Elective Hyperbaric Oxygen Therapy

Information for patients and families

Read this information to learn:

• what hyperbaric oxygen therapy is
• how it works
• what to expect before and after treatment
• where the therapy takes place
• who to call if you have any questions
What is hyperbaric oxygen therapy?
Hyperbaric oxygen therapy (HBO) uses 100% oxygen at an increased atmospheric pressure. HBO was developed to treat victims of diving accidents. We now use it for other medical and surgical problems.

The University Health Network offers hyperbaric oxygen therapy at the Toronto General Hospital. The Hyperbaric Medicine Unit has delivered over 30,000 HBO treatments using 3 monoplace chambers (1 person treatment equipment).

When do you use hyperbaric oxygen therapy?
Hyperbaric oxygen therapy is supported by the Undersea and Hyperbaric Medical Society and approved by Health Canada for:

- embolisms (air or gas bubbles in the bloodstream, which may travel to your brain or lungs)
- carbon monoxide poisoning (from inhaling smoke or car exhaust)
- gas gangrene
- crush injury, Compartment Syndrome and other severe injuries where blood flow is reduced or cut off (for example, frostbite)
- decompression sickness (the bends)
- improving the healing of wounds such as diabetic foot ulcers (open sores)
- a lot of blood loss (anemia)
- intracranial abscess (a build-up of pus in the brain)
- necrotizing soft tissue infections (flesh-eating disease)
- osteomyelitis (bone infection)
- delayed radiation injury (for example, radiation burns that develop after cancer therapy)
- skin grafts and flaps that are not healing well
- thermal burns (bad skin burns from fire or electric sources)
- sudden hearing loss
What is a hyperbaric chamber?
A hyperbaric chamber is a specially designed room or large tube made of metal or acrylic. It is designed to handle increased internal pressure. When you come to TGH for a scheduled hyperbaric therapy appointment, you will use 1 of these 2 kinds of chambers:

1. Monoplace chamber
   This chamber is designed to deliver 100% oxygen to 1 person. You lie down on a padded table that slides into a clear plastic tube about 7 feet long.

2. Multiplace chamber
   This chamber is designed to deliver 100% oxygen to more than 1 person. This chamber looks like a hospital waiting room. When you are inside, you may sit or lie down. A lightweight, clear hood is placed over your head to deliver the oxygen to you.

- During hyperbaric oxygen therapy, the chamber pressure is raised to about 2 to 3 times normal air pressure. The increased air pressure will create a temporary feeling of fullness in your ears. This is similar to what you might feel in an airplane or high elevation. You can relieve this feeling by yawning.

- While you are in the chamber, 1 of our highly trained hyperbaric staff will check on you constantly. There is a communication system that will allow you and the hyperbaric staff to talk to each other.

- To keep you comfortable during your treatment, you can watch television, movies or listen to music. You may move around inside the chamber, if there is room.
Monoplace chambers

Adapted with permission from: www.panamericaubo.com

How does hyperbaric oxygen therapy work?
At sea level, the atmosphere exerts pressure at approximately 14.7 pounds per square inch (psig) or 101.3 Kpa. We call this 1 atmosphere absolute (ATA). We use 100% oxygen at 2 to 3 ATA of pressure during your treatment. This increased pressure helps get more oxygen to your tissues (there is more oxygen for you to breathe in and more pressure pushing that oxygen into your tissues).

How do I get oxygen while I am in the chamber?
The monoplace chambers are pressurized with oxygen. So, just by being in the chamber and breathing in and out, you will receive extra oxygen. We give you an air break from the oxygen through a mask at the middle point of your treatment.

Who will give me my hyperbaric treatment?
Certified hyperbaric technologists, registered respiratory therapists and registered nurses will give you your hyperbaric treatment. The medical director and all staff doctors for the hyperbaric unit are from the Department of Anesthesia. All doctors working in the hyperbaric unit have been well trained to use hyperbaric medicine.
What do I need to know about my treatment times?

Please come at least 30 minutes before your scheduled treatment time. This allows time:

- for you to change your clothes.
- for one of our staff members to check your:
  - blood pressure
  - heart rate
  - blood sugar
  - breathing, if needed
- to give you medicines, if needed
- to finish getting you ready for your treatment

Our treatment times:

The Hyperbaric Medicine Unit opens at 7:00 am. Sometimes it may be necessary to change the treatment schedule, but usually the:

- 1st treatment starts at 7:30 am
- 2nd treatment starts 2 hours after that
- 3rd and 4th appointments follow the same pattern

Remember: Sometimes emergencies and other patient needs make it necessary for us to change your treatment time with short notice. We apologize for this inconvenience, but we will try our best to reschedule your treatment as soon as possible.

