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

E-NEWS

EDITORIAL NOTE – January 2019

The E-News is the monthly newsletter of CUHMA used to share news and information. We invite relevant content, including announcements, upcoming conferences, new publication abstracts, job postings, professional perspectives, incident reports, and relevant images of related professional scenes. Feel free to share issues with interested colleagues. All past issues are available at https://cuhma.ca.

Neal W. Pollock, PhD
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NEWS/ANNOUNCEMENTS

Resignation of BOD President - Afshin Khazei

Afshin Khazei works clinically as both an emergency and hyperbaric physician at Vancouver General Hospital (VGH), and serves as the provincial continuing professional development lead. In September 2018 he accepted the position of medical director for a Ministry of Health-mandated urgent care centre in downtown Vancouver, which is expected to see 35,000 patients/year. He began his term as President of CUHMA on November 03. In the month, Dr. David Harrison stepped-down as the Medical Director of the VGH Hyperbaric Unit and Dr. Khazei was asked to take over his position as of December 01. After much deliberation, he accepted the position, making it necessary to reduce other obligations, including stepping down as CUHMA President. Jay MacDonald has moved from Vice President into the role as President of the board.

CUHMA 2018 Annual Scientific Meeting Review

The 2018 CUHMA annual scientific meeting was held in Quebec City November 02-04. The program was accredited for CME credits by both the Royal College of Physicians and Surgeons of Canada and the Canadian College of Family Physicians and also by the National Board of Diving and Hyperbaric Medical Technology. The meeting drew 104 registrants, mostly from across Canada, but with some from the US and Europe. New this year, we produced 15 mini-lectures or video clips of conference events. These will be posted on the CUHMA website in the coming months, and freely available for educational purposes. The first clip highlighting the simulation workshop is now available: https://www.youtube.com/watch?v=szQprIpKhLg

Obituary - William Boyle

Bill Boyle passed away early on November 27, 2018 at Toronto General Hospital after a long period of health challenges. Bill worked tirelessly behind the scenes in the diving and hyperbaric medicine community in Canada for decades. He was a member of the UHMS Great Lakes Chapter (GLC) and served on the Board as a Member-at-Large during the final year of GLC activity (2009-2010). When the Canadian chapter of the UHMS (CC-UHMS) replaced the GLC in 2010, Bill managed member communications until CUHMA was established in 2015. Bill's list of over 600 email contacts was an indispensable tool for both CC-UHMS and later CUHMA, reaching individuals and organizations throughout the Canadian diving and hyperbaric medicine community. Bill served as CC-UHMS Associates Chair from 2011-2014, and remained an active member of CUHMA until his death. Professionally, Bill served as Operations Director for Medical Oxygen Repair in Mississauga for more than 3 years. Avocationally, Bill was a national official for Canoe Kayak Canada and was involved with the Knights of Columbus for many years. He is survived by his wife Jo-Anne and their two children. He will be greatly missed.

China Ocean Initiatives

China is planning to build an unmanned submarine science and defence operations deep in the South China Sea. The current plan is to rely heavily on artificial intelligence: https://www.scmp.com/news/china/science/article/2174738/beijing-plans-ai-atlantis-south-china-sea-without-human-sight

Call for Original Research – CUHMA 2019

Both original research and review session abstracts will be considered for the 2019 CUHMA annual scientific meeting in St. John's, NL October 03-06. The submission deadline is May 15, 2019, with decisions returned to corresponding authors by July 15. Original research abstracts should be in the 250-300 word range, with data included, for 15-min oral presentations. Review session abstracts should be in the 150-250 word count range, for variable length presentations. Detailed submission guidelines will be posted in the February E-News.

Doctoral Studies in Diving Research

Active recruitment is underway at Université Laval for qualified and motivated students wanting to pursue doctoral studies in environmental physiology related to diving. The research focus is health and safety in extreme environments, with concentration in decompression stress, monitoring technology, and diver safety. Students will also gain experience with a variety of studies in hyperbaric medicine. Contact Dr. Neal Pollock (neal.pollock@kin.ulaval.ca) for more information. Inquiries would best include concise CVs and a description of key interests and goals.

