

## NOAA DIVING MEDICAL EXAM PACKET

This packet consists of the following sections:

- Section 1— Medical Exam Overview for divers and instructions for clearance process
- Section 2— Diving Medical History Form (Applicant completes)
- Section 3— Information for examining clinicians, including List of Possible Contraindications to Diving
- Section 4— Physical Examination Form (Clinician completes)
- Section 5— Diving Medical Evaluation (2-sided form for results of exam)

### Section 1- Medical Exam Overview for Divers and Instructions for NOAA Clearance

If you will be diving off a National Oceanic and Atmospheric Administration (NOAA) vessel or on a NOAA project you will need to have one of the below listed diving exams, depending on your age and if it is an initial or re-examination. If you have already had the UCSC diving exam within the respective time frame based on your age, you will need only to have the additionally required tests to complete the NOAA requirements. Once you have completed these tests you must present a new NOAA “Diving Medical Evaluation” (p. 9 & 10) to the UCSC Diving Safety Officer. If you have any questions about this process, please contact the UCSC Diving Safety Program, Steve Clabuesch, at (831) 459-4286 or email [srclabue@ucsc.edu](mailto:srclabue@ucsc.edu).

### NOAA EXAM MATRIX

Initial Exam UNDER age 40	Periodic Re-Exam UNDER age 40 every 5 years	Initial Exam age 40 and OVER	Periodic Re-Exam age 40-49 every 3 years, age 50-59 every 2 years, age 60 and over every year
Medical History	Medical History	Medical History	Medical History
Complete Physical Exam, (emphasis on neurological and otological components)	Complete Physical Exam, (emphasis on neurological and otological components)	Complete Physical Exam, (emphasis on neurological and otological components)	Complete Physical Exam, (emphasis on neurological and otological components)
Chest X-ray		Chest X-ray	
Spirometry		Spirometry	
Chem Panel	Chem Panel	Chem Panel	Chem Panel
CBC	CBC	CBC	CBC
Urine Dip	Urine Dip	Urine Dip	Urine Dip
		Resting EKG	Resting EKG
Assessment of coronary artery disease risk factors including lipid profile and diabetic screening.		Detailed assessment of coronary artery disease risk factors using Multiple-Risk-Factor Assessment (age, family history, lipid profile, blood pressure, diabetic screening, smoking history). Further cardiac screening may be indicated based on risk factor assessment.	Detailed assessment of coronary artery disease risk factors using Multiple-Risk-Factor Assessment (age, family history, lipid profile, blood pressure, diabetic screening, smoking history). Further cardiac screening may be indicated based on risk factor assessment.
Any further tests deemed necessary by the clinician	Any further tests deemed necessary by the clinician	Any further tests deemed necessary by the clinician	Any further tests deemed necessary by the clinician

The process of a diving physical may take several visits to the Student Health Center. You are responsible for knowing which specific medical tests are required for your physical. **Please fill out the “Diving Medical History” form before your appointment for examination and give it to the clinician at the time of the physical exam, along with the other forms in this packet.**

If a diver wishes his or her personal clinician to supply information and test results pertaining to their health status, this information will be considered in this decision. Medical evaluations performed by non-UCSC clinicians must be reviewed by the UCSC Medical Director or designee. You may do this by submitting your COMPLETED medical packet to the Student Health Center. There is a fee for the service. After reviewing your packet, if the UCSC Medical Director determines that further evaluation is needed, you will be asked to schedule an appointment. Once clearance is granted, the diver should take the signed form to the UCSC Diving Safety Officer to be included in their Scientific Diving records.

**If you currently have asthma, have history of asthma, or history of childhood asthma, you must:**

- 1) Undergo a spirometry done at a pulmonologist office
- 2) Receive medical clearance from that pulmonologist
- 3) Submit Scuba Medical, Pulmonologist Clearance, and Corresponding Labwork to UCSC Health Center for final approval.

