UNIVERSITY OF OTTAWA
HEART INSTITUTE
INSTITUT DE CARDIOLOGIE
DE L'UNIVERSITÉ D'OTTAWA

Recovery After a Cardiac Arrest

A GUIDE FOR PATIENTS AND CAREGIVERS

About this guide

This guide aims to educate both patients and the members of their support system about recovery after a cardiac arrest. If you have any questions about the contents of the guide or would like more information, please speak with your healthcare team.

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IMPORTANT

You can call the nursing coordinator if you experience symptoms or have concerns during your recovery period. The nursing coordinator can be reached at any time of the day or night. Please note that this is not an emergency line.

Call 613-696-7000, press 0 and ask for the nursing coordinator.

For more information about customizing this guide for the particular needs of your institution, please contact the department of communications at communications@ottawaheart.ca.

This document is also available in French under the title | *Cette publication est aussi disponible en français sous le titre : Se rétablir d’un arrêt cardiaque*

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Understanding cardiac arrest

Cardiac arrest is a sudden event that affects not just the heart, but also the brain and other organs. Understanding its effects can help you better prepare for recovery and support your loved one through the healing process.

Causes of cardiac arrest

The most common cause of cardiac arrest is a heart attack due to blockages in one or more of the coronary arteries. These arteries are the blood vessels that supply the heart with blood, oxygen, and nutrients. Blockages prevent proper blood flow to the heart, which can cause damage to the heart muscle itself, as well as electrical disturbances, which disrupt the heartbeat.

Malfunctions of the heart's electrical system can result in a fatal arrhythmia (irregular heartbeat) and loss of the heart's pumping action. This may result in the heart stopping suddenly (sudden cardiac arrest) and requires immediate, emergency resuscitation.

Cardiac arrest and the brain

Cardiac arrest can interrupt the flow of oxygen to the brain. If the brain is without oxygen for more than a few minutes, it can lead to an anoxic brain injury. This injury can affect different abilities.

Common symptoms of anoxic brain injury can include:

- **Physical changes:** Weakness, problems with balance or coordination, or feeling very tired.
- **Emotional and behavioural changes:** Changes in mood (like feeling up and down), getting easily frustrated or angry, feeling sad or depressed, changes in personality, or problems sleeping.
- **Thinking and memory changes (cognitive):** Memory loss, trouble paying attention or concentrating, or feeling confused.

Recovery from a brain injury takes time and varies from person to person. The speed and extent of recovery depend on several factors, including how long the brain was without oxygen, other medical issues during recovery, age, overall health, and any other injuries.

The goal of rehabilitation is to help individuals regain as much function as possible, improve their daily life, and make it easier to get back to their usual routines. It's important to know that a full recovery may not always be possible, and some symptoms might be long-lasting. Support from friends and family is crucial throughout the recovery process.

The healthcare team

At the University of Ottawa Heart Institute, we strive to provide the best possible care to our patients and their families. If you have any questions, feel free to ask a member of the healthcare team. Every patient has contact with a cardiologist or a cardiac surgeon and with the nursing staff. Below is a brief description of the healthcare providers who may also be part of the team.

Social worker

Social workers assist with planning and making choices while patients are in the hospital. They also help with discharge planning and support. This can include providing information about community resources, such as housing, financial assistance, or other support services.

Physiotherapist

Physiotherapists assess, treat, and improve overall strength, endurance, movement, and function affected by injury, disease, or disability.

Occupational therapist

Occupational therapists check how a patient thinks, sees, and moves to determine how this affects their daily activities. They help plan for the patient’s discharge and advise the team.

Psychologist

Psychologists are healthcare professionals who specialize in understanding how people think, feel, and behave. They help people manage challenges related to their emotions, behaviours, and thought processes. After a cardiac arrest, a patient might see a neuropsychologist, a psychologist who specializes in how brain injuries or illnesses affect cognitive skills. They check abilities like attention, memory, language, and problem-solving. They give feedback and tips to improve any weaknesses and recommend more support if needed.

