

Pain After Stroke

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Webinar Transcript*

Understanding Chronic Pain After Stroke

Hi everyone. Thank you for joining. My name is Rachel and I'm one of the physical therapists with Flint Rehab's remote recovery program. Today we're going to talk about something that a lot of stroke survivors experience but don't always feel prepared for, and that's chronic pain after stroke.

So this session is for both survivors as well as family members and caregivers supporting them. My goal is that by the end of today, you'll understand why this pain happens, the different types, and most importantly, some practical evidence-based things that you can do to feel better. Let's get started. Research shows that a stroke can change how the brain interprets sensation, movement, and muscle activity.

When those pathways are disrupted, the brain may send pain signals even when the tissues themselves are healthy. Chronic pain simply means pain that continues for more than three months after the stroke and it's very common. About 30% to 50% of survivors experience it. This pain comes from muscles working harder to compensate, nerves that have become extra sensitive or spasticity.

It doesn't mean that something is seriously wrong or that your body is still broken. It often means that your brain and your body are reorganizing and adapting after the stroke.

How the Brain Interprets Pain

Why does this happen? It helps to understand what the brain's role is in this. A stroke can disrupt those sensory pathways as I said. That's the wiring that carries signals about touch, temperature, and body position all the way up to the brain.

And when that wiring is damaged, the brain can misinterpret normal signals as pain. So a light touch, a change in temperature, or even movement can be read by the brain as something threatening. Think of this as a smoke alarm that has become a little too sensitive. It goes off not because there's a real fire, but because the alarm system itself has been turned up too high.

The nervous system shifts into this kind of protective high alert mode and that increased sensitivity is what you feel as pain. This is important to understand because it means the pain is real, but it does not necessarily mean that there is ongoing damage happening to that body part. And that gives us something to work with because a nervous system that has been turned up can be gradually calmed down with the right approach.

Types of Pain and Musculoskeletal Pain

Let's put names to the main types because the treatment is a little different depending on where the pain is coming from. So first is musculoskeletal pain. This is pain that's in the joints or the muscles often in the shoulder, the back, the hips and it's usually coming from the way the body compensates and moves differently after the stroke. Second is spasticity-related pain.

This comes from muscles that are tight and overreactive and it often feels like cramping or pulling, tightening sensation. Finally is neuropathic pain. This is that nerve-related pain and it tends to feel more like burning, tingling and it can be very constant. We'll spend most of the time discussing this one because it is often the most distressing and the most frequent.

Over the next few slides, we'll go through each one and more importantly what you can do about each of them.

Managing Musculoskeletal Pain

Let's start with musculoskeletal pain because it is one of the more common and one of the most manageable. So this is pain that is coming from overuse, overcompensating or even your posture. After a stroke often one side is weaker than the other. So the stronger side ends up doing extra work which is why we frequently see pain in the shoulder, back and hip, even in the arm and the leg of the stronger side.

The root causes of this are usually weakness and limited movement. So what can you do about this? And this is where therapy really shines. So we can strengthen those weaker muscles so the strong side doesn't have to overcompensate as much.

We'll use gentle stretching for those areas that feel very stiff. The use of some modalities like heat or ice can help. Heat works really well for those tight, tense muscles, while ice is better for a joint that is more irritated and inflamed. We'll use activity pacing.

That means spreading activity out throughout the day so you're not overloading one area and flaring things up for the rest of the day. The theme here is balance. Build up that weak side, protect the overworked side, and pace yourself.

Spasticity Related Pain

Then there's spasticity-related pain. Spasticity is when muscles have too much tone, too much tightness. They're tight, they're stiff, and sometimes almost locked in a position. About a third of stroke survivors deal with some degree of spasticity.

This is going to feel like that cramping, constant pulling sensation, stress on the joints because the muscle won't let that joint move freely. This also tends to get worse with things like fatigue, stress, cold temperatures or even quick sudden movements. So we have a whole separate webinar on spasticity and spasticity-related pain. But in general what helps is slow prolonged stretching and the key word here is slow.

Fast stretching can actually trigger the muscle to tighten more whereas a gentle sustained hold can help it release. Weight-bearing activities such as standing or putting pressure through the joint are going to help calm that tone. Doing rhythmic repetitive movements such as cycling or back and forth movement patterns can certainly help and also heat which can help loosen those tight muscles. One thing I really want families to hear is that if spasticity is causing pain, interfering with sleep, or limiting movement, it's worth telling your medical team as well.

There are additional treatments such as targeted injections or medications that a physician can add alongside therapy that we can do. We often get better results when therapy and medical management work together, especially for this type of pain.

Neuropathic Pain

Now to neuropathic pain. This is that nerve-related pain which for some people is the most distressing. This comes from irritation and miscommunication in the nervous system itself. When the pathways that carry sensation are damaged, the nervous system can become overreactive and start generating these pain signals on their own.

