

Research

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- [Safety and side effects of cannabidiol, a Cannabis sativa constituent](#) (PubMed)
- [Cannabidiol: From an inactive cannabinoid to a drug with wide spectrum of action](#) (PubMed)
- [Cannabidiol as an emergent therapeutic strategy for lessening the impact of inflammation on oxidative stress](#) (PubMed)
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- [The endocannabinoid system as an emerging target of pharmacotherapy](#) (PubMed)
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- [Cannabis-based medicines–GW pharmaceuticals: High CBD, high THC, medicinal cannabis–GW pharmaceuticals, THC:CBD](#) (PubMed)
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- [Cannabinoids in clinical practice](#) (PubMed)
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- [Pharmacology of cannabinoids](#) (PubMed)
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- [Non-psychotropic plant cannabinoids: new therapeutic opportunities from an ancient herb](#) (PubMed)
- [Opposite effects of delta-9-tetrahydrocannabinol and cannabidiol on human brain function and psychopathology](#) (PubMed)
- [Care and feeding of the endocannabinoid system: a systematic review of potential clinical interventions that upregulate the endocannabinoid system](#) (PubMed)
- [Understanding the molecular aspects of tetrahydrocannabinol and cannabidiol as antioxidants](#) (PubMed)
- [A tale of two cannabinoids: the therapeutic rationale for combining tetrahydrocannabinol and cannabidiol](#) (PubMed)
- [Clinical Studies With Cannabis and Cannabinoids, 2005-2009](#) (O'Shaughnessy's)

ACNE

- [Cannabidiol as a Treatment for Acne?](#) (O'Shaughnessy's)
- [Cannabidiol exerts sebostatic and antiinflammatory effects on human sebocytes](#) (PubMed)
- [The endocannabinoid system of the skin in health and disease: Novel perspectives and therapeutic opportunities](#) (PubMed)
- [Endocannabinoids enhance lipid synthesis and apoptosis of human sebocytes via cannabinoid receptor-2-mediated signaling](#) (PubMed)
- [Endocannabinoid signaling and epidermal differentiation](#) (PubMed)

ADD/ADHD

- [Cannabidiol and clozapine reverse MK-801-induced deficits in social interaction and hyperactivity in Sprague-Dawley rats](#) (PubMed)
- [Searching for a Neurobiological Basis for Self-Medication Theory in ADHD Comorbid With Substance Use Disorders](#) (Pub Med)
- [Subtypes of Attention Deficit — Hyperactivity Disorder \(ADHD\) and cannabis use](#) (PubMed)
- [Childhood and current ADHD symptom dimensions are associated with more severe cannabis outcomes in college students](#) (PubMed)
- [Oral delta 9-tetrahydrocannabinol improved refractory Gilles de la Tourette syndrome in an adolescent by increasing intracortical inhibition: A case report](#) (PubMed)
- [Fitness to drive in spite \(because\) of THC](#) (PubMed)

ADDICTION

- [Inhibition of monoacylglycerol lipase enzyme reduces nicotine withdrawal](#) (PubMed)
- [Cannabidiol reduces cigarette consumption in tobacco smokers](#) (PubMed)
- [Cannabidiol inhibits the reward-facilitating effect of morphine](#) (PubMed)
- [Cannabidiol, a nonpsychotropic component of cannabis, inhibits cue-induced heroin seeking and normalizes discrete mesolimbic neuronal disturbances](#) (PubMed)
- [Differential effect of cannabiniol and cannabidiol on THC-induced responses during abstinence in morphine-dependent rats](#) (PubMed)
- [Impact of Cannabis Use during Stabilization on Methadone Maintenance Treatment](#) (PubMed)
- [Medical cannabis laws and opioid analgesic overdose mortality in the United States, 1999-2010](#) (PubMed)
- [Dysregulation of cannabinoid CB1 receptor and associated signaling networks in brains of cocaine addicts and cocaine-treated rodents](#) (PubMed)
- [Comparison of cannabidiol, antioxidants, and diuretics in reversing binge ethanol-induced neurotoxicity](#) (PubMed)
- [Transdermal delivery of cannabidiol attenuates binge alcohol-induced neurodegeneration in a rodent model of an alcohol use disorder](#) (ScienceDirect)
- [Cannabidiol for the treatment of cannabis withdrawal syndrome](#) (PubMed)
- [Cannabis use disorders are comparatively prevalent among nonwhite racial/ethnic groups and adolescents: a national study](#) (PubMed)

AIDS

- [Cannabidiol inhibits growth and induces programmed cell death in kaposi sarcoma-associated herpes virus-infected endothelium](#) (PubMed)

ALS

- [Cannabis and amyotrophic lateral sclerosis: hypothetical and practical applications, and a call for clinical trials](#) (PubMed)
- [Medical Cannabis Helps ALS Patient Outlive her Own Doctor](#) (Jahan Marcu)

ALZHEIMER'S

- [The therapeutic potential of the endocannabinoid system for Alzheimer's disease](#) (PubMed)
- [Endocannabinoid signalling in Alzheimer's disease](#) (PubMed)
- [A molecular link between the active component of marijuana and Alzheimer's disease pathology](#) (PubMed)
- [Neuroprotective effect of cannabidiol, a non-psychoactive component from Cannabis sativa, on beta-amyloid-induced toxicity in PC12 cells](#) (PubMed)
- [The Potential Therapeutic Effects of THC on Alzheimer's Disease](#) (PubMed)
- [The Role of Endocannabinoid Signaling in the Molecular Mechanisms of Neurodegeneration in Alzheimer's Disease](#) (PubMed)
- [Cannabinoids for the treatment of dementia](#) (PubMed)
- [Cannabidiol in vivo blunts beta-amyloid induced neuroinflammation by suppressing IL-1beta and iNOS expression](#) (PubMed)
- [Cannabidiol: A promising drug for neurodegenerative disorders?](#) (PubMed)
- [Cannabinoid receptor 1 deficiency in a mouse model of Alzheimer's disease leads to enhanced cognitive impairment despite of a reduction in amyloid deposition](#) (PubMed)
- [The role of the endocannabinoid system in Alzheimer's disease: facts and hypotheses](#) (PubMed)
- [The role of phytochemicals in the treatment and prevention of dementia](#) (PubMed)
- [Cannabinoids for the treatment of dementia](#) (PubMed)
- [Cannabidiol Promotes Amyloid Precursor Protein Ubiquitination and Reduction of Beta Amyloid Expression in SHSY5YAPP+ Cells Through PPARγ Involvement](#) (PubMed)
- [Cannabinoids for treatment of Alzheimer's disease: moving toward the clinic](#) (Pub Med)
- [Can Marijuana Prevent Alzheimer's?](#) (Next Avenue)

