

The Pain Truth *... and Nothing But!*

*An Easy to Understand Patient Education
Handbook About Pain Management*



Written by:
Dr. Bahram Jam,
Registered Physiotherapist

Step #1

Download the “The Pain Truth” App & view the introductory videos on the App.

Step #2

Register yourself as a “Patient” on www.ThePainTruth.org and complete the first 3 phases.

Step #3

As you read this E-book have a pen and a blank piece of paper or a journal at hand that you may write in.

Step #4

If this information resonates with you, you may complete the 6-week program on www.ThePainTruth.org with the assistance of a Pain Truth Certified (PTC) health care provider.

Illustrations by: **Eva Zhou**



Published by

Advanced Physical Therapy Education Institute
44 Sea Island Path, Thornhill, Ontario, CANADA L3T 3A4



To order copies of this booklet version of *The Pain Truth ...and Nothing But*, please visit:

www.aptei.ca

or email:

info@aptei.com

Fifth Printing 2020

Printed in Canada

ISBN 978-0-9735374-2-0

Copyright Information

© 2010-2020 All rights reserved. This book is protected by copyright. No part of this book may be reproduced in any form or by any means, including photocopying, or utilized by any information storage and retrieval system without written permission from the copyright owner.

Disclaimer

The author and the publisher of this book do not dispense medical advice or prescribe the use of any treatment for medical ailments and are not responsible for any adverse effects or consequences resulting from the use of the information in this book. Medical treatments, dietary changes or exercises should not be sought without consultation from a physician or a qualified health care professional.

To my wonderful parents,
My darling one of a kind wife, and my three daughters
Nadia, Tara & Roxana who light up my life!

B.J.

About the Author

Dr. Bahram Jam graduated from the University of Toronto, Canada, in 1992 with a Bachelor of Science in Physical Therapy. In 1999 he completed a Clinical Masters in Manipulative Physiotherapy at the University of Queensland, Australia and in 2009 he completed his Doctorate of Science in Physical Therapy at Andrews University, U.S.A. He has the Canadian Diploma of Advanced Manual and Manipulative Physiotherapy and is also credentialed with the McKenzie Institute International.

He is the founder and director of Advanced Physical Therapy Education Institute (APTEI) and has been a chief instructor for over one thousand post-graduate orthopaedic clinical courses internationally. Bahram Jam has published several books and has presented at many national and international conferences. He continues to practice and has extensive clinical experience with direct patient care.

Special Thanks

I am grateful for the assistance of the many people who have been invaluable putting this book together. My warmest gratitude goes to my colleagues and friends *Agnes Bellegris*, *Debbie Patterson*, the wonderful family at **Central Printing** in Toronto and *Marla Perlmutar (aka the comma murderer!)*.

Preface

There are currently several textbooks and thousands of medical research studies on the topic of persistent pain. What is pain? Why do people feel it? Where exactly does it come from? What is the precise physiology behind pain? Most importantly, how can pain be eliminated or at least reduced?

The answers to these questions continuously evolve and change with each new research study published in journals around the world. Every year, hundreds of new studies attempt to answer these questions. This book's purpose is to provide a summary of the multitude of "pain" studies in ten simplified lessons. I make an assumption that most individuals who must cope with persistent pain do not have the time, energy or ability to research and comprehend this tremendously complex topic. The intention of this book is to take advanced scientific knowledge and present them in easy-to-follow lay terms.

Before going any further, two internationally renowned pioneers of pain education *Lorimer Mosely* and *David Butler* must be fully credited for their work in this area. These world-renowned Australian physiotherapists have educated thousands of health care providers on the topic of persistent pain. Their two books *Explain Pain* and *Painful Yarns* are a must-read for those individuals who wish to delve further into understanding and managing pain.

The sole purpose of this concise and straightforward book is to help those who deal with persistent and medically "unexplained pain," to feel in control and optimistic about once again regaining their quality of life. So here is *The Pain Truth...and Nothing But!*

Sincerely, Bahram Jam, PT

Table of Contents

Pain Truth Videos #1-2-3 exercises

Lesson#1: Pain is Good!

Lesson #2: Why Does Pain Persist?

Helping Jane with Severe Hypersensitivity

Lesson #3: The Threat Value of Pain

Lesson #4: Is the Pain All in my Head?

Lesson #5: Emotions and Pain

Scarlet's Anger, Stress, Job, Boss and PAIN

Lesson #6: The Outdated Pain Theory versus Phantom Limb Pain

A Fascinating Pain Story of Abraham

Lesson #7: The Brain Does Not Want Us to Feel Pain ... DPIS!

Lesson #8: What Does Nerve Sensitization Pain Feel Like? Why?

Lesson #9: What Can You do About Pain?

Sam's Dependence on Medications

Doctors Said he'd Never Walk Again ...So Mike Learnt to Run!

Lesson #10: Six Essentials of Life and Health

The Pain Truth Summary

References & The Final "Contract"

View the Pain Truth video #1 on www.ThePainTruth.org (Phase III), and answer the following “true or false” questions in your head.

1. The brain can produce pain even if there is no actual injury to the body T F
2. Pain does not necessarily mean that something in the body is injured T F
3. Pain can persist even when the tissues that were injured have healed T F
4. All pain is real; there is no such thing as imagined pain T F
5. It is possible to feel pain and have no physical injury or damage to the body T F
6. Pain is an alarm system that warns the body of actual or perceived danger T F
7. All pain is “in the head” (...in the brain) T F
8. Thoughts and fears can increase blood pressure, breathing, heart rate, muscle tension and spasms T F
9. Thoughts and fears can cause or increase swelling/inflammation T F
10. Just thoughts and fears can actually cause or increase pain T F

Note: The answers are all True!

Base on the Pain Truth video #2 & 3 on www.ThePainTruth.org
(Phase III)

Please grab a blank piece of paper or a journal and write down the answers to the blanks in the following 2 pages.

My top 3 current stresses are...

.....

.....

.....

My top 3 potential enjoyable / fun activities are...

.....

.....

.....

My one inspirational & exciting goal for the next 5 years is...

My one exciting goal to achieve for the upcoming one year is...

My three ideal goals to achieve in the upcoming 3 months are...

- 1.
- 2.
- 3.

Pain Lesson #1: Pain is Good! (At least most of the time!)

Pain is most often a good thing as it is essential for life and survival ...without pain the body would not be protected and warned of potential danger.

Pain also helps protect the body until healing is complete or satisfactory; e.g. limping after an ankle sprain or fracture.

Pain, muscle spasms, muscle tension, muscle weakness are all valuable protective systems.

Pain is a warning signal that tells the brain to take action and do something.



Think of it as a home burglar-alarm system that warns us of an unwanted intruder.



Pain warns the body of potential or actual danger ...similar to a home alarm system.



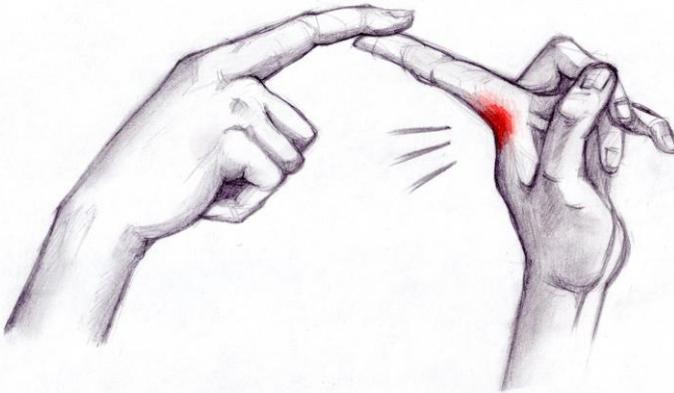
For a few days or a few weeks after an injury, pain protects the area to allow healing!



As the hand is placed on the stovetop, danger messages are sent up the spinal cord to the brain. The brain then interprets the messages as "dangerous burning pain" and sends a message back down to quickly remove the hand ...Pain is therefore good!

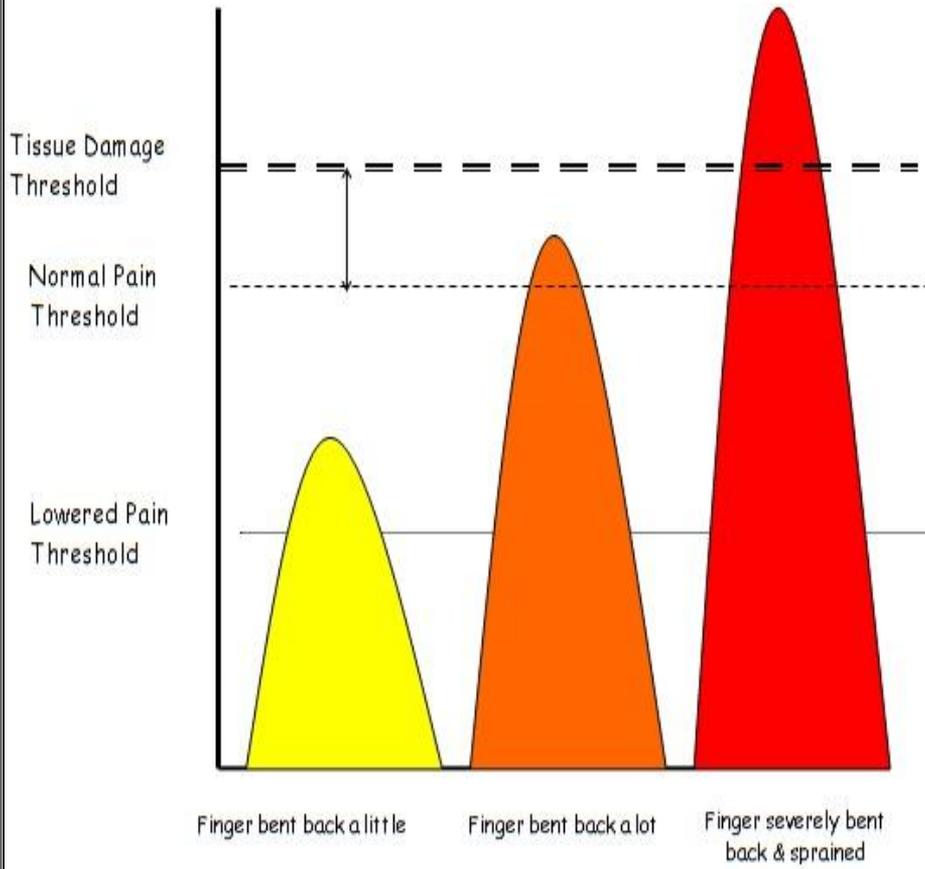
All tissues have a pain threshold and a damage threshold.

The tissue pain threshold should, of course, be lower than the tissue damage threshold; i.e. ideally pain should be felt before damage actually occurs ...it would be silly if it weren't that way!



Bend your finger back until it hurts. Notice that pain warns the body of threat, **before** tissue damage occurs ...once again, pain is good!

Look at the graph on the next page and notice the double-sided arrow indicating the distance between Tissue Damage Threshold line and the Normal Pain Threshold line. Most activities performed throughout the day should be way below these two lines.



Lesson #2: Why Does Pain Persist?

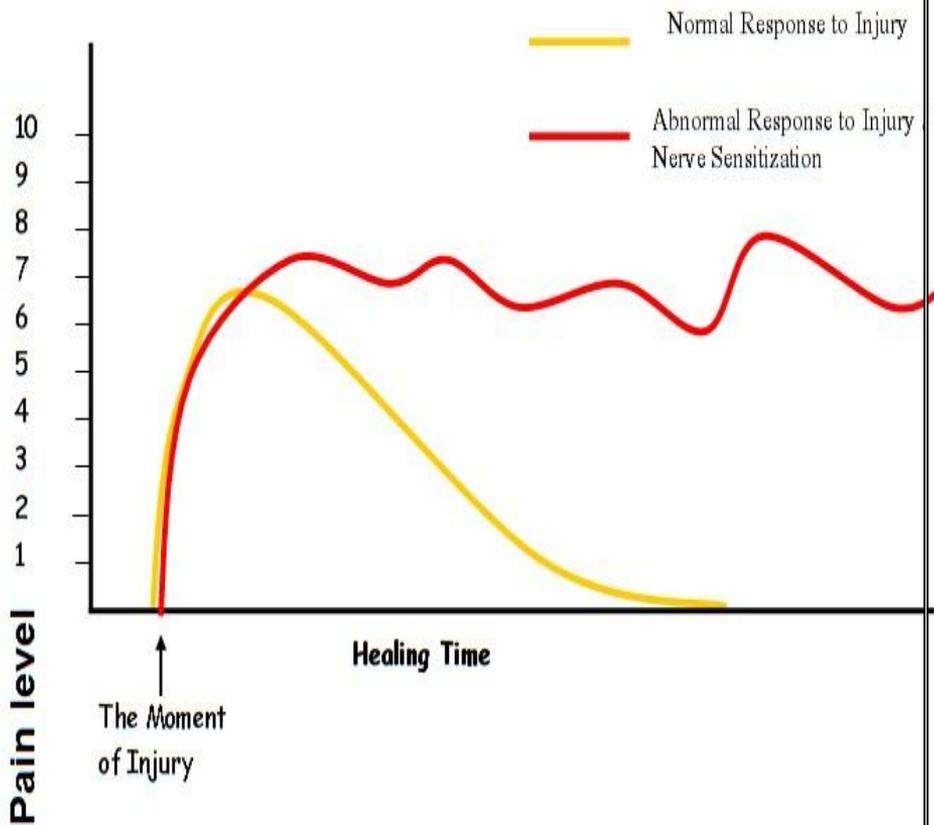
First, a thorough medical examination by a physician must be performed to rule out serious medical conditions such as rheumatoid arthritis, spinal cord injuries, infections, thyroid issues, possible medication side effects, etc.

