



BODY MATTERS

sia spinal
injuries
association
for life after spinal cord injury

PRESSURE CARE

FACTSHEET





Pressure care

Introduction

Why is pressure care important for spinal cord injured people?

Pressure ulcers are among the major complications of spinal cord injury (SCI), but they are almost always preventable.

Before injury, your brain received messages from your limbs, muscles and skin if they were too hot, cold, or feeling uncomfortable. These messages would tell you when your body was in danger because they would alert you to burns, cuts, friction and knocks that had damaged or threatened to damage your body. The messages also made you aware of whether blood was circulating around your body properly. The messages were likely received subconsciously, but you would react instinctively. For example, you would move your hand away from a heat source if you were being burned or adjust your clothing if it was digging into your body and making you uncomfortable.

After a SCI, sensations decrease and blood circulation slows down. As a result, your skin cannot withstand as much pressure as it did before injury or heal itself as well.

If your skin is put under pressure, because of tight clothing, for example, you don't know to relieve it because you can't feel the discomfort it is causing. This causes the skin to strain, and the tissue can die, leaving a pressure mark or open wound.

Everyone's SCI experience is different, and you will find out how much pressure your skin can handle.

Pressure ulcers are more problematic than open wounds. Once you have a pressure ulcer, it needs to heal – and this usually means committing to bed rest for several weeks at home or in hospital.

Knowing what pressure ulcers are, what causes them and how to avoid them is crucial. Meticulously looking after your skin will help, but if you do get a pressure ulcer, it's vital you know how to manage it so that your skin heals and you can get back to everyday life as quickly as possible.

This factsheet offers guidance on looking after your skin and preventing and managing pressure ulcers. Armed with the right information, you will be able to make informed pressure care management choices. The guidance is not intended to replace the expertise and judgment of your doctor or other SCI or wound care specialists.



Your skin

How does it work?

Your skin is a complex, valuable organ that is made up of two main parts:

- The epidermis, which is the smooth outer layer that you can see
- The dermis, which is the thick, strong and elastic underneath layer

Our skin has several important jobs to do:

- It protects your body against air, water, germs and most foreign substances
 - It helps you feel pain, pressure, touch and temperature through its sensory receptors
 - It gets rid of water, salts and oils when you sweat
 - It helps regulate your body temperature by absorbing heat and releasing it through sweating and dilating the surface blood vessels. It can also retain heat by constricting those surface blood vessels
 - It heals itself by repairing minor wounds, such as scratches and bruises
-

Skincare

SCI people are more prone to pressure ulcers than non-SCI people because the skin's ability to do its job has changed.

The changes can include:

- The tissue that is responsible for helping your skin cope with pressure – collagen – becomes less effective, and your skin isn't as resilient as before injury
-

What are pressure ulcers?

Pressure ulcers are sometimes called pressure sores, bedsores or decubitus ulcers. They happen when your skin is put under pressure for extended periods and your blood, which carries oxygen and nutrients around the body, can't get to that area.



What causes pressure ulcers – and how can you avoid them?

Pressure ulcers are categorised into four key stages depending on their severity and age. If you find a pressure ulcer in its early stages, you should always seek advice from healthcare professionals because prompt treatment can avoid the complications that can occur if they are left to develop.

A pressure ulcer begins as a reddened area on the skin, which may feel hard or hot when touched. If you have a dark complexion, the site may be shiny or look like a purplish coloured bruise rather than reddened. At this stage, it is possible to stop the pressure ulcer from developing further by ensuring there is no pressure on this area. You should stop the pressure as soon as possible and continue doing so until your skin returns to its usual colour and state.

Continuing the pressure can lead to a blister, pimple or scab quickly covering the affected area. When the skin becomes hard and red, the tissue underneath is dying. If the pressure ulcer gets to this stage, the pressure must be removed, and you should see a doctor as soon as possible.

“I didn’t realise the potential seriousness of a pressure sore. What started as a red mark turned into a break in the skin and then into a big infectious hole (big enough for your fist to fit in) within a couple of weeks. The healing is then a long, drawn-out process”.

