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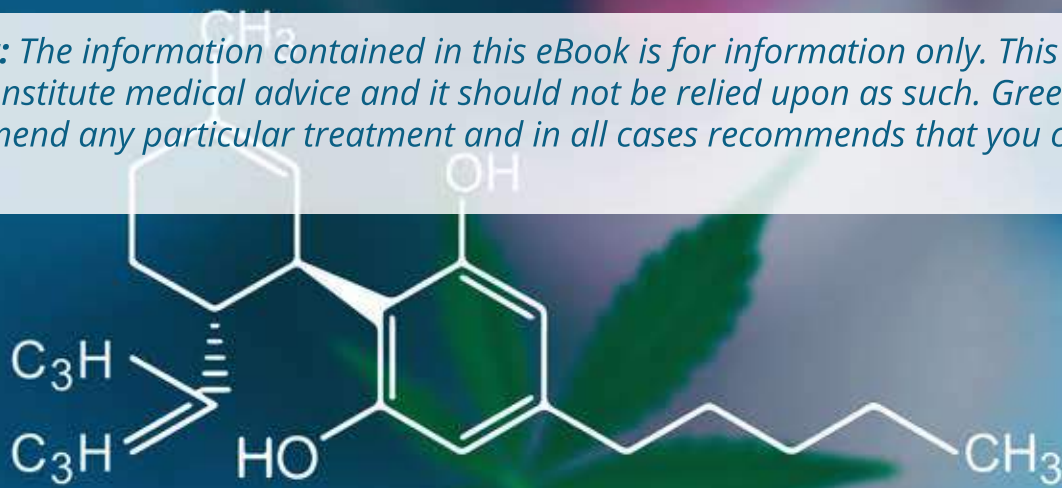
DOSING CANNABIS:

**A Practical Guide to
Self Medicating for Every Condition**

- With Dr. Dustin Sulak -

 **GREENCAMP**

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As far as cannabis education goes, cannabis dosing for optimal medical relief is probably the most complicated topic in the entire canna-universe, and in my opinion the most important.

Before we move on to the exact dosage guide, there are several factors we should consider beforehand, all of which have to do with the uniqueness of you as an individual and how that influences the effects you achieve with cannabis.

Understanding these 3 factors will help you get the essential knowledge of not only how cannabis works, but also which ratio of cannabinoids you should aim for.

So, without any further ado, let's dive right in.

3 FACTORS TO CONSIDER BEFORE STARTING CANNABIS TREATMENT

1. The difference in people

People react to cannabis differently. This is mostly because of the differences in the genes, age, physical fitness, psyche and gender.

This difference isn't reserved only to THC sensitivity, but also goes for the needed quantity of other cannabinoids and results in how fast will a person reach their "sweet spot"—the optimal amount of cannabinoids that should be consumed on a daily basis for the best medical results.

These inconsistencies aren't necessarily negative, they just require that every patient has to find their own perfect cannabis regimen, which can only be accomplished by trial and error.

Of course, there are certain exact directions to follow which will help you to achieve this, and we will be covering all of them later on.

2. Real plants are always better

Pharmaceutical companies have successfully isolated and subsequently artificially replicated the two main chemical compounds in cannabis: tetrahydrocannabinol (THC) and cannabidiol (CBD).

The main reason why it's always better to use real cannabis flowers (and other whole-plant derivatives) is because of the so-called "full spectrum", which can be described as an assortment of numerous cannabinoids and terpenes interacting with each other to maximize therapeutic potential of the whole.

Terpenes are organic molecules responsible for the unique aroma and fragrance of cannabis strains. Besides their aromatic nature, terpenes also have valuable therapeutic properties.



Limonene



Myrcene



Linalool



trans-Caryophyllene



Pinene

This symbiotic cooperation of terpenes and cannabinoids is also called "the entourage effect", and because each strain contains over a hundred different cannabinoids and terpenes, this is a very important aspect to be considered.

Most of these compounds are only found in trace amounts (when compared to THC and CBD), but this does not mean they don't have an important role to play.

Several studies have confirmed that the use of "full spectrum" cannabis products provides a much more beneficial effect comparing to the use of isolated compounds.

By the means of experimentation, a patient still needs to find the best possible strain for their individual condition, which is a completely different and also a very complex topic, mostly due to the complexity of our endocannabinoid system.

3. For most medical conditions using THC and CBD is superior

Some patients will experience a greater alleviation of symptoms when using strains that have a high concentration of just one of these two cannabinoids.

For most cannabis patients, it is much more beneficial to consume cannabis varieties that contain both THC and CBD.

Combining THC and CBD is favorable for a number of reasons, and the main one is the previously mentioned "entourage effect" where these cannabinoids play off each other which maximizes their impact.

What's also very important is that CBD considerably lessens the psychoactivity of THC, which is able to cause some cerebral unease, especially for people who are very sensitive to THC.

Cannabidiol (CBD) lessens the possible feelings of anxiousness and paranoia that are closely associated with THC.

