GDEFY Shoes Dramatically Reduce Knee Pain

Alexander Elnekaveh founded Gravity Defyer Medical Technology Corporation in 2008 after his 14-year-old nephew was diagnosed with a cancerous growth in his heel. Even after successful heel replacement surgery, physical therapy, and help from leading doctors in pain management, Elnekaveh’s nephew had little chance of walking pain-free again. But Elnekaveh, an inventor, wasn’t satisfied with that prognosis, so he assembled a team of top podiatrists, physical therapists, biochemical and material engineers (Impact Research Technology Group) to help him develop the first Gravity Defyer (GDEFY®) shoe with VersoShock® technology.

A Groundbreaking Pain Study

One in four American adults suffer from chronic knee pain [1], so a non-surgical solution should be welcome news for many.

A double-blind, randomized study conducted at Olive View UCLA Medical Center, published in the Journal of the American Podiatric Medical Association March 2022 Volume 112: Issue 1, shows wearing shoes with VersoShock soles increases shock absorption and decreases knee pain by up to 85% vs. wearing shoes with conventional soles during prolonged standing and walking. After five weeks, participants using the GDEFY intervention sole shoe with shock-absorbing VersoShock technology reported an average reduction in knee pain of 85%, significantly better than participants using the traditional sole shoe (P < .01), whose average pain scores increased. Also observed were positive effects on back, ankle, and foot pain in those with the intervention sole shoe compared with the traditional sole shoe.

“Our mission is to maximize comfort and boost performance for people who have foot biomechanics that keep them from walking properly, and to enable normal pronation,” said Elnekaveh.

UCLA study proves GDEFY® shoes with VersoShock® technology significantly reduce knee, back, ankle and foot pain.

GDEFY men’s and women’s footwear come in several styles, widths and sizes. All shoes come with a polyurethane removable insole to adjust to one’s comfort preference.

GDEFY footwear is available online at www.gdefy.com or in GDEFY stores throughout the country, as well as in multiple comfort shoe stores, specialty stores, and other online retailers. GDEFY has also partnered with Nordstrom, DSW, Zappos and Dillards online to offer a wide selection of styles.

“This study proves what we’ve known all along—that our breakthrough VersoShock technology provides the ultimate pain relief protection for the entire body in a way no other shoe can.”

To accommodate customers at work, home, and play, GDEFY men’s and women’s footwear come in several styles, widths and sizes. All shoes come with a polyurethane removable insole to adjust to one’s comfort preference.
Gary Schwartz, MD, the co-director of pain management at Maimonides Medical Center in Brooklyn, NY, answers common questions you might have.

Q. IS MY PAIN NORMAL, OR SHOULD I BE CONCERNED ABOUT IT?
Depending on the type and cause of your pain, it may just take time to go away. If it’s not normal, you might need to take some additional steps to get better.

Q. DO I NEED IMAGING?
Pictures of the inside of your body, taken with MRI, CAT scan, X-ray, or ultrasound, could reveal the cause of your pain and help doctors decide the best course of action.

Q. WOULD PHYSICAL THERAPY HELP?
“Physical therapy helps a lot of patients with lower-body pain,” Schwartz says. “It’s a minimalist approach, so if it fixes it, that’s great.”

Q. WOULD CHANGES TO MY DIET MAKE A DIFFERENCE?
Some foods may make pain better. Others can make it worse. Sugar may worsen inflammatory pain, such as arthritis. It doesn’t help diabetes-related pain, either. Any foods that are bad for your health, such as excessive processed foods and saturated fats, can be bad for pain.

Q. DOES SMOKING AFFECT MY PAIN?
Smokers are nearly three times as likely to get lower-back pain. “Anything that improves your overall life, like quitting smoking, is going to improve your pain,” Schwartz says.

Q. COULD MENTAL HEALTH PROBLEMS MAKE MY PAIN WORSE?
If you have depression, anxiety, or trouble sleeping, treating those symptoms can help your pain, too. “That’s why it’s so important to speak with a specialist to get your mental health under control,” Schwartz says. In fact, even if you don’t have mental health problems, pain that lasts months can take a toll on your emotional well-being. Talk therapy can help.

