

Are brain changes in response to relaxation also physical?

Absolutely! Regular relaxation and calming changes our brain anatomy. The key is consistency. Daily practice of these skills will produce the best results.

O Do I need to use the binaural Calm Tool app forever?

Research suggests that lasting positive brain changes occur after using skills for 2-3 months. Over time, you may notice that regular use of the Calm Tool helps your brain and body be more relaxed in general. That's good news! It's a sign that your practice has helped create lasting changes that lead to relief. After 3 months you will know how well Empowered Relief is helping you, and you can either stick with your daily plan or change it based on your needs.

Use your Empowered Relief plan – including the Calm Tool app-- daily for 3 months.

Will the binaural work if I have a hearing problem in one ear?

We don't have any data to tell us how the binaural audio works in people who have hearing issues or are deaf in one ear. For this reason, we recommend people with hearing issues still use the binaural audio because they may gain the same benefits. At minimum, you will benefit from the guided relaxation. On its own guided relaxation has been shown to have major benefits for health and for pain relief.

Q. I noticed my pain more during a relaxation time, is this common?

While not common, there are things you can do to address this. Try using the audio file when your pain is relatively lower for you – during times when you are most comfortable. That way you will train your nervous system to an even calmer state of being – this is where you will find greater comfort. You will also have an easier time learning this calming skill. Then, you'll be ready to use this calming skill during times when you have more pain or stress.

Q. I like spending time at the lake. Is this good for my self-soothing action list?

A. Your self-soothing action list should contain things you can do right away, without having to get in the car and drive anywhere. Remember, the goal is to "change the



channel" in your brain right away, to shift your attention away from stress/distress and toward immediate comfort. So, if the lake is right outside your door, add it to your list! But otherwise, think about things you can do at home, such as taking a bath, sitting in nature, watching the sky, reading a comforting passage or quote. Whatever will help shift your attention toward self-soothing. Your list is small actions that help you focus on what you can do to help yourself in the moment.

- Q. I got very relaxed and sleepy doing the in-class relaxation. When is the best time to use the audio file? When I'm ready for bed?
- The best times are the times that work for you! The goal is to make it a routine practice. Like many people, you may wish to use the audio file before bed because it can help you get to sleep quicker. You can also use it to get back to sleep if you wake up during the night. Just be sure to also use the audio file during the day so you can help learn deep calming while you are awake.
- How do you change the channel when you're forced to do what's making your pain worse? For example, having to work part-time or full-time.
- people get creative with their plan and have strategies they use during their lunch break and during their work as well. Many people implement slowed breathing while doing work tasks with much benefit. The ideal time to use these skills is when you can give them our full attention. But integrating them into your daily work life is important for managing pain.

In this case, we recommend you tailor your personalized plan to your workday. Many

- Is the binaural audio file similar to meditation?
- A. The binaural audio is not meditation, but it has some similarities. Relaxing mind and body and allowing thoughts to gently drift from the mind these are common principles of meditation. Differences include the voice direction, and the binaural component.
- Q. I have a very low pain survey score. My thoughts don't seem to be the problem.
- That's wonderful. One important goal is to achieve a low pain survey score and you are already there. Still, research has shown that even when people have low pain survey scores, they gain important benefits and pain relief from Empowered Relief. You can use the information and the three core skills use of binaural audio, identifying and interrupting unhelpful thoughts whenever you do notice them, and using the self-soothing actions— to help keep your nervous system calm and your



body comfortable. For some people, like you, the mental component may be minimal while the physiologic component is a bigger issue. Empowered Relief targets both.

What are the clinical study links?

Feel free to send us an email requesting the specific studies of interest. Most of them are cited on your slides. Below are some key studies discussed in Empowered Relief:

- Empowered Relief shown to be as effective as 8-sessions of cognitive behavioral therapy for chronic low back pain (3 months after treatment): https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2783047
- Online Empowered Relief shown to have broad benefits 3 months after treatment: https://www.jmir.org/2021/9/e29672/
- Structure and Function Correlate with Disease Severity and Pain Catastrophizing in Migraine Patients: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4399775/
- Cognitive-behavioral therapy increases prefrontal cortex gray matter in patients with chronic pain: https://pubmed.ncbi.nlm.nih.gov/24135432/

Q. I don't use headphones – not comfortable for my head nor my ears. Can I do the binaural exercise with just a regular stereo speaker?