Please do your best to be on time so we can provide you with the best treatment.

If you are late for your appointment, we may need to reduce your treatment time or cancel your treatment. If you are often late or absent for your appointments without 24 hour notice, we may remove you from the program.
Please add extra time before and after your appointment if you need help to get to your appointment or more time to get dressed after. Have a family member or friend to come with you if possible. This may be difficult, but it will help make sure that we are able to give you your full treatment.

**How often will I have my treatments?**

We create your treatment plan based on your health problem. Most patients have 1 treatment per day, 5 days per week (Monday to Friday) for 6 to 8 weeks.

We will review your health problem and talk to you about the best treatment plan for you. Our hyperbaric doctor will explain the reason you are getting the therapy and the expected results. We will contact you with your appointment dates.

**How should I prepare for my treatment?**

Before you arrive for your treatment:

- Have a healthy snack 1 hour before your treatment.
- Wear 100% cotton underwear.
- Bring slippers or other non-outdoor footwear.
- Remove any make-up including lipstick, eyeliner, nail polish or perfume.
- Remove any:
  - body lotion or oils
  - hairspray, hair mousse or gel
  - nylon stockings
  - watches, earrings or other kinds of piercings and jewelry on your body
Before you start your treatment:

For safety reasons, follow these instructions before your treatment:

1. Remove your bra if you are wearing one.
   Note: You don’t have to remove panty liners or adult diapers (for example, Depend®). Panty liners and diapers must be scent free and without designs.

2. Put on the special hyperbaric clothing we give you.

3. If you are diabetic, check your sugar levels (we can help you).

4. Empty your bladder just before your treatment.

5. Let the doctor and technician know if there have been any changes to your health.

These items are not allowed inside the hyperbaric chamber:

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<th>Kinds of items</th>
<th>Examples</th>
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<td>• products with glycerine</td>
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<td>• after shaves or skin lotions</td>
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<td>• moustache wax</td>
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<td>• nail polish</td>
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Will the changes in the hyperbaric chamber pressure cause any pain or discomfort?

Compression phase (when we increase the chamber pressure)
During this phase, oxygen is added to the chamber. It’s also being pressurized to meet the right treatment pressure. The compression of the oxygen will make the temperature slightly warmer.

During this phase, you will feel fullness in your ears. It will feel the same as flying, scuba diving or coming down in an elevator.

- Before you start your treatment, we will show you how to clear or equalize this pressure in your ears. Tell your attendant right away if you feel pain or have any trouble clearing your ears during your treatment. The attendant will stop the pressurization and help you.

- If you are unable to clear your ears, we may send you to an ear, nose and throat specialist. The specialist would place tubes in your ears. It’s a simple procedure and will help stop pressure build-up in your ears. These tubes will stay in your ears while you are being treated at the Hyperbaric Medicine Unit.

Decompression phase (when we decrease the chamber pressure)
During this phase, the chamber pressure is safely lowered back down to normal. At this time, the decompression of the oxygen will make the temperature cool off slightly. We will give you sheets and blankets to keep you comfortable.

- As the pressure in the chamber decreases, you may feel a “popping” feeling in your ears. This is normal. It sounds like Rice Krispies® cereal. It may feel strange, but it doesn’t hurt. Please continue to breathe normally.

- In this phase of your treatment, the pressure in your ears will equalize without you doing anything special.
What else do I need to know?

Eyes

Sometimes, patients receiving daily hyperbaric treatments notice minor temporary changes to their eyesight. If this happens to you, your vision will usually return to normal within 4 to 8 weeks after you finish your treatment. If you notice any changes, please report them to the hyperbaric doctor.

Smoking

Don’t smoke during the entire time that you are having hyperbaric treatment. Smoking decreases the amount of oxygen going to your tissues.

When you smoke, the nicotine in the cigarette causes your small arteries to close or narrow. This makes it impossible for blood (which carries the oxygen) to get to the tissues that need to heal. Even after smoking 1 cigarette, these small blood vessels can stay closed or narrowed for several hours.

