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CANNABINOID CHRONICLES

Medical Cannabis News and Information

Huntingdon's Disease and Medical Cannabis

Huntington's disease (HD) is an inherited disease that causes the progressive degeneration of nerve cells in the brain, specifically the basal ganglia and cerebral cortex. HD has a broad impact on a person's functional abilities and usually results in movement, thinking (cognitive) and psychiatric disorders. The disease leads to incapacitation and, eventually, death (generally due to other health complications).

Symptoms include: emotional turmoil (depression, apathy, irritability, anxiety, and obsessive behaviour); cognitive loss (inability to focus, plan, recall or make decisions, impaired insight); physical deterioration (weight loss, involuntary movements, diminished coordination, difficulty walking, talking, swallowing).

The HD gene is dominant, which means that each child of a parent with HD has a 50% chance of inheriting the disease and is said to be "at-risk". Males and females share the same risk to inherit HD. It occurs in all races. Most people with HD develop signs and symptoms in their 30s or 40s, but the onset of disease may be earlier or later in life. Life expectancy averages from 10 to 30 years after diagnosis.

There is no known cure yet and symptoms are managed by drugs and other therapies.

There is a limited amount of information available on the potential for cannabinoid therapies as treatment for HD. However, a study using an animal model (mice with the human mutant huntingtin ("HMH") exon 1), published in ***Brain*** in 2011 found that:

- cannabinoid therapy reduced Huntington's-like symptoms
- inhibiting expression of the CB1 receptor may lead to a predisposition for neuronal damage
- the reduction of type 1 cannabinoid (CB1) receptors in the basal ganglia led to increases in Huntington's-like symptom
- CB1 receptors may work to control expression of a neuron-protective protein in the brain

These results suggest that the cannabinoid receptors may play a significant role in the biological mechanisms that lead to HD. Additionally, there is mounting evidence that cannabinoids have the potential to work as neuroprotective agents.

While no evidence has been gathered evaluating the use of whole-plant cannabis as a treatment option for patients with HD, there is a significant amount of information on its effects on symptoms often experienced by patients with HD, such as pain, sleep disturbance, anxiety, and depression. It is suggested, however, to limit or avoid psychoactive cannabinoid strains (i.e. THC) that may exacerbate psychological disorders. Much more research is needed.

Source: www.huntingtonsociety.ca/learn-about-hd/what-is-huntingtons/
www.medicaljane.com/2014/11/18/huntingtons-disease-and-medical-marijuana/#
http://brain.oxfordjournals.org/content/early/2010/10/07/brain.awq278.abstract
Image: http://images.sciencedaily.com/2009/11/091115134134-large.jpg

International Association for Cannabinoid Medicines (IACM) Bulletin

Cannabidiol improves bone fracture healing in rats

Scientists of the Bone Laboratory of Hebrew University of Jerusalem, Israel, reported that the major non-psychoactive cannabis constituent, cannabidiol (CBD), enhances the biomechanical properties of healing bone fractures in rats. The maximal load capacity, but not the stiffness, of thigh bones from rats given a mixture of CBD and THC for 8 weeks was markedly increased by CBD. This effect does not apply to THC, and a combination with THC was not advantageous over CBD alone.

The callus material density was unaffected by CBD and/or THC. Fracture callus is a mass of heterogeneous tissue, which is later transformed to bone. CBD stimulated enzymes responsible for the cross-linking of collagen, the main structural protein of connective tissues. Authors wrote that this "is likely to contribute to the improved biomechanical properties of the fracture callus. Taken together, these data show that CBD leads to improvement in fracture healing and demonstrate the critical mechanical role of collagen cross-linking enzymes."

Source: http://www.ncbi.nlm.nih.gov/pubmed/25801536

Inhaled cannabis reduced diabetic peripheral neuropathy pain in controlled study

Inhaled cannabis demonstrated a dose dependent reduction in peripheral treatment-refractory neuropathic pain in 16 patients with diabetes. These results of a clinical study by researchers of the University of California in San Diego were published in The Journal of Pain. In a cross-over design, each participant was exposed to a single dosing session of placebo, low (1% THC), medium (4% THC), or high (7% THC) doses of cannabis. After inhalation by a vaporizer the pain intensity and subjective highness score was measured at 5, 15, 30, 45, and 60 minutes and then every 30 minutes for an additional 3 hours.

