



NiaMedic

Healthcare & Research Services

Medical Cannabis Care

November 2019

Alon Blatt



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Our Agenda for Today

1. Brief History
2. Our experience
3. NiaMedic Healthcare & Research services
4. EndoCannabinoid System Overview
5. Pain and Cannabis
6. Research.



Brief History Early Records

- Earliest written references was in 1500BC, in the Chinese Rh-Ya pharmacopeia
- Evidence of use in ancient Greece and Muslim empires
- Evidence of use by queen Victoria for menstrual cramps



National Commission on Marihuana and Drug Abuse. "Marihuana, A Signal of Misunderstanding," Government Printing Office, Washington, D.C., 1972

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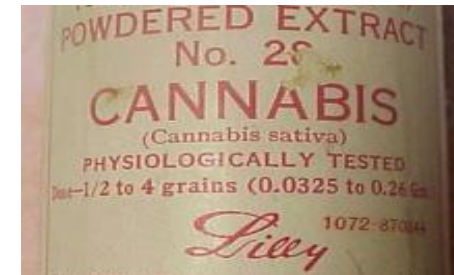
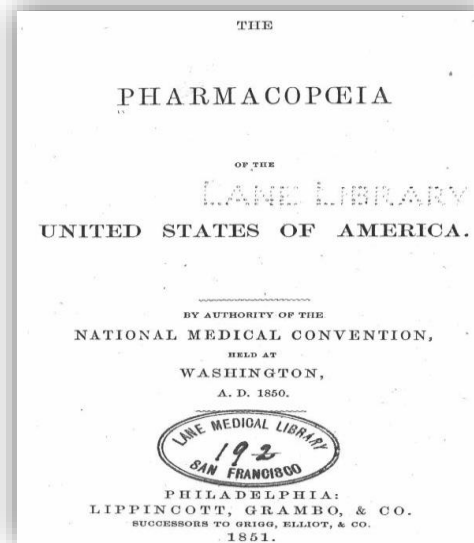
Brief History USA

The founding fathers of the United States used to grow Hemp

In 1619 the Virginia Assembly passed legislation requiring every farmer to grow hemp.

Circa 1850

- Alcoholism
- Cholera
- Menstrual bleeding
- Gout
- Incontinence
- Leprosy
- Nerve pain
- Opiate addiction
- Seizures
- Tetanus



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Richard Glen Baird, Kevin Feeney. Medical Marijuana Law. Ronin Press. 2007

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Our experience

2009 - “Hadarim” project

World first study on the use of medical cannabis with seniors

Common geriatric conditions:

- Pain
- Spasticity
- Agitation
- Insomnia
- Decreased appetite
- POLYPHARMACY

2010 - First medical-cannabis focused nursing clinic

- Collaboration with “Tikun Olam”
- Effects of different strains on different diseases
- Positive results: decrease in pain and improvement in quality of life

EPIDEMIOLOGICAL CHARACTERISTICS, SAFETY AND EFFICACY OF

MEDICAL CANNABIS USE

Lihi Bar-Lev Schleider MA¹, Raphael Mechoulam PhD², Inbal Sikorin|RN³, Timna

Naftali MD⁴, Zvi Bentwich MD⁵, Victor Novack MD PhD⁶.



NiaMedic - Overview

- Target population - age 65 and up.
- Specialists clinic.
- Full geriatric assessment: cognitive, mental and functional status
- Comprehensive medication assessment by a pharmacist
- Personal patient-therapist relationship
- Risk management programs
- Supporting Nursing and retirement homes.



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NiaMedic – Healthcare

- **Geriatrics** - internal diseases, cognitive functions, behavioral and mood disorders, nutrition, sleep disorders and other geriatric syndromes.
- **Pain** - Chronic pain, neuropathic pain and rheumatic pain.
- **Neurology** - Parkinson's Disease, spasticity and movement disorders, Tourette's, Multiple Sclerosis, ALS and Epilepsy.
- **Rheumatology** - Rheumatoid arthritis, arthritic, polymyalgia rheumatica and fibromyalgia
- **Orthopedics** - Spinal stenosis, fractured discs and joint replacements.
- **Pain-Rehabilitation medicine** - functional aspects.



