

- You may withdraw the petition before the Review Panel's first public meeting of the year by submitting a written statement to the Department stating that you wish to withdraw it.

Section A: Petitioner's Information

Name (First, Middle, Last):

[Redacted]

Home Address (including Apartment or Suite #):

[Redacted]

City:

[Redacted]

State:

MN

Zip Code:

[Redacted]

Telephone Number:

[Redacted]

Email Address:

[Redacted]

Section B: Medical Condition You Are Requesting Be Added

Please specify the name and provide a brief description of the proposed qualifying medical condition. Be as precise as possible in identifying the condition. **Optional:** Include diagnostic code(s), citing the associated ICD-9 or ICD-10 code(s), if you know them. *Attach additional pages as needed.*

The condition to be added is Diabetes all types including pre-diabetic. Current codes are E08, E09, E13, E10, E11, O24, and P70.2. Pre-Diabetic code - R73.01, R73.02, or R73.09. These are the ICD-10 codes. Diabetes is a very intrusive and debilitating disease, that is not curable by any current means today. The treatment is to watch and attempt to manipulate the workings of the pancreas. Which as of yet is not possible to "be" your pancreas. This disease is in the category of Auto Immune diseases, more commonly referred to as the Metabolic Disorder. (continued) →

(Section B: Medical Condition Requesting to be included for M.M. Use.

Translation of Diabetes; It's when your pancreas no longer produces correctly - insulin needed to break down what you eat in order for your body to utilize nutrients and use for energy.

Some it's easy to think just eat right, exercise, rest and take the right kind and amount of insulin - ACT like you are in control. But unfortunately it is more like a roller-coaster ride. And very time consuming. A person with this disease is not living. They are merely going through the motions just trying to be their own pancreas therefore leaving no time to live life.

(For instance you need to use a long lasting type of insulin say NPH to sustain through out the day and also a quick acting type like Regular for meals & snacks, however if the base peaks at the wrong time - that will cause an extreme low blood sugar - which can cause death. Or if your intake of food (carbohydrates) is too much then your blood sugar goes extremely high causing D.K.A (diabetic ketoacidosis) which can kill you as well.

Also to consider is actual appetite some times your just not hungry. You can check every hour to see what your blood glucose level is - but you still can't predict or control it.

(There is never any vacation from diabetes, no DAYS off! Even sleeping for a straight 7 to 8 hours is tough to accomplish. It may

be interrupted by frequent bathroom visits from drinking so much water trying to stay hydrated, to your blood sugar rising into dangerous levels. Or you wake up because finally you're hungry, and of course you check blood glucose to see how much you can eat and if need be, give yourself a bolus (dose) of insulin to cover what you wish to eat. Because you're working to avoid a catastrophe. Other problems are hypertension, anxiety, depression, insomnia, nausea, headaches, Restless Leg syndrome - muscle spasms through out your entire body, back pain the list is too long to write.

I hate to use the country song One Step Forward - Two Steps Back. But it's true!

Even A1C test results can be misleading. Sure the test says gives you a reading of 7.2 but it really doesn't mean that the past 3 months were good; that's just an average. The actual blood glucose could have been 50's-60's 30% of the time and 400-600's 70% of the time - which is very dangerous. Or the patient was all the time in the highs 300-500 levels but just cleaned their blood stream one week before blood draw. By cleanse - I refer to patient avoiding carbohydrates for a week - only eating say "celery" and keeping insulin in check, or just went through dialysis - so yes A1C is tricky. And the damage to the rest of the body is not recognized, or documented until it's too late.

Section B - The Condition Diabetes

Diabetes qualifies as a disability because it prevents a person from living to their fullest potential. It prevents them from being employed. It prevents them from functioning normal, always on the verge of going unconscious, slip into convulsions (similar to epilepsy) to acting silly like a child or acting extremely obnoxious and violent thus not presentable in a social or work environment.

A person with diabetes is more likely to contract other illnesses such as the flu or COVID. Due to the fact that their immune system is weak. Which of course affects all the regimen of maintaining diabetes. We need to do something that can help maintain blood glucose, and A1C levels, by allowing to include the use of marijuana which in studies has shown to improve a stabilization of metabolism. By stable - I mean lessen the yo-yo affects of extreme highs and extreme lows. Because currently the pattern attained with foods, exercise and rest are not sufficient. There's too many factors working against us. The obvious factors such as viruses & infections. And the not-so-obvious - stress, tension, anxiety, nutrition complications, injuries, allergies, hayfever, inflammation, digestive issues, insomnia, migraines/headaches, iritis (eye-inflammation). Even weight loss or weight gain is dangerous. After all isn't the goal "to prevent" sickness and illnesses, to avoid it. Not to keep getting worse. Shouldn't we be doing every thing in our means to be healthy? Not wait until it's too late.

Section C: Symptoms of the Proposed Medical Condition and/or Its Treatment

Describe the extent to which the proposed qualifying medical condition or the treatments cause suffering and impair a person's daily life. *Attach additional pages if needed.* ✓

The symptoms are: Headaches: the kind that screams so loud internally, that you just collapse in pain and nothing takes it away! It hits you so hard it takes your breath away. Piercing all the way through your entire body! You just turn into a statue. If your lucky there might be just enough time to get to the couch or bed before you hit the floor. Sometimes it's your sinus region, sometimes the crown or the nape, it just takes over everything.

Extreme Thirst: not dry mouth - but the need to drink, drink, & drink just to quench your thirst. Glass after glass turns into gallons. You can feel and hear the swishing of liquid in your stomach but you're still thirsty - and nothing makes it go away. Not gum chewing or tablets to suck on - nothing. It just doesn't absorb into your body.

Extreme Urination: from going every →

Section D. Availability of conventional medical therapies

Describe conventional medical therapies available and the degree to which they ease the suffering caused by the proposed qualifying medical condition or its treatment. *Attach additional pages if needed.* ✓

Currently as with historically insulin does not work for if it did your pancreas would resume its normal function. Nor would we need to continuously increase doses to compensate blood glucose levels. Every attempt made to match our body's needs fail, shown by monitoring and recording daily, weekly, monthly and so forth - for if insulins worked our blood glucose would be 90-110 every time. Prescriptions designed to slow or speed up the process also fail. Side effects are created as well that are negative to the cause including D.K.A. and even death. Modifying our diets have also failed shown by our monitoring as well. Increasing nutrition fails due to lack of the →

*
C: symptoms that cause suffering and impairments

twenty minutes to not being able to stop stream of urine. Even on a regular day having to make hourly visits to the bathroom just takes your day (and night) away. Making it hard to accomplish anything on your to-do list. Vision difficulties: even though you're looking directly at anything - it becomes blurry and blacks out. Or it's a complete white out, you just close your eyes and pray that vision comes back.

Sometimes vision just turns double - so you can't spend too much time reading or writing or even get through a television show. Because you can't stay on topic long enough to know what it is your reading or watching. Sometimes it turns into a tunnel vision before losing all imagery. Pretty much stop-n-go, just hope that you don't go blind. Loss of motor-skills: your blood glucose drops so quick for no reason that you freeze, or collapse. A person can be walking and talking and instantly just falls legs are noodles and can't stand back up. Speech impaired!

The speech impairment can happen by itself or with another symptom at the same time. Talking is a challenge when this occurs, first the choice of words are not accurate you want to say hello but instead you say where am I? It's difficult to explain you either pronounce incorrectly or slur your speech to not knowing which word to use. This impairs communication even resorting to a 3-year old state of mind.

Convulsions: low blood sugar, you begin to twitch →

and struggle to remain upright struggle to
breath - very similar to an epilepsy seizure,
right down to foaming at the mouth. Making
it challenging to drink juice or give yourself
an injection of glucose.

Infections having constant and for long periods
of time before they clear up. Suffering more
intensely pneumonia or sinus infections - Weak
all the time needing more sleep - Can't really
do much but eat and sleep till illness
is gone.

Nausea/Vomiting - sometimes losing so much
bodily fluid causing dehydration to the point
of D&A - therefore needing to visit the
E.O. and being admitted for weeks until
everything is brought back to a balance.

Sinus tachycardia - Fast beating heart. Makes
any type of movement impossible. From lying
down - to sitting or walking, even standing up
sends you into loss of breath - short winded
or blacking out. Making even short trips
to the bathroom is dangerous with or without
assistance.