Q. ARE THERE NONINVASIVE OR NONDRUG TREATMENTS THAT COULD HELP MY PAIN?
It may not sound like much compared to your pain, but meditation, tai chi, yoga, and deep breathing and relaxation exercises can help improve ongoing pain. “Tai chi has been shown to help a lot of people, especially people that cannot move that well,” Schwartz says. When more vigorous exercise is not an option, tai chi can be a great alternative.

Q. COULD MY FOOTWEAR AFFECT MY LOWER-BODY PAIN?
“For patients who are on their feet all day, the No. 1 thing I tell them is to make sure they have comfortable, supportive shoes and socks.”

By Sonya Collins
Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor
## STATS & FACTS

**By Sonya Collins**

Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

### UP TO 9.8 hours

<table>
<thead>
<tr>
<th>Number of months that pain must persist, despite treatment, to call it “chronic pain.”</th>
<th>Number of older adults with chronic pain who have it in multiple parts of their body.</th>
<th>Number of adults who live with chronic back pain—one of the most common types of chronic pain.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 to 6</td>
<td>4 in 10</td>
<td>1 in 12</td>
</tr>
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</table>

### How much cases of pain in at least one part of the body increased among adults in the past 16 years.

<table>
<thead>
<tr>
<th>Number of adults who have chronic pain.</th>
<th>Prevalence of chronic pain in women compared with men.</th>
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<tbody>
<tr>
<td>1 in 5</td>
<td>2x</td>
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### Number of adults who have chronic pain that often limits their daily activities.

<table>
<thead>
<tr>
<th>Number of adults in rural areas who live with chronic pain.</th>
</tr>
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<tbody>
<tr>
<td>1 in 13</td>
</tr>
</tbody>
</table>

### Number of adults in the age group that has the most chronic pain.

<table>
<thead>
<tr>
<th>Age group that has the most chronic pain.</th>
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<tbody>
<tr>
<td>65+</td>
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**Sources:** Pain, CDC, Georgetown University, Aging Clinical and Experimental Research, Family Practice, PLOS Genetics, Demography
What Your Chronic Back, Leg, and Foot Pain May Be Telling You

Learn How to Read the Signs So You Can Best Handle the Hurt

By Rachel Reiff Ellis
Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

When you have back, leg, or foot pain that lasts or keeps coming back, you may not always know what’s causing it. There are many conditions and situations that can cause chronic pain. Here are some of the most common reasons you could be hurting.

Know When It’s Chronic
Typically, doctors can call pain chronic if it keeps happening for 3 to 6 months or more. But it’s not only a specific number of months that gives it that classification.

“There are lots of definitions that include a time frame for chronic pain, but that isn’t as important as it being bad enough to impact your quality of life and/or function, and not having an end point,” says Brett R. Stacey, MD, chief of pain medicine at UW Medicine and medical director of the UW Medicine Center for Pain Relief in Seattle, WA.

If you’re dealing with this type of discomfort, it’s a sign from your body that something’s not quite right. Here’s what could be happening.

Lifestyle Causes
Some of the reasons for chronic pain are more in your control than others. Behaviors that could be contributing to your discomfort include:

- Alcohol use
- Being overweight
- Poor diet
- Smoking
- Not enough or low-quality sleep

One of the biggest factors that leads to and increases pain? Sitting still for long periods of time.

“If you look at the evidence for chronic pain in general, the lifestyle factors that influence someone’s having pain and how severe it is, inactivity is up...
How to assess your aches.

+ Where is the pain?
+ How long have I had it?
+ Have I had this kind of pain before?
+ Does it affect my daily life?
+ On a scale of 1 to 10, how bad is the pain?
+ Is it constant or does it come and go?
+ What triggers it?
+ Does anything make it better?
+ What other conditions do I have?

QUESTIONS TO ASK YOURSELF

there on the list,” Stacey says.

When you’re hurting, it’s natural to want to rest as much as possible. But movement can actually treat your pain if you do it the right way and keep it consistent.

“If you don’t move areas of pain, you lose muscle mass and muscle bulk, and then the injury can actually sort of spiral out of control a little bit,” says Robert Bolash, MD, pain management specialist at the Cleveland Clinic in Ohio.

“So we use physiotherapists or movement therapists to help people find the difference between what’s hurting them and harming them when they move. It’s OK if your body talks back to you a little—you just want to maintain movement in order to keep things working right.”