This is why it feels different from a normal ache. People often describe it more as like that burning, that tingling pins-and-needles feeling. It's also often worse at night and this is because there are fewer distractions and the nervous system isn't as busy with other input. The most specific form of this is called central post-stroke pain.

You may have heard of that term, which classically follows strokes affecting the thalamus, which is the major sensory relay system really deep in the brain. The technical explanation is that injury leads to what we call central sensitization or disinhibition if you've heard those words. But essentially what this means is the alarm system loses its normal off switch and stays on. So you're feeling that pain all the time.

The encouraging part here is that this is a nervous system problem and we can target it with nervous system approaches. So both medications and specific retraining exercises which we'll cover next.

Medical and Therapy Approaches

There are two arms to treating neuropathic pain: medical management and physical and occupational therapy management. So on the medication side I want to be clear that these are prescribed and managed by your physician not something to start on your own. And there are several different options. Medicines like gabapentin can help calm down those overreactive nerves.

Duloxetine is in a class that also helps with mood and sleep effects of chronic pain. And topical treatments are applied to the skin. Things like lidocaine patches to help with any kind of localized pain. And I'll be honest with you here, the evidence for these is mixed and varies person to person.

So no single one works for everyone. Finding the right fit is often a bit of trial and error and a lot of adjustments with your doctor. Patience and good communication with your medical team really matter here. Now on the therapy side of things, we have four evidence-based tools.

Desensitization training, sensory reeducation, graded motor imagery, and aerobic exercise. These retrain and calm the nervous system, and they pair really well with medication. We'll go through each one now so you know exactly how to do them, but I will say these work best when prescribed and supervised by a health care professional, either your occupational therapist or your physical therapist usually to ensure that you're performing them accurately and optimally.

Desensitization Training

First is desensitization training. The goal here is simple. Help the brain calm that oversensitivity so that touch stops being interpreted as pain. It targets that burning, tingling, hypersensitive feeling.

But here's how you're going to do it. You're going to start with some soft textures like cotton, tissue, or soft cloth. And you're going to gently rub the sensitive area for about 10 to 20 seconds. As you begin to tolerate it more, you're going to progress to rougher textures such as a towel, velcro, even running your hand through dry rice.

Later, you can add different sensations such as gentle vibration or light tapping as well. You're going to want to do this in two to three short sessions in a day. And the most important principle is right here on this last line. Keep it calm and predictable.

You're teaching your nervous system that this input is safe. You should feel a manageable sensation, but not a spike of pain. If it's too much, drop back to a softer texture. Slow and steady is going to retrain the system here.

And pushing into severe pain is just going to reinforce that alarm. This is not a no pain, no gain scenario.

Sensory Reeducation

Closely related is going to be sensory re-education. So where desensitization helps to calm things down, sensory re-education sharpens things back up, it retrains the brain to more correctly feel touch, pressure, and movement. And it improves awareness and coordination, especially in the hand. So these exercises are like little games.

Localization. So for instance, have someone touch your hand and with your eyes closed, you're trying to figure out exactly where it's being touched. Same with texture discrimination. You're going to feel two different objects and figure out which one is smooth versus rough.

Temperature, same thing. Warm versus cool. And movement awareness. Closing your eyes and trying to sense what position your fingers might be in or whatever body part you're doing might be in.

Like before, we really want to keep these sessions short and consistent. A few minutes done regularly beats one long tiring session. And this is that brain retraining. The brain learns best with frequent but focused practice.

Aerobic Exercise

This next tool might surprise you, but aerobic exercise really does help with chronic pain. Gentle cardio is genuinely one of the best things you can do for nerve pain. And here's why it helps. It's improving the blood flow to the nerves and the healing tissues.

It helps to calm those overreactive nervous systems that we keep talking about and boosts your body's endorphins. It helps to settle the inflammation that's linked to the nerve pain. I'll add one caveat here. There's a lot of fine detail on the mechanisms of why this works that comes more from the laboratory research, but the overall benefit of exercise for chronic pain and recovery is well established.

So how to do it safely? Choose gentle joint-friendly activities. So walking, stationary bike, even pool-based exercise. You want to start small.

So 5 to 10 minutes at a comfortable pace is a good and real start. Then begin to gradually build towards a goal of 20 to 30 minutes. Three to five times a week is what we usually recommend. But you want to keep this just light and moderate.

You should be able to hold a conversation while you're doing these exercises. The golden rule here is to go low and slow. Consistency is going to beat intensity every time.

Graded Motor Imagery

And our last major tool is graded motor imagery. And this one is fascinating in how it works. The goal is to reduce pain that comes from the miscommunication between the brain and the body. And it works by using imagination to rebuild the brain's movement maps.