Speech-language pathologist

Speech-language pathologists assess, treat, and manage swallowing and communication difficulties (including voice disorders, which may occur following the removal of a ventilation tube).

Registered dietitian

Registered dietitians check and help improve a patient’s nutrition. Sometimes, a patient needs a special diet, extra nutritional drinks, or a feeding tube to get the right nutrients. The dietitian also teaches patients and their families about good nutrition.

Managing physical effects

Cardiac arrest may cause physical effects, such as pain, fatigue, or weakness. Patients and caregivers are encouraged to ask the healthcare team if there are specific physical restrictions or activities to avoid during the recovery period.

The following table describes some common physical effects of cardiac arrest and ways to manage them. Any questions or concerns should be discussed with the healthcare team.

ISSUE	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Swallowing	Difficulty chewing or swallowing; gagging.	Change in diet (e.g., switching to thickened fluids, pureed food), or feeding through a tube in the nose or stomach.
Bladder or bowel control	Loss of sensation of need to urinate, or urgency. Inability to make it to the toilet on time.	Toileting strategies and medications, which can be discussed with the healthcare team.
Pain	Headaches, body aches.	Pain management and assessment of pain severity with the healthcare team.
Feeling very tired	Difficulty focusing, difficulty concentrating, wanting to sleep more.	Balancing activity and rest. Relaxation techniques like meditation or deep breathing. Activities like reading or puzzles during rest periods.
Seizures	Can cause all or part of the body to shake. Can also cause the person to “black out” (be unresponsive for a few seconds).	Medications to help control seizures.

Managing behaviours and emotions

Recovery after a cardiac arrest can be emotionally challenging for both the patient and their loved ones. Anoxic brain injury can lead to changes in mood, behaviour, and personality. These changes can also be influenced by fatigue, sleep problems, isolation, and changes in daily routines. After a cardiac arrest, people may sometimes feel like they have lost their independence, for example, because they are no longer able to drive. It's important to understand the possible emotional and behavioural changes that can occur and how to address them.

A caregiver or someone who witnessed the cardiac arrest may also experience strong emotions like anxiety or distress. It's common for those close to the person recovering to feel traumatized by the event. It's important for caregivers or witnesses to seek support and medical attention if they are struggling. A caregiver's emotional well-being is vital to managing daily life and maintaining good health.

Many people find themselves thinking about spiritual or existential questions after a cardiac arrest. Speaking with a spiritual leader or mentor may be helpful.

The following table contains strategies for managing changes in behaviours or emotions.

Ask the healthcare team for specific recommendations and support.

BEHAVIOUR OR EMOTION	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Agitation/ restlessness	• Shifts between periods of high activity and sleepiness • May cry, yell, move arms and legs wildly, or thrash in bed • May hit others or harm themselves	• When the person is briefly calm or focused, speak to them in a soft, calm voice. • Ask simple, short questions. Reduce noise and distractions to create a calm environment. • Be aware that the person may be easily overwhelmed by stress. Try to minimize stressful situations. • If you notice increased restlessness, gently reassure them that they are safe. Move a safe distance away if needed. • Avoid arguing or disagreeing. Sometimes, silence can be helpful.
Sleep	• Difficulty falling asleep, staying asleep, or waking up too early • Fear of falling asleep	• Resources are listed at the end of this booklet.
Anger and irritability	• Short-tempered • More easily bothered by things that wouldn’t have bothered them before their cardiac arrest (e.g., yelling at other drivers on the road)	• Provide consistency and routine. • Manage sleep disturbances and fatigue, which can contribute to irritability and frustration. • Seek mental health support to address anger and irritability.
Anxiety, increased worrying	• Afraid of doing things they would have done before their cardiac arrest • Being unable to fall asleep due to specific fears • Afraid of being alone or the opposite, afraid of being around other people	• Gradually increase exposure to familiar activities while respecting energy levels and physical tolerance during recovery. • Practice mindfulness and meditation strategies to help with falling and staying asleep. • Seek medical advice when anxiety is limiting their functioning or appears out of proportion with the stressor.