There was a significant difference in spontaneous pain scores between doses. There was also a significant effect of the high dose on pain evoked by a foam brush and fibers (so-called von Frey hairs). Authors noted that "this adds preliminary evidence to support further research on the efficacy of the cannabinoids in neuropathic pain."

Source: http://www.ncbi.nlm.nih.gov/pubmed/25843054

Phase 3 clinical study on CBD rich cannabis extract started in children with Dravet syndrome

GW Pharmaceuticals announced it has initiated the Phase 3 part of a clinical trial of Epidiolex (cannabidiol or CBD) for the treatment of Dravet syndrome, a rare treatment-resistant form of childhood epilepsy.

Source: http://www.gwpharm.com/GW Pharmaceuticals Initiates First Phase 3 Pivotal Trial for Epidiolex in Dravet Syndrome.aspx

Oral cannabis extracts were effective in one third of children with epilepsy in an open study

About one third of children suffering from different forms of epilepsy experienced a more than 50% reduction in seizures by the use of oral cannabis extracts, researchers at the Medical Campus of the University of Colorado in Denver reported in the journal Epilepsy & Behavior. They conducted a retrospective chart review of children and adolescents who were given cannabis extracts. Seventy-five patients were identified of which 57% reported any improvement in seizure control and 33% reported a more than 50% reduction in seizures (responders).

The responder rate varied based on epilepsy syndrome: Dravet 23%, Doose (Myoclonic astatic epilepsy) 0%, and Lennox-Gastaut syndrome 88.9%. Additional benefits reported included: improved behavior/alertness (33%), improved language (10%), and improved motor skills (10%). Adverse events occurred in 44% of patients including somnolence/fatigue (12%). and increased seizures (13%). This study provides Class III evidence that oral cannabis extract is well tolerated by children and adolescents with epilepsy.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25845492

Blood levels of the endocannabinoid 2-AG are increased in patients suffering from Alzheimer's disease (AD)

A recent study investigated the activation of the endocannabinoid system in Alzheimer's disease in vivo and the possible intermediate role of atherosclerosis.

The AD patients presented high plasma levels of endocannabinoid 2-AG. This may be a protective mechanism hindering neurodegeneration, but it may also play an ambivalent role on cerebrovascular circulation.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25818503

Activation of CB2 receptors in certain brain cells may be neuroprotective in patients with Parkinson's disease

The number of CB2 receptors is elevated in microglial cells, immune cells in the brain, of patients with Parkinson's disease (PD). Experiments with a mouse model of PD demonstrated that the activation of the CB2 receptor has neuroprotective effects.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25849525

Cannabis may slow progression of multiple sclerosis

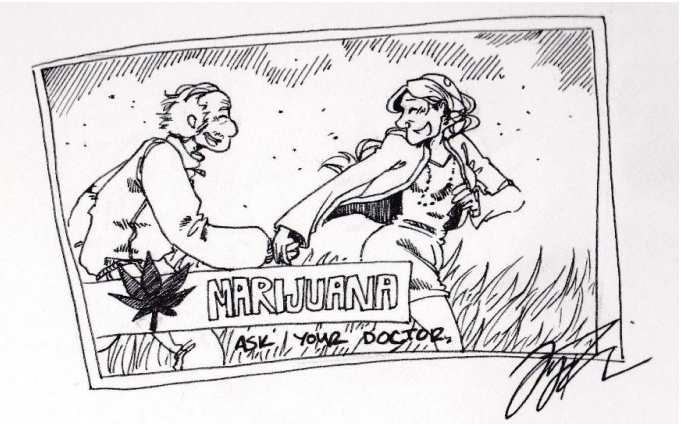
In a mouse model of multiple sclerosis (Theiler's murine encephalomyelitis) a cannabis extract, which was similar to Sativex, slowed the progression of the disease.

