

STANFORD UNIVERSITY DIVING CONTROL BOARD  
Hopkins Marine Station, Pacific Grove CA 93950  
(831) 655-6200; fax (831) 375-0693

**DIVING MEDICAL EXAM OVERVIEW FOR THE EXAMINING PHYSICIAN**

TO THE EXAMINING PHYSICIAN:

This person, \_\_\_\_\_, requires a medical examination to assess his/her fitness to scuba dive in Stanford University's Scientific Diving program. His /her answers on the attached Diving Medical History Form may indicate potential health or safety risks as noted. Your evaluation is requested on the attached Diving Fitness Medical Evaluation form. If you have questions about diving medicine, you may wish to consult one of the references on the list which follows. Please contact Stanford's Diving Safety Officer at Hopkins Marine Station if you have any questions or concerns about Stanford University's medical standards for scientific diving. Thank you for your assistance.

Freya Sommer  
*Diving Safety Officer*

(831) 655-6245; (831) 375-0693; freya@stanford.edu  
*Phone, fax, e-mail*

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 which usually restrict candidates from diving.

*(Adapted from Bove, 1998: 61-63. Bracketed numbers are pages in Bove)*

**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 disease<sup>1</sup> [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. Asthma<sup>2</sup> [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]

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<sup>1</sup>“**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>

<sup>2</sup>“**Are Asthmatics Fit to Dive?**”

D.H. Elliott, ed., 1996

Undersea and Hyperbaric Medical Society, Kensington, MD

## **SELECTED REFERENCES IN DIVING MEDICINE**

Most of the following are available from Best Publishing Company, P.O. Box 30100, Flagstaff, AZ 86003-0100, 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).**

R.J. Gibbons et al, 1997

Journal of the American College of Cardiology. 30: 260-311

<http://www.acc.org/clinical/guidelines/exercise/exercise.pdf>

**Alert Diver Magazine**

<http://www.diversalertnetwork.org/medical/articles/index.asp>

**DIVING MEDICINE, Third Edition**

A. Bove and J. Davis, 1997

W.B. Saunders Company, Philadelphia

**DIVING AND SUBAQUATIC MEDICINE, Third Edition**

C. Edmonds, C. Lowery and J. Pennefather, 1994

Butterworth-Heinemann Ltd. Oxford

**MEDICAL EXAMINATION OF SPORT SCUBA DIVERS**

Alfred Bove, M.D.,Ph.D. ed., 1998

Medical Seminars, Inc. San Antonio, TX

**NOAA DIVING MANUAL, Fourth Edition**

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.

## DIVING MEDICAL HISTORY FORM

(To be completed by the applicant diver)

Name \_\_\_\_\_

(circle) M / F Age \_\_\_\_\_

Sponsor \_\_\_\_\_  
(Lab P.I. or course instructor)

Date \_\_\_\_ / \_\_\_\_ / \_\_\_\_  
(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 for 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 questions are as important as your physical examination in determining your fitness. You must give accurate information in order for the medical screening procedure to be of any value.

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 he/she 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, his/her written authorization will be required in order for further consideration to be given your application. If your physician concludes that diving would involve risk for you, remember that he/she is concerned only with your well-being and safety. Please respect his/her advice and the intent of this medical history form.

*Have you ever had or do you presently have any of the following?  
(please check yes or no)*

*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)			
<i>Please check yes or no for the following:</i>		<i>Yes</i>	<i>No</i>	<i>Comments</i>
27	Do you take any medications? (If yes, list below)			
28	Do you have any allergies to medications, foods, 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 a complete and accurate description of my medical history.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## MEDICAL EVALUATION OF FITNESS FOR SCUBA DIVING

\_\_\_\_\_  
Name of Applicant (Print or Type)

\_\_\_\_\_  
Date (Mo/Day/Year)

### TO THE PHYSICIAN:

This person is an applicant for training or is presently certified to engage in scuba diving. This is an activity which 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 (and first re-examination over age 40)**

- \_\_\_\_ Medical History reviewed with applicant
- \_\_\_\_ 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

**Re-examination (every 5 years under age 40, every 3 years over age 40, every 2 years over age 60)**

- \_\_\_\_ Medical History reviewed with applicant
- \_\_\_\_ 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 all examinations over age 40**

- \_\_\_\_ Resting EKG
- \_\_\_\_ Assessment of coronary artery disease using Multiple-Risk-Factor Assessment<sup>1</sup> (age, lipid profile, blood pressure, diabetic screening, smoker)  
Note: Exercise stress testing may be indicated based on Risk Factor Assessment<sup>2</sup>

### RECOMMENDATION:

- APPROVAL** - I find no medical condition(s) which I consider incompatible with diving.
- FURTHER TESTING REQUIRED** - I have encountered a potential contraindication to diving. Additional medical tests must be performed before a final assessment can be made. See REMARKS.
- REJECT** - This applicant has medical condition(s) which, in my opinion, clearly would constitute unacceptable hazards to health and safety in diving. See REMARKS.

*(Continued on next page) →*

<sup>1</sup> Grundy et al, 1999. "Assessment of Cardiovascular Risk by Use of Multiple-Risk-Factor Assessment Equations." AHA/ACC Scientific Statement. <http://www.acc.org/clinical/consensus/risk/risk1999.pdf>

<sup>2</sup> Gibbons RJ et al, 1997. 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  
<http://www.acc.org/clinical/guidelines/exercise/exercise.pdf>

*(Continued from previous page)*

**REMARKS:**

I have discussed the patient's medical condition(s) which would not seriously interfere with diving but which may seriously compromise subsequent health. The patient understands the nature of the hazards and the risks involved in diving with these defects.

\_\_\_\_\_  
Signature M.D. \_\_\_\_\_  
Date

\_\_\_\_\_  
Name (please print or type)

\_\_\_\_\_  
Address

\_\_\_\_\_  
Telephone number

My familiarity with applicant is:

With this exam only

Regular Physician for \_\_\_\_\_ years

Other (describe)

.....  
**APPLICANT'S RELEASE OF DIVING MEDICAL EXAM INFORMATION**

I authorize the release of this information and all medical information subsequently acquired in association with my diving to \_\_\_\_\_ (Diving Safety Officer) and Diving Control Board or their designee at (place) \_\_\_\_\_ on (date) \_\_\_\_\_.

Signature of Applicant \_\_\_\_\_