A SCUBA DIVING ACQUAINTANCE COURSE FOR THE SEVERELY DISABLED

Abridged from a report by
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In this paper "disabled" means having bilateral lower-limb dysfunction. Such disabilities are of less importance in diving than the absence of, or dysfunction of, a hand or arm. It is hoped that this report with that of Flemming and Melamed (1) will be regarded as components of a continuing programme and used accordingly.

It has long been accepted that sporting activities provide unrivalled opportunities for disabled persons to obtain enjoyment, satisfaction and social integration. To date the majority of sporting activities for disabled have centred on non-risk team competitive games. In contrast the risk sports such as sailing, canoeing and sub aqua have received little attention.

A number of severely disabled persons have learned to dive by contacting diving groups on an individual basis. The United States Army has run courses for war-disabled in Hawaii. Flemming and Melamed ran a course of scuba training for six Israeli war-disabled in 1974 (1). Since 1974 the BSAC has operated an advisory service for diving for the disabled, but no amateur part-time courses have been organised.

The authors conducted such a course in 1980. The objectives of the course were:

(a) to acquaint disabled trainees fully with both the theoretical and practical aspects of diving and diving training in order to develop interest and confidence;
(b) to assist the disabled trainees in becoming members of able-bodied diving groups on a fully integrated basis. (It was not the intention to establish disabled diving groups, this would be both impractical and undesirable).

According to Flemming and Melamed (1) disabled trainees should be passed medically fit to dive and capable of independent travel to the dive site. They may require assistance getting into and out of the boat and water but once in the water they can dive unaided. If separated from the boat the subject can inflate his (or her) life jacket and survive on the surface. This level of independence ensures a high degree of safety and permits the disabled person to join able-bodied diving groups on a fully integrated basis.

Flemming and Melamed (1) considered that the medical and physiological requirements for disabled candidates were:

1. Medical requirements were the same as demanded for any person who is to join a diving course. (A full medical examination, according to the standard BSAC medical test sheet, was conducted on each candidate).
2. The respiratory system should be completely normal and all the respiratory muscles under control. For paraplegics the spinal lesion should not be above T5 and preferably not above T8.
3. The candidate's skin should be without injury or pressure sores.
4. There should be no urinary tract infection and full control of urine and bowel movements, with or without artificial aids.
5. For paraplegics tie disability should not have been caused by a spinal bend.
6. Paraplegic candidates with partial spinal lesions should be made aware that diving may make possibly the lesion complete although there is no record of this actually happening.
7. The disabled person should be participating regularly in intensive swimming.
8. The disabled person should have a stable personality with a full knowledge of his abilities and disabilities, be self-disciplined and able to accept orders without resentment.

The authors, through their routine contact with a number of Midlands BSAC branches, found interest in the topic of diving for the disabled. Although BSAC branches were aware of the possibilities of diving for the disabled through the efforts of Flemming (2), they were unsure how to proceed. Although the Sports Council publicises diving for the disabled (3) most disabled persons seem unaware of this activity. Disabled persons were reluctant to approach exclusively able-bodied diving groups without assessing their suitability beforehand. The authors found considerable interest in the possibility of diving among the members of a swimming club for the disabled. They considered that an acquaintance course of one evening per week, where the disabled candidates would be exposed to all of the lecture and pool training requirements up to BSAC third class standard, would enable the disabled trainees to acquire a substantial foreknowledge of diving, and of the requirements of BSAC branches, to practice the practical techniques and solve problems on a group basis. The instructors for the course were to be drawn from interested BSAC branches adjacent to the disabled persons' home addresses. They would acquire experience, develop confidence in working with the disabled and feed information back to their branches. If the disabled candidates desired to continue diving, the instructors would form a bridge between the acquaintance course and the BSAC branch environment.

Three male disabled swimmers were interested in the course. All had bilateral lower limb dysfunction. They could drive and all were capable of changing, showering and entering the water without assistance.

TP: aged 34, has been paraplegic partial T8/9 since a motor car accident in 1962. Height 178cm, weight 81kg. He is in full-time employment on the staff of a regional newspaper. He is normally mobile in a wheelchair. He swims 3 times a week and has represented his disabled swimming club in regional, national and international competitions. He represented the UK in the 1974 Disabled Olympics. He has held the disabled world record for the 50m backstroke. He is active in administering sports for the disabled at a regional level.

PO: age 29, has had bilateral lower limb dysfunction since he contracted polio in 1959 at the age of 8. Height 170cm, weight 69kg. He is in full-time employment on the managerial staff of a national company. He is normally mobile on crutches. He swims 3 or 4 times a week and represents his disabled swimming club in regional, national and international competitions.

