

E-NEWS

The E-News is the monthly newsletter of CUHMA, the primary outlet to share news/announcements, upcoming events, abstracts of recent publications, job postings, professional perspectives, and images of relevant professional scenes. Submission of applicable content is welcome. New issues are released on the last business day of each month. Past issues are available at <https://cuhma.ca>. Direct correspondence to info@cuhma.ca.

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NEWS/ANNOUNCEMENTS

Call for Abstracts – CUHMA VSM 2026

Original research abstracts are invited for the 2026 CUHMA virtual scientific meeting. Any reports or novel case studies or case series relevant to hyperbaric medicine or diving medicine/physiology/safety will be considered. All presentations will be oral (12 min presentations followed by a 3 min question and answer period). The submission deadline is March 01, 2026. Decisions will be returned to corresponding authors by March 15. Abstracts should be in standard form: informative title, author list, affiliations list, and 250-word summary (introduction, methods, results, and conclusions). Send abstracts to neal.pollock@kin.ulaval.ca.

UPCOMING EVENTS

Canadian Underwater Conference 2026

The Diver Certification Board of Canada (DCBC) will hold the Canadian Underwater Conference & Exhibition March 24-26 at the Holiday Inn Toronto International Airport hotel. Visit: <https://www.underwaterconference.ca>.

CUHMA Virtual Scientific Meeting 2026

CUHMA will hold a one-day online conference on Saturday, May 02. The 7.5-hour program will bring together an international panel to present a combination of invited reviews and original research presentations. Registration fees are \$100 (regular member), \$75 (affiliate member/student registered in an academic program), and \$150 (non-member). Updates will be posted: <https://cuhma.ca/cgi/page.cgi/annual-scientific-meeting.html>.

UMC Introductory Diving Medicine Course

Undersea Medicine Canada will offer a Level 1 'Introductory Course in Diving Medicine - Fitness to Dive' May 11-15 in Halifax, NS. An optional half-day pre-course will be held May 10 for those wanting additional preparation for the program. Upon successful completion of the course, physicians will qualify as CSA Z275.2-15 Level 1 Diving Medical Examiners and can have their names listed with the Diver Certification Board of Canada (DCBC) to conduct commercial diver medicals in Canada. This 40-h course has been accredited for 35 MAINPRO+ CME credits by the College of Family Physicians of Canada. The registration portal will open on January 15. Contact Dr. Debbie Pestell (drdeb1@ns.sympatico.ca; 902-225-8214) or visit: <https://underseamedicine.ca> for more information.

Divescapes Scuba Conference 2026

The Divescapes scuba conference and exhibition will be held October 16-17 at the Evario Events Centre in Edmonton, AB. The Alberta Underwater Council program includes international speakers, workshops, and trade show booths. Visit: <https://www.divescapes.ca>.

RECENT PUBLICATIONS

Belgen Kaygisiz B, Selcuk F, Çoban F, Izbul T. Physiotherapy rehabilitation strategies as an adjunct to hyperbaric oxygen therapy in a patient with diving-related spinal cord decompression sickness: a case report. Acta Neurol Taiwan. 2025 Oct 1;34(4):224-231. doi: 10.4103/ANT.ANT_112_0091. Epub 2025 Dec 30.

"Decompression sickness" (DCS) is a rare neurologic condition that is generally seen in divers which sometimes lead to decreased physical and functional capacity. The purpose of our study is to investigate the effects of a high-intensity physiotherapy rehabilitation program on the physical capacity and functional level of a patient diagnosed with DCS who had residual physical impairments. A 65-year-old male with acute incomplete T4 spinal cord injury was diagnosed with DCS when he got on the boat after 35 min of diving. He experienced acute-onset paresthesia and upon moving his lower extremities, he noted bilateral leg weakness and difficulty in standing up and walking. The physiotherapy and rehabilitation program in addition to hyperbaric oxygen therapy started on the 1st day of hospitalization and continued six times per week

during the first 3 months and four times per week for the next 3 months. The motor and sensory level of the patient was evaluated by the American Spinal Injury Association. Functional independence level, static and dynamic balance ability were recorded with functional independence measurement and functional reach test, respectively. Clinically important improvements have been observed in the patient's muscle strength, sensation, balance ability, and ambulation parameters. Treatment of DCS should be supported by a physiotherapy rehabilitation program when there are residual physical impairments to increase functionality and prevent permanent disability. Different rehabilitation strategies must be further examined.

Hostler D, Murphey JT, Schwob J, Clemency BM, Monaco BA, Hess HW. Standby divers in warm to hot environments suffer heat stress and hypohydration. Temperature (Austin). 2025;12(4):365-372. doi: 10.1080/23328940.2025.2532249. eCollection 2025.