So here's the idea to break it down. After a stroke, the brain's internal map of the affected limb can get a little fuzzy or scrambled. And a confused map in the brain is going to produce error signals that we then feel as pain. This imagery rebuilds the map in three gradual steps.

And doing this in order does matter. So we'll go through it, but first is discriminating between the left and the right. Then explicit motor imagery. So imagining the movement before you do it, and finally mirror therapy.

So with all of these, we start gentle and only progress where each step feels comfortable. We'll go through all of these now, but I will say this is best done with guidance from your therapist, but I do want you to understand what each piece does and why.

Step One Left Right Discrimination

Step one is left-right discrimination. This is the foundation. It's going to improve basic body awareness by retraining the brain to correctly recognize whether it's looking at a left or a right body part. That in turn reduces those error signals.

The easiest way to do this is usually with an app or even a YouTube video. There are a bunch of ones out there. There are ones that are called Recognise and Orientate that most patients use that are made exactly for this. So what happens is you look at photos of hands or feet typically as you see in the picture here and you decide just by looking at it is it a left side or a right side?

And the rule is you only use your eyes to determine this. You don't move or turn your own hand to figure it out. And the aim is to be really quick and accurate and then get the feedback immediately to find out if you were right or wrong. Doing this is recommended for about five minutes once or twice a day.

And I know it almost seems too simple, but this is a well-researched first step where you're waking up and sharpening the brain's map before we ask the limb to do anything at all.

Step Two Explicit Motor Imagery

Step two is going to be explicit motor imagery. So this is where you mentally practice the movement without actually moving the limb. And this genuinely works. Imagining the movement activates many of the same motor areas in the brain as doing it, but in a way that's safe and will not trigger pain.

Here's how you do it. You're going to picture your affected limb moving smoothly, and this is the key, completely pain-free. Imagine the movement happening in real time at a natural speed, completely pain-free. For example, vividly imagine opening and closing your affected hand, feeling it move more easily and comfortably.

You're essentially rehearsing normal pain-free movement in the brain. But because there's no actual movement happening, there's nothing to flare up, which makes this a safe bridge in between just thinking about the limb and actually moving it in future steps.

Step Three Mirror Therapy

And then the final step is mirror therapy. And it's a clever one here. So it's using a mirror in a sense to trick the brain into seeing normal pain-free movement. And that helps to reduce pain and improve motor control as well.

So here's the setup. You're going to place the mirror upright beside your stronger unaffected side and move your stronger unaffected side while you watch its reflection. Your affected weaker side is going to stay hidden behind that mirror. But when you look at the reflection, your brain sees what that affected side is doing and moving smoothly and painlessly.

So doing this for 5 to 10 minutes once or twice a day can really help. Now the evidence here is strong. Mirror therapy does improve motor function and daily activities after stroke but it's especially helpful for a select group of people who have complex regional pain syndrome type pain. It's kind of a specific part of neuropathic pain.

The biggest benefit is seen in that specific group but the movement benefits do apply broadly. As always, if it causes distress or pain, ease off and check in with your therapist, as is true with any of these. Taken together, these three steps gently rebuild the brain-body connection.

Putting the Approaches Together

Let's bring it all together. Chronic pain after stroke is common. It's real. And the part that I want you to leave here with is that it is treatable.

We covered three main types: musculoskeletal pain, spasticity-related pain, and neuropathic pain. We covered some practical evidence-based tools that you can start using. Pair those with some medical management from your team and most people can meaningfully improve over time. Now, if you'd like more structured expert guidance to keep progressing at home, Flint Rehab does offer a remote recovery program and there is a special offer for everyone here today.

We'll be sending out the email reminder right after this webinar and the code is good for one week. So thank you for being here today. Keep going. Make those small consistent steps.

They really do add up. I'm happy to take any questions now if you want to write them in the Q&A. I'll give you a few minutes and then we'll chat through some of them. For anything that is more of a specific question for your pain, I do ask that you probably email me.

My email is on the screen here and we'll send it out right after. That way you and I can have more of a conversation and we can also talk about the benefits of furthering rehab with the

remote recovery program as well. I'm going to give you guys a second to write your questions in the Q&A section here.

Q&A

A lot of these questions are very similar, so I'm going to paraphrase some of them together.

When will I start to see improvement and can very chronic pain still improve?

Most people do improve over time, especially with active treatments like the ones that I mentioned here. Almost all the studies on chronic pain and using these types of treatments don't begin to see results until after about the six-week mark. And that is with performing these exercises five to seven times a week. So remember how I said that the consistency is way more important than the intensity.

So doing those consistently five to seven times a week throughout the day while following those guidelines has been shown to help when done for at least six weeks. But you do still see pain improvements especially when combined with some more medical management even if it is further down the line. The studies that I was referencing talk about people that are five or 10 years post incident not just within those first six months. And I know that's another big question here is like seeing the most improvement within that first year.

