

Cannabis: Routes of Administration

MacCallum CA, Russo E. Practical considerations in medical cannabis administration and dosing. 2018

Smoking

The most common administration route of cannabis recreationally

Combusts at ~600-900 degrees Celsius

Combustion produces toxic by-products such as tar, PAH, Carbon Monoxide, ammonia

Chronic cannabis smoking has been associated with respiratory symptoms - bronchitis, cough, phlem - but not cancer or COPD

Mixing Cannabis with Tobacco increases a patient's cancer and respiratory risk

30-50% of cannabis is lost as "sidestream" smoke



Vaporization

Produces significantly less harmful byproducts than smoking

Heats cannabis to 160-230 degrees Celsius reduced CO, but not full elimination of PAH

Decreased pulmonary symptoms have been reported than seen in smoking

Allows for quick onset (5-10 min)



Oral

Orals, Capsules, Edibles, etc



Oils/Capsules: convenient and accurate dosing

Edibles are more difficult to dose



Juicing and Cannabis Teas: do not allow for enough decarboxylation of the raw plant

Tinctures and Lozenges: immediate onset, but currently limited in research



Nabiximols - oromucosal spray cannabis-based prescription that provides standardized doses of 1:1 THC:CBD



Other routes

Topicals are ideal for localized symptoms (dermatological conditions, arthritis)

Suppositories: Variable absorption seen for specific populations (cancer, GI symptoms, young/elderly). THC-hemi succinate has shown the best absorption, but there is limited research

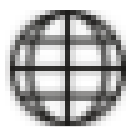


Recreational routes: Inappropriate for medical use includes: shatter, dabs, concentrates

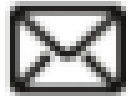
Recreation routes : deliver high doses of THC, have high risk of euphoria, impairment, high risk of reinforcement, toxic psychosis, orthostatic hypotension, etc.



Issue	Smoking and Vaporization	Oral	Oromucosal	Topical
Onset (min)	5 - 10 min	60 - 180 min	15 - 45 min	Variable
Duration (hrs)	2 - 4 hours	6 - 8 hours	6 - 8 hours	Variable
Pros	Rapid onset, which is good for acute or episodic symptoms	Less odour, convenient, discrete advantage for chronic symptoms	Pharmaceutical form available (nabiximols) documented efficacy & safety	Less systemic effect, Good for localized symptoms
Cons	Dexterity is required, vaporizers can be expensive, may not be portable	Titration challenges as a result of delayed onset	Expensive, spotty availability	Only localized effects



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