

# RECOVERY strategies

- pain guidebook -

Dr Greg Lehman



# RECOVERY strategies

- stuff that goes in the front -

## Warning

This workbook provides general advice which may not be specific to you. It is important that if you are in pain you see a health care provider for a diagnosis and screening for serious, albeit rare, pathology. Most pain is not life threatening or serious. But very rarely, pain is a sign of something else like a tumour, infection or other serious diseases. Please talk to health care provider if you have not seen one before. Last, work with your health care provider when using this book

## Patients: How to use this book

This book can be used on your own but it is probably best used with a healthcare provider. You can work together to help with your recovery.

This book has 4 sections and they can all be read independently. There is a lot of overlap and you may not need to read each section. It would help to read the other sections but it is not always necessary.

## Therapists: How to use this book

This book is in 4 sections. Not all of them will be relevant to your patient. Nor will every part of each section be relevant to your patient. For example, in the Key Messages there are 10. Not all of these need to be delivered. You might want to just print out the specific pages relevant to your patient. There is built in redundancy throughout the book. Consider every page of the first 3 sections as a stand alone infographic. Again, content will repeat throughout the book.

## Acknowledgements

The biopsychosocial model has been around for more than 30 years when it comes to treating pain. There is not much new so I take no credit for creating any ideas. Rather this is a compilation, a re-organizing and a particular presentation of the science to date. My influences are too numerous to list and this book has been greatly improved and enhanced by countless discussions with colleagues both online, at conferences and the participants in my course. I am indebted to a vast number of people and grateful for their help through the years.

## Reproduction Ethos

If you would like to translate this book to other languages you are free to do so. Please email me and I can send the Indesign file to allow you to change the text. If you are a healthcare provider and wish to give a presentation on components of this book you are also free to do so with appropriate recognition of the source. It would be less cool to take some of the content and design and pass it off as your own though.

## About the author

Greg Lehman is a clinician, researcher and clinical educator. Teaching therapists and treating patients in the fields of Kinesiology, Physiotherapy and Chiropractic for more than 20 years. Greg has a practice in Toronto, Canada helping a range of patients as diverse as elite runners striving to make the Olympics to people with persistent pain struggling to play with their kids again. Greg teaches two continuing education courses for professionals entitled "Reconciling Biomechanics with Pain Science" and "Running Resiliency: a comprehensive approach to running injury management and performance".



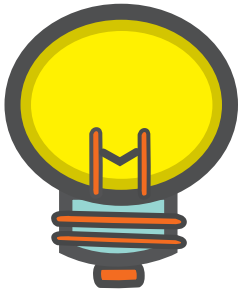
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RECONCILING  
BIOMECHANICS  
WITH PAIN SCIENCE

# RECOVERY strategies

- book section how-to -



## Section I: PAIN PRINCIPLES

5

A small section on the underpinnings of the mechanisms of pain. Not too technical and not relevant to every patient case. Gives some insights into nociception, the processing of nociception and the production of pain. Insights into the modulation of pain both habituation (turning down) and sensitization (amplification) is discussed. A basic and brief section for patients who might want to learn some more details about pain mechanisms. Each page can be printed separately and considered an infographic.

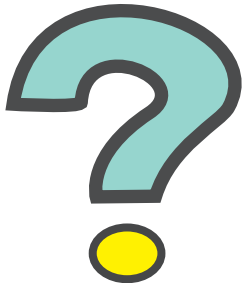


## Section II: KEY MESSAGES

17

The backbone of this workbook and might be the most important section. Key Messages are ideally delivered at the right time to the right person. They help people reconceptualize pain, change their own beliefs about pain and facilitate healthy behaviours to help with pain. Not every Key Message is relevant to every patient so health care providers might want to pick which one their patient needs. This section could be printed in its entirety or an individual page could be printed on each patient visit and viewed as a standalone infographic.

For patients, you can read the whole thing and consider what is relevant to you. Follow up with your healthcare provider to see how it fits with your treatment.



## Section III: PAIN CONTRIBUTORS

29

Pain is multidimensional and influenced by a number of factors besides tissue damage. This section overlaps with the Key Messages but starts to give the reader more information about potential contributors to pain. You can also view it a little like a myth debunker. We have information on posture, strength, movement habits, sitting, mechanical deformities, depression, fear, exercise. You name it. We tried to address it. Again, each page is an infographic.

Again, you can print only parts of this section or have your patient read the whole thing. If reading the whole thing, it will help set them up for the Recovery Strategy section. Where your patients in pain start to assess what factors/contributors might be relevant to them...and then do something about that.



## Section IV: RECOVERY STRATEGY

47

This section may not be for everyone. Just learning about pain and Key Messages could be enough. But in the first half of this section (Self Audit) your patients or you go through potential pain contributors and make an assessment of what is relevant. Then in the second half of the section Relevant Recovery Strategies are created. One of the most useful parts is the goal setting for meaningful and missing activities. Sometimes just doing is the fixing.



# RECOVERY strategies

## - table of contents -

### Section I: Pain Principles

The point of understanding pain	6
Pain defined	7
Pain is an alarm	8
The process of pain	9
Nociception: our surveillance system	10
The spinal cord: our switchboard	11
The brain: the family meeting	12
Pain is meant to motivate an action	13
Learning pain: painful memories form	14
Sensitization: more pain more gain	15
Habituation: turning pain down	16
Cortical Reorganization	17

### Section III: Pain Contributors

Pain is multidimensional: the overflowing cup.	31
The role of physical loading: too much too soon	32
Degeneration, arthritis and muscle tears: your wrinkles on the inside	33
Strength and flexibility: when are they important?	34
Physical wonkiness: moisture, sitting and structure	35
Recovery is key: stress and sleep	36
Adaptability is limited: life's stressor	37
Moving differently with pain: how habits can perpetuate pain	38
Its not all in your head: our sensitive and protective ecosystem	39
Emotion and Psychological Factors	40
Our unhelpful coping strategies: Do you persist or do you avoid?	41
Biographical suspension: missing the meaningful things in your life	42
Poking into pain: when can pain be your guide	43
Self efficacy, tolerance, and adaptation: someone else doesn't need to fix you	44
Social, lifestyle and general health: other dimensions to pain	45

### Section II: Key Messages

Pain is an alarm, meant to protect	18
Pain is poorly related to damage	19
Pain is more about sensitivity than damage	20
Many factors can influence sensitivity	21
Protection can be overamplified and persist past healing	22
Pain is normal but can seem weird	23
You are strong and adaptable	24
You respond positively to stress	25
Altered function is poorly related to pain	26
You don't need fixing - no movements should be off limits forever	27

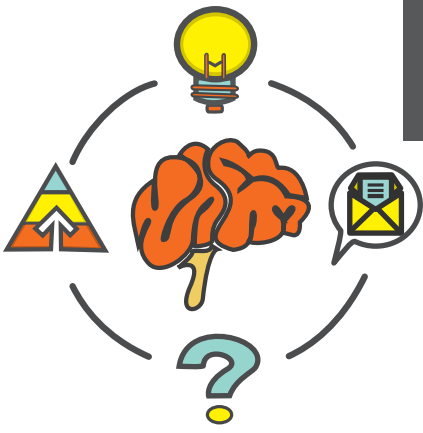
### Section IV: Recovery Strategy

Pain is multidimensional	48
Pain Contributors	49
Self Audit: What is in your cup?	50
Self Audit: Tissue Injury?	51
Self Audit: Physical habits?	52
Self Audit: Physical impairments?	53
Self Audit: Meaningful activities.	54
Self Audit: Lifestyle, social and health factors	55
Self Audit: Coping - avoidance or persistence?	56
Self Audit: Emotional and psychological factors	57
Self Audit: Beliefs about pain	58
Self Audit: Summarize your contributors	59
Recovery Strategy: Building a bigger cup	60
Recovery Strategy: Where can you be healthier	61
Recovery Strategy: Resuming meaningful activities	62
Recovery Strategy: Addressing your barriers to activity	63
Recovery Strategy: Getting where you want to be	64
Recovery Strategy: Weekly activity goal setting	65
Recovery Strategy: Addressing injuries or damage	66
Recovery Strategy: Addressing habits or impairments	67
Recovery Strategy: Let's get physical	68
Recovery Strategy: Living healthy and happy with pain	69
Recovery Strategy: Graded exposure to movements	70
Recovery Strategy: Learning more	71



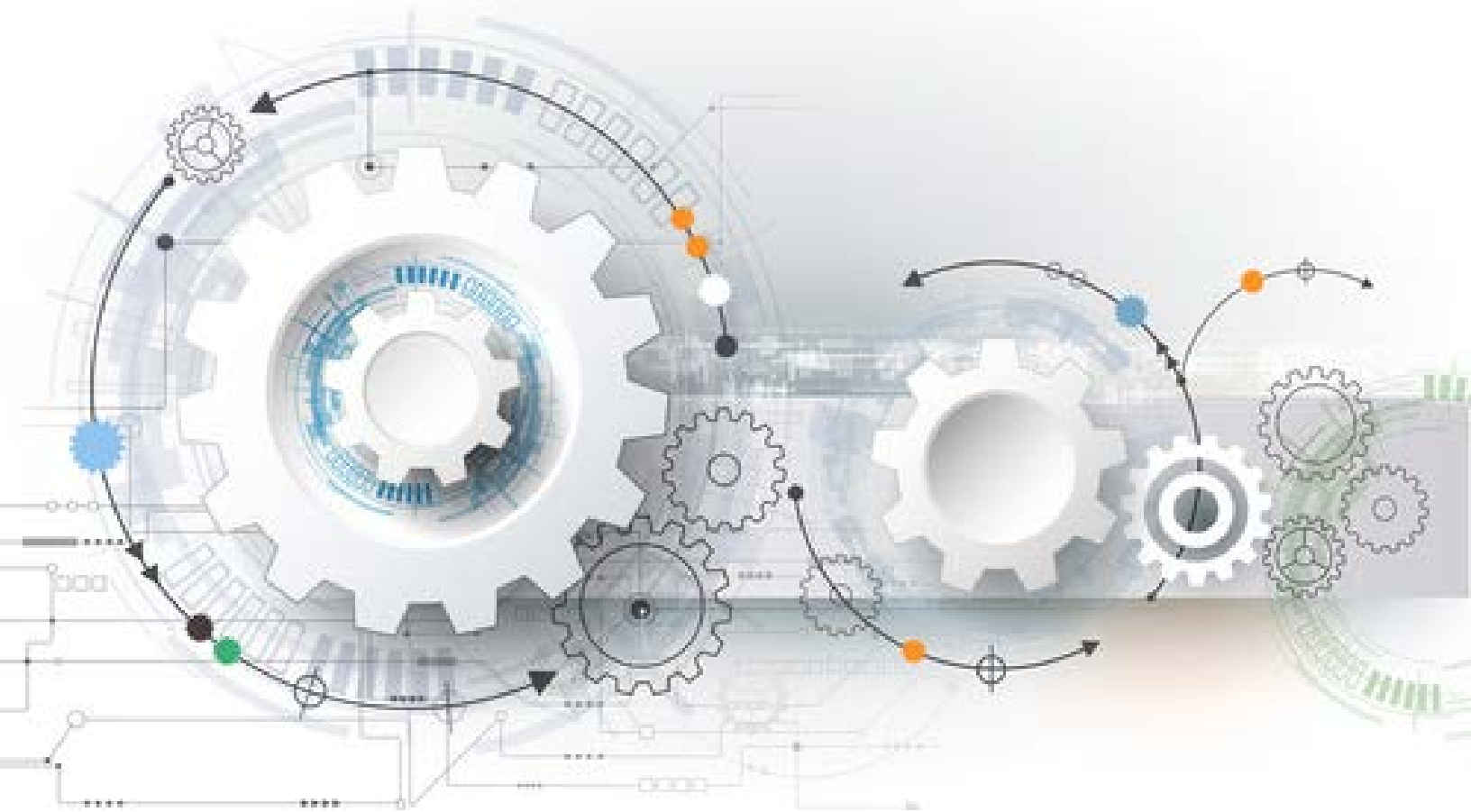
# RECOVERY strategies

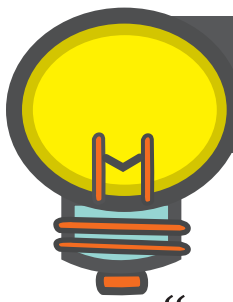
## - Section I: Pain Principles -



### What's Inside?

1. The point of understanding pain
2. Pain defined
3. Pain is an alarm
4. The process of pain
5. Nociception: our surveillance system
6. The spinal cord: our switchboard
7. The brain: the family meeting
8. Pain is meant to motivate an action
9. Learning pain: painful memories form
10. Sensitization: more pain more gain
11. Habituation: turning pain down
12. Cortical Reorganization





## The Point of understanding pain

**“why are you telling me all this stuff?”**



A number of themes will repeat themselves through this book. But one theme that resonates for many is that you can control your pain, manage your own injury and even get out of pain with your own skills and with some guided help from a therapist. Education and knowledge are the first step in problem solving your own pain predicament.

Pain is without a doubt weird. It is never as simple as being some gauge of how damaged your body is. Rather, it is influenced by a number of things in your life...your body being just one of them.

What we've learned through the years is that understanding pain and learning about injuries can help you do the things that help with recovery. Some of those things might be counterintuitive and not make sense unless you fully understand what pain is. For example, many people might think that pain means you need to stop doing everything in your life and if you keep persisting you could harm yourself. There are rare cases where this is true but often rest and avoidance is the opposite of what is needed. When you have pain or injury it might actually be best to get moving again, start exercising or resume your hobbies.

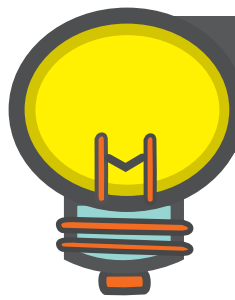
Learning about pain helps change how you think about your problem and can help you start planning out your own personal recovery strategies.

This book (along with many others referenced at the end) teaches you a little bit about pain but ideally it gives you the knowledge to start doing things about your pain.

**“learning about pain can help promote  
healthy behaviours”**







## Pain Defined



“An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage”.

What does this mean?

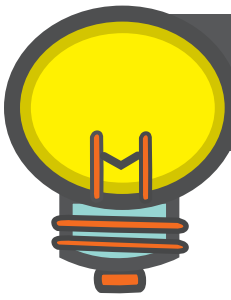
This definition gives us some hope.

The biggest thing you should see is that pain doesn't necessarily mean there is damage. Thus you can have pain with damage, no pain with lots of damage and lots of pain with minimal damage. The definition below is slightly expanded to show that pain is influenced by a lot more than just body tissue. It is affected by and influences other areas of your life. Emotions, sensations, cognitions (beliefs about pain) and social aspects (social withdrawal is common with pain) are involved with persisting pain. **We call this the Bio - Psycho - Social model of pain.** Meaning all areas of your life can influence pain. This is kind of a great thing because it means you have a lot of options to treat your pain. In the recovery strategies of this book you will perform a self-audit to find out what factors might be related to your pain and maybe find some factors that you can change to help with your pain and your recovery.

