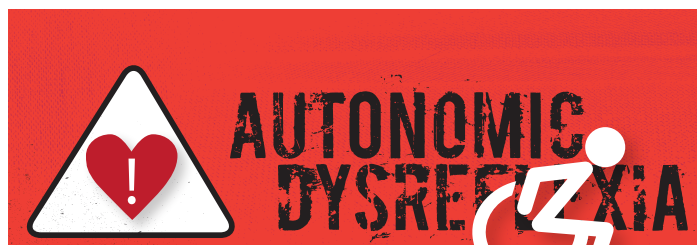


## 2. Postcard: AD + You



# AUTONOMIC DYSREFLEXIA & YOU

## Recognize and act

### WHAT IS AUTONOMIC DYSREFLEXIA (AD)?

It is a dangerous rise in your blood pressure that is triggered by a painful or non-painful stimulation below the level of your spinal cord injury (SCI). Below your SCI, your body cannot detect these stimulations and has difficulty properly responding to them. As a result, your blood pressure (BP) can go up quite fast and can lead to serious consequences such as stroke, heart attack or even death.

### WHAT ARE THE SYMPTOMS OF AD?

If you have AD, you may feel: a pounding headache • blurry vision or seeing spots • sweating (usually above your SCI) • nasal congestion • nausea • anxiety • difficulty breathing

### WHAT ARE THE SIGNS OF AD?

If you have AD, you may experience: a rapid increase in BP (20-40 mmHg above your normal BP) • slow heart rate • upper body flushing (reddening of skin) • goosebumps (usually above your SCI)

### WHAT CAUSES AD?

Episodes of AD are most commonly caused by bladder problems, which can be related to: a full bladder • urinary tract infection • blocked catheters • bladder or kidney stones

### Other common causes include problems with:

bowel or abdomen (constipation, bowel or abdominal exams) • tight clothing or equipment (belt around the waist, shoes or shoelaces, leg braces) • musculoskeletal/skin (pressure sores, ingrown toe nails, broken bones or fractures) • sexual activity (genital stimulation, especially with a vibrator; ejaculation) • reproductive system (menstruation, pregnancy [labour and delivery])

### WHAT DO YOU DO IF YOU THINK YOU HAVE AD?

You must act quickly! Perform the following steps or ask someone for help if you cannot do them yourself:

1. Sit up if you are lying down or lift your head to a 90 degree angle. You must remain seated otherwise your AD could get worse!
2. Loosen or remove any tight clothing or equipment.
3. If you have equipment to measure your BP, measure it every 5 minutes to see if it goes down to your normal level.
4. Check your bladder. If full, empty it immediately! If you have an indwelling catheter, check if the tubing is blocked, preventing your bladder from emptying.
5. If your BP goes down and your symptoms subside, call your physician and report your symptoms and the steps you took to treat them.
6. If the AD signs and symptoms persist or come back call your country's Emergency Telephone Number and go to the emergency room (ER)!

### WHERE CAN YOU GO TO TREAT YOUR AD?

If your AD persists you should go the nearest ER. Remember to:

1. Present your wallet-sized Paralyzed Veterans of America (PVA) AD information card to the medical staff. Tell them you may be experiencing AD and ask to be treated right away.
2. Have your BP measured as soon as possible.
3. Remain in a seated position until your BP goes down.
4. Remind the medical staff to search for the cause of your AD (e.g. bladder, bowel, or other causes listed above).

### WHAT OTHER INFORMATION IS AVAILABLE ON AD?

The PVA consumer self-help guide: **Autonomic Dysreflexia:**

**What you should know.** [www.pva.org](http://www.pva.org)

A wallet-sized AD information card is also provided with the PVA guide. If you have previously experienced AD, you should carry this card with you at all times.

### Prepared by the CARDIOVASCULAR HEALTH EDUCATION CLINIC FOR PARALYMPIC ATHLETES

Polyclinic  
Paralympic Mountain Village

Dr. Andrei Krassioukov, MD, PhD, FRCPC  
Attending Physician

[sochiclinic@gmail.com](mailto:sochiclinic@gmail.com)



### This Clinic is supported by:

Vancouver  
Coastal Health  
Research Institute



icord

Rick Hansen  
Foundation



Wellspect  
HEALTHCARE



### 3. Postcard: Boosting + You



## BOOSTING & YOU

### Understanding the risks

#### WHAT IS BOOSTING?

Boosting occurs when an athlete with a spinal cord injury (SCI) at or above the sixth thoracic segment (T6) intentionally induces autonomic dysreflexia during training or competition.

#### WHAT IS AUTONOMIC DYSREFLEXIA (AD)?

It is a dangerous rise in your blood pressure (BP) that is triggered by a painful or non-painful stimulation below the level of your SCI. Below your SCI, your body cannot detect these stimulations and has difficulty properly responding to them. As a result, your BP can increase quickly. This can lead to serious consequences such as stroke, heart attack or even death.

