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Best Usual Care

Physical Rehabilitation Combined with Psychology

Physiotherapy Manual

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Version 1.0 Date: 19 December 2014

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Online support and Discussion Forum: [http://fis-project.ucoz.co.uk/](http://fis-project.ucoz.co.uk/)

We would encourage you to reflect on your best usual care sessions as often as possible throughout the study and if you have any questions, queries or would just like to share experiences throughout the programme, then please do use the Discussions Forum. The online Discussion Forum is checked regularly by Harbinder and Mindy and a response to postings, if required, will be given within 48 hours.

As per clinic study protocol, some direct observation of carrying out the Best Usual Care package intervention by participating physiotherapists may be monitored; process data on sessions attended will be collected.

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Introduction
Management of low back pain has been extensively researched over the last few decades and it is now widely accepted that this should comprise of both physical and psychological components. Although evidence for specific rehabilitation for facet joint pain has received little attention, it is generally well accepted that some form of cognitive behavioural approach aiming to address unhelpful beliefs and barriers to recovery has a positive, added effect to physical rehabilitation in isolation.

Physiotherapy management in this trial will follow guidance from NICE\(^1\) but importantly be tailored to individual patients to provide bespoke management. This will be the same for all participants regardless of group allocation i.e. whether they have received facet joint injections or not. The aim of providing bespoke management is to ensure that optimal treatment is provided and to maximise treatment benefit. An important element in avoiding sub-optimal treatment is to ensure that progress is reviewed at each session and that all techniques and home exercises or homework are progressed as necessary. We are placing the emphasis of the use of a ‘ToolKit’ approach to selecting treatment modalities and techniques in order that a fully individualised management can be achieved. However, certain elements from the ToolKit must be included in individual programmes (See Table 1)

The treatment should be delivered in a patient centred manner, where participants have the opportunity to express concerns and expectations and be actively involved in the sessions. The identification of barriers and challenges to engaging in activity, as well as assessment of self-efficacy and readiness to change should be included. It is known that the therapeutic relationship can be an important component of treatment and this should be maximised to create the correct environment to integrate psychological, manual and exercise components of the patient’s treatment.

Structure of Best Usual Care

Session 1 – Assessment and Planning (1 hour)
Patients initially undergo a thorough physical assessment based on the principles of Maitland manual therapy assessment and clinical reasoning\(^2\). Symptomatic levels are identified and the severity and nature of the symptoms recorded and used to direct treatment.

Assessment includes discussions of acceptance, goal setting and pacing as well as general discussion of expectations, fear avoidance and self-efficacy to assess any perceived challenges and barriers that patients feel may be preventing them from engaging in self-management of chronic pain and to allow subsequent treatment sessions to be tailored to individual need.
Session 2 to 6 (30 minutes each)

The aim of best usual care for this trial is to provide a fully integrated psychological and physical rehabilitation. It is important therefore to integrate the two elements of care as far as possible so that participants do not see them as ‘stand-alone’.

Treatment should be directed at pain arising from the facet joint. Physiotherapists should use their full range of skills and knowledge in constructing a personalised rehabilitation programme using the comprehensive ‘tool kit’ provided. Certain elements of the ‘tool kit’ must be incorporated within the individualised programme and the use of these elements will be recorded in the participant’s trial case report form (See Table 1).

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<tr>
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Table 1: Toolkit plus essential components – sample table for data recording
No specific treatment ‘model’ or approach is required or advocated; therapists are encouraged to use their full range of skills and expertise when planning the rehabilitation programme for each individual participant. Techniques or approaches may include manual therapy, muscle energy techniques, trigger point/myofascial work, motor control retraining of the local muscle system and integration of local and global motor control systems. It is important that participants are provided with a comprehensive combined exercise programme including aerobic exercise, strength and whole body conditioning as appropriate. It would also be expected that acceptance, pacing and goal setting are at least covered at some point during the sessions.

An A4 summary/evaluation sheet has been developed that should be completed after each session to aid reflection on progress of rehabilitation and flag up any problems that may need to be addressed. This takes a simple ‘Better/Worse/No Change’ format and also includes a review after session 3 (half way through available sessions). If the participant is failing to progress or making slower progress than anticipated it may be advisable to discuss treatment options with colleagues, review management to date or post a query on the Discussion Forum. The philosophy is to maximise benefit from the available treatment sessions.

The final session should include an overall summary and reflection on progress. It is important in this session that you are able to remind participants to continue with their exercises if appropriate and to continue with goal setting and pacing and any other approaches you may have used in during the treatment package.