SB: age 28, has congenital bilateral lower limb dysfunction. Height 155cm, weight: 69kg. He swims twice per week and represents his disabled swimming club in regional, national and international competitions.

The course was conducted at the University of Birmingham Sports Centre in a pool 25m long by 10m wide with a maximum depth of 3m extending for one third of the pool length, the rest of the pool was shelving with depths of 1m to 2m. The pool has plastic edging, is used by a disabled swimming club and has easy access for wheelchairs. A lecture theatre was available on the same level with immediate access from the pool.

The course organiser was assisted by the BSAC Regional Coach, an Advanced instructor, as chief instructor. Of the four other instructors three were Club Instructors and the fourth instructor was a Branch Instructor (not nationally qualified) but with previous experience of working with the disabled. A general practitioner who was an experienced diver, and a physiologist gave support in their specialties.

The course, based on the BSAC lecture and pool schedule for third class diver, was run for 10 consecutive weeks beginning mid January 1980. Once a week the candidates had a 3/4 hour lecture followed by one hour in the pool, after which there was half an hour devoted to debriefing. The lectures given were abridged with concentration on the essential items. They were not full lectures as associated with normal branch training programmes. The level of competence expected was below that which would be normally required in branch training. The practical exercises were simply to show that no major problems remained. These departures from normal practice were necessary to cover all the pool training exercises and relevant theoretical material up to BSAC third class standard within 10 sessions. It was made abundantly clear to the candidates that the course was only an acquaintance course and should they wish to proceed further they would be required to go through a full training scheme under normal branch conditions. The philosophy adopted was to pursue an accelerated BSAC recommended training scheme and only to consider changes as and when the disabled trainees encountered difficulties with the standard scheme.

The candidates were all extremely highly motivated. The trainees, all being accomplished swimmers, did not experience any difficulties with the standard BSAC swimming test, except that it was obviously impossible for any candidate to tread water with both arms out of the water. All the candidates could continuously maintain one arm out of the water. One candidate (PO) was very positively buoyant. The disabled candidates had no control over their legs and as contact with the pool sides and bottom is best avoided wherever possible due to abrasive damage to the limbs (1), they always entered the pool at the deep end. When training able-bodied divers it is usual to retire to the shallow end of the pool for discussions in the water. This is not desirable for disabled trainees and in-water discussions are best conducted treading water or holding onto the pool side in the deep end of the pool. Swimming with a 5kg weight belt resulted in the candidates' legs dragging on the bottom of the pool in the shallow end. It would be preferable to conduct this exercise for the equivalent distance (50m) across the deep end of the pool. Fitting a mask and snorkel as the act of raising the arms tends to sink the body, and the disabled trainee cannot tread water. There were some slight problems with mask clearing but these were soon resolved. After a few trials the scheme adopted was as follows:

(1) dive, recover the mask, swim to the surface

(2) take a deep breath, fit the mask body sinks

(3) clear mask underwater, swim to the surface

(4) dive, recover the snorkel, swim to the surface

(5) fit snorkel - body sinks

(6) swim to the surface, clear snorkel.

The exercise of swimming using a snorkel, but without a mask again poses a problem for the disabled trainee. Able-bodied trainees simply support the snorkel at the side of the head with one hand and fin. The disabled trainee requires both arms to propel himself effectively through the water. The modification adopted for the pool exercise was to wear the mask with the face plate on the back of the head and use the strap to restrain the snorkel, so releasing both arms for swimming. However, this raises

an interesting point for open water snorkelling for the disabled, should the disabled snorkeller have separate retaining straps for the mask and snorkel in the event that the mask is lost?

Life saving is obviously the area where the disabled trainees were expected to have the most difficulty. Flemming and Melamed (1) recommend that for open water activities the disabled diver should always be accompanied by two experienced companions. Nevertheless the risk of separation is always present and the extent to which the disabled trainees could perform life saving exercises was explored.

The procedure eventually adopted for snorkel lifesaving was as follows:.

1. The disabled trainee approached the victim who was equipped with an ABLJ and lying face down in the water.

2. He righted the body and partially inflated the victim's life jacket.

3. The trainee removed the victim's mask and snorkel and, supported by the victim's inflated lifejacket administered EAR and signalled distress. The exercise could have been terminated at this point but the candidates were keen no continue the normal procedure.

