

THE COMPLETE GUIDE TO

CBD

Healing Powers

How Cannabis Can Help

- **Beat Stress**
- **Improve Sleep**
- **Fight Disease**
- **Relieve Pain**

Everything You Need to Know



2021 UPDATE
WHAT'S LEGAL IN EVERY STATE

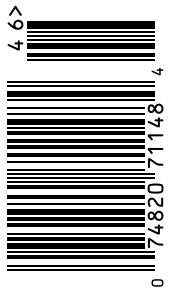
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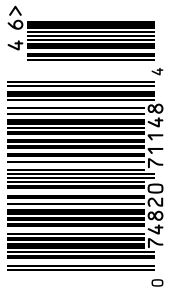
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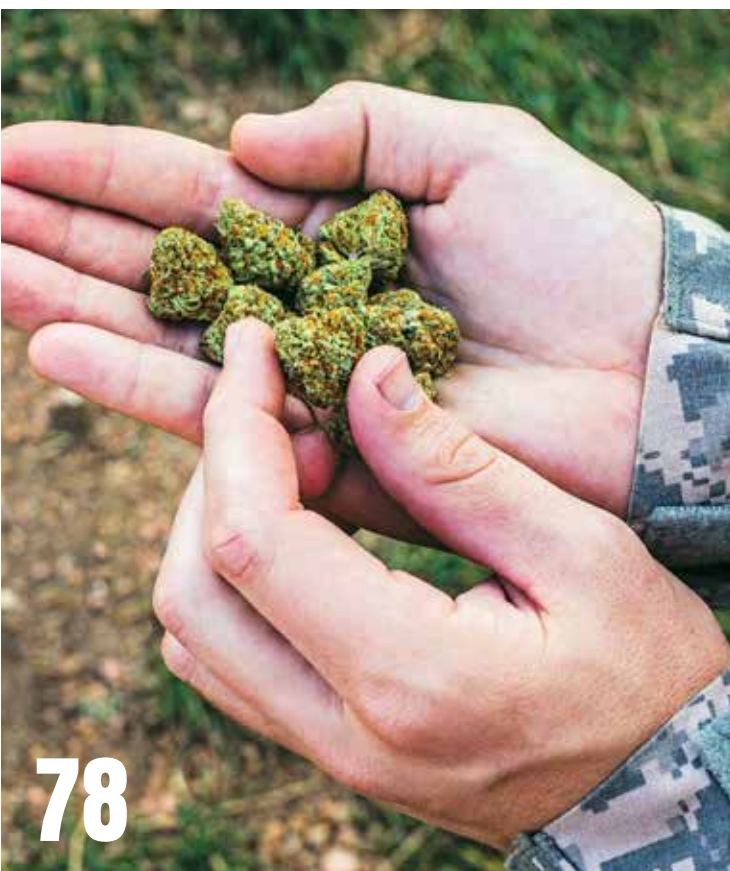
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EDITOR'S NOTE

What the World Needs Now

For many of us, 2020 couldn't end fast enough. But with continued social unrest and the COVID-19 pandemic still wreaking havoc on our lives, 2021 isn't exactly the breezy return to normalcy many had hoped for.

We could all use some self-care right now. Enter CBD. Read about how the miracle cannabinoid has been helping people cope with lockdowns and social distancing while giving parents a secret weapon to deal with remote learning.

This issue explores some of the established benefits of cannabis, such as CBD's ability to treat pain and inflammation, as well as new research on its promising potential in battling cancer and even the coronavirus. Plus, wait until you read about the possibilities of some of the minor cannabinoids such as CBN and CBG. We also explore why CBD is a starring ingredient in skin care. And speaking of stars, we'll dive into why A-listers from Bella Thorne to Willie Nelson are entering the industry, then check out some of the artists using weed as both inspiration and a medium. And hold onto your wallet, or don't, with our pricey CBD picks and cost-conscious alternatives—everything you need to help you live your best canna-life!
—Shari Goldhagen



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ABCs OF CBD

CONFUSED ABOUT CANNABIDIOL? DON'T WORRY, WE'VE GOT YOU COVERED WITH THIS PRIMER. WE'LL ALSO INTRODUCE YOU TO SOME OF THE EXCITING MINOR CANNABINOIDS. DISCOVER WHY THE PANDEMIC HAS BEEN A BOON FOR CANNABIS, AND EXPLORE THE TWISTY HISTORY OF HEMP. PLUS, WHAT'S LEGAL, WEED-WISE, IN EVERY STATE.

NEWS OF THE WEED

THE LATEST GOINGS-ON IN THE WORLD OF CANNABIS.

On the Menu: CBD!

➔ After construction and COVID-19 delays, Wake 'n Bacon, Chicago's first CBD-themed restaurant, opened in late October.

The brainchild of husband-and-wife team Gabriel and Sarah Ayala, the whimsical spot in the hip Lakeview neighborhood offers a menu of spins on all-day brunch favorites. The couple worked with chef Will Silas to incorporate their diverse heritages—Sarah is Chinese and Taiwanese, while Gabriel is Argentine and El Salvadorian.

Dishes include Spiced Maple Chicken 'n Waffles with pickled peppers, Sweet Salmon Couscous, CocoRazz Stuffed French Toast with raspberry cream cheese and toasted coconut, and the best-seller, an epic breakfast burrito known as "The Phatty." Of course every dish has the option of a cannabidiol upgrade with CBD from local company Half Day CBD.

"We don't really think [CBD is] a fad," Gabriel told the *Chicago Tribune*. "We think that's only going to expand people's minds to different alternatives in food and eating, so we just want to jump on that bandwagon before it's all built."

The waffles in the Chicken 'n Waffles are actually tater-tot bubbles!



Are Shrooms the Next Big Thing?

On Nov. 3, 2020, Oregonians voted to legalize the controlled use of psilocybin, the main active ingredient in so-called "magic mushrooms," for mental health therapies. While the Beaver State is the first to legalize them, voters in the District of Columbia passed a ballot measure to decriminalize use of magic shrooms and other psychedelics.



Research suggests psychedelics could be a treatment tool for several mental health conditions including PTSD and anxiety.



The Dems' Georgia Senate wins in January could mean big things for weed.

Legal in the USA?

■ Weed moved one step closer to legalization in the United States on Dec. 4, 2020, when the Democratic-controlled House of Representatives passed the Marijuana Opportunity Reinvestment and Expungement (MORE) Act.

The measure would essentially legalize marijuana at the federal level by removing the plant from the controlled-substance list. It would also expunge the criminal records of some people with cannabis convictions. States could still make their own laws governing markets.

"This long-overdue legislation would reverse the failed policy of criminalizing marijuana on the federal level and would take steps to address the heavy toll this policy has taken across the country, particularly on communities of color," said Rep. Jerry Nadler, a New York Democrat who sponsored the bill. It passed 229-164 with some bipartisan support, and was co-sponsored by Florida Republican Matt Gaetz, who said pot prohibition "constrains" the states and that the majority of Americans don't support overly punitive drug laws.

For the bill to become law, it would have to be taken up by the Senate (Vice President Kamala Harris, who is pro-legalization, would be the tie-breaker should the vote fall along party lines), so passage looks promising. Even if it does make it to President Joe Biden's desk, though, he might not sign off; while Biden supports decriminalizing cannabis and expunging records, he has been hesitant to endorse full legalization.

While the process is far from over, this is the first legislation of its kind to receive a full vote, and more change is likely on the way.

FTC Cracking Down

■ From buyer beware to liar beware: On Dec. 17, 2020, the Federal Trade Commission (FTC) announced it was launching the first-ever law enforcement crackdown on CBD companies making “deceptive” claims about their products. “Operation CBDDeceit” mandates that company personnel cease making a “wide range of scientifically unsupported claims”

about the curative medical abilities of their products. Failure to comply can result in monetary judgments. The launch kicked off with action against six companies that the FTC, in conjunction with the Food and Drug Administration (FDA), had warned against making such claims multiple times dating back to April 2020. Among the suspect boasts: that CBD can prevent diabetes and

cure COVID-19 (for more on CBD and the virus, turn to p. 48). “The six settlements announced today send a clear message to the burgeoning CBD industry: Don’t make spurious health claims that are unsupported by medical science,” Andrew Smith, director of the FTC’s Bureau of Consumer Protection, said in a press release. “Otherwise, don’t be surprised if you hear from the FTC.”



There’s growing evidence of CBD’s medicinal applications, but companies can’t claim it’s a proven cure-all.

“Companies that represent expressly or by implication that what they sell can prevent, treat or cure serious medical conditions will be held to the **highest substantiation standards** and marketers can expect careful scrutiny of those promises.” —FTC STATEMENT



U.N. Reclassifies Medical Cannabis

■ On Dec. 2, 2020, the 53-member United Nations Commission for Narcotic Drugs voted to remove cannabis and its derivatives from Schedule IV, a list of highly dangerous and addictive substances that includes heroin.

The vote, which was recommended by the World Health Organization, passed 27 to 25 with the U.S. and many European nations in favor, while countries including China, Pakistan and Russia opposed. It is expected to have a large impact in easing access to research and medical applications of cannabis.

“This is a huge, historic victory for us, we couldn’t hope for more,” Kenzi Riboulet-Zemouli, an independent researcher for drug policy, told *The New York Times*.

Calling it a “big step forward,” Dirk Heitepriem, a vice president of the Canadian cannabis company Canopy Growth, told *The Times*, “We hope this will empower more countries to create frameworks which allow patients in need to get access to treatment.”

Other Countries Look to Legalize



■ While the U.S. is flirting with federal marijuana legalization, other nations are making definitive strides.

In 2018, Mexico’s Supreme Court ruled that outlawing cannabis use was unconstitutional as it violated protected modes of individual self-expression, and in November 2020, the country’s senate finally made good and approved the legislation to legalize recreational weed.

The country’s libertarian-leaning president, Andrés Manuel López Obrador, praised the bill, saying it was “part of carrying out a revolution of consciences, where each of us is responsible for his actions.... The development of freedoms is very important.” Laws to establish a regulated cannabis market are still being hammered out, and in December legislators in the

Chamber of Deputies asked for an extension. Once enacted, Mexico, with a population of 126 million, will become the largest market for legal cannabis in the world.

While nowhere near as large, with just under 9 million residents, Israel is also getting into the adult-use cannabis game. On Nov. 12, 2020, Justice Minister Avi Nissenkorn announced that the nation would legalize recreational use for those 21 and over within nine months, with an eye on balancing “liberalism and responsibility.”

“It’s time to make progress and legalize cannabis in Israel,” Nissenkorn said. “This is a significant, holistic and responsible reform, which shows the State of Israel isn’t ignoring reality and is going in the footsteps of developed countries.”



The court said it relied on scientific data in making its decision.

EU Court Says CBD Is Not a Narcotic

■ Getting CBD in Europe got a little bit easier in November 2020. The five judges of the Court of Justice of the EU (CJEU), the highest court in the union, sided against a French ban on the cannabinoid, stating hemp-derived CBD “does not appear to have any psychotropic effect or

any harmful effect on human health.”

Under existing French laws, only the fiber and seeds of the hemp plant, and not the flowers, could be sold commercially, but the CJEU ruled that prohibiting the marketing of hemp-derived CBD was against the EU law on the free movement of goods.



CBD for OCD

■ There's new hope for people with obsessive-compulsive disorder (OCD). A Washington State University (WSU) study found that OCD patients reported that their symptoms—including repetitive behaviors and intrusive thoughts—were reduced by about half within four hours of smoking cannabis.

The 31-month study used data from more than 1,800 cannabis sessions

of 87 individuals. The participants self-reported that cannabis reduced their compulsions by around 60%, their anxiety by 52% and their unwanted thoughts by 49%, according to the study, which was published in *The Journal of Affective Disorders*.

Researchers also found cannabis with higher concentrations of CBD was associated with a greater reduction of symptoms. "The results overall indicate

that cannabis may have some beneficial short-term but not really long-term effects on [OCD]," said Carrie Cuttler, the study's author and WSU professor of psychology. "The CBD findings are really promising because it is not intoxicating. This is an area of research that would really benefit from clinical trials looking at changes in compulsions, intrusions and anxiety with pure CBD."

Stars Are Crazy About CANN

■ What's the newest A-list accessory? Apparently a can of CANN cannabis-infused social tonic.

Late last year, the California-based beverage company announced a slew of new celebrity investors including **Gwyneth Paltrow, Rebel Wilson, Ruby Rose, Darren Criss, Baron Davis, Tove Lo, Casey Neistat** and **Bre-Z**.

Calling marijuana the "hero ingredient of the future," Oscar-winning actress and lifestyle guru Paltrow explained: "CANN sits at the intersection of two powerful trends we've been monitoring at GOOP for some time: the 'sober-curious' and 'cannabis-curious' movements."

Pitch Perfect star Wilson added, "CANN is perfect when you're having a dinner party or a few friends over and you want to serve an adult drink

that's also healthy and has natural ingredients."

For Australian actress Ruby Rose, backing the brand was a winner on multiple fronts. "When making an investment decision, you have to invest in two things—the product and the people," she said. "The CANN product is excellent—it's delicious with all-natural ingredients, and its beautiful branding and packaging and its uniqueness as a micro-dose beverage make it a winner. Added to that is the fact that this company is queer-founded and diverse. They're building a team made up of 50%-plus women and 33%-plus people of color.... It was an easy decision to invest." And also because, "My friends like me more because now I can get them free CANNs for their birthdays."



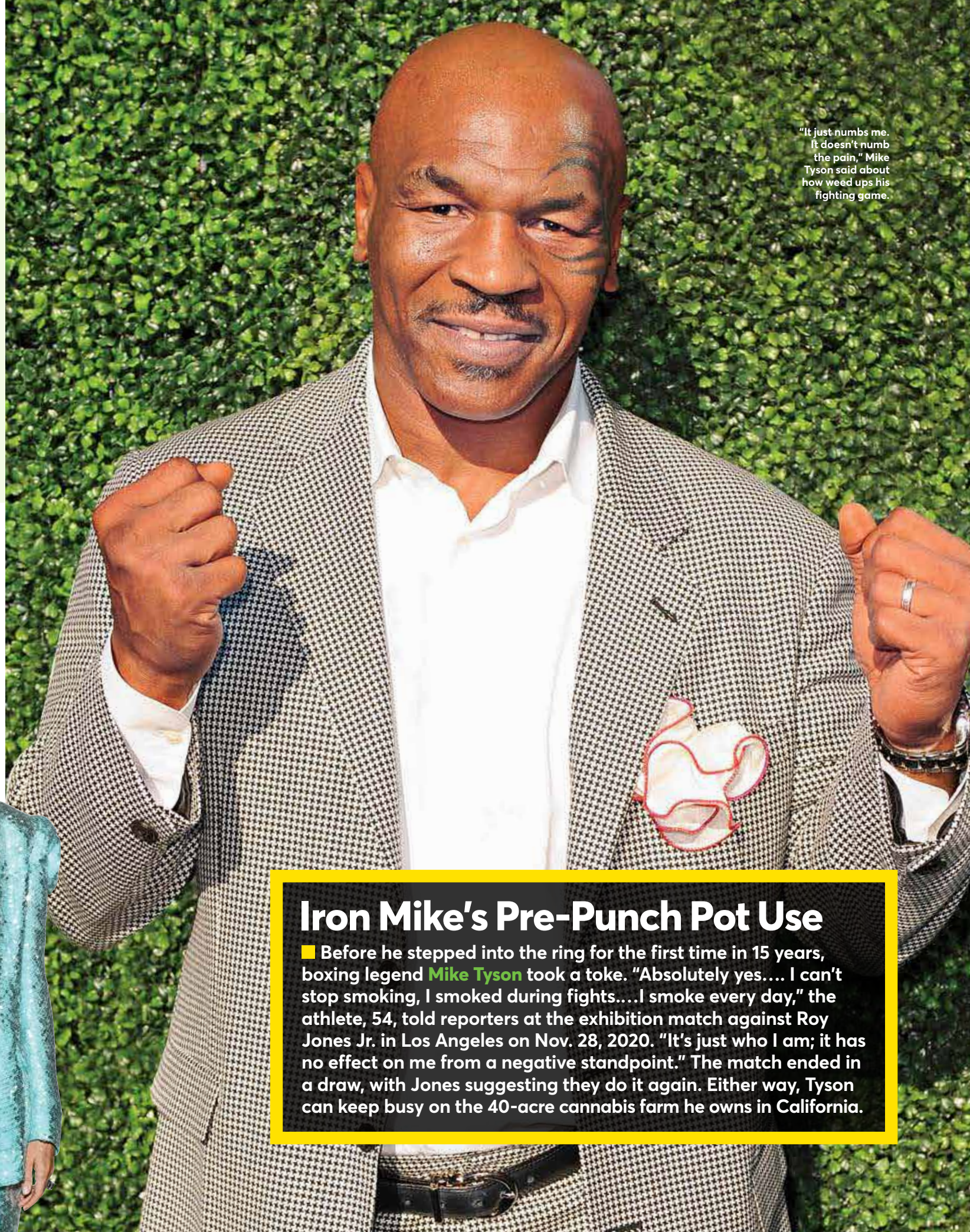
Each CANN contains 2 milligrams of THC and 4 milligrams of CBD.

BRE-Z

GWYNETH PALTROW

REBEL WILSON

RUBY ROSE



"It just numbs me. It doesn't numb the pain," Mike Tyson said about how weed ups his fighting game.

Iron Mike's Pre-Punch Pot Use

■ Before he stepped into the ring for the first time in 15 years, boxing legend **Mike Tyson** took a toke. "Absolutely yes.... I can't stop smoking, I smoked during fights.... I smoke every day," the athlete, 54, told reporters at the exhibition match against Roy Jones Jr. in Los Angeles on Nov. 28, 2020. "It's just who I am; it has no effect on me from a negative standpoint." The match ended in a draw, with Jones suggesting they do it again. Either way, Tyson can keep busy on the 40-acre cannabis farm he owns in California.

CBD 101

THE WORLD OF CANNABIDIOL CAN BE TRICKY TO NAVIGATE. HERE ARE THE CANNA-BASICS. BY SHARI GOLDHAGEN

"Before Prohibition, cannabis was a 'first-line' medicine that could be purchased at the corner drugstore to treat aches and pains, headaches and other more serious complaints," says Carey Clark, PhD, RN.

➔ If you've stepped into a drugstore, beauty supply shop, pet store, or even a gas station, you've probably seen products touting cannabidiol (CBD) as the starring ingredient. But just because it's everywhere doesn't mean CBD is well understood. With the internet full of misinformation and crazy claims, it's pretty darn easy to find yourself canna-fused.

One person who knows an awful lot about CBD is Carey Clark, PhD, RN, AHN-BC, FAAN, the director of the nursing program and chair of the medical cannabis program at Pacific College of Health and Science. "Cannabidiol is one of more than 100 different cannabinoids found in the cannabis plant," she explains. "These cannabinoids interact directly with our body system known as the endocannabinoid system (ECS) and might help support our health."

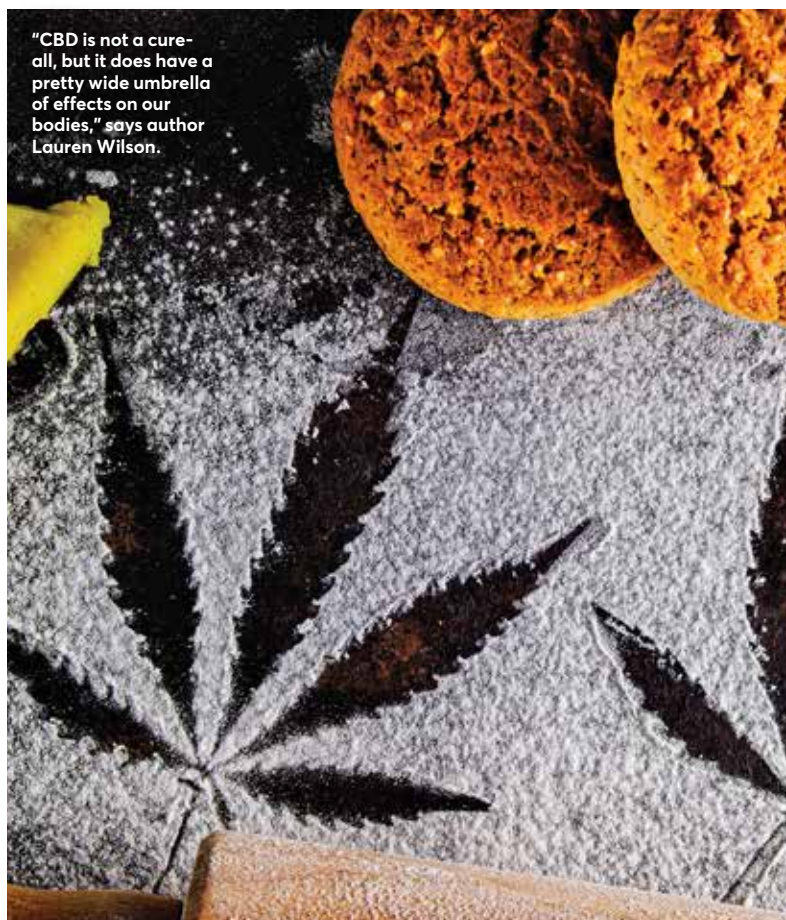
While CBD might be a bit unfamiliar, you're most likely already aware of another cannabinoid, the psychotropic tetrahydrocannabinol (THC). "CBD's older and better-known sibling, THC is the main active compound that will make you feel high when using marijuana," says Lauren Wilson, bestselling author of *The CBD Solution: Wellness*. "CBD doesn't produce the euphoria and intoxication people associate with being high."

PLANT PARTICULARS

Both THC and CBD are found in the cannabis plant. But that plant itself has two main variants—marijuana and hemp. Both of these naturally contain CBD and THC. Somewhat arbitrarily, the Food and Drug Administration (FDA) considers those cannabis plants with 0.3 percent THC or less to be hemp plants and those with more to be marijuana.

For decades, both variants were classified by the FDA as Schedule 1 controlled substances—a classification reserved for drugs thought to have no therapeutic value and be prone to abuse (though the data and anecdotal evidence tell quite a different story). In 2018, the passage of the Farm Bill took hemp (and hemp-derived cannabidiol) off that list and reclassified hemp as an agricultural product. Alas, marijuana remains federally illegal, despite a growing number of states allowing for medicinal and recreational use (see p. 28).

The reclassification has certainly led to an increased use of hemp fibers. The plant itself is incredibly versatile and can be used to make everything from clothing to industrial building components, which often have a smaller environmental footprint than other materials. "We should all be living in hemp



"CBD is not a cure-all, but it does have a pretty wide umbrella of effects on our bodies," says author Lauren Wilson.

