

Delivery Methods & Dosage Guidelines



Officer Dick Downey's Re-education Protocol

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Preface

This document will introduce you to all of the currently used consumption methods (i.e., delivery methods) with suggestions for dosage. These dosage guidelines are not rules, but rather a set of suggested best practices. Your specific optimal dosage may vary from these guidelines.

Rick Simpson Oil (RSO)

For detailed RSO dosage guidelines, please see the *Rick Simpson Oil (RSO) Dosage Guidelines* document.

There are many ways to consume medical cannabis. As you try different consumption methods (i.e., ‘delivery’ methods) throughout your medical cannabis journey, you’ll figure out which methods are more effective than others to address your specific needs. This document will introduce you to all of the currently used consumption methods with suggestions for dosing.

Inhalation

Inhalation is currently the most popular cannabis consumption method through the use of joints, bong, bowls, blunts, vaporizers and even specialized glass ‘rigs’ for smoking cannabis concentrates (i.e., dabs). Inhalation is the least healthy method for the obvious reason that regular inhalation of smoke into the lungs from any type of burning dried plant material is potentially harmful.

When inhaling cannabis, the effects are almost immediate because the active compounds are very quickly absorbed through the lungs, into the bloodstream and then on to the brain and other parts of the body. The onset is just a few minutes, but the effects typically last between 1-2 hours, though some powerful strains can have staying power of up to 3 hours or more after inhalation.



Smoking

Smoking the dried flowers of the cannabis plant is the most traditional way to consume cannabis. Cannabis can be smoked in a variety of ways such as through a pipe or water bong, rolled into a joint (i.e., cannabis cigarette), or even through a hookah. It’s important to select high quality smoking paraphernalia. Using inferior products with cheap materials can cause toxins to be emitted while smoking. Therefore, use well-made glass pieces and use unbleached rolling papers that are ideally made from organic hemp.

Vaporization

Vaporizing cannabis is a safer alternative to traditional smoking, if done properly. A vaporizer device heats up the cannabis material below the point of combustion but hot enough to ‘vaporize’ the active cannabis compounds stored in the trichomes. The vaporized smoke does not contain any of the toxins potentially emitted from conventional smoking.

See the document, *Introduction to Vaporizing*, for more information.

Dabbing

Dabbing is a relatively new way to ingest cannabis that involves heating and inhaling the vapors of very potent, concentrated forms of cannabis known as ‘concentrates’ or ‘dabs’. These concentrates are more potent than any other form of cannabis with THC levels typically between 70-90%. Concentrates are referred to by their literal form – wax, shatter, budder, honey oil, etc.. Dabbing is some powerful stuff, so it’s recommended to use them with care.

See the document, *Introduction to Dabbing*, for more information.

Dosing Recommendations

Cannabis can be inhaled in several different forms, including the dried flowers, various forms of hashish, concentrates and extractions such as waxes and rosins and even oils like RSO. When inhaling cannabis, the effects are almost immediate because the active compounds are very quickly absorbed through the lungs, into the bloodstream and then on to the brain and other parts of the body. The onset takes just a few minutes, but the effects typically last between 1-2 hours. And some powerful strains can have staying power of up to 3 hours or more after inhalation.

No matter the form being smoked, here are some general dosage guidelines to consider when inhaling:

- When you inhale, you do NOT need to hold the smoke or vapor for more than a second or two because absorption happens almost instantaneously. **The idea that holding in cannabis smoke for a long time will increase the euphoric effects of cannabis is a long-standing and unhealthy myth not rooted in science.**

- Whether you are smoking, vaporizing or dabbing, the approach to dosing is the same. Since inhalation of cannabis is very fast acting, you can immediately assess its effects. The most prudent way to dose is to wait a few minutes after taking in the smoke (i.e., taking a “hit”), assess the effects, and then repeat this process until you achieve the level of relief you want.

Oral Consumption

Edibles will have a different effect than inhalation because of the ways in which the cannabinoids are introduced and metabolized in the body. Unlike inhaling cannabis, where the active cannabinoids (e.g., THC, CBD, etc.) are absorbed almost instantaneously into the bloodstream to provide a quick onset of effects, edibles work through ‘gastrointestinal’ uptake.



When you eat an edible, the cannabinoids are introduced into the body through the gastrointestinal tract and processed by the liver before entering the bloodstream. The liver metabolizes, or converts, the cannabinoid THC into a more potent version known as 11-Hydroxy-THC, which is the active metabolite of THC formed in the body after consuming an edible. Not only is 11-Hydroxy-THC more potent than THC, it also crosses the blood-brain barrier more easily. As a result, cannabis edibles are very potent and should be used with care.