Restless Legs Syndrome (neuropathy) right today
it's painful, it feels like being electrified for
gapped, followed by a burning sensation all
up and down from feet to the waist. Which
ruins any sleep, then keeps up and awake until
the zapping stops. Using ice packs is not
successful. Past use of medications made
matter worse. Several variations of pain med's,
muscle relaxers etc. to no avail.

c

Section C Diabetic Symptoms and its impairments

(
Every thing on the market intensifies the pain
seizures, vomiting, runny nose, trouble sleeping, muscle
spasms, Restless Leg Syndrome, Irritable stomachs,
causing further inflammation on top of current swelling.
When prescribed anti anxiety meds - it back fires
by either intensifying Anxiety or - Causing depression,
and headaches and upsetting the stomach it truly
is a snowball effect that makes matters worse.
Even using simple NSAids - Cause trouble - Damaging
Kidney (Ibuprofins) Aspirin - thin the blood, Tylenol
not effective in pain relief also destroys your body. Your
liver to be exact is listed on each label. More
redness - swelling etc... Everything that we have
been doing in the past has not worked but also
has made matters worse. Also using antibiotics
causes problems of infections too! Example if pre-
scribed one for a sinus infection sure that
gets better, but then your next infection is
in the Urine tract infection area or yeast
infection, then you get caught with eye
infections, soar throat infections - so literally
your chasing "infection" all over your body.
Confused Appetite: Because it's affected / effected so
much by all our intake - Vitamins, liquids,
medications, You never know when and what to eat.
The use of insulin causes you to lose your appetite.
Antibiotics cause you to lose your appetite and
limits what and when to eat with your antibiotic.
Pain relievers - Cause irritation of your stomachs.
First issue is not feeling hungry, secondly is the
timing to coordinate with all medications, Thirdly
is figuring out what to eat - protein, starch, calcium,
potassium, fruit/vegetable - counting Carbohydrates

how much is solid food and how much is liquid food. This is needed to calculate the timing of insulin to food ratio what sugars hit first second and last - to ensure that everything is equal to each other to avoid dipping to low or rising to high in your blood sugar. Which is further complicated when a person has a paralyzed stomach - Gastroparesis! Also a painful digestive disease - that has no cure either. Fourthly the texture of foods have become intolerable. Nothing is appealing enough to eat. Literally your tongue, teeth and lips somehow cross signals - and now your favorite food is poison to you - an enemy. For instance chicken - sure it smells great, it looks juicy but in your mouth it feels like a plastic button, or your chewing on cloth, the shreds of meat feel like threads on your tongue. Or macaroni & cheese feels like rubber. Also needed in consideration are the bouts of indigestion, heart-burn, bloating, nausea, epigastric pain, poor emptying of food from the stomach into the intestine, early feeling of being full while eating meals. Non-ulcer dyspepsia, gastroesophageal reflux disease (GERD), functional dyspepsia, cyclic vomiting syndrome, functional abdominal pain, Irritable Bowel Syndrome (IBS), Chronic fatigue syndrome, dehydration - from frequent vomiting, malnutrition - lack of nutrients, unpredictable blood sugars. Pancreatitis, imbalances of electrolytes, thyroid disease, viral infections, abdominal distention (enlargement). Retinopathy disease caused by Diabetes - This disease of the retina involves the damage to the tiny blood vessels in the back of the eye;

e
Section C: symptoms/conditions of impairments

(Basically, it's when these tiny vessels explode and are bleeding behind your eye causing blurred vision, sudden loss of sight, seeing rings around lights, dark spots or flashing lights. Then Diabetic retinopathy can cause vision loss in 2 ways:

1) Macular Edema, 2) Proliferative Retinopathy, & Vitreous Hemorrhage.

Anxiety, depression, stress, insomnia also create a massive confusion to an already compromised person. Having uncontrolled blood glucose intensifies these moods, feelings and emotions, not just creating these symptoms but multiplying them.

There are so many reasons to use marijuana for Diabetes, it's impossible to name them all. I know there are many for each individual,

(and vary from each person to person. Some display hyper-tension, erratic behavior, increased sweating, extreme emotional outburst of crying, hyperventilation, muscle weakness, irritability or nervousness.

The aftermath of E.R. visits and over use of I.V.'s causing callouses on veins, making each attempt more challenging. Having a D.K.A. episode turning into pneumonia, then septic infection, going on life support, bleeding internally and blood clotting at the same time.

A

D: Availability of conventional medical therapies

Body being able to absorb the nutrients we intake. Regardless of vitamin/mineral supplements or additional calories or servings of food. Even our nutrition attempts are better when eating natural foods as opposed to processed foods - but still our bodies have difficulty in using the nutrients provided by eating. Even double or triple the suggested amounts of vitamins/minerals it's not enough to compensate the loss of what our body requires. Our nutrients are lost easily through excessive excretion. The use of steroids are dangerous causing havoc in our bodies even death. Pain relievers/killers of all makes cause damage to our bodies such as kidney failure, liver failure, I.B.D., constipation, nausea, vomiting, dizziness, confusion, unconsciousness, respiratory depression, increase risk of heart attack, coma, even death. Even the O.T.C., cause damage to the stomach lining; which leads to blood loss, stomach pains, even ulcers, miscarriages and so forth, heart attacks, strokes, heartburn, swelling of hands and feet, increase risk of infections, osteoporosis, cataracts, anxiety, diarrhea, weight gain, headaches, sleep problems, fatigue, blurred vision the list goes on fore ever. Every thing in use today has only added more complication, it's very frustrating. It's truly necessary to add on other avenues including the use of marijuana. Because even using various types of insulin methods: syringes, inhalers, pumps, auto-pens, pens all have additional problems. Syringes leave callouses on skin that don't allow full injection, inhalers are unreliable in doses, pumps

Section D: Conventional medical therapies

malfunction or get pulled out of attached site, the hose gets pinched or kinked thus preventing full dosage, the pens and auto pens also are not precise in delivery. The other option of transplant requires someone else to die in order to receive organ. On the chance that you don't die during surgery - you might die while in recovery and if your lucky you get to be on a regimen of 20-50 pills a day to avoid rejection of alien pancreas. Which of course these pills also add more health complications. That's not much success. At first it's nice to skip injections of insulin but that is short-lived once you become exhausted from 20-50 pills a day taken twice or three daily. And still your immune system is weak you're still at risk for all the diseases, viruses, and infections as before if not even more so. You're still forced to confinement to avoid the colds or flus that come and go through the seasons. Not to mention dietary restrictions, avoiding foods that interfere with prescriptions, avoiding anti-biotics that would interfere with the anti-reject meds. Not to forget the new pancreas may fail at any given time.

Because no matter how perfect exact you may follow orders, it's never predictable. By using marijuana this will stabilize blood glucose - yes it brings it down and keeps it from extremes.

Just imagine being able to contain Blood glucose in a solid range. No more jumping from 60 to 600 in short bursts. This will give our body

3. D: Conventional medical therapies

the opportunity to operate normal. When the blood glucose slips too low - our body eats at our muscles, tissues, bones, and organs because it's trying to feed itself - since it needs food to bring back the blood glucose into the 90-120 range. Hence that's the reason diabetics are weak and fatigued. After being in this over-drive mode yes the body is exhausted - feeling numb and tingly all over getting a headache, stomach ache being limp and slurring speech fighting to regain consciousness. Needing to restore electrolytes, hydration, nutrition. It's a nightmare.

Nightmare second scenario - Having high blood glucose (for whatever reason - "insulin wore out") 600+ your body kicks in to high gear - working hard to eliminate the concentration of sugar through sweat or urine, but it's too high to function so you collapse and go into convulsions - you're not able to dial 9-1-1 - so this person dies if there is no one to make that call. Or even if they get transported to the E.R. they could just slip into a corner - then die. Especially if running lab work takes too long to attain.

It is very obvious that our current methods are not successful. As well showing us over and over again it leads us into more troubles of more disorders, more diseases, and more ailments.

Section E: Anticipated benefits from Medical Cannabis

Describe the anticipated benefits from the medical use of cannabis specific to the proposed qualifying medical condition. *Attach additional pages if needed.*

The benefits expected from the inclusion of cannabis are as follows:
 Stabilize blood sugars, reduce and eliminate inflammation throughout the entire body, reduce/eliminate pain of neuropathy, relief of muscle spasms and cramps, reduce pains from GI - gastrointestinal disorders, improve circulation, lower blood pressure, improve cardiac and arterial health in general, reduce the Restless Leg Syndrome, Control blood glucose, improve BMI - Body Mass Index, Improve Good Cholesterol.
 As well as reduce anxiety/depression episodes even mood swings, reduce the hot/cold flashes suffered from neuropathy, Restore appetite, restore proper →

Section F (optional): Scientific Evidence of Support for Medical Cannabis Treatment

It will strengthen your petition to include evidence generally accepted by the medical community and other experts supporting the use of medical cannabis to alleviate suffering caused by the proposed medical disease or its treatment. This includes but is not limited to full text, peer-reviewed published journals or other completed medical studies. Please attach complete copies of any article or reference, not abstracts.

I have attached relevant articles. (check box if you have attached scientific articles or studies)

Section G (optional): Letters in Support of Adding the Medical Condition

Attach letters of support for the use of medical cannabis from persons knowledgeable about the proposed qualifying medical condition, such as a licensed health care professional.

I have attached letters of support. (check box if you have attached letters of support)

Section 2: Anticipated Health Benefits of Cannabis

metabolism, reduce nausea, vomiting & heartburn/acid reflux, restore vision due to retinopathy & Thyroid complications, improve overall immune system - to avoid flu/cold's/Pneumonia/Septic infections cases, assist with insomnia, improvement in respiratory/circulation systems, reduce pain & cramping in the jaw - to make it easier to chew food, lower risk of strokes and cardiac arrest.

Cannabis research continues to amaze us all. For every Organization, Association, Journal sources, Labs, Universities, etc... that has done research each group compiles benefit after benefit. Cannabis is a natural resource that heals the body at every level from cells to tissues to organs and muscles, and even our bones. This truly is a Homeostasis plant - that's why it offers so many positive benefits. Cannabis is an immune system modulator, an anti-inflammatory. The CBD suppresses immune response which improves mobility and reduces inflammation and stiffness. When THC metabolizes it turns into a compound called CT-3, which gives the analgesic effects. This reduces joint and tissue damage! CBD lower blood glucose levels. Studies show that the CB receptors interacts with all the Cannabis compounds. CBD/CBC also neutralize the body's over-reaction to blood glucose imbalances (Extreme drops & Extreme peaks) which is what causes nerve cell distraction & retinopathy. Thus we can avoid eye sight issues by having Steady Blood glucose. Scientist also discovered humans and animals produce compounds called endocannabinoids, that are in cannabis. These cells found in our brains, nervous

Section E - Anticipated Benefits of Cannabis

system, liver, kidney and lung all have cannabinoid receptors called CB1. Furthermore our blood cells and immune system have additional (CB2) receptors. These receptors are activated naturally by endocannabinoids, as well as through the use of cannabis. The exciting news is that over 100 cannabinoid compounds are in marijuana that activate our CB receptors in a therapeutic way.