The Bottom Line: **Pain is not just about Damage**

**Pain is a distressing experience associated with actual or perceived tissue damage with sensory, emotional, cognitive and social components**





# The process of pain (sometimes)

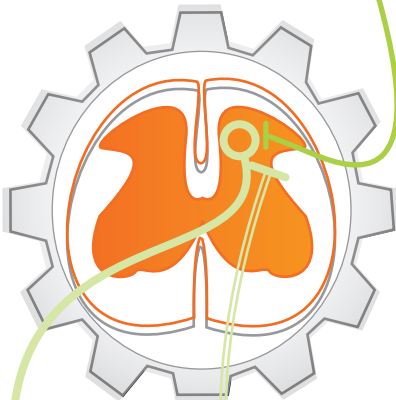
## Nociception



N oxious (unpleasant) stimuli can activate sensors called nociceptors. These sensors send these **potential danger** signals from the body to the spinal cord via nerves. They are signals from nerves in tissues that mean there is the POTENTIAL for tissue damage and perhaps you might want to do something about it.

Those nociceptors send that signal to the spinal cord for further processing. You can think of the spinal cord as a switch board operator who can decide to send the signal on up to the brain or can even decide to leave that nociceptive signal at the spinal cord. Meaning the brain doesn't get the message that there is potential danger. Its like the Boss telling her secretary that she doesn't want to be interrupted during a meeting or she kwnows who is calling and knows from past experience that the message is not important so "Please hold all calls". The spinal cord works like this assistant and can work to turn up the signal or turn it down.

## Spinal Cord Processing



Let's say the signal gets sent on up to the brain/boss. Here is where the magic happens. You get to make a subconscious decision of how important that information is. You essentially ask "Is there really a threat here?". If you think there is a threat then pain will likely emerge. **But none of this occurs consciously.** What we've learned is that pain is multidimensional. Meaning a huge number of things go into to making that decision. Nociception is just one part.

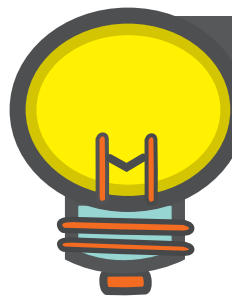
## Pain Emerges



**"how dangerous is this really"?**





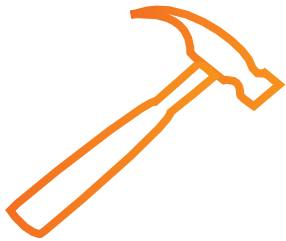


# Nociception

## Our alert surveillance system



We have sensors throughout our body that give us a lot of information. Like most information we get, some of it is useful but we always have to make a decision about what that information means. In our body we have nociceptors. Nociceptors respond to physical, chemical or temperature stressors. And sometimes nociception can lead to pain...which is a good thing. When you sit down your butt nociceptors will yell at your brain sometimes to get you to move. You might move around a little and there will be no more yelling. There wasn't any damage its just that the nociceptors got irritated. If you put your hand near a fire your temperature nociceptors might decide to say something. They will send out a signal and maybe you will move or have some pain. You don't have to have damage here.



**Nociception is a good thing.** But it has to be interpreted. It does not necessarily lead to pain. And like many alarm systems it is better for the nociceptors to be more sensitive than less sensitive. They can send a signal to the brain and you get to make a sub-conscious decision if that nociceptive signal is worth producing pain.



Nociceptors are like the Look-out on a ship. They report when they see something. They don't always care if its a massive ship or some small dingy. The look-out just says that there is a light off in the distance and sends that information on to someone else. Some higher up then makes a decision about what to do. That captain's response will be influenced by where the ship is, what their orders are from the government and what has been happening in the past. **Just like pain!**

## “tissue irritation or nociception is probably unavoidable but it doesn't have to hurt”

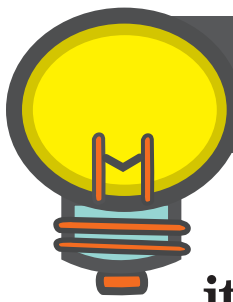
### Changing Nociception?

Nociception can be avoided sometimes although it isn't necessary to avoid it to stay out of pain. You can avoid nociception by avoiding any of the things that trigger nociception (heat, mechanical pressure or chemical inflammation).



Initially, after an injury, it is good thing to rest and not aggravate the injury. This is a case where nociception is important and is probably well related to pain. There is a time and place where we try to avoid nociception and pain. But as pain persists that relationship between nociception and pain becomes less strong. You can start to have more pain with less nociception. Or more pain with the same amount of nociception. You can even have pain with no nociception. What we aim to do is to tolerate that normal nociception rather than thinking we always have to avoid it. But more on that soon.

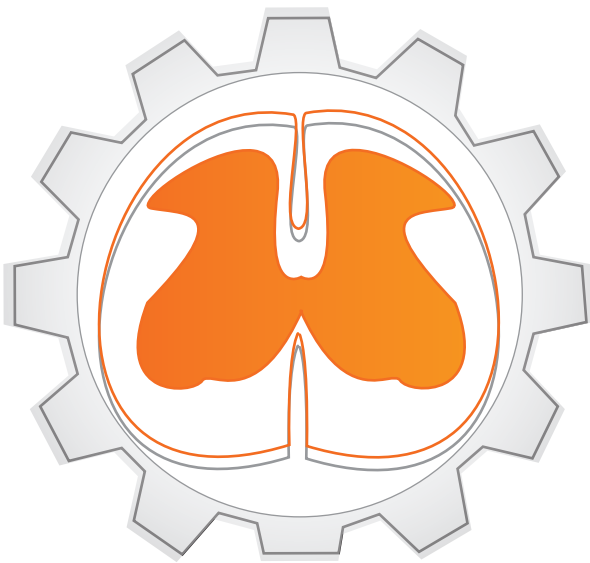




## The Spinal Cord Our switchboard

it can go up or it can go down. you make the call

“I’m a spinal cord”



Nociceptors send their potential warning signals to the spinal cord. At the spinal cord we are able to process this signal. The spinal cord can act like an amplifier where it turns the signal up and then sends it on to the brain or the signal can be turned down and less signal gets sent to the brain.

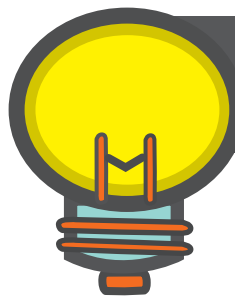
If we stay with the look-out analogy on the ship it is similar to the look-out telling the first mate that there is a light off of the port side. The first mate makes a decision to send this on to the Captain who then might decide to ignore that light or maybe do something to the ship. Sometimes the first mate can make a decision - do I tell the captain about the light or do we just decide to ignore it. This decision will depend on a lot of factors. If the Captain previously told the first mate that there might be some issues with Pirates in the area you bet that the first mate will send that information to the Captain and the Situation Room. If the first mate is nervous, ignored something in the past and got in trouble, that first mate will probably be sending on more information.

Nociception works the same way. Based on descending (instructions from the brain) inhibition (turning down) or facilitation (turning up) from the brain the spinal cord can alter its sensitivity and alter how much signal gets sent up to the brain.

## Processing Nociception - Hold All Calls and Getting Wires Crossed

You can also look at the spinal cord as akin to the switchboard operator or executive assistant. There is some leeway in what calls get sent on through to the boss depending on the instructions from the boss. But, the switchboard operator can make some mistakes. Wires can get crossed. When the boss has decided that all calls are really important the switchboard operator can get a little excited and start confusing calls about nociception with calls that just have to do with something less important. The switchboard operator (the spinal cord) can now confuse signals that normally tell us about things like pressure or touch on a joint with nociception or potential danger. So now, instead of just feeling pressure the spinal cord sends up nociception signals to the brain. This is how we sometimes feel pain when something would normally be felt as just pressure. Not cool but that's how we work. We get better at thinking we need protection and we get better at having pain.





## “how dangerous is this really”?

The brain ultimately makes a decision about what to do with nociception. But like most decisions it doesn't arrive at this decision based on one factor. This is why pain is so much more than nociception. Nociception is just a potential warning signal. It is the same as the lookout yelling that there is light off the starboard side. The brain is like the Captain of the ship and Captains often have a whole situation room to advise them. The Captain will make a decision about that light based on her past experience, where the ship is, what has happened previously and from insight from other officers. The brain works the same way. Expectations, past experiences, beliefs, attitude and emotions can all influence how much or whether you have pain. This is why for the same information (e.g. same nociception) you can have vastly different pain responses.



The brain doesn't just produce pain just like the Captain won't just sound an alarm. The Captain will do other things as well. There are a bunch of decisions to make and all are meant to help protect. Pain can occur but so can muscle tightness, releasing of different chemicals or a stress reaction. If the brain/captain is concerned with the information from the lookout the captain can ask the lookout to be hypervigilant and tell the spinal cord/first mate to keep sending more information up and order the engine room to increase speed and for Tiller operator to turn the ship. But fortunately, the captain can also suggest that while that information is a little bit important it is not too important. Its not worthy of freaking out and creating a lot of pain. Here the captain can send **descending inhibition of nociception**. Essentially, telling the first mate "don't worry about those lights. We understand what they are and there is no need to protect the ship with any evasive action".

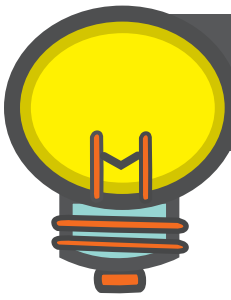
**What can happen with persistent pain is that the Captain and the whole crew stays on high alert.**

They might have passed through the Pirate infested waters where caution and vigilance (and pain) were necessary but now there are no more Pirates. But, we still have the fear of Pirates so the ship stays on alert. Its sensitive and pain is created to keep protecting the ship even though that protection is no longer needed or can be detrimental.

## The perceived need for Protection (“Danger in Me”)

In the great self help book “The Protectometer” David Butler and Lorimer Moseley refer to things called DIMs and SIMs. A DIM means “Danger in Me” and a SIM means “Safety in Me”. If you feel that something in your life is a DIM and these DIMs out weigh your SIMs then you are likely to have pain. The idea is that anything in your life that contributes to you feeling like you need protection (e.g. the DIMs) will contribute to you having pain. Performing a self audit of the things that contribute to your sensitivity (your DIMs) can be important part of recovery. See Section IV: Recovery Strategies for more on that.





## Pain is meant to Motivate an action

**The point of pain is to get you to do something.** Ideally, to protect yourself. Pain is an alarm and alarms are designed to create action.

Pain is the same thing.

With many acute injuries the pain alarm is great and helpful. It stops you from walking on a broken leg. But the problem with many alarms is that they keep going off long after they are useful.

The long term pain alarm is not a very good alarm. Meaning it is disconnected from the initial problem. Alarms don't tell us how much smoke there is nor do they tell us if there is even a fire. A smoke alarm can even go off when there is no smoke. Our pain alarm can work the same way. The fire can have been put out but the alarm is still going off.

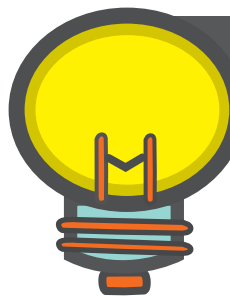
And when we have pain for a long time we can even increase the sensitivity of the alarm.



### Things to consider:

1. What does an alarm tell us?
2. Does the strength of an alarm tell you how much damage there is?
3. Do alarms often go off without there being damage or fire or even a problem?
4. Can alarm that keeps going off end up being a problem in and of itself?
5. Can you change the sensitivity of an alarm?
6. If you understand why an alarm is going off ca you sometimes choose to put less value on it and do other things?





## Learning pain painful habits and memories

“just like a habit pain can become triggered”

**Pain is multidimensional** and as it persists it becomes much more about other triggers of sensitivity than about damage or nociception from the tissue.

When pain persists it is almost as if we get “better” at producing pain. We can become more sensitive and activities, movements or environments that we could previously tolerate are now triggers for pain. This is not an unusual thing and we see this in many areas of our lives:

*Have you ever experienced a smell that suddenly triggered a memory or an emotion?*

*Have you walked into a location that you haven't been in a long time and you suddenly remember an event long forgotten.*

*Do you remember when smoking was outlawed in bars and restaurants? Owners were worried about drink sales because smoking was “coupled” with drinking. They facilitated each other.*

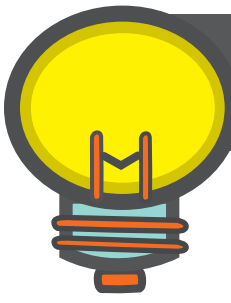
**Humans are creatures of habit and pain can work in a similar way.**

It is like we “learn” to be better at pain. Learning and memories work by “linking” them with other things. You know how you can remember the lyrics to a song by singing it with the melody. Well, those lyrics got linked with the melody and it is easier to remember. Same with pain.

**The implications for you are to create new memories and associations.** Meaning if you have associated movement with pain, or fear and worry with a movement or doing certain activities with pain then we want to do something about that association. A large part of treatment is to start exposing yourself to the things that are slightly painful, perhaps you do those things slightly differently and slowly you can habituate and perhaps form new and more positive associations with those movements or activities. Section IV will help you find those contributors and get you started on forming new and pain-free habits.







## Sensitization

### More gain, more pain

# “one plus one can equal four”?

A young dad comes home from a very stressful day of work. Deadlines were missed, the boss was angry, the dad has been sleeping poorly and has been a little rundown and sick. At home were his two lovely daughters, aged 9, 6 and 3. Like all kids they might fight and tease each other. Today was no different. The oldest took the youngest's doll and threatened to cut her hair off. That's when Dad stepped in and boy did he step in. "Go to your room!!!" boomed the young Dad. Scaring the oldest with his fierce and unexpected temper because Dad normally doesn't yell. But he yelled today as his anger and frustration boiled over with this little situation. Does Dad usually "freak out" when his kids misbehave like this? No, not normally. Do they often misbehave like this? Always!

Here we have a normal situation but with a massive reaction to it. We have the same "input" but a very different "output" because of a number of different factors.

Persisting pain can be very similar. We can get better at pain over time. This is called long term potentiation or Sensitization. This sensitization can occur centrally (meaning in the brain and the spinal cord) or it can occur peripherally (meaning the nociceptors get more sensitive and fire more easily).

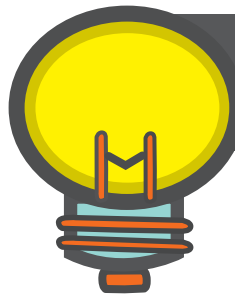
In a centrally sensitized state a normal input (a little bit of nociception from the body) leads to larger magnification of that nociception as that nociception gets processed through the nervous system. Just like with the Dad, we have a small normal input leading to a larger output.

This sensitization is both influenced by continuous tissue irritation (nociception) and by other factors in our life like stress, sleep, catastrophizing, fear or anxiety. More on finding those in Section IV.

People with sensitization will often have pain that moves around, spreads to other areas of the body, can be sensitive to light or foods and can feel pain where instead they should just feel pressure/touch. They also tend to flare up more readily. Some people with mild and intermittent pain will feel better with very aggressive exercise or foam rolling. This is because those activities activate a process that modulates nociception and creates endogenous analgesia (pain relief). Those with central sensitization have a much smaller or no positive response to these approaches and can even flare up with more pain. They lose the ability to modulate the irritation. Exercise is still important but we just have to do it differently. We don't do as much in one setting, we slowly progress the intensity and we accept that some flare-ups and discomfort will occur.