"People are interested in **new ways of healing** that don't involve the use of pharmaceutical medicines. As cannabis makes its way out of being a prohibited plant medicine, **people are rediscovering its healing properties.**"

— CAREY CLARK, PHD, RN, FAAN

houses and waking up each day in our hemp beds," says Trina Johnson, co-founder and CEO of Blue Forest Farms, a Colorado-based hemp company. "Our cars should be fueled by hemp. It's just so versatile and eco-friendly."

But the biggest change is that CBD is now the VIP of all manner of health, wellness and beauty products. "CBD is the cannabinoid du jour," says Wilson. "For starters, social attitudes toward the cannabis plant family have been changing for decades. Today over 90 percent of Americans agree that cannabis should be legal for medicinal purposes. On top of that, CBD is nonintoxicating. This makes it more approachable than THC, while touting many of the same benefits. The legalization of hemp in 2018 has led to explosive growth in the availability and interest in CBD."

When hemp plants are harvested, the cannabinoids and other active compounds such as terpenes are extracted, but what's left in and what's not makes a big difference. Generally there are three varieties of CBD—full spectrum, broad spectrum and isolate.

"Full-spectrum products will contain all the goodies, including the trace (less than 0.3 percent) amount of THC naturally found in hemp," says Wilson. "Broad-spectrum

products have been refined further to remove all traces of THC, so these are THC-free. Isolates are highly refined extracts that are nearly 100 percent pure CBD."

Though the science is still lacking, initial research and oodles of anecdotal self-reports suggest there are better results from using full- and broad-spectrum products. "The entourage effect is the concept that postulates that all of the over 400 components found in the cannabis plant interact with the human ECS in a unique and beneficial way versus isolating certain components of the plant such as specific cannabinoids and terpenes," says Clark. "Whole-plant extracts maintain the full spectrum of the components in cannabis plants, which may together best support the health of our human ECS."

Marijuana and THC remain illegal federally, which is something to consider if you're in a position where you are regularly tested for drug use. "Hemp-derived CBD products shouldn't cause you to fail a drug test, but they might," says Wilson. "Some products contain trace amounts of THC that could be picked up if the test is sensitive enough. This is why some folks choose broad-spectrum and isolate products because they are THC-free."

HOW DO YOU TAKE IT?

There are multiple ways to take CBD, and finding the right one for you might involve some exploration. It's also possible that a multipronged approach may work best, says BFF Hemp's Trina Johnson. "Each of us is different," she says. "Someone might do well with just a topical, while someone else can heal themselves from the inside out by taking it orally and topically. It's not one size fits all."



INHALATION

This includes vaping and all manners of smoking. When you breathe in, the lungs absorb and carry the cannabinoids into the bloodstream. And it's quick; onset is about five to 15 minutes and effects can last up to six hours. "The inhalation method of vaporizing is preferred over smoking and best for situations that require a quick onset," says Elaine Burns, NMD, founder and medical director of Southwest Medical Marijuana Physicians Group in Scottsdale, Arizona.

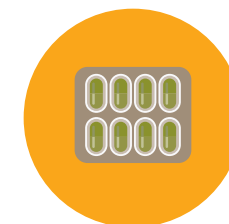
administered to the sublingual gland under the tongue. Drops, strips and tinctures (liquid extract) are all potential options, and the onset is nearly as quick as inhalation. A big perk that makes the method a favorite of many doctors is that it allows for tight control of dosing. Taking cannabis sublingually also bypasses the gastrointestinal tract altogether, meaning digestive enzymes won't react with the cannabinoids that can sometimes intensify the effects of THC.



TOPICAL

As the name suggests, topical cannabis goes on top. These include patches, creams, lotions, sprays and balms; they are generally applied directly on the problem area. They can be effective at calming various skin conditions

and treating localized pain and inflammation. "Topical use of cannabis does not usually result in any kind of impairment," says Burns, but she notes that if using something THC-heavy, it's still very important to check with your provider and read labels as some products are "transdermal"—meaning they will enter your bloodstream.



ORAL

This is anything you eat or swallow, be it an infused gummy, capsule or cocktail. "Oral use of cannabis has a longer onset of approximately 60-90 minutes and its effects can last eight to 10 hours," says Burns.



SUPPOSITORIES

Perhaps not for the squeamish, cannabis can also be inserted into the rectum or the vagina via suppositories. The inserts melt and are absorbed quickly into the bloodstream, making onset faster than edibles with more staying power than inhalation. "They can be very beneficial depending on your condition," says Burns. And while things like CBD-infused tampons might seem all the rage,

ancient Egyptians were using vaginal cannabis suppositories way back in 3000 BCE, according to the authors of *Women and Cannabis: Medicine, Science, and Sociology*.

47%
of Americans believed CBD was regulated by the FDA, according to a 2020 survey. (It isn't.)

Buying Tips

1 CBD products are widely available, but just because you can buy cannabidiol almost anywhere, doesn't necessarily mean you should. "Not all CBD is the same, as the market is not regulated," says Carey Clark, PhD, RN. "'Gas station' CBD is often of low quality and will be ineffective or even harmful."

2 For states with medical or recreational marijuana programs, licensed dispensaries usually carry quality CBD products and staff will likely be knowledgeable. Brick and mortar CBD shops are also becoming as prevalent in strip malls as pizza parlors and nail salons, so finding a place to peruse a plethora of products is becoming increasingly easy.

3 Online CBD retailers also abound, and products with less than 0.3 percent THC can be shipped to any state (though in theory opening the box containing full-spectrum products could get you in trouble in states that don't allow any THC in hemp products).

4 It's best to go directly to the company site or an online marketplace specializing in cannabis. "Buying CBD from sites like Amazon becomes tricky, since

the company classifies CBD as a drug and prohibits sale," says author Lauren Wilson. "Despite Amazon's official position and rules for sellers, companies will get around them by not explicitly stating but implying that their 'hemp oil' or 'hemp extract' contains CBD." Wilson adds some shadier companies may suggest their products contain CBD when they don't—something like hemp seed oil, for example. "It's a murkier

playing field than just going to a CBD company that can be transparent about what they are offering."

5 Shoppers should do research and check a product's certificate of analysis (right). Trina Johnson of BFF Hemp encourages the cannabis curious to look for products that are independently tested and organic. "CBD can be part of an organic lifestyle," she says. "You want to keep it natural."



"It's natural to approach CBD with a little confusion, and perhaps even some healthy skepticism," says Wilson.



"The unregulated CBD market has improved a lot since its early days," says Wilson.

"CBD has helped with my psoriasis and autoimmune disorders, and I'm back to my pre-baby weight. Nothing heals like hemp; it just nourishes the body."

—TRINA JOHNSON, BFF HEMP

"Reviewing the COA will help you to feel a little more comfortable that the product is lab-tested and safe for consumption," says Clark.

CBD Glossary

FULL SPECTRUM

Contains all cannabinoids and terpenes found in the plant, including trace amounts of THC.

BROAD SPECTRUM

Contains almost all of the cannabinoids and terpenes, but with all THC removed.

ISOLATE

A pure form of a single cannabinoid, usually CBD.

HOW TO READ A COA

To ensure you're getting quality CBD, make sure to look at the certificate of analysis (COA). Almost all reputable companies will have their products tested by a third party—usually a lab—to certify they contain what's advertised. Packaging labels should include a QR code or batch number that you can scan or look up on the company's website.

The COA will list the THC and CBD content, as well as any minor cannabinoids such as THCA. This info is usually in a column on the left. Generally to the right of that, you'll find a list of potency results that have been determined by measuring the concentration of cannabinoids in the product—usually expressed in milligrams. The higher the level, the higher the potency (though higher concentrations aren't always needed to achieve your goals).

Any nasties you'd prefer to avoid should also be listed. "You want to ensure that your product is free of mold, fungi, heavy metals, solvents, aflatoxins and pesticides," says Carey Clark, PhD, RN. "If a seller doesn't have a COA readily available, I would suggest not purchasing from them."

MEET THE

NEW

CANNABINOIDS

THINK BEYOND CBD AND THC—CBN, CBG AND DELTA-8-THC CAN DO GREAT THINGS, TOO! **BY AMY L. HOGAN**

➔ John Nathan did extensive research into non-pharmaceutical ways to treat his borderline personality disorder. THC's therapeutic effects were solid, but it's been known to cause paranoia, so he began looking into lesser-known cannabinoids. The first time he tried cannabitol (CBN) capsules was a game changer. "I experienced what it is like to live without anxiety for the very first time in my life," he says. "Sometimes I need to rest my mind...CBN is like nature's Valium."

As a Massachusetts medical marijuana patient, Nathan could only find CBN capsules 2,000 miles away in Colorado.

Eventually he located a supplier in his home state and would drive up every week to buy out their supply. "It frustrated me to be a cannabis patient and still only have access to two or three of the molecules this plant has to offer," he says. So he founded Bay State Hemp Company and now, as the company's president, he's working to bring the minor cannabinoids to the general public.

"The cannabis plant is so much more than delta-9-THC and CBD," agrees Flip Croft-Caderao, co-founder of Goodekind, another cannabis company dedicated to exploring minor cannabinoids. "We're trying to make that known."

CBG

CBG is the first cannabinoid to form and it interacts with enzymes to create THC and CBD. "Think of CBG as the life blood of the cannabinoids spectrum," says John Nathan.

CBN

This cannabinoid is created when THC ages, so it's prevalent in older cannabis plants. Research is limited but studies have found CBN has antibacterial and anti-inflammatory properties and can act as a neuroprotectant.

DELTA-8-THC

Known to produce the euphoria of delta-9 sans paranoia, delta-8 remains in legal limbo. "Delta-8's anti-anxiety properties will start turning the most avid stoners into fans," says Flip Croft-Caderao.

CBDV

Non-psychoactive cannabidiol is structurally similar to CBD. Research has found it's effective at controlling seizures from epilepsy and other disorders, and may help treat conditions on the autism spectrum.

CBC

Initial research suggests nonintoxicating cannabichromene can block pain and inflammation and could potentially be a treatment tool for certain cancers, osteoarthritis, acne and depression.

THE CBS

All cannabinoids work with our bodies by bonding to the receptors in our endocannabinoid system (ECS), which helps govern many aspects of daily life such as mood, appetite and pain modification.

“Endocannabinoids are naturally occurring compounds produced in the human body,” explains Taylor Olson, retail marketing manager at the cannabis company Verano Holdings. “The cannabinoids found in the cannabis plant mimic those naturally occurring in our bodies, and help stimulate receptors found in our brains, organs, tissues and blood cells. By using cannabis to medicate, you’re allowing naturally occurring endocannabinoids to bind and work hand-in-hand with the cannabinoids found in the plant to create balance and foster feelings of wellness.”

While there are more than 100 known cannabinoids in the cannabis plant, CBN and cannabigerol (CBG) are two of the most promising. Like CBD, both are non-psychoactive, meaning smoking or ingesting these won’t get you high.

CBN helps soothe anxiety and fight fatigue. “It’s a great sleep aid and can also reduce muscle spasms,” says Olson. Both CBN and CBG also have antibiotic properties, says Olson, meaning they could potentially be used in place of or in addition to antibiotics like penicillin. Some research suggests they’re effective against MRSA, a type of staph bacteria resistant to many antibiotics. CBG is also great for inflammation and internal issues, says Chris Denicola, CEO and co-founder of Crappy’s Feel Better Hemp Co. “CBG is a much more powerful anti-inflammatory and anti-anxiety [option] compared to CBD.”

And more and more research is emerging. A recent study published in the *Bosnian Journal of Basic Medical Sciences* found CBG slowed the reproduction of cancer cells, while another study in the *British Journal of Ophthalmology* found it reduced intraocular eye pressure caused by glaucoma (THC has been proven to have similar effects, but CBG does it without the high).

“CBG is really the mother of all cannabinoids,” says Nathan. “It’s the first



Researchers are looking at cannabinoids for everything from acne to brain function.



CBG and CBN, along with other minor cannabinoids, represent an untapped medical arsenal that’s starting to increase in supply and appear in products on shelves.”

—CHRIS DENICOLA

cannabinoid formed in the plant and then CBG’s interaction with what are called ‘promiscuous enzymes’ decide what it turns into next. What that means is CBG is the precursor to THC and CBD. It all begins with CBG.” Strains like The White CBG and Matterhorn CBG are genetically bred to produce high CBG content. They produce a beautiful flower with extremely low levels of THC.

But there’s a catch. “These cannabinoids are very low in solubility and it’s hard for your body to absorb them,” notes Denicola. “When we first started to formulate with CBG and CBN, we noticed

there was not much of an effect unless we applied our solubility technology.”

Cost is also a downside to manufacturing CBN and CBG, as well as many of the other minor cannabinoids such as delta-8. “In order to make or biosynthesize CBN you need to essentially destroy the THC through oxidizing and some other chemical catalysts that are utilized to produce the CBN from the THC,” explains Nathan. “In Massachusetts there is such a huge cap on the availability of raw product that right now 1 liter of THC distillate is selling for \$20,000 to \$25,000 on legal markets, so trying to get these dispensaries or manufacturers to take that liter of the ‘good stuff’—that gold that everybody wants—and have them essentially destroy it to fit a niche market is just not going to happen.”

But being able to bring minor cannabinoids to the market at affordable prices is Nathan’s main mission. “For me,” he says, “it’s really about stripping the plant down to the molecule and then rebuilding it and creating a blend that will take care of the major ailments that people are looking to solve: relaxation and pain relief, energy or focus.”

WHAT’S THE DEAL WITH DELTA-8?

Another cannabinoid making headlines: delta-8-tetrahydrocannabinol (delta-8-THC). This one seems to offer users a euphoric experience similar to traditional marijuana (delta-9-THC), but without any of the anxiety or paranoia usually associated with pot products. “Delta will be

the breakout cannabinoid of 2021,” says Croft-Caderao.

Scientifically speaking, the main difference between delta-8 and delta-9 is the atomic bond: d-8 has the double bond on the 8th carbon in the chain, while d-9’s is on the 9th. That’s enough to make delta-8 products, like topicals and edibles, legal across much of the United States.

Since the 2018 Farm Bill did not intend to legalize any forms of intoxicating cannabis, delta-8 attracted attention from the Drug Enforcement Agency (DEA). On Aug. 20, 2020, the DEA released an Interim Final Rule addressing the legality of what they term “synthetically derived tetrahydrocannabinols.” It could mean that delta-8—and all CBD extracts—would be treated as a Schedule I controlled substance, meaning they’d be federally illegal.

“While the Interim Final Rule does not expressly mention delta-8, many in the industry see the Rule as a shot across the bow of this new cannabinoid,” says Henry Baskerville, a partner at Fortis Law Partners in Denver. “As a result, to avoid potential legal ramifications, I imagine we’ll start seeing fewer products containing delta-8, but they likely won’t disappear completely.”

According to Baskerville, the DEA seems to be overstepping its bounds and has misinterpreted the Farm Bill since hemp-derived “cannabinoids” and “derivatives” of hemp are themselves considered “hemp” and exempt from the Controlled Substances Act (CSA), which is why, for now, you can still purchase delta-8 products. Only time will tell how the laws and research shake out. But industry insiders are looking ahead.

“CBC and CBDV are the two cannabinoids we’re focusing on next,” says Denicola. “CBC is nine times less soluble than CBD, so you really need the right technology to make it work and maximize bioavailability.”

Back in Massachusetts, Nathan is up to the challenge. “I am obsessed with figuring out every single piece of this plant,” he says. “There are over 100 known cannabinoids and we’re only talking about four or five of them so we are right in the hot seat of where this can go.”

GIVE MINOR CANNABINOIDS A GO

If you’re ready to explore non-psychoactive options beyond CBD, these are a great way to start.



GOODEKIND CBG TOPICAL

A salve is an easy way to soothe aches and pains. This 300mg tub is packed full of CBG and infused with organic shea butter, coconut oil and essential oils. “People love the anti-inflammatory properties,” says Goodekind co-founder Flip Croft-Caderao. “Muscle aches, back pain and arthritic pain are no match for CBG in topical form. We’ve also been hearing that it is helping with rashes and blemishes.” \$35; goodekind.com



THE HELPING FRIENDLY HEMP COMPANY’S DELTA 8 SOFT CHEWS

A not-too-sweet soft chew in natural fruity flavors—packs of 16 contain strawberry, lime and orange—with zero harsh

aftertaste. “Eating two an hour before bedtime has cured me of my pandemic insomnia,” says Amy Slates of Pennsylvania. “Even better, I wake up feeling refreshed but not groggy, unlike with the over-the-counter sleep meds I’ve tried.” \$34; thehelpingfriendlysalve.com



CRAPPY’S FEEL BETTER HEMP CO. BIG 25 SOCIAL PACK

Crappy’s proprietary blends of CBD, CBN and CBG are worth celebrating. Their curated Social Pack includes bottles of Fade Fighter, Party Prep and Hangover Helper so there’s something for every phase of the party. “I couldn’t survive my 30s in international sales without this collection,” says Mark Hernandez of Miami. \$90; crappysfeelbetter.com

NOW MORE THAN EVER

AS THE PANDEMIC WEARS ON, CBD IS ALL THE RAGE FOR A RANGE OF REASONS.

BY AMY L. HOGAN

"It was crazy!"
Simply Pure
owner Wanda
James says
of the initial
pandemic
sales boom.

➔ Joseph Wilson manages a Safeway grocery near Portland, Oregon, where interacting with the public is "trying at best on a good day." With the country in the grip of a deadly pandemic, his job has become more demanding (and dangerous), and his anxiety issues have intensified. "I'm dealing with people at their absolute worst," says Wilson. That's why he has been relying on CBD to soothe his body and mind. "I have been taking about 50mg of CBD tincture daily for the past two years. But right now I've upped that to 100-150mg a day. Work is nearly unbearable without it."

Wilson isn't alone. Many people are using cannabinoids, like cannabidiol (CBD) and tetrahydrocannabinol (THC), as a way to help them keep calm and carry on in the age of COVID-19 and social unrest.

"I have doubled my intake," admits Liz Burke, a Massachusetts nutritionist. And Washington-based esthetician Michele Clementi says, "I'm using more CBD

tincture than ever before and snacking on CBD gummies all day long."

Experts believe CBD nourishes the body's endocannabinoid system (ECS), which in turn assists with a multitude of physical and emotional issues including pain relief, anxiety and insomnia.

"Ingesting CBD helps me relax in the evenings," says Oregon native Adam Smith. He also uses Spirit of the Herbs Full-Spectrum High CBD healing salve on sore joints and muscles. "I lost my tech job in early 2020 and had to fall back on my old occupation, arborist [tree surgeon]. I quickly realized it was hell on my 50-year-old body. My CBD regimen helps me with discomfort and allows me to function during this crazy, unexpected change in my life."

■ CANNABIS SALES: HIGHS & LOWS

During the first quarter of 2020, weed sales plummeted as fear of the virus kept customers at home. Legal cannabis sales dropped nearly 50% in late

March, but as stimulus checks started being deposited into Americans' bank accounts, and stay-at-home orders kept people inside, sales didn't just rebound, they skyrocketed. In Colorado, adult-use cannabis sales hit a record \$158.1 million in June—passing the \$150 million mark for the first time.

Simply Pure dispensary's founder and CEO Wanda James has been on the frontlines of that green rush. "Within four hours of the mayor of Denver announcing that dispensaries would close, we sold more cannabis than we did during 2019's 420 weekend," says James, who made history in 2010 as the first Black woman legally licensed to own a dispensary in Colorado. "It wasn't just us. Every dispensary in town was overrun."

Mayor Michael B. Hancock quickly reversed the closure, realizing cannabis is an essential business. Sales have been booming for James at Simply Pure ever since. "We are up a tremendous amount. The best part is that the majority of

people that come in to Simply Pure say that they want to support a Black-owned business. It warms my heart.”

North Carolina hemp farmer Franny Tacy, meanwhile, has noticed a shift in the types of products consumers are purchasing. “Before the pandemic, we sold so many different things like CBD lotions and shampoos. Now people want straight-up tinctures, salve and smokeable hemp, especially our pre-rolls,” says Tacy, the CEO and founder of Franny’s Pharmacy, a chainlet of seed-to-shelf CBD shops. “I’ve heard so many testimonials of how these products are changing people’s lives when it comes to stress, anxiety, sleep and pain.”

For many, CBD is also a healthier alternative to alcohol. “When I wasn’t working for five months, my use of THC and CBD was through the roof,” shares April French, an executive assistant in California. “Alcohol makes me depressed, so I was staying away from drinking. Using a combination of THC and CBD at night relaxes me and I didn’t need a drink.”

Mickie Smith of Vermont likewise enjoys the best of both worlds with CBD- or THC-infused beverages. “Almost every day I’ll chug a few CBD seltzers. A glass or two of cannabis wine, which doesn’t have any alcohol, has been the perfect nightcap during this pandemic.”

Kalo CEO Ken VandeVrede admits to being pleasantly surprised by the success of his sparkling CBD seltzer water amidst the pandemic. “Since March, Kalo has seen tremendous growth,” he says about the New Jersey-based beverage company. “We are growing at a rate of more than 30% month-over-month and will scale as we are launching with Pepsi Bottling Co. and Molson Coors distribution houses on the East Coast throughout 2021.” VandeVrede is proud to be hiring when so

many people have lost their livelihood. “I feel fortunate we are in a position to be adding jobs, not dissolving them.”

Josh Lizotte, CEO of the California-based Rebel Coast, feels the same way. Sales of its cannabis-infused wine dipped in the beginning of the pandemic and then, just as they were about to panic, “we had a rapid increase.” So much so that they couldn’t keep the wines on shelves. “By the end of April and early May, we ran out of stock. We had to scramble to get more bottles of wine.”

■ BORED & BAKED

Northern California resident Brent Imhoff smoked three to five bowls of weed a day to suppress stress about his elderly parents battling COVID-19 across the country in New York City. “It helped me deal with the guilt about not being able to do much from so far away,” he says.

For Casey Johnson of Phoenix, the pandemic was the perfect time to trade THC for CBD. “I had to quit smoking pot,” he says. “I didn’t feel like I was present anymore, just coping and living in a haze, so I decided to try using CBD and I do feel better.” He’s been THC-free for two months and says he’s “definitely using the plant more medicinally now, for digestive issues, anxiety, stress and sleep.”

Using cannabis to fill the void left by the lack of socialization is why states where adult use is legal saw around a 25% increase in revenue over 2019. It brought in an estimated \$17 billion by the end of 2020, according to New Frontier Data. Anxious Americans with more time on their hands are a driving force behind the figures.

According to Mitch Baruchowitz, managing partner at cannabis investment



CBD gummies are big biz in the pandemic.

firm Merida Capital Partners, legal retail sales are also soaring because people have safety concerns about allowing old-school dealers into their homes. “The vast majority of the current growth in the cannabis space is being driven by consumers transitioning from the black market to the legal market.”