According to the National Organization for the Reform of Marijuana Laws: "Endocannabinoids and their receptors are found throughout the body: Brain, Organs, connective tissue, glands, and Immune system cells. In each tissue, the cannabinoid system performs different tasks, but the goal is always the same; Homeostasis the maintenance of a stable internal environment. Despite external fluctuations, Cannabis promotes Homeostasis at every level of biological life, from the sub-cellular to the organism and beyond, perhaps to the community and beyond."

Therefore NORML and all other advocates & supporters know that small regular doses of cannabis acts as a natural tonic to our most central physiologic healing systems.

Field after field studies show positive results from head to toe, from outside - inside, even inside to outside. Left to Right. With every type of test / trial etc. The results are positive.

The National Pain Foundation - finds that marijuana use is much more effective than

c

Section E - Expected Benefits of Cannabis

opioid treatments. Patients prefer not to take on opiates due to the negative effects: a) pain still continues b) loss of appetite c) stomach problems d) slows the digestive system - causing IBS, etc. Using marijuana assist weaning off of opiates. And those that are on marijuana are much more satisfied - actually heals the cause of their pain. Opiates are deadly. Marijuana does not have a deadly dose. In each state of medical or non medical use - deaths by overdose have declined 25% at first census - then 33% year after year decrease.

The Academy of Neurology endorses "Use of Marijuana" It's very effective. Best treatment for muscle spasms, frequent urination, immobility, disturbed sleep, insomnia, Arthritis, Neuropathic pain, bladder control, Migraines.

The Diabetic Association - They're doing their best to not get too excited because it could be less use of insulin products. But even then they admit that Blood glucose is better and Obesity is less, Better BMI. Better overall health. Especially when confronted by the results of test from outside their scope. It's a natural way to help the entire body. Including Eyes, Kidney & Heart, Thyroid too. After-all no-body wants to go blind.

A milestone study from the American Journal of Medicine concluded in their findings: Reduce blood glucose, marijuana users were less likely to be obese, had higher levels

Section E Expected benefits of Cannabis

of good cholesterol with smaller waist lines.

Also Regardless of calorie intake - had lower body mass - the whole body. Less fat more muscle ratio. Better BMI. Also shows better carbohydrate metabolism

Lead researcher at Harvard Medical School, David Murray Middleman (associate professor), State to TIME Magazine - "The most important finding is that current users of marijuana have better carbohydrate metabolism, than non-users. Their fasting insulin levels were lower and they are less resistant to the insulin produced by their body to maintain a normal blood sugar level."

Again the same goes for - Natural Medicine Journal a summary of the promising epidemiological evidence on marijuana in the management of Diabetes. Their conclusion in thousands of subjects, past and currently marijuana use was associated with lower levels of fasting insulin, blood glucose, insulin resistance, BMI, and waist circumference.

As well as in Israel researchers at Hebrew University of Jerusalem released a study showing that the anti-inflammatory properties of CBD are effectively used to treat different illnesses including Diabetes. There is also very compelling scientific evidence that cannabis can aid in treating diabetic complications. For example cannabis reduces the intraocular pressure (fluid pressure in the eye) considerably in people with

e Section E Expected Benefits of Cannabis

Glaucoma and, Thyroid Diseases • Even Glaucoma which is caused by conditions that severely restrict blood flow to the eye like diabetic retinopathy,

The AAMC - American alliance for medical Cannabis (2005) Reported that cannabis has the following Benefits for Diabetics.

- STABLE-ize Blood sugars - anti-inflammatory
- Neuroprotective, prevents inflammation of NERVES! that helps quell arterial inflammation
- Reduces Pain of Neuropathy by activating receptors in BRAIN! - Anti-spasmodic agents relieve muscle cramps & pains.
- Gastrointestinal Disorders are relieved of muscle spasms/cramps & Pains! - Acts as a Vasodilator keeps blood vessels OPEN & improves circulation.
- Benefits Cardiac & Arterial Health in general. - Relieves neuropathic pain in hands & feet - The Tingle Numbing Pains too!
- Calms R.L.S. - Relieve Anxiety/Depression
- Very recommended For Insomnia - helps with stress,
- Eases nausea, vomiting - Headaches/Migraines
- Helps with appetite - Lowers Blood Pressure * Which is crucial to diabetics
- Reduces problems of paralyzed Stomach - Reduces bloating in Abdominal-torso of the Body that are caused by Paralyzed Stomach
- Reverses nerve damage

Overall I expect to see major health improvements all across the board. It's very exciting to see the beautiful-amazing results of the addition of cannabis for everyone. Finally a natural plant

that has proven over and over, everywhere that it's used. A true genuine Homeostasis Therapeutic Remedy. No magic formula needed - it's already perfect the way Mother-Nature brings it to us.

There is no reason or excuse to alter Cannabis in any way. Marijuana grows all by itself ready to consume in salads, or in tea or whichever way suits each person. Ready as is.

The true bonus is knowing that diabetics will once again be normal, enjoying their life. Living and interacting with others without fears of maybe having to call for help to get to the doctors. Because their blood glucose is stable! No worries all will be fine.

Section H: Acknowledgement and Signature

Please Note: Any individually identifiable health information relating to any past, present, or future health condition or health care contained in this Petition is classified as a health record under Minnesota Statutes §144.291, and is not subject to public disclosure.

I certify that the information provided in this petition is true and accurate to the best of my knowledge.

[Redacted Signature]

SIGNATURE

June 5 2016

DATE (mm/dd/yyyy)

*To obtain this information in a different format, call:
(651) 201-5598 in the Metro area and (844) 879-3381 in the Non-metro.*

Dear Board members,

I am experienced in the fields of nutrition, Physical/Fitness, and Massage therapy. Currently employed as a Home Care Provider.

My first exposure to Diabetes was in 1969, when my father was diagnosed. Remembering very clearly how the entire family was devastated, knowing that there was no cure, death was inevitable. Jumping in as my parents' translator I quickly became the "Expert" of the regimen of meals, medicines, and exercise.

Now we do know that Diabetes can happen to anyone - not just through hereditary. Unfortunately it's brought on by stress to the body. Regardless of who you are. I am excited to find in my research that many have spoken of their success in using cannabis to improve and heal their diabetic condition - situations.

I really wished I had listened sooner. Especially 10 years ago, when my own daughter almost died. Although she's diagnosed 10-21-1997. We have been rigorously following the "plan". Doing it all - just keep alive. That's all we are taught - since there isn't a cure. It's been 10 years that we noticed that insulin(s) were not working. But we've managed by "the skin of our teeth". Spending 75% - 99% of our efforts and time in hospitals. She began with severe problems, pneumonia, septic infections, DKA and so on. And 4 years ago she was on life support and dialysis - Expected to die. Against doctors words of "it's time to pull the plug".

I kept the faith, refused to give up - there was just no-way I could let her go. Even being told to call in family and friends to say their good-byes. But if they were more than an hour away - they wouldn't make it in time. That's when I collapsed.

Fortunately we made it! And yes it has been nightmare. Surviving kidney failure is no easy feat. This had been 2 months in I.C.U. care and 2 months in Domitillo care. Plus 3 months at home with Dialysis. And regrettably the chain reaction of 4he's, pneumonia's, septic infections, C. Diff. Colitis, anorexia, sinus tachycardia, overwhelming emotions, depression, D.B.S., osteoporosis, gastroparesis, neuropathy, R.D.S., retinopathy etc...

Hence the push behind my research to enhance nutrition for Diabetes. Once again re-designing "the" meal plan. Searching for ways to improve vitamin/mineral intake. Not just what kinds but also quality of nutrients. Which is what lead me to herbs and spices. By adding herbs and spices to our foods you give it more taste (yes) but also more flavour! Thus enriching your meals - maximises everything you eat. This is why my daughter has come a long way so well. Wholesome and natural is the path to our well-being.

In my research I did find many positive facts with all the components of cannabis, specifically how the plant works. It heals cells all through the body. Also, these very same components

3)

already exists in our bodies. Hence that is the very reason it has so many benefits, for everyone. It's just like our body needs vitamins / minerals we also need to replenish its share of natural compounds in cannabis. Even better yet is knowing that the cannabis components know exactly where to go in our bodies - to nourish and repair cells at every level.

Knowing all these facts gives me great confidence and enthusiasm in my support to add cannabis to our lifestyle. Honestly, I regret not finding these earlier scientific results. Eagerly awaiting to enhance our nutritional-medical requirements. After-all it's more than a "want" it's an obligation to do everything for my child to improve her health.

Sincerely Yours

[REDACTED]

Scientific Evidence



Mission

Patient Resources

Diabetes

Medical Uses

Part One - Introduction

News

Recipes

Search

Message Board

Contribute

Links

Contact

Diabetes is a disease and series of complications that arise from the inability to adequately control levels of sugar (glucose) in the bloodstream. Some 15-20 million Americans suffer from diabetes mellitus and its host of short and long term effects. Worldwide over 150 million patients suffer from diabetes, a rate five times higher than predicted a decade ago. Rates of diabetes are increasing rapidly with the disease now approaching heart disease and cancer as a leading cause of premature death or life long disability. Nearly one million new cases of diabetes are diagnosed each year in America although a substantial number of people have the disease and don't know it. Over 200,000 Americans die from diabetic complications each year. Diabetes is the leading cause of kidney disease and blindness. It is estimated that diabetes costs Americans approximately 100 billion dollars each year in direct medical costs and indirect costs related to disability and time off work.