Second, a comprehensive medical examination must also rule out less serious, but still medically important conditions such as fractures, torn ligaments, ruptured tendons, torn muscles, nerve root compression, etc.

The body amazingly heals itself in a few weeks or sometimes a few months. Normally as the healing proceeds, the pain related to the injured tissues naturally decreases.

A short course of physical therapy treatments including home exercises, mobilizations, manipulations, stretching, muscle retraining and postural education can often help speed up recovery.

Sometimes even after a course of good therapy and long after tissues have healed, pain persists.



Question: What could be causing this pain if the tissues have supposedly healed?

Answer: A Sensitized Nervous System!

Burn victims suffer from severe pain long after the skin and the tissues have healed.

Their nervous system and their skin remain extremely sensitized even six months after the injury, when healing is actually complete.

Light touch or just blowing the skin on the back of the hand will produce unbearable pain.

Question: Will blowing or lightly touching the hand actually damage the skin or the tissue?

Answer: No, but the brain perceives that it may!

Question: Is the pain real, even though it has been over six months since the original injury?

Answer: YES! Absolutely 100% real ...ALL PAIN IS REAL!

Helping Jane with Severe Hypersensitivity

Jane suffered a severe burn on the back of her left hand. It took many months before the skin finally healed. Coping with the pain required Jane to take quite a bit of prescribed pain medication.

Fortunately in time, Jane's pain decreased and was no longer constant. However, one year passed and Jane was still unable to hold a cup of coffee with her left hand without feeling severe pain. Any light movement, light touch or even gently blowing the skin on the back of her hand caused pain.

Jane knew that gently touching her skin was not causing any damage, but nonetheless, it was very painful. She was constantly fearful of something or someone accidentally hitting her hand.

Physical Therapy

Advice to Jane: Rub the skin on the back of the hand lightly once per hour. The next day lightly rub the skin twice in the hour. The next day, lightly rub the skin



three times within the hour and so on. Also place the whole hand in a bowl filled with soft white flour and wiggle fingers for one minute.

Gradually increase the time the hand is in the flour each day for a week.

The following week, replace the white flour with rice.

Another week later replace the rice with small lentils.

The following week replace the lentils with kidney beans.

Although it took several months, Jane did get the use of her left hand back.

What can be learned from Jane's situation?

Gradual stimulation is the only way of desensitizing hypersensitive nerves. This is a slow but sure way of returning to normal function. Without this gradual process, it is unlikely that Jane would wake up one morning and suddenly be able to use her hand.

Lesson #3: The Threat Value of Pain and The Brain

It is the brain that always decides if pain messages are important or not that important.



Each person's brain is different and therefore every brain judges very similar situations differently. For example, visualize two people on a roller coaster, one person is excited and feels fantastic, the other individual is horrified and feels awful.



Why? Two different brains, two different perceptions!

The brain constantly interprets all pain and evaluates its potential danger based on beliefs, memories and past experiences.

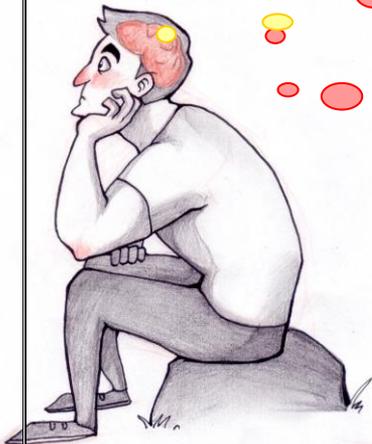
If the brain believes it is in danger, it magnifies pain like a megaphone.

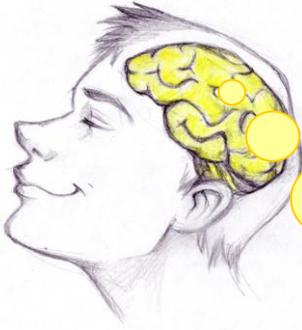
I've had this pain before and have gotten better quickly!

This is no big deal, I just have to stay active and it goes away.

My father had back pain and never got better!

I have arthritis and bulging discs!



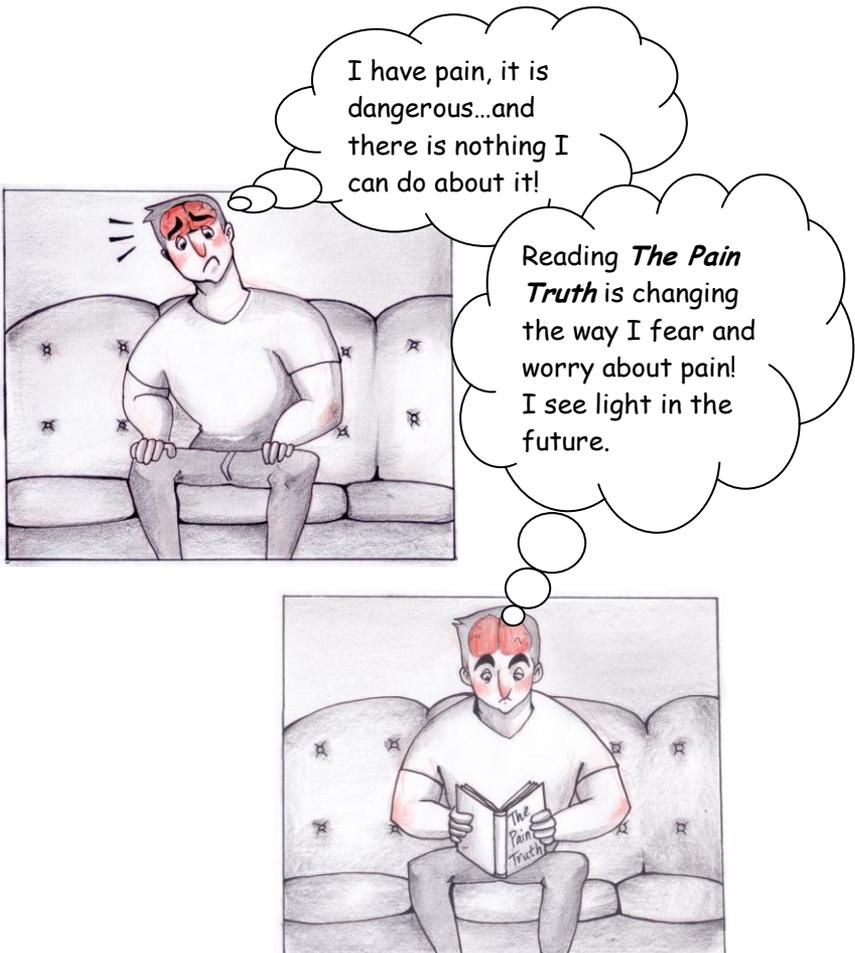


It's not serious,
dangerous or
permanent. You can
gradually get back to
activity and normal
life!



**WARNING...WARNING...
YOU HAVE SOMETHING
DANGEROUS HAPPENING!
YOUR MRI SHOWS DISC
BULGES!**

If the brain receives pain messages but it does not feel threatened or it does not feel it is in real danger, it muffles or even silences the pain. Basically, the brain feels pain, based on its potential “threat value.”¹ Research has shown that once people understand how the pain system, the nerves, the spinal cord and the brain work, it lessens the threat value and improves their overall quality of life.^{2,3}



I have pain, it is not dangerous...and I am taking action and doing things about it!



Lesson #4: Is the Pain All in my Head?

Once people learn about this pain stuff, they sometimes become defensive and say *“So you believe that the pain is all in my head?”*.

The answer is “Yes, since the brain is in your head, and all pain is in the end interpreted in the brain, so it is technically in your head!”.

The next question is *“Do you think that my pain is real?”*.

The answer is **“Of course it is real, all pain is real,** but the source of some persistent pain is sometimes not from damaged muscles, bones or joints, but a sensitized nervous system.”.

Although hard to believe, studies have shown that some patients just have to **think** about moving a body part and they will feel pain and witness actual swelling in the painful area.⁴

Even just thoughts and fears of pain can increase pain sensation.⁵

Simply thinking, *“If I do (fill in with an activity), I know I am going to flare up my disc, my arthritis, my muscle spasms and my pinched nerve”* is a self-fulfilling prophecy.



Are you sure that just thoughts and fears of pain can increase my pain sensation?

Yes, there are many studies to support that!

But don't forget, weak muscles and/or stiff joints can also contribute to pain, so they must also be addressed.

Lesson #5: Emotions & Pain

Hundreds of research studies have shown that our emotions influence our pain perception and nerve sensitivity. Some emotions, thoughts and feelings literally lower the body's pain threshold.

In fact, long after healing has taken place, thoughts can maintain the nerve hypersensitivity.

Our thoughts, beliefs and emotions influence our physiology including our heart rate, blood pressure, breathing rate, digestion, muscle tension and **nervous system hypersensitivity**.

Studies have shown that just the fear of pain or the fear of re-injury powerfully influences pain perception.^{6,7}



Thoughts (e.g. recalling something that makes you angry, preparing for public speaking, worrying about finances) will increase blood pressure, raise heart rate, cause muscle tension ...and may increase pain!

Unfortunately fear is often magnified by the information received from x-rays, MRIs, other health care professionals, family, friends and the Internet.



Degenerative changes, bone spurs and mild to moderate disc bulges are **NORMAL** and common in most adults ...they are not a sign of damage or injury. Studies show that most people with "*bad*" x-rays or MRIs have **NO PAIN**.

Some individuals become stuck in the vicious cycle of persistent pain. In the following chart, notice how negative emotions release stress chemicals, which in turn **increase nerve hypersensitivity**.

As you will recall, nerve hypersensitivity simply means that the normal pain threshold has dropped. Movements or activities that should normally not be painful are now perceived as pain.

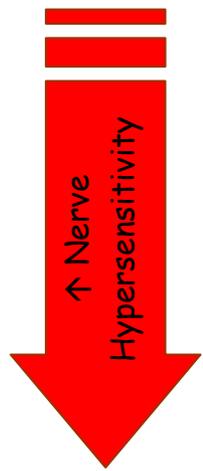
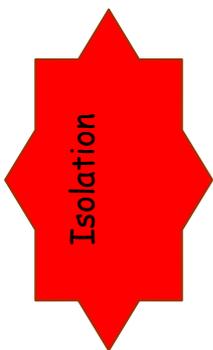
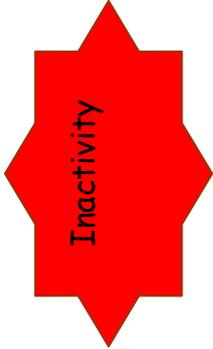
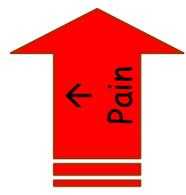
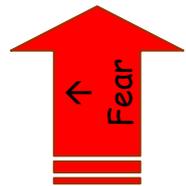
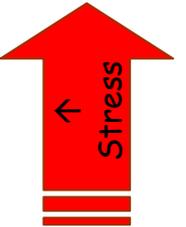
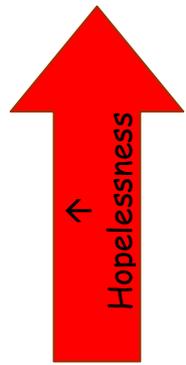
Your Participation Section

