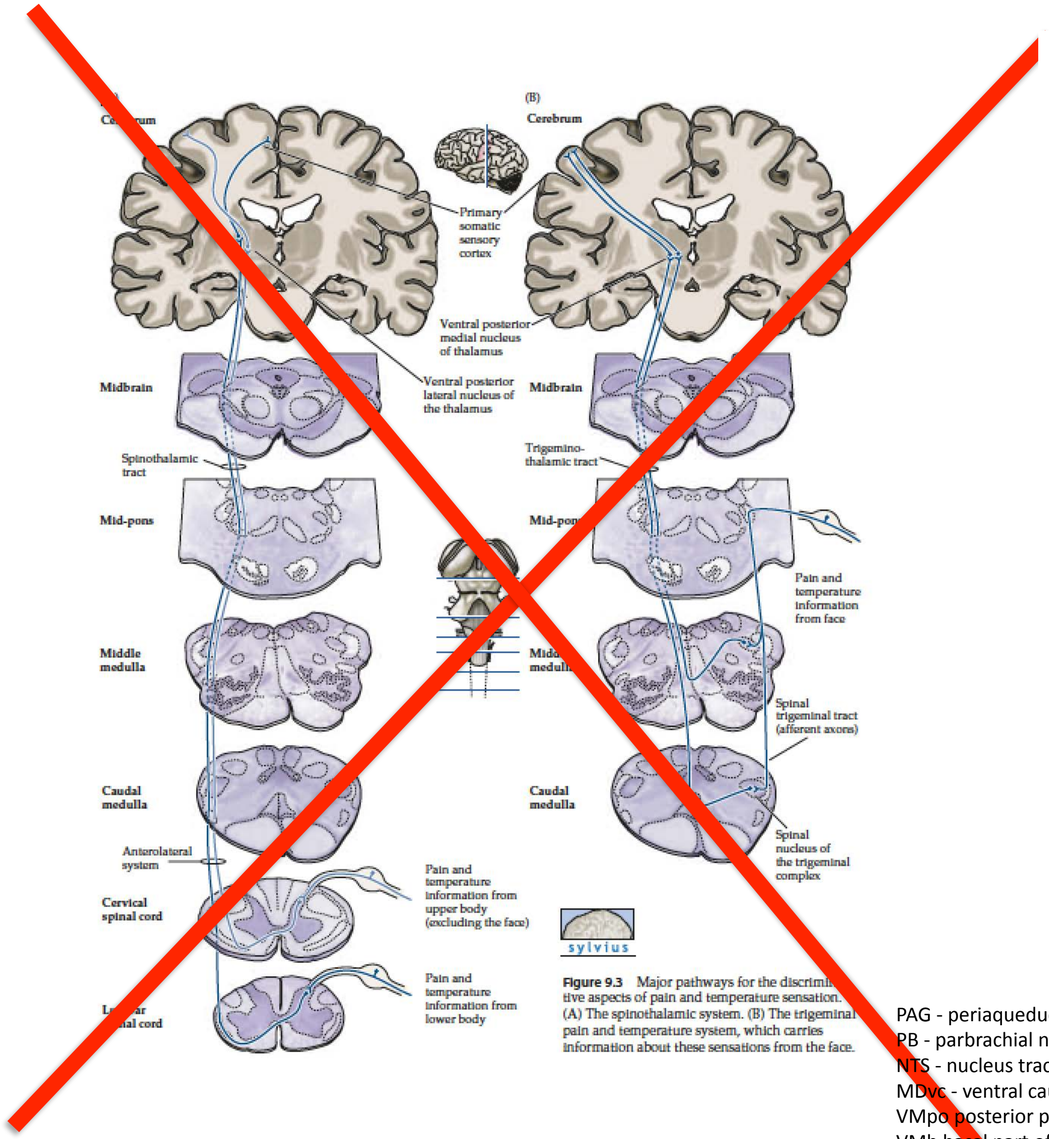
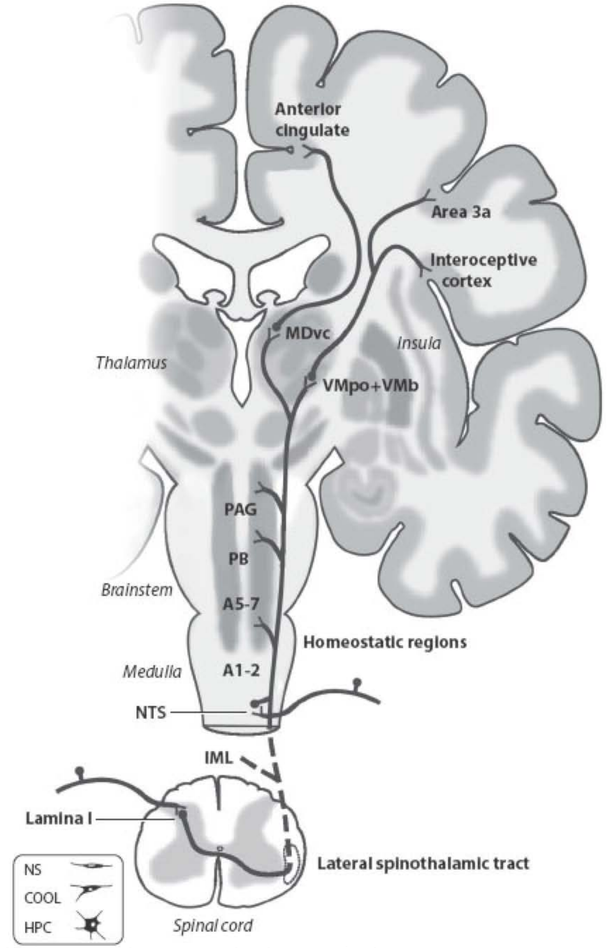


Figure 9.3 Major pathways for the discrimi tive aspects of pain and temperature sensation. (A) The spinothalamic system. (B) The trigeminal pain and temperature system, which carries information about these sensations from the face.

≠ Pain
corresponds to nociception

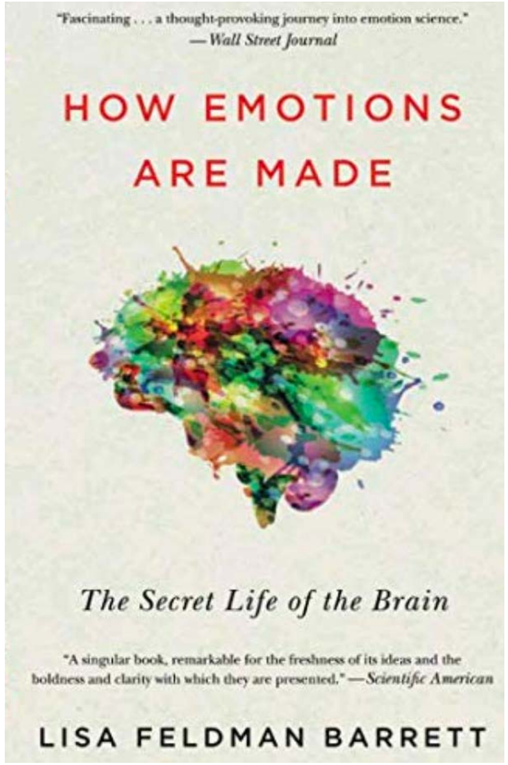


PAG - periaqueductal gray; major homeostatic motor region in upper brainstem
PB - parbrachial nucleus, major homeostatic sensory region in mi d/upper brain
NTS - nucleus tractus solitarius
MDvc - ventral caudal part of the medial dorsal nucleus of the thalamus
VMpo posterior part of the ventral medial nucleus of the thalamus
VMb basal part of the ventral medial nucleus of the thalamus
IML - intermediolateral cell column; lateral horn T1-T4 spinal segments; contains sympathetic preganglionic motro output neurons
NS - nocicieptive specific lamina I neuron.
COOL cooling-sensitive thermoreceptive specific lamina I neuron
HPS - Heat, pinch and cold ; polymodal nociceptive lamina I neuron

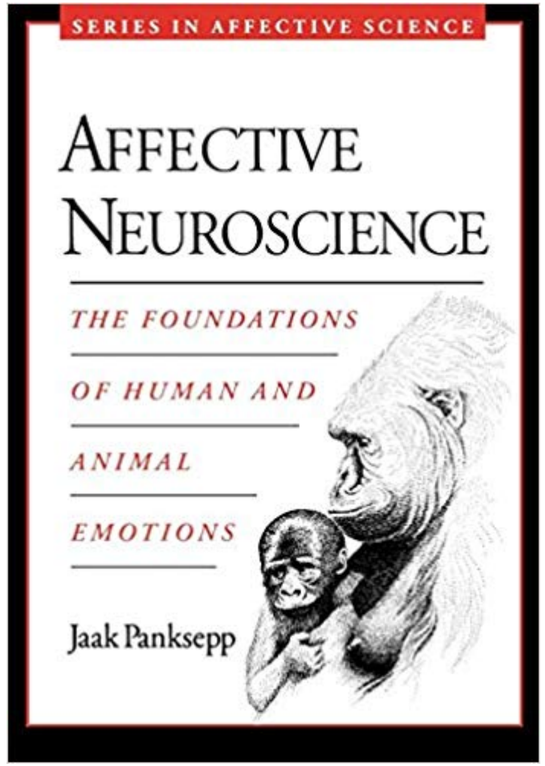
I. Definition

How Emotions are Made

a sort of pattern theory of emotions



Primal emotions of 'PLAY', 'PANIC/ GRIEF', 'FEAR', 'RAGE', 'SEEKING', 'LUST' and 'CARE'



Pattern theory

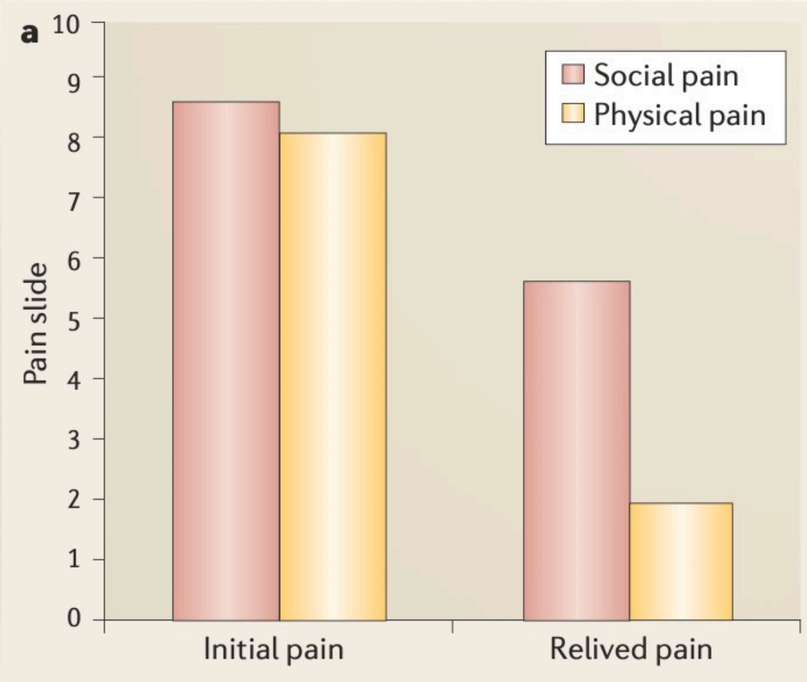
Specificity theory

Both are right!!!

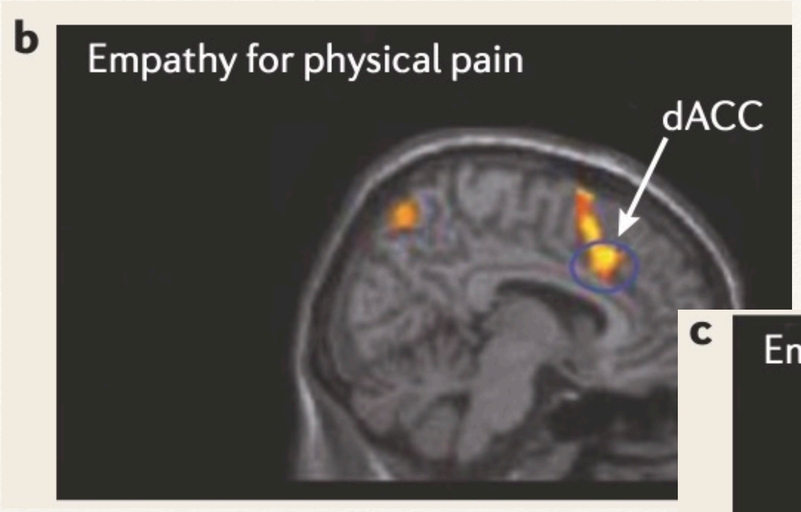
We speak of pain**s** and not of pain!!!

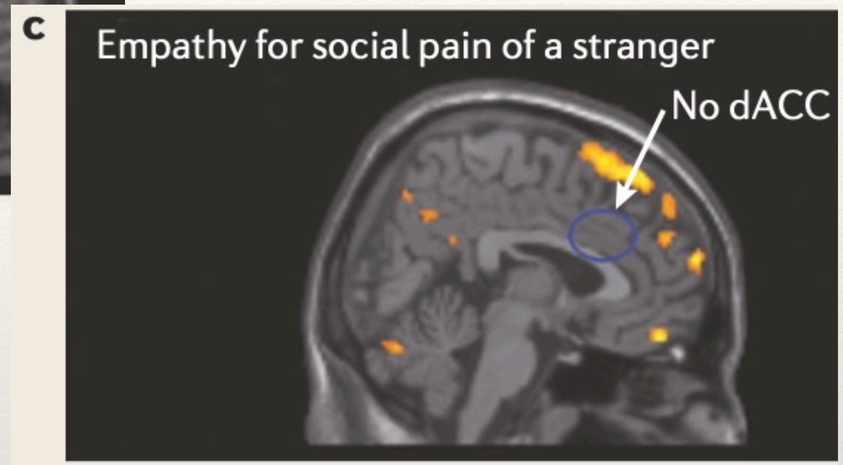
It depends on the type of pain

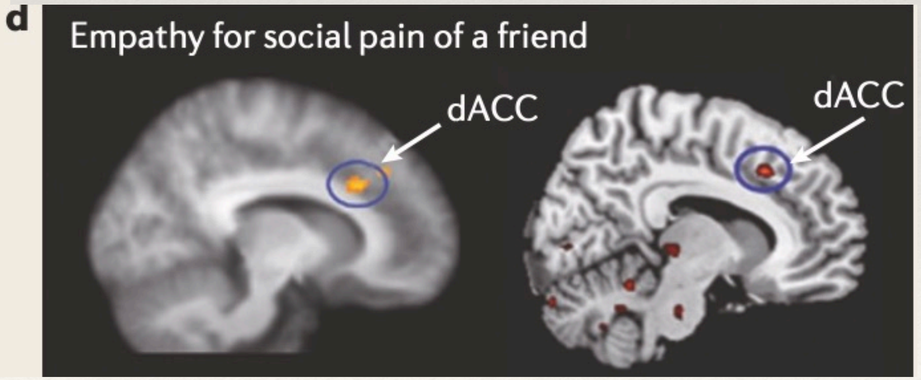
Differences between physical and social pain



observing the pain of others (empathy)