We've meticulously analyzed contemporary medical research on cannabis and created Strainblazer, a tool that uses findings from studies to help you profile a perfect cannabis strain for the specific condition you're suffering from.

It doesn't suggest dosing information, but combining Strainblazer with this guide will give you all the necessary requirements to properly begin your cannabis treatment.

With these 3 factors covered, let's now start exploring cannabis dosing, and all the little tricks that go into it.

PROPER DOSING OF CANNABIS: THE BASICS



The conclusions made in this section are in complete correlation with the research and practical experiences of Dr. Dustin Sulak, who is an integrative medicine physician from Maine, and one of the top medical cannabis experts in the United States.

Dr. Sulak has helped over 18.000 medical cannabis patients find relief. You can learn more about him and his practice on Healer.com.

We are also going to have a chat with Dr. Sulak later in this guide, where he will be elaborating on some of the more complicated elements of cannabis dosing.

Now, besides the already mentioned extremely individualistic reactions to cannabis, another important aspect is the period of adaptation to the psychoactive effects of THC.

A person who's inexperienced with cannabis can be somewhat overwhelmed with the unusual sensations it brings, and because of this it's very important to start slow and moderately increase the dose while closely observing the effects.

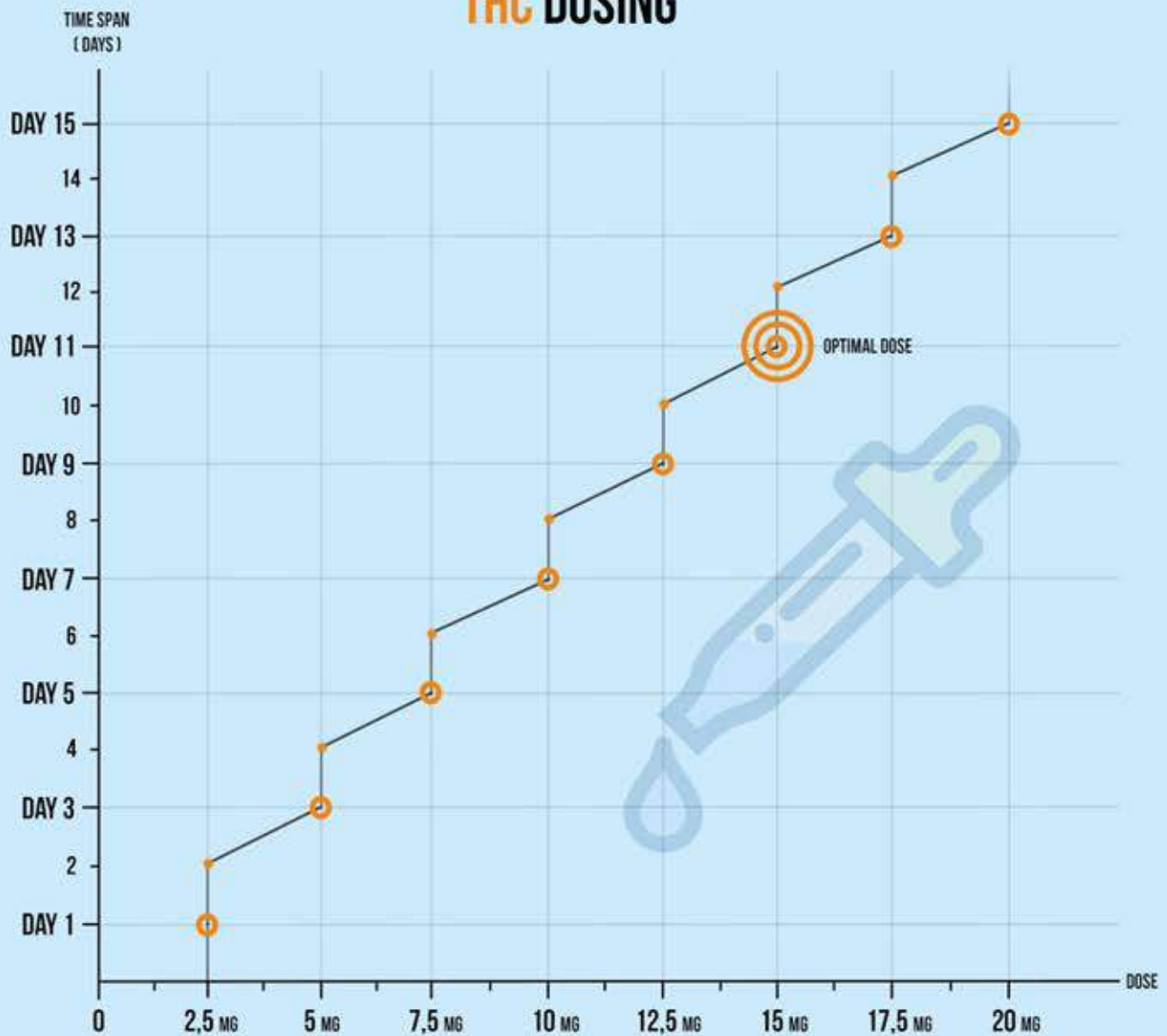
This means that if you're using cannabis for chronic pain for instance, you will precisely and systematically increase the amount of consumed cannabinoids until you start feeling relief.

