



Autonomic Dysreflexia



Autonomic dysreflexia (AD), sometimes referred to as Autonomic Hyperreflexia, is a potentially life-threatening medical emergency that requires quick and correct action. For most people, AD can be easily prevented and treated, but it is important to know the triggers and symptoms.

Q: What is 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 and digestion. AD occurs in people living with a spinal cord injury (SCI) when messages of pain or discomfort below their level of injury don't travel correctly to and from the brain. Typically indicated by a sudden increase in blood pressure (greater than 20 mm Hg systolic higher than the person's baseline in adults and greater than 15 mm Hg systolic in children), it is important to know your baseline

blood pressure numbers and check your blood pressure often if you feel AD symptoms. You should talk with your doctor before you have an AD episode and agree upon a plan to treat your AD at home.

If your top blood pressure number (also known as systolic) goes above 150, you should follow your doctor's directions on how to treat your AD. If your doctor prescribed a medication, you should take it as directed. If that does not work, you should go to the emergency room. If left untreated, AD can lead to a stroke, seizures, or even death.

Q: Is everyone with a SCI at risk for AD?

Your susceptibility to AD is impacted by the level and extent of your spinal cord injury. People with injuries at T6 or higher are at the greatest risk. Individuals with a T6-T10 level of SCI may be at moderate risk. Individuals with a SCI below T10 are not at risk for experiencing AD. Because many health professionals are not familiar with this condition, it is important for people who are at risk for AD, and those close to them, to recognize the signs and symptoms and know how to respond.

Q: Why does AD happen?

AD happens because there is a change in the body's autonomic reflexes after injury. When something causes pain or discomfort below the level of the injury, the body responds by narrowing blood vessels and blood pressure starts to rise. Typically, the brain gets the message that there is a problem and sends signals down the spinal cord to slow the heartbeat and open up the blood vessels. For people living with SCI, the messages can't get past the injury level and the blood vessels continue to narrow below the injury causing the blood pressure to continue to rise. Often, you may not know you have a problem below the injury, so it is important to recognize the key indicators of AD.

Q: What are some of the key indicators of AD?

Symptoms will vary based on the individual, so it is important to know your own indicators. Some of the signs of AD include high blood pressure, pounding headache, flushed face, changes in vision, sweating above the level of injury, goose flesh below the level of injury, nasal stuffiness, nausea, and a slow pulse (slower than 60 beats per minute). Other symptoms include chills without fever and clammy, cool and pale skin. Some also experience a tingling sensation or anxiety/uneasy feeling.

Tips to help prevent or minimize AD:

- Perform pressure releases frequently throughout the day.
- Check skin daily for red marks which may indicate pressure injuries and swellings which may indicate fractures, blood clots or skin problems.
- Adhere to a consistent bowel program
- Keep catheters clean and stick to catheterization schedule for proper bladder management.
- In the summer, wear loose clothing, use precautions for sunburns, and watch water temperatures.

Q: What causes AD?

AD is caused by a problem below the level of injury, often related to bladder or bowel function. In the bladder, triggers can be an overfull bladder, irritation of the bladder wall, urinary tract infection, blocked catheter or overfilled collection bag. Bowel triggers can be distended or irritated bowel, constipation or impaction, hemorrhoids or anal infections. Other causes include skin infection or irritation, cuts, bruises, abrasions or pressure injuries (decubitus ulcers), ingrown toenails, burns (including sunburn and burns from hot water) and tight or restrictive clothing. AD can also be triggered by sexual activity, menstrual cramps, labor and delivery, ovarian cysts, abdominal conditions (gastric ulcer, colitis, gas buildup, peritonitis) or bone fractures.

Q: Can I manage AD at home on my own?

The best way to manage AD is to prevent it in the first place but it may still occur, so you need to know your symptoms. Develop an emergency plan with your physician and discuss which medications if any to take. If you learn to recognize symptoms and act quickly to find the source of the problem, it may be possible to manage AD at home. If you are at risk for AD, you need to have a home blood pressure monitor and know how to use it. Sit upright, loosen clothing and check your bladder, bowels, skin and bones to find the source for the problem. Check your blood pressure every five minutes and consider taking AD medication if needed while you try to locate the cause of the AD episode. If you are not able to find and treat the issue quickly, call 911.

Q: Will my AD immediately resolve itself after removal of the stimulant

or condition causing the problem?