Indeed, Matthew Neifert, owner and CEO of Agape Blends in Hometown, Pennsylvania, has noticed a surge in foot traffic at his CBD shop. “My sales were down 40% the first month or two of lockdown, but slowly went back to pre-pandemic rates. Inquiries and questions have greatly increased,” he says. “Everyone wants CBD to help with sleep issues and anxiety.” Tinctures, capsules and gummies are his top three CBD sellers.

The pandemic has inspired some former pot users to pick it up again. “I started eating [CBD] gummies after not ingesting any type of THC for about three years,” says Brian Glide, a Michigan father of three. “My wife, who had never used any illegal drugs, read an article about how CBD could help with health pains and asked me to get her some gummies. I loved them, too, and kept buying more.”

Speaking of gummies, before a shift at Safeway, Joseph Wilson makes sure he has CBD gummies in his pocket. “I am an essential worker and it’s stressful,” he says. “I take any relief I can get.” It’s a sentiment many of us can relate to right now.

Brent Imhoff says he is smoking more weed during the pandemic because he’s worried about family members across the country and also because of “the boredom of being isolated all day, every day.”

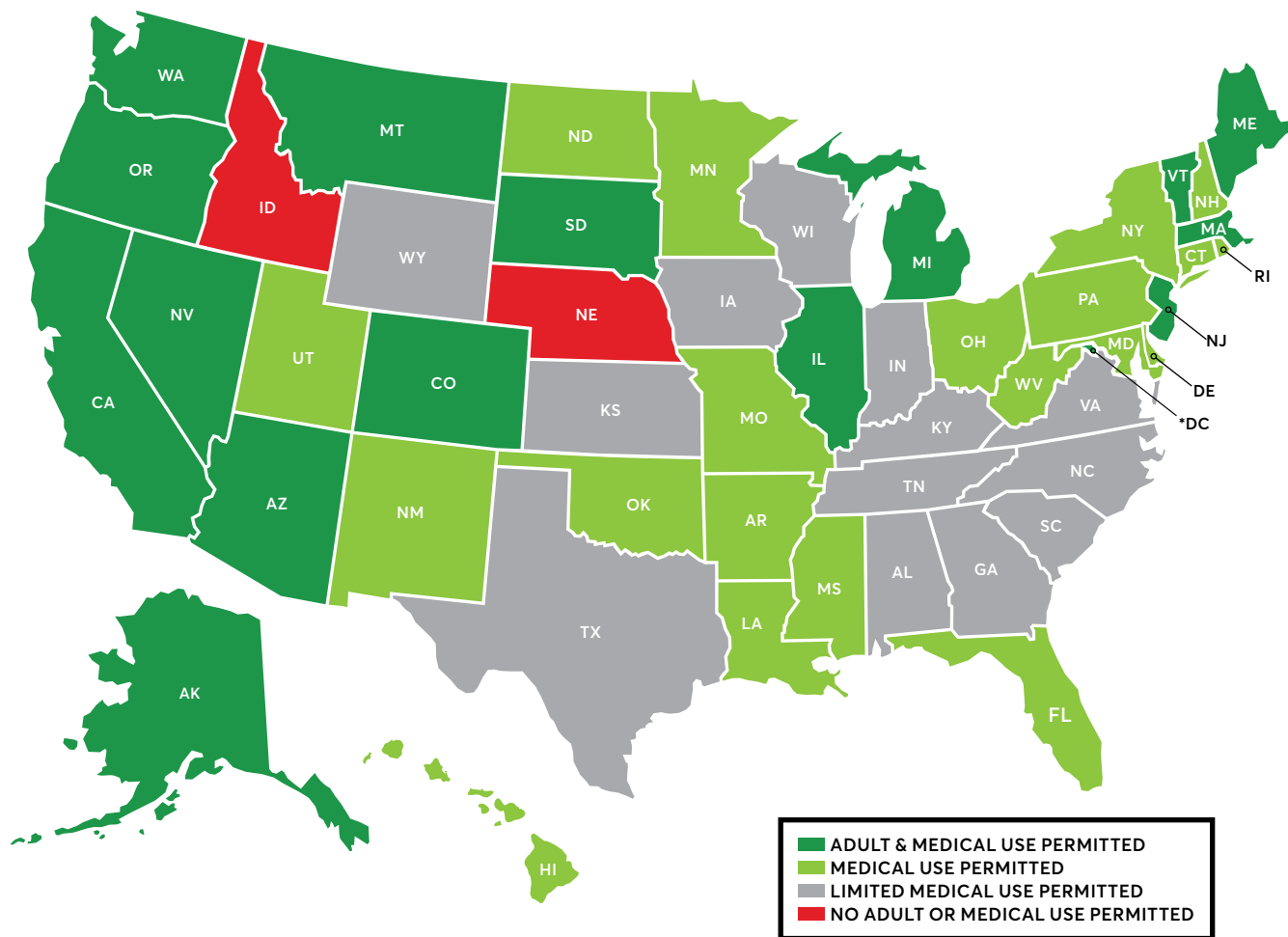


The pandemic hit us hard. We had to close our CBD dispensaries for a few months and shift our marketing efforts to e-commerce.”

—FRANNY TACY



Franny Tacy, CEO of Franny’s Pharmacy, says that consumers have shifted from topical CBD products to ingestible forms.



WHAT'S LEGAL

WHERE YOU LIVE

A STATE-BY-STATE GUIDE TO U.S. MARIJUANA LAWS.

➔ The times, they are a changing. In November 2020, five states passed ballot measures legalizing adult use and/or medical cannabis. When the new laws are in place, 15 states and the District of Columbia will allow for recreational marijuana, while more than

30 states, plus D.C., will have decriminalized possession—meaning no arrest, prison time or record for most first-time possession for personal use offenses. The U.S. House passed the Marijuana Opportunity Reinvestment and Expungement Act (see page 8) in December, a first-step

toward federal legalization, and President Joe Biden has said he'd like to federally decriminalize marijuana (though not necessarily legalize it). For now, here's where each state stands on cannabis. Keep in mind, most don't have reciprocity with others, and marijuana is federally illegal.

ALABAMA LIMITED MEDICAL USE PERMITTED

■ In 2014, CBD use was approved by the legislature for certain conditions. Otherwise, marijuana is strictly prohibited, though a medical expansion bill is under consideration.

ALASKA ADULT & MEDICAL USE PERMITTED

■ One of the first decrim states (1975), Alaska legalized medical use in 1998 (there are nine qualifying conditions) and adult use in 2014 via ballot initiatives. Residents and patients can possess up to 1 ounce and home-cultivate up to 12 plants.

ARIZONA ADULT & MEDICAL USE PERMITTED

■ The Grand Canyon State legalized medical use in 2010 and adult use in 2020 via ballot measure. It's now legal to possess up to 1 ounce, and home-growing is allowed. State-licensed dispensaries will begin recreational sales in March. Cannabis convictions will be eligible for expungement.

ARKANSAS MEDICAL USE PERMITTED

■ Medical use was approved in 2016 for 19 conditions (more can be added by petition). Patients can possess up to 2.5 ounces per 14-day period. Home-growing is not allowed.



Many states require a medical marijuana card (MMC) for patients.

CALIFORNIA ADULT & MEDICAL USE PERMITTED

■ One of the original decrim states (1975), Cali was the first to legalize medical use in 1996, followed two decades later with adult-use. Residents can possess up to 1 ounce and grow six plants. Any debilitating condition is allowed, and medical sales are not taxed.

COLORADO ADULT & MEDICAL USE PERMITTED

■ An early decrim state (1975), Colorado was the first to legalize adult use in 2012 after passing medical use 12 years earlier, both via ballot initiatives. Residents can possess up to 1 ounce and grow six plants. Patients can possess 2 ounces for 10 qualifying conditions.

CONNECTICUT MEDICAL USE PERMITTED

■ The state legislature decriminalized adult use in 2011 and passed medical use a year later. Patients can possess up to 2.5 ounces for 29 conditions,

but home-growing is not allowed. An effort to pass adult use is ongoing.

DELAWARE MEDICAL USE PERMITTED

■ Medical use was legalized in 2011 and weed was decriminalized in 2015. For 16 conditions, holders of a medical marijuana card (MMC) may buy up to 3 ounces and possess up to 6; home-growing is not allowed. Adult use is under consideration.

DISTRICT OF COLUMBIA ADULT & MEDICAL USE PERMITTED

■ Voters approved medical marijuana in 1998, but it didn't go into effect until 2011. Adult use passed three years later. Residents can possess 2 ounces and grow six plants; patients can purchase up to 4 ounces every 30 days. "Gifting" up to 1 ounce is allowed, and there is reciprocity for MMC holders in all jurisdictions.

FLORIDA MEDICAL USE PERMITTED

■ Voters in the Sunshine State passed a ballot initiative to legalize medical use in 2016. Patients can possess 2.5 ounces, but they must buy from a medical marijuana treatment center and get a recommendation from a state-qualified doctor for any of 12 conditions.

GEORGIA LIMITED MEDICAL USE PERMITTED

■ In 2015, CBD use was approved by the Peach State's legislature for some conditions, and in 2019 the law was amended to allow products with as high as 5% THC (0.3% is the usual limit). Otherwise, cannabis is prohibited.

HAWAII MEDICAL USE PERMITTED

■ The Aloha State passed medical-marijuana legislation in 2000 and



If federal legalization happens, states will still be able to make their own laws concerning usage and sales.



Even in states that allow adult use, there are often laws against smoking in public spaces.

There are 16 qualifying conditions, but smokable preparations and home-growing are not allowed.

MAINE
ADULT & MEDICAL
USE PERMITTED

■ One of the original decrim states (1976), Maine passed medical use in 1999 and adult use in 2016, both via ballot initiatives. Residents and patients can both possess 2.5 ounces and grow six plants. MMC cards are not required. The commercial market launched in October 2020.

MARYLAND
MEDICAL
USE PERMITTED

■ The Old Line State passed medical legislation in 2013. MMCs are not required, and patients can purchase up to 4 ounces—tax free—from state dispensaries. Home-cultivation is allowed, but growers may not also buy from dispensaries.

MASSACHUSETTS
ADULT & MEDICAL
USE PERMITTED

■ The Bay State passed medical use in 2012 and adult use in 2016, both via ballot initiatives. Residents can possess 2.5 ounces and grow 12 plants. Patients can buy a 60-day supply from a licensed dispensary, tax free. Home-cultivation is permitted, but growers may not also buy from dispensaries.

limited decrim (under 3 grams) in 2019. There are 13 qualifying conditions and patients are allowed to possess 4 ounces and grow up to 10 plants at a time.

IDAHO
NO ADULT OR MEDICAL
USE PERMITTED

■ Outside of what is permitted by the 2018 Farm Bill, the Gem State has no medical program.

ILLINOIS
ADULT & MEDICAL
USE PERMITTED

■ The state legislature legalized medical use in 2013 and adult use in 2019. Land of Lincoln residents may possess up to 1 ounce, nonresidents half that. There are 41 qualifying conditions; purchases for these are taxed at lower rates. Patients can home-grow five plants and possess 2.5 ounces.

INDIANA
LIMITED MEDICAL
USE PERMITTED

■ In 2017, CBD use was approved by the legislature for certain conditions. Otherwise, cannabis is prohibited in the Hoosier State, and possession laws are among the harshest.

IOWA
LIMITED MEDICAL
USE PERMITTED

■ CBD—with up to 0.45% THC—is allowed for 15 qualifying conditions, but a CBD medical card is required and purchases must be made at state dispensaries. A task force on decriminalization is ongoing.

KANSAS
LIMITED MEDICAL
USE PERMITTED

■ In 2018, CBD use was approved by the

legislature for certain conditions. However, products can contain no THC whatsoever (the federal 2018 Farm Bill allows for 0.3%). Otherwise, cannabis is prohibited, though both medical and adult use are currently under consideration.

KENTUCKY
LIMITED MEDICAL
USE PERMITTED

■ In 2014, CBD use was approved by the legislature for certain conditions, but there is no in-state distribution. Medical expansion is under consideration by the legislature.

LOUISIANA
MEDICAL
USE PERMITTED

■ The Bayou State legalized medical marijuana via legislation in 2015.

MICHIGAN
ADULT & MEDICAL
USE PERMITTED

■ The Great Lakes State passed medical use in 2008 and adult use 10 years later, both via ballot initiatives. Residents and patients (for 13 qualifying conditions) may home-cultivate up to 12 plants, and possess 2.5 ounces in public and 10 ounces at home.

MINNESOTA
MEDICAL
USE PERMITTED

■ One of the original decrim states (1976), Minnesota was also the first state to pass a no-smoke medical law (2014). There are currently 13 qualifying conditions. MMCs are not required, but only cannabis oil products and topicals are available.

MISSISSIPPI
MEDICAL
USE PERMITTED

■ One of the original decrim states (1977), Mississippi voters approved a robust medical-marijuana program in November 2020. Docs can prescribe for 22 qualifying conditions, and patients will be able to purchase a two-week supply and possess up to 2.5 ounces.

MISSOURI
MEDICAL
USE PERMITTED

■ The Show Me State legalized medical use in 2018 via a ballot initiative. Patients can possess up

to 4 ounces and grow six plants. Possession is decriminalized.

MONTANA
ADULT & MEDICAL
USE PERMITTED

■ Voters passed two medical-use initiatives (2004 and 2016) and adult use in 2020. Once the latter is in effect, residents can possess up to 1 ounce and grow up to four plants for personal use. Adult-use purchases will be taxed at 20%.

NEBRASKA
NO ADULT OR MEDICAL
USE PERMITTED

■ Despite being one of the original decrim states (1978), the Cornhusker State doesn't have a medical marijuana program.

NEVADA
ADULT & MEDICAL
USE PERMITTED

■ The Silver State passed medical use in 2000, and adult use in 2016. Patients can possess up to 2.5 ounces and grow 12 plants; adult users can have 1 ounce and cultivate six plants. Reciprocity is permitted with other states.

NEW HAMPSHIRE
MEDICAL
USE PERMITTED

■ The Granite State passed medical-marijuana legislation in 2013 and decrim in 2017. Patients with MMCs can possess up to 2 ounces for 22 conditions, but home-growing is forbidden.

NEW JERSEY
ADULT & MEDICAL
USE PERMITTED

■ Medical-cannabis legislation passed in 2010 and Garden State voters gave adult use the thumbs-up 10 years later. With Gov. Phil Murphy's support, plans to implement adult-use sales are in the works, as well as decriminalization and equity policies. Currently, patients can purchase up to 2 ounces for 18 conditions.

NEW MEXICO
MEDICAL
USE PERMITTED

■ The New Mexico legislature passed medical use in 2007 and decrim in 2019. MMCs are required, but available free of charge, and there are 20 qualifying conditions. Patients can possess up to 8 ounces and grow 16 plants.

NEW YORK
MEDICAL
USE PERMITTED

■ An early decrim state (1977), New York passed medical use in 2014 and amended the decrim law in 2019, both via legislation. MMCs are required, and dose is determined by a physician for more than 20 qualifying conditions. No edibles or flower are allowed; home-cultivation is prohibited. Adult-use legislation is being considered.

NORTH CAROLINA
LIMITED MEDICAL
USE PERMITTED

■ One of the original decrim states (1977), North Carolina passed CBD legislation in 2014 with a THC limit of 0.9% (for qualifying patients under very strict rules), but otherwise has no medical program.

California voters passed Proposition 215 in 1996, making the Golden State the first in the union to allow for the medical use of marijuana. Since then, 35 more states, the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands have enacted similar laws.

NORTH DAKOTA
MEDICAL
USE PERMITTED

■ North Dakota voters passed a ballot initiative in 2016 that allows patients to possess up to 3 ounces for 19 conditions. MMCs are required, and home-cultivation is not allowed. Possession has been decriminalized.

OHIO
MEDICAL
USE PERMITTED

■ One of the first decrim states (1975), Ohio voters rejected a legalization measure in 2015. The legislature passed medical use in 2016, minus flower and home-grow. Patients with state-approved MMCs can purchase up to 8 ounces for 21 conditions.

OKLAHOMA
MEDICAL
USE PERMITTED

■ Once the state with the most conservative marijuana laws in the country, Oklahoma now has a booming medical market following a 2018 voter initiative. Patients can possess up to 3 ounces and grow 12 plants. Reciprocity is permitted.

OREGON
ADULT & MEDICAL
USE PERMITTED

■ The first state to decriminalize marijuana (1973), Oregon was the third to pass adult-use legalization, via voter initiative in 2014. Voters in the Beaver State also passed medical use in 1998. Patients with 10 conditions

can possess 24 ounces and grow 24 plants, while residents can possess 1 ounce and grow four plants. Home-cultivation is OK.

PENNSYLVANIA
MEDICAL
USE PERMITTED

■ In 2016, the legislature passed a medical-use measure that did not allow for smoking, vaping or home-growing. It was amended to permit vaping in 2018. MMCs are required for 17 conditions and home-growing is still illegal.

RHODE ISLAND
MEDICAL
USE PERMITTED

■ The smallest state enacted significant medical-use legislation in 2006 that allows patients to possess

up to 2.5 ounces and grow 24 plants (each must be tagged by the Department of Health). MMCs are required, and possession is decriminalized.

SOUTH CAROLINA
LIMITED MEDICAL
USE PERMITTED

■ In 2014, CBD use was approved by the legislature for seizure conditions, but products can't exceed 0.9% THC. Otherwise, marijuana is strictly prohibited in the Palmetto State.

SOUTH DAKOTA
ADULT & MEDICAL
USE PERMITTED

■ The Mount Rushmore State went from 0 to 60 in November 2020 when voters passed ballot measures to legalize both medical and adult-use cannabis. The law won't go into effect until July 2021, and dispensaries likely won't be operational for recreational use until 2022. Patients will be allowed to home-grow but the bill contained little direction on expungement for prior convictions.

TENNESSEE
LIMITED MEDICAL
USE PERMITTED

■ In 2014, CBD use for patients with intractable seizures was approved by the state legislature. Products cannot exceed 0.9% THC. Otherwise, marijuana is strictly prohibited in the Volunteer State.

Adult-use cannabis legalization was approved via November 2020 ballot measures in four states: **Arizona** (Proposition 207, 60% Yes); **Montana** (Initiative 190, 57% Yes); **South Dakota** (Amendment A, 54% Yes); and **New Jersey** (Question 1, 67% Yes).

TEXAS
LIMITED MEDICAL
USE PERMITTED

■ In 2014, CBD use was approved by the legislature. The products cannot exceed 0.5% THC and are available only to registered patients with qualifying conditions. Otherwise, marijuana is strictly prohibited.

UTAH
MEDICAL
USE PERMITTED

■ In 2018, Utah voters passed Prop 2, legalizing medical use. Patients are allowed to possess up to 4 ounces, but home-growing is not allowed. MMCs are required.

VERMONT
ADULT & MEDICAL
USE PERMITTED

■ The state's legislature passed medical use in

2004, decrim in 2013 and adult use in 2018, but dispensaries aren't expected to sell recreational cannabis until October 2022. Residents and patients can possess 2 ounces and grow two plants; growers cannot also buy from dispensaries.

VIRGINIA
LIMITED MEDICAL
USE PERMITTED

■ In 2015, CBD use was approved by the Virginia legislature. Due to the 5% THC limit, the Marijuana Policy Project has called the law a "quasi-medical marijuana law." Possession of up to 1 ounce was decriminalized in 2020.

WASHINGTON
ADULT & MEDICAL
USE PERMITTED

■ The second state to legalize adult-use marijuana, via ballot

initiative in 2012, Washington allows residents to possess up to 1 ounce, but recreational users are not allowed to grow. Medical use passed in 1998, permitting patients to possess up to 3 ounces for 16 qualifying conditions; they can home-cultivate as well.

WEST VIRGINIA
MEDICAL
USE PERMITTED

■ The Mountain State's legislature passed a medical-use measure in 2017 that did not include flower, edibles or home-growing. State-registered patients can purchase a month's supply for 15 qualifying conditions.

WISCONSIN
LIMITED MEDICAL
USE PERMITTED

■ In 2014, CBD medical use was approved by the legislature. But despite being one of the biggest hemp-producing states, all other cannabis is strictly prohibited in Wisconsin.

WYOMING
LIMITED MEDICAL
USE PERMITTED

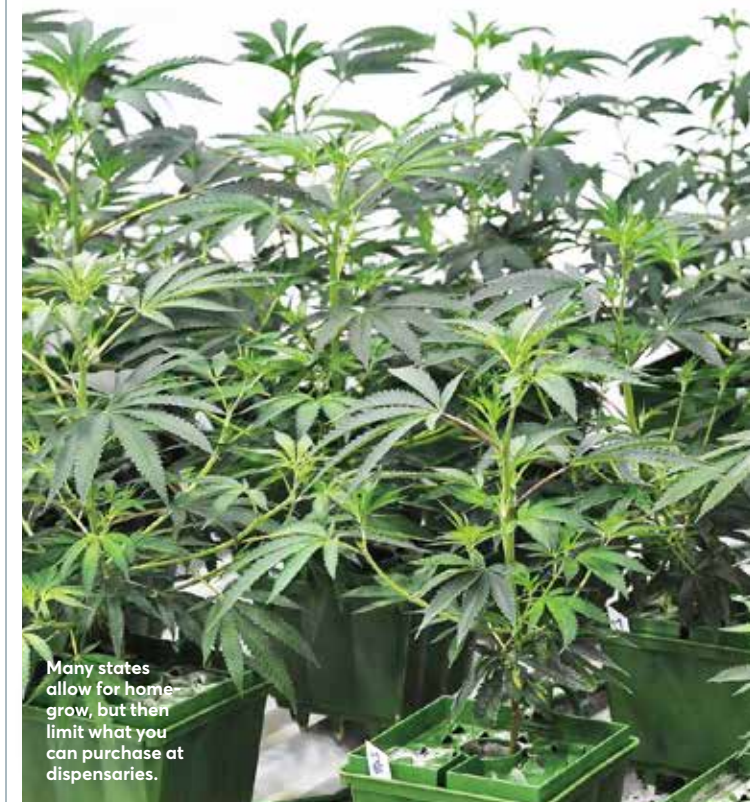
■ In 2015, CBD use was approved by the state legislature for seizure conditions. Patients are required to register with the Department of Health, and extracts must contain less than 0.3% THC. Otherwise, marijuana is strictly prohibited.

Whoa, Canada!

While the U.S. debates full legalization, its northern neighbor now allows adults to light up across the nation.

