Numbness Tingling and Sensory Changes After Stroke

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Webinar Transcript

Understanding Sensory Changes

Welcome everyone. My name is Rachel Higdon and I'm one of the physical therapists with Flint Rehab's remote recovery program. Today we're talking about something that doesn't get nearly enough airtime in the stroke recovery space. That's the way your arm, your hand, or your leg could feel different after a stroke.

We're talking about numbness, tingling, that pins-and-needles feeling even when your limb might feel just heavy or foreign to you. We'll go through all of that today. As I'm talking, feel free to drop any questions in the Q&A section below. I'll gather them and answer them at the end or email you back after the webinar this week with our comments if you leave your contact information.

Please put it in the Q&A section, not in the comment section, please. Here's our road map for today. We'll start with what sensation actually is because it's not just one thing. Then we'll cover why these changes happen, why they matter for movement, and whether or not they can improve.

The heart of today is going to be five sensory retraining exercises that we're going to walk through together. Then we're going to cover the flip side of that, too. The tingling, the burning, the oversensitivity and pain. That's a really important safety section. We'll finish with any takeaways as well as questions.

Common Experiences After Stroke

Let me read a few things that patients have told me and see if any of these sound like you. My hand feels asleep. I can feel something, but it doesn't feel normal. I get pins and needles.

My arm feels heavy. It feels disconnected to my body. Hot and cold don't feel right. They feel different.

And this one is so common. I can move my hand, but I can't tell what I'm touching. If you're nodding to any of these, good. That tells me your experience is real and it's recognized.

These are not random things. They're patterns that we see all the time. Somatosensory deficits occur in roughly 50 to 80% of stroke survivors. This is a majority experience, not an outlier one.

Here's the mindset I want you to leave with today. Recovery isn't only about teaching the brain how to move again. Sometimes we're helping the brain relearn how to interpret what the body is feeling. That interpretation piece is trainable. And that is what today is going to be about.

The Different Types of Sensation

When people say numbness, they tend to lump a lot together. But sensation is really at least six separate abilities. And a stroke can knock out one while leaving the others all intact. Light touch: can you feel something touching the skin?

Pressure: can you tell how firmly something presses? Temperature: of course, that's determining warm versus cool. Pain asks whether you feel something painful. Is it too much or too little?

Does a light touch cause intense pain? Proprioception asks whether your brain can tell where your arm or your leg is without looking at it. And then sensory discrimination: can you tell two different textures or two different objects apart just by feel, not by looking? Why does this matter to you?

Well, because your home practice and your exercises and your recovery should target the specific one that's affected. In one study, light touch is typically the most commonly affected modality. About 40% of people have this versus temperature tends to be the least common. And different parts of this really do recover at different rates.

Just be kind of aware of what your changes in sensation are as we talk about this.

How the Sensory Pathway Works

And why does this happen? Think of it like a pathway. Let's say you touch something like your coffee mug. Your body sends a signal.

That signal goes up to your brain and then the brain interprets it. And here's the key. After a stroke, the sensors in your skin and joints often work perfectly fine. The problem is usually upstream in the brain's ability to receive, organize, or even interpret the signal.

And this is actually good news for your recovery. It means the hardware in your hand or wherever in the body is still intact, but we're retraining the software which is in the brain.

Sensation and Strength

Any of these can follow a stroke and often more than one at once. The reduced sensation or numbness, the pins and needles, the hypersensitivity, burning, altered temperature sense, the limb that feels heavy, or a limb that even feels larger or smaller than it is and not knowing where it is in space without looking. But here's an important distinction that I want to plant. Strength asks, can I move it?

Sensation asks, can I accurately feel what's happening to it? These two systems work together, but they're not the same thing. And you can have one without the other.

Why Sensation Matters for Movement

This is my favorite slide here because it explains why sensation matters even if your goal is just movement. So every movement is a loop. You move, feel what happened, you adjust, and then you move again. Move, feel, adjust, repeat.

Now, if the feel what happened step is broken, then the loop cannot close. Your brain is trying to steer without having that feedback. That's why movement can often feel clumsy or effortful. Even when your strength is fine, you're not weak. You might just be flying more blind.

