

## SPUMS ANNUAL SCIENTIFIC MEETING 1991

### THE PADI MEDICAL STATEMENT

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#### Introduction

Scuba diving is an enjoyable and fascinating leisure activity. A 1988 study performed by Diagnostic Research Incorporated<sup>1</sup> indicated approximately 2.7 million active recreational scuba divers in North America. A broadening cross section of the general population is choosing scuba diving as a recreational activity.

The diving industry assumes an ethical and legal duty to inform student divers of the risk factors associated with diving. Interested in self regulation, the industry has banded together to promote diving safety and health while reducing the number of accidents and fatalities during the growth period of the past decade.

As an educational association, PADI has invested resources into the design of quality training programs and educational materials. This commitment is to ensure that divers are properly trained to dive safely and enjoyably after certification. Diver education plays an important role in accident prevention. A diver in training must demonstrate competence in the various cognitive and motor skill areas associated with learning how to scuba dive. In addition, they must develop proper judgement in order to take responsibility for themselves while diving after certification.

However, some accidents are related to the interaction of the aquatic environment and an individual's health. The 1988 Divers Alert Network (DAN) Report on Diving Accidents and Fatalities<sup>2</sup> indicates a portion of injured divers who were aware of their own medical problems made a personal choice to engage in diving. PADI believes that the incidence of diving accidents is likely to be reduced by utilizing a medically based screening process to exclude individuals, with certain medical problems known to be predisposing factors, from engaging in recreational scuba diving.

A standardized and objective assessment of medical risk was sought after by the diving educational associations who were members of the Recreational Scuba Training Council (RSTC). After several months of work, this was accomplished with the 1990 release of the RSTC Medical Statement. The member associations of the RSTC enthusiastically embraced such a milestone and applauded the physicians who worked on this project. Special recognition and thanks is deserved for Paul A. Thombs, MD, Medical Director, Hyperbaric Medical Center, and Brian M. Foley, MSc, Director of Technical Services, Hyperbaric Oxygen

Therapy Systems, both of St. Luke's Hospital, Denver, Colorado for their major contributions to this milestone.

Each member agency has adopted the content of this statement into their medical forms. In the North American marketplace this represents eighty percent of the diver educational associations implementing this form into their respective training programs. The PADI Medical Statement is a reproduction of this form.

#### Medical screening for the recreational diver

The marketing effort of the Diving Instructional business attracts people of all ages. An important prerequisite to diver training is the medical screening of each candidate. As part of PADI's Standards, each candidate must read, complete and sign the PADI Medical Statement.<sup>3</sup>

It must be stated that a scuba instructor is not considered a medical expert. He should not be expected to make diagnosis or render definitive opinions as to whether a course applicant is medically eligible to participate in a scuba course. This responsibility should rest entirely with a qualified licensed physician. In North America and in other parts of the world, most diver training agencies do not require every student to undergo a medical examination by a licensed physician prior to enrollment in a scuba course. They do, however, require some type of medical screening.

The content and format of such screens differed widely until the introduction of the Recreational Scuba Training Council Medical Statement. The statement provided standardized guidelines with a pre-screening methodology on what constitutes medical eligibility to learn to dive. This reduced the problem of lay people being faced with medical decisions. Perhaps most importantly, the new medical evaluation and screening statement has medically based provisions to inform the non-diving physician of the contraindications to diving so that an informed recommendation may be rendered.

#### Development of the medical statement

When it comes to the issue of student medical eligibility for diving, the recreational diving community must defer to the hyperbaric medical community for expertise and guidance. The information in the PADI Medical Statement was developed by well known members of the Undersea Hyperbaric and Medical Society along with prominent physicians from DAN in conjunction with several professional instructor organizations affiliated with the RSTC. As a result of this multi-disciplinary approach, the statement represents consensus opinion of the experts. The new

medical statement represents the culmination of a growing consensus within the North American diving medical community as to what constitutes medical eligibility to learn to dive. This is a very positive advance in the standardization of the diving medical screening process. Until its release, a comprehensive standardized format representing a medical consensus did not exist in the recreational diver training community.

It should be noted that the statement has evolved since its release with several improvements and revisions made through suggestions from the international medical community.

### **Design of the medical statement**

The statement uses a student health screening questionnaire designed to be comprehensive enough to flag questions yet decrease the number of unneeded physical exams. Recognizing that no screening method can be perfect (there may be those who will knowingly circumvent safety efforts by giving false answers), the authors of the statement, in designing screening questions, made decisions as to whether the process catches unfit students adequately. The questions are quite thorough and conservative and probably direct some students to a physician for further screening when this issue has little impact on their safety.<sup>4</sup>

The statement is designed to accommodate the fact that the number and distribution of physicians with expertise in diving medicine makes it difficult for many diving students to get a reasonable risk assessment.

The statement has instructions to the physician in addition to an reference section so that physicians may be educated sufficiently about their patients conditions and diving physiology to make reasonable recommendations. DAN is willing to assist physicians further with difficult or unusual cases. Each area of screening identifies the relative and absolute contraindications for the examining physician to render an opinion.