■ In 2018, Canada became the second country in the world to federally allow recreational marijuana use nationwide. (Uruguay was the first, in 2013.) The Cannabis Act allows anyone 18 and over to possess up to 1 ounce of dried or "equivalent non-dried form" of cannabis in public, but several provinces and territories have added their own statutes regarding sales, distribution and use. British Columbia (BC), Nunavut and Quebec, for instance, limit the amount

of cannabis that can be stored at home, and home cultivation for personal use is allowed everywhere but Quebec. Likewise, most provinces ban smoking in public, but Alberta, BC, the Northwest Territories, Nova Scotia, Nunavut and Ontario allow its use in most places where tobacco may be smoked. While regions have different laws around public and private dispensaries, all provinces, save for Manitoba and Saskatchewan, require that online sales be run by government-operated retailers.



Many states allow for home grow, but then limit what you can purchase at dispensaries.

THE HISTORY



OF HEMP

CANNABIS WENT FROM A ONCE SPECTACULARLY VALUABLE CROP TO PLANT NON GRATA...AND BACK. BY AIMEE LEVITT

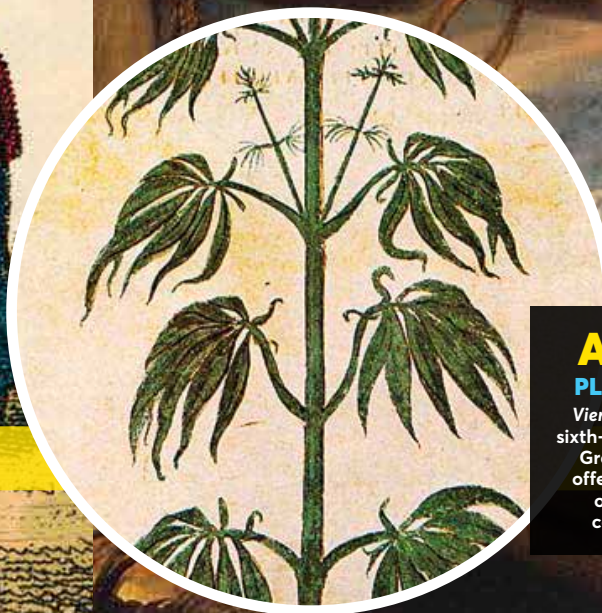
➔ Hemp is not pot. I know this because of a commercial for a store in Boca Raton, Florida, called The Hemp Shop that ran incessantly on MTV during *Daria* reruns in the late '90s. The ad showed various products—T-shirts, bandannas, macrame plant hangers—all made from hemp, and the announcer would emphatically say, “Hemp is not pot!” as the words flashed on the screen in giant capital letters. I can still hear that voice.

Hemp is not pot because “pot” is generally a euphemism for marijuana. Both marijuana and hemp are variants of cannabis, a plant, but hemp, as defined by the Food



100 B.C.E. PAPER TRAIL

The first recorded use of hemp being pressed to make paper goes back to the Western Han Dynasty in ancient China.



A.D. 512 PLANT POWER

Vienna Dioscorides, a sixth-century Byzantine Greek manuscript, offers an illustration of the “helpful” cannabis plant.

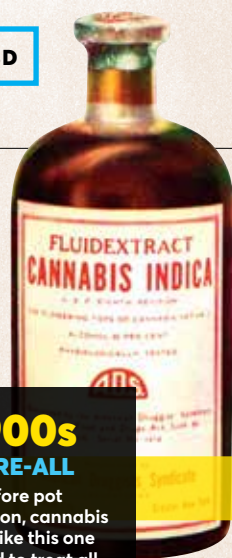
1700s FOUNDING FARMERS

George Washington and Thomas Jefferson both grow the profitable plant on their Virginia farms.



1500s ROYAL CROP

King Henry VIII of England is so bullish on hemp, he makes farmers pay a fine if they don't grow it.



1900s
CURE-ALL

Before pot prohibition, cannabis elixirs like this one are sold to treat all manner of ailments.

1930s
HEMP'S FOE

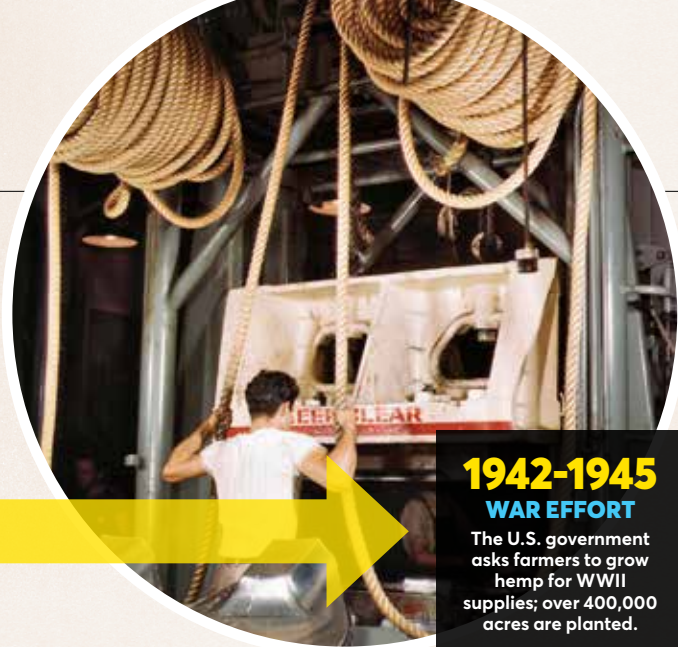
William Hearst uses his newspaper empire to smear the plant—and protect his investments.

1936
ANTI-POT PSA

The oft-spoofed film *Reefer Madness* shows teens spiraling into murder and mayhem after smoking weed.

1942-1945
WAR EFFORT

The U.S. government asks farmers to grow hemp for WWII supplies; over 400,000 acres are planted.



and Drug Administration, contains 0.3% THC or less. Smoking hemp, wearing hemp clothes or using macrame plant hangers will not get you high. Hemp *does* have other positive qualities. For one thing, it's the plant from which most CBD is derived, but it's also a wonderfully versatile material. Hemp fibers are very strong and can be woven into rope or canvas—the word “canvas” is derived from “cannabis”—or mixed with other fibers to make less abrasive clothing. The leaves and flowers can be eaten, and the seeds can be pressed into oil used for cooking, paint and cosmetics.

And it just might help save the planet. In his book *Hemp: American History Revisited*, Robert Deitch writes: “The

Pushed through by multiple titans of industry with heavy financial stakes in the game, the Marihuana Tax Act of 1937 passed.



large-scale cultivation and utilization of hemp would enable us to cut down fewer trees and would increase the amount of vegetation on the planet....Switching to hemp in place of various fossil fuel products could decrease air and water pollution and could reduce the impact on the atmospheric ozone.” Some of this technology already exists; Rudolf Diesel developed hemp-based automobile fuel more than a century ago.

■ WAY, WAY BACK

The wonders of hemp are hardly new. It was one of the first plants cultivated in human history. In what is currently China, archaeologists found pieces of hemp dating back to 8000 B.C.E. that were used for pottery, food and medicine. In 2000 B.C.E., the Hindu text *Atharvaveda* called hemp “Sacred Grass,” and hemp rope from 600 B.C.E. has been found in southern Russia.

By 1533, it was such an important crop in Europe that King Henry VIII of England began fining farmers who didn't grow it. The first settlers brought it with them to the New World, and farmers grew it all up and down the Atlantic coast. Hemp was considered so useful that in colonial Virginia, all plantation owners were required by the local government to grow it.

The Founding Fathers were in on the act: George Washington grew it at his

Virginia estate Mt. Vernon. He's often rumored to have smoked cannabis, and while there's no concrete evidence of that, the first president did write about growing it in his journals. Thomas Jefferson also farmed cannabis both at his beloved Monticello and his Poplar Forest plantation in Bedford County, Virginia. “[Hemp] is abundantly productive and will grow forever on the same spot,” he gushed. Early drafts of the Declaration of Independence were written on hemp paper.

The crop was so valuable that at times U.S. farmers had to pay for the right to grow it. Over the years, it started to be replaced by jute and sisal from Asia, but it was still a big American biz.

So what happened? The answer lies in the Marihuana Tax Act of 1937 (yes, that's how they spelled it). “In principle, the Marihuana Tax Act of 1937 stopped only the use of the plant as a recreational drug,” explains the U.S. Customs and Border Protection website. “In practice, though, industrial hemp was caught up in anti-dope legislation, making hemp importation and commercial production in this country less economical. Scientific research and medical testing of marijuana also virtually disappeared.”

How did this pass if people had, for centuries, known hemp is not pot and has all these amazing uses? Was the U.S. Congress just dumb? No, it happened to be in the thrall of big business.

■ THE RICH AREN'T HIGH ON HEMP

In addition to owning the chain of newspapers that bore his name, William

Randolph Hearst also owned numerous forests that were cut down and pulped into the low-quality paper upon which his newspapers were printed. As you might imagine, this all worked out pretty well for him. He partnered with the DuPont family, who produced the chemicals to make the paper. This was a pretty good deal for them as well.

But in the 1910s, George W. Schlichten invented the decorticator, a machine that theoretically could strip the fibers from the stems of the hemp plant much more quickly. Hemp fiber, it was thought, could produce a superior type of cheap paper. Hearst was alarmed. The DuPonts were alarmed, too, because they had recently invested in a new synthetic fiber called nylon that promised to be an affordable substitute for silk and boar bristles, and if hemp fiber were more readily available, a revival of the hemp industry could threaten the development of nylon.

Fortunately for Hearst and the DuPonts, Andrew Mellon, secretary of the treasury and one of the richest men in America, was also alarmed by the potential of a hemp revival, most likely because he had invested heavily in DuPont. Mellon's business empire also included Gulf Oil, which it had acquired at the same time gasoline became accepted in the U.S. as the primary fuel for automobiles—preferred over hemp-based diesel.

So here we have a group of people with a clear interest in accelerating the hemp industry's decline. They had some very powerful tools at their disposal. Hearst used his newspapers to

institute a propaganda campaign that conflated the two types of cannabis and insinuated that hemp was essentially marijuana, or at least just as evil and destructive. (He was aided in this enterprise by the 1936 pearl-clutching anti-drug film *Reefer Madness*.)

“By the tons it is coming into this country—the deadly, dreadful poison that racks and tears not only the body, but the very heart and soul of every human being who once becomes a slave to it in any of its cruel and devastating forms,” read a typical editorial in Hearst's flagship paper, *The San Francisco Examiner*. “Marihuana is a shortcut to the insane asylum. Smoke marihuana cigarettes for a month and what was once your brain will be nothing but a storehouse of horrid specters.”

Mellon, meanwhile, arranged for the appointment of Harry J. Anslinger as the founding commissioner of the Federal Bureau of Narcotics. Anslinger had an extensive background in preventing drug trafficking and had worked for the Bureau of Prohibition. He was also married to Mellon's niece.

Despite testimony of doctors, pharmacists and drug companies, Anslinger insisted cannabis was harmful and needed to be suppressed. It was responsible for a variety of social ills, he claimed, including “mak[ing] [slur for Blacks] think they're as good as white men” and “lead[ing] to pacifism and communist brainwashing.” He arranged for a government report that stated marijuana usage was spreading throughout the country, although in reality, it was mostly confined to the Southwest. After a series of sparsely attended Congressional hearings, the Marihuana Tax Act was passed. The American hemp industry continued its demise—except for a small boost during World War II, when the armed forces needed it for uniforms, canvas and rope, and hemp farmers were given tax breaks. In an inspiring propaganda film called *Hemp for Victory*, the U.S. called on its citizens to continue

President Barack Obama signed the 2014 Farm Bill, which allowed research institutions to start growing hemp to study.



America's proud tradition of hemp-growing. After the end of the war, the government went back to demonizing cannabis. The last U.S. hemp farm closed in 1956.

■ A LONG, SLOW RETURN

The Marihuana Tax Act was repealed in 1969, but the Controlled Substance Act (CSA) a year later was no better. The plant was classified as a Schedule I drug, meaning it had no therapeutic value. Strict restrictions were put on cultivation and thousands were jailed for cannabis crimes.

In 1998, when I was watching *Daria*, things eased and the U.S. began allowing importation of some hemp products, and in 2004, the Ninth Circuit Court permanently protected hemp foods in *Hemp Industries Association vs. DEA*. After 50 years, hemp licenses were granted to two North Dakota farmers in 2007.

President Barack Obama signed the 2014 Farm Bill, allowing research institutions to pilot hemp farming. But the biggest win for the little plant that can't get you high came on Dec. 20, 2018, with the Agricultural Improvement Act of 2018 (aka the “Farm Bill”), which essentially reclassified hemp and its derivatives as agricultural products and effectively legalized them. It's a good time to own a hemp shop!



2

HEALTH & WELLNESS

DISCOVER HOW CBD CAN RELIEVE PAIN, REDUCE INFLAMMATION, BOOST MENTAL WELL-BEING AND HELP WITH PERIOD PROBLEMS. READ ABOUT RESEARCHERS WHO THINK THE CANNABINOID COULD ALSO BE A TOOL IN BATTLING CANCER AND COVID-19. PLUS, GET YOUR CANNA-QUESTIONS ANSWERED BY SOME PRO-CANNABIDIOL DOCS.

PRESCRIPTION FOR THE PLANT

WITH ANTI-INFLAMMATORY AND PAIN RELIEF PROPERTIES, CBD OFFERS LOTS OF PROMISE WITH FEW SIDE EFFECTS. **BY DONNELL ALEXANDER**



Rochonne Sanchez had a particularly rough 2016. Early in the year, the mother of two made the painful decision to pack up her kids and leave her husband of 10 years. One week later, an errant car smashed into the driver's side of Sanchez's Dodge Durango. Thankfully, Sanchez seemingly emerged with only minor injuries—some ligament and tendon damage in her shoulder.

Still, Sanchez found herself experiencing lingering pain from the accident. That's when prescription drugs rolled into the picture. She liked narcotics; she liked them a lot. She was trying to address the needs of her children and focus on an ensuing custody case. "Those pain pills were really good at not making me feel any of that," she

CBD is currently being looked into as a treatment for everything from head injuries to acne.

says. “I knew that if I kept taking them I was probably not going to be able to stop taking them.”

She knew marijuana was a non-addictive option for pain relief, but didn't want to use it for fear it might hurt her custody case. She'd heard about CBD and decided to give it a try. Since it wasn't as readily available five years ago, Sanchez walked into a smoke shop and walked out with one pain salve, a THC-free topical, figuring the stuff had to be better for her than Icy Hot. She was blown away at this new treatment's ability to relax the stiff muscle around her shoulder injury and ease the tension and nerve contraction. From there she considered what CBD might do for her when taken internally and began ingesting tinctures.

“I was genuinely surprised, not only from a pain management perspective,” Sanchez says. “It lessened my pain and I was able to move about my day. I was able to get back into the gym. I was able to lift weights again. But also from an anxiety perspective, I was able to get out of bed. Obviously therapy is important and that has to be part of the conversation, but it helped to eliminate some of the surface-level symptoms that I was experiencing.”

The results were so life-changing that Sanchez and Shannon Kaygi went on to co-found Colorado-based CBD skin care company Eossi Beauty.

Millions of users are finding CBD similarly helpful for treating a whole host of ailments. The cannabinoid business is now a \$5 billion industry globally and its popularity is skyrocketing. Although

pain relief is just one of the famously versatile cannabinoid's applications, indicators are it's the favorite. A recent survey of 2,000 CBD users found 64% used the cannabinoid to reduce pain.

■ HOW IT WORKS

“By itself, CBD seems to be most helpful for certain types of pain, as it is known to have anti-inflammatory properties,” says Norman Goody, MD, a Hawaii-based physician specializing in pain medication. The underlying cause of a sizable amount of discomfort—including things like certain bowel disorders, injuries, many autoimmune disorders and arthritis—is inflammation, so it makes sense that CBD, which is a natural anti-inflammatory, could help reduce that swelling and thus reduce the hurt.

Cannabis is an exciting treatment option as it has very few known side effects.

81,000

Number of opioid overdose deaths from May 2019 to May 2020, the highest number ever recorded. No one has ever died from cannabis overdose.

the next day and be able to play games and compete,” he says. “Once I figured out what it was doing to me and my pain and my mind, I was very curious.”

What's more, CBD has virtually no recorded side effects, which is hardly the case for opioids and other types of prescription pain medication that can cause a whole host of unpleasant symptoms including constipation, decreased heart rate, even death. Plus, many of those drugs have a high potential for abuse, while CBD is not only not

“Most of the research has been conducted using cell lines and animal models. So it is difficult to point to any widely accepted conclusions in humans.”

—BORONIA FALLSHAW

physically addictive, it's even posited it can help treat addiction. Says Goody, “CBD does appear to be an extremely safe and effective pain reliever and anti-inflammatory.”

■ FINDING THE PERFECT MIX

For many the trick can be figuring out the right way to use CBD. Goody and others suggest either seeking out a medical professional who is familiar with CBD or one who is willing to investigate. And recognize it's not always going to be a set dosage for every person.

“There's this misconception with CBD where it's like, ‘Oh, I have a headache or I feel pain. And I'm going to just take it one time, use it one time,’” says Kaygi, who

co-founded Eossi Beauty with Sanchez. “CBD is similar to vitamin C: If you're sick, you're not going to use vitamin C and expect the same results as if you had used it over time. You have to be consistent about it. You have to be careful about the dosage you use.”

For Sanchez, the key was understanding the need for a high dosage because of her body's metabolism. She initially started with a mild 500 milligram tincture. When it didn't affect how Sanchez felt, she jumped up to a 1,500 milligram tincture.

Titration is the slow addition of a solution. Heather Jackson, who runs Realm of Caring—a Colorado nonprofit that educates on cannabinoid therapy—first delved into titration's role while introducing CBD to her son, Zaki, who had been suffering as many as 200 seizures a day. The dosage began at 5 milligrams and was titrated up until fewer seizures broke through.

Despite having tried herbalists in addition to traditional therapies, Jackson worried about the cannabis plant's interactions with her child's epilepsy medications, both pharmaceutical and natural, more than she was worried about Zaki somehow getting stoned. Her research led her to help others.

“If you're slowly titrating up on your CBD product, you don't want to be—at the same time—lowering your pharmaceuticals or throwing another supplement in the mix,” she says. “If you take too little it doesn't help and if you take too much it doesn't help either.”

The daily average CBD dosage for Realm of Caring customers who are chronic pain sufferers is 118.1 milligrams. Sufferers of extreme pain or inflammation may use as much as 1,000 milligrams per day, according to Jackson. Patience and self-attentiveness are at the heart of learning one's pain relief profile.

Boronia Fallshaw, who founded Mello CBD in New York after CBD helped her overcome a crippling case of vulvodinia (chronic vulva pain), says it's important to track your progress. “You have to keep a diary to understand dosing.”

Eventually, you'll get it right!

CBD AND THE BIG C

CANNABIS MAY HELP TREAT CANCER SYMPTOMS AND CHEMO SIDE EFFECTS, AND SOME RESEARCH SUGGESTS IT MAY EVEN HOLD THE KEY TO A CURE.

BY LAMBETH HOCHWALD

With its calming properties, CBD may be able to help with anxiety associated with cancer and chemo.



For cancer patients dealing with the potent side effects of chemotherapy, cannabis can often make a huge difference.

Just ask Patrick Gray, who was diagnosed with lymphoma seven years ago and has undergone six grueling rounds of chemo.

“After my fourth round, I experienced nausea that the standard anti-nausea drugs couldn’t help,” says Gray, the CEO of Pascal Biosciences, a biotech company in Seattle that focuses on cannabinoid-based therapies for treating cancer. Meanwhile, “the edible cannabis cookies I ate helped a whole lot.”

That makes sense. Hemp-derived CBD has been proven to help cancer patients better manage such side effects of chemotherapy as nausea, loss of appetite and weight loss, which can significantly weaken the body. Since THC works to boost the appetite, too, marijuana can also help cancer patients recover and feel stronger.

“Cannabinoids may also ease neuropathic pain due to nerve damage,” says Shanon Henry, a medical cannabis research analyst at Medical Marijuana Doctors, a medical cannabis clinic with several locations around the country. “THC has been shown to improve poor appetite due to cancer and cancer treatments, while CBD is also a trusted source that has anti-inflammatory and anti-anxiety properties, which can ease side effects of cancer treatment.”

As a natural relaxant, “CBD also helps the pain, soreness and insomnia experienced by those going through chemotherapy treatments,” says Nikola Djordjevic, MD, a medical adviser at Loud Cloud Health, a cannabis education website. “The reason CBD is so effective is that it travels through the endocannabinoid system, creating a state of internal balance in the body known as homeostasis.”



Hopefully our work will help to lessen the stigma behind prescribing cannabis, particularly varieties that have minimal side effects, especially if used in combination with current standard-of-care therapies and radiotherapy.”

—MATT DUN, PHD



Many people opt for products with the highest percentage of THC, but that doesn't necessarily make them the most effective.

“When [doctors] incorporate CBD and cannabis, they can potentially eliminate four to five different medications used to treat side effects.” —JUNELLA CHIN, DO



Talk to Your Doc

If you want to introduce cannabis into treatment, always talk to your doctors so they can make sure to avoid interactions.

■ FEWER MEDS

CBD can also help by replacing some of the myriad drugs cancer patients usually need to take.

“Cancer patients typically come home with 10 to 15 bottles of medication to help them treat cancer and deal with the side effects,” says Junella Chin, DO, an integrative cannabis physician in New York. “When my patients sleep better, have better morale and decreased pain and inflammation, they can get through chemo or radiation that much better. I always recommend CBD and THC to help them sleep or relax.”

For Chin, this integrative approach is a much better option than many of the traditional drugs.

“I work in conjunction with pain management and the patient’s oncologist,” she says. “They try conventional drugs and we incorporate medical

cannabis safely, which can potentially eliminate some other medications.”

One example: Opioids and other mainstream pain medications are known to cause many side effects, including constipation. So then on top of the chemo medications and pain medications, patients are prescribed drugs such as Colace to soften their stools. If a patient is able to use CBD to treat pain, however, they won’t have to deal with constipation.

And that’s just the start. “With a cannabis option, they can also avoid taking Ambien because they can sleep better with cannabis,” says Chin. “And they’re not taking Xanax because their anxiety will be lower and they’re not taking Zofran for nausea. Right there we have four medications that can be eliminated.”

■ CANNABINOIDS AS A POTENTIAL CURE?

While cannabidiol’s record of helping patients ease cancer and chemo symptoms and side effects is backed by a growing body of research and reams of anecdotes, some doctors and researchers think cannabinoids could potentially be a tool to actually curing or curbing the spread of certain cancers.

In the summer of 2020, University of Newcastle research fellow Matt Dun, PhD, published research he’d done in collaboration with biotech company

Australian Natural Therapeutics Group (ANTG). They found that high amounts of CBD can kill or inhibit cancer cells without impacting normal cells.