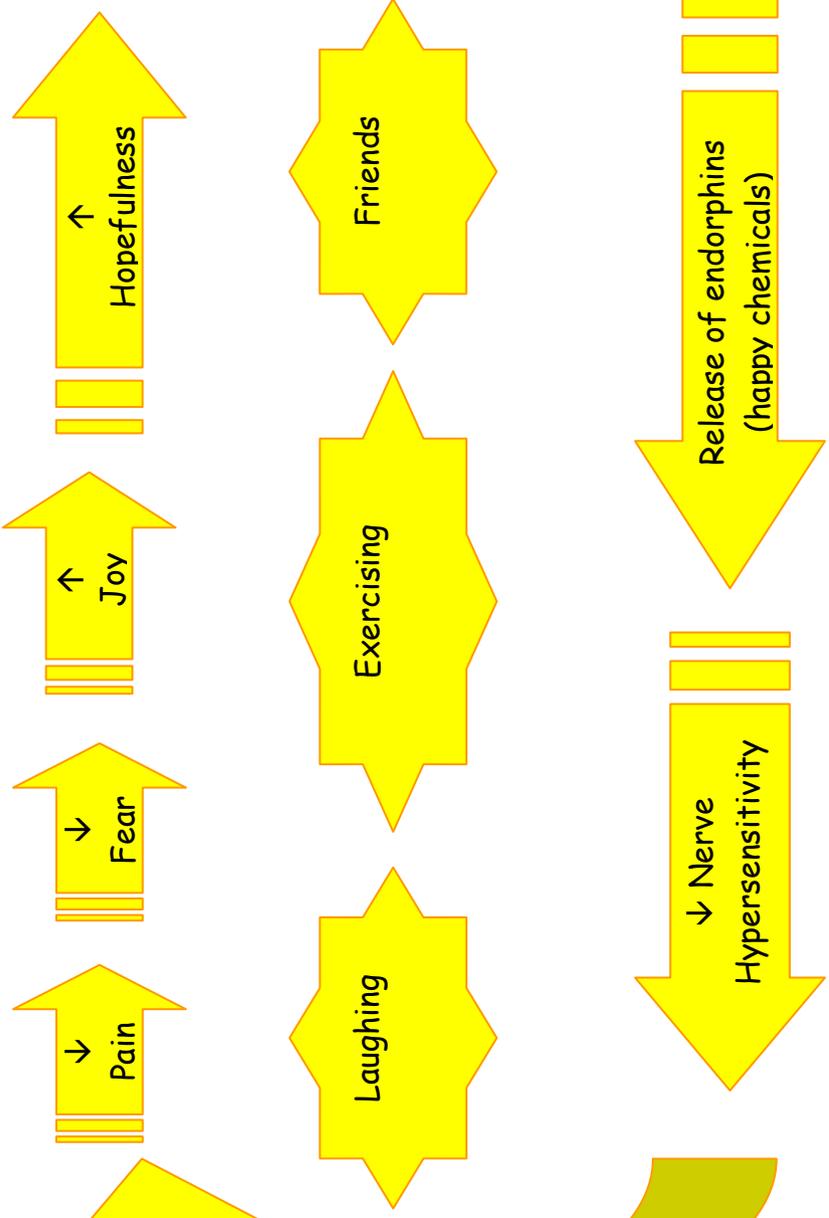
Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

I, _____ understand that degenerative changes, bone spurs, arthritis and mild to moderate disc bulges are all NORMAL and common in most adults ...they are not a sign of damage or injury.

I understand that studies show that **most people** with “bad” x-rays or MRIs have NO PAIN.

Signature: _____





Which of these 18 factors may be contributing to your pain?

Fear of Pain

Fear of Serious Condition

Fear of Not Recovering

Fear of Re-injury

Worried X-ray showing 'Arthritis'

Worried MRI Showing 'Disc Bulges'

Multiple Medications Ineffective

Lack of a Specific Diagnosis

Insurance Stress / Anger

Sadness / Depression

Hopelessness about Recovery

Doing too much without pacing

Withdrawn From Family / Joy

Withdrawn From Hobbies / Sports

Legal Battle Stress



Family Stress / Anger

Financial Stress / Worries

Work Stress / Anger

Stress chemicals called **adrenalin and cortisol** are released during the 'fight or flight' response, which help stimulate the nervous system ...they are crucial for survival.

These stress chemicals are designed to be released for brief periods during the 'fight or flight' response. Once the stress or situation is over, the body returns to its normal relatively relaxed state.

The purpose of the 'fight or flight' response was originally to save a caveman from being attacked and killed by a saber tooth tiger. The stress always produced a **physical response** such as muscle contractions, running or fighting.



Although in the modern world we are no longer required to run away from saber tooth tigers, unfortunately, many people live in a state of continuous stress and anxiety as though they are constantly being chased and running for their life (metaphorically speaking!). In other words, they are in a chronic state of ‘fight or flight’ and therefore release stress chemicals, **except now it is without doing anything physical.**



Family Stress
(Cortisol & Adrenalin released)



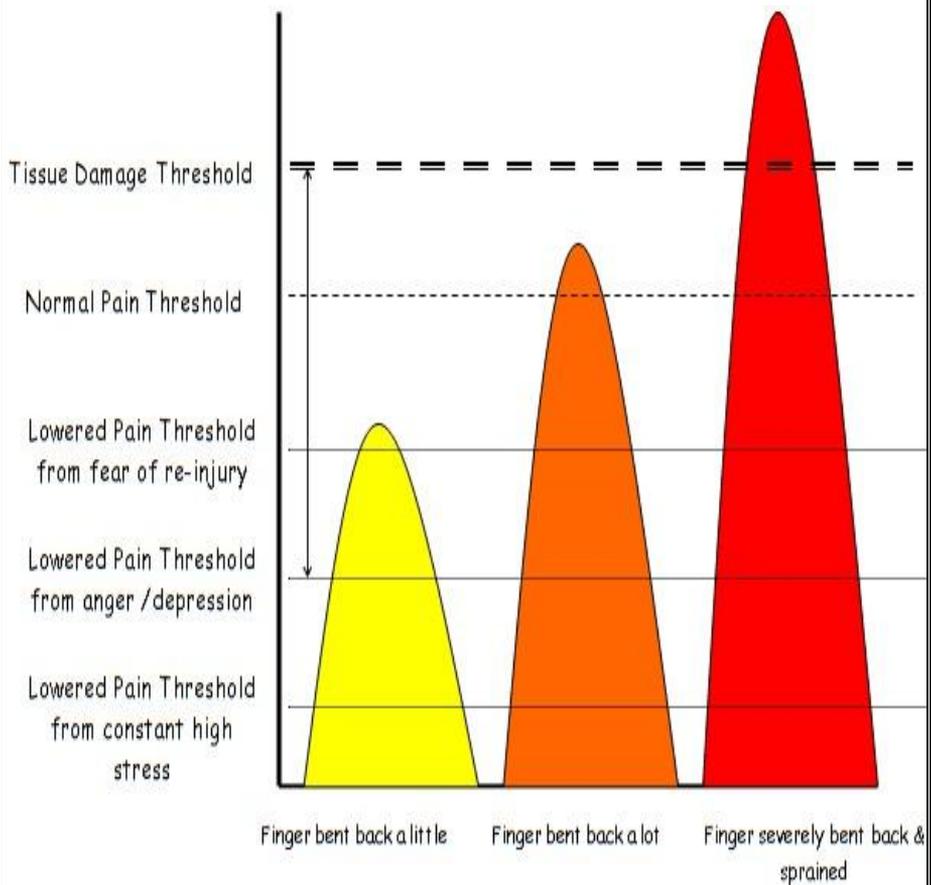
Traffic Stress
(Cortisol & Adrenalin released)



Work Stress
(Cortisol & Adrenalin released)

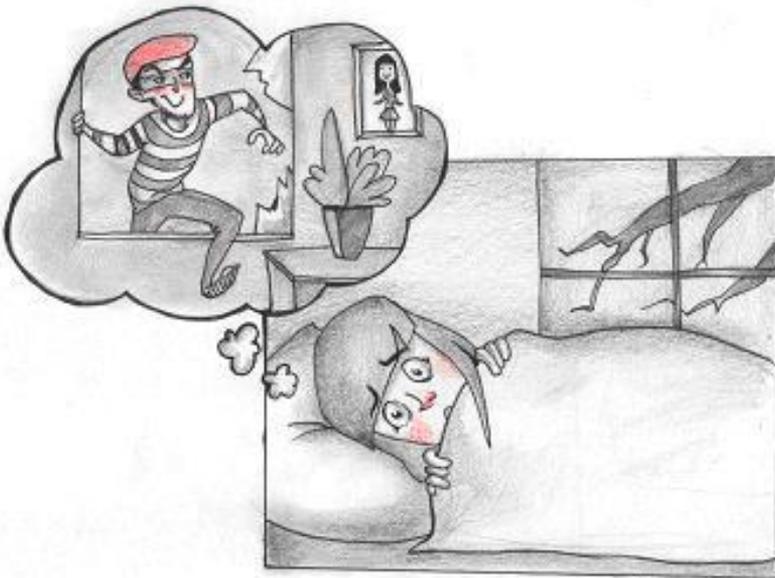
Notice the double-sided arrow in the graph on the next page. It indicates the distance between Tissue Damage Threshold line and the Lowered Pain Threshold lines. Many activities performed throughout the day will now be above the Pain Threshold lines. The movements that were originally below the Pain Threshold are now above the Pain Threshold. The movements that did not previously hurt, now produce pain ...Why?

This is called **nerve hypersensitivity**. The most important thing to learn from this graph is that the tissue damage threshold is significantly higher than the Pain Threshold.



When someone has been a victim of a house burglary, it can leave him or her devastated, angry, fearful and, to say the least, upset. The door is broken, the house is trashed ...it is an awful situation.

In the middle of the night merely maintaining the thought that there is a burglar in your house would cause many physiological changes. Whether there is a real burglar or just the wind, does not make a difference. Your brain is being cautious, warning you of potential danger, and wants you to take action.



Scarlet's Anger, Stress, Job, Boss and PAIN!

Scarlet was a healthy 30-year-old divorced ICU nurse. She had been off work for the past 11 months due to severe low back and neck pain. She had had months of medication, weeks of physiotherapy and massage therapy with little lasting benefit. She had had x-rays, a CT scan, bone scan, and nerve conduction tests, all of which were normal. Instead of reassuring her, the normal tests actually frustrated Scarlet even more. She was so desperately looking for a diagnosis and a cure!

She had seen a specialist who had diagnosed her with "arthritis" and "Fibromyalgia" (*Translation: muscle fibre pain*). Fibromyalgia is in fact not an accurate diagnosis, as it should more appropriately be called "**Nervous System Sensitization**", which can be compounded by life stresses.



Scarlet made attempts to return to work but it only exacerbated her pain, and her manager was not willing to place her on modified duties or change her department.

Desperate after 11 months of pain she visited me for a consult. Here are her answers to some of the questions in a questionnaire:

How would you rate your current level of stress in your life?

Not stressed at all Extremely stressed
0 1 2 3 4 5 6 7 8 9 10

How would you rate your current level of anger in your life?

Not angry at all Extremely angry
0 1 2 3 4 5 6 7 8 9 10

How would you rate your current level of job satisfaction?

I hate my job I absolutely love my job
0 1 2 3 4 5 6 7 8 9 10

Do you generally like / get along with your co-workers / your employer / boss?

I hate them I absolutely love them
0 1 2 3 4 5 6 7 8 9 10

Please review her scores and see if you can figure out why Scarlet continued to have a sensitive nervous system. After more detailed questioning it was very clear that Scarlet still had:

- i) Un-resolved anger and stress from her divorce that was over 2 years ago
- ii) Hidden anxiety due to a history of emotional abuse
- iii) Extreme job dissatisfaction as an ICU nurse
- iv) Extreme anger towards her boss / manager who was unwilling to transfer her or modify her duties
- v) Financial stress due to her current unemployment



What can be learned from Scarlet's situation?

We all go through some degree of stress in our lives such as juggling between family and work. However, prolonged, ignored and suppressed serious emotional issues are contributing factors to nervous system sensitization.

Some authors have suggested that persistent severe pain may be a 'protective' mechanism where we can simply focus and be distracted by physical pain instead of having to deal with EMOTIONAL pain.

Dr. John Sarno, MD has written quite a bit on this topic where he suggests, *"Physical pain is designed to preoccupy the conscious thought in order to prevent the discovery of hidden and more painful EMOTIONAL issues in the conscious or subconscious mind"*.

While there is no question that your pain is REAL, but would you not expect your physical injury to have healed in a few weeks or months?

If you are currently under a lot of stress, it's possible that your emotions to some degree may be contributing to your pain. Sit down NOW and WRITE a list of all the emotional 'issues' you can think of. Decide once and for all to either deal with and resolve these yourself, or to seek professional counselling. **Challenge yourself to find out if managing the stress in your life also helps you manage your pain.**

If you are interested in learning more about this topic, read books by Dr. Sarno such as *“The mindbody Prescription”*.

If you feel that your current occupation / career is a source of stress, read articles by Dr. Samuel Gerstein available on www.dreamsforreal.com.

I'm really **angry** with my boss, the insurance company and the lawyer.
...Don't they care that I'm still in pain?

I hate my work. Should I just quit, find another job and move on with my life?

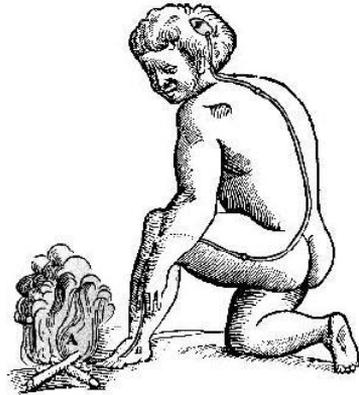
Why can't doctors find the cause of my pain?