**Physical Rehabilitation**

There is increasing evidence that manual therapy has effects on descending inhibition and can produce rapid analgesic effects in the short term. There is also small scale work indicating that manual therapy followed by specific active exercise in chronic non-specific low back pain produces favourable results when compared with de-tuned ultrasound followed by specific active exercises. Therefore, it is essential that treatment is tailored, that an adequate dose is given and that more passive modalities such as ‘hands-on’ manual therapy are used only as part of a package.

Assessment of motor control will include assessment in all three planes, sagittal, transverse and coronal. Again, treatment will be individualised to each patient to ensure that the appropriate home exercise regime is provided based on the patient presentation and their specific motor control strategies/dysfunctions. Treatment will focus on improving the motor control/core stability which is automatic in nature as opposed to volitionally controlled. This is important as historically, patients with LBP have often had the need for a ‘strong core’ over emphasised, often leading to a reliance on aberrant and unsustainable movement strategies such as ‘butt gripping’. It is known that many patients with NSLBP may have reduced physical activity due to fear and thought patterns associated with being physically disabled which can lead to general de-conditioning. Consequently, a graded, progressive approach to activity will be adopted with home exercises provided to ensure an optimal level of activity for each patient (See Error! Reference source not found.).
Advice
Advice, support and guidance may be needed in a number of areas to support participant’s rehabilitation. These may include, but not be limited to, activities of daily living, work and ergonomic advice, advice on management of flare ups and guidance on life style changes where appropriate. With all advice, it is important that it is realistic and achievable and therapists should attempt customised advice as much as possible.

Pain terminology, mechanisms and pathways
The International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” and stresses that pain is always subjective. As participants will all have developed their understanding of pain through their individual life experiences, it is important to respect this individuality. It is also important to remember that pain is associated with actual or potential tissue damage and is always unpleasant and therefore, also has an emotional element. It is important to validate a participant’s pain vocabulary so try to mirror the terminology they use.

It may be appropriate to discuss pain mechanisms with participants, particularly if you consider that they have a centrally maintained component. There are many useful websites and You Tube clips that may be useful to direct participants to and some examples of these will be available on the FIS Discussion Forum.

Activities of Daily Living
Many people with musculoskeletal pain struggle with activities of daily living (ADLs) and patients with LBP are no different. Often patients will volunteer difficulties that they are experiencing during initial assessment or subsequent sessions but some will not wish to ‘bother’ the therapist. If participants identify problems that they are experiencing with ADLs, provide advice as appropriate. Often issues with ADLs relate closely to issues of pacing and boom and bust (See Pacing) so try and align advice accordingly.

As with all advice, keep it realistic and achievable and customise as much as possible.

Work and ergonomics
It is important to consider advice regarding work and ergonomics in a broad sense rather than simply in terms of paid employment. Question work/voluntary or sporting activities in order to assess whether habitual postures, awkward or repetitive positioning may be hindering rehabilitation. If the participant is working, it may be necessary to discuss altered duties if necessary but aim to keep participants at work if at all possible.
Lifestyle changes
There is an increasing emphasis on all healthcare professionals discussing lifestyle changes with patients with longer term conditions. Therefore, participants may need advice on lifestyle changes such as stopping smoking, losing weight, eating healthily and drinking less alcohol.

Management of flare ups and changing symptoms
It is vital that participants understand that flare-ups can be a normal part of rehabilitation and that the likelihood of flare-ups is reduced by appropriate pacing and graded, paced increase in activity and home exercises and appropriate goal setting (See Pacing and Goal Setting).

Paced home exercises
Participants should be provided with a graded, paced home exercise programme with advice on repetitions and sets. Therapists should be realistic when setting home exercises and discuss with participants how and when exercises may be undertaken.

In order to facilitate the bespoke programme that you devise for your patient, if appropriate please write out any exercises or advice that might help your patient for them to use as an aid memoir at home.
Psychological

Acceptance

Acceptance in chronic pain is when an individual accepts to live with pain without reaction, disapproval, or attempts to reduce it or avoid it and has been shown to be the most powerful predictor of whether patients will engage in dysfunctional or adaptive coping strategies (independent of pain intensity or depression). The biggest challenge that individuals face is overcoming the struggle they may be facing with pain and taking on board a realistic approach to their pain management. Once an individual has accepted pain, research has shown that these individuals are more likely to practise positive, effective coping strategies, and report less pain, psychological distress and physical and psychological disability. Acceptance is not a purely cognitive exercise and a simple decision making process, it also incorporates key behavioural changes including re-evaluation of goals to realistic achievable goals and adaption to the condition in daily functioning which can lead to lower levels of depression and fewer overt pain behaviours.

The key message to relay to participants during the consultation, is that acceptance does not mean giving up. Previous experience has shown us that for some individuals, accepting their chronic back pain, can first of all give them a sense of failure and giving into the pain for which they may also feel a lack of control. If this occurs it is important to stress to participants that acceptance of chronic pain will allow them to move on and start to develop effective coping strategies that will help them in the long term. It is feasible to stress to the participant that accepting chronic pain does not mean they do not care about the situation, but actually it means that worrying over the condition will not lead to a positive outcome, therefore by accepting the pain they can start to look at realistic targets and put into place effective coping strategies (exercises and movement).