If you’re looking for alternatives to inhalation, consuming cannabis orally is a safer alternative, though the effects are typically different and more potent. Orally ingested cannabis products tend to fall into three categories based on how they are absorbed in the body: 1) Gastrointestinal Uptake; 2) Sublingual Uptake; and, 3) Hybrid products that leverage both gastro and sublingual uptake types. Here’s a look at each one.

1. Gastrointestinal Uptake

This form of oral delivery is known as ‘edibles’. The edibles market is ever-expanding with offerings from all kinds of baked goods to candy bars and even savory foods like popcorn and beef jerky. Additionally, products delivered in pill or capsule form also fall under this uptake delivery. Rick Simpson Oil can be included in this category, too. And there’s also the practice of cannabis juicing as a form of gastrointestinal uptake.

Note: For detailed RSO dosage guidelines, please see the *Rick Simpson Oil (RSO) Dosage Guidelines* document.

When these products are eaten, the cannabinoids are introduced into the body through the gastrointestinal tract and processed by the liver before entering the bloodstream. As a result, these edibles take a relatively long time (1-2 hours, on average) to activate and produce a long-lasting effect (up to 8 hours). Because of their delayed, potent effects, it is critical to pay close attention to proper dosing procedures.

2. Sublingual & Oral-Mucosal Uptake

This form of oral delivery allows the cannabinoids and active compounds to enter the bloodstream by being absorbed under the tongue (i.e., Sublingual) or via the mucous membrane of the inside of the mouth (i.e., oral-mucosa). The onset of effects usually occurs within 30 minutes of administering and last 2-3 hours on average, but onset and duration depends the product’s potency.



These products require you hold them in your mouth for an extended period of time to allow them to absorb, such as tinctures, lozenges, dissolvable strips, sublingual sprays and suckers.

3. Hybrid Products

There are oral consumption products that fall into a hybrid category because they are designed to be absorbed in both the mouth and the stomach. These edibles are a hybrid between oral and intestinal absorption, offering fast-acting relief that can last for 4 hours or longer. Some examples include beverages, elixirs and chocolates that you hold in your mouth and eat.



Dosing Recommendations

Regardless of the oral uptake product you are ingesting, the overarching dosage advice is the same: GO LOW & SLOW. The general recommended single dose for an edible is 10mg for adults. The #1 reason for a bad edibles experience is lack of patience, which usually leads to over-medicating.

Note: For more details about safely consuming edibles, see the document, *About Edibles & How to Safely Consume Them*.

Tincture Dosage Guidelines

Tinctures fall under Oral Consumption. Here's a closer look at tinctures and titration, or dosing.

Cannabis tinctures are not new at all. Until cannabis was banned in 1937, tinctures were the primary type of cannabis medicines available. Tinctures are essentially ethyl alcohol or vegetable glycerin extractions of whole cannabis (usually the flowers and trim leaves).

To accurately measure dosage for a tincture, it is important to first identify how much of the tincture solution are the active cannabinoids and other active compounds. The mathematics involved is a little tricky, but that's okay. When you're in the dispensary just ask your patient care specialist how much of the tincture solution contains the active ingredient(s) in milligrams per milliliter. If the patient care specialist doesn't know the numbers, they can get this information from the manufacturer. Once you know this net amount of active ingredient(s), you can then accurately calculate dosage.



Tincture Dosage Example

Here's a simple example to understand a measured dosage:

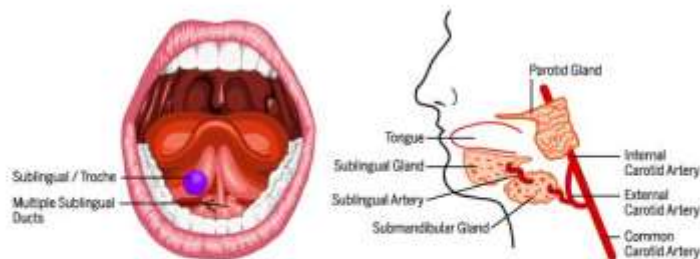
You need a total of 90mg of CBD per day, or 30mg dose of CBD three times per day, and you want to use a tincture to medicate. The tincture you want to use is available in a 30ml/1 oz. dropper bottle. The dispensary tells you that each milliliter of tincture solution contains 10mg of CBD. Therefore, to meet your CBD needs, you would need to take 3ml of tincture, three times per day (1ml = 10mg CBD; 3ml = 30mg CBD; 9ml = 90mg CBD).

Now that you've figured out dosage, there are a few ways you can physically measure it. One way is to find out how much liquid is contained in a full dropper, which is usually between 1-3ml depending on the dropper size. So in the example above, let's say the dropper holds 1ml of tincture. That means you would need to take 3 full droppers (30mg CBD) per dose, or 9 full droppers per day. Some droppers may have measurement markers on them. Another method is to buy a 1ml syringe with measurement marks and transfer the tincture to it to accurately measure dosage.