4. The disabled trainee slowly towed the body one length of the pool (from deep water to halfway and back) using an extended tow from the lifejacket straps and swimming with one arm.

5. On arrival at the poolside, an the deep end, the trainee supported the body with his arms under the armpits of the body. If bystanders were present the trainee requested help and instructed the helper in removing the body from the water. Again the rescue could be terminated at this stage, however, the candidates were anxious to explore the possibilities of removing the body from the water.

6. The rescuer then positioned the victim's arms as far over the pool side as possible and supported this position with his body, holding on to the edges of the splash-channel.

7. The rescuer then reached down and placed his arm between the legs of the victim from the rear and back lap into the splash channel between the body and the pool side.

8. Once in position the disabled rescuer could, by manoeuvring his upper arm and shoulder under the victim's crutch, deposit the body on the pool side to the level of the body's waist.

9. The rescuer then pushed the body's legs onto the pool side while holding onto the splash channel.

10. The rescuer climbed from the pool, administered EAR (from a sitting position) and finally manoeuvred the body into the coma position.

Obviously, while removing the body from the water the risk of abrasive skin damage was present, but no abrasions occurred.

Their first excursion underwater without the need to return to the surface was undoubtedly the highlight of the course for the trainees. The aqualungs were fitted to the candidates in the water. A significant proportion of the time was spent allowing the trainees to become generally acquainted with the possibilities of underwater movement, with the instructors keeping the trainees under constant surveillance but not interfering. This activity caused much excitement. PO who had displayed considerable buoyancy during the swim test required a 2kg weight belt to enable him to stay underwater. Also this candidate demonstrated slight apprehension initially during surfacing, but this quickly disappeared. After the free-swimming period all the candidates performed the required exercises without problems. The disabled diver has considerably more problems than the able-bodied in maintaining a balanced sitting position on the bottom of the pool (1). Each trainee required the use of a heavy weight belt to maintain balance during the ditch and retrieve exercise. Some difficulty with balance was apparent during the removal of the aqualung over the head. All the candidates found that removal of the aqualung around the side of the body easier.

The best entry method appeared to be, fit the aqualung on the pool side and roll forwards into the water holding the mask and valve with one hand and securing the cylinder with the other hand.

During the lecture on open water diving the recommendations for the disabled from Flemming and Melamed were dealt with in depth. The instructors reinforced the recommendation of Flemming and Melamed that disabled divers do not conduct decompression dives.

The aqualung rescue techniques used followed directly from the experiences obtained with snorkel rescues.

1. Both rescuer and victim were equipped with ABLJ's.

2. The rescuer approached the victim (lying face down in the bottom of the pool) on the surface duck dived, released the victim's weight belt, and lifted the body to the surface by swimming with one arm. This presented problems but all the candidates were successful.

3. The rescuer partially inflated the victim's lifejacket.

4. Supported by the victim's lifejacket the rescuer administered EAR. The rescue could be ended at this stage. The rescuer was instructed depending on prevailing conditions, to administer EAR and signal for help.

5. The rescuer towed the victim one length of the pool (half length towards shallow end and return) using the extended tow method. This exercise took a considerable time but all the candidates were successful.

6. On reaching the pool side the rescuer supported the victim and was instructed in the use of bystanders for help.

7. The rescuer removed his aqualung and passed it out of the water.

8. The rescuer removed the victim's aqualung and passed it out of the water.

9. The rescuer removed the body from the water and gave EAR using the procedures outlined for the snorkel rescue (steps 6 to i0).

All the candidates were successful in both rescues.

All the candidates for this course easily passed the medical and physiological requirements for entry to the course. The candidates had all experienced their disability for long periods of time and were extremely well adjusted both physically and psychologically. Furthermore, for PO and SB their level of swimming ability was far above average and was exceptional for TP. Other disabled candidates may not be able to cope so well.

The course amply fulfilled its objective of acquainting disabled persons with diving and diving training. The course gave the disabled trainees sufficient confidence to join able-bodied diving groups. The use of instructors gathered from BSAC branches, geographically convenient for the disabled trainees, to form a bridge no assist the integration of the disabled trainees into branches was an outstanding success. After the course the candidates joined the contributing BSAC branches.

The objective of this and earlier courses was to acquaint disabled persons with aqualung diving. All the candidates found use of mask and snorkel easy and this considerably added to their enjoyment of swimming. Snorkelling is a pursuit that possesses considerable potential for development in the sphere of water sports for the disabled, and specifically orientated snorkel courses should be investigated.