Source: http://www.ncbi.nlm.nih.gov/pubmed/25671648

Cannabis Research in America and the CARERS Act

The US government is planning to spend nearly $70 million on cannabis research through the University of Mississippi, which houses the only federally legal cannabis garden in the United States. The award is a renewal of a contract with the university that the federal government has held for more than 40 years. Cannabis grown at the university is the only cannabis legally cultivated, processed and distributed by the federal government. Those crops are also the sole source of cannabis used in Food and Drug Administration-sanctioned research into the plant's medical potential. The Drug Enforcement Administration, which must approve any potential researcher's license to handle and test the drug in the US, has been accused of obstructing research into the plant. Critics also contend that federal research focuses too much on the negative aspects of cannabis rather than the potential medical benefits. However, a bill has recently been introduced in US Congress aiming to break up the federal government's cannabis monopoly by allowing three additional research facilities to grow the plant. The bill, known as the CARERS (The Compassionate Access, Research Expansion and Respect States) Act, would also reclassify cannabis as a less dangerous substance (from Schedule 1 to Schedule 2, recognizing legitimate medical value), which could make research easier. The Act also removes cannabidiol (CBD) from the federal definition of cannabis, allows banking institutions to process transactions with legitimate state regulated cannabis based businesses, allows Veterans Affairs Medical Center doctors to advise and assist patients regarding use of medical cannabis in states where it is legal, allows states to set their own medical cannabis policies, and eliminates federal prosecution of patients, providers, and businesses in states with medical cannabis programs.

Source: www.huffingtonpost.com/2015/03/24/medical-marijuana-legalization_n_6933228.html



By Jay Fondin From: www.gwhatchet.com/2014/03/03/op-ed-why-a-high-school-student-like-me-needs-medical-marijuana/

Cerebral Palsy and Cannabis

Cerebral palsy (CP) is a disorder of movement, muscle tone or posture that is caused by damage to one or more specific areas of the brain, usually occurring during fetal development; before, during, or shortly after birth; or during infancy.

In general, cerebral palsy causes impaired movement associated with exaggerated reflexes, floppiness or rigidity of the limbs and trunk, abnormal posture, involuntary movements, unsteadiness of walking, or some combination of these.

Factors that may lead to problems with brain development include: random mutations in genes that control brain development; maternal infections that affect the developing fetus; fetal stroke, a disruption of blood supply to the brain; lack of oxygen to the brain (asphyxia) related to difficult labor (rare); infant infections that cause inflammation in or around the brain; traumatic head injury from a vehicle accident or fall.

Patients with cerebral palsy may experience pain (often as a result of stiff muscles), sleep disturbance, incontinence, developmental, hearing, speech and vision impairments, and other signs and symptoms. 35%-50% of children with cerebral palsy develop seizure disorders. Other complications can include lung disease and breathing disorders, neurological conditions and osteoarthritis.

To date, no high-quality evidence (e.g. results from studies using double-blinding, a placebo control, and/or randomization) has been gathered assessing the effects of medical cannabis on patients with CP. However, the potential for cannabis as medicine for patients with CP has been explored to some degree in the medical community with promising results.

In a survey study on pain treatments used by patients with CP, the researchers found, "The treatment that was rated as providing the most relief was marijuana; however, less than 5% of the sample reported ever using this drug for pain."

One case study published in the *Reviews in Neurological Diseases* (www.ncbi.nlm.nih.gov/pubmed/17609644) found that a 45-year old man with cerebral palsy and epilepsy showed "marked improvement with the use of marijuana."

Given that cerebral palsy patients with intractable symptoms often need to explore other options when standard therapies fail, medical cannabis may be a potential add-on treatment option. More high-quality research needs to be conducted.

