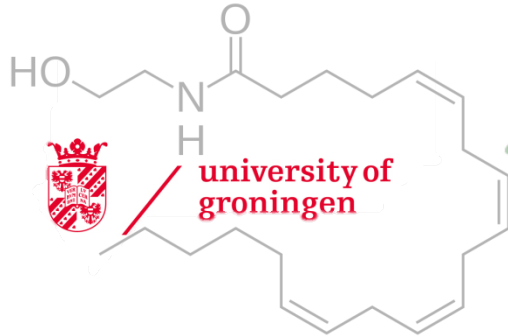
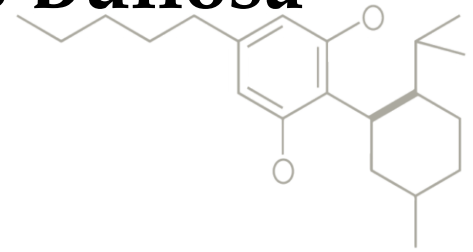
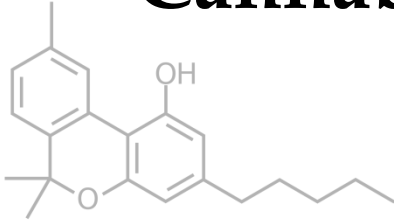
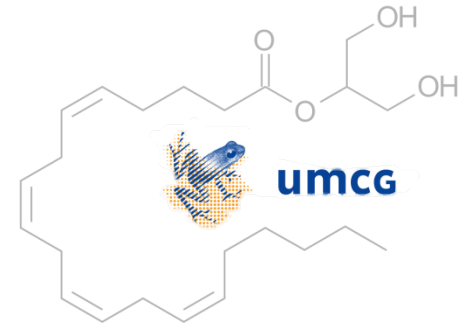