Type I diabetes (Insulin Dependent Diabetes Mellitus or IDDM) is the situation where the patient does not produce their own insulin required for the uptake and processing of sugar by the body's cells. Type I used to be called "Juvenile" onset diabetes and is believed to be caused by an autoimmune reaction that destroys the Islet cells in the pancreas responsible for insulin production. Type I can also be caused by physical injury to the pancreas such as acute or chronic pancreatitis, certain genetic disorders, and infection. While Type I is the more dangerous form of diabetes it represents less than 8% of total cases. At present Type I patients require daily insulin injections or the use of the implantable insulin pump.

Type II diabetes (Non-insulin Dependent Diabetes Mellitus or NIDDM) is a disease where the cells in the body become resistant to the actions of insulin and/or the pancreas produces too little insulin. Type II used to be called "Adult" onset diabetes although recent research demonstrates that people are developing this more common form of diabetes at younger and younger ages. Type II diabetes is closely associated with obesity, advancing age, inactivity, and genetic makeup. Type II diabetes accounts for 90-95% of all cases of diabetes and often runs in families. Certain ethnicities such as Latin Americans and African Americans have very high rates of Type II diabetes. This may be due to dietary factors and/or genetic factors. The astonishing increase in diabetes seen in America today is largely a function of the increased number of obese adults and adolescents coupled with a lack of regular exercise. Apparently, when the body's cells are exposed to excessive amounts of dietary calories they respond by down regulating or otherwise adjusting insulin receptor sites.

Gestational diabetes is a condition effecting approximately 3- 5% of pregnancies. Lack of glucose control usually returns following delivery although women who develop gestational diabetes are at greater risk to go on to develop Type II later in life.

Initial Symptoms- Patients can go years (especially with Type II) without noticing any symptoms that might lead to a diagnosis. Routine blood screenings (fasting blood sugar) at annual check-ups can allow early identification and timely treatment of diabetes. Symptoms can include intense thirst, dry mouth, frequent urination, fatigue, weight loss, and blurred vision. Wounds that won't heal may be another sign of diabetes. A fasting blood sugar in excess of 126 indicates that diabetes may be present. Fasting blood sugar has largely replaced the more traditional method of testing called "glucose tolerance".

Recently, the American Diabetes Association and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) identified what is now called "pre-diabetes". This condition precedes the onset of Type II diabetes but damage to the heart and other systems can occur even during this "incubation" phase. A normal score on the fasting glucose test is less than 110. Between 100 and 126 is the area now termed pre-diabetes. A score over 126 indicates that Type II diabetes may have already developed. The good news is that patients who are identified as pre-diabetic may receive treatment and adjust life style as to avoid the progression of the disease. If you are wondering whether or not you are in such a category you can learn more and take a quiz at: [Are you at risk from pre-diabetes?](#)

Type I diabetes typically has a sudden onset. A patients first clue of Type I diabetes may be a potentially lethal condition of hyperglycemia known as ketoacidosis (DKA) that is characterized by nausea, vomiting, abdominal pain, confusion, and "fruity" breath. DKA leads to what is called "diabetic coma". Upon admission to an emergency room, Type I DKA symptoms may be confused with acute alcohol intoxication because the patients' fruity breath smells like fruit brandy and they are generally confused and unresponsive.

The best long term measure of how much excess glucose is circulating in the blood stream (and causing havoc) is a test called an Hb1Ac. This test should be repeated every 90 days or so to measure the effectiveness of treatment. A level of 5 or below is great. Levels above 6 or 7 are problematic and levels over 9 or 10 can mean serious trouble.

In order to reduce the rates of serious complications, it is critical to diagnose diabetes early and then maintain a strict regime of glucose control. Recent studies demonstrate that long term complications can be reduced by 40-60% when a strict program of medicine, diet, and exercise are followed. Strict glucose control is insured by frequent testing of blood glucose (3-6 X/day) and making the necessary adjustments to meals and medicine. The smoking of tobacco is to be avoided if complications are to be minimized.

It is important to state clearly that patients suffering from diabetes can be largely in control of the course of their illness if they are well informed and follow medical advice including proper nutrition and diet, medications, and a program of exercise.

Link to:

- [Table of Contents](#)
- [Complications of Diabetes](#)
- [Treatment](#)
- [Treatment with Cannabis](#)
- [Links](#)

[Click here to refer this page to a friend and let freedom grow](#)

[Home](#) | [Mission](#) | [Patient Resources](#) | [News & Events](#) | [Recipes](#)
[Search](#) | [Message Board](#) | [Medical Uses](#) | [Contribute](#) | [Links](#) | [Contact](#)

Copyright © 2001-2007 American Alliance for Medical Cannabis, Inc. All rights reserved.



Mission

Patient Resources

Medical Uses

News

Recipes

Search

Message Board

Contribute

Links

Contact

Diabetes and Cannabis

Table of Contents

- [Introduction](#)
- [Complications of Diabetes](#)
- [Treatment](#)
- [Treatment with Cannabis](#)
- [Links](#)

[Click here to refer this page to a friend and let freedom grow](#)

[Home](#) | [Mission](#) | [Patient Resources](#) | [News & Events](#) | [Recipes](#)
[Search](#) | [Message Board](#) | [Medical Uses](#) | [Contribute](#) | [Links](#) | [Contact](#)

Copyright © 2001-2007 American Alliance for Medical Cannabis, Inc. All rights reserved.



Mission

Patient Resources

Diabetes

Medical Uses

Part III - Treatment

News

Recipes

Search

Message Board

Contribute

Links

Contact

There are a wide variety of treatments for diabetes which compliment one another. In general, treatment focuses on diet/nutrition, medications including cannabis, exercise, regular foot care, self monitoring of blood sugar and periodic check-ups with a physician or clinic familiar and experienced in treating diabetes. Many Type II diabetics can control their diabetes with diet, exercise, and weight loss alone. Other Type II diabetics will require oral medications to either stimulate insulin production and/or to increase sensitivity to insulin. The more severe Type II cases and virtually all Type I cases will require regular injections of a variety of insulins, often several times a day.

Diet and Nutrition: While excessive sugar is the result of diabetes and not the cause, it remains extremely important for all types of diabetics to routinely follow a sensible diet that helps maintain ideal weight levels while reducing the peaks and valleys of blood sugar by avoiding or limiting simple sugars and carbohydrates.

"Bad" foods for diabetics include:

- Sweetened soft drinks
- Candy, cookies, donuts, cake, pie, and pastries
- Simple carbohydrates such as those in refined flour (bread and tortillas), breaded products and potatoes, rice, and pasta in significant amounts
- Excessive alcohol
- Ice cream
- Fruit juice
- Refined cereals
- Saturated fats

"Good" foods for diabetics include:

- green vegetables
- fish, lean meat, chicken, and turkey
- reduced fat cheese
- whole grain products (in limited amounts)
- tomatoes, peppers, carrots, onions, garlic
- Raw nuts including almonds, peanuts, and pecans
- Fruits such as apples and bananas not high in sugar
- Natural sweeteners like fructose (in limited amounts)

A "diabetic" diet is essentially an extremely healthy one. It aims at stabilizing weight, lowering triglycerides, LDL, and cholesterol, increasing vitamins and co-factors, and reducing the excess of any particular food that might effect metabolism. In nearly every case "complex" carbohydrates like pasta are preferred over simple starches. Most diabetic patients learn how "count" carbohydrates and carefully read the nutritional panels on foods.

It is highly recommended that diabetic patient eat numerous small meals throughout the day as opposed to a few large meals. This practice helps reduce peak blood sugars and is particularly useful when gastrointestinal upset from medications is present or autonomic neuropathy. In cases where nephropathy is progressing, it is advised that patients restrict the overall amount of protein in the diet in order to not unduly tax the kidney. A similar restriction may be advisable in cases of concomitant liver disease.

A number of specialty foods, snacks, and artificial sweeteners are available to assist diabetics in meeting their nutritional targets. These foods do not have added sugar, often use fructose instead of sucrose, and contain long acting complex carbohydrates in place of simple starches that cause blood sugar peaks.

Perhaps more important than special diabetic foods is the concept of portion control. Limiting the amount of carbohydrates and overall calories at meals or with snacks is an excellent way to limit weight gain and avoid prolonged high levels of glucose in the blood. Recently Medicare added a benefit for diabetics to see nutritionists as part of their overall diabetic management. This is highly advised. A nutritionist or dietician can help plan meals, train in food preparation, and evaluate nutritional needs.

Diabetic patients who utilize cannabis as adjunctive therapy for pain and neuropathy should be aware that one possible "side effect" of cannabis is increased appetite. Patients who develop the "munchies" from medical cannabis should keep non-sugary treats available should the desire to eat increase.

Exercise: Regular exercise, even walking, contributes greatly to normalizing blood sugar. Exercise allows the muscles to "burn" sugar and increases overall circulation and strength.

Foot and Wound Care: Due to the poor circulation and insensitivity that can result from long term diabetes, foot injury and infection are a major concern. Diabetics should not go barefoot. Feet and hands should be washed daily with soap and water and towel dried. Nails should be clipped in a "square" fashion and not too close. Diabetics must take any infection seriously. Healing can be delayed or impossible without medical assistance (particularly if the patient smokes tobacco). Good hygiene and prompt attention to cuts and wounds goes a long way to avoiding more expensive and painful medical care. Patients who take care of their feet rarely have to experience the amputations common in the past.

