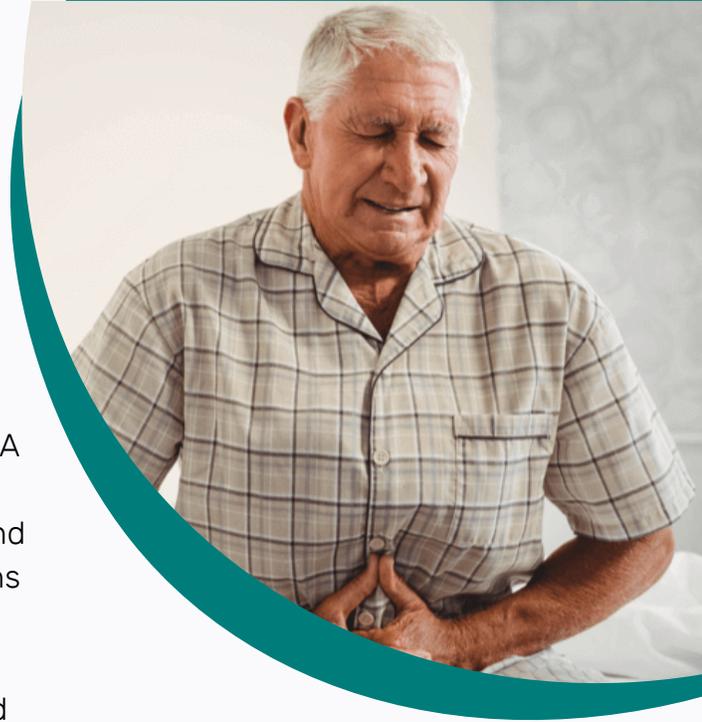


# HBOT Heals Hemorrhagic Cystitis

Hyperbaric oxygen therapy (HBOT) is approved by the FDA and is covered by Medicare and most private insurance companies to treat radiation cystitis, radiation proctitis and proctopathy, soft-tissue necrosis, and other complications from radiation therapy. HBOT improves long-term tissue oxygenation of hypoxic tissues, increases angiogenesis, reduces inflammation, stimulates collagen formation, and promotes re-epithelialization. Numerous research studies confirm that at least 76% of patients show significant resolution of their HRC after HBOT.



## How Hyperbarics Helps



Hyperoxygenation



Neovascularization



Fibroplasia



Collagen synthesis



Vasoconstriction



Increased WBC killing capacity



Attenuation of reperfusion injury



Bubble reduction



Stem cell mobilization

## What Research Says

Radiation-induced hemorrhagic cystitis (HRC) occurs in up to 12% of patients treated with pelvic radiation. HRC can arise anywhere from one month to 10 years after the original radiation, and

fortunately, hyperbaric oxygen therapy has been shown to help heal even delayed radiation injury. Complications from pelvic radiation include

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obliterative endothelialitis, which is hypovascular, hypoxic and hypocellular. This results in low self-healing rates and cessation of fibroblast activity. It also decreases tissue collagen matrix formation, angiogenesis, osteoblast/osteoclast activity, and tissue and bone formation.

Many physicians refer their patients with HRC to Hyperbaric Oxygen Therapy (HBOT) to heal the bladder wall and stop the bleeding. HBOT also helps relieve the sense of urgency that some patients experience as well, so they do not have to get up often in the night. This condition can of course be painful and occasionally life-threatening.

In fact, most insurance companies cover the cost of hyperbarics for patients not only with obvious damage, but also those who present with just a sense of urgency after radiation therapy.

The authors of one large review report that 57% of the 44 patients had complete resolution and another 32% had improvement of 50-90%. [1] In another series of 196 patients, 76.3% had either complete or partial resolution. [2] That said, early HBOT intervention is critical in achieving success and preventing loss of life. One study showed that hemorrhagic cystitis patients who do not receive HBOT treatments experience a 3.7% mortality rate.[3]

## Research Studies

[National Library of Medicine](#)

### Radiation-induced cystitis treated with hyperbaric oxygen therapy (RICH-ART)

Researchers in this study conducted a randomized, controlled, phase 2-3 trial (RICH-ART [Radiation Induced Cystitis treated with Hyperbaric oxygen-A Randomized controlled Trial]) at five Nordic university hospitals. All of the patients had completed at least six months of treatment and had a score of less than 80 in the urinary domain of the Expanded Prostate Index Composite Score (EPIC), and referred to participating hyperbaric clinics due to symptoms of late radiation cystitis.

