

# Explaining pain

*A booklet to inform people about chronic pain and to help answer any questions that they may have*



Acknowledgement to Manchester & Salford Pain Centre for allowing North Cumbria CCG to adopt this guide.

## Explaining pain

You may have been told you have chronic or persistent pain. These words or terms mean that you have pain which has lasted for more than 6 months and in some cases it can last for most of a lifetime. It is a surprisingly common problem and some studies suggest that as many as one in ten people in the United Kingdom are living with some form of chronic pain condition.

The aim of this leaflet is to explain in a bit more detail what chronic pain means and to answer some of the questions that you may have. It may also be useful for you to share this booklet with those close to you including your family, friends and partner to help them understand chronic pain too.

Chronic pain can be a confusing and frustrating condition to live with, particularly as it is something that cannot be seen from the outside by those around us. Most of us grow up understanding that pain will go

away. So how can we make sense of pain that **doesn't** go away - pain that becomes persistent?

There are important differences between acute and chronic pain:

### Acute pain:

is an indication that **damage** has happened as a result of injury (e.g. hitting your thumb with a hammer). It is a helpful alarm signal that enables us to get out of harm's way and to protect our bodies while we heal.

### Chronic pain:

is long lasting or persistent pain which has no useful purpose and is **not an indication of new or further damage**.

There are 3 reasons why people suffer from chronic pain:

- 1. There is a physical source for pain**
- 2. There are changes in the way pain messages travel to the brain**
- 3. Pain changes your level and type of activities**

The reasons for your pain will be a combination of these factors.

We will now look at these three reasons in detail:

### 1. The physical source of pain

When you have a new injury (acute pain) it is easy to guess which part of your body is causing the pain - the bruise, the broken bone, or swelling around a sprained ankle. With chronic pain, it is much more difficult.

You may not have had an explanation of your pain that makes sense to you. Often, no obvious physical cause can be found for chronic pain. This can be confusing and frustrating - after all, you know you have pain.

You might think that some of the advanced scans that are available now would help to pinpoint the physical problem. This is often not so. Even the best scanners only give a 'snapshot' picture of your body. They only show the physical structures or organs, not how messages are sent to the brain to make you aware of what is happening inside.

The part of you that is hurting does not change colour on the

scan or look any different from the part that is not hurting.

Even when doctors can pinpoint physical changes on the scans or X-rays (for example, minor arthritis or a partial disc problem) it is still impossible to say whether these are the source of your pain or not.

For example a doctor may see two different patients one with pain and one without pain, when looking at their scans or x-rays the person in pain may not have any changes whereas the person without pain may well have changes such as arthritis or a disc problem. Clearly, pain is very complex and scans and x-rays don't always give us the full picture.

### In summary:

Pain usually originates in muscles, ligaments, joints, discs or nerves

Generally it is impossible to tell (even with the best modern scans) exactly which of these is the culprit and usually it is a combination of several sources

## 2. Changes in the way pain messages are sent to the brain

### Why do we feel pain?

#### What is its job or function?

The primary function of pain is to tell the body about injury and disease and to help make decisions about what to do.

However, in chronic pain, our most up-to-date research tells us that something different is going on: the pain is no longer serving a useful function. It is a real sensation but not an informative one. There is a lot of research to show that in chronic pain there are changes in the way that the whole pain messaging system is working.

#### **These changes affect:**

How the pain messages are carried around the body

How the brain makes sense of the messages

### What happens in the pain messaging system?

Before we can understand what might be happening in the pain system of people who have chronic pain, we need to understand a bit more about how pain messages are normally carried in the body.

Nerves are found in skin, muscles, joints, tendons or any of the major body organs. They respond to different types of input - for example, light touch, deep touch, cold, chemicals and pain.

If one of these nerves is triggered, messages will travel along the nerve to 'relay stations', in the spinal cord and the brain. These relay stations can be thought of like a telephone exchange. There can be many messages arriving at the same point and some messages may be passed on and some may be blocked.