If you cannot tolerate headphones, small in-ear earbuds accomplish the same goal and still allow you to benefit from the binaural component. If you cannot tolerate headphones or earbuds, you can just play the audio file on any speaker system and gain the benefits of deep relaxation.

A. However, getting the added binaural benefit does require the use of headphones or earbuds. The binaural component helps your brain and body gain deeper calming and it helps your brain and body more quickly "learn" this state of deep calming. Just know that if you cannot use headphones or earbuds the Empowered Relief program will still work for you! Be sure to use your calming audio file daily.

Can I just get the binaural tones with no voice?

A. effects, and we recommend using the audio file we provide because it was included in our Empowered Relief studies that demonstrate lasting pain relief. However, some



people may wish to source binaural tones on the internet, as some are available for free. You may also source other types of guided relaxation audio files to achieve daily calming.

Can the brain shrinkage be changed or reversed?

Yes! As discussed in Empowered Relief, researchers conducted a study in people with chronic pain where they scanned their brains before they received CBT, and then they scanned their brains 11 weeks later, after their CBT treatment was complete. Research shows that brain volume increased over 11 weeks' time by using the same skills you are learning here.

A. It is not just coming to the class that makes the difference. It is using these skills regularly to retrain mind and body away from pain. They showed that when people apply these skills in their daily lives, it increased the volume in the brain regions responsible for pain control.

The researchers also found that the people who got the best brain strengthening results were the people who, over time, were able to reduce their score on the pain survey you completed. Over the course of 11 weeks, they learned to gain better control over their thoughts, to calm their nervous system regularly. This is the formula for helping you gain control.

Is sleep equivalent to the relaxation response?

Sleep is like the relaxation response. Notice that right before you fall asleep your breathing slows and your muscles relax completely – the relaxation response is essential for sleep! You can also achieve a relaxation response while awake – and this is an important goal of Empowered Relief: to get your body very relaxed in the waking state. The relaxation response is the opposite of the pain/stress response. You will be able to have more control over this in your life with daily practice.

How do you use these relaxation techniques when your pain only hurts when you're walking? I have serious scoliosis, so I don't walk much because I don't want the pain.

The skills and the entire program work regardless of how your pain is triggered. A key goal is to help your brain and body lower your baseline level of stress and tension, and your body's baseline reaction to pain (your pain response). Given this, you would focus on using your personalized plan daily without being focused on when you have pain. That said, as you gain skill in applying the relaxation response when you are



comfortable and not in pain, you can then progress to applying the skills to standing and walking.

O. Does diet, amount of food, comfort food, influence stress and tension level?

A. Lifestyle factors and habits can impact stress and tension levels, which can in turn impacts pain levels. General health advice such as avoiding drugs and alcohol, getting good sleep, drinking plenty of water each day, and getting daily movement or exercise are all good pain management principles.

Are you saying it's all in my brain, but isn't my brain in my head?

different from saying that pain is caused from a psychological problem or that it's "all in your head". Your psychology matters when it comes to pain and pain relief. That said, Empowered Relief is about helping people with painful medical conditions become equipped to work with their body's natural response to pain—which is common to all people and unhelpful for chronic pain—and to begin to cultivate control over it to gain an important level of relief. Empowered Relief works alongside other treatments your doctors may prescribe for your medical conditions.

Pain is processed in the central nervous system which includes the brain. This is very

O Ideally how slow should we focus our heart rate down to?

As you're listening to the audio file, there is no need to focus on your heart rate. Close your eyes, allow yourself to enter a state of relaxation, slow and deepen your breath, at your comfort level/pace. Your heart rate will naturally slow in tandem with your breath because breathing rates and heart rates are linked together.

O. Does having anger because I'm having an extreme pain episode cause the same brain reactions as other emotions?

There is a body of research on anger, showing that it influences the brain, the nervous system, the body, and pain. This is why it's important to be aware of the patterns of unpleasant emotions, whether that's sadness, anger, depression, anxiety, or feeling helpless. These patterns of emotions are normal, yet unhelpful for pain. Recognizing and honoring your emotions, and then applying your Empowered Relief calming skills will bring you into a more neutral state of self-compassion, peace, and will give you greater comfort and control.



