



Information for
patients and
carers

Traumatic Thoracic Injury

What to expect following chest trauma

Introduction

Chest injuries are extremely common following blunt and penetrating trauma. They can vary in severity from minor bruising or an isolated rib fracture to severe crush injuries causing multiple fractures and bleeding which result in pain and breathing problems. Treatment aims to relieve pain allowing you to perform normal tasks while the injury heals.

Injuries to the chest can be very painful. The chest wall moves during breathing and supports posture and changing position. As a rough guide, fractured ribs and sternum take about 4-6 weeks to heal and it is usual to still feel some discomfort after this time. Chest soft tissue injuries can take between 2-4 weeks to heal. Smoking & vaping is best to be avoided as this increases the risk of complications following injury.

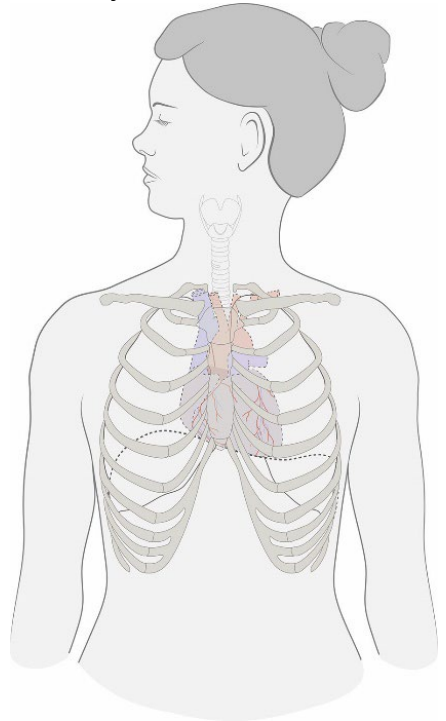
Most chest injuries are treated without requiring an operation, but a chest drain may need to be inserted. Occasionally with severe injuries the ribs may have to be fixed. This requires an operation that is performed under general anaesthetic.

If you follow the advice given to you in this booklet and by the healthcare professionals, you should find your chest injury much easier to understand and manage.

The length of stay in hospital will vary depending on clinical assessment and need. Discharge needs will be considered once injury plans are in place to allow a timely discharge. There will be ongoing dialogue with the whole multidisciplinary team and service users to provide cohesive care and safe discharge.

Types of Thoracic Injuries

- **Rib fracture** is a break in a rib bone. Bruising of the surrounding soft tissue area often occurs with these rib fractures
- **Flail chest** occurs when a segment of the rib cage is separated from the surrounding structures. This is usually defined as at least two fractures on a rib, in at least two ribs
- **Sternal fracture** is a break in the sternum (the breastbone), located in the centre of the chest
- **Myocardial contusion** is bruising of the heart muscle
- **Lung contusion** is bruising of the lung tissue
- **Haemothorax** is a collection of blood between lung and chest wall
- **Pneumothorax** is a collection of air between lung and chest wall
- **Surgical emphysema** is air trapped under the skin. It can cause a bubbly swollen area on the chest wall and may be linked to a pneumothorax
- **Soft tissue injury** is damage to the parts of the chest wall that are not the bones, like the skin, fat and muscles. They can include sprains, strains, bruises, cuts and abrasions. Although they do not involve a fracture, they can still be very painful and make it harder to breathe.



Pain Management

The most important treatment with chest trauma is to have good pain relief. Take regular pain relief, such as paracetamol, so you can deep breathe, cough and mobilise – this will aid your recovery and help prevent complications such as a chest infection. Inform your nurse and doctors if you feel your pain relief is not adequate. Please note that some pain relief may have an addictive effect.

Patient Controlled Analgesia (PCA) is a pump device which will give you a pre-set (fixed) amount of pain relief medication through a small plastic tube (cannula) into a vein, when you press a button. The machine allows you control of providing your own pain-relieving medication. Only you are allowed to press the button, not the nurses or your relatives and visitors. This is because you are the only person who knows when you need the pain-relieving medication. It is important to push the button when you feel uncomfortable and not to wait until the pain has built up. It is a good idea to push the button before doing anything you think may be uncomfortable, for example getting out of bed. As an extra safety feature, the pump is also programmed to ignore any further pushes of the button for a set time (five minutes) after the previous dose of medicine. The lock-out period means that you cannot give yourself more medicine than is necessary.