MEDICAL CAUSES

Although chronic pain can have many different underlying medical causes, there are a few that are more common than others. You might have pain because of:

Spinal causes. Pain in your back could mean you have stenosis (narrowing) of your spinal column, a pinched nerve, or spondylolisthesis, a condition where one vertebra slips over another.

Nerve causes. In addition to pinched nerves—the most common for lower back and leg pain being sciatica, or a compressed sciatic nerve—you can also deal with nerve damage, also called neuropathy. It causes numbness and weakness along with pain. You may get this from conditions such as diabetes, infection, or injury.

Muscle and joint causes. Injuries caused by sprains, strains, or overuse can leave you with back, leg, and foot pain that lasts a long time. Other conditions such as arthritis or other autoimmune diseases inflame your joints and make them ache. Arthritis can affect your spine and hips, causing pain in your back and legs.

Circulation causes. If the arteries that carry blood to your legs narrow because of a condition called peripheral artery disease (PAD), walking can become painful and difficult. PAD can also lead to other chronic pain issues such as blood clots in the leg (deep vein thrombosis, or DVT) or varicose veins (dilated, twisted veins).

Stacey points out that these are very broad classifications that may not fit neatly into one category. “Something going on in your spine can cause more than one kind of pain, for example,” he says. “Herniated discs can often push on a nerve, which causes nerve pain, and having arthritis in your spine is technically a joint pain. So pain causes can overlap quite a bit.”
STEP BY STEP: THE IMPORTANCE OF INCREASING YOUR MOVEMENT

HOW PHYSICAL ACTIVITY HELPS TREAT CHRONIC PAIN

By Rachel Reiff Ellis
Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

Getting more movement improves your heart health and helps you be more physically fit. But it can do so much more—especially when you deal with chronic pain. Physical activity can actually work as a treatment for your pain, just like—or sometimes even better than—medications.

“When you get regular movement, you change multiple systems in your body at once,” says John Lattin, MD, a physical medicine and rehabilitation specialist in Nampa, ID. “If you take a pill, it’s typically targeting one system. But there are probably hundreds of chemicals that change in the body in response to regular exercise.”

Along with your other chronic pain treatments, make an effort to move more, and you’ll reap many rewards, including:

Less pain. Exercise can alter the neurons in the brain that transmit pain and make them less active. In fact, studies show regular aerobic exercise—movement that gets your blood pumping—works as well as nonsteroidal anti-inflammatory drugs (NSAIDs) at reducing pain. “Regular, purposeful movement of your body can change how your immune system works over time so it shifts into more of a healing, pain-reducing mode as opposed to pain-producing and inflammatory mode,” Lattin says.

Better brain power. Science shows dealing with chronic pain makes it harder to remember things, process information, make decisions, and pay attention. Exercise helps improve these issues by creating new pathways in your brain. “Movement can build new synapses so that you have better cognitive function,” Lattin says.

More energy. “It seems counterintuitive to exercise when your chronic pain is making you so tired, but regular movement will actually reduce fatigue,” Lattin says. It may be hard to start, but exercise becomes easier over time as it starts to recharge your body’s battery.

Improved sleep. Poor sleep can make chronic pain worse, which can then disrupt sleep even more. In the same way, getting regular exercise can improve your sleep, which gives you more energy to continue with more exercise moving forward.

Mood boosts. Physical activity improves mood in everyone, not just people with chronic pain. But when pain is part of your every day, you’re four times as likely to deal with anxiety and depression than someone who’s pain-free.
Overcome the Fear of Movement When You Have Chronic Pain

How to Get Up and Go When Your Mind Is Telling You No

By Rachel Reiff Ellis
Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

You’ve heard exercise is good for your chronic pain, but you’re still worried physical activity will hurt more than help. You’re not alone. Many people who live with chronic pain struggle with the thought of putting exercise in their daily schedule. But any temporary discomfort you may feel can actually lead to real relief over time.

“Research shows exercise is one of the most effective treatments for chronic pain—for almost every pain condition,” says Victoria A. Brander, MD, associate clinical professor of physical medicine and rehabilitation at Northwestern University Feinberg School of Medicine in Chicago. “It’s just hard to get people to do it.”

Here are some ways to ease into a regular exercise routine.

Start small. Although 30 minutes a day is ideal, Brander says it’s better to think of that as an ultimate goal, not a starting point. “You may have to start with a 5-minute walk once a day, and that’s OK,” she says. Once you get that under your belt, you can increase to two or three 5-minute walks a day and build from there. Take the stairs, park farther away from stores than usual—anything that ups your daily step count will benefit you.