The PADI Medical Statement is a vehicle to help the diving candidate, the examining physician and the scuba instructor ensure the student's medical fitness for diving. The statement specifically states that the student will be participating in diving activities and the physician is also given guidelines as to how specific medical conditions relate to diving.

### **Role of the diving candidate**

At the beginning of every PADI course the first two pages of the six page statement are filled out by the student.<sup>5</sup> After explaining the purpose and importance of health and safe diving to the student, the medical history section re-

quires the student to write a yes or no answer for every question. All blanks are checked by the instructor to ensure no questions are left unanswered. If a "yes" answer is given to any question, the student must be referred to a physician with the statement for examination and an unconditional medical approval prior to water activities. This releases the lay instructor from the historical burden of deciding whether a student should be seen by a physician or not.

In the past scuba instructors were occasionally placed in the uncomfortable position of wanting to teach a willing student to dive, but not knowing if diving could compromise the student's health.<sup>6</sup> With the new statement, a doctor makes a decision based on his knowledge and expertise in the medical field along with the patient history and the use of the guidelines written expressly for this purpose.

It is important to also state that the student may not assume medical responsibility for himself. It is important to identify these risks to the candidate and encourage honest in responding to the statement. This is done with the following statement:

"This is a statement in which you are informed of some potential risks involved in scuba diving and the conduct required of you during the scuba training program. Your signature on this statement is required for you to participate in the scuba training program offered by .....; Instructor.....; located in the facility .....; in the city of ..... and state of....."

Read and discuss this statement prior to signing it. You must complete this Medical Statement, which includes the medical-history section, to enroll in the scuba-training program. If you are a minor, you must have this Statement signed by a parent.

Diving is an exciting and demanding activity. When performed correctly, applying correct techniques, it is very safe. When established safety procedures are not followed, however, there are dangers.

To scuba dive safely, you must not be extremely overweight or out of condition. Diving can be strenuous under certain conditions. Your respiratory and circulatory systems must be in good health. All body air spaces must be normal and healthy. A person with heart trouble, a current cold or congestion, epilepsy, asthma, a severe medical problem, or who is under the influence of alcohol or drugs should not dive. If taking medication, consult your doctor and the instructor before participation in this program. You will also need to learn from the instructor the important safety rules regarding breathing and equalization while scuba diving. Improper use of scuba equipment can result in serious injury. You must be thoroughly instructed in its use under direct supervision of a qualified instructor to use it safely.

If you have any additional questions regarding this Medical Statement or the Medical History, section, review with your instructor before signing."

A student having been declined medically may wish

to assume his own risk and attempt to convince the instructor to enroll him in a scuba course. A publication on the legal aspects of diving instruction, published by PADI, called "The Law and The Diving Professional"<sup>7</sup> cautions instructors against this by stating: "It may be argued that the student, being aware of his conditions understands and assumes the risks accompanying his condition, but the student is no more a medical expert than the instructor. Further, the instructor may be negligent in not relying upon the physician's judgement, thus possibly creating an unreasonable risk of harm for the student". As a result, PADI Standards require the instructor to follow the instruction for use of the form and secure an unconditional approval from a licensed physician.<sup>3</sup>

### **Role of the physician**

An important concern regarding medical approval to dive is that not all physicians are aware of certain physical and emotional factors peculiar to scuba diving.<sup>8</sup> In the past students requiring a physician's medical approval prior to diving have received approval from a physician who had no knowledge of diving medicine. In many cases this is of little significance, however, this becomes troublesome to the diving instructor and student when the candidate presents a medical history of asthma, diabetes, seizures, heart conditions or other conditions the diving medical community considers contraindications to diving, yet receives medical approval to engage in diving.<sup>9</sup>

In addressing this problem, the medical statement assumes (consistent with society's expectations) that a physician should be the decision maker. Physicians make daily decisions with their patients regarding risk to benefit ratios of diagnostic procedures and treatments. It is logical to extend this process to risk assessment in recreational scuba diving. The statement provides a medically based guideline to the physician that is diving specific. The statement assumes physicians have a sufficient background in physiology to learn enough about diving medicine to make informed decisions based on risk assessment. The attending physician is prepared for patient examination with the medical history by the following instructions:

"Recreational scuba (self contained underwater breathing apparatus) diving has an excellent safety record. To maintain this status it is important to screen student divers for physical deficiencies that could place them in peril in the underwater environment.

The Recreational Scuba Diver's Physical Examination contains elements of medical history, review of systems and physical examination. It is designed to detect conditions that put a diver at increased risk for decompression sickness, pulmonary over-inflation syndrome with subsequent cerebral gas embolization and loss of consciousness that could lead to drowning.

Additionally, the diver must be able to withstand some degree of cold stress, cope with the optical effects of water and have a reserve of physical and mental abilities to deal with possible emergencies.

The history, review of systems and physical examination should include, as a minimum, the points listed below. The list of contraindications, relative and absolute, is not all inclusive. It contains the most commonly encountered medical problems that put the diver at risk, and (lead him) to consider the individual patient's state of health.