When the messages reach the brain, they go to a number of different relay stations - interpretation points. Some of these areas deal with the emotional response to the pain (fear, anxiety, anger). Other areas deal with attention (focusing on the area where we experience pain), planning (what to do about it) and movement.

All these areas working together make up what we experience as pain. They function automatically, without the person being consciously aware of the process. All we know is that we have pain in one or more areas.

It is important to note that the experience of pain can be triggered at any of these stages: a pain 'message' does not have to start in the skin or muscles.

In chronic pain, the messaging system is behaving differently to the way it does in acute pain.

In **acute pain** (new injury), pain is very important. It makes us rest and protect the injured area so that no further damage happens

and things have a chance to heal. However, even in this situation, it is possible to have an increase in pain - without further injury: think of a new, purple, swollen bruise. What does it feel like if someone gently prods it? Gentle pressure on the bruise does not cause further damage - but it will certainly cause pain!

In **chronic pain** it is as if the useful changes that happen to the messaging system after an injury don't 'switch off' - even though any healing has completed. It is a bit like having a fire alarm system that has gone off and keeps ringing even when the fire has been put out. Medical science has not yet discovered why the pain messages system stays "switched on" for some people after injuries have healed.

In a chronic pain state (no new or further damage), these initially useful sensations don't switch off, even though information has stopped and healing is complete.

continued page 5

Pain “gates” (in the spinal cord) open and let through messages, which would not normally be painful (e.g. stretch and touch)

Chemicals circulating in the body as a result of stress, fear or anxiety can increase the sensitivity of these gates

Each message can set off many other nerves effectively turning up the ‘volume’ of pain

Messages and nerves can fire off randomly with no stimulation at all

Normally ‘inactive’ nerves in the area ‘wake up’ and become sensitive

There are areas in your brain which have “memory maps” for pain. They can continue to signal pain even when there is no message coming from the original area of injury. This is similar to what happens in other pain conditions e.g. phantom limb pain. The brain then becomes ‘tuned’ to expect pain. Being on ‘high alert’ makes it more likely that non-painful sensations get translated into pain sensations

Thoughts, emotions and concentration can effect how we experience pain. Pain intensity can be reduced at times of excitement and increased at times of stress

### Why does the amount of pain alter?

Different factors can affect the messages going through relay stations in the spine (called ‘pain gates’) so that they can become “louder” (i.e. amplified) or “fainter” (i.e. dampened or muffled).

Relay stations can then remain on “high alert” (a bit like after a bruise). If you get an injury, this can be started, for example, by chemicals travelling up the nerve from an injured area, causing the relay stations to pass more messages on.

This increased sensitivity in settings can persist long after the injury has been repaired by the body’s normal healing processes. As a result of this, even gentle normal movement, stretching or temperature changes can produce severe pain that feels exactly like some sort of injury or damage.

In other words, the message is changed and one that starts out as a message about touch or stretch is translated into one about pain.

Many painkillers work on these gates / relay stations in the spinal cord and brain. They also work on the nerves themselves and at the site of any tissue damage.

#### In summary:

Receptor cells (touch, pressure, temperature) can act differently and start sending pain messages

Pain messages can be made ‘bigger’ or amplified as they travel through the nerve pathways to the brain

The brain can develop ‘memory maps’ of pain which can be set off without further injury happening

**So, the amount of pain we experience is not directly related to damage and there are many things which can increase or decrease pain messages.**

### Which factors, that we can alter, increase pain messages?

- Lack of sleep
- Imbalance between rest and exercise
- Low mood
- Anxiety regarding the nature of the pain

### Which factors, that we can use, reduce pain messages?

- Massage, rubbing
- Good balance between rest and exercise - pacing
- Heat or cold packs
- Stretching
- Relaxation
- Distraction
- Being reassured that pain is real and what it is all about
- Feeling more confident, having fun and socialising

You may be able to identify with some of the factors above and already recognise the effect of these on your pain levels.