Cannabinoids & Epidermolysis Bullosa

Nicholas Schröder



university of
groningen

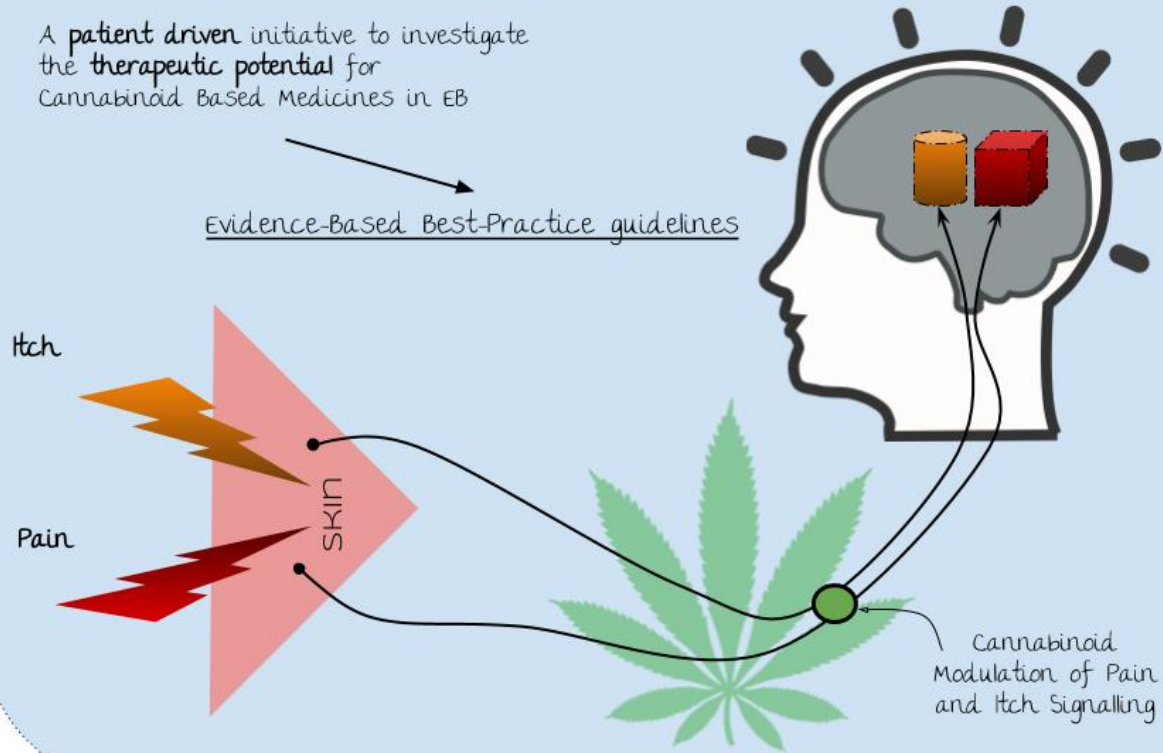


umcg

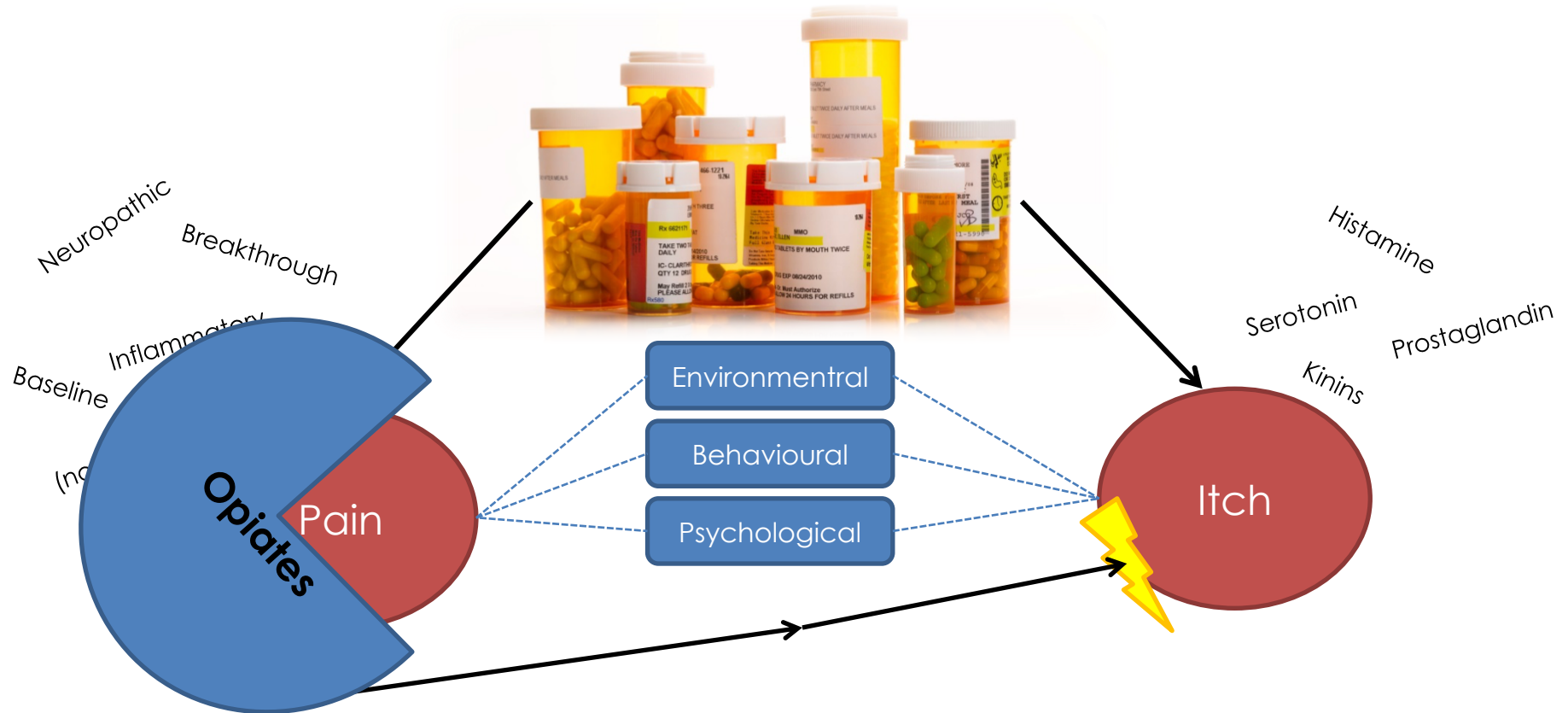
Today's **greatest challenge** in EB is living with Pain and Itch