Lezlee Coupe, C4/5/6 complete

“It’s not all doom and gloom. Pressure ulcers are easy to avoid. The difficult part is learning the routines (movement, lifting, turning and inspecting your skin) and sticking to them rigorously, however inconvenient it may be to do so. No two individuals are the same, and you need to learn for yourself what your body can tolerate”.

Kevin Prince, C5/6 complete

The top three risk factors for pressure ulcers are:

- Pressure on the skin
- Damaged skin
- Poor self-care

Risk factor one: Pressure on the skin

Pressure is put on your skin if you sit or lie in the same position for prolonged periods, and this can cause damage.

Bony areas of your body

Bony areas, such as the ischial tuberosities (the sitting bones in your bottom), tend to be the first places where damage occurs from staying seated.

Wasting muscles mean there is less padding, so the bones press against your skin, putting pressure on it from the inside, and there may be pressure against the outer layer too. This cuts off the blood supply.



Sitting or lying against hard surfaces

You can put pressure on your skin by sitting or lying against hard surfaces, such as:

- Safety pins
- Buttons and studs on jeans, trousers and skirts
- Thick, bulky seams
- Objects you've put in your pocket, such as keys or coins
- Catheter connectors
- Catheter clamps

Shearing

Shearing happens when your skin is pulled sideways or in opposite directions, such as when you slip down the bed or if your buttocks are dragged rather than lifted when you're transferring or being transferred onto your bed.

Clothes and equipment

Things digging into your skin can also apply pressure. These could include:

- Tight clothing (especially over catheter tubing)
- Tight socks or shoes
- Worn out or ill-fitting equipment (such as hoists)

Bad posture

Bad posture in a wheelchair or bed puts pressure on your skin and increases the risk of pressure ulcers.

How to avoid pressure on the skin

Changing positions relieves your body of pressure and ensures blood circulates to the skin.

If you already have a pressure ulcer, blood must be able to get to the affected area to give it oxygen and nutrients. This blood circulation also aids healing and carries away waste.

There are different techniques for relieving pressure when in a wheelchair and in bed.

Relieving pressure in bed

Turning schedule

A turning schedule prevents skin from being under pressure and getting red when you are lying in bed. Your turning schedule depends on how much pressure your skin can take and involves turning from your side to your back and then to your other side. You should perform your turning schedule every two to five hours.

The length of time between turns can be gradually increased by adding 20 to 30 minutes to the amount of time you spend in one position and then checking to see if there are any red areas on your skin. Use an alarm

clock to make sure you wake up for position changes during the night. It's your responsibility to either change your position independently or ask your caregiver to do this.

Use a firm (but not hard) mattress to support your body well. A foam pressure-relieving mattress helps spread your weight more evenly.

DO NOT lie in bed with your head raised for lengthy periods; this squeezes the skin over the lower end of your spine and can lead to pressure ulcers.

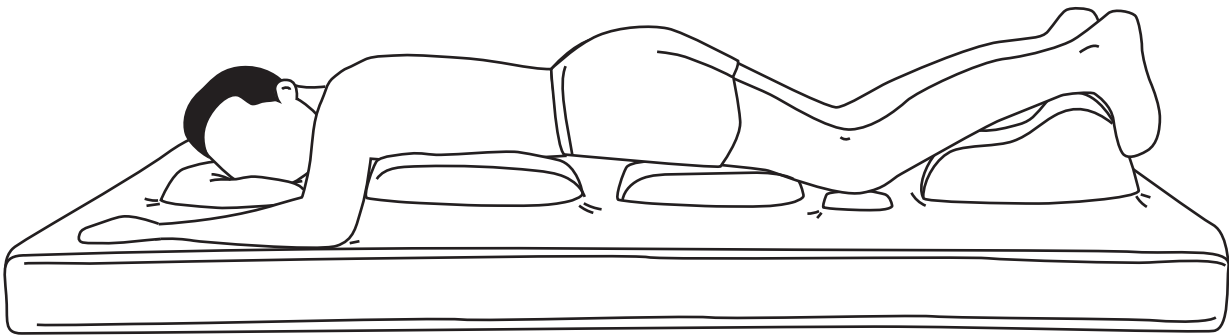


Using padding

Here are a few tips to ensure that your skin is not put under pressure if you lie on your front, side or back.