Medications: An exhaustive chart on mainline diabetes medications is available at Intelihealth, a Harvard Medical School publication. The link for basic medications is: [Basic Diabetes Medications](#). Additional important links to Intelihealth are provided in the link section. The basic medications required in treating diabetes are those involved in glucose metabolism. Insulin, whether long acting or short acting, of human origin or animal, is a basic requirement for all Type I and many Type II diabetics. Insulin is usually injected in subcutaneous tissue but can also be provided through an implantable insulin pump. An insulin

aerosol is currently being tested to augment or even replace injectable insulin. Even oral dose insulin is in development and may be available in just a few years.

Oral diabetic medications are of three basic types:

- Agents to increase insulin sensitivity such as glucophage
- Agents to increase insulin production such as glypizide
- Agents to reduce or slow carbohydrate absorption such as miglitol

The exact combinations of oral agents and/or insulin of different types is best developed by the treating physician.

Ancillary Medications: Most patients suffering from diabetes are prescribed a variety of medicines to treat complications. Of these the most important is a class of drugs called ACE inhibitors. These medicines help stabilize blood pressure and heart rhythm. In addition, ACE inhibitors have been shown to reduce the likelihood and severity of long term damage to the kidney. Other blood pressure medicines are also commonly used including beta blockers like Inderal.

In view of the serious cardiac complications related to diabetes, patients should have their LDL, HDL, triglycerides, and cholesterol routinely checked. Where the lipid profile is poor, physicians often recommend ongoing treatment with the Statin drugs like Lipitor. Statins are proving to be extremely effective in reducing cholesterol and triglycerides which are implicated in coronary artery disease. Unfortunately, the Statins are hepatotoxic and should be used with extreme caution in patients with liver disease. All patients using Statins require periodic blood tests to measure liver enzymes.

Nearly half the cases of diabetes will feature neuropathy in some form or another. Peripheral neuropathy can be very uncomfortable with tingling, numbness, burning, cramping, and pain. Topical ointments have been used for peripheral neuropathy. These preparations are extracts from the hot pepper plant and contain the drug capsaicin. The application of chili extract desensitizes the skin and sometimes provides some relief. Most patients with troublesome neuropathy will be prescribed an anti-convulsant like gabapentin (Neurontin). This class of drugs is powerful and has an array of side effects including sedation. In the short run some physicians provide minor narcotics for neuropathy. Anti-depressants are also commonly prescribed.

Link to:

- [Table of Contents](#)
- [Introduction](#)
- [Complications of Diabetes](#)
- [Treatment with Cannabis](#)
- [Links](#)

[Click here to refer this page to a friend and let freedom grow](#)

[Home](#) | [Mission](#) | [Patient Resources](#) | [News & Events](#) | [Recipes](#)
[Search](#) | [Message Board](#) | [Medical Uses](#) | [Contribute](#) | [Links](#) | [Contact](#)

Copyright © 2001-2007 American Alliance for Medical Cannabis, Inc. All rights reserved.



Mission

Patient Resources

Diabetes

Medical Uses

Part IV - Treatment with Cannabis

News The medical literature has very few citations in regard to any direct effect of cannabis on blood sugar levels. These citations are sometimes contradictory.

Recipes Despite the lack of research, a large body of anecdotal evidence is building amongst diabetic sufferers that medical cannabis may help stabilize blood sugar.

Search One suggested method that may be responsible is the reduction in catecholamines and/or stress related hormones (glucocorticoids) that is caused by cannabis.

Message Board

Contribute

Links

Contact

Many cannabinoids act primarily to inhibit prostaglandins and COX-2, while providing powerful anti-oxidant properties to salvage free radicals, and inhibit macrophage and TNF. All of this means that cannabis is an excellent anti-inflammatory that lacks the side effects of steroids (which diabetics have to avoid), the NSAIDS, and the COX-2 inhibitors like Vioxx. This anti-inflammatory action may help quell some of the arterial inflammation common in diabetes.

Cannabis is also neuroprotective. It is believed that much of neuropathy comes from the inflammation of nerves caused by glycoproteins in the blood that deposit in peripheral tissues and trigger an immune response. Cannabis helps protect the nerve covering (myelin sheath) from inflammatory attack. Cannabis also lessens the pain of neuropathy by activating receptors in the body and brain. Some components of cannabis (perhaps cannibidiol) act as anti-spasmodic agents similar to the far more toxic anti-convulsants like Neurontin. This action of cannabis helps relieve diabetic muscle cramps and GI upset.

Two other major actions of cannabis can benefit the diabetic. The first is helping to keep blood vessels open and improving circulation. Cannabis is a vasodilator and works well to improve blood flow. The second action is how cannabis can reduce blood pressure over time. While cannabis is not generally thought to be an anti-hypertensive and is no replacement for ACE inhibitors, it does contribute to lower blood pressure which is vital in diabetes management.

Finally, cannabis used in food products not only provides long lasting blood levels of key cannabinoids but, in addition, cannabis butter and oil substitute triple bonded fatty acids for the saturated fats normally contained in these essential cooking products. This substitution will benefit cardiac and arterial health in general.

Most diabetics learn very early that maintenance of good blood sugar is most easily achieved when patients or their caregivers cook as opposed to eating fast food or prepared foods. Cooking not only provides superior nutrition necessary to treat diabetes but also is a form of physical therapy for diabetic hands that suffer

from neuropathy. Of course, diabetics should take caution with any flames or hot objects.

Cannabis may also be used to make topical creams (mixed with aloe vera and/or emu oil) that can be applied directly to hands and feet affected by neuropathic pain and tingling.

Night time can be particularly difficult for diabetics. A syndrome known as "restless leg syndrome" (RLS) is common. Cannabis helps still RLS which is otherwise treated with quinine and/or muscle relaxants like Flexaril. For night time it is recommended that patients use a vaporizer or smoked cannabis to aid in falling asleep. If night time hypoglycemia is a problem then a cannabis cookie can be very helpful. Cannabis cookies are great treatment so long as portion control is exercised.

Link to:

- [Table of Contents](#)
- [Introduction](#)
- [Complications of Diabetes](#)
- [Treatment](#)
- [Links](#)

[Click here to refer this page to a friend and let freedom grow](#)

[Home](#) | [Mission](#) | [Patient Resources](#) | [News & Events](#) | [Recipes](#)
[Search](#) | [Message Board](#) | [Medical Uses](#) | [Contribute](#) | [Links](#) | [Contact](#)

Copyright © 2001-2007 American Alliance for Medical Cannabis, Inc. All rights reserved.



Mission

Patient Resources

Diabetes

Medical Uses

Part V - Links

News American Diabetes Association: [ADA](#) *

Recipes Intellihealth: Diabetes Main Site: [Diabetes Basics](#) *

Search Intellihealth: Main diabetes medications: [Medications for glucose control](#) *

Message Board Public Access to Medline Searches: [Medical literature searches](#) *

Board Center for Disease Control (CDC): [Diabetes Public Health Resource](#) *

Contribute Harvard Medical School: [Joslin Diabetes Center](#) *

Links Diabetes Support Group: [MSN Communities](#) *

Contact

Link to:

- [Table of Contents](#)
- [Introduction](#)
- [Complications of Diabetes](#)
- [Treatment](#)
- [Treatment with Cannabis](#)

Further Scientific Evidence at each link
The positives are endless

[Click here to refer this page to a friend and let freedom grow](#)

[Home](#) | [Mission](#) | [Patient Resources](#) | [News & Events](#) | [Recipes](#)
[Search](#) | [Message Board](#) | [Medical Uses](#) | [Contribute](#) | [Links](#) | [Contact](#)

Copyright © 2001-2007 American Alliance for Medical Cannabis, Inc. All rights reserved.

Scientific Evidence

HOME HEALTH LIVING SCIENCE & TECH WORLD CULTURE VIDEO



About Contact Us Terms of Use

DON'T MISS Can You Overdose On Marijuana? Search site

Marijuana and Diabetes

By TruthOnPot.com on June 12, 2013

Like {4.5K} Tweet 49 G+1 +5

Holistic Addiction Rehab

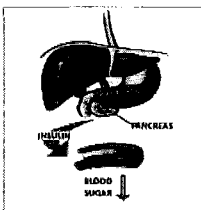
Alternative to 12-step program Holistic Biochemical Restoration.

Summary (click to view)

TruthOnPot.com – Diabetes mellitus (also known as primary diabetes) affects approximately 8.3% of the US population and 6.8% of Canadians. In 2007, diabetes contributed to over 200,000 deaths in the US alone.

Although the early development of insulin medications made diabetes treatable, no cure exists and symptoms tend to worsen as the disease progresses.

Now, a growing body of evidence points to medical marijuana as a promising therapy. In fact, research shows that marijuana may not only be useful for managing symptoms of pain and cardiovascular disease, but also aid in combating the disease itself.



Insulin drugs help diabetics control their blood sugar

What is Diabetes?

Diabetes mellitus is a group of metabolic diseases characterized by high blood glucose levels. The two most common forms of diabetes are known as Type 1 and Type 2 diabetes.

Type 1 diabetes is usually diagnosed in individuals under the age of 30 and involves an autoimmune attack on islet cells of the pancreas – cells that produce insulin. Approximately 10% of diabetics suffer from Type 1 diabetes.

Type 2 diabetes is far more common and tends to affect individuals that are obese and over the age of 40. It is usually a result of a combination of defective insulin production and insulin resistance.

In both types of diabetes, high blood sugar levels eventually lead to a variety of other metabolic and non-metabolic complications.

The Role of Endocannabinoids

Endocannabinoids are natural compounds found within all humans that happen to act in a similar way as plant-derived cannabinoids such as THC. Along with cannabinoid receptors, they make up what is known as the endocannabinoid system.

Cannabinoid receptors have been identified in the pancreas, heart, blood vessels, nervous system and many other organs – all of which suggests a potential role for cannabinoids in treating diabetes.

