

## PRESSURE ULCER/INJURY RECURRENCE

### Medical devices and equipment: Information for individuals with a spinal cord injury



#### Wheelchair

A wheelchair is the most important mobility device for a person with a spinal cord injury (SCI).

A well-managed wheelchair adaptation process is crucial, as poor adaptation can contribute to the development of pressure ulcers (PUs). During the rehabilitation phase, individuals with spinal cord injuries (SCIs) are assessed by a team of specialised healthcare professionals - including physiatrists, physical therapists, rehabilitation nurses, and occupational therapists - who work collaboratively to select the most appropriate wheelchair model for each person's needs.

Factors that influence the selection of a wheelchair include:

- Body weight and body shape;
- Posture adopted when seated;
- Ability of a person to move independently;
- Ability to reposition and undertake movements to alleviate pressure;
- Daily activities/routine of a person;
- A person's preferences.

As an individual with an SCI, you must learn how to check potential problematic areas on the wheelchair to avoid future problems. Regular maintenance checks for your wheelchair include:

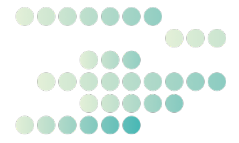
1. Good condition of the tyres;
2. Good condition of the brakes;
3. Footrest;
4. Lateral areas that could contact with the leg;
5. Backrest;
6. All area of the seating zone.



With these simple checks you can prevent potential harm such as pressure ulcers or other injuries!

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### Transfer aids/lifters

There are some devices, like transfer aids and lifters, which can be used to help you move between the bed and the wheelchair, as well as for other transfers like to a bath chair. The major risk with using them is the possibility of causing small, superficial wounds without noticing, which can later develop into a pressure ulcer.

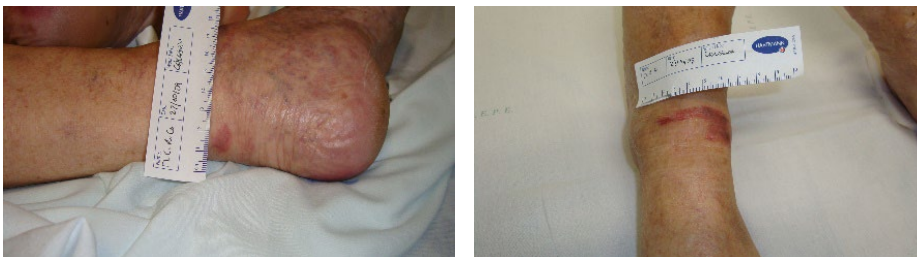
After any transfer, your skin should be inspected - If you notice any skin loss, extreme redness, a purple or maroon (light skin tones) discolouration, or any darker areas (dark skin tone), you should protect that area, avoid putting extra pressure on it, and contact your healthcare provider for an urgent assessment.

### Compression stockings

Compression stockings are used to reduce swelling in the legs.

When putting on compression stockings, make sure there are no wrinkles that could cause pressure damage to the skin.

After taking the stockings off, inspect your skin for any changes. Look for non-blanchable erythema (persistent redness), purple or maroon areas, discolouration or blisters. If possible, gently touch the skin to check if it feels warm, damp, firm, or soft, if not possible ask someone do it and describe to you. If you find any of these, protect the area, avoid extra pressure on it, and contact your healthcare provider for an urgent assessment.



**Figure 1. Examples of skin lesions caused by compression stockings.**

Photos: Paulo Alexandre Silva Ramos.

### Urinary catheter / external urinary collector

When catheters, external urinary collectors, or urine collection pouches are attached to the skin, they can cause damage to the skin.

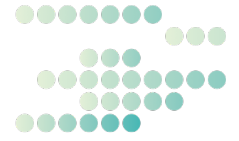
In any areas that come into contact with these medical devices, you should check for skin changes such as non-blanchable erythema (persistent redness), a purple or maroon area, discolouration or darker areas (in darker skin tones), and blisters.

