

# SPUMS

**South Pacific Underwater Medicine Society**



**Scientific Programme and Abstracts**

**CONFERENCE PROGRAM AT A GLANCE**

	<b>Monday May 22nd</b>	<b>Tuesday May 23rd</b>	<b>Wednesday May 24th</b>	<b>Thursday May 25th</b>	<b>Friday May 26th</b>	<b>Saturday May 24th</b>
<b>First Session</b>	<b>Chair: Clinton Gibbs</b>	<b>Chair: David Smart</b>	<b>Chair: Cathy Meehan</b>	<b>Chair: Sarah Lockley</b>	<b>Chair: Martin Sayer</b>	
<b>1400-1630</b>	<p><b>1400-1405 Welcome</b> Kate and Clinton</p> <p><b>1405-1530</b> Debbie Pestell <b>Keynote Address:</b> Principles of mixed gas and saturation diving</p> <p><b>1530-1630</b> Ian Gawthrope Introduction to ultrasound</p>	<p><b>1400-1500</b> Debbie Pestell Long term health effects of diving</p> <p><b>1500-1600</b> Martin Sayer Medical support of scientific diving</p> <p><b>1600-1630</b> Neil Banham Cerebral artery gas embolism following a bubble contrast echo study</p>	<p><b>1400 1500</b> Debbie Pestell Medications and diving</p> <p><b>1500-1530</b> David Smart Diving medicine training globally-achieving a parity point</p> <p><b>1530-1600</b> Sarah Lockley GP as dive doctor</p> <p><b>1600-1630</b> Akin Toklu Mediastinal emphysema after free ascent training: A case report</p>	<p><b>1400-1500</b> Debbie Pestell Medical fitness to dive</p> <p><b>1500-1520</b> Mike Davis Health and safety in the recreational dive industry</p> <p><b>1520-1540</b> Akin Toklu The evaluation of the sound levels inside the hyperbaric chamber during hyperbaric oxygen treatment in Turkey: A preliminary report</p> <p><b>1540-1630</b> Jürg Wendling Medical equipment for offshore medical support</p> <p><b>1630-1700</b> Akin Toklu Eurasian Tunnel project (please grab a coffee/tea and come back into room)</p>	<p><b>1400-1500</b> Neal Pollock Deep diver research On a Central Pacific Expedition</p> <p><b>1500-1530</b> Steve Goble DMT training</p> <p><b>1530-1630</b> Mihaela Ignatescu Expert panel cases</p> <p>Debbie Pestell Jurg Wendling David Smart</p>	<b>Head home</b>
	Break/Posters 1630-1700	Break/Posters 1630-1700	Break/Posters 1630-1700	No break Take coffee/tea back into room	Break/Posters 1630-1700	Home



### **DAY 3: Wednesday 24 May**

**0800 – 1300**

Ultrasound small group workshop  
Echo, eFAST  
Prior registration required

**Session 1: 1400–1630 Chair: Cathy Meehan**

1400–1500  
Debbie Pestell  
Medications and diving

1500–1530  
David Smart  
Diving medicine training globally-achieving a parity point

1530–1600  
Sarah Lockley  
General Practitioner as a Dive Doctor – When Bubbles are the Best Medicine

1600-1630  
Akin Toklu  
Mediastinal emphysema after free ascent training: A case report

### **Break 1630 to 1700**

**Session 2: 1700-1830 Chair: Mike Bennett**

1700-1720  
Michael Perez  
It's not over 'til it's over: A case report of a diver with delayed hyperbaric intervention

1720-1740  
Rodrique Pignel  
Hyperbaric medical assistance for 3 diving saturations at 12 bar: A Swiss experiment in Graubünden

1740-1800  
Remo Bedini  
Novel system for increased safety in commercial diving

1800-1820  
Akin Toklu  
Turkish Rapana divers violate decompression rules: report of 3 cases

**Conclusions:** There are challenges in globalizing diving medicine training. There are many common threads already in the training. There is a collective consciousness that unites Diving Physicians world-wide, and the activities we support are global in nature. At this time, the best point of parity appears to be the 2D Diving Physician level, which is achievable without requiring approval from Universities, Governments or Colleges.

## **General Practitioner as a Dive Doctor – When Bubbles are the Best Medicine**

**Sarah A. Lockley**  
**Lenah Valley Medical Centre, Lenah Valley, Tasmania**

General practitioners with training in diving medicine are in a unique position as they may be the first point of contact between the diver and the diving medicine community, including diving medical specialists and hyperbaric units. This presentation will explore the role of general practitioners with training in diving medicine, including in provision of preventive healthcare through routine medicals and targeted screening; diagnosis and management of patients presenting with diving-related problems; provision of primary healthcare to patients who are divers; provision of diving medicine education to divers and medical colleagues; and diving-community engagement through establishing and fostering relationships with divers, dive clubs and training providers. In addition, it will outline the training, education and membership opportunities for general practitioners with an interest in diving medicine and highlight the importance of continuing professional development that might be further improved through fostering relationships between general practitioners and hyperbaric medicine units.

