



## | RYGG MÄRGS | SKADA

<http://www.ryggmargsskada.se>

The following text is a selection from the website.

**Author:** Mikael Waller  
Med practitioner, Med Dr



**Translation:** funded by Allmänna Arvsfonden & project RG Integration.

<http://www.rgintegration.se/en/>

## Spinalis®

The website [Ryggmargsskada.se](http://www.ryggmargsskada.se) is made by Spinalis.

The Spinalis Foundation is a charitable foundation with the mission to promote research and develop treatments for people with SCI.

<https://www.spinalis.se>

## Autonomous dysreflexia

Autonomous dysreflexia (AD) is a condition that can occur with a spinal cord injury at the level of T6 or above. It is more common the higher the level of injury and with a complete spinal cord injury. Among persons with complete tetraplegia, →90% have experienced some degree of AD, while persons with incomplete tetraplegia, the corresponding proportion is about 30%. The condition can be likened to spasticity, although instead of uncontrolled hyperactivity in the nerves of the skeletal musculature, the sympathetic nervous system is affected

Underlying mechanisms for AD are loss of inhibitory control from higher centres (brain and brain stem) and plasticity changes in the nervous system after a spinal cord injury. Injuries below T6 rarely give rise to AD, since there is sufficient function remaining to prevent the overactivity in the sympathetic nervous system that causes AD.

### COMMON SYMPTOMS OF AD ARE:

- General illness, anxiety and nausea
- Blurred vision and nasal congestion
- Throbbing headache
- Redness, sweating and goosebumps above the injury level (due to blood vessels dilating)
- Cold/pale skin below the injury level (due to blood vessels contracting)
- Blood pressure increasing →20 mmHg above the normal level for the individual.
- Reduced or increased pulse

The severity of symptoms may differ from one individual to another. AD often starts with mild sensations that can quickly grow into severe symptoms if the root cause is not addressed.



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### CAUSES

As a general rule, some sort of sensory stimuli below the level of injury give rise to an excessive and uncontrolled activation of the sympathetic nervous system below the level of injury. This can be anything that would cause pain or discomfort in a person without a spinal cord injury. The most common causes are:

- Overfilled bladder/urinary tract infection/kidney stone (majority of AD is triggered from urinary tract)
- Constipation
- Wounds/ingrown toenail
- Injury/illness below the level of the spinal cord injury, e.g. fracture or abdominal disease
- Sexual activity (e.g. vibrator stimulation)

### REMEDY/TREATMENT

#### Step 1:

- Sit up - head high and legs low (i.e. vice versa compared to a blood pressure drop)
- Loosen tight clothing (e.g. belt, tight shoes)
- Check blood pressure and pulse frequently (if possible)

#### Step 2:

- Check the urinary tract
- Overfilled bladder? Kidney stone? Urinary tract infection? Remedy!
- Check blood pressure and pulse

#### Step 3:

- Check your bowel movement
- Constipation? Remedy!
- Check blood pressure and pulse

If symptoms do not subside quickly after steps 1-3, the person who has been prescribed drugs for this may take them. If there is no change or the general condition deteriorates **CALL 112!**



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### RISKS

In addition to unpleasant symptoms (see above), there is also a small risk of serious complications. Large and rapid blood pressure variations present a risk of damage to blood vessels. For example, in rare cases, this can cause brain bleeding, myocardial infarction, and retinal detachment/bleeding.

### PREVENTIVE MEASURES

An important part of prevention is to educate those affected by a spinal cord injury at level T6 or higher regarding the symptoms, causes and remedies for AD. This allows the person to react and take adequate measures at an early stage. In most cases, AD can then be remedied before it becomes potentially serious.

Some people with spinal cord injuries may benefit from early signs of AD (e.g. facial heat/sweating or incipient headache) as a signal that it is time to empty the bladder, for example. It is important to react to these signals promptly.

A study has shown that more than 40% of people with a spinal cord injury at level T6 or higher did not know what AD is.

Some spinal cord injury clinics also provide individuals at risk for AD with a personal AD emergency card. The card contains information about the person's spinal cord injury (injury level and severity), normal blood pressure and pulse values, symptoms of and criteria for AD and emergency treatment of AD.

The card should always be carried (e.g. in the wallet) by the person with a spinal cord injury and AD to easily provide information for healthcare professionals and others in the event of an emergency.