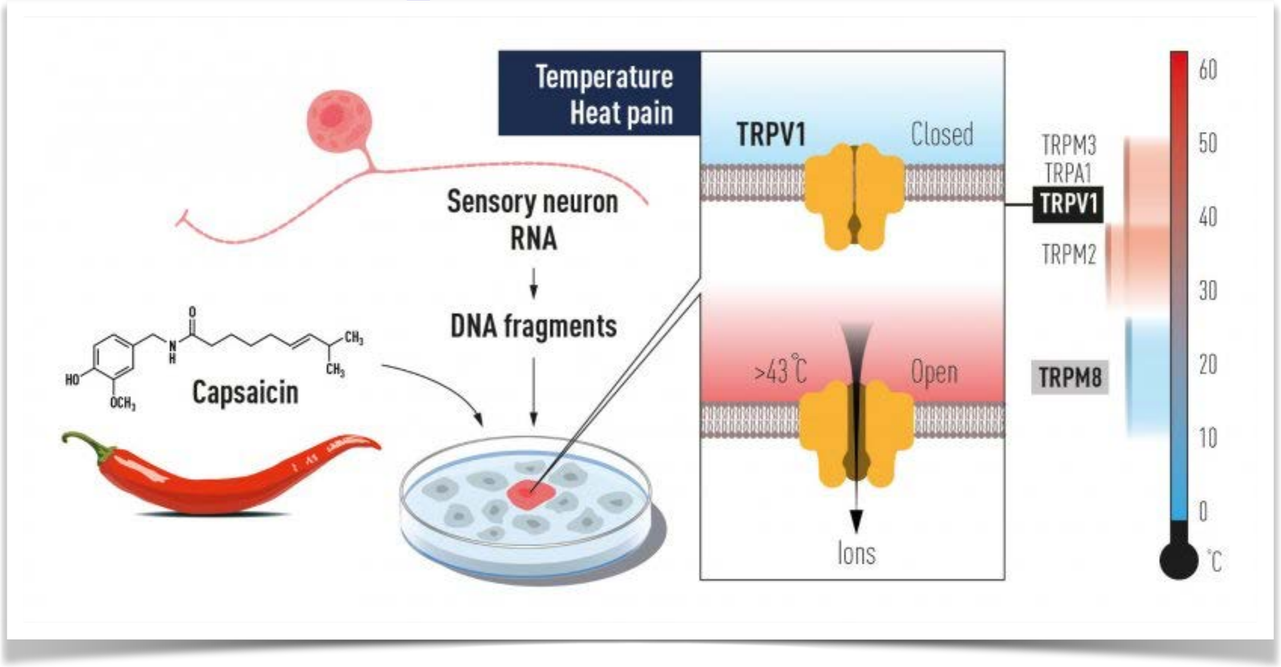


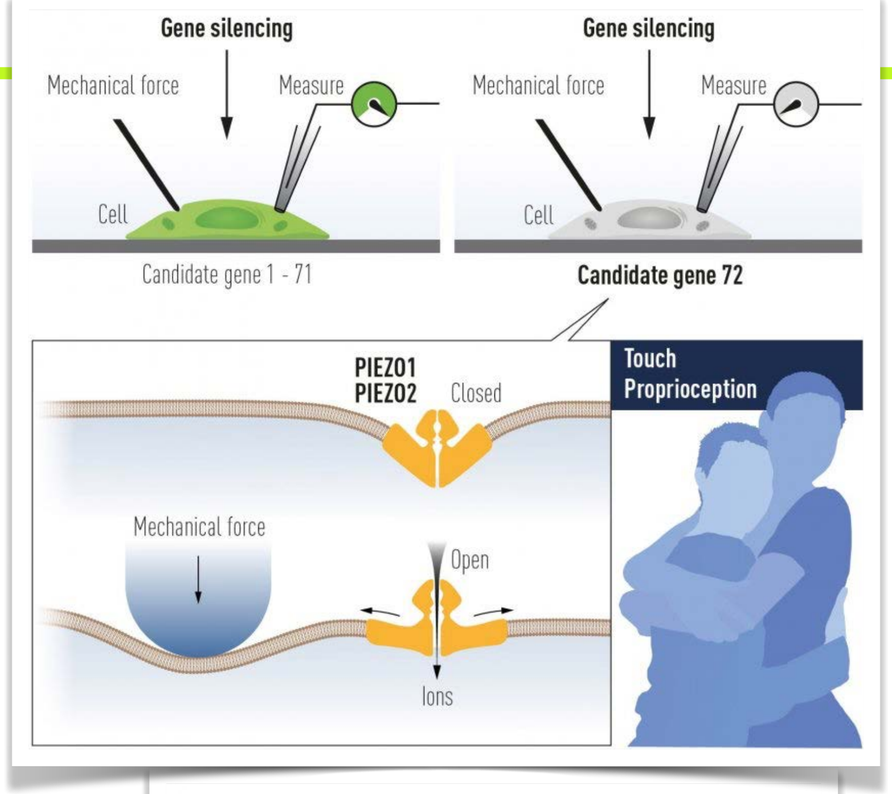


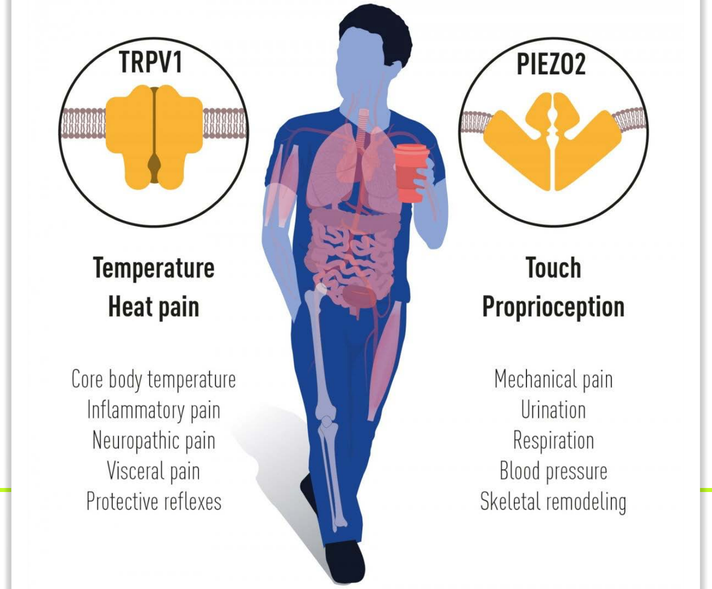
An avoidable tragedy

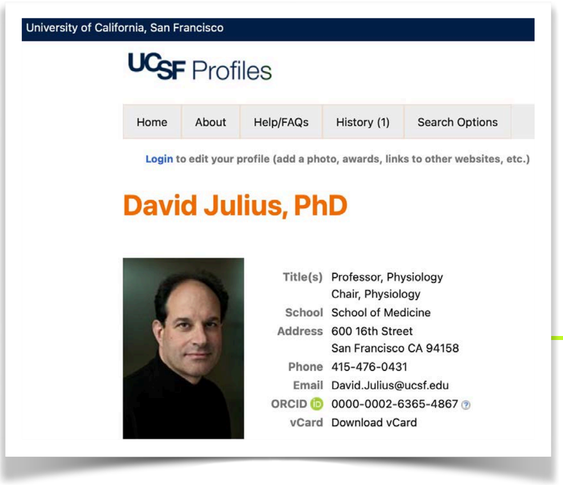
https://www.liberties.eu/en/stories/investigation-into-the-shipwreck-occurred-off-the-lampedusa-coast-on-will-not-be-dropped/13515

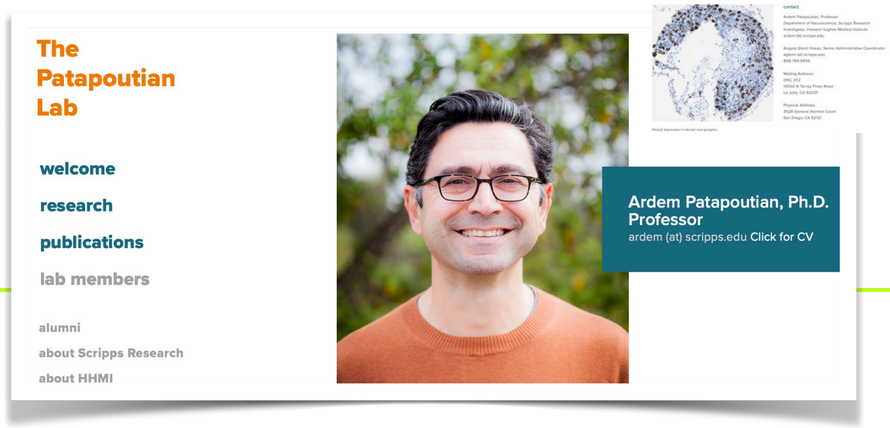
Nobelpreis 2021











Complicated

Complex

Content

- Medical Pain definition
- Neurobiology of pain
- **Cannabis Evidence Risks and Hazard**
- Pain Treatments
- Treatment in CH/Personal experience

ENDOCANNABINOID SYSTEM

- **Plants —** they do not have CBRs, nor dc endocannabinoids, yet plants ***produce e entourage compounds***, and these comp receptors
- **Insects** can synthesize ***2-AG*** despite the
- **Ticks** expressed ***endocannabinoids*** in t them elude detection by mammalian ho

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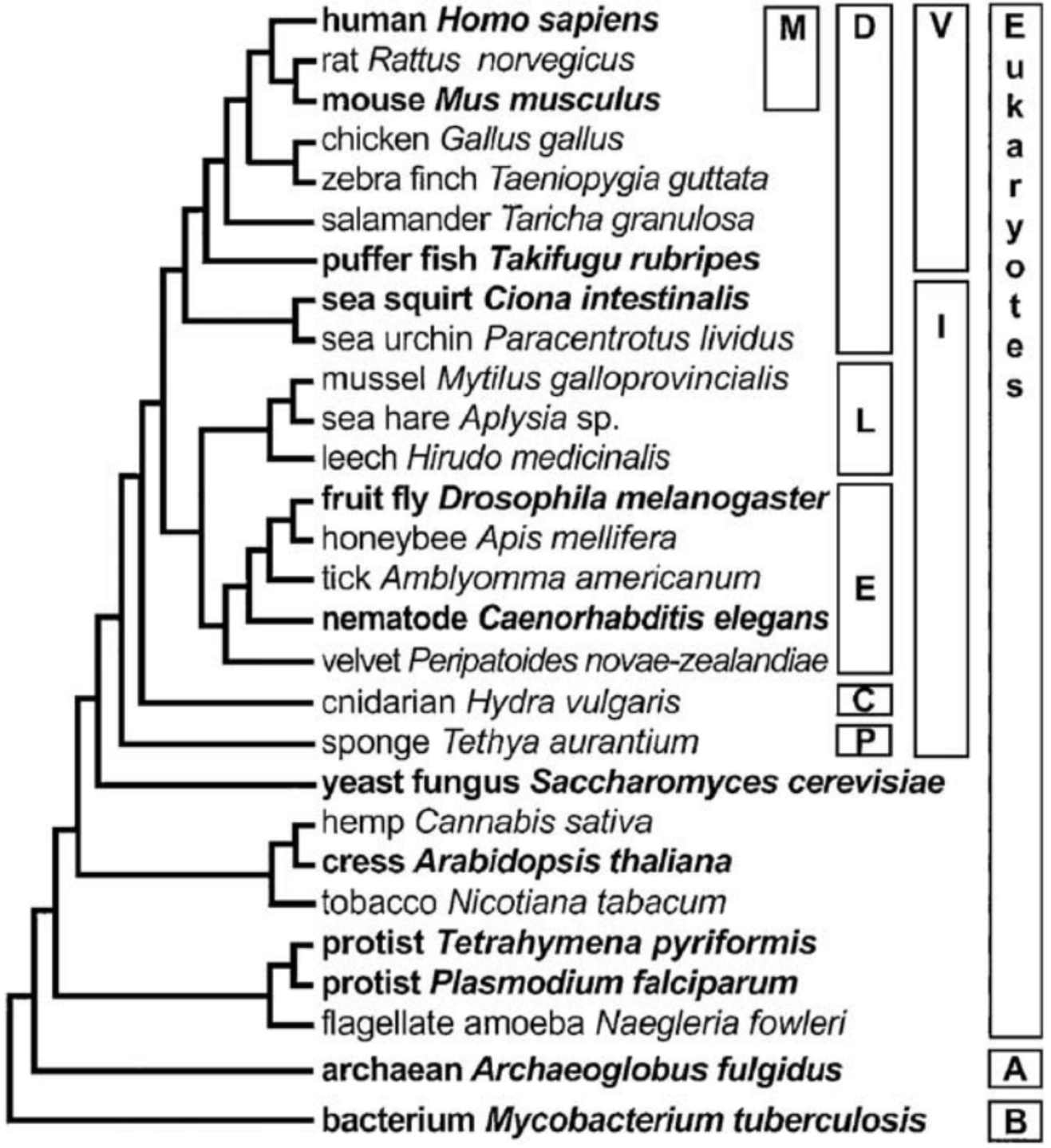
EVOLUTIONARY GENOMICS
www.elsevier.com/locate/gene

Evolutionary origins of the endocannabinoid system

John M. McPartland [a,*], Isabel Matias [b], Vincenzo DiMarzo [b], Michelle Glass [c]

[a] *GW Pharmaceuticals, 53 Washington Street Ext., Middlebury, VT, 05753, USA*
[b] *Endocannabinoid Research Group, Institute of Biomolecular Chemistry, Consiglio Nazionale delle Ricerche, Via Campi Flegrei 34, 80078 Pozzuoli (Napoli), Italy*
[c] *Department of Pharmacology, University of Auckland, Private Bag 92019, New Zealand*



PAIN

Cannabinoids, the endocannabinoid system, and pain: a review of preclinical studies

David P. Finn[a,*], Simon Haroutounian[b], Andrea G. Hohmann[c], Elliot Krane[d], Nadia Soliman[e], Andrew S.C. Rice[e]

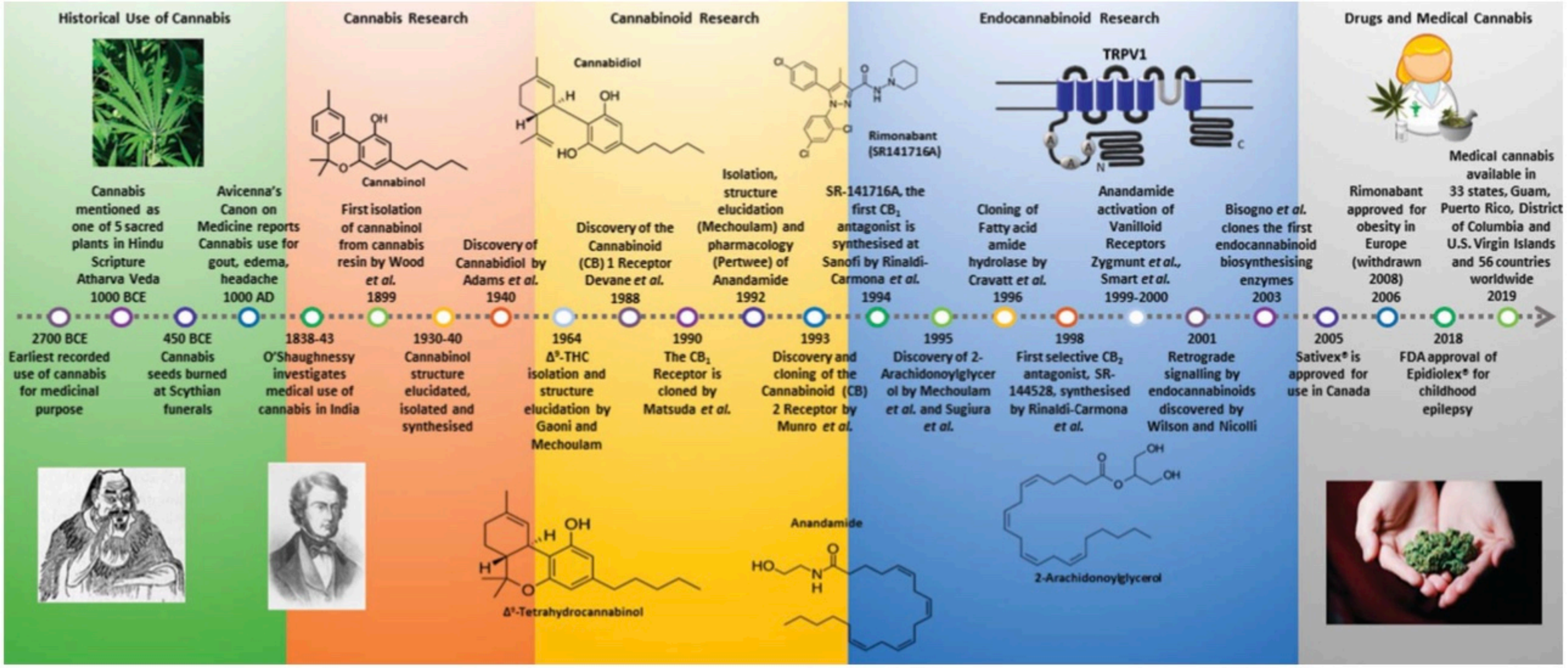


Figure 1. A historical timeline of key milestones in cannabis and cannabinoid research.