A patient driven initiative to investigate the **therapeutic potential** for Cannabinoid Based Medicines in EB

Evidence-Based Best-Practice guidelines

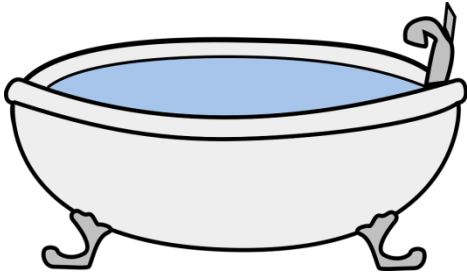


Our drugs are not sufficient!



Patient Discoveries

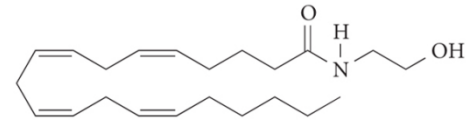
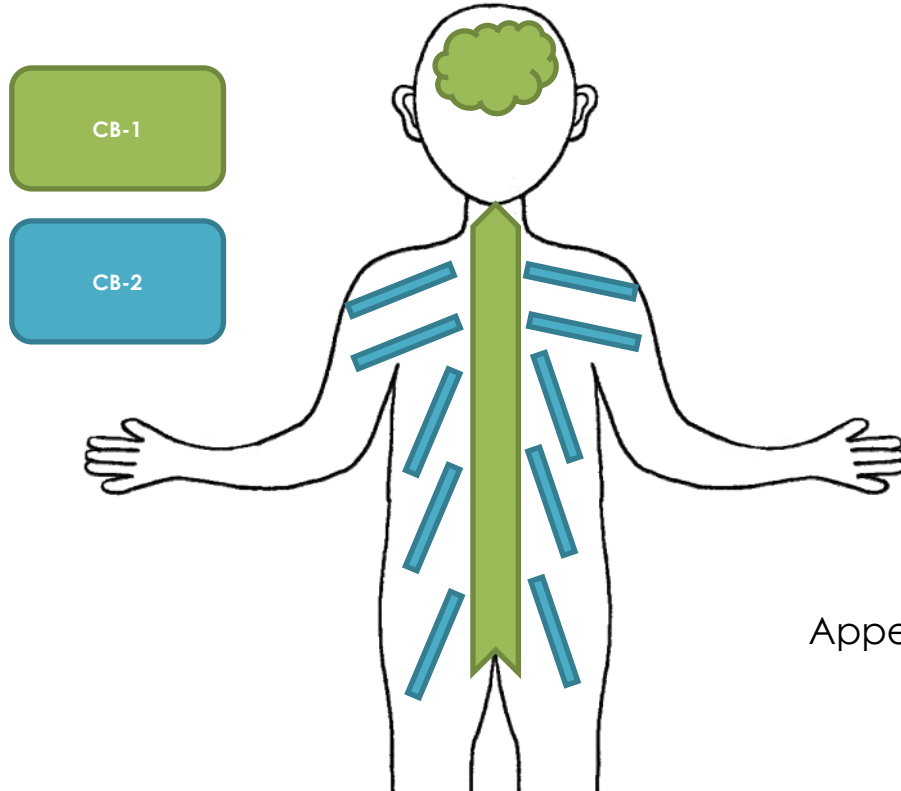
Patients, their families and friends are challenged.