Lidocaine plasters may offer pain relief at the site of the rib fractures in conjunction with other analgesia. The plaster/s must be applied to dry skin with no cuts or sores. Any hairs over the affected area may be trimmed with scissors (not shaved). Do not apply cream or lotion to the area as the plaster may not stick. If you have had a recent bath or shower, wait until the skin cools prior to sticking the plaster on. Try not to then get the plaster wet. Lidocaine plasters must only be left in place for 12 hours. They must then be removed for a 12-hour break. After this rib fracture pain is usually manageable with other oral painkillers. If you develop skin irritation at the plaster site, it will need to be removed and not reapplied unless the irritation settles.

Local Anaesthetic Nerve Blocks (Epidural, Paravertebral or Fascial Plane Blocks) provide pain relief through an injection of local anaesthetic covering 3-4 ribs. A very small, sterile plastic tube may be inserted to infuse local anaesthetic and help reduce the pain for several days. Anaesthetists perform these blocks in an operating theatre and will explain everything to you including any risks.

Strong painkillers can cause constipation. We advise taking a regular laxative to ensure this does not happen. Your doctor should prescribe this for you.

Early Mobilisation

Depending on your other injuries, you will be expected to get out of bed and mobilise as soon as possible after your injury. This might be with help from the healthcare staff. This is the most effective way to help you take a deep breath and clear any sputum. It is essential your pain relief is adequate to enable you to do this.

Posture

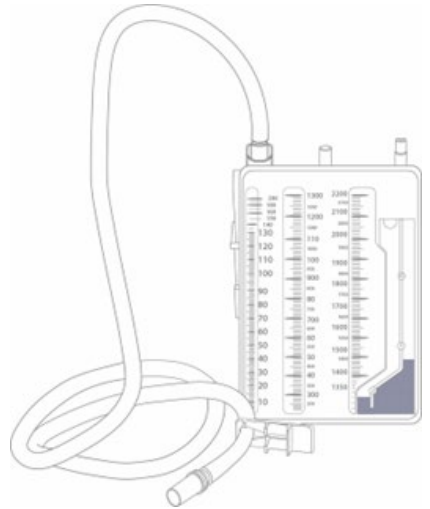
Your spine has three natural curves - at your neck, mid back, and low back. Correct posture should maintain these curves, but not increase them. Your head should be above your shoulders, and the top of your shoulder should be over the hips.

In sitting, avoid crossing your legs, and make sure your feet are on the floor, or if that is not possible, use a footrest. Make sure that your back is fully supported, use a back pillow or other back support if your chair does not have a backrest that can support your lower back's curve. Relax your shoulders; they should not be rounded forward or pulled backwards.

Chest Drain

If you have a pneumothorax or haemothorax you may need to have a chest drain inserted. If this is required, your doctor will discuss it with you and explain the procedure.

A chest drain is a sterile soft plastic tube that is inserted into the space between the lung and the chest wall. It is used to drain air (pneumothorax) or blood (haemothorax).



This drawing is an example of a chest drain.

If you have a chest drain some important things to know are:

- You may see air bubbling out through the drainage bottle or fluid draining. This is expected and will be monitored
- You must keep the drainage bottle below the point the drain enters your chest. It is usually placed on the floor. It is also essential that the bottle is kept upright
- The drain can come out if pulled or twisted so try to be careful when moving. If the drain does come out tell someone straight away

The drain may cause discomfort but is unusual to cause significant pain. If it is painful, do inform your nurse and ask for painkillers.

