NHS Highland

Understanding PAIN

Why is it important for you to read this leaflet?

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This leaflet will help you if you have been suffering from pain for more than a few months. Understanding how your pain works will help you to manage your symptoms.

Introduction:

Pain is normal and is essential for our survival. It helps us in times of danger. If you put your hand on a hot iron you will quickly remove it! This is a useful pain that stops you from burning yourself. Some pains however just do not get better. This is called persistent or chronic pain and usually is pain that has persisted longer than 3 months. This pain serves no useful purpose.

It can put a great strain on you, your family and friends.

The Puzzle of Chronic Pain

Understanding pain is a bit like a jigsaw puzzle. Not only is it a puzzle but it's a puzzle without the picture on the box to help.

Gradually over a number of years scientists have managed to put the pieces together to form a more recognisable picture. Even if some ofthe pieces are still not in place. Chronic pain is very complex.

- Pain is very difficult to explain
- Pain is confusing as "hurt" or pain does not necessarily mean harm
- Pain isn't visible; it can't be seen on XRAYS, scans or blood tests
- This can make it hard to communicate with others about your experience of pain
- It can also make it hard for others to understand your pain
- **Acute Pain – Pain less than 3 months**
  Usually occurs from tissue damage, injury or a painful event. Such as standing on a sharp pin! Ouch! Or after an operation or broken bone or from a cut etc.

What happens in acute pain?

We all have trillions of sensors in the tissues of our body, skin, muscles, nerves, organs etc that detect threat and injury. Such as too much heat – burning yourself your sensors in your skin will detect this, so you move fast. These sensors also detect too much pressure such as a bang on the leg and chemical threat such as wasp sting.

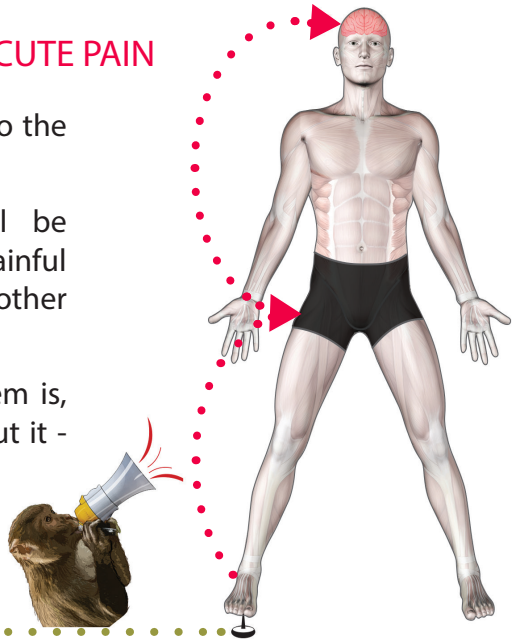
We imagine these sensors in the tissues like "monkeys" trillions of these holding an imaginary microphone – they shout into the microphone loudly when there is a problem and these signals travel along the nerves to the spinal cord and the message is relayed to the brain.

The "monkeys" in the tissues on the sole of your foot will shout loudly along the nerves up to the brain if you stand on a pin!

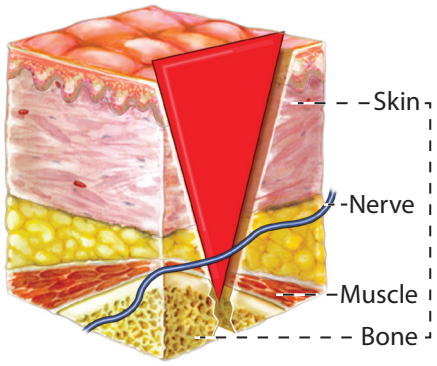
It is the brain that makes context of these signals and decides whether or not to produce pain or not.

*If you have an injury. . . .*ACUTE PAIN

- Danger messages travel to the brain.
- Brain decides if it will be painful or not and how painful and where and any other symptoms.
- Tells us where the problem is, why and what to do about it - acts as a warning signal.
- Is a survival mechanism.
- Or Chronic Tissue pain.