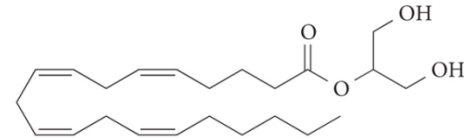
Reciprocate, Assess and Improve



Endocannabinoid System



Arachidonoyl ethanolamide



2-Arachidonoyl glycerol

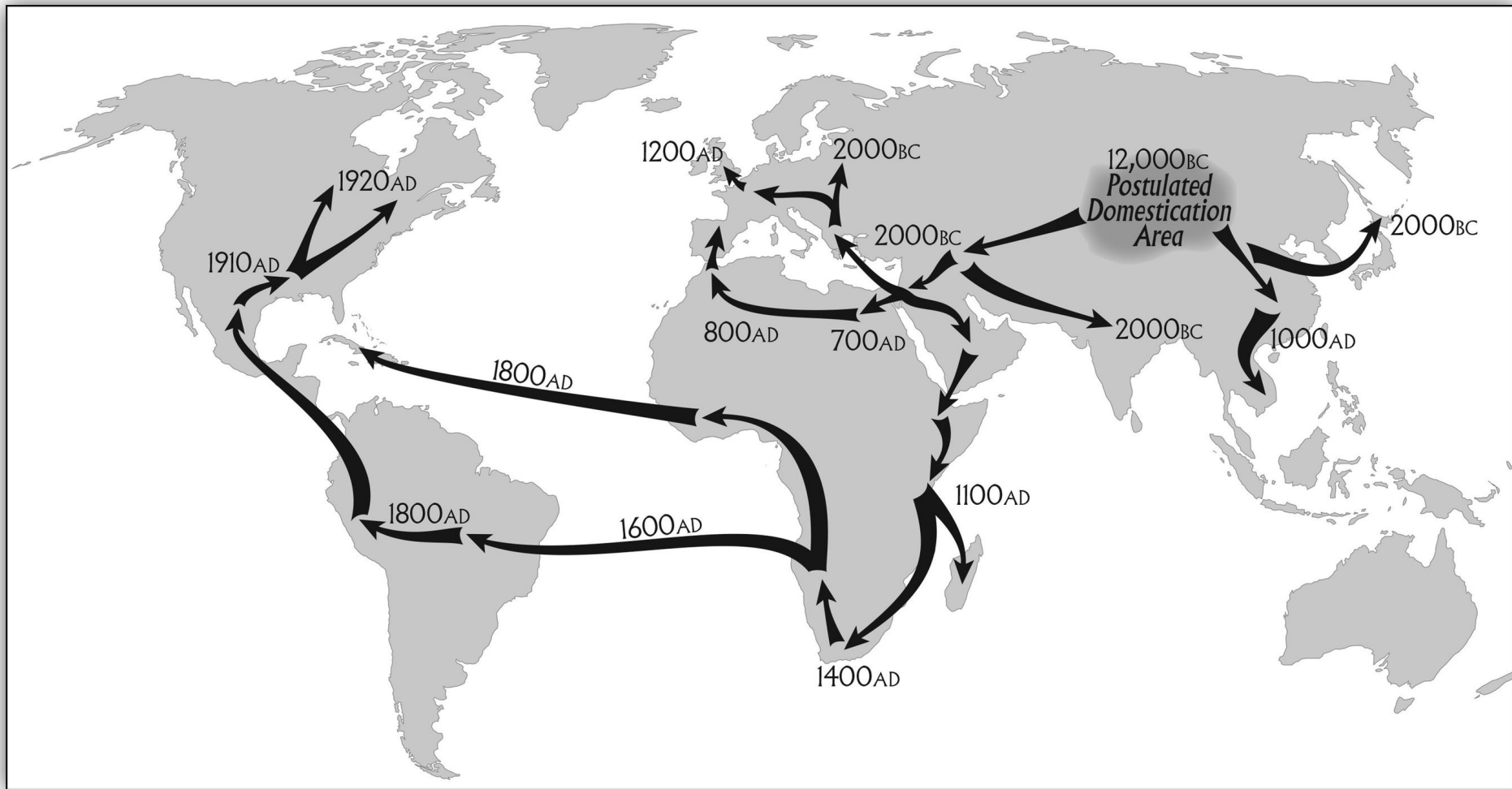
Appetite, pain-sensation, mood and memory

