



DIVING KIWIS

PAPERS AND ABSTRACTS FROM THE NEW ZEALAND CHAPTER OF SPUMS MEETING 7TH TO 9TH NOVEMBER 1985 KAIKOURA ISLAND, GREAT BARRIER ISLAND



DIVING MEDICALS

Allan Adair and Allan Sutherland

A diving medical is an essential part of a scuba training programme. With this the basic conditions which are incompatible with diving are sorted out and those which may, with some restrictions or medical modifications, allow a person to dive are clarified.

Diving is essentially a physically demanding sport, in an environment which is not basically friendly to the human species.

The interaction between the gas laws and human physiology is extremely complex and is far from fully understood but a knowledge of those gas laws, and the applied physiology is essential for the assessment of the fitness of divers to dive.

Commercial divers are subjected to extremely exacting medical requirements for their diving may be conducted in arduous conditions for prolonged periods and the maximum in physical condition is required for these circumstances.

Amateur divers do not require such exacting standards, but because many different types of people with differing degrees of fitness, physically medically and psychologically, may wish to dive, it is important that a medical examination be conducted to give them the maximum protection during their participation in that sport. Note is made here that in New Zealand it is compulsory (NZ Underwater Association and PADI courses) to have an initial medical, but unless the diver decides to take higher qualifications, there is no compulsion to ever be medically examined again. Obviously, a person's medical fitness may change in time.

Diving medicine and physiology is not taught as an undergraduate subject, but frequently practitioners are required to perform medicals on candidates as part of their everyday work. Difficulties can arise if the significance of a particular condition in relation to diving is not appreciated.

A very important part of a diving medical is the past history of the candidate. From this a wide range of conditions can be recognised which are either totally or partially incompatible with the sport.

Allan Adair has prepared the following suggestions for upgrading the NZUA diving medical form, and in conjunction with Allan Sutherland this is put forward for discussion at this SPUMS (NZ) meeting. We emphasize that these are only suggestions which are available for modification prior to forwarding to the NZUA.

GUIDE FOR EXAMINER

1. Scuba diving is potentially hazardous, and even momentary impairment of consciousness underwater may result in death.
2. The body air spaces must equalise pressure readily, therefore the medical practitioner should give special attention to ensure that the tympanic membrane moves during auto-inflation (eg. Valsalva Manoeuvre), and there is no air trapping from obstructive lung disease, such as asthma.
3. Diving is a physically demanding sport and a moderate degree of physical fitness is essential. Heavy equipment may need to be carried.
4. The following is a list of absolute contraindications:
 - a. Epilepsy.
 - b. Diabetes.
 - c. Chronic lung disease: Asthma, chronic bronchitis or emphysema, TB or lung cysts, spontaneous pneumothorax, penetrating chest injury or surgery.
 - d. Ischaemic or valvular heart disease.
 - e. Alcohol or drug abuse.
 - f. Psychiatric disorders.
 - g. Pregnancy.
 - h. Previous Bend or Air Embolus with Neurological Sequelae.
5. Some medical conditions can be classified as relative contra-indications and require special consideration:

Poor physical condition and obesity, hypertension, ENT disease, visual or hearing defect heavy smoking, allergy, drug treatment, physical deformities, severe motion sickness, migraine and impaired respiratory function FEV 1/Vital Capacity ratio less than 75% or Peak Flow less than 75% of predicted for size.
6. For candidates over 40 years an ECG is recommended, and consideration should be given to regular follow-up medicals at 5 yearly intervals.
7. Should there be any doubt as to the suitability of a diving applicant to undertake sport diving it is recommended the Doctor contact the NZUA Medical Adviser for further advice.

SPORT DIVING MEDICAL**A. QUESTIONNAIRE**Name:Date:Address:Occupation:Date of Birth:

1. Rheumatic fever.
2. Chest pains or discomfort.
3. Abnormal shortness of breath.
4. Abnormal blood pressure.
5. Heart disease.
6. Bronchitis, pneumonia, emphysema, pneumothorax, TB
7. Coughing up of blood, chest injuries.
8. Asthma or wheeze.
9. Smoking.
10. Nose, sinus or throat trouble.
11. Allergy of any kind (please state).
12. Ear discharge, impaired hearing.
13. Ruptured ear drum.
14. Fainting, blackouts or giddiness.
15. Fits, epilepsy, convulsions.
16. Diabetes.
17. Blood disease.
18. Head injury, concussion, migraine.
19. Back ache, spinal injury.
20. Any drug treatment.
21. Motion sickness.
22. Pregnancy.
23. Any medical or surgical condition not stated above. Please list:

B. EXAMINATIONGeneral:

Age:

Height:

Weight:

Sex:

CVS:

1. Heart rate.
2. Blood pressure.
3. Heart sounds.
4. Exercise tolerance.
5. ECG (if indicated, or over 40 years).

Respiratory

1. Chest expansion.

System:

2. Chest examination.

3. Wheeze or dyspnoea.

4. Peak expiratory flow (or FEV 1, or FVC).

5. Chest x-ray. Date, (Insp + Exp Film preferable).

ENT:

1. Ear canals.
2. Ear drums.
3. Middle ear disease.
4. Eustachian tube patency (drums must be mobile on auto-inflation).
5. Nasal air entry both sides.
6. Nasal airway disease.
7. Pharynx.

CNS:

It is important to have an accurate neurological record for comparison if a diving accident occurs.

1. Power.
2. Sensation.
3. Reflexes.

Gastro-Intestinal:

1. Abdominal palpation.

Locomotor: Note physical disabilities which would make diving difficult.

Urinalysis: Protein.
Sugar.

To be given to the candidate to pass on to his instructor:

RECOMMENDATIONS

Name:

Date:

Address:

1. This is to certify that the abovementioned does not suffer with any of the absolute contraindications to diving, has been fully medically examined and he/she has been found fit for diving without limitation.
2. The candidate has been found fit to dive but has the following medical disabilities which should be taken note of during dive instruction.
3. The candidate is temporarily unfit to dive because:-

and requires a medical review in:-
4. The candidate is permanently unfit to dive.

Signed:

Name of Medical Practitioner: (print)

Dr A Adair's address is 202 Gowing Drive, Auckland 5, New Zealand. Dr A Sutherland's address is "Outspan", Bush Road, Albany RD1, Auckland, New Zealand.