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Patient's Process

- Phone screening
- Collection of patient's medical history
- Visit:
 - Comprehensive assessments
 - Complete medical/geriatric evaluation
 - Customized MC treatment plan – 4 factors
- One month of case management
- Referring physician receive patient's treatment summary



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PRACTICAL APPROACH TO CANNABIS TREATMENT IN OLDER ADULTS

Symptoms assessment

Chronic pain, Parkinson's disease, sleep disorders, anorexia, PTSD, spasticity and palliation

Consider relative contraindications

Severe cardiovascular diseases, psychotic comorbidities, history of addictions, gait instability

Risk-benefit analysis

Failure/intolerance of previous treatments; open discussion with patients and caregivers

Choice of cannabinoids content

THC and CBD combo: non-neuropathic chronic pain, anorexia, spasticity, Parkinson's disease and palliation

CBD-predominant chemovars only: neuropathic chronic pain, sleep disorders and PTSD

Treatment initiation

Start low, go slow; sublingual route is preferred. Begin with low doses and slowly titrate (see Figure 2)

Monitoring

Assess adverse events and treatment efficacy

Polypharmacy evaluation

Consider necessity and dosing of all medications, especially analgesics



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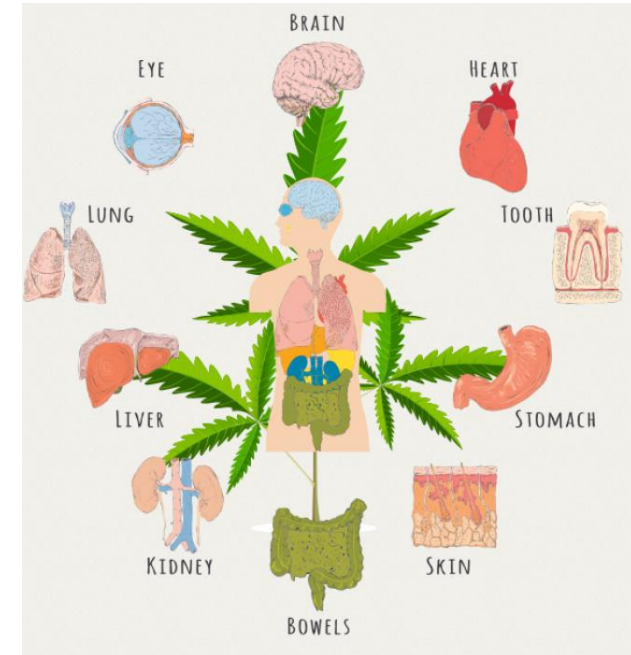
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EndoCannabinoid System Overview

- One of the most important physiologic system involved in establishing and maintaining human health
- The main goal of the system is homeostasis, the maintenance of a stable internal environment
- Autophagy – a process in which a cell isolates parts of its contents to be self-digested and recycled. The process is mediated by this system