Maybe I should see a counsellor or a therapist to help me deal with my divorce and to put my past emotional pain behind me?



Lesson #6: The Outdated Pain Theory versus Phantom Limb Pain

Over 400 years ago, Rene Descartes, a French philosopher proposed a pain theory, which at the time made perfect sense. He suggested that when pain receptors are activated, pain impulses travel up the nerve, up the spinal cord, into the brain and whamo...pain is felt! Similar to an electrical wire.



From René Descartes. *L'homme de Rene Descartes*. Paris: Charles Angot (1664)

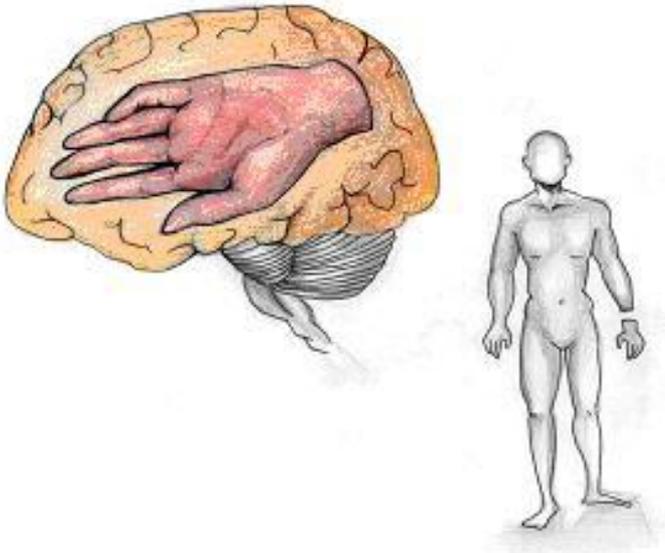
This simplified and outdated version of pain physiology, which some health care providers and patients still believe, is in fact untrue. Pain is much more complicated than this theory would have us once believe!

For example, 70% of all those who lose a part of their body feel sensations such as itching, burning and even severe pain in their no longer existent arm, leg, finger or breast. This is referred to as **phantom limb pain**.⁸

This occurs because even without an actual hand for example, the brain has an image of the hand mapped out. The image in the brain is enough to produce pain! The body part image map that exists in the brain is called the **Homunculus**.

What you need to know is that the virtual body map in our brain (the Homunculus) can change based on usage. For instance, violinists and guitarists have a larger representation of their left hand,⁹ while the visually impaired that can read brail have a much greater representation of their fingertips in their Homunculus.¹⁰

Our thoughts, the use, or lack of use of a body part **can actually change the Homunculus** in a positive or in a negative way.



A Fascinating Pain Story of Abraham the Baker

Abraham worked as a baker in a bread factory. Due to a horrible accident, his right hand was crushed in a machine at work. The doctors had no option but to amputate his hand. Abraham went on permanent disability and did not return to his job at the bread factory.

One year after his accident, Abraham continued to feel some pain in his no longer existent right hand. The most confusing element in all of this was that he reported feeling okay on most days except for Sunday mornings.

After much brainstorming, we could not figure out why his right hand pain became severe only on Sunday mornings. This was a mystery.

Finally after much investigation, the problem was solved. Abraham's neighbour had the ritual of baking bread every Sunday morning. As it turns out, the smell of the fresh bread travelled into his house through his open window. The smell of the fresh baked bread was all that Abraham needed to trigger the event that occurred over a year ago.

To resolve this issue, Abraham was advised to close his windows on Sunday mornings! It worked. The pain ceased.

What can be learned from Abraham’s situation?

If just the smell of freshly baked bread can produce REAL pain in a hand that is not even there, could other thoughts also trigger pain? *What is your fresh-baked bread?*

Could thoughts, memories, fears, and anger also trigger pain in joints and muscles that have already healed and are no longer damaged? **The answer is in Lesson #8.**

Your Participation Section

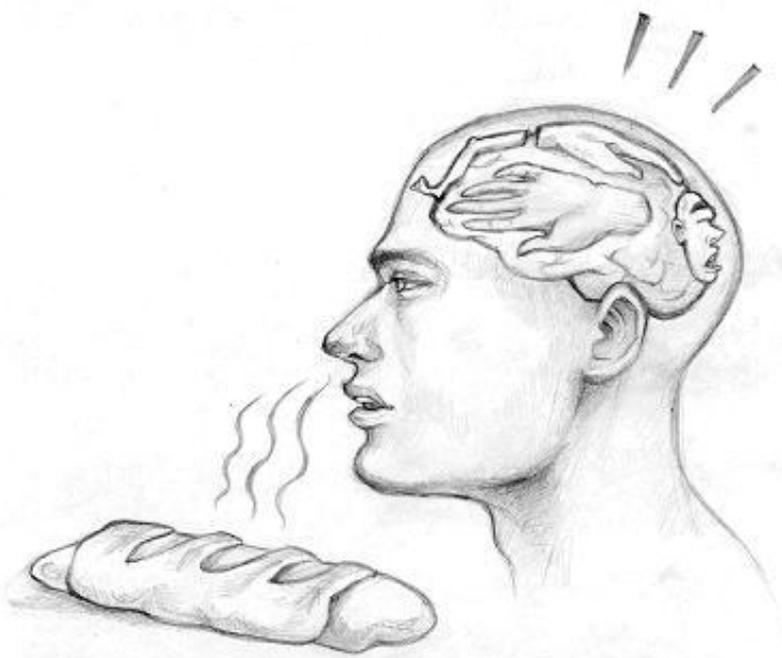
Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

I, _____ understand certain emotional stresses can contribute to my pain. The emotions **may be** (write the ones that you think may apply to you)

- Anger: *Briefly explain*
- Sadness: *Briefly explain*
- Guilt: *Briefly explain*
- Fear: *Briefly explain*

I also understand that **learning to manage my emotions** is essential for my recovery (e.g. writing solutions down for 15 minute a day, mindfulness meditation, and cognitive behavioural therapy)

Signature: _____



Thoughts can trigger pain: What is your potential "fresh-baked bread"?

Lesson #7: The Brain Does not Want Us to Feel Pain ...DPIS!

The amazing thing is that the brain does not wish for us to feel pain and tries hard to turn off pain messages; this is accomplished via the Descending Pain Inhibitory System (DPIS).¹¹

The DPIS is not a theory, it is real.

During religious ceremonies of self-mutilations, minimal pain is felt because the individuals involved believe they are doing it for a 'higher' reason.



The majority of us have disc degeneration and disc herniations throughout our spine, yet most people perceive no significant low back or neck pain. Since the changes are slow, the brain has no reason to sound the pain alarm system.



Degeneration, arthritis, stenosis, disc bulges are not only common, but also a **natural part of aging**. The brain does not have any reason to sound the pain alarm system for wrinkling skin, greying hair or balding either (*thank goodness, or I'd be in big trouble!*).

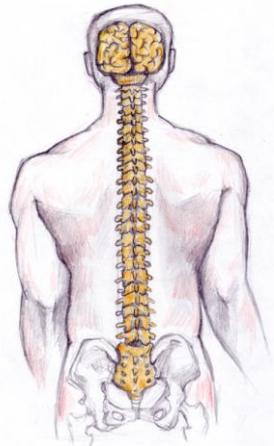


Think of it this way. Would your house burglar alarm system be activated if shingles on the roof were falling off, paint was getting old or the doors were becoming rusty and stairs becoming squeaky?

Lesson #8: What Does Nerve Sensitization Pain Feel Like & why?

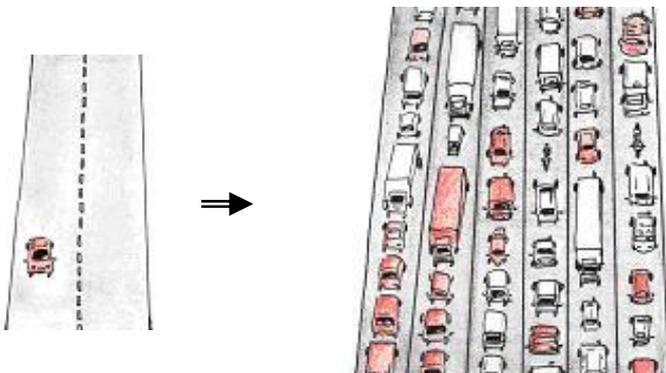
The classic characteristics of a sensitized nervous system:

- ✓ Pins and needles
- ✓ Burning pain
- ✓ Increased pain by small movements; *e.g. slightly bending or turning*
- ✓ Increased by sustained postures; *e.g. sitting, lying*
- ✓ Increased by no particular reason; *e.g. the pain has a mind of its own, unpredictable zaps*
- ✓ Trivial incidences cause flare-ups that last days; *e.g. getting out of a car, walking in a mall*
- ✓ The pain is increased by stress and anxiety
- ✓ The pain gradually spreads, even to the opposite side
- ✓ The pain may move around the body
- ✓ Night pain



Nerve sensitization also means there can be actual physical changes in the spinal cord. There is enlargement of the pain pathways within the spinal cord that are normally small.¹²

In persistent pain states, the **spinal cord literally amplifies pain** or converts normal sensation of movement, touch or pressure to pain. Regrettably the brain now hears loud danger alarms coming from tissues that are no longer damaged or in danger.



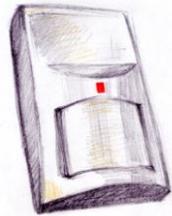
Changes in the spinal cord analogy: A single lane road gradually changes to a busy six-lane superhighway, which is not so good if the cars are filled with danger messages.

In other words, the spinal cord is shouting into a megaphone talking to the brain.

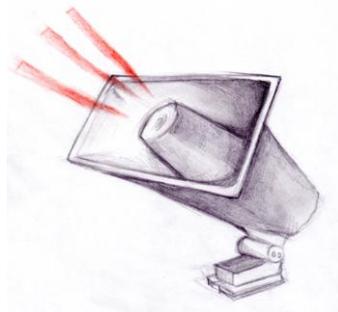
As if the spinal cord screaming “danger” was not enough, the brain also goes through physiological changes. The brain itself becomes much more aware and sensitive in hearing the messages of pain. In persistent pain states actual changes in the Homunculus / virtual body map in the brain occur.¹³

Pretend that your house has been broken into three times in the past month. In order to protect your home, you do the following two things:

- 1) Install a very sensitive alarm system with several extremely sensitive motion sensors that are activated by the lightest movement



- 2) Install really really powerful and loud home sirens so they can be heard from several blocks away



This is all to protect your home and guarantee that it is not broken into again.

This seems like a brilliant plan, but there is one problem: The alarm system cannot be turned on or off at your convenience. It is on **ALL THE TIME!**

This is very impractical, inconvenient and annoying to say the least. You would not be able to open your house door, open a window, and move in your living room without hearing loud sirens going off. Suddenly the alarm system that was supposed to help and protect you and your home from danger has become a nuisance and seriously limits life in your own house (aka body!).

All these physiological changes in the nerves, the spinal cord and the brain occur to protect you in the best way possible. It is a great evolutionary means of survival. But sometimes these physiological changes outdo themselves and overprotect to the point of actually hindering the body.

Optical Illusions & Feeling Pain

From the moment you wake up and open your eyes in the morning, your brain is asking, “Is my body or my life in danger or am I safe?”

Subconsciously, your brain asks itself millions of questions within the first few seconds of waking up and it goes something like this.



Am I breathing? Yes? ...good! Next

Is my heart beating? Yes? ...good! Next

Is there a roof over my head? Yes? ...good! Next

Can I move my arms and legs? Yes? ...good! I'll try getting out of bed.

Am I thirsty? Yes? ...better have something to drink after I get out of bed.

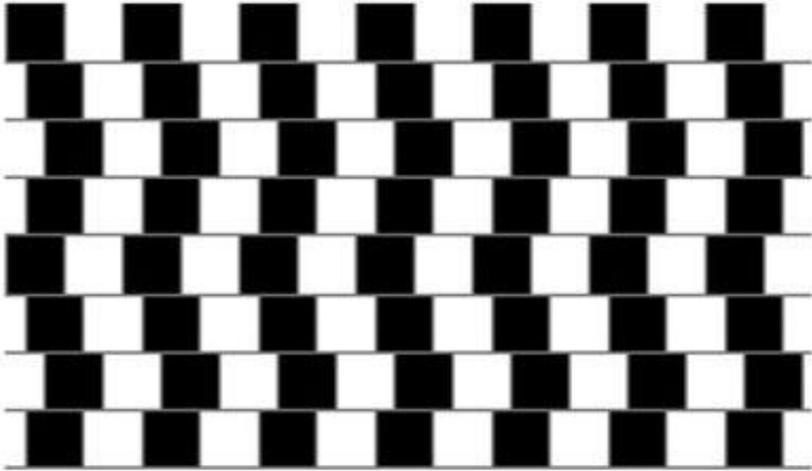
Do I have to go to the bathroom? Yes? ...better get out of bed now!