UPCOMING EVENTS

Hyperbaric Safety Director Course 2019

The Environmental Medicine and Physiology Unit will be offering a Hyperbaric Safety Director course January 31-February 02 on the Simon Fraser University campus in Burnaby, BC. This course is intended for hyperbaric facility staff who will fulfill the CSA Z275.1 role of Safety Director, but is open to all hyperbaric staff. Visit: http://www.sfu.ca/science/faculty-support/facilities-services/empu/courses/hyperbaric_safety_director.html

Hyperbaric Technician Course 2019

The Environmental Medicine and Physiology Unit will be offering a Hyperbaric Technician course February 02-07 on the SFU campus in Burnaby BC. This course is intended for hyperbaric facility engineers and supervisors for diving and tunnel operations, but is open to all hyperbaric staff requiring maintenance knowledge. For more information: http://www.sfu.ca/science/faculty-support/facilities-services/empu/courses/hyperbaric-technician.html

OZTek 2019

OZTek 2019 will be held March 16-17 at the International Convention Centre in Sydney, Australia. For further information, see: www.diveoztek.com.

Introductory Course in Hyperbaric Medicine 2019

The University Health Network-Toronto General Hospital, Hyperbaric Medicine Unit is offering an introductory course in hyperbaric medicine April 01-05. The course is suitable for physicians, physician assistants, respiratory therapists, military medical personnel, paramedic/emergency medical technicians, licensed practical nurses, and nurse practitioners. The program is accredited by the Undersea and Hyperbaric Medical Society (40 CME credits) and the National Board of Diving and Hyperbaric Medical Technology (40 CME credits and as a pre-course for CHT certification). For details and online registration, see: https://www.uhn.ca/Surgery/PatientsFamilies/Clinics_Tests/Hyperbaric_Medicine_Unit/Pages/Continuing_Education.aspx

Undersea Medicine Canada Level 2 Course 2019

Undersea Medicine Canada is offering a CSA Z275.2-15 Level 2 course: 'Advanced Course in Diving Medicine: Diagnosis and Treatment' in Halifax, NS May 06-11. This is a 50-hour program in which classroom instruction and case-based learning will be augmented by site visits to observe commercial diver training and diving operations. The prerequisite is a CSA Z275.2-15 Level 1 course ('Introductory Course in Diving Medicine: Fitness to Dive') or equivalent training. Further details will be posted on the Undersea Medicine Canada website in the coming weeks (www.underseamedicine.ca). Registration will open shortly.

RECENT PUBLICATIONS

Blake DF, Crowe M, Lindsay D, Brouff A, Mitchell SJ, Pollock NW. Comparison of tissue oxygenation achieved breathing oxygen from a demand valve with four different mask configurations. Diving Hyperb Med. 2018;48(4):209-17.

INTRODUCTION: High concentration normobaric oxygen (O_2) is a priority in treating divers with suspected decompression illness. The effect of different O_2 mask configurations on tissue oxygenation when breathing with a demand valve was evaluated. METHODS: Sixteen divers had tissue oxygen partial pressure ($PtcO_2$) measured at six limb sites. Participants breathed O_2 from a demand valve using: an intraoral mask (IOM®) with and without a nose clip (NC), a pocket face mask and an oronasal mask. In-line inspired O_2 (F_IO_2) and nasopharyngeal F_IO_2 were measured. Participants provided subjective ratings of mask comfort, ease of breathing and holding in position. RESULTS: $PtcO_2$ values and nasopharyngeal FIO_2 (median and range) were greatest using the IOM with NC and similar with the IOM without NC. O_2 measurements were lowest with the oronasal mask which also was rated as the most difficult to breathe from and to hold in position. The pocket face mask was reported as the most comfortable to wear. The NC was widely described as uncomfortable. The IOM and pocket face mask were rated best for ease of breathing. The IOM was rated as the easiest to hold in position. CONCLUSION: Of the commonly available O_2 masks for use with a demand valve, the IOM with NC achieved the highest $PtcO_2$ values. $PtcO_2$ and nasopharyngeal F_IO_2 values were similar between the IOM with and without NC. Given the reported discomfort of the NC, the IOM without NC may be the best option

Blake DF, Crowe M, Mitchell SJ, Aitken P, Pollock NW. Vibration and bubbles: a systematic review of the effects of helicopter retrieval on injured divers. Diving Hyperb Med. 2018;48(4):235-40.

