Research suggests cannabis has promise for treating arthritis-related pain, inflammation.
"Joints for Joints." That was the title of a lighthearted yet science-based debate at the annual scientific meeting of the American College of Rheumatology/Association of Rheumatology Health Professionals in 2011. The topic: whether medical marijuana — that is, the medicinal use of the cannabis plant — was a safe and effective arthritis treatment.

Taking the "con" view, Stuart L. Silverman, MD, attending physician at Cedars-Sinai Medical Center in Beverly Hills, Calif., argued that although some cannabis research was compelling, inconsistent dosing and quality-control issues, as well as a lack of well-controlled research, meant marijuana was not "ready for prime time," particularly where arthritis was concerned.

Taking the "pro" position, Arthur Kavanaugh, MD, a professor of medicine at the University of California, San Diego (who declined to be interviewed for this article), argued that the type of carefully controlled trials Dr. Silverman called for had not been conducted on aspirin, either, and that cannabis — used medicinally for nearly 5,000 years — had few side effects, eased pain from rheumatoid arthritis (RA), and might reduce inflammation as well.

Drs. Silverman and Kavanaugh didn’t reach any firm conclusions, but after multiple rheumatologists in the audience revealed that many of their patients were inquiring about or already using cannabis, one thing was clear: Medical marijuana had gone mainstream.

In fact, 18 states and Washington, D.C., have legalized limited use of medical marijuana for certain conditions. (Some, including California, permit it for arthritis; others, such as New Jersey, do not.) Two states, Washington and Colorado, have decriminalized even its recreational use. A 2011 Journal of Pain survey revealed that almost 10 percent of Americans with chronic pain use marijuana. Although it’s unclear how many of those have arthritis, large-scale surveys from the United Kingdom and Australia indicate that roughly one-third of people who use medical marijuana

BY CAMILLE NOE PAGÁN
do so for arthritis – and most report considerable pain relief. Additionally, a Canadian study in *Arthritis Care & Research* found that among 457 patients with fibromyalgia, 13 percent used cannabis to manage their disease.

**How It Works**

Research shows that, among other things, cannabis eases chemotherapy-induced nausea and loss of appetite, and relieves spasms in individuals with multiple sclerosis. Even so, pain relief is perhaps the most well-recognized and studied effect.

Several decades ago, scientists discovered that mammals, including humans, have a pain-regulating system (the endocannabinoid system) with receptors in nervous system tissue, immune cells and bone and joint tissue. These receptors respond to cannabinoids, a set of compounds that include endocannabinoids, which the body creates on its own; and phytocannabinoids, plant-based compounds found in marijuana that are very similar to endocannabinoids.

The best known cannabinoids are THC (delta-9-tetrahydrocannabinol, the psychoactive compound in cannabis) and CBD (cannabidiol, a major constituent of the plant thought to act as a sedative and reduce inflammation, nausea and convulsions). They have complex mechanisms, but in a nutshell, cannabinoids can reduce pain by acting on certain receptors.

Of the two main cannabis species — sativa and indica — sativa contains higher THC and lower CBD levels and produces a more euphoric "high." Indica has higher CBD and lower THC levels and is used to aid sleep and ease pain.

Cannabinoids also seem to have a positive impact on some other pain medications. One study, in *Clinical Pharmacology & Therapeutics* in 2011, found that chronic pain patients using long-acting oxycodone or long-acting morphine who inhaled vaporized herbal cannabis experienced a signifi-

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**ROUTES to RELIEF**

Medical marijuana can be inhaled, eaten or taken as a pill.

**HERBAL** (derived from one of the two primary cannabis species, sativa or indica)

*Inhaled with a vaporizer.* A device heats marijuana to a temperature that extracts the cannabinoids, allowing them to be inhaled without burning the plant, preventing the release of smoke-based toxins.

*Smoked as cigarettes or in a pipe.* Because heat activates THC’s psychoactive properties, smoking leads to the greatest “high.” As with vaporized cannabis, effects are immediate and can last several hours.

*Taken as a capsule.* Oil extracted from the cannabis plant is typically taken in capsule form. Onset of effects is fast, but “highs” are minimal because the THC is not heated.

*Eaten in snacks.* When eaten in food, such as brownies, cookies or lollipops, the onset of effects can take half an hour to three hours. Because cannabis is fat-soluble, distribution is often uneven, making edibles an unpredictable source of cannabis. The “high” is on par with smoking, but with a time delay.