After healing occurs, the tissues recognise that there is no threat and the nervous system no longer reacts and no pain experience should be felt.



Healing Process:

Average Timescales for Healing

- Skin 3-5 days
- Muscle 6 weeks
- Bone 6-12 weeks
- Nerve – up to two years

Please Note *
This will vary from person to person and certain features may slow down your healing such as diabetes or infection.*

Key message 1

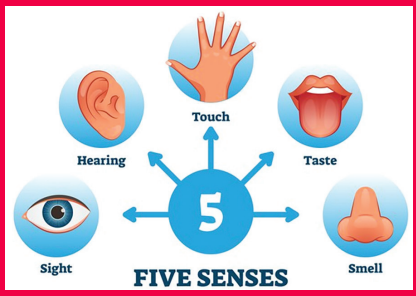
Our brain decides how much pain we feel – based on information it collects from our nervous system

The nervous system includes sensors, nerves, spinal cord and our brain and chemical or "neurotransmitters" help transmit information across the nervous system - they are like the microphone making sure the information goes from foot to brain.

The brain gets its information from lots of different sources some include: our senses: eyes, ears, nose, skin, taste, tissues, muscles, bones, joints, skin, organs etc but also gets information from the spinal cord, thoughts, previous experiences, emotions, situations, environment, mood will all affect the pain process.

Sensory System may be heighted

Some people with persistent pain are also more sensitive to sounds, smells, tastes, sight / vision and to touch. This is thought to be as your senses are also used to alert your pain system to the threat. Your Pain system is most likely sensitive and more alert if you have persistent pain. The volume dial to your pain experience is turned up.



Amount of Tissue damage does not equate to severity of pain – it is the context made by Brain

E.g paper cut can be very sore but very minimal tissue damage
But a severe gunshot war injury could be painless as brain decides it wants to get to safety/ away from the immediate treat, so pain will not be useful at this time, but large tissue damage.

Why does this happen?

- Your Brain adapts pain experience depending on the context of situation. If you stub your toe as you cross a busy road and a bus is coming towards you, your brain will decide not to give you much pain until you get to safety then "ouch" my toe is sore few seconds or minutes later. Or if your attention is focused on other tasks and you bang your leg on table, you may not notice at the time any pain, until you see a bruise later the next day. Your brain has been distracted and not produced a painful experience.

- Whereas a thought process can trigger pain such as "cutting the grass hurts my back", and that thought process could be enough

to produce a painful experience, just thinking about an activity or task, situation, or worrying can bring on your pain.

Why does pain continue after healing of tissues have complete?

- If you have been told that the tissues are not the main factor causing your persistent pain. It may be that your nervous system has become more sensitive over time and changes have occurred to brain pain networks... (see next section).

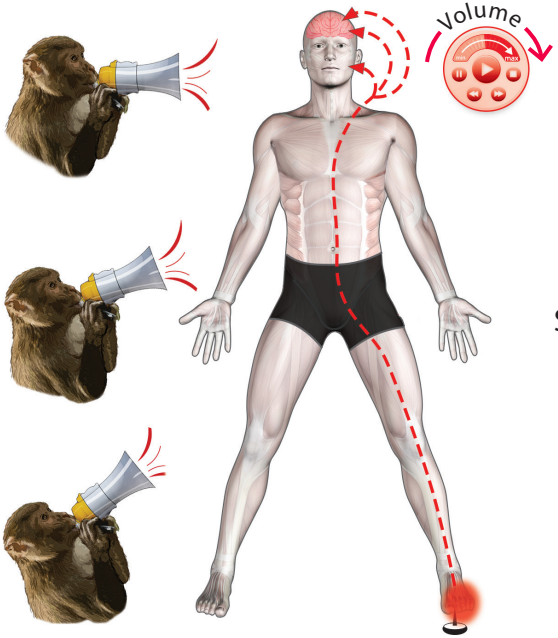
What happens in Chronic Pain?

