

# Diving and Hyperbaric Medicine

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## EDITORIALS

### The Editor's offering

Mitchell S

Editorials; Medical society; General interest

2019 March 31;49(1):1.

2019 June 30;49(2):78–79.

2019 December 20;49(4):243–244.

### Editorials

Risk mitigation in divers with persistent (patent) foramen ovale

Wilmshurst P

Decompression illness; Decompression sickness; Persistent (patent) foramen ovale; Atrial septal defect; Right-to-left shunt; Trans-catheter closure

2019 June 30;49(2):77–78. doi: 10.28920/dhm49.2.77-78. PMID: 31177512.

DCS or DCI? The difference and why it matters

Mitchell SJ.

Decompression illness; Decompression sickness; Arterial gas, embolism; Pulmonary barotrauma; Terminology; Nomenclature

2019 September 30;49(3):152–153. doi: 10.28920/dhm49.3.152-153. PMID: 31523788.

## ORIGINAL ARTICLES

The impact of diving on hearing: a 10–25 year audit of New Zealand professional divers

Sames C, Gorman DF, Mitchell SJ, Zhou L

Audiology; Fitness to dive; Hearing loss; Medicals – diving; Occupational diving; Surveillance

2019 March 31;49(1):2–8. doi: 10.28920/dhm49.1.2-8. PMID: 30856661.

Eustachian tube balloon dilation in treatment of equalization problems of freediving spearfishermen

Giunta AAM, Liberati L, Pellegrino C, Ricci G, Rizzo S

ENT; Ear barotrauma; Diving; Treatment; Outcome

2019 March 31;49(1):9–15. doi: 10.28920/dhm49.1.9-15. PMID: 30856662.

The effects of pressure *in vitro* on three methods of root canal obturation

Safai P, Farzaneh B, Fekrazad R

Barotrauma; Dental; Diving; Endodontics

2019 March 31;49(1):16–20. doi: 10.28920/dhm49.1.16-20. PMID: 30856663.

A twenty-year analysis of compressed gas diving-related deaths in Tasmania

Ascencio-Lane JC, Smart D, Lippmann J

Diving deaths; Diving incidents; Incidents; Risk management; Root-cause analysis; Safety; Case reports

2019 March 31;49(1):21–29. doi: 10.28920/dhm49.1.21-29. PMID: 30856664.

The effectiveness of risk mitigation interventions in divers with persistent (patent) foramen ovale

Anderson G, Ebersole D, Covington D, Denoble PJ

Cardiovascular; Decompression sickness; Decompression illness; Right-to-left shunt; Trans-catheter closure

2019 June 30;49(2):80–87. doi: 10.28920/dhm49.2.80-87. PMID: 31177513.

Serum tau concentration after diving – an observational pilot study

Rosén A, Oscarsson N, Kvarnström A, Gennser M, Sandström G, Blennow K, Seeman-Lodding H, Zetterberg H

Tau protein; Decompression sickness; Venous gas emboli; Diving research; Biomarkers; Central nervous system; Stress

2019 June 30;49(2):88–95. doi: 10.28920/dhm49.2.88-95. PMID: 31177514.

A survey of scuba diving-related injuries and outcomes among French recreational divers

Monnot D, Michot T, Dugrenot E, Guerrero F, Lafère P

Diving incidents; Epidemiology; Barotrauma; Decompression illness; First aid; Hyperbaric oxygen therapy

2019 June 30;49(2):96–106. doi: 10.28920/dhm49.96-106. PMID: 31177515.

The impact of health on professional diver attrition

Sames C, Gorman DF, Mitchell SJ, Zhou L

Occupational diving; Occupational health; Diving industry; Diving at work; Medicals – diving; Smoking; Medical database

2019 June 30;49(2):107–111. doi: 10.28920/dhm49.2.107-111. PMID: 31177516.

The utility and safety of hypoxia experiences for rebreather divers

Mitchell SJ, Green HM, Reading SA, Gant N

Diving; Aviation; Brain; Near infrared spectroscopy; Performance; Training; Oximetry

2019 June 30;49(2):112–118. doi: 10.28920/dhm49.2.112-118. PMID: 31177517.

Early detection of diving-related cognitive impairment of different nitrogen-oxygen gas mixtures using critical flicker fusion frequency  
Lafère P, Hemelryk W, Germonpré P, Matity L, Guerrero F, Balestra C  
Enriched air – nitrox; Narcosis; Oxygen; Risk management; Near-infrared spectroscopy  
2019 June 30;49(2):119–126. doi: 10.28920/dhm49.2.119-126. PMID: 31177518.