It is important to emphasise that accepting chronic pain does not mean there is no hope at all! We cannot predict the future with regards to medical advances and understanding of the human body, however we can live for the here and now, and try and put into place the most effective strategies that will help achieve a quality of life, and gain control.

How to discuss Acceptance during the consultation

Tips on how to address acceptance are to first base the consultation on a patient centred approach. Education is important, explaining to participants what facet joint pain is. One question that could be asked to introduce education is:

*Have you previously received an explanation of why it hurts, or have you had any thoughts yourself regarding the cause of the pain?*

Once the above has been addressed and an explanation given you can then relate this to current treatments and medications available and the importance of knowing that despite current treatments and lack of success, continuing in physiotherapy and self-management will help achieve a better quality of life despite the pain.
It is important to use open questions when exploring beliefs and psycho-social issues as patients are able to communicate what they are feeling and thinking.

Examples of topics to cover in the consultation are current level and types of activities, daily goals and current goals if any, restrictions of pain, and control.

**Reassurance statements**

*Remember to reassure the patient and positive encouragement that acceptance is not giving up and there is always hope.*

**Discussion of acceptance is compulsory for session 1 but not limited to session 1 only and can be included in the other sessions as appropriate to each participant.**

**Goal Setting**

Goal setting will be an important part of the best usual care package. It is important that with each participant, goals are set related to the physiotherapy and also wider activities if appropriate and established as a joint effort. Goal setting implies that change is possible and can give the participant a sense of control and also distraction from pain. Setting goals in specific detail can help the patients feel more confident and in control that they can achieve their targets. During the consultation, you can ask the participant questions such as:

*How would you like things to be at the end of this treatment package?*

If the response to this question is unrealistic then this may require some education and also related back to the acceptance of the pain as outlined earlier.

- **Goal setting is good to focus attention of patients on changing behaviour.**
- **Often we say we would like to do something but we do not really put anything into practice.**
- **By setting goals we have something to measure our performance against and something to adjust our goals dependent on performance**

One way to think about clear objectives is to use SMART goals. A SMART goal is defined as one that is specific, measurable, achievable, relevant and time framed. During the session, explore with the participant what their desired goals are and distinguish between short-term and long term goals.

The definition of SMART goals is as follows:

**Specific** – Goals should have a clear definition of the What, Why and How.

- WHAT is the participant going to do?
- WHY is this important to the participant at this point in time?
- HOW is the participant going to do it?
Measurable – goals should be measurable, so that the participant has evidence that they have achieved the goal.

For example the participant may want to increase the amount of walking they do each day and walk up to half a mile within 6 weeks.

Achievable – Goals should be achievable and realistic. Does the participant have the skills and knowledge and abilities to achieve the goals? Have they taken into account good and bad days regarding their chronic pain?

Relevant – Is the goal relevant to the participant? The participant needs to show some level of motivation to ensure they are willing to try and achieve their goal and relevant goals are more likely to be achieved.

Time-frame – Each goal should have a time frame attached to it. This will allow the participant to plan the actions and steps to be taken to achieve the goal and allow monitoring of progress.

Goal setting is compulsory for session 1 and 2 but not limited to session 1 and 2 and can be included in the other sessions as appropriate to each participant.

For example goals should be set in the first consultation, however, throughout the whole package of care, goals may be addressed and reflected upon at each consultation. This could be 5 -10 minutes at the beginning of each session, to allow the participant to reflect on their progress and any setbacks they may have had. You can then work with the participant to address these and also give positive encouragement for any achievement and progress made.

( Appendix 3, provides a goal setting worksheet, which can be used during this best usual care package. By helping participants identify their goals and write them down, it will allow you to monitor progress and also encourage participants to continue with the commitment to their goal).

Pacing

Pacing activities will help the participants gradually increase the amount of activity they can do without causing extra pain. Through exploring pacing with the participant you will teach the participant how to effectively manage their activities, exercises and daily tasks. The concept behind pacing is the management of energy, which will gradually increase with time if pacing is implemented, it can also increase a sense of control in individuals with chronic pain. The pain overactivity and underactivity is a common cycle that individuals with chronic pain experience.

Underactivity: individuals with chronic back pain may engage in less activity to get a short relief of pain or because of a fear of aggravating the pain. However, this lack of
activity can lead to a deconditioning of muscles and flexibility as well as an increase in fatigue and tiredness.

A lack of activity can also lead to frustration of not achieving goals or lower level of productivity. This frustration of feeling behind and wanting to catch up can lead to overactivity when an individual may feel they are able to achieve more on a particular day because they may be having a "good day".