BEHAVIOUR OR EMOTION	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Changes in eating habits	• Eats constantly • Eats in secret • Doesn’t remember eating • Frequently complains of hunger despite having recently eaten	• Seek medical advice. • Provide other activities, such as exercising or hobbies.
Highly emotional	• Can’t control emotions • Expresses emotions at the wrong time and in the wrong place • Has mood swings	• Do not criticize. • Praise the person when they show self-control. • Do not confront the person about this behaviour; it may cause embarrassment. • Model calm behaviour yourself. • Create a safe space for the expression of emotions, which are a normal part of recovery from brain injury and cardiac arrest.
Impulsive	• Tends to speak or act first and think later • Acts on inappropriate or confused thoughts • Is excessively demanding	• Set short-term rewards for brief periods of self-control. • Suggest more acceptable behaviour.
Change in sexual desire	• Makes inappropriate sexual remarks or advances • Manipulates partner into providing physical contact • Becomes threatening when partner is unwilling to participate in sexual activity • Has a decreased libido	• Tell the person that their behaviour is unacceptable. • Make them aware of the consequences of their behaviour. • Do not feel obligated to give in to the person’s sexual demands. • Inquire about medication and counselling. • Discuss self-gratification options. • If you are the object of unwanted sexual interest, where possible, remove yourself or the person.

Managing cognitive changes

Anoxic brain injury from cardiac arrest can affect thinking skills, leading to difficulties with:

- Short-term memory
- Attention and concentration
- Planning and organizing
- Learning and remembering new information
- Making decisions and problem-solving
- Multitasking and managing distractions

These changes can make everyday tasks more challenging.

The following table contains examples of cognitive changes seen after cardiac arrest and what to do about them.

COGNITIVE CHANGE	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Confusion	• Inattentive • Forgetful • Speaks incoherently • Asks the same questions repeatedly	• Repeat information and answer patiently. • Use tools such as calendars, photos, clock, message board, or notebook. • Create a paced, slow, and repetitive routine. • Help limit stimulation. • Orient to time of day and maintain distinction between day and night. • Speak in short, simple sentences. • Make eye contact. • Provide gentle reassurance.
Disorientation	• Talks in a disorganized, disconnected way • Mixes fact and fantasy • Isn't aware of location, date, own identity, or identity of others • Mixes up time periods	• In a non-judgmental way, review details such as who and where you are, the date, etc. • Talk about familiar things and people. • Use calendars, pictures, and favourite music to orient the person.

COGNITIVE CHANGE	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Lack of awareness of difficulties	• May not realize or admit to having new challenges • May believe they can do everything they did before • May make excuses for not being able to do things • May try to get others to do tasks for them without realizing they need help • May use humour or become defensive to avoid acknowledging difficulties	• If it's safe, allow them to try activities they want to do. • When you think they are ready, gently show them how to do something they believe is too hard. • Consider whether lack of confidence, rather than ability, is the real issue. • Remember that lack of awareness can be due to the brain injury itself. • Share factual information about their limitations in a kind and non-judgmental way, but don't push the issue. • Seek advice from healthcare professionals on how to ensure their safety.
Low motivation	• Diminished initiative, motivation, or interest	• Create a routine by organizing daily activities. • Arrange tasks in steps so that one step leads to the next. • Get professional help.
Communication	• Talking more or less than usual • More difficulty thinking of or saying words • Mispronouncing words • Not noticing that they are using the wrong word	• Address other factors that can impact communication, such as mood, anxiety, fatigue, and distractions. • Suggest distracting activities, like listening to music, if talking is too much. • Seek support from a speech-language pathologist. • Seek medical attention to determine the cause of the communication deficit and appropriate treatment.