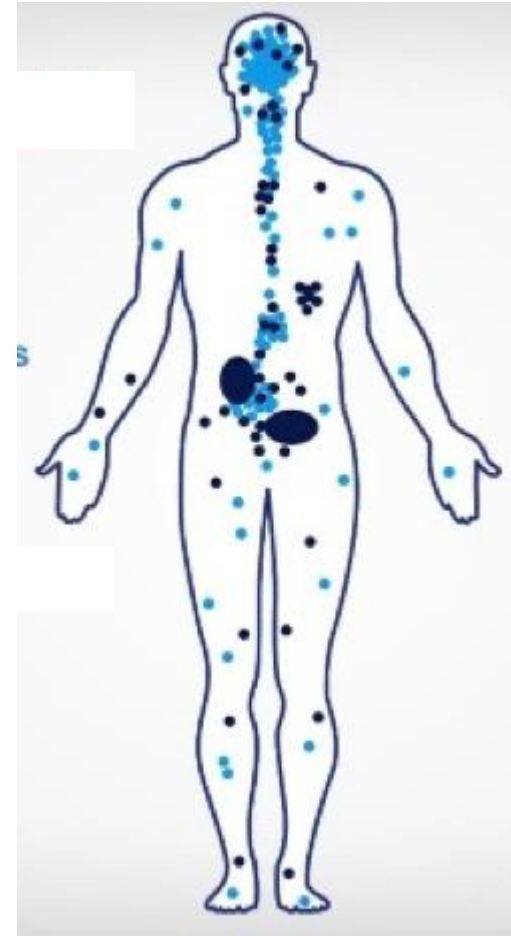


EndoCannabinoid System Overview

- Endocannabinoids themselves
- Receptor sites on cells to receive cannabinoids

Endocannabinoids are created in response to needs within the larger physiological system and are largely understood to be used for the body's regulatory functions.

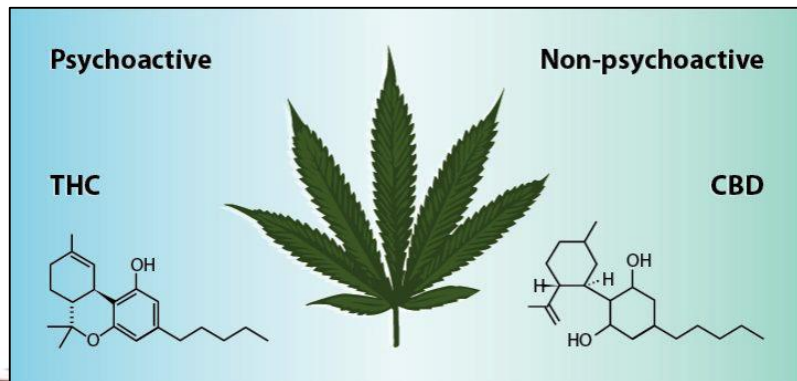
These mechanisms are predominantly responsible for communication within the body to best regulate various biological responses.