ANOREXIA

- [Leptin, ghrelin, and endocannabinoids: Potential therapeutic targets in anorexia nervosa](#) (PubMed)
- [The role of the endocannabinoid system in eating disorders: Neurochemical and behavioural preclinical evidence](#) (PubMed)
- [Cancer cachexia and cannabinoids](#) (PubMed)

ANTIBIOTIC RESISTANCE

- [Antibacterial cannabinoids from Cannabis sativa: A structure-activity study](#) (PubMed)
- [Antibacterial activity of delta9-tetrahydrocannabinol and cannabidiol](#) (PubMed)

ANXIETY

- [Cannabidiol, a Cannabis sativa constituent, as an anxiolytic drug](#) (PubMed)
- [**Antidepressant-Like and Anxiolytic-Like Effects of Cannabidiol: A Chemical Compound of Cannabis Sativa**](#) (PubMed)
- [Cannabidiol reduces the anxiety induced by simulated public speaking in treatment-naïve social phobia patients](#) (PubMed)
- [Neural basis of anxiolytic effects of cannabidiol \(CBD\) in generalized social anxiety disorder](#) (PubMed)
- [Central anandamide deficiency predicts stress-induced anxiety: behavioral reversal through endocannabinoid augmentation](#) (PubMed)
- [Effects of cannabidiol \(CBD\) on regional cerebral blood flow](#) (PubMed)
- [The anxiolytic-like effects of cannabidiol injected into the bed nucleus of the stria terminalis are mediated by 5-HT1A receptors](#) (PubMed)
- [The anxiolytic effect of cannabidiol on chronically stressed mice depends on hippocampal neurogenesis: involvement of the endocannabinoid system](#) (PubMed)
- [Plant-based medicines for anxiety disorders, part 2: A review of clinical studies with supporting preclinical evidence](#) (PubMed)

ATHEROSCLEROSIS

- [The role of the endocannabinoid system in atherosclerosis](#) (PubMed)
- [Cannabinoid receptors in atherosclerosis](#) (PubMed)
- [The potential use of cannabidiol in the therapy of metabolic syndrome](#) (PubMed)

ARTHRITIS

- [Preliminary assessment of the efficacy, tolerability and safety of a cannabis-based medicine \(Sativex\) in the treatment of pain caused by rheumatoid arthritis](#) (PubMed)
- [Involvement of the endocannabinoid system in osteoarthritis pain](#) (PubMed)
- [The abnormal cannabidiol analogue O-1602 reduces nociception in a rat model of acute arthritis via the putative cannabinoid receptor GPR55](#) (PubMed)

ASTHMA

- [The role of cannabinoids in inflammatory modulation of allergic respiratory disorders, inflammatory pain and ischemic stroke](#) (PubMed)
- [Allergen challenge increases anandamide in bronchoalveolar fluid of patients with allergic asthma](#) (PubMed)
- [Activation of cannabinoid receptors prevents antigen-induced asthma-like reaction in guinea pigs](#) (PubMed)
- [Endogenous cannabinoid receptor agonists inhibit neurogenic inflammations in guinea pig airways](#) (PubMed)
- [Bronchodilator effect of delta1-tetrahydrocannabinol](#) (PubMed)

AUTISM

- [Mutations found in individuals with autism interfere with endocannabinoid signaling in the brain](#) (Science Daily)
- [Cannabinoid receptor type 2, but not type 1, is up-regulated in peripheral blood mononuclear cells of children affected by autistic disorders](#) (PubMed)
- [A novel approach to the symptomatic treatment of autism](#) (Lester Grinspoon M.D., O'Shaughnessy's)
- [Consequences of cannabinoid and monoaminergic system disruption in a mouse model of autism spectrum disorders](#) (PubMed)
- [Targeting the endocannabinoid system in the treatment of fragile X syndrome](#) (PubMed)

BIPOLAR

- [Cannabinoids in bipolar affective disorder: A review and discussion of their therapeutic potential](#) (PubMed)
- [Cannabidiol was ineffective for manic episode of bipolar affective disorder](#) (PubMed)

CANCER

General

- [Cannabidiol as potential anticancer drug](#) (PubMed)
- [Cannabidiol inhibits angiogenesis by multiple mechanisms](#) (PubMed)
- [The inhibitory effects of cannabidiol on systemic malignant tumors](#) (PubMed)
- [Cannabidiol inhibits cancer cell invasion via upregulation of tissue inhibitor of matrix metalloproteinases-1](#) (PubMed)
- [Marijuana fights cancer and helps manage side effects](#) (Daily Beast)

Lung

- [Cannabidiol inhibits lung cancer cell invasion and metastasis via intercellular adhesion molecule-1C](#) (PubMed)
- [COX-2 and PPAR-γ confer cannabidiol-induced apoptosis of human lung cancer cells](#) (PubMed)
- [Decrease of plasminogen activator inhibitor-1 may contribute to the anti-invasive action of cannabidiol on human lung cancer cells](#) (PubMed)
- [Media ignored expert's shocking findings that marijuana helps prevent lung cancer](#) (O'Shaughnessy's)