**NOTE:** There may be further tests requested if deemed necessary by the UCSC clinician. After receiving medical clearance from both the pulmonologist and UCSC Health Center, you are guaranteed a spot in the Basic Scuba class for the following quarter, as long as the other requirements have been met. Please turn in the medical clearance to the instructor at the first pool session

**See next page for specific instructions for completing exam requirements**

## How To Complete Exam Requirements at the UCSC Student Health Center:

**Step 1. CONTACT THE APPOINTMENT DESK**—Call 831-459-2500 to schedule your appointments.

**The Appointment Assistant will:**

- Set up appointments for your physical exam, spirometry and EKG.
- Order your lab work and chest x-ray

**Step 2. Get your Lab work, spirometry and chest x-ray done at least One Week Before your scheduled physical exam appointment. You must have first had the necessary tests ordered by the Appointment Assistant (see Step 1).**

- **Laboratory Testing**—M W Th F 9a—4p & T 9:30a-4p (Basement level of Student Health Center)
- **Chest X-Ray**— M W Th F 9a—4p & T 9:30a-4p (Basement Level of Student Health Center)
  - X-Rays will be read by specialists and become part of your medical record.

**Step 3. Come in for your Physical Exam Appointment.**

- Make sure your lab work, spirometry and chest x-ray were done a *minimum* of 1 week prior.
- Bring **all** of your forms with you. **You must complete** the attached Diving Medical History Form (p. 3 & 4) **before** the physical exam appointment.
- You will see a clinician who will review your test results, do your physical exam and evaluate your fitness for diving.
- If you are cleared, **YOU** must bring the signed Medical Evaluation Form (p.9 & 10) to the Diving Safety Officer
- Please remember that if your medical records need to be reviewed or you need to see a specialist, completing your diving physical may take extra time. **Plan Ahead.**

### **PHYSICAL BY NON-UCSC CLINICIAN**

**If you have your Diving Medical Evaluation completed by a non-UCSC clinician, a UCSC clinician MUST review your medical file before diving under UCSC auspices.** You may do this by submitting your completed packet to the Student Health Center. There is a fee for the service. After reviewing your packet, if the UCSC Medical Director determines that further evaluation is needed, you will be asked to schedule an appointment.

- **Your clinician** must complete and sign the “Physical Examination—Diving” (p.7) and “Diving Medical Evaluation” (p. 9 & 10) forms. **You must** complete and sign the “Diving Medical History” (p.3 & 4) and the “Diving Medical Evaluation” (p. 9 & 10).
- **You must** submit the above completed and signed forms **and** copies of: your laboratory results, radiologist report, spirometry and EKG results. You are responsible for assuring that these forms and the results of all the testing gets to the Student Health Center.
- **Please allow 5 working days to receive your clearance.**

(Applicant is to complete/sign both sides of this form, then give to Clinician performing evaluation. Include with packet for clearance)

**Section 2 - DIVING MEDICAL HISTORY** to be completed by diver **before** medical exam and reviewed by examining clinician at time of examination. Your answers to the questions in the diving medical history section are, in many instances, more important in determining your fitness than what the clinician may see, hear or feel when you are examined. Should your answers indicate a condition which might make diving hazardous, you will be asked to review the matter with your clinician. If your clinician concludes that diving would involve undue risk for you, remember that he/she is concerned only with your well-being and safety. Respect the advice and the intent of this medical history form.

Patient name \_\_\_\_\_ Age \_\_\_\_\_ Student or Staff ID \_\_\_\_\_

Phone \_\_\_\_\_ email \_\_\_\_\_

<b>Have you ever had:</b>	<b>Y</b>	<b>N</b>	<b>Please Explain all YES answers</b>
1. Convulsions, seizures, epilepsy			
2. Fainting or dizzy spells			
3. Migraines or frequent headache			
4. Head injury with loss of consciousness			
5. Back pain or history of back injury			
6a. Asthma			
6b. Have you used an asthma inhaler medication in the past 12 months?			
7. Wheezing with exercise or breathing cold air			
8. Chronic cough or frequent bronchitis			
9. Collapsed lung (pneumothorax)			
10. Lung problem or shortness of breath			
11. Abnormal Chest X-Ray			
12. Do you smoke?			
13. Allergies, hay fever, nasal congestion			
14. Sinus problems			
15. Perforated ear drum, frequent ear infections, mastoid infections			
16. Trouble clearing ears (equalizing pressure in airplanes or when diving)			
17. Hearing problem			
18. Heart disease or heart condition of any kind, including: abnormal heartbeat or ECG, heart murmur, mitral valve			
19. Chest pain or Angina			
20. High blood pressure			
21. Blood disorder or bleeding tendency			