Lying on your front

You can safely lie on your front for up to eight hours by using plump, firm pillows and small foam pads, as this diagram illustrates.



Positioning the padding

Head

Put a small foam support under your head. The size of the foam will depend on what you find comfortable. Make sure you cover the foam support with a material that doesn't irritate your skin.

Chest

Use one or more pillows, depending on what you find comfortable.

Thighs

Put foam pads under your knees to stop your skin from going red.

Shins

Put pillows or pads under your shins to raise your feet high enough to avoid pressure on your toes. This reduces the risk of ingrown toenails. You could also let your toes hang off the bottom of your bed. Your feet need to be at right angles to your legs (see above diagram).

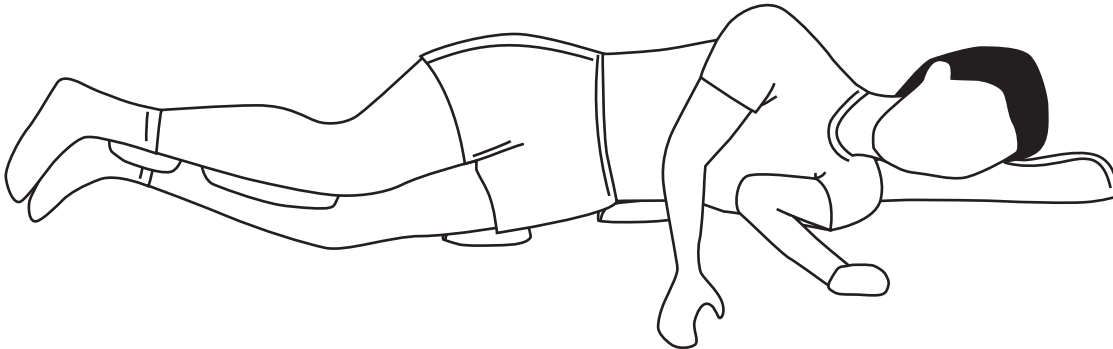
Between the knees

Put pads between your knees to prevent your knees and ankles from rubbing against each other.

DO NOT use folded towels or blankets instead of foam padding or pillows – they can be too firm and cause your skin to break



Lying on your side



Positioning the padding

Head

Put a small foam support under your head. The size of the foam will depend on what you find comfortable. Cover the foam support with a material that doesn't irritate your skin.

Back

Have a support behind your back to make sure you stay on your side and that your bottom hip is pulled back so you don't roll backwards onto your tailbone.

Hips

Put a pad above and below your hip joint. To ensure the pads are in the right place, you should be able to slide a flat hand between your body and the bed. If your skin is still under pressure, you can add an extra pad.

Ankle

Put a pad between your ankle joints to stop them from rubbing together.

Between the lower legs

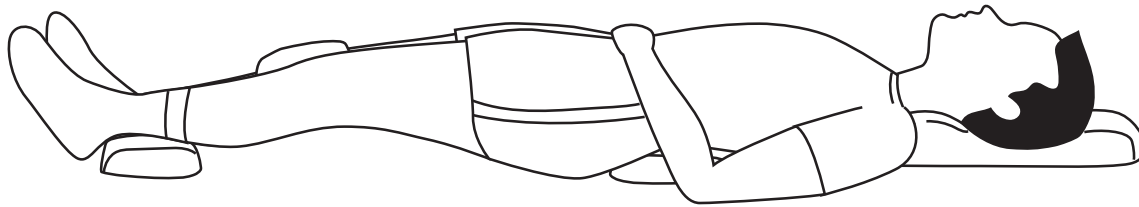
Put a pillow lengthways between your legs to make sure that there isn't any pressure on your knees or ankles.

DO NOT have your legs directly on top of each other



Lying on your back

Put a pad between your legs.



Positioning the padding

Head

Put a small foam support under your head. The size of the foam will depend on what you find comfortable. Cover the foam support with a material that doesn't irritate your skin.

Back

Put a pad under the lower part of your back to raise your tailbone and prevent pressure here.

Knees

The knees have a natural curve when you're lying on your back.