## Habituation Turning pain down

“one plus one can equal 1.5”

### The opposite of sensitization is habituation.

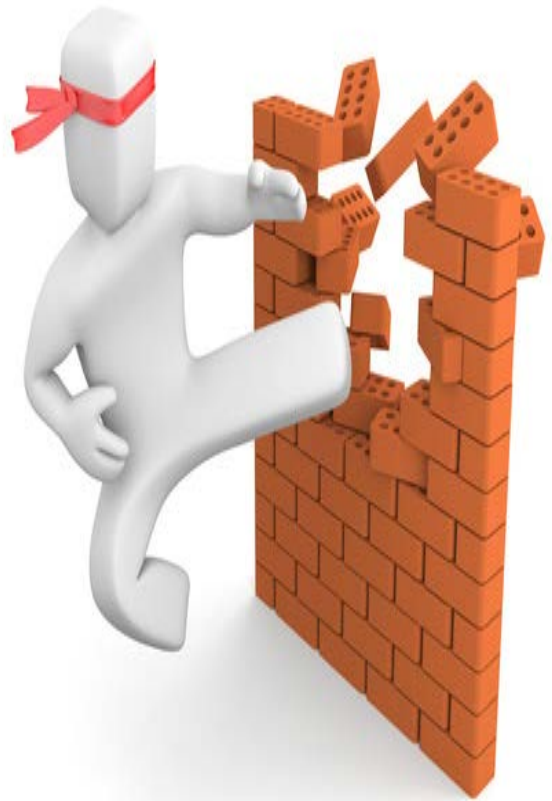
One of the amazing things about people is how we can tolerate and adapt. Habituation means that the same input over time leads to a smaller output.

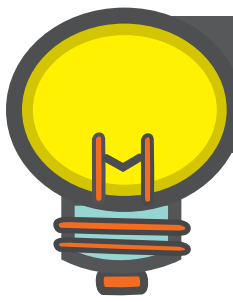
We can see this very well when you get into a Hot Tub or a hot shower. Initially, it feels incredibly hot and almost unbearable. But over time we adapt and habituate and no longer feel that it is too hot. In fact, you might end up turning up the heat. This is habituation.

In terms of pain the same thing happens. We've discussed nociception being these irritation/danger receptors in the body. You can actually turn down your response to that nociception. When you see someone doing karate and kicking a hard object over and over they will report that they have no pain. What is interesting is that they still have nociception. Those danger/irritation signals are still being sent but we process and modulate them and no longer have pain. This is Habituation.

Habituation and tolerance is one of the Key Messages and Recovery Strategies of this book. It means that we can start doing the things that are important. Even doing some things that hurt a little bit. Because pain does not always mean damage. And doing meaningful activities, building a tolerance to those activities can lead to habituation and less pain.

You might still have those danger signals from your tissues but over time you slowly change your response to those signals. You might still have some pain but over time the meaning of that pain and how that pain affects you can change as well. *You can still live well with some pain.*





## Cortical Re-organization

### Your distorted body map

“it feels like my joint is out of place”

#### Has your painful body part ever felt weird?

Does it feel like it doesn't belong or as if it is out of place? Do you feel like you are off balance or something just doesn't feel “right”. You might feel weaker or almost as if you just can't control that body part as well as the other one. We know most joints DON'T go out of place unless there is some big trauma (like a shoulder dislocation). Its just not possible but it sure feels like it sometime. So how do we explain this.

First, this is not uncommon. And many people feel this. And some of that comes down to how your brain controls movement and how it “feels” and perceives your body in space. The joint just feels wrong, distorted and in the wrong place - even though it is perfectly stable! Its pretty amazing actually and not at all weird even though it seems like it. Or you could say “its weird but its explainable”.

**Pain does odd things.** One thing it can do is influence how the brain controls movement and how you perceive your body. All of us have something like a map of our body in our brain. You know where your body parts are and you know how to control them. This is called a representation. With persisting pain that representation or that map can become distorted. Less precise. Its like spilling coffee on a real map. If you are out in the wilderness you want as much information on your map as possible to know how to navigate. You want borders, elevation changes, rivers, paths etc. You want to know when a bridge has been knocked out and how to get around it. The better your map the better you can navigate and control where you are. With pain, its like that spilled coffee on the map blurs borders, erases a bridge or covers up a mountain. Suddenly, your map is out of date and you can't get around as well when you are in the Swiss Alps.

**Pain does the same thing with the maps in your brain.** They get smudged. You feel weird. Your pain can travel. You can feel off balance. Your body part can feel distorted. You might feel like your joints are locked or out of place. It can even be harder to do imagined movements. ALL OF THIS IS NORMAL...and you can train to improve this.

Athletes have known this for years. They know that it is the brain that really controls movement and so sometimes the best way to control movement is to practice training the brain. That's why you see downhill skiers visualizing the course before they do their run. Or a diver imagining their dive before the plunge. Movement starts in the brain so its a good idea to train it. This why movement and not avoiding physical activity could be beneficial. When you move you can make that map more precise. You “learn” about your body part again. You sop up that spilled coffee.



# RECOVERYstrategies

## - Section II: Key Messages -

### What's Inside?

1. pain is an alarm, meant to protect
2. pain is poorly related to damage
3. people are strong and adaptable
4. people respond positively to stress
5. protection can be overamplified and persist past healing
6. pain is normal but can seem weird
7. pain can be more about sensitivity than damage
8. many factors can influence sensitivity
9. altered function is poorly related to pain
10. you don't need fixing - no movements should be off limits forever

#### User Notes

There is built in redundancy within this book. There will be an overlap of ideas throughout the sections

For therapists, not every Key Message is relevant to your patient. Consider finding a false belief that they have about pain or an obstacle to recovery and then choose the Key Message that might be most relevant.

Remember, Key Messages promote healthy behaviour change. They work with other treatment strategies





## pain is an alarm which is meant to protect you

### Do Something!

That is the point of an alarm. Alarms are meant to make us do something. And that is ultimately why we have pain. It's our special way of motivating us to take action.

When your hand gets near a fire you will feel pain (and often before you even feel pain) and will move your hand away from the fire. The alarm comes on and tries to protect you.

If you sprain your ankle you will feel pain when you move it. Initially, the alarm is pretty good and it tells us to minimize walking or heavy loading on the ankle while it starts to heal.

Consider the following questions:

1. Does a smoke alarm tell you if there is a fire?
2. Does a smoke alarm tell you how much smoke there is?
3. Can alarms get more sensitive over time (or at least the people who have to trigger the alarm e.g. a guard on duty)?
4. If an alarm goes off does it tell you exactly what the problem is?
5. Can alarms go off for no apparent reason?

When you view pain as an alarm it helps make sense of some of the odd things about pain. In the following pages we will learn some other key messages relating to how pain is an alarm, how alarms can be sensitized, what pain doesn't tell us about the body and why pain can persist.







## pain is poorly related to damage



### A few facts about damage and pain

- 96% of athletes younger than 22 will show changes on an MRI that some people call "abnormal". But since everyone has them how "abnormal" can they be? (Rajaswaran 2014)
- 37% of 20 year olds with NO PAIN have disc degeneration in their spine (Brinjikji 2015)
- 57% of 20-50 year olds with no hip pain will have cartilage and ligament tears (Tresch 2016)

### Why is this important to you?

If you have pain, there is a good chance that you have been told something was found on the scan. Some tear, bulge, tendinopathy or degeneration. The thing is, this is normal. It's what happens when you are human, and they don't always have to hurt. Sometimes they are relevant but not always and they don't fully explain pain.

Changes in your body are just one factor in your pain. To help with recovery, you want to consider all the factors that might make you sensitive and then consider all the things that you can do to help you tolerate those sensitizers.

How much does a paper cut hurt?

Once a broken bone is in a cast, does it still hurt?

Have you ever noticed bruising and have no recollection of how they occurred?

When you have a severe headache do you think your head is broken?

How many people over 20 do you think shows signs of wear and tear, muscle tears or ligaments tears on x-rays or MRIs?

When it is acute pain, it's better related to damage, but even then it doesn't tell us too much about the damage. People have been known to break bones, snap ligaments and tear muscles and have no pain at all. Other times, you can have a very small injury or strain and feel incapacitated for days. Remember, pain is weird. It is an alarm that goes off which is often out of proportion to what you feel.

The physical body is important when it comes to pain, however, it's just not everything. Remember, we have this amazing ability to adapt and tolerate. This means we can tear a muscle, it will hurt for a short period and then it can either heal or you actually build up muscle around it and you never notice that you've torn your muscle again.

The same thing can happen with what we used to call Tendinitis. Your tendon can be slowly strained over time and if you were to look at it on an MRI scan you might be told you have tendinopathy. But you can just as likely have no pain there. It is normal to have these changes in muscle, tendon, bones and joints.

## Degeneration is like WRINKLES ON THE INSIDE





## pain is more about sensitivity than damage

### What is sensitizing you?

Damage and changes in your body are not wholly irrelevant to pain. But there are a few things we want to remember:

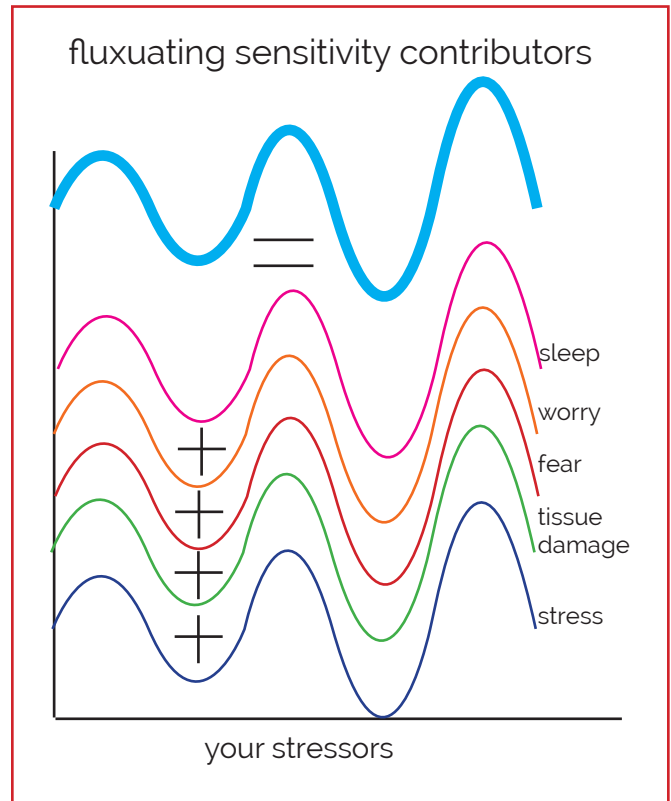
1. Pain is poorly related to damage.
2. You can get out of pain with no changes to your structure.
3. Damage or “wear and tear” might interact with other things in your life that you have control over.

These facts go back to the Key Message that we have the ability to adapt and desensitize. You do not have to change a muscle tear, a tendinopathy or the normal joint changes in your body. **What you end up addressing is anything that might be sensitizing you.**

Look at the chart on this page. It shows our pain threshold as well as showing some of the potential stressors in our life that influence how sensitive we can be. We have two options in influencing pain:

1. Decrease the stressors or the things that sensitize or contribute to our pain.
2. Build up our tolerance or our threshold for pain perception

Section IV of this book looks at ways that you can both change your sensitizers or build up your tolerance.



### Some questions to ask yourself

1. Does your pain seem to be worse even when you are doing less?
2. Is your pain worse after stressful days at work or when you have less sleep or when you might be feeling anxious?
3. Does your pain seem to change when you have other changes in your life?

What you might find is that other factors besides damage or physical load can influence your pain. Meaning, pain can persist because you become more sensitized even when your tissue is actually healing.

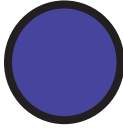




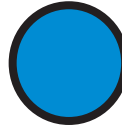
## many factors can influence sensitivity pain is multidimensional



Tissue Injury



Coping strategies



Physical Impairments



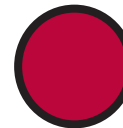
Beliefs



Physical Habits



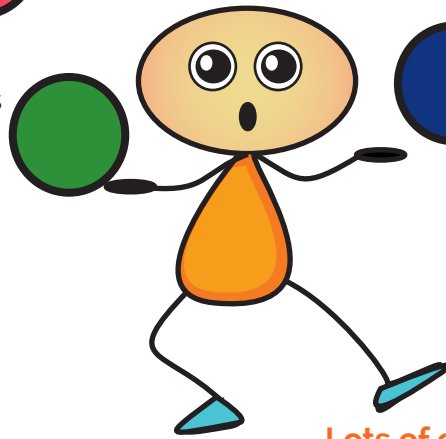
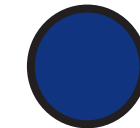
Emotional Factors



Meaningful Activities



Lifestyle/Health/Social Factors



### Pain is multidimensional

Any information that convinces you and your brain that you might need protection or that increases your danger alarm can contribute to your pain. This is why we say pain is more about sensitivity than damage. Yes, damage can certainly be a factor in pain but it is not the only factor. And you don't need damage to have ongoing pain. You and your nervous system can become sensitized. And this sensitivity can come from a number of areas in your life. Depression, anxiety, rumination, fear of movement, a low sense of control, the loss of meaningful activities or poor coping strategies are factors that might influence your sensitivity and ongoing pain.

### Lots of options for change

While a number of factors can make you sensitive, it also means that we have a number of ways to desensitize you. Sometimes you can address specific factors that might make you sensitive like addressing a fear of movement or changing the way in which you move. Other times, we can do general approaches that help get you healthier. Exercise, resuming hobbies, starting more physical activity or going out with your friends can be general strategies that essentially make you healthier and can help with desensitizing. Ultimately, we are turning down that pain alarm system. [Section IV: Recovery Strategies](#) will help you perform a self audit to find some of the factors that might be increasing your sensitivity.





protection can be overamplified  
and persist past healing

## I wish there was a snooze button.



We should view pain as an alarm. Alarms are meant to motivate you to do something to protect yourself. How loud the alarm is or how many alarms are going off are not good indicators of how much protection is needed. When it comes to people, we often do two things that might seem odd:

1. amplify our protective instincts.

and

2. keep thinking we need that alarm long past when it is necessary.

The amplification or over-reaction when it comes to people is quite common. Think about allergic reactions to bee stings or any allergic reaction. Initially, a small amount of that reaction is a good thing. But in some people, we really over-do it. We also see this with the healing of broken bones. When a bone heals we make extra bone around the fracture site. Same thing happens with normal changes in bones and joints with age. When someone has a burn, they produce extra skin scar tissue and in some people they produce way too much (i.e. a keloid).

The same thing happens with persistent pain. The body and the brain have an over reaction in some people. It is like we get better at producing pain. It becomes a learned response and we get good at it. When pain persists it is often no longer helpful and the pain is its own problem. Whereas, initially, the pain might be helpful, now, with ongoing pain it no longer serves its own purpose. It persists long past healing and its like the smoke alarm is still going off long after the firefighters have doused the fire and gone home.

This all seems odd but it is the way people work. The alternative is that we underrespond to potential dangers or threats in our life. And that can have serious consequences. If you felt no pain, then you might leave your hand on a burning stove and wouldn't know it. So having a sensitive alarm system can help us in the beginning but in the long term it loses its value.





pain is normal  
pain can be weird though

## Go poke your friends in the upper shoulder!

You know the spot. It's that spot in your "traps" where your neck meets your shoulders. You probably think it's tight and painful. You might crave a massage and think you need those "knots" rubbed out. The thing is, everyone is sore there. It's normal. It starts in kids when they are 2 or 3. It is not weird to have pain and it is not weird to be tender.

Most people experience pain at sometime in their life. Sometimes even dramatically, sharp and very odd pain that doesn't make sense. Ever step on a stair and have shooting, severe pain in your knee cap? Ever turn your head and feel some sharp pain in your neck? Or have pain in your back that maybe lasts a few minutes or sometimes even a couple days? All of these things are normal. If you are doing more, if you are more stressed at work, if you haven't been as healthy as you normally are, it's normal to feel more pain. We should not expect to be pain free 100% of the time.