PAIN
OPEN

Systematic review and meta-analysis of cannabinoids, cannabis-based medicines, and endocannabinoid system modulators tested for antinociceptive effects in animal models of injury-related or pathological persistent pain

- meta-analysed 374 studies
- with 171 interventions for antinociceptive efficacy
- male animals (86%

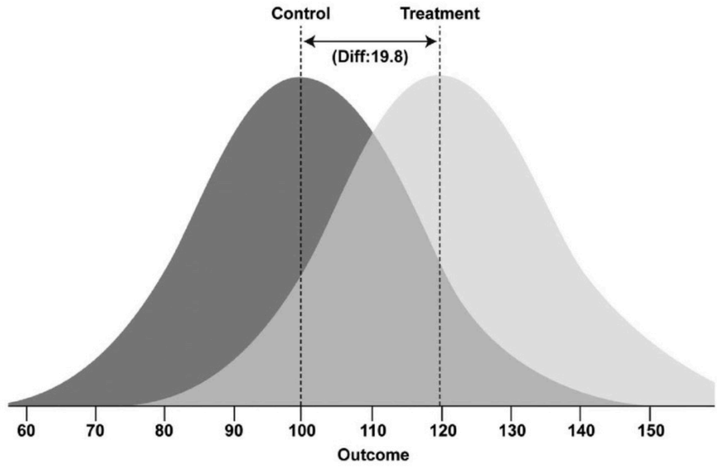


Figure 4. Visualisation of the overlap between control and treatment group distributions of the overall SMD effect size of 1.32.[34] The darker distribution curve represents the control group and the lighter distribution curve represents the treatment group. Animals within each group can fall anywhere within their respective curves, with increasing likelihood towards the peak; imagine each curve a hill of animals with single animals at the tail-ends of the distribution curve. SMD, standardised mean difference.

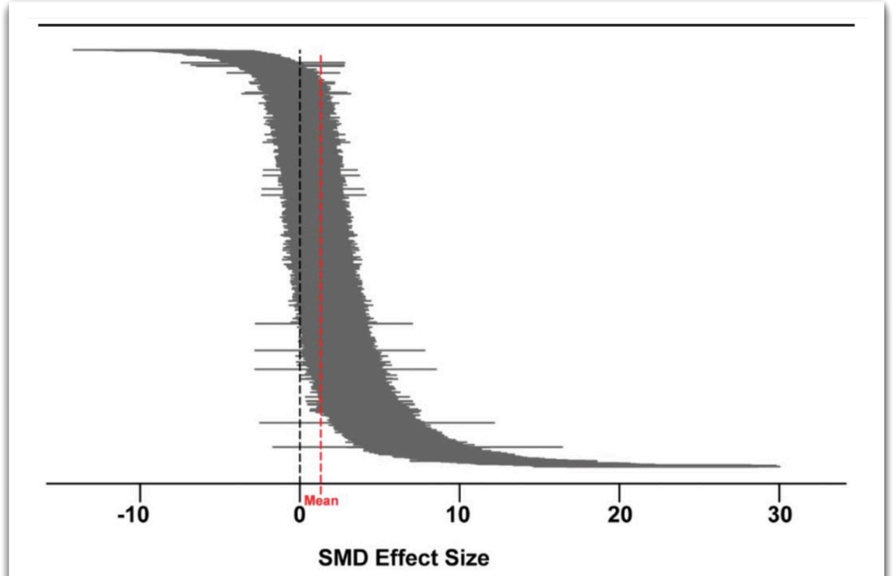
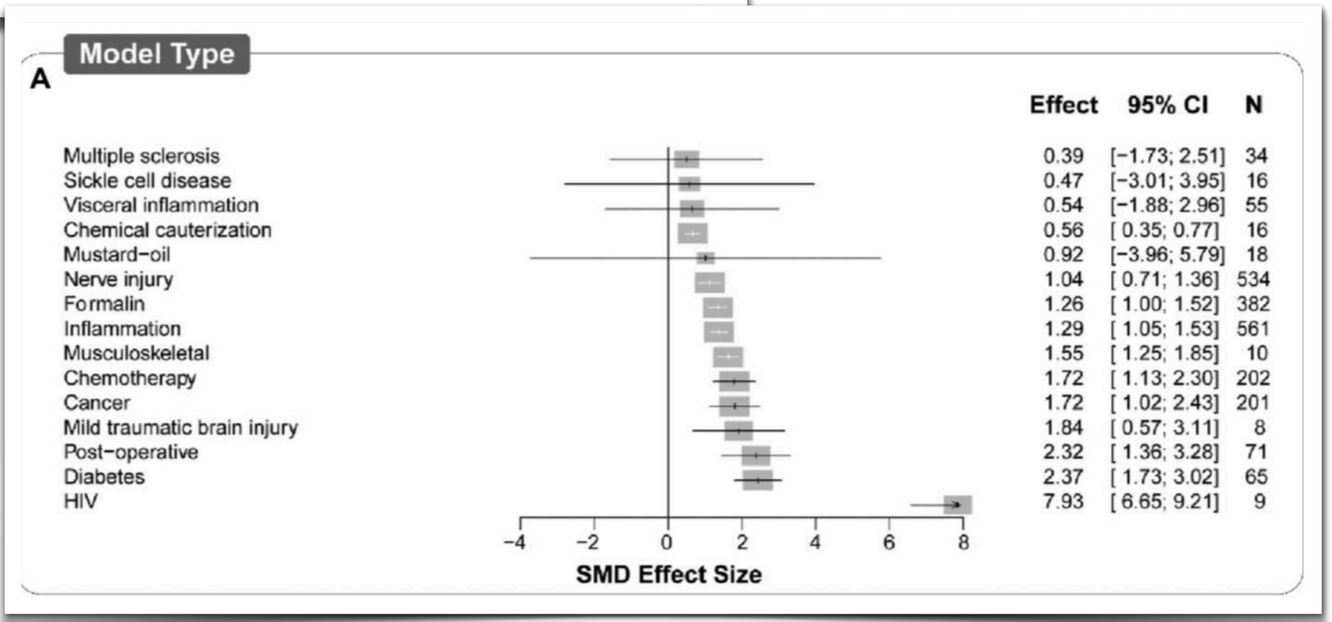
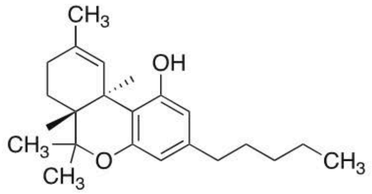


Figure 2. A caterpillar plot of the 1544 nested comparisons extracted from the 374 studies included in the meta-analysis. Hedges' g standardised mean differences (SMD) were calculated for each comparison. Effect sizes were pooled using the random-effects model and heterogeneity estimated with the restricted maximum-likelihood model (red dashed line indicates overall mean). Overall effect size = 1.321. Q = 4101.26, *df* 1543, $P < 0.0001$, $I^2 = 61.58\%$.