Standby divers must be fully dressed in the appropriate ensemble during military and commercial diving operations. These garments are often fully encapsulating and may result in heat stress and hypohydration when worn in warm environments. We examined the physiologic responses to heat in subjects wearing a Viking HD drysuit during 1 hour of exposure to dry-bulb temperatures of 33°C, 36°C, 39°C, and 42°C. Euhydrated subjects donned a heavy rubber drysuit and chemical protective gloves over a lightweight base layer. The drysuit was appropriate for contaminated water diving with integrated boots and neck dam. Heart rate (HR), core (T_c), and skin (T_{sk}) temperatures were monitored. Eight subjects (4 males) aged 27±5 y completed all study conditions. HR and T_c increased over time ($p<0.001$). Seated HR peaked at 138±17 bpm in the 42°C and at 114±13 bpm in the 39°C condition. Peak T_c was 37.0±0.2, 37.1±0.2, 37.4±0.3, and 37.9±0.5°C in the 33°C, 36°C, 39°C, and 42°C conditions, respectively, and differed between all conditions ($p<0.001$) except 33°C and 36°C ($p=0.60$). Sweat rates progressively increased in the warmer conditions and corresponded with a -0.20±0.10, -0.40±0.19, -0.69±0.46, and -0.99±0.55% change in body mass. Even in the absence of radiant heating, significant hypohydration and heat stress occurs in standby divers after 30 min of exposure to 42°C and after 40 min at 39°C. Awareness of the conditions and rotation of standby divers could increase mission safety in these hot environments.

Muroya D, Nadayoshi S, Yamada K, Kai Y, Masuda T, Miyazaki D, Sasaki S, Shimokobe H, Shimokobe H, Okamoto K, Hiramatsu T, Inoue M, Konno T, Okamoto K. The effects of hyperbaric oxygen therapy in postoperative patients with ulcerative colitis: a retrospective study. Kurume Med J. 2026 Jan 29. doi: 10.2739/kurumemedj.MS721234005.

Objectives: Numerous clinical trials have proven that hyperbaric oxygen therapy (HBOT) is an effective adjunctive treatment for inflammatory bowel disease (IBD). The present study evaluated the effect of HBOT in patients with postoperative ulcerative colitis (UC). **Methods:** This retrospective study examined the effects of HBOT on short-term postoperative outcomes in patients with UC. This study included 21 patients with postoperative UC between January 2013 and December 2023. Of these, six patients received HBOT; the previous indication for HBOT was postoperative ileus. The nutritional status, inflammatory findings, and disease severity scores were evaluated during the one-month postoperative period. **Results:** In the univariate analysis, the mean age was higher in the non-HBOT group than in the HBOT group (54.3 vs. 64.9 years old, $p=0.0461$), although the operative details and severity did not differ markedly. The usefulness of the controlling nutritional status (CONUT) score as a nutritional screening and predictive tool has been demonstrated for various inflammatory and neoplastic diseases, including UC. The CONUT score was inversely correlated with Onodera's prognostic nutritional index and positively correlated with the platelet count, C-reactive protein level, and erythrocyte sedimentation rate. In addition, the HBOT group had a lower CONUT score 1 month after surgery than the non-HBOT group (2.0 vs. 4.4, $p=0.0190$). **Conclusions:** Postoperative UC patients who received HBOT had better CONUT scores at 1 month compared to those who did not.

Peter S, Michaelis A, Wagner R, Marshall RP, Bovet M, Weickmann J, Weidenbach M, Dähnert I, Paech C. Cold shock response in healthy children: reassessment and first comparison between cold and warm water immersion. Front Sports Act Living. 2026 Jan 12:7:1610144. doi: 10.3389/fspor.2025.1610144.

Introduction: Swimming and diving are popular recreational activities and essential skills to prevent death from drowning. While most drownings occur in cold water, cold shock response is discussed as a major cause of drowning. Until now, the data on the physiology of drowning and cold shock response in children are scarce, while drowning remains a significant concern in this population. This study was conducted to investigate the cold shock response in healthy children and compare cold and warm water immersion. **Methods:** Participants were first immersed up to the neck in warm water (34 °C, close to thermoneutral) and then in cold water (11 °C), while skin temperature, ECG, heart rate, respiratory rate, oxygen saturation and peripheral perfusion index were continuously monitored. **Results:** Heart rate and respiratory rate remained constant in warm water. In cold water, heart rate increased by 31% and respiratory rate by 58%, peaking at 30 s and beginning to normalize after 60 s. **Conclusion:** The current study presents new data on the cold shock response in healthy children and the first

comparison between cold water immersion and warm water immersion in this population. Data showed that immersion into 11°C (52°F) cold water leads to significant increases in heart rate and respiratory rate, in contrast to immersion in warm water. Remarkably, there is a lower intensity of the cold shock response in children compared to adults.