Although the course was successful it was felt that for the future courses the course syllabus would probably need modification. As this course was a pilot experiment it was thought reasonable to fully explore all the pool requirements up to BSAC third class standard, if not for the trainees benefit, then certainly for the organisers' and instructors' benefit. However, it was felt that in future courses only the major items of the pool requirements need be covered. This would allow shortening of the course and less duplication during follow-up branch training programmes. Although the trainees were told that the level of competence expected would be below normal branch levels in fact they achieved acceptable levels of performance for the majority of the pool exercises. This was partly due to the quality of the trainees, but is also an indication that the course was too long for an acquaintance course.

As current acquaintance courses for able-bodied trainees only require two to four hours in the pool, the authors felt that an acquaintance course for disabled trainees need only have four to five hours in the pool. Qualified support staff was available for this course and is obviously required for the selection of candidates. However, the support staff were not required during the actual pool periods. It is felt that, providing the selection process is sufficiently rigorous, BSAC qualified instructors can effectively man such courses.

In this course, as detailed earlier, the disabled trainees were exposed to the full rescue procedure and this activity requires comment. During an aqualung rescue exercise (similar comments apply to snorkel rescue) there are three obvious end-points in view of training disabled divers. In the opinion of the authors all disabled trainees should be capable of raising the body to the surface from the bottom of the pool unaided (weighting is important), inflate lifejacket(s), effectively administer EAR, signal distress and know how to utilise assistance in a useful manner. As a pool exercise it is also felt that all disabled trainees should be capable of towing the body for 25m (in deep water), albeit slowly, supporting the body at the pool side, engaging assistance, and utilising that assistance meaningfully. Furthermore, it is thought that acquainting the disabled trainees with possible techniques for, and difficulties of, removing a prone body from the water under ideal conditions is desirable, but success or failure at this part of the rescue procedure should not be used as part of an assessment. Finally the authors consider that as a disabled diver faced with lifting a fully kitted diver from depth must use a buoyancy assisted rescue procedure, attendance on a modified Open Water Rescue Course should be considered mandatory for disabled divers.

ACKNOWLEDGEMENTS

The authors extended their thanks to the

University of Birmingham Diving Club, for the use of the pool and lecture theatre; to Mike Arnot, Diane Salomonson, and Derek Webb the other instructors on the course; to Dr S King and Dr P Wilshaw for medical and physiological advice and facilities; to Burntwood, BSAC Branch No. 539, Leamington & Warwick, BSAC Branch No. 217, United Birmingham Hospitals, BSAC Special Branch No. 675 for support during the course and follow-up training.

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7. The disabled person should be participating regularly in intensive swimming.

8. The disabled person should have a stable personality with a full knowledge of his abilities and disabilities, be self-disciplined and able to accept orders without resentment.

The course described took place over the period January to April 1980; in August 1980 the position of the various candidates was as follows:.

TP has joined a BSAC branch. He passed A and B tests. Some delays in training occurred due to holiday arrangements. He is newsletter editor for the branch.

PO has joined a BSAC branch. He has passed A and B tests and was about to take C test.

SB has joined a BSAC branch. He has passed A, B and C tests, and was currently undergoing pool aqualung training.

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(3) Water Sports for the Disabled. Handbook published by the RYA Seamanship Foundation. Available from the Sports Council, 70 Brompton Road, London, SW3 1EX.

A copy of the full text will be available to any member of SPUMS who sends $3 (to cover photostat and postage costs) to SPUMS, 80 Wellington Parade, East Melbourne, 3002.

A PLAICE IN THE SUN

There's a new fish restaurant in the Armadale suburb of Melbourne called Fish's. Robin Brampton, my old lunch mate, went there and liked it. He always liked a rather fishy story they tell, and included it.

"There was once a brilliant sturgeon on the staff of the community-health fishility. He was in fact one of its flounders. Wiser than Salmon, a fin fellow who would never shrimp from his responsibilities, he was successful and happy, he always whistled a happy tuna.

"One day, one of his patients, a mere whipper snapper, told the sturgeon that his medical theories were full of abalone and started trouting him around telling everybody that the sturgeon's treatments had made him more eel than he had been, and then actually conched him with a malpractice suit.

"Well, the sturgeon was in a real pickerel. The board demanded his oyster, and chased him off the staff. But the case smelt to high heaven, so the judge denied the plaintiff's clam. The board tried to hire the sturgeon back, but by then he had hit the bottlenose pretty hard, and the end of our shad tail is that the sturgeon wound up in squid roe.

"Buoy, isn't that a fine kettle of you know what?"

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