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CANNABINOID CHRONICLES

Medical Cannabis News and Information

Arthritis and Medical Cannabis

Arthritis is broadly defined as inflammation of one or more joints in the human body. While there are over 100 different types of arthritis, it typically refers to two types: **rheumatoid arthritis (RA)** and **osteoarthritis (OA)**. The former is an autoimmune disease that targets the interior lining of joints (synovium), while the latter is characterized by degeneration or breakdown of the cartilage in the joints, typically the hands, hips, knees and spine. RA can cause chronic severe pain, permanent joint damage and disability, while OA can cause pain, stiffness, loss of motion, and joint deformation.

Cannabis has been used for the treatment of arthritis and rheumatoid diseases since 2500 BCE. The first known reference was in Shen-Ning's classic Chinese pharmacopoeia. In present day, roughly two-thirds of patients accessing medical cannabis through Health Canada's MMPR are using it to manage symptoms of "severe arthritis". According to the Arthritis Society in 2014, pain was the predominant complaint of the 4.6 million Canadian arthritis sufferers.

Dr. Jason McDougall, professor of pharmacology and anaesthesia at the University of Dalhousie, and chair of the scientific advisory committee of The Arthritis Society, conducted a review of pain relief research (<http://www.ncbi.nlm.nih.gov/pubmed/21185372>). He concluded that even with the huge numbers of Canadians who suffer from chronic pain "the effectiveness of current prescription drug therapies remains woefully inadequate and prolonged treatment often leads to the development of undesirable side-effects." To this end, he supports further research into cannabinoid-based therapies (see page 4, Volume 7, Issue 12, of *Cannabinoid Chronicles*).

Previous research has found cannabinoid receptors in the synovial membrane of joints. Cannabinoids may also play a role in protecting joint cartilage. Both THC and

CBD have anti-inflammatory properties. When activated, the CB2 receptor (primarily found on immune cells) is linked to modulation of both the immune and inflammatory response. The protective anti-inflammatory effects of CB2 stimulation have been noted in animal models of arthritis.

A 2014 Chinese study (www.ncbi.nlm.nih.gov/pubmed/24440992) determined that activation of the CB2 receptor could be a potential therapeutic target for those suffering from RA. The study investigated the potential effects of CB2 receptor activation in fibroblast-like synoviocytes (FLS) cell types -- FLS are the type of cells most often associated with RA. According to their results, RA cell-types showed an increased amount of CB2 receptor expression. Further, activating the CB2 receptors seems to have inhibited the proliferation of the FLS cells associated with RA.

Another 2014 study published in the *European Journal of Neuroscience* (www.ncbi.nlm.nih.gov/pubmed/24494687) sheds additional light on the matter. It suggests that cannabis could be beneficial in the management of OA. Pharmacological studies have shown the anti-nociceptive effects of cannabinoids in different rodent models of osteoarthritis, and evidence suggests an active participation of the endocannabinoid system in the pathophysiology of OA. (A nociceptor is a sensory nerve cell that responds to potentially damaging stimuli by sending signals to the spinal cord and brain. This process, called nociception, usually causes the perception of pain.)

An animal study (www.ncbi.nlm.nih.gov/pubmed/24282543) published in *PLoS ONE* found that CB2 receptor stimulation in the spinal cords of rats acting as models for OA pain in humans led to.... **Cont'd page 2**

ARTHRITIS

International Association for Cannabinoid Medicines (IACM) Bulletin

Human: Patients with migraine may profit from cannabis

The frequency of migraine headache can be decreased by the medical use of cannabis according to research by scientists of the Department of Clinical Pharmacy of the University of Colorado in Aurora and other medical institutions of Colorado. They conducted a retrospective chart review of 121 adults with the primary diagnosis of migraine headache, who were recommended migraine treatment or prophylaxis with cannabis by a physician, between January 2010 and September 2014, and had at least one follow-up visit.