On the other side, people who've been frequently consuming a lot of cannabis for recreational purposes can develop a tolerance, which can also undermine the quality of medical treatment.

For these individuals it is best to cease consuming cannabis for a relatively short period of time (around two weeks) so that their cannabinoid receptors can grow back, in order to properly react to the healing compounds of cannabis.

HOW TO DOSE THC AND HIGH-THC PRODUCTS

THC DOSING



If you're going to use a cannabis product that is high in THC (>15% THC; <1% CBD) it is advised that for the first two days you consume around 2.5 mg of THC per day.

To help you calculate the dosage, we'll use the following example:

If you have a cannabis flower that weighs one gram, and that flower has 20% THC, this means that the specific bud has 0.2 grams or 200 mg of THC.

If you divide this flower into ten doses, each of these doses will contain 20 mg of THC.

This means that a patient should consume just **one eighth** of a dose to reach the 2.5 mg limit.

Another example would be if a gram of cannabis has 17% THC, this means that in this particular gram there are 0.17 grams (or 170 mg) of THC.

Getting used to the psychoactive qualities of THC slowly can be considered microdosing, and is especially advised if you are predisposed with a heightened sensitivity to this compound.

Using cannabis products without smoking or vaporization, and instead consuming them orally before bed is also fantastic for beginners. Because the psychoactive effects can be avoided with this type of administration.

This method also induces restorative sleep, where THC performs much better as our body and mind are resting.

Microdosing THC



Just like with dosing for beginners, the same principles apply.

The only difference is that with microdosing you take one puff of cannabis every 15 minutes, until you reach the desired effect—or until you reach the 2.5 mg per day limit.

This is an even gentler introduction to the effects of THC, and allows you to casually get accustomed to the psychoactive effects of this amazing compound.

Increasing the dose

For the first two days the daily dose should be somewhere around 2.5 mg of THC.

If the effects aren't satisfactory yet (and they most likely won't be, because the starting dose is there to ease you into therapy), increase the dose by 1.25 mg to 2.5 mg of THC for the next two days.

Continue to increase the amount in such fashion (every two days) until the desired therapeutic effects are achieved.

In the event that you start experiencing unpleasant side effects, lower your daily dose by 1.25 mg to 2.5 mg.

Reaching the daily average limit



Dr. Sulak claims that the majority of medical cannabis patients usually find relief with approximately 15 mg a day and advises not to go too far overboard—more than 30 mg of THC per day is usually associated with unwanted psychoactive effects for many novice users.

The quantities we're talking about right now are only for strains and derivatives that are high in THC, and low in CBD.

Consuming larger quantities in a single dose (10 mg or more) is usually considered a bad idea for the biggest percentage of patients.

Patients who are not too sensitive to THC can go even past this without any adverse effects, but for the majority the daily regimen of 15 mg of THC should be more than enough.

Considering the subjectivity of cannabis, if you're feeling great with quantities that are exceeding this amount (and you feel that the beneficial effects could be greater), feel free to increase your dose without any hesitation.

Also, if you choose to follow the microdosing method (one puff every 15 minutes), you should also consider the 15 mg a day THC average, which suits a great percentage of patients.



NIGHT-TIME DOSING OF THC

For a lot of patients it's far better that, besides consuming cannabis only throughout the day, to also add a night-time routine which consists of using oral solutions (like capsules, edibles and other similar product types).

The night dose should be ingested shortly before bedtime, so the psychoactive effects start happening once you're already asleep.

When using THC products orally, the first effects are noticeable 60 to 90 minutes after consumption.

Burning Questions: Does the usual 15 mg limit for THC consumption apply only for daytime medicating? If a person begins using THC pills during sleep, should he decrease the doses during the day? Is there a quantity for the night-time THC regimen?

Dr. Sulak:

First of all I would prioritize getting the night-time dose correct, before addressing the daytime dose.

Most people can get restorative sleep somewhere between 2 mg and 10 mg of THC taken before bed. When I say most, it is around 75% of my patients.

Some people might need to go to 15 mg, but most get great results between 2 mg and 10 mg. A lot of people report improvement in their daytime symptoms once they start getting restorative sleep.

Some people might need to go to 15 mg, but most get great results between 2 mg and 10 mg. A lot of people report improvement in their daytime symptoms once they start getting restorative sleep.

Of course, sleep is helpful for pretty much every mental health condition and it's also very helpful for most types of pain. Perhaps it's just the better sleep that's making the difference, but I also suspect there's a carry-over effect from having the THC in their system from the night before.



I can give you one example, I recently had a patient, I started him about three months ago for PTSD, an older gentleman, served in the Vietnam war, and he didn't use any cannabis for decades. He was having really bad nightmares every night, and we started with just THC before bed. When I followed up with him after three months, he was taking about 3-4 mg of THC only once or twice per week.