Calculated risk of pulmonary and central nervous system oxygen toxicity: a toxicity index derived from the power equation  
Arieli R  
Diving risk; Hyperoxia; Recovery; Oxygen limits; Algorithm  
2019 September 30;49(3):154–160. doi: 10.28920/dhm49.3.154-160. PMID: 31523789.

Increasing prevalence of vestibulo-cochlear decompression illness in Malta – an analysis of hyperbaric treatment data from 1987–2017  
Azzopardi CP, Caruana J, Matity L, Muscat S, Meintjes WAJ  
Decompression sickness; Diving; Scuba; Recompression; Symptoms  
2019 September 30;49(3):161–166. doi: 10.28920/dhm49.3.161-166. PMID: 31523790.

Seizure frequency in more than 180,000 treatment sessions with hyperbaric oxygen therapy – a single centre 20-year analysis  
Costa DA, Ganiha JS, Barata PC, Guerreiro FG  
Hyperbaric oxygen therapy; Hyperbaric oxygen; Toxicity; Side effects; Hyperoxia; Central nervous system; Seizure  
2019 September 30;49(3):167–174. doi: 10.28920/dhm49.3.167-174. PMID: 31523791.

Only minor stem cell mobilization in head and neck irradiated patients treated with hyperbaric oxygen  
Forner L, Berkowicz A, Dickmeiss E, Hyldegaard O, Jansen EC, Fischer-Nielsen A  
Head and neck cancer; Hyperbaric oxygen; Osteoradionecrosis; Platelets; Soft-tissue radionecrosis; Stem cells  
2019 September 30;49(3):175–185. doi: 10.28920/dhm49.3.175-185. PMID: 31523792.

Assessment of sensory sensitivity through critical flicker fusion frequency thresholds after a maximum voluntary apnoea  
de Asís Fernandez F, González-Mohino F, González-Ravé J  
Brain; Breath-hold diving; Exercise; Fatigue; Hypoxia  
2019 September 30;49(3):186–191. doi: 10.28920/dhm49.3.186-191. PMID: 31523793.

Snorkelling and breath-hold diving fatalities in Australia, 2001 to 2013. Demographics, characteristics and chain of events  
Lippmann J  
Breath-hold diving; DAN – Divers Alert Network; Diving deaths; Fatalities; Immersion; Snorkelling  
2019 September 30;49(3):192–203. doi: 10.28920/dhm49.3.192-203. PMID: 31523794.

Descriptive study of diving injuries in the Canary Islands from 2008 to 2017  
Guillén-Pino F, Morera-Fumero A, Henry-Benítez M, Alonso-Lasheras E, Abreu-González P, Medina-Arana V  
Diving incidents; Epidemiology; Scuba diving; First aid; Hyperbaric oxygen therapy; Tourism  
2019 September 30;49(3):204–208. doi: 10.28920/dhm49.3.204-208. PMID: 31523795.

The myopic shift associated with hyperbaric oxygen administration is reduced when using a mask delivery system compared to a hood – a randomised controlled trial  
Bennett MH, Hui CF, See HG, Au-Yeung KL, Tan C, Watson S  
Side effects; Hyperbaric oxygen; Ophthalmology; Myopia; Vision  
2019 December 20;49(4):245–252. doi: 10.28920/dhm49.4.245-252. PMID: 31828742.

Protective effect of hyperbaric oxygen therapy on rat intestinal mucosa after mesenteric ischaemia and reperfusion  
Açıksarı K, Eğin S, Hepgül G, Mirasoğlu B, Tanrıverdi G, Kanber DS, Demirci S, Doğan H, Özüçelik DN, Toklu AS, Seçkin İ, Yanar HT  
Mesenteric ischaemia; Ischaemia-reperfusion injury; Histology; Experimental study  
2019 December 20;49(4):253–258. doi: 10.28920/dhm49.4.253-258. PMID: 31828743.