This underactivity and overactivity (boom/bust) cycle is demonstrated in the following graph.

During the Best Usual Care sessions with participants on the FIS trial the following can be used to educate participants on the importance of pacing and also the monitoring of behaviour.

1) Allow the participant to tell you what their current levels of activity are daily and also the time spent on these activities. For the purpose of this package we would recommend you pick one activity to focus on for the pacing, this could also be linked to exercise amount and level. The key idea is to tailor the pacing advice to the individual.

2) Work with the participant to estimate how long they can do the activity before their symptoms or pain may start to increase, the period up to the point of symptoms becoming more recognisable is known as the Safe Zone. This is the amount of activity that can be safely done before overdoing it and entering the flare up.

3) This base line of time spent on the activity should be the starting point for the amount of activity the participant can comfortably engage in, the aim is to encourage a slight increase in activity gradually after the symptoms do not
worsen at that level (this could be for example a few days). The participant can continue to increase levels at intervals, but it is important to monitor progress.

4) Encourage participants to have a break during the activity and the key to this is stopping before the pain gets worse. During the rest period, you can encourage breathing exercises, relaxation, stretching, or a form of distraction such as listening to music or reading a book.

5) In addition to time, pacing activities can also be achieved by using techniques such as number of repetitions (related to an exercise) and gradually increasing the number of repetitions, or distance walked. The same principles however, apply regardless of technique used to pace, the aim is to gradually increase the amount of activity.

6) Most tasks and activities can be broken down into manageable stages. Setting realistic goals is also an important part of pacing.

Remember to advise the participant that when they are feeling better or having a good day there is a higher risk of overdoing an activity and entering the overactivity and underactivity cycle again. The aim of pacing is to avoid Flare Ups and gradually increase confidence, control and amount of activity.

Tip: Review pacing at each session: challenges and successes and then address these as appropriate with suggested techniques and adjustments in time spent on each activity or recognising of symptoms getting worse in order to achieve a baseline.

Appendix 4, provides a pacing worksheet which will allow participants to keep a diary of their pacing activities in between sessions, you may want use this as homework between some sessions to monitor progress.

Discussion of pacing is compulsory for session 1 and 2 but not limited to session 1 and 2 and can be included in the other sessions as appropriate to each participant.

Challenging Negative Thoughts

Individuals with chronic low back pain may have unhelpful beliefs and thoughts about their pain which could impact on their management. Such beliefs include: level of disability due to the pain, that pain signifies harm, lack of or no control over the pain, lack of and no skills to manage the pain and that pain will be a lifelong battle. Catastrophizing thoughts have also been shown to have a relationship with increased pain and physical and psychosocial dysfunction including psychological distress. However, there is evidence that by incorporating cognitive behavioural principles into management of pain and helping individuals understand their pain and also recognise unhelpful thoughts and equipping them with skills to be able to challenge these thoughts beliefs can be modified leading to positive results in perceived disability due to the pain.

How to challenge automatic thoughts

The first step is to work with the participant to help them understand the importance of how unhelpful thoughts can have an effect on their physical and psychological wellbeing. Then explain to the participant the main stages used to alter this unhelpful
process, 1) recognising and catching the unhelpful thought, 2) challenging the thought by searching for evidence and 3) posing an alternative thought (which is evidence based).

Recognising the thought
In order to help participants understand their own thinking patterns and when they are having unhelpful thoughts, it may be helpful to start with reflection. Ask your participant to identify a thought that may cause them distress which is related to their chronic low back pain. This is what we call the “hot thought”, and then ask the participant to rate from 0-10 how strongly they believe this thought with 10 being the maximum.

Common thought traps which can be explored with the patient to help identify unhelpful thoughts are as follows:

- Is it an all or nothing type thought?
  
  *(For example, I can’t do these exercises as the pain is too much, so I am not going to do them)*

- Is it an Over Generalisation?
  
  *(For example, I have tried physiotherapy before and it did not work so no physiotherapy will work for me)*

- Is the thought jumping to conclusions? (this includes predicting the future)
  
  *(For example, if I do this exercise it will cause more aggravation to my pain)*

- Is the thought Catastrophising?
  
  *(For example, If I do this exercise I will probably get worse, my pain may get so bad that I am unable to do the things I want to do, that will mean I can’t go to the event with my friends next week as I will be in so much pain, they will then stop taking to me, I will then lose my friendship)*

- Does the Thought include a “Should” or “Must” statement?
  
  *(For example, I should start the housework and finish it in one go, I must put all of the washing out, I should be able to walk to the corner shop)*

- Does the thought personalise the situation?
  