**SYNTHETIC** (created chemically in a lab)

*Taken as a capsule.* Dronabinol (Marinol) and nabilone (Cesamet), both synthetic versions of THC, are approved in the U.S. for cancer and/or AIDS patients.

*Used as a mouth spray.* Nabiximols (Sativex), a combination of synthetic THC and CBD, is approved in Canada and the U.K. for multiple sclerosis.
MEDICAL MARIJUANA:

A Brief History

2737 B.C. First medicinal use of the cannabis plant is recorded in China. Cannabis has been used worldwide to treat conditions such as leprosy, fever, dandruff, obesity, asthma, arthritis and many more.

19th century Marijuana research gains steam. French psychiatrists study its effects on mood, while British physicians begin exploring its sedative, analgesic, hypnotic and anti-convulsive properties.

1920s Marijuana gains popularity as a recreational drug in the U.S., thanks in part to Prohibition.

1928 Recreational use is banned in the U.K. The U.S. follows suit in 1937.

1970 The U.S. Controlled Substances Act classifies marijuana as a Schedule I drug, grouping it with heroin and LSD as a substance with no accepted medical use and the highest potential for abuse.

Late 1980s Scientists identify cannabinoid receptors, which leads to a renewed interest in marijuana’s medicinal potential.

1996 California becomes the first state to legalize the medicinal use of marijuana.

2012 Colorado Congresswoman Diana DeGette introduces a bill to amend the Controlled Substances Act to exclude states that have legalized marijuana for recreational or medical use. The bill is pending.

Evidence for Arthritis

Studies show it can be somewhat effective in treating pain from arthritis and related conditions. One meta-analysis of four randomized trials published as an abstract in the Annals of the Rheumatic Diseases, found that oral cannabinoids (cannabis oil) offered minimal to moderate improvement compared with placebo in individuals with musculoskeletal pain, including RA, back pain and fibromyalgia. Study author Janet Pope, MD, professor of medicine at the University of Western Ontario in Canada, notes that the results are not generalizable to smoking marijuana, and says, “The benefit was modest, and this was only studied for short periods of time.”

A 2011 British Journal of Clinical Pharmacology review examined 18 studies of smoked, oral and/or synthetic cannabis and concluded cannabis was safe and modestly effective in neuropathic pain (chronic pain that results from damaged or dysfunctional nerve fibers), and also had the potential to help treat RA and fibromyalgia pain. Additionally, cannabis has been shown to improve sleep – and a lack of sleep is known to exacerbate general pain and arthritis symptoms.

And cannabis holds promise for osteoarthritis (OA). “Joints have a complex endocannabinoid system and are able to produce their own endocannabinoids. But in disease states, such as with osteoarthritis, these endocannabinoids are broken down too quickly, so they can’t help with joint pain,” says Jason J. McDougall, PhD, associate professor in the departments

LEGAL LIMBO

Although 18 states and Washington, D.C., have granted their citizens the right to use marijuana medically, purchasing and using it remain illegal at the federal level. However, a 2009 memo from then-Deputy Attorney General David W. Ogden states that “prosecution of individuals with cancer or other serious illnesses who use marijuana as part of a recommended treatment regimen consistent with applicable state law … is unlikely to be an efficient use of limited federal resources.” That said, U.S. attorneys in California cracked down on growers and dispensaries last year, which led hundreds of medical marijuana providers to close. Most experts say individual users remain safe, provided they have a valid prescription and follow their state’s laws.
of pharmacology and anesthesia at Dalhousie University in Halifax, Nova Scotia. In ongoing animal research, McDougall and his colleagues have found that by blocking certain enzymes or injecting cannabinoids into the joint, sensitivity and pain are reduced, leading McDougall to speculate that both endocannabinoid-targeting and cannabis-based treatments may hold new hope for individuals with OA.

Cannabis also may ease inflammation and affect immunity. In-vitro and animal studies have shown that both herbal and synthetic cannabinoids have the ability to suppress inflammation. Most recently, a Biological & Pharmaceutical Bulletin study in 2011 revealed that six different cannabinoids inhibited the activity of COX-2 enzymes, which play a role in arthritis-related inflammation. Other preliminary studies suggest cannabinoids may have immunosuppressive properties— including the ability to inhibit pro-inflammatory molecules called cytokines.