Decompression illness (DCI) in Finland 1999–2018: Special emphasis on technical diving  
Lundell RV, Arola O, Suvilehto J, Kuokkanen J, Valtonen M, Räisänen-Sokolowski AK  
Decompression sickness; Diving; Arctic diving; Hyperbaric oxygen treatment; First aid oxygen; Epidemiology  
2019 December 20;49(4):259–265. doi: 10.28920/dhm49.4.259-265. PMID: 31828744.

Evaluating the thermal protection provided by a 2–3 mm wet suit during fin diving in shallow water with a temperature of 16–20°C  
Ofir D, Yanir Y, Eynan M, Arieli Y  
Cold; Immersion; Military diving; Rebreathers; Closed circuit; Thermodynamics; Vasoconstriction  
2019 December 20;49(4):266–275. doi: 10.28920/dhm49.4.266-275. PMID: 31828745.

Inhibition of NR2B-containing NMDA receptors during nitrogen narcosis  
Peng B, Hao D-D, Li X, Wang G-H, Guan Z-Y, Jiang Z-L

Brain; Hippocampus; Hyperbaric medicine; Neuron; NMDA receptor  
2019 December 20;49(4):276–282. doi: 10.28920/dhm49.4.276-282. PMID: 31828746.  
Longitudinal screening of hearing threshold in navy divers: is diving really a hazard?  
Wingelaar TT, Endert EL, Hoencamp R, van Ooij P-JAM, van Hulst RA  
Fitness to dive; Health surveillance; Hearing loss; Audiology; Military diving  
2019 December 20;49(4):283–290. doi: 10.28920/dhm49.4.283-290. PMID: 31828747.  
Diving and mental health: the potential benefits and risks from a survey of recreational scuba divers  
St Leger Dowse M, Whalley B, Waterman MK, Conway RM, Smerdon GR  
Depression; Anxiety; Medical conditions and problems; Psychology; Fitness to dive  
2019 December 20;49(4):291–297. doi: 10.28920/dhm49.4.291-297. PMID: 31828748.

### **TECHNICAL REPORTS**

The performance of ‘temperature stick’ carbon dioxide absorbent monitors in diving rebreathers  
Silvanus M, Mitchell SJ, Pollock NW, Frånberg O, Gennser M, Lindén J, Mesley P, Gant N  
Hypercapnia; Monitoring; Technical diving; Soda lime; Equipment  
2019 March 31;49(1):48–56. doi: 10.28920/dhm49.1.48-56. PMID: 30856667.  
The Hyperbaric Protective Tube: A housing for a left ventricular assist device (LVAD) in a multiplace hyperbaric chamber  
Kot J, Siodalski P, Lenkiewicz E  
Hyperbaric oxygen therapy (HBOT); Medical devices; Safety; Risk factors; Case reports  
2019 June 30;49(2):137–140. doi: 10.28920/dhm49.2.137-140. PMID: 31177520.  
Performance of cartridge and granular carbon dioxide absorbents in a closed-circuit diving rebreather  
Gant N, van Waart H, Ashworth ET, Mesley P, Mitchell SJ  
Technical diving; Closed-circuit rebreather; Carbon dioxide; Soda lime; Scrubber; Hypercapnia  
2019 December 20;49(4):298–303. doi: 10.28920/dhm49.4.298-303. PMID: 31828749.