Several nights would go by he wouldn't have any nightmares, his wife reported that his anger episodes and mood were much better the following day. After a couple of days the nightmares would start coming back, and then he would take another night dose of 3 mg to 4 mg of THC, sleeps well that night, and has a couple of days or an entire week completely symptom-free.

I think there's really something going on with the night dosing of THC that can have profound effects, and in some cases that's all that somebody will have to do.

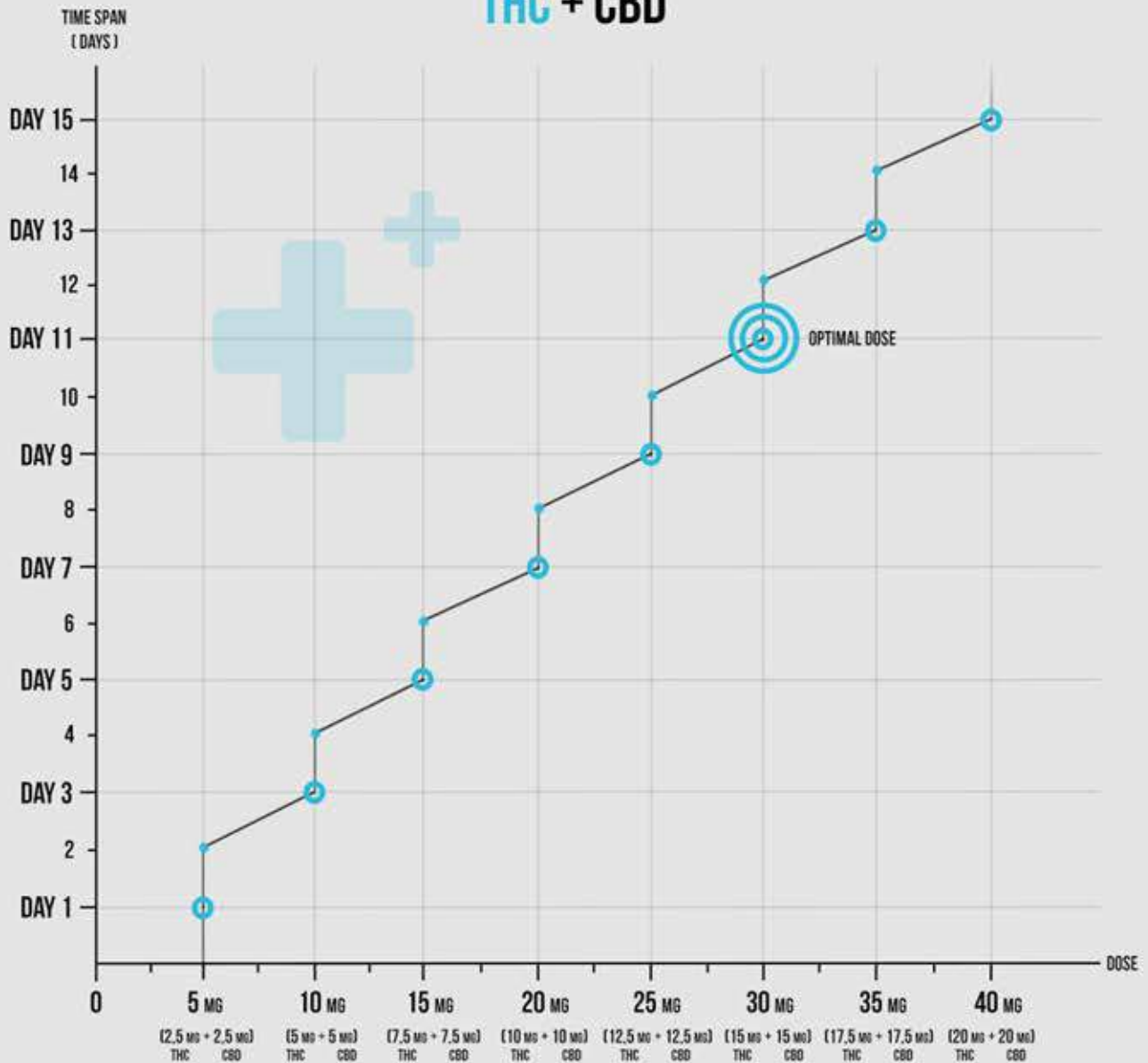
If they continue to have daytime symptoms after they get this restorative sleep and their night dosing of THC, then I usually start by having them take somewhere between 25% and 50% of their night time dose in the morning. So if they are good with 10 mg at night, I usually have them start with 2.5 mg in the morning, and gradually work up from there.

To answer your question directly, 15 mg is still an accurate value.

Whether is 5 mg three times a day or 10 mg before bed and 5 mg in the morning, or maybe 2.5 mg in the morning and 2.5 mg in the afternoon, that's still a good range for a lot of people.

HOW TO DOSE THC AND CBD AND PRODUCTS THAT CONTAIN BOTH CANNABINOIDS

THC + CBD



For a wide range of medical conditions it is far better to use both of the two most prominent unique compounds from cannabis.