The nervous system becomes over sensitive, the "monkeys" with the microphone the "sensors" are on alert so the volume of their microphone is switched right up, so minimal things may trigger your pain now. Your whole nervous system maybe more sensitive and new brain networks within your brain are likely to have formed, as your brain has become, "good at producing pain". The longer you have persistent pain, the more the system becomes more sensitive and more networks evolve, a learning process. This may be part of the reason why your pain hasn't gone away as the brain and nervous system has adapted over time.

Just like when you learn a new task such as riding a bike, new brain networks form as your brain learns to be good at riding a bike.

However, the brain is very clever it can adapt and change over time, research has shown that it is possible with pain management techniques that some of these unwanted painful brain networks that have switched on "almost like fairy lights on a xmas tree" can be turned down – like a dimmer switch. Lessening the pain experience and improve your quality of life.

CHRONIC PAIN - *pain processing*



Danger messages/ impulses travel up slow nerve fibers to the spinal cord and linking with different areas of the brain

Sleep centre of the brain

Emotions/Behaviour

Brain interpets pain differently

What types of chronic pain can you get?

Lots of different types of pain but main categories are (these overlap you may have a bit of all):

1. **Tissue pain** (persistent pain from chronic tissues changes/ disease e.g. Rheumatoid Arthritis, low back pain, knee pain, hyper mobility (bendy joints) etc) may cause chronic tissue problems so "monkeys" in your tissues keep alert and pain stays).

2. **Nerve pain** – burning, stabbing shooting type pain from sensitive, irritated nerves within your nervous system, commonly from spinal nerves giving lower or upper limb pain but any nerve can cause pain, may be facial, headaches, shoulder or elsewhere in body.

3. **Pain "Processing" Pain** (– e.g. Widespread pain, Fibromyalgia, functional pain , Low back pain, headaches, pelvic pain, IBS). Usually due to gradual changes in nervous system sensitivity and new networks in brain, changing the way the brain processes information about pain, processing of the pain having changed over time. Often results in pain all over body, moving pain, not usually linked with tissue injury or tissue changes).

What can make these persistant Pains worse?

We know there are many factors that can turn the volume up on our natural pain system, and encourage more brain networks or brain memories to form. Some of these factors when you have chronic pain become more apparent and a viscous cycle of more pain can occur.

These may be physical or psychological/emotions triggers such as:

- Overdoing things / Under doing things
- Pushing self hard on good days / inactivity on bad days
- Low activity levels / low Fitness overall
- Or too high activity level and flares ups regularly
- Stress / Anger / Fear / Frustration/ Guilt/ Shame/ sadness / low mood anxiety
- Poor sleep pattern
- Inability to work/ function
- Lack of social interaction / hobbies / interests
- Lack of support family friends
- Impact on relationships with others
- Poor pacing
- Letting pain build up and carrying on regardless

- Poor Acceptance and adaptation of lifestyle
- Fatigue and low energy levels
- Lack of motivation and drive
- High expectations on self and not meeting own or others needs
- Negative Emotions / thoughts / beliefs / behaviours
- Avoidance behaviour
- Overcompensating Behaviours
- Poor Self compassion and kindness to self
- Self Criticism
- Poor understanding on your pain and skills that might help
- Poor ability to manage flare ups
- Reliance on medical fixes for pain relief / failure of treatment in past
- Bad Experiences / triggers / Lack of faith in pain management

Some other features associated with persistent pain.... spelling . . . . . .

SPACE

Sleep problems
Pain (can be widespread)
Affect (Emotions, mood, irritability
Cognition (memory, concentration, alertness)
Energy levels / fatigue

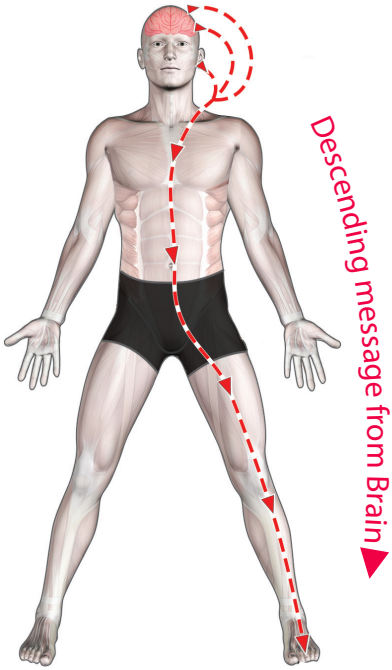
No Brain..... No Pain

How can you reduce persistent pain?

