



The following excerpt has been taken from the Christopher & Dana Reeve Foundation Paralysis Resource Center website.

[http://www.paralysis.org/site/c.erJMJuOxFmH/b.1338071/k.5E45/Autonomic\\_Dysreflexia.htm](http://www.paralysis.org/site/c.erJMJuOxFmH/b.1338071/k.5E45/Autonomic_Dysreflexia.htm)

## Autonomic Dysreflexia

Autonomic dysreflexia (AD) is a potentially life threatening condition that can be considered a medical emergency. It mainly affects people with injuries at T-6 or higher. Although rare, some people with T-7 and T-8 injuries have developed autonomic dysreflexia.

AD requires quick and correct action. Serious AD can lead to a stroke. Because many health professionals are not familiar with this condition it is important for people who are at risk for AD, and the people close to them, to learn about it. It is important to know your normal blood pressure numbers and check your blood pressure often. If you see a big increase in your blood pressure this may be a sign of autonomic dyreflexia.

### What to do

The first thing to do if AD is suspected is to sit up, or raise your head to 90 degrees. If you can lower your legs, do so. Next, loosen or remove anything tight. Most importantly, locate and remove the offending stimulus, if possible.

The signs of AD include:

- High blood pressure (higher than one's normal pressure)
- Pounding headache, flushed face
- Sweating above level of spinal injury
- Nasal stuffiness, nausea
- Slow pulse, lower than 60 beats per minute
- Goose flesh below level of spinal injury

AD is caused by an irritant below the level of injury, usually related to bladder or bowel function. Among the causes are:

- Irritation of bladder wall, urinary tract infection
- Blocked catheter
- Overfilled collection bag
- Over-distended or irritated bowel, constipation/impaction
- Hemorrhoids or anal infections
- Skin infection or irritation, cuts, bruises, abrasions

- Pressure sores (decubitus ulcer)
- Ingrown toenails
- Burns (including sunburn, burns from using hot water)
- Tight or restrictive clothing
- Sexual activity
- Menstrual cramps
- Labor and delivery
- Abdominal conditions (gastric ulcer, colitis, peritonitis)
- Bone fractures

AD can be prevented.

- Relieve pressure in bed/chair -- frequently
- Use #15 sunscreen, watch water temperatures
- Adhere to bowel program, faithfully
- Keep catheters clean and stick to catheterization schedule

### **What happens during an episode of AD?**

Autonomic dysreflexia means an over-activity of the autonomic nervous system – the part of the system that controls things you don't have to think about, such as heart rate, breathing, digestion, etc. AD can occur when an irritating stimulus is introduced to the body below the level of injury. The stimulus sends nerve impulses to the spinal cord, where they travel upward until they are blocked at the level of injury.

Since the impulses cannot reach the brain, a reflex is activated that increases activity of the sympathetic portion of autonomic nervous system. This results in spasms and a narrowing of the blood vessels, which causes a rise in the blood pressure. Nerve receptors in the heart and blood vessels detect this rise in blood pressure and send a message to the brain.

The brain then sends a message to the heart, causing the heartbeat to slow down and the blood vessels above the level of injury to dilate. However, the brain cannot send messages below the level of injury, due to the spinal cord lesion, and therefore the blood pressure cannot be regulated.

Medications are generally used only if the offending trigger/stimulus cannot be identified and removed - or when an episode persists even after removal of the suspected cause. Potentially useful agents include: Nitroglycerine, Clonidine, Hydralazine, Minipress, Catapres.

Sources: Paralyzed Veterans of America, Spinal Injuries Association, London, National Spinal Cord Injury Association, Miami Project to Cure Paralysis/University of Miami School of Medicine

### **Web Sites**

[http://www.pva.org/site/PageServer?pagename=pubs\\_generalpubs](http://www.pva.org/site/PageServer?pagename=pubs_generalpubs)

**Paralyzed Veterans of America (PVA)**

The Paralyzed Veterans of America, in support of The Consortium for Spinal Cord Medicine, offers authoritative clinical practice guidelines for autonomic dysreflexia. Note that PVA offers one document for the consumer or patient and a different one for the healthcare professional. Download for free at PVA's site.

<http://calder.med.miami.edu/pointis/automatic.html>

**University of Miami School of Medicine**

The University of Miami School of Medicine offers clinical information on AD and other paralysis-related conditions.

[www.spinalcord.uab.edu/show.asp?durki=21541&site=1021&return=24467](http://www.spinalcord.uab.edu/show.asp?durki=21541&site=1021&return=24467)

**Spinal Cord Injury Information Network**

The Spinal Cord Injury Information Network features articles and references for AD and all other SCI conditions.

<http://www.disaboom.com/spinal-cord-injury-sci-information/autonomic-dysreflexia-secondary-condition>

**Disaboom: Spinal Cord Injury—Autonomic Dysreflexia**

<http://www.emedicine.com/pmr/topic217.htm>

**Emedicine: Autonomic Dysreflexia in Spinal Cord Injury**

<http://www.apparelyzed.com/autonomic.html>

**Apparelyzed: Autonomic Dysreflexia and Hyperreflexia**

[http://www.guideline.gov/summary/summary.aspx?doc\\_id=2964&nbr=2190](http://www.guideline.gov/summary/summary.aspx?doc_id=2964&nbr=2190)

**AHRQ's National Guidelines Clearinghouse: Acute Management of Autonomic Dysreflexia: Individuals with Spinal Cord Injury Presenting to Health-Care Facilities.**

The following books are available for free loan from the PRC library. For more information, please see [www.paralysis.org](http://www.paralysis.org) and click the Lending Library tab.

**Books**

**Autonomic Dysreflexia: What You Should Know.** Washington, DC: Consortium for Spinal Cord Medicine (CSCM), 1997. Written for the consumer and available from Paralyzed Veterans of America for free as a PDF.

[http://www.pva.org/site/PageServer?pagename=pubs\\_generalpubs#consumer](http://www.pva.org/site/PageServer?pagename=pubs_generalpubs#consumer)  
<http://www.pva.org/site/DocServer/ADC.pdf?docID=569>

**Acute Management of Autonomic Dysreflexia: Individuals with Spinal Cord Injury Presenting to Health-Care Facilities.** 2<sup>nd</sup> ed. Washington, DC: Consortium for Spinal Cord Medicine (CSCM), 2001. Available from Paralyzed Veterans of America as a free PDF file.

This is for the physician or other health care professional.  
<http://www.pva.org/site/DocServer/AD2.pdf?docID=565>

## Videos

<http://www.spinalcord.uab.edu/show.asp?durki=97417>

**University of Alabama at Birmingham's streaming video on Cardiovascular Health (38 minutes). Includes info on AD.**

[http://sci.washington.edu/info/forums/reports/autonomic\\_dysreflexia.asp](http://sci.washington.edu/info/forums/reports/autonomic_dysreflexia.asp)

**Autonomic Dysreflexia.** Seattle, WA: University of Washington, 2007. 35 minutes.

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