EndoCannabinoid System Overview

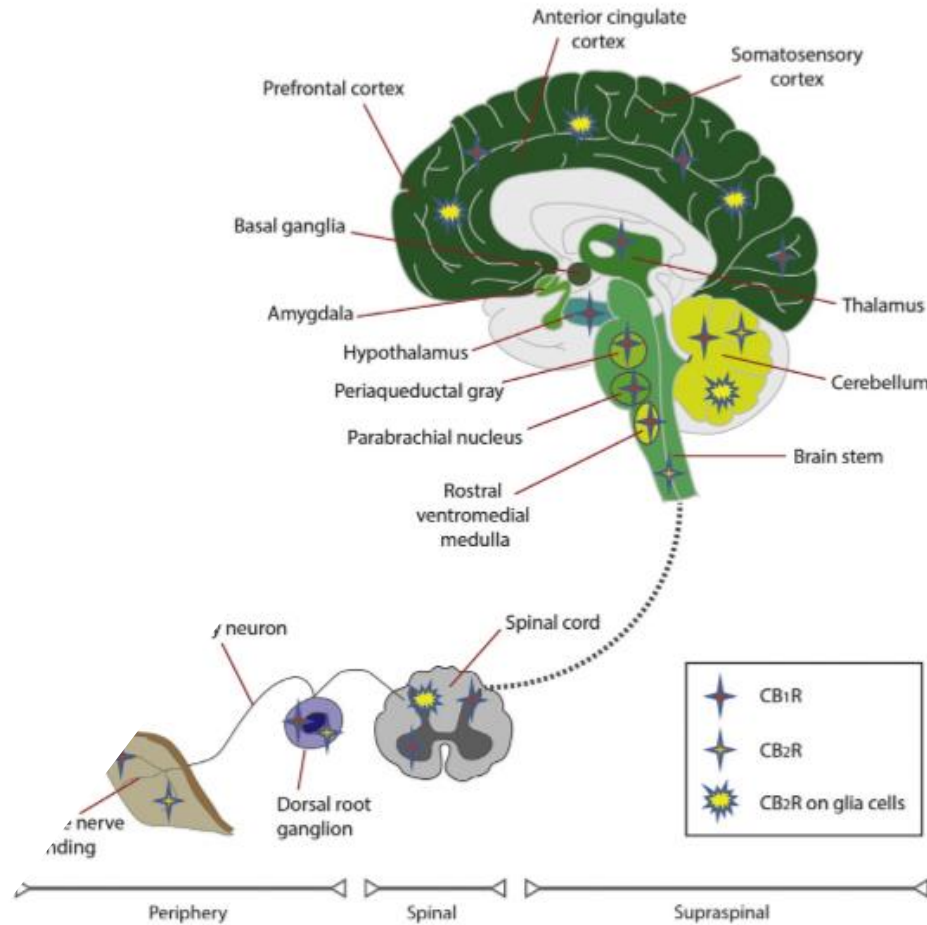
Endocannabinoids vs. phytocannabinoids

- Phytoannabinoids mimic the behavior of endocannabinoids and interact with the cannabinoid receptors
- Phytocannabinoids can encourage the body to create more naturally occurring endocannabinoids and their receptors



	THC	CBD	CBG	CBN	CBV	THCV	CSG1	CSG2	CBGA	THCA	CBDV
Relieves pain <i>Analgescic</i>	●	●		●					●		
Suppresses appetite/Helps with weight loss <i>Anorectic</i>							●				
Kills or slows bacteria growth <i>Anti-bacterial</i>		●	●							●	
Reduces blood sugar levels <i>Anti-diabetic</i>		●									
Reduces vomiting and nausea <i>Anti-emetic</i>	●	●									
Reduces seizures and convulsion <i>Anti-epileptic</i>		●					●				
Treats fungal infection <i>Anti-fungal</i>										●	
Reduces inflammation <i>Anti-inflammatory</i>		●	●		●		●	●	●	●	●
Aids sleep <i>Anti-insomnia</i>				●							
Reduces risk of artery blockage <i>Anti-ischemic</i>		●									
Inhibits cell growth in tumors/cancer cells <i>Anti-proliferative</i>		●	●		●					●	●
Treats psoriasis <i>Anti-psoriatic</i>		●									
Tranquillizing/Used to manage psychosis <i>Anti-psychotic</i>		●									
Suppresses muscle spasms <i>Anti-spasmodic</i>	●	●		●						●	
Relieves anxiety <i>Anxiolytic</i>		●									
Stimulates appetite <i>Appetite Stimulant</i>	●										
Promotes bone growth <i>Bone Stimulant</i>		●	●		●		●				
Modulates function in the immune system <i>Immunosuppressive</i>		●									
Reduces contractions in the small intestines <i>Intestinal Anti-prokinetic</i>		●									
Protects nervous system degeneration <i>Neuroprotective</i>		●									

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Common Symptoms & Cannabis

Chronic pain – considered to be not just a symptom but an actual disease

Types of chronic pain:

- Neuropathic – diabetic, nerve damage/pressure, post-chimo
- Orthopedic - disc herniation, spinal stenosis, bone fractures and osteoporosis
- Rheumatic – arthritic, polymyalgia rheumatica and fibromyalgia



Medical cannabis help with: **pain intensity & perception of pain**



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Volume 154, Issue 1, January 2013, Pages 124-134



Amygdala activity contributes to the dissociative effect of cannabis on pain perception

Michael C. Lee ^{a, d}  , Markus Ploner ^{a, b}, Katja Wiech ^a, Ulrike Bingel ^{a, c}, Vishvarani Wanigasekera ^a, Jonathan Brooks ^a, David K. Menon ^d, Irene Tracey ^a



