



Government of **Western Australia**  
Department of **Health**

# Ageing with Spinal Cord Injury

**A Resource for Health Service Providers**

**WA State Spinal Injury Unit**

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*This document has been developed to provide health service providers with a sound understanding of the impact ageing with a spinal cord injury (SCI).*

## **Key points**

- Ageing impacts on bodily systems in those without SCI. This impact may vary in individuals with SCI and must be considered in management.
- The primary cause of death in the general population is heart disease, cancer and stroke. For people with SCI it is respiratory disease, disease of the urinary system and heart disease respectively

## Ageing

How people age is affected by a combination of genetic, behavioral and environmental factors. It is important to understand that for people with SCI, the duration of time they have lived with the injury is as important as their chronological age in determining when and how signs and symptoms of ageing present.

Ageing in the general population affects many different body systems. These effects are not exempt following SCI and will continue. For example

- Gastrointestinal – e.g. decreased motility
- Genitourinary - e.g. increased risk of UTI
- Musculoskeletal - e.g. arthritic changes
- Integumentary - e.g. thinning epidermis
- Respiratory - e.g. decreased Vital Capacity
- Cardiovascular - e.g. ischemic heart disease
- Immune system - e.g. increased infection risk

## How does ageing differ for people with SCI?

The primary cause of death in the general population is heart disease, cancer and stroke. For people with SCI it is respiratory disease, disease of the urinary system and heart disease respectively <sup>1</sup>.

Following SCI people may experience both additional effects of ageing or in many cases the earlier presentation of normal effects of ageing.

Many biological systems can have an increased vulnerability to the ageing process. For example

- Overuse of certain joints or muscle groups, particularly in the shoulder, as they may be more heavily used than in the general population for propelling wheelchairs or transferring
- Increased risk of osteoporosis resulting from underuse or lack of weight bearing and muscle pull reducing calcium stores within bones
- Reduced movement resulting in a sedentary lifestyle and an increase in associated risks.

## What issues of ageing should I monitor for people with SCI?

System	Ageing with SCI	Recommendations
<b>Gastrointestinal</b> <sup>1,5,9</sup> See Bowel Management section for more information	<ul style="list-style-type: none"> <li>• Gallstones in SCI population is 7x more prevalent</li> <li>• Increases risk colorectal cancer due to use of laxatives</li> <li>• Worsening Constipation</li> </ul>	<ul style="list-style-type: none"> <li>• Occult blood tests may not accurate in SCI individuals therefore colorectal screening is the investigation of choice. People may need hospital admission for bowel preparation</li> <li>• Changing care needs with ageing may make bowel management more difficult</li> </ul>
<b>Bladder</b> <sup>1,5,9</sup> See Neurogenic Bladder Management section for more information	<ul style="list-style-type: none"> <li>• Increased risk of urethral stricture disease, urinary tract infections (UTI), hydronephrosis and upper tract deterioration.</li> <li>• Reduced bladder compliance with age is increased in SCI population</li> <li>• Increased resistance to antibiotics due to overuse</li> <li>• Increased risk of bladder cancer with long term use of indwelling catheter</li> <li>• No increased risk of prostate cancer in males with SCI</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage attendance of Urology appointments for routine upper tract surveillance with renal ultrasound annually</li> <li>• Encourage screening the bladder for cancer in people with long term indwelling catheters</li> <li>• Reduced level of independence with ageing may require changes in bladder management e.g. difficulty with self intermittent catheterisation leading to increased frequency of UTIs</li> <li>• Monitoring of PSA in males with SCI is recommended as per general population screening however can result in falsely raised PSA levels as catheterisation itself may increase PSA levels</li> </ul>
<b>Musculo-skeletal</b> <sup>3-5,9</sup> See Musculoskeletal section for more information	<ul style="list-style-type: none"> <li>• Overuse syndromes particularly of the shoulders is common resulting in shoulder pain and reducing function</li> <li>• SCI individuals are at increase risk of osteoporosis and hence fractures</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage regular stretches and range of motion exercises</li> <li>• Regular joint assessment by a physiotherapist</li> <li>• Splinting may be useful in preventing and treating contractures</li> <li>• Consider referral to specialist for shoulder assessment and consideration of surgical intervention</li> <li>• Encourage maintenance of healthy weight to reduce the load on the musculoskeletal system</li> <li>• Educate people with SCI and their carers on strategies to prevent falls</li> <li>• Consider strength training and adaptive equipment to preserve musculoskeletal function</li> <li>• Consider early treatment for the prevention of osteoporosis</li> </ul>

<p><b>Skin</b> <sup>1,5,3</sup></p> <p>See Skin Management section for more information</p>	<ul style="list-style-type: none"> <li>• Increased risk of pressure sores and injuries to skin due to changes in collagen and decreased vascularity of dermis combined with loss of sensory function</li> <li>• Sitting tolerance may diminish with age</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage cessation of smoking and alcohol</li> <li>• Educate regarding good nutrition</li> <li>• Educate regarding importance of twice daily skin inspections</li> <li>• Monitor and maintain pressure relief equipment, including wheelchair cushion and mattress</li> </ul>
<p><b>Respiratory</b> <sup>1,3,5</sup></p> <p>See Respiratory section for more information</p>	<ul style="list-style-type: none"> <li>• Increased risk of respiratory complications, such as infection</li> <li>• Sleep disrupted breathing in SCI population may persist or increase with age</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage pneumonia and flu vaccinations</li> <li>• Encourage the cessation of smoking</li> <li>• Consider referral to sleep clinic for sleep studies if sleep disrupted breathing suspected</li> </ul>
<p><b>Cardiovascular system</b> <sup>1,2,5</sup></p>	<ul style="list-style-type: none"> <li>• Increased risk of developing heart disease due to reduced ability to benefit from aerobic exercise and abnormalities of cholesterol levels post SCI</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage healthy weight and balanced diet</li> <li>• Encourage cessation of smoking</li> <li>• Encourage and facilitate regular exercise.</li> <li>• Monitor cholesterol levels</li> </ul>
<p><b>Nervous System</b> <sup>5</sup></p>	<ul style="list-style-type: none"> <li>• Reduced strength, agility and coordination seen in ageing has a more pronounced effect on the independence and ability to perform activities of daily living in SCI</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor functional independence and its impact on activities of daily living</li> <li>• Consider referral to a social worker if increased care needs identified</li> </ul>
<p><b>Endocrine System</b> <sup>1,2,5,8</sup></p>	<ul style="list-style-type: none"> <li>• SCI individuals are more prone to glucose intolerance and increased risk of developing diabetes with age</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage healthy weight range and dietary intake.</li> <li>• Monitor for signs of Type II Diabetes</li> </ul>
<p><b>Immune system</b> <sup>5</sup></p>	<ul style="list-style-type: none"> <li>• Increased risk of infection e.g. UTI</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage vaccinations, healthy nutrition</li> </ul>

## References

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10. Entland W, Walker J, Minnes P et al. Women with spinal cord injury and the impact of ageing. *Spinal Cord* 2002; 40: 374-87

## Useful resources

For general information relating to ageing

- <http://e-ageing.wacha.org.au/>

Information regarding ageing with SCI from the Department of Rehabilitation Medicine, University of Washington Medical Center

- <http://sci.washington.edu/info/forums/reports/aging-2012.asp>

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Online educational tool from the International Spinal Cord Society. Contains learning modules directed at each discipline.

- [www.elearnsoci.org](http://www.elearnsoci.org)

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