Migraine headache frequency on average decreased from 10.4 to 4.6 headaches per month with the use of cannabis. Most patients used more than one form of cannabis and used it daily for prevention of migraine headache. Positive effects were reported in 48 patients (39.7%), with the most common effects reported being prevention of migraine headache with decreased frequency of migraine headache (24 patients [19.8%]) and aborted migraine headache (14 patients [11.6%]).

Source: <http://www.ncbi.nlm.nih.gov/pubmed/26749285>

Human: Vaporization of cannabis constitutes an efficient administration of cannabis

Efficiency of four vaporizers (Volcano Medic, Plenty Vaporizer, Arizer Solo and DaVinci Vaporizer) was tested. Decarboxylation efficiency was excellent for THC (> 97%) and CBD (> 94%). Authors noted that “temperature-controlled, electrically-driven vaporizers efficiently decarboxylate inactive acidic cannabinoids and reliably release their corresponding neutral, active cannabinoids.”

Source: <http://www.ncbi.nlm.nih.gov/pubmed/26784441>

For more info visit: www.cannabis-med.org/

Arthritis and Medical Cannabis continued...

from page 1... a decrease in pain response and inflammatory markers. According to the researchers, “Targeting CB2 receptors may have therapeutic potential for treating [osteoarthritis] pain.”

Another animal study (www.ncbi.nlm.nih.gov/pubmed/26517407) examined the efficacy of a cannabidiol (CBD)-based topical gel in a rat model of arthritis. Study “data indicate that topical CBD application has therapeutic potential for relief of arthritis pain-related behaviours and inflammation without evident side-effects.”

Oral ingestion of cannabinoids is common, largely due to the long-lasting effects. Topical products are gaining popularity for faster and more localized relief. Both THC

Human: Cannabis oil may help in the treatment of symptoms of Alzheimer’s disease

Delusions, aggression, irritability and other symptoms may be reduced in patients with dementia by cannabis oil, researchers wrote in the *Journal of Alzheimer Disease*. Eleven patients with Alzheimer’s disease were recruited to an open label, 4 weeks, prospective trial. Ten patients completed the trial. Significant reduction in the score of Clinical Global Impression (6.5 to 5.7) and the Neuropsychiatric Inventory score were recorded (44.4 to 12.8). In the Neuropsychiatric Inventory scale the following aspects significantly decreased: Delusions, agitation/aggression, irritability, apathy, and sleep and caregiver distress. Authors concluded that adding cannabis oil to Alzheimer’s patients’ “pharmacotherapy is safe and a promising treatment option.”

Source: <http://www.ncbi.nlm.nih.gov/pubmed/26757043>

Animal: Cannabidiol may be helpful in inflammation of the heart

Myocarditis (inflammation of the heart muscle) is a major cause of heart failure and sudden cardiac death in young adults and adolescents. In a mouse model of myocarditis, CBD was shown to be beneficial. This cannabinoid “may represent a promising novel treatment for management of autoimmune myocarditis and possibly other autoimmune disorders, and organ transplantation.”

Source: <http://www.ncbi.nlm.nih.gov/pubmed/26772776>

Human: No relationship between cannabis use and anxiety or depression

In a longitudinal study with 8598 Swedish men and women aged 20-64 years there was “no longitudinal associations between cannabis use and incidence of depression/anxiety, or between depression/anxiety and later cannabis use onset.”

Source: <http://www.ncbi.nlm.nih.gov/pubmed/26773900>

and CBD are valuable for anti-inflammatory properties. Cannabis strains high in terpenes such as myrcene, limonene and/or linalool may add helpful synergistic effects. It is suggested that strains high in CBC (cannabichromene), noted for its anti-inflammatory effects, may also be helpful for arthritis sufferers.

While a fair bit of research has been done on cannabis and arthritis (see www.calgarycmmc.com/arthritis.htm), much more is needed.

