NHS
Southport and Ormskirk Hospital
NHS Trust

PATIENT INFORMATION

Know Your Injury

North West Regional Spinal Injuries Centre

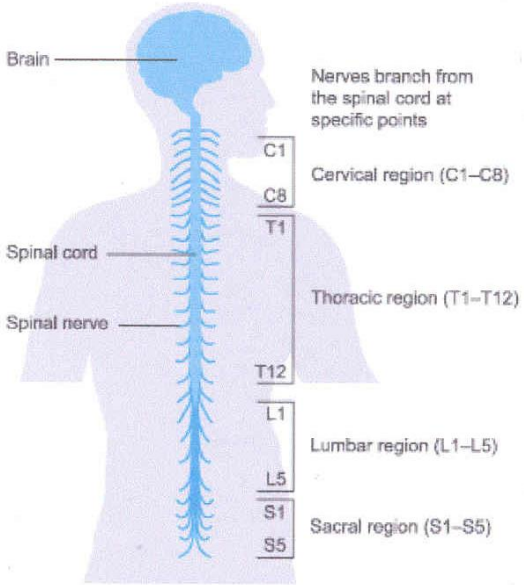
Most of you will have had an accident that has caused damage to the bones in your spine (vertebral column). This could also have damaged your spinal cord, which may cause you to have lost movement or feeling in different parts of your body.

Generally speaking, damage to the spinal cord is immediate and is usually the result of direct physical injury e.g. a car crash, a fall or a diving accident. This is known as a **traumatic lesion.**

This is not always the case though and some of you may have suffered with a tumour or an infection that has affected your spinal cord. This is known as a non-traumatic lesion and can also lead to loss of movement or feeling over a period of time.

WAS DOES YOUR VERTEBRAL COLUMN LOOK LIKE?

Your vertebral column is made up of 33 bones (or vertebrae). These vertebrae are split up into 5 parts: -



- Cervical - has 7 bones and makes up your neck area

- Thoracic - has 12 bones and makes up your chest area and connects to your rib cage
- Lumbar - has 5 bones and makes up your lower back area
- Sacrum - has 5 bones, which are joined together. They make up part of the lower end of your vertebral column and connect to your pelvis
- Coccyx - contains 4 bones, which are also joined together. They make up the tail end of your vertebral column

Your vertebral column has to be strong enough to support the weight of your whole body. It also has to be flexible enough to allow you to bend and twist.

Between each of the bones there are cushions (discs) which act like shock absorbers. The column is held together by bands of thick tissue called ligaments. Your vertebral column also acts as a protective case for your spinal cord

WHAT DOES YOUR SPINAL CORD LOOK LIKE?

Your spinal cord is shaped like a cylinder and is about 2Ocms long starting at your brain and continuing to the middle of your back (around the level a the 1st lumbar vertebra). It lies down the middle of your vertebral column.

Your spinal cord acts like a telephone cable, carrying messages between your brain and parts of your body. It is a two-way communication system, which allows messages of sensation to be sent from your body parts to your brain, and messages concerned with movement to be sent from your brain to your body parts.

Your spinal cord, like your vertebral column is split up into 31 segments (on levels). At each level two spinal nerves (one on each side) branch out of the cord through openings between the vertebrae and go to control the movement and sensation in specific areas of your body e.g. your arms, legs chest muscles, blood vessels etc.

The different sections are: -

- **Cervical segments** - 8 pairs of nerves leave this level and go to supply movement & feeling in your upper body & arms.
- **Thoracic segments** - 12 pairs of nerves leave this level and go to supply movement and feeling in your chest & abdomen area.
- **Lumbar segments** - 5 pairs of nerves leave this level and go to supply movement and feeling in your lower body and legs.
- **Sacral segments** - 5 pairs of nerves leave this level and go to control the function of your bladder, bowel and sexual organs.
- **Coccygeal** segments - 1 pair of nerves leave this level, they have no particular function.

