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CANNABINOID CHRONICLES

Medical Cannabis News and Information

Employee Insurance Plan Must Pay for Medical Cannabis

A human rights board has determined that a Nova Scotia man's prescribed medical cannabis must be covered by his employee insurance plan, a ruling advocates say will likely have impact nationwide.

Gordon "Wayne" Skinner, of Head of Chezzetcook, suffers from chronic pain following an on-the-job motor vehicle accident and argued that he faced discrimination when he was denied coverage.

In a decision February 2, inquiry board chair Benjamin Perryman concluded that since medical cannabis requires a prescription by law, it doesn't fall within the exclusions of Skinner's insurance plan.

Perryman ruled that the Canadian Elevator Industry Welfare Trust Plan contravened the province's Human Rights Act, and must now cover his medical cannabis expenses "up to and including the full amount of his most recent prescription."

"Denial of his request for coverage of medical marijuana ... amounts to a prima facie case of discrimination," the ruling states. "The discrimination was non-direct and unintentional."

In the Nova Scotia decision, Perryman said the cannabis was medically necessary for Skinner.

Deepak Anand, executive director of the *Canadian National Medical Marijuana Association*, said the ruling is significant and could see a number of people apply for coverage through their provincial human rights commissions.

Anand said the reasoning is "significant on its own" because many private and public insurers don't recognize cannabis as a medicine.

"They [the inquiry board] are finally recognizing that prescription has some value, which so far the Canadian

Medical Association and others have decided not to look at," he said.

Jonathan Zaid, a U. of Waterloo student, is the only other known person in Canada to have their medical cannabis covered by a health insurer.

Source: <http://www.cbc.ca/news/canada/nova-scotia/medical-marijuana-must-be-covered-employee-insurance-plans-gordon-wayne-skinner-1.3964702>

Cannabis Users Have Decreased Prevalence of Diabetes

A couple of studies from 2016 suggest that the prevalence of diabetes mellitus (DM) is not increased in cannabis users, and can result in a decreased incidence of the condition. Exploring the immune-modulatory and anti-inflammatory properties of cannabinoids, researchers in one study showed that participants who used cannabis had lower prevalence of DM and had lower odds of DM relative to non-cannabis users. They did not find an association between the use of cannabis and other chronic diseases, such as hypertension, stroke, myocardial infarction and heart failure. Cannabis use was independently associated with a lower prevalence of DM. Researchers concluded that cannabis use was associated with a decreased prevalence of DM. Another study reviewing current research on cannabis use and diabetes and obesity found that cannabis use is associated



with either lower odds or no difference in the odds of diabetes than non-use. Studies looked at the association of cannabis use with body mass index/obesity, metabolic syndrome, pre-diabetes, and diabetes.

Source: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3289985/>
<http://link.springer.com/article/10.1007/s11892-016-0795-6>

International Association for Cannabinoid Medicines (IACM) Bulletin

Human: Cannabis improved survival of patients with aggressive brain cancer in controlled clinical study

A cannabis extract with THC and CBD improved survival of patients with recurrent glioblastoma, a particularly aggressive brain tumour, if given together with standard therapy. This is the result of a placebo-controlled study with 21 patients, which was reported by the producer of the cannabis extract Sativex, GW Pharmaceuticals from the UK. 12 patients were randomized to receive Sativex together with temozolomide and 9 patients received placebo together with temozolomide.

The study showed that 83% of patients with documented recurrent glioblastoma treated with THC and CBD had survived the first year compared with 53% of patients in the placebo group ($p=0.042$). Median survival for the cannabis group was greater than 550 days compared with 369 days in the placebo group. The press release says: "GW conducted substantial pre-clinical oncologic research on several cannabinoids in various forms of cancer including brain, lung, breast, pancreatic, melanoma, ovarian, gastric, renal, prostate and bladder. These studies have resulted in approximately 15 publications and show the multi-modal effects of cannabinoids on a number of the key pathways associated with tumor growth and progression."

Source: <http://www.gwpharm.com/about-us/news/gw-pharmaceuticals-achieves-positive-results-phase-2-proof-concept-study-glioma>

Human: Cannabis may be helpful in the treatment of ADHD according to a small clinical trial

The cannabis extract Sativex improved hyperactivity and impulsivity in patients with ADHD (attention deficit hyperactivity disorder) according to a study by researchers of King's College London and other medical institutions from London, UK. The data were presented at the 29th ECNP Congress, 17-20 September 2016 in Vienna, Austria, and published in the *EUROPEAN Neuropsychopharmacology*. 30 patients with ADHD received either Sativex or placebo for four weeks.