Interestingly, large-scale surveys have found lower prevalence rates of obesity and diabetes mellitus among marijuana users compared with non-users, suggesting the potential for cannabinoids to affect this disorder.

Combats Diabetes



LATEST POPULAR COMMENTS



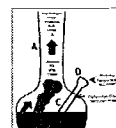
Indica Vs. Sativa: What's The Difference?

Cannabis has two main species, indica and sativa, each...



What Is THC Oil?

More and more marijuana users are embracing cannabis extracts,...



Marijuana Bongs: What You Should Know

When it comes to consuming marijuana, there are a...

Studies have also identified higher endocannabinoid levels (anandamide and 2-AG) in diabetic patients compared to healthy individuals.

HOME HEALTH LIVING SCIENCE & TECH WORLD CULTURE VIDEO



Marijuana and Insulin

Insulin dysfunction is the underlying factor in diabetes as well as the primary target of medical treatment. Interestingly, the presence of cannabinoid receptors has been identified in cells of the pancreas that produce insulin.

Studies involving human cell cultures have linked activation of CB1 receptors to an increase in insulin production. On the other hand, the role of CB2 receptors is conflicted, with some studies showing an increase in insulin secretion and others showing a decrease.

Marijuana compounds may take on another therapeutic role in type 1 diabetes by regulating activity of the immune system. In an animal model of type 1 diabetes, THC demonstrated an incredible ability to counter autoimmune attacks. THC treatment was also able to preserve insulin levels and lower blood glucose levels compared with the untreated group.

Other studies have found CBD (cannabidiol) and THCV (tetrahydrocannabivarin) – two non-psychoactive compounds found in marijuana – to have similar protective effects.

A study published in 2006 found that CBD could reduce the chance of developing type 1 diabetes in mice by reducing inflammation of pancreatic cells. In a study involving obese mice, THCV treatment led to improved glucose tolerance, reduced glucose intolerance and increased insulin sensitivity, leading the authors to conclude that THCV could be a useful therapy for type 2 diabetes either alone or together with CBD.

Holistic Addiction Rehab

Alternative to 12-step program Holistic Biochemical Restoration.



"Based on these data, it can be suggested that THCV may be useful for the treatment of the metabolic syndrome and/or type 2 diabetes, either alone or in combination with existing treatments... a CBD/THCV combination may be beneficial for different types of diabetes mellitus."

Excerpt from *The cannabinoid Δ9-tetrahydrocannabivarin (THCV) ameliorates insulin sensitivity in two mouse models of obesity* (Wargent et al., 2013)

Finally, a large-scale observational study published in 2013 by Harvard University researchers found that adults who used marijuana had lower fasting insulin levels and a lower probability of being insulin resistant. The study collected data from over 4,500 adults during a 5 year period.

Marijuana and Obesity

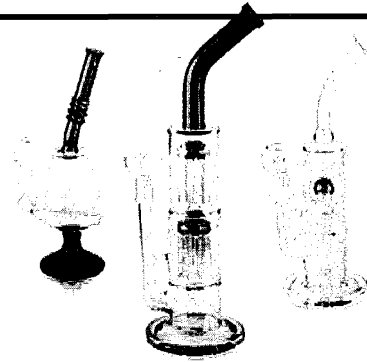
Type 2 diabetes is commonly associated with obesity and related cardiovascular problems. Interestingly, the endocannabinoid system appears to be involved with obesity and regulating energy balance as well.

Early studies revealed higher levels of the endocannabinoids anandamide and 2-AG in obese individuals, which led experts believed that activity of the endocannabinoid system promoted obesity. Along the same line, activity of the endocannabinoid system has been shown to decrease energy expenditure and increase food intake and fat storage.

However, more recent evidence suggests an opposite effect on obesity.

In the same Harvard University study, researchers found that marijuana users had lower waist circumferences, despite the fact that they tended to consume more calories. Similarly, a 2011 analysis of 2 large U.S. surveys linked marijuana use with a lower BMI and a decreased prevalence of obesity.

Marijuana and Cardiovascular Disease



GLORIOUS GLASS
— AT A GODLY PRICE —



FROM LEAF SCIENCE

5 Facts About Marijuana and Driving High

Vaporizing 101: What Temperature Is Best?

10 Most Popular Strains of Marijuana

9 Side Effects of Marijuana

Study: Marijuana May Lower Risk of Metabolic Syndrome

Recent studies also suggest a therapeutic role of cannabinoids in a number of cardiovascular complications that accompany diabetes. As it turns out, CB1 and CB2 receptors are

expressed in various cells of the cardiovascular system, including the immune cells that infiltrate them.

In mouse models, cannabinoids have demonstrated the ability to regulate vascular inflammation, oxidative stress and atherosclerosis, leading experts to suggest that marijuana-based medications may be useful in the treatment of these dysfunctions.

"Modulation of the endocannabinoid system... may hold tremendous therapeutic potential in various cardiovascular disorders associated with inflammation and tissue injury, ranging from myocardial infarction and heart failure to atherosclerosis and cardiometabolic disorders."

Excerpt from The emerging role of the endocannabinoid system in cardiovascular disease (Pacher and Steffens, 2009)

Marijuana and Neuropathic Pain

Approximately 60-70% of diabetics suffer from some form of nerve damage, which can often lead to a specific type of pain known as neuropathic pain.

Interestingly, neuropathic pain has been one of the few applications of medical marijuana to be investigated in clinical trials. Sativex – a cannabis-derived oral spray – has already been approved by countries such as Canada and the United Kingdom for the treatment of pain associated with cancer and multiple sclerosis.

While yet to be approved for diabetics, cannabis-based treatments have also shown promise in clinical trials involving diabetes-related neuropathic pain.

A placebo-controlled clinical trial published in 2012 found that 85% of patients given synthetic THC (Cesamet) experienced a reduction in pain of at least 30%. Furthermore, all patients that received the strongest dose (4mg/day) experienced a reduction in pain of 30% or more. The study also identified significant improvements in overall disease scores. Side-effects were relatively minor and included confusion, drowsiness and dizziness.

Finally, other studies show that cannabis use can lead to improvements in sleep, mood and quality of life in patients with neuropathic pain.

Diabetic? What Not To Eat

New Video Explains The 3 Triggers That Create Type 2 Diabetes.



Atherosclerosis CBD Diabetes Heart Disease Inflammation Insulin
 Neuropathic Pain Obesity Pain Pancreas THC

RELATED POSTS

Scientific Evidence



No thanks, I don't want any hacks



VAPOR
PRIMA
OPTIMAL PERFORMANCE VAPORIZER



Marijuana and Diabetes - An In-depth Look

f SHARE

🐦 TWEET

H Dorottya 3 17 November, 2015 Cannabis and Health

JOIN THE #1 SOURCE FOR EVERYTHING CANNABIS

Name:

Email:

Sign me up!



Photo credit: WBHI

f SHARE

Like 6.5M

Diabetes is a chronic disease characterized by the inability to properly produce or utilize insulin. If left untreated, this disease can have severe complications and may eventually be fatal.

In 2009, there was an estimated number of 246 million people affected worldwide. In the USA alone, it is predicted that 48.3 million people will be affected by 2050. This is an astonishing number considering that in 2012 the number was estimated at 29.1 million with an average of 1.7 million new cases per year.

The Basics

Insulin

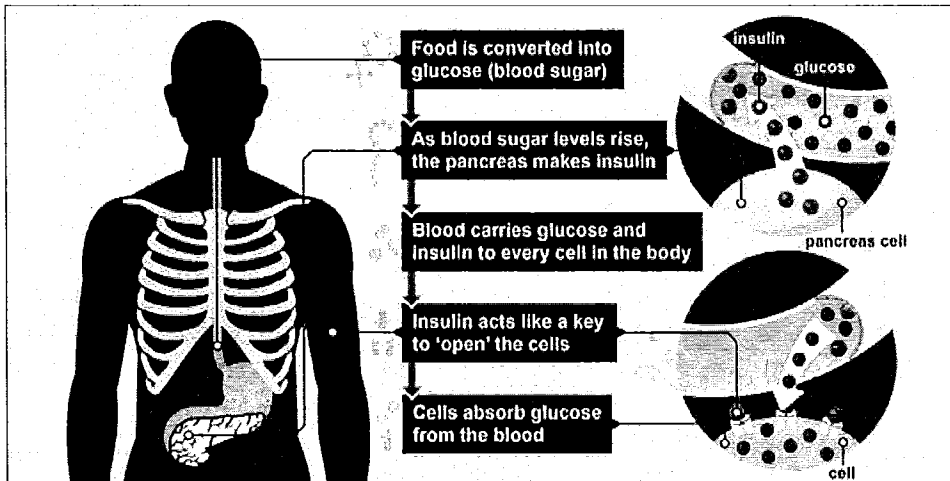


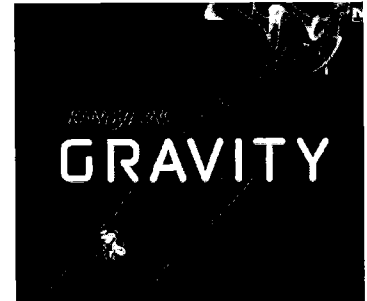
Photo credit: BBC

Insulin is a hormone involved in the regulation of blood glucose levels. After a meal, when sugar levels are high, Beta cells in the pancreas release insulin into the bloodstream. Insulin signals to the cells of the body to either store these sugars for later or to utilize them for energy. During exercise, when the blood glucose levels fall, the opposite scenario can be observed. Insulin levels drop, and stored sugars can be released from the cells and utilized for energy.