Because your spinal cord is shorter than your vertebral column, the nerve roots leaving from the lower end of the cord have to travel downwards to find an opening between the bones to leave from.

The nerve roots start to look like a horse's tail as they travel as a bunch. This area of the spinal cord is known as the **cauda equina** (this is the Latin translation of 'horse's tail').

WHAT HAPPENS AFTER AN INJURY TO YOUR SPINAL CORD?

When your spinal cord was injured, some or all of the nerves that leave your spinal cord from below the level of your injury will stop receiving messages from your brain.

This will lead to either complete or partial loss of feeling and/or movement in the parts of your body that these nerves would normally have controlled. These nerves will still be able to relay messages from your body into your spinal cord, but these messages will be stopped from reaching your brain where they would normally be translated.

The nerves that leave your spinal cord above the level of the injury will carry on working normally.

Unlike other areas of the body the spinal cord is unable to repair itself once damage has occurred.

Levels of injury are normally grouped into two categories and you will be referred to as suffering from either **tetraplegia** or **paraplegia**. Generally speaking the higher the level of damage to your spinal cord, the greater the extent of loss of feeling and/or movement.

The most common areas for injury are the lower neck and the middle back areas. This is because these are the areas of your vertebral column that allow most movement.

WHAT DOES TETRAPLEGIA MEAN?

This is also known as **quadriplegia** and means that all four of your limbs will be affected. This is caused by damage to your spinal cord in the neck area. Your chest muscles are

also involved because most of the nerves that control movement in your chest leave the cord from below this level, therefore this may affect your ability to breathe and cough normally.

WHAT DOES PARAPLEGIA MEAN?

This means that the damage will only affect your legs, your arms will still be OK. This is caused by damage to your spinal cord anywhere below your neck.

Depending on the level you have damaged, you may lose feeling or movement in your trunk area, which can cause problems with balance.

WHAT IS YOUR 'AUTONOMIC NERVOUS SYSTEM' AND WHAT DOES IT DO?

So far we have talked about the nerves that control your movement and feeling, these make up what is known as your **central nervous system.**

Your body has another system that controls your involuntary functions (the things that happen automatically in your body but are very important in keeping you healthy).

It is known as your **autonomic nervous system** and controls things like your heart rate, blood pressure, body temperature, bladder & bowels etc. Damage to your spinal cord usually affects these, but to what degree depends upon how badly you have damaged the cord. Again, generally speaking the higher and greater the damage, the more it is affected.

WHAT IS THE DIFFERENCE BETWEEN A COMPLETE AND AN INCOMPLETE INJURY?

The extent of your paralysis is usually referred to as complete or incomplete.....

If the injury is **complete** your cord has been totally damaged at a certain level. No messages will be able to get past this level so your brain will lose control over what is happening to your body below the damage.

Therefore, you will lose all feeling and movement below the level of injury.

If the injury is **incomplete** only part of your cord has been damaged at that particular area. This means that some messages may still be able to get past the damaged area to and from your brain and is why some of you may be able to feel your arms or legs but can't move them. Some of you may even be able to walk to some degree.

WHAT TYPE OF PARALYSIS WILL YOU SUFFER FROM?

You will be referred to as having either a reflex or a flaccid paralysis.....

To understand this it is important for you to realise that you have two sets of motor pathways that are involved in controlling your movements. The first set of nerves start in your brain and travel down your spinal cord.

These are known as **upper motor neurones**. The second set of nerves start in your spinal cord and travel out to the

muscles and organs in your body. These are known as **lower motor neurones**.

These pathways carry messages from muscles into and out of your spinal cord. This allows you to have **reflexes** e.g. removing your hand from a hot surface. These pathways enter and leave your spinal cord at every level throughout its whole length. They also link with the upper pathways that travel to your brain. It is because of this link that normally your brain can control the activity in the lower pathways and stop them from becoming hyperactive.