#### WHAT ARE THE SYMPTOMS OF BOOSTING?

If you Boost, you may have the following symptoms:

- a pounding headache
- blurry vision or seeing spots
- sweating (usually above your SCI)
- nasal congestion
- nausea
- anxiety
- difficulty breathing

#### WHAT ARE THE SIGNS OF BOOSTING?

If you Boost, you may experience:

- rapid increase in BP (20-40 mmHg or even more above your normal BP)
- slow heart rate
- upper body flushing (reddening of skin)
- goosebumps (usually above your SCI)

#### WHY DO SOME ATHLETES BOOST?

Individuals with SCI above T6 have loss of control over regulation of their heart rate and BP. These individuals are unable to adequately increase their BP and heart rate in response to exercise, which can negatively affect their performance. Boosting increases BP and therefore may increase exercise performance in SCI athletes. Athletes who Boost may be doing so to compensate for their lower BP as a result of their SCI.

#### WHY IS BOOSTING NOT ALLOWED IN TRAINING OR COMPETITION?

Boosting is discouraged by the International Paralympic Committee due to concerns for athlete safety. This is because the severe, uncontrolled increases in BP associated with AD have been known to cause:

- Bleeding inside the brain (causing a stroke)
- Seizures
- Abnormal heart rhythms
- Death

#### WHAT OTHER INFORMATION IS AVAILABLE ON BOOSTING?

Visit <http://krassioukov.icord.org> for resources

#### WHAT OTHER INFORMATION IS AVAILABLE ON AD?

The PVA consumer self-help guide: **Autonomic Dysreflexia:**

**What you should know.** [www.pva.org](http://www.pva.org)

A wallet-sized AD information card is also provided with the PVA guide. If you have previously experienced AD, you should carry this card with you at all times.

#### Prepared by the CARDIOVASCULAR HEALTH EDUCATION CLINIC FOR PARALYMPIC ATHLETES

Polyclinic  
Paralympic Mountain Village

Dr. Andrei Krassioukov, MD, PhD, FRCPC  
Attending Physician

[sohiclinic@gmail.com](mailto:sohiclinic@gmail.com)



#### This Clinic is supported by:

Vancouver  
Coastal Health  
Research Institute

Coloplast

icord

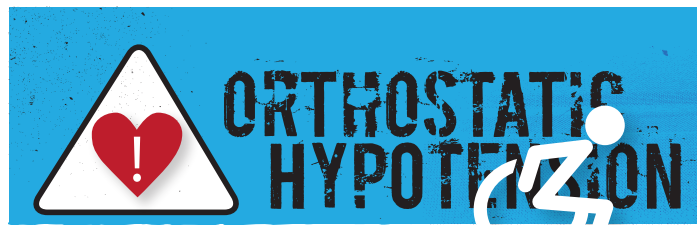
Rick Hansen  
Foundation



Wellspect  
HEALTHCARE



## 4. Postcard: OH + You



# ORTHOSTATIC HYPOTENSION & YOU

## Managing your OH

### WHAT IS ORTHOSTATIC HYPOTENSION (OH)?

It is a decrease in your blood pressure (BP) that is caused when you sit up after lying down. When you sit up, the force of gravity causes blood to move away from your upper body and pool in your lower body. Following your spinal cord injury (SCI), the blood vessels in your body may lose the ability to push blood back to the heart, causing your BP to drop.

### WHAT ARE THE SYMPTOMS OF OH?

If you have OH, you may have the following symptoms: dizziness • blurred vision • feeling of faintness • nausea • fatigue • ringing ears • cognitive impairment (trouble focusing, thinking, reacting) • headache • neck ache • heart palpitations (irregular heart beat).

### WHAT ARE THE SIGNS OF OH?

If you have OH, you may experience: syncope (blacking out, fainting, loss of consciousness) • a decrease in BP when sitting up (20 mmHg or more below your normal BP) • an increased heart rate.

### AM I LIKELY TO EXPERIENCE OH?

The level and severity of your SCI may determine whether or not you experience OH. In many individuals with high cervical and thoracic level lesions, it is possible to experience OH for many years.

### WHAT CAUSES OH?

• dehydration (low fluid intake) • injury to your peripheral nerves, not related to your SCI (peripheral neuropathy) • low resting BP (especially first thing in the morning).

### WHAT DO YOU DO IF YOU THINK YOU ARE EXPERIENCING OH?

OH may be asymptomatic, so if you suspect that you could have OH, it is a good idea to check your BP regularly. If you experience any symptoms of OH, you should perform the following steps (or ask someone for help if you cannot do them yourself):

- Tilt your chair (if possible)
- Lie down and/or raise your legs (if possible)
- Check your BP and record it, and wait until your symptoms disappear before sitting upright again
- Inform your physician about your OH

### FOR IMMEDIATE TREATMENT OF OH:

- Lie down on your back if possible, and elevate your legs
- Drink fluids
- Protect yourself from heat exposure

### HOW CAN YOU MANAGE YOUR OH IN THE LONG TERM?

- Use an abdominal binder and/or pressure stockings
- Increase salt intake in diet
- Ensure adequate fluid intake (1-1.5L or 4-6 glasses/day)
- Avoid hot showers and excessive heat
- Sleep with the head of the bed elevated 15-20 degrees
- Tilt training (under the guidance and supervision of a physical therapist, you can gradually increase upright stance)
- Check and record your BP regularly

You must discuss medical treatments available with your physician.