Is the bathroom floor cold? OK, I'll put on my slippers.

And so on and so forth ...and for the entire day your brain will process billions of information to help keep you comfortable, safe and out of danger. The brain surely does an amazing job of keeping us alive as long as it is given the right information.

Unfortunately the brain sometimes perceives false information or the information it receives is exaggerated, diluted or translated incorrectly. I wish we could say that the brain always perceives correct factual information, but that would be 100% false.

Here are two simple optical illusions that you may have come across. Stare at the image below; are the horizontal lines straight or crooked?



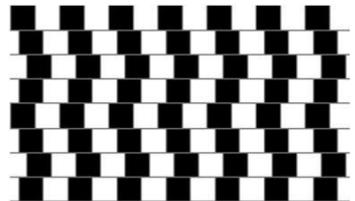
Here is an example of how our brains can easily be fooled. The lines are definitely straight yet even though I have told you this and you can take out a ruler to confirm this; still your brain can not help but perceive the lines as being crooked. This happens and is rationalized by the brain because of the **particular way** the black boxes are stacked on top of each other. **How is this related to feeling pain?**

Sometimes our brain stacks up experiences and memories in a **particular way** and automatically perceives our body as being “damaged” (crooked) when in fact there is no “damage” as the tissues have healed (and are straight). If the brain believes the body is still injured, no matter how much you are told otherwise, the pain can persist.

Let's take an example of someone with persistent low back pain.

- They've had back pain episodes before
 - Their father had back pain
 - Their friend has had back surgery
- They hurt them self at work while bending
 - Their x-ray shows degeneration
- They've been told they are "out of alignment"
- They have searched extensively on the internet reading false information
 - etc. etc. etc.

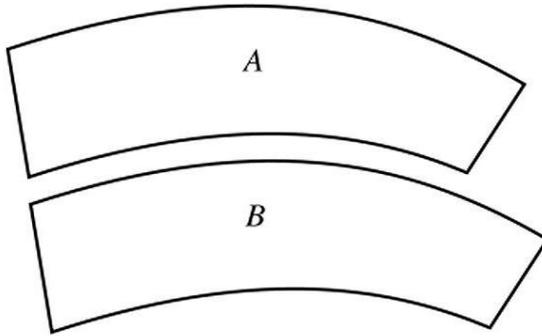
Because of the **particular way** their life experiences and their knowledge (black boxes) are stacked on top of each other, they contribute to feeling "crooked" and feeling pain.



No matter how much a person is told the lines are straight, the brain can't help itself but see them as crooked. No matter how much a person is told that their back is OK, the brain can't help itself but perceive it as being injured. Good news, the brain CAN BE TAUGHT...it just takes time!



Now look at the images A & B below. Which one is larger?



The fact is that they are the exact same size as they are the same image, however based on your past experiences, your brain perceives image B to be larger than image A. Again, **what does this have to do with feeling pain?**

Sometimes our brain perceives our injuries to be larger and more serious than they actually are based on our past experiences. A high perceived degree of injury may translate into more pain being felt.

Child Falling off a Swing Analogy

I have frequently gone to playgrounds with my kids and have directly witnessed both of these fascinating scenarios.

Scenario #1: A child falls off a swing and scrapes his knees. He immediately looks up and makes eye contact with his mother sitting on the bench beside the playground. The mother smiles and gestures the child to get back on the swing. The scraped knee is forgotten, pain is put in the past. All is good!



Scenario #2: Another child falls off a swing and scrapes his knees. He immediately looks up at his mother sitting on the bench beside the playground. The mother panics, quickly jumps to the child's rescue, picks him up, the child begins to cry and will no longer go on the swing.



This time the boy's brain received signals that something bad had happened by falling off a swing, but more importantly the danger was confirmed by the mother's reaction. The caring and loving mother may have unintentionally prevented the child from getting back on the swing again.

What does this have to do with pain?

Sometimes we have an injury and we look to family members, health care providers, but worse of all, the internet to tell us how much "danger" we are in. Sometimes all it takes is a smiling person whom you trust to tell you that you can get back on the swing again, not fear mongering web sites or health care providers.



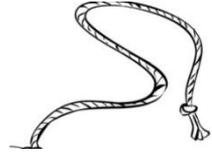
Fear of Snakes Analogy

Some people are extremely fearful of snakes even though they have never even been bitten or harmed by a snake. Those who have extreme fear of snakes report of feeling muscle tension, anxiety, rapid breathing, and increased heart rate just at the thought of seeing a snake.



Some may have the same reaction with seeing a plastic snake, a picture of a snake or sometimes even with a piece of rope that may remotely resemble a snake.

Now imagine if the person has actually been bitten by a snake before, then their reaction to a plastic snake or a piece of rope will be even more exaggerated.



Here are 3 important questions.

1) **Is the fear of snake real?** Of course it is.

2) **Are the physiological responses such as increased heart rate, blood pressure, muscle tension and anxiety the person feels real?** Of course they are all real.

3) **Does it make sense for a brain to protect someone from danger by reacting to a plastic snake or a piece of rope?** No, but it surely happens to some people.

What does this have to do with pain?

If a person has had several episodes of neck or back pain then their brain and nervous system may become hypersensitive to even small movements and short periods of activities. Now slight movements that are surely not damaging can produce severe pain. Short bursts of activities such as gardening for 10 minutes or walking for 20 minutes that are not damaging can produce pain.

Is the pain real? Of course, **all pain is real.** However the pain may be a result of hypersensitive nervous system based on the brains past experiences and not related to injured tissues.

Danger & Safety

The nervous system is constantly judging if it is more emotionally and physically in DANGER or in SAFETY.

If it perceived it is in DANGER, it becomes hypersensitive and focuses on experiencing pain in order to protect you.



If it perceived it is more in SAFETY, it remains calm and focuses on experiencing pleasurable activities.



Examples of DIMs	Examples of SIMs
☹️ Difficulty breathing / shortness of breath	😊 Awareness that you can comfortably breathe
☹️ Worry and fear of x-Ray and MRI results	😊 Awareness that “abnormalities” are common
☹️ Fear of going out of the house	😊 Walking in the park and enjoying nature
☹️ Dealing with insurance company	😊 Mindfulness meditation
☹️ Staying alone at home	😊 Hanging out with friends & family
☹️ Conflicting messages from health care providers	😊 Trusting a health care provider
☹️ Relying on passive treatments such as pills & machines	😊 Relying on self ...feeling in control and in charge of your well-being

This list can go on and on. The point is if the brain perceives greater DANGER than SAFETY, it will feel threatened and will do everything to protect itself, which includes produce pain.

Your simple goal must be to reduce the number and the intensity of DANGER factors and at the same time increase the number of and the intensity of SAFETY factors that you experience on a daily basis.

Regretfully, a person who falls into the persistent pain cycle gets really good at focusing on their DANGERS and stops focusing on all the SAFETYS in their life. Although the SAFETY list may be a lot longer than the DANGER list, the brain naturally focuses on potential DANGERS for survival. The only way focus on DANGERS can be reduced is to make **continuous conscious efforts** to shift your focus on the SAFETYS. This is certainly not an easy task but it is definitely possible as the brain can change based on how we choose to think.

The Judging Brain: In Danger or Safe?

Imagine that your brain is holding an apothecary scale and is constantly judging if it is more in danger or more in safety. If the scale tips more towards the danger side, the brain and the nervous system become more sensitive to pain.



If the scale tips more towards the safety side, the brain and the nervous system calm down, remain relaxed and become less sensitive to pain.

If you are going through this book, it is likely that your danger side is more dominant or heavier; however the good news is that there are many ways that you can tilt your scale towards the safety side. How? Here are some sample suggestions



Pick any one or two of the ten factors listed below and brainstorm on how you can improve them. Some of them will be relatively easy to accomplish and some of them will require help from others such as a PTC health care provider.

Physical activity: Your physical therapist can help you set realistic physical goals and help prescribe the ideal physical activity for you



Family support: You may ask a friend or a family member to help remind you to go for your daily walks

Work status: You may look into a new position in your job or a potential career change (not an easy task, but for some it is essential)



Diet: Eat one extra serving of vegetable and a fruit a day



Medical visits: Reduce your dependence on health care professionals; they certainly do their best to help you, but they cannot change the other factors in your life, only you can

Nature: Go for a 10 minute walk around your neighbourhood; pay attention to trees, squirrels and birds



Mindfulness: Go on Youtube and type in “Mindfulness Meditation”, you will find hundreds of audio clips from 10 to 60 minutes to help control the brain. Find one that you enjoy i.e. Jon Kabat-Zinn

Sleep: Speak to your doctor and therapist about your sleep issues; medications should be the last resort

Write down your stresses and emotions:

Certainly stress can increase pain, but did you know that buried or suppressed emotions may be the reason your pain is not getting better? Sit down and write a list of all the emotional issues you can think of (e.g. anger, hurt, shame, fear, guilt, etc.). Don’t underestimate the power of writing therapy. There is no right or wrong way of writing out your feelings... just write whatever you feel. There is no need to “fix” anything, it’s only important that you become aware of your emotions. If there are issues in your life that make you feel angry or guilty for feeling angry, write them down. No longer hide them. There is no need to share your writings with anyone; you have the option of tearing the paper and throwing it out.



Do this for 15 minutes every day; you may be surprised how good writing therapy feels and how it can reduce your pain. If your current job is a major source of stress, then make a plan to do something; you can't just keep ignoring the stress, as your health depends on it.

Write down all your positive experiences:

Write a list of everything that you've ever enjoyed doing or have considered fun. These could be activities you did when you were a child or many years ago. Do something fun for at least an hour every day. It doesn't have to be expensive, exotic or physical. Make a point of listening to music or an old record that you once enjoyed, draw, paint, go dancing, join a walking group, go to a movie with a friend, play an instrument, meet an old friend for lunch and talk about anything but your pain, sing in the shower, smile for no reason.



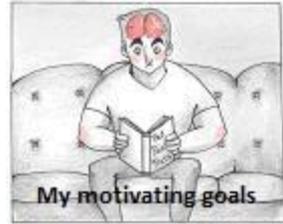
Although hard to believe, just keeping a constant 'fake' smile can make a person feel better and reduce pain. Try it for one whole minute. Then try a **'fake' laugh for 15 seconds**. You've got to try it...endorphins are very powerful painkillers without any side effects!



Focus on bringing joy to someone else; compliment others, hold the door open for the person behind you, hug someone, volunteer in a hospital or seniors' home, etc. It is really the single best way of focusing away from your life problems and stresses. **It is guaranteed to make you feel better.**

Write down a plan: The brain is amazing; it will not do anything unless it has a purpose. If it has a clear purpose and a goal it will do everything to achieve it.

Grab a piece of paper and write down what you would ideally like to be able to do in 3 months, one year and five years from now. Sorry, being pain-free cannot be a goal. Without clear and exciting goals, your brain will find it hard to get motivated to do anything including just getting out of bed.



Go ahead, write down on a piece of paper all the things that you would like to achieve in your career, physical health, and socially. Then break the goals down to smaller bits with a timeline to do them. **This is a key factor in your recovery.**

Lesson #9: What Can You Do About Pain?

Muscles become unhealthy and weak when they are underused. They thrive on movement and reasonable contraction.

Spinal discs are extremely strong but become unhealthy with prolonged inactivity, bed rest, or sitting. The discs thrive on movement and reasonable compression.

We all experience natural degeneration and wear and tear in our joints. But joints are much more likely to become unhealthy and painful when they are underused. Joints in our body also thrive on regular movement and reasonable compression.

What can you do? Immediately start a gentle but **progressive walking program, strength training program, flexibility program, Tai chi, Yoga, aqua-fitness, cycling, and any specific exercises** recommended by your physical therapist.

In addition to being physically active, do not underestimate the value of relaxation, meditation and breathing, which will be discussed later.

Studies have shown that patients who learn to actively cope with, and not fear pain, have had better recovery than those who passively cope with pain.¹⁴⁻¹⁵



Recovery from pain and disability is impossible unless you start a gentle but progressive walking program, strength training program, flexibility program, Tai chi, Yoga, aqua-fitness, cycling, and/or any specific exercises recommended by your physical therapist.

Your Participation Section

Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

I, _____ understand and will do some form of an aerobic exercise program such as _____ EVERYDAY as I now realize it is a MUST for my recovery.

Signature: _____

Passive Coping Strategies

Fear of Pain and Flare Ups



Avoidance and Fear of Movements



Avoidance and Fear of Functional Activities



Reliance on Health Care Providers to Find the 'Problem'



Reliance on Health Care Providers to Find the 'Cure'



Sole Reliance on Medications, Gadgets, 'Adjustments', etc.