Prostate / Colon

- [Towards the use of non-psychoactive cannabinoids for prostate cancer](#) (PubMed)
- [In Vitro Anticancer Activity of Plant-Derived Cannabidiol on Prostate Cancer Cell Lines](#) (Scirp.org)
- [Induction of apoptosis by cannabinoids in prostate and colon cancer cells is phosphatase dependent](#) (PubMed)
- [Chemopreventive effect of the non-psychotropic phytocannabinoid cannabidiol on experimental colon cancer](#) (PubMed)

Breast

- [Antitumor activity of plant cannabinoids with emphasis on the effect of cannabidiol on human breast carcinoma](#) (PubMed)
- [Cannabidiol induces programmed cell death in breast cancer cells by coordinating the cross-talk between apoptosis and autophagy](#) (PubMed)
- [Pathways mediating the effects of cannabidiol on the reduction of breast cancer cell proliferation, invasion, and metastasis](#) (PubMed)
- [Cannabidiol as a novel inhibitor of Id-1 gene expression in aggressive breast cancer cells](#) (PubMed)
- [Cannabidiolic acid, a major cannabinoid in fiber-type cannabis, is an inhibitor of MDA-MB-231 breast cancer cell migration](#) (PubMed)

Glioblastoma / Brain

- [Cannabidiol enhances the inhibitory effects of delta9-tetrahydrocannabinol on human glioblastoma cell proliferation and survival](#) (PubMed)
- [Antitumor effects of cannabidiol, a nonpsychoactive cannabinoid, on human glioma cell lines](#) (PubMed)
- [Systematic review of the literature on clinical and experimental trials on the antitumor effects of cannabinoids in gliomas](#) (PubMed)
- [Cannabidiol inhibits human glioma cell migration through a cannabinoid receptor-independent mechanism](#) (PubMed)
- [Id-1 is a key transcriptional regulator of glioblastoma aggressiveness and a novel therapeutic target](#) (PubMed)
- [Triggering of the TRPV2 channel by cannabidiol sensitizes glioblastoma cells to cytotoxic chemotherapeutic agents](#) (PubMed)
- [Cannabidiol, a non-psychoactive cannabinoid compound, inhibits proliferation and invasion in U87-MG and T98G glioma cells through a multitarget effect](#) (PubMed)
- [Local delivery of cannabinoid-loaded microparticles inhibits tumor growth in a murine xenograft model of glioblastoma multiforme](#) (PubMed)

Leukemia

- [Cannabidiol-induced apoptosis in human leukemia cells: A novel role of cannabidiol in the regulation of p22phox and Nox4 expression](#) (PubMed)
- [Cannabidiol-Induced Apoptosis in Human Leukemia Cells](#) (PubMed)

Skin

- [Anticancer activity of anandamide in human cutaneous melanoma cells](#) (PubMed)

Kaposi Sarcoma

- [Cannabidiol inhibits growth and induces programmed cell death in kaposi sarcoma-associated herpes virus-infected endothelium](#) (PubMed)

Endocrine

- [Endocannabinoids in endocrine and related tumours](#) (PubMed)
- [A comparative study on cannabidiol-induced apoptosis in murine thymocytes and EL-4 thymoma cells](#) (PubMed)

Bladder

- [TRPV2 activation induces apoptotic cell death in human T24 bladder cancer cells: a potential therapeutic target for bladder cancer](#) (PubMed)

Pain

- [Multicenter, double-blind, randomized, placebo-controlled, parallel-group study of the efficacy, safety, and tolerability of THC:CBD extract and THC extract in patients with intractable cancer-related pain](#) (PubMed)
- [Nabiximols for opioid-treated cancer patients with poorly-controlled chronic pain: a randomized, placebo-controlled, graded-dose trial](#) (PubMed)
- [Marijuana extract helps prevent chemo pain](#) (UPI)

COLITIS/CROHN'S DISEASE

- [Cannabidiol in inflammatory bowel diseases: a brief overview](#) (PubMed)
- [Cannabis finds its way into treatment of Crohn's disease](#) (PubMed)
- [Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis](#) (PubMed)
- [Cannabidiol, a safe and non-psychotropic ingredient of the marijuana plant Cannabis sativa, is protective in a murine model of colitis](#) (PubMed)
- [The effects of Delta-tetrahydrocannabinol and cannabidiol alone and in combination on damage, inflammation and in vitro motility disturbances in rat colitis](#) (PubMed)
- [Topical and systemic cannabidiol improves trinitrobenzene sulfonic acid colitis in mice](#) (PubMed)
- [Cannabinoids and the gut: New developments and emerging concepts](#) (PubMed)
- [Endocannabinoids and the gastrointestinal tract](#) (PubMed)
- [Cannabinoids and gastrointestinal motility: Animal and human studies](#) (PubMed)
- [Hergenrather presents study of Crohn's patients as a template for clinical research on Cannabis](#) (O'Shaughnessy's)

DEPRESSION

- [Endocannabinoid system dysfunction in mood and related disorders](#) (PubMed)
- [Antidepressant-Like and Anxiolytic-Like Effects of Cannabidiol: A Chemical Compound of Cannabis Sativa](#) (PubMed)
- [The endocannabinoid system and the treatment of mood and anxiety disorders](#) (PubMed)
- [Endocannabinoid signaling in the etiology and treatment of major depressive illness](#) (PubMed)
- [Antidepressant-like effects of cannabidiol in mice: Possible involvement of 5-HT1A receptors](#) (PubMed)
- [Putative role of endocannabinoid signaling in the etiology of depression and actions of antidepressants](#) (PubMed)
- [Antidepressant-like effect of delta9-tetrahydrocannabinol and other cannabinoids isolated from Cannabis sativa](#) (PubMed)
- [Circulating endocannabinoids and N-acyl ethanolamines are differentially regulated in major depression and following exposure to social stress](#) (PubMed)
- [Serum contents of endocannabinoids are correlated with blood pressure in depressed women](#) (PubMed)
- [The therapeutic potential of the endocannabinoid system for the development of a novel class of antidepressants](#) (PubMed)
- [Antidepressants and Changes in Concentration of Endocannabinoids and N-Acylethanolamines in Rat Brain Structures](#) (PubMed)

