

# The Pisa Inter-University Initiative for the medical and physiological support of complex and deeper diving

Antonio L'Abbate and David Elliott

The Pisa Initiative is a forum established as a result of a consensus meeting of individuals ('the group') which was convened in Pisa, Italy, in February 2009 by Prof. L'Abbate of the Scuola Superiore Sant'Anna of Pisa (SSSA). This university has a Master's degree course in hyperbaric medicine that is in the English language. Significantly the course not only covers the physiological and medical aspects of recreational diving but also incorporates the training objectives required by the European Diving Technology Committee (EDTC) for more complex and deeper diving. These aspects include the needs of the international offshore diving industry and other working divers and are audited by the Diving Medical Advisory Committee (DMAC). The only other university post-graduate course audited and approved to these standards is held at Stellenbosch University, South Africa.

The group acknowledges the support that enabled the Pisa meeting and which was provided by the Scuola Superiore Sant'Anna of Pisa, the Centro Iperbarico in Ravenna, and the Centro Formazione Offshore also of Ravenna.

The group has common concerns. There is a need for succession planning for the generation of experts who have in the past undertaken research and/or provided medical and physiological support for complex and deeper occupational diving operations, in particular but not exclusively those associated with the offshore oil and gas industry. The international nature of complex and deep offshore diving

and its future development has also shown the need for a greater geographic distribution of appropriate medical support worldwide.

The Pisa Initiative group has agreed to undertake further work in order to facilitate these aims, but recognises that it is not in itself either an education provider or a body with any formal status in determining standards of education or competency. The members came as individuals from universities and other organisations that historically are associated with deeper diving and its offshore development in the recent decades.

The group that met in Pisa has developed the Consensus Statement below with respect to the medical and physiological support of complex and deeper occupational diving.

## CONSENSUS STATEMENT OF THE ATTENDEES

There is a need to advance the quantity, quality and availability of training and education for those personnel who may become involved in providing medical or physiological support for occupational diving involving deeper and more complex techniques.

Internationally defined standards of education and competency are useful to enable diving contractors and their employing companies and government agencies to select the most appropriate individual or group service provider and/

or the most appropriate expert in biomedicine to provide medical and/or physiological oversight, specific policy advice, emergency support or occupational health input.

The group recognises and supports the extremely valuable progress made by the EDTC, The European Committee of Hyperbaric Medicine (ECHM) and DMAC in working towards international standardisation of diving medicine training standards. There is a need, however, to extend the aims of this work to a wider multinational community in view of the worldwide nature of the diving industry and the international mobility of divers.

The group supports the EDTC medical subcommittee's proposal to define an additional level of proficiency, which sees short courses achieving the minimum standards (previously 'Level IIa') being retitled 'Diving Medicine Basic' with a next level of 'Diving Medical Advisor' which is more consistent with the level of proficiency developed by graduates of the Master's courses offered by the SSSA of Pisa and the University of Stellenbosch. Certification should include the need for appropriate audits of training quality and subsequent requirements for Continuing Professional Development.

Exposure to the practicalities of both recreational and occupational diving is recommended as a pre-requisite to attending courses in Diving Medicine at all levels. Because graduates may then become involved in the support of offshore and other deep and complex diving operations, they should obtain first-hand experience of the realities of such diving. This is best achieved by practical in-water experience using relevant occupational diving equipment preferably at a diver training facility, and enhanced by site visits to relevant diving operations. This should extend to the procedures, facilities and logistics of complex and deeper diving operations and the culture of the divers, other workers and organisations involved.

Diving contractors, oil companies, navies and other organizations that utilise diving operations, should be encouraged to continue making their facilities and operations available for site visits by all those who may become involved in providing practical medical or physiological support to occupational diving.

Specific aspects of biomedicine that the group feels require additional emphasis in many courses include these examples:

- The operational and legal differences between recreational and occupational diving
- The principles of occupational health and safety and occupational medicine with emphasis on minimising exposure to chemical, physical and biological hazards
- The complex physiology and practicalities of deeper diving, including saturation diving
- The interface between physiology and engineering as in the functional requirements for breathing apparatus

and for hyperbaric evacuation.

There would be great value in sharing both historical and current case reports and incident investigations but it is acknowledged that it is essential to ensure that data security, copyright and confidentiality issues are addressed appropriately.

The Pisa Initiative group has agreed to work in support of ongoing developments worldwide in providing advanced levels of training in Biomedicine associated with diving, based upon the existing university programmes developed by the SSSA of Pisa and the University of Stellenbosch and their willingness to share their experience and elements of their course material.

It is noted that research into the medical and physiological aspects of diving does not presently have the support or breadth that it had in the past. In addition to supporting diving researchers, it would be useful to identify potential synergies and collaborative projects between those organizations that can undertake research. The group has agreed to assist in identifying future research priorities in diving medicine and physiology, in particular those aspects relevant to deeper and more complex occupational diving operations.

There is also a need to identify individuals with subspecialty expertise in the diving medicine and physiological aspects of their primary specialty, such as ENT (ORL), orthopaedics, neurology etc., who can contribute to difficult fitness to dive determinations, incident investigations, policy and research. Such individuals should be encouraged to contribute summary documents to the materials available to the diving medicine and physiology community.

#### ATTENDING PARTICIPANTS:

Antonio L'Abbate, Pisa, Italy  
Remo Bedini, Pisa, Italy  
Marco Brauzzi, Grosseto, Italy  
Alessandro Bosco, Ravenna, Italy  
Giuseppe De Iaco, Pisa, Italy  
Pasquale Longobardi, Ravenna, Italy  
David Elliott, Haslemere, England  
Jack Meintjes, Cape Town, South Africa  
Ian Millar, Melbourne, Australia  
Stephen Watt, Aberdeen, Scotland  
Jürg Wendling, Biel Bienne, Switzerland

#### UNABLE TO ATTEND:

Marc Borgnetta, Marseilles, France  
Jan Risberg, Bergen, Norway

Footnote: The consensus views of the participants do not necessarily reflect those of their institutions.

#### Key words

Occupational diving, occupational health, medicals – diving, health surveillance, medical database, meetings