“ANTG wanted me to test [low-THC CBD] against cancer, so we initially used leukemia cells and were really surprised by how sensitive they were,” Dun explained to the university’s news service. “At the same time, the cannabis didn’t kill normal bone marrow cells, nor normal healthy neutrophils [white blood cells]. We then realized there was a cancer-selective mechanism involved, and we’ve spent the past couple of years trying to find the answer.”

In his paper “Can Hemp Help?,” Dun compiled findings after reviewing more than 150 academic papers that explored both THC and CBD as cancer treatments.

“There are trials around the world testing cannabis formulations containing THC as a cancer treatment, but if you’re

on that therapy your quality of life is impacted,” Dun wrote. “You can’t drive... and clinicians are justifiably reluctant to prescribe a child something that could cause hallucinations or other side effects. The CBD variety looks to have greater efficacy, low toxicity and fewer side effects, which potentially makes it an ideal complementary therapy to combine with other anti-cancer compounds.”

One thing researchers are looking at closely are G protein-coupled receptors (GPCRs), which are involved in cancer initiation and progression, and the way cannabinoids could potentially target them.

“GPCRs are like gatekeepers that communicate inside of the cells to the outside of the cells,” Chin says. “And 40% of pharmaceuticals, especially cancer drugs, target GPCRs, but we still need more research on the relationship between GPCRs and cannabinoids.”

■ HOPE FOR THE FUTURE

Even though some preclinical studies have shown that cannabinoids may inhibit tumor cell growth, induce cancer cell death, prevent metastasis or spread of cancer cells, or impede new blood flow to cancer cells, we’re far from stating that CBD can cure cancer.

For the moment, further studies are necessary. “I’ve been in this for 15 years and I can’t say that cannabis cures cancer,” Chin says. “There’s lots more work to be done.”

At Pascal Biosciences, Gray says his company is focusing on ways therapeutics can be involved with cannabis, either as an adjunct or direct treatment. For example, the company is currently hard at work studying whether a

cannabinoid-derived product the company has developed will be able to play a large role in treating glioblastoma—the most deleterious of brain cancers.

While the animal data conducted so far with this cannabinoid was “impressive,” Gray says, the goal now is to get the product into a clinical trial, which can take an average of 14 months.

“When we paired our product with Temodar, the main chemotherapy drug available currently for brain cancer, and radiation we saw a nice synergistic effect,” Gray says. Another exciting venture, he adds, will try to advance the company’s discovery from over two years ago that specific cannabinoids—they’ve looked at 400 to date—can activate tumor cells to make them more recognizable by the immune system.

“The immune system is critical for the normal [handling] of invaders, bacteria and viruses and it can recognize cells that have been infected and kill those cells,” Gray says. “It does the same thing with cancer cells. The immune system on a daily basis finds new tumor cells and kills them. Unfortunately, what happens in metastatic cancer is that tumor cells figure out how to get around it. That’s what we’re trying to learn more about.”

Gray says the future use of cannabinoids in cancer research and treatment is more than possible.

“We think that tumor cells will be more recognizable if they’re treated with a cannabinoid,” he says. “The connection that’s made between the T-cells in the immune system and tumor cells requires this machinery for the immune system to see it and kill them. That’s where our research is headed.”

In some countries, including the U.S., cannabis laws limit what research can be done.



BEWARE!

The web is full of crazy claims about COVID and CBD, so confirm with trusted sources.

COULD

THOUGH IT'S NOT A CURE, RESEARCHERS AROUND THE WORLD ARE EXPLORING HOW CBD CAN HELP COMBAT THE NOVEL CORONAVIRUS.

BY SHEENA FOSTER

CANNABIS

HELP WITH

COVID-19

Twitter user Greg Sully, aka @PhattGreg, began experiencing COVID-19 symptoms in early August, and they wouldn't let up. "I have, for many months, been experiencing the horrid side effects of being unable to draw a full breath," he says in a YouTube testimonial. But then the London native claims he started taking 20 milligrams of CBD oil daily, and that led to a drastic improvement. "CBD oil, when ingested, actually relieves

the symptoms...and I'm not talking just a little better."

Sully is not a doctor, and it's unlikely you'll find any medical professional who, at this point in time, would say CBD is a cure for the novel coronavirus. But social media is filled with similar testimonials, with people claiming that cannabis can do everything from help with symptoms to prevent you from getting the virus in the first place. For what it's worth, CBD is not a cure-all, and the science does

not yet support taking the cannabinoid to treat COVID-19. But several teams of researchers around the world are currently looking into ways it could be a tool in battling the virus. If their initial findings hold true under further testing, well, @PhattGreg and crew might be onto something.

■ HOW IT WORKS

Many of the people who become extremely ill with COVID-19 develop what's known as a "cytokine storm." After the virus infiltrates the body, it wreaks havoc on the lungs and respiratory system. The cytokine storm is a type of heightened immune response, characterized by inflammation that then spirals out of control and can have devastating consequences on all the major organs. Several recent studies on laboratory animals suggest CBD—which is a natural anti-inflammatory—can calm this intense reaction, giving patients a greater chance at stopping a severe reaction to the virus.

One researcher on the case is Babak Baban, MD, an immunologist and associate dean of research at the Dental College of Georgia, in Augusta. In 2014, Baban began studying the effects of CBD on melanoma and head and neck cancers—but when the pandemic hit, he switched his focus and began looking at the intersection of CBD and COVID on mice models.

Inside his lab, Baban has been mimicking coronavirus-like symptoms such as lung failure in mice and then using an injectable form of CBD and an inhalable form of CBD to calm the reaction of skyrocketing levels of apelin circulating in blood and lung tissue.

Apelin "is a protective protein, which has a big role in establishing and maintaining the balance in our body," says Baban. "When I say the balance, [I mean] inflammation. Inflammation by itself is not bad. Inflammation is [the body's] first line of defense."

His study, published in *The Journal of Cellular and Molecular Medicine*, found that without CBD, apelin levels plummeted to zero. With CBD, they



As a known anti-inflammatory, CBD might be able to help with inflammation caused by the virus.

“To take advantage of the powerfully beneficial effect of CBD, you have to know exactly when to use it.”

—BABAK BABAN, MD

normalized by rising twentyfold. “We were very happy to see a clue,” says Baban. Next, he plans a preclinical trial with inhalable CBD on human models. He posits it may eventually be able to replace the invasiveness of a mechanical ventilator. “We are very optimistic, but we will see.”

Despite this exciting research, Baban warns against self-medicating with CBD if you suspect you have COVID-19. “[Everyone] asks us, ‘Should I go to the store and use the CBD?’ No, actually,” he advises. “If somebody encounters COVID and is in the earliest stages, CBD actually can hurt them because CBD can down-regulate the

immune system when it is needed. It is a blind treatment if you do it like that.”

■ AN ANTIVIRAL ADD-ON

Meanwhile, at the University of Nebraska Medical Center, in Omaha, researcher Siddappa Byrareddy, PhD, has been focusing on CBD's calming properties on lungs ravaged by COVID-19.

“We are not proposing CBD as a treatment option for COVID-19,” says Byrareddy. “What we're seeking to do is use any antiviral like remdesivir, which can bring down the virus replication, and use cannabinoids as an option to add as an adjunct to any antiviral therapy to reduce lung inflammation, because once the virus infects the cells, it induces inflammation.”

As he sees it, the duo could potentially deliver a significant one-two punch against COVID. Byrareddy says he and his team are seeking funding from the National Institutes of Health (NIH) to perform his research on monkey models. He hopes his study will show that the two molecules “can work together to help cure the patient.”

■ A NEW KIND OF MOUTHWASH

While American scientists have been focusing on CBD's effects on the lungs, Canadian researchers have shifted their

focus upward to the nose and mouth, COVID's most common entry points.

In a non-peer-reviewed study published in *Preprints*, researchers at the University of Lethbridge in Alberta, Canada, say they have developed 800 new strains of cannabis sativa, which are high in CBD, and have a heightened number of anti-inflammatory properties.

The researchers hypothesize that these strains can control ACE-2, an enzyme found on the cellular wall of oral, nasal and intestinal tissue. Essentially, if coronavirus is the key, ACE-2 is the door that opens to our body's most virus-vulnerable areas. “Imagine a cell being a large building,” says researcher Igor Kovalchuck, MD, PhD. “Cannabinoids decrease the number of doors in the building by, say, 70%.... The level of entry will be restricted. So, therefore, you have more chance to fight it.” Kovalchuck and others believe that knowledge could help them produce a preventative anti-COVID mouthwash or gargle one day.

■ ZEROING IN ON A COMPOUND

Can the compounds that give weed its smell cure COVID? Maybe. Israeli researchers have been homing in on terpenes, which are responsible for cannabis' smell. Early studies using a specific formulation of terpene and CBD found the combo inhibited inflammation caused by COVID-19 in blood from healthy donors. That's a big deal.

Researchers also learned the terpene-CBD combo was twice as effective at inhibiting inflammation than a commonly used line of treatment, dexamethasone, a corticosteroid. Next, they broke down the effectiveness of CBD and the terpene on its own. They found CBD inhibited 75% of the inflammatory response and the terpene fought off 80%. “The preliminary results were highly positive,” says Nadav Eyal, CEO at Eybna, a terpene manufacturing company. “They demonstrated significant anti-inflammatory activity of terpenes while breaking the perception that terpenes are just flavorings and fragrances compounds with a placebo effect.”

Even so, cannabis isn't a cure...yet.

SWAP YOUR COTTON MASK FOR A HEMP ONE

A potential CBD treatment isn't the only way cannabis can help in the fight against COVID-19.

Hemp—a cannabis plant that contains less than 0.3% of THC—is becoming a popular face-mask fabric. Trendy and eco-friendly, hemp masks reduce plastic waste resulting from single-use personal protective equipment, and the plant can be grown with 50% less water per season than cotton crops.

The fiber is also more durable and longer-lasting

than cotton and will hold its shape after multiple washes. As an added bonus, hemp fabrics are naturally antimicrobial (meaning they won't get stinky as quickly) and they protect against the sun's harmful UVA and UVB rays.

As with other masks, hemp ones come in a variety of price points and styles. Here are three to try.

■ NAEEM KHAN ▶

The celebrity designer, whose gowns have been faves of Elizabeth Taylor and Michelle Obama, hopped on the wellness wagon with a prêt-à-porter 100% Italian hemp mask. **\$50, naeemkhan.com**



■ GEOCHANVRE ▶

This French company makes a fully biodegradable and compostable hemp mask and boasts that over a million have already been sold worldwide. **\$38, geochanvre.com**



Wear your canna-pride with a hemp face mask.

■ NOMAD'S HEMP WEAR ▶

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MENTAL HEALTH MIRACLE?

COULD CBD
HELP TREAT
ANXIETY,
INSOMNIA,
DEPRESSION
AND OTHER
CONDITIONS?

BY ERIN BRERETON

➔ By this point, a good chunk of the population understands that unlike THC, CBD isn't going to get you high. However, that doesn't mean cannabidiol doesn't impact you mentally.

"Although it is not considered psychoactive, because it does not create a sensation of being 'high,' that is not an entirely accurate characterization because [CBD] does have an effect on the brain," explains Norman Goody, MD, a Hawaii-based anesthesiologist specializing in pain and addiction. "While it does not create a feeling of intoxication, there are many people who report a lessening of anxiety or a generalized feeling of more 'energy' or well-being from CBD."

For anyone who's had a bad experience on marijuana, this may be surprising. "Where THC can make some users feel anxious or paranoid, CBD is generally felt to have a calming effect on many people, but it is much more subtle than the calming or relaxation someone might experience from taking a medication like Valium or Xanax," explains Goody.

This is no surprise for those already using cannabidiol. A recent survey of 2,000 CBD users done by singlecare.com found that 49% took the cannabinoid for anxiety and stress, while another 26% said they took it for depression.

But for many patients dealing with mental health conditions, CBD isn't even on the radar...or perhaps more importantly on their doctor's. While Goody's quest to find alternatives to opioid pain medications led him to start

Some new research suggests depression might actually be caused by inflammation, which could make calming, anti-inflammatory CBD a key tool.



Ask First

CBD might allow you to take fewer antidepressants, but never alter your dose without first talking to your doc.

exploring cannabinoids years ago, the vast majority of medical students aren't taught much about cannabis at all.

RESEARCH NEEDS TO BE DONE

Partly because of government restrictions on cannabis, research on the effects of CBD on mental health has been quite limited. But things are starting to change.

In testimony given in early 2020 to the U.S. House of Representatives Subcommittee on Health, Energy and Commerce, Nora Volkow, MD, a psychiatrist and director of the National Institute on Drug Abuse, described how CBD's therapeutic potential is being explored for anxiety and other mental health disorders.

And while efforts to confirm CBD's exact effects are ongoing, research has pointed to its positive applications.

A 2015 review of preclinical, human experimental, clinical and epidemiological studies determined CBD presented considerable potential as a treatment for multiple anxiety disorders (though further research is necessary).

The National Center for Complementary and Integrative Health (NCCIH) notes some individuals with post-traumatic stress disorder (PTSD) feel cannabis or products made from it have helped relieve their symptoms; and some research suggests cannabinoids may help reduce anxiety, including a study involving two dozen people with a social anxiety disorder who found they had less anxiety in a simulated public speaking test after taking CBD.

Other studies have found evidence of better sleep quality, fewer sleep disturbances or decreased time to fall asleep in people taking cannabis or cannabinoids, although it's uncertain if the treatments or individuals' improved illness symptoms were the reason, according to the NCCIH.

ANECDOTAL EVIDENCE ABOUNDS

Denver-based psychotherapist Annette Nunez, PhD, has seen patients take CBD for a variety of reasons, including to help alleviate anxiety, sleep issues and depression. "[For some] of my patients who feel dramatic mood shifts, where they're highly anxious or irritable, [such as] being highly overactive, it's helped regulate their moods," she says. "People talk about how it calms them, how they're less anxious taking it and how they sleep better."

April Hatch, RN, MSN, was personally so impressed with how CBD helped her pain, she started the Cannabis Care Team in Kansas City, Missouri, which provides one-on-one consultations to educate patients who have received a medical marijuana card from their doctor about general health and wellness and cannabis use.

One patient Hatch worked with, a man in his 60s, told her he was hoping to find a secondary way of addressing the

depression he'd been treating for 20 years with an antidepressant. "He found just by taking CBD, he was able to reduce his antidepressant by half a dose, which was big for him because so often pharmaceuticals [can] stop working [the same way for people] over time, or you have to keep upping your dose," she says. "He was getting ready to go back to the doctor and was worried about having to increase his dose."

As Hatch's patient found, combining CBD with other treatments, in some cases, can be more effective in treating conditions like anxiety and depression, says Nunez. "When people are ready to take it, they're ready because they're at a point in life where nothing else is working; but CBD has to work in conjunction with therapy. If not, it's masking underlying problems. It's important to use it with other techniques."

And while insurance most likely won't cover the cost of CBD use, patients like the fact it's a natural substance, Nunez adds.

Cannabidiol also has nearly no side effects, which is certainly not the case for certain prescription mental health medications, which can cause a host of ailments including weight gain, drowsiness and sexual dysfunction.

Another huge perk: "CBD is also not felt to be habit-forming or addictive from a behavioral perspective," says Goody. "This is in contrast to many pharmaceutical medications, such as benzodiazepines or opioids, which clearly have addictive properties."

While CBD might be beneficial, it's always important to discuss with your medical team before going off or altering the dosage of any prescription medication, and always let them know about any supplements you're taking, even if you think they might not approve.

MAXIMIZING IMPACT

CBD is available in a number of forms, ranging from capsules to tinctures you can ingest by placing the liquid directly under your tongue. "Oftentimes, people put it in drinks, such as teas or smoothies; you can use it in your favorite juice," Nunez says. "You can also take gummies, and there are sprays you can use—there's so many ways to take it now."

Dosages generally tend to be fairly individualized, according to Nunez; a person's weight can play a role, in addition to the severity of the condition they want to treat. Regardless, she recommends easing into CBD use. "It's really important to start off slowly in smaller amounts, and if you're not recognizing any benefits, to slowly start increasing the dosage," she says. "There's no set dosage like there is with aspirin."

Sometimes, Hatch says, it can take a few months on a steady dose of CBD to see significant change; people could, though, notice subtle effects before then. "Maybe anxiety

PTSD

A 2019 study of people with post-traumatic stress disorder (PTSD) found those who took CBD capsules in addition to traditional treatments—including counseling and medication—saw a reduction in symptoms.

While some feel paranoid after taking THC, CBD is known for its calming effects.

"If doctors just don't feel confident in their knowledge of cannabis, they can have patients call me. It's one plant; I could talk for hours about the medical benefits from it."

—APRIL HATCH, RN, MSN

and things don't bother them as much, or they're not reacting to things as they used to," she says. "Maybe they're able to get to sleep easier at night—just those little things you want to pay attention to. For some people, it may be two weeks. For some, it may be four months."

Hatch says patients might find keeping a journal throughout the experience helpful. "They can look back every couple of weeks and see how their condition has changed," she says. "That's something I encourage them to do."

It's also crucial, she stresses, to know what elements the CBD you're using contains. Hatch shows patients how to read certificates of analysis and the third-party lab tests that reputable CBD companies provide. These will show, for instance, which terpenes—elements found in plants that provide certain benefits—are present in a product.

"I really want patients to not ever buy CBD unless that certificate is readily available and they can review it," she says. "That's going to tell patients exactly how much CBD is in that product; are there more relaxing terpenes or stimulating ones; if it has heavy metals, pesticides, things you want to avoid. There are a ton of CBD stores and some have better products than others."



LEAF FOR THE LADIES

"CBD helps relax the uterus, thereby relieving pain," says Rachna Patel, MD.

FROM PERIOD PAIN TO GETTING YOUR MOJO BACK IN THE BEDROOM, CBD CAN IMPROVE THINGS "DOWN THERE." BY AMY L. HOGAN

➔ After two kids and a tubal ligation in my late 30s, horrible menstrual cramps had become my monthly norm. Smoking a joint and popping two Midol seemed the best way to self-medicate and survive those five miserable days a month...until I discovered CBD-infused lubricant.

I put a bit of the coconut oil-based concoction on a Kotex tampon, and within 15 minutes of inserting it, my debilitating cramps vanished. Could that have been psychosomatic? Well, sure...or maybe not. Growing evidence suggests CBD may be able to help with myriad gynecological conditions and pain relief, plus it could even assist in the bedroom.

A 2016 study from the *Yale Journal of Biology and Medicine* showed a link between the endocannabinoid system (ECS) and the female reproductive system. CBD binds to both CB1 and CB2 receptors, which are found in the brain as well as the immune and gastrointestinal systems, respectively. Due to the concentration of endocannabinoids in the female reproductive system, CBD has the ability to do double duty by assisting in pain relief while also increasing arousal, the study found.

"For so long we've looked at health as one-dimensional, but cannabis is helping to create a progressive, open conversation around new and better ways to look at health and wellness through a holistic perspective," says Joie Meffert, a founding partner of the natural beauty and wellness line Apothecanna in Denver.

■ HELP WITH THE HURT

Pelvic pain is the most common complaint women have about menstruating. Luckily CBD pairs perfectly with periods.

"PMS and period pain is your body reacting to hormonal changes that trigger muscle cramping, pain, bloating and inflammation," says Andrew Kerklaan, DC, of the CBD company Dr. Kerklaan

Cannabinoid receptors exist throughout the reproductive system including the uterus, fallopian tubes, vagina, vulva and ovaries.

Therapeutics in Santa-Monica, California. “Because CBD acts to block pain pathways and reduce inflammation, it provides a terrific, natural approach to reducing symptoms associated with PMS and your period.”

That it’s a natural alternative to over-the-counter (OTC) pain relievers appeals to many women. Plus, Kerklaan points out, it can be used as a multipronged approach. “CBD can be applied topically for targeted effects to the lower back and lower abdomen, and it can also be ingested for more systemic effects.”

Cannabis is likewise being used in the treatment of conditions like endometriosis and vulvodynia—chronic pain in the vulva. And the trend is likely to continue. The cannabis wellness industry is forecasted to make \$38 billion by 2022, according to Beatrice Espada, founder and CEO of the plant-based feminine hygiene company The Honey Pot.

My CBD tampon was a DIY based on desperation, but there are a variety of easy-to-use menstrual products on the market. Foria Wellness makes 100 milligram broad-spectrum CBD suppositories that can be inserted vaginally or rectally (foriawellness.com), while Dr. Kerklaan has a topical CBD PMS cream (drkerklaan.com). And U.K.-based Daye offers a subscription service that lets ladies go with their flow by customizing their assortment of regular and super-CBD tampons in each box (yourdaye.com).

When using CBD tampons, make sure to change more frequently than traditional ones because there isn’t conclusive research regarding their overall safety, says Rachna Patel, MD, an Illinois-based expert in the field of cannabinoid medicine and CEO of Doc Patel’s, a site offering physician consultations and medically curated CBD products (docpatels.com).

“My concern is toxic shock syndrome,” she says. “We don’t know the upper limit of how long it is safe to wear a tampon soaked in cannabitol.” Before buying and trying a CBD tampon, she says to “make sure that they’re tested for microbial contaminants like E. coli, salmonella and fungal components—those are especially important because if you

throw off the pH of the vaginal canal in any way, it can induce a yeast infection.” As with most things cannabis, Patel advises to “start low and go slow” in regards to dosage.

CBD’s help isn’t just for females in their childbearing years. As women enter perimenopause, they tend to experience increased anxiety and insomnia, and this is another arena where CBD is emerging as a powerful tool in place of more conventional treatments.

According to Patel, research done on animal models shows CBD interacts with the 5HT1A serotonin receptors, meaning CBD affects serotonin levels. “What’s interesting is that medications that are commonly prescribed for anxiety fall under the category of SSRIs—selective serotonin reuptake inhibitors,” she says. “They are also affecting serotonin pathways so there is a commonality there. With insomnia we’re not quite as sure, but CBD does have a sedating effect, thereby people are able to fall asleep easily and to stay asleep, as well as wake up feeling refreshed rather than groggy, which is not what’s commonly encountered with OTC or prescription medications.”

It worked for cannabis farmer Franny Tacy, whose daily CBD routine includes tincture, salve and CBD-infused coffee. “Before I started CBD, I had night sweats and couldn’t sleep,” says Tacy, who is considered a pot pioneer by becoming the first woman to grow hemp in North Carolina in over 75 years. She says she no longer has night sweats, “and I get to sleep.”

■ CARNAL KNOWLEDGE OF CBD

The cannabinoid is also showing its prowess in the bedroom as a sexual aid.

