



Cool Down MS

It's cheap, it's refreshing, and it's a bona fide treatment for the symptoms of multiple sclerosis.

BY TOM VALEO

Now that she has multiple sclerosis (MS), Rebecca Fitch makes an unusual pit stop when she cuts the grass on her riding lawn mower. Every few passes she pulls up to a branch draped with a hose and sprays herself until she's soaked. Then she continues cutting the grass.

"If I soak myself two or three times while I'm mowing, I have enough strength to get off the lawn mower," Fitch says.

NERVES IN HEAT

Like all MS patients, Fitch's immune system attacks the fatty coating of myelin that surrounds her own nerve fibers. When myelin is damaged, nerve transmissions have difficulty getting through. If the damage affects nerves that link the brain to muscle fibers, the muscles become weak. If myelin on one of the optic nerves is damaged, vision may become blurred or disappear altogether. Any nerve in the brain or spinal cord is vulnerable to attack, which is why MS produces such an array of symptoms.

Fortunately, myelin often regenerates, but not completely—it tends to be thinner than normal at the site of the scar. Most of the time this doesn't matter: Although nerve transmissions move faster and more reliably along fibers wearing a thick coat of myelin, these thin spots don't usually impede the flow enough to produce symptoms. But heat slows down nerve transmission, so when an MS patient experiences so much as a slight rise in core body temperature due to exercise, a fever, or even a hot cup of coffee, those thin patches of myelin may disrupt the flow enough to cause problems such as muscle weak-



ness, fatigue, and vision loss.

That's what happens to Fitch when she gets too warm.

"I lose strength and can't move my legs," she says. "I drag my feet and have trouble walking, and I can't get my feet into the car. I keep a coat hanger in the car, and if my legs aren't working I slip the hanger under my feet and pull them into the car. It's better than sitting there feeling sorry for myself."

Fitch lives in Cleveland, where humidity produced by nearby Lake Erie can make the summers downright steamy. The humidity reduces the ability of her body to dissipate heat through the evaporation of sweat, but she has trouble in winter too. She can walk from her car into the supermarket with no problem and shop for 15 minutes or so, but as she warms up, her legs get weak.

"I have to sit down," Fitch says. "I've

found good places to sit—in the dog food section, for example, where they keep those 25-pound bags of dog food. After a few minutes of cooling down, I gain a little strength and can walk down another aisle."

PSEUDO FLARE-UPS

When MS patients experience symptoms due to overheating, they may think their immune system is attacking their nerves again, causing a recurrence or exacerbation of the disease. Sometimes their doctor may come to the same conclusion and prescribe powerful corticosteroids to suppress the inflammation that damages the myelin.

But symptoms caused by heat are the result of Uhthoff's phenomenon, named for Wilhelm Uhthoff who, in 1889, published a paper describing transitory vision problems in patients with optic neuritis, which sometimes occurs in MS.

"His patients would tell him, 'I've lost my vision,' or 'I can't see color,' or 'I have pain in my eye,'" says Elliot M. Frohman, M.D., Ph.D., professor of neurology and ophthalmology and director of the MS program at the University of Texas Southwestern Medical Center at Dallas. "They'd recover, but they'd come back and tell him that if they exercised, or took a hot bath, or got an infection, or got really angry, they'd lose the vision in one eye again. It would last only an hour or so, until they cooled down."

While Uhthoff focused on vision problems, the phenomenon that bears his name can apply to any pathway in the brain or spinal cord with damaged myelin. When body temperature rises, those nerves may malfunction, but the

To avoid symptoms, MS patients need to **chill out** whenever possible.

heat is not causing more damage, according to Robert Fox, M.D., a neurologist at the Cleveland Clinic. And while the resulting symptoms may be distressing, they pose no danger.

“Some patients are concerned that the heat is causing an injury, but it’s just unmasking a scar that was already there,” Dr. Fox says. “I tell my patients, ‘If you like to go in the hot tub, go in the hot tub. If you get transient weakness or numbness, that’s fine. You just may have a temporary increase in symptoms.’”

Other neurologists are more cautious, however. Before the invention of the MRI, doctors would place patients suspected of having MS in a hot bath so their symptoms would flare up and confirm the diagnosis. Most of the time these symptoms would disappear when the patients cooled off, “but every once in a while a symptom would not go away, so a pseudo-exacerbation would turn out to be a real one,” says David Matteson, M.D., director of the Indiana University MS Center and professor of neurology at Indiana University School of Medicine.

“We used to be very paranoid and tell patients to avoid overheating,” adds Dr. Matteson, “but I say everything in moderation. If you like the hot sun, or the hot tub, or training for the marathon at noon, well...it makes me nervous, but if you’ve done it before and it’s not a problem, who am I to say don’t do it?”

HOW TO BEAT THE HEAT

To avoid symptoms, MS patients need to chill out whenever possible. According to **MSLifeLines.com**, an online support community for MS patients, that means three things: adapting your lifestyle to avoid overheating; drinking fluids to prevent dehydration; and, when necessary, wearing a cooling vest filled with

frozen gel packs or cooling tubes.

Also, at the first sign of a fever, MS patients should take an analgesic such as

acetaminophen, ibuprofen, or aspirin to bring their temperature down.

Or they can just soak themselves with a garden hose like Fitch, who has experimented with several novel ways of keeping cool.

“I used to work in catering, and I’d do golf outings where I’d grill steaks,” Fitch says. “The heat from the grill was really hard for me to take, so I would soak a towel in ice water and put it around

my neck, and I’d get my strength back. I used to spray myself with a misting bottle too.”

Recently, while shopping at Walmart, she found an attachment for the garden hose that produces an extremely fine mist. Now, if she wraps the hose around the sun umbrella on her patio, she can sit comfortably outside if she stays in that misty cloud.

“That fine mist,” says Fitch, “really helps.” NN

Tom Valeo is a science and medical writer whose articles have appeared in Scientific American and WebMD.

Gear Up: Cooling Products for MS

The Multiple Sclerosis Association of America (MSAA) provides cooling equipment free of charge to people who have MS.

“We’ve consolidated most cooling products into kits,” says Peter Damiri, program director of the MSAA. “Each kit contains a cooling vest, a collar, and a set of wrist bands.”

The products employ four types of cooling methods: ice packs, gel packs, evaporation garments, and cooling therapy, which consists of a specialized vest containing cooling tubes.

This vest, which has a pump to circulate water through the tubes, is considered a form of therapy because it can lower the body’s core temperature by up to a degree.

“They require a doctor’s prescription,” Damiri says. “The doctor specifies how often the patient can wear it, and for how long. Usually it’s no more than three times a day for 30 minutes.”

Other vests contain pockets for ice packs or frozen gel packs, which prevent the body from overheating. Evaporation garments, which include bandanas, skull-caps, and vests, are soaked with water, which cools the body as it evaporates. They don’t work as well, however, in areas with high humidity.

“These products enable MS patients to go to a family picnic or outing,” Damiri says. “One woman said she can cook dinner for her husband when she’s wearing a cooling garment. Otherwise the heat of the kitchen would prevent her from doing that. The cooling devices help improve quality of life.”

For more information, visit msassociation.org.