Vicious Cycle of Persistent Pain

Active Coping Strategies

Understanding Pain and Pain
Physiology



No Longer Fearing Pain and Flare

Ups



Setting Goals and Having a Positive
Attitude



Pacing Movements



Pacing Functional Activities



Return to Life

If you feel you require assistance in your goal setting in order to return to your 'normal life', I highly recommend that you consult a health care provider who is knowledgeable about pain science. A Pain Truth Certified (PTC) health care provider can be found on www.ThePainTruth.org

Sam's Dependence on Medications and Passive Coping Skills



Sam had a fall and injured his back.

After seeing the advertisements on the television, he took a few over-the-counter medications to relieve his pain. They did work and 'masked' his pain alarm system and reduced his protective muscle spasms. However, thinking that he was 'cured' as the alarm bells had been silenced, he painted his garage door. The next day, Sam had a lot of difficulty getting out of bed due to pain, stiffness and more muscle spasms.

He visited his family physician who prescribed 'stronger' medications. Although the new stronger medications did not completely silence the pain, they did help muffle the pain alarm bells. Assuming any activity would re-injure his back, Sam avoided most physical activities, exercises and household chores.

He believed that the medications would eventually completely eliminate his pain, and only then he would get back to physical activity. Unfortunately 6 months later, Sam still had back pain, which had spread over a larger area.

Every day Sam took a concoction of different addictive painkillers. Some of the pills that used to 'work' no longer helped him. Sadly he waited and waited, month after month for the pills, massage, tingling machines and regular spinal 'adjustments' to eventually 'cure' him.

What Can We Learn From Sam?

Firstly, in the acute stage of his injury Sam should have appreciated that pain was a “good thing”. Pain was protecting him and giving him guidance of what he could and could not do.



Artificially shutting pain off with pills, then resuming all normal physical activities may not be wise after a recent injury. The body needs a few days or weeks to heal. Therefore, pain is a good guide to how much activity one can do in the early days after an injury.

Secondly, there are no medications or passive treatments that will ever replace gradual physical exercise and activity. Prolonged rest will inevitably weaken muscles, tendons, joints and discs. A weak body is far more prone to re-injury.

Waiting to be completely pain-free before resuming activity will often lead to 'chronic pain and disability'. Sam may have avoided the pain cycle if he had **slowly paced** himself back to activity, **even if he had some pain.**

The 3 Possible Options and the Dos and Don'ts of Dealing with Persistent Pain

☒Option #1: No Pain, No Gain

It is a bad idea to ignore your pain! This is because ignoring pain will likely end up causing you more pain in the long run. Acting like a martyr about the pain and pushing through it rarely works. Chances are you already know that by ignoring pain, you simply flare up. This causes your nerves to become even more sensitized in order to improve their warning capability!

Do Not Ignore Your Pain.

☒Option #2: Always Listen to your Pain

Always listening to your pain is another bad idea! By intentionally avoiding activities, you will become a slave to the pain and constantly fear it. You may not even get out of bed, walk, sit, stand, lift, move or go to work. Resting and waiting for the pain to go away is okay after a recent injury, but harmful once tissues are healed.

Do Not Always Listen to Your Pain.

Option #3A: Do Understand Pain and Do Not Fear Pain

Pain does not always mean that there is harm or damage occurring to tissues. Accept that persistent pain is often a result of physiological changes in the nerves, the spinal cord and the brain. It is sometimes the nervous system trying to intentionally magnify pain long after your tissues have healed. It does this in order to protect you.

Option #3B: Do Slowly Pace Yourself Back to Activity

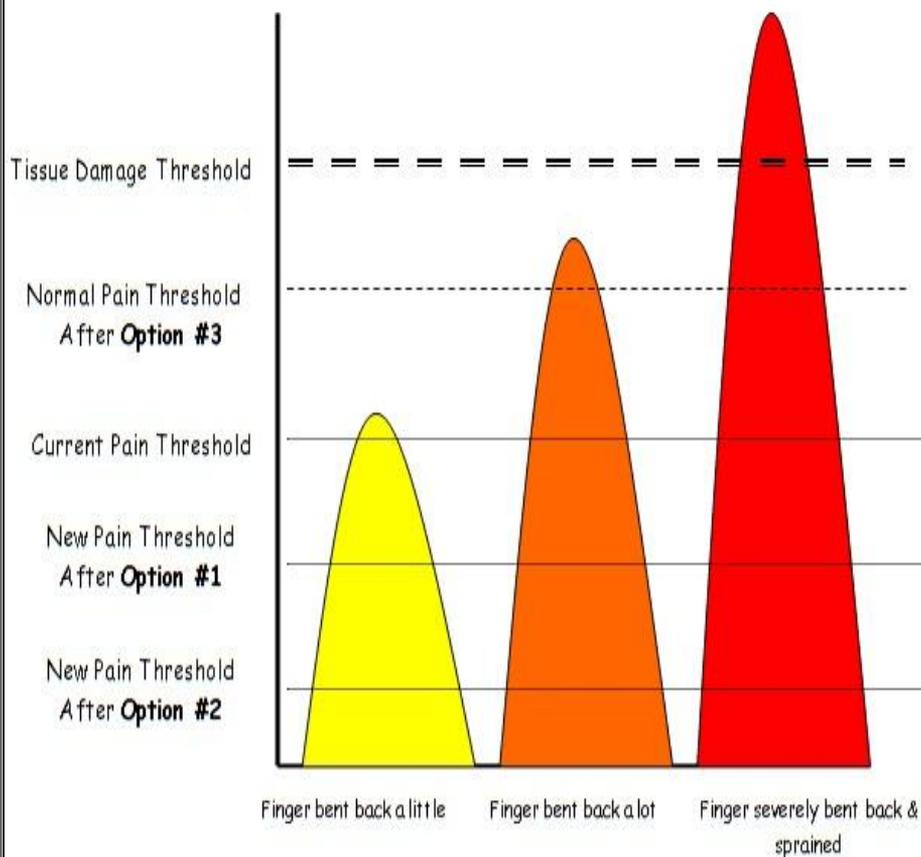
Your Participation Section

Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

I, _____ understand the negative cycle of passive coping strategies and fully understand the potential positive cycle of **active coping strategies**.

I also understand that **reducing my fears about pain** and gradually **pacing** myself back to physical activity / work are essential for my recovery.

Signature: _____



First, find your “**easy activity**” level. What is the “**easy activity**” level? It is the level of physical activity that you are confident will not increase your pain. That could be three minutes of walking, or climbing five steps, or lifting arms overhead two times, washing four pieces of dishes, etc.

The secret to recovery is doing the “**easy activity**” as often as possible without flaring up. **Your nerves will gradually become less sensitive as they have nothing to fear.**

Gradually increase your “**easy activity**” by a very small amount. Walk for four minutes instead of three, wash five pieces of dishes instead of four. I hope that after all you have learned about pain threshold, you realize that even if walking for four minutes or washing five dishes produces some pain, you could certainly have not damaged anything in your body.

There is no doubt that in time, the nerves will simply become less sensitive and the Tissue Pain Threshold levels will go up again.

It is not recommended to “just ignore your pain,” as it simply does not work. You need to appreciate that the pain exists, but that it is a false alarm.

Let’s take for example that one of your goals is to be able to walk for one hour like you used to before you had pain. That seems unrealistic when for the past year, only 15 minutes of walking has caused you a lot of pain.

Step #1: Let's assume your "easy activity" is walking for three minutes. You are quite confident that if you simply walked either on a treadmill or outdoors for just three minutes, it would not cause you to flare up ...excellent.

Step #2: Then set the goal of increasing your walking by ONLY a minute. You can be confident that just an extra minute could not possibly damage or harm any tissue. Even if you feel that you can walk for at least another ten minutes, DO NOT do it!

Step #3: Increase your walking until you get to your one hour of walking goal within two months. A goal that seemed so unachievable is now realistic.

Sample Progressive Program	
Day 1	Walk 3 minutes ("easy activity")
Day 2	Walk 3 minutes and climb up and down 2 steps
Day 3	Walk 4 minutes and climb up & down 3 steps
Day 4	Walk 5 minutes and climb up & down 4 steps
Day 5	Walk 5 minutes and climb up & down 5 steps
Day 30	Walk 30 minutes and climb up & down 30 steps
Day 60	Walk 60 minutes and climb up & down 60 steps

Too often individuals who are coping with persistent pain simply dive into an activity, overdo it, and flare up. The secret to continuous improvement without flare-ups is taking small, gradual baby steps.

Pushing hard beyond the pain barrier is often a guarantee for flare-ups. It is not a wise idea to try a five-kilometre jog, play a full game of tennis, or do three

hours of gardening if you have not been training for many weeks.

Just like in the story of the tortoise and the rabbit – slow and steady wins the race!

Your Participation Section

Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

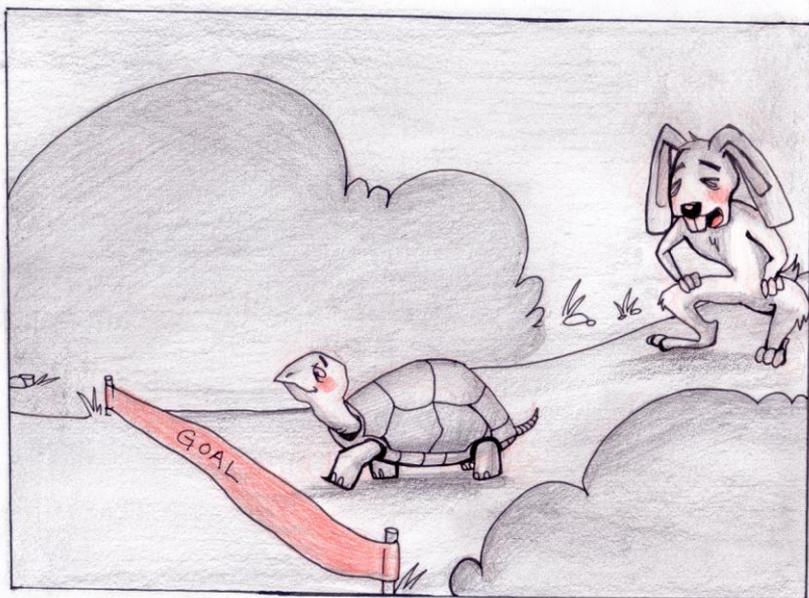
I understand the concept of “**easy activity**” that I must do EVERYDAY. My 3 “easy activities” include:

1)

2)

3)

(e.g. Walk on treadmill for 5 minutes, Clean the house for 10 minutes, Lift a 2Kg box 10x, light gardening for 15 minutes, golfing 5 holes)



Too often individuals who are coping with persistent pain simply dive into an activity, overdo it, fatigue and flare up. The secret to achieving any health goal is to take small, gradual baby steps. Pacing ensures that the goal will be reached, and in time the nerves will simply become less sensitive.

Your Participation Section

Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

I, _____ understand the concept of “pacing”. Although not always preventable, I realize that flare-ups may be avoided if I **gradually** increase my activity level instead of rushing into activities.

Signature: _____

Doctors Said He'd Never Walk Again ...So Mike Learnt to Run!

In June 1989 just after midnight, Michael McGauley was tragically struck by a drunk driver and was crushed between two cars. He was rushed to the hospital but was not expected to survive the night. He remarkably survived, but after 3 days the doctors told him that they needed to amputate both his legs ...but he refused!

Thanks to an amazing group of surgeons, Mike received several major operations over a 7-year period, where they took a large section of muscles from his armpit to his groin and grafted it to his legs.



Picture courtesy of
Michael McGauley

He had a number of complications such as infections and tissue rejections. To cope with the severe constant pain, Mike was on heavy doses of morphine and other pain medications.



Photos courtesy of Michael McGauley

Doctors told him repeatedly that he would never walk again. After 4 years in and out of a wheelchair, Mike refused to give up. He was determined that he would not only walk again, but that he would learn to run. He endured a total of 23 operations and seven long years of rehabilitation / physiotherapy.

He started training at a gym three times a week along with his daily physiotherapy sessions. Coping with severe pain, Mike slowly progressed. Finally in 1996, he permanently abandoned his wheelchair and his crutches. By June 2001, he completed his first mini-triathlon.

Today, Michael McGauley enjoys jogging, playing hockey and downhill skiing! He is also now an inspirational speaker where he helps motivate those undergoing rehabilitation and recovering from various disabling medical conditions.