Pace yourself. If you launch into something new with too much gusto, you can fizzle out fast. “You might be feeling great, so you go out and do a 5-mile walk even though you haven’t been doing that regularly, and then the next day you can’t get off the couch,” Brander says. Be realistic about how much you can do so you don’t burn out quickly.

Seek guidance. A professional like a physical therapist (PT) can not only suggest movements you can try, but they can also show you the right way to do them. The added expertise and support may help ease your anxiety as you increase your activity. “I think of PTs as exercise coaches who understand your condition,” Brander says.

Move in ways you enjoy. It doesn’t matter much what type of activity you do; it just matters that you move your body. And you’re more likely to start—and stick with—an activity if you like it. Almost any increase in movement will work. “If you like gardening, go out and garden,” Brander says. “If you’re into mowing the lawn, go do it. Find something you like and commit.”
WHY AND HOW TO EXERCISE WHEN YOU HAVE CHRONIC PAIN

By Rachel Reiff Ellis
Reviewed by Neha Pathak, MD, WebMD Lead Medical Editor

The less active you are, the higher your risk of health problems, especially if you have chronic pain. Over time, regular exercise improves your life span, boosts mental health, helps joints move better, and reduces pain. Yes, you heard that right: more movement equals less pain.

“If I had to choose just one thing every person should do for their health, it would be exercise,” says Kathleen Sluka, PhD, professor of physical therapy and rehabilitation science with University of Iowa Health Care in Iowa City. “In fact, it would be numbers one, two, and three.”

A LITTLE BIT GOES A LONG WAY

If the thought of movement makes you picture heavy barbells, marathons, and pushups, it may be time for a reframe. Exercise is one type of movement, but it’s really just basic movement itself that’s critical.

“Although it’s terrific to be able to go out and ride a bike for 40 minutes, really what’s more important is how you move and how often you move,” Sluka says.

Staying in one position—sitting, lying, or even standing in one place for too long—causes a phenomenon in your joints called gelling, she says. That means that the joints themselves get “sticky” when they’re not moved. You need to get up and use your body in a new way every 40 minutes or so.

And small bits of movement throughout the day count. “We used to tell people they should exercise four times a week, 160 minutes total,” Sluka says. “But data seems to suggest that movement and exercise is cumulative. So you could exercise 40 minutes at one time, but you could also move for 2 minutes, 20 times a day. And that counts, too.”

If you work at a desk job, just getting up for a cup of tea, bathroom break, or short walk often throughout the day will make a big difference. “I always recommend trying to get up from your workstation for just 3 to 5 minutes every hour,” says John K. Brendel, MD, pain management specialist in Rice Lake, WI.

MOVING WELL WITH PAIN

If you’re new to physical activity, Sluka recommends starting with simple
balance exercises every day. You can practice while brushing your teeth: tuck your chin back, relax your shoulders, squeeze your belly, squeeze your buttocks, and then stand on one leg and hold it for 10 seconds. Then switch to the other leg.

“Balance work helps with the symmetry and function of your body, your posture, your line,” she says. “It’s really about learning to be very conscious of your body in space, and over time you’ll feel the effects.”

In addition to improving your balance, you should work to increase the amount of stretching, strengthening, and aerobic activities you do each day.

- **Strength exercises** such as resistance work and weight-bearing exercises help build muscle and stamina so you can do daily tasks with less pain.
- **Stretching** limbers up your joints and muscles and can help reduce your chances of injury.
- **Aerobic activities** get your blood flowing and increase your heart rate.

“When you build muscle through lifting weights and increase your endurance with better heart health, it gives you a feeling of power,” Sluka says. “And that feeling of power translates into many different aspects of life.”

**EASY LOW-IMPACT EXERCISE CHOICES**

These activities are easy on the body while being good for your health.

- + Walking
- + Biking
- + Swimming
- + Water aerobics
- + Tai chi
- + Pilates
- + Yoga
GDEFY shoes are the first and only shoes clinically shown to relieve pain.

85% LESS KNEE PAIN
91% LESS BACK PAIN
92% LESS ANKLE PAIN
75% LESS FOOT PAIN

According to a double-blind study conducted by Olive View UCLA Medical Center, and published in the Journal of the American Podiatric Medical Association.