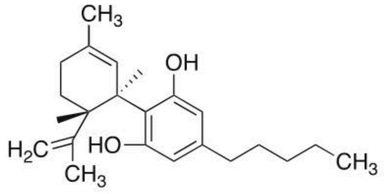


ENDOCANNABINOID SYSTEM - LIGANDS

A. Phytocannabinoids

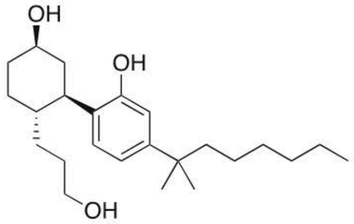


Δ^9-THC

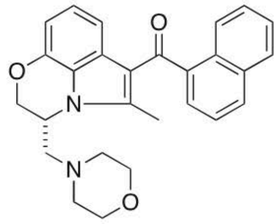


Cannabidiol

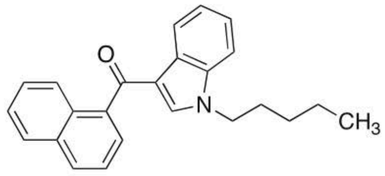
B. Synthetic Cannabinoids



CP55,940

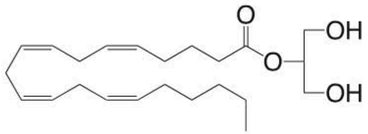


Win-55,212-2

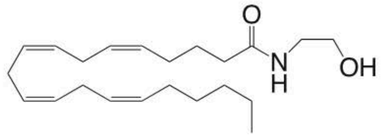


JWH018

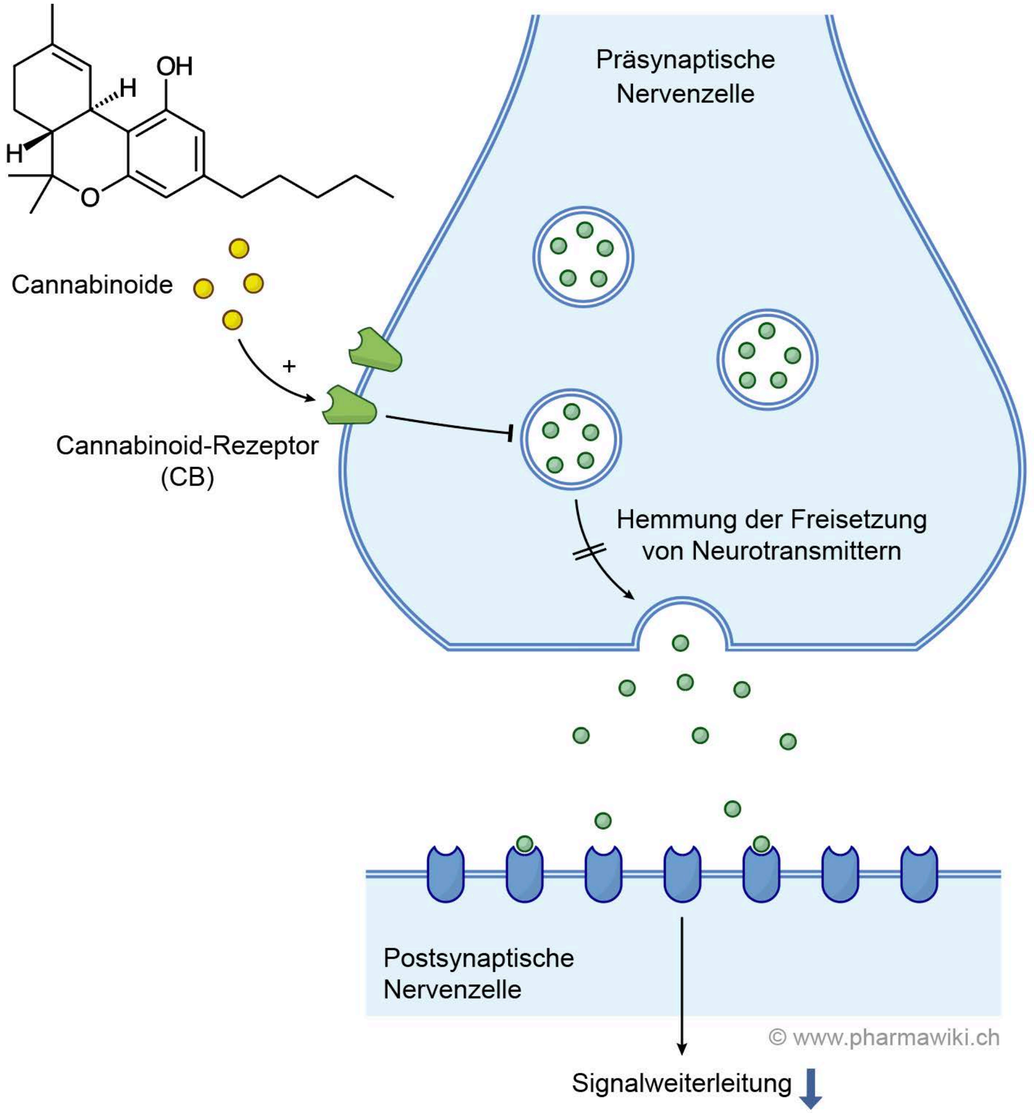
C. Endocannabinoids



2-AG

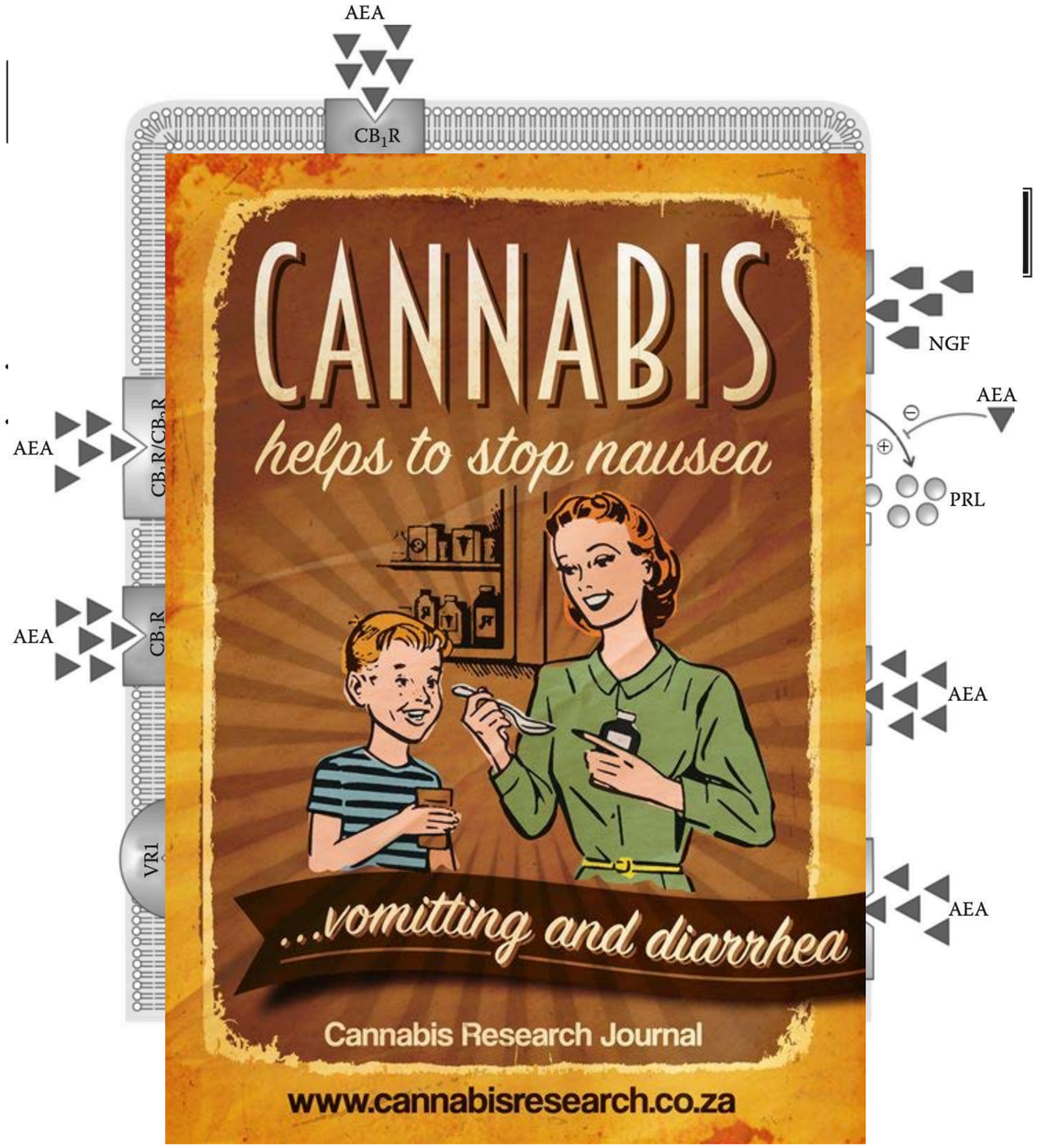


Anandamide



ENDOCANNABINOID SYSTEM IN PERIPHERAL ORGAN SYSTEMS

- **Modulation of the inflammation and immune response**
- **Involvement in Cancer**
- **Endocrine Function**
  - tonic inhibition of the HPA axis *(hypothalamic–pituitary–adrenal axis)* at the hypothalamic level - increased anxiety
  - steroid hormones corticosterone, estrogen, and progesterone modulate the expression of CB1 receptors in the hypothalamus and CNS *(Rodríguez de Fonseca et al., 1994; González et al., 2000; Paria et al., 2001)*
- **Fertilization, Pregnancy, and Development**
  - chronic heavy marijuana smokers may experience fertility problems, but this view remains controversial *(Chopra and Jandu, 1976; Smith and Asch, 1984; Mueller et al., 1990; Grotenhermen, 1999)*



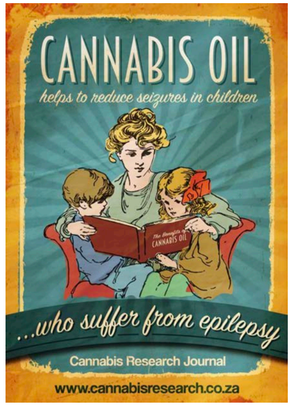
ENDOCANNABINOID SYSTEM IN PERIPHERAL ORGAN SYSTEMS

- **Gastrointestinal Function**
  - **Antimotility** effects of cannabinoids are thought to be due to **inhibition of evoked acetylcholine release, substance P**
  - 2-AG is a potent emetogen that produces vomiting
  - models of GI pathological states exhibit an overexpression of enteric intestinal cannabinoid CB1 receptors
- **Cardiovascular System**
  - Vasorelaxant effect **in Vitro**
  - **in Vivo** observed appear dependent on the prevailing conditions, e.g., the absence or presence of anesthetic

Abb. 2 Holzschnitt aus dem „New Kreüterbuch“ des Leonhardt Fuchs, 1543.

ENDOCANNABINOID SYSTEM - MODULTATION OF PAIN

- **CENTRALLY MEDIATED ANALGESIA**
  - ***Descending pain modulation network*** the rostral ventro- lateral medulla, the amygdala, and the periacqueductal gray (PAG), is densely populated with CB1 receptors
  - **ANXIETY-RELATED BEHAVIOR**
    - low doses of cannabinoid agonists usually induce an anxiolytic-like effect, whereas higher doses cause the opposite response
    - CB1 basolateral amygdala, the anterior cingulated cortex, the prefrontal cortex, and the paraventicular nucleus (PVN) of the hypothalamus *(Mailleux and Vanderhaeghen, 1992; Tsou et al., 1998)*
  - **DEPRESSION**
  - **AGGRESSIVE BEHAVIOR**
  - **APPETITE AND FEEDING BEHAVIOR**



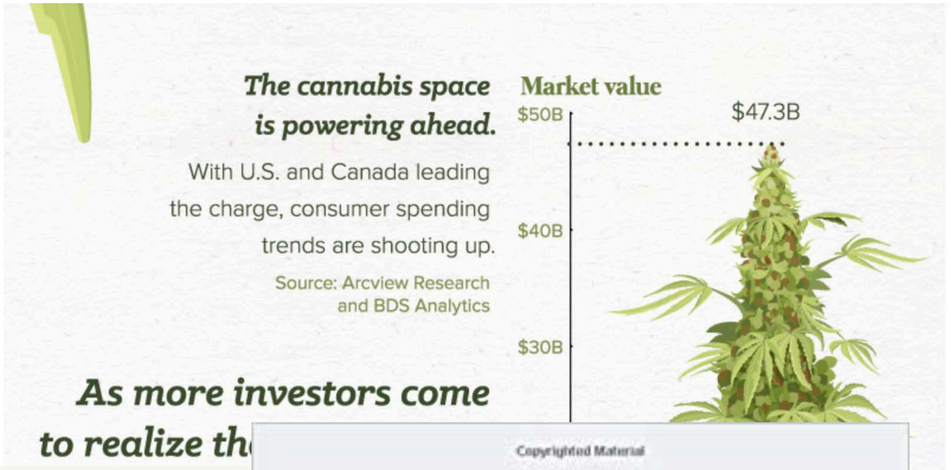
ENDOCANNABINOID SYSTEM - MODULTATION OF PAIN

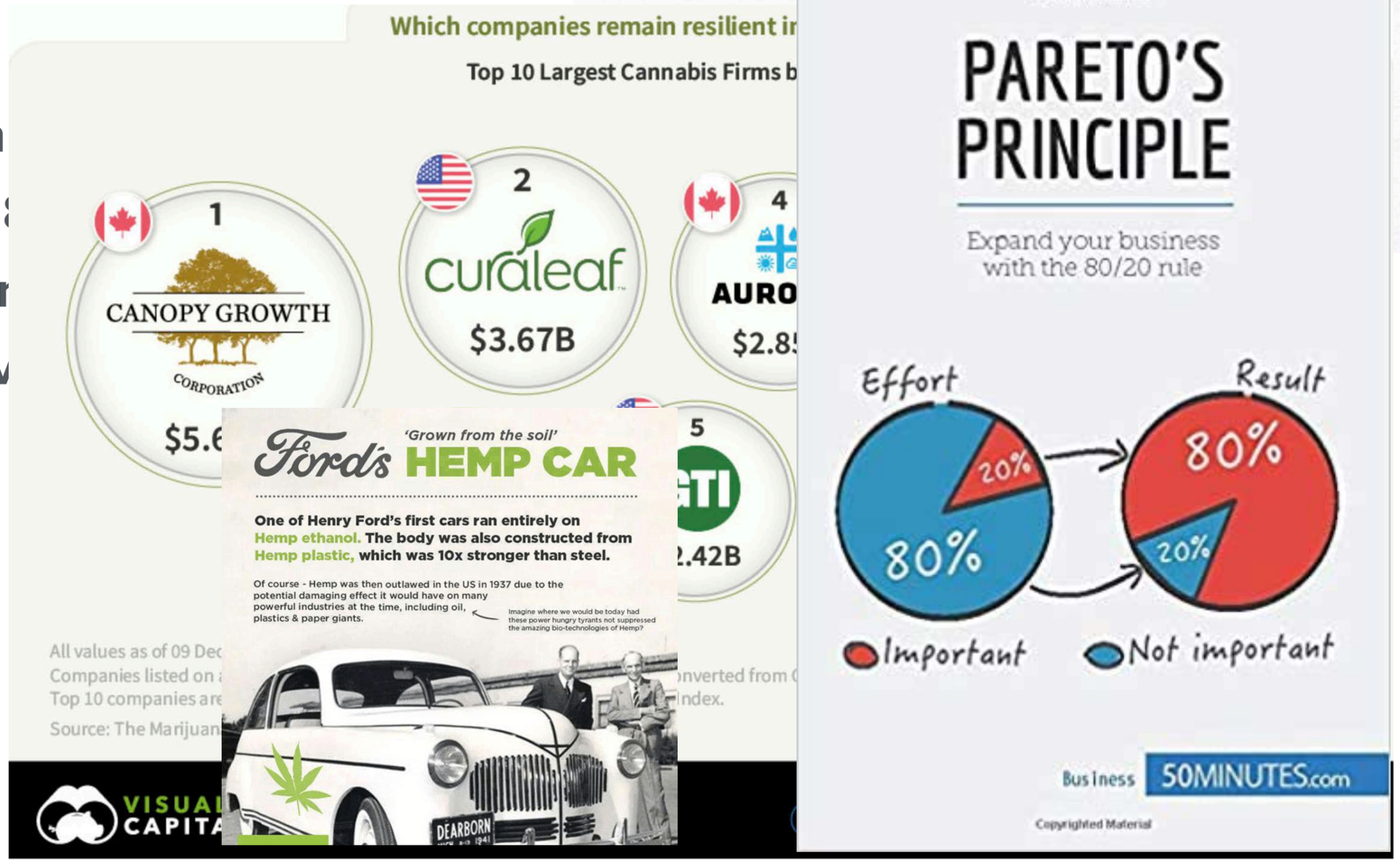
- **SPINAL ANALGESIA**
  - CB1 receptors are located on cell bodies of **primary afferent neurons** and in the laminae of the dorsal horn that are associated with nociceptive transmission.
  - CB1 receptors are colocalized, in different cell populations or **interneurons**, with a number of molecular markers like GABA, μ-opioid receptors, substance P, calcitonin-gene-related peptide (CGRP), glutamate, tyrosine kinase A (trkA), NO synthase
- **PERIPHERAL ANALGESIA**
  - **Palmitoylethanolamide (PEA) exhibits cannabinomimetic properties,** including analgesic effects, which are blocked by SR144528, a selective CB2 receptor antagonist
    - PEA attenuated the bladder hyperreflexia induced by intravesical administration of nerve growth factor (NGF)
- **STRESS-INDUCED ANALGESIA**
  - Reduction of SIA, but not of opiate- induced analgesia, has been demonstrated in mice lacking CB1 receptors *(Valverde et al., 2000)*

FINANCIAL ASPECTS

- 6 Billion products in 2016 in USA
  - == 10^9 == 1.000 Millions == 1.000.000.000

- Cannabis Industry Association
  - follow the Alcohol Industry
    - 80% of the Poduct ist cor
    - And how can they achiev





Content

- Medical Pain definition
- Neurobiology of pain
- Cannabis Evidence Risks and Hazard
- **Pain Treatments**
- Treatment in CH/Personal experience

CANNABIS & PAIN

Systematic Reviews (8)

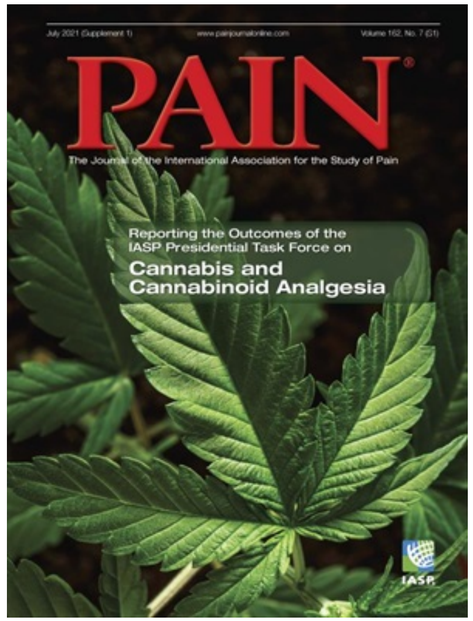
Chronischer Schmerz

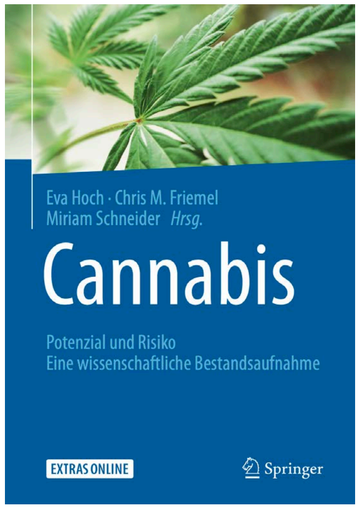
	Whiting (2015)	Petzke (2016)	Fritzcharles (2016)	Mücke (2016)	Deshpande (2015)	Jawar (2013)	Martin-Sanchez (2009)	Iskedijan (2007)
Abrams (2007)	X				X			
Berman (2004)	X	X					X	X
Berman (2006)	X							
Blake (2006)	X		X				X	
Breuer (2007)						X		
Chitsaz (2009)						X		
Corey-Bloom (2012)					X			
Cree (2010)						X		
Demster								X
Ellis (2009)	X	X			X			
Falah (2007)								
Frank (2008)	X	X						
GW Pharma-ceuticals (2005)	X							
GW Pharma-ceuticals (2012)	X							
Houtchens (1997)						X		
Johinsem (1978)							X	
Johnson (2010)	X			X				
Johnaon (2005)							X	
Karst (2003)	X							X
Kalman (2002)						X		
Killestein (2002)							X	
Langford (2013 a)	X	X						
Langford (2013 b)		X						
Lynch (2014)	X	X						
Narang (2008)	X							
NCT00391079						X		
NCT00755807						X		
NCT00710424		X						

Chronischer Schmerz

	Whiting (2015)	Petzke (2016)	Fritzcharles (2016)	Mücke (2016)	Deshpande (2015)	Jawar (2013)	Martin-Sanchez (2009)	Iskedijan (2007)
NCT01606202		X						
NCT01606176		X						
Notcutt (2004)							X	
Noyes (1975a)	X						X	
Noyes (1975b)							X	
Nurmikko (2007)	X	X					X	
Panitch et al. (2006)						X		
Pinsger (2006)	X		X				X	
Portenoy (2012)	X			X				
Rog (2005)	X	X				X	X	X
Selvarajah (2010)	X	X				X		
Solaro (2007)						X		
Solaro (2009)						X		
Rossi (2009)						X		
Serpell (2014)	X	X						
Skrabek (2008)	X		X				X	
Staquet (1978a)							X	
Staquet (1978b)							X	
Svendsen (2004)	X	X				X	X	X
Toth (2012)		X						
Turcotte (2015)	X	X						
Wallace (2015)	X							
Wade (2003)						X	X	X
Wade (2004)							X	X
Ware (2010)	X	X	X					
Ware (2010)	X				X			
Wisley (2008)					X			
Wilsey (2013)	X				X			
Wilsey (2011)	x							
Wissel (2006)							X	

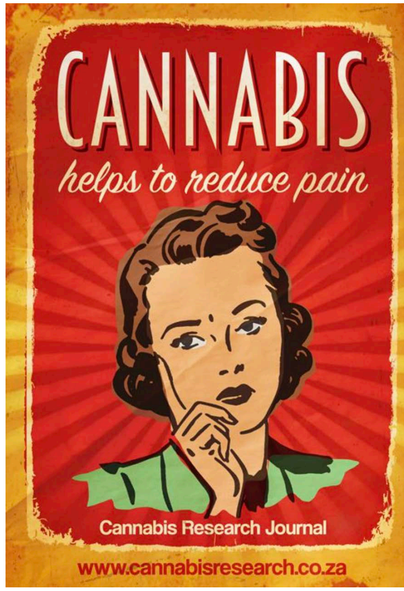
Included Journals





CANNABIS IN CHRONIC PAIN - EFFECTIVE, TOLERABLE AND SAFE?