### **REVIEW ARTICLES**

Immersion pulmonary oedema: a cardiological perspective  
Wilmshurst PT  
Cold; Exercise; Hypertension; Rebreathers; Renal artery stenosis; Takotsubu cardiomyopathy; Transpulmonary pressure; Case reports  
2019 March 31;49(1):30–40. doi: 10.28920/dhm49.1.30-40. PMID: 30856665.  
Diving and attention deficit hyperactivity disorder  
Querido AL, van Hulst RA  
ADHD; Medications; Fitness to dive; Diving medicine; Recreational diving; Side effects; Review article  
2019 March 31;49(1):41–47. doi: 10.28920/dhm49.1.41-47. PMID: 30856666.  
Systematic review on the effects of medication under hyperbaric conditions: consequences for the diver  
Hoencamp E, van Dongen TFCF, van Ooij PJAM, Wingelaar TT, Vervelde ML, Koch DAA, van Hulst RA, Hoencamp R  
Diving; Drugs; Pharmacokinetics; Decompression sickness; Fitness to dive; Review article  
2019 June 30;49(2):127–136. doi: 10.28920/dhm49.2.127-136. PMID: 31177519.  
Evidence for simulation-based education in hyperbaric medicine: A systematic review  
Boet S, Cheng-Boivin O, Martin L, Hurskainen T, Etherington N  
Hyperbaric oxygen; Education; Systematic review; Performance; Safety  
2019 September 30;49(3):209–215. doi: 10.28920/dhm49.3.209-215. PMID: 31523796.  
Is there a role for hyperbaric oxygen therapy in the treatment of refractory wounds of rare etiology?  
Longobardi P, Hoxha K, Bennett MH  
Calciphylaxis; Economics; Epidemiology; Hyperbaric medicine; Review article; Skin; Nitric oxide  
2019 September 30;49(3):216–224. doi: 10.28920/dhm49.3.216-224. PMID: 31523797.

### **CASE REPORTS**

Lion’s mane jellyfish (*Cyanea capillata*) envenoming presenting as suspected decompression sickness  
Trevett A, Sheehan C, Wilkinson A, Moss I  
Marine animals; Envenomation; Clinical toxicology; Diving incidents; Case reports  
2019 March 31;49(1):57–60. doi: 10.28920/dhm49.1.57-60. PMID: 30856668  
Massive portal venous gas embolism after scuba diving  
Siaffa R, Luciani M, Grandjean B, Coulange M  
Decompression sickness; Liver; Gastrointestinal tract; Hyperbaric oxygen therapy

2019 March 31;49(1):61–63. doi: 10.28920/dhm49.1.61-63. PMID: 30856669.

Cerebral arterial gas embolism in a scuba diver with a primary lung bulla

Goffinet CMJ, Simpson G

Pulmonary barotrauma; Recreational diving; Diving incidents; Case reports

2019 June 30;49(2):141–144. doi: 10.28920/dhm49.2.141-144. PMID: 31177521.

A case report of cerebral arterial gas embolism (CAGE) associated with Takotsubo cardiomyopathy

McCool D, Butler C, Evans J, Aase C

Barotrauma; Hyperbaric oxygen therapy; Pulmonary barotrauma; Pulmonary oedema; Recreational diving; Salt water aspiration; Scuba

2019 September 30;49(3):229–232. doi: 10.28920/dhm49.3.229-232. PMID: 31523799.

Fatal air embolism in a breath-hold diver

Banham NDG, Lippmann J

Diving deaths; Barotrauma; Breath-hold diving; Scuba; Cerebral arterial gas embolism (CAGE); Pulmonary barotrauma; Case reports

2019 December 20;49(4):304–305. doi: 10.28920/dhm49.4.304-305. PMID: 31828750.

A case of Löfgren's syndrome confused with decompression sickness

Razdan PS, Buteau D, Pollock NW

2019 December 20;49(4):306–310. doi: 10.28920/dhm49.4.306-310. PMID: 31828751.

### **THE WORLD AS IT IS**

A diver's guide to subaquatic envenomation in the Mediterranean

Todd J, Edsell M

Marine animals; Diving; Treatment; First aid; Flow chart

2019 September 30;49(3):225–228. doi: 10.28920/dhm49.3.225-228. PMID: 31523798.

### **REPRINTS**

Clinical Practice Guidelines Committee of The American Society of Colon and Rectal Surgeons. The American Society of Colon and Rectal Surgeons Clinical Practice Guidelines for the Treatment of Chronic Radiation Proctitis

Paquette IM, Vogel JD, Abbas MA, Feingold DL, Steele SR

Soft-tissue radionecrosis; Reprinted from; Abstract

2019 March 31;49(1):66.

### **LETTERS TO THE EDITOR**

Gas micronuclei that underlie decompression bubbles and decompression sickness have not been identified  
Doolette DJ

Letters (to the Editor); All other relevant keywords are in the title

2019 March 31;49(1):64. doi: 10.28920/dhm49.1.64. PMID: 30856670.

Gas micronuclei that underlie decompression bubbles and decompression sickness have most probably been identified – in response to the Letter to the Editor from Dr David Doolette