For most of our patients, hyperbaric therapy is used to create new blood vessel growth in areas that have poor circulation. We need to keep these vessels open. The nicotine from smoking works against this. That is why we say, “No smoking!”

Food and caffeine

Good nutrition is important for wound healing.

- Follow Canada’s Food Guide to eat a balanced diet. Website: www.healthcanada.gc.ca/foodguide

- Don’t eat or drink anything with caffeine (for example: coffee, tea, colas, Tylenol with codeine, chocolate) while having your hyperbaric treatments. Caffeine can decrease the amount of oxygen that travels through your blood vessels. If you can’t stop eating or drinking foods with caffeine, don’t have any for 2 hours before and 2 hours after your treatment.
Please tell us if you have diabetes. Please let us know whether or not you are taking insulin.

- Hyperbaric oxygen treatment may drop your blood sugar. To have your treatment, your blood glucose reading must be a minimum of 7mmol/L. By changing your eating plan or your medicines, we can help you to control this.
- During your treatment, we may give you extra calories, like a glass of juice to drink. You may find it helpful to bring a healthy snack to your treatment.
- We will need to know your glucose level before and after your treatment.
- We may adjust your diabetes medicine. For example, we may ask you to decrease your morning diabetic medicine or wait to take it after your treatment.

Medicines

Please tell the hyperbaric physician what medicines you are taking. There are some medicines that you can’t take during your hyperbaric therapy. If you are taking 1 of these medicines, we will work with you to find a solution.

If you need to take a medicine during your treatment time, please bring it to your appointment in its original labeled container. We will arrange for you to take it before or after your treatment.

Illnesses

If you get sick with a cold, flu, or sinus problem, you may not be able to clear your ears during pressure changes in the chamber. Please call the Hyperbaric Unit and talk with our staff. We may need to reschedule your treatments until you are feeling better.
Visitors in the Hyperbaric Unit

Visitors are not allowed in the Hyperbaric Unit treatment areas. During your treatment, your family or friends may wait in the waiting area. If a member of your family would like to see the Hyperbaric Unit, speak to one of our staff members, and we may be able to arrange a tour.

Talk to your health care team for more information about your health care plan. Remember to ask them any questions you may have.

Go to your nearest emergency department if you need help right away with any health problems.

Who can I call if I have any questions?

Hyperbaric Medicine Unit
Ground Floor, Clinical Services Building
Toronto General Hospital (TGH)
200 Elizabeth Street
Peter Munk Building – Ground floor, room 107
Toronto, ON M5G 2C4
📞 Phone: 416 340 3598
📠 Fax: 416 340 4481

Directions:

From the TGH Elizabeth Street entrance:
You will be in the Eaton Building. Walk past the Information Desk toward the food court. At the food court intersection, turn left. Follow the signs to the Hyperbaric Medicine Unit. We are located just down the hall, room G–PMB 107.

From the TGH Gerrard Street entrance:
You will be in the Gerrard Building. Walk past the information desk down the hall to your left. Look for the sign Hyperbaric Medicine, room G–PMB 107.
Closest subway:

- The nearest subway entrances to TGH are the College Station at Yonge and College Streets or Queen's Park at University Avenue and College Street.
- From either station you can walk to College and Elizabeth Street (one street east of Queen's Park station or 2 streets west of College station).
- Turn south on Elizabeth Street and walk about half a block until you reach the Eaton Wing.

Parking

Parking is available at different parking lots around the Toronto General Hospital. You may pay between $15 to $30 for parking.
Toronto General Hospital Hyperbaric Medicine Unit

Confirmation of Instructions

I, ___________________________, have been given information about my
(print patient name)

Hyperbaric Oxygen Therapy, such as:

1. What hyperbaric oxygen therapy (HBOT) is
2. When HBOT is used and why it is being used for me
3. Information about the hyperbaric chamber
4. How the treatment works
5. How long my treatment will be
6. My treatment times and department hours
7. What happens if I am late and miss appointments
8. What I need to do to prepare for my treatments
9. Changes of pressure and the possible effects on my body
10. Unit staffing
11. Visitor rules

I have read and I understand the safety rules in this brochure.

___________________________________            ______________
Patient’s signature                                         Date

It is very important that we have all your correct contact information
(telephone, cell phone and e-mail) so we are able to contact you to
reschedule your treatment.