National Institute on Drug Abuse
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Marijuana as Medicine

What is medical marijuana?


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The term *medical marijuana* refers to using the whole, unprocessed marijuana plant or its basic extracts to treat symptoms of illness and other conditions. The U.S. Food and Drug Administration (FDA) has not recognized or approved the marijuana plant as medicine.

However, scientific study of the chemicals in marijuana, called *cannabinoids*, has led to two FDA-approved medications that contain cannabinoid chemicals in pill form. Continued research may lead to more medications.

Because the marijuana plant contains chemicals that may help treat a range of illnesses and symptoms, many people argue that it should be legal for medical purposes. In fact, a growing number of states have legalized marijuana for medical use.

Why isn't the marijuana plant an FDA-approved medicine?

The FDA requires carefully conducted studies (clinical trials) in hundreds to thousands of human subjects to determine the benefits and risks of a possible medication. So far, researchers haven't conducted enough large-scale clinical trials that show that the benefits of the marijuana plant (as opposed to its cannabinoid ingredients) outweigh its risks in patients it's meant to treat.

Read more about the various physical, mental, and behavioral effects of marijuana in our *Marijuana DrugFacts*.

What are cannabinoids?

Cannabinoids are chemicals related to *delta-9-tetrahydrocannabinol* (THC), marijuana's main mind-altering ingredient that makes people "high." The marijuana plant contains more than 100 cannabinoids. Scientists as well as illegal manufacturers have produced many cannabinoids in the lab. Some of these cannabinoids are extremely powerful and have led to serious health effects when misused. Read more in our *Synthetic Cannabinoids (K2/Spice) DrugFacts*.

CBD and Childhood Epilepsy

There is growing interest in the marijuana chemical *cannabidiol* (CBD) to treat certain conditions such as childhood epilepsy, a disorder that causes a child to have violent seizures. Therefore, scientists have been specially breeding marijuana plants and making CBD in oil form for treatment purposes. These drugs aren't popular for recreational use because they aren't intoxicating.

The body also produces its own cannabinoid chemicals. They play a role in regulating pleasure, memory, thinking, concentration, body movement, awareness of time, appetite, pain, and the senses (taste, touch, smell, hearing, and sight).

How might cannabinoids be useful as medicine?

Currently, the two main cannabinoids from the marijuana plant that are of medical interest are THC and CBD.

Are People with Health- and Age-Related Problems More Vulnerable to Marijuana's Risks?

State-approved medicinal use of marijuana is a fairly new practice. For that reason, marijuana's effects on people who are weakened because of age or illness are still relatively unknown. Older people and those suffering from diseases such as cancer or AIDS could be more vulnerable to the drug's harmful effects, but more research is needed.

THC can increase appetite and reduce nausea. THC may also decrease pain, inflammation (swelling and redness), and muscle control problems.

Unlike THC, CBD is a cannabinoid that doesn't make people "high." It may be useful in reducing pain and inflammation, controlling epileptic seizures, and possibly even treating mental illness and addictions.

Many researchers, including those funded by the National Institutes of Health (NIH), are continuing to explore the possible uses of THC, CBD, and other cannabinoids for medical treatment.

For instance, recent animal studies have shown that marijuana extracts may help kill certain cancer cells and reduce the size of others. Evidence from one cell culture study with rodents suggests that purified extracts from whole-plant marijuana can slow the growth of cancer cells from one of the most serious types of brain tumors. Research in mice showed that treatment with purified extracts of THC and CBD, when used with radiation, increased the cancer-killing effects of the radiation.[1]

Scientists are also conducting preclinical and clinical trials with marijuana and its extracts to treat symptoms of illness and other conditions, such as:

- diseases that affect the immune system, including:
  - HIV/AIDS
  - multiple sclerosis (MS), which causes gradual loss of muscle control
- inflammation
- pain
- seizures
- substance use disorders
- mental disorders

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Read more about the NIH's marijuana research:

- Marijuana and Cannabinoid Research at NIDA
- NIH Research on Marijuana and Cannabinoids

Using Medical Marijuana During and After Pregnancy

Some women report using marijuana to treat severe nausea they have during pregnancy. But there's no research that shows that this practice is safe, and doctors generally don't recommend it.

Pregnant women shouldn't use medical marijuana without first checking with their health care provider. Animal studies have shown that moderate amounts of THC given to pregnant or nursing women could have long-lasting effects on the child, including abnormal patterns of social interactions[2] and learning issues.[3,4] Read more in our *Substance Use in Women Research Report*.

What medications contain cannabinoids?

Two FDA-approved drugs, dronabinol and nabilone, contain THC. They treat nausea caused by chemotherapy and increase appetite in patients with extreme weight loss caused by AIDS. Continued research might lead to more medications.

The United Kingdom, Canada, and several European countries have approved nabiximols (Sativex®), a mouth spray containing THC and CBD. It treats muscle control problems caused by MS, but it isn't FDA-approved.

Epidiolex, a CBD-based liquid drug to treat certain forms of childhood epilepsy, is being tested in clinical trials but isn't yet FDA-approved.

Points to Remember

- The term *medical marijuana* refers to treating symptoms of illness and other conditions with the whole, unprocessed marijuana plant or its basic extracts.
- The FDA has not recognized or approved the marijuana plant as medicine.
- However, scientific study of the chemicals in marijuana called *cannabinoids* has led to two FDA-approved medications in pill form, dronabinol and nabilone, used to treat nausea and boost appetite.
- Cannabinoids are chemicals related to *delta-9-tetrahydrocannabinol* (THC), marijuana's main mind-altering ingredient.
- Currently, the two main cannabinoids from the marijuana plant that are of interest for medical treatment are THC and *cannabidiol* (CBD).
- The body also produces its own cannabinoid chemicals.
- Scientists are conducting preclinical and clinical trials with marijuana and its extracts to treat symptoms of illness and other conditions.

Learn More

For more information about marijuana and its health effects, visit our:

- *Marijuana Research Report*
- *Marijuana DrugFacts*

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References

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