Soriano VH, Laspro M, Lee WY, Parker S, Taneja SS, Brucker B, Gorenstein S, Chiu ES. Outcomes of hyperbaric oxygen therapy at 2.0 versus 2.5 ATA for hemorrhagic radiation cystitis. *Neurourol Urodyn.* 2026 Jan 28. doi: 10.1002/nau.70221. Online ahead of print.

Purpose: Hemorrhagic radiation cystitis (HRC), a complication of pelvic radiation therapy, results from hypoxic and ischemic injury and causes urinary symptoms like hematuria, dysuria, frequency, urgency, and retention. Hyperbaric oxygen therapy (HBOT), where patients breathe 100% oxygen at increased atmospheric pressure, enhances tissue oxygenation, promoting neovascularization and reducing inflammation. The optimal pressure remains unclear, though pressures above 1.41 ATA are efficacious, with higher pressures increasing side effect risks. This study compares the efficacy and side effects of 2.0 versus 2.5 ATA therapy at two sites. Methods: A retrospective chart review of 93 patients treated for HRC at two sites was conducted. Data on demographics, efficacy (symptom reduction), and side effects were analyzed using GraphPad Prism. Chi-squared and Mann-Whitney tests were used for statistical analysis. Mixed effects logistic regression models were used. Results and conclusions: Fewer patients treated at 2.5 ATA experienced gross hematuria within 1-year post-therapy compared to those treated at 2.0 ATA ($p < 0.05$). However, time to hematuria recurrence showed no difference between the groups (10.2 vs. 9.6 months). No difference was observed in other urinary symptoms. Adverse events were increased at 2.5 ATA when analyzed with a mixed effects logistic regression model. Other treatment parameters, including treatment number and duration, were similar across groups. These findings suggest an association between 2.5 ATA treatment and lower rates of hematuria recurrence, but further randomized studies are necessary to determine causality. Future studies should also assess quality of life and explore variations in treatment protocol for efficacy and safety.

Werling D, Rák T, Kanász G, Göbl A, Borbély G, Csutak A. Exploring hyperbaric oxygen therapy for central retinal artery occlusion beyond 24 h: case report. *Ther Adv Ophthalmol.* 2026 Jan 20:18:25158414251405382. doi: 10.1177/25158414251405382. eCollection 2026 Jan-Dec.

Central retinal artery occlusion (CRAO) is a rare emergency, often affecting individuals over 60, with risk factors such as hypertension, diabetes, and smoking. Hyperbaric oxygen therapy (HBOT), classified as level IIb

by the American Heart Association for CRAO, helps maintain retinal oxygenation during ischemic events by diffusing oxygen through choroidal capillaries. While HBOT appears promising for addressing various vision-threatening conditions, including retinal occlusions and diabetic macular edema, it has not been officially approved for these indications. A 70-year-old male presented with painless vision loss in his right eye, noticed upon waking, accompanied by high blood pressure. On examination, light perception was detected in the right eye, and visual acuity in the left was 0.6. Biomicroscopy revealed CRAO in the right eye, with a cherry-red spot, retinal edema, and absent circulation. Optical coherence tomography (OCT) confirmed retinal edema and subretinal fluid. Given that the thrombolysis window had passed, HBOT was initiated within 48 h of presentation. Following the first treatment, the patient experienced improvement in vision, with light perception expanding beyond the peripheral area. CRAO is an ocular emergency, and early treatment is crucial for improving visual outcomes. HBOT, recommended within 6-12 h of diagnosis, has shown promise in restoring vision. In our case, HBOT administered within 48 h led to improved peripheral vision, with the presence of a cherry-red spot on the macula associated with better recovery. While HBOT can have side effects, none were observed here. Despite challenges in conducting large-scale trials, HBOT remains a potentially effective treatment for CRAO, especially if started early.

CUHMA-ACMHS is the Canadian voice for the advancement of hyperbaric and diving medicine throughout our country and beyond. Our activities include continuous medical education for physicians, nurses, respiratory therapists and anyone involved in the fields of hyperbaric and diving medicine. We are also promoting dissemination of clinical research, publishing position statements, liaising with related professional associations and government agencies. Our main goal is advocating on behalf of our patients. Our vision is to be the reference for the development and delivery of hyperbaric and diving medicine in Canada and beyond. Our mission is to promote excellence in hyperbaric and diving medicine through leadership in education, promotion of best practices and advocacy for our patients. Our values are excellence, leadership, collaboration, communication, and integrity.

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