Type 1 Diabetes

This type of diabetes is associated with lack of insulin production as a result of auto-immunity. The Beta cells of the pancreas are mistakenly targeted by the immune system and killed. Insulin production becomes very low or non-existent, thus causing sugars to build up in the system. This type of diabetes is most commonly developed in childhood or adolescence, but in rare cases can also develop in adults.

Type 1 diabetes requires a lifelong insulin therapy and can be aided by proper diet.



Join us on Facebook

Join us on Twitter

g+ p Like 6.5M



HERB 40 mins

The weed is louder. www.instagram.com/herb.co

Which is louder: the weed or the music?



TRENDING



Did International Law Just Say We Have To Legalize Cannabis?



How To Grow Just One Cannabis Plant In Your Home



Dopey Deputy Makes Embarrassing Mistake



The Green Scene: What \$20 Weed Looks Like In Japan

Type 2 Diabetes

This **type** of diabetes can be caused by one of two factors. Either the Beta cells of the pancreas do not make enough insulin to properly store excess sugars, or the cells of the body are just insensitive to insulin. In both cases, there is a buildup of sugars in the blood stream, but none can be utilized by the cells for energy.

Type 2 diabetes is the most common form of the disease and tends to get worse with time. A controlled diet, proper exercise, and medication in the form of pills or insulin is the optimal treatment.

Symptoms

The **symptoms** associated with both types of diabetes range from mild to severe:

- Frequent urination
- Frequent hunger
- Frequent thirst
- Fatigue
- Vision impairment
- Slow healing bruises and wounds
- Weight loss associated with Type 1
- Numbness in hands and feet, associated with Type 2

If left untreated or diagnosed too late, these symptoms can develop into serious complications:

- Skin disorders and infection
- Diabetic retinopathy which can result in cataracts and glaucoma
- Neuropathy caused by nerve damage
- Cardiovascular complications

These are the main ones amongst many others. The complications with diabetes are endless and an early diagnosis is crucial. Living with diabetes comes with a strict lifestyle and requires discipline. Currently, there is nothing on the market that could possibly reverse the damage, especially on the neural level.

Is there potential in marijuana?

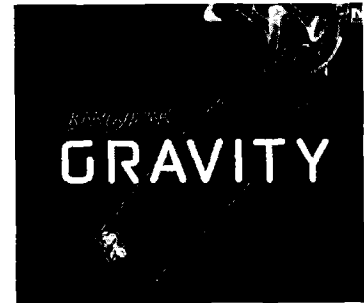


Photo credit: High times

Marijuana is currently legal for medical use in 24 American states and its use keeps increasing worldwide. More and more evidence is surfacing about the potential medicinal properties of the plant in healing a multitude of diseases.

While we know the potential of marijuana in treating nervous disorders, little research is available on the relationship between marijuana and the metabolic processes of the body. When it comes to marijuana and diabetes, the opinions are biased but the early research looks promising.

Current research



**DON'T BE LEFT IN THE..
UM.. SMOKE. JOIN US!**

Name:

Email:

Sign me up!



Due to the complexity of the condition and our current lack of understanding, in depth research on marijuana and diabetes in humans is still too risky.

Animal studies, on the other hand, have opened a whole new gateway for our understanding. These studies have touched on the effects of marijuana on the prevalence of diabetes, its potential roles in diabetes-induced neuropathy, as well as its implication in cardiovascular complications.

Cannabis and Lower Diabetes Incidence

Marijuana use is very well known for the unstoppable 'Munchies' it induces, thus why it is so appealing to chemo patients. One would think that an increased caloric intake would result in a larger BMI.

Surprisingly, this doesn't seem to apply to marijuana users and this is exactly where we do not yet understand the implications of marijuana in metabolic functions.

In an effort to determine if there could be a positive correlation between marijuana and diabetes, one study examined the effects of marijuana use on glucose and insulin levels.

579 participants out of the 4657 were current marijuana users and showed a lower prevalence of diabetes than non-users. Current users showed 16 % lower levels of fasting insulin as well as 17 % lower insulin resistance, both with a confidence interval of 95%.

Marijuana users in this study were also found to have lower waist circumference than non-users and increased levels of high-density lipoprotein cholesterol (HDL-C), commonly called 'good cholesterol'.

Marijuana and diabetes can be better studied in mice models mainly because the action of cannabis derivatives can directly be examined. The natural derivatives of the plant seem a lot more promising than the casual smoking.

This was the aim of a study conducted on diabetic mice which examined the effects of cannabidiol (CBD), a non-psychoactive component of marijuana, on the incidence of the disease.



Photo credit: Science Mag

The researchers demonstrated the potential of (CBD) to reduce the occurrence and delay the onset of Type 1 diabetes. It was found that CBD shows anti-autoimmune properties which needed further examination.

While some non-specific immunosuppressive drugs have shown to be successful in preventing diabetes, they are not an ideal alternative. Suppressing the immune system in a general fashion for a long period of time would present a high-risk treatment. Moreover, these drugs showed to be working only temporarily in the clinic until resistance was acquired.

The marijuana and diabetes research is a lot more promising. While CBD is also a non-specific immunosuppressant, it was found to promote a protective immune response in diabetic mice by the means of immunomodulation. Immunomodulation would allow the use of CBD in early-onset patients only long enough to deviate the destructive autoimmune response to a protective one.

Insulin forming Beta cells showed to be saved from destruction, allowing for proper metabolism to occur. Once the immune response is reversed, patients would no longer need to use the cannabis derivatives. This

mechanism of action and would prevent the long-term resistance and immunosuppressive effects of continued use.

Cannabis and the Reversal of Neuropathy



Photo credit: ZME Science

One of the harshest complications of diabetes is Diabetic Neuropathy. **Clinically** it is defined as "the presence of symptoms and/or signs of peripheral nerve dysfunction in people with diabetes after the exclusion of other causes", and affects 20% of the diabetic population.

Currently, several treatments are available, but none of them are sufficient in preventing neuropathy. Opioids and anticonvulsants have plateaued at a 50% efficacy in pain reduction and are associated with severe side effects.

While the association of cannabis receptors with the nervous system has been increasingly documented, some have brought their focus on marijuana and diabetes.

Two main **cannabinoid receptors** are responsible with pain modulation: CB1 and CB2. CB1 has been found to be more closely associated with the nervous system while CB2 can be found in the tissues of the immune system. Both synthetic and natural cannabinoids, such as CBD, have shown to be effective in treating pain associated with neuropathy.

One **research** focusing on marijuana and diabetes **succeeded** in showing such benefits in diabetic mice. First, the mice were chemically rendered diabetic by pancreatic impairment (I know it sounds horrible) and tested for thermal and mechanical responsiveness.

After 30 days, the rats showed a significant decrease in responsiveness to stimuli due to the loss of neural sensation. eCBD, a mixture of CBD and THC, was then administered orally. Pain assessment was recorded 7 days after administration and the animals were killed in order to further examine their nerves and liver.

The correlation found between marijuana and diabetes were groundbreaking. eCBD has shown to restore the thermal pain perception in the paws of the rats and significantly increase their impaired mechanical force.

Diabetes has been documented to increase tissue damage in the liver by destroying the antioxidant scavenger system of the organism. Close examination of the eCBD treated rat livers revealed a reversal of the oxidative stress-induced damage by restoring the defense mechanism of the organism. **Diabetic retinopathy**, just as neuropathy, is considered to be mainly triggered by oxidative stress. Recent advancement in the study of **marijuana and glaucoma** may be able to shine new light on this problem.

Cannabis and Cardiovascular Complications



Another focus of the marijuana and diabetes research is to address the cardiovascular complication associated with the disease. Diabetic patients tend to show symptoms of defective clot dissolution and thrombosis leading to macrovascular disease.

Insulin resistance has been found to disturb coagulation and platelet aggregation as well as to increase a series of coagulants in the blood, such as thrombin. Such impairment of the procoagulant state often leads to hypertension and dangerous blood clots. 📄 Marijuana and Diabetes An In depth Look

In order to examine the effects of cannabis extracts (THC, CBD, CBN) on blood coagulation, one **study** used obese rat models.

Obese rats were found to have a 1.7 fold lower clotting time than lean rats in the laboratory. Both lean and obese rats were injected with cannabis extract for 28 days, after which blood was drawn and compared to the initial sample.

They found that CBD alone did not have any effects on thrombin activity, but that THC in combination with CBN had inhibitory effects. In both lean and obese rats, clotting time was 1.5 and 2 folds greater, respectively, than initial measurements.

This finding is another important milestone in the study of marijuana and diabetes.

The future

While the study of marijuana and diabetes is still in the early phases, the animal research looks extremely promising. Cannabis has been used in South African **indigenous medicine** as a therapeutic agent for diabetes, bronchitis and pain.

Its therapeutic effects are being re-discovered in more scientific depth. Marijuana has recently shown to have important implications in treating severe neural disorders such as **multiple sclerosis and epilepsy**.

It then comes as no surprise that cannabinoids can also be effective in treating diabetic neuropathy. While the metabolic implications are less understood, the decreased incidence on diabetes associated with marijuana therapy is a doorway to new possibilities.

It seems that this miracle plant can cover large grounds in medical advancement and we must encourage this exponential bloom.

Do you have anyone in your surroundings currently suffering from diabetes? What are their current options for treatment? How do they feel about marijuana and diabetes?

About Latest Posts

Dorotyya

I am 25 years old, currently located in Montréal. I completed my Bachelor's degree in Molecular Biology along with a Graduate Diploma in Biotechnology and Genomics. I have a passion for music but my real strength is Arts. I am currently trying to find a path that resonates with my interest and my values. Having worked in the Pharmaceutical industry for the past three years, I realized that I wanted to do

The last 2 pages excluded!

