CUHMA ACMHS
Canadian Undersea and Hyperbaric Medical Association
Association Canadienne de Médecine Hyperbare et Subaquatique

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.

Neal W. Pollock, PhD
Université Laval

NEWS/ANNOUNCEMENTS

Invitation to Participate in a Diving Safety Research Study

Djamdoudou Abdou Rahman, MD and Neal W. Pollock, PhD are conducting a research study focused on understanding diving incidents and identifying potential contributing factors. The project aims to gather insights and experiences from divers worldwide to assess and enhance the safety and well-being of the diving community. Support can be through participation and/or sharing the following survey link with any divers who may be interested.
The survey is voluntary and anonymous. It is expected to take 5 to 20 minutes to complete, depending on personal experience. Prerequisites include age ≥15 years, diving certification of any type, and an ability to complete the survey in English or French. Thank you in advance.
https://questionnaire.simplesurvey.com/f/s/diving_incident_survey.

CUHMA Online Safety Seminar Completed

We were pleased to host RB 'Gus' Gustavson for an online seminar "cultural sensitivity in healthcare" on July 29. Gus delivered an insightful and well-received presentation, highlighting effective strategies for navigating communication barriers and supporting patients in making informed medical decisions. The presentation and follow-on discussion were captured in the program recording, which will be available for members on the CUHMA website. The session qualified for 2 Category B credits from the National Board of Diving & Hyperbaric Medical Technology (NBDHMT). We welcome suggestions for future seminar topics; please send your ideas to info@cuhma.ca.

Hyperbaric Chamber Death

A 43-year-old man died on July 09 in a flash fire while in a monoplace hyperbaric chamber in Lake Havasu City, AZ. An investigation of the events is underway. This is the second chamber-related death in 2025 in the US.
https://www.cbsnews.com/news/physical-therapist-dies-hyperbaric-oxygen-chamber-fire-arizona-facility.

UPCOMING EVENTS

EUBS Annual Scientific Meeting 2025

The annual scientific meeting of the European Underwater and Baromedical Society will be held September 02-06 in Helsinki, Finland. Program events include an advanced diving accident life support course (14 h classroom paired with 15-20 h of online self-study), and workshops addressing hyperbaric safety and diving medicine cases. Information will be posted on the dedicated conference website: www.eubs2025.com.

Canadian Association of Wilderness Medicine 2025

CAWM is a non-profit organization with the goal of connecting Canadian practitioners and researchers with an interest in wilderness medicine, and in promoting the field as an area of focus and specialization. The sixth annual conference - Prepared for the Unpredictable: Advancing Medicine in the Wild - will be held October 03-05 in Canmore, AB and virtually in a hybrid format. Pre-conference workshops include advanced wilderness life support, technical rope rescue, and wilderness airway management. Visit: https://cawm.ca/cawm2025-2.

Brazilian Congress of Hyperbaric Medicine 2025

The 10th Brazilian Congress of Hyperbaric Medicine & 2nd Brazilian Congress of Hyperbaric Medicine will be held October 16-18 at the Hotel Laghetto Viverone in the Serra Gaúcha region of Brazil. The conference will address six main areas: maritime medicine, diving, hyperbaric oxygen therapy, safety in maritime environments, safety in hyperbaric environments, and wound care. Visit: https://sbmh.com.br/evento/10o-congresso-brasileiro-de-medicina-hiperbarica-2o-congresso-brasileiro-de-medicina-maritima.

RECENT PUBLICATIONS

Al Lawati YK, Hazra D, Al-Alawi AKA, Al Abri S. A rare case of acute carbon monoxide toxicity mimicking stroke and successfully managed with hyperbaric oxygen therapy. Sultan Qaboos Univ Med J. 2025 May 2;25(1):50-53. doi: 10.18295/squmj.7.2024.048. eCollection 2025.