[National Library of Medicine](#)

### Hyperbaric oxygen and radiation therapy: a review

Hyperbaric oxygen therapy (HBOT) has been used as a treatment for radiation injuries for decades, with many publications presenting data from small series or individual cases. Moreover, we know that the hypoxic areas of tumours are more resistant to radiation. HBOT increases the oxygen tension in tissues and, theoretically, it should enhance the efficiency of radiotherapy. To better understand how HBOT works, the researchers in this study carried out a bibliographic review. They found Grade B and C evidence that at pressures exceeding 2 absolute atmospheres (ata), HBOT reduced late-onset radiation injuries to the head and neck, bone, prostate and bladder. It also appeared to prevent osteoradionecrosis after exodontia in irradiated areas. Finally, HBOT at 2 ata increased the effectiveness of radiation in head and neck tumors and achieved promising results in the local control of high-grade gliomas.

## Treatment of radiation induced hemorrhagic cystitis with hyperbaric oxygen

Of 57 patients in the study, 49 (86%) experienced complete resolution or marked improvement of hematuria following hyperbaric oxygen treatment. Of the 8 patients who did not improve, 4 received fewer than 40 hyperbaric oxygen treatments and 7 prematurely terminated treatment (medical co-morbidities 4, claustrophobia 2, temporary resolution of symptoms 1).

### Patient Experiences

Bay Area Hyperbarics has healed hundreds of patients with stubborn and non-healing wounds over the last 20 years.

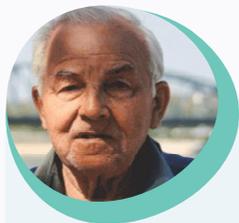


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Ginger is a talkative, adventurous librarian who loved her dance classes. She had had radiation for her vaginal cancer. However radiation damage occurred 5 years after her treatment. The damage and pain prevented her from dancing and even wearing pants. HBOT resolved her pain, swelling and discharge. Ginger resumed her dance classes, her relations with her husband and returned full time to work wearing pants. She was such an advocate of HBOT she would talk about us and send strangers she had talked to over to see us even 6 years after we healed her.

#### **Ginger, 48**

Recovered from radiation damage occurred 5 years after her treatment.



”

John is a quiet guy with a nice smile who had bladder cancer and radiation therapy 12 years prior to coming in to see us. He had blood in his urine, passed occasional painful clots and had urinary frequency which kept him getting up often at night. After HBOT, the bleeding and passing clots stopped and his frequency resolved.

#### **John, 64**

Recovered from occasional painful clots due to bladder cancer.



”

John, who is a salt-of-the-earth kind of guy, came in after having multiple other treatments some very painful, to stop his bladder from bleeding. Unfortunately, none of the previous treatments helped. Most patients who come to us to try hyperbaric oxygen therapy for a damaged bladder have already tried other conservative measures, which sadly have resulted in failure. In John's case, he even had two transfusions. He also passed painful clots from time to time that resulted in his having to make several trips to the ER. He got up frequently at night to urinate and limited his social life as a result. Hyperbarics healed John's bladder, and the bleeding stopped. He left feeling much more enthusiastic about life. She had breast reconstruction and subsequent surgical wounds. Unfortunately, one of the incisions became infected, painful and slow to heal. Denise was hospitalized and given IV antibiotics. She came to Bay Area Hyperbarics because her physician said she wasn't healing quickly because the radiation had damaged the tissues. She moved slowly so as not to jostle her shoulder which would cause her more pain. The hyperbaric oxygen sessions healed up her incision and supercharged the antibiotics to kill the infection. Needless to say she is healed and on the road again taking care of others in need.

## John, 73

Healed from bleeding bladder which even two transfusions couldn't heal.

## Refer a Patient

Refer a patient in three easy steps.

### 1 You submit patient's information

As a provider, your office fills out and faxes back the Patient Referral Form. Have questions? Call us!

### 2 We get authorizations

We make sure the patient understands treatment and then follow the prescribed protocol to get the patient on the road to recovery!

### 3 Patient starts HBOT

Our medical staff meets with the patient to ensure that HBOT is appropriate, and contacts Medicare or private insurance to receive authorization.



Call Us: (408) 356-7438

Scan for Patient Referral Form