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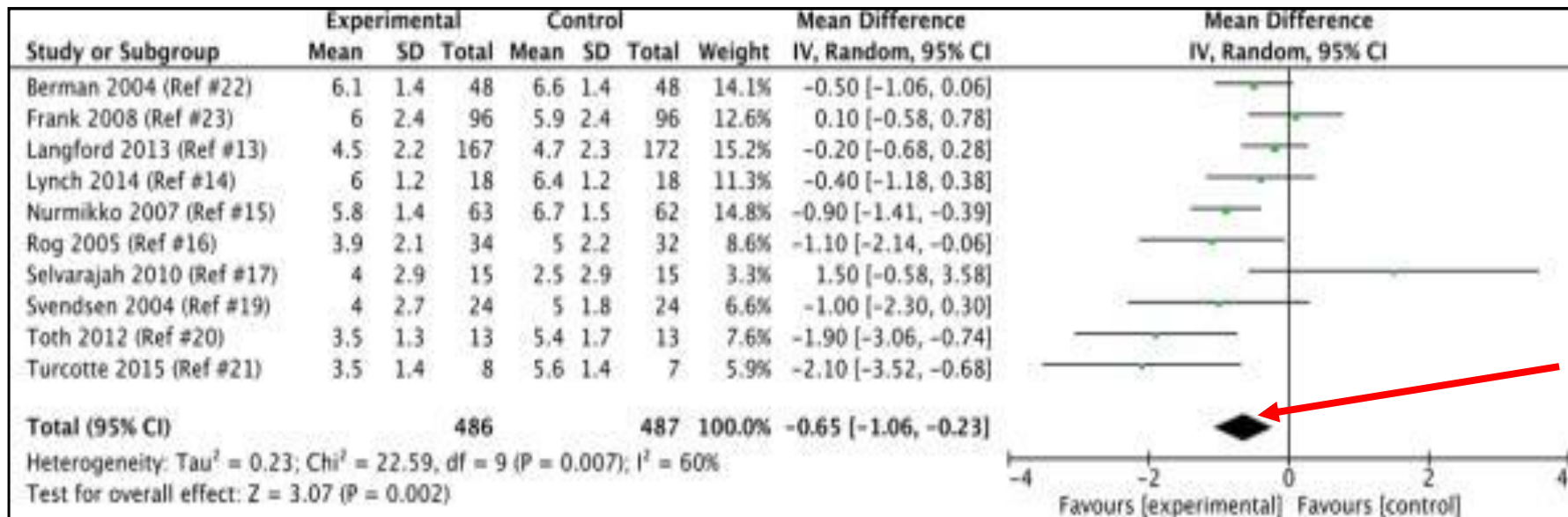
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Selective Cannabinoids for Chronic Neuropathic Pain: A Systematic Review and Meta-analysis

Randomized controlled trials compared selective cannabinoids (dronabinol, nabilone, nabiximols) with conventional treatments or placebo in patients with chronic NP



Meng H et Al ; Anesth Analg. 2017;125(5):1638



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Pain Type	Studies	Findings	Strength of Evidence*
Neuropathic	11 low-ROB studies; combined N = 593: 4 of smoked THC (28, 31, 33, 39); combined N = 150 3 of vaporized THC (36, 40, 47); combined N = 97 3 of nabiximols (24, 27, 42); combined N = 312 1 of oromucosal spray delivering THC or THC+CBD (43); N = 34 1 unclear-ROB study of nabiximols (26); N = 30 1 high-ROB trial (35); N = 125	Studies did not find a clinically significant between-group difference on continuous pain scales, but a higher proportion of intervention patients had clinically significant pain relief up to several months later In a meta-analysis of 9 studies, intervention patients were more likely to report $\geq 30\%$ improvement in pain (combined RR, 1.43 [95% CI, 1.16-1.68]; $I^2 = 38.6\%$; $P = 0.111$)	Low

Table 3. Summary of Evidence for the Harms of Cannabis in Chronic Pain and General Adult