**Key words:** General practitioner, diving medicine, hyperbaric medicine

## **Mediastinal emphysema after free ascent training: A case report**

Nihal Gunes Cevik<sup>1</sup>, Mustafa Erelel<sup>2</sup>, **Akin Savas Toklu**<sup>3</sup>

<sup>1</sup>University of Medical Sciences Bozyaka Education and Research Hospital / Department of Underwater and Hyperbaric Medicine

<sup>2</sup>Istanbul University, Istanbul Faculty of Medicine, Department of Chest Diseases

<sup>3</sup>Istanbul University, Istanbul Faculty of Medicine, Department of Underwater and Hyperbaric Medicine

**Introduction:** Free ascent is an emergency procedure where the diver surfaces by continuously exhaling the air in the lungs. It is controversial to include the free ascent practice in the syllabus of recreational or professional diving training and there is no consensus among certification agencies and the policy differs considerably. It is known that health related risk of free ascent is pulmonary barotrauma that can present in different forms. We report a case with mediastinal emphysema after free ascent training practice.

**Case:** A 27 years old young man enrolled a program for professional diving training after passing a fitness to dive examination. After receiving necessary theoretical training, he started training in underwater skills. He completed basic open water skills during his previous 6 dives. On this occasion, he made a dive to the depth of 7.2 meters to practice the removal and replacement of his scuba unit. He made a free ascent 30 minutes into his dive from 7.2 meters. He reported that his ascent rate was faster since 4 kg of his weights remained in the pocket of his BC left at the bottom. He then breath-hold dived and replaced his equipment to move to a shallower depth. He repeated the free ascent twice from a depth of 4 meters. On surfacing his friends noticed a change in his voice, although the diver did not have any complaints. After a while he felt a discomfort and

swelling in his throat, followed by chest pain when he leaned forward. Crepitation in the subclavicular region spreading up to the neck was detected in the physical examination performed the next day. A large amount of mediastinal emphysema was confirmed by chest CT. A control chest CT revealed no pathology and he started diving again 6 months after the incident.

**Results/Conclusions:** Free ascent practices in dive training should be questioned since it may be a potential risk for pulmonary barotrauma. A diver, who had pulmonary barotrauma because of a provocative reason such as fast ascent, may return to diving after full recovery of lungs.

**Key words:** free ascent, pulmonary barotrauma, dive training

## **It's Not Over `Till It's Over: A Case Report of a Diver with Delayed Hyperbaric Intervention**

**Michael Francis M Perez**  
**Saint Patricks Hospital Medical Center**  
**Batangas Hyperbaric Medicine and Wound Healing Center, Philippines**

Arterial gas embolism is a catastrophic event. Bubbles in the arterial circulation may lodge in the brain and may cause infarction in the affected area. There is no well-defined window of time beyond which a response to hyperbaric oxygen is not expected. Major improvements may occur if treated as soon as possible, but unlikely to those who had delayed intervention.

This is a case of a 51-year-old rebreather diver, initially admitted with a chief complaint of loss of consciousness; had a cardiac arrest, was revived, and later moved to two other hospitals, delaying the treatment not in hours but in a number of days. The aim of this paper is to chronicle the treatment of a comatose post-arrest patient whose definitive management was delayed by 6 days.

## **Hyperbaric medical assistance for 3 diving saturations at 12 bars: A Swiss experiment in Graubünden**

**Rodrique Pignel**  
**Centre médecine hyperbare, Geneva, Switzerland**

**Introduction/background:** In 2016, three saturation dives at 12 bars were carried out at the Punt Dal Gall dam (Switzerland) at 1800m altitude over a period of 4 weeks. Medical assistance was innovative. The industrial consortium (Hydro-exploitation, Hydrokarst and Perrotet TMS), after risk analysis, underlined the very high probability of severe trauma. The aim of close medical assistance was the capacity to pressurize a medical team so as to accompany the victim during the 4 to 5 days' decompression. 1 year of multiple meetings with international brain storming were necessary to write up medical and rescue protocols. Medical equipment that could be used at 12 bars had to be selected and the possibility of rapid ascent considered in case the victim's life was in danger.

**Results:** The entire team was upgraded in emergency medicine and trauma. The four physicians and two nurses were trained to saturation at INPP and all were certified 3C class hyperbaric (Saturation certificate). The therapeutic protocols for emergency medicine and traumatology have been updated to 12-bar use. The emergency equipment has been tested for use up to twelve bars. Drager's Hyperlog is the only respirator found to date that works. We had to envisage the possibility of faster ascent to get up to the surface as quickly as possible.