Arieli R

Nanobubbles; Gas micronuclei; Decompression bubbles; Hydrophobicity; Letter to the Editor

2019 December 20;49(4):311–312. doi: 10.28920/dhm49.4.311-312. PMID: 31828752.

### **CRITICAL APPRAISAL**

Boussuges A, Ayme K, Chaumet G, Albier E, Borgnetta M, Gavarry O. Observational study of potential risk factors of immersion pulmonary oedema in healthy divers: exercise intensity is the main contributor. *Sports Medicine Open*. 2017;3:35. doi: 10.1186/s40798-017-0104-1.

Wilmshurst PT

Critical appraisal; Immersion; Pulmonary oedema; Exercise

2019 March 31;49(1):65.

### **OBITUARY**

Rees Jones

Mitchell S, with thanks to Keith Gordon

Obituary; General interest; Medical society

2019 March 31;49(1):72.  
John Knight  
Davis M  
Obituary; Writing – medical; Medical society; General interest  
2019 September 30;49(3):233.  
Carl Wilfrid Edmonds  
Hissink J, Smart D, Falconer D, Pennefather J  
2019 December 20;49(4):313–315.  
Robert Ramsay  
Smart D  
2019 December 20;49(4):316.  
Fiona Sharp  
Smart D, Hyldegaard O, Banham N  
2019 December 20;49(4):317.

#### **ERRATA**

In a review article (Hoencamp E, van Dongen TFCF, van Ooij PJAM, Wingelaar TT, Vervelde ML, Koch DAA, van Hulst RA, Hoencamp R. Systematic review on the effects of medication under hyperbaric conditions: consequences for the diver. *Diving and Hyperbaric Medicine*. 2019 June 30;49(2):127–136. doi: 10.28920/dhm49.2.127-136. PMID: 31177519.)  
2019 September 30;49(3):232.

#### **SPUMS NOTICES and NEWS**

48th Annual Scientific Meeting, Honiara, Solomon Islands, 20–26 May 2019  
2019 March 31;49(1):70.  
SPUMS 49th Annual Scientific Meeting, 19–24 April 2020  
2019 March 31;49(1):70.  
ANZCA Report  
Bennett M  
Education; MOPS (maintenance of professional standards); Hyperbaric medicine; General interest  
2019 March 31;49(1):71–72.  
SPUMS Diploma in Diving and Hyperbaric Medicine  
Wilkinson D  
Qualifications; Underwater medicine; Hyperbaric oxygen; Research; Medical society  
2019 March 31;49(1):73.  
ANZHMG Report  
Banham N  
2019 June 30;49(2):146.  
Divers Emergency Service/DAN Asia Pacific Foundation Telemedicine Scholarship 2019  
2019 June 30;49(2):147.  
David Smart, AM  
Davis M  
2019 September 30;49(3):238.

#### **SPUMS President's message**

Smart D  
Medical society; General interest  
2019 March 31;49(1):71.  
Smart D  
Medical society; General interest  
2019 June 30;49(2):146.  
Post graduate training in diving and hyperbaric medicine in Australia and New Zealand  
Smart D  
Medical society; General interest  
2019 September 30;49(3):236–237.  
SPUMS, ocean health and advocacy for the underwater environment  
Smart D

Diving; Environment; Ecology; Health; Climate change  
2019 December 20;49(4):318–319.

**EUBS NOTICES and NEWS**

EUBS Annual Scientific Meeting 2019

2019 March 31;49(1):67.

EUBS Affiliate Society agreements

2019 March 31;49(1):69.

EUBS Elections – Member-at-Large

2019 June 30;949(2):150.

EUBS 46th Annual Scientific Meeting 2020

Preliminary Announcement

Dates: 16–19 September 2020

2019 June 30;49(2):151.

**EUBS President’s message**

New editor of *Diving and Hyperbaric Medicine*

Hyldegaard O

Medical society; General interest

2019 March 31;49(1):68.

EUBS Annual Scientific Meeting 2019

Hyldegaard O

2019 June 30;949(2):151.

EUBS ExCom election

Hyldegaard O

Medical society; General interest

2019 September 30;49(3):234.