If you feel tight, sore or tense these are all normal too.

What is a problem is how we react to these normal sensitivities. Sometimes we have a little bit of normal pain but then we can be told that some muscle isn't working, your posture "sucks", you are out of alignment or you are told that it's bad to have those normal aches and pains. These secondary things can make our normal aches and pains worse and amplify them. That is how pain persists and that is how pain is multidimensional.

And when pain persists it can get weird. You can feel pain spreading, moving around, coming and going, getting worse or better for no apparent reason, your body can feel shifted or out of place or things that were once OK are now excruciating. This is the weird part of pain. But we can now explain it. It's only weird if you think that pain is just related to tissue damage. But since pain is about our sensitivity, our immune system and our nervous system, we can see how "weird" pain feelings can be explained.





## you are strong and adaptable finding the right stimulus

### You are inherently strong and stable.

Did you know the average spine can withstand more than 2000 lbs of pressure?

Did you know that the average spine is stable and capable of handling huge amounts of bending and stress?

Did you know that most physical things we do are far below the maximal threshold of where tissue gets injured?

Yet, most people in pain will have been told they are weak, tight, frail or unstable. And for the vast majority of you, these things are either untrue or even if partly true most, likely irrelevant to the pain you feel.

Pain is poorly explained by your strength. Humans are inherently adaptable. You went through adaptations to get in pain and you can go through adaptations to get out of pain.

All humans have this inherent ability to adapt. **As long as you aren't dead you can adapt.**

Exercise, physical activity and things that make you stronger can be helpful for pain. However, they are usually helpful for pain because of reasons other than changes in strength.

Changing how you view your body, from viewing it as weak or frail, to being capable of adapting and being strong can help with pain.

### You can change

Even when you are injured, even when you are in pain. You can change.



When you are in pain, your tolerance to doing physical activity or other stressful activities can change. You become sensitized and activities that were once easy can now be difficult and painful. For many, simply resting and avoiding activity or those stressful situations makes their sensitivity worse. Your threshold for feeling pain and tolerating stress gets lower. Your "cup" gets smaller.

To build up your tolerance to aggravating activities, we often want to start stressing you again. Slowly building

your resiliency. Turning down your sensitivity threshold. **Building a bigger cup.** You are able to do this because you have the ability to adapt. Remember, you are not dead. I know this because you are reading this book

Exercise, movement, resuming meaningful activities, learning about pain and addressing the aggravating activities in your life all involve stressors that help you change. And you have that ability to change.

Just remember, adaptation can take time. If you have had pain for a long time, then you have adapted slowly over years. Having patience and knowing that progress can either be fast or gradual is important.





## You want me to start stressing my body? You're nuts!

It does seem odd when you are in pain to be told that resuming activities is important for recovery. But responding to stressors is what humans do quite well. Here are some examples of where stressing the body and person are important for healing and recovery:

- after a hip or knee replacement, people are up and walking the same day. There is still a lot of damage around that joint but it is the gentle movement that helps with pain and stimulates healing.

- after cardiac/heart surgery, a huge component of recovery is exercise. It is a must for these patients. Exercise is a stressor on the heart and the heart responds positively to this. It heals, gets stronger and gets healthier.

- those with osteoporosis (weakening of the bones) need to exercise, strength train and put stress on their bones. They don't need to rest. It is the stress on the bones that makes them adapt and stay strong.



Pain is often similar. It is not as simple as just getting stronger, but the principle is the same. We add different types of physical, work or emotional stress and we can slowly adapt to them. Over time we turn down our pain alarm because the stressors become less threatening.

A consistent thing across people is that we adapt to the stressors that are placed on us. In fact, this is one of the primary reasons to adapt. Pain involves multiple changes in the many systems of your body. One way to create changes in those systems is to stress yourself in positive ways.

For example, if you want to memorize a grocery list or a poem when you were in school, you have to stress your brain. You constantly repeat the list and the words (the stressor) and then you adapt and create memories.

If you want to get stronger, you must stress your muscles, tendons and nervous system by doing more than you are used to. This new stressor causes adaptations throughout your body.

If you want to go on a 20 day hike through the mountains, you have to slowly start building up your tolerance to walking and climbing. If you put this type of stress on yourself, you will adapt and build your resiliency.

If you have a stressful job, you might notice that what you thought was stressful at work 10 years ago would actually seem easy now. You have adapted to your work stresses.







altered function  
is poorly related to pain

# Pain changes everything

genetics leg length discrepancy  
joint wear and tear  
weird posture knock knees  
tight muscles weak core  
glute weakness muscle tears  
tissue damage anxiety flat feet  
trigger points  
altered movement patterns

Pretty much every system in your body is influenced by pain. When you have pain you move differently, you might feel tight, you might feel like your bones are out of position, you might be weaker, your balance can change and how you move can change.

You've probably also been told that you have:

- bad posture
- weak glutes
- tight hips
- altered muscle firing patterns
- bones/joints out of place
- muscle knots or scar tissue
- muscle imbalances

...and you've probably done a lot of work to try to fix those things. For many people with injury and pain doing that work can be helpful. But surprisingly, many of the things that help one person **can have nothing to do with the pain of another person.**

Many of the common biomedical explanations for pain, even the ones you read about on the internet, have a very poor relationship with pain and have surprisingly little scientific evidence behind them. They are not always irrelevant but their relevance might be limited to a small group of people.

**Remember, pretty much every assumed dysfunction (posture, tightness, weakness, structure, degeneration) can exist in people without pain.**

There comes a point in time where we have to let these ideas go and look at other ways to manage your pain. Continuing to believe that some of these factors (like posture, bony anatomy, etc.) are driving your pain can even get in the way of recovery. You often can't change these factors and you set yourself up to fail when you think that you must.







you don't need fixing  
no movements should be off limits forever

## Try to find your contributors but...

This is another amazing thing about people. In this workbook we are trying to find your specific multidimensional contributors to your pain. We do that for two primary reasons:

- 1. To understand your pain and because learning about pain can be helpful.**
- 2. To change some of the contributors that are relevant to you.**

What is encouraging is that we don't always have to change everything. It can be helpful but it may not be necessary. You can have fear of movement and we might think this is related to pain. But you can get out of pain and still be slightly afraid and worried about injuring yourself or causing a flare up. What we have learned, is that sometimes the process of managing pain and addressing the contributors to pain is helpful in and of itself, without having to completely eliminate what is sensitizing you.



## You don't need fixing to start doing!

Usually, when you've had pain for awhile, you have seen a lot of different therapists and you have probably heard a lot of different explanations for your pain. These will vary depending on the therapist, their training and their profession. And you've probably received conflicting advice and it can get frustrating. However, one thing that is often pretty consistent is that you can be told a lot of things about your body which sound alarming and can make you sound like you are really messed up. You may have been told that your spine is out of alignment, that your muscles don't work properly or turn on in the correct order, that your posture is horrible, your glutes don't fire and you have a weak core. The proposed treatment is then about "fixing" all of these things and until you "fix" those things you can't get back to being you and being out of pain.

What this workbook is suggesting is that most of those things aren't that important. They may be important in some cases but not for many others. **What we advocate is that persistent pain is usually a problem that has to do with just that, persistent pain.** Your alarm is too good. It goes off too soon, too easily and too much. You then stop doing many of the things you love and your pain is more about saying "no" to things you once wanted to do.

**A different approach is to find the things that are right with you.** We recognize that you can adapt and that starting to slowly do things again is part of treatment. And for the most part there may be nothing that is off limits. Where we are cautious, is how much you do, what your beliefs about doing meaningful activities are and how you approach doing things again.

If you want to start running, hiking or bowling again then you and your therapist can find a way to start this soon. You might have all the things listed in the picture on the other page but none of those things are well related to pain and neither must they change for you to get out of pain and start doing important and meaningful things again.





## self reflection key messages for you?

After reading the Key Messages are there any that seem relevant to you?

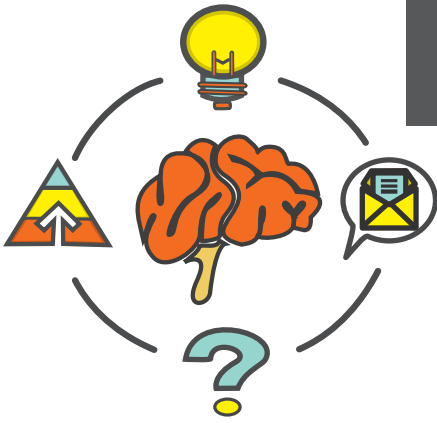
Often, we focus or are told everything that is wrong with us. Can you write things down that you are pleased with when it comes to your body, your functioning and your pain predicament?

Can you see how you might be able to build and improve on that?



# RECOVERY strategies

## - part III: pain contributors -



### What's Inside?

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1. Pain is multidimensional: the overflowing cup.
2. The role of physical loading: too much too soon
3. Degeneration, arthritis and muscle tears: your wrinkles on the inside
4. Strength and flexibility: when are they important?
5. Physical wonkiness: moisture, sitting and structure
6. Adaptability is limited: monitoring all of life's stressor
7. Recovery is key: stress and sleep
8. Moving differently with pain: how habits can perpetuate pain
9. Its not all in your head: our sensitive and protective ecosystem
10. The role of catastrophizing, fear and beliefs on pain persistence
11. Our unhelpful coping strategies: Do you persist or do you avoid?
12. Biographical suspension: missing the meaningful things in your life
13. Poking into pain: when can pain be your guide
14. Self efficacy, tolerance, and adaptation: someone else doesn't need to fix you
15. Social, lifestyle and general health: other dimensions to pain





## Pain Contributors

### How to use this section

#### To the patient and the therapist

This section reinforces the two previous sections of this book. It goes through many of the contributors that influence pain and injury. As you are reading it you might want to decide if this is a factor for your condition. It is also a good idea if you can try to think of things that you might be able to do address that contributor. You might also find that you might have this contributor but it may not be relevant to your pain. This is where working with your therapist can be helpful.

And remember, not everything needs to be or can be fixed. That is the idea behind building a bigger cup (more in Section IV on that). Many of your contributors might not be things that are easily changed. But where you can be optimistic is that you can adapt to those things, tolerate them and still decrease your pain and disability.

After reading this section on contributors to pain you are ready to start Part IV: Recovery Strategies. In that section you will use your new found knowledge about pain to start coming up with a plan (either on your own or with your health care provider) to address your pain contributors.





## Pain is multidimensional

### The overflowing cup

As pain persists it becomes less about tissue damage and more about anything in your life or something particular about you that can make you more sensitive. Remember, pain is normal but what happens when it persists is that we get better at it. In a sense, we have an over-reactive system. Its easier for the pain to be "triggered" and multiple things in our lives can contribute to this. Its not just about muscles, tendons and joints (although they are sometimes important). Its everything in our lives. For example, big tough football players are more likely to get injured when they have a lot of physical/mechanical stress. That is what most people would expect. But they are also more likely to get injured when they have a lot academic stress. Strong dancers are more likely to get injured when they have poor sleep or higher levels of anger/hostility.

Look at pain as the overflowing of a cup. Many things contribute to what is in that cup. You can have a lot of physical, mechanical, emotional and social stressors and have no pain. But at some point a sudden increase in one of those stressors or a new stressor puts you just over the edge and the water flows out and now you have pain. Often people will have more pain when there are changes in the stressors in their life. It is the inability to adapt to the new stressor that contributes to pain not necessarily the amount of the stressor in your life.

Pain occurs when we fail to tolerate and adapt to all the stressors in our life. In general we say that the cup is filled by the BIO - PSYCHO-SOCIAL factors in our life. In other words, all areas of our life.

We need to keep that cup from overflowing to stay out of pain.

### Its not all in your head!

Even health professionals get this confused. As soon as people start talking about emotions, psychological factors or the brain the assumption often slips in that we are saying your pain is now just in your head. Just because psychological factors or the brain is involved does not mean the body is not important or the pain is imagined. In fact, the brain and psychological factors can amplify your physical factors. You might be able to sit on a wooden stool all day and just feel a little bit of "butt-soreness". But if you are stressed and sitting somewhere where you are worried you will often "feel" your butt-soreness more. This is not just in your head. If you are in a situation where you MUST lift a fallen tree off your loved one you will be able to lift WAY MORE weight then you could if you were just in the gym. This is not psychological and is not in your head. You really would be stronger and that strength is not imagined. The same with pain. **It is real and not imagined.**

What is great about "The Cup" is it means we have a lot of options to help with your pain and your sensitivity. And rarely is there just that one thing that MUST be "fixed". A lot of things can help you get better and a lot of things can be adapted to.

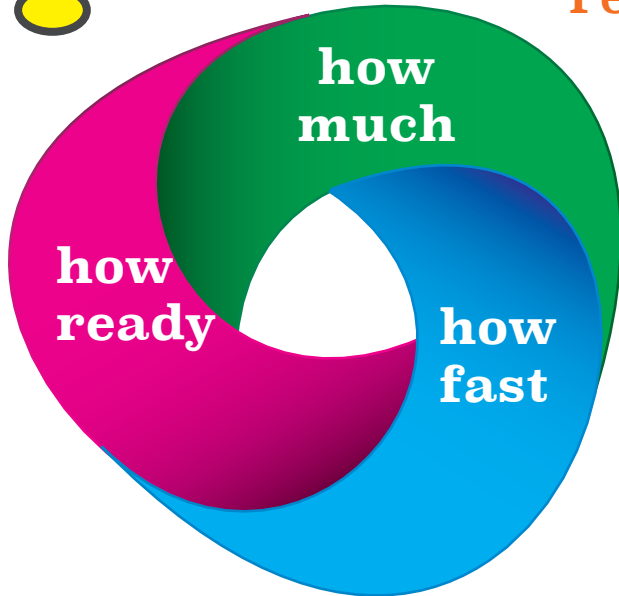






# The role of physical loading

## Too much too soon



## People are amazing at adapting

The body is designed to respond to the physical stresses we place on it and get stronger and more resilient. Physical stress (exercise, gardening, lifting weights) all cause slow changes in people to allow them to do more.

However, we often get pain or get injured when we do more than we are ready for.

Most people don't just start climbing the tallest mountain in the world. They slowly build up their ability to climb and hike for extended periods. We are much more likely to get injured when we do Too Much Too Soon. It doesn't mean that those activities are off-limits it just means we have to slowly start doing those activities to build our tolerance. We try to find the balance of doing enough to make us adapt and not doing so much that we overload our system, get sensitized and pain or injured. **We prepare ourselves to tolerate future stressors.**

## Load, injury and pain

Remember the Key Message: We respond positively to stress. The key is finding the right amount of stress. If you were a cyclist 20 years ago but haven't ridden since it wouldn't be wise to start cycling as fast and far as you last rode. You will be able to build to that but you have to slowly build to that over time.

We get pain or injured when we do too much too soon for us at that point in time. And what is "too much too soon" is something that changes. We build our tolerance to activity over time. That is how we work.

With finding your contributors to pain you want to reflect and consider if you are doing too much too soon for what you are currently ready for. There are three things to look at or consider changing:

1. How much you are doing
2. How quickly you progressed
3. What are you currently ready for.

#3 is very interesting. If you are fearful, hesitant or believe that you can't adapt then your readiness will be decreased and this will influence what is too much.