Sources: Backes, Michael (2014). *Cannabis Pharmacy - The Practical Guide to Medical Marijuana*. NY, NY: Black Dog & Leventhal Publishers.

www.arthritis.org/about-arthritis/understanding-arthritis/what-is-arthritis.php

www.thctotalhealthcare.com/category/arthritis/

Second Injection Site Approved

A supervised injection site that has been operating at the Dr. Peter Centre in Vancouver's West End since 2002 has finally received permission to operate from the federal government. Unlike Insite, which is strictly an injection site, the Dr. Peter Centre is the first in North America where the supervised injection service is integrated into an existing health care facility. Like Insite, however, the Dr. Peter Centre has had no fatalities.

Sources: www.theglobeandmail.com/news/british-columbia/vancouver-facility-becomes-canadas-second-approved-supervised-injection-site/article28216557/

Addicted to Big Pharma

Once you get used to something, it can be hard to give it up. Take the College of Family Physicians of Canada; it has been taking money from Big Pharma for years to fund its education programs. The College recently commissioned a report to investigate Big Pharma's influence, and then sat on it for two years. The report made modest recommendations to curb industry's influence but the college is stopping well short of turning off the flow of pharmaceutical money. It still refuses to divulge how much corporate funding its educational programs receive.

Numerous studies have suggested that physician prescribing habits are adversely affected when pharmaceutical money is behind their education, which they are required to continually update. Critics say the college should simply have said "No" to industry funding and required doctors to pay the whole cost of their conferences and seminars. Considering what physicians earn, would that be such a hardship?

Sources: <http://news.nationalpost.com/news/canada/family-doctor-college-releases-long-secret-report-on-big-pharma-funding-but-refuses-to-cut-off-money-flow>



"TAKE THESE WITH A GALLON OF WATER"

Cannabidiol (CBD) Patient Survey

Care By Design (www.cbd.org) is a California company that manufactures CBD-rich cannabis products, including sublingual sprays, oil concentrates, and gel caps in five CBD:THC ratios.

In 2015 they conducted a survey of patients (621 in total) who had been using CBD (cannabidiol)-rich cannabis medicines for over 30 days. The data suggests that cannabis is useful in the treatment of many medical conditions, and that THC (tetrahydrocannabinol) may be as important therapeutically as CBD—particularly for patients with pain and inflammation.

Patients were asked what they were taking CBD-rich cannabis for, the ratio of CBD-to-THC they were using, and about its impact on pain, discomfort, energy, mood, and overall wellbeing. They found:

- Medical marijuana patients are using CBD-rich cannabis for a wide variety of conditions, including serious and incurable diseases, and conditions that may respond poorly to FDA-approved pharmaceuticals. Over 12% are using it to address the side effects of cancer treatment.
- Patients with psychiatric illnesses, mood disorders, neurological diseases and CNS injuries favor CBD-dominant cannabis medicines. Patients with pain and inflammation favor CBD-rich cannabis medicines with more equal levels of CBD and THC.
- THC matters. Patients using the 4:1 CBD-to-THC were the most likely to report a reduction in pain or discomfort, and improvements in mood and energy. Patients using the 2:1 CBD-to-THC ratio reported the greatest improvement in overall wellbeing. This finding is consistent with scientific research indicating that CBD and THC interact synergistically to enhance one another's therapeutic effect.
- CBD-rich cannabis appears to be remarkably good at ameliorating pain (particularly in patients with fibromyalgia, headaches and migraines), and at improving patients' sense of wellbeing, particularly for patients with PTSD.
- Given that people using CBD-rich cannabis for "general wellbeing" are the *only* group who reported a decreased feeling of wellbeing and the most likely to report a worsening mood, it's possible that CBD products may not be appropriate as a supplement for people who are otherwise healthy.

The full report can be found at:

www.cbd.org/sites/cbd/files/downloads/cbdpatientsurvey_september2015_carebydesign.pdf

Source: www.projectcbd.org/article/illuminating-results-cbd-patient-survey

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Drug Trial Targeting Endocannabinoid System Kills Patient

Six people were hospitalized after testing a new drug in France. One was considered brain-dead and has since expired. Developed by pharmaceutical company Bial, the drug in question is intended to address mood, anxiety and motor problems linked to neurodegenerative diseases (i.e. Parkinson's disease) by affecting the endocannabinoid system (ECS).