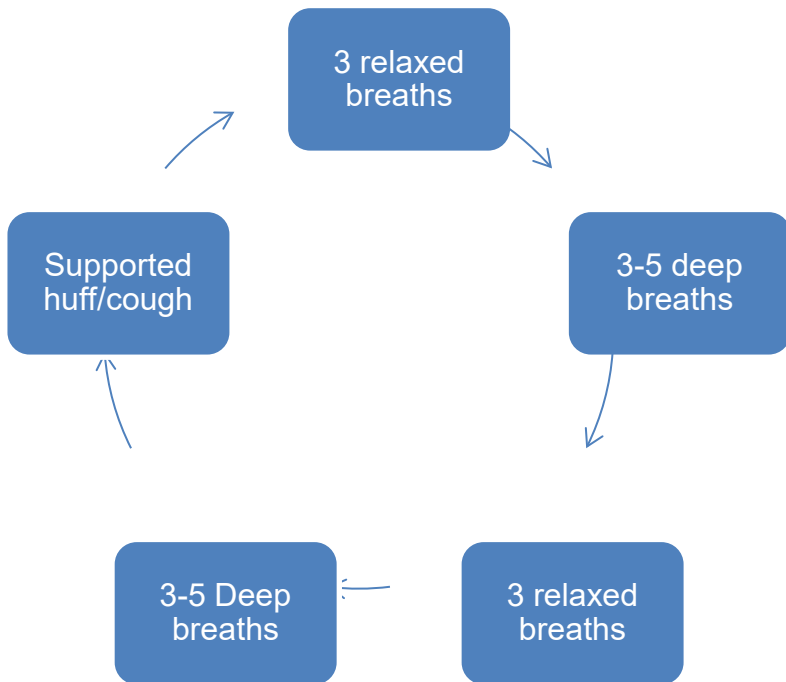
Oxygen Therapy

Depending on your blood oxygen levels, you might have oxygen therapy needs. This will be closely monitored and titrated to your needs as oxygen is a prescribed medication.

Physiotherapy

Active Cycle of Breathing Technique

The following exercise will help you regain your normal breathing pattern so that you can clear any sputum promptly and help prevent a chest infection. In the early days following your trauma it would be advisable to do your breathing exercises every hour during the day whilst awake, for a maximum of 10 repetitions. If you are more mobile, then aim to do your breathing exercises 4 times a day.



- **Relaxed breathing / breathing control** - Start in a comfortable position, ideally sitting upright in the bed or chair with your shoulders relaxed. Breathe in gently and slowly and then out. You should feel your abdomen rise while the top of your chest remains mostly still
- **Deep breaths** - Take a long, slow, deep breath in, ideally through your nose. Hold your breath for 2-3 seconds. Breathe out gently, like a sigh. Repeat this technique for 3-5 breaths

Return to breathing control.

When you are ready to bring the phlegm up, add huffing.

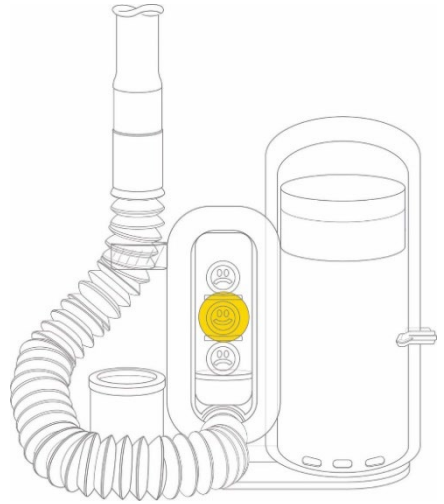
- **Supported huff / cough** – Huffing is a rapid exhalation of air through an open mouth and throat, as if trying to mist up a mirror. It helps to move sputum up the airways from where it can be coughed out. Huffing should be followed by the deep breathing cycle described above. Discomfort may be reduced by using a folded towel or pillow to support your chest while cough or huff

Repeat the cycle as needed. If you feel that you are unable to clear your phlegm effectively, please inform the nursing team or doctors.

If you feel lightheaded during your breathing exercises then stop and reduce the number of breaths you carry out at one time.

Incentive Spirometer

Your physiotherapist might take the decision to give you an incentive spirometer to provide visual feedback on the quality of your deep breath. As you breathe in the yellow ball rises, aim to keep the ball at the smiley face for as long as possible.

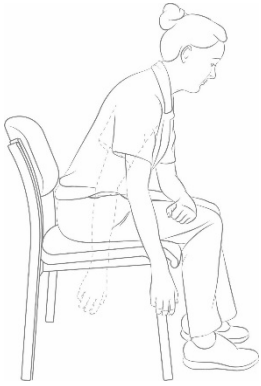


1. Sit upright in a comfortable position.
2. Connect the tubing to the base of the device.
3. Take a breath out.
4. Place the mouthpiece in your mouth and create a good lip seal
5. Take a slow, deep breath in, aiming to maintain the position of the yellow ball at the smiley face.
6. Try and keep the ball elevated at the smiley face for 3 seconds.
7. Slowly breathe out.
8. Repeat up to a maximum of 10 times.
9. Note the number that the white disc reaches. This is then your target level to aim to improve on for future use. The yellow adjustable indicator on the side can be used to help you remember your target.

To clean your incentive spirometer, wash it in warm soapy water every day. Do not place in the dishwasher, boil or bleach. Also, please do not allow family or friends to use your device.