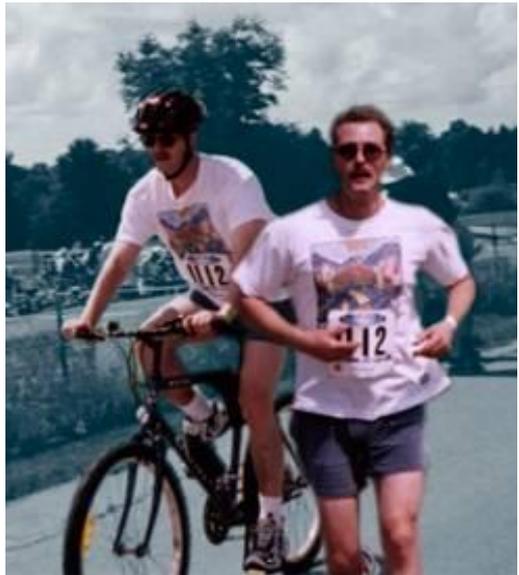


Photo of Michael McGauley running in a Triathlon in 2001

What can be learned from Michael McGauley?

After being crushed between two cars, Mike was repeatedly hospitalized for nearly 2 years, received 23 major operations, endured several medical complications, dealt with severe pain and finally reached his physical goal. How did he do it?

Here is a quote from him that will hopefully inspire you and re-assure you of your own personal recovery:

“Exercising ...starting at a few to several minutes in the beginning (eventually leading) to several hours near the end -- it was not easy. It required superhuman will. But, I had firmly planted in my mind's eye the picture of myself walking around and doing things in a normal manner. That kept me going”

What is your level of hopefulness that you will improve and return to your regular activities in the next 3 months?

Not hopeful at all

0 1 2 3 4 5 6 7 8 9 10

Very hopeful

If you responded with anything less than a 9, kindly **re-read** Mike's story! Please don't say “...but ...but, but my situation is different!”.

Lesson #10: The Six Essentials of Life and Health

Oxygen: There is no question that breathing and oxygen are important to our tissue and nerve health. If you are serious about reducing your pain level, you will immediately start an appropriate exercise program that you must perform daily...yes, every single day. ¹⁶

This may be 5 minutes of walking three times per day, climbing two flights of stairs, cycling for three minutes or joining an aqua fitness or Tai Chi program. The goal is to get to a total of 60 minutes of moderate physical activity per day EVERYDAY!

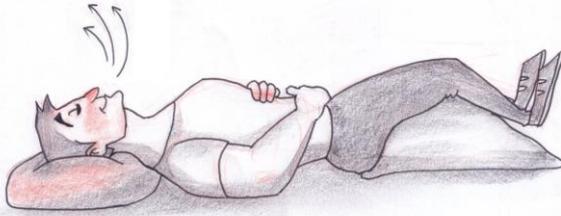
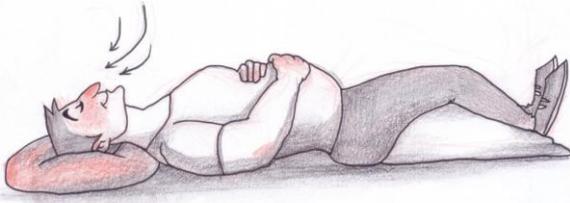
Without adequate oxygen through a regular aerobic exercise program, your recovery is seriously delayed. It is up to you ...so discuss a gentle yet progressive aerobic exercise program with your physical therapist.

Ensure that you also practice slow diaphragmatic or **abdominal breathing** several times a day (as it is done in Yoga). It is an excellent way of rejuvenating your body with oxygen.

On a final note on oxygen, do not inhale carbon monoxide ...so if you smoke, see a physician to help you stop!



Do some form of aerobic exercise EVERYDAY...anything!
This may be 5 minutes of walking three times per day, or joining an aquafitness or a Tai Chi program.



Focus on breathing only through your nose and filling your belly with air. Exhalation should last twice as long as inhalation. Breathe in through the nose for three seconds; breathe out through the nose for six seconds. Repeat several times throughout the day!

Water: Think of it, most of your body is made up of water. It seems logical that inadequate hydration can have a negative effect on tissue and nerve health. Regrettably, cups of coffee, high sugar juices, colas and beer are not considered to be the best sources of fluid. Before you panic, we are also not recommending you drink seven to ten cups of water a day.

The recommendation is eat **at least two servings of fresh fruits and three servings of fresh vegetables** each day. A slice of melon, an orange and a bowl salad are all excellent ways to hydrate your body.

The amount of water required is based on many factors including your level of physical activity. If your urine is dark yellow in colour or has a strong odour, you need to focus more on your hydration.¹⁷

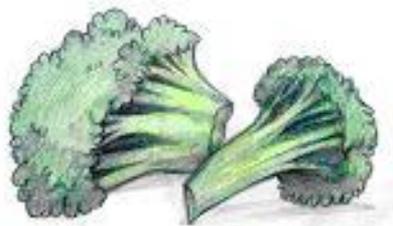
Do not underestimate the importance of having sufficient fluid intake. Your muscles, ligaments, discs and nerves desperately need water for health!



Do not underestimate the importance of having sufficient fluid intake. Your muscles, ligaments, discs and nerves desperately need water for health!

Food / Nutrition: Too often people have false perceptions of what a good, healthy diet is. There is so much conflicting nutritional information out there; it is next to impossible to know whom to believe. The fact is that every tissue in our body relies on the foods we consume on a daily basis to stay alive. If the nutrition, vitamins, minerals are inadequate, the tissues and nerves inevitably lose their health.¹⁸⁻²⁰

It is next to impossible to recover from a pain state without the right fuel.



It is wise to visit your family physician for a laboratory workup to see if you have any specific deficiencies such as iron, B12, vitamin D, etc. Also discuss with your physician if your muscle or joint aches may be related to side effects of excess calcium, cholesterol medications, etc.

If you experience irritable bowel syndrome or excessive bloating, you may consider visiting a registered dietician or a naturopathic doctor for a nutritional consult, to rule out specific food sensitivities such as gluten (wheat) or dairy intolerances.

Here are five sample food principles that may prove valuable in your recovery. ²¹

1. Avoid food products containing ingredients you:

(i) Cannot pronounce

e.g. methyl cellulose, propylene glycol

(ii) Cannot visualize

e.g. monosodium glutamate (MSG), Aspartame

(iii) Cannot store in your pantry

e.g. High fructose corn syrup

2. The food is likely not good for you if it arrives through your car window.

3. If the food came from a plant, it is likely good for you. If it was made in a plant, likely not! ...Cook your own food!

4. Avoid foods that make health claims or that are advertised on the television.

5. Limit foods with a high glycemic index. There are studies that show that high blood sugar (after eating high glycemic index foods), immediately lowers pain thresholds¹⁹ and increases inflammatory reactions.²⁰

In general high glycemic index foods are:

Sugary *e.g. pastries, candy, colas, chocolate bars*

Processed *e.g. white bread, doughnuts, cake*
...reach for a fruit instead!



Sleep: Do you have trouble falling asleep or staying asleep? Do you get less than seven hours of sleep regularly? If yes, you need to know that many studies have clearly shown that sleep disorders can increase pain and contribute to pain.²²⁻²³

Sleep is the most effective method the body has for resting the nervous system. As you know, **sensitized nerves** are the most common cause of persistent pain and effective deep sleep is essential for desensitizing the nervous system.

Sleep apnea is a condition where sleep is interrupted due to the inability to breathe during sleep. This condition is associated with persistent pain.²⁴

Those with obesity issues, daytime sleepiness, snoring, and hypertension must be evaluated by a physician and if appropriate, referred to a sleep clinic.

If you consistently get inadequate sleep, you must speak with your health care provider. There are many drug-free suggestions for improving your sleep. Sleeping medication should be absolutely a last resort.

Studies show that just 30 minutes of walking, 4 times a week can significantly improve sleep and reduce depressive symptoms²⁵ ...with no bad side effects!

The top four recommendations for improving sleep include:

1. Exercise daily to become **physically** tired; emotional fatigue does not help sleep.
2. Avoid tension and anxiety before bedtime. For example, no television, no newspaper, no bills, no arguments.
3. Listen to a relaxation audio program that teaches progressive physical and mental relaxation along with deep focused diaphragmatic breathing.
4. Change your old mattress, use earplugs, wear nightshades over your eyes, and if your partner snores, change rooms ... *(it may actually improve the relationship!)*.



Sun / Vitamin D: All human beings need light, sunshine and Vitamin D to survive! Several studies have shown a link between Vitamin D deficiency and chronic, 'unexplained' pain.

Amazingly, some individuals with chronic pain have shown significant improvements in their spinal pain after Vitamin D supplementation.²⁶

Vitamin D insufficiency/deficiency has been reported to be common in many countries such as Canada, particularly during the winter months.²⁷

Is it not surprising that we are advised to take various painkillers and anti-inflammatory medications when all we really need is some time spent outdoors during the day in the sun?

The top three recommendations for increasing your Vitamin D levels:

1. Regularly receive midday sun exposure for 15 minutes at least twice a week exposing as much of the skin as possible. Black or brown individuals may need 5 times longer in the sun than those with white skin!
2. Consult your physician and if deficient, take up to 5,000 IU of Vitamin D₃/day during the winter months.
3. Eat tuna, sardines, trout, and herring or drink Vitamin D fortified beverages, such as rice milk.



Joy / Happiness: Do you know that hundreds of studies have shown that individuals with depression,²⁸ anger,²⁹ high stress and anxiety³⁰ are at a greater risk of developing persistent pain? Do you know that job dissatisfaction has also been strongly associated with recurrence and chronicity of pain?³¹

So what is the opposite of extreme stress, anger or anxiety? The opposite of stress, anger and anxiety is enjoying life, which unfortunately, few people who suffer from persistent pain do. As you may already know, it is not easy to be happy and joyful when you are in pain. But if there was any way of doing small things that can make you happy, smile or even laugh, it would be of tremendous physiological benefit.

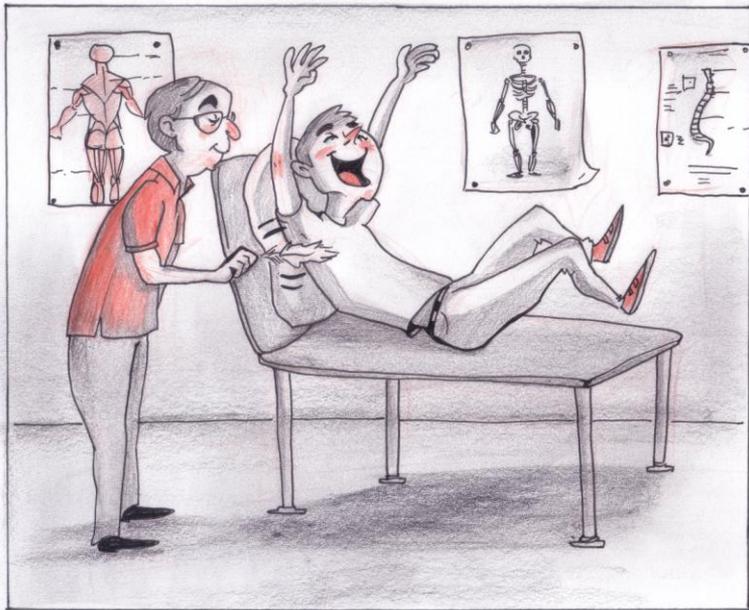
Although hard to believe, just keeping a constant 'fake' smile can make a person feel better and reduce pain. Try it for one whole minute. Then try a 'fake' laugh for 15 seconds. You've got to try it...endorphins are more powerful than morphine, but without any side effects!

The top four recommendations for increasing your joy and happiness:

1. Smile for one minute, even if you have to force it!
2. Do something 'fun'...anything ...walk in the park with a friend, kick a ball around for three minutes, play the piano for five minutes, go to a movie or enjoy a meal with friends, take a vacation, etc!
3. Everyday **focus on bringing joy to someone else.** Compliment others, give way in traffic, hold the door

open for the person behind you, hug someone, volunteer in a hospital, seniors' home, shelter, etc.

4. Consider changing your current job or profession if you feel it is a source of unhappiness. The change may seem like an impossible task, but is your health not worth it?



The future of helping patients in pain!

The Pain Truth Summary

Considering how complex persistent pain is, are you surprised that the management options outlined in this book have been relatively uncomplicated? Did you notice that none of the management strategies involved “purchasing” anything ...no lotions, and no fancy gadgets?

Please do not get misled by the relative simplicity of the advice provided in this book. The information is based on hundreds of medical studies published in peer-reviewed journals. The primary aim of this book was to assist those who have already seen several health care providers but continue to cope with persistent pain.

If you agree with and can **check the 6 boxes** that are on the next page, then follow the 16 recommendations summarized in the following pages ...there is no doubt that you will see significant improvements in the quality of your life.

☑ You have already seen a physician who has ruled out important medical conditions such as an infection, fractures, diabetes, thyroid issues, medication side effects, etc.