Acute carbon monoxide (CO) poisoning significantly impacts neurological function, stemming from incomplete combustion of carbon-containing materials; this poses a substantial risk. Symptoms range from mild headaches to severe neurological complications, complicating diagnosis. Primary treatment involves supplemental oxygen via a non-rebreather mask. Hyperbaric oxygen therapy (HBOT), though debated, initiated within 6 hours, may enhance carboxyhaemoglobin (CO-Hb) elimination and tissue oxygenation, even with decreased CO-Hb levels. We report an 82-year-old female patient who presented to the emergency department of a tertiary care hospital in Muscat, Oman, in 2024 with symptoms initially suggestive of a cerebrovascular event. However, further history and examination revealed indications of acute CO poisoning, likely due to exposure to a charcoal-burning heater. Despite stable vital signs, her CO-Hb and lactates levels were high. Treatment with normobaric oxygen therapy resulted in some improvement, but significant neurological recovery was achieved with HBOT. This case represents the first documented instance of successful HBOT treatment for acute CO toxicity in Oman.

Blackbourn LW, Abdou Zeid J, Hamid U, Hamid U. Seizure occurrence during hyperbaric oxygen therapy: a case report and literature review. Cureus. 2025 Jun 19;17(6):e86391. doi: 10.7759/cureus.86391. eCollection 2025 Jun.

Pelvic radiotherapy can lead to lasting bladder complications such as radiation-induced hemorrhagic cystitis. Hyperbaric oxygen therapy has emerged as a worthwhile intervention, enhancing tissue oxygenation and promoting neovascularization. However, hyperbaric oxygen therapy carries the risk of seizures, particularly with prolonged exposure to elevated pressures. In this case report, we describe a case of new-onset seizure occurrence in an 88-year-old patient during their first session of hyperbaric oxygen therapy for treatment of radiation-induced hemorrhagic cystitis, highlighting the complexities of balancing therapeutic benefits with potential neurological risks.

Brunner A, Lindenmann J, Pistracher K, Micko A, Pichler A, Enzinger C, Smolle-Jüttner F, Wolfsberger S, Kurschel-Lackner S. Hyperbaric oxygen therapy for brain abscesses: A useful adjuvant treatment for a faster recovery. Neurosurg Rev. 2025 Jul 30;48(1):583. doi: 10.1007/s10143-025-03721-9.

Brain abscesses are still characterized by substantial case fatality rates and a high risk of permanent functional impairment. Standard treatment consists of long-term antimicrobial therapy and various neurosurgical interventions. In a few institutions, hyperbaric oxygen therapy (HBOT) is used as an additional treatment modality. The purpose of this study was to evaluate the effects of adjuvant HBOT on neurological and radiological outcomes in patients with brain abscesses. 55 patients with brain abscesses treated at the Medical University Clinic of Graz between 2004 and 2022 were included in this retrospective analysis. Thirty patients (54.5%) received standard therapy, consisting of long-term antimicrobial therapy and at least one neurosurgical intervention. Twenty-five patients (45.5%) additionally underwent HBOT. After three months, 24% of patients in the HBOT group and 10% in the non-HBOT group exhibited no residual abscess or pathological enhancement; at six-month follow-up, the percentage increased to 80% in the HBOT group compared to 46.7% in the non-HBOT group (p=0.009). At 12-month follow-up, a symptom-free status (modified Rankin Scale 0) was attained by 60% of HBOT group patients and 30% of non-HBOT group patients (p = 0.046). The 12-month mortality rates for HBOT and non-HBOT groups were 12% (n=3) and 20% (n=6), respectively. No adverse effects related to HBOT were noted. Adjuvant HBOT significantly improved radiological outcome after 6 months, neurological outcome after 12 months and reduced mortality. HBOT may be taken into consideration in all patients with brain abscesses, particularly in cases with deep seated or multiple lesions and when antimicrobial and surgical treatment had failed.

Lippmann JM. A temporal comparison of 50 years of Australian scuba diving fatalities. Int J Environ Res Public Health. 2025 Jul 19;22(7):1148. doi: 10.3390/ijerph22071148.