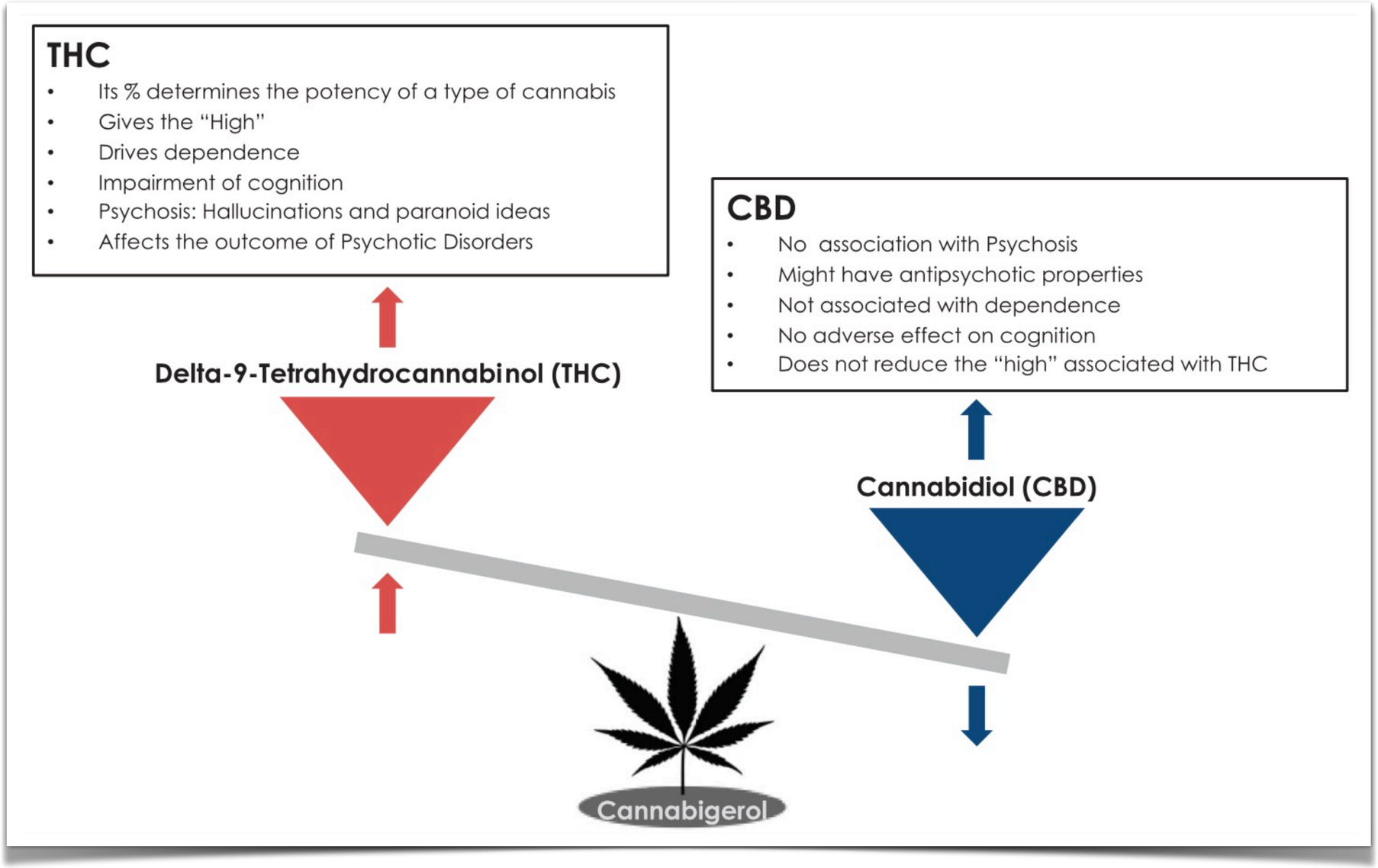
	NNH
Euphoria; Changes in perception	4x higher than controls
Motor dysfunction	5
Dysphoric change in mood	NS
Change in perception, mood and cognition	7-8



PAIN
OPEN

Adverse effects of heavy cannabis use: even plants can harm the brain

Lucia Sideli[a], Giulia Trotta[a], Edoardo Spinazzola[a,b], Caterina La Cascia[c], Marta Di Forti[d,e,f,*]



PAIN

Adverse effects of heavy cann can harm the brain

Lucia Sideli[a], Giulia Trotta[a], Edoardo Spinazzola[a,b], Caterina La C

Summary of meta-analyses reporting adverse effects associated with cannabis use.

Adverse effect	Participants	Studies	Main findings	Estimate
Psychosis				
Marconi et al.[18]	66,816 individuals from 10 studies	Random-effects meta-analysis on risk of psychosis	High levels of cannabis use increase the risk of psychotic outcomes with a dose–response relationship	OR = 3.9, 95% CI [2.84-5.34]
Large et al.[77]	8167 substance using patients from 83 studies	Random-effects meta-analysis on age at onset of psychosis	Relationship between cannabis use and earlier onset of psychotic illness	ES = −2.70, 95% CI [−0.53 to −0.30]
Schoeler et al.[103]	16,565 individuals from 24 studies	Random-effects meta-analysis on clinical outcomes of psychosis	Continued cannabis use after onset of psychosis predicts adverse outcome than for nonusers	d = 0.31, 95% CI [0.04-0.57]
Bipolar				
Gibbs et al.[42]	2391 individuals from 6 studies	Random-effects meta-analysis	Association between cannabis use and both the exacerbation of manic symptoms in those with previously diagnosed bipolar disorder and new-onset manic symptoms	OR = 2.97, 95% CI [1.8-4.9]
Depression				
Gobbi et al.[44]	22,317 individuals from 11 studies	Random-effects meta-analysis	Cannabis consumption in adolescence is associated with increased risk of developing depression in young adulthood	OR = 1.37, 95% CI [1.16-1.62]
Lev-Ran et al.[78]	76,058 individuals from 14 studies	Random-effects meta-analysis	Heavy cannabis use may be associated with an increased risk for developing depressive disorders	OR = 1.62, 95% CI [1.21-2.16]
Anxiety				
Gobbi et al.[44]	22,317 individuals from 11 studies	Random-effects meta-analysis	No evidence of an association with anxiety	OR = 1.18, 95% CI [0.84-1.67]
Twomey et al.[113]	58,538 individuals from 10 studies	Random-effects meta-analysis	Cannabis use is no more than a minor risk factor for the development of elevated anxiety symptoms in the general population	aOR = 1.08, 95% CI [0.94-1.23]

Cannabis Risks

- Adolescent (early and frequent) cannabis use:
- may influence neurodevelopment[1]
- risk ⇧ for depression and suicidality in adulthood[2]
- risk ⇧ for psychotic experiences (individuals genetically predisposed to schizophrenia may be especially vulnerable[3]
- Synthetic cannabinoids: life-threatening toxic effects describeds[4]

1) Albaugh et al. JAMA Psychiatry 2021, Burggren et al. Am J Drug Alcohol Abuse 2019;
2) Hengartner et al. J Affect Disord 2020
3) Wainberg et al. Trans Psychiatry 2021. Robinson et al. Psychol Med 2022
4) 5Cooper Ziva D. Curr Psvchiatry Rep 2016; curtesy from Eigenmann Daniela

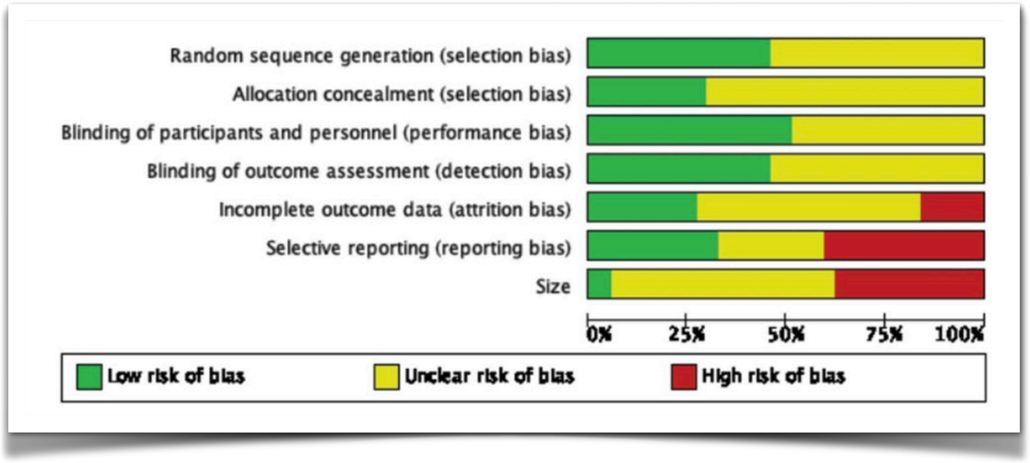
Society Risks

- We check our phones every 12 minutes1
- An interruption every eight minutes or about seven or eight per hour
- Continuous partial attention

1) The lost art of concentration: being distracted in a digital world; Guradian 2018

CANNABIS IN CHRONIC NEUROPATHIC PAIN?

- 36 studies (7217 participants) !!!
-



PAIN

Cannabinoids, cannabis, and cannabis-based medicine for pain management: a systematic review of randomised controlled trials

Emma Fisher[a,b,*], R. Andrew Moore[c], Alexandra E. Fogarty[d], David P. Finn[e], Nanna B. Finnerup[f,g], Ian Gilron[h,i,j], Simon Haroutounian[k], Elliot Krane[l,m], Andrew S.C. Rice[n], Michael Rowbotham[o,p], Mark Wallace[q], Christopher Eccleston[a,b,r]

Study	Posttreatment N	Trial arms	Cannabis type	Control group	Treatment length (wk)
Carpal tunnel					
Faig-Marti and Martinez-Catassus[16]	61	2	PEA	Placebo	8.5
Multiple sclerosis, >4 weeks					
Langford et al.[35]	297	2	Nabiximols	Placebo	14
Rog et al.[59]	64	2	Nabiximols	Placebo	5
Schimrigk et al.[62]	169	2	Dronabinol	Placebo	16
Multiple sclerosis, progression					
Ball et al.[2]	415	2	Dronabinol	Placebo	144
Multiple sclerosis, spasticity					
Collins, 2010[5]	305	2	Nabiximols	Placebo	14
Corey-Bloom et al.[6]	30	2	Cannabis (with THC)	Placebo	0.4
Leocani et al.[37]	38	2	Nabiximols	Placebo	4
Markova, 2019[40]	96	2	Nabiximols	Placebo	4
Zajicek et al.[82]	224	2	Cannabis	Placebo	15
Zajicek et al.[81]	611	3	Cannabis and THC/CBD	Placebo	12
Neuropathic pain <1 day					
Wilsey et al.[78]	32	3	Cannabis	Placebo	0.14
Wilsey et al.[77]	36	3	Cannabis	Placebo	0.14
Wilsey et al.[79]	42	3	Cannabis	Placebo	0.14
Neuropathic pain <4 weeks					
Berman et al.[3]	45	3	CBD+THC (1:1) and THC	Placebo	2
NCT01606176[48]	63	2	Nabiximols	Placebo	3
Neuropathic pain >4 week					
Andresen et al.[1]	63	2	PEA	Placebo	12
Bradford et al.[4]	63	2	FAAH	Placebo	6
EUCTR2004-002530-20[26]	230	2	Nabiximols	Placebo	14
Frank et al.[21]	64	2	Nabilone	30 mg dihydrocodeine	14
NCT00710424[27]	230	2	Nabiximols	Placebo	14
NCT01606202[49]	106	2	Nabiximols	Placebo	7
Nurmikko et al.[53]	105	2	Nabiximols	Placebo	5
Serpell et al.[64]	173	2	Nabiximols	Placebo	14

PAIN

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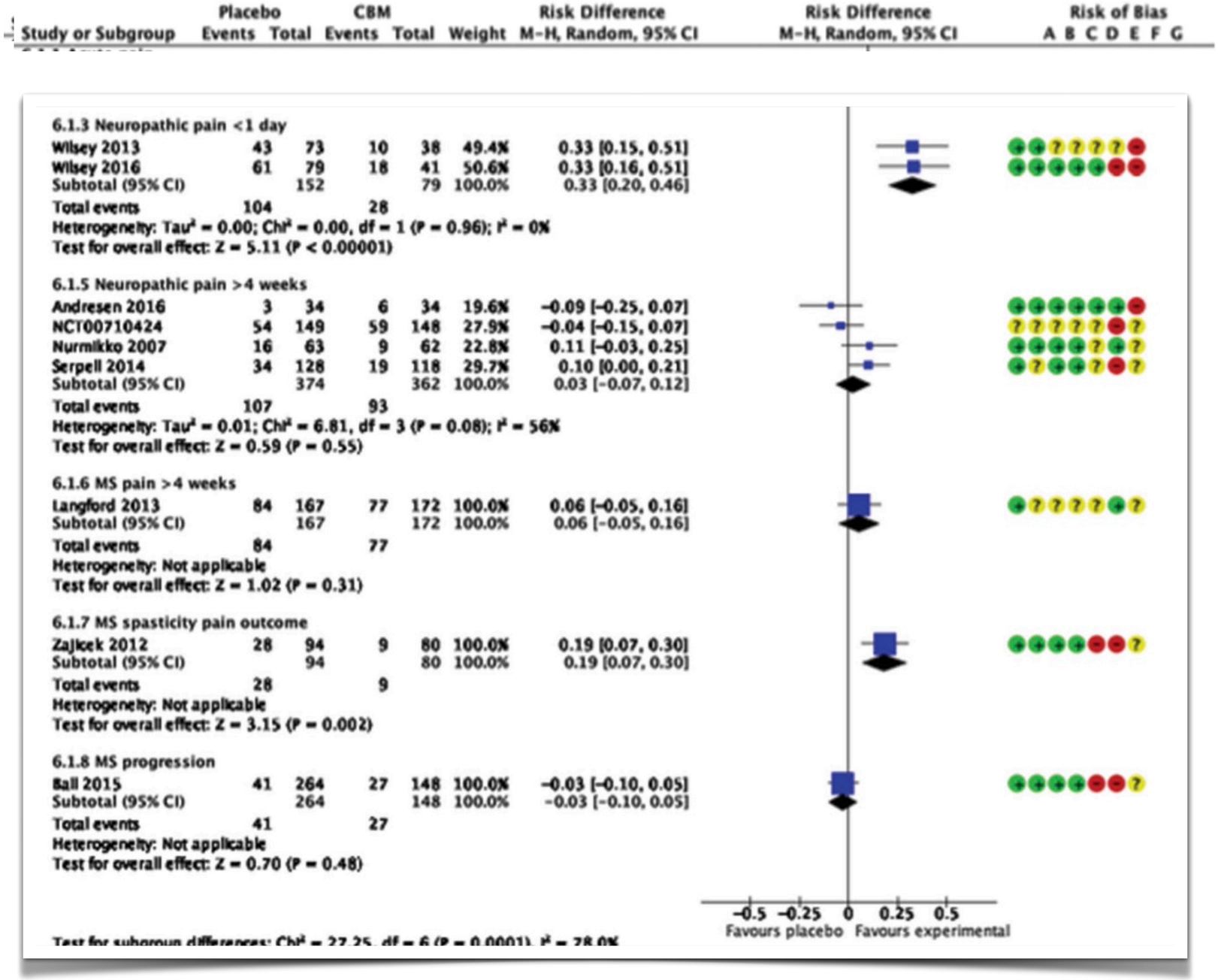
- !!!
- 30% pain reduction