Ankles

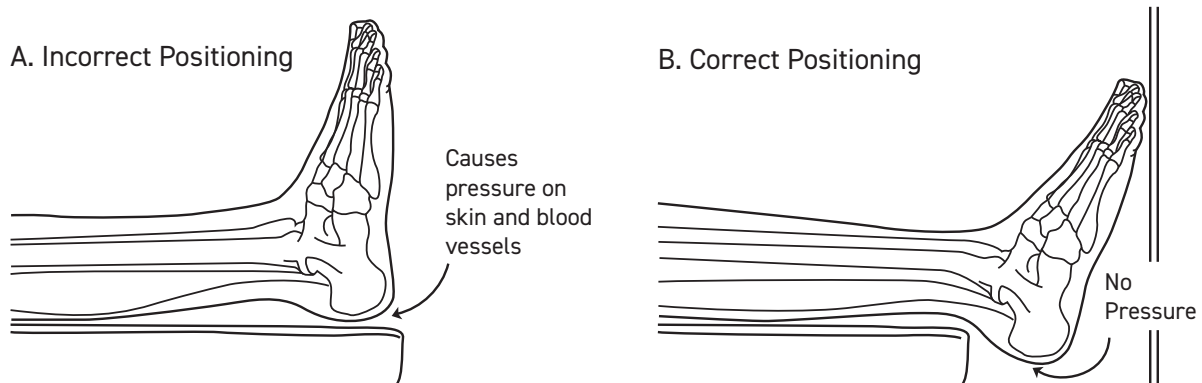
Put a small pad at the back of your heels to prevent tension in your calves, and make sure your heels are off the bed, so there isn't pressure on your skin here.

Feet

Make sure your feet are in position B shown in this diagram. This prevents putting pressure on them. If your foot rests against the end of the bed, add soft padding for your feet to rest against.

Between lower legs

Put a pad or pillow between your knees to ensure there isn't any pressure on your knees or ankles.





Relieving pressure in a wheelchair

Weight shifts

Weight shifts are essential to prevent pressure ulcers on your tailbone and hip joints. These can be performed in several ways, so use the best method for you and your caregiver. You'll be able to work out how much pressure your skin can take, and it's important to know the degree of pressure your skin is always under.

You'll typically need 20 seconds of weight relief from your wheelchair seat every 20 minutes. After 20 seconds of weight relief, you can gently restore your body weight onto your buttocks. You don't always have to do a direct push-up from your wheelchair. Leaning forward or from side to side can relieve pressure effectively if done correctly.

Make sure you sit up straight in your wheelchair and avoid slumping or slouching because this can quickly cause damage to the skin over your tailbone.



Follow this diagram to ensure you're leaning from side to side correctly.

Cushions

Wheelchair cushions are essential. They provide pressure relief and help evenly spread your weight on the seat.

There are many types of cushions, and there isn't one ideal design to suit everyone. Your wheelchair service should be able to assess you and recommend the one that's right for you.

Follow these practical guidelines for using wheelchair cushions:

If using an air cushion, check it's filled correctly and remember, when travelling by air, you're at a different altitude from on the ground, so the air inside your cushion will change

If your body weight changes, you might need to adjust the width of your chair, how often you perform weight shifts and the type of cushion you use

DO

Make sure you use the right cushion and continue to perform weight shifts. A cushion alone won't stop pressure ulcers

Adjust the footplates of your wheelchair to the correct height and angle (having them too high puts pressure on your hips and sacrum; too low will put pressure on the thighs)

DO NOT

Store keys or other items under the wheelchair cushion. It is safer to carry belongings in a bag, which can be conveniently hung below or behind the seat



Risk factor two: Damaged skin

If your skin's already damaged, it's more likely to develop a pressure ulcer because it's weakened. Bruises, grazes, cuts, septic spots, blisters and burns make your skin vulnerable.

Friction

If your skin rubs against a hard or rough surface, your skin can break down and become damaged.

Wetness

Your skin sheds layers when exposed to moisture for a long time, making it thinner, weaker, unable to withstand pressure and prone to damage. It's vital to ensure your skin doesn't stay damp, either from sweat, urine, faeces or moisture underneath plasters and dressings. Faeces and urine can also cause skin infections and prolong the healing process.