During your subsequent sessions we will look at these factors in more detail.

Now we understand so much more about how the changes in the messaging system happen, we are able to help you to understand your condition. We are also able to improve your fitness and function in ways that don't 'prod the bruise' and wind up the sensitivity of your pain unnecessarily.

### 3. Changes in your level and type of activities

Many people with chronic pain respond either by reducing their activity or by trying to 'push through' their pain:

#### Have you ever reduced your activity levels when in pain?

This is a common sense response to pain. Many people try their best to rest or avoid activities which 'wind up' their pain. This, in itself, can cause problems.

### What effect does this have over a long period of time?

We sit, stand or walk differently which can affect other joints and muscles

Muscles get weaker and tighter and unable to provide optimum support

Muscles may get tired and ache more easily - so that even a small amount of exercise can be enough to increase the sensation of pain

Muscles may go into spasm: the body is trying to stop you from moving because it wants to try and protect you from further problems

We put on weight and become less 'fit'

When joints don't get moved regularly they become stiff as ligaments and muscles tighten up. This will cause movement to be painful

There can be changes in balance and co-ordination skills

### Have you ever tried to push through your pain?

Some people feel frustrated by their pain and try to 'push through' it but this can also cause problems.

#### What effect does this have?

Pushing through the pain is a bit like prodding a bruise - as mentioned earlier. Gently prodding it will not cause any further damage - but will feed into the pain system that is already 'on high alert' making it more likely to become sensitive and irritable

Continuing to wind up the pain by 'pushing through' may add to your sense of frustration and this will not be helpful in you managing your pain in the long-run

The more often you are "punished" by the increased pain of over activity, the more wary of activity you may become

It also means that the 'movement' part of the brain links this type of activity with pain - even though there is no further injury or damage happening

Your pain will be a combination of **all of these factors** and just because pain cannot be seen from the outside doesn't mean that it is either 'all in the mind' or that 'it is not real'. **Your pain is real.**

Just because we may not be able to give you a specific 'diagnosis' or tell you exactly which structure is causing the pain, it does not mean that your pain is not real. It simply means that from your symptoms, from examining you and from the tests you have had we can say there is no further medical or surgical treatment needed to help with your pain. Unfortunately we do not have a cure for your pain.

Helping to manage chronic pain focuses on tackling the knock-on effects of chronic pain. It involves teaching you coping strategies that help you to get on with your life, despite the pain. Part of the treatment consists of exercise and movement methods.

Another element is using the skills of a psychologist to examine the beliefs and thoughts about pain, which can cause worry, frustration and feeling depressed.

Learning practical problem solving skills can help you to restart valued and necessary activities, finding confidence and pleasure in performing them.

We hope that this information has helped you to understand more about chronic pain but we understand you may have more questions. At the end of the booklet we have provided further resources you may want to look at.

### Do you have any further questions?

Note them down here to share with the people helping you with your pain.

For more information you may want to look at the following resources:

**Books** (these may be available from your local library)

**Coping Successfully with Pain (Overcoming Common Problems)**  
Neville Shone

**The Pain Management Plan: How People Living with Pain Found a Better Life: The Things That Helped Them and the Things That Set Them Back**  
Robert Lewin and Mike Bryson

**Explain Pain**  
Lorimer Moseley and David Butler

### Weblinks



Persistent physical symptom service:  
<https://ppss.cumbria.nhs.uk/patients/patient-portal>



[www.painconcern.org.uk](http://www.painconcern.org.uk)  
(website with podcasts)



[www.britishpainsociety.org/people-with-pain](http://www.britishpainsociety.org/people-with-pain)



[www.paintoolkit.org/resources/for-patients](http://www.paintoolkit.org/resources/for-patients)

### Educational video



You Tube "Understanding Pain in less than five minutes"