PAIN

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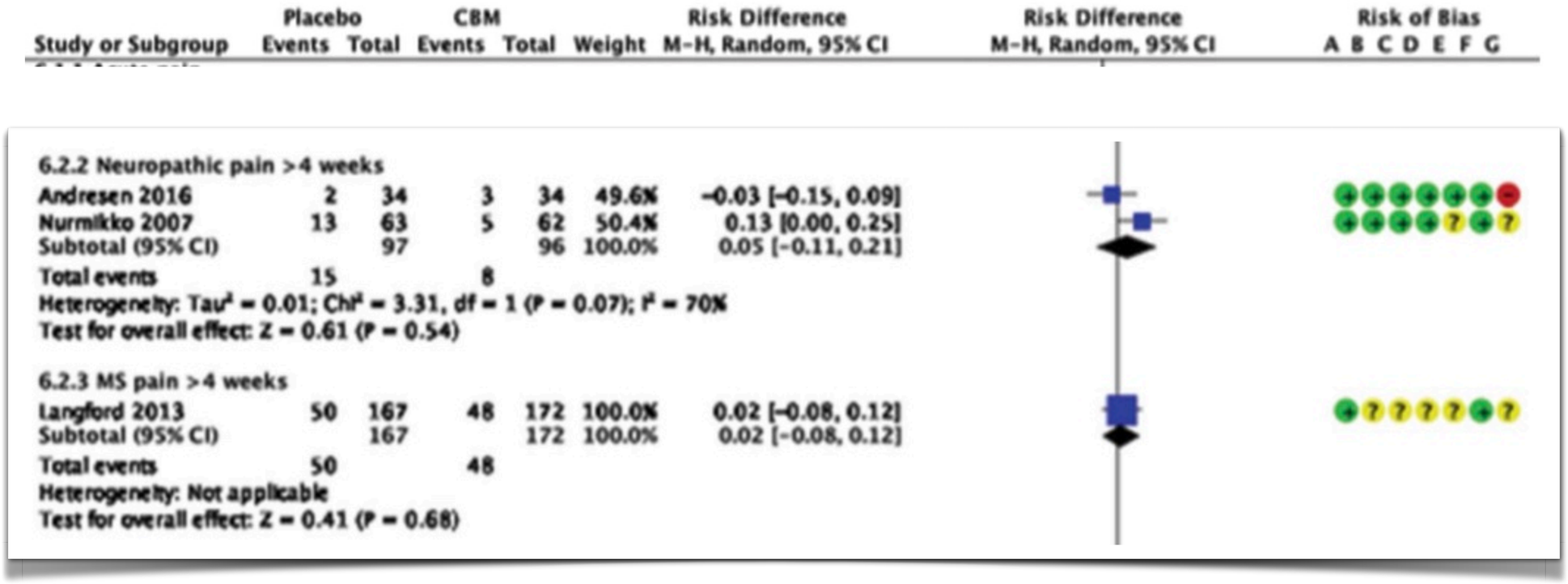
- 50% pain reduction



Study or Subgroup	Placebo Events	Total	CBM Events	Total	Weight	Risk Difference M-H, Random, 95% CI
6.2.2 Neuropathic pain >4 weeks						
Andresen 2016	2	34	3	34	49.6%	-0.03 [-0.15, 0.09]
Nurmikko 2007	13	63	5	62	50.4%	0.13 [0.00, 0.25]
Subtotal (95% CI)		97		96	100.0%	0.05 [-0.11, 0.21]
Total events	15		8			
Heterogeneity: $Tau^2 = 0.01$; $Chi^2 = 3.31$, df = 1 (P = 0.07); $I^2 = 70\%$						
Test for overall effect: Z = 0.61 (P = 0.54)						
6.2.3 MS pain >4 weeks						
Langford 2013	50	167	48	172	100.0%	0.02 [-0.08, 0.12]
Subtotal (95% CI)		167		172	100.0%	0.02 [-0.08, 0.12]
Total events	50		48			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.41 (P = 0.68)						

Risk Difference M-H, Random, 95% CI

Risk of Bias A B C D E F G

CANNABIS IN CHRONIC MULTIPLE SCLEROSIS PAIN

6 systematic reviews 3 RCTs 565 examined patients	NNT 30% Reduction	NNT 50% Reduction
Pain reduction	NS	NS

Medizinalcannabis gegen Spastik bei MS

Studienlage und Praxis

Studienlage *(vgl. Literaturübersicht):* In den letzten 30 Jahren wurde zur Wirksamkeit von Cannabis in der Behandlung von spastischen Bewegungsstörungen bei Multipler Sklerose (MS) eine breite Palette von Arbeiten publiziert, ausgehend von Fallberichten bis hin zu grossen Metaanalysen. Auch wenn in den randomisierten, Placebo-kontrollierten Studien nicht immer ein signifikanter Wirkungsnachweis bezüglich Linderung von Spastik und Schmerzen durch die Einnahme von Cannabis besteht, so kommen die Metaanalysen in der Gesamtschau doch zum Schluss, dass Cannabispräparate bei fast 50% der sie einnehmenden Patienten einen positiven Gesamteindruck hinterlässt.

Table 3. The CERQual approach—Definitions of levels of confidence in a review finding.

Level	Definition
High confidence	It is highly likely that the review finding is a reasonable representation of the phenomenon of interest
Moderate confidence	It is likely that the review finding is a reasonable representation of the phenomenon of interest
Low confidence	It is possible that the review finding is a reasonable representation of the phenomenon of interest
Very low confidence	It is not clear whether the review finding is a reasonable representation of the phenomenon of interest.

doi:10.1371/journal.pmed.1001895.t003

SGCM-SSCM Empfehlung

Bei fehlender oder ungenügender Wirksamkeit konventioneller medikamentöser und nicht-medikamentöser Behandlungen oder damit verbundenen, nicht-tolerierbaren Nebenwirkungen kann eine Cannabistherapie eine mögliche Option im Sinne eines individuellen Therapieversuches sein (mit oder ohne konventionelle Begleittherapie) bei RLS-Patienten über 18 Jahren ohne Kontraindikationen.

NEUROPATHIC PAIN

Wrap-up

Medizinalcannabis bei Trigeminusneuralgie

Studienlage und Praxis *(vgl. Literaturübersicht)*
Studienlage: Insgesamt existieren aktuell nur drei qualitativ wenig hochwertige Studien mit kleinen Fallzahlen. Die aktuelle Studienlage erlaubt keine Empfehlung als First- oder Second-Line-Therapie.

SGCM-SSCM Empfehlung

Cannabispräparate können bei fehlender oder ungenügender Wirksamkeit konventioneller medikamentöser und nicht-medikamentöser Behandlungen eine valable, individuelle Therapieoption (mit oder ohne konventionelle Begleittherapie) bei Trigeminusneuralgie-Patienten über 18 Jahren und keinen Kontraindikationen aufgrund des hohen Leidensdruckes darstellen, auch wenn die Evidenz dafür fehlt.

Medizinalcannabis gegen Spastik bei MS

Studienlage und Praxis
Studienlage *(vgl. Literaturübersicht):* In den letzten 30 Jahren wurde zur Wirksamkeit von Cannabis in der Behandlung von spastischen Bewegungsstörungen bei Multipler Sklerose (MS) eine breite Palette von Arbeiten publiziert, ausgehend von Fallberichten bis hin zu grossen Metaanalysen. Auch wenn in den randomisierten, Placebo-kontrollierten Studien nicht immer ein signifikanter Wirkungsnachweis bezüglich Linderung von Spastik und Schmerzen durch die Einnahme von Cannabis besteht, so kommen die Metaanalysen in der Gesamtschau doch zum Schluss, dass Cannabispräparate bei fast 50 % der sie einnehmenden Patienten einen positiven Gesamteindruck hinterlässt.

SGCM-SSCM Empfehlung

Bei fehlender oder ungenügender Wirksamkeit konventioneller medikamentöser und nicht-medikamentöser Behandlungen oder damit verbundenen, nicht-tolerierbaren Nebenwirkungen kann eine Cannabistherapie eine valable, individuelle Therapieoption sein (mit oder ohne konventionelle Begleittherapie) zur Behandlung der Spastik bei MS-Patienten über 18 Jahren ohne Kontraindikationen.

Medizinalcannabis bei Fibromyalgie

Studienlage und Praxis
Studienlage: Einige Studien sind vorhanden, wenn auch qualitativ wenig hochwertig mit meistens kleinen Fallzahlen, einer sehr grossen Bandbreite der verwendeten Produkte, Applikationsformen, Dosen, Co-Medikation und untersuchten Endpunkten resp. erfassten Parametern. Resultate weisen jedoch auf eine mögliche Wirksamkeit – insbesondere gegen Schmerzen, Erschöpfung, Angst, Depression und Schlafstörungen – von Cannabinoiden bzw. Medizinalcannabis bei Fibromyalgie-Patienten hin.

SGCM-SSCM Empfehlung

Bei fehlender oder ungenügender Wirksamkeit konventioneller medikamentöser und nicht-medikamentöser Behandlungen oder damit verbundenen, nicht-tolerierbaren Nebenwirkungen kann eine Cannabistherapie eine valable, individuelle Therapieoption sein (mit oder ohne konventionelle Begleittherapie) bei Fibromyalgie-Patienten über 18 Jahren und keinen Kontraindikationen.

Content

- Medical Pain definition
- Neurobiology of pain
- Cannabis Evidence Risks and Hazard
- Pain Treatments
- **Treatment in CH/Personal experience**

Drug interactions

	CYP-Substrat	CYP-Inhibitor	CYP-Induktor
THC Dronabinol	3A4, 2C9, 2C19.	?	Tobacco: CYP1A2
CBD Canabidiol	3A4, 2C9, 2C19.	2C9, 2C19, 3A4..	

- **CYP inhibitors may increase plasma levels of THC/CBD**
  ketoconazole, ritonavir, clarithromycin, grapefruit, etc.
- **CYP inducers may decrease plasma levels of THC/CBD**
  rifampicin, carbamazepine.

CBD may decrease the degradation of CYP substrates and thus increase their plasma levels

- **Antiepileptic drugs**: clobazam, rufinamide, topiramate - toxicity 1
- **Anticoagulants**: phenprocoumon, acenocoumarol - bleeding hazard +
- **Immunosuppressants**: tacrolimus3, everolimus4 > plasma levels +
- **Others**: tamoxifen45 (active metabolie endoxifen 1)... (?)

Contraindications

- Severe psychiatric diseases
- Severe cardiovascular diseases
- Addictive disorders ? Morphine for pain ?
- Active road users
- Children and adolescents **under 18**

European Journal of Pediatrics (2022) 181:335–347
https://doi.org/10.1007/s00431-021-04202-z

ORIGINAL ARTICLE

Use and caregiver-reported efficacy of medical cannabis in children and adolescents in Switzerland

Kathrin Zürcher[1] · Carole Dupont[1] · Peter Weber[2] · Sebastian Grunt[3] · Ilca Wilhelm[4] · Daniela E. Eigenmann[5] · Martina L. Reichmuth[1] · Manfred Fankhauser[5] · Matthias Egger[1,6] · Lukas Fenner[1]

- 205 contacted families, **90 agreed**
- CBD in 57% & THC in 43% patients
- Indications for THC: spasticity, pain, lack of weight gain, vomiting, or nausea
- Indications for CBD seizures
- Improvements in 66%
- 43% treatment interruption
  - lack of improvement (56%), side effects (46%), the need for a gastric tube (44%), cost considerations (23%)

Cannabis and Road Traffic

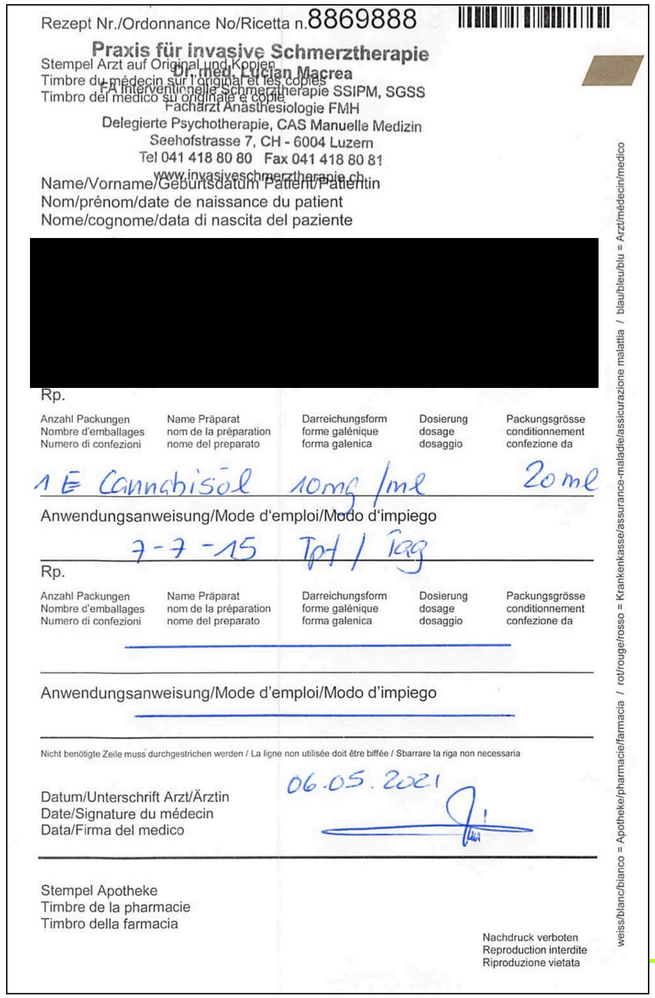
https://www.forbes.com/sites/chrisroberts/2021/06/29/study-marijuanas-impact-on-driving-is-strain-specific/?sh=1ce9f9aa5ef0

- Participation is prohibited (Art. 2 para. 2 VRV*)
  - **ZERO TOLERANCE** analytical limit of 1.5ng/ml THC in blood
- Not applied if a there is a medical prescription **BUT**
  - driving ability (at the time of accident)
  - driving fitness (can be assessed in advanced)
  - possible criminal, insurance consequences

https://www.bestgastromd.com/blog/how-medical-marijuana-is-helping-relieve-abdominal-pain-for-ibs-patients

* Verkehrsregelnverordnung

Legal issues in CH



Rezept Nr./Ordonnance No/Ricetta n. 8869888

Praxis für invasive Schmerztherapie

Stempel Arzt auf Original und Kopien
Timbre du médecin sur l'original et les copies
Timbro del medico su originale e copie

Dr. med. Florian Macrea
FA Interventionelle Schmerztherapie SSIPM, SGSS
Facharzt Anästhesiologie FMH
Delegierte Psychotherapie, CAS Manuelle Medizin
Seehofstrasse 7, CH - 6004 Luzern
Tel 041 418 80 80 Fax 041 418 80 81
www.invasiveschmerztherapie.ch

Name/Vorname/Geburtsdatum Patient/-in/Patientin
Nom/prénom/date de naissance du patient
Nome/cognome/data di nascita del paziente

[redacted]

Rp.