How to avoid damaged skin

Inspect your skin

It may sound simple, but the best way to avoid pressure ulcers is by taking good care of your skin. The first step in doing this is inspecting your skin regularly. Doing so enables you to spot a problem or potential problem before a pressure ulcer has the chance to develop.

Never ignore warning signs that your skin isn't as it should be. If you can't inspect your skin yourself, train someone to help you. It's important to feel confident asking others to be thorough during skin inspections – not doing so could put your health on the line.

How to inspect your skin

How often?

- Make inspecting your skin a regular routine
- Inspect twice daily – in the morning when you're dressing and evening when you're undressing is best
- Check more often when you increase your sitting or lying times and whenever you change position or get a new cushion or mattress
- If you've got particularly problematic areas, check these more regularly

What should I look for?

- Look for reddened areas, blisters, flaky skin, cracks, swelling, bruises, septic spots, calluses and wrinkles
- Check for indentations from seams or elastic binding
- You might need to rely on the feel rather than the look of your skin if you have a dark complexion
- Look for hard or jelly-like lumps over bony parts of your body
- Use the back of your hands or tips of your fingers to feel if there's an increase in your skin's temperature
- Watch for areas that have been broken in the past – scar tissue breaks easily
- Check for pus forming or redness around your fingernails and toenails

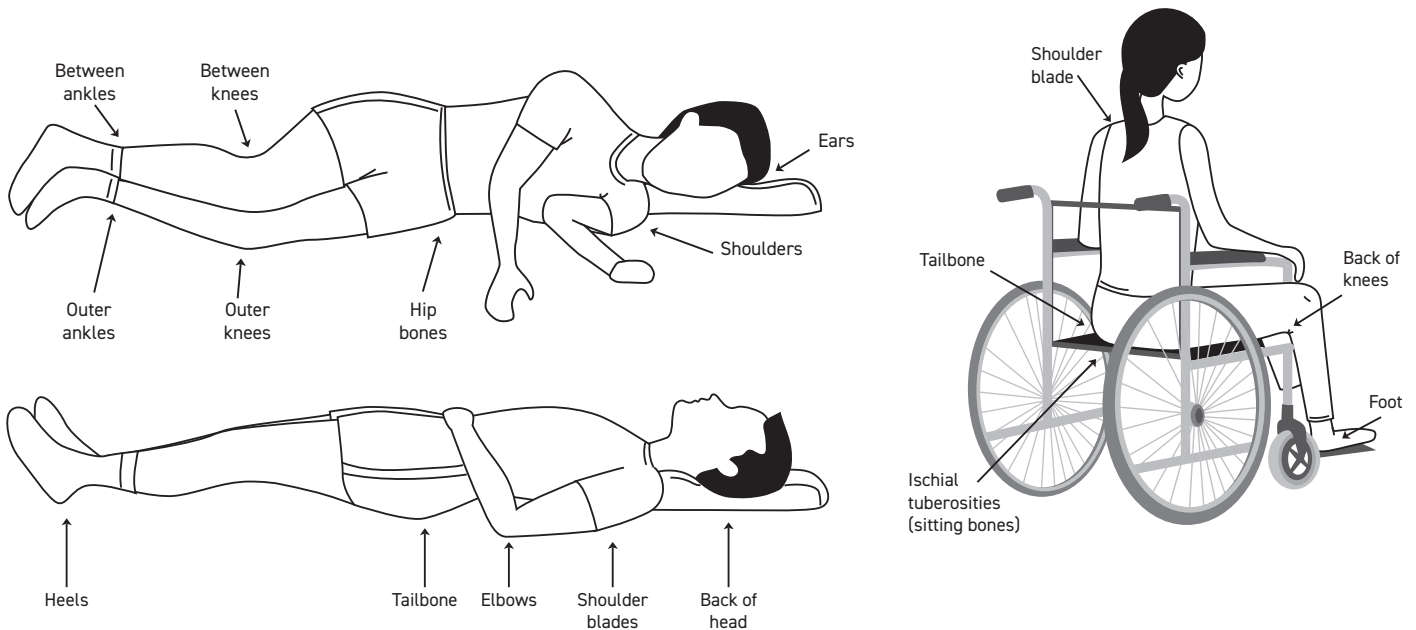


What equipment do I need?