In daily life, someone with reduced feedback may grip too tightly or not tightly enough. They may drop objects without realizing that they're slipping or have trouble placing their foot accurately when they're trying to walk. Maybe they have to constantly watch their hand or their leg when they're moving. This is usually seen with fine motor tasks and balance.

Balance is going to get harder. People often just stop using their affected side because they feel so clumsy with it. But this is something that we can target and work on. A good example of this is a patient I had who, during therapy, would go and grab water from the water cooler and she just kept crushing her paper cups.

Her hand strength was actually very good, but without having that pressure feedback because of the reduced sensation in her hand, her brain had no idea how hard she was squeezing it until the cup collapsed pretty much every time. We didn't train strength, we trained pressure awareness, and that's what we targeted as part of her therapy and the fix for this.

Evidence for Sensory Retraining

Let's talk about the evidence and the research. And let me be very clear and honest about it. Sensory recovery and motor recovery often overlap. And adding somatosensory discrimination training, which is what we're discussing today, to rehab may improve some motor and functional outcomes.

But the certainty of that evidence is still low. So studies are going to vary and we're still learning the best techniques and the right dosage in particular for specific sensory training. I won't overpromise, but what I can say is the approach that we'll practice today is the one the research and the newest guidelines point towards. Specifically, the 2026 AHA/ASA stroke rehabilitation guideline supports active somatosensory retraining and notes that it's specifically successful in the chronic phase which is very interesting because usually we see more improvements in the acute phase with the training.

So definitely something to target even if you are six months post or many years post your initial injury.

Can Sensation Come Back

Can sensation come back? The honest answer here is yes. Sensation can come back after stroke. But like I said, there is no single predictable timeline.

Some people notice changes fairly quickly and for others it's gradual over months or even longer. The engine behind this pretty much for everything is neuroplasticity. So the brain adapts based on repeated experience. Sensory retraining is giving the brain repeated meaningful sensory information and then asking it to tell those inputs apart.

And that's the key here. It's the asking to tell it apart. Most of the spontaneous recovery, meaning the sensation comes back without significant training, does still happen in those early

phases. That is those first three months, the acute phase, with only minor additional gains in 12 months and after.

That's when you really need to start doing more of the exercises and the active training to continue to see those improvements. Earlier on, spontaneous recovery. Later on, we want to target and actively focus on these impairments in your training.

Stimulation and Active Training

This is the single most important concept today. I'm going to slow down here for a second. There's a difference between stimulation and training. Stimulation is very passive.

Something is touching your hand, but your brain isn't asked to do anything with it. You could be rubbing a textured ball on your palm while you watch TV. That's stimulation. It's fine, but it's not the thing that drives change.

Training, on the other hand, is active. You're trying to identify, compare, interpret whatever it is that you are feeling. Doing things like closing your eyes, thinking hard, making a guess, and then checking it. That effortful guessing is what research wants you to do and is promoting those changes.

So the rule at home is don't just feel it, ask a question about it and we'll go through what that means.

Preparing for Sensory Retraining

This is where we can practice together either training it with me now or follow along later. We will be sending this webinar out and you can practice this at home later. You'll need some different objects of different textures. So things like a towel, cotton ball, sponge, coins, maybe a key for what we're going to try out today.

These exercises in general are more for decreased or impaired sensation. So sensations that don't feel quite like normal skin. If it's pain, then hang on. We'll kind of talk about that a little bit later.

Exercise One Texture Discrimination

Exercise one, gather those few different textures, the towel, the cotton ball, the sponge, etc. You want to rub it on the area of your skin where that impaired sensation is one by one. And then here comes the active part, which is the question that you ask. Touch one of these textures and say to yourself, "Is this rough or is this smooth?" Then touch the next one and say, "Which of these feels rougher?

Are these the same or are they different?" Start this with your eyes open so that you can check yourself and have that immediate feedback. And then make it harder. So close your eyes and now you're forcing the brain to rely just on touch. Guess out loud and then check.

The guess, then check is the whole point of this exercise. You want to try this out with as many different textures as you can, progressively getting harder as you go.

Exercise Two Object Recognition

Next exercise is focusing on object recognition. So you want to place a familiar object in your affected hand, the one with decreased sensation, maybe a coin, a key, a spoon, and try to identify it by just touch alone without looking. And really explore it. Feel around for the edges, the weight, the temperature of it.