For getting your sexy on, Patel suggests women explore products with higher levels of THC, which can offer added benefits beyond CBD. “When it comes to intercourse, a lot of my patients report back that THC, when consumed internally as well as used as a lubricant, helps with sensitivity,” she says. “That makes for a much more pleasurable experience.”

That’s because THC helps mellow out the effects of progesterone, while CBD has the potential to decrease inflammation.

The end result: fewer mood swings and less pain make it easier for a woman to get aroused and enjoy intimacy.

Increasing female pleasure is the principle behind Vella, a CBD-based topical sexual aide dubbed the “female Viagra.” California-based Harin Padma-Nathan, MD, the co-inventor of the infamous little blue pill that helped men overcome erectile dysfunction, has now turned his attention to the ladies as chief medical officer for Manna Molecular, a cannabis biotech firm in Massachusetts, where he has been developing a line of women’s sexual enhancement products, including Vella (available at mannamolecular.com).

“Women are far more complex than men, thus the drug therapies out there didn’t seem to be very effective,” Padma-Nathan has said.

So how is the Vella gel different? “[Our] nanoencapsulation increases the bioavailability, and the liposomes are made with the same lining you find on cell walls. So what happens is these liposomes are attached to the cell wall, in this case at the labia, clitoris and the distal vagina, and they’re actively absorbed, so the drug goes into the cell and is immediately passed to the cell next to it, which is the smooth muscle cell, and that’s where the drug works,” he has said.

A study conducted at the University of British Columbia, in Vancouver, looked at the impact that cannabis has on women’s libido. The results showed cannabis-infused topicals, much like Vella, can increase stimulation and sexual arousal in females thanks to the concentration of endocannabinoids and their receptors found throughout the female reproductive system.

This is something I can personally attest to. I’ve joked to some close friends that Kush Queen’s Ignite CBD lube saved my marriage. It amplifies all of the good stuff, so I’m actually excited about getting it on again after a few years postpartum, when sex was the furthest thing from my mind.

Research is still lagging, but Patel is confident science will soon catch up and confirm what plenty of us already know: Weed can make women feel wonderful.

Gels like condom-safe Vella have the potential to amplify arousal, orgasm and overall pleasure.



Safety Check

If you plan to use condoms, make sure any vaginal CBD products won’t lessen effectiveness.

THE DOCTORS ARE IN

PHYSICIANS ANSWER SOME OF THE MOST BURNING QUESTIONS ABOUT MEDICINAL CBD.

BY SHARI GOLDHAGEN



MATTHEW MINTZ, MD, FACP



JESSICA PEATROSS, MD

Q What are some of the biggest misconceptions your patients have about CBD?

MATTHEW MINTZ, MD, FACP, Maryland-based internist and author of *Medical Marijuana and CBD: A Physician's Guide for Patients* Patients seem to be confused about the difference between marijuana and CBD. They don't realize CBD is non-psychoactive.

ELAINE BURNS, NMD, Arizona-based physician and the first person in the state to pass the American Academy of Cannabinoid Medicine certification test in 2012 That it doesn't work. This is due to what I refer to as the Q2 issue: quality and quantity. As to quality, it is a veritable gold rush out there when it comes to CBD products with little to no regulation, so it is buyer beware; I recommend everyone do research and make sure they are purchasing a quality product that is tested and actually has the amount of CBD in it that it states.

The second issue is customers have no clue how much they should be taking or how frequently. Once I correct those two things with my patients, lo and behold, they start to see the benefits.

JESSICA "DR. JESS" PEATROSS, MD, California-based internist and leading functional medicine doctor Some people who are naive or inexperienced expect to "feel it" more than they do. Others might think CBD is a magic bullet

for all pain and anxiety, and unfortunately that's not the case.

ROBERT KAUFMANN, MD, Illinois-based director of CBD Research for American Shaman Most of my patients think all CBD is the same, which is the single biggest misconception that most consumers share when it comes to CBD. They don't understand that, due to the wild west nature of the current CBD market in the United States, what is listed on the bottle may not be accurate, or worse, that many CBD products have high levels of contaminants such as heavy metals, pesticides, etc.

They don't understand the difference between full-spectrum oil (all cannabinoids and terpenes in the hemp plant), broad-spectrum oil (all the above, minus any THC) and CBD isolate (pure cannabidiol), or why they would choose one over the others [see page 14 for more]. And they definitely don't understand the difference between nano-treated and non-nano-treated products.... Nano-treated cannabinoids, when taken orally, tend to be absorbed through the lymphatics in the intestine, which bypasses the portal system, effectively removing the "first pass" metabolism in the liver. Essentially, this means your body destroys far less of the ingested CBD before it goes to work.

Q CBD is touted for so many conditions these days. What are some of the things it's really good for?

"In general, physicians are expanding the role of cannabinoids in their practice as they become familiar with them," says Robert Kaufmann, MD.



PRO TIP

Be wary of products making grand medical claims, especially by non-doctors.



"Once medical cannabis is federally legal, it will open the door to additional research," says Matthew Mintz, MD.

ALEXANDER LIGHTSTONE BORSAND, MD, ABLM, Arizona-based physician and diplomate of The American College of Lifestyle Medicine I have found CBD to be an effective anti-inflammatory. Topically applied, CBD has been shown to have antioxidant effects in addition to anti-inflammatory actions, making it an ideal addition to face creams.

MINTZ CBD can be useful for a variety of conditions, but it's not a cure-all. The two areas where it seems to work best are for anxiety and inflammation. Inflammation is the common cause of pain in certain conditions like arthritis. While CBD doesn't directly relieve pain, its anti-inflammatory properties can reduce pain in conditions where inflammation is causing the pain.

KAUFMANN The best way to answer is to help you understand why CBD has such a broad array of beneficial effects. The endocannabinoid system (ECS) involves all our cells, organs and organ systems. Whenever we have a disease or condition, our ECS begins either hypo- or hyperfunctioning, and it's this abnormal functioning that is the cause behind many symptoms we experience. In general, CBD works by helping to bring this system back into balance. CBD tends to drive the ECS back toward normalcy and, as it does, it reduces the symptoms being

"We have seen great potential in the treatment of childhood epilepsy, often with just a single dose response [to CBD]."

—ALEXANDER LIGHTSTONE BORSAND, MD

experienced. Sometimes, the disease is caused by the abnormal ECS functioning, and in these cases, the CBD has the potential to reverse the course of the disease and possibly eliminate it completely.

Q What is the best way to take CBD?

KAUFMANN If the issue involves localized problems, where the condition is relatively superficial (i.e., not too far under the skin), topical application may be appropriate. If the condition cannot be

reached by topical absorption, systemic ingestion is necessary, either through inhalation, nasal application, sublingual (under the tongue) application or oral application. If a very high level of CBD is desired very quickly (e.g., to ward off an impending migraine), inhalation or nasal application is the best. However, the total amount of CBD absorbed by the body in both of these applications is small compared to other methods of ingestion, and so this is not the best method for the majority of situations. The method to get the greatest bioavailability of CBD is to orally ingest nano-treated CBD products.

For most indications, sublingual application of tinctures of CBD tends to be what most people want to use. But one size doesn't necessarily fit all. Some conditions are such that a combination of both topical and systemic CBD are needed.

PEATROSS I prefer oil, as it is more medicinal. You can titrate up or down easily and know exactly how many milligrams you are getting.... Look for organic no matter what you choose to consume.

Q Are doctors taught about CBD and cannabis in medical school?

BORSAND Allopathic medical schools (which train MDs) do very little to educate about the pharmacologic properties of cannabis; the focus is on the psychoactive properties and addiction/abuse.

BURNS The endocannabinoid system is the medical designation and is not one of the systems taught, even though it was discovered in the late 1960s. The fact that it's still not addressed in medical schools is completely mind-boggling to me.

KAUFMANN Unfortunately, not at this time. There are, however, increasing numbers of quality seminars and continuing medical education courses being made available to physicians. At this point, most practicing physicians in the U.S. are aware of some of the benefits, actions and appropriate uses of CBD.

Q How should patients who are interested in CBD or medical marijuana talk to their doctors?

BURNS In medical marijuana states... they have a medical right for their doctors to give consideration to this as a therapeutic option. Due to the fact that it is not taught in medical schools and that [marijuana] is still federally illegal, many mainstream doctors may not have a fundamental issue with it, but cannot get on board with the actual recommendation because they do not know what the treatment plan would be, are concerned about drug interactions, and lastly are concerned about the federal repercussions.

It is important to research and find [a provider] who is knowledgeable in clinical cannabis.

MINTZ I strongly recommend patients always be as honest with their doctors as possible. Even if your doctor doesn't approve of using things like supplements, natural treatments or CBD, it's important your doctor knows everything you are doing to provide the best health advice for you. That said, patients should not be surprised if doctors are dismissive. Most physicians tend to be evidence-based, and because of legal and funding issues, research on cannabis is not nearly as robust [as it is for] prescription medications.

Q What should someone do if their provider is dismissive of CBD as an option?

PEATROSS Every doc is different. I would suggest coming to your doctor with a targeted problem and a scientific study showing that CBD might be a potential solution. If your doctor is dismissive, despite education and studies, it might be time to find a doctor who [better] aligns with your health perspective.

KAUFMANN If their practitioners are dismissive, it's important for the patient to insist that their practitioners check to see if they are taking any other

medications that may interact with their cannabinoids. If the practitioner insists the patient stop taking their cannabinoids, the patient should either make sure that the doctor gives a valid reason, or find another health care practitioner.

Q Is there any current or upcoming cannabis research that excites you?

BORSAND The terpenes and terpenoids in cannabis are the new focus and will likely provide more details on the possible uses of cannabis. There are more than 1,000 different chemical constituents in cannabis, each with [its] own actions. With more research, we will likely isolate certain constituents and create drugs based on their actions.

MINTZ I am probably most excited about research on cannabis and CBD in the field of cancer. Studies in the lab [test tubes] and animals have shown some very promising results. However, organizations like the National Institutes of Health cannot yet study this because cannabis is federally illegal, and the NIH is a federal institution.

KAUFMANN Potential use in treating psychological conditions (autism, schizophrenia, dementia, etc.), trauma (sprains, bruises and concussions), medical conditions (inflammatory diseases, pain), as well as its use in preventative medicine. There are so many experiments I have in my head, I will have to live to be 120 years old before they are completed!

PEATROSS I'm really looking forward to the Schedule I classification being lifted so researchers won't have to jump through hoops to get the objective data we need to get the educated evidence on just how beneficial cannabis is for chronic medical conditions.



ROBERT KAUFMANN, MD



ALEXANDER LIGHTSTONE BORSAND, MD, ABLM



ELAINE BURNS, NMD

The background of the entire page is a light green color with several cannabis leaves scattered across it. The leaves are dark green with serrated edges and prominent veins. A white rectangular box is positioned on the left side of the page, containing text and a number.

3

LEAF LIFE

FIND OUT WHY SOME STRESSED-OUT PANDEMIC MOMS AND DADS THINK CBD IS THE SECRET TO A+ PARENTING, AND DISCOVER HOW CANNABIDIOL CAN HELP YOU GO HARDER AT THE GYM. PLUS, LEARN ABOUT WHY THE NAVY IS LIMITING ACCESS TO THE CANNABINOID— AND THE PEOPLE TRYING TO CHANGE THAT.

A-LIST

NICOLE KIDMAN
 "I'm proud to be part of a company... founded by a female CEO," says the actress.



➔ Nicole Kidman turned a tough break into a big business deal. After twisting an ankle while jogging around her Nashville, Tennessee, neighborhood in the spring of 2020, the *Undoing* star has said she "experienced the benefit of CBD wellness products first-hand." Kidman was so impressed with the healing properties of the topicals she tried from Seratopical by Sera Labs—a health and beauty CBD Company based in Maine—that in December 2020 she was named their strategic business partner and global brand ambassador.

"I truly believe in their mission, so it was important for me to join the team in a bigger way," the Australian-born celeb, who won the 2003 Best Actress Oscar for *The Hours*, has said. Her main objective in the partnership is to "be greatly involved in the strategic direction and product development and messaging."

With an estimated net worth of \$120 million, it's not as though Kidman needs to peddle skin care products. This is more of a passion project,

INVASION

STARS ARE GETTING INTO THE CBD MARKET FASTER THAN AN EXCLUSIVE CLUB, BUT WHAT DOES THAT MEAN FOR CONSUMERS? BY AMY L. HOGAN



MEGAN RAPINOE
 The soccer ace says she wishes she'd known about CBD earlier in her career.

JOHN LEGEND
 The "All of Me" singer says he appreciates that PLUS Products is a family-run company.



I have been a believer in CBD for quite some time."

—JOHN LEGEND



and she's motivated to make quality, affordable CBD available to everyone.

But that doesn't mean it's not also a smart business move for celebrities. After all, according to a New Research study, the worldwide CBD market is expected to grow at a compound annual growth rate of approximately 32% over the next few years, and will reach \$1.3 billion by 2024—which is a dramatic increase over the \$311.8 million in 2019. Businesses benefit from the collaborations, too.

"By working with a celebrity, companies provide an almost instantaneous attachment and often an emotional connection, which is very powerful to help market and promote products," says Jennifer Rahn of Raize Communications, a marketing and public relations agency specializing in the cannabis industry.

Kidman, for her part, is truly passionate about Seratopicals' entire line. She calls their Overnight Hand Treatment "wonderful" and has confided that her biggest "obsession" is the Cracked Heel Souffle. "It's so light and hydrating and practically melts into your skin. I don't know how I lived without it." Kidman reaches for the Rapid Soothing Crème anytime her ankle injury flares up and has noted, "It's been a game changer."

THE IMPORTANCE OF AUTHENTICITY

Customers are smart. The fact that Kidman is not just posing pretty in the ads gives authority to Seratopicals. According to Jesse Burns, chief marketing officer of Grasslands CBD Hemp Dispensary, "Often marketers don't give them enough credit, but consumers get it. If a celebrity jumps on the bandwagon and just plops their name on some CBD because it's taking the country by storm, the consumers are going to see through that."

That certainly has not been the case for longtime cannabis activist Willie Nelson. The legendary musician followed up the success of his Willie's Reserve marijuana brand with Willie's Remedy—a line of organic hemp-infused products ranging from CBD-infused coffee beans and tea bags to tinctures and a topical. These are items the "On the Road Again" singer

and wife Annie use daily, which appeals to consumers. "Because Willie is candid and authentic on the subject, people trust that he's got the long view in mind when it comes to cannabis," explains Elizabeth Hogan, VP of brands of GCH, Inc., the parent company to Willie's Remedy.

For some A-listers, slapping their name on a label can be an easy way to make a few extra bucks. "Celebrity cannabis brands are just like other celebrity products: Some [stars] are actively involved in the [research and development] process and others are not," says Neko Catanzaro, president at Proven Media, a public relations firm specializing



I expect we will see more and more celebrities either aligning with cannabis brands or building their own."

—NEKO CATANZARO

in cannabis. "Similar to celebrity perfumes and clothing lines, there are a team of industry experts behind the brand making it consumer-ready."

One celeb who was extremely involved in development is Martha Stewart. She's personally embraced the benefits of cannabis since learning about them from Snoop Dogg, her co-star on *Martha and Snoop's Potluck Dinner Party*. That's why the mainstream lifestyle guru was gung-ho to team up with Canopy Growth, a Canadian cannabis corporation, to create her own line of CBD products for people and pets. "This makes sense because she's been giving people advice for years and is trusted," notes Burns.

The entire Martha Stewart CBD line of oil drops, soft gels and edibles—including

a 15-flavor 60-count gummy sampler inspired by her own garden—is available at 580 of the Vitamin Shoppe and Super Supplements retail stores nationwide. "It was important that the assortment be delicious and elegant but also affordable and accessible," Stewart has shared.

Much like Kidman, *The Good Place* star Kristen Bell didn't get involved with CBD to make money. She partnered with her favorite luxe CBD brand, Lord Jones, to create the Happy Dance line. Explains Bell, "I said, 'Listen, guys, you make the best products. Can we work together to figure out how to make a product that is aligned with all our values and that has an accessibility factor? I do not want anyone sweating when they look at the receipt.'" The resulting items—Body Butter, a Coconut Melt topical and Bath Bomb—range in price from \$15 to \$30.

Eleven-time Grammy winner John Legend also sings the praises of the cannabinoid. He's such a fan, he partnered with PLUS Products Inc. in 2019 to launch a line of edible gummies designed to help uplift, balance or sleep. "I appreciate that they're committed to setting a high standard within an industry that has to date been unfairly regulated," he says.

Disney star-turned-author and adult-film director Bella Thorne launched Forbidden Flower, a brand of marijuana products in 2019, and she was involved with everything from selecting strains to designing packaging. She's now planning CBD makeup and skin care lines. "This younger generation needs [a peer] explaining the benefits [of cannabis]," she told *High Times*.

ATHLETES ARE ON BOARD

It makes perfect sense that pro sports figures are on Team CBD, too. According to a survey of adult athletes done by the Canna Research Group, 67% of respondents admitted to using CBD at some point. Boisterous yet lovable pro football star Rob Gronkowski is no exception. During his brief retirement from the NFL, he invested in the CBD Medic company because he's said their products are "life changing." They made a huge difference in his pain management



BELLA THORNE
"I'm a really big believer in the marijuana plant," the avid weed fan has said.



KRISTEN BELL
"You gotta make time for the things that calm you down and make you feel good," she says.

WILLIE NELSON
"He's fulfilling what he's been promising us for decades," says Jesse Burns of Grasslands CBD Hemp Dispensary.

after nearly a decade getting banged up in the sport and his subsequent myriad surgeries. He is so passionate about CBD therapy, he's asked the NFL to rethink its stance prohibiting players from using cannabinoid therapy.

Professional soccer player Megan Rapinoe and her partner, four-time Olympic gold medal-winner and WNBA player Sue Bird, are vocal supporters of Megan's twin Rachael Rapinoe's CBD line Mendi, aimed at helping athletes recover. "When their careers are over, athletes are left with huge issues, and often they're left with addiction. I knew the benefits of CBD and I knew that cannabis could help," Rachael has said about launching three products—a salve stick, vegan gel caps and gummies—in 2019. "Our ultimate goal is to be the most trusted sports brand and a household name."

DOES STAR POWER MATTER?

Putting a famous name on a CBD product does not necessarily guarantee success. "I expect most celebrity brands will be falling flat, as having a celebrity name attached is not enough to sell a product. The product needs to have authenticity, connection to the cannabis community, and be a damn good product for the price," explains industry publicist Alice Moon. "On one hand, it's great that celebrities are getting into the cannabis game because it makes cannabis more mainstream, but on the other hand, it's a little opportunistic as they are working off the backs of those who fought for years for legalization. Where were those celebrities when cannabis was still illegal?"

Either way, expect more star endorsements as the market becomes more mainstream. "We call it cultural intuition. As people start to inherently understand cannabis more and spread education, the stigmas start to fall so there will be more opportunity for celebrity brands," says Burns. "Once we have federal legalization, there is less risk on the celebrity's part and we will see a lot more familiar faces joining the party."

Applying a topical post-workout may ease sore muscles.

GYM BAG MUST

WITH ITS ANTI-INFLAMMATORY AND PAIN RELIEF PROPERTIES, CBD IS A GAME CHANGER FOR ATHLETES.

BY JORDANA WHITE

→ Anyone who pushes it at the gym knows the struggle against post-workout pain is real. When you engage in cardio or strength training, your muscles actually develop small tears that allow them to stretch and grow; it's the mechanism by which you build muscle mass. But those micro tears also come with inflammation, which can be painful and keep you out of the gym the day after a hard training session. Speeding up those post-workout recoveries is a top priority for those who can't or won't skip a daily workout. For some pros and weekend warriors alike, CBD is a welcome tool in the fight.

"I'm 33 years old, and I'm a master scuba dive instructor," says Kelly Hondros, a former All-American field hockey player who now spends her days farming hemp for Motive CBD, an athlete-focused cannabidiol company she founded with her husband, Corey Poches. "We grow 6 acres of CBD and CBG, and just tending the crops is a lot of work, walking and lifting all day."

To help her recover, Hondros slathers topical CBD creams on her back and

shoulders, for the "pinch in my neck and aches and pains." She also takes CBD capsules every evening, so she can "get up at 6 in the morning and be with my 1-year-old after an active day."

She's hardly alone. Through their company, the couple has developed relationships with world-class athletes, including former New York Jets center Nick Mangold, WWE star Charly Caruso and Jess Lockwood, the reigning Professional Bull Riding Champion. "Nick played 12 years in the NFL, and was beat up every day by massive human beings—he has lots of aches and pains," says Poches. "Charly is still active, and Jess has battled a ton of injuries." Their sports may be diverse but these pros all rely on cannabidiol to recover from grueling exertion. The results are telling. After dosing CBD, Poches says, "They're seeing an overall recovery in the 90th percentile."

THE SCIENCE OF RECOVERY

There are sound reasons why these athletes are singing the praises of CBD, says Michael McKenzie, MD, a board-certified family care physician



Test Best

If your league screens for drugs, use broad-spectrum or CBD isolate products with 0% THC to avoid popping hot.

in Florida, who is also a diplomate of the American Academy of Cannabinoid Medicine and a member of the Society of Cannabis Clinicians.

Since 2016, McKenzie has been one of the few physicians in the state who is licensed to prescribe cannabis—"We call ourselves the Justice League," he says—and together with his colleagues, he's been seeing incredible results, especially in the area of inflammation.

Though exercise can trigger inflammation in your muscles, it doesn't just come from strain. Hard workouts contribute to a buildup of lactic acid in your muscles, which then boosts your internal inflammation. That's where CBD and other cannabinoids can make a difference.

According to a 2018 review published in *Frontiers in Neurology*, CBD reduces

inflammation, which can help relieve pain and help with mobility. While the review focused specifically on patients with multiple sclerosis, McKenzie has also seen benefits for active individuals without preexisting conditions.

He prefers steering athletes toward full-spectrum cannabidiol products—which include trace amounts of THC. "[Stay away from] single agent products, such as CBD isolate," he says. "The THC, terpenes and flavonoids should be in there as well, as these compounds act on your ECS receptors, too."

The ECS is the endocannabinoid system, a series of receptors scattered throughout the body that work together to keep your internal systems in balance. Your body produces its own endocannabinoids, but sometimes internal production isn't enough—especially if you push your body to its physical limits and trigger inflammation, as happens during an intense workout.

While your body will try to increase endocannabinoid production to restore balance, introducing external help, in the form of cannabis-sourced phyto-cannabinoids, can stimulate your system and help you recover faster.

That's why, McKenzie says, "You can use cannabis in various delivery methods and get pretty good results with muscle soreness."

WORKING THROUGH THE WORKOUT

This is something that's proven helpful to amateur athletes like Daniela Young, of Katonah, New York, who maintains a daily CBD routine to push through her training and keep up with her two young kids.