DIABETES

- [The impact of marijuana use on glucose, insulin, and insulin resistance among US adults](#) (American Journal of Medicine)
- [Cannabidiol attenuates cardiac dysfunction, oxidative stress, fibrosis, and inflammatory and cell death signaling pathways in diabetic cardiomyopathy](#) (PubMed)
- [Cannabidiol lowers incidence of diabetes in non-obese diabetic mice](#) (PubMed)
- [Neuroprotective and blood-retinal barrier-preserving effects of cannabidiol in experimental diabetes](#) (PubMed)
- [Cannabidiol arrests onset of autoimmune diabetes in NOD mice](#) (PubMed)
- [Diabetic retinopathy: Role of inflammation and potential therapies for anti-inflammation](#) (PubMed)
- [Cannabinoids alter endothelial function in the Zucker rat model of type 2 diabetes](#) (PubMed)
- [The endocannabinoid system in obesity and type 2 diabetes](#) (PubMed)
- [Cannabinoids and endocannabinoids in metabolic disorders with focus on diabetes](#) (PubMed)
- [The endocannabinoid system and plant-derived cannabinoids in diabetes and diabetic complications](#) (PubMed)
- [Cannabinoid-mediated modulation of neuropathic pain and microglial accumulation in a model of murine type I diabetic peripheral neuropathic pain](#) (PubMed)
- [Biochemical and immunohistochemical changes in delta-9-tetrahydrocannabinol-treated type 2 diabetic rats](#) (PubMed)

ENDOCRINE DISORDERS

- [Endocannabinoid system participates in neuroendocrine control of homeostasis](#) (PubMed)
- [The emerging role of the endocannabinoid system in endocrine regulation and energy balance](#) (PubMed)
- [Endocannabinoids in endocrine and related tumours](#) (PubMed)
- [Role of the endocannabinoid system in food intake, energy homeostasis and regulation of the endocrine pancreas](#) (PubMed)
- [The role of the endocannabinoid system in the neuroendocrine regulation of energy balance](#) (PubMed)

EPILEPSY/SEIZURES

- [CBD for children with Dravet's and intractable seizures](#) (Video)
- [Report of a parent survey of cannabidiol-enriched cannabis use in pediatric treatment-resistant epilepsy](#) (PubMed)
- [Medicinal marijuana stops seizures, brings hope to a little girl](#) (Gazette, Colorado Springs)
- [Cannabinoids for epilepsy](#) (PubMed)
- [Cannabis, cannabidiol, and epilepsy – From receptors to clinical response](#) (PubMed)
- [Chronic administration of cannabidiol to healthy volunteers and epileptic patients](#) (PubMed)
- [Endocannabinoid system protects against cryptogenic seizures](#) (PubMed)
- [Cannabidiol: promise and pitfalls](#) (Pub Med)
- [Cannabidiol: Pharmacology and potential therapeutic role in epilepsy and other neuropsychiatric disorders](#) (PubMed)
- [Report of a parent survey of cannabidiol-enriched cannabis use in pediatric treatment-resistant epilepsy](#) (Epilepsy Association of Utah)
- [From the Editors: Cannabidiol and medical marijuana for the treatment of epilepsy](#) (PubMed)
- [Cannabidiol \(CBDV\) suppresses pentylenetetrazole \(PTZ\)-induced increases in epilepsy-related gene expression](#) (PubMed)
- [Cannabidiol exerts anti-convulsant effects in animal models of temporal lobe and partial seizures](#) (PubMed)
- [Cannabidiol displays antiepileptiform and antiseizure properties in vitro and in vivo](#) (PubMed)
- [Hypnotic and antiepileptic effects of cannabidiol](#) (PubMed)
- [The cannabinoids as potential antiepileptics](#) (PubMed)
- [Cannabidiol–antiepileptic drug comparisons and interactions in experimentally induced seizures in rats](#) (PubMed)

FIBROMYALGIA

- [Clinical endocannabinoid deficiency \(CECD\): Can this concept explain therapeutic benefits of cannabis in migraine, fibromyalgia, irritable bowel syndrome and other treatment-resistant conditions?](#) (PubMed)
- [Cannabis use in patients with fibromyalgia: effect on symptoms relief and health-related quality of life](#) (PubMed)

GLAUCOMA

- [Neuroprotective effect of \(-\)-Delta9-tetrahydrocannabinol and cannabidiol in N-methyl-D-aspartate-induced retinal neurotoxicity: involvement of peroxynitrite](#) (PubMed)
- [Effect of sublingual application of cannabinoids on intraocular pressure: A pilot study](#) (PubMed)

HEART DISEASE

- [Is the cardiovascular system a therapeutic target for cannabidiol?](#) (PubMed)
- [Acute administration of cannabidiol in vivo suppresses ischaemia-induced cardiac arrhythmias and reduces infarct size when given at reperfusion](#) (PubMed)
- [Cannabidiol attenuates cardiac dysfunction, oxidative stress, fibrosis, and inflammatory and cell death signaling pathways in diabetic cardiomyopathy](#) (PubMed)
- [The Effect of Cannabidiol on Ischemia/Reperfusion-Induced Ventricular Arrhythmias: The Role of Adenosine A1 Receptors](#) (PubMed)
- [Cannabidiol, a nonpsychoactive Cannabis constituent, protects against myocardial ischemic reperfusion injury](#) (PubMed)
- [Endocannabinoids acting at cannabinoid-1 receptors regulate cardiovascular function in hypertension](#) (PubMed)
- [Oleamide: A fatty acid amide signaling molecule in the cardiovascular system?](#) (PubMed)

