

Treatment Outline for Pain Reprocessing Therapy

I. Education about the brain origins and reversibility of pain and the pain-fear cycle.

PRT begins with education about how pain can be present in the absence of any tissue damage. For example:

“Pain is a danger signal. If you put your hand on a hot stove, the pain is letting you know to move your hand, so you don’t injure yourself further. But sometimes these danger signals can get activated even in the absence of structural damage. Sometimes, the brain can interpret safe signals from the body as if they’re dangerous, even though there is nothing injured in the body. In these cases, the pain is like a “false alarm”. The alarm is really going off (your pain is totally real), and at the same time, there really is no fire (your body is not injured).”

Education is then provided about the pain-fear cycle. For example:

“When we have a lot of fear and preoccupation around the pain, it reinforces to the brain that the pain is dangerous, and the pain persists. Here’s how the cycle works:

1. Pain triggers feelings of fear.
2. The fear puts the brain on high alert which causes more pain.
3. Which leads to more fear.
4. Which leads to more pain.

We break this cycle by shifting our perspective of the pain and thinking of it as completely safe. As you learn to eliminate the fear around the pain, over time your pain will fade” (Gordon and Ziv, forthcoming).

II. Gathering and reinforcing evidence.

It is difficult to overcome the fear around the pain if one believes that the pain is an accurate reflection of tissue damage in the body. So, a goal of treatment is to help patients embrace the idea that *their* pain is due to central processes, as opposed to a structural or physical problem in their bodies.

This can be challenging for three reasons:

1. Biology: We are evolutionarily wired to associate physical pain with physical injury.

2. Previous diagnoses: Many chronic back pain patients have been given structural diagnoses (herniation, disc degeneration, etc.).
3. Learned associations: Many chronic back pain patients have developed learned associations – physical positions (e.g., sitting, standing) or activities (e.g., walking, running, bending) that have come to be associated with the onset pain, reinforcing the belief that there is something structurally wrong with them.

One way to combat the belief that there is a “structural”/peripheral cause of the pain is by gathering as much counter-evidence as possible – evidence reinforcing that the pain is actually due to central processes, as opposed to a structural problem in the body.

Indicators of centralized pain include:

- Pain originating during a time of stress
- Pain originating without injury
- Inconsistencies in how pain presents
- Patient presenting with a variety of different somatic symptoms
- Pain triggers that indicate centralized processes (e.g., social contexts, etc.)
- Instances where the pain wasn't present, despite patient engaging in physical positions or activities that generally brings it on

The therapist and patient work together in a collaborative effort to gather and reinforce evidence that their pain is not a function of underlying structural pathology. The therapist can assist the patient in developing an evidence sheet - a list of all the support that reinforces that patient's pain is due to central processes. A sample evidence sheet might be:

- MRI showed that my back looked pretty good overall.
- I have a history of other pain syndromes (headaches, IBS...)
- My back pain started two weeks after my mom moved in with me.
- The pain is a lot worse when I'm at work and it's barely there over the weekend.

This process of evidence gathering is ongoing. Often treatment can provide additional evidence for centralized pain, which can create a positive feedback loop. For example, if the therapist leads the patient in a psychological exercise that results in a large pain reduction (e.g., during “somatic tracking”—see below), this becomes another piece of evidence that there may not be a structural basis for the pain.

III. Attending to and appraising pain sensations through a lens of safety

A central technique in PRT is called “somatic tracking”. The goal of somatic tracking is to help the patient attend to pain sensations through a lens of safety. Somatic tracking is

used both during interoceptive exposures to pain sensations and during situational exposures to feared, pain-eliciting activities.

When the patient has pain associated with a physical position like sitting, the therapist can guide the patient in a somatic tracking exercise while the patient is seated. When the patient has pain associated with movements or activities (walking, bending, twisting, etc.), the therapist can lead the patient in a somatic tracking exercise while the patient is engaging in that movement or activity.

Somatic tracking involves three components: mindfulness, safety reappraisal, and positive affect induction. The **mindfulness** component of somatic tracking promotes exploring the pain sensations with a sense of objective interest and curiosity:

- “How would you describe the quality of the sensation?”
- “Is it widespread or localized?”
- “You don’t need to change it, you don’t need to get rid of it, you’re just exploring it. It’s like you’re a passenger in the car, just along for the ride.”

Mindfulness alone often isn’t sufficient to neutralize the fear around the pain, motivating the need for the second component of somatic tracking: **safety reappraisal**. During a somatic tracking exercise, the therapist continuously helps the patient reappraise the sensation as safe:

- “Even though it’s a tight/burning/tingling sensation, we know that it’s safe. We’ve gathered a lot of evidence. Your back is perfectly healthy. Your brain is simply misinterpreting the signals coming from your body as if they’re dangerous.”
- “We all feel sensations in our backs when we bend. Because our muscles are being stretched. In fact, it’s often a nice sensation. It’s just that your brain is interpreting this sensation through a lens of danger, so it’s being experienced as unpleasant. But there’s nothing wrong with your back. Your muscles, your tendons, your ligaments, they’re all perfectly healthy. This is a safe sensation. It’s just a gentle stretch.”
- “Right now, you’re feeling a burning sensation in your back. But that isn’t the issue. The issue is that you think burning indicates danger. But burning doesn’t have to feel bad. Think about when you first get into a jacuzzi, or when you’re taking a nice, hot shower... there’s a burning sensation, but it actually feels really nice. So, see if you can pay attention to this burning sensation in your back right now. We know that there’s nothing wrong with your body, this is just your brain putting on a show for you. It’s just an interesting burning sensation, but we know that it’s safe. So just sit back and enjoy the show.”