COGNITIVE CHANGE	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Memory problems	• Forgets to complete tasks • Can't remember events since the cardiac arrest or certain periods of time before it • Recalls information slowly • Has trouble remembering things like names and appointments • Often misplaces things • Repeats the same things over and over • Has a hard time learning new things	• Provide a quiet, calm setting. • Correct wrong answers gently, if necessary. • Give clues (e.g., "Was it this or was it that?"). • When clues don't work, provide the forgotten information. However, avoid repeating information about the cardiac arrest in great detail early in the recovery process. • Use signs or other visuals to reinforce what needs to be remembered, including a memory book, calendars, and clocks or watches. • Exercise the person's memory by asking for a recap of events or activities. • Try not to interrupt. This could cause the person to forget what they wanted to say. • Try to maintain a consistent routine. • Label cupboards and drawers. • See resource section at the end of this booklet.

COGNITIVE CHANGE	SIGNS OR SYMPTOMS	MANAGEMENT STRATEGIES
Attention	• Difficulty paying attention to conversations or television shows • Losing train of thought • Forgetting what they were doing mid-task	• Make sure the person is well rested before doing tasks that need focus and concentration, because being tired can make it hard to pay attention and get things done. • Prioritize tasks based on energy levels, and schedule demanding activities during times when they are most alert and refreshed. • Limit distractions.
Processing speed	• Difficulty responding quickly to even simple questions • Taking more time to plan an activity or event • Having difficulty following conversations	• Allow extra time to complete a task. • Ask others to slow down and give them time to process information. • Limit things that require an immediate or urgent response.
Reading	• Having to reread the same page over and over • Losing interest in reading things that would previously have been enjoyable • Difficulty remembering what they read • Changes in vision or headaches when reading	• Encourage them to break up the reading into smaller sections. • Suggest they write down some of the things they read. • Minimize distractions. • Offer audiobooks if reading continues to be a challenge.

Ways to aid recovery

Here are some ideas to help with recovery in different areas:

To promote familiarity and comfort:

- Play favourite music, TV shows, or movies.
- Display pictures of family and friends in the hospital room.
- Bring familiar items from home, such as a favourite blanket, pyjamas, or pillow.
- Provide a watch if the person can tell time.

To support thinking skills (cognitive recovery):

- Use a notepad or diary to record medical information, names of healthcare providers, and therapy details.
- Use a calendar or agenda to keep track of appointments and events.
- Encourage activities like crossword puzzles, word searches, and Sudoku puzzles.
- Play card games and board games together.
- Offer activity books or newspaper games like “spot the differences” or connect-the-dot puzzles.

To aid mobility (physical recovery):

- Make sure the person wears proper footwear, such as running shoes, when mobile.
- Encourage them to wear comfortable clothing when exercising.
- Remind them to wear their eyeglasses if needed.
- Make sure they use a walking aid (cane or walker) if recommended by the physiotherapist.
- Keep a logbook to track exercises.

To improve hand skills (dexterity):

- See the appendix for specific recommendations of items and activities to improve hand strength and coordination.
- An occupational therapist can provide additional exercises.

Check with the healthcare team for more activities and instructions.

Tips for caregivers

Coping with new family roles

Prioritize your well-being. Taking care of yourself is essential to being able to care for someone else:

- **Eat well, sleep well, and exercise:** Regular exercise, sufficient sleep, and healthy eating habits can improve your mood and energy levels.
- **Monitor your own mental health:** Pay attention to your emotional state.
- **Keep your own appointments:** Don’t neglect your own healthcare needs and medications.
- **Ask for help when needed:** Speak up if you need a break or if your health is declining.
- **Make time for yourself:** Even short breaks to pursue hobbies or activities you enjoy can help you recharge.

Stay organized and informed:

- **Prepare for medical appointments:** Write down questions and concerns before appointments.
- **Take notes during appointments:** Record important information and advice from healthcare providers.
- **Learn about your loved one’s condition:** Educate yourself about recovery from anoxic brain injury and cardiac arrest.
- **Organize medical information:** Keep medical records in a secure, easily accessible place.