INTRODUCTION: Vibration from a helicopter during aeromedical retrieval of divers may increase venous gas emboli (VGE) production, evolution or distribution, potentially worsening the patient's condition. AIM: To review the literature surrounding the helicopter transport of injured divers and establish if vibration contributes to increased VGE. METHOD: A systematic literature search of key databases was conducted to identify articles investigating vibration and bubbles during helicopter retrieval of divers. Level of evidence was graded using the Oxford Centre for Evidence-Based Medicine guidelines. A modified quality assessment tool for studies with diverse designs (QATSDD) was used to assess the overall quality of evidence. RESULTS: Seven studies were included in the review. An in vitro research paper provided some evidence of bubble formation with gas supersaturation and vibration. Only one prospective intervention study was identified which examined the effect of vibration on VGE formation. Bubble duration was used to quantify VGE load with no difference found between the vibration and non-vibration time periods. This study was published in 1980 and technological advances since that time suggest cautious interpretation of the results. The remaining studies were retrospective chart reviews of helicopter retrieval of divers. Mode of transport, altitude exposure, oxygen and intravenous fluids use were examined. CONCLUSION: There is some physical evidence that vibration leads to bubble formation although there is a paucity of research on the specific effects of helicopter vibration and VGE in divers. Technological advances have led to improved assessment of VGE in divers and will aid in further research.

Blatteau JE, Gaillard S, De Maistre S, Richard S, Louges P, Gempp E, Druelles A, Lehot H, Morin J, Castagna O, Abraini JH, Risso JJ, Vallée N. Reduction in the level of plasma mitochondrial DNA in human diving, followed by an increase in the event of an accident. Front Physiol. 2018 Nov 29;9:1695. doi: 10.3389/fphys.2018.01695. eCollection 2018.

Circulating mitochondrial DNA (mtDNA) is receiving increasing attention as a danger-associated molecular pattern in conditions such as autoimmunity or trauma. In the context of decompression sickness (DCS), the course of which is sometimes erratic, we hypothesize that mtDNA plays a not insignificant role particularly in neurological type accidents. This study is based on the comparison of circulating mtDNA levels in humans presenting with various types of diving accidents, and punctured upon their admission at the hyperbaric facility. One hundred and fourteen volunteers took part in the study. According to the clinical criteria there were 12 Cerebro DCS, 57 Medullary DCS, 15 Vestibular DCS, 8 Ctrl+ (accident-free divers), and 22 Ctrl- (non-divers). This work demonstrates that accident-free divers have less mtDNA than non-divers, which leads to the assumption that hyperbaric exposure degrades the mtDNA. mtDNA levels are on average greater in divers with DCS compared with accident-free divers. On another hand, the amount of double strand DNA (dsDNA) is neither significantly different between controls, nor between the different DCS types. Initially the increase in circulating oligonucleotides was attributed to the destruction of cells by bubble abrasion following necrotic phenomena. If there really is a significant difference between the Medullary DCS and the Ctrl-, this difference is not significant between these same DCS and the Ctrl+. This refutes the idea of massive degassing and suggests the need for new research in order to verify that oxidative stress could be a key element without necessarily being sufficient for the occurrence of a neurological type of accident.

Bosco G, Vezzani G, Enten G, Manelli D, Rao N, Camporesi EM. Femoral condylar necrosis: treatment with hyperbaric oxygen therapy. Arthroplast Today. 2018;4(4):510-5.

BACKGROUND: Osteonecrosis of the knee (ONK) is a form of aseptic necrosis resulting from ischemia to subchondral bone tissue. Typically, treatment is invasive. Hyperbaric oxygen therapy (HBOT) may provide a noninvasive alternative by improving oxygenation and reperfusion of ischemic areas. This study evaluates the efficacy of HBOT in a series of ONK patients. METHODS: This retrospective study evaluates 37 ONK patients (29 male, 8 female; mean age ± 1 standard deviation: 54±14); 83.7% of patients presented with Aglietti stage I-II; 16.3% presented with Aglietti stage III. Patients were treated with HBOT once a day, 5 days a week, at 2.5 atmosphere absolute with 100% inspired oxygen by mask for an average of 67.9±15 sessions. Magnetic resonance imaging was performed before HBOT, within 1 year after completion of HBOT, and in 14 patients, 7 years after treatment. Oxford Knee Scores (OKSs) were recorded before HBOT and at the end of each HBOT treatment cycle. RESULTS: After the 30 sessions of HBOT, 86% of patients experienced improvement in their OKS, 11% worsened, and 3% did not change. All patients improved in OKS after 50 sessions. Magnetic resonance imaging evaluation 1 year after HBOT completion showed that edema at the femoral condyle had resolved in all but one patient. CONCLUSIONS: HBOT is beneficial for treating ONK. Patients experienced improvements in pain and mobility as demonstrated by improvement in OKS. Radiographic improvements were also seen upon post-treatment follow-up. Aglietti staging for the entire sample saw an aggregate decrease ($P<0.01$) from 1.7±0.7 to 0.3±0.6.