<b>Have you ever had:</b>	<b>Y</b>	<b>N</b>	<b>Please Explain all YES answers</b>
22. Diabetes			
23. Hernia of any kind			
24. Ulcer, stomach problem, or bowel disorder			
25. Nervous disorder, including anxiety, depression, or panic attacks			
26. Claustrophobia			
27. Motion sickness or sea/air sickness			
28. Paralysis			
29. Major surgery			
30. Are you now under doctor's care for any condition?			
31. Are you Pregnant?			
32. Do you take medication regularly?			
33. Do you have a history of alcoholism or drug use?			
34. Wear glasses or contact lenses?			
35. Wear dental plate or prosthesis?			
36. Been rejected or restricted from sports?			
37. Any limiting physical condition or disability?			
38. History of decompression sickness?			
39. History of any problems relating to diving?			
40. Any medical problem not listed -- please describe:			

*(This Form to be completed, signed and turned in with packet for clearance)*

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

\_\_\_\_\_ Date \_\_\_\_\_

Patient signature

Additional Clinician Comments:

  
  
  
  
  
  
  
  
  
  

Clinician Signature \_\_\_\_\_ Date \_\_\_\_\_

## **Section 3 - NOAA DIVING EXAM - INFORMATION FOR THE CLINICIAN**

TO: Examining Clinician  
 FROM: UC Santa Cruz Diving Safety Program  
 RE: Medical Evaluation for Participation in the UCSC Diving Program

This person requires a medical examination to assess their fitness for training as a UCSC and NOAA diver. He or she should have completed a medical history form and should present it to you for review at the time of the examination. To assist you in making this evaluation, this packet includes information regarding potential disqualifying conditions and appropriate references (see reverse side).

The attached “**Diving Medical History**” form is to be completed by you and used with the “**Physical Examination**” form as the basis for completion of the “**Diving Medical Evaluation**” (2-page) form. The basic physical examination must include the laboratory tests and other evaluations listed below (please note age specific requirements) and all the items on the “**Physical Examination**” form.

A UCSC clinician must then review the diver's medical file including **all** test results, completed “Physical Examination”, “Diving Medical Evaluation” and “Medical History” forms. After reviewing the results of your evaluation a UCSC clinician will give the diver final medical clearance to dive under the auspices of UCSC.

All test results (laboratory, x-ray, spirometry and EKG), “Physical Examination”, “Diving Medical Evaluation” and “Medical History” forms should be either given to the diver, Faxed to Medical Records 831.459.3546 or mailed to:

Student Health Center—Attention Medical Records  
 University of California Santa Cruz  
 1156 High St.  
 Santa Cruz, CA 95064

Any questions regarding the exam can be addressed to the Diving Safety Officer Steve Clabuesch, 831.459.4286 voice, 831.459.3383 fax or e-mail [srclabue@ucsc.edu](mailto:srclabue@ucsc.edu).