After you get rid of the cause or stimulant of the AD, your symptoms may get slightly worse for a short period before getting better. This is common and you should continue to check your blood pressure every five minutes and take your medications as prescribed until you see a decrease in your symptoms.

Q: When does AD become an emergency and when should I go to the ER?

If you are unable to quickly identify the cause of the AD and control your blood pressure, then you need to seek immediate medical attention by calling 911.

Q: How do I talk to medical professionals about AD?

Be prepared to advocate for yourself. It is important that you and your caregiver know how to explain what AD is and why it is an emergency. Always carry your AD wallet card (<https://www.ChristopherReeve.org/cards>) with your baseline blood pressure and brief medical history as well as instructions for a medical team that may not be familiar with AD.

Q: What should be in an AD toolkit?

It is always important to keep an AD emergency kit with you. Your kit should contain your completed AD wallet card, blood pressure cuff, prescription medications for AD if prescribed by your doctor, catheter and insertion supplies, irrigation syringe and sterile water or saline solution, lidocaine gel, suppositories, non-latex gloves, and pain medicine if prescribed.

Sources: Christopher & Dana Reeve Foundation AD wallet card, Craig Hospital, Model Systems Knowledge Translation Center

Need to talk to someone?

Our Information Specialists are available to answer your questions.

Call toll-free 1-800-539-7309 Mon-Fri, 7 am-8 pm EST.

Or schedule a call or ask a question online at

<https://www.ChristopherReeve.org/Ask>

Resources for Autonomic Dysreflexia

Christopher & Dana Reeve Foundation: Autonomic Dysreflexia Wallet Cards

<https://www.ChristopherReeve.org/cards>

Free AD wallet cards for adults and children. You may download a copy or order a laminated version from the Reeve Foundation. The order form is online at the above link or you may call us toll-free 800-539-7309 x7224. Feel free to share the information on

the card with your medical team as it was developed with the help of physicians at the Kennedy Krieger Institute.

Craig Hospital: Autonomic Dysreflexia

<https://craighospital.org/resources/autonomic-dysreflexia>

Medscape: Autonomic Dysreflexia in Spinal Cord Injury

<https://emedicine.medscape.com/article/322809-overview>

This page has clinical information on AD.

Model Systems Knowledge Translation Center: Autonomic Dysreflexia Factsheet

https://msktc.org/sci/factsheets/autonomic_dysreflexia

Paralyzed Veterans of America (PVA)

<https://pva.org>

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.

Spinal Cord Injury Information Network: Autonomic Dysreflexia

<https://www.uab.edu/medicine/sci/daily-living/managing-personal-health/secondary-medical-conditions/autonomic-dysreflexia>

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

Videos

Northwest Regional Spinal Cord Injury System: Autonomic Dysreflexia

(https://sci.washington.edu/info/forums/reports/autonomic_dysreflexia.asp). Seattle: University of Washington, 2007. (35 minutes)

This page has text and video of an **October 9, 2007** presentation by Janna Friedlv, MD, assistant professor in the Department of Rehabilitation Medicine at the University of Washington.

Downloadable Booklets

The following booklets are available for free download from Paralyzed Veterans of America (PVA) www.pva.org.

- **Autonomic Dysreflexia: What You Should Know.** Washington, DC: Consortium for Spinal Cord Medicine (CSCM), 2022.
Written for the consumer. Available from Paralyzed Veterans of America as a free PDF file.
- **Acute Management of Autonomic Dysreflexia: Individuals with Spinal Cord Injury Presenting to Health-Care Facilities.** Washington, DC: Consortium for

Spinal Cord Medicine (CSCM), 2001. 2nd edition.

Written for the physician or other health care professional. Available from Paralyzed Veterans of America as a free PDF file.

The information contained in this message is presented for the purpose of educating and informing you about paralysis and its effects. Nothing contained in this message should be construed nor is intended to be used for medical diagnosis or treatment. It should not be used in place of the advice of your physician or other qualified health care provider. Should you have any health care related questions, please call or see your physician or other qualified health care provider promptly. Always consult with your physician or other qualified health care provider before embarking on a new treatment, diet or fitness program. You should never disregard medical advice or delay in seeking it because of something you have read in this message.

This publication is supported by the Administration for Community Living (ACL), U.S. Department of Health and Human Services (HHS) as part of a financial assistance award totaling \$10,000,000 with 100 percent funding by ACL/HHS. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement, by ACL/HHS, or the U.S. Government.