Move it around in your hand or your foot, whatever that body part is that is affected, and make your guess. Then look at it and compare those two experiences. What did your hand tell you versus what did your eyes tell you? Good example of this is a patient that I worked with.

He practiced every morning by telling a penny apart from a quarter in his pocket with his eyes closed on his way to work. This was just like a quick simple way that he could try to feel and identify the differences and incorporate it into his daily life. It's not just a mundane exercise that you're doing. And keep in mind, you can do this with your legs and your lower extremities as well.

I've had people do this with putting their foot in maybe a bucket of rice and when they put their feet in, they have different objects in there. They feel around for the key versus the spoon and they try to distinguish that if it's your lower extremity that has those sensory impairments.

Exercise Three Touch Localization

Our next exercise is called touch localization. So this one does need a helper, a caregiver or a family member where the patient is going to close their eyes first. The caregiver is going to touch different spots on the hand or the arm and ask the patient, "Where did I touch you?" The patient is going to either point or describe where that spot is. So to start out you want to be more general.

Start with big areas maybe with the patient responding more generally such as it's on my forearm or it's in the back of my hand. And then try to work to be more specific, more precise spots, such as like a single fingertip if you can point to it. And then caregivers give honest feedback here. Say things like, "Close, but it was actually here." And you kind of start to notice the differences as you get better and as you continue to progress. The correction is the learning for your brain here.

Exercise Four Position Awareness

Then we're going to get into position awareness. This is training that proprioception or knowing where your limb is without looking. Eyes closed here as well. Your caregiver is going to move a finger.

Let's say it's your hand that's the one that has the reduced sensation. So they might move the finger kind of up or down or at the wrist or even at the forearm and they might say, "Did I move it up or down?" and then the patient is going to respond. The harder version is going to be having the caregiver move the finger up or down and then say, "Now try to match that position with your other arm with your eyes closed." That mirror matching is a great challenge because it uses your unaffected side as the answer key.

This one matters enormously for walking and balance in the leg too. So definitely also try it out for the big toe, the ankle, even at the knee. Not just in the arm.

Exercise Five Temperature Discrimination

And then finally, temperature. We're going to target this but carefully because this is where people can get hurt if you are targeting the extremes. So make sure you're using mildly warm versus mildly cool water here. Think a cup of warm water versus a cool spoon.

Don't ever use extremes. The reason is that impaired sensation raises your risk of burns and skin injury because you can't reliably feel temperature. And you can't reliably feel the damage happening either. Practice with safe mild differences only here.

Never test with something hot enough to burn you if the sensation is off. But you do want to try to touch warm water versus cold water and start to notice the differences and then recheck with your unaffected side.

Using Sensory Training in Daily Life

And here's how you graduate from just doing these exercises to adding these things into your life. Take everyday tasks. Picking up a cup, folding the towel, sorting coins, buttoning your shirt even. And now add the sensory question.

Don't only ask, "Can I pick this up?" Also ask, "What does it feel like? How heavy does it feel? How much pressure are you using?" It's the same tasks that you're doing, but now the brain is paying attention to this feeling. That's how sensory retraining becomes a part of your real day instead of one more chore or one more exercise to do.

Oversensitivity and Central Post Stroke Pain

We'll quickly talk about what the flip side is. So some of you here probably don't have numbness, tingling, decreased sensation at all. Instead, normal sensation might feel exaggerated or distorted. You might have that burning, the electrical sensations, pain from even light touch or extreme sensitivity to temperature.

And I want to say this clearly, more sensation isn't necessarily better sensation. If your experience is one of too much, then the plan is different. So let's discuss that. This is important here.

So that persistent burning, the tingling, the painful temperature sensations can be linked to something called central post-stroke pain and that's when the stroke itself disrupts the pathways that process pain and sensations. Please do not treat painful symptoms as something just to grit your teeth and push through. Bring these to your physician, your neurologist, your rehab team because treatment for this is genuinely different than ordinary sensory retraining that we just discussed. We have a whole other recorded webinar on this type of pain as well as chronic neurologic pain where we discuss this more in depth both for why this happens and the treatments for this.

So go check that out as well. But this is really a whole other team-based approach here with both medication and exercises. So keep your medical team informed.