Outcome	Studies	Findings	Strength of Evidence*
General AEs	2 systematic reviews (10, 11) and observational study of chronic pain (50)	Cannabis-based treatments associated with higher overall risk for short-term, nonserious AEs.	-
Motor vehicle accidents	Meta-analysis (51) of 21 observational studies; combined N = 239 739	Increase in collision risk (OR, 1.35 [95% CI, 1.15-1.61]).	Moderate
Mania	1 meta-analysis (63) of 2 prospective studies	Increased incidence of new-onset mania symptoms among populations without diagnosis of bipolar disorder (OR, 2.97 [95% CI, 1.80-4.90])	Low
Psychosis	1 systematic review (64) 8 studies (65-71, 74) including patients without psychotic symptoms at baseline: 3 low ROB, 3 medium ROB, 2 high ROB	History of cannabis use associated with increased risk for psychotic symptoms	Low
Cognitive effects	2 systematic reviews (72, 73)	Active long-term cannabis use associated with small negative effects on all aspects of cognition Mixed, inconsistent findings on long-term effects in past users.	Moderate Insufficient (past use)



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DOI: 10.21767/2471-982X.100014

Effect of Medicinal Cannabis Therapy (MCT) on Severity of Chronic Low Back Pain, Sciatica and Lumbar Range of Motion

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Received date: October 10, 2016; **Accepted date:** November 21, 2016; **Published date:** November 29, 2016

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Results:

- BPI VAS decreased from 8.4 ± 1.4 to 2.0 ± 2.0
- SF12-PCS improved from 47 ± 14 to 55 ± 12
- sagittal plane active range of motion improved from $34^\circ \pm 8^\circ$ degrees to $48^\circ \pm 8^\circ$

Yassin, M., Garti, A., & Robinson, D. (2016). Effect of medicinal cannabis therapy (mct) on severity of chronic low back pain, sciatica and lumbar range of motion. *International Journal of Anesthesiology & Pain Medicine*.



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The Anti-Inflammatory Properties of Terpenoids from *Cannabis*

Ruth Gallily , Zhannah Yekhtin, and Lumír Ondřej Hanuš

Published Online: 8 Dec 2018 | <https://doi-org.rproxy.tau.ac.il/10.1089/can.2018.0014>

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Abstract

Introduction: Cannabinoids are well known to have anti-inflammatory effects in mammals; however, the Cannabis plant also contains other compounds such as terpenoids, whose biological effects have not yet been characterized. The aim of this study was to compare the anti-inflammatory properties of terpenoids with those of cannabidiol (CBD).



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NAP Recommendations

**There is substantial evidence that
cannabis is an effective treatment for
chronic pain in adults**



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Common Symptoms & Cannabis

Sleep Disorder (Insomnia) - Very common and increase with aging

Sleep disorder is segmented into:

- Falling asleep
- Maintaining constant sleep and quality of sleep

Conventional medications leads to numerous side-effects and long terms adverse effects

Mostly through its effect on the central nervous system, cannabis helps with falling asleep (THC) and maintaining quality of sleep (THC & CBD)



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Common Symptoms & Cannabis

Depression and anxiety – depression increases with age

- Symptoms of depression are:
- Sadness
- Lack of motivation
- Insomnia
- Decrease in appetite

Cannabis helps alleviate the symptoms of depression and anxiety by encourage the body to produce serotonin, mimic the calmness and euphoria effects of anandamide.

- Due to the mechanism of the endocannabinoid system, an incorrect treatment might cause worsening in those symptoms



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NiaMedic – Research Platform

- Clinical Research Services - CRO and site management services.
- Chief Science Officer - Prof. Victor Novack, MD, PhD

Collaborators:

- Prof. David (Dedi) Meiri - Technicon.
- Dr. Nirit Bernstein - Volcani Center.
- Soroka Hospital Clinical Research Center.
- UCLA - Cannabis Research Initiative