## Degeneration and muscle tears: your wrinkles on the inside

You've probably heard that you have pain because you have bone spurs, joint degeneration or maybe your disc is bulging. Or you received a scan of your shoulder and they found a tear of 5 millimeters. These things sound scary and we are taught to think that they are very important for pain. But the simple truth is that they are often **TOTALLY IRRELEVANT**. No one tells you that EVERYONE has these changes in their body. What we have been calling abnormalities are really just normalities. A normal change in tissue as we age. Losing your hair, the wrinkles on your skin are all types of "degeneration". The wrinkles don't hurt - well, maybe just to look at. But they aren't totally irrelevant they just aren't very strong contributors to our pain problem.

Keep recalling that people are amazing at adapting and tolerating. You can have severe knee arthritis and have no pain. You can have a disc bulging and have no pain. You can have a muscle tear and not even know it. The way to view these changes are that under some rare conditions they might predispose to some pain. What we work on doing to keep you healthy and pain free is to treat the conditions that make you more sensitive. You can't actually change arthritis but you can change the things in your life that sensitize. Remember, the Key Message:



## Pain is more about sensitivity than Damage

You can view your wrinkles on the inside as similar to kindling for a fire. The kindling is the small bits of wood and paper. That is like your normal degeneration or tears. It is not enough for a fire alone and its not enough for pain. So how do we create that fire? We need a spark or some accelerant. We need the sensitizing agent to help contribute to pain. And this, again, is where pain becomes complicated and multidimensional.

So what in your life can make you more sensitive? We need to consider stress, too much physical stress, persisting into pain, avoiding meaningful activities, poor sleep, negative beliefs about pain, emotional health... almost everything. To get out of pain we have a number of options to make you less sensitive. You can either decrease the stressors/sensitizers in your life or build up your capacity to tolerate those stressors. But you don't have to fix those degenerative changes or those normal things we find on scans.





## Strength and flexibility: are impairments important?

Its not uncommon for people with pain to blame themselves. To think my "back hurts because I have a weak core" or "I can't run anymore because I didn't stretch enough and my tendons got damaged". These ideas are pretty prevalent but they surprisingly don't hold up to scrutiny. Its good to exercise, strength train and stretch and they can even help with pain sometimes. But, for most people you aren't in pain because you are weak or tight.

Muscle weakness is important if you are trying to do things that need a lot of strength or force and your tissues can actually get stressed beyond their limits. Acute muscle tears certainly occur. But remember, pain is not primarily about damage. And most people don't do things that put a lot of physical stress on their body. **Your spine is inherently stable and strong. It doesn't take a lot of muscle force to keep it stable and strong during most activities.** If you walk, garden, sit, stand and do regular day to day activities most people will never get to the physical limits of their muscles. So to say that people are in pain because they are weak makes no sense and is not supported.

The same thing for flexibility. Flexibility is just not related to pain. People can be tight and have no pain and people can be very loose and have no pain. And vice versa.

Like strength, if you have activities that need you to be flexible then it is probably worthwhile increasing your flexibility. But if you never go to your limits of movement then there really isn't a risk for injury or pain.

Another area where flexibility and strength might be important is if an impairment in those areas does not let you move in a way to calm down your system. For example, your lower back might be sensitive to bending if forward. One way to help is to avoid bending forward for a short period of time. But some people might have tight hamstrings or poor body control that doesn't allow them to move in a way to avoid bending forward. They keep "poking the bear" and the bear keeps getting aggravated. For whatever reason they are sensitive to bending yet they keep bending and it keeps hurting. There is nothing inherently wrong for everyone to bend but for this particular case we might want to avoid bending for a bit to see if it helps "calm down" the back. In this case, the lack of flexibility or control stops the person from having that movement option.



## Hold on! Are you saying its not good to get stronger or to stretch?

Not at all. Exercise, strength training and stretching can all you make you feel better. They have general health benefits that can help you desensitize. Exercise is an analgesic.

It helps with pain.

Exercise can calm things down.

Exercise makes you healthier. And being stronger can even help prevent some high force injuries in the future like hip fractures. We should all be physically active but most people aren't in pain because they are weak. Exercise is helpful for pain for other reasons. And solely doing exercise to help with pain may not be enough. It is one part of the solution to a larger puzzle.





## Physical wonkiness: Posture, sitting and structure



You've probably been told you have pain because of your "bad" posture, because you sit too much or because of some asymmetry in your structure. These might make sense if you view the human body as something as simple as a car or a bridge. Over time that car can wear down and that wearing down can be increased if there are alignment problems.

But the body is an ecosystem. It is not a car. Sitting and your posture has consistently been shown to be poorly linked with pain. Yes, sometimes when we sit for a long period our back's can ache and we have to move.

But there isn't one perfect posture that will let you sit without pain. You might think that slouching forward is bad, or having a shoulder lower than the other is bad. **But these things are normal.** People have them and don't have pain. When we research these ideas they are poorly related to pain. Remember a Key Message: We are built to move. We are built to adapt. **Lets look at things that you can do to help in these areas:**

**Proposed Problem:** You have deviations in structure or symmetry (leg length inequality, kyphosis, scoliosis etc)

**Answer:** This one is easy. Don't worry about it. Look around at your friends with no pain. They are all wonky. Everyone has asymmetries. Scoliosis, a bending of the spine, is not predicative of greater low back pain. Draw a line down the middle of your face. You will see you are naturally asymmetrical. Give yourself permission to not worry and stress about these things. Things like scoliosis, kyphosis, differences in leg length, flat feet, knock knees, wide hips, altered shoulder blade positions have all been suggested to be horrible for pain. But none of that is true. These are normal variations we see in people. Pain is not that simple and there is virtually no evidence to suggest that these little differences are a massive problem. Did you know that the first man to lift more than 5 times his body weight had a MASSIVE scoliosis? Or that Olympic swimmers have the same condition. Or that most of the Marathon World Record Holders had flat fee. Don't worry about these things!

**Proposed Problem:** You've been told you have terrible posture when you sit and stand.

**Answer:** If it hurts when you sit and you feel better when you move then you should move. You should get up and walk around. You should also slouch if that feels better. Or lean back more if that feels better. There is no one posture that is best. You want freedom of movement and lots of different options. **Don't get caught up in ideal ways to move or stand.** There aren't any. We were built to have a huge amount of options on how to move. Find the ones that feel good for you. You also want to consider the possibility that your pain has nothing to do with your sitting. Look at all the possible contributors to your pain!

**Proposed Problem:** You've heard that sitting is hard on your back, your back hurts but you have to sit all day.

**Answer:** This is a really good example of bad advice setting up our expectations and leading us to fail. If you've been told that your sitting is causing your pain and yet you have to sit all the time then this belief can help sensitize you. Its not unusual to be achy when sitting a lot. But the way pain works is that normal achiness can get amplified because of our beliefs or other sensitizing contributors. One solution, in addition to sitting differently and taking breaks is to look at everything in your life that could be sensitizing you. Or ask yourself "How can I be healthier"? You either change the things that sensitize you or you build up your capacity to tolerate those things. Section IV goes through a number of strategies to help. But simple answers are things like understanding pain, getting healthier, engaging in physical activity, resuming meaningful activities and getting help with any emotional stressors in your life that you need to help tolerating. Instead of thinking that sitting is the problem you can build your tolerance to sitting by "building a bigger cup" and working on anything that might be contributing to your sensitivity. Sitting may not be the problem. The pain just shows up with sitting.





## General Health and Recovery: the importance of stress and sleep

**“Stress is not inherently bad”.**

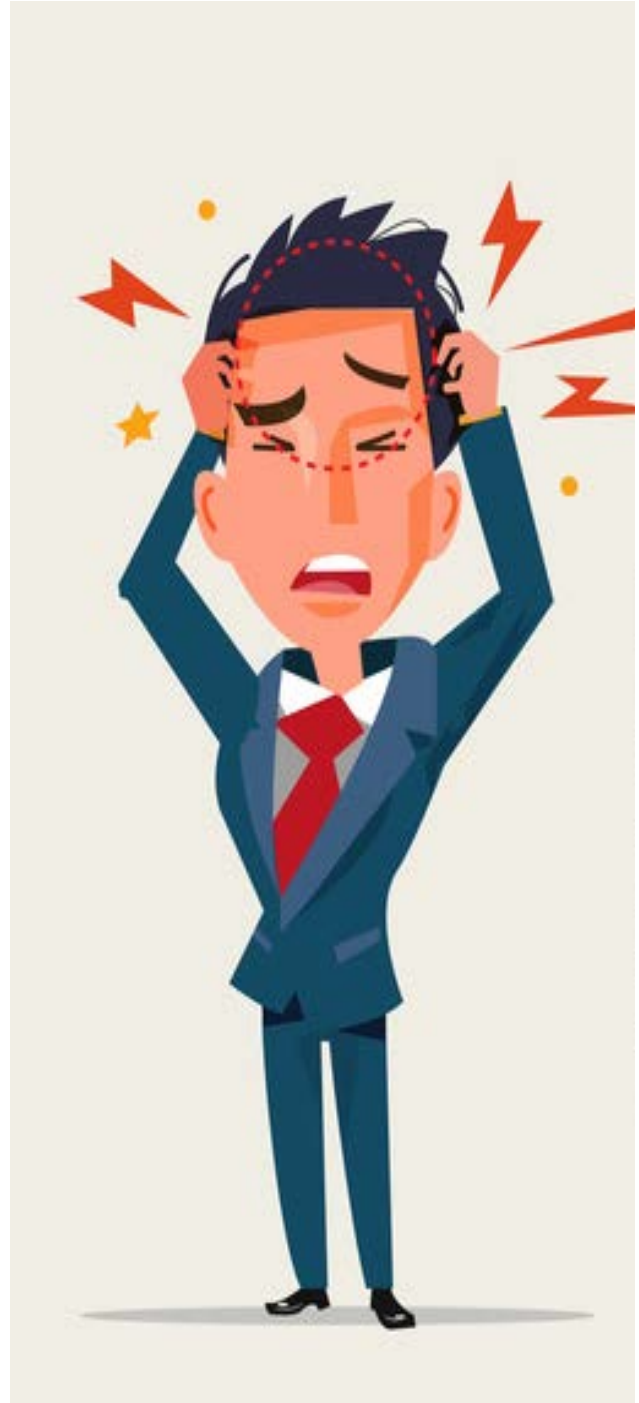
Similar to how we view pain as normal we also want to view stress as normal. It is not the stress that is bad but our response to that stress. If you have a large increase in stress or something has changed in your life where its harder to cope with stress then stress can increase your sensitivity and can increase your chance of having pain.

Not only is stress (and stress tolerance) related to the persistence of pain it is also related to how we recover. High levels of stress can impair our recovery from physically taxing components of our lives.

When you first have pain it can be associated with a stressful event. That stress and the chemicals associated with that can then make it easier for future stress to trigger pain. Its like a memory that gets triggered by a song or smell. It doesn't mean that you are weaker or have injured or re-injured yourself rather it means that you are sensitized and its easier for normal life stressors to trigger a pain response.

Sleep is protective. Sleep helps us heal and helps us recover. Sleep is a desensitizer. It builds our tolerance to all of the things that can sensitize us. Lack of sleep (less than 7 hours for some) or interrupted sleep can sensitize you. So maybe your pain should be 1/10 but consistently missing out on sleep amplifies that pain to 4/10.

Lower levels of sleep have been linked with both increases in injury (e.g stress factors in athletes or the military) and increases in pain related to changes in the nervous system's sensitivity. Things like fibromyalgia or some cases of persistent low back pain.







## Adaptability is limited life's stressors amplify our protection

### Avoiding too much of all of life's stressors

Remember, pain and injury are multidimensional. So our response to physical loading and whether we get injured/pain is not just due to our physical readiness. Its also influenced by everything in your life. Your sleep, mental well being, diet and stress all influence how we respond to physical stressors in your life.

While physical activity is good and not doing too much than what you are ready for now is important we have to recognize that other factors influence our responses.

For example, when you have a stressful week or two at work those aren't the weeks to start adding a lot of extra or intense physical stress. Those are the weeks to keep being active but to maybe do a little less intensity or amount than normal.

You want to view life's stressors as being normal. Almost unavoidable. You are going to have stress at work, you are going to have to lift things, walk up stairs and be physically active. Having depression or anxiety is normal and having fear of pain or being injured is normal too. Anxiety and worry often start out as helpful. That is why we have fear. Its is better to have fear 2 seconds before a danger than having that fear 2 seconds after.

These contributors to pain are often normal and unavoidable. Pain itself is normal and unavoidable. If you poke all of your friends muscles you will find that most of them are tender. It is a normal thing.

You will also find that is normal to have random bouts of extreme and sharp pain. You might take a step on stair and feel huge pain in your knee cap. Or you might twist in your seat and feel a sharp stab in your back. All of these sensations are normal and don't mean you have damage.

What is the bigger problem is our response to life's normal stressors and normal pain. Going back to the cup analogy we can either decrease some of life's stressors or build our tolerance to those stressors.



### The bee sting

Getting stung by bee hurts most people for a short period of time. Its pretty normal. But some people have a massive reaction to that normal sting. They swell, there is inflammation and there is a system wide overprotective response. It is not the bee sting that is dangerous. It is our response to that bee sting.

Pain can be looked at similarly. It is normal to have some pain. It is normal to have degeneration or to have muscle damage. But like some people's response to a bee sting we over-do our protective pain response. This over-protective pain response is influenced by a number of different factors listed in this section. **So what we actually treat is all the factors that lead to this over protection.** Everything that could be sensitizing you.

Remember, stress is a good thing. It is what causes us to adapt. But our adaptability is finite and is limited by a number of things in our life. Thus we find the balance between stress and recovery. And that balance for you will change over time. You might have to avoid something now but in 2 months you will have adapted to it and avoidance is not necessary.







## Moving differently with pain: how habits can perpetuate pain

One common thing we see with pain is that we move differently. If you sprain your ankle you will often limp. This is a normal protective response to assist in healing. Sometimes, its done without thinking. Other times we might limp in an environment where you want to subconsciously communicate that you need help.

The same thing can happen with low back pain. When people have acute low back pain (and the vast majority of us do) one of the first things we do is minimize movement to that area. If it hurts, don't do it. Totally reasonable for the short term. Fortunately, most people will start to move again in a normal, fearless and carefree way.

But sometimes, advice that is meant to help, can end up perpetuating a habit of movement that is no longer helpful and might even be harmful.

For many years, the advice for arthritis, low back pain, muscle tears, osteoporosis or tendon pain would be to rest, take medication and avoid doing things. In the spine, we especially put a lot of rules on things to not do. You've probably heard:

"Don't bend your back, lift with your legs" or "strengthen your stomach muscles to stiffen your core". We've essentially told certain body parts that you should continue "limping" even after there is no need to.

Just in the way that pain is multidimensional in that a lot of things can fill your cup of sensitivity the way you move is also influenced by this. If you think its harmful to bend your back or reach your arm over your shoulder you will start to be guarded, fearful and very conscious of how you move. You might think that there is a right way to do a movement instead of thinking that there are countless variations and many, if not all, are acceptable.

With persistent pain you often lose movement options and then you fall into a habit of moving the same way. And its that habit that might have once been helpful but now its linked with pain. Its that habit of movement that triggers your pain alarm system. And remember, we often get better at being protective and having pain so those same movement habits more easily lead to pain.



### How pain is like a habit

Your habits are often triggered by many things. If you know someone who was a smoker they would often report that they feel the need to smoke either around certain people or in certain environments (e.g. going out to the disco). Context, environment, emotions can all be triggers for that habit. People with addictions will often try to avoid the environments or friends that promoted their drinking habit.

We can look at pain as the same thing. With respect to movement if you always move in the same way and with the same beliefs those movements can become associated with pain. It is almost like pain becomes learned. We want to move differently to either break that habit or teach you new habits about movements. Ones that don't view movement as sensitive, fearful and overvigilant.