Ask for accept help:

- **Remember that you are not alone:** Caregiver support resources are available in the community.
- **Ask for help from healthcare providers:** If you need help finding resources, ask your healthcare team for assistance.
- **Accept help from friends and family:** Allow others to support you and your loved one.

Connect with others:

- **Stay socially connected:** Social connections can reduce stress and provide emotional support.
- **Seek advice and encouragement:** Talk to supportive friends, family, or other caregivers.
- **Consider joining a caregiver support group:** Connecting with other caregivers can provide understanding and shared experiences.
- **Maintain a personal connection with your loved one:** Spend quality time together that is not just focused on caregiving tasks.

Communicate openly and clearly:

- **Communicate with your loved one:** Open communication helps with adapting to change and uncertainty.
- **Express your needs and feelings:** Clearly communicate your own needs and emotions.
- **Adapt to change together.**
- **Embrace lifestyle changes as a team:** Working together on healthy changes can improve everyone's well-being.
- **Discuss changing family roles:** Talk openly about how roles and responsibilities might need to shift.
- **Share household responsibilities:** Decide together on new ways to manage household tasks.

Encourage independence:

- **Support your loved one in regaining control:** Allowing your loved one to resume daily activities at their pace promotes independence and reduces caregiver burden.

Plan for the future:

- **Talk about the future:** Planning ahead can reduce anxiety and help you prepare.
- **Set personal and family goals:** Establish priorities and make plans for meaningful activities beyond health concerns.

Recognize your strengths and the journey:

- **Acknowledge the positive aspects of caregiving:** Caregiving can be rewarding.
- **Be kind to yourself:** Recognize your efforts and limitations.
- **Understand the ups and downs:** Caregiving is a journey with highs and lows. Be prepared for both and celebrate successes while navigating challenges.

Coping with a loved one in the hospital

There are ways to reduce your anxiety while your family member is in the hospital:

- Ask questions and state your worries to the healthcare team. Use your time in family-team meetings to the fullest advantage. Write down your questions before the meetings so that you are prepared.
- Know that you are considered part of the team because you know your family member better than anyone else.
- Where possible, accompany your family member to appointments or therapy sessions. You will be better able to understand the problems and their solutions.
- Take time to sleep and rest at home when your family member is being closely cared for by the healthcare team, so that you are rested and ready when your loved one is discharged from hospital.

Resources

For more information and support, here are some helpful resources.

University of Ottawa Heart Institute

***Living Well as a Caregiver* guide**

Tips for providing high-quality care for a loved one, and tools for taking care of yourself.
Visit: ottawaheart.ca/living-well-caregiver

***Top 10 Tips* series**

Practical strategies aimed at promoting well-being, restful sleep, and emotional health.
Visit: ottawaheart.ca/rehab-top-10-tips

Cardiovascular rehabilitation guides

In particular: *Sleep Module*, *Depression and Anxiety*, and *Mental Health Resources*.
Visit: ottawaheart.ca/cardiac-rehabilitation-guides

Video: *Mind the Heart*

Learn about strategies and resources to better manage stress and emotions.
Visit: youtube/FnjdgYM5PyI

Video: *Sleep and the Heart 101*

Tips for basic sleep hygiene and an overview of cognitive and behavioural strategies to reduce insomnia.
Visit: youtube/JfWRo9N1-a0

Other organizations

Brain Injury Association of the Ottawa Valley

Non-profit organization that helps acquired brain injury survivors reconnect with their environment.
Visit: biaov.org

Brain Injury Canada — Hypoxia and anoxia

Brain Injury Canada supports those living with acquired brain injury, their families/caregivers, and healthcare professionals.
Visit: braininjurycanada.ca/en/caregiver/about-brain-injury/hypoxia-anoxia

Ontario Brain Injury Association Helpline

The OBIA Helpline offers emotional support, guidance, and resources for individuals with brain injuries, their caregivers, and the professionals assisting them.
Call 1-800-263-5404 or visit: obia.ca/support/helpline

Treatment programs

The Ottawa Hospital Rehabilitation Centre's Acquired Brain Injury Program

The Ottawa Hospital Rehabilitation Centre's Acquired Brain Injury Program (ABI) Care Stream provides patient-centred care from the acute phase through to community reintegration. It offers goal-oriented assessment and therapy to address cognitive, behavioural, psychosocial, and physical needs, aiming to maximize functioning after a brain injury.