Chen W, Liang X, Nong Z, Li Y, Pan X, Chen C, Huang L. The multiple applications and possible mechanisms of the hyperbaric oxygenation therapy. Med Chem. 2018 Dec 18. doi: 10.2174/1573406415666181219101328. [Epub ahead of print]

Hyperbaric oxygenation therapy (HBOT) is used as adjunctive method for multiple diseases. The method meets the routine treating and is non-invasive, as well as provides 100% pure oxygen (O_2) which is at above-normal atmospheric pressure in a specialized chamber. It is well known that in the condition of O_2 deficiency, it will induce a series of adverse events. In order to prevent the injury induced by anoxia, the capability of offering pressurized O_2 by HBOT seems involuntary and significant. In recent years, HBOT displays particular therapeutic efficacy in some degree, and it is thought to be beneficial to the conditions of angiogenesis, tissue ischemia and hypoxia, nerve system disease, diabetic complications, malignancies, Carbon monoxide (CO) poisoning and chronic radiation-induced injury. Single and combination HBOT are both applied in previous studied, and the manuscript is to reviewing the current applications and possible mechanisms of HBOT. The applicability and validity of HBOT for clinical treatment remains controversial, even though it is regarded as an adjunct to conventional medical treatment with many other clinical benefits. There also exists negative side effect of accepting pressurized O_2, such as oxidative stress injury, DNA damage, cellular metabolic, activating of coagulation, endothelial dysfunction, acute neurotoxicity and pulmonary toxicity. Then it is imperative to comprehensively consider the advantages and disadvantages of HBOT in order to obtain a satisfying therapeutic outcome.

Choudhury R. Hypoxia and hyperbaric oxygen therapy: a review. Int J Gen Med. 2018;11:431-42.

Hypoxia causes a cascade of activity from the level of the individual down to the regulation and function of the cell nucleus. Prolonged periods of low oxygen tension are a core feature of several disease states. Advances in the study of molecular biology have begun to bridge the gap between the cellular response to hypoxia and physiology. Hyperbaric oxygen therapy is a treatment for hypoxic- and inflammatory-driven conditions, in which patients are treated with 100% oxygen at pressures greater than atmospheric pressure. This review discusses hypoxia, the physiologic changes associated with hypoxia, the responses that occur in the cells during hypoxic conditions, and the role that hyperbaric oxygen therapy can play as part of the treatment for many patients suffering from diseases with underlying hypoxia.

Fang Z, Feng Y, Li Y, Deng J, Nie H, Yang Q, Wang S, Dong H, Xiong L. Neuroprotective autophagic flux induced by hyperbaric oxygen preconditioning is mediated by Cystatin C. Neurosci Bull. 2018 Dec 5. doi: 10.1007/s12264-018-0313-8. [Epub ahead of print]

We have previously reported that Cystatin C (CysC) is a pivotal mediator in the neuroprotection induced by hyperbaric oxygen (HBO) preconditioning; however, the underlying mechanism and how CysC changes after stroke are not clear. In the present study, we demonstrated that CysC expression was elevated as early as 3 h after reperfusion, and this was further enhanced by HBO preconditioning. Concurrently, LC3-II and Beclin-1, two positive-markers for autophagy induction, exhibited increases similar to CysC, while knockdown of CysC blocked these elevations. As a marker of autophagy inhibition, p62 was downregulated by HBO preconditioning and this was blocked by CysC knockdown. Besides, the beneficial effects of preserving lysosomal membrane integrity and enhancing autolysosome formation induced by HBO preconditioning were abolished in CysC-/- rats. Furthermore, we demonstrated that exogenous CysC reduced the neurological deficits and infarct volume after brain ischemic injury, while 3-methyladenine partially reversed this neuroprotection. In the present study, we showed that CysC is biochemically and morphologically essential for promoting autophagic flux, and highlighted the translational potential of HBO preconditioning and CysC for stroke treatment.

Fraedrich D. Validation of algorithms used in commercial off-the-shelf dive computers. Diving Hyperb Med. 2018;48(4):252-8.