### What can you do?

First, understand your beliefs about your pain and try to get some insight if those are contributing to your movement habits. Then, start exploring movements. Usually, nothing is off limits its just our tolerance initially. Your body is built to move in a number of different ways. Try those out.

See Section IV on exploring movements, exercise and goal setting.



# Its not all in your head our sensitive and protective ecosystem

## “pain is weird”

Pain might seem weird if you were taught that it is just some symptom of tissue damage. If you think it is only about tissue damage then it sure doesn't make sense that pain can move down your back, to your hip, sometimes into your leg and then even give you a headache. Or your arm/shoulder just feels weird and just doesn't feel right.

Or maybe your pain increases for no apparent reason for a few days even after you were feeling pretty good for the past week. Yup, that makes no sense at all if something is damaged and pain is just about damage.

But remember that is not how pain works.

### We are an ecosystem.

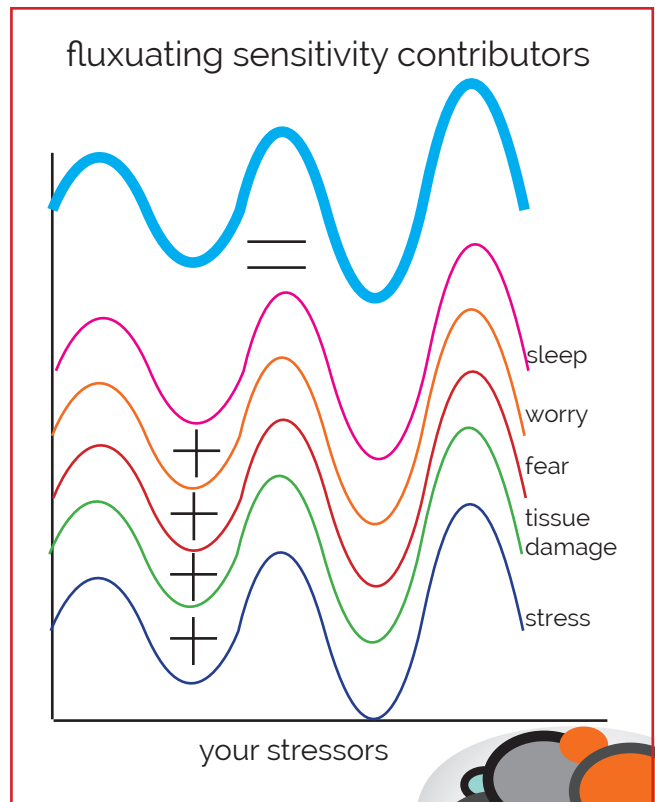
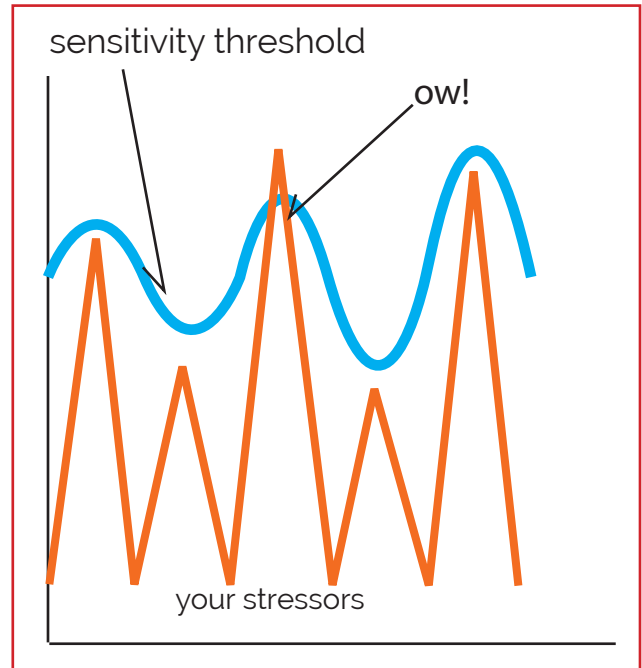
Pain is the alarm of that ecosystem that is influenced by a large number of factors and they are different for everybody. What is in your cup is different from someone else. Physical stressors are just one part of the loads that we have to adapt to. All of life's stressors and how you respond to them influence both your pain and injury risk.

Further, your tolerance and your sensitivity can change day to day and week to week. Hence you will see fluctuations in how you feel and your susceptibility to pain.

This message might sound like people are suggesting pain is purely in your head. That is just not true. Your brain is definitely involved but remember that it is involved in everything you do. You and your brain take in a lot of information and with that information you scrutinize and "decide" if you are in need of protection. And if there is the evaluation that you need protection then pain can arise. If you have had pain in the past you can also be somewhat sensitized to life's stressors and its now easier to feel pain.

Some of that information that you subconsciously process would be from the nerves around your joints, muscles and tendons. That is the nociception mentioned earlier. Other information could be your beliefs about pain, your fears, your worries and stressors. The unfortunate thing is we then might make decisions, first meant to protect, that increase our pain. This could be muscle guarding, rigidity or even an increase in the sensitivity of those nerves in the tissues.

So even though your brain is involved it is not purely psychological but part of this large ecosystem.





## Emotion and Psychological Factors the role catastrophizing and fear

When trying to understand what is contributing to your own pain its good to remind yourself that pain is probably occuring because a few factors are mixing together. You can probably have a muscle strain and not much pain. Or you might have certain traits that predispose you to pain but you actually feel pain free. Its like the Grade 5 volcano experiment. Vinegar is pretty safe on its own and so is baking soda. But you combine the two and you have your volcano bubbling over.

When you hear your therapist talk about what we call psychosocial factors you want to think about how they interact with everything about you.

Two very common psychosocial factors related to pain are Catastrophizing and Kinesiophobia. Like many factors they often start out as very protective and reasonable. But over time, they are no longer helpful and they continue to sensitize a system that is in an overprotection mode.

Lets look at these two variables and you might want to see if they apply to you.

### Catastrophizing:

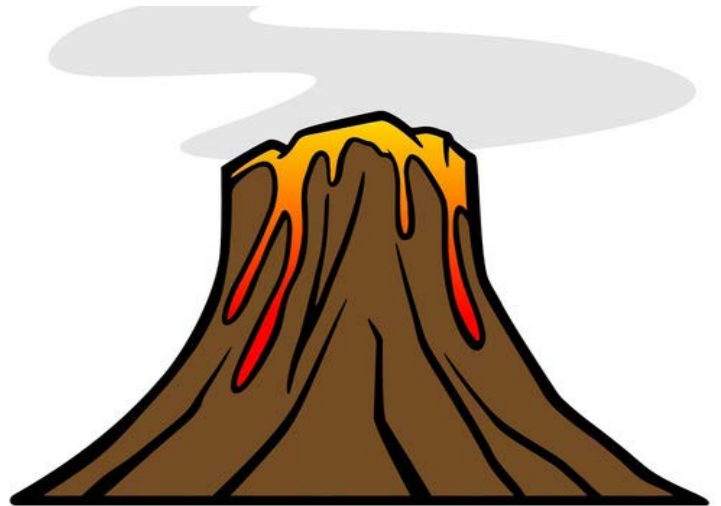
“the tendency to magnify the threat value of pain stimulus and to feel helpless in the context of pain, and by a relative inability to inhibit pain-related thoughts in anticipation of, during or following a painful encounter”.

In other words, when we catastrophize we tend see the worst possible outcome about something and then we tend to think or ruminate on the pain to a large extent. Being worried and concerned about things is a normal and helpful response to protect ourselves. But with catastrophizing its the idea that we worry too much and in turn this catastrophizing will sensitize us and will amplify our pain experience.



**Kinesiophobia** is the fear of movement. You have pain, you move and your pain might increase. Under some circumstances not moving is good because there is an injury where some rest will help us heal. But after time, the injury is healing and movement is actually good. But we still fear movement - hence Kinesiophobia.

Like catastrophizing, it starts out as a good thing. But after awhile that lack of movement or the fear of pain or the fear of movement can increase our sensitivity and turn up our **PAIN ALARM**. We over-do a normal reaction. Then we get caught up in a sensitized system where pain has gone past its useful and protective stage.



### What can we do?

1. Recognize that these factors are involved
2. Consider your beliefs or what you have been taught about your pain. Often, you've been given well-intentioned but bad advice that might contribute to these factors.
3. Working with your therapist you can start to explore movements that you might be worried about. Slowly exposing yourself to these can reduce the fear and reduce your sensitivity.
4. Setting small activity goals and building success in movement and meaningful life activities can also help with catastrophizing. Essentially, you convince yourself that there is hope, you can cope and you are more robust and strong than you think you are.

Section IV has an activity goal setting guide to help you in this area.



# Our unhelpful coping strategies: Do you persist or do you avoid?

## Avoidance Coping



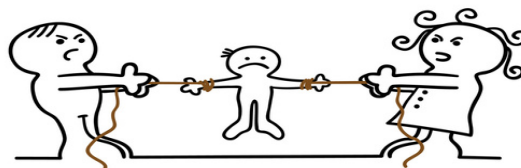
Avoidance of pain or injury is a normal and helpful response when you initially have pain. If you strain a muscle it is usually a good idea to avoid doing very aggressive activities or movements that cause pain in the short term. Like many of the contributors to pain Avoidance is initially helpful but when it persists it can lead to ongoing or more pain.

If you are worried that raising your arm over your head or going on long hikes will cause damage or more pain then you might avoid these things. But because of the way the body and you adapt if you continue to avoid those things you might actually become fearful of them and sensitized to them. Your fear and avoidance end up "triggering" your pain response even if you are no longer damaging yourself.

Avoiding meaningful activities, like hobbies or time with friends, can increase your sensitivity by increasing social withdrawal, a depressed mood or sense of hypervigilance. Meaning, you just don't trust your body anymore to be strong and robust and you feel it needs protecting and safe guarding. And remember what pain is all about...its about the perceived need for protection.

Do you think you might be avoiding doing certain activities or certain movements? If so, ask yourself these questions:

1. What movements make me fearful?
2. Are there movements or activities that will cause damage or pain?
3. Why do you think those movements are painful or damaging?
4. What do you think would happen if you started doing those painful movements or activities?



## Persistence Coping

- "no pain no gain"
- "pain is weakness leaving the body"
- "grin and bear it"
- "ignore it and just push through it"



These are all strategies and thoughts that involve persisting in the face of pain. Again, they can be helpful initially. Its normal to have pain and sometimes we want to keep pushing through pain to do the things that are important to us. But because we get better at pain the longer we have pain (i.e. sensitization and learning) we know there is a role for backing off a little and letting things settle down.

Persistence coping often shows up when we have been given the wrong advice. If you have knee pain you may be told that you need to contract your glute muscles, push your knee out and brace your leg muscles when walking or standing. This type

of strategy might help some people but if its painful and you persist in doing it then that strategy can actually become linked with pain and end up triggering pain. The same thing happens with the spine. You might think you need to brace your stomach and avoid motion. So, you continually do the thing that is aggravating you.

Persistence copers often take a good thing (keeping moving, being active) but just do it too much. Like with many things we want to find the appropriate balance between avoidance (protection) and persistence (exposure).

Working with your therapist you might find that you have habits of movement that continue to sensitize you and you don't even realize you are doing them.

**You can poke the bear but  
don't hump the s\*&t out of it**







# Biographical Suspension

## When you aren't you

### Missing the meaningful things in your life

Often related to avoidance behaviours is something called "Biographical Suspension". It essentially means you put your life on hold. The things that you once enjoyed might be missing from your life because of your pain, the fear of making your pain worse or even guilt or shame in having pain. You might have been told that you have to stop hiking, gardening or running because you will cause more damage. But slowly, you end up living in a smaller and smaller box and you've lost the things that make you you.

Related to this can be a sense of guilt or shame that you can't take part in the things your family might be doing or you can't get out with your friends like you have in the past. Or you might feel that your friends or family don't understand the pain that you feel.

A Key Message of this book is that you can slowly start doing the things that are important to you.

*You don't need fixing before you start doing.*

One of the most profound and important questions you can ask yourself is:

*"what would you be doing if your pain was less of a problem for you?"*

Very glibly we might say "well, start doing that". And for a few it is that easy but for others we want to find any barriers that might be stopping you from resuming the activities in your life that are meaningful to you. Section IV of this book provides some **Recovery Strategies** that can help you identify your barriers and help you start the planning to resume the meaningful activities in your life. But after reading this book so far what do you think are your barriers? Have your thoughts changed about resuming important activities?

Below are some common barriers to resuming activities. Do any apply to you?

- when I start to do things I have flare-ups for days
- I can't do anything until my back/hip/knee get fixed
- I've been told I need to rest and heal
- it hurts too much to do things with my friends and they just don't understand
- I'm fearful that I will cause more damage



**Not sure about doing something? Ask yourself:**

**Will this activity harm me?**

**Will I pay for this later?**







## Poking into pain When can pain be your guide?



### Does hurt equal harm?

If you can answer the above question then it is a lot easier to decide if pain should ever be your guide. Traditionally, people are told that when things start hurting you need to stop right away or damage will occur. But there are times when this advice is good and there are times when we should ignore this advice. That advice is determined by what the pain you feel is telling you. Lets look at some examples of when pain is a good guide and when pain might be leading us astray.

**In doubt? Talk to your therapist!**



### When pain is a poor guide

If you have had a pain for a long time then pain is now quite often **more about the sensitivity of your alarm system** rather than being a very good predictor of the potential for tissue damage. Times where pain is really out of proportion to how much physical stress you are putting on your body. At these times we would say that **"hurt does NOT equal harm"**. The hurt you feel is more about sensitivity than tissue damage.

It is times like these where we still want to evaluate our painful movements and see if there are ways we can move that are less painful but we also should know that we can persist a little bit into having some pain. And understanding that **pain is not always equal to damage** helps us tolerate and adapt. Poking into mild discomfort and doing the things that are meaningful helps to turn down the sensitivity of that alarm. When we avoid and get fearful of pain or think that we are damaging ourselves we actually increase the sensitivity of the alarm and then end up doing less of the things that are meaningful.

In general it is a good idea to start with just poking into pain for a few movements or minutes. A success is that you don't have a massive next day flare-up and your pain remains stable that day too. Because you can poke into pain too much. Like many things its finding the balance of how much to persist and how much to avoid. And that balance will change over time.

Working with a professional can help you make that decision about when to persist into pain and when you might be someone that needs to back off. See the earlier section on avoidance versus persistence copers.

## When to listen to pain

In individuals who normally have no pain and they do something that starts hurting like stretching too far or lifting more than they might be used to they might want to listen to pain a little bit. Pain in these acute situations is often better at telling us the potential for danger. **You want to evaluate what that pain means.**

Try to do the movement that was hurting but perhaps do it slightly differently and see if the pain can decrease. For mild pain, persist with the activity for 3-5 minutes and see if the pain changes. If it increases, is greater than a mild discomfort or if it flares you up for days then these are times where we want to listen to the pain. You back off slightly and then slowly build up your tolerance to that activity.

Remember, even new pain does not regularly mean there is damage and that is why you evaluate the situation and see if the pain can change. **If you hear a bang in the night in your kitchen you don't just avoid the kitchen forever.** You go and investigate. Pain in some cases means there is the potential for harm and backing off for a short while is helpful. But not in all cases. Lets look at where pain is a poor guide.