  *(For example, I am in pain because it is my fault, and the reason I have so much pain every day is because of me, I cannot do the exercises and it is my fault)*

Appendix 5, Provides a worksheet which outlines the different types of negative thinking. This can be used during the consultation to help guide the participant through the different thought patterns and allow them to map their own thoughts to the ones in the worksheet.
1) Challenging the thought

Once some examples of thoughts have been recognised, the next stage is to start working with the participant to start challenging them. Ask the participant the following questions:

*How would someone else think in that particular situation?*

*If anxiety and stress levels were low, how would you then look at the situation?*

*What evidence do you have that supports the thought? (If possible this evidence should be objective, factual)*

2) Proposing an alternative thought/statement

Ask the participant to generate an alternative thought, which is balanced and incorporates the process of change rather than jumping from extreme to the next. This will require a collaborative approach and you may need to guide the participant if they struggle at first (Appendix 6, provides a worksheet which gives example of alternative thoughts, and can be used by the participant to help challenge negative thinking).

Remember to educate participants that thoughts are not always easy to catch and take practise and effort. They can be very quick, short and very specific. Sometimes they do not occur in any sequence and at the time for the thought the participant may feel that the thought is very reasonable.

Monitoring thought patterns and negative thinking may be appropriate with some participants. Therefore Appendix 7 provides a “challenging thought diary” which can be set as homework between sessions and will allow you to monitor progress.

If a participant expresses suicidal thoughts or signs of severe depression, we would advise you to follow your standard procedure within your Trust which may include a referral to the mental health team or a Psychologist. If a participant is referred to a mental health team or Psychologist, they are still in the Facet Injection Study and we would expect them to continue with the Best Usual Care Package if possible, unless it is a clinical decision in the best interests of the participant to withdraw him/her from the trial.
Mindfulness and Relaxation Techniques

Mindfulness-based interventions have been shown to be effective for a number of clinical conditions including pain management.\textsuperscript{12-14} Unlike other therapies mindfulness is not explicitly used as a technique to actively reduce pain intensity but rather offers an alternative perspective of being with the experience of pain. Instead of getting caught up in the psychological and emotional struggle with pain, individuals are encouraged to live alongside the pain, in effect employing a more acceptance-based approach.\textsuperscript{15} Most mindfulness-based interventions target psychological correlates of pain with the explicit broader goal of improving quality of life and wellbeing.

What is mindfulness?

Mindfulness is a process that is cultivated through specific practices, such as mindfulness meditation.\textsuperscript{16} It can be considered as the process of developing an open and unbroken awareness of present moment cognitive-effective and sensory experience.\textsuperscript{17} Effectively, it is being fully present to all our experiences as they are with an openness and receptiveness. Letting go of our tendency to be judgemental and critical.

How can practising mindfulness be useful in managing chronic pain?

Burch and Penman outline this in their book, Mindfulness for Health: A practical guide to relieving pain, reducing stress and restoring wellbeing.\textsuperscript{18} The intensity of pain (primary suffering) is affected by how it is dealt with in terms of thoughts and emotions (secondary suffering). Mindfulness enables access to the “secondary suffering.” Emotions can act as amplifiers in the mind’s pain circuits, so if we are better able to control these, then we can change how the mind interprets the raw feelings of pain. Brain scans have shown that mild levels of anxiety can have a significant impact on pain; conversely, it has been shown that reducing anxiety, stress, depression and exhaustion can lower the perception of pain. Scientific research supports that mindfulness is effective in reducing stress, anxiety and depression.\textsuperscript{19, 20}

Mindfulness reduces pain perception. Zeidan and colleagues\textsuperscript{21} using MRI scanners to look at activity in different parts of the brain, were able to show that when practising mindfulness, pain perception was reduced, as reported on a scale, and that there was reduced activity in corresponding somatosensory cortex. In addition, there were increases in activity in areas of the brain related to processing emotion and cognitive

\textquote{Mindfulness is the willingness and capacity to turn towards all events and experiences equally with discernment, kindness and curiosity”}

Christina Feldman, 2014
Insight Meditation Society guiding teacher and co-founder of Gaia House
control, effectively areas where sensations of pain are interpreted. Furthermore, neuroimaging studies have shown that experienced meditators had lower levels of pain sensitivity, which were associated with thicker cortex in pain-related brain areas.\textsuperscript{12} 

*Attending mindfully to the experience of pain may detach the cognitive and emotional components of pain from the sensory component.*\textsuperscript{22}

**Potential mechanisms for reducing pain intensity**

While changing or controlling pain has not been an explicit aim of mindfulness-based interventions, more recent studies suggest that mindfulness practise may indeed lead to changes in pain tolerance and pain intensity.\textsuperscript{23} Acceptance and self-awareness are the mediating factors generally proposed to explain mindfulness effects on pain.\textsuperscript{24, 25} In learning to accept pain, less effort is directed towards avoiding and controlling pain and so can be directed towards other goals and improve quality of life, without necessarily changing the severity of pain. However, given that studies have shown a reduction in pain it has been postulated that these changes in functioning and distress may actually mediate changes on pain intensity.\textsuperscript{23} Alternatively, it is conceivable that pain intensity is reduced through the practise of mindfulness. So, taking away the added “layer” of thoughts and emotions deceases both perception of pain and experienced pain.\textsuperscript{23} Clearly, whatever the mechanism, it appears that mindfulness can lead to a reduction in pain intensity.