Anzahl Packungen / Nombre d'emballages / Numero di confezioni	Name Präparat / nom de la préparation / nome del preparato	Darreichungsform / forme galénique / forma galenica	Dosierung / dosage / dosaggio	Packungsgrösse / conditionnement / confezione da
1 E	Cannabisöl	10mg/ml		20ml

Anwendungsanweisung/Mode d'emploi/Modo d'impiego
7-7-15 Tpf / Tag

Rp.

Anzahl Packungen / Nombre d'emballages / Numero di confezioni	Name Präparat / nom de la préparation / nome del preparato	Darreichungsform / forme galénique / forma galenica	Dosierung / dosage / dosaggio	Packungsgrösse / conditionnement / confezione da

Anwendungsanweisung/Mode d'emploi/Modo d'impiego

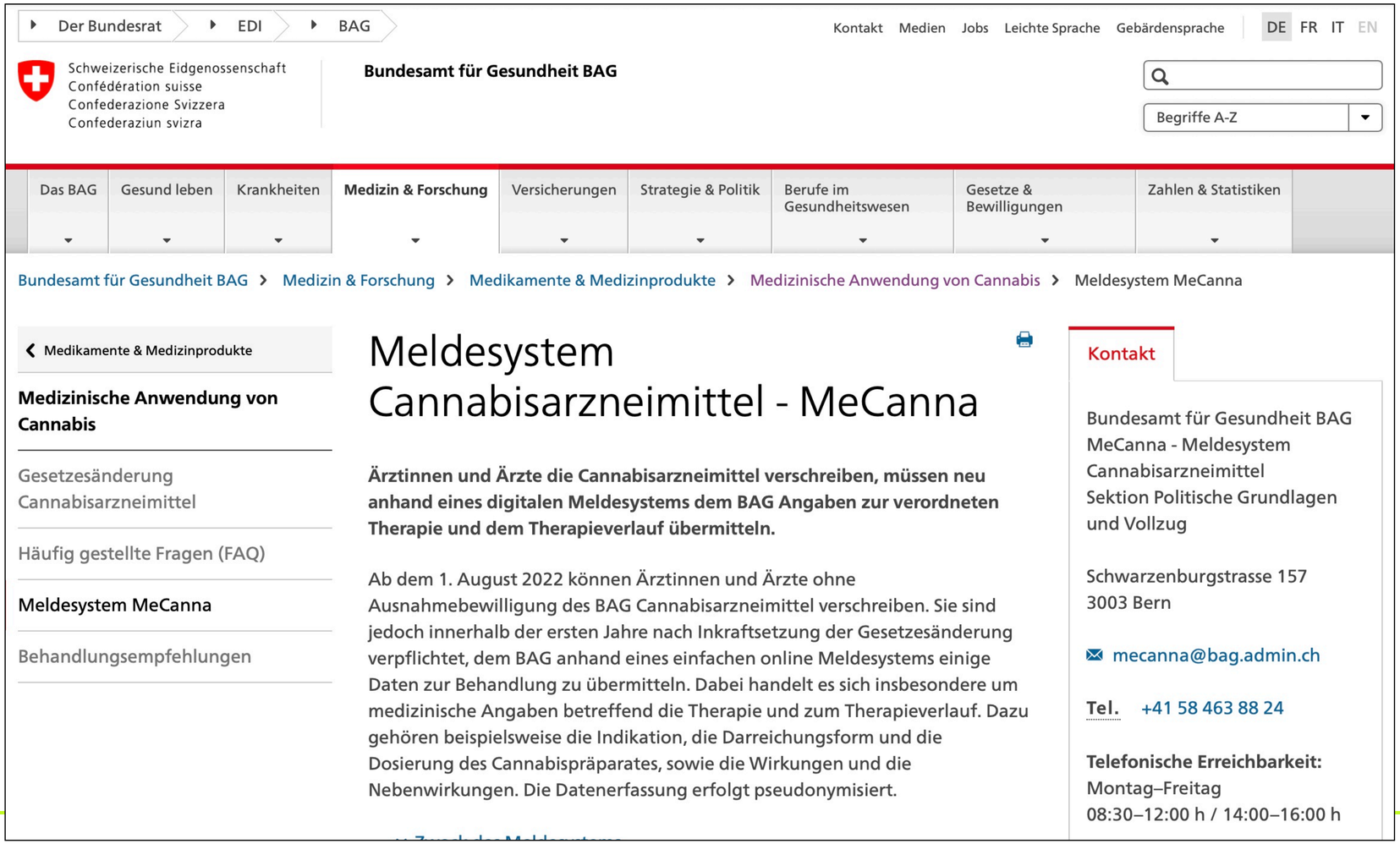
Nicht benötigte Zeile muss durchgestrichen werden / La ligne non utilisée doit être biffée / Sbarrare la riga non necessaria

Datum/Unterschrift Arzt/Ärztin
Date/Signature du médecin
Data/Firma del medico
06.05.2021

Stempel Apotheke
Timbre de la pharmacie
Timbro della farmacia

Nachdruck verboten
Reproduction interdite
Riproduzione vietata

weiss/blanc/bianco = Apotheke/pharmacie/farmacia / rot/rouge/rosso = Krankenkasse/assurance-maladie/assicurazione malattia / blau/bleu/blu = Arzt/médecin/medico



Der Bundesrat › EDI › BAG

Kontakt Medien Jobs Leichte Sprache Gebärdensprache DE FR IT EN

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Gesundheit BAG

Begriffe A-Z

Das BAG | Gesund leben | Krankheiten | **Medizin & Forschung** | Versicherungen | Strategie & Politik | Berufe im Gesundheitswesen | Gesetze & Bewilligungen | Zahlen & Statistiken

Bundesamt für Gesundheit BAG › Medizin & Forschung › Medikamente & Medizinprodukte › Medizinische Anwendung von Cannabis › Meldesystem MeCanna

‹ Medikamente & Medizinprodukte

Medizinische Anwendung von Cannabis

Gesetzesänderung Cannabisarzneimittel

Häufig gestellte Fragen (FAQ)

Meldesystem MeCanna

Behandlungsempfehlungen

Meldesystem Cannabisarzneimittel - MeCanna

Ärztinnen und Ärzte die Cannabisarzneimittel verschreiben, müssen neu anhand eines digitalen Meldesystems dem BAG Angaben zur verordneten Therapie und dem Therapieverlauf übermitteln.

Ab dem 1. August 2022 können Ärztinnen und Ärzte ohne Ausnahmebewilligung des BAG Cannabisarzneimittel verschreiben. Sie sind jedoch innerhalb der ersten Jahre nach Inkraftsetzung der Gesetzesänderung verpflichtet, dem BAG anhand eines einfachen online Meldesystems einige Daten zur Behandlung zu übermitteln. Dabei handelt es sich insbesondere um medizinische Angaben betreffend die Therapie und zum Therapieverlauf. Dazu gehören beispielsweise die Indikation, die Darreichungsform und die Dosierung des Cannabispräparates, sowie die Wirkungen und die Nebenwirkungen. Die Datenerfassung erfolgt pseudonymisiert.

Kontakt

Bundesamt für Gesundheit BAG
MeCanna - Meldesystem Cannabisarzneimittel
Sektion Politische Grundlagen und Vollzug

Schwarzenburgstrasse 157
3003 Bern

mecanna@bag.admin.ch

Tel. +41 58 463 88 24

Telefonische Erreichbarkeit:
Montag–Freitag
08:30–12:00 h / 14:00–16:00 h

https://www.bag.admin.ch/bag/de/home/medizin-und-forschung/heilmittel/med-anwend-cannabis/meldesystem-cannabisarzneimittel.html

Legal issues in CH
THC <1%

ALPINAMED Weihrauch Cannabis MSM Gel Disp 100 ml

ALPINAMED Weihrauch Cannabis MSM Gel Disp 200 ml

Biosun Hannahannah Ohrkerzen Cannabis 5 Paar

HEIDAK SPAGYRIK Cannabis sativa
Fl 500 ml
Nur gegen Rezept versendbar

HEIDAK SPAGYRIK Cannabis sativa
Fl 250 ml
Nur gegen Rezept versendbar

SN Cannabis indica
Glob MK 1 g
Nur gegen Rezept versendbar

Spagyros Cannabis indi
Glob MCF Easyclick 1 Dos
Nur gegen Rezept versendbar

- **Chemicals NO MEDICATION no medicines**

Biosun Hannahannah Ohrkerzen Cannabis 2 Paar

Supair Hanfbalsam CBD Skin Revitalizer 100 ml

Supair Hanfbalsam CBD Skin Revitalizer 100 ml

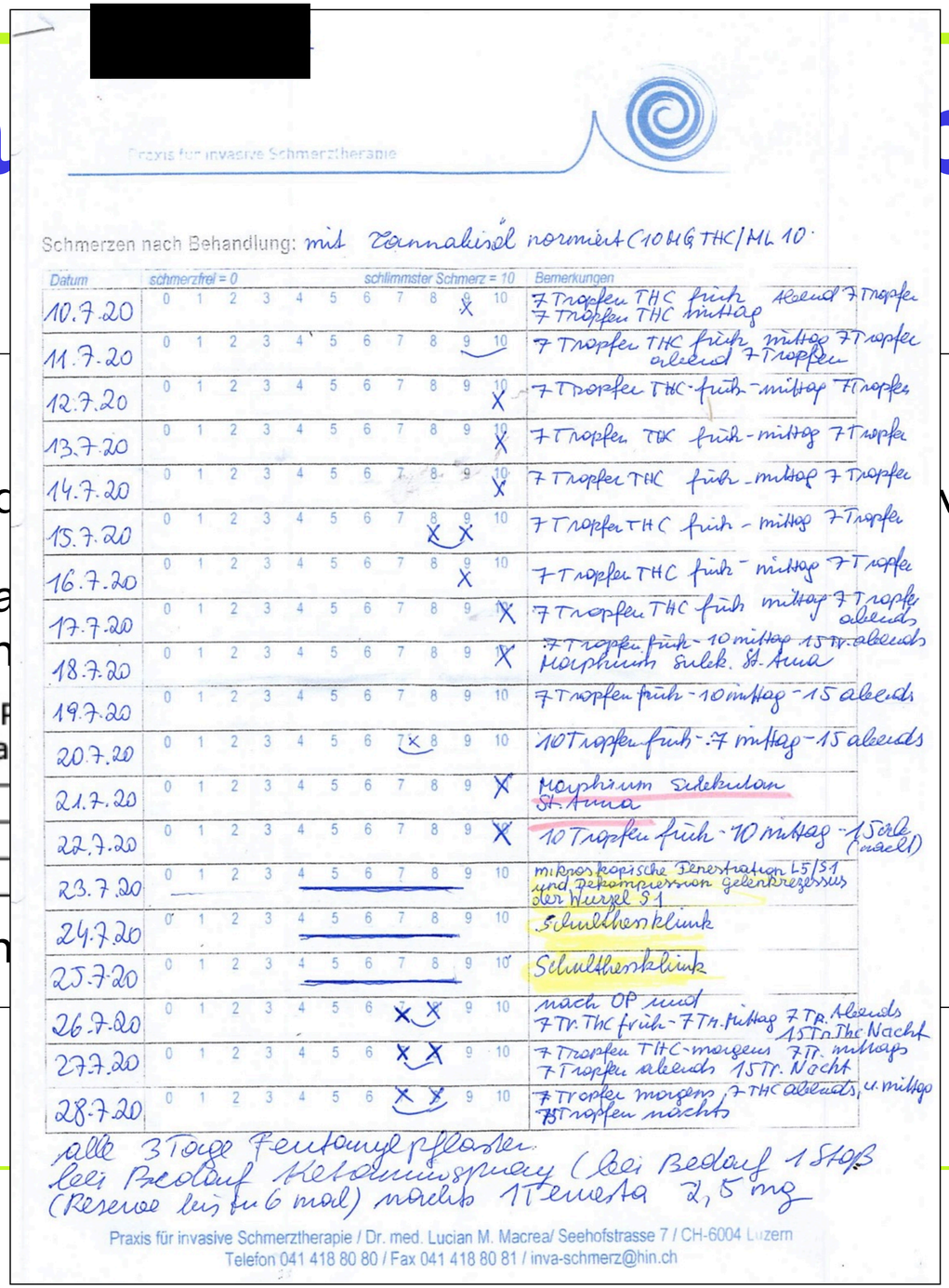
OSIRIS CBD Aromapflegeöl Gelenkwohl Disp 100 ml

Swiss CannaMed CBD Badesalz vom Toten Meer Topf 350 g

Amavita, zurRose

Practical a…bis treatment

1. Patients willing to try
2. No other recommended…ve
3. Patient can afford to pa…
   (10ml Cannabis 10mg/m…
4. Pain diary
5. Improvement of Mir…
6. Demand of reimbursem…



Praxis für invasive Schmerztherapie

Schmerzen nach Behandlung: mit Cannabisöl normiert (10 MG THC/ML 10.

Datum	schmerzfrei = 0 … schlimmster Schmerz = 10	Bemerkungen
10.7.20	8	7 Tropfen THC früh abend 7 Tropfen 7 Tropfen THC mittag
11.7.20	9	7 Tropfen THC früh mittag 7 Tropfen abend 7 Tropfen
12.7.20	10	7 Tropfen THC früh - mittag 7 Tropfen
13.7.20	10	7 Tropfen THC früh - mittag 7 Tropfen
14.7.20	10	7 Tropfen THC früh - mittag 7 Tropfen
15.7.20	8 9	7 Tropfen THC früh - mittag 7 Tropfen
16.7.20	9	7 Tropfen THC früh - mittag 7 Tropfen
17.7.20	10	7 Tropfen THC früh mittag 7 Tropfen abends
18.7.20	10	7 Tropfen früh - 10 mittag 15 Tr. abends Morphium Sulek. St. Anna
19.7.20	10	7 Tropfen früh - 10 mittag - 15 abends
20.7.20	7 8	10 Tropfen früh - 7 mittag - 15 abends
21.7.20	10	Morphium Sulekulan St. Anna
22.7.20	10	10 Tropfen früh - 10 mittag - 1 Stk (nach)
23.7.20	4 5 6 7 8	mikroskopische Fenestration L5/S1 und Dekompression Gelenkrezessus der Wurzel S1
24.7.20	4 5 6 7 8	Schulthessklinik
25.7.20	4 5 6 7 8	Schulthessklinik
26.7.20	6 7	nach OP mit 7 Tr. THC früh - 7 Th. mittag 7 Tr. Abends 15 Tr. THC Nacht
27.7.20	6 7	7 Tropfen THC - morgens 7 Tr. mittags 7 Tropfen abends 15 Tr. Nacht
28.7.20	6 7	7 Tropfen morgens, 7 THC abends, u. mittag 15 Tropfen nachts

alle 3 Tage Fentanylpflaster
bei Bedarf Ketaminspray (bei Bedarf 1 Stoß
(Reserve bis zu 6 mal) maximal 1 Temesta 2,5 mg

Praxis für invasive Schmerztherapie / Dr. med. Lucian M. Macrea/ Seehofstrasse 7 / CH-6004 Luzern
Telefon 041 418 80 80 / Fax 041 418 80 81 / inva-schmerz@hin.ch

Bisherige Therapien.