# Self efficacy, tolerance, and adaptation

## Someone else doesn't need to fix you

### Self Efficacy...



...is one's belief in one's ability to succeed in specific situations or accomplish a task. If you remember the cup analogy of pain you can crudely view dealing with pain and injuries via two avenues. You can build a bigger cup or you can decrease all the sensitizers in the cup. The problem is that it is sometimes difficult to decrease all of life's stressors. In those cases, we want to build a bigger cup and learn to tolerate and

adapt. Self-efficacy is something that helps you to build a BIGGER CUP.

Low levels of self efficacy often occur when you feel like you need to be fixed by someone. Or that there is a special surgery or exercise or treatment that will fix you and until you get that you can't really start recovering.

One of the goals of this workbook is to help you learn about pain, develop the skills to manage your pain and start self-lead recovery strategies.

You are now the most important piece of your own rehabilitation. Your therapist is a guide and a facilitator and you both can work together to find the strategies that work for you. This again echoes that Key Message that you don't need fixing before you can start doing.



### You don't need fixing

This is a concept that is often difficult to believe. What it means is that we have an incredible amount of resiliency, coping mechanisms and a fantastic ability to adapt. You can have joint degeneration or muscle tears and feel no pain. You can sit all day, typing and working and have no pain. Your legs can be unequal lengths, your spine crooked and your legs bowed and have no pain. Anxiety and depression can be part of your life and you can be pain free. Tight and weak muscles don't have to lead to disability and anguish.

Many of the above things are still worth trying to address. They are all components in the cup but they don't have to change. This is what is amazing about people. For example, stress is not inherently bad. It is our response to stress that leads to issues. Self efficacy and building a tolerance to all stressors is what allows for this adaptation. You may have heard the expression "if you want something done then give it to a busy person". This is perfect example of a positive response to stress.

By slowly doing, by changing how you perceive your body, your pain, your x-rays and what you think you can do you can change your tolerance. As you start doing more and learning that you can do more you will start to build your self efficacy.

As self efficacy builds and you start having some success your behaviours and beliefs will not only build a bigger cup they can actually lead to changes in what is inside your cup. Just like pain can be viewed as downward spiral with contributors interacting to create disability your success and recovery can also spiral and build and magnify its own success. Self efficacy is a great start in building the snowball of recovery.







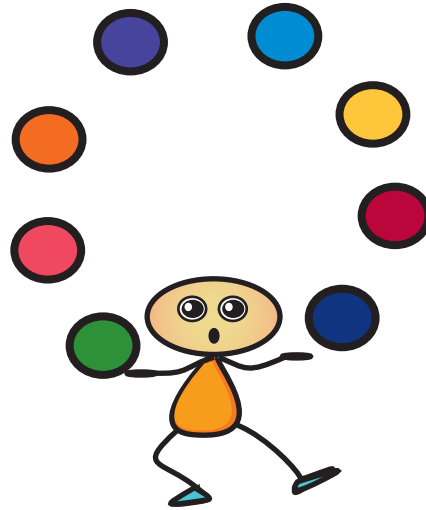
# Pain Contributors

## What can be in the cup

### Tissue Injury

Have you been told you have osteoarthritis, tendinopathy or muscles tears? These factors or similar ones might contribute somewhat to your pain. Or they might be irrelevant. Working with your therapist you can assess their contribution.

Consider whether tissue properties are relevant to your pain. Addressing them, or working on desensitizing them, might be helpful along with looking at everything else that might sensitize you



### Physical Habits

Its inaccurate to say someone has bad posture or moves in a "bad" way. But sometimes we fall into habits of movement that continue to sensitize us. You might constantly brace your core or tilt your neck in a certain way and you never let your nervous system settle down. Sometimes, we need variety in how we move to stop aggravating ourselves.

Consider if you tend to do the same movements repeatedly and if these movements or postures might be sensitizing you.

### Physical Impairments

For most people in pain strength and flexibility are often not very relevant. But sometimes they might be. Take your physical movement habits. Lets say you keep moving in a way that aggravates you. But when you try to move differently you find that you are unable to. You might be unable to do this because of a lack of strength, balance or flexibility. In these cases, we might say that the physical impairment is relevant because again it doesn't let you avoid doing the aggravating activity. You keep doing the thing that bothers you. Addressing this, along with other factors that sensitize you can help with pain.

### Meaningful Activities

When in pain you often are not you!

You stop doing things that are meaningful and important to you. Avoiding activity, social withdrawal, time off work and loss of contact with family and friends can sensitize you.

Consider what it is that you are missing. Consider how this can affect your physical and mental well being.

### Emotional/Psychological Factors

Fear, catastrophizing, depression, anxiety, rumination and anger can all contribute to your sensitivity.

Are you getting help in these areas? Do you think you need help?

### Lifestyle/Health Social Factors

What areas of your life can you be healthier?

Consider:

- sleep
- stress
- work-life balance
- obesity
- general health conditions

Sensitivity can be influenced by a number of factors. Consider what you can change.

### Coping strategies

Do you avoid or do you persist?

Avoiders stop doing the things that are important to them or certain movements and this avoidance leads to increased sensitivity.

Persisters keep doing the things that aggravate them and they never get a chance to settle down.

Find the balance!

### Beliefs

Why do you think you have pain? Many false beliefs about pain can continue to sensitize your nervous system. If you believe that movement and load is bad for the body and will cause injury then you will be likely to withdraw and avoid activities even though those activities are good for you. Your beliefs might lead to bad decisions for your pain.





# RECOVERY strategies

## - Section IV: Recovery Strategies -

### What's Inside?

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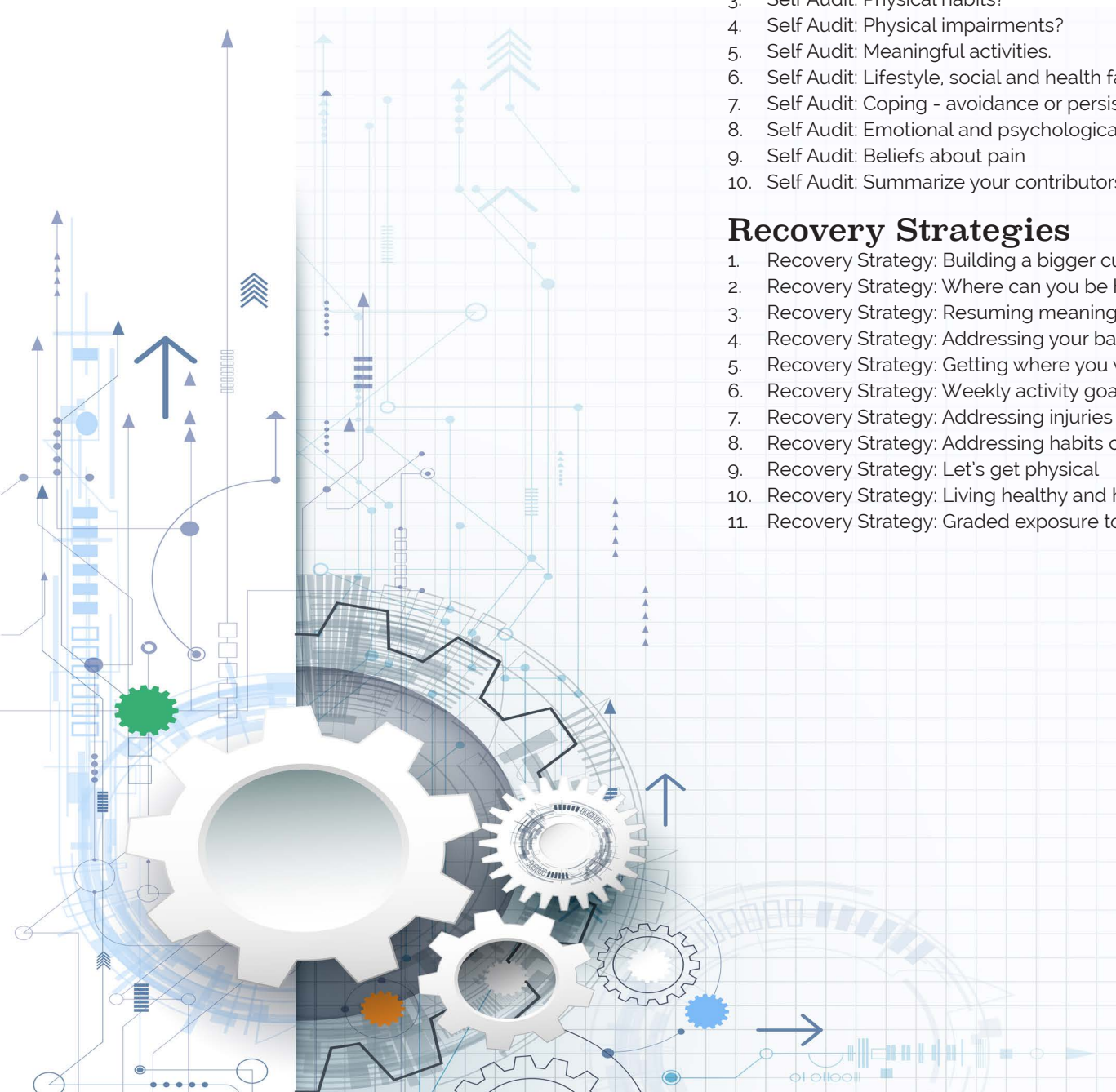
1. Pain is multidimensional: The overflowing cup.
2. Pain Contributors: What can be in the cup

### Self Auditing

1. Self Audit: What is in your cup?
2. Self Audit: Tissue Injury?
3. Self Audit: Physical habits?
4. Self Audit: Physical impairments?
5. Self Audit: Meaningful activities.
6. Self Audit: Lifestyle, social and health factors
7. Self Audit: Coping - avoidance or persistence?
8. Self Audit: Emotional and psychological factors
9. Self Audit: Beliefs about pain
10. Self Audit: Summarize your contributors

### Recovery Strategies

1. Recovery Strategy: Building a bigger cup
2. Recovery Strategy: Where can you be healthier
3. Recovery Strategy: Resuming meaningful activities
4. Recovery Strategy: Addressing your barriers to activity
5. Recovery Strategy: Getting where you want to be
6. Recovery Strategy: Weekly activity goal setting
7. Recovery Strategy: Addressing injuries or damage
8. Recovery Strategy: Addressing habits or impairments
9. Recovery Strategy: Let's get physical
10. Recovery Strategy: Living healthy and happy with pain
11. Recovery Strategy: Graded exposure to movements







## Pain is multidimensional

### The overflowing cup

As pain persists it becomes less about tissue damage and more about anything in your life or something particular about you that can make you more sensitive. Remember, pain is normal but what happens when it persists is that we get better at it. In a sense, we have an over-reactive and over-protective system. Its easier for the pain to be "triggered" and multiple things in our lives can contribute to this.

Its not just about muscles, tendons and joints (although they are sometimes important). Its everything in our lives. For example, big tough football players are more likely to get injured when they have a lot of physical/mechanical stress. That is what most people would expect. But they are also more likely to get injured when they have a lot of academic stress. Dancers are more likely to get injured when they have poor sleep or higher levels of anger/hostility.

Look at pain as the overflowing of a cup. Many things contribute to what is in that cup. You can have a lot of physical, mechanical, emotional and social stressors and have no pain. But at some point a sudden increase in one of those stressors or a new stressor puts you just over the edge and the water flows out and now you have pain. Often people will have more pain when there a changes in the stressors in their life. It is the inability to adapt to the new stressor that contributes to pain not necessarily the amount of the stressor in your life.

Pain occurs when we fail to tolerate and adapt to all the stressors in our life. Its not stress - its unmanageable stress

We need to keep that cup from overflowing.

### What is great about all of these factors and this complexity?

You can tolerate each of these factors. You get to work addressing the ones that are important to you but its unlikely that one of them **MUST** change to get out pain. Often improving one or two of these is enough to be a huge difference. Further, sometimes just understanding that these factors are important can help your situation.



### Lots of Options for Change

The multidimensional nature of pain means there are a multitude of things that can help with pain.

You can decrease one contributor a great deal or perhaps address a few of them. What you can also do is **BUILD A BIGGER CUP**. This means over time you can build resiliency or coping that allows you to adapt and tolerate all the stressors in your life. Most people can't run a marathon today. But people can slowly build their tolerance to the stresses of running and do it soon.

Pain recovery and coping is the same thing. You can decrease some of the stressors in your life but also build resiliency to those stressors.



# Pain Contributors

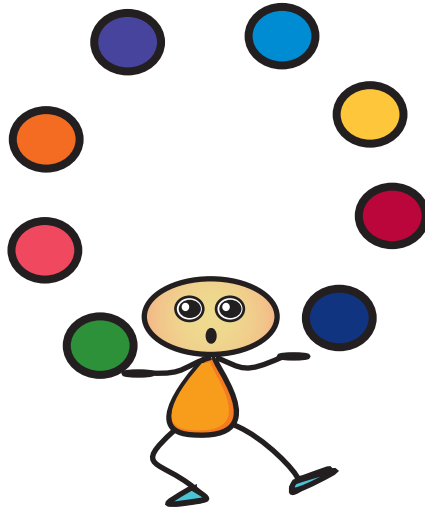
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Find the balance!

### Emotional/Psychological Factors

Fear, catastrophizing, depression, anxiety, rumination and anger can all contribute to your sensitivity.

Are you getting help in these areas? Do you think you need help?





## Self Audit: What is in your cup?

Before we ask some specific questions reflect on what you have just read. Write down some things that you think might be contributing to your pain. After reviewing the questions or the section on pain contributors feel free to add others.

We just focused on the things that might be sensitizing you. But what about the positives? What are some things that make your cup bigger? What are things that seem to help? What do you think you could do to make your cup bigger?



**\*Tip: Its not a bad idea to write down 3 things every day that show your strengths or something you are proud of**



## Self Audit: Tissue injury or tissue changes

Below list some injuries or tissue problems that you think might be influencing your pain.

*Example: The outside of my hip hurts and I've been told I have Gluteal Tendinopathy*

Considering what you have read and some Key Messages about pain what do you think you can do?

Is this something that needs rest or is it something that you need to "stress" to make it adapt or desensitize?

Is it something that might exist but might not be the entire reason for your pain? Are there other things that might be sensitizing you?



**Check this box if you think this might be a factor**





## Self Audit: Physical habits

### Do you have an movement habits that might be factors in keeping you sensitive?

e.g John continues to brace his spine and hold his breath when he lifts, sits or moves around even though it will often feel better to be relaxed, not brace, slouch and not think about his back.

List some of the movements that aggravate your pain

Do you think that you continue to do these things perhaps without realizing it?

Do you think that you might do these things because you have been told you should (e.g you need to sit up straight for your neck pain)?

### **...remember there are sometimes exceptions and this is not relevant**

While we want to find less painful ways to move it is not always necessary or even possible. Sometimes this factor is not relevant and you are sensitive and in pain for other reasons. So, we have to be careful here and be cautious about trying to find a painfree movement...because that might not exist. Rather, we would work to find other factors that are sensitizing you or do things to build up your tolerance to stress and then you can sit, stand, walk and move in any way you like.

Check this box if you think this might be a factor







## Self Audit: Physical Impairments

### **Do you have any physical impairments that really need addressing to help you desensitize?**

e.g Susan has knee pain but she often has to bend her knees. She finds that her knees feel better when her toes can go past her toes when she squats but it is hard for her to do that because her ankles are stiff and tight. This is an example where an "impairment" in ankle movement does not allow Susan to bend her knees in a way that feels better. Therapists are great at finding these impairments. Work with them to determine if the impairment is relevant to you. And remember, sometimes its just the act of working on the impairment that helps with pain!