HUNTINGTON'S DISEASE

- [Neuroprotective effects of phytocannabinoid-based medicines in experimental models of Huntington's disease](#) (PubMed)
- [Cannabinoids: Novel medicines for the treatment of Huntington's disease](#) (PubMed)
- [Sativex-like combination of phytocannabinoids is neuroprotective in malonate-lesioned rats, an inflammatory model of Huntington's disease: role of CB\(1\) and CB\(2\) receptors](#) (PubMed)
- [Controlled clinical trial of cannabidiol in Huntington's disease](#) (PubMed)
- [Prospects for cannabinoid therapies in basal ganglia disorders](#) (PubMed)
- [Neuroprotective Properties of Cannabigerol in Huntington's Disease: Studies in R6/2 Mice and 3-Nitropropionate-lesioned Mice](#) (PubMed)

INFLAMMATION

- [Cannabidiol as an emergent therapeutic strategy for lessening the impact of inflammation on oxidative stress](#) (PubMed)
- [The endocannabinoid system: an emerging key player in inflammation](#) (PubMed)
- [Anti-inflammatory role of cannabidiol and O-1602 in cerulein-induced acute pancreatitis in mice](#) (PubMed)
- [Cannabinoids, endocannabinoids, and related analogs in inflammation](#) (PubMed)
- [Cannabidiol, a non-psychoactive plant-derived cannabinoid, decreases inflammation in a murine model of acute lung injury: role for the adenosine A\(2A\) receptor](#) (PubMed)
- [Cannabinoids suppress inflammatory and neuropathic pain by targeting \$\alpha 3\$ glycine receptors](#) (PubMed)
- [Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis](#) (PubMed)
- [Diabetic retinopathy: Role of inflammation and potential therapies for anti-inflammation](#) (PubMed)

- [Cannabidiol reduces A \$\beta\$ -induced neuroinflammation and promotes hippocampal neurogenesis through PPAR \$\gamma\$ involvement](#) (PubMed)
- [Cannabidiol attenuates high glucose-induced endothelial cell inflammatory response and barrier disruption](#) (PubMed)
- [Vanilloid TRPV1 receptor mediates the antihyperalgesic effect of the nonpsychoactive cannabinoid, cannabidiol, in a rat model of acute inflammation](#) (PubMed)
- [Cannabidiol attenuates cisplatin-induced nephrotoxicity by decreasing oxidative/nitrosative stress, inflammation, and cell death](#) (PubMed)
- [Cannabinoids in clinical practice](#) (PubMed)

IRRITABLE BOWEL

- [Cannabidiol in inflammatory bowel diseases: A brief overview](#) (PubMed)
- [Cannabidiol reduces intestinal inflammation through the control of neuroimmune axis](#) (PubMed)
- [Clinical endocannabinoid deficiency \(CECD\): Can this concept explain therapeutic benefits of cannabis in migraine, fibromyalgia, irritable bowel syndrome and other treatment-resistant conditions?](#) (PubMed)
- [Cannabinoid actions at TRPV channels: Effects on TRPV3 and TRPV4 and their potential relevance to gastrointestinal inflammation](#) (PubMed)
- [Therapeutic potential of cannabinoid-based drugs](#) (PubMed)
- [Beneficial effect of the non-psychoactive plant cannabinoid cannabigerol on experimental inflammatory bowel disease \(Biochemical Pharmacology\)](#) (PubMed)
- [Cannabinoids and the gut: New developments and emerging concepts](#) (PubMed)
- [Endocannabinoids and the gastrointestinal tract](#) (PubMed)
- [Cannabinoids and gastrointestinal motility: Animal and human studies](#) (PubMed)

KIDNEY DISEASE

- [Cannabidiol attenuates cisplatin-induced nephrotoxicity by decreasing oxidative/nitrosative stress, inflammation, and cell death](#) (PubMed)

LIVER DISEASE

- [The endocannabinoid system and liver diseases](#) (PubMed)
- [Cannabidiol protects against hepatic ischemia/reperfusion injury by attenuating inflammatory signaling and response, oxidative/nitrosative stress, and cell death](#) (PubMed)
- [Cannabidiol causes activated hepatic stellate cell death through a mechanism of endoplasmic reticulum stress-induced apoptosis](#) (PubMed)
- [Therapeutic potential of cannabidiol against ischemia/reperfusion liver injury in rats](#) (PubMed)
- [Role of myeloid-derived suppressor cells in amelioration of experimental autoimmune hepatitis following activation of TRPV1 receptors by cannabidiol](#) (PubMed)
- [Cannabidiol improves brain and liver function in a fulminant hepatic failure-induced model of hepatic encephalopathy in mice](#) (PubMed)
- [Cannabidiol ameliorates cognitive and motor impairments in mice with bile duct ligation](#) (PubMed)

METABOLIC SYNDROME

- [The impact of marijuana use on glucose, insulin, and insulin resistance among US adults](#) (American Journal of Medicine)
- [The potential use of cannabidiol in the therapy of metabolic syndrome](#) (PubMed)
- [Cannabinoids and endocannabinoids in metabolic disorders with focus on diabetes](#) (PubMed)

MIGRAINE

- [Clinical endocannabinoid deficiency \(CECD\): Can this concept explain therapeutic benefits of cannabis in migraine, fibromyalgia, irritable bowel syndrome and other treatment-resistant conditions?](#) (PubMed)
- [Effects of anandamide in migraine: data from an animal model](#) (PubMed)
- [Cannabinoids and hallucinogens for headache](#) (PubMed)
- [The endocannabinoid system and migraine](#) (PubMed)
- [Variations in the cannabinoid receptor 1 gene predispose to migraine](#) (PubMed)