"I live in a state of constant stress," says Young. "I'm always rushing from one place to another. With that comes constant tightening of my muscles and body. And then I push my workout to the limit, because I'm so crunched on time." It's a combo that used

to leave her sore and struggling to exercise back-to-back days.

Then she discovered CBD, and it was game on. "When you're doing heavier weights or taking a boot camp, you always hear your instructors telling you to relax your neck so you don't get hurt," Young says. "I find that taking CBD literally relaxes my body and muscles without having to think about it."

Young starts her day with a CBD dose, then adds a post-workout microdose of about 10 milligrams CBD in the form of a gummy. Finally, she'll take note of spots where she may be feeling the hurt a little more and use a topical salve. "If I'm doing a legs day, I'll stretch and then mas-

"CBD takes that tense feeling away."

—DANIELA YOUNG

sage a salve into my achy muscles," she says. "The next day, I'll start again with my morning gummy."

If she really pushes a workout, "I'm still going to be sore the next day," she admits. But sticking to her CBD routine takes the edge off.

While a combo of edible and topical works for Young, the way athletes use CBD isn't one size fits all. Hondros says she and Poches have the perfect test. "When people come in and they've never used CBD before for pain relief, Corey will ask what hurts. If they can point to it, we'll recommend a topical CBD, but if it's more of an overall issue, we'll recommend a cannabinoid tincture."

It might end up taking some trial and error to get the mix right, but Hondros says CBD users can usually find the formula that best relieves post-workout pain and lets them go hard and be strong the next day.

"Our family motto is, 'Be the best you can be.' [CBD is] the new way of helping athletes get up the next morning and perform at their best."



Former New York Giant Tiki Barber has gotten in the canna-biz with his company Groove Group Management.

24%

of athletes said they regularly used cannabis, according to a 2019 survey.

It's game, set, match, CBD for tennis ace John Isner.



Pro Athletes Who Love CBD

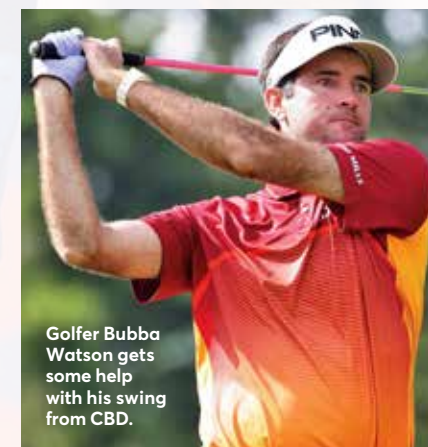
There's no shortage of big leaguers who are big on cannabis.

While even a full-spectrum CBD product won't get you high, some professional sports leagues still ban any form of cannabis product. But others, including pro golf and pro tennis, do allow their athletes to enjoy cannabinoid-based recovery benefits.

Already, big names such as PGA star Bubba Watson and the ATP's John Isner are all about CBD. Watson's said that CBD is "how I create longevity in the game of golf."

Tennis' Isner, who endorses a CBD-infused sports drink, has explained, "I play a sport where taking a single point off can be the difference between winning and losing a match and [this drink] is a product specifically intended to put me in a position to perform on every single point."

Retired NFL stars including Nick Mangold, Tiki Barber and Terrell Owens have embraced cannabinoids and have been successfully lobbying the pro football league to amend its policies. "Guys are tired of managing their pain with things that are going to destroy their livers and make their lives down the line very untenable," Barber has said.



Golfer Bubba Watson gets some help with his swing from CBD.

More time together without traditional ways to blow off steam can lead to parental meltdowns.



MOTHER'S LITTLE HELPER

FOR SOME PANDEMIC-STRESSED PARENTS, CBD IS A MEDICINE CABINET MUST. BY LAMBETH HOCHWALD

➔ Stacey Krajchir is the first to tell you using CBD has enabled her to be a more present mother—something she's come to appreciate even more during the COVID-19 pandemic.

"Parenting is so hyper-elevated at a time like this," says this mom of an 8-year-old son. "You have to be your child's best friend, chef, teacher and so many other titles, too."

Krajchir, who works as a lifestyle curator, says she recently realized she needed a little calm-down assist during nightly bedtime story sessions. "I was reading to my son, and I was thinking, 'I want this to be over because I have to do the wash,'" she says. "That's not awesome, especially since this is the one time we're supposed to bring it down and slide into the 'special' time of the day."

Enter CBD. Since she started taking a cannabidiol sleep gummy or oil while her son takes a bath and gets ready for bed, that once tedious nighttime ritual has gotten a whole lot better—and calmer.

"I get migraines from alcohol and I don't do THC," Krajchir says. "But CBD

takes the edge off and helps me to be the best version of myself. I've noticed it makes a huge difference; it helps me feel like my brain isn't swirling."

Like oodles of other stressed-out caregivers, Krajchir has discovered that hemp-derived CBD can be the secret to A-plus parenting, especially during these turbulent times.

■ A TOOL FOR NAVIGATING PRESSURE

For those parents who have added CBD to their arsenal, it's become an important part of their lives and enabled them to step aside from the noise of the day, the constant iPhone doom scrolling and the myriad other distractions that keep them from finding a way to unwind and relax with their kids.

Even celebrity moms and dads have gotten on the CBD bandwagon. A-listers, like Busy Philipps, Gwyneth Paltrow and Kristen Bell, have all touted CBD's ability to help cope with anxiety and stay grounded—and some of them have even started their own CBD product lines.

It makes sense since coping with pressure has long been a challenge for parents—and now pretty much every mom and dad is under unrelenting stress. How they deal with this depends on the tools they rely on, experts say.

"Typically when parents need an outlet for managing stress, they turn to their usual methods of coping, like reaching out to reliable sources of information, their own network of support and/or getting some time away," says Marni Amsellem, PhD, a licensed psychologist in Connecticut.

Unfortunately, with today's travel restrictions and social distancing guidelines, it's next to impossible for any parent to have a weekend away with the guys or a girls' night out. "The problem is that many of these reliable methods of coping may feel less reliable right now or even inaccessible," Amsellem says. "So it's easy to see why CBD products may be one of the tools to help cope."

There's some pretty solid science backing up CBD's direct effect on lessening anxiety. In one 2019 study published in

“CBD’s **calming effects** are especially helpful during the pandemic when many parents are working from home and children are spending more time at home as well.” —DANIEL YOUNG

The Permanente Journal, researchers gave 47 adults with anxiety daily CBD doses. Participants experienced decreased symptoms that lasted for the entire time the study was conducted.

■ MELLOW MAMAS AND PAPAS

Carrie Rosten is another mom doing a daily juggle between her work as a brand strategist and raising her 5-year-old son and 6-month-old baby.

To help stay balanced when things get really stressful in her household, she’ll reach for a topical CBD ointment. “I’m on the topical train,” she says. “I have eaten edibles since I stopped breastfeeding, and those do take the edge off, but I find topicals offer more rapid relief.”

Rosten was initially introduced to cannabidiol by her acupuncturist. “She suggested I use CBD oil for my C-section scar,” she says. “But I really got on the CBD train for my sciatica, which I had developed during my pregnancy. I definitely prefer to put CBD ointment on my hip than to take 10 Motrin. It helps immediately.”

She incorporates the cannabinoid as part of a holistic wellness plan and, ultimately, she sees it as one way to be the best mom she can be.

“My goal is to commit to the whole package of self-care and to try to do the best I can,” Rosten says. “In my opinion, CBD is a simple and inexpensive way to do that.”

Thanks to its relaxing properties and the fact that CBD appears to signal the release in the brain of such feel-good chemicals as dopamine and serotonin, CBD may also help parents get a good night’s rest. Though more research is needed, it works for Krajchir. “I have a hard time sleeping and if I can’t sleep then forget it—I’m not a good person let alone a good

parent. I’m cranky and irritable, so if CBD can help me get some rest, I’m all for it.”

Daniel Young, a scientist and founder of Grasslands Botanicals/Black Dahlia, a San Francisco-based hemp-infused product company, couldn’t agree more.

“We’ve found that CBD can really help calm the mind, provide more focus, and ease anxiety and stress,” says Young, who himself has a 10-year-old son. “These effects can really help parents as they are juggling so many competing demands and are always dealing with multiple stressors at once.”

In addition, CBD can be useful when it comes to relieving the aches and

pains from crawling into a blanket fort or giving one too many piggyback rides.

“This really helps out us parents who love roughhousing with our kids, forgetting we aren’t that young anymore, or just overdoing it a bit when working out at home,” he says.

As for Rosten, her ultimate hope is that more moms and dads come to see the value of CBD the way she did and realize it has nothing to do with the stoner culture sometimes associated with marijuana. “Pot makes me loony and that’s why I was so happy to learn that CBD is a cousin,” Rosten says. “It’s a totally different thing.”

Is CBD Safe for Your Kids?

With all of its virtues and so few recorded side effects, it might seem a no-brainer to give your kids a CBD gummy if they’re feeling stressed or anxious.

■ Facebook and Reddit are full of discussions about CBD’s effectiveness for all kinds of childhood woes, and a survey of 500 parents in the CBD publication *Remedy Review* found that 40% self-reported treating their kids with the cannabinoid, but...research is extremely limited. The CBD-isolate prescription drug Epidiolex is FDA-approved to treat rare forms of epilepsy in children ages 2 and up, but mainstream doctors have otherwise been shy about recommending cannabis for those under 21.

Alex Capano, MD, PhD, a former family practitioner based in Philadelphia who now serves as chief science officer at Ecofibre Limited, says there is definitely “potential” for cannabis to help with ADHD or the autism spectrum. But she cautions, “We get concerned about frontal lobe development being slowed down by THC use in kids, so we use CBD-dominant products for little ones.” Above all, she advises parents to talk with their child’s pediatrician before starting any new drug or treatment.

CBD gummies sometimes look (and taste!) like candy, so it’s important to keep them out of your kids’ reach.



THE WAR ON CBD

WHILE THE CIVILIAN WORLD IS EMBRACING CANNABIDIOL, THE U.S. NAVY IS LIMITING IT IN ALL FORMS FOR ACTIVE PERSONNEL.

BY JORDANA WHITE

"If there are any Americans who most deserve access to wellness products such as CBD, it's our brave, selfless troops," says Jonathan Miller of the U.S. Hemp Roundtable.



Cannabis was a major victor in the November 2020 elections, with voters in multiple states approving ballot measures to allow expanded recreational and medicinal cannabis use. But even as the civilian world moved to embrace THC, the U.S. Navy shifted in the opposite direction, expanding its war on CBD, THC's non-psychoactive counterpart.

CBD products were essentially made federally legal with the 2018 Farm Bill, but in 2019, the Navy banned enlisted members from consuming cannabidiol products due to fears of inadvertent THC exposure (CBD products can legally contain 0.3 percent THC). That rule, which took effect in March of 2020, was intended to protect "the integrity of the drug testing program," according to a

statement from Matthew P. Donovan, acting Under Secretary of Defense for Personnel and Readiness. For many people, the rule seemed a draconian measure, one that banned a non-psychoactive substance with clear therapeutic benefits.

Tulsi Gabbard—Hawaii's representative in Congress until January 2021, was herself an Army National Guard Major who'd served two tours of duty in the Middle East—wasn't ready to accept that decision. In her then role as a senior member of the House Armed Services Committee, she introduced an amendment to the national defense bill, barring the Department of Defense from prohibiting possession, use or consumption of hemp products.

In July 2020, the bill—with the amendment—passed the House with a

resounding majority. It was then sent to the Senate for final approval. Gabbard rejoiced, saying, “There is great research being done around hemp, resulting in new products coming to market that are proven to help with ailments like insomnia, inflammation, chronic pain, epilepsy, traumatic brain injury, post-traumatic stress and more. Hemp products provide a form of treatment that serves as an alternative option for those who would rather pursue natural remedies rather than prescription drugs. This amendment passed with strong bipartisan support, ensuring our service members have access to the same over-the-counter products that Americans all across the country benefit from today.”

And all seemed well in the world of CBD... until the Navy fired its next shot. Just four days after the legislation passed the House, the Navy released a memo expanding the scope of its CBD ban. Now, “The use of topical products containing hemp, such as shampoos, conditioners, lotions, lip balms or soaps,” was also off the table. The reasoning, according to the memo from Navy Secretary Kenneth J. Braithwaite: “Sailors and Marines cannot rely on the packaging and labeling of hemp products in determining whether the product contains THC concentrations that could cause a positive urinalysis result.”

After the memo, there was a month of silence, followed by September’s clarification from LaNorfeia Parker, Drug Detection & Deterrence branch head for the 21st Century Sailor office. In an official statement, she explained that expanding the list of banned hemp products “really is about the health of the force and ensuring the Navy remains a drug-free workplace. We have to be fit to fight and can’t take a risk in allowing our sailors to consume or use these types of products.” With those words, which implied

\$1B

The estimated annual amount the U.S. government spends treating active-duty service members and veterans who misuse prescription painkillers, per a 2019 paper by the National Bureau of Economic Research.

hemp-derived CBD could create a high (it can’t), activists and former service members alike felt the need to speak out.

■ FIGHTING BACK

For Jonathan Miller, JD, general counsel of the U.S. Hemp Roundtable, the ban on CBD is a result of crossed signals. The Navy’s decision, he says, “seemed to be a profound misunderstanding of what CBD is.” While the desire to keep intoxicating substances from troops was a fine goal, he says, “CBD is not intoxicating—and in fact can be quite helpful for our troops.”

And it goes even further than concern, in his opinion. “We also want [troops] to be as healthy as possible when they defend us,” says Miller. He believes active duty personnel stand to gain substantial health benefits through CBD use, which is why his organization joined forces to restore service members’ access to hemp products.

Initially involved in Gabbard’s amendment, Miller then spent months lobbying Congress to add a section to the National Defense Authorization Act (NDAA) allowing troops access to CBD. Though

Congress overrode then-President Donald Trump’s veto to pass the bill in early January, Miller’s addition wasn’t part of it.

“We were deeply disappointed the language to permit our troops to use hemp products [was] dropped in the final version of NDAA,” he says, but he’s optimistic. “With strong support for hemp from President Joe Biden’s administration and a bipartisan coalition in Congress, we are hopeful for passage this year. We encourage all Americans to email their members of Congress to support our troops.”

Until then, however, Navy service members must sit on their CBD stashes and wait for permission to seek relief. This is a phenomenon that’s not surprising to Erin Coleman, a veteran of the 20th Army engineer brigade at Fort Bragg, who now works as a criminal defense attorney in Nashville, Tennessee.

■ POLITICAL PRISONERS

In her experience, Coleman says, “The military just doesn’t make much sense.” Instead of considering how rules and regulations affect enlisted individuals,

“People just do what they want with soldiers, and they use us for political gains,” she says. In her mind, the ban is concrete proof of this.

“It just doesn’t make sense to ban CBD,” she says. “It’s so helpful in managing pain, stress and trauma—three things that almost every single soldier is going to experience within the span of their career. All without the use of opioids.”

That’s especially relevant for veterans, who have a rate of opioid overdose twice that of the civilian population.

“Opioids have a high risk of death and dependency,” says Alex Capano, MD, PhD, a family practitioner who has a doctorate in cannabinoid science and now serves as chief science officer at Ecofibre. “They also cause constipation, so now users have to take drugs to treat that side effect. There are considerably fewer risks with cannabis. It’s just safer.”

Capano finds the Navy’s ban on CBD especially ironic, since “clinical data shows that CBD can even help with cannabis use disorder,” she explains, suggesting the Navy should embrace CBD instead of lumping this cannabinoid together with THC.

Coleman couldn’t agree more. She says she’s turned to cannabidiol “to sleep on days when I’m very anxious,” or before facing a jury during an important trial. And through her experiences in the courtroom, she’s learned the true value of CBD for service members, as well as the dangers of restricting access to this nonaddictive treatment option.

“I work in veterans court,” says Coleman. “About half of my clients as a criminal defense attorney are opioid addicts, so any law that takes away a therapeutic solution that is not as addictive doesn’t make any sense in this day and age.”

She wonders, “Why are we putting so much faith in the opioid system that draws people in and gets them addicted? Why wouldn’t we want to give our soldiers treatments that are less addictive, since, when you take CBD away as a therapy option, then you’re only leaving them with the opioid option?”

All good questions that will hopefully be resolved soon.

“It’s so much better to have treatments like CBD that aren’t addictive,” says lawyer and veteran Erin Coleman.



4

CBD CULTURE

LIVE YOUR BEST CANNA-LIFE! DISCOVER WHY CANNABIDIOL IS THE NEW ALL-STAR INGREDIENT IN SKIN CARE. EXPLORE THE EXCITING, EXPANDING WORLD OF CANNABIS-THEMED ART. PLUS, WE'VE GOT A BEVY OF PRODUCTS WORTHY OF A MAJOR SPLURGE AND SOME COST-CONSCIOUS ALTERNATIVES.



"Look at the label and see what other ingredients are in there," says Marvinna Thomas of 420 Skincare. "Also how much of each ingredient is in there."

SKIN DEEP

CBD IS ALL THE RAGE WHEN IT COMES TO SKIN CARE, AND IT MIGHT JUST BE WORTHY OF THE HYPE. BY SHARI GOLDHAGEN

➔ Manisha Singal, MD, went to her regular hairstylist for a color touch-up, but this time something went wrong. The Washington, D.C.-based internist and chief medical officer had an allergic reaction that caused a rash to spread over her whole body. Singal consulted friends and colleagues, many of whom were at the top of their fields. "They were all stumped as to the root cause," she says. "They recommended a battery of prescription drugs and I threw out everything in my bathroom with any trace of chemicals; nothing worked."

Around that time, Singal had been researching CBD to help with her husband's Crohn's disease. When he used the cannabinoid, it seemed to lessen his symptoms. And she began to wonder if CBD's anti-inflammatory and analgesic "pain-killing" properties could be used topically to help her as well. "There is an old proverb, 'Physician, heal thyself,'" she says. "It was time to give that a go."

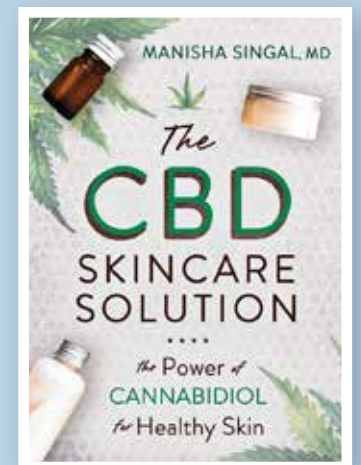
Not only did it alleviate most of her symptoms, Singal says the nurses she works with started complimenting her glowing skin. Intrigued, she began researching further and eventually

approached a family friend with a beauty development company and created Aethera Beauty, a line of CBD-infused products. She also recently penned *The CBD Skincare Solution: The Power of Cannabidiol for Healthy Skin*.

If you've walked by a cosmetics counter in the past two years, you're well aware that there is certainly no shortage of CBD skin care products on the market. While official research is still lacking, what's perhaps most telling is just how many of those companies were born in a manner similar to Singal's.

Moira Gehring started the Santa Fe, New Mexico-based Boodle Body and developed her signature CBD moisturizer Santa Fe Dirt after trying many expensive beauty creams and finding no relief from her rosacea. "I found a CBD-infused moisturizer to be quite effective in keeping my forehead clear and calm," she says. "It's also been very effective in a few spots where I have dry skin patches. I haven't seen those spots in over a year!"

Likewise, retired nurse Marvinna Thomas started experimenting with cannabis as an ingredient in her homemade skin care products. "I had long struggled



Manisha Singal, MD, was so impressed by CBD's effect on skin that she wrote a book on the topic and partnered on a line of CBD-infused beauty products called Aethera Beauty (aetherabeauty.com).

with mild acne,” she says. “Within two weeks of starting the CBD topical, it was clear.” Thomas founded and runs Start Living Recovery, an organization that helps people struggling with opioid addiction, and her CBD skin care concoctions did even more dramatic things for some of her clients. One woman had scarring from meth pipe burns and saw great improvement after using Thomas’

formulations. “I thought, I might have something here,” says Thomas. And so her company 420 Skincare was born. Fifty percent of the proceeds go to Start Living Recovery.

And the list goes on.

■ **WHY IT WORKS**

So is CBD really a panacea for skin? Official studies are still in short supply,

but there are several reasons why it’s thought CBD works so well.

“Scientists discovered CBD interacts with components of your skin’s immune defense mechanisms, also known as your endocannabinoid system (ECS),” explains Andrew Kerklaan, DC, founder of Dr. Kerklaan Therapeutics, a Santa Monica, California-based CBD company. “Your ECS has various receptors throughout your body and specifically in the skin, which are involved in regulating and maintaining healthy function. CBD binds to receptors located in your skin, which are part of this regulatory ECS, hence influencing normal function.”

Many common skin problems result from an immune system overreaction or an inflammatory response. As an excellent natural anti-inflammatory and antioxidant, CBD can help balance the immune response in your skin, explains Kerklaan. “As a result, consumers are reporting topical CBD products to be effective in common skin conditions such as itches, rashes, dryness and more specific conditions such as eczema and psoriasis. CBD has been shown to have antibacterial potential, which means it may improve pimples and blemishes as well.”

Indeed several recent studies have shown that CBD topicals help control the skin’s production of sebum oil, which is known to cause acne.

And it has the potential to treat acne without over-drying the skin, the way many over-the-counter or prescription treatments can, says Singal. “The antioxidants in CBD oil, as well as the fatty acids that the cannabinoid contains, are very useful in reducing age-related damage by nourishing new cell growth and effective turnover of dead cells. Furthermore, by stimulating certain CBD receptors on the skin, inflammation can be prevented or significantly limited, allowing for robust skin health and healing.”

■ **KNOW WHAT ELSE IS IN THERE**

CBD is certainly an interesting tool to bring in, experts say, but it’s also important to know what else is in your products to get the maximum benefit.



“A CBD-infused moisturizer can address dryness and help to diminish peeling and redness without aggravating the underlying condition,” says Moira Gehring of Boodle Body.

A Writer Road-Tests CBD Beauty Products

■ As I’ve stumbled into my 40s, I’ve found my skin is, well, weird. Despite using acne products aimed at teens, I still get occasional blemishes, yet the lines from my smiles take longer to fade. I was looking for products that could zap a zit without drying in a way that exasperates fine lines. Using journalism as an excuse, I tried out a CBD face serum and moisturizer for a week.

For a serum, I used BFF Hemp’s True 01 Face. Though I may have initially over-applied it, once adjusted, I adored the glow factor. For a moisturizer I went with Grön Renew Time-Reversing Face & Neck Cream; I really loved the cucumber-y clean smell.

Both diminished the look of fine lines around my eyes, like other, often pricier, products I’ve tried. I don’t wear foundation, but blush went on smoothly over it as did sunscreen.