INTRODUCTION: Whilst the US Navy has been very systematic about validating Navy dive computer algorithms, there has been little documented or published evidence of rigorous testing of the algorithms in commercial off-the-shelf dive computers. This paper reports the evaluation of four algorithms used in these - Bühlmann ZHL-16C; VPM-B; Suunto-RGBM; EMC-20H - by comparison with US Navy experimental dives with known decompression sickness outcomes. METHODS: Three specific tests were developed to test the algorithms' ability to mitigate decompression sickness: Total decompression time; no stop times and first stop depth. Output of commercial decompression algorithms were compared to either the probability of decompression sickness (P_{DCS}) results from US Navy man-trials or statistical models derived from P_{DCS} data. The algorithms were first tested with default conservative factors, then these factors were adjusted if the tests were not initially passed. The last verification step was to compare the output of the wrist computer with that of the full desktop algorithm. RESULTS: This testing indicated that, whilst none of the four passed all of the proposed tests with factory-default conservatism, ZHL-16C and Suunto-RGBM could be made to pass by adjusting user-defined settings. CONCLUSIONS: Man-trial data on P_{DCS} is

available to the non-US Navy scientific community for testing of commercial decompression algorithms. This type of validation testing can be very informative on how to best use available commercial dive computers to improve diver safety.

Hubbard M, Davis FM, Malcolm K, Mitchell SJ. Decompression illness and other injuries in a recreational dive charter operation. Diving Hyperb Med. 2018;48(4):218-23.

INTRODUCTION: Health and safety within the recreational diving industry are poorly described. We aimed to obtain the true prevalence of decompression illness (DCI) and other diving and non-diving injuries, including occupational injuries, in a large recreational diving charter operation. METHODS: A New Zealand recreational diving operator keeps detailed records of diving activity and event/incident reports. We extracted passenger and crew numbers, dive numbers and incident statistics from all boat trips and associated work-related injuries between 01 January 2008 and 31 December 2014. The records of divers referred to the regional hyperbaric unit for suspected DCI were reviewed retrospectively. Using these data the prevalence of DCI and non-diving injuries were calculated. RESULTS: There were 65,536 person-trips to sea and 57,072 divers undertook 97,144 dives. Fifty-five injury events were documented over seven years, 31 in customers and 24 in staff. Four divers (including one staff member) diagnosed with DCI underwent recompression therapy, giving a prevalence of 0.41 cases requiring recompression per 10,000 dives, or one case per 24,386 dives, whilst five other divers were assessed as not having DCI. There was one cardiac-related fatality. Thirty-five non-diving injuries (mainly lacerations and minor musculoskeletal injuries) were documented in 30 people resulting in 10 consulting a general practitioner and seven presenting to the local regional hospital emergency department. CONCLUSIONS: DCI requiring recompression was relatively rare in this supervised recreational diving operation. Minor non-diving injuries were the most common adverse event. Compared to other adventure sports, the prevalence of injury in recreational scuba diving is low.

Kim SH, Cha YS, Lee Y, Kim H, Yoon IN. Successful treatment of central retinal artery occlusion using hyperbaric oxygen therapy. Clin Exp Emerg Med. 2018;5(4):278-1.

Central retinal artery occlusion (CRAO) is considered an ophthalmologic emergency. The prognosis of this disease is very poor. Currently, there is no generally effective therapy available to treat CRAO. Hyperbaric oxygen therapy (HBOT) can increase the volume of oxygen delivered to the ischemic retinal tissue until spontaneous or assisted reperfusion occurs. We report the case of a patient who experienced sudden visual loss due to CRAO that was treated with HBOT. The patient was an 81-year-old woman who presented with CRAO in her right eye (OD). She exhibited "hand motion" visual acuity before treatment. She underwent three sessions of HBOT at a pressure of 2.8 atmospheres absolute, performed over 3 days. After 4 days in hospital, her visual acuity improved to 0.4 (OD) for far vision and 0.5 (OD) for near vision. Her vision was stable without the supply of oxygen; therefore, she was discharged.

Mancini S, Crotty AM, Cook J. Triage and treatment of mass casualty decompression sickness after depressurization at 6400 m. Aerosp Med Hum Perform. 2018;89(12):1085-8.