**Check this box if you think this might be a factor**





## Self Audit: Meaningful Activities

What are some of the things you did before you had pain that you no longer do and wish you could do?



Do you find that you are avoiding a lot of the activities that you once enjoyed?

Do you find that avoiding some of the activities that you once enjoyed might be a factor for your pain, for your overall health or just for your enjoyment in life?

Check this box if you think this might be a factor





## Self Audit: Lifestyle, social & health factors

How is your sleep? How much? Quality? Is your pain worse when your sleep is poor

Do you go to sleep and wake at the same time?

Do you drink caffeine in the evening?

Do you exercise or watch bright screens (phones) just before going to bed?

Have you had large changes in any form of stress in your life (work, social, family, emotional)? If so, what happened?

Do you have any secondary medical diagnoses? Are you being helped with those?



**Check this box if you think this might be a factor**





## Self Audit: Coping: Avoidance or Per-

Do you find that you avoid doing painful movements?

Are you worried about harming yourself?

Do you feel that pain is telling you that there is tissue damage and you must stop?

Do you keep pushing into pain?

Do you think that pain should always be ignored and that if you try hard enough the pain will go away?

Check this box if you think this might be a factor





## Self Audit: Emotional and Psychological

Do you suffer from anxiety or depression?

If so, is it well managed? If not, Do you think you need help dealing with this?

Does fear of movement dominate your thoughts or influence what you do?

Do you think you will harm yourself when you do movements?

Do you think pain means there is a lot of damage and you must stop?

How likely do you feel you are to be able to recover and have a lot less pain?



**Check this box if you think this might be a factor**







## Self Audit: Beliefs about pain

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You might want to take the time to review the section on the Contributors to Pain. In that section we explored a lot of the misconceptions about pain. Addressing those false beliefs is an important part of recovery. Because pain is influenced by a lot more than just your tissues. Its like the optical illusion on the left. In the first picture you will see two lines which are the same length. In the second picture, we have the same two lines with the addition of the arrows. The lines in both cases are the same length but they now look different. We want to have you look differently about your pain. Addressing those false beliefs is the first step.



List some false beliefs you may have had about pain. You can also list how changing those beliefs might help you in your recovery.

Example: Tom once believed his lumbar spine had degeneration and was therefore weak and damaged. This caused him to stop playing hockey, brace his core muscles constantly and caused worry about his back in the future.



Check this box if you think this might be a factor

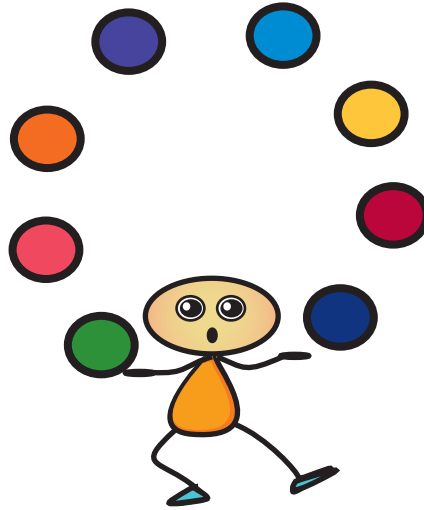


# Self Audit: Summarize your contributors



Tissue Injury

Physical Habits



Physical Impairments

Meaningful Activities

Emotional/Psychological  
Factors

Lifestyle/Health  
Social Factors

Coping strategies

Beliefs





## Recovery Strategy: Building a bigger cup!

In the Section III we tried to find some of the factors that might be sensitizing you. Working with your health care provider you can now determine the best ways to work on them. This book provides a start. Its designed to learn about pain and reframe how we see pain and injuries. That can help some of the false beliefs about pain and that can start the process of desensitizing. We also want to build you a bigger cup. We can get that cup bigger in two ways:

1. Build your tolerance to all of your stressors
2. Address, understand or change the factors in your cup

After reading this workbook what are some things you think you could do to build your tolerance to stressors

After reading the book and answering some of the questions have your views about pain and helping yourself changed? Are there things that you can now do differently?



## Recovery Strategy: Where can you be healthier?

Fortunately some of the things that decrease all of the contributors to pain can also increase the size of your cup or build your tolerance to life's stressors.

Things like:

- general exercise or physical activity
- resuming hobbies or meaningful activities
- working with a counselor on stress management
- getting a started on a consistent sleep schedule
- giving your body permission to move and explore any movement. Movements should be fearless we are designed to move.
- changes to your diet
- almost anything that makes you happier
- focusing on your successes!

List below some of things you think you could, should or want to start doing to be healthier. What steps do you need to take to start doing those things?

**The upcoming pages have a goal setting guide to help you start doing the things that are meaningful to you**





## Recovery Strategy: Resuming Meaningful Activi-

### what would you be doing if your pain was less of a problem for you?

The aim of this strategy is to find the things that are important to you. Pain does not mean you have to stop doing most things in your life. Remember, persistent pain means that you have an overactive alarm and it is much less about damage and more about the need for protection. The problem is we overdo that protection. We have to convince you, your body and your brain that you don't need that protective response anymore. There is nothing about you that needs fixing before you start doing!

### **The doing is the fixing.**

An example:

Mary has had back pain for 6 years. It started in the spring when she bent forward during gardening and some mild pain in her back. The pain got progressively worse and the x-rays her doctor ordered showed degeneration and some disc bulging. Mary was 47 at the time and what she didn't know was that these changes were pretty normal and she probably had those changes for decades. Mary stopped her usual exercises, stopped gardening and really felt that her back was falling apart. She had been told that her Glute muscles don't fire, her hamstrings are tight and her core is weak. And until she fixes all those things she can't garden again. The problem with that...is that its all wrong. She might have all of those things but they aren't very relevant to her pain. Gardening is one thing that can help Mary. Its important to her, moving is good for the spine and gardening does not damage the spine. After reading this book you now know that weakness, tightness, stability and all those things are poorly related to pain. X-rays, except for fractures, aren't very helpful...except for scaring the crap out of you. One thing that will help Mary is starting to garden or do whatever makes her healthier and happier. The trick is to start slow and the body and your pain protective system will adapt. Flare ups might occur but they just mean you are sensitive. You and Mary can slowly start doing things again.

In the space below write down some of the things you would like to start doing again.







## Recovery Strategy: Addressing your barriers to ac-

On the previous page you wrote down the things you wanted to start doing again. Things that you missed. Things that you think might help your recovery.

But what is holding you back? On this page write down some of your concerns and worries. What are your thoughts about starting these things again. Being concerned is normal. This might be a good place to begin addressing these with your health care provider

If you have identified some activities you would like to do again you can determine if you are ready by asking yourself these questions:

1. Will I harm myself if I perform these activities?
2. Will I "pay for it" later if I do these activities.

Now write down what you think needs to happen for you to be able to start those activities or the things that you feel are holding you back. What are your concerns and worries? How can this be addressed?

This is a great section to bring to your therapist. They might be able to modify the activity or exercise to slowly get you prepared to tolerate it or you might find ways to start doing these things again with your new found knowledge.





# Recovery Strategy: Getting where you want to be

You have identified some things that you want to start doing. On this page write down how much you think you could do now/or what you have done in the past week and then write what you would like to be doing in 3 months time in the right column.

## WHERE YOU ARE NOW

## WHERE YOU WANT TO BE





## Recovery Strategy: Weekly Activity Goal Setting

List your daily/weekly activity goals (what and how much)

1. e.g. 10 minutes of walking after dinner
2. e.g. Go out for coffee with my spouse 2/week

List your daily or weekly accomplishments

Print and re-use this page as needed. Look back at your progress





## Recovery Strategy: Addressing injuries or damage

Have you been told you have a specific tissue contribution to your pain? Something like tendinopathy or sensitive knee joints (e.g. joint osteoarthritis). Usually, with these types of physical contributors a part of treatment is physical treatment. Meaning exercise and physical activity is often helpful. This would be in addition to addressing anything else that might be contributing to your sensitivity. Remember, there can be a physical component to your pain but that can get amplified by other factors in your life. Try addressing everything, or the things most important to you or the things that might be most relevant.

What can you do to address the physical components of your pain and function. What have your therapists recommended?





## Recovery Strategy: Addressing habits or impairments

Are physical habits relevant to your pain? Have you or your therapist identified that you keep doing the same thing that bothers you and you found new ways to move (new movement strategies) that helped with your pain?

What are your habits and what are your new movement strategies to address them? List them below. Maybe draw pictures or have your therapists draw pictures and instructions

**\*\*working with a therapist is often a great way to find your relevant impairments and to teach different ways to move**







## Recovery Strategy: Let's get physical

### Why physical activity?

I'm sure you have heard it all before but general exercise has a number of health benefits - your heart, your lungs, bones, cancer prevention, mental acuity - you name it and exercise can help. But getting started can be a little daunting. You don't need to strap on your leotard and bust out some ridiculous exercises that you haven't done since high school though.

#### **Physical activity is more than just exercise.**

Physical activity can be almost anything you like to do provided you are physical working a little more than you normally work. Going for walks in the forest, working in your garden or playing with your kids all count as physical activity.

**The most important exercise you can do is the one that you will do!**

#### **Physical activity can help with pain.**

Most people are rarely in pain because they are not fit or because they are weak. But physical activity helps with pain for a number of other reasons. Just getting your heart rate up a little bit can give some people some mild pain relief. In others, a little bit of strength training can help pain improve in the long term. **Physical activity is one of those things that BUILD A BIGGER CUP.** It is a general desensitizer and improves your tolerance to all stressors. When you combine physical activity with learning about pain, changing your habits, resuming meaningful activities and changing your beliefs they can all add up to helping you get your life back and get out of pain.

Physical activity can even decrease the sensitizing chemicals that are involved in some osteoarthritis. Remember, stressing yourself is how we adapt. Physical activity can provide that stressor.

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#### Getting Started

1. Find an activity you want to do
2. Get cleared by your doctor or health care provider that you are medically safe to start activity.
3. Working with your therapist choose an amount of an activity that you think you can do today without harming yourself or without a flare up.
4. You can use the Weekly Activity Goal sheet to start and track your progress



#### Tips and Options

1. Doing 1-2 minutes of walking, squats or stairs every hour counts
2. Join a local beginners group
3. Rarely is anything off limits - feel free to experiment and see how you respond





## Recovery Strategy: Living healthy and happy with pain

This is the dirty secret that therapists and pain experts don't talk enough about when it comes to recovery and pain treatment. We have already established that pain is normal, pain is weird and pain is influenced by a number of factors. In a nutshell, its complicated. We also have to recognize that pain for many of us will be a part of our life. That always searching for no pain is impossible. For example, if you exercise regularly its not unusual for your ankles or knees to feel stiff and painful in the morning. If you have some hip arthritis then its OK and perfectly normal to have creaking and some aches after not moving for awhile The majority of people have pain sometime and many people have some pain all the time.

For many our goals might want to change.

Rather than expecting that pain should be forever abolished we could focus on what we can do that makes us healthy and happy. Pain might exist but it doesn't have to be barrier to the things that are important and meaningful to you.

Early in this section on Recovery Strategies we outlined a simple goal setting approach to doing meaningful activities again. While this can be helpful in decreasing pain we can also view it as an END in itself. The important thing is the doing and living again.

Its not that pain is irrelevant. It can still decrease but instead the focus is on what you can do and what you want to do.

Hence, in all of the goal setting and tracking your progress we aren't measuring your pain. The true focus here is on activity.

We also recognize that you might have flare-ups with pain. This is normal and part of recovery and living well again. We should not expect to always avoid flare-ups. Rather you can manage them and keep doing what is important.

For further reading please see: [www.healthskills.wordpress.com](http://www.healthskills.wordpress.com) or The Progressive Goal Attainment Program.



**what would  
you be doing  
differently if  
pain was less  
of a problem  
for you?**





## Recovery Strategy: Graded Exposure to Movement

If you are afraid of bugs its difficult to avoid them forever. Avoiding them can even make you more scared and further sensitize you. To address your fears you have to slowly expose yourself to bugs. You can adapt, habituate and change your response to bugs. Sometimes, we can do the same thing with pain.

You might be avoiding the movements that you find painful, fearful or uncomfortable. This is sometimes the appropriate thing to do but after awhile not moving in those ways can make you more sensitive and more fearful. Sometimes, you need to confront those sensitive movement patterns to habituate to them and **turn down your alarm**. Below are a few steps in this graded exposure approach to desensitizing movement. There are different ways to do this and this is just one.

1. Find a movement that you find sensitive, perhaps slightly fearful of and something that you want to do.
2. Consider what has been holding you back from doing the movement. Does anything in this book change how you feel.
3. Now we are going to start to slowly do the movement. Here you have some options:

### Option 1: Explore

- i. slowly start doing the movement to the edge of discomfort.
- ii. back off and evaluate how you feel
- iii. go back to the edges of discomfort and wait. Consider what you are feeling
- iv. breath, relax your muscles or even tense your muscles when you are at the edge of discomfort
- v. can the discomfort decrease
- vi. repeat for 1-3 minutes but try to do this every hour
- vii. keep doing this if you have no large flare ups
- viii. poke into discomfort for longer periods

\*\*you might find that you have a habit of moving in a certain way here. Like holding your breath and expecting it to hurt. Try to avoid any guessing about what might happen or how you think you SHOULD move. Just try to move and see how it goes. Then try moving differently which leads to Option 2: Modify. **Therapists** - Check out **Edgework** to learn more

### Option 2: Modify

- i. change the movement that hurts in someway
- ii. For example, if standing back flexion hurts then start to do this lying down on your back or stomach
- iii. add in other modifiers like muscle tension or imagine that you are fluid and loose
- iv. modify any way you want and see if it changes the pain
- v. if the pain changes try to do the movement without the modification
- vi. start with 1-2 minutes every hour and slowly do more
- vii. combine with Option 1
- viii. you can try to move with less pain (after a modification) or you can move with pain but it just feels less threatening to you. A success here can be moving with pain but not having a large Flare up the next day

\*\*try not to get caught up in moving in the "correct" way. There are lots of different ways to move and you are finding ones that you might tolerate and that can carry over to desensitizing your fearful/painful movements



**Sometimes its hard to desensitize thru exposure. Keep working with your therapist but if after 3-6 weeks things seem to get worse you might want to avoid the movement pattern for a short term and work on other things that can help desensitize you. Then after a few weeks you can start the desensitizing thru exposure approach again.**





## Recovery Strategy: Learning More

### Stories from people in pain and about pain

1. [pain-ed.com](http://pain-ed.com)
2. [www.mycuppajo.com](http://www.mycuppajo.com)
3. [healthskills.wordpress.com](http://healthskills.wordpress.com)
4. [paintoolkit.org](http://paintoolkit.org)

### Technical aspects of pain and some help

1. [bodyinmind.org](http://bodyinmind.org)
2. [painscience.com](http://painscience.com)
3. [fmperplex.com](http://fmperplex.com) (Fibromyalgia focused)
4. [paininmotion.be](http://paininmotion.be)
5. [retrainpain.org](http://retrainpain.org)

### Great Blogs about pain, posture and function

1. [bettermovement.org](http://bettermovement.org)
2. [painscience.com](http://painscience.com)
3. [pain-ed.com](http://pain-ed.com)
4. [specialistpainphysio.com](http://specialistpainphysio.com)
5. [Edgework - forwardmotionpt.com](http://Edgework-forwardmotionpt.com)

### Other books on pain and recovery

1. Explain Pain
2. The Protectometer
3. Graded Motor Imagery Handbook
4. Explain Pain Supercharged (more for therapists)