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If you find any of these issues, you should protect the affected zone, avoid extra pressure on it, and reposition the medical device. The skin or lesion must then be assessed by a healthcare provider.



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**Figure 2. Consequence of pressure on the ankle due to the fixation of a urinary pouch.**

Photo: Paulo Alexandre Silva Ramos.

### Bowel management

Irrigation (washing out) of the bowel may be needed to avoid faecal incontinence. To do this procedure you will need to be seated on the toilet for long periods, this can lead to increased pressure in the buttocks area. Also, the use of the irrigator can cause skin injury.

To avoid an injury:

Check the position of the irrigation tube – avoid being seated over the device.

Use a special support surface, on the toilet or bathchair to avoid pressure. The support surface should be advised by healthcare team. It could be from various materials like air, special foams or gels. Always use accordingly with the manufacture instructions.

After the procedure check the skin – if you notice any skin changes, like non-blanching erythema/persistent redness, purple/marron area, discolouration or darker areas (dark skin tones) and blisters - protect the zone, avoid extra pressure, and the skin/lesion must be evaluated by a healthcare provider.

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**Figure 2. Damage from pressure which was caused by a malfunction of the air support surface, when the patient was doing a bowel irrigation.** Photo: Paulo Alexandre Silva Ramos.

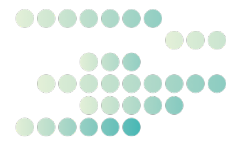
### Orthopaedic devices/respiratory devices

Every device in tight contact with the skin has the potential to cause damage to the skin. This is due to the pressure, friction, heat and moist environment in the area where the device is in contact with the skin. In areas where there is reduced sensation i.e. not being able to feel an area the risk of damage increases because you will not feel discomfort or pain.

Therefore, it is important to check the skin in contact with the medical device at least daily – if you notice any skin changes, like non-blanching erythema/ persistence redness, purple/maroon area, discolouration or darker areas (dark skin tones) and blisters - protect the zone, avoid extra pressure and the skin/lesion must be evaluated by a healthcare provider.

If possible and not medically contraindicated, remove the device, cleanse the skin with a mild skin cleanser, moisturise, if needed. Also see the skin care for patients and caregivers.

If indicated by a healthcare provider use specific dressings to help in the management of the pressure, friction and the skin environment (temperature and moisture) —seek advice from your healthcare provider.



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**Figure 3. Example of skin damage induced by an orthopaedic device which has caused pressure.** Photo: Paulo Alexandre Silva Ramos.

### Clothing

Ideally clothing should be made from flexible or stretchable materials, as well as breathable to minimise heat and moisture build-up. Shoes are also an issue. It is recommended to go one or two sizes up after an SCI.

Avoid materials such as jeans or any trousers that contain seams and studs around the pelvic region.

It is vital to ensure there are no rigid materials that are crumpled or folded underneath the person sitting. When this happens, the rigid material presses and injures the skin, eliminating the protective effect of the cushion or mattress.

### Shoes

Ensure shoes are not too tight or too loose. Consider getting shoes one to two sizes larger than normal due to potential foot swelling, especially if you cannot move your feet much or use a brace. Look for brands with adaptive features like zip closures, Velcro straps, or hands-free designs. This is especially helpful for those with limited mobility or fine motor difficulties.

### Resources for further reading

- Chhabra HS. ISCoS textbook on comprehensive management of spinal cord injuries. New Delhi: Wolters Kluwer India Pvt Ltd; 2015.
- Consortium for Spinal Cord Medicine. Pressure ulcer prevention and treatment following spinal cord injury: a clinical practice guideline for health-care professionals. 2nd ed. Washington (DC): Consortium for Spinal Cord Medicine; 2014.
- Houghton PE, Campbell K. Canadian best practice guidelines for the prevention and management of pressure ulcers in people with spinal cord

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injury: a resource handbook for clinicians. Toronto: Ontario Neurotrauma Foundation; 2013.