MOOD DISORDERS

- [Multiple mechanisms involved in the large-spectrum therapeutic potential of cannabidiol in psychiatric disorders](#) (PubMed)
- [The endocannabinoid system and the treatment of mood and anxiety disorders](#) (PubMed)
- [The endocannabinoid system and psychiatric disorders](#) (PubMed)
- [The endocannabinoid system in the regulation of emotions throughout lifespan: A discussion on therapeutic perspectives](#) (PubMed)
- [Endocannabinoid system dysfunction in mood and related disorders](#) (PubMed)
- [Effects of cannabidiol \(CBD\) on regional cerebral blood flow](#) (PubMed)

MOTION SICKNESS

- [Motion sickness, stress and the endocannabinoid system](#) (PubMed)

MULTIPLE SCLEROSIS

- [Sativex for the management of multiple sclerosis symptoms](#) (PubMed)
- [THC and CBD oromucosal spray \(Sativex®\) in the management of spasticity associated with multiple sclerosis](#) (PubMed)
- [Clinical efficacy and effectiveness of Sativex, a combined cannabinoid medicine, in multiple sclerosis-related spasticity](#) (PubMed)
- [Cannabidiol provides long-lasting protection against the deleterious effects of inflammation in a viral model of multiple sclerosis: A role for A2A receptors](#) (PubMed)
- [Oromucosal delta9-tetrahydrocannabinol/cannabidiol for neuropathic pain associated with multiple sclerosis: An uncontrolled, open-label, 2-year extension trial](#) (PubMed)
- [Nabiximols in the treatment of spasticity, pain and urinary symptoms due to multiple sclerosis](#) (PubMed)
- [Sativex long-term use: An open-label trial in patients with spasticity due to multiple sclerosis](#) (PubMed)
- [A double-blind, randomized, placebo-controlled, parallel-group study of Sativex, in subjects with symptoms of spasticity due to multiple sclerosis](#) (PubMed)
- [Meta-analysis of cannabis based treatments for neuropathic and multiple sclerosis-related pain](#) (PubMed)
- [Sativex: Clinical efficacy and tolerability in the treatment of symptoms of multiple sclerosis and neuropathic pain](#) (PubMed)

NAUSEA

- [Regulation of nausea and vomiting by cannabinoids and the endocannabinoid system](#) (PubMed)
- [Cannabidiol, a non-psychoactive component of cannabis, attenuates vomiting and nausea-like behaviour via indirect agonism of 5-HT\(1A\) somatodendritic autoreceptors in the dorsal raphe nucleus](#) (PubMed)
- [Cannabidiolic acid prevents vomiting in Suncus murinus and nausea-induced behaviour in rats by enhancing 5-HT1A receptor activation](#) (PubMed)
- [Interaction between non-psychoactive cannabinoids in marijuana: effect of cannabigerol \(CBG\) on the anti-nausea or anti-emetic effects of cannabidiol \(CBD\) in rats and shrews](#) (PubMed)

- [Regulation of nausea and vomiting by cannabinoids](#) (PubMed)
- [Cannabidiol, a non-psychoactive component of cannabis and its synthetic dimethylheptyl homolog suppress nausea in an experimental model with rats](#) (PubMed)
- [Preliminary efficacy and safety of an oromucosal standardized cannabis extract in chemotherapy-induced nausea and vomiting](#) (PubMed)

NEURODEGENERATION

- [Cannabidiol: A promising drug for neurodegenerative disorders?](#) (PubMed)
- [Cannabidiol for neurodegenerative disorders: Important new clinical applications for this phytocannabinoid?](#) (PubMed)
- [Memory-rescuing effects of cannabidiol in an animal model of cognitive impairment relevant to neurodegenerative disorders](#) (PubMed)

NEUROPATHIC PAIN

- [Meta-analysis of cannabis based treatments for neuropathic and multiple sclerosis-related pain](#) (PubMed)
- [Sativex: Clinical efficacy and tolerability in the treatment of symptoms of multiple sclerosis and neuropathic pain](#) (PubMed)
- [Cannabis, pain, and sleep: Lessons from therapeutic clinical trials of Sativex, a cannabis-based medicine](#) (PubMed)
- [Sativex successfully treats neuropathic pain characterised by allodynia: A randomised, double-blind, placebo-controlled clinical trial](#) (PubMed)
- [Cannabinoids for neuropathic pain](#) (PubMed)
- [Neuropathic orofacial pain: Cannabinoids as a therapeutic avenue](#) (PubMed)
- [Oromucosal delta9-tetrahydrocannabinol/cannabidiol for neuropathic pain associated with multiple sclerosis: an uncontrolled, open-label, 2-year extension trial](#) (PubMed)
- [The non-psychoactive cannabis constituent cannabidiol is an orally effective therapeutic agent in rat chronic inflammatory and neuropathic pain](#) (PubMed)
- [Vanilloid TRPV1 receptor mediates the antihyperalgesic effect of the nonpsychoactive cannabinoid, cannabidiol, in a rat model of acute inflammation](#) (PubMed)
- [Cannabidiol inhibits paclitaxel-induced neuropathic pain through 5-HT1A receptors without diminishing nervous system function or chemotherapy efficacy](#) (PubMed)
- [Antihyperalgesic effect of a Cannabis sativa extract in a rat model of neuropathic pain: Mechanisms involved](#) (PubMed)
- [Non-psychoactive cannabinoids modulate the descending pathway of antinociception in anaesthetized rats through several mechanisms of action](#) (PubMed)
- [Cannabinoids suppress inflammatory and neuropathic pain by targeting \$\alpha 3\$ glycine receptors](#) (PubMed)
- [Role of the cannabinoid system in pain control and therapeutic implications for the management of acute and chronic pain episodes](#) (PubMed)
- [Cannabinoids in the management of difficult to treat pain](#) (PubMed)
- [Multicenter, double-blind, randomized, placebo-controlled, parallel-group study of the efficacy, safety, and tolerability of THC:CBD extract and THC extract in patients with intractable cancer-related pain](#) (PubMed)
- [Marijuana extract helps prevent chemo pain](#) (UPI)
- [Pot users less likely to take painkillers](#) (American News Report)