**Practicing mindfulness**

There are three premises that underpin how mindfulness is cultivated.\textsuperscript{25, 26}

- A clear intention to practise (*Motivation*)
- Attentional focus on moment-to-moment experience (*Attention training*)
- Attitude that is brought to how we pay attention, characterised by acceptance, kindness, openness, curiosity, patience and equanimity (*Approach to experience*)

As mindfulness is cultivated in this way there is a shift in perspective, termed “re-perceiving” which is a de-identifying from value judgements regarding thoughts and emotions.\textsuperscript{27}

Mindfulness-based interventions typically employ formal mindfulness meditations as well as ways to integrate mindfulness into everyday life.\textsuperscript{28} It is important to have a clear intention to practise as this will become a motivating factor. Mindfulness can be considered as exercise for the brain, and attention or concentration training is a way of flexing this muscle.\textsuperscript{29} Consequently, initial meditation practices focus on attention training.

Learning to pay attention, noticing when the mind has wandered and simply bringing it back is central to mindfulness practise.\textsuperscript{30} Much of our time is spent on automatic pilot with our minds not on the task intended, not only are we absent from large chunks of our life but we can very easily lose conscious control, falling into habitual patterns of thoughts and behaviours.\textsuperscript{31} When our mind is wandering it frequently goes to negative thoughts and feelings, which amplify our emotions, and before we are aware of it we can become overwhelmed by stresses, anxieties and sadness.\textsuperscript{31}
Typically, the breath, sensations of breathing, is used to train attention.\textsuperscript{30, 32} This provides an anchor to the present moment and facilitates disengaging with other mind activities such as ruminating.\textsuperscript{33} As the mind becomes focused it has a calming effect, reducing stress and anxiety. As we practise there is an opportunity to work with the attitude or approach to our experience.\textsuperscript{28} Noticing how we become bored and frustrated and trying as best we can to keep an openness and friendliness to our practise. This training allows us to bring a different approach to all our experiences (internal and external) and allows us to shift perspective away from our habitual patterns of behaviour.

Other practices, such as a body scan, use body sensations as the focus of attention.\textsuperscript{34} Tuning in to body sensations cultivates an awareness of the body-mind system, with the body serving as a place to be aware of emotion. Overtime, we are able to identify personal signatures of emotions such as stress and anxiety and we can use these signals from the body as an early warning system to offset emotional hijacks.\textsuperscript{31}

As we progress with practise it becomes possible to meditate on whatever arises.\textsuperscript{35} We can observe sensations of breathing, bodily sensations, and thoughts as they come and go without getting caught up in them, and be aware of accompanying emotions arising. It is an opportunity to better understand how our mind works and how it affects us.\textsuperscript{32} It allows us to become more self-aware, which leads to better self-regulation of cognitions, emotions and behaviours.\textsuperscript{36}

**Starting to practise mindfulness**

Practising mindfulness is simple and accessible. However, to gain any benefits it is necessary to practice on a regular basis just like exercise. It has been shown that regularity is more important than how long you practise.\textsuperscript{37} Although there is a dosage effect practising for as little as 10 minutes a day can make a difference.\textsuperscript{38} It is better to start with an acceptable length of time between 5-15 minutes rather than making it an endurance test. It is also useful to set aside a specific time, perhaps attaching it to another activity you do routinely, or simply first thing in the morning or before you go to bed. See Box 1 for a simple mindfulness practise.

To cultivate mindful awareness during everyday activities a mindfulness reminder can be used, such as an alert on your phone or computer, which when it sounds can be used as a trigger to return awareness to the present moment. Mindful pauses using the breath as an anchor can also be useful when there are intrusive thoughts and you feel overwhelmed. See Box 2 for the exercise STOP.