- Long-handled and other specially designed mirrors can help – position one mirror at your head and the other at the area you are inspecting

Where should I check?

Follow this diagram to ensure you're paying attention to the areas you need to inspect:



Also, check your groin for rashes and sore areas that might be caused by tight clothing. If you're a man who uses a condom or sheath for bladder management, check your groin carefully for sore areas and irritations.

Other bodily warning signs to look for

- Increased spasm
- Raised temperature

Signs of an infected pressure ulcer

- Thick yellow or green pus or discharge
- An unpleasant smell coming from the wound
- Redness or warmth around the wound
- Swelling or tenderness around the wound

Signs that the infection may have spread

- Experiencing fever or chills
- Feeling confused or finding it hard to concentrate
- A rapid heartbeat
- Feeling weak

“The pressure sore on my bottom was caused by reversing a cushion I was using. It is difficult to check everything, and carers become tired of you repeating the need to check, yet this mistake caused a problem within three days that took a year to cure. A sore under the ball of my left foot also refuses to heal after nearly three years, but that does not stop me from being active. The moral must surely be that awareness at all times is vital, and do not ignore any warning signs that all is not well”.

Colin Gurteen, C6/7 complete



Looking after your skin

Follow these guidelines to keep your skin healthy and protect it from damage:

- Keep your skin clean and dry. Make sure your skin is dry after having a bath or shower, but don't rub it too hard with a towel as this can cause damage
- Don't massage alcohol into your skin – it dries it out and makes it more likely to bruise
- Keep your skin well moisturised
- If you wear support socks, ensure they are the right size for you and put them on evenly to prevent them from wrinkling and putting extra pressure on your skin
- Wear warm footwear and gloves in cold weather to avoid frostbite
- Always wear shoes in the car, so your feet don't get burned by the heater
- Keep your car's heating system in good working condition
- Wrap exposed pipes under sinks with insulating material to prevent burns when you use the sink in your wheelchair
- Ensure bath and shower water is not too hot – always test the temperature before getting in or get someone else to do it for you
- Don't carry cups or hot liquids on your lap or between your legs
- If you smoke, be careful not to get burned by cigarette ash, and never put an ashtray on your lap
- Keep your feet healthy by soaking them in warm water and removing dead skin from your heel with a pumice stone or gentle brush. Ensure that your toenails are cut straight across, and speak to a healthcare professional if you notice swelling, redness, hot skin or discharge around your toenails



Risk factor three: Poor self-care

Taking good care of your general health can help prevent pressure sores. Pay particular attention to these areas of self-care:

Exercise

Regular exercise helps keep your body healthy.

Eating well

A balanced, nutritious diet ensures your skin gets the vitamins and nutrients it needs. This keeps the skin in good condition and helps the healing process if your skin does get damaged. Stay hydrated, drinking about 2 litres of fluids daily, including plenty of water.

Don't smoke

The nicotine in cigarettes constricts your blood vessels and stops nutrients and oxygen from flowing through your body, organs and tissues. Smoking can lead to vascular disease, a narrowing of the blood vessels. It can also cause high blood pressure and high cholesterol. Eventually, the blood supply to your skin will decrease, limiting its ability to heal when it gets damaged.

Weight management

Being overweight increases the pressure on the bony parts of your body and may mean it takes longer for wounds to heal. This is because there are fewer blood vessels in fat tissue. Being underweight can also put more pressure on the bony parts of your body because there's less padding (muscle and fat). An underweight person might also be undernourished and not getting the vitamins and minerals our bodies need, making it more difficult to keep skin healthy.

Neglect

If you are experiencing mental health problems or problematic drug or alcohol use, you may not be taking proper care of yourself.

This can be a problem for SCI people because neglect can lead to serious health complications.



What happens when you get a pressure ulcer?

Diagnosing pressure ulcers

Pressure ulcers can be easy to recognise, but your doctor might suggest that you have some tests, such as a:

Blood test

A blood test will determine if your body lacks specific vitamins and nutrients.