There was a significant improvement in hyperactivity/impulsivity ($p=0.03$) and a trend for improvement in inattention, cognitive performance and emotional lability (excessive emotional reactions and mood changes). Authors wrote that "although individual findings did not reach conventional significance levels, effects across multiple measures showed consistent improvements in cognition and behaviour. ADHD may represent a subgroup of individuals that gain cognitive enhancement and reduction of ADHD symptoms from the use of cannabinoids."

Source: <http://www.europeanneuropsychopharmacology.com/article/S0924-977X%2816%2930912-9/pdf>

Animal: CB2 receptor function is increased in a brain region responsible for pain modulation in chronic inflammation

In rats with chronic inflammation, the CB2 receptor function in the rostral ventromedial medulla, a brain region important for pain perception, is increased. Authors wrote that "the emergence of CB2 receptor function in the rostral ventromedial medulla provides additional rationale for the development of CB2 receptor-selective agonists as useful therapeutics for chronic inflammatory pain."

Source: <https://www.ncbi.nlm.nih.gov/pubmed/28100744>

Human: Cannabis use alters immune cells in a way, which supports beneficial effects in inflammatory diseases and cancer

Researchers investigated peripheral blood mononuclear cells of cannabis users and found reduction of signalling pathways, which are relevant for inflammation and for cell division. However, long term cannabis exposure in two patients resulted in reversal of this effect. Authors wrote that "while these data provide a powerful mechanistic rationale for the clinical use of medical marijuana in inflammatory and oncological disease, caution may be advised with sustained use of such preparations."

Source: <https://www.ncbi.nlm.nih.gov/pubmed/28174520>

Israel: Differences between medical users of cannabis and recreational cannabis users

An online survey of 1479 Israeli cannabis users compared unlicensed medical users (38%) with recreational (42%) and licensed medical (5.6%) users. Recreational users were more likely to be male, less likely to eat cannabis, to use cannabis frequently and to use alone and before midday than unlicensed medical users. Licensed medical cannabis users were older than unlicensed users, they reported less hours feeling stoned, less cannabis use problems and they were more likely to report cannabis use patterns analogous of medication administration for chronic problems.

Source: <http://www.ncbi.nlm.nih.gov/pubmed/28107687>

Cells: Activation of the CB2-receptor induces cell death in bladder cancer cells

Activation of the CB2-receptor led to ceramide-mediated bladder cancer cell apoptosis, a form of programmed cell death. Ceramides are a family of lipid molecules, which play a role in cell proliferation and apoptosis. IRCCS Ospedale San Raffaele, Milan, Italy.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/28191815>

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

Your Genome's Neighbourhoods

The study of limb malformations has led scientists to trace a family's limb anomaly (syndactyly) to a novel class of genetic defects unlike any seen before, a finding with profound implications for understanding a raft of heretofore mysterious diseases.

In order to understand how genetic information is controlled, scientists had to figure out how DNA was folded in space. Using a breakthrough technology called chromosome conformation capture, researchers have made progress in tracking the deep structure of DNA.

Scientists have discovered a new design feature of the DNA molecule called topologically associating domains, or TADs. The vast informational expanse of the genome is divided into a series of neighbourhoods, with strict boundaries between them - each one is a TAD. The genome is organized into about 2,000 TADs, and scientists are beginning to understand how these TADs operate. As with city neighbourhoods, TADs come in a range of sizes, from zones a few dozen DNA subunits long to TADs that sprawl over tens of thousands of bases. TAD borders serve as folding instructions for DNA. TAD boundaries also dictate the rules of genetic engagement.

The best evidence for the importance of TADs is to see what happens when they break down. Researchers have lately linked a number of disorders to a loss of boundaries between genomic domains, including cancers of the colon, esophagus, brain and blood. In such cases, scientists have failed to find mutations in any of the protein-coding sequences commonly associated with the malignancies, but instead identified DNA damage that appeared to shuffle around or eliminate TAD boundaries. As a result, enhancers from neighbouring estates suddenly had access to genes they were not meant to activate.

Now that researchers know what to look for, TAD disruptions may prove to be a common cause of cancer. The same may be true of developmental disorders such as syndactyly.

Source: https://www.nytimes.com/2017/01/09/science/dna-tads.html?_r=0



Topical THC Does Not Result in Positive Urine or Blood Test

A driver checked during a traffic stop gave a blood sample that contained 7.3 ng/mL THC, 3.5 ng/mL 11-hydroxy-THC and 44.6 ng/mL 11-nor-9-carboxy-THC. The subject claimed to have used two commercially manufactured topical products that contained 1.7 ng and 102 ng THC per mg, respectively.