There are many courses available such as mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT), as well as a range of specifically adapted mindfulness-based interventions. In addition, there are on-line short courses and numerous self-help books with guided practises. See suggested reading.
Summary

- Mindfulness may be useful in modulating pain by improving cognitive and emotional control, as well as contextual evaluation of sensory events. Effectively, it provides a different way of being with pain, removing the emotional and psychological turmoil that adds to distress, amplifies the pain and is completely draining for the individual. Not only does mindfulness lessen the perception of pain but may also reduce the intensity.
- Stress and anxiety are known to increase pain and chronic illness is often accompanied by depression. Mindfulness is effective in reducing these.
- Mindfulness improves wellbeing and quality of life.
Box 1: Simple Breath Based Mindfulness Practice

- Settle yourself in a comfortable position, lying or sitting in which you can breathe easily and fully. A posture that is stable, and you are able to maintain, helps facilitate a good mental attitude and intention to practise.
- Gently close your eyes or soften your gaze.
- Taking a few moments to settle yourself. Aware of physical sensations of touch in the body where it is in contact with the floor, and with whatever you are sitting or lying on. Aware of the whole body resting here.
- Taking a quick sweep, scan of the body, checking in with how it feels in this moment, aware of any tension that you may be holding. Taking 3 deep breaths, releasing as best you can any tension on an exhalation. Sighing if it helps. Bringing your awareness back to the whole body and allowing your breath to return to its natural rhythm. As best you can, letting go of any tendency to want things to be a certain way, simply allowing things to be just as they are.
- Bringing your awareness to the breath flowing in and out of the body. Noticing the changing patterns of physical sensations as you breathe in and out. Focusing your awareness on where the sensations are strongest. It may be at the tip of the nose, the sensations as the air flows in slightly cooler and slightly warmer as it flows out, or the sensations as it passes the back of the throat. Perhaps aware of the sensation of expansion in the chest and the abdomen as you breathe in and the sensation of subsiding as you breathe out. If it helps placing your hand on your abdomen to notice the mild sensations of stretching on an in-breath and falling away on an out-breath.
- As best you can focusing attention on the breath in its entirety, noticing the changing physical sensations for the full duration of the in-breath and the out-breath. Aware of the slight pauses in between breaths, noticing the cycle of the breath. Aware of the rhythm and the length of the breath.
- Not forcing your breath in any way or trying to control your breathing, just letting the breath breathe itself. Simply observing the breath with interest and curiosity.
- When your mind wanders, as it will, gently bring it back to focus on the sensations of breathing. Remembering that noticing your mind has wandered and returning your focus to the breath is central to practicing mindfulness. No matter how many times it wanders gently bringing it back. This may be frustrating, or you may be critical of how you are doing. Trying to let go of this tendency. There is no right or wrong way to practice; it is simply being aware of your experience in each moment.
- Try practising for 5-10 minutes and then extend the length as you wish.
Box 2: Exercise – STOP

S  Stop whatever you are doing.
  Notice what is going on in your mind and body. Thoughts going around, body sensations.

T  Take a few deep breaths to settle yourself.

O  Observe the breath.
  Using the breath as an anchor to the present moment.

P  Proceed.
  Continue with what you were doing perhaps taking a fresh perspective

Suggested Homework (tailored for each participant).
Goal setting: Asking participants to think about their goal and break down into small steps, and create a plan of achieving this.

Pacing: identifying pacing of activities and monitoring of these.

Challenging automatic negative thoughts: Keeping a record of thoughts and beliefs working with the physiotherapist to then challenge these and manage them effectively.
References

Appendix 1: Case scenario

**Occupation:** Shop worker; struggling

**Hobbies/Sports:** No time. Teenage children

**HPC**

Long history of intermittent LBP. Started when kids were small; aggravated by lifting++.  

Has tried lots of treatments in the past; physio (exercises), acupuncture, osteopathy. Short term relief only.

Feeling quite down about situation.

<table>
<thead>
<tr>
<th>Aggravated</th>
<th>Eased</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work - struggling</td>
<td>Rest, stretching</td>
</tr>
<tr>
<td>Standing</td>
<td>Painkillers</td>
</tr>
</tbody>
</table>
Appendix 2: Exemplar exercises

An extensive range of video clips and photographs such as scapular slides, shoulder rolls, Cat and Camel and progressive ball work can be accessed at http://fis-project.ucoz.co.uk/

Resisted clams encouraging automatic core activation
**Functional automatic activation: abduction shown**
Can use bilateral or alternate Biceps curls, upper limb extension etc.

![Functional automatic activation: abduction shown](image)

**Low squat with ball. Can add overhead arms with Theraband**
Appendix 3: Goal Setting Worksheet

Goal Setting

What is the goal you wish to achieve?