OBESITY

- [The impact of marijuana use on glucose, insulin, and insulin resistance among US adults](#) (PubMed)
- [Cannabinol and cannabidiol exert opposing effects on rat feeding patterns](#) (PubMed)
- [Cannabis and \$\Delta 9\$ -tetrahydrocannabinol \(THC\) for weight loss?](#) (PubMed)
- [The endocannabinoid system in obesity and type 2 diabetes](#) (PubMed)
- [Role of the endocannabinoid system in abdominal obesity and the implications for cardiovascular risk](#) (PubMed)
- [Cannabinoids and endocannabinoids in metabolic disorders with focus on diabetes](#) (PubMed)

OBSESSIVE COMPULSIVE DISORDER (OCD)

- [Plasma and brain pharmacokinetic profile of cannabidiol \(CBD\), cannabidivarin \(CBDV\), \$\Delta^9\$ -tetrahydrocannabivarin \(THCV\) and cannabigerol \(CBG\) in rats and mice following oral and intraperitoneal administration and CBD action on obsessive-compulsive behaviour](#) (PubMed)

OSTEOPOROSIS

- [Cannabinoid receptors as target for treatment of osteoporosis: A tale of two therapies](#) (PubMed)
- [Cannabinoids and bone: Friend or foe?](#) (PubMed)
- [Cannabinoid receptor type 1 protects against age-related osteoporosis by regulating osteoblast and adipocyte differentiation in marrow stromal cells](#) (PubMed)
- [Cannabinoids and the skeleton: From marijuana to reversal of bone loss](#) (PubMed)
- [The endovanilloid/endocannabinoid system: A new potential target for osteoporosis therapy](#) (PubMed)
- [The endovanilloid/endocannabinoid system in human osteoclasts: Possible involvement in bone formation and resorption](#) (PubMed)
- [Endocannabinoids and the regulation of bone metabolism](#) (PubMed)
- [Cannabinoid receptors and the regulation of bone mass](#) (PubMed)
- [Natural products as alternative treatments for metabolic bone disorders and for maintenance of bone health](#) (PubMed)
- [Peripheral cannabinoid receptor, CB2, regulates bone mass](#) (PubMed)
- [Regulation of bone mass, bone loss and osteoclast activity by cannabinoid receptors](#) (PubMed)
- [Long-chain polyunsaturated fatty acids may mutually benefit both obesity and osteoporosis](#) (PubMed)
- [Skeletal lipidomics: Regulation of bone metabolism by fatty acid amide family](#) (PubMed)

PARKINSON'S DISEASE

- [Prospects for cannabinoid therapies in basal ganglia disorders](#) (PubMed)
- [Evaluation of the neuroprotective effect of cannabinoids in a rat model of Parkinson's disease: Importance of antioxidant and cannabinoid receptor-independent properties](#) (PubMed)
- [Cannabinoids provide neuroprotection against 6-hydroxydopamine toxicity in vivo and in vitro: relevance to Parkinson's disease](#) (PubMed)
- [Cannabidiol can improve complex sleep-related behaviours associated with rapid eye movementsleep behaviour disorder in Parkinson's disease patients: a case series](#) (PubMed)
- [Cannabidiol for the treatment of psychosis in Parkinson's disease](#) (PubMed)
- [Symptom-relieving and neuroprotective effects of the phytocannabinoid \$\Delta^9\$ -THCV in animal models of Parkinson's disease](#) (PubMed)
- [Therapeutic potential of cannabinoids in CNS disease](#) (PubMed)

PRION/MAD COW DISEASE (MCD)

- [Nonpsychoactive cannabidiol prevents prion accumulation and protects neurons against prion toxicity](#) (PubMed)
- [Cannabidiol: A prion therapy for mice?](#) (PubMed)

POST TRAUMATIC STRESS DISORDER (PTSD)

- [The endocannabinoid system provides an avenue for evidence-based treatment development for PTSD](#) (PubMed)
- [Reductions in circulating endocannabinoid levels in individuals with post-traumatic stress disorder following exposure to the world trade center attacks](#) (PubMed)
- [Enhancing cannabinoid neurotransmission augments the extinction of conditioned fear](#) (PubMed)
- [Cannabidiol blocks long-lasting behavioral consequences of predator threat stress: Possible involvement of 5HT1A receptors](#) (PubMed)

- [Stress switches cannabinoid type-1 \(CB1\) receptor-dependent plasticity from LTD to LTP in the bed nucleus of the stria terminalis](#) (PubMed)
- [Mitigation of post-traumatic stress symptoms by Cannabis resin: A review of the clinical and neurobiological evidence](#) (PubMed)
- [Cannabinoid modulation of fear extinction brain circuits: A novel target to advance anxiety treatment](#) (PubMed)
- [The endocannabinoid system and extinction learning](#) (PubMed)
- [A current overview of cannabinoids and glucocorticoids in facilitating extinction of aversive memories: potential extinction enhancers](#) (PubMed)
- [Cannabinoids and traumatic stress modulation of contextual fear extinction and GR expression in the amygdala-hippocampal-prefrontal circuit](#) (PubMed)
- [Non-antidepressant long-term treatment in post-traumatic stress disorder](#) (PubMed)
- [The anxiolytic effect of cannabidiol on chronically stressed mice depends on hippocampal neurogenesis: Involvement of the endocannabinoid system](#) (PubMed)
- [Modulation of Fear Memory by Dietary Polyunsaturated Fatty Acids via Cannabinoid Receptors](#) (PubMed)

RHEUMATISM

- [Cannabidiol as an emergent therapeutic strategy for lessening the impact of inflammation on oxidative stress](#) (PubMed)