BACKGROUND: Decompression sickness is a condition that results from an abrupt change from a higher to a lower pressure. It is described most commonly in divers; however, it can occur in aviation incidents, which this case report will discuss. CASE REPORT: Following an acute cabin depressurization incident, 36 patients presented to a small outpatient clinic with multiple symptoms, including fatigue, headache, nausea, vomiting, and dizziness. These patients were evaluated, triaged, and some were able to be successfully treated with supplemental oxygen in clinic. Eight of the patients had symptoms that were either persistent or concerning enough that they were referred to the dive medical clinic, where the dive medical team diagnosed six of the patients with Type II decompression sickness and referred them for hyperbaric oxygen chamber therapy. All patients who received hyperbaric therapy experienced at least some relief of symptoms, with most reporting some residual fatigue after the therapy. DISCUSSION: This case provided both lessons in triage and management of multiple patients in a small outpatient clinic, as well as the challenges in making the diagnosis of decompression sickness

Smith-Guzmán NE, Cooke RG. Cold-water diving in the tropics? External auditory exostoses among the pre-Columbian inhabitants of Panama. Am J Phys Anthropol. 2018 Dec 21. doi: 10.1002/ajpa.23757. [Epub ahead of print]

OBJECTIVES: The appearance of external auditory exostoses archaeologically has been attributed to aquatic activities in middle latitudes. However, recent clinical research implicates low sea surface temperatures, especially below a threshold of 19°C, as a stronger predictor of ear exostosis development than latitude. Here, we examine the frequency of external auditory exostoses in human remains from nine pre-Columbian archaeological sites in Panama, representing individuals from a warm, tropical region. MATERIALS AND METHODS: External auditory exostoses were recorded as present when an abnormal bony growth was observed macroscopically within the ear canal. The presence of exostoses was compared by right and left side,

geographical region, sex, and degree of stenosis. RESULTS: A total of 125 adult individuals made up the observable sample analyzed in this study. Exostoses were observed in seven males and one female. All individuals affected by this pathology were excavated from mortuary contexts along the Gulf of Panama-a region characterized by intense cold water upwelling in the dry season. DISCUSSION: This study suggests that external auditory exostoses in pre-Columbian Panama affected individuals involved in habitual aquatic activities in the cold, upwelled waters of the Gulf of Panama. These activities appear to be almost exclusively dominated by male individuals. Ethnohistorical and archaeological records point to marine shell resource acquisition by deep-water diving as the activity driving exostosis development in pre-Columbian Panama.

Seo JY, Ha KY, Kim YH, Kim SC, Yoon EJ, Park HY. Bone mineral density and osteoporotic vertebral fractures in traditional, unassisted, free-diving women (Haenyeos). J Korean Med Sci. 2018 Nov 15;33(48):e316. doi: 10.3346/jkms.2018.33.e316. eCollection 2018 Nov 26.

BACKGROUND: Water pressure and muscle contraction may influence bone mineral density (BMD) in a positive way. However, divers experience weightlessness, which has a negative effect on BMD. The present study investigated BMD difference in normal controls and woman free-divers with vertebral fracture and with no fracture. METHODS: Between January 2010 and December 2014, traditional woman divers (known as Haenyeo in Korean), and non-diving women were investigated. The study population was divided into osteoporotic vertebral fracture and non-fracture groups. The BMD of the lumbar spine and femoral neck was measured. The radiological parameters for global spinal sagittal balance were measured. RESULTS: Thirty free-diving women and 33 non-diving women were enrolled in this study. The mean age of the divers was 72.1±4.7 years and that of the controls was 72.7±4.0 years (P=0.61). There was no statistical difference in BMD between the divers and controls. In divers, cervical lordosis and pelvic tilt were significantly increased in the fracture subgroup compared to the non-fracture subgroup (P=0.028 and P=0.008, respectively). Sagittal vertical axis was statistically significantly correlated with cervical lordosis (Spearman's rho R=0.41, P=0.03), and pelvic tilt (Spearman's rho R=0.46, P=0.01) in divers. CONCLUSION: BMD did not differ significantly between divers and controls during their postmenopausal period. When osteoporotic spinal fractures develop, compensation mechanisms, such as increased cervical lordosis and pelvic tilt, was more evident in traditional woman divers. This may be due to the superior back muscle strength and spinal mobility of this group of women.

Yanagawa Y, Omori K, Takeuchi I, Jitsuiki K, Ohsaka H, Ishikawa K. The on-site differential diagnosis of decompression sickness from endogenous cerebral ischaemia in an elderly Ama diver using ultrasound. Diving Hyperb Med. 2018;48(4):262-3.

Commercial or occupational breath-hold (BH) harvest divers along the coast and islands of Japan are collectively called Ama divers. Repetitive BH diving by Ama divers may place them at risk of developing neurological decompression sickness (DCS). We report a 74-year-old Ama diver who demonstrated right hemiparesis during an ascent after free diving at a depth of 5 metres' sea water. This report suggests the usefulness of on-site ultrasound for making a differential diagnosis of DCS from endogenous cerebral ischaemia. Further clinical studies of this management approach are warranted.

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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