Safety Habits and Key Takeaways

Quickly going through just some safety habits. So with reduced sensation or impaired sensation, injury can happen with no warning signal. You may not notice that burn or that cut. Too much pressure might cause a blister that you might not feel.

There might be something caught under your foot in your shoe. Maybe your AFO or your bracing might be uncomfortable and you might not notice it. Maybe your hand is resting against something hot. So build these habits below.

Check your skin regularly. Use your eyes to compensate for what you can't feel. Be careful with hot water or heating pads as we talked about. And test water temperature with your unaffected side only.

And wear good footwear for sure. So if your brain is not warning you, then we're going to borrow another system which is usually vision to help protect you here. So if you remember nothing else, remember these three things. First, sensory changes are going to be different for everyone.

Numbness, tingling, altered temperature, poor position sense. These can happen alone or altogether. Secondly, sensation and movement work together. Improving how the brain interprets feedback may support better movement and better function.

And then finally, practice should be active and meaningful. Touching different textures is fine, but asking the brain to compare, identify, and use that information during everyday movement is what matters most.

Recovery Resources

Here's where to learn more. You're going to find more free stroke recovery education and exercise guidelines at flintrehab.com/learn. And you can reach out to the team at this number and the email on the screen. Another standard important reminder, this webinar is just educational.

It's not a substitute for your own care team's advice. Make sure you're talking with your own medical and rehab team about your personal plans.

Now it's your turn. Sensory changes are going to look different person to person. I genuinely love to hear what your sensations are. Tell me in the chat what your skin feels like and we can answer any questions.

Make sure you're putting it in the Q&A section. I'm going to give everyone a couple minutes and then we can kind of discuss what those are.

Q&A

As always, if it is something more specific, then I may email you afterwards because it might require some more back-and-forth questions.

How long does it take for sensation to get better?

As we discussed, that evidence is still a little bit unknown. We do see most of that early recovery spontaneously within the first three months, 3 to 6 months and then with training we see improvements more after that. In terms of how long that takes, that really varies person to person overall.

How much and how often should I do these sensory exercises?

I see a bunch of people asking that. Again, there is no rigorously validated repetition and set prescription for these sensory discrimination training exercises. But in general, looking at the evidence, most have done about two to three sessions a week for about 45 to 70 minutes each. Break it down to about 10 to 15 repetitions per exercise, really focusing on thinking through and trying to figure out what that object is or what you're feeling.

So it does vary a lot but typically the 45-minute sessions two to three times a week is what is shown in a bunch of evidence and studies.

Are there different exercises for different body parts?

Whether it's on the face, the arm, the leg, same concepts are going to apply. So I would say take those five exercises and try those out on the affected part of the body. Of course, a little bit harder to do if it's not your hand or your foot for object recognition, but you can still go through the temperature discrimination, the light touch, the localization exercises there.

Is physical therapy once or twice a week enough?

I know some of you are having PT, maybe once a week or twice a week overall. What I really want to focus on for education here is this. PT, it might only be prescribed one time a week, but as I'm sure your therapists have mentioned to you, it's not about what you just do with your therapist in the therapy session together, but what you are doing at home. And that's what I really wanted to highlight with these five exercises is what can you do at home to help supplement?

And that's probably something that you want to discuss more with your actual therapist if you are still seeing them in person, which it seems like a lot of you are, about what you should be doing at home, but try to incorporate more of these exercises to supplement as well.

Can you answer specific questions about my imaging or MRI?

Some of these are more specific in regard to imaging and MRIs that you may have. I would say email me. Throw your email in the chat or email me based off of the webinar link that we'll send afterwards. And we can talk about the specifics a little bit more.

Why does a leg feel heavier or sensation change at some times more than others?

Is there something that causes it, or is this more normal? This can vary a lot. Either day to day or depending on different factors, maybe if you're noticing more tone, fatigue, etc. There are certain triggers where you might start to notice in general any of your symptoms a little bit more than others. it is not going to always be a constant level of that sensation.

Will the webinar be sent out afterwards?

Yes, we are going to send out this webinar afterwards.

Closing and Future Topics

If you have any suggestions about future webinars, I'm happy to take those. So feel free to put those in the chat or the comments below as well. We have a lot of really great questions here. So I appreciate everyone adding those in.

But I'm going to log off right now and we'll answer some of those with emails. So thanks so much for joining and I'll talk to you over email.