I've been dealing with my pain for over 45 plus years. Will Empowered Relief help me?

people who have had pain for decades as much as it helps people who have had their pain for less than one year. Studies also show that Empowered Relief helps people even when their score is very low on the pain survey. The pain survey is useful for most people to understand how their mind responds to pain. Even if your pain survey score is low your body can still benefit from using your personalized plan and the binaural audio file daily.

Four different Empowered Relief studies have shown that Empowered Relief helps

- Is there a shorter version of the relaxation audio? I could do multiple 10-minute sessions in cases when I cannot do one 20-minute session.
- Yes! We have a 10-minute binaural audio available on the website along with the 20-minute version. We recommend you use the 20-minute version daily but provide the 10-minute version exactly for the reason you describe.
- If I have trouble with Step 2 thought reframing--can I speak with my instructor and get help with it?
- Yes just reach out to your study coordinator and we can connect you with your class instructor or another Empowered Relief instructor who can help you complete Step 2. It's important to create your reframe statements and we are here to help you with that.
- When I bring my focus to my body, I experienced my pain more because most of the time I'm trying very hard to ignore my body.

what is happening in the body to avoid pain. So, when we go into relaxation, we calm our mind and body and allow ourselves space to tune in to what's happening, and we may observe the pain. It is okay to notice it. Invite yourself to experience the self-soothing and allow the relaxation to wash over you. Within this context, the binaural will be working to support you so that you can achieve a deeper level of relaxation. Any tendency to focus on the pain – and to have an automatic response to it – will lessen over time.

When we have chronic pain, we may spend a lot of time distracting ourselves from

How do I build accountability into my personalized plan for empowered relief?



frequently you are going to use your binaural audio file, and your plan to identify and interrupt any unhelpful thoughts or stress when it arises. You may wish to set a schedule and each day track how you are doing with your daily practice. For instance, if you have an electronic calendar you can set into your calendar specific times to use your binaural audio file. Another example is you can set an alarm on your phone or device to remind you, and you can create a plan or a schedule where at the beginning of every day, you review your personalized plan. You may tape your plan to your mirror in the bathroom and glance it over to refresh your memory, so that it stays at the forefront of your mind and so that you're able to integrate it into your schedule. We are changing patterns and so it will require a bit of creativity for how you are going to integrate this information and how to hold yourself accountable. We recommend that in the days after the class, try using sticky notes, an alarm, and put it in your calendar. Also, find a way to check in with yourself every day and ask yourself "where am I in the plan, how did I do today, what can I do tomorrow."

Your personalized plan is your roadmap, where you can set a goal and target for how

What is your opinion on muscle relaxers on the central nervous system?

Medications can be helpful for some people and less helpful for others, and making medication changes can often lead to discomfort. Our goal is to try and help people need less medication, where possible. Beyond that, consult your prescribing clinician on medication choice, dose, efficacy, and side effects. It is important to know that certain techniques –such as those you learned in the class – can help you achieve some of the same benefits on your own.

Can I use my Personalized Plan for Empowered Relief for general life stress – like when I'm feeling challenged managing my family?

Definitely. Your 3 core skills (the audio file, your thought reframes, and your self-soothing action list) can be applied to any stressful events in your life. Lowering stress is great for pain relief.

I felt some discomfort when using the binaural app for the first time. Is this normal? What should I do?

A. It is not normal to experience discomfort with the binaural and it's also important to pay attention to your experience. In these cases we recommend you stop using the binaural app and not try to 'push through it'. You can try using any general relaxation audiofile (without binaural), see if it that is more acceptable to you, and if so integrate that instead into Step 1 of your personalized plan. If you experience anxiety or any



other issues with relaxation we recommend you speak with your doctor for medical advice.

If I still have pain, does that mean I'm in a pain response?

Pain and the *pain response* are different things. The pain response is how our brain and body naturally respond to pain: such as fast heartbeat, shallow breaths, tight muscles, and distress. You have learned skills to help move your brain and body away from these automatic responses and toward greater comfort. You can calm your nervous system repeatedly and break pain response patterns that worsen pain. People often still have pain, but find it is less impactful, less bothersome, and less intense – because their automatic pain responses have lessened.