The safety reappraisal component of somatic tracking is important, but if the patient isn't able to authentically buy into these messages of safety, it falls flat. This is why the evidence gathering component of PRT is so important. If the patient can truly embrace that the pain isn't a reflection of tissue damage in their body, it lays the foundation to authentically attend to these sensations through a lens of safety.

The third component of somatic tracking is **positive affect induction**. If the therapist is able to lighten the mood, it allows the patient to more easily attend to the sensation through a lens of safety and positivity. Humor is one of the best ways to achieve positive affect induction:

- “Remember, whatever happens to the sensation is okay. Because it's safe. So, let it do what it's going to do. All you have to do is watch. It's like you're snorkeling or scuba diving and you're floating there, and you see a school of beautiful fish. You're not trying to chase the fish. You're not trying to catch the fish. You're just calmly watching them. Your back is the ocean and the sensations you're feeling are those fish. All you have to do is observe. I'm just a friendly sea turtle swimming nearby. A friendly, talking sea turtle. Okay, I may have taken this analogy too far” (Gordon and Ziv, forthcoming).

Picturing the therapist as a talking turtle is a little silly, and that's the point. This is all about lightening the mood. The goal is to help the patient observe their physical sensations with lightness and curiosity.

In addition to leading the patient in somatic tracking exercises in-session, the therapist guides the patient on how to practice on their own. Patients are guided on when to engage in somatic tracking and when to abstain, based on the level of pain intensity. Often during a somatic tracking exercises, patients are able to get a “corrective experience”. If they sit/stand/walk/bend with little to no pain, it further reinforces that the pain is due to central processes, and that there is nothing wrong with their bodies. This frees them up to engage in previously fear positions and activities. Subsequently when the pain does arise, instead of responding with fear, frustration, or despair, the patient is able to authentically reappraise the pain as a misinterpretation by their brain, as opposed to a reflection of tissue damage in their body.

IV. Addressing other emotional threats

When we are in a state of high alert, we are more likely to interpret *everything* through a lens of danger. Loud noises will make us jump, light touches will cause us to recoil, and sensations in our body are more likely to be experienced as painful.

PRT thus aims to lower a person's overall threat level. This can include helping someone process threatening emotions, a history of trauma, difficult relationships, and more. As overall levels of fear and stress decrease, the brain is more likely to interpret signals from the body as safe, leading to a reduction in pain. Techniques for expressing, disclosing, and processing difficult emotions from several relevant therapeutic approaches (e.g., emotional awareness and expression therapy), can be used for this component of PRT.

Relatedly, patients often have a tendency to engage in psychologically destructive behaviors, such as self-criticism, putting pressure on themselves, and scaring themselves. These behaviors can further communicate messages of danger to the brain, thus increasing susceptibility to pain. As part of PRT, the therapist helps the patient identify such psychologically destructive behaviors and develop the skills to intervene on their own behalf.

V. Gravitating more generally to positive feelings and sensations

In addition to reducing the patient's overall threat level, PRT also aims to increase an overall feeling of safety. Pain patients have become so conditioned to gravitating toward negative and unpleasant sensations in their body that they often focus on many things through a lens of danger (sensations, emotions, even their own selves). One of the goals of PRT is to help the patient more globally shift from "danger mode" to "safety mode."

The therapist can help the patient attend to pleasant sensations in their body (e.g., the breath) through a lens of positivity:

- "See if you can pay attention to the physical sensation of the breath. The air is cool as it comes in, and warm as it goes out. You don't want to scrutinize it like the way you study for an exam, you're simply watching it with a sense of effortlessness and ease, like when you're lying back in a meadow and watching the clouds pass above. And see if you can actually enjoy this pleasant feeling in your body."

As the patient gets practice leaning into positive sensations through a lens of safety, it increases their capacity to attend to aversive sensations through a lens of safety as well.

Likewise, the therapist can help the patient gravitate toward other positive emotional states. For example, techniques for increasing self-compassion and gratitude can help further generate that shift from "danger" to "safety".

Ultimately as the patient develops the skills of attending to internal and external stimuli through a lens of safety and promoting a more general felt-sense of safety, it will support reappraising pain sensations as safe as well.

Conclusions

In PRT, the first focus is on education, evidence-gathering, and reappraising the pain sensations as non-dangerous (typically using somatic tracking). Other components of PRT are then engaged as needed (e.g., addressing threatening emotions, learning to attend to positive sensations). We then return the focus of treatment to the pain sensations as soon as appropriate.