

APPENDIX 1
DIVING MEDICAL EXAM OVERVIEW FOR THE EXAMINING PHYSICIAN

TO THE EXAMINING PHYSICIAN:

This person, _____, requires a medical examination to assess their fitness for certification as a Scientific Diver for the University of Maryland Center for Environmental Science. Their answers on the Diving Medical History Form (attached) may indicate potential health or safety risks as noted. Your evaluation is requested on the Scuba Diving Fitness Medical Evaluation Report. If you have questions about diving medicine, you may wish to consult one of the references on the attached list or contact one of the physicians with expertise in diving medicine whose names and phone numbers appear on the list. Please contact the Diving Safety Officer if you have questions or concerns about diving medicine or University of Maryland Center for Environmental Science standards. Thank you for your assistance.

William Sarro Bill@idive2.net
Diving Safety Officer

Date _____

Printed Name

410 969 5540
Phone Number

SCUBA and other modes of compressed-gas diving can be strenuous and hazardous. A special risk is present if the middle ear, sinuses, or lung segments do not readily equalize air pressure changes. The most common cause of distress is eustachian insufficiency. Most fatalities involve deficiencies in prudence, judgment, emotional stability, or physical fitness. Please consult the following list of conditions that usually restrict candidates from diving.

(Adapted from Bove, 1998: page numbers are bracketed)

CONDITIONS WHICH MAY DISQUALIFY CANDIDATES FROM DIVING

1. Abnormalities of the tympanic membrane, such as perforation, presence of a monomeric membrane, or inability to autoinflate the middle ears.[5 ,7, 8, 9]
2. Vertigo including Meniere's Disease.[13]
3. Stapedectomy or middle ear reconstructive surgery.[11]
4. Recent ocular surgery.[15, 18, 19]
5. Psychiatric disorders including claustrophobia, suicidal ideation, psychosis, anxiety states, untreated depression.[20 - 23]
6. Substance abuse, including alcohol.[24 - 25]
7. Episodic loss of consciousness.[1, 26, 27]
8. History of seizure.[27, 28]
9. History of stroke or a fixed neurological deficit.[29, 30]
10. Recurring neurologic disorders, including transient ischemic attacks.[29, 30]
11. History of intracranial aneurysm, other vascular malformation or intracranial hemorrhage.[31]
12. History of neurological decompression illness with residual deficit.[29, 30]
13. Head injury with sequelae.[26, 27]
14. Hematologic disorders including coagulopathies. 41, 42]

15. Evidence of coronary artery disease or high risk for coronary artery disease¹. [33 - 35]
16. Atrial septal defects. [39]
17. Significant valvular heart disease - isolated mitral valve prolapse is not disqualifying. [38]
18. Significant cardiac rhythm or conduction abnormalities. [36 - 37]
19. Implanted cardiac pacemakers and cardiac defibrillators (ICD). [39, 40]
20. Inadequate exercise tolerance. [34]
21. Severe hypertension. [35]
22. History of spontaneous or traumatic pneumothorax. [45]
23. Asthma². [42 - 44]
24. Chronic pulmonary disease, including radiographic evidence of pulmonary blebs, bullae, or cysts. [45, 46]
25. Diabetes mellitus. [46 - 47]
26. Pregnancy. [56]

SELECTED REFERENCES IN DIVING MEDICINE

Most of these are available from Best Publishing Company, P.O. Box 30100, Flagstaff, AZ 86003-0100, the Divers Alert Network (DAN) or the Undersea and Hyperbaric Medical Association (UHMS), Bethesda, MD.

ACC/AHA Guidelines for Exercise Testing. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Exercise Testing). Gibbons RJ, et al. 1997. *Journal of the American College of Cardiology*. 30:260-311. <http://circ.ahajournals.org/cgi/content/full/96/1/345>

- Alert Diver Magazine; articles on diving medicine
<http://www.diversalertnetwork.org/medical/articles/index.asp>
- “Are Asthmatics Fit to Dive?” Elliott DH, ed. 1996, Undersea and Hyperbaric Medical Society, Kensington, MD.

“Assessment of Cardiovascular Risk by Use of Multiple-Risk-Factor Assessment Equations.”

Grundy et. al. 1999. AHA/ACC Scientific Statement

<http://circ.ahajournals.org/cgi/reprint/circulationaha;100/13/1481>

- DIVING MEDICINE, Third Edition, 1997. A. Bove and J. Davis. W.B. Saunders Company, Philadelphia
- DIVING AND SUBAQUATIC MEDICINE, Third Edition, 1994. C. Edmonds, C. Lowery and J. Pennefather. Butterworth-Heinemann Ltd. Oxford
- MEDICAL EXAMINATION OF SPORT SCUBA DIVERS, 1998. Alfred Bove, M.D., Ph.D. (ed.). Medical Seminars, Inc. San Antonio, TX
- NOAA DIVING MANUAL, NOAA. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.
- U.S. NAVY DIVING MANUAL. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.

¹ “Assessment of Cardiovascular Risk by Use of Multiple-Risk-Factor Assessment Equations.”

Grundy et. al. 1999. AHA/ACC Scientific Statement.

<http://www.acc.org/clinical/consensus/risk/risk1999.pdf>

² “Are Asthmatics Fit to Dive?” Elliott DH, ed. 1996 Undersea and Hyperbaric Medical Society, Kensington, MD.

APPENDIX 2
MEDICAL EVALUATION OF FITNESS FOR SCUBA DIVING REPORT

Name of Applicant (Print or Type)

Date (Mo/Day/Year) (DOB - date of Birth)

To The PHYSICIAN:

This person is an applicant for training or is presently certified to engage in diving with self-contained underwater breathing apparatus (scuba). This is an activity that puts unusual stress on the individual in several ways. Your opinion on the applicant's medical fitness is requested. Scuba diving requires heavy exertion. The diver must be free of cardiovascular and respiratory disease. An absolute requirement is the ability of the lungs, middle ear and sinuses to equalize pressure. Any condition that risks the loss of consciousness should disqualify the applicant.