Yes, that is true. But you do continue to see benefits afterwards. It's just the most rapid improvement is often seen within the first 6 months to a year. So if you are in that time frame, that is why it is so important to start initiating these exercises and treatment programs earlier on.

How do you treat nerve pain in the leg or near the buttocks?

Some people are asking about nerve pain in different regions such as in the leg or near the buttocks. So to answer that, I would really need a lot more information in regards to what that pain feels like. A lot of the treatment is going to be based off of what the pain is distinguished as and what causes it. So that is something that we can talk more about.

Sometimes that pain in the leg is just due to spasticity like hamstring tightness and tone and it might help with heat or stretching but it also can be nerve-related pain. There might be pressure on one of the nerves that we can do nerve glides or nerve releases on. If it is more that burning tingling type pain then that's when we would look more into okay is this neuropathic pain that we can treat differently. But there is also nerve pain from compression of those nerves as well from often tight muscles putting pressure over those nerves.

So for that answer I would say we would have a conversation of what causes the pain and what that pain feels like to you before I can say what to do about it.

Is neuropathic pain in both legs after spinal cord injury managed differently than after stroke?

So the actual origin of it does not matter as much in terms of what diagnosis is causing it. It's more of what it is coming from. So is it coming from overreactive nerves or perhaps more the paralysis and the low tone after the injury which then might be causing your muscles to go in different positions which could cause some strain. So it doesn't necessarily matter so much on the diagnosis, but it does matter on kind of like what category of pain you would then put it in.

Whether it's that musculoskeletal type pain, spasticity, especially after spinal cord injury or neuropathic pain. And nerve pain after a spinal cord injury is very common and often treated medically and with this therapy as well.

Where can I learn more about the remote recovery program and is it covered by insurance?

We'll send out more information in the email about the remote recovery program. I'm seeing quite a few questions here about that. Right now it is not currently covered with insurance, but you'll see kind of in the email more information about that.

What can help with headaches after stroke?

Headache pain is very common after a stroke. It can be due to a variety of different things. And sometimes it's just caused post stroke in general but it can be caused from what we call cervicogenic pain which might be some tightness of the muscles back here in the neck or the suboccipital muscles right at the base of the skull. Sometimes it can be caused more by changes in vision and dizziness and that can be addressed as well with more vestibular based exercises.

So the kind of the same answer I'm going to give is yes headaches are certainly something that we do treat in physical therapy but it does depend on the reason. If they are more migraine type headaches that happen after the stroke, those are best treated more medically versus if it is being caused by changes in position, changes in environment, especially if it's a very busy environment and the headache is getting worse. And same with like you're getting the changes in vision, kind of bouncing of vision.

That's when we're going to look more into the vestibular type of physical therapy to help with that kind of pain as well.

Is there a way to reduce pain in the glutes while sitting or a medical treatment for it?

Sitting down I would say let's look at maybe how you're sitting. What is the posture of how you're sitting? How is weakness affecting it? We always like to look at when you're sitting down, what is the pelvis doing first?

And then look at the trunk and also how the shoulders are. You're really looking at how you are stacked over top of each other. If you are sitting in more of a slumped position, it can put more pressure on those nerves which can cause pain into the glutes and even into like the back of the leg. So I would say we would look first at your posture and then to see if there's a lot of tightness that is causing that posture or is it more weakness and then address it from there.

And I'm just reading through some of these questions. Some of these are really great questions. They're just very specific. I will say we can have a back and forth conversation over email after this.

Just send me that email. And like I said, we will be sending out the webinar recording along with my email right after that.

What can help when my big toe is very sensitive and lifts up whenever it is touched?

This person had a stroke many years ago, but they are noticing that their big toe is affected and lifts straight up any time it's touched. It's very sensitive. That could be caused more from the spasticity of the muscle. That is the tightness.

I would say try to stretch and move the muscle back and forth trying to get it to relax. And making sure that it's not tightness that is causing that. But it does sound like if it's being very painful anytime that it is gently touched that it may be more of that neuropathic type pain and it's likely coming from a variety of factors. So I would say a good place to start would probably be going through some rhythmic movements, maybe just bringing the toe up and down a little bit and then trying out some of those desensitization techniques.

Starting with those very light, gentle kind of rubbing with either cotton or soft textures, getting used to that, and then slowly using more rough textures on it as well to see if that helps over time with it. Without looking too much into it, that's kind of where my head would go based off of what you're telling me. But of course, talk to a therapist a little bit more about that before you get started.

Closing and Follow Up

Again, thank you so much for joining today. We will be sending out those emails. And I will be getting back to you guys later this week with any responses from that. I really appreciate you hopping on today. Have a good one.