To test whether topical cannabinoids could result in such levels, an experiment was developed with three volunteers, 25, 26 and 34 years old. They applied both types of topical salves mentioned above over a period of three days every 2 to 4 hours. The application was extensive (50-100 cm²). Each volunteer applied the products to different parts of the body (neck, arm/leg and trunk, respectively). After the first application, blood and urine samples of the participants were taken every 2 to 4 hours until 15 hours after the last application (overall n=10 urine and n=10 blood samples, respectively, for each participant).

All of these blood and urine samples tested negative for THC, 11-hydroxy-THC and 11-nor-9-carboxy-THC by a GC-MS method. In other words, the exclusive application of (these two) topically applied products did not produce cannabinoid findings in blood or urine.

Source: <https://www.ncbi.nlm.nih.gov/pubmed/28122323>

Doctors Spearhead Cannabis Clinical Trial

Seven years ago, Gilles Richard was diagnosed with multi-system sarcoidosis, a rare and incurable genetic disease that causes inflammatory cells to form lumps around vital organs. Richard uses medical cannabis to help manage the chronic pain that's become a fixture in his life.

Faced with this grim fate, Richard seems unfazed as he sits in the waiting room of the Santé Cannabis medical clinic on Amherst St. in Montreal's Centre-Sud borough.

Because of provincial restrictions surrounding the drug, however, Richard's medical insurance won't cover the cost of cannabis.

Santé Cannabis is at the centre of an effort to change that. As of late January, the clinic has announced its plan to have Health Canada and the U.S. Food and Drug Administration approve and regulate cannabis-based therapy.

The clinic has partnered with a pharmaceutical research firm to recruit more than 500 patients and conduct a one-year study surrounding the safety and efficacy of cannabis in the treatment of chronic pain. It will be the first such clinical trial in Canadian history.

Source: <http://montrealgazette.com/news/montreal-doctors-spearhead-cannabis-clinical-trial>

Traffic Death Reduction in Several Medical Cannabis States

A new study has found that legalization of medical cannabis is not linked with increased traffic fatalities. In some states, the number of people killed in traffic accidents dropped after medical cannabis laws were enacted.

“Instead of seeing an increase in fatalities, we saw a reduction, which was totally unexpected,” said Julian Santaella-Tenorio, the study’s lead author and a doctoral student at Columbia University’s Mailman School of Public Health in New York City.

Since 1996, 28 states have legalized cannabis for medical use. Deaths dropped 11% on average in states that legalized medical cannabis, researchers discovered after analyzing 1.2 million traffic fatalities nationwide from 1985 through 2014. 25- to 44-year-olds, an age group with a large percentage of registered medical cannabis users, had a 12% decrease in traffic fatalities, the authors report in the *American Journal of Public Health*.

Though Santaella-Tenorio was surprised by the drop in traffic deaths, the results mirror the findings of another study of data from 19 states published in 2013 in *The Journal of Law and Economics*. It showed an 8 to 11% decrease in traffic fatalities during the first full year after legalization of medical cannabis.

“Public safety doesn’t decrease with increased access to marijuana, rather it improves,” Benjamin Hansen, one of the authors of the previous study, said in an email. However, it’s not clear why.

The authors of both studies suggest that cannabis users might be more aware of their impairment as a result of the drug than drinkers. It’s also possible, they say, that

patients with access to medical cannabis have substituted cannabis at home for alcohol in bars and have stayed off the roads. Or, they suggest, other factors are at play, such as an increased police presence following enactment of medical cannabis laws.

California immediately cut traffic deaths by 16% following medical cannabis legalization and then saw a gradual increase. Researchers saw a similar trend in New Mexico, with an immediate reduction of more than 17% followed by an increase.

Not all states that employed medical cannabis laws saw a reduction; fatality rates rose in Rhode Island and Connecticut, the study found.

The findings highlight differences in various states’ medical cannabis laws and indicate the need for research on the particularities of how localities have implemented them, Santaella-Tenorio said.

Sources: <http://ajph.aphapublications.org/doi/abs/10.2105/AJPH.2016.303577> and <http://www.reuters.com/article/us-health-marijuana-traffic-death-idUSKBN14H1LQ>



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From nephew Derek Trucks: “Butch would tell me about Duane (Allman) turning around to him on stage and saying, “If you give me anything less than a hundred percent, I will come back there and beat your ass.””

- in memory of Butch Trucks (drummer, 1947-2017)