Therefore, if there has been damage to the upper pathways the brain loses its normal control over movements that happen below the level of your cord injury and the movements may become hyperactive or spastic. You will be described as having an **upper motor neurone lesion.**

If there is damage to your lower motor neurone pathways, no messages sent from below the level of damage would be able to reach your spinal cord. This means that no reflex actions can happen and no messages are able to reach your brain. You will be described as having a **lower motor neurone lesion** and will have a flaccid or 'floppy' paralysis.

This is important when discussing what type of bladder/ bowel emptying, muscle tone and sexual functioning (men only) you will have in the future.

WHAT DOES THE LEVEL OF SPINAL CORD DAMAGE MEAN TO YOU?

Your vertebral column and your spinal cord are two different lengths; therefore, although you may have damaged the

bones at one level (e.g. L12) this may correspond to a totally different level of your spinal cord (e.g. S2).

In other words your bony damage **(fracture level)** may not be the same as your spinal cord damage **(neurological level).**

Your neurological level is very important because this will determine exactly how much of your body has been affected and to what extent.

The effect of paralysis will be different in everybody and your paralysis will not be the same as anyone else's. This means that if you have a complete injury at the cord level of C7 you may not be affected in exactly the same way as someone else with a similar cord level injury.

The effect that your injury has on you will also depend upon your age, physical build and your general state of health.

This is why you will be assessed continually while you are in hospital and you will have a rehabilitation programme, which is organised, around your **individual** needs.

If you would like to discuss any issues raised within this leaflet please contact a member of the nursing staff:

Ward Office	(01704) 704346
Spinal Outpatient Department	(01704) 704354

Other sites for information include www.spinalnet.co.uk
Moving Forward Manual. Spinal Injuries Association.

References: Zejdlik, C.P. (1992) Management of Spinal Cord Injury 2nd Edition. Jones & Bartlett, Boston, M. A. Press.

During your contact with us, it is important that you are happy with your care and treatment. Please speak to a member of staff and/or the ward/department Sister/Charge Nurse if you have any questions or concerns.

MATRON

A Matron is also available during the hours of 9.00 to 5.00 pm Monday to Friday. During these periods, ward/department staff can contact Matron to arrange to meet with you. Out of hours, a Senior Nurse can be contacted via the ward/department to deal with any concerns you may have.

INFECTION CONTROL REQUEST

Preventing infections is a crucial part of our patients' care. To ensure that our standards remain high our staff have regular infection prevention and control training and their practice is monitored in the workplace. We ask patients and visitors to assist us in preventing infections by cleaning their hands at regular intervals and informing staff of areas within the hospital that appear soiled.

As a patient there may be times that you are unsure whether a staff member has cleaned their hands; if in doubt please ask the staff member and they will be only too happy to put your mind at ease by cleaning their hands so that you can see them.

SPECIAL INSTRUCTIONS

ANY CONDITION SPECIFIC DANGER SIGNALS TO LOOK OUT FOR:

CONTACT INFORMATION IF YOU ARE WORRIED ABOUT YOUR CONDITION

Your own GP –

OTHER USEFUL TELEPHONE NUMBERS/CONTACTS:

NHS 111
Stop Smoking Helpline (Sefton) - 0300 100 1000
Stop Smoking Helpline (West Lancashire) - 0800 328 6297

Please call 01704 704714 if you need this leaflet in an alternative format

Southport and Ormskirk Hospital NHS Trust

Ormskirk & District General Hospital
Wigan Road, Ormskirk, L39 2AZ
Tel: (01695) 577111

Southport & Formby District General Hospital
Town Lane, Kew, Southport, PR8 6PN
Tel: (01704) 547471

FOR APPOINTMENTS

Telephone (01695) 656680
Email soh-tr.appointments@nhs.net

Please remember to complete the **attached** *Friends and Family Test*.
Alternatively, you can complete the *Friends and Family Test* on-line by going to: southportandormskirk.nhs.uk/FFT
Thank you

Author: Kim Lucey
Ref: 364
Version: 6
Reviewed: February 2018
Next Review: February 2021