Medikamente: -

- siehe auf Liste mit Unverträglichkeiten bezüglich Morphinpräparate
- Valoron Tropfen ohne Wirkung
- Palladon ohne Wirkung und bei höheren Dosen mit starker Müdigkeit, gereizt
- einzige wirksame Mittel sind i.v. Titration von Fentanyl oder Alfentanil
- intranasales Ketamin mit leichter Besserung der Schmerzen
- Fentanylpflaster 12 µg/h gestoppt wegen Hautausschlägen November 2020
- Palexia nicht möglich wegen Lactoseintoleranz

Medikamenten-Entzug:

- von Pethidin subkutan
- Temesta Einzug 01.2022

Infusionen: - Ketamininfusionen mit übergangsweise Verbesserung der Schmerzen. Serie Nr. 2. ab März 21
Interventionen: - keine seit 2020, seitdem die Patientin in unserer Betreuung ist.
Krankengymnastik: - keine.
TENS: keine Wirkung
Massagen, Bäder, Kälte-/Wärmetherapie: - keine.
Akupunktur: - keine.
Chiropraktik: - keine.
Psychotherapie: - Mitbetreuung zusammen mit psychiatrische Praxis.
Entspannungsverfahren, Hypnose, Biofeedback:- keine.
Kur-/Reha-Behandlung: - keine.
Sonden- (SCS) oder Pumpensysteme: - keine.
Andere Therapien: - keine.

Allergien und Unverträglichkeiten:

- **Salicylate, Novalgin, Irfen (NSAR generell), Bupivacain,**
- **Tramal, Buprenorphin (Transtec), Oxycontin, Targin, Pethidin Überdosis 1100mg/die**
- **Palexia nicht möglich wegen Lactoseintoleranz**
- **Jod, Pflaster,**
- **Clamoxyl, Augmentin, Garamycin (Aminoglykoside generell wegen Ototoxizität)**
- **Lactose Intoleranz**

First systematic experiences with the use of cannabis treatment in a pain practice.

SWISS PAIN INSTITUTE
INSTITUT SUISSE DE LA DOULEUR

LM. Macrea, P. Koutsotheodorou, V. Mouthon, V. Bocherens, P. Mavrocordatos

Poster # 9.

Poster Presentation

SWISS PAIN SOCIETY

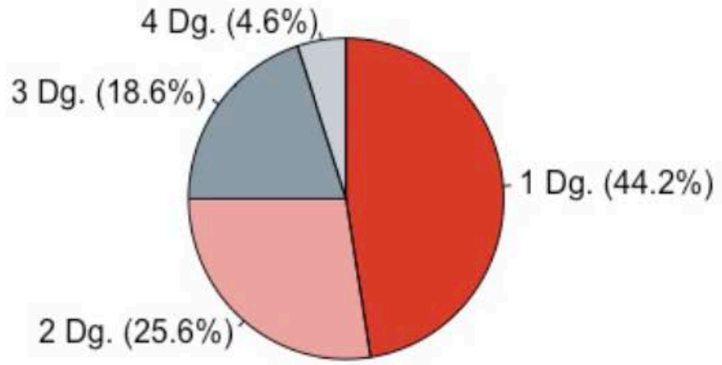
We report on **40 treatments in 37 patients** 55% were female; mean age was 62 years (SD=17.5; min 22ans, max 96ans).

. 32% of patients had only one pain diagnosis, with a median of 2 diagnoses for a patient (mean 1.8, SD=0.9, max=4); there were 73 pain diagnosis in total.

Patients had a median of 5 medical diagnoses (mean = 6.4, SD = 4.1, max = 18) and used a median of 8 medical treatments (mean = 7.9, SD = 4.2, max = 16).

The most frequently used diagnostic pain codes are depicted in the following table.

Number of pain diagnosis



ICD code	**First pain diagnosis** *(40 diagnoses, 40 patients)*	**All pain diagnosis** *(73 diagnoses, 40 patients)*
Diseases of the musculoskeletal system *(M54.5, M54.4, M54.2, M96.1, M48.06)*	15	21
Unspecified pain diagnosis generalized pain *(R52.2 , R10.2)*	11	14
Diseases of the nervous system M54.2 *(G62, G57,)*	9	18
Postsurgical pain *(Z98.89)*	2	6
Opioid dependence *(F.11.2)*	1	2
Headache *(ICHD-3 11.2.1)*	1	8
Cancer pain *(C.50)*	1	1
Other *(Y42.6, I97.2, N94.4)*	-	3

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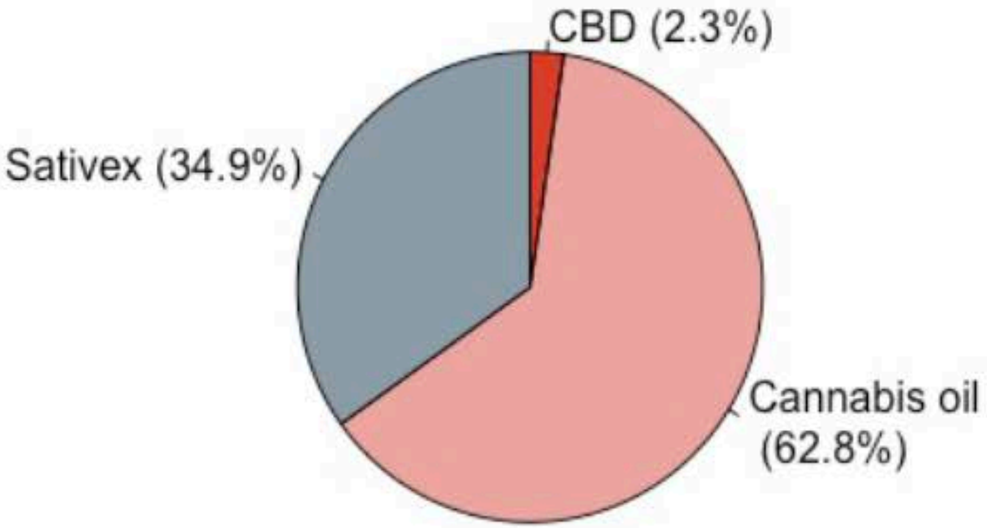
Poster # 9.

Poster Presentation

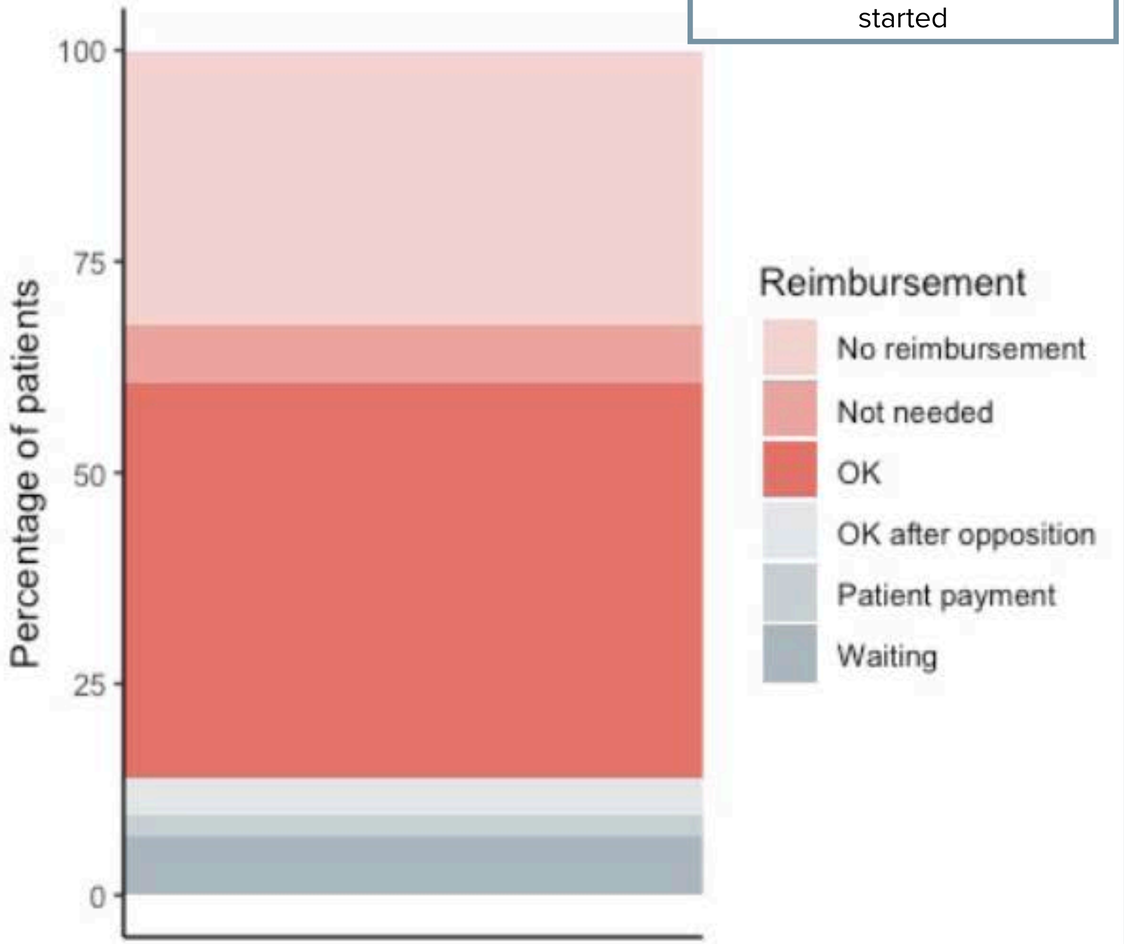
SWISS PAIN SOCIETY

Cannabis products



in **33%** of patient
no reimbursement
and the treatment couldn't be started

Cannabis reimbursement



First systematic experiences with the use of cannabis treatment in a pain practice.

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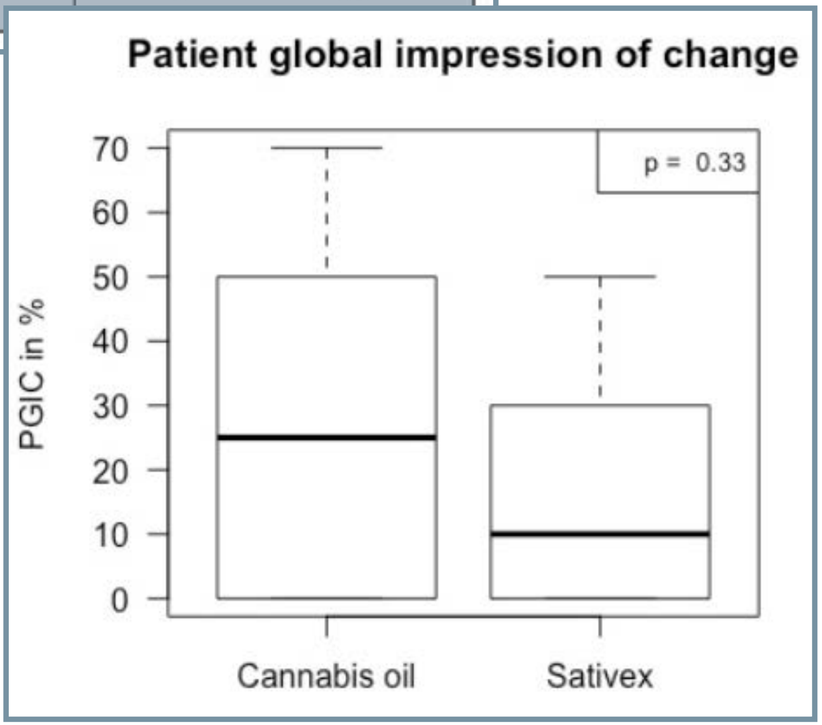
Poster # 9.

Poster Presentation
Congress 2018

SWISS PAIN SOCIETY

	Sativex		Cannabis oil	
	Treatment stopped	Treatment	Treatment stopped	Treatment
Number of patients	7	4	2	7
Dosage	12.5 mg	11.1 mg	7.5 mg	6.5 mg
PGIC	5.8%	38.7	0	36.4%
Side effects	*Cognitive side effects, Dizziness, Difficulty with the oral application*	0	*Cognitive side effects, Bad taste*	*1 patient euphoria 1 patient fatigue*



First systematic experiences with the use of cannabis treatment in a pain practice.

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Poster # 9.

Poster Presentation

SWISS PAIN SOCIETY

Conclusions

- Cannabis treatment seems to induce a 20-30% improvement in the pain symptoms.
- We did not observe the development of tolerance or pharmacological interference with other medications.
- The therapeutic index of cannabis is low - small difference between the dosages in patients where the treatment was discontinued.
- Sativex seems inferior to the cannabis oil treatment. The application form permits is difficult and titration is not possible.
- This data must be confirmed by a large prospective observational study to permit the identification of specific pain diagnosis especially suitable for the cannabis treatment.

www.watson.ch

https://www.sgcm-sscm.ch/

THANK YOU! 🙏

Mitgliedskategorien

- ☐ CH- Einzelmitglieder ausgebildet CHF 100
- ☐ CH-Einzelmitglieder in Ausbildung CHF 50
- ☐ CH-Fachgesellschaften/CH-Berufsverbände/CH- Akademien CHF 600
- ☐ CH-Industrieorganisationen CHF 3000
- ☐ CH- Patientenorganisationen CHF 300
- ☐ Ehrenmitglieder (Aufnahme nach Antrag an Vorstand) CHF 0.00
- ☐ Korrespondierende Mitglieder (Aufnahme nach Antrag an Vorstand) individuell
- ☐ Gönnerschaft/Patronat individuell

KEY MESSAGES

1. Pain is a complex phenomena

2. Neuropathic pain
   - **CAUSED BY A LESION OR DISEASE OF THE SOMATOSENSORY NERVOUS SYSTEM**
3. Cannabis preparations in controlled and pharmaceutical quality can be a valuable therapeutic option
   - **IN: SPASTICITY, NEUROPATHIC PAIN, NAUSEA, ANOREXIA, EPILEPSY, ETC**
4. Cannabis dosage: “start low and go slow”
   - **3 X 3-7DROPS (1DROP = 0.4MG THC = 10MG/ML)**
5. Risk of Cannabis
   - **FOR MEDICAL USE ????**
   - **RECREATIONAL !!! < 18YEARS**

DANKE; MERCI, THANK YOU!!!!
QUESTIONS @
LUCIAN.MACREA@ICLOUD.COM