The drug was not a cannabis-based substance. The drug in question is suspected to inhibit the enzyme fatty acid amide hydrolase (FAAH); one of the many fatty acid amides is anandamide, an endocannabinoid. The drug is supposed to allow naturally occurring anandamide to accumulate in the central nervous system and in peripheral tissues and act on cannabinoid receptors in a manner that won't produce the psychoactive effects of cannabis. (Why develop non-cannabis-derived drugs that interact with the endocannabinoid system? One idea is that they are patentable, and therefore can be owned.)

Investigators are still unsure of the cause of the tragedy.

Source: www.forbes.com/sites/davidkroll/2016/01/18/scientists-speculate-on-what-caused-the-bial-drug-testing-tragedy-in-france/#138da337301f

Large UK Study Finds Cannabis Use Does Not Reduce Teenage IQ

A large study (2235 people) conducted in the United Kingdom failed to find evidence of a robust link between cannabis use and lowered intelligence among teenagers.

The study, published online January 6, 2016, in the *Journal of Psychopharmacology*, found a statistical association between cannabis use and decreased intellectual performance. However, this association vanished when the researchers took other variables into account. These findings suggest that adolescent cannabis use is not associated with IQ or educational performance once adjustment is made for potential confounds, in particular adolescent cigarette use. Modest cannabis use in teenagers may have less cognitive impact than epidemiological surveys of older cohorts have previously suggested.

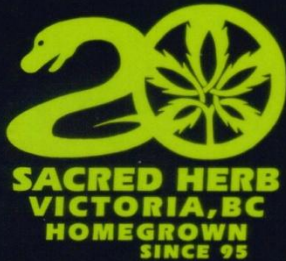
"The notion that cannabis use itself is causally related to lower IQ and poorer educational performance was not supported in this large teenage sample," wrote Claire Mokrysz of the University College London and her colleagues.

Source: <http://jop.sagepub.com/content/early/2016/01/06/026988115622241.abstract>

Cannabis and Bicycle Riding

A European study looked into the effects of cannabis on riding a bicycle. Repetitive practical cycling tests and medical examinations were carried out before and after inhaled consumption of cannabis. Only a few driving faults were observed even under the influence of very high THC concentrations. A defined THC concentration that leads to an inability to ride a bicycle cannot be presented. The test subjects showed only slight distinctive features that can be documented using a medical test routinely run for persons under suspicion of driving under the influence of alcohol or drugs.

Source: <http://www.ncbi.nlm.nih.gov/pubmed/26739323>



Dan Brown
250-384-0659
Suite 106-561 Johnson St.
Victoria, BC

RESOURCE DIRECTORY:

AIDS Vancouver Island
3rd Fl- 713 Johnson St, Victoria
250-384-2366

VIPWA
101-1139 Yates Street, Victoria
250-382-7927

The Action Committee of People with Disabilities
948 View Street, Victoria
250-383-4105

MS Society of Canada
1004 North Park Street, Victoria
(250) 388-6496

HepC BC
2642 Quadra Street, Victoria
250- 595-3892

BC Cancer Agency
2410 Lee Ave, Victoria
(250) 519-5500

Canadians for Safe Access
www.safeaccess.ca

John W. Conroy, Q.C.
1-877-852-5110 (toll free)
www.johnconroy.com

Kirk Tousaw, Barrister
604-836-1420
www.tousawlaw.ca

DrugSense
www.drugsense.org

BC Coalition of People With Disabilities
1-800-663-1278

Health Canada
<http://www.hc-sc.gc.ca/dhp-mps/marihuana/index-eng.php>

Drug Policy Alliance
www.drugpolicy.org

Media Awareness Project
www.mapinc.org

Together Against Poverty Society
302-895 Fort Street, Victoria
250-361-3521

"You have got to allow people to grow it for themselves. ... It's not really legalization if you are kicking people's doors down and hauling them off to jail for growing the plant."

-- Kirk Tousaw, Barrister