(Phyto-)Cannabinoids



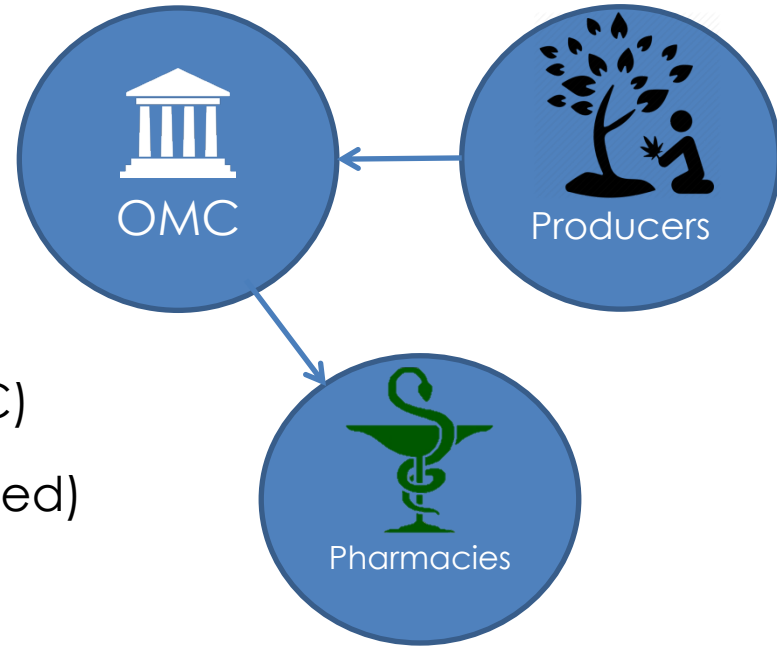
Δ^9 -tetrahydrocannabinol (THC)
&
Cannabidiol (CBD)



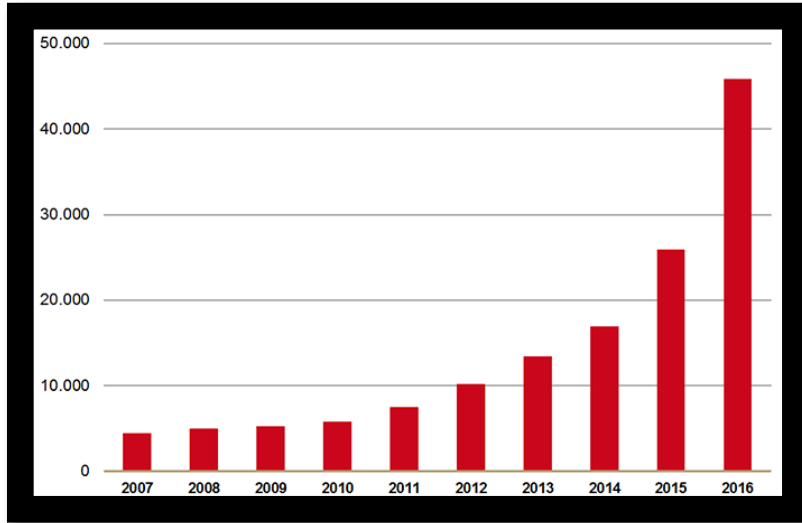


The Netherlands

- 1976 Opium-act
- Ways to obtain cannabis:
 - Self Cultivation
 - Buying from a Coffeeshop
 - On prescription
- 2001 Office of Medicinal Cannabis (OMC)
- 2003 Cultivated and Distributed (prescribed)



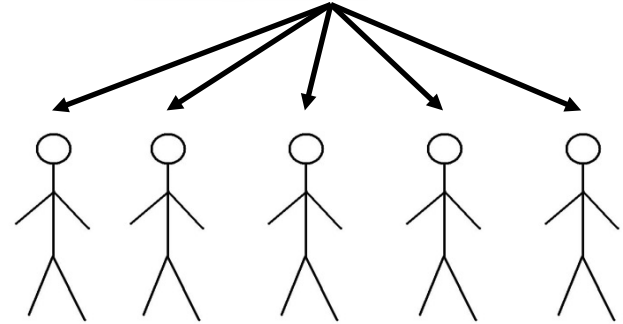
Number of times medicinal cannabis was dispensed within the prescription program between 2007 and 2016



- It is Legal!
- Government reimbursement
- Success stories
- Until 2010, 50% used for Pain