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Article

Medical Cannabis for Older Patients – Treatment Protocol and Initial Results

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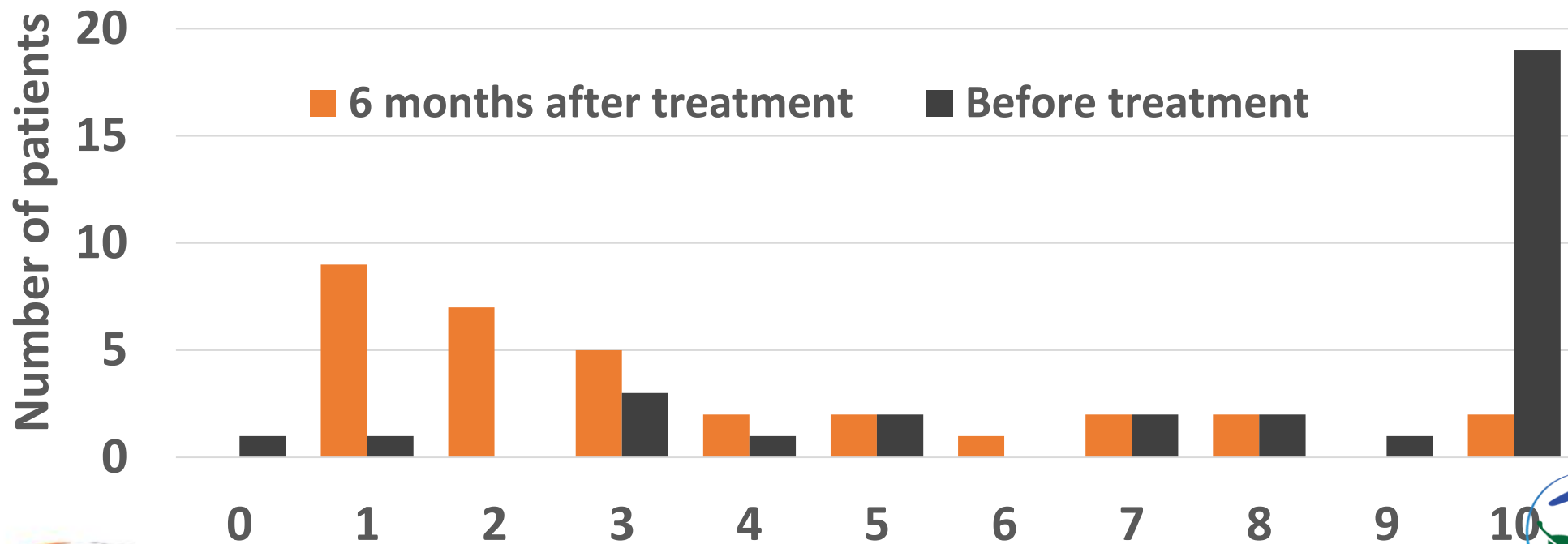


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Assessment of pain intensity on a scale of 0-10 (VAS) at baseline and after 6 months of treatment