SCHIZOPHRENIA

- [Cannabidiol, a Cannabis sativa constituent, as an antipsychotic drug](#) (PubMed)
- [Cannabidiol as a potential treatment for psychosis](#) (PubMed)
- [Cannabidiol enhances anandamide signaling and alleviates psychotic symptoms of schizophrenia](#) (PubMed)
- [Medical use of cannabis. Cannabidiol: A new light for schizophrenia?](#) (PubMed)
- [A critical review of the antipsychotic effects of cannabidiol: 30 years of a translational investigation](#) (PubMed)
- [Peripheral endocannabinoid system dysregulation in first-episode psychosis](#) (PubMed)
- [Cannabinoids and schizophrenia: Therapeutic prospects](#) (PubMed)
- [Antipsychotic-like effects of cannabidiol and rimonabant: Systematic review of animal and human studies](#) (PubMed)
- [Cannabidiol monotherapy for treatment-resistant schizophrenia](#) (PubMed)
- [Cannabis with high cannabidiol content is associated with fewer psychotic experiences](#) (PubMed)
- [Marijuana compound treats schizophrenia with few side effects: Clinical trial](#) (Time)
- [Clearing the smoke: what do we know about adolescent cannabis use and schizophrenia?](#) (PubMed)

SICKLE CELL ANEMIA

- [Pain-related behaviors and neurochemical alterations in mice expressing sickle hemoglobin: Modulation by cannabinoids](#) (Pub Med)
- [Cannabis use in sickle cell disease: A questionnaire study](#) (Pub Med)

SKIN CONDITIONS

- [Cannabinoids inhibit human keratinocyte proliferation through a non-CB1/CB2 mechanism and have a potential therapeutic value in the treatment of psoriasis](#) (PubMed)
- [Cannabidiol exerts sebostatic and antiinflammatory effects on human sebocytes](#) (PubMed)
- [The endocannabinoid system of the skin in health and disease: Novel perspectives and therapeutic opportunities](#) (PubMed)
- [Epigenetic control of skin differentiation genes by phytocannabinoids](#) (PubMed)

- [A novel control of human keratin expression: cannabinoid receptor 1-mediated signaling down-regulates the expression of keratins K6 and K16 in human keratinocytes in vitro and in situ](#) (PubMed)
- [Endocannabinoids modulate human epidermal keratinocyte proliferation and survival via the sequential engagement of cannabinoid receptor-1 and transient receptor potential vanilloid-1](#) (PubMed)
- [Cannabinoid 1 receptors in keratinocytes modulate proinflammatory chemokine secretion and attenuate contact allergic inflammation](#) (PubMed)
- [Attenuation of allergic contact dermatitis through the endocannabinoid system](#) (PubMed)
- [Topical cannabinoid agonists. An effective new possibility for treating chronic pruritus](#) (PubMed)

SLEEP DISORDERS

- [The nonpsychoactive Cannabis constituent cannabidiol is a wake-inducing agent](#) (PubMed)
- [Cannabis, pain, and sleep: Lessons from therapeutic clinical trials of Sativex, a cannabis-based medicine](#) (PubMed)
- [Effects of acute systemic administration of cannabidiol on sleep-wake cycle in rats](#) (PubMed)
- [Effect of Delta-9-tetrahydrocannabinol and cannabidiol on nocturnal sleep and early-morning behavior in young adults](#) (PubMed)
- [Cannabidiol, a constituent of Cannabis sativa, modulates sleep in rats](#) (PubMed)
- [Endocannabinoid modulation of cortical up-states and NREM sleep](#) (PubMed)
- [Intranodose ganglion injections of dronabinol attenuate serotonin-induced apnea in Sprague-Dawley rat](#) (PubMed)

SPINAL CORD INJURY

- [Cannabidiol-treated rats exhibited higher motor score after cryogenic spinal cord injury](#) (PubMed)

STRESS

- [Endogenous cannabinoid signaling is essential for stress adaptation](#) (PubMed)
- [Regulation of endocannabinoid signaling by stress: Implications for stress-related affective disorders](#) (PubMed)
- [Functional interactions between stress and the endocannabinoid system: from synaptic signaling to behavioral output](#) (PubMed)
- [Neuromodulators, stress and plasticity: a role for endocannabinoid signalling](#) (PubMed)
- [Downregulation of endocannabinoid signaling in the hippocampus following chronic unpredictable stress](#) (PubMed)
- [Endocannabinoids and stress](#) (PubMed)
- [Stress regulates endocannabinoid-CB1 receptor signaling](#) (PubMed)
- [Endocannabinoid-mediated modulation of stress responses: Physiological and pathophysiological significance](#) (PubMed)
- [Cannabinoid receptor activation prevents the effects of chronic mild stress on emotional learning and LTP in a rat model of depression](#) (PubMed)
- [Cannabinoids ameliorate impairments induced by chronic stress to synaptic plasticity and short-term memory](#) (PubMed)
- [The anxiolytic effect of cannabidiol on chronically stressed mice depends on hippocampal neurogenesis: involvement of the endocannabinoid system](#) (PubMed)

STROKE/TRAUMATIC BRAIN INJURY (TBI)

- [Cannabidiol, a nonpsychoactive Cannabis constituent, protects against myocardial ischemic reperfusion injury](#) (PubMed)
- [Cannabidiol prevents infarction via the non-CB1 cannabinoid receptor mechanism](#) (PubMed)

- [Cannabidiol prevents cerebral infarction via a serotonergic 5-hydroxytryptamine1A receptor-dependent mechanism](#) (PubMed)
- [Protective Effects of Cannabidiol Against Hippocampal Cell Death and Cognitive Impairment Induced by Bilateral Common Carotid Artery Occlusion in Mice](#) (PubMed)
- [Repeated treatment with cannabidiol but not Delta9-tetrahydrocannabinol has a neuroprotective effect without the development of tolerance](#) (PubMed)