Breakdown of goal/plan? (Use the prompts below)

What are the main steps you need to do to achieve the goal?
How will you know when the goal has been achieved?
What is the time frame for your goal?
Is there any other support you will need to achieve this goal?
Is the goal a SMART goal? (Specific, Measurable, Achievable, Realistic and have a Time Frame)

Review of Goal
## Pacing of activities log

<table>
<thead>
<tr>
<th>Date and Time</th>
<th>Activity</th>
<th>Goal</th>
<th>How did you pace this activity (time spent on activity and rest time)</th>
<th>Any challenges faced</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
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Appendix 4: Pacing worksheet
## Appendix 5: Types of negative thinking

### Unhelpful Thinking Habits

Over the years, we tend to get into unhelpful thinking habits such as those described below. We might favour some over others, and there might be some that seem far too familiar. Once you can identify your unhelpful thinking styles, you can start to notice them – they very often occur just before and during distressing situations. Once you can notice them, then that can help you to challenge or distance yourself from those thoughts, and see the situation in a different and more helpful way.

<table>
<thead>
<tr>
<th>Mental Filter</th>
<th>Judgements</th>
</tr>
</thead>
<tbody>
<tr>
<td>When we notice only what the filter wants or allows us to notice, and we dismiss anything that doesn’t ‘fit’. Like looking through dark blinkers or ‘gloomy specs’, or only catching the negative stuff in our ‘kitchen strainers’ whilst anything more positive or realistic is dismissed.</td>
<td>Making evaluations or judgements about events, ourselves, others, or the world, rather than describing what we actually see and have evidence for.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mind-Reading</th>
<th>Emotional Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assuming we know what others are thinking (usually about us)</td>
<td>I feel bad so it must be bad! I feel anxious, so I must be in danger</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prediction</th>
<th>Mountains and Molehills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Believing we know what’s going to happen in the future</td>
<td>Exaggerating the risk of danger, or the negatives. Minimising the odds of how things are most likely to turn out, or minimising positives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Compare and despair</th>
<th>Catastrophising</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seeing only the good and positive aspects in others, and comparing ourselves negatively against them</td>
<td>Imagining and believing that the worst possible thing will happen</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Critical self</th>
<th>Black and white thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Putting ourselves down, self-criticism, blaming ourselves for events or situations that are not (totally) our responsibility</td>
<td>Believing that something or someone can be only good or bad, right or wrong, rather than anything in-between or ‘shades of grey’</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shoulds and musts</th>
<th>Memories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thinking or saying ‘I should’ (or shouldn’t) and ‘I must’ puts pressure on ourselves, and sets up unrealistic expectations</td>
<td>Current situations and events can trigger upsetting memories, leading us to believe that the danger is here and now, rather than in the past, causing us distress right now</td>
</tr>
</tbody>
</table>
### Appendix: 6 Examples of alternative thoughts

<table>
<thead>
<tr>
<th>Unhelpful Thinking Habit</th>
<th>Alternative more balanced thought</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental Filter</td>
<td>Am I only noticing the bad stuff? Am I filtering out the positives? Am I wearing those ‘gloomy specs’? What would be more realistic?</td>
</tr>
<tr>
<td>Mind-Reading</td>
<td>Am I assuming I know what others are thinking? What’s the evidence? Those are my own thoughts, not theirs. Is there another, more balanced way of looking at it?</td>
</tr>
<tr>
<td>Prediction</td>
<td>Am I thinking that I can predict the future? How likely is it that that might really happen?</td>
</tr>
<tr>
<td>Compare &amp; despair</td>
<td>Am I doing that ‘compare and despair’ thing? What would be a more balanced and helpful way of looking at it?</td>
</tr>
<tr>
<td>Critical self</td>
<td>There I go, that internal bully’s at it again. Would most people who really know me say that about me? Is this something that I am totally responsible for?</td>
</tr>
<tr>
<td>Shoulds and musts</td>
<td>Am I putting more pressure on myself, setting up expectations of myself that are almost impossible? What would be more realistic?</td>
</tr>
<tr>
<td>Judgements</td>
<td>I’m making an evaluation about the situation or person. It’s how I make sense of the world, but that doesn’t mean my judgements are always right or helpful. Is there another perspective?</td>
</tr>
<tr>
<td>Emotional Reasoning</td>
<td>Just because it feels bad, doesn’t necessary mean it is bad. My feelings are just a reaction to my thoughts – and thoughts are just automatic brain reflexes</td>
</tr>
<tr>
<td>Mountains and molehills</td>
<td>Am I exaggerating the risk of danger? Or am I exaggerating the negative and minimising the positives? How would someone else see it? What’s the bigger picture?</td>
</tr>
<tr>
<td>Catastrophising</td>
<td>OK, thinking that the worst possible thing will definitely happen isn’t really helpful right now. What’s most likely to happen?</td>
</tr>
<tr>
<td>Black and white thinking</td>
<td>Things aren’t either totally white or totally black – there are shades of grey. Where is this on the spectrum?</td>
</tr>
<tr>
<td>Memories</td>
<td>This is just a reminder of the past. That was then, and this is now. Even though this memory makes me feel upset, it’s not actually happening again right now.</td>
</tr>
</tbody>
</table>

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