In many cases you may not need to be precise. You can approach using a tincture by simply starting with a very low dose and increasing in small increments until you identify your optimal dosage.

How to Properly Use a Tincture

As shown in this image, tinctures are intended to be taken sublingually, or under the tongue. The major advantage of sublingual administration is that it's rapidly absorbed through the body's main blood supply to the tongue and the sublingual artery. This artery arises from the external carotid artery, which in turn is close to the internal carotid artery which transfers the medicine quickly to the brain.



Simply place the tincture drops under your tongue and hold the liquid for at least 30 seconds to allow for full absorption. You'll typically feel the effects in

Source: http://www.silver-health.co.uk/absorb-colloidal-silver/?doing_wp_cron=1449193306.5657439231872558593750

about 15 minutes.

It is important to NOT swallow your tincture drops if you want the full benefits of sublingual absorption. You can of course swallow your tincture, or even add it to liquids or food like some patients do. However, the delta-9-THC in your tincture will convert into 11-Hydroxy-THC when it passes through the liver of your gastrointestinal tract, which can take up to two hours or more for you to feel the effects depending on your metabolism. In other words, if you swallow the tincture drops you will then experience onset and effects similar to an edible.

Topicals

The use of topicals involves applying a product that contains the active cannabinoids directly to your skin, such as an ointment, oil or cream. Topical applications of cannabis have been used throughout history by many cultures (e.g., Egyptians, Europeans, South Asians, Africans, etc.) as an external treatment for its antiseptic properties. The purpose of most topical products is to address localized relief of pain, soreness, injury and inflammation. Even though topicals are a relatively new offering in the U.S., there is already a wide range of products available, such as lotions, balms, gels, transdermal patches and even bath soaking products. Some manufacturers are even creating strain-specific topicals.



Topicals work by their infused cannabinoids bonding to the CB2 cannabinoid receptors within the skin, which can provide localized relief. However, with the exception of transdermal patches, these topical products can't breach the bloodstream when applied to the skin. So even if a topical contains active THC, it still won't provide any euphoric effects.

Note: There is some controversy and debate within the scientific and cannabis communities as to the true efficacy of topicals. Specifically, claims by manufacturers who assert that some of their topicals can address internal medical conditions within the body, inferring that the cannabinoids can enter the central nervous system. At this time, the transdermal patches appear to be the only topical product that has the scientific technology to permeate all the layers of the skin and enter the bloodstream.

Dosing Recommendations

Use of these products is typically harmless and doesn't cause psychoactive side effects, with the possible exception of a transdermal patch containing very high levels of THC. Most of these products provide dosage recommendations based on their active compounds measured in milligrams. The only minor possible side effects could result from an allergic reaction to the topical in the form of a rash.

Suppositories

Cannabis suppositories are exactly what you think they are: conical shaped 'containers' that are administered rectally. They are typically an inch long and are made with full extract cannabis oil infused with a lipid, such as coconut oil.



Once administered, cannabis' active compounds in the suppository are quickly absorbed through the intestinal wall and directly into the bloodstream.

This method of delivery might seem strange or unappealing to most at first. However, the use of cannabis suppositories is an effective way to administer the active cannabis compounds because it –

- is a viable alternative to inhalation or oral intake. Suppositories can be used when the oral route is impaired or disallowed due to the oral intake restrictions that are frequently required both before and after surgery.
- prevents first-pass metabolism by the stomach and liver, which allows the active compounds to reach the blood in much higher concentrations.
- has a much faster uptake (10 minutes, on average) than oral administration, which leads to more consistent blood concentrations of the active cannabis compounds, as shown in the table below.

Administration Method	Inhalation	Oral	Rectal
Efficiency (bioavailability)	10-25%	20%	50-70%
Wait Time	Immediate	30-90 minutes	10-15 minutes

Source: United Patients Group. No source study was listed. Therefore, this data may be anecdotal.

- allows for the active compounds to exert their effects over localized ailments (e.g., hemorrhoidal tissue, tumors in the rectal cavity).
- is a great alternative for those who want the medicinal benefits without the high since suppositories don't provide the euphoric effects
- provides long-lasting effects of about 4-8 hours, depending on potency.

Dosing Recommendations

Some dispensaries in Illinois are beginning to offer suppositories. Ask your patient care specialist about current cannabinoid content and proper dosage amount.

For instructions on how to administer a cannabis suppository, see this link:

<http://www.unitedpatientsgroup.com/blog/2015/01/22/cannabis-suppositories-why-the-posterior-is-superior/>