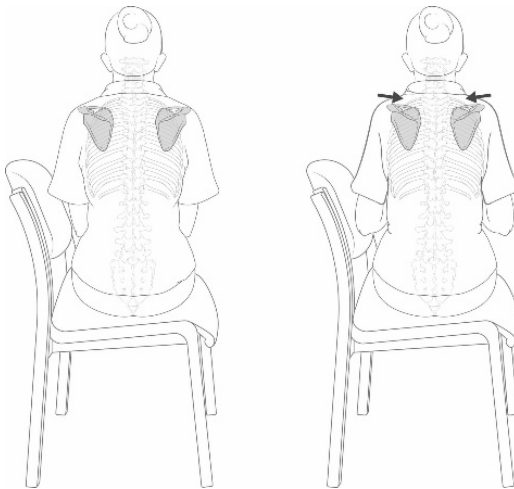
Shoulder Exercises

Following chest injury, it is important to preserve your shoulders movement to avoid problems related to shoulder stiffness later.



Pendular exercise: Gently supporting yourself with one arm, lean forward and allow the other arm to dangle with gravity, relaxing the muscles of the shoulder. Using gentle motion let the arm swing side to side or in small circles, like a pendulum. Try to avoid tension in the arm. Perform this exercise 2-4 times per day, 2-5 minutes each time.

Retraction exercise: In an upright posture, keep your shoulders down and squeeze your shoulder blades together. Aim to squeeze for 5 seconds and then release the contraction for a further 5 seconds. Try to avoid too much tension in and around your neck and shoulders and focus on taking smooth and long breaths throughout this exercise. Perform this exercise 2-4 times per day, 3 sets of 8-15 repetitions.



Occupational Therapy

Pacing

You may find your exercise tolerance is limited due to your injuries. If so, it may be helpful and beneficial to spread or “pace” them out over the day. This would involve taking regular activity breaks and distributing activities that use a lot of energy (such as washing, dressing, cooking and cleaning) evenly throughout the day. Gradually you will be able to increase the amount of time you spend on your activity.

Returning to normal activity

It might be beneficial to avoid strenuous activities and lifting for the first 3 to 4 weeks following your chest injury. After this time, you may take part in gentle physical exercise such as swimming or cycling as your pain allows. You may need to adapt your activity. To avoid any further damage, contact sports such as football or rugby should not be attempted for 6 weeks. Contact your doctor before resuming flying or scuba diving.

Returning to work

If your job involves a lot of manual handling / lifting, it may be necessary to discuss with your employer whether you can do other duties while your injury heals. If you have any concerns about your return to work, consider discussing these with your GP.

Psychology Support

Following a traumatic injury, you may feel or experience emotional reactions, or a feeling of being disconnected emotionally. You may also have flashbacks, vivid images / thoughts and nightmares, all of which might come out of the blue. You may also find you behave differently to avoid reminders of the incident. Whilst these experiences are entirely normal and common, there are things you can do to promote recovery in the early days following a traumatic accident or event. Please speak to the team who can provide you with more advice, or signpost you to the right support, to help you manage these experiences.

What to do once you are discharged from hospital

It is very important to continue taking regular pain relief as prescribed. Once you have been discharged from hospital and if you are not feeling yourself, consider making an appointment to see your GP. Take your hospital discharge summary with you. This summary tells the GP what has happened, tests done and any ongoing plan with your care.

You should seek medical advice immediately from either your GP or emergency department if you have any of the following symptoms:

- Sudden onset of chest pain
- Difficulty breathing
- Shortness of breath
- Uncontrolled pain

Contact details

Major Trauma Clinical Practitioners: 01772 523591 / Bleep 3825 or 01772 528453 / Email: majortraumapractitioners@lthtr.nhs.uk

Hospital Operator Numbers

Royal Preston Hospital: 01772 716565
Chorley and South Ribble Hospital: 01257 261222
Royal Lancaster Infirmary: 01524 65944
Furness General Hospital: 01229 870870
Blackpool Victoria Hospital: 01253 300000
Royal Blackburn Hospital: 01254 263555
Burnley General Hospital: 01282 425071
Major Trauma Network Office: 01772 528497

If you have any issues during your hospital stay, please talk to the staff or contact Patient Advice Liaison Services (PALS): 01772 522972.

Sources of further information

www.lancsteachinghospitals.nhs.uk
www.nhs.uk
www.patient.co.uk
www.accessable.co.uk

All our patient information leaflets are available on our website for patients to access and download:

www.lancsteachinghospitals.nhs.uk/patient-information-leaflets

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Please ask if you would like help in understanding this information. This information can be made available in large print and in other languages.

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