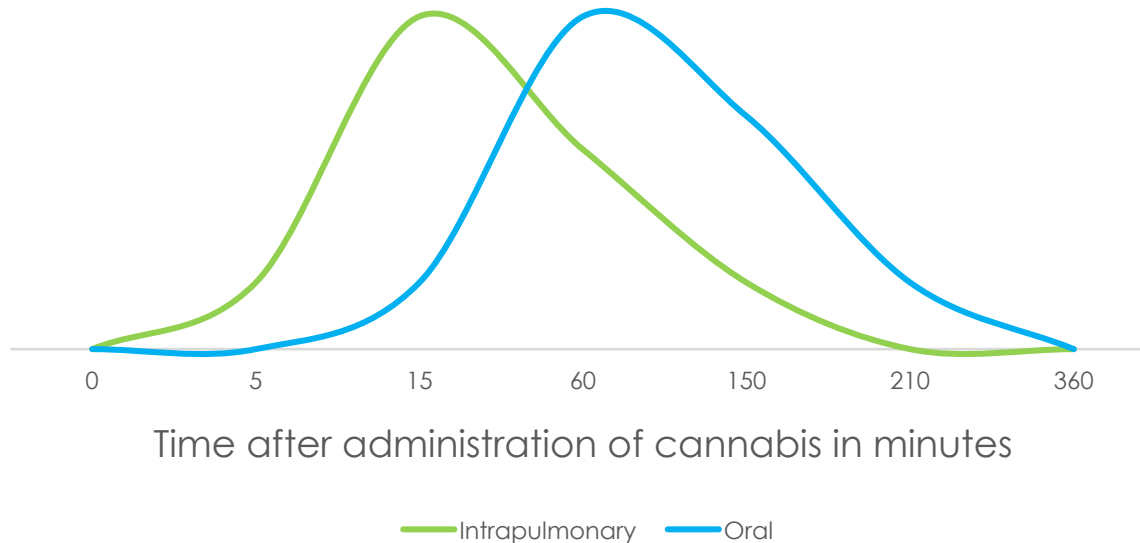
Why the increase?

- Reproducibility is difficult
- Standardization
- Medical/Research-grade cannabis
 - genetically identical
 - standardized oil (GMP)
- Reliable administration forms?



Administration Routes

Onset of effects after intrapulmonary and oral administration of cannabis

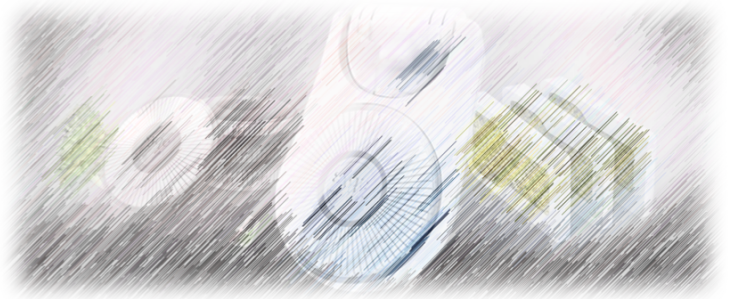
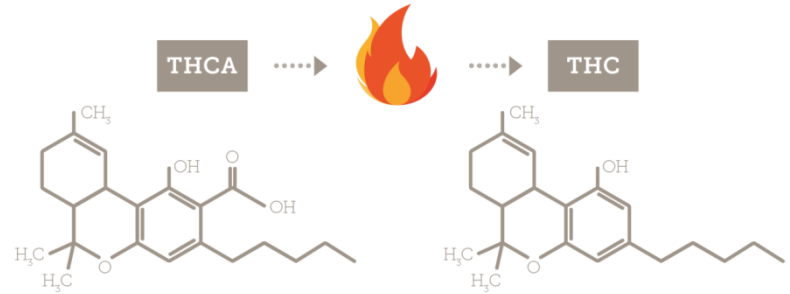


Intrapulmonary

- Most preferred around the world
- Fast effects
- **Inconsistent**
 - Breath hold time, depth of inhalation, puff duration; compositions; dosing.
- **Safety**
 - Toxicity