Diagnostic studies and specialty consultations should be obtained as indicated to satisfy the physician as to the diver's status. A list of references is included to aid in clarifying issues that arise. Physicians at the Divers Alert Network (DAN) are available for consultation by phone (919) 684-2948 during normal business hours. For emergency calls, 24 hours, 7 days a week, call (919) 684-8111.

Some conditions are absolute contraindications to scuba diving. Conditions that are absolute contraindications place the diver at increased risk for injury or death. Others are relative contraindications to scuba that may be resolved with time and proper medical intervention. Ultimately the physician should decide with the individual, based on his knowledge of the patient's medical status, whether the individual is physically qualified to participate in scuba diving.

Remember at all times that scuba is a recreational sport, and it should be fun, not a source of morbidity or mortality."

Physicians are then guided through each screening area which identifies relative and absolute contraindications in the following areas, cardiovascular system, pulmonary, neurological, otolaryngological, gastro intestinal, metabolic, endocrinological, pregnancy, hematological, orthopedic and behavioral health.

A bibliography and endorser contact information is also provided for attending physician reference.

### **Role of the diving instructor**

The success of the screening process depends on instructors providing the screening forms to potential students and encouraging them to be honest when completing the questionnaire as a matter of health and safety. Instructors can discourage students with medical problems from diving if they feel that their chances of receiving physician approval is low. If the answer to a screening question is unclear, the instructor can tell potential students that their case is complex and invite them to discuss medical issues with their physician prior to completing the questionnaire.

When a physician gives approval to a student as to his medical eligibility to dive, the instructor must then make a choice as to whether or not he wishes to take the student

under instruction. If an applicant is medically approved for diving and the instructor believes the student has a condition that may not be suitable for diving it is appropriate for the instructor to inquire from the student and seek further guidance for the physician who examined the student. The Law and The Diving Professional<sup>7</sup> discusses this point "ultimately, the scuba instructor must make the final decision as to whom will be permitted to take a scuba course. Scuba instruction is not a right to which all persons are entitled. It is a private recreational choice on the part of both the instructor and the applicant. An instructor has absolutely no legal obligation to accept every applicant. Therefore, keeping in mind these considerations in the area of medical fitness, an instructor may exercise discretion by refusing admission to an application if, the the instructors judgement, there is cause for concern".

As stated earlier, it is important for an instructor not to assume responsibility for medical judgements or approvals. This is solely the physician's area of expertise, the instructor is required by PADI, to leave this responsibility to the physician.

### Conclusions

By using the PADI Medical Statement, instructors, students and physicians are all assured they are doing their best to ensure individual health for diving. The process of student, instructor and physician interaction is designed to provide information about student medical history and risk identification to make an informed recommendation prior to scuba diving. This in turn will support a continuance of safe and enjoyable scuba diving for the majority of the interested population.

### References

- 1 Diagnostic Research Inc. *Scuba diver incidence study*. Tustin, California: The Diving Equipment Manufacturers Association, 1988
- 2 *Report on 1989 diving accidents and fatalities*. Divers Alert Network. Durham, North Carolina: Duke University Medical Center, 1991
- 3 *PADI Instructor Manual*. Santa Ana, California: PADI, 1991
- 4 Thombs P. and Foley B. *All about the new diving physical*. 1990
- 5 Richardson D. *PADI open water diver manual*. Santa Ana, California: PADI, 1988
- 6 Taylor J. Take a sigh of relief-the revised PADI medical statement is here, *Undersea Journal* 2nd Qtr, 1990; 32-33
- 7 Coren S. *The law and the diving professional*. Santa Ana, California: PADI, 1985
- 8 Davis J. *Medical examination of sport scuba divers*. San Antonio, Texas: Medical Seminars Inc., Pub-

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- 9 Kurczewski P. Student medical eligibility concerns for the diving instructor, *Undersea Journal* 4th Qtr, 1987; 11-12,14

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***SPUMS policy is that every intending diver should have a medical from a doctor trained to do diving medicals before starting to dive.***

***With this issue of the Journal comes a copy of the SPUMS submission to Standards Australia Committee CS/83 detailing what is considered necessary for a diving medical for recreational divers.***

***Further copies are available from the Secretary of SPUMS, C/o Australian College of Occupational Medicine, P.O. Box 2090, St Kilda West, Victoria 3182, Australia.***

### THE RECREATIONAL DIVE PLANNER AND THE PADI EXPERIENCE

Raymond E. Rogers

#### Introduction

In 1988, the Professional Association of Dive Instructors (PADI) began distributing the Recreational Dive Planner (RDP) as an alternative to the US Navy tables, which had long been accepted around the world as a de facto standard for recreational use. Although the USN tables were neither designed nor tested for the way they were commonly used<sup>1</sup>, their very familiarity made them tolerable to most experts in the field of diving safety. The most likely reason that they were well accepted by the medical and scientific communities was not from any inherent excellence, but from the fact that divers who used them had a very low rate of decompression sickness (DCS).<sup>2,3</sup>

As dependable as the USN tables were, they were far from perfect and were criticized in many quarters. Some