### **NOAA EXAM MATRIX**

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Spirometry		Spirometry	
Chem Panel	Chem Panel	Chem Panel	Chem Panel
CBC	CBC	CBC	CBC
Urine Dip	Urine Dip	Urine Dip	Urine Dip
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Assessment of coronary artery disease risk factors including lipid profile and diabetic screening.		Detailed assessment of coronary artery disease risk factors using Multiple-Risk- Factor Assessment (age, family history, lipid profile, blood pressure, diabetic screening, smoking history). Further cardiac screening may be indicated based on risk factor assessment.	Detailed assessment of coronary artery disease risk factors using Multiple-Risk- Factor Assessment (age, family history, lipid profile, blood pressure, diabetic screening, smoking history). Further cardiac screening may be indicated based on risk factor assessment.
Any further tests deemed necessary by the clinician	Any further tests deemed necessary by the clinician	Any further tests deemed necessary by the clinician	Any further tests deemed necessary by the clinician

## Important information for the clinician evaluating candidates for SCUBA Diving:

SCUBA and other modes of 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.**

### CONDITIONS WHICH MAY DISQUALIFY CANDIDATES FROM DIVING

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

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]

<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? ” Elliott DH, ed. 1996 Undersea and Hyperbaric Medical Society, Kensington, MD.

### 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://www.acc.org/clinical/guidelines/exercise/exercise.pdf>
- 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://www.acc.org/clinical/consensus/risk/risk1999.pdf>
- 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.

(This Form to be completed, signed and turned in with packet for clearance)

### **Section 4 - PHYSICAL EXAMINATION NOAA DIVING**

**VITAL SIGNS**

Height \_\_\_\_\_ Weight \_\_\_\_\_ B/P (seated) \_\_\_\_\_/\_\_\_\_\_ Pulse \_\_\_\_\_

Vision: Without lenses R 20/\_\_\_\_\_ L 20/\_\_\_\_\_ ; Corrected R 20/\_\_\_\_\_ L 20/\_\_\_\_\_ ; Contact Lenses YES NO

**EXAMINATION**

Check each item, giving details for abnormal findings			
	<i>Normal</i>	<i>Abnormal</i>	<i>Details</i>
1. General Appearance			
2. Skin			
3. Eyes			
4. Ears			
Valsalva			
5. Nose nasal septum, sinuses			
6. Mouth teeth gingivae, pharynx			
7. Neck			
8. Chest and lungs			
9. Breasts			
10. Heart			
11. Abdomen			
12. Hernia (unrepaired)			
13. Back and Spine			
14. Joints and extremities			
15. Operative scars deformities			
16. Neuromuscular			
17. Neuropsychiatric			

<b>TESTS</b>	<i>Date Performed</i>	<i>Normal</i>	<i>Abnormal</i>	<i>Details</i>
Vision				
Urine Dip				
CBC				
Chem Panel				
Spirometry *				
Resting EKG **				
Chest X-ray *				

\*Required for all initial exams \*\*Required for all exams age 40 and over

*Clinician Signature* \_\_\_\_\_ *Date* \_\_\_\_\_

Patient's Name	ID#
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(This form to be completed and signed by both clinician and applicant)

**Section 5 - DIVING MEDICAL EVALUATION—University of California, Santa Cruz**

Name \_\_\_\_\_

Staff or Student ID # \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_

**TO THE CLINICIAN:**

This person requires a medical examination to assess their fitness for certification as a SCUBA diver. She/He has completed a medical history form and should present it to you at the time of the examination. Because 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 sinus to equalize pressure. Any condition that risks the loss of consciousness should disqualify the applicant. There is a noticeable difference between recreational diving and scientific diving in that the scientific diver may feel obligated to dive due to deadlines and/or sampling regimes despite a possible current health problem whether physical or emotional. Special attention needs to be paid to their health prior to certifying them as scientific divers. The basic physical examination must include the laboratory tests listed below (please note level of training and age qualifications).

**Your initials next to the specific lab tests are to confirm that the specified additional testing and lab work have been performed. Your evaluation and signature is requested on the back of this DIVING MEDICAL EVALUATION and will indicate that this person has passed a basic physical exam, the required lab tests, and that no indications of conditions exist that preclude the applicant from diving (see enclosed "Probable Contraindications to SCUBA Diving").**

**A UCSC clinician must review the diver's medical file and give the final clearance to dive.** The test results and UCSC Diving Medical Evaluation Form should either be given to the diver or sent to: Student Health Center, Attn: Medical Records, University of California, Santa Cruz, CA 95064. Any questions regarding the exam can be addressed to the UCSC Diving Safety Officer, (831) 459-4286 voice, (831) 459-3383 fax.

