



Risk Management and Decompression Procedures Control, Monitoring and Performance Improvement

The recurrence of DCS despite the compliance with the diving procedures is revealing a limit

- **Numerous DCS cases are reported every year in France, as everywhere else in the world**

These accidents occur despite the compliance with the diving procedures. They do not follow the well-controlled deterministic pathways: we talk about stochastic risk.

- **What kind of progress can be expected?**

The large number of factors potentially involved in the occurrence of a DCS introduces the main limit. It is preventing, in the current state of knowledge, any prospect of progress apart from distant future.

O'Dive-PRO: a new paradigm to control the risk of DCS

The industry sometimes faces no other option than to accept the risk inherent in its activity. And it is specific to any activity that it involves some degree of risk. However, acceptance does not mean passivity.

In the specific context of decompression sickness accidents, **O'Dive-PRO introduces a paradigm shift, based on the idea that while some inherent risk must necessarily be accepted, it must also be controlled in order to evaluate its magnitude and achieve control.**

Control the quality of the procedures through desaturation monitoring

O'Dive-PRO is a patented innovation that enables the analysis of the quality of decompression procedures by considering two indicators for which a correlation to the DCS risk has been proven: the dive exposure parameters on the one hand and the quantity of microbubbles detected in the operators' bloodflow after their intervention.

O'Dive-PRO includes a vascular microbubble sensor (ultrasonic Doppler technology) connected to a server with specialized analysis tools.

This compact and robust sensor is coupled with a data-logger watch used to record all the exposure profiles in digital format.



How are the measurements taken?

After the decompression, each intervenor places the sensor for 20 seconds under his left and then right clavicle and records his signals on the O'Dive PRO module. He then imports his exposure profile by connecting his data-logger. The information is collected anonymously. It is analyzed as part of a quality monitoring system.

How does the standard service work?

The service is based on a **regular monitoring of circulating microbubbles in the diver's venous flow** after the dive using the O'Dive-PRO sensor.

The results of the collective measurements serve as an **indicator through the comparison with the values of the standard**. This standard benefits from a hindsight of hundreds of thousands of exposures analyzed by Azoth Systems.

A **periodic report** is issued to inform the company about its current results and to invite it to adapt its practice if necessary.

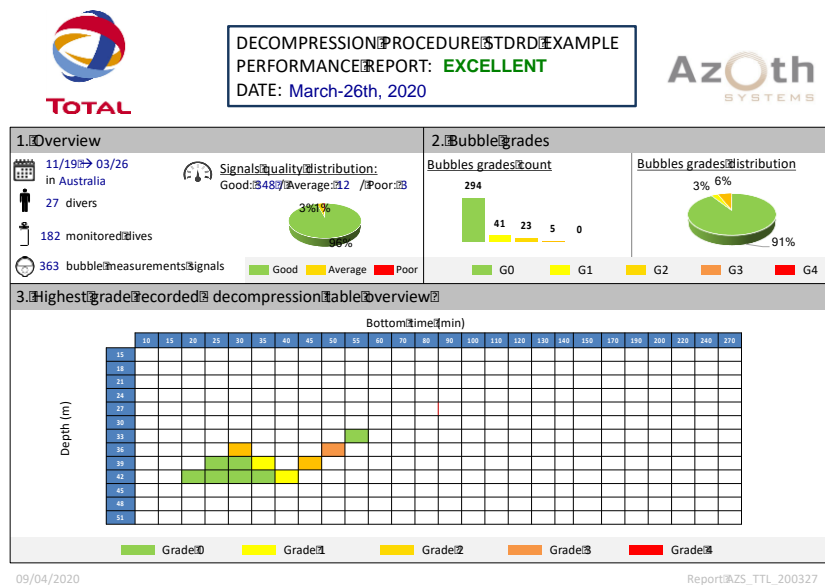


Illustration of a periodic O'Dive-PRO follow-up report

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References:

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- (4) - Eftedal O.S., Tjelmeland H., Brubakk A.O. "Validation of decompression procedures based on detection of venous gas bubbles: a Bayesian approach". *Aviation, Space and Environmental Medicine* 2007; 78: 94-99.
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