Can we stop the pain?

Endorphins "happy hormones"

Activity, relaxation, fun, laughter, sex and chocolate



Use your own drug cabinet

Perched in the middle of your brain is a collection of brain cells working together to produce powerful drugs - Serotonin, endorphins and other substances that are similar to morphine.

"Happy Hormones" work throughout our body and stop danger messages from reaching the brain.

What do you think switches the cabinet on or off?

Knowledge and increasing evidence of safety	on
Being less self critical of yourself	on
Thinking more on the positive side	on
Driving past where you had you accident	off
Achieving Goals	on
You are scared of making the pain worse	off
Doing more activities you enjoy	on
Someone you love has just given you a hug	on
Fear, danger, treat and negative thoughts	off
You feel supported and cared for by your family	on
Avoiding social contact or hobbies	off
Lack of purpose or feeling hopeless	off
Over doing things	off

Pain management strategies aim to turn the volume down on your pain system and turn on the medical cabinet in your brain to natural pain relieving hormones. This may have an impact on the unwanted painful brain networks that have formed over time. Although, these techniques take lots of time, practice and commitment before you are likely to notice much change to how you cope with your pain.

Its trial and error and discovering which techniques work best for your needs and your pain.

Over the next few weeks you will learn and practice different techniques and apply some lifestyle changes that may help you manage your persistent pain, please don't give up, there is hope that your quality of life can improve but it takes lots of patience and courage.

Good luck, we are here to support you along your journey of pain management.

Useful Resources

Videos – use these alongside your pain management programme to allow you to gain more knowledge on pain.

Making sense of pain
https://painhealth.csse.uwa.edu.au/pain-module/making-sense-of-pain/

Understanding Pain in 5 minutes:
https://www.youtube.com/watch?v=C_3phB93rvI

Time to rethink and understand pain: https://www.tamethebeast.org/

Chronic Pain Toolkit https://www.paintoolkit.org/

Peter Moore – Chronic Pain Sufferer -Patient Experience of benefit Pain management skills. https://www.youtube.com/watch?v=jXSDupY0XLM

Pain concern website
http://painconcern.org.uk/ This site has link to "Airing Pain"

This is radio a station that gives information on pain.
LGOWIT – Provide Peer support groups, self management sessions to support chronic long term conditions, across Highland, many different local groups, run by people with chronic conditions.
http://www.lgowit.org/

Pain Association- This site offers support to people in chronic pain
http://www.patient.co.uk/support/Pain-Association-Scotland.htm

Stress and Pain - This sites explains the effect of stress on your pain
http://www.getsomeheadspace.com/meditation

Relaxation Exercises NHS Website:
https://www.nhsinform.scot/healthy-living/mental-wellbeing/stress/breathing-and-relaxation-exercises-for-stress#

Tai Chi - 5 minutes a day of tai chi based exercises – research supports tai chi for pain management and depression.
https://www.youtube.com/watch?v=cEOS2zoyQw4

Diaphragmic Breathing Video: Belly breathing that can help with pain
https://www.youtube.com/watch?v=Akg9YFEtT9E

Mindfulness:
https://www.breathworks-mindfulness.org.uk/

Breathing Space App
Video on mindfulness /empowering the mind through mindfulness:
Angry and Calm Wolf: https://www.youtube.com/watch?v=vzKryaN44ss

Mood Juice - NHS Scottish Website with lots of useful resources/ skills for pain management. https://www.moodjuice.scot.nhs.uk/

Compassion and Kindness:

Useful Phone Numbers if you need someone to talk to urgently, low mood, struggling to cope, feeling hopeless, anxious or having suicidal thoughts.

Breathing Space 0800 83 85 87

Samaritans 116123

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