### WHERE CAN YOU GO TO TREAT YOUR OH?

When you have been discharged from the hospital following your SCI, you will be given the necessary methods and information to manage your OH. If your symptoms and/or discomfort with OH worsen, contact your physician and book an appointment to discuss further options or adjustment of your current treatment.

### WHAT OTHER INFORMATION IS AVAILABLE ON OH?

Visit <http://krassioukov.icord.org> for resources.

### Prepared by the CARDIOVASCULAR HEALTH EDUCATION CLINIC FOR PARALYMPIC ATHLETES

Polyclinic  
Paralympic Mountain Village

Dr. Andrei Krassioukov, MD, PhD, FRCPC  
Attending Physician  
[sochiclinic@gmail.com](mailto:sochiclinic@gmail.com)



### This Clinic is supported by:

Vancouver  
Coastal Health  
Research Institute



icord

Rick Hansen  
Foundation



wellspect  
HEALTHCARE



## 5. Postcard: UTI + You



### UTI & YOU

#### WHAT CAUSES A URINARY TRACT INFECTION (UTI)?

After a spinal cord injury (SCI), the signals from the brain to the bladder can be disrupted. People with SCI might not be able to empty their bladder on demand or feel if their bladder is full. Although some individuals can still control their bladder, the majority of people with SCI require a new method for emptying their bladder, such as intermittent catheterization, indwelling catheter/Foley catheter, external catheter (condom); or suprapubic catheter.

Inserting a catheter into the sterile environment of the bladder may have negative consequences. The catheter can introduce bacteria that are normally present on the skin into the bladder, which increases the risk of a urinary tract infection (UTI). Retention of urine in the bladder for more than 4 hours can make an ideal environment for bacteria to grow and multiply. Presence of bladder stones can also increase the chances of getting a UTI. It is important to note that the presence of bacteria in the bladder does not necessarily mean treatment is needed. Unless you have signs or symptoms of an infection, there is no need to treat the bacteria with antibiotics.

#### WHAT ARE THE SYMPTOMS OF UTI?

If you have a UTI, you may notice: cloudy urine (sediment, particles, mucus in the urine) • bad smelling urine (foul odour) • blood in urine (pink or red urine)

#### WHAT ARE THE SIGNS OF UTI?

If you have a UTI, you may experience: chills • leakage or voiding between catheterizations • increased spasms of legs, abdomen, or bladder • feeling the need to catheterize more often (frequency) • feeling the need to catheterize immediately (urgency) • burning of the urethra, penis, or pubic area • nausea • headache • mild low back pain or other aches • feeling "lousy" or tired

*Note: Urine appearance and smell may be altered because of changes in diet or fluid intake. Changes in the urine with no symptoms (see above) may not require treatment for a UTI.*

#### PRACTICES TO PREVENT A UTI

The majority of UTIs are preventable. The following practices are recommended to prevent UTIs:

- Carefully wash hands and area outside of the urethra (bladder opening) before and after catheterization
- Catheterize frequently (every 3-4 hours)
- Increase fluid intake (water or cranberry juice/tablets)
- Keep supplies clean. Improper cleaning techniques or re-using catheters could lead to an increased frequency of UTI
- Try different products
- "Natural" treatments may be helpful but consult an expert prior to use

#### WHEN SHOULD YOU CALL A DOCTOR?

See a doctor if you develop signs or symptoms of a UTI. Generally a doctor will order a urine sample to determine which bacteria are present. Then they will decide if treatment is required and which antibiotic would be appropriate. Follow recommendations with antibiotic treatments for UTI. Do remember that inappropriate use of antibiotics could result in development of antibiotic resistant bacteria that is more difficult to cure.

The ultimate goal is UTI prevention. Proper bladder management techniques and good hydration are key for bladder management. It is also recommended to see your urologist annually for the following assessments:

- Bladder and kidney ultrasound (once per year)
- Cystoscopy (visual inspection of the bladder; recommended once per year for individuals with SCI managing their bladders using intermittent or indwelling catheters)
- Urodynamics (functional assessment of the urinary bladder; recommended every two years for the majority of individuals with SCI)

#### Prepared by the CARDIOVASCULAR HEALTH EDUCATION CLINIC FOR PARALYMPIC ATHLETES

Polyclinic  
Paralympic Mountain Village

Dr. Andrei Krassioukov, MD, PhD, FRCPC  
Attending Physician

[sochiclinic@gmail.com](mailto:sochiclinic@gmail.com)



#### This Clinic is supported by:

Vancouver  
Coastal Health  
Research Institute



icord

Rick Hansen  
Foundation



wellspect  
HEALTHCARE