→ Vaporization

- Non-toxic; consistent; temperature control; training



Oral

- Most common method of patient self-medication in the Netherlands
- Varied metabolism, location of absorption.
- Cannabinoids = Lipid Soluble



→ Sublingual oil

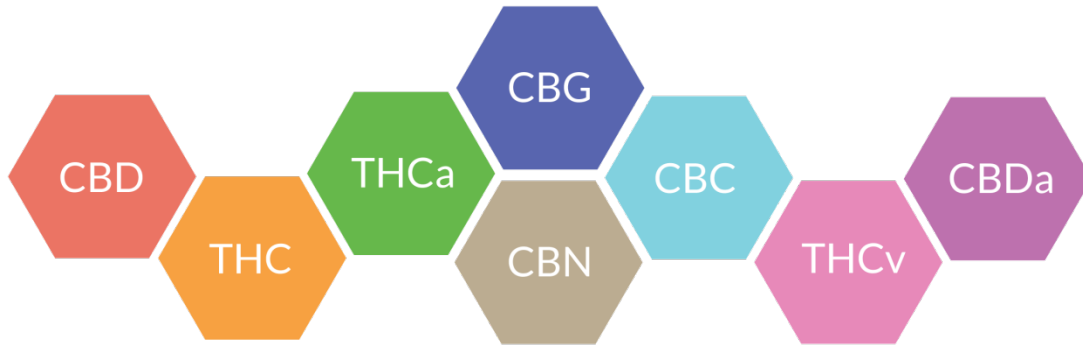
- GMP
- faster absorption
- precise dosing



Topical?

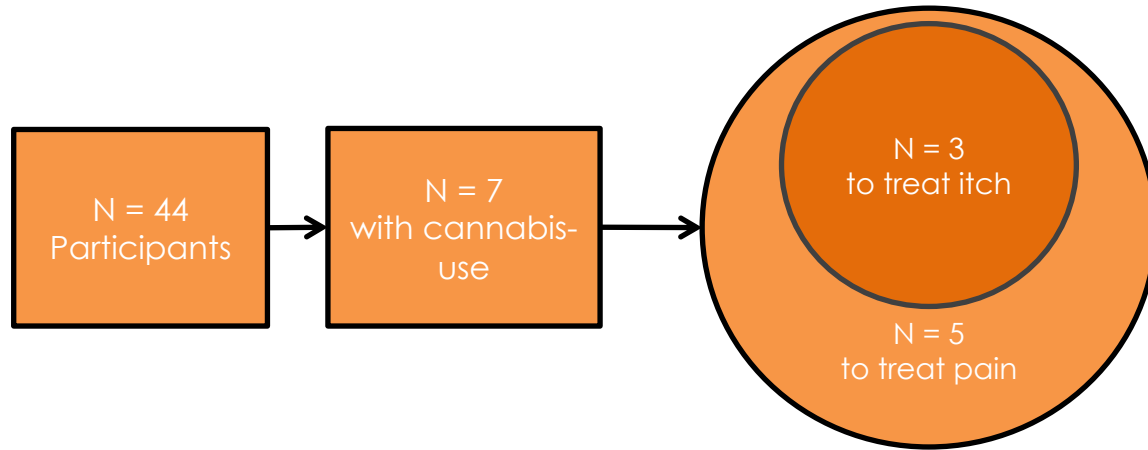
Entourage Effect

- Synthetic, Purified, **Cultivar**
- Monotherapy?
- Combination of cannabinoids is more effective



Dutch Patients' Experience

- Prevalence and characterization of Cannabis-use to treat pain and itch in EB. A cross-sectional survey with 44 patients in the Netherlands.
NHB Schröder, WY Yuen, MF Jonkman. Unpublished.



Pain:

- “Reduced severity and frequency”
- “Worsening of symptoms when not using cannabis”
- “Worked better than other medicines”

Itch:

- “Reduced Severity and frequency”
- “Easier to hold off from scratching”

Conclusions

- Patients use cannabis
- Pain and itch are improved
- No severe side effects
- The “entourage” improves effectiveness
- Standardization → Objectify patient perceived results
 - Optimise therapeutic use of cannabinoids