**Why Docs Worry**

Put simply, when you use herbal cannabis—that is, you inhale or ingest the marijuana plant in some form—you can’t be sure of what you’re getting. Cannabis contains hundreds of compounds, about 60 of them with cannabinoid properties. “But every plant contains different concentrations, so using marijuana is not the same as taking a carefully calibrated medica-

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"I GOT MY LIFE BACK."

For one woman with drug allergies, cannabis is the answer for her chronic pain.

Ellen Smith didn’t set out to be an advocate for medical marijuana—or even a user, as her one college experience with marijuana “didn’t agree with me, to put it mildly,” says the 62-year-old Scituate, R.I., resident. That changed after years of daily pain throughout her body and, finally, a diagnosis in 2004 of Ehlers-Danlos syndrome, a connective tissue disorder allowing bones to become displaced. The diagnosis “was a relief—until I learned it was not curable, and that my disease was rapidly progressing,” she says. The complications of Ehlers-Danlos were unbearable for Smith, who is intolerant of or allergic to almost all prescription pain medications.

After an operation to reconstruct her broken sternum in 2006, her physician sent her to a pain clinic. “The doctor said, ‘I don’t usually prescribe marijuana, but I don’t have many options for you. Would you be willing to try it?’” recalls Smith. She was— and found relief almost immediately. “When you have severe or chronic pain, you don’t get high or stoned like many people assume. Instead, it just turns down the pain dial in your body,” she explains.

Most days, Smith eats applesauce mixed with cannabis oil derived from marijuana she grows.

For Smith, medical marijuana has been a revelation. “It hasn’t slowed the progression of my disease, but I can get through my day and spend time with the people I love without constantly focusing on my discomfort,” she says. That’s why she now advocates for medical marijuana at the state and national levels. Says Smith, “Medical marijuana is safe, it’s effective and it’s given me my life back.”

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**IF YOU CHOOSE TO USE...**

Most chronic pain patients report minimal “high” feelings, but if you do have a prescription for medical marijuana, you can play it safe by opting for a variety that is higher in CBD (cannabidiol, a cannabinoid with anti-inflammatory properties) and lower in THC, from a dispensary that tests and labels both compounds, advises Donald Abrams, MD, of the University of California, San Francisco.

Because delayed reaction time is a primary side effect, driving and other tasks that may require a quick response can be dangerous (and may be illegal) if you’re taking cannabis.

What’s more, your doctor may ask you to do random drug screening to ensure you don’t have a substance-abuse problem. It’s protocol for many medical practices whose patients use medical marijuana.
Health Concerns With Cannabis

Just because a remedy is “natural” doesn’t mean it’s harmless. Cannabis comes with risks, some potentially serious.

★ It can elevate heart rate for up to three hours, according to the National Institute on Drug Abuse. (Limited data suggest that marijuana users increase their odds of heart attack and stroke, too – and individuals with RA already have an increased risk of heart problems.)

★ It may exacerbate depression and anxiety in individuals with a history of either, says Mary-Ann Fitzcharles, MD, of McGill University.

★ One cannabis cigarette is the equivalent of 20 tobacco cigarettes in terms of increasing lung-cancer risk, according to New Zealand researchers – and any type of smoke increases inflammation throughout the body, especially in the lungs.

★ Even marijuana from licensed dispensaries can contain biological contaminants such as fungus and bacteria, as well as toxic pesticides.

★ Numerous studies have shown that marijuana inhibits motor function and can cause drowsiness. That may be problematic for individuals with arthritis and fibromyalgia, who are already prone to low energy and mobility challenges.

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Bottom Line

Every expert interviewed for this story expressed enthusiasm over research on cannabis and arthritis – and cautioned that the best options for most people are treatments with a proven track record.

“There’s no question that cannabinoids have the potential to have an impact on the disease,” says Dr. Fitzcharles. Even so, she adds, “I think to turn to something with very little evidence – and so much potential to have negative impact – is dangerous.”

Proven, effective treatments are already available for RA, OA and diseases like lupus, says Dr. Pope. But, she says, “We do need better treatments.”

Patients with chronic musculoskeletal pain have an unmet need for pain relief, given that existing medications, especially narcotics, have side effects that include addiction and impairment. Cannabis may come to fill the gap.

For now, however, “Medical marijuana is uncharted territory,” says Dr. Silverman. “So buyer beware.”

Camille Noe Pagan is a contributing editor to Arthritis Today.

Would you use medical marijuana? Go to facebook.com/ArthritisToday to take our poll.