The following reference is a useful guide to physical examinations of divers:  
Medical Examination of Sport SCUBA Divers, edited by A. Bove, M.D. Third edition, Medical Seminars, Inc., Texas.

**Laboratory Requirements for UCSC Diving Medical Examination: Clinician please initial tests completed.**

<b>NOAA Initial Exam for Divers under age 40</b>			
Medical History	_____	Visual acuity	_____
Spirometry	_____	CBC	_____
Urine Dip	_____	Chem Panel	_____
Chest X-ray	_____		
<i>Any further tests deemed necessary by the clinician to qualify the patient for diving.</i>			
<b>NOAA Periodic Re-Exam for Divers under age 40 – every 5 years</b>			
Medical History	_____	Visual acuity	_____
Chem Panel	_____	CBC	_____
Urine Dip	_____		
<i>Any further tests deemed necessary by the clinician to qualify the patient for diving.</i>			
<b>NOAA Initial Exam for Divers age 40 and over</b>			
Medical History	_____	Visual acuity	_____
Spirometry	_____	CBC	_____
Urine Dip	_____	Chem Panel	_____
Chest X-ray	_____	Resting EKG	_____
<input type="checkbox"/> <i>Detailed assessment of coronary artery disease risk factors using Multiple-Risk-Factor Assessment.</i>			
<i>Any further tests deemed necessary by the clinician to qualify the patient for diving.</i>			
<b>NOAA Re-Exam for Divers age 40 and over – every 3 years 40-49, every 2 years 50-59, every year over 60</b>			
Medical History	_____	Visual acuity	_____
Chem Panel	_____	CBC	_____
Urine Dip	_____	Resting EKG	_____
<input type="checkbox"/> <i>Detailed assessment of coronary artery disease risk factors using Multiple-Risk-Factor Assessment.</i>			
<i>Any further tests deemed necessary by the clinician to qualify the patient for diving</i>			

**On the back of this sheet please check diver's status and sign in the spaces provided.**

**DIVING MEDICAL EVALUATION—to be signed by Clinician and Applicant**

Applicant's Name \_\_\_\_\_ Date \_\_\_\_\_

**NOAA DIVING EXAM**

**MANDATORY—PLEASE Check ONE ONLY:**

**APPROVAL:** No medical contraindications to diving are present.

**APPROVAL WITH QUALIFICATIONS:** Evaluation indicates the presence of findings which, while not expected to seriously interfere with the applicant's ability to dive at this time, might under some circumstances present increased risk or possible relative contraindication to diving. This type of approval is also indicated in the presence of conditions that have required clearance by appropriate specialists to evaluate fitness to dive. These findings and instructions regarding them have been explained to the patient and are noted below (see REMARKS).

**DISAPPROVAL:** The applicant has medical condition(s) which pose unacceptable risk to health and safety in diving. These findings have been explained to the applicant and are noted below (see REMARKS).

**REMARKS:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Mandatory to be completed by Non-UCSC Clinician:**

\_\_\_\_\_  
**Signature of non-UCSC clinician** (Print or type) Name of non-UCSC examining clinician Date

\_\_\_\_\_  
 Address Telephone and fax number

My familiarity with the applicant is:  
 With this exam only  Regular clinician for \_\_\_\_ years

Other (describe) \_\_\_\_\_

My familiarity with diving medicine: \_\_\_\_\_

**To be completed by reviewing UCSC Clinician:**

\_\_\_\_\_  
**Signature of UCSC clinician** **Print name of UCSC clinician** **Date**

**Mandatory signature of Applicant:** The clinician has reviewed the results of my examination and has fully explained possible risks that may affect my diving. I have been given the opportunity to ask questions to my satisfaction. I authorize the release of this information and all medical information subsequently acquired in association with my diving to the UCSC Diving Officer and Diving Control Board or their designee at UCSC.

**Signature of Applicant** \_\_\_\_\_ **Date** \_\_\_\_\_