Urine analysis and culture

Doctors look at urine samples for several reasons, but they're especially useful if you have any underlying urinary problems. The test helps to see if you have a kidney or urinary tract infection, which are common for SCI people.

Biopsy

If your pressure ulcer is at the category-four stage or your wound isn't healing even with intensive treatment, a doctor may remove and test a small tissue sample from the area. This is then analysed to find out what bacteria is present. The skin tissue may also be screened for cancer, which can be a risk faced by people who have had wounds for a long time.

Treating pressure ulcers

Treating pressure ulcers usually takes a multidisciplinary approach. This means you'll be treated by various healthcare professionals holistically. They'll focus on taking care of the wound and providing additional support to maximise healing. There are two types of treatment: conservative treatment and surgical intervention. Most category one and two pressure ulcers will heal with conservative treatment, even though it might take some time. But pressure ulcers in categories three and four may need surgery to help the healing process.

Conservative treatment

The first thing you need to do is relieve the pressure on your skin that caused the pressure ulcer. Do this by:

- **Performing your turning schedule**
 - **Using support surfaces** - special cushions, pads, mattresses and beds that relieve pressure on existing pressure ulcers are available. They can also help stop vulnerable skin areas from further damage. It's important to find the support surface that suits you best, depending on how mobile you are, your body type and the severity of your pressure ulcer
-



Maintain good hygiene

DO

Ensure your wound is kept clean to stop infection

Manage incontinence to allow your skin to heal properly. Urine and faeces on your skin will mean the wound takes longer to heal, and it could get infected

DO NOT

Use antiseptics such as iodine and hydrogen peroxide because they will damage the sensitive skin tissue and prolong the healing process

Dressings

The type of dressing used on your wound will depend on the stage it's at and the severity. Dressings help protect wounds from getting infected and speed up the healing process.

Food and nutrition

It's vitally important that you eat foods with enough protein, vitamins and minerals, especially vitamin C and zinc, which help healing.

Muscle spasm relief

This reduces the risk of pressure ulcers developing in the first place, but it can also help treat them if they do develop. Your doctor might suggest taking skeletal muscle relaxants, which help block the nerve reflexes in your spine or in the muscle cells themselves.

Surgical intervention

When conservative treatment doesn't heal pressure ulcers, your healthcare professionals might suggest surgical intervention. This can range from minor to extensive surgery, depending on the severity of your pressure ulcer.

Minor surgery usually means debridement, which involves removing damaged, dead or infected skin tissue from the pressure ulcer wound. This is a quick and effective procedure.

Other approaches include autolytic debridement, using the body's enzymes to break down tissue, or enzymatic debridement, which involves putting debriding enzymes on the skin to break down tissue.

Potential complications

Even the most thorough care doesn't always stop pressure ulcers leading to potentially fatal infections. Such infections can quickly spread into muscle and bone.

Some of the most serious pressure ulcer complications are given in the table in appendix 1.

Never ignore the warning signs of a pressure ulcer – act as soon as you notice them. Get healthcare professionals involved as quickly as possible so that they can work with you to stop the pressure ulcer from developing further and help it heal.



Ageing and skin changes

Skin is a living organ that gets older as we age, becoming thinner, more wrinkled and less elastic. Older skin can't resist pressure or shearing as well as younger skin, causing the loss of more layers. The level of collagen in the dermis layer of your skin also changes, reducing the skin's strength. Your diet may change, too, causing blood circulation to become more sluggish as you get older.

These changes combined with pressure on the skin make pressure ulcers more likely. Skin can't cope with sitting and turning as well as it used to, so pressure ulcers might develop in areas where there never used to be problems. And people who have never experienced skin problems could find that they are more prone to developing pressure ulcers.