☑ You do not currently have torn muscles, ligaments or tendons (*There would be significant bleeding and black and blue bruising in the region, and a recent trauma is required.*)

☑ You do not currently have a pinched or compressed nerve (*There would be specific and dramatic weakness in your arms or legs e.g. a foot drop.*)

☑ You have already had a trial of manual therapy and possible muscle imbalances have been addressed

☑ If your X-ray shows “arthritis”, understand that degeneration is part of a **NORMAL** aging process, and it is very rarely associated with pain

☑ If your MRI shows mild to moderate “disc bulges”, understand that the **MAJORITY** of people with no history of pain have these “disc bulges”

The Pain Truth Summary 15 Recommendations

1. **Understand pain** and no longer fear it, as pain does not always indicate actual damage or harm to your body.
2. Have a positive attitude; **hopefulness is a must** for recovery, not optional.
3. Set **3 goals** you wish to achieve. *E.g. Play tennis for one hour, walk in the park for 30 minutes, independently go grocery shopping.*
4. Figure out your “**easy activity**”, and then gradually increase your **easy activity** by a very small amount on a daily basis.
5. **Do not panic** if you flare up, it will pass. Simply continue with progressing your easy activity.
6. Do any form of **aerobic exercise EVERYDAY**. Anything from 5 minutes of walking to 20 minutes of swimming ...**ANYTHING** is good!
7. Practice slow diaphragmatic or **abdominal breathing through the nose** several times a day.

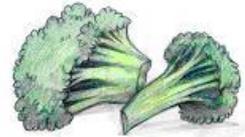


8. Drink enough **fluids** and eat water rich foods so your urine is never dark yellow in colour with a foul odour. Limit caffeinated and sugary drinks to one a day at most.



9. Do your best to prepare your own food from ingredients you can pronounce ...although you can pronounce 'sugar', try to limit it!

10. Eat at least two servings of **fresh fruits** and three servings of **fresh vegetables** each day.



11. To improve your sleep, exercise daily to become **physically** tired, avoid night time stimulation and consider listening to relaxation music.



12. Realize the value of **Vitamin D** either via the sun, foods or supplement. Get outdoors and get some light!



13. Appreciate that **high stress, depression, anger and anxiety** all influence pain. Make it your goal to deal with issues contributing to these negative emotions. You may consider seeking professional help.

14. 14. Do something **‘fun’** ...anything ...figure out what it is and do it ...EVERYDAY. Do not underestimate the power of smiling and **enjoying life** and **helping someone else to enjoy their life!**
15. If you feel that your current job, profession or co-workers are a source of great emotional stress and unhappiness...plan a long-term solution. Don't just sit back and hope that things will eventually change in a few years. You must be proactive, seek professional advice and make decisions.

Your Participation Section

Please grab a pen & paper and complete this “contract”. Do not continue unless you do this!

I, _____ understand that it is very important for me to focus on the 15 recommendations above.

The 3 small changes I choose to start with are...

- 1.
- 2.
- 3.

Signature: _____

The Pain Truth Summary Sheet

- ✓ Pain is essential for survival; it is an alarm system that warns us of potential danger.
- ✓ Various medical causes of pain must be ruled out by a physician; e.g., infections, fractures, thyroid issues, diabetes, medication side effects, etc.
- ✓ Various mechanical causes of pain must be addressed by a physical therapist; e.g. muscle weakness, muscle tightness, joint stiffness, irritated nerves, poor posture, etc.
- ✓ The brain constantly evaluates all pain and determines whether to magnify or silence it.
- ✓ Thoughts such as fear, stress, anxiety and anger can increase pain and even produce local swelling in the painful area.
- ✓ ‘Stress’ chemicals can increase nerve hypersensitivity while ‘happy’ chemicals can decrease nerve hypersensitivity.
- ✓ The best way to reduce the alarm sensitivity is by:
 - **Understanding pain**
 - No longer fearing pain
 - Having a positive attitude
 - Setting goals
 - Pacing activities and exercises by starting with an **easy activity**

If you feel that you need help in finding your “**easy activity**”, your goal setting and following through with your goals, I highly recommend that you consult a Pain Truth Certified (PTC) clinician.

- ✓ To reduce nerve hypersensitivity, you must also address the six essentials of life and health: **Oxygen, Water, Nutrition, Sleep, Sun, Joy & happiness.**

www.ThePainTruth.org

If you have found the information in this E-book valuable, please visit www.ThePainTruth.org web site and register yourself as a patient.



Should you wish to continue with the 6-week Pain Truth program, you will also find a list of Pain Truth Certified (PTC) health care providers on the website.

A PTC provider may be located close to you at a clinic in your area for direct consult or some offer virtual visits via video conference calling which are equally as effective.

If you have any questions, please feel free to contact me at info@thepaintruth.org

Sincerely, Bahram Jam, PT

References:

1. Butler D & Moseley L. Explain pain. NOI Group Publications, Adelaide, Australia, 2003
2. Moseley GL, Nicholas MK, Hodges PW. A randomized controlled trial of intensive neurophysiology education in chronic low back pain. *Clin J Pain*. 2004 Sep-Oct;20(5):324-30.
3. Moseley GL. Widespread brain activity during an abdominal task markedly reduced after pain physiology education: fMRI evaluation of a single patient with chronic low back pain. *Aust J Physiother*. 2005;51(1):49-52.
4. Moseley GL, Zalucki N, Birklein F, Marinus J, van Hilten JJ, Luomajoki H. Thinking about movement hurts: the effect of motor imagery on pain and swelling in people with chronic arm pain. *Arthritis Rheum*. 2008 May 15;59(5):623-31.
5. Moseley GL, Brhyn L, Ilowiecki M, Solstad K, Hodges PW. The threat of predictable and unpredictable pain: differential effects on central nervous system processing? *Aust J Physiother*. 2003;49(4):263-7.
6. Vlaeyen JW, Crombez G. Fear of movement/(re)injury, avoidance and pain disability in chronic low back pain patients. *Man Ther*. 1999 Nov;4(4):187-95.
7. Moseley GL, Nicholas MK, Hodges PW. Does anticipation of back pain predispose to back trouble? *Brain*. 2004 Oct;127(Pt 10):2339-47. Epub 2004 Jul 28.
8. de Roos C, Veenstra AC, de Jongh A, den Hollander-Gijsman M, van der Wee NJ, Zitman FG, van Rood YR. Treatment of chronic phantom limb pain using a trauma-focused psychological approach. *Pain Res Manag*. 2010 Mar-Apr;15(2):65-71.
9. Elbert TC et al., Increased cortical representation of the fingers of the left hand in string players. *Science*, 1995, 270:305-307
10. Pascual-Leone A, Torres F. Plasticity of the sensorimotor cortex representation of the reading finger in Braille readers. *Brain*. 1993 Feb;116 (Pt 1):39-52.
11. Goffaux P, de Souza JB, Potvin S, Marchand S. Pain relief through expectation supersedes descending inhibitory deficits in fibromyalgia patients. *Pain*. 2009 Sep;145(1-2):18-23. Epub 2009 Jun 12.
12. Doubell TP, Mannion RJ, Woolf CJ, The dorsal Horn: state dependent sensory processing, plasticity and the generation of pain, in *Textbook of Pain*, PD Wall and R Melzack, Editors, 1999, Churchill Livingstone: Edinburgh.
13. Flor H, Braun C, Elbert T, Birbaumer N. Extensive reorganization of primary somatosensory cortex in chronic back pain patients. *Neurosci Lett*. 1997 Mar 7;224(1):5-8.
14. Morley S, Eccleston C, Williams A. Systematic review and meta-analysis of randomized controlled trials of cognitive behaviour therapy and behaviour therapy for chronic pain in adults, excluding headache. *Pain*. 1999 Mar;80(1-2):1-13.
15. Eccleston C, Williams AC, Morley S. Psychological therapies for the management of chronic pain (excluding headache) in adults. *Cochrane Database Syst Rev*. 2009 Apr 15;(2):CD007407.
16. Hoffman MD, Hoffman DR. Does aerobic exercise improve pain perception and mood? A review of the evidence related to healthy and chronic pain subjects. *Curr Pain Headache Rep*. 2007 Apr;11(2):93-7.
17. Kavouras SA. Assessing hydration status. *Curr Opin Clin Nutr Metab Care*. 2002 Sep;5(5):519-24.
18. Barnard, Neal. *Foods that Fight Pain*. New York: Harmony Books; 1998
19. Perry MC, Straker LM, Oddy WH, O'Sullivan PB, Smith AJ. Spinal pain and nutrition in adolescents - an exploratory cross-sectional study. *BMC Musculoskeletal Disord*. 2010 Jun 30;11(1):138.

20. Liu S, Manson JE, Buring JE, Stampfer MJ, Willett WC, Ridker PM. Relation between a diet with a high glycemic load and plasma concentrations of high-sensitivity C-reactive protein in middle-aged women. *Am J Clin Nutr.* 2002 Mar;75(3):492-8.
21. Pollan, M. *Food Rules: An Eaters Manual.* Penguin Books 2009
22. Marin R, Cyhan T, Miklos W. Sleep disturbance in patients with chronic low back pain. *Am J Phys Med Rehabil.* 2006 May;85(5):430-5.
23. Marty M, Rozenberg S, Duplan B, Thomas P, Duquesnoy B, Allaert F; Section Rachis de la Société Française de Rhumatologie. Quality of sleep in patients with chronic low back pain: a case-control study. *Eur Spine J.* 2008 Jun;17(6):839-44. Epub 2008 Apr 4.
24. Hiestand DM, Britz P, Goldman M, Phillips B. Prevalence of symptoms and risk of sleep apnea in the US population: Results from the national sleep foundation sleep in America 2005 poll. *Chest.* 2006 Sep;130(3):780-6.
25. Reid KJ, et al Aerobic exercise improves self-reported sleep and quality of life in older adults with insomnia. *Sleep Med.* 2010 Oct;11(9):934-40. Epub 2010 Sep 1.
26. Al Faraj S, Al Mutairi K. Vitamin D deficiency and chronic low back pain in Saudi Arabia. *Spine.* 2003 Jan 15;28(2):177-9.
27. Schwalfenberg G. Improvement of chronic back pain or failed back surgery with vitamin D repletion: a case series. *J Am Board Fam Med.* 2009 Jan-Feb;22(1):69-74.
28. Wise TN, et al Painful physical symptoms in depression: a clinical challenge. *Pain Med.* 2007 Sep;8 Suppl 2:S75-82.
29. Carson JW, Keefe FJ, Lowry KP, Porter LS, Goli V, Fras AM. Conflict about expressing emotions and chronic low back pain: associations with pain and anger. *J Pain.* 2007 May;8(5):405-11. Epub 2007 Feb 1.
30. Pincus T, Burton AK, Vogel S, Field AP. A systematic review of psychological factors as predictors of chronicity/disability in prospective cohorts of low back pain. *Spine (Phila Pa 1976).* 2002 Mar 1;27(5):E109-20.
31. Fayad F, et al [Chronicity, recurrence, and return to work in low back pain: common prognostic factors] *Ann Readapt Med Phys.* 2004 May;47(4):179-89.
32. Moseley GL, Butler DS: *The Explain Pain Handbook* Protectometer. Noigroup publications, NOI Australasia Pty Ltd, 2015

Your Participation Section

Please grab a pen & paper and complete this “contract”.

Upon reading this booklet and the 5 case studies,

I, _____ understand that pain does not always indicate something dangerous or damage is happening to my body.

I have seen a medical doctor who has ruled out important medical conditions or drug side effects. I have received or am receiving appropriate **active** therapy to help me with my flexibility, endurance and strength. I understand the negative cycle of passive coping skills and will **actively focus on taking responsibility for my own recovery.**

The 6 essential of life that I need to focus on are: (Check all that apply)

- Oxygen e.g. *Begin an exercise program / Stop smoking*
- Water / hydration e.g. *Have a salad or fruit with every meal*
- Nutrition e.g. *Eat fresh vegetables and fruits and limit sugar / pop*
- Sleep e.g. *Exercise daily, stop sugar & caffeine in the evening*
- Sunlight / Vitamin D e.g. *Walk in the park*
- Joy & Happiness e.g. *Manage stress, anger, depression or seek help*

The 3 physical activity goals that I wish to achieve in the next 3 months are:

- 1)
- 2)
- 3)

e.g. walk in the park for an hour, work for 4 hours keyboarding, lift a 30Kg box 10x, vacuum the house, gym workout 1 hour, play piano for 30 minutes

Signature: _____ Date: _____

The Pain Truth ...and Nothing But!

There are currently several textbooks and thousands of medical research studies on the topic of persistent pain. What is pain? Why do people feel it? Where exactly does it come from? What is the precise physiology behind pain? And, most importantly, how can pain be eliminated or at least reduced?

The sole purpose of this booklet is to help those who deal with persistent and medically “unexplained pain,” to feel in control and optimistic about once again regaining their quality of life.

So here is *The Pain Truth...and Nothing But!*

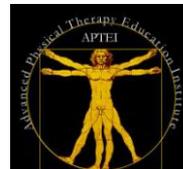
In addition you may view the Pain Truth and Nothing But videos on YouTube .

You may also download the “Pain Truth” App on both iOS and Android.



Dr. Bahram Jam, PT

www.aptei.ca



ISBN 978-0-973534-2-0