TESTS: Please initial that the following tests were completed.

[] Initial Examination

Medical History

Complete Physical Exam with emphasis on
neurological and otological components

Chest X-Ray

Spirometry

Hematocrit or Hemoglobin

Urinalysis

Any further tests deemed necessary by the
physician

Additional testing for first over age 40

Resting EKG

Assessment of coronary artery disease using
Multiple-Risk-Factor Assessment³
(age, lipid profile, blood pressure, diabetic
screening, smoker) Note: Exercise stress testing
may be indicated based on risk factor assessment⁴

[] Re-examination

**(Every 5 years under age 40, first exam over age
40, every 3 years over age 40, every 2 years over
age 60)**

Medical History

Complete Physical Exam, with emphasis on
neurological and otological components

Hematocrit or Hemoglobin

Urinalysis

Any further tests deemed necessary by the
physician

Additional testing for over age 40

Resting EKG

Assessment of coronary artery disease using
Multiple-Risk-Factor Assessment⁵
(age, lipid profile, blood pressure, diabetic
screening, smoker) Note: Exercise stress testing
may be indicated based on risk factor assessment⁶

RECOMMENDATION:

[] APPROVAL. I find no medical condition(s) that I consider incompatible with diving.

[] **RESTRICTED ACTIVITY APPROVAL.** The applicant may dive in certain circumstances as described in REMARKS.

³ "Assessment of Cardiovascular Risk by Use of Multiple-Risk-Factor Assessment Equations." Grundy et. al. 1999. AHA/ACC Scientific Statement. <http://www.acc.org/clinical/consensus/risk/risk1999.pdf>

⁶ Gibbons RJ, et al. ACC/AHA Guidelines for Exercise Testing. A report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Exercise Testing). Journal of the American College of Cardiology. 30:260-311, 1997. <http://www.acc.org/clinical/guidelines/exercise/exercise.pdf>

**APPENDIX 3
DIVING MEDICAL HISTORY FORM**

(To be completed by applicant diver)

Name _____ Sex _____ Age _____ Wt. _____ Ht. _____

Sponsor _____ Date ____/____/____
(College / Department / Project, etc.) (Mo/Day/Yr)

TO THE APPLICANT:

Scuba diving makes considerable demands on you, both physically and mentally. Diving with certain medical conditions may be asking for trouble not only for yourself, but also to anyone coming to your aid if you get into difficulty in the water. Therefore, it is prudent to meet certain medical and physical requirements before beginning a diving or training program.

Your answers to the following questions are as important in determining your fitness as your physical examination. You should give accurate information or medical screening becomes useless.

This form shall be kept confidential. If you believe any question amounts to invasion of your privacy, you may elect to omit an answer, provided that you shall subsequently discuss that matter with your own physician and they must then indicate, in writing, that you have done so and that no health hazard exists.

Should your answers indicate a condition, which might make diving hazardous, you will be asked to review the matter with your physician. In such instances, their written authorization will be required for further consideration to be given to your application. If your physician concludes that diving would involve undue risk for you, remember that they are concerned only with your well-being and safety. Please respect the advice and the intent of this medical history form.

	Have you ever had or do you presently have any of the following?	Yes	No	Comments
1.	Trouble with your ears, including ruptured eardrum, difficulty clearing your ears, or surgery.			
2.	Trouble with dizziness.			
3.	Eye surgery.			
4.	Depression, anxiety, claustrophobia, etc.			
5.	Substance abuse, including alcohol.			
6.	Loss of consciousness.			
7.	Epilepsy or other seizures, convulsions, or fits.			
8.	Stroke or a fixed neurological deficit.			
9.	Recurring neurologic disorders, including transient ischemic attacks.			
10.	Aneurysms or bleeding in the brain.			
11.	Decompression sickness or embolism.			
12.	Head injury.			
13.	Disorders of the blood, or easy bleeding.			
14.	Heart disease, diabetes, high cholesterol.			
15.	Anatomical heart abnormalities including patent foramen ovale, valve			

	problems, etc.			
16.	Heart rhythm problems.			
17.	Need for a pacemaker.			
18.	Difficulty with exercise.			
19.	High blood pressure.			
20.	Collapsed lung.			
21.	Asthma.			
22.	Other lung disease.			
23.	Diabetes mellitus.			
24.	Pregnancy.			
25.	Surgery If yes explain below.			
26.	Hospitalizations. If yes explain below.			
27.	Do you take any medications? If yes list below.			
28.	Do you have any allergies to medications, foods, and environmental? If yes explain below.			
29.	Do you smoke?			
30.	Do you drink alcoholic beverages?			
31.	Is there a family history of high cholesterol?			
32.	Is there a family history of heart disease or stroke?			
33.	Is there a family history of diabetes?			
34.	Is there a family history of asthma?			

Please explain any “yes” answers to the above questions.

I certify that the above answers and information represent an accurate and complete description of my medical history.

Signature

Date

APPENDIX 4
RECOMMENDED PHYSICIANS WITH EXPERTISE IN DIVING MEDICINE

List of local Medical Doctors that have training and expertise in diving or undersea medicine:

1. Name: _____

Address: _____

Phone: _____

2. Name: _____

Address: _____

Phone: _____

3. Name: _____

Address: _____

Phone: _____

4. Name: _____

Address: _____

Phone: _____

5. Name: _____

Address: _____

Phone: _____