Factors that increase the likelihood of pressure ulcers in older SCI people include:

- Poor care at home and poor advice from caregivers
- Equipment that doesn't provide adequate pressure relief, such as poor seating systems, cushions or mattresses

Try to avoid skin problems by:

- Living an active and healthy lifestyle with regular exercise
- Eating a healthy, balanced diet and getting all the protein, minerals and vitamins you need, including vitamins A and E, zinc and calcium
- Following a pressure relief regime that meets your individual needs
- Having appropriate pressure relieving equipment

Appendix 1 – Complications

| Complication | More information |
|-----------------------------------|--|
| Bone and joint infections | As pressure ulcers worsen, the infection can go deep into the joints and bone tissue. Joint infections are known as septic arthritis and can damage cartilage and joint tissue in days. Bone infections are known as osteomyelitis and can stay in bone tissue for years if left untreated. This can lead to the tissue dying and stop your joints, and possibly your limbs, from working. |
| Cellulitis | This means that your skin's connective tissue is inflamed. Symptoms include pain, redness and swelling, which can become severe. Cellulitis can develop into other potentially fatal diseases such as sepsis and meningitis. |
| Gas gangrene (myonecrosis) | This is a rare and severe form of gangrene, which develops suddenly and spreads so quickly that you can see changes in your skin tissue in minutes. The skin turns pale at first, then dark red or purple. The affected area will be swollen and painful. Blisters filled with brown-red fluid are a sign of gas gangrene. The bacterium that causes this disease is called Clostridium and by producing toxins, it can destroy affected muscle tissue, with potentially fatal consequences. |



Appendix 1 – Complications (continued)

| Complication | More information |
|------------------------------|---|
| Necrotising fasciitis | <p>This is commonly known as the flesh-eating disease. It is a deadly infection that can be fatal in as little as 12 to 24 hours. The infection spreads rapidly and destroys layers of tissue that surround your muscles.</p> <p>As well as tissue decay, the bacteria can make you go into systemic shock. This could mean respiratory, heart and kidney failure and low blood pressure. The severe infection and the increased toxins in your body can cause every bodily system to fail.</p> |
| Sepsis | <p>Sepsis is among the biggest dangers of advanced-stage pressure ulcers. It spreads quickly, can cause shock and organ failure and lead to death. Sepsis occurs when bacteria from a massive infection enters the bloodstream and spreads throughout the body.</p> |
| Autonomic dysreflexia | <p>Autonomic dysreflexia (AD) happens when the blood pressure rises rapidly. It's incredibly uncomfortable with a severe pounding headache, a lot of sweating and increased spasms. The condition can lead to stroke or death.</p> <p>When you have pressure sores, changing the dressing or cleaning the ulcers can set off AD.</p> |

Appendix 2 – Where can I get more information?

The Society of Tissue Viability

e: support@societyoftissueviability.org

w: Societyoftissueviability.org

The Society of Tissue Viability is concerned with the development of good practice in managing all types of wounds, particularly chronic wounds like pressure ulcers and leg ulcers. It does this by:

- Maintaining a multidisciplinary network of healthcare professionals to share and send out information
- Providing education through conferences and study days
- Publishing the quarterly Journal of Tissue Viability
- Providing a range of information booklets for the public and professionals

For more information, contact us at:

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2 Trueman Place, Milton Keynes, MK19 6HY

0800 980 0501 (freephone support line open Mon-Fri 10.00am-4.30pm)
sia@spinal.co.uk



About SIA

Spinal Injuries Association (SIA) is the leading national charity for anyone affected by spinal cord injury. We have specialist support available, for free, to support you through the mental and physical challenges you may face, both now and for the rest of your life.

Our support network is coordinated by a team of people, across the UK, who can put you in touch with our network of experts and trusted partners, covering all aspects of mind, body and life, to help you move forward with life. Our partners specialise in services such as legal, care, housing, finance, mental health and much more.

We are the voice of spinal cord injured people, through our expertise and we can connect you to the services and organisations you need through our network for all.

You can join the SIA community by signing up for free online at www.spinal.co.uk.

Disclaimer

This factsheet has been prepared by SIA and contains general advice that we hope will be useful. Nothing in this factsheet should be construed as giving specific advice, and it should not be relied on as a basis for any decision or action. SIA does not accept any liability arising from its use. We aim to ensure the information is as up-to-date and accurate as possible, but please be warned that certain areas are subject to change from time to time. Please note that the inclusion of named agencies, companies, products, services or publications in this factsheet does not constitute a recommendation or endorsement.

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