Australian scuba fatalities over 50 years were examined to determine temporal changes over two consecutive periods, 1972-1999 and 2000-2021. The Australasian Diving Safety Foundation database and National Coronial Information System were searched to identify scuba deaths from 1972 to 2021. Historical data, police and witness reports, and autopsies were recorded and comparisons made between the two periods. Of 430 total deaths, 236 occurred during 1972-1999 and 194 during 2000-2021, with average annual fatalities of 8.4 and 8.8, respectively. The proportion of males reduced (83% to 76%) and median ages rose (33 to 47 years) with a large rise in the percentage of casualties among people aged 45 years or older (24% to 57%). There

were increases in certified divers (64% to 81%) and in the proportion of divers who were with a buddy at the time of their incident (17% to 27%), as well as a decrease in out-of-gas incidents (30% to 25%). A reduction in primary drowning (47% to 36%) was accompanied by more than a doubling of cardiac-related disabling conditions (12% to 26%). The substantial increase in casualties' ages and of the proportions of casualties aged 45 or more and of females between the periods indicate the inclusion of a broader cohort of participants and ageing of longtime divers. The reduction in primary drowning was likely due to increased training and improvements in equipment, particularly BCDs and pressure gauges. The rise in cardiac-related deaths was due to an older and more obese cohort. Improved health education and surveillance and improved dive planning are essential to reduce such deaths.

Oezel L, Schneppendahl J, Grassmann JP, Flender P, Dreyer S, Grotheer V. Effect of hyperbaric oxygen therapy (HBO) on osteoblasts of elderly patients on calcification and osteoprotegerin. J Orthop. 2025 Jul 3:67:335-343. doi: 10.1016/j.jor.2025.06.017. eCollection 2025 Sep.

Background: Osteoporosis stands as one of the most prevalent bone diseases worldwide. This study aims to explore the effects of hyperbaric oxygen (HBO) therapy and substances that reduce reactive oxygen species (ROS), such as antioxidants, on osteogenic differentiation and key osteoporosis-related parameters in osteoblasts derived from elderly patients requiring hip arthroplasty. Methods: An in vitro study was conducted using osteoblasts isolated from the femoral heads of 22 patients (78.3% female) with a mean age of 73 years. Bone mineral density (BMD) was assessed through dual-energy X-ray absorptiometry (DXA), classifying patients into three groups: normal (age-appropriate) BMD (n=8), osteopenia (n=6), and osteoporosis (n=8). Osteogenic differentiation was induced, and HBO therapy was administered over a period of 21 days. Additionally, osteoblasts were treated with catalase. Parameters related to osteogenic differentiation and osteoporosis were evaluated. Results: HBO therapy prompted osteogenic differentiation in all three experimental groups after 21 days, with statistically significant findings (p=0.0125) in osteoblasts with age-appropriate bone density. Furthermore, the activity of alkaline phosphatase (ALP), an enzyme indicative of bone synthesis, demonstrated significant increases across all groups following HBO treatment (normal BMD and osteoporotic cells: p=0.04; osteopenic cells: p=0.006). Conclusions: These findings suggest that HBO therapy holds potential as an adjunctive or investigational treatment for elderly patients to enhance bone density or facilitate bone healing post-fracture, especially in those with normal or osteopenic bone density. This approach could potentially influence clinical practices in the future.

Saegusa Y. A case of toxic shock syndrome following an injury sustained during scuba diving. Cureus. 2025 Jun 25;17(6):e86758. doi: 10.7759/cureus.86758.

Staphylococcus aureus (*S. aureus*) is a common pathogen that resides as a commensal in humans. This pathogen can cause toxic shock syndrome (TSS), a severe condition characterized by sudden onset and rapid progression to multiple organ failure. The skin and soft tissues are common sites of primary infections. We report a rare case of a 51-year-old male, in whom TSS developed due to trauma to the knee sustained during scuba diving and successfully managed with intensive care, including appropriate antibiotic therapy and hemodialysis.

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.

Canadian Undersea and Hyperbaric Medical Association

10 Plumtree Place, Portugal Cove-St. Philips,
Newfoundland and Labrador, A1M 3T1
info@cuhma.ca https://cuhma.ca

Editor: Neal W. Pollock, PhD - neal.pollock@kin.ulaval.ca