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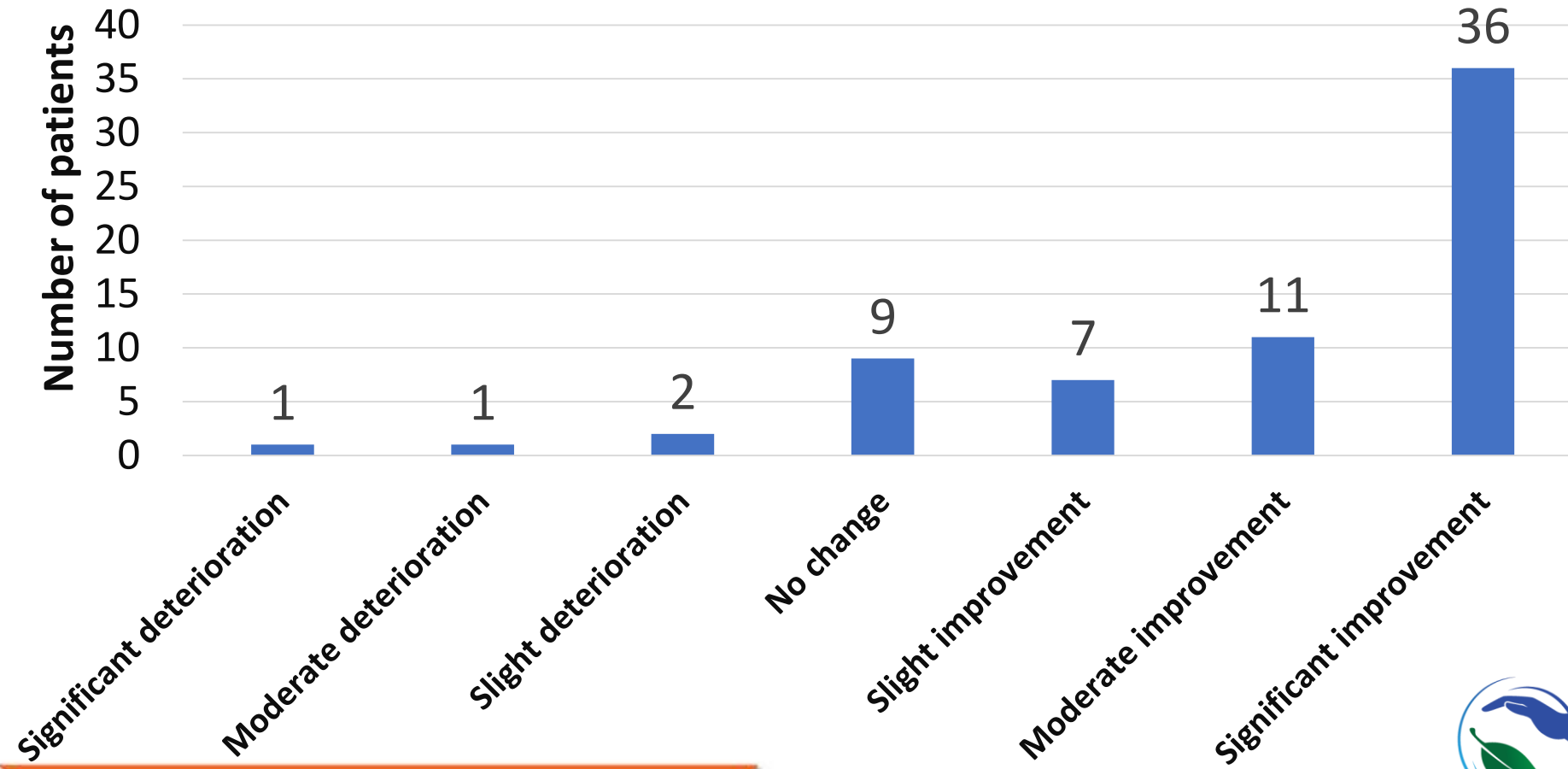
Pain intensity

$p < 0.001$ (N=32, Wilcoxon Signed Rank test)

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Perception of the general effect of medical cannabis on the patients condition on follow-up



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Changes in drug regimens at follow-up

Drug class	Stopped drugs Number of patients (%)	Reduced dose Number of patients (%)	Added a new drug Number of patients (%)
Opioid analgesics	18 (33.3%)	3 (5.6%)	1 (1.9%)
Other analgesic	10 (18.5%)	0 (0%)	1 (1.9%)
Benzodiazepines	8 (14.8%)	3 (5.6%)	1 (1.9%)
Neuropathic pain	6 (11.1%)	3 (5.6%)	2 (3.7%)
SSRI or SNRI	0 (0%)	0 (0%)	0 (0%)
Antihypertensive	7 (13%)	2 (3.7%)	1 (1.9%)
Antidiabetic	3 (5.6%)	0 (0%)	0 (0%)
Anti-psychotics	5 (9.3%)	2 (3.7%)	0 (0%)
Anti-emetics	0 (0%)	0 (0%)	0 (0%)
All other drugs	15 (27.8%)	2 (3.7%)	5 (9.3%)



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Reported adverse events during 6 months of treatment

Adverse event	% of patients
Dizziness	11.9%
Somnolence	8.9%
Dry mouth	7.5%
Confusion and disorientation	7.5%
Psychoactive sensation	6.0%
Nausea	4.5%
Weakness	3.0%
Headache	1.5%
Any adverse event	41.8%





Thank you for listening!

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