

DMAC Statement on Exercise Testing in Medical Assessment of Commercial Divers

October 2009

Testing of exercise capacity forms part of the requirement for medical assessment of commercial divers in many countries¹. Many different methods of testing and different levels of fitness have been suggested as appropriate. The following statement is based on detailed consideration of the current information concerning fitness testing and its application to the commercial diving environment.

- 1 Diving is a safety-critical and physically demanding task and, for those reasons, divers require adequate reserves of physical fitness.
- 2 Above-average levels of physical fitness and endurance retained as a result of regular physical exercise or training are considered to be protective against decompression illness and provide protection against other health risks.
- 3 Testing exercise capacity of commercial divers enables the medical examiner to:
 - i) identify breathlessness due to cardiac or respiratory illness;
 - ii) advise the diver about trends in their personal level of physical fitness;
 - iii) advise the diver about appropriate additional training and lifestyle.
- 4 Measurement of exercise capacity should be undertaken in a standardised method and the result reported in terms of estimated maximum oxygen consumption (VO_{2max}) in $ml\ O_2\ kg^{-1}min^{-1}$ (millilitres of oxygen per kilogram per minute) or METs (metabolic equivalent of task). Indirect measurement of VO_{2max} may have an error of 10-15%. Poorly conducted tests are a source of confusion and are unhelpful.
- 5 Care should be taken in the interpretation of a test result which indicates a low level of physical fitness. Where a diver is considered to be potentially unfit, more detailed assessment may be helpful. Further assessment might include more detailed cardio-pulmonary exercise testing or re-evaluation of exercise capacity after a period of physical training.

Provided that these issues are carefully considered in relation to the individual diver, exercise testing remains a valuable and important component of the diver medical assessment.

DMAC, the independent body comprising diving medical specialists from across Europe, seeks to provide advice about medical and certain safety aspects of commercial diving.

¹ Ref. MAI – *The medical examination and assessment of divers* (UK Health & Safety Executive), Norwegian and European Diving Technology Committee (EDTC) guidance