Scientific Evidence



Sign In Subscribe

NO COST REHAB ASSISTANCE

We Help You Find the Best Treatment Make the Call to Change Your Life!



DIABETES

Marijuana: The Next Diabetes Drug?

By Maia Szalavitz @maiasz · May 21, 2013

Like 36K

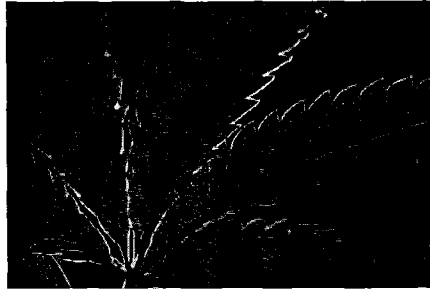
Tweet

G+ 145

Share 68

Read Later

Toking up may help marijuana users to stay slim and lower their risk of developing diabetes, according to the latest study, which suggests that cannabis compounds may help in controlling blood sugar.



Getty Images

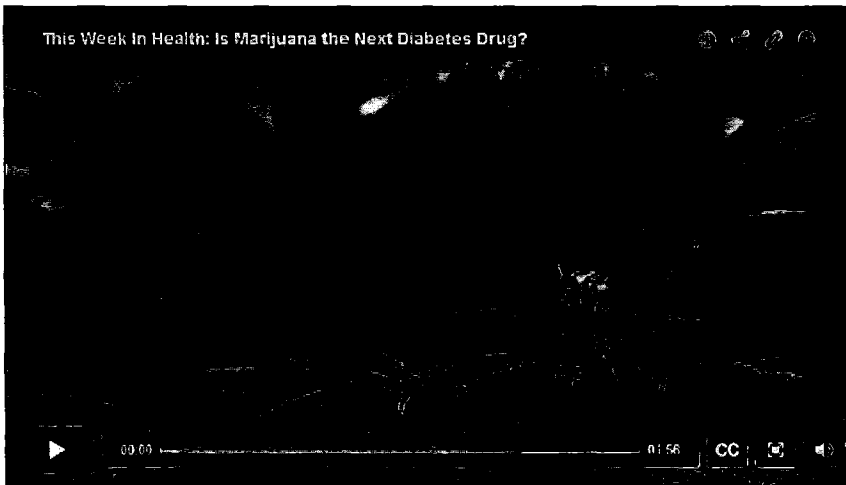
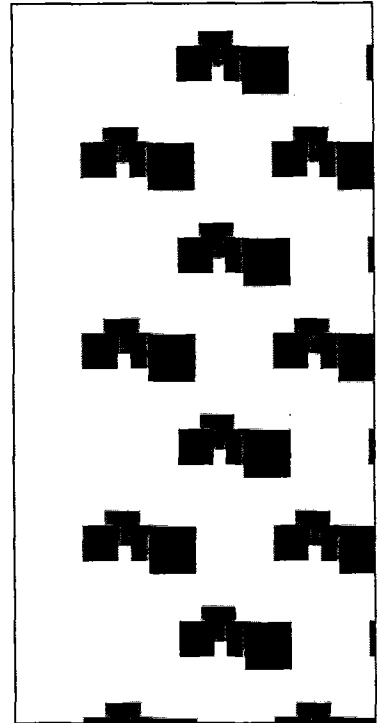
Although marijuana has a well-deserved reputation for increasing appetite via what stoners call “the munchies,” the new research, which was published in the *American Journal of Medicine*, is not the first to find that the drug has a two-faced relationship to weight. Three prior studies have shown that marijuana users are less likely to be obese, have a lower risk for diabetes and have lower body-mass-index measurements. And these trends occurred despite the fact that they seemed to take in more calories.

Email Print

Share

Follow @TIMEHealth

Why? “The most important finding is that current users of marijuana appeared to have better carbohydrate metabolism than nonusers,” says Murray Mittleman, an associate professor of medicine at Harvard Medical School and the lead author of the study. “Their fasting insulin levels were lower, and they appeared to be less resistant to the insulin produced by their body to maintain a normal blood-sugar level.”



POPULAR AMONG SUBSCRIBERS

Japan's Booming Sex Niche: Elder Porn



Young Kids, Old Bodies



Benedict Cumberbatch Talks Secrets, Leaks, and Sherlock



Obama's Trauma Team



The research included over 4,600 men and women participating in the National Health and Nutrition Examination Survey between 2005 and 2010. Among them, 48% had smoked marijuana at least once in their lives, and 12% were current cannabis smokers. The authors controlled for other factors like age, sex, income, alcohol use, cigarette smoking and physical activity that could also affect diabetes risk.

Even after these adjustments, the current marijuana users showed fasting insulin levels that were 16% lower than those of former or never users, along with a 17% reduction in another measure of insulin resistance as well. Higher levels on both tests are associated with Type 2 diabetes, which is linked with obesity. Marijuana users also had higher levels of high-density lipoprotein, the so-called good cholesterol, which can protect against heart disease. And the regular smokers also boasted smaller waistlines: on average, they were 1.5 in. (3.8 cm) slimmer than the former users and those who had never smoked cannabis.

Researchers don't yet know how to explain these correlations — and since the study was not a controlled trial, it's not clear whether marijuana or some other factor in marijuana users' lifestyles actually accounted for the beneficial

Most Popular

FROM HEALTH & FAMILY

- 1 A 6-Year-Old Boy Becomes a Girl: Do Schools Need New Rules for Transgender Students?
- 2 It's True. You Can Get Throat Cancer From Oral Sex
- 3 5 Things You Should Know About Chicken Pox and Shingles



appetite and metabolism. But the exact details of how the compound alters the relationship between appetite, caloric intake and insulin response isn't obvious yet.

One clue, however, may lie in the effects of a diet drug that was developed to have the opposite effect that marijuana has on the brain. That drug, rimonabant, produced significant weight loss and a drop in fasting insulin levels by affecting certain cannabinoid receptors in the exact opposite way that THC, marijuana's main psychoactive ingredient, does. This action is complex: rimonabant doesn't simply block the receptor and keep the natural cannabinoids from activating it. Instead, while the natural cannabinoids elevate the normal level of activity already going on in the system, rimonabant lowers it so the result is precisely the reverse of activating the receptor naturally. However, because of psychiatric side effects like increasing suicide risk, rimonabant was pulled from the European market and never approved in the U.S.

(MORE: Reverse Engineering the Marijuana 'Munchies': What Causes Binge Eating?)

How could both marijuana and a compound that has the opposite effect of pot act on the same brain receptors and lead to weight loss? Natural marijuana includes many different potentially active compounds, and one of them — rather than THC — could be responsible for this effect. One potential candidate is a substance called cannabidiol, which also affects cannabinoid receptors, but in a different way from the way THC or rimonabant does.


Another possibility involves tolerance: repeated use of a drug can make receptors less sensitive over time. "The most likely explanation is that prolonged cannabis use causes the [receptors] to lose sensitivity and become inactive," says Daniele Piomelli, a professor of pharmacology at the University of California, Irvine, who was not associated with the new research. "This has been shown to happen in people who smoke marijuana. This weakening of [these receptors] translates into a lower risk for obesity and diabetes because the inactive receptor would be unable to respond to our own cannabis-like molecules, which we know are important in keeping us chubby." While marijuana may initially promote appetite and overeating, in the long run it has the opposite effect because it desensitizes cannabinoid receptors and may even protect against obesity.

So don't skip the gym and break out the bong just yet: there's still not enough data to tell whether marijuana, like alcohol, could have health benefits in moderation. Mittleman says the study relied on self-reported use of marijuana, which can be unreliable. However, he points out that since people are more likely to hide drug use than they are to falsely claim it, the findings could even underestimate marijuana's effects.

(MORE: Marijuana Slims? Why Pot Smokers Are Less Obese)

But whether that's true, and whether marijuana might be a window into understanding how to best control glucose and insulin to prevent diabetes, isn't known yet. "It is much too early to say," says Mittleman, "We need much more research to better understand the biologic responses to marijuana use. We really need more research to allow physicians and patients to make decisions based on solid evidence." An editorial that accompanied the study also urged government action to reduce barriers to such research.

Even with 18 states now approving marijuana for medical uses, the politics of pot will always overshadow research efforts to understand how cannabinoids work in the brain — or affect disease. But, as Piomelli says, "the [new] study suggests that smoking marijuana [may] protect people against obesity and diabetes." And following up on that finding could yield new insights into how to tackle one of our biggest public-health issues.



Maia Szalavitz @maiasz
Maia Szalavitz is a neuroscience journalist for TIME.com and co-author of *Born for Love: Why Empathy Is Essential — and Endangered*.

A big publisher's endorsement and marketing of

BORN FOR LOVE

How to connect with Dr. Bruce Perry, a leading expert in the neuroscience of child trauma and recovery.

4 Why You Should Eat Breakfast and the Best Times for the Rest of the Day's Meals

5 10 Ways to Build Healthy Bones (and Keep Them Strong)

FROM TIME.COM

1 Russian Forces Double Along Ukraine Border

2 Gangs of 'Powerfully Built' Women Are Mugging Tourists on the Streets of Hong Kong

3 Putin Phones Obama To Discuss Ukraine, White House Says

4 Colbert Tweet Draws Accusations of Racism and #CancelColbert

5 There's A Scientific Reason for Why You Look Weird In Selfies

CONNECT WITH TIME

Follow @TIME 10.8M followers Like 9.8M

TIME

G+ Follow +1

+9,441,873

AROUND THE WEB

Sponsored Links by



Psoriatic Arthritis Symptoms: What You



A Brilliant Way to Pay Off Mortgage (It's Genius!)



Ever look yourself up? This new site is addicting, enter



Cheaters Exposed By New Website, Look For Yourself