The 15-bed inpatient unit typically houses 10 to 12 ABI patients and 3 to 5 behavioural rehabilitation patients. The ABI Inpatient Service team offers education and support to patients, and their families and friends, with a strong emphasis on family involvement.

The ABI Outpatient Clinic and Day Hospital deliver diagnoses, treatment, education, and support to individuals with ABI and their caregivers. They also assist community care providers with treatment recommendations and information.

Contact:
505 Smyth Road, Ottawa, ON K1H 8M2
Phone: 613-737-7350, ext. 75406
Fax: 613-733-8336

Robin Easey Centre

The Robin Easey Centre (REC) provides community-based life skills training, cognitive rehabilitation, and education for adults with brain injuries. Skills taught include social skills, household management, memory strategies, impulse control, stress and anger management, vocational prep, and public transit use. The goal is to equip patients and families with the tools needed for community reintegration.

REC offers three tailored programs—residential, day, and outreach—using a mix of individual and group sessions.

A family/spousal support group is available for those admitted, offering a safe space in which to understand brain injury and develop coping skills. Family involvement is strongly encouraged to support program success.

Contact:
125 Scrivens Street, Ottawa, ON K2B 6H3
Phone: 613-726-1558

Appendix: Ways to improve hand strength and dexterity

OBJECT	ACTIVITY IDEAS
Pencil	• Sharpen pencil with a hand-held sharpener. Rotate pencil in your hand for erasing. Rotate back for writing. Repeat. • Twirl 5 to 10 times in each hand. • Crawl your fingers up and down the pencil. Pick up pencil and adjust it in your hand for proper use. • Complete “mazes” on paper—stay between the lines.
Cards	• Shuffle, place on the table one at a time, flip, pass, hold.
Dice	• Pick up a die, place it in the palm of your hand, shake and roll it. • Rotate two dice around one another in one hand.
Paper clips	• Hold paper clips and fasten them to papers.
Coins	• Pick up a specific coin from a mix of coins (e.g., pick up the dime among the other change) in your wallet. Place the coins in a piggy bank or a small slot cut in a container lid.
Belt	• Buckle a belt.
Shoe with laces	• Lace a shoe. Tie shoelaces.
Dough (e.g., Play-Doh)	• Build a structure using toothpicks and Play-Doh. • Roll, form a ball, and squeeze the Play-Doh.
Nuts and bolts	• Place nuts and washers onto bolts.
Ziploc-type bags	• Seal a Ziploc bag.
Twist ties	• Close a bread bag using a twist tie.
Key ring with keys	• Hold key ring and select one key for use (e.g., to open the door).

OBJECT	ACTIVITY IDEAS
Puzzles and games	- Connect Four and Rubik's Cube, for example. - Place bingo chips on game card. - Make a puzzle.
Tongs / tweezers / chopsticks	- Use tongs, tweezers, or chopsticks to pick up items.
Buttons	- Pick out a specific colour of button from a bag or container of buttons (e.g., pick out all the blue buttons). - Sort buttons according to size and colour.
Rubber bands / elastics	- Put around thumb and forefinger. Stretch the rubber band as far as you can. - If applicable, braid/use an elastic to tie your hair.
Threading beads	- Thread beads onto a shoelace or use them to make a necklace.

Remember

You can alternate four to five items at a time (e.g., every two weeks) depending on the activity your family member wishes to work on that day/week.

Patients should pace themselves. For example: two to three sessions per day for 10 minutes per session.

NOTES