Sources: http://www.medicaljane.com/2014/07/07/cannabis-classroom-cerebral-palsy-and-medical-marijuana/
http://www.mayoclinic.org/diseases-conditions/cerebral-palsy/basics/definition/con-20030502

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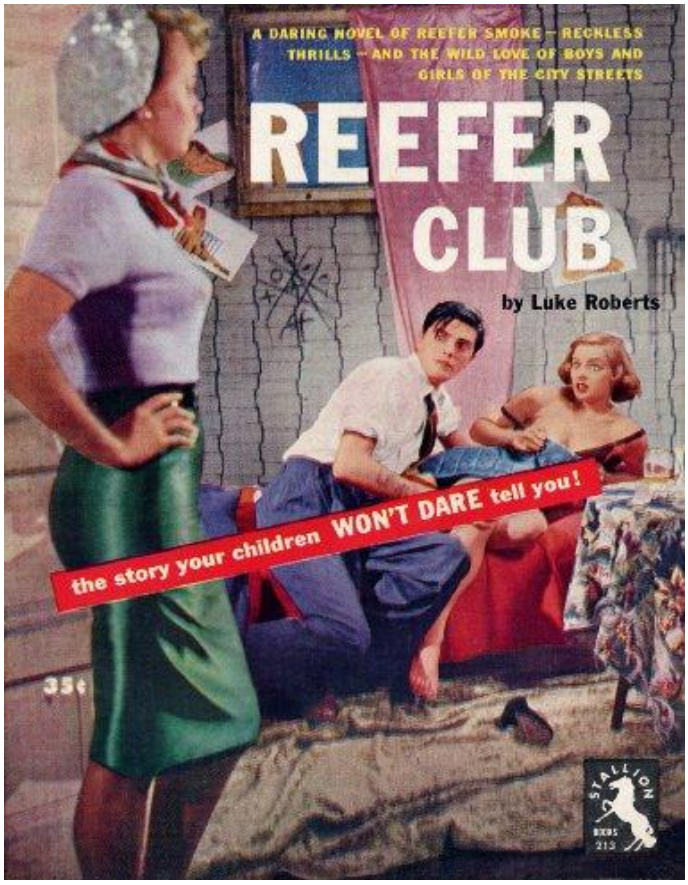

Tetrahydrocannabivarin (THCV)

Tetrahydrocannabivarin, or THCV, is a cannabinoid found in *Cannabis sativa* L. that is chemically very similar to THC but the process involved in its production is slightly different. It is a cannabinoid receptor type 1 (CB_1) antagonist and a cannabinoid receptor type 2 (CB_2) partial agonist, meaning that it works largely to block the actions of these two receptors. As such, it is being studied as an appetite suppressant and as an anti-emetic when using anti-obesity drugs. In fact, it is the anti-nausea properties of THCV that first brought cannabis into the sphere of health by countering nausea induced by chemotherapy. In addition, THCV seems to lower the seizure threshold for those with epilepsy; as a result, they experience fewer seizures.

A Canadian study compared THCV and CBDV with an anti-obesity drug called rimonabant. The rimonabant produced a nauseous reaction, whereas the cannabinoids did not. Since THCV is believed to be an appetite suppressant, it may represent a safe alternative for rimonabant in fighting obesity. Additionally, researchers induced nausea in the rats with a toxin and treated them with THCV or CBDV; both cannabinoids reduced the rats' experience with nausea.

Although THCV does affect the same receptors in the brain as THC, it produces a much different high causing more of a psychedelic, clear-headed effect. It causes the effects of THC to hit you much faster and some think it could be the reason for those "one-hit" strains. However, the THC effects also die off a bit more quickly with the presence of THCV.

While commonly attributed to sativas, an article in the American Journal of Botany found that all the strains analyzed contained THCV. They analyzed 157 cannabis plants from all over the world, and found high levels of THCV in plants from S. Africa and parts of Afghanistan.

Source: www.medicaljane.com/2013/08/27/tetrahydrocannabivarin-thcv-a-cannabinoid-fighting-obesity/

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Drug Policy Alliance
www.drugpolicy.org

Media Awareness Project
www.mapinc.org

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302-895 Fort Street, Victoria
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"Why is marijuana against the law? It grows naturally upon our planet. Doesn't the idea of making nature against the law seem to you a bit . . . unnatural?"
-- Bill Hicks (comedian, 1961-1994)