My skin stayed blemish-free throughout my trial, but by far the biggest difference I noticed was how my skin felt: dewy without being greasy. Experts agree a week is not enough time to see full results, so I am excited to see what happens with continued use.



BFF HEMP TRUE 01 FACE SERUM (\$50, BFFHEMP.COM)

420 SKINCARE SOAP (\$11; 420-SKINCARE.COM)

SANTA FE DIRT MOISTURIZER (\$65, BOODLEBODY.COM)

GRÖN RENEW TIME-REVERSING FACE & NECK CREAM (\$20; LENA BOTANICALS.COM)

DR. KERKLAAN'S NATURAL CBD SKIN CREAM (\$65; DRKERKLAAN.COM)

“Effective skin care rarely relies on the performance of a single ingredient,” says Gehring, “so you want the best ensemble possible, with ingredients that complement each other.” She recommends humectants, emollients, anti-inflammatories and antioxidants. “Keep in mind that the best formulations are free of unnecessary additives and fillers.”

While the cannabinoid may be beneficial to a variety of different skin conditions, every product isn’t necessarily for every person, especially when it comes to other pieces of the puzzle.

“If you’re considering a product for anti-aging, I would look for products that also contain ingredients known to improve tone, texture and fine lines in addition to CBD,” says Abby Stoddard, PharmD, MBA, a Minnesota pharmacist and founder of Lena Botanicals, a site that highlights and sells various CBD products. Though Stoddard stresses she is not a physician, she notes that “vitamin C, coenzyme Q10 and green tea extract are all well studied and common ingredients in wrinkle creams.”

Stoddard, who has been appointed to Minnesota’s medical cannabis review panel, says the most important thing is

“If your skin is irritated, CBD can calm and soothe. If your skin is inflamed, CBD can act as a natural anti-inflammatory.”

—ANDREW KERKLAAN, DC

to start with a small amount first to make sure your skin tolerates the formulation. “If it does, proceed and stick with it—you’ll need consistency to see results.”

It’s also important to be aware that your needs may change, not just over time but seasonally as well, says Jenelle Kim, DACM, LAc, a doctor of Chinese medicine and founder and formulator for JBK Wellness. “For instance, a light moisturizer might work well in the summer, but in the winter, your skin may be craving something more hydrating.”

Though you may switch products, Kim, who has formulated some of the first all-natural luxury products for high-end spas and markets including the Ritz-Carlton and the Four Seasons, says it’s important to stick with brands that you trust, especially when it comes to CBD.

“Cannabinoids are very difficult to work with,” she says. “You need a proper formulation to get synergy between the ingredients. You can have the best quality CBD in the world, but it will do you no good if you don’t have the right delivery system. I am a strong proponent of natural ingredients. CBD has incredible benefits but when you augment with other chemicals, our cells don’t like it. That’s a factor to look for—natural formulations.”

Perhaps above all Singal advises the CBD curious that while cannabinoids are a component, they’re not the cure-all, and that it’s best not to go it alone. “How well one overcomes and heals is a multiprong approach, for which CBD is a complementary and nontoxic tool in this fight and in prevention against inflammation,” she says. “It is important to partner with cannabis medical experts to ascertain which formulations, dose and form of administration will work best for you.”

Mexican artist Ale De la Torre's "Curandera" shows the dream of a witch healer using medicinal herbs. It won first place in The Natural Cannabis Company's High Art Competition in 2020.

HIGH ART

FROM INK DRAWINGS WEAVING WEED INTO A NARRATIVE TO PHOTOS SHOWCASING SURPRISING HUES, CREATIVE TYPES ARE CELEBRATING CANNABIS. **BY ERIN BRERETON**

➔ The idea that cannabis can enhance creativity is far from new. And while it hasn't been proven, some findings suggest there may be a connection—even if it is simply that creative people are more likely to be open to trying new things, including weed.

A Centers for Disease Control and Prevention study found people working in the arts and design, entertainment, sports and media jobs were the

second-most likely to partake in marijuana or hashish, compared to other occupations. And research has shown cannabis use can increase cerebral blood flow to the brain's frontal lobe, which is associated with creativity. A separate 2017 study found cannabis users appeared to demonstrate somewhat enhanced creativity capabilities compared to nonusers.

Cannabis, CBD and art are particularly well-suited, according to Canman (who

goes by a single name à la Banksy), a Massachusetts-based painter and tattoo artist who often depicts weed in his work (canmancreations.com).

"A lot has to do with just being under the influence of cannabis or CBD," he says. "It doesn't really matter whether it's for recreation or medicinal use, it's almost like a tool that elevates your observational skills. It opens people's minds up to other possibilities [and] can



1. Asia Taber finishes a cannabis installation in California.
2. MCF's 2016 exhibit "Altered State: Marijuana in California."
3. The Cannabition Museum in Vegas.
4. An Instagram-worthy sculpture of a giant joint in Cannabition.
5. One of Gavin Spielman's pot-themed logos.
6. Charlotte's Web's 76-acre "Trust the Earth" installation in Kansas.



1

heighten the senses—that sometimes makes people think about the message that’s behind the art.”

AN INNOVATIVE COMMUNITY

Artists aren’t just utilizing cannabis as part of their creative process. In recent years, hemp and marijuana have cropped up in a number of interesting ways in the art world.

Numerous cannabis-themed art shows have been popping up all along the West Coast and nearby locales. “Altered State: Marijuana in California,” an exhibition the Oakland Museum of California hosted in 2016, received the Western Museums Association’s Charles Redd Center for Western Studies Award for Exhibition Excellence. And Cannabition, a 10,000-square-foot immersive museum in Las Vegas with more than 20 unique cannabis-inspired art installations, opened in 2018.



It’s not such a rebel thing because the population is slowly starting to embrace the benefits of cannabis.”

—CANMAN

Acrylic on canvas works by Massachusetts artist Canman:
1. “Elevate”
2. “Cannabinoid”

Last year, Studio Number One, a Los Angeles-based creative agency, created a 76-acre installation in a Kansas field for hemp company Charlotte’s Web to raise awareness of the need for improved access to CBD medicinal products (Kansas severely restricts CBD use). The artwork featured a hand holding a massive hemp stalk, mowed into farmland that totaled more than 50 football fields. “This art is the visual and naturally living embodiment of Charlotte’s Web’s mission to unleash the healing powers of botanicals,” said its CEO Deanie Elsner.

On a smaller scale, puff-and-paint-classes that allow would-be artists to imbibe while they create are popular in states where adult-use pot is legal. Before pandemic shutdowns, Canman was teaching one. He has also hosted a number of live painting exhibitions at cannabis festivals and other events.

“I’ll reach out or [organizers] will [contact me] to come out and do live painting; it adds an extra attraction to the event,” he says. “Really, that’s where the community builds, through events and different types of happenings. COVID put a big kibosh on that—now that there are no events, that kind of shut people off from the momentum they had going.”

In-person events may be on hold, but cannabis-related commercial design has seemingly remained in full swing, with numerous companies continuing to tap artists’ talent by soliciting original works for product labels and other promotional items.

Some have sought to foster emerging talent in the industry. For the past few years, artists from dozens of countries have submitted entries to the Natural Cannabis Company’s annual High Art contest, held to solicit designs for the subscription-based cannabis service’s



2



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2

1. "Metaphysical Technology" by U.S. artist Locust won 3rd place at Natural Cannabis Company's 2019 High Art contest.
2. An installation of cannabis plants by Asia Taber.
3. Canada's Steve Coleman took 4th in the 2019 NCC contest with "Hare E Houdini."



3

product packaging. In addition to a \$15,000 grand prize, the company makes a \$10,000 charitable donation to a cause of the artist's choosing. The five 2020 winners' creations ranged from whimsical Alice-in-Wonderland-esque themes to mystical imagery. "The love of art and the love of cannabis are shared experiences that people experience uniquely," said company founder Dona Frank. "It's amazing to see that in the perspective of so many cultures."

And in 2016, Canadian-based marijuana company Tweed launched a cannabis artist-in-residence program to provide an outlet for weed-related artistic expression. Its first artist-in-residence, documentary filmmaker and photographer Ezra Soiferman, created photography-based projects about cannabis-related subjects in the cities and towns where Tweed operates.

NEW OPPORTUNITIES

Although Gavin Spielman, who teaches oil painting and drawing at New York's

Parsons School of Design, primarily focused on a fairly classical style for much of his career, he found cannabis-related design gigs began flooding in about three years ago. "My oil work tends to be more in the tradition of the Hudson River [School of] painters and impressionists," he says. "It's totally different; that's why I got into this. I started putting [pieces in a separate artistic style] online and right away, maybe within a week, I got commissions. That hasn't stopped."

Spielman is no stranger to the cannabis and CBD world. He first became interested in hemp after reading about its benefits as a child in the 1980s. During a trip to Amsterdam in the 1990s, he started thinking the art he was creating at the time—more comic-like, and somewhat psychedelic—might lend itself to the cannabis community. "That was back in '92," he says. "I'm just now really doing it full-time."

Working under the moniker Green Pine Tree, which is also the name of his design company, Spielman has since

created items for seed and nutrient companies, CBD and hydroponics providers, and other businesses. He's done all manner of logos and promotional items in a style he describes as hatchy and detail-oriented—akin to Robert Crumb's work, "with a very '60s and '70s flair" (You can see his work at greenpinetree.com).

While he still teaches and paints, that has taken a back seat to his cannabis design clients; he estimates today it's about a 70/30 split, favoring more cannabis art. "A lot of times [companies] come to me because they don't know what they want but like the energy behind my work," Spielman says. "I'm blessed in this stage of my career to have a little control. Most clients say, 'Do what you're going to do; I love your work.' That's what I love about this industry—they're much more relaxed [than others]."

CHANGING PERCEPTION THROUGH ART

Asia Taber was somewhat of a latecomer to the cannabis realm; she wasn't really

into smoking when she met her husband, who works in the cannabis field.

"I was an athlete at the time and almost had a stigma that it was bad for me, I won't touch it," Taber says. "The first time I smoked, I got dry mouth and the munchies and was like, 'I'd rather just go for a run, this sucks.' It wasn't until I met my partner 10 years ago [that I understood] the medicinality of the plant. He was like, 'Oh, you were smoking bad weed.' It was all history from there."

As Taber began to appreciate the plant's calming properties, she also started to notice a number of photos and ads she'd come across for cannabis were sending an odd message.

"It made me feel a certain way—and it wasn't good," she says. "Being a female that uses daily, seeing highly sexualized images of women as the predominant way of advertising cannabis made me feel like I wanted to do my own thing."

Taber found an artistic outlet that would allow her to counter some of the depictions she'd seen when her husband

began working as a cannabis cultivator in a new downtown L.A. location. She asked if she could help with the organization's Instagram posts and started spending days off from her job as a special education teacher shooting vivid, often unexpected photos of cannabis plants.

Within a few years, an assistant she'd hired convinced Taber she should be more of a presence in the work. "She said, 'A lot of people are asking about you,'" Taber says. "I was a little weirded out about it. She made me realize people want to connect with the artist because they wanted to know who's putting this stuff that's new out there."

In addition to her initial work, Taber has branched out to partner with other companies and brands through her company, High Pilot (highpilotdesign.com). She also recently began offering prints of her work online—and has been amazed at the reaction the images she previously shared on social media have received.

"From early on, I wanted my art to help people break through that personal,

cultural or family stigma, or whatever it was, to help them realize it's not a bad plant, and people using it should not be put in a box," Taber says. "If somebody [who] isn't a cannabis user happens to scroll by one of my images, [and thinks], 'Whoa, is that weed?'—boom; they're pausing and questioning everything they thought of cannabis before. That's exactly what I'm trying to do with my art."

Canman expects the demand for cannabis-related art like the works he and Taber create—in tandem with a general acceptance of cannabis—could grow as more states legalize marijuana.

It's a trend he's already seen in his tattooing work, where he notes there's more interest in cannabis-related styles than a decade or two ago.

"People are more open to it," he says. "Tattoos are a great example; they weren't embraced by the mainstream for a long time. It's very normal now. Maybe 10 years down the road we'll see that with cannabis. It takes time to change people's minds."

SPLURGE OR STEAL

SOME ULTRA-HIGH-END CBD PRODUCTS COST A FORTUNE, BUT YOU DON'T HAVE TO SPEND THAT! **BY AMY L. HOGAN**

Food

SPLURGE

DIAMOND CBD CBD HONEY STICKS

If you've got a sweet tooth and price is no object, these antioxidant-rich sticks will have you buzzing! Available in a range of fruity flavors including blueberry, apple and peach, each perfectly portable stick has 10 milligrams of pure CBD hemp oil. They taste great on their own or can elevate your favorite food and drinks. **\$300/100 pack, diamondcbd.com**

STEAL

FRANNY'S FARMACY FULL-SPECTRUM HONEY

This is a great way to sweeten your CBD intake for a steal. Every drop of this honey is made with hemp flower grown at the organic Franny's Farm in Leicester, North Carolina, and honey made at Sandy Bee Mine in Saluda, North Carolina. This nourishing nectar is soothing yet not too sweet and at this price you can drizzle it on anything your heart desires. **\$14/5 ounce, frannysfarmacy.com**



Isolate



SPLURGE

DIAMOND CBD BLUE CBD CRYSTALS ISOLATE

This isolate is a whopping 3,500 milligrams of pure, premium cannabidiol. What sets it apart from other liquid isolates (besides the exorbitant price) is that it can do double duty as a tincture taken orally or a vape liquid that can be inhaled. Diamond products are made from 100% natural non-GMO hemp strains with the highest concentrations of CBD and are quality tested and certified for purity. **\$419, diamondcbd.com**

STEAL

THE CBDISTILLERY ISOLATE CBD OIL

This contains 1,000 milligrams of CBD isolate, so penny-pinchers can still reap its benefits. It's THC-free and made from American-grown non-GMO industrial hemp. Isolate gives you all the wellness and health benefits of CBD without any other cannabinoids, terpenes or chemicals and additives. **\$55, thecbdistillery.com**

Pet Products

SPLURGE

HONEST PAWS EXTRA STRENGTH CBD OIL FOR DOGS

The ultimate way to pamper your pooch is with a few drops every day. This decadent doggie supplement is made with organic full-spectrum hemp oil that is GMO-free. There's no soy or corn in these CBD drops, which can support joint mobility in aging canines as well as aid with post-surgery recovery discomfort and even stress/anxiety. **\$100, honestpaws.com**



STEAL

MEDTERRA CBD DROPS

It is possible to give your pets the benefits of CBD without remortgaging your home. Both dogs and cats can benefit from these drops, which come in three pet-pleasing flavors. The convenient dropper makes it easy to give the proper dose of CBD—which has been infused with Medium-Chain Triglyceride MCT oil, derived from coconut—to your furry friend's mouth or food. **\$20, medterracbd.com**

Spa Treatments

SPLURGE

ULTIMATE BLISS EXPERIENCE AT HOTEL CASA DEL MAR IN SANTA MONICA, CALIFORNIA

Melt your cares away with the most luxurious cannabis spa experience ever. The serene CBD-filled two-hour treatment involves exfoliation with a lavender sea salt scrub followed by a CBD lavender body mask and full-body massage with CBD oil. But it's the hot CBD oil scalp massage that has us splurging. **\$385, hotelcasadelmar.com**



STEAL

DEEP-HEALING MUSCLE TREATMENT

There's no need to go bankrupt in pursuit of a CBD spa experience. You can add the Deep-Healing Muscle Treatment to any of the other massage packages offered at the full-service day spa located inside the JW Marriott hotel in downtown Chicago for just \$25. Their special blend of camphor and CBD is used to target inflammation and is a great cure for aches and pains. **\$25, modules.marriott.com**

Beauty



SPLURGE

SAINT JANE LUXURY LIP SHINE

For a killer kiss, indulge in this ultra-luxe silky gloss. It's the ultimate in lip self-care, boasting a formulation of antioxidant-rich ingredients and calming botanicals including sunflower oil, chamomile, shea butter, aloe and a microdose of CBD from full-spectrum hemp. Available in four drool-worthy shades to suit any mood, it's also vegan and cruelty-free. So pucker up! **\$28, saintjanebeauty.com**

Topical Balms

SPLURGE

MINERAL'S MAISON FOR RECOVERY SALVE

This is a seriously sexy salve. Really! The minimalist black packaging and the sage, sandalwood and mint scent of this lightweight balm give it a top-shelf look and feel, and the cooling way this CBD and CBG topical eases inflammation makes it worth every penny. **\$70, mineralhealthco.com**



Skin Care

SPLURGE

I-PEKAR TISSUE REPAIR SERUM

Delicate facial tissue will drink up this luxurious serum since it's packed with 250 milligrams of CBD oil combined with a proprietary blend of botanicals including aloe vera juice, vitamin C and B3 as well as hyaluronic acid to help plump and rebuild healthy skin cells. **\$148, ildipekar.com**

STEAL

PRIMA ENLIGHTENMENT SERUM

You can save your face and money with this fast-absorbing serum boasting 100 milligrams of broad-spectrum hemp CBD along with niacinamide and powerful antioxidants that are known to brighten dull skin and reduce the look of pores without emptying your wallet. **\$18, prima.co or sephora.com**

STEAL

PLUS +CBD BALM

Not only is this salve packed with 50 milligrams of CBD hemp extract, but it contains vitamin E, which boosts its soothing and moisturizing effects. If you're looking to target specific parts of the body that are experiencing discomfort and inflammation, this thick, heavy-duty topical comes without a hefty price tag. It's especially great after exercise. **\$25, pluscbd.com**

STEAL

SOAR'S SOFTNESS SEALED LIP BALM

Quality CBD products that cost less than \$10 are rare, which is what makes this balm such a special treat. It's got an impressive 25 milligrams of pure CBD oil infused with organic shea butter and coconut oil, which work together to combat dry lips. A dash of peppermint oil provides a cool tingle. Now that's something to smile about. **\$8, experiencesoar.com**

CANNABIDIOL

BY THE NUMBERS

SOME SURPRISING
FACTS AND
FIGURES FROM
THE CBD WORLD.

24%

of Americans
have given their pets
CBD products.



1942

Year CBD was
discovered by
American chemist
Roger Adams.



6.4 million

Number of Google searches
for CBD during April 2019
(the last month information
was collected).

113

Number of known
cannabinoids;
CBD is one
of them.

2018

Year hemp was
reclassified as an
agricultural product via
the Farm Bill.



230,000

Estimated number of
acres of hemp planted
in the U.S. in 2019
(100 times more than
five years earlier).

0

Number of
recorded
deaths from
cannabis
overdoses
alone.

1

Number of
CBD-derived
drugs approved
by the FDA. The
prescription
medication
Epidiolex is
approved for
the treatment
of two severe
forms of
childhood
epilepsy.



68%

of Americans
support marijuana
legalization, the
highest number ever
recorded, according to
a 2020 Gallup poll.

\$5.3 billion

The projected global CBD market by
2025, a 40.4% increase annually.



2-5 Days

Typical amount
of time CBD stays
in your system.

33%

of Americans have
tried CBD products per
an April 2020 survey from
singlecare.com.

25

Estimated
number of CBD oil
companies in the
market in 2020.

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CBD

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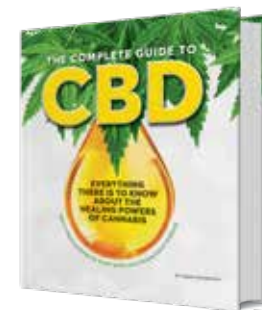
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Laws regarding marijuana use and regulation vary by jurisdiction and are subject to change. Please consult with a professional before using cannabis for medical treatment.

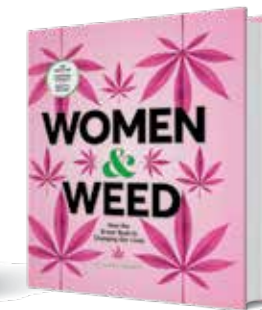


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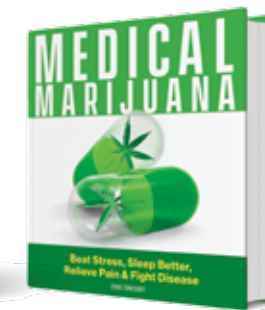
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It has stirred curiosity and controversy, thanks to its potential healing powers. Still, the more we hear about CBD, the more we realize how little we know about this compound found in hemp and marijuana.



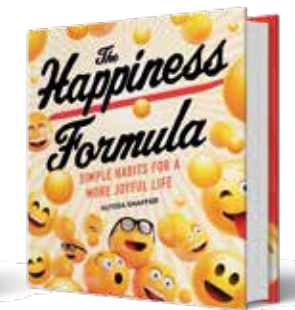
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This is your guide to the ever-changing political, social and medical aspects of cannabis. Discover the health benefits of CBD and find out how recreational use plays a key part in women's lives.



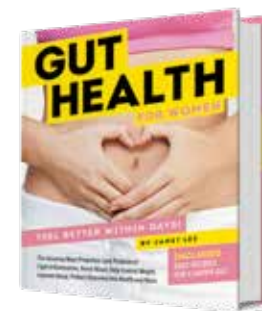
The Extraordinary Powers of the Plant

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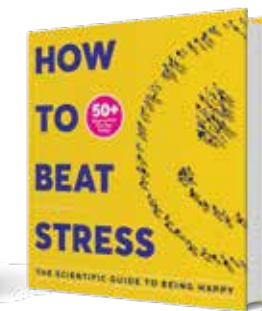
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Welcome to a world where you make your own happiness. This book looks at the latest breakthroughs and examines the most effective ways to increase your sense of satisfaction in life.



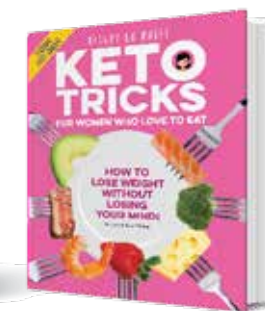
Happy Belly, Healthier You!

Learn which foods will feed the good bugs, how to supplement the right way and discover what your unique needs are in this book.



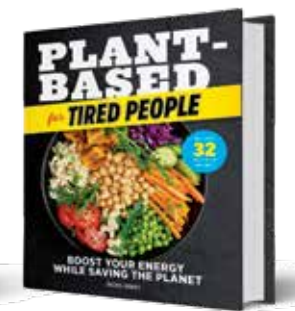
Easy Ways to Find Your Zen

Discover the science behind our everyday anxieties, and how to develop important coping skills for your daily life.



Why You Never Need to Diet Again

Get your best body ever on keto. This book teaches you everything you need to lose weight, get healthy and feel great. All while enjoying steak, seafood and creamy avocados!



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A diet rich in fruits, vegetables, whole grains and more gives you natural energy and increased focus. It's good for you—and good for the planet!

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