What's also great about mixing THC and CBD is that cannabidiol (CBD) decreases the psychoactive effects of THC, and if a patient needs to consume a significant portion of cannabinoids to reach the "sweet spot" for a maximal therapeutic potential, CBD can be a great ally for achieving this.

Besides reducing the perceived psychoactivity of THC, CBD also intensifies the positive effects of tetrahydrocannabinol, especially in regards to chronic pain and the diminishment of inflammation.

This is excellent for new cannabis patients who will most likely have to acclimate to the cerebral sensations of THC.

Burning Questions: When combining THC and CBD, is the appropriate dose of 15 mg THC also applied (for most patients), or should the complete amount now be around 30 mg? Should the quantity of THC increase because CBD diminishes its psychoactive qualities?

Dr. Sulak:

As we move from something that's just THC to something that combines THC and CBD, and then if we were to try to go all the way to the treatment that's just CBD, without any THC in it.

So we have this entire spectrum here.

On the THC side of the spectrum, that would be the most potent, so the lowest number of milligrams (mg) is needed.

As we get to equal parts THC and CBD, which a lot of people are doing, **the total number of milligrams is going to go up significantly.**

It might even double, the point is if someone is getting good pain relief with **5 mg of THC**, this doesn't mean that they can take **2.5 mg of THC and 2.5 mg of CBD.**

More likely they are going to need **5 mg of each**, or maybe even **6 mg or 7 mg** of each of these two cannabinoids, because CBD adds its own analgesia, but it can actually decrease the analgesia of THC.

As the ratio of CBD to THC increases, the total number of milligrams increases.

The cost goes up, the number of milligrams goes up, but typically the tolerability also increases. So the patients are spending more, they're also taking more milligrams, but in favor they have less side effects.

A starting dose of around 2.5 mg CBD per day, with an exact (or even smaller) dose of THC can bring about curative effects.

Experimentation with dosing is much easier when a patient is combining these two cannabinoids, because our minds can tolerate CBD and THC together far better than just THC.

The best scenario would be to find a strain (or any other derivative) that has an even concentration of both these cannabinoids.

For the first two days consume **2.5 mg THC and 2.5 mg CBD.**

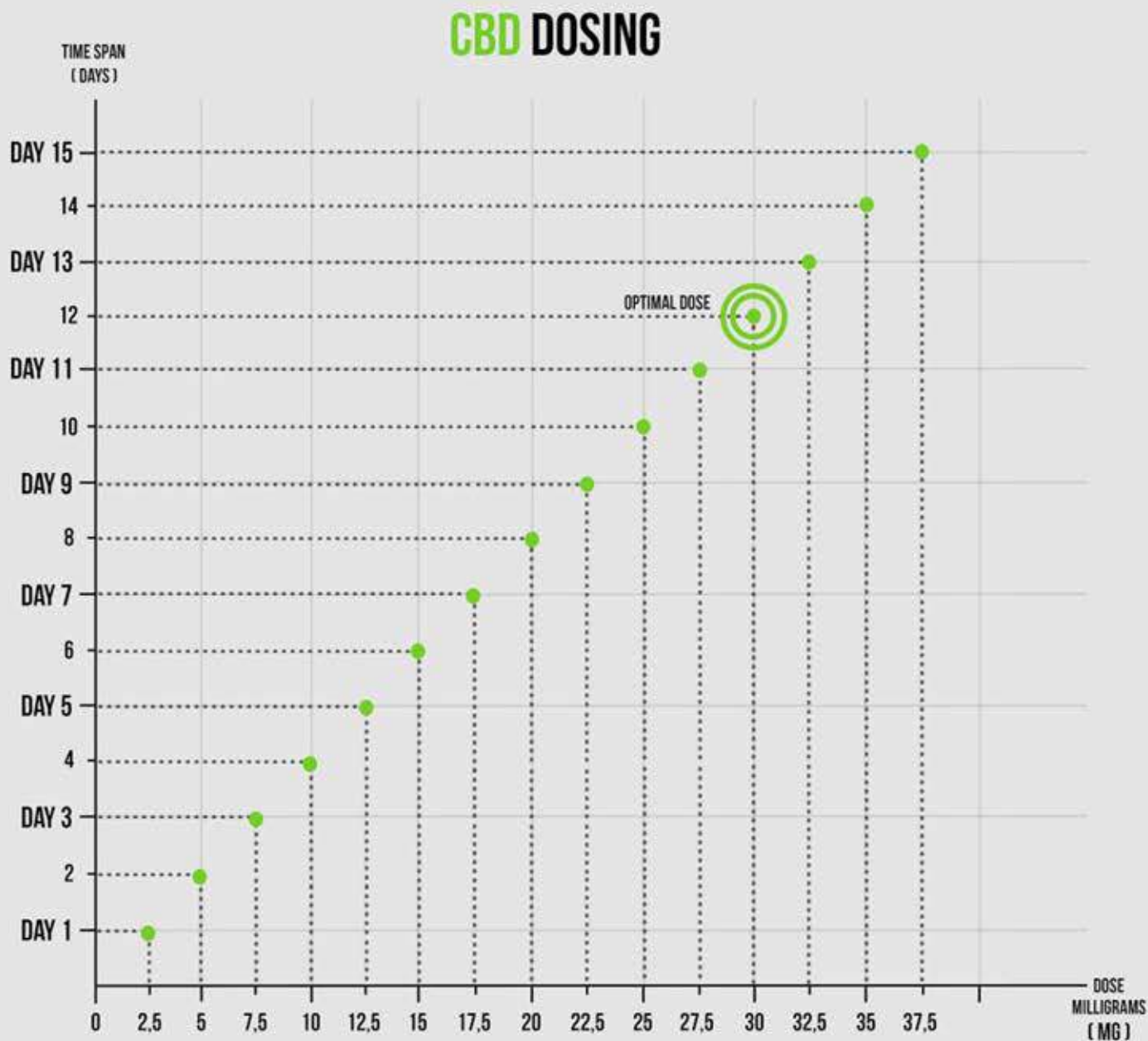
If tolerated well, increase the dose by **1.25 mg-2.5 mg THC and 1.25 mg-2.5 mg CBD** every two days, until the desired effects are achieved.

When using only THC the best dose for most patients is 15 mg a day, but because CBD significantly lessens the psychoactivity of THC, you'll most likely be quite comfortable with twice that amount, or approximately 30 mg of THC and CBD combined.

When combining these two compounds the objective is to administer consistent doses regularly, and carefully observe the effects they bring.

Reaching the perfect amount of cannabinoids is very much a personal journey, and should be understood as such.

HOW TO DOSE CBD AND HIGH-CBD PRODUCTS



For specific conditions such as epilepsy and anxiety consuming only cannabidiol (CBD) provides much better results for a very big percentage of patients.

Using CBD alone is also much easier to handle as it lacks the mind-altering effects of THC.

Because of this it is far better choice for pediatric use.

The most important aspect of CBD medication is the acknowledgment that the whole-plant formulations and extracts are far more beneficial than the “pure” single-molecule isolates.

This is because single-molecule CBD lacks the critical help it gets from various terpenes and other trace-amount cannabinoids which are found in all cannabis varieties.

An isolated CBD compound gets “robbed” from the cohorts which help this cannabinoid to create a maximal therapeutic impact.

This synergistic effect is paramount for a successful CBD treatment, and because of this make sure to get either an actual high-CBD strain with miniscule amounts of THC, or other derivatives that are plant-based.

With whole-plant strains, extracts and other derivatives you’ll need much smaller quantities to reach a desired effect, you’ll also experience fewer side effects and a wider therapeutic window when compared to an isolated CBD molecule.

The blooming cannabis market in Canada makes the task of finding a quality-grown, high-CBD strain quite easy to fulfill.

Burning Question: Is the 15 mg THC (for most patients) limit something that should also be considered with CBD-based therapy?

Dr. Sulak:

No. I also want to clarify this, 15 milligrams (mg) isn’t a limit, it’s more of an average.

When a patient is using only CBD they should be much more liberal.

When we compare CBD to THC, it is a lot weaker milligram per milligrams, and this goes for almost every condition, whether it’s pain, anxiety, sleep disturbance, spasticity.

Seems like people need a lot more of it, I am very liberal with CBD, because it is very well tolerated.

This isn’t reported very often in the literature, but I do have some patients that complain that CBD is too stimulating, it makes them feel like they had too much caffeine or they’re too excited, and kind of in a bad mood, or easily irritable.

CBD is usually extremely well tolerated and it doesn’t make anyone so intoxicated that they become impaired, but it can make people feel not too great if they take too much of it.

As far as dosing goes, you can follow a relatively similar path to THC, consuming 2.5 mg spread across the day.

If this dose isn’t bringing positive effects, **increase the amount by 2.5 mg every day**, and follow this pattern until you reach the desired therapeutic relief.

With CBD you can increase the dose more casually as it doesn't induce the potent intoxication like THC, so the whole trial and error experience is much less demanding.

THE BIPHASIC PROPERTIES OF CANNABIS

What separates cannabis from other medications are its biphasic properties.

With classical pharmaceuticals, a larger dose usually brings about a more potent therapeutic effect.

Cannabis doesn't share this characteristic, because these biphasic properties entail that smaller and larger doses create contrary effects.

This means that after a certain point of increasing the dosage the beneficial effects will start to diminish, and adverse effects will begin to increase.

What's somewhat troubling is that this "sweet spot" is different for everyone and, because of this, medicating with cannabis requires a lot of personal experimentation.

The side effects of cannabinoid overindulgence closely resemble some of the symptoms that cannabis is able to relieve with correct dosing, and these include anxiety, troubles with sleeping, panic attacks and paranoia.

Because cannabis is a completely natural and non-toxic substance rest assured that these adverse effects are only temporary and utterly non-threatening to your general well-being.

Burning Questions: What is your opinion on RSO and other extracts that have a high-percentage of cannabinoids (80% to 90% THC), especially the use of RSO for serious medical conditions like cancer? The doses that are recommended for this type of treatment greatly exceed the amount suggested by you and other experts, even reaching 900 mg of THC per day, once the user gets used to the effects of THC.

Dr. Sulak:

I would say that I agree with the anecdotal evidence.

I've seen it in my clinic where people take very high doses, number one that they can tolerate these extremely high doses.

I have a patient right now who is taking about 3.000 mg of THC per day, and an equal amount of CBD.

It's pretty incredible, he's not intoxicated, he feels better on this dose, he uses this dose through chemotherapy and radiation therapy for squamous cell carcinoma, he is now in remission and he's staying on this dose, but this is because he has access to it.

A lot of people don't have access to these quantities because they can't afford them, but he can. It can be surprisingly well tolerated in these high doses.

Do I think it has some anti-cancer effects? I suspect that it does, most people think that if they want to use cannabis to help treat the cancer directly, they need to get as much in their system as possible, and I doubt that that's the case.

A very good example is the data from GW Pharmaceuticals, which wasn't published, but they did a press release, they were studying adding Sativex to conventional treatment of glioma, a type of brain cancer.

-- Editor's note: Sativex is a **1:1 THC-CBD** cannabis-derived whole-plant medication. --

What they found is that they were able to extend the medium lifespan by adding Sativex (called Nabiximols in the US) in the regimen, and they almost doubled it.

The doses they were using in that study to double the lifespan were not these super high doses, they were quite modest, around **50-60 mg of combined THC and CBD per day**.

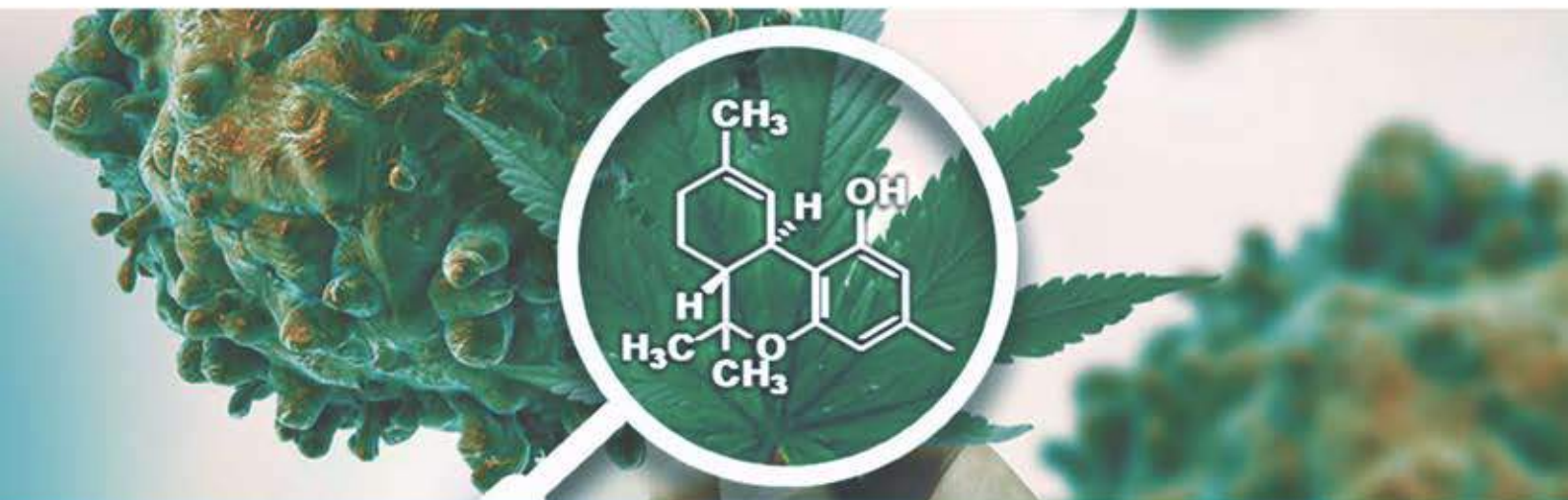
This is showing us that you don't need thousands of milligrams to have an effect on cancer, but in some cases maybe you do.

Everybody's cancer is different, and the nice thing about cannabis is that it can be tolerated at these high doses. If we were to give anybody 10x the dose of any chemotherapy agent they would be very sick, and it would also be very dangerous.

So the fact that we could slowly work up to these extremely high doses of cannabis is probably going to be useful as we learn more.

What I would emphasise is that these high doses might not be needed.

Just a moderate dose of cannabis help to treat the symptoms and helps the overall quality of life, that might also be enough to impact the cancer.



STUDIES THAT CONFIRM DOSING AND WHOLE-PLANT VS ISOLATED MOLECULES

Multicenter, double-blind, randomized, placebo-controlled, parallel-group study of the efficacy, safety, and tolerability of THC:CBD extract and THC extract in patients with intractable cancer-related pain. (1)

This study focused on cancer patients who weren't experiencing ample relief with their opioid treatment. The subjects were given Sativex, which is a 1:1 THC-CBD cannabis-derived medication, which also has some minor cannabinoids and terpenes, meaning it isn't a single molecule formulation.

The 263 participants were divided into four groups, and each of them was given a different amount of Sativex:

- 21 mg daily
- 52 mg daily
- 83 mg daily
- Placebo group

The 21 mg group experienced the biggest pain diminishment, significantly more than the 52 mg group of patients. The participants who were given 83 mg a day reported the same pain lessening as the placebo group, but reported greater side effects than the participants that were given the placebo.

This research concurs the conclusion made by Dr. Sulak from his extensive knowledge on the subject, and that is that larger amounts of cannabinoids taken at once may bring negative side-effects to cannabis patients.

The study also corroborates the **limit of milligrams** that should be taken daily by the majority of patients, where a quantity exceeding 20 mg is most likely going to cause certain side-effects.



Sativex: clinical efficacy and tolerability in the treatment of symptoms of multiple sclerosis and neuropathic pain. (2)

This study also directed its focus on Sativex, but in this particular research the scientists in charge were analyzing its effects on neuropathic pain and spasticity caused by multiple sclerosis.

Sativex is in the form of oromucosal spray, and patients would titrate according to the therapeutic response they would get, while factoring the overwhelming effects of THC.

The majority of the participants sprayed Sativex 8 to 12 times a day, and each individual spray-dose contains 2.7 mg of THC, and 2.5 mg of CBD.

This translates to doses that range between 22 to 32 mg of THC, and 20 to 30 mg of CBD.

Sativex was extremely well tolerated by the placebo controlled group, and was subsequently approved as a prescription medication in Canada.

The dosage that was beneficial for the biggest percentage of participants validates that consuming THC and CBD at the same time allows for an increased amount of THC, in comparison to using THC alone, where the usual limit of toleration is around 15mg.

This is so because CBD diminishes the psychoactive traits of THC, but also synergically increases its therapeutic potential.

Overcoming the Bell-Shaped Dose-Response of Cannabidiol by Using Cannabis Extract Enriched in Cannabidiol. (3)

The team behind this research managed to prove that whole-plant (or plant-based) CBD pharmaceutical extract is therapeutically much more beneficial than single molecule CBD.

This completely refuted the age-old Big Pharma notion that single molecule compounds have to be much more beneficial compared to the unrefined whole-plant extracts.

Over the course of the last decade numerous preclinical research were observing the effects of single molecule CBD as a tool for suppressing inflammation, for conditions such as multiple sclerosis, diabetes, rheumatoid arthritis and inflammatory bowel disease.

The studies with single molecule CBD showed that if the dose was exceeding a certain point it would extremely decrease the beneficial impact.

The same response was observed with lower doses, which entails that single molecule CBD medications has to be consumed in very precise quantities in order for it to have significant healing effects.

On the other hand, oil extracted from a strain called Avidikel (which is an Israeli variation of the Cannatonic and ACDC strains), showed completely different results.

The oil extract from Avidikel which was used in this preclinical study had 17.9% CBD, 1.1% THC, 1.1 % CBC, 0.2% CBG and trace amounts of CBN and CBDV.

Unlike single molecule CBD, whole-plant oil showed dose-dependant impediment of inflammation and pain, making it much more suitable for clinical use.

This wider therapeutic window of whole-plant extracts is extremely beneficial for patients, because different people require different quantities of cannabinoids to achieve therapeutic effects.

This cannot be obtained through single-molecule CBD medications, where only a certain dosage brings therapeutic relief.

This study also confirms the superiority of combining multiple cannabinoids at the same time, because they create synergic effects when they are consumed together.

CONCLUSION



As time passes and cannabis becomes more socially acceptable, more people are slowly starting to realize the colossal therapeutic potential of this plant.

Even though our understanding of the precise mechanisms and other important factors is still very limited, we now possess enough data to objectively conclude that cannabis is without any doubt extremely helpful for a very wide range of medical conditions.

Consuming cannabis as a medicine is still a complicated task, and the only way to make it easier is through knowledge.

In order to use it correctly, first you have to understand how it works.

For me personally this is a lot better than being given a pill where most of the times you don't even know what is in it.

The more you know and understand about cannabis, the more fascinated you will become, that much I can guarantee you.

I also wanted to give a some of practical advice for people who are considering using cannabis for medicinal purposes in Canada:

- *Unlike recreational users, medical cannabis patients have access to a much wider range of cannabis products, which is a very important aspect.*
- *These products are regulated a lot better, and their supply is more secure, which means you won't have to stop or change your treatment when the supply runs out.*
- *The total cost of treating your condition is significantly lower when you are signed up with an official licensed producer, due to tax returns.*
- *Medical patients who sign-up with a reputable clinic have medical professionals that guide them through their cannabis experience.*

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2. Barnes MP; Sativex: clinical efficacy and tolerability